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99 Bill Leathem Drive, 2 Leikin Drive, and 20 Leikin Drive

Traffic Impact Assessment

South Merivale Business Park
99 Bill Leathem Drive, 2 Leikin Drive, and 20 Leikin Drive
Transportation Impact Assessment

Prepared By:

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March 2021

Novatech File: 120187
Ref: R-2021-023

March 29, 2021

City of Ottawa
Planning and Growth Management Department
110 Laurier Ave. W., 4th Floor,
Ottawa, Ontario K1P 1J1

Attention: Mr. Mike Giampa, P.Eng.
Senior Transportation Engineer, Infrastructure Applications

Dear Mr. Giampa:

Reference: South Merivale Business Park
Transportation Impact Assessment
Novatech File No. 120187

We are pleased to submit the following Transportation Impact Assessment in support of a ZBL Application for 99 Bill Leathem Drive, 2 Leikin Drive, and 20 Leikin Drive. The structure and format of this report is in accordance with the City of Ottawa Transportation Impact Assessment Guidelines (June 2017).

If you have any questions or comments regarding this report, please feel free to contact Jennifer Luong, or the undersigned.

Yours truly,

NOVATECH



Patrick Hatton, P.Eng.
Transportation/Traffic



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 licensed¹ or registered² professional in good standing, whose field of expertise [check appropriate field(s)] is either transportation engineering or transportation planning .

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

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Dated at Ottawa this 29th day of March, 2021.
(City)

Name: Patrick Hatton, P.Eng.
(Please Print)

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

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EXECUTIVE SUMMARY

This Transportation Impact Assessment (TIA) report has been prepared in support of a ZBL Application for 99 Bill Leathem Drive, 2 Leikin Drive, and 20 Leikin Drive and the former road allowance between Longfields Drive, Leikin Drive, and Paragon Avenue.

Existing uses in the business park include a 3-storey office at 61 Bill Leathem, Canada Post Depot and Enbridge at 90 Leikin Drive, and the RCMP Headquarters at 73 Leikin Drive. Further south is the Davidson Heights residential community.

The subject site is designated as 'Urban Employment Area' on Schedule 'B' of the City of Ottawa's Official Plan. It is currently zoned Light Industrial Zone – IL9. A ZBL Amendment is required to add warehouse and truck transport as primary permitted uses. Conceptual development consists of office, warehouse and truck transport uses within the approximately 30.5-hectare site. Office is a permitted use in the IL9 Zone. The site is expected to include a private east-west roadway that connects the Longfields roundabout, Paragon Avenue, and Leikin Drive. Full movement driveways to Longfields Drive, Leikin Drive, Bill Leathem Drive, and the private roadway are anticipated. Buildout is anticipated in the next 5 years, by 2026.

The development is expected to include a private road running east-west between Longfields Drive, Paragon Avenue, and Leikin Drive through the site. Each development block includes multiple connections to the private road, Leikin Drive (east side), Bill Leathem Drive (office use) and Longfields Drive (west side). The warehouse and truck transport uses are expected to have separate accesses for trucks and employees.

The study area intersections are:

- Longfields at Woodroffe
- Longfields at Bill Leathem
- Leikin at Bill Leathem
- Leikin at RCMP (73 Leikin Drive)
- Merivale at Leikin
- Fallowfield at Merivale
- Fallowfield at Woodroffe
- Prince of Wales at Merivale

The weekday AM and PM peak hours are considered to represent the "worst case" combination of site-generated traffic and peak traffic conditions of the adjacent roadways. Intersection capacity analysis has been completed for the weekday AM and PM peak hours. Analysis of potential transportation impacts has been completed for the 2026 opening year and the 2031 five-year horizon. Weekday AM and PM traffic counts were completed at the existing study area intersections by the City of Ottawa.

A 1.5% background growth rate was applied to arterial traffic in this area. Background traffic volumes for the 2026 opening year and the 2031 horizon year were determined by applying the annual traffic growth rate to the peak hour traffic volumes.

Site generated traffic for the industrial portion was estimated based on an understanding of the trip generation characteristics of these types of warehouse and truck transport sites and assuming that the warehouse and truck transport facilities may operate 24-hours per day with multiple shifts that occur outside the peak periods of adjacent road traffic. Site generated traffic for the office portion was estimated using *Trip Generation Manual, 10th Edition* (Institute of Transportation Engineers, Washington 2017). Site traffic was distributed and added to the projected background traffic to determine future total traffic volumes.

The main conclusions and recommendations of this TIA are:

Development Design and Parking

- It is expected that pedestrian facilities will be provided between the main buildings and the parking lots to be reviewed at site plan. New pedestrian walkways will be constructed, providing connectivity to the site frontages.
- Cyclist access to the sites will be accommodated through shared use lanes at the vehicular accesses. The proposed bicycle parking is anticipated to exceed the minimum requirements of the City's Zoning By-law and will be reviewed at site plan.
- The Transportation Demand Management (TDM) infrastructure and measures checklists will be prepared at site plan submission.
- Vehicular, accessible, bicycle, and loading requirements will be confirmed at site plan submission.
- Stops #3521 and 3520 are fronting the east end of the site, while stops #0730 and 0729 are located near the west end of the site (about 450m) and the office use (about 120m). Actual walking distance between exterior access doors and the transit stops will be measured and reviewed at site plan submission.

Boundary Street Multi-Modal Level of Service (MMLoS)

The results of the segment MMLoS analysis for Russell Road and Hunt Club Road can be summarized as follows:

- Merivale Road, Longfields Drive, Bill Leathem Drive, Leikin Drive, and Paragon Avenue all operate with a Pedestrian Level of Service (PLOS) F, missing the target PLOS C;
- Merivale Road (F), Longfields Drive (F), Bill Leathem Drive (F), and Leikin Drive (E) miss the target Bicycle Level of Service (BLOS) of C;
- A 2m sidewalk along Bill Leathem Drive and Leikin Drive should be installed;
- Consider covering on road bicycle lanes on Leikin Drive to cycle tracks; and,
- A 1.5m bike lane can be installed on Bill Leathem Drive through line painting to meet the target C.

Access Design

- The conceptual development will be served by several full movement accesses. Access locations and design will be further reviewed with site plan submission.

Neighbourhood Traffic Management

- There is sufficient lane capacity along Leikin Drive at Merivale, and Longfields Drive to accommodate traffic generated by the development.
- EB 2031 background traffic exceeds estimated lane capacity in the AM without development. As background growth has not been applied to the collector roads in the park, the projected background traffic is equivalent to existing traffic. This is identified for further review as part of the City's Neighbourhood Traffic Calming Program, as required. The site trips are expected to account for about 4% and 11% of the total projected eastbound volumes during the AM peak and westbound volumes during the PM peak, respectively.

Transit

- The proposed development is anticipated to generate an additional 26 transit trips (22 in, 4 out) during the weekday AM peak hour and 27 transit trips (4 in, 23 out) during the weekday PM peak hour.
- Additional transit stops along Bill Leathem or Longfields near the roundabout should be considered.

Intersection Analysis:

- In existing and future traffic conditions, capacity issues have been identified for the following movements:
 - Woodroffe / Fallowfield
 - Eastbound left turn (AM and PM peak)
 - Eastbound right turn (PM peak)
 - Westbound left turn (PM peak)
 - Northbound left turn (PM peak)
 - Northbound through (AM peak)
 - Southbound through (PM peak)
 - Woodroffe / Longfields
 - Eastbound left turn (AM peak)
 - Northbound through (AM peak)
 - Southbound through (PM peak)
 - Merivale / Fallowfield
 - Eastbound left turn (AM peak)
 - Westbound left turn (AM peak)
 - Westbound through (PM peak)
 - Northbound through (AM peak)
 - Southbound through (PM peak)
 - Prince of Wales / Merivale
 - Eastbound right turn (PM peak)
 - Leikin / Bill Leatham / Driveway
 - Southbound approach (AM peak)

Several modifications have been identified for consideration. The need and timing of additional modifications to accommodate access connections will be confirmed at site plan submission. Any functional designs of required road modifications to accommodate the development will be included in the site plan submission. The modifications that have been identified for consideration are:

Existing/Background Traffic:

These modifications are identified for the City's consideration without added site development.

- Signal timing modifications at the Woodroffe / Fallowfield, Woodroffe / Longfields, Merivale / Fallowfield, and Prince of Wales / Merivale intersections.
- Consider dual eastbound right turn lanes on Fallowfield Road at Woodroffe Avenue to improve the level of service and accommodate the existing and projected queues without and with site generated trips.
- Consider dual eastbound left turn lanes on Fallowfield Road at Merivale Road to improve the level of service and accommodate the existing and projected queues without and with site generated trips.
- Install traffic signals at Leikin / Bill Leatham based on high approach intersection delay during the AM peak hour (SB approach).

Site Traffic:

No additional modifications have been identified to accommodate site generated trips; however, a review of site driveway connections and lane requirements will be completed with site plan submission.

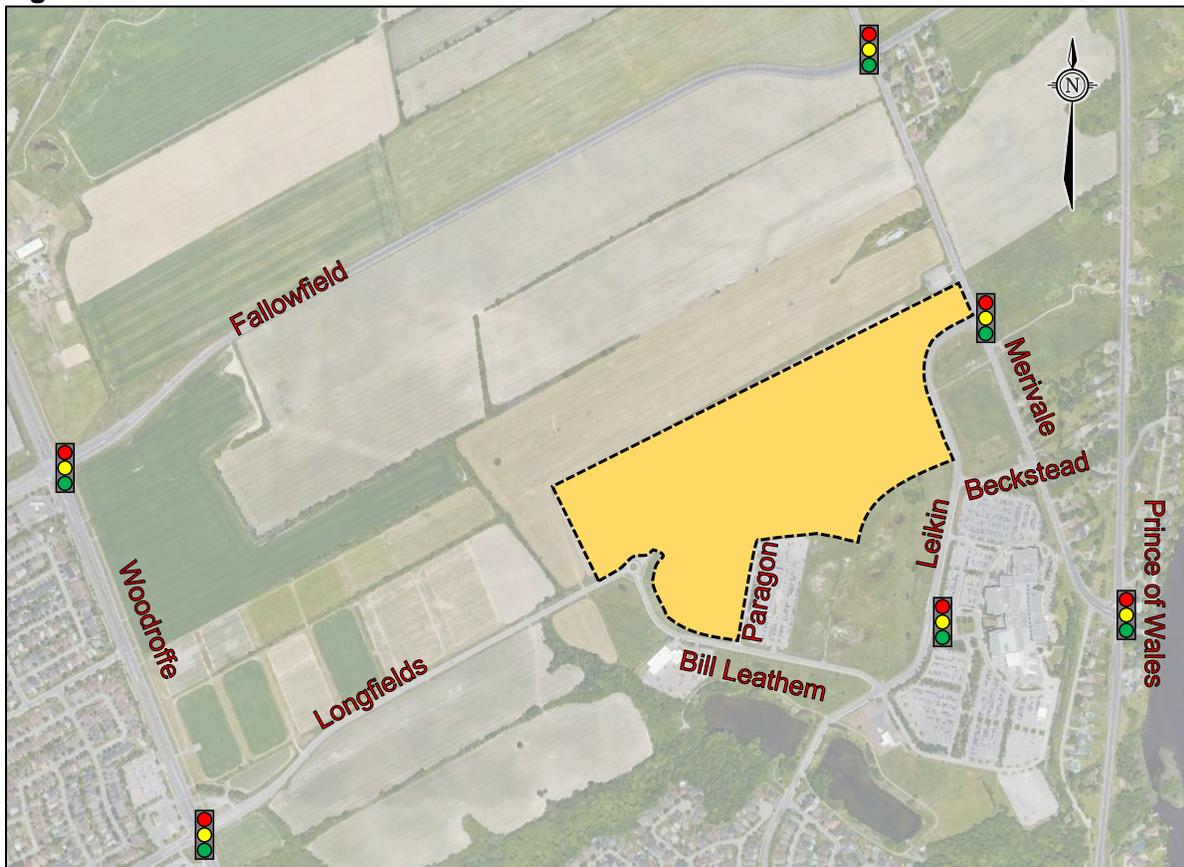
1.0 INTRODUCTION

This Transportation Impact Assessment (TIA) has been prepared in support of a ZBL Application for 99 Bill Leatham Drive, 2 Leikin Drive, and 20 Leikin Drive and the former road allowance between Longfields Drive, Leikin Drive, and Paragon Avenue. The site (See **Figure 1**) is located in the South Merivale Business Park. It is currently vacant and is surrounded by the following:

- NCC Greenbelt to the north and west;
- Leikin Drive, Merivale Road and vacant Employment designated parcels to the east; and,
- Vacant and developed Employment designated parcels to the south.

Existing uses in the business park include a 3-storey office at 61 Bill Leatham, Canada Post Depot and Enbridge at 90 Leikin Drive, and the RCMP Headquarters at 73 Leikin Drive. Further south is the Davidson Heights residential community.

Figure 1: Site Location



The South Merivale Business Park report was prepared by Novatech in 1991 and considered the traffic impacts of full development within the park, including the subject lands. At that time, it was anticipated that a public road connection between Longfields and Leikin would be required to serve a number of smaller blocks within the Park. It is now expected that the subject lands will be developed as larger blocks with a private access road. The former road allowance will be absorbed into the site.

2.0 PROPOSED DEVELOPMENT

The subject site is designated as 'Urban Employment Area' on Schedule 'B' of the City of Ottawa's Official Plan. It is currently zoned Light Industrial Zone – IL9. A ZBL Amendment is required to add warehouse and truck transport as primary permitted uses.

Conceptual development consists of office, warehouse and truck transport uses within the approximately 30.5-hectare site. Office is a permitted use in the IL9 Zone. The site is expected to include a private east-west roadway that connects the Longfields roundabout, Paragon Avenue, and Leikin Drive. Several full movement driveways to Longfields Drive, Leikin Drive, Bill Leatham Drive, and the private roadway are anticipated. Buildout is anticipated in the next 5 years, by 2026. A preliminary concept plan is included in **Appendix A**.

3.0 SCREENING

The City's 2017 TIA Guidelines identifies three triggers for completing a TIA report, including trip generation, location, and safety. The criteria for each trigger are outlined in the City's TIA Screening Form (See **Appendix B**).

The trigger results are as follows:

- **Trip Generation Trigger** – The site is anticipated to generate over 60 person trips/peak hour; further assessment **is required** based on this trigger.
- **Location Triggers** – The site is not within a DPA or proposes driveways onto Transit Priority or Spine Routes; further assessment **is not required** based on this trigger.
- **Safety Triggers** – The site is bounded by Merivale Road, which has a posted speed limit of 80 km/h, access to Leikin is being considered along the horizontal curve and within the area of influence of the signal at Merivale; further assessment **is required** based on this trigger.

4.0 SCOPING

4.1 Existing Conditions

4.1.1 Roadways

Woodroffe Avenue is a four-lane divided arterial roadway with a mixed cross section (urban on the west side and rural on the east side) and is classified as a truck route, allowing full loads. It runs north-south and has a posted speed limit of 80km/h. The OP identifies a ROW protection of 44.5m between Fallowfield Road and the Greenbelt Boundary with an additional 5m on the Greenbelt side if required to construct a rural cross section.

Fallowfield Road in this area is a two-lane undivided arterial roadway with a rural cross section and is classified as a truck route, allowing full loads. It runs east-west and has a posted speed limit of 80km/h. The OP identifies Fallowfield between Woodroffe Avenue and Prince of Wales Drive is within the Greenbelt. ROW requirements are to be determined on a case-by-case basis with National Capital Commission involvement.

Merivale Road in this area is a two-lane undivided arterial roadway with a rural cross section and is classified as a truck route, allowing full loads. It runs north-south and has a posted speed limit of 80km/h. The OP identifies a ROW protection of 37.5m between the South Urban Community northern limit and Prince of Wales Drive. It appears that a widening of 4.5m may be required.

Prince of Wales Drive in this area is a two-lane undivided arterial roadway with a rural cross section and is classified as a truck route, allowing full loads. It runs north-south and has a posted speed limit of 80km/h. The OP identifies a ROW protection of 40m between the South Urban Community - north and south limits.

Longfields Drive in this area is a two-lane undivided major collector roadway with a rural cross section. It runs east-west and has a posted speed limit of 70km/h.

Leikin Drive in this area is a three-lane undivided major collector roadway with an urban cross section running northeast-southwest and has a posted speed limit of 60km/h. Leikin Drive has a ROW protection of 26m and it appears that no widening is required.

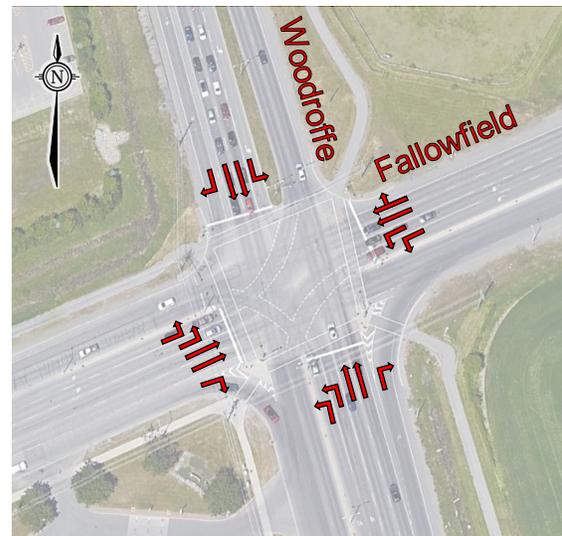
Bill Leathem Drive is a two-lane undivided major collector roadway running northwest-southeast with an urban cross section and has a regulatory speed limit of 50km/h. The OP identifies a ROW protection of 26m, and it appears that a widening of 3.5m may be required.

Paragon Avenue is a two-lane undivided local roadway running north-south to a cul-de-sac with an urban cross section and has a regulatory speed limit of 50km/h.

4.1.2 Intersections

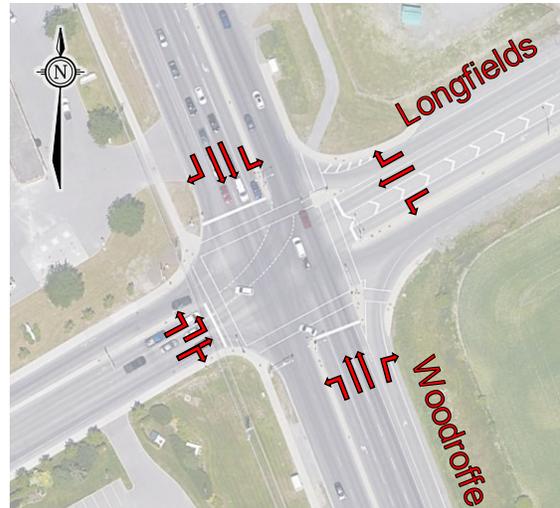
Woodroffe Avenue at Fallowfield Road

- Signalized four-legged intersection
- Northbound: two left turn lanes, two through lanes, one pocket bike lane, and one channelized right turn lane.
- Southbound: one left turn lane, two through lanes, one pocket bike lane, and one right turn lane.
- Westbound: two left turn lanes, one through lane, and one through / right turn lane.
- Eastbound: two left turn lanes, two through lanes, one bike lane, and one channelized right turn lane.
- Signalized crosswalks crossing all four approaches.



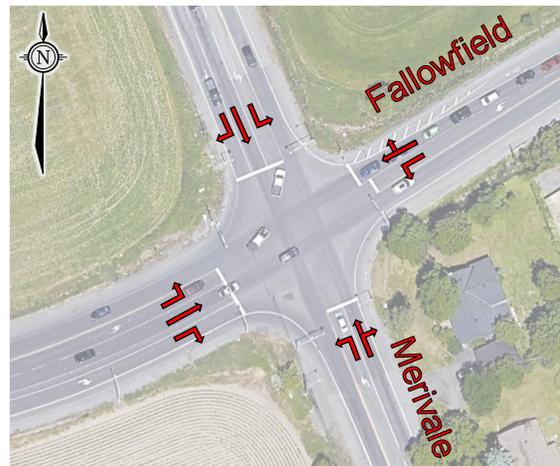
Woodroffe Avenue at Longfields Drive

- Signalized four-legged intersection
- Northbound: one left turn lane, two through lanes, one pocket bike lane, and one channelized right turn lane.
- Southbound: one left turn lane, two through lanes, one pocket bike lane, and one right turn lane.
- Westbound: one left turn lane, one through lane, one pocket bike lane, and one right turn lane.
- Eastbound: two left turn lanes, one through / right shared lane, and one bike lane.
- Signalized crosswalks crossing all four approaches.



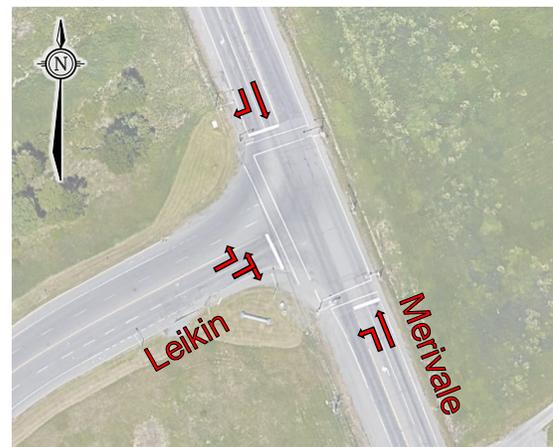
Merivale Road at Fallowfield Road

- Signalized four-legged intersection
- Northbound: one left turn lane and one through / right shared lane.
- Southbound: one left turn lane, one through lane, and one right turn lane.
- Westbound: one left turn lane and one through / right shared lane.
- Eastbound: one left turn lane, one through lane, one pocket bike lane, and one right turn lane.



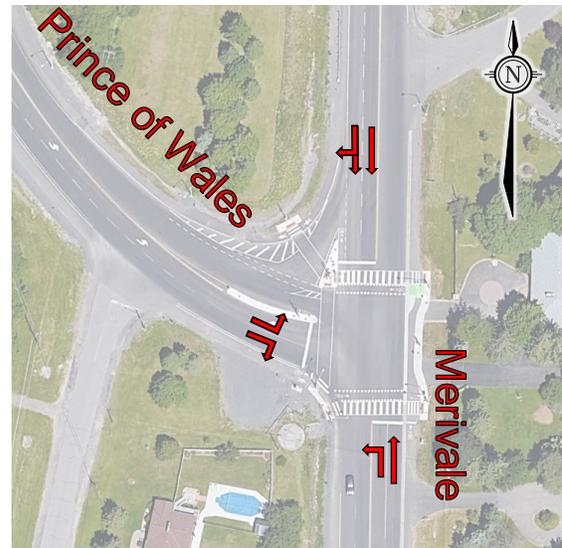
Merivale Road at Leikin Drive

- Signalized three-legged intersection
- Northbound: one left turn lane and one through lane.
- Southbound: one through lane and one right turn lane.
- Eastbound: one left turn lane, one left / right shared lane, and one bike lane.
- Signalized crosswalks crossing all three approaches.



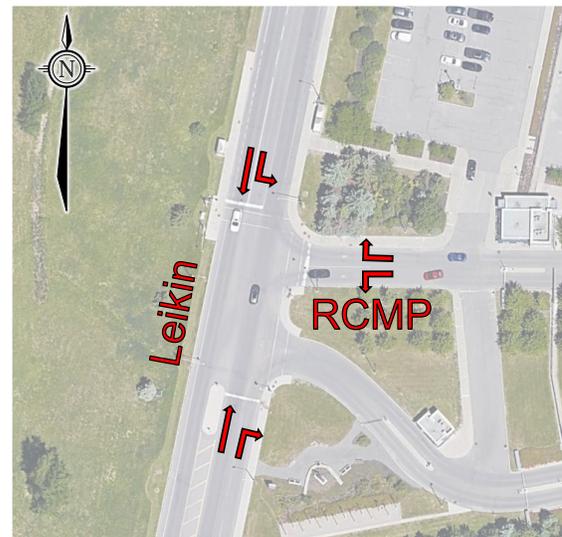
Prince of Wales Drive at Merivale Road

- Signalized three-legged intersection
- Northbound: one left turn lane and one through lane.
- Southbound: one through lane and one through / right shared lane with channelized island.
- Eastbound: one left turn lane and one right turn lane.
- Signalized crosswalks crossing all three approaches.
- Bicycle cross-rides crossing the north and south approaches.



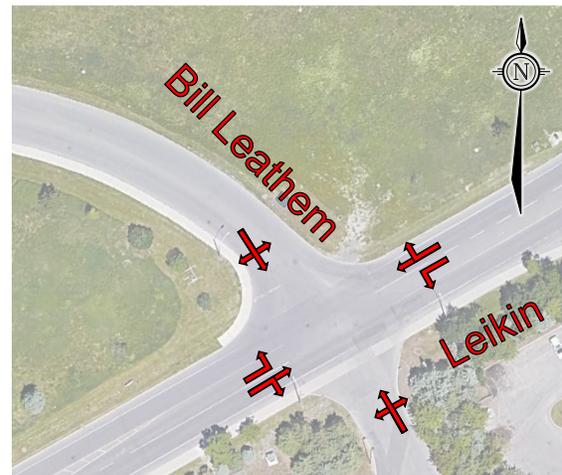
Leikin Drive at RCMP Access

- Signalized three-legged intersection
- Northbound: one through lane, one right turn lane, and one bike lane.
- Southbound: one left turn lane, one through lane, and one bike lane.
- Westbound: one left turn lane and one right turn lane.
- Signalized crosswalks crossing the north and east approaches.



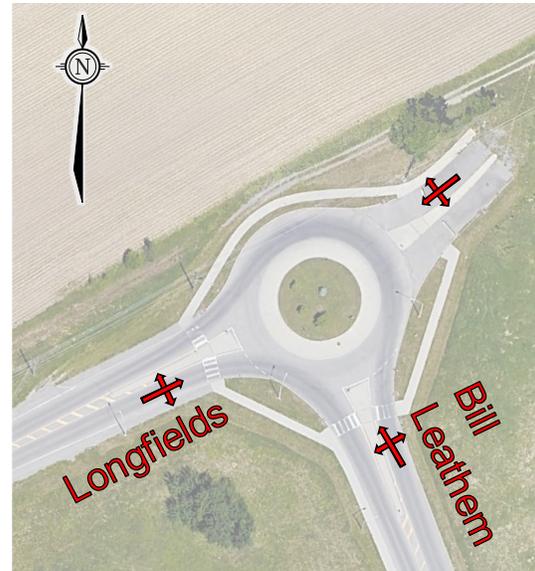
Leikin Drive at Bill Leatham Drive

- Unsignalized four-legged intersection with free flow on Leikin Drive
- Northbound / Southbound: single lane approach.
- Westbound / Eastbound: one left turn lane, one through / right shared lane, and one bike lane.



Longfields Drive at Bill Leathem Drive

- Three-legged roundabout intersection
- All approaches are a single lane.
- The westbound approach is constructed but terminates approximately 30m from the intersection.

**4.1.3 Driveways**

In accordance with the City's 2017 TIA guidelines, a review of adjacent driveways along the boundary roads is provided as follows:

Longfields Drive:

- Field driveways.

Bill Leathem Drive, North Side:

- One commercial driveway for the office at 61 Bill Leathem Drive.
- One field driveway to 50 Leikin Drive.

Bill Leathem Drive, South Side:

- Two commercial driveways to the Enbridge/Canada Post Depot at 90 Bill Leathem Drive

Leikin Drive, West Side:

- One field driveway for 20 Leikin Drive (site).
- Field driveway for 50 Leikin Drive.

Leikin Drive, East Side:

- One signalized driveway and two unsignalized driveways for the RCMP Headquarters at 73 Leikin Drive.
- Field driveway for 11 Beckstead Road.

Paragon Avenue, West Side:

- No driveways on this side.

Paragon Avenue, East Side:

- Three commercial driveways for the office at 61 Bill Leathem Drive.

4.1.4 Pedestrian and Cycling Facilities

The existing pedestrian and cycling infrastructure provided in the vicinity of the subject site is shown in **Figure 2**. The City's Ultimate Cycling Network within the vicinity of the subject site is shown in **Figure 3**.

Woodroffe Avenue, Prince of Wales Drive, Merivale Road, and Fallowfield Road are identified as spine cycling routes in the City's Cycling Network and Prince of Wales Drive is a cross-town

Figure 2: Existing Pedestrian and Cycling Infrastructure

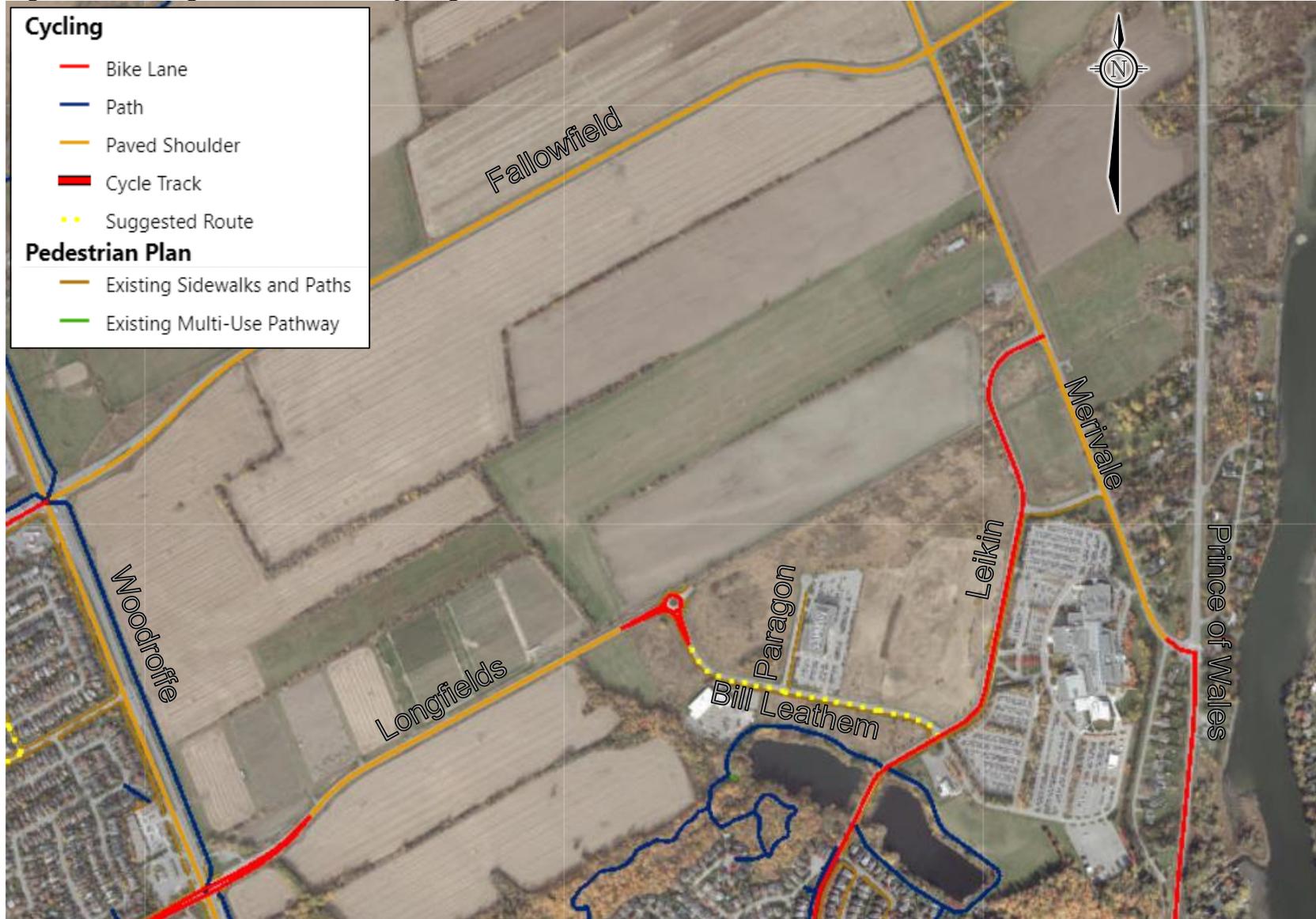
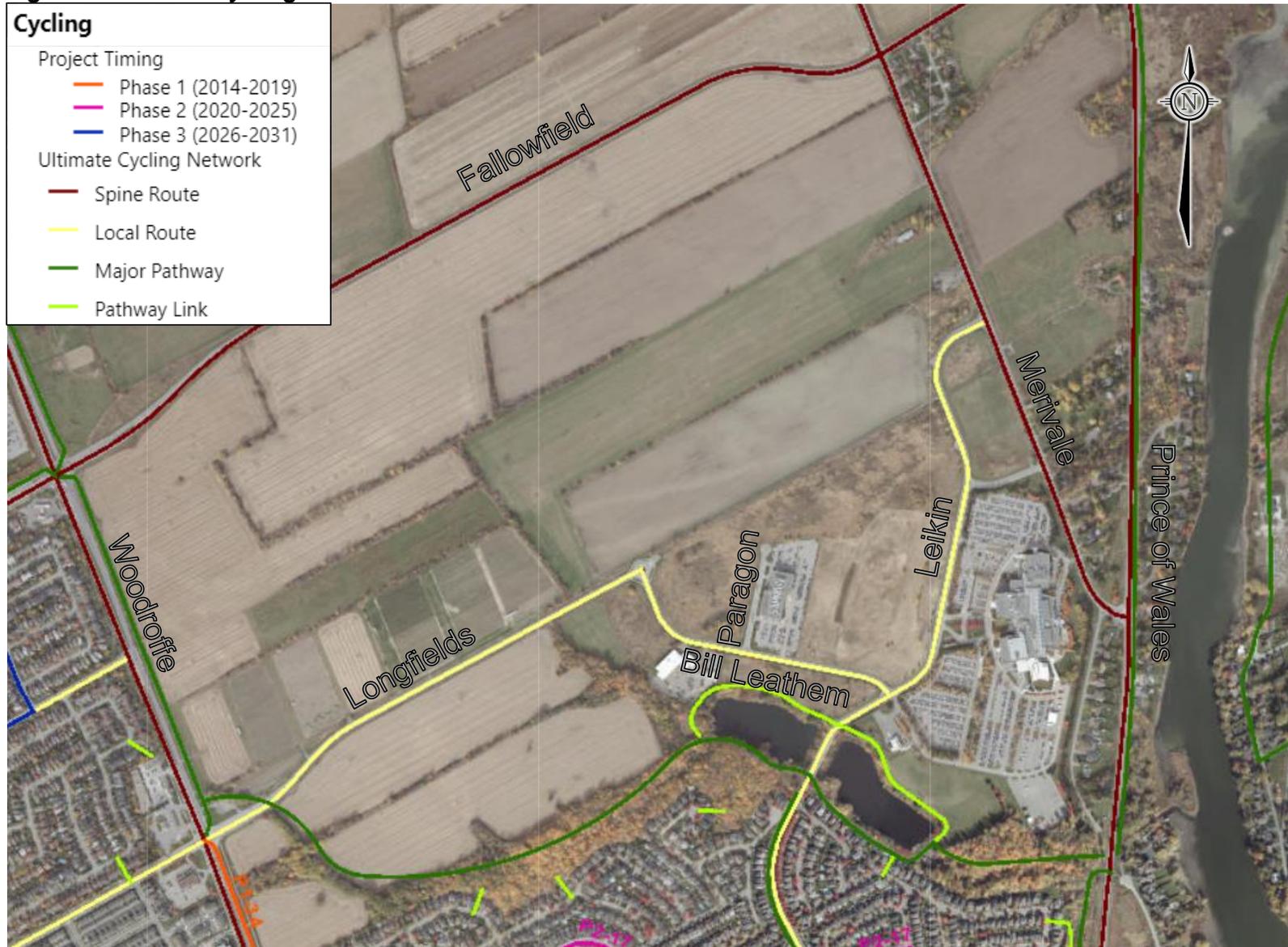


Figure 3: Ultimate Cycling Network



bikeway. Longfields Drive, Bill Leatham Drive, and Leikin Drive are identified as local cycling routes. There are currently on-street bicycle lanes along Leikin Drive and Woodroffe Avenue (southbound), paved shoulders along Longfields Drive, Merivale Road, Fallowfield Road, and Woodroffe Avenue (northbound) and a multi use path on the east side of Woodroffe Avenue. Bill Leatham Drive is a suggested route.

Concrete sidewalk is provided along Woodroffe Avenue (west side), Leikin Drive (east side running south from Beckstead Road), Beckstead Road (south side), Bill Leatham Drive (south side), and Paragon Avenue (east side). There is a multi-use pathway along the east side of Woodroffe Avenue.

4.1.5 Transit

The nearest bus stops to the subject site are stops #3521, #3520, #3519, #3518, #0729, #0730 along Leikin Drive and Bill Leatham Drive (See **Figure 4**). The Leikin stops are served by routes #80 and #199 while the Bill Leatham Drive stops are served by routes #73 and #278.

OC Transpo Route #73 travels between Leikin and Tunney’s Pasture on 20-minute headways during weekday peak periods.

OC Transpo Route #80 travels between Barrhaven Centre and Tunney’s Pasture on 15-minute headways with all-day service, 7-days per week.

OC Transpo Route #199 travels between Leikin and Hurdman Station on 60-minute headways during weekday peak periods.

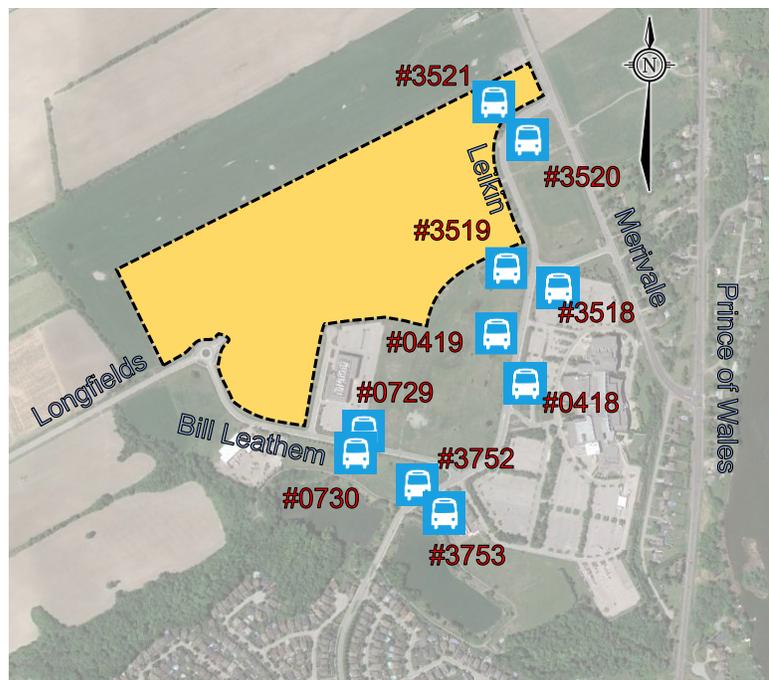
OC Transpo Route #278 travels between Tunney’s Pasture and Riverside South on 15-minute headways during weekday peak periods.

OC Transpo Route information is included in **Appendix C**.

4.1.6 Existing Area Traffic Management Measures

Currently, there are no completed or ongoing Area Traffic Management (ATM) studies within the study area.

Figure 4: OC Transpo Bus Stop Locations



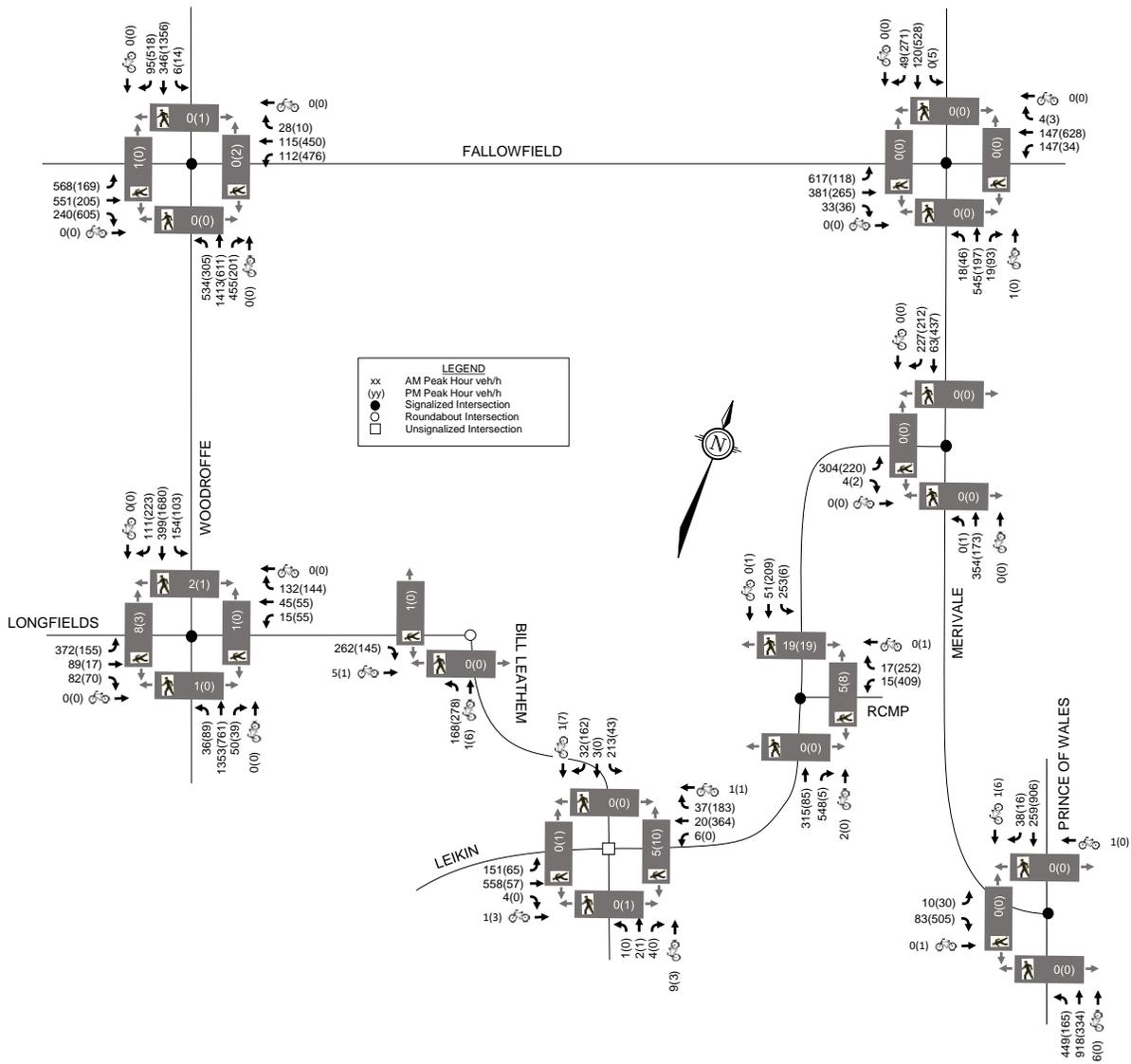
4.1.7 Existing Traffic Volumes

Weekday traffic counts were collected at the study area intersections to determine the existing pedestrian, cyclist and vehicular traffic volumes. The counts were completed by the City of Ottawa on the following dates:

- Longfields at Woodroffe March 2, 2017
- Longfields at Bill Leatham June 10, 2015
- Leikin at Bill Leatham June 12, 2019
- Leikin at RCMP January 14, 2020
- Merivale at Leikin November 21, 2018
- Fallowfield at Merivale March 2, 2017
- Fallowfield at Woodroffe March 2, 2017
- Prince of Wales at Merivale June 13, 2018

Observed weekday AM and PM peak hour traffic volumes at the study area intersections are shown in **Figure 5**. Peak hour summary sheets of the above traffic counts are included in **Appendix D**.

Figure 5: Existing Traffic Volumes



4.1.8 Collision Records

Historical collision data for the intersections shown in **Figure 5** from the last five years were obtained from the City’s Public Works and Service Department. Copies of the collision summary reports are included in **Appendix E**.

The collision data have been evaluated to identify collision patterns. **Table 1** summarizes the number of collisions at each intersection from January 1, 2015 to December 31, 2019. During the five-year period there were no reported fatal collisions in the analyzed area.

Table 1: Reported Collisions

Intersection	Number of Collisions						Total
	SMV ¹ / Other	Rear- End	Angle	Turning Mvmt	Approa- ching	Side- swipe	
Woodroffe Avenue at Fallowfield Road	6	77	8	7	0	8	106
Woodroffe Avenue at Longfields Drive	6	15	4	10	0	7	42
Merivale Road at Fallowfield Road	5	28	8	9	0	2	52
Merivale Road at Leikin Drive	1	0	1	0	0	0	2
Prince of Wales Drive at Merivale Road	3	18	2	4	1	2	30
Leikin Drive at RCMP Access	0	0	1	0	0	0	1
Leikin Drive at Bill Leathem Drive	2	1	3	0	0	0	6

1. SMV: Single Motor Vehicle

Woodroffe Avenue at Fallowfield Road

Eleven of the one hundred and six collisions caused an injury. Eighty-six collisions occurred in clear conditions, seven in rain conditions, eleven in snow conditions, one in freezing rain, and one in fog. None of the collisions involved pedestrians.

Of the **seventy-seven rear-end** impacts at this intersection:

- Eleven occurred in poor driving conditions;
- Twenty-one occurred at the northbound approach;
- Twenty-eight occurred at the southbound approach;
- Seventeen occurred at the eastbound approach; and,
- Eleven occurred at the westbound approach.

High traffic volumes create the potential for more collisions of this type. Eastbound rear ends could be a function of multiple accesses in proximity of the intersection.

Of the **eight angle** impacts at this intersection:

- Four occurred in poor driving conditions;
- Three involved a northbound vehicle and a westbound vehicle;
- Four involved a northbound vehicle and an eastbound vehicle; and,
- Two involved a southbound vehicle and an eastbound vehicle.

Of the **eight sideswipe** impacts at this intersection:

- Two occurred in poor driving conditions;
- Seven occurred at the northbound approach; and,
- One occurred at the southbound approach.

High traffic volumes and multiple lanes create the potential for more collisions of this type. Northbound sideswipe could be a function of the northbound left driveway at 3320 Fallowfield Road.

Of the **seven turning movement** impacts at this intersection:

- One occurred in poor driving conditions;

- Two were between a southbound through vehicle and a northbound left turning vehicle;
- One was between a southbound right turning vehicle and a northbound left turning vehicle;
- One was between a westbound through vehicle and an eastbound left turning vehicle;
- One was between a westbound through vehicle and a westbound right turning vehicle;
- One was between an eastbound through vehicle and an eastbound U-turning vehicle; and,
- One was between an eastbound through vehicle and a westbound left turning vehicle.

Woodroffe Avenue at Longfields Drive

Ten of the forty-two collisions caused an injury. Thirty collisions occurred in clear conditions, four in rain conditions, seven in snow conditions, and one in freezing rain. None of the collisions involved pedestrians.

Of the **fifteen rear-end** impacts at this intersection:

- Five occurred in poor driving conditions;
- Nine occurred at the northbound approach;
- Four occurred at the southbound approach;
- One occurred at the eastbound approach; and,
- One occurred at the westbound approach.

High traffic volumes create the potential for more collisions of this type.

Of the **seven sideswipe** impacts at this intersection:

- Two occurred in poor driving conditions;
- Three occurred at the northbound approach;
- Three occurred at the southbound approach; and,
- One occurred at the westbound approach.

Of the **ten turning movement** impacts at this intersection:

- One occurred in poor driving conditions;
- Five were between a northbound through vehicle and a southbound left turning vehicle;
- Two were between a southbound through vehicle and a northbound left turning vehicle;
- One was between a southbound through vehicle and a northbound U-turning vehicle;
- One was between a northbound through vehicle and a southbound U-turning vehicle; and,
- One was between a northbound left turning vehicle and a southbound right turning vehicle.

Merivale Road at Fallowfield Road

Eleven of the fifty-two collisions caused an injury. Thirty-six collisions occurred in clear conditions, six in rain conditions, six in snow conditions, and four in freezing rain. None of the collisions involved pedestrians.

Of the **twenty-eight rear-end** impacts at this intersection:

- Ten occurred in poor driving conditions;
- Nine occurred at the northbound approach;
- Nine occurred at the southbound approach;
- Three occurred at the eastbound approach; and,
- Seven occurred at the westbound approach.

High traffic volumes create the potential for more collisions of this type. There is a local road (Ashdale Avenue) in proximity to the intersection along the WB approach with no turn lane. Northbound rear ends could be the result of multiple accesses in proximity of the intersection.

Of the **eight angle** impacts at this intersection:

- One occurred in poor driving conditions;
- Three involved a northbound vehicle and an eastbound vehicle;
- Three involved a southbound vehicle and an eastbound vehicle;
- One involved a northbound vehicle and a westbound vehicle; and,
- One involved a southbound vehicle and a westbound vehicle.

Of the **nine turning movement** impacts at this intersection:

- Two occurred in poor driving conditions;
- Five were between a westbound through vehicle and an eastbound left turning vehicle;
- Three were between a northbound through vehicle and a southbound left turning vehicle; and,
- One was between a southbound through vehicle and a northbound left turning vehicle.

Prince of Wales Drive at Merivale Road

Nine of the thirty collisions caused an injury. Twenty-two collisions occurred in clear conditions, five in rain conditions, one in snow conditions, one in freezing rain, and one in fog. None of the collisions involved pedestrians.

Of the **eighteen rear-end** impacts at this intersection:

- Five occurred in poor driving conditions;
- Three occurred at the northbound approach;
- Seven occurred at the southbound approach; and,
- Eight occurred at the eastbound approach.

High traffic volumes create the potential for more collisions of this type. There is horizontal curvature on the eastbound approach that may be contributing to these collisions. There is a local road (Queen Anne Crescent) in proximity to the intersection along the EB approach. Northbound rear ends could be the result of multiple accesses in proximity of the intersection.

4.2 Planned Conditions

4.2.1 Planned Infrastructure Projects

The 2031 Rapid Transit and Transit Priority (RTTP) Network identifies a bus rapid transit (BRT) project within the study area. The Southwest Transitway Extension BRT project (Network Concept) will provide at-grade BRT between Barrhaven Town Centre and Cambrian Road with potential extension to Barnsdale Road. The 2031 Network Concept will not be implemented until after 2031.

The 2031 RTTP Network identifies transit signal priority and queue jump lanes for Woodroffe Avenue between Fallowfield Road and Chapman Mills Drive (Network Concept, after 2031).

The City's TMP identifies Prince of Wales Drive between Merivale Road and Hunt Club Road for road widening (two lanes to four). The widening is part of the City's Affordable Plan (Phase 3, 2026-2031). The 2031 Network Concept includes widening of Prince of Wales Drive from two to four lanes between Strandherd Drive and Fisher Avenue.

The City's TMP identifies Fallowfield Road between Woodroffe Avenue and Prince of Wales Drive for road widening (two lanes to four). The widening is part of the City's 2031 Network Concept and will not be implemented until after 2031.

4.2.2 Other Study Area Developments

Other study area developments that are likely to occur within this study's horizon year include:

- 2 Bill Leathem Drive – Development of a 20,000 square foot office with accessory warehouse. A Transportation Impact Assessment was completed (McIntosh Perry, 2020) and estimated the site would generate 36 and 38 person trips during the AM and PM peak hours, respectively.
- 102 Bill Leathem Drive – Development of an approximately 11,000 square foot church. A Transportation Brief was prepared (Parsons 2016) and estimated that the site would generate 4 and 8 vehicle trips during the AM and PM peak hours, respectively. Vehicle trips were converted to person trips using the City of Ottawa ITE trip to person trip conversion factor of 1.28.

4.3 Study Area and Time Periods

A boundary street review will be conducted for Merivale Road, Leikin Drive, Bill Leathem Drive, Paragon Avenue, and Longfields Drive. The study intersections are:

- Longfields at Woodroffe
- Longfields at Bill Leathem
- Leikin at Bill Leathem
- Leikin at RCMP (73 Leikin Drive)
- Merivale at Leikin
- Fallowfield at Merivale
- Fallowfield at Woodroffe
- Prince of Wales at Merivale

The weekday AM and PM peak hours are expected to represent the worst-case combination of site traffic and adjacent road traffic. Projection of site volumes will be completed for these peak hours.

A five-year buildout period has been considered. The analysis years for this study are therefore 2026 and 2031.

4.4 Exemptions Review

This module reviews possible exemptions from the final TIA, as outlined in the TIA Guidelines. The applicable exemptions for this site are shown in **Table 2**.

Table 2: TIA Exemptions

Module	Element	Exemption Criteria	Exemption Applies
Design Review Component			
4.1 Development Design	4.1.2 Circulation and Access	<ul style="list-style-type: none"> Only required for site plans 	Exempt
	4.1.3 New Street Networks	<ul style="list-style-type: none"> Only required for plans of subdivision 	Exempt
4.2 Parking	4.2.1 Parking Supply	<ul style="list-style-type: none"> Only required for site plans 	Exempt
	4.2.2 Spillover Parking	<ul style="list-style-type: none"> Only required for site plans where parking supply is 15% below unconstrained demand 	Exempt
Network Impact Component			
4.5 Transportation Demand Management	<i>All elements</i>	<ul style="list-style-type: none"> Not required for site plans expected to have fewer than 60 employees and/or students on location at any given time 	Not Exempt
4.6 Neighbourhood Traffic Management	4.6.1 Adjacent Neighbourhoods	<ul style="list-style-type: none"> Only required when the development relies on local or collector streets for access and total volumes exceed ATM capacity thresholds 	Not Exempt
4.8 Network Concept	<i>All elements</i>	<ul style="list-style-type: none"> Only required when the proposed development generates more than 200 person-trips during the peak hour in excess of the equivalent volume permitted by the established zoning 	Exempt*

* While a zoning amendment is required for the use, the development will generate fewer than 200 person trips. Relative to the current zoning, if the site were developed as office only (which is a permitted use) at 60% coverage, a height of 22m (7 storeys and 3m / floor) and a max Floor Space Index of 2, it would generate significantly more traffic than the proposed warehouse and truck transport uses.

5.0 FORECASTING

5.1 Development Generated Traffic

5.1.1 Trip Generation

The conceptual development consists of office, warehouse and truck transport uses within the approximately 30.5-hectare site.

It is assumed that the warehouse and truck transport facilities may operate 24-hours per day with multiple shifts that occur outside the peak periods of adjacent road traffic. Based on an understanding of the trip generation characteristics of these types of warehouse and truck transport sites, the estimated trip generation during the peak hours of adjacent road traffic for the industrial portion is shown in **Table 3**. The nature of the warehouse and truck transport uses is vehicle oriented and the vehicle trips have been used directly instead of converting to person trips and applying a modal share.

Table 3: Vehicle Trip Generation – Industrial Site

Site	Vehicle Trips Generated ²					
	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Industrial Portion Light Vehicles ¹	0	185	185	65	215	280
Industrial Portion Heavy Vehicles ¹	10	15	25	15	15	30
Industrial Portion (Total Vehicles) ¹	10	200	210	80	230	310
Notes: 1. Estimated Trips by the Industrial portion of the concept based on similar industrial developments.						
2. Vehicle Trips per hour for peak hours.						

The office portion of the conceptual development is expected to be a multi-storey office building. A GFA of about 400,000 square feet is assumed. Office trips were estimated using *Trip Generation, 10th Edition* (Institute of Transportation Engineers, Washington, 2017). Person trips for the office were estimated (See **Table 4**) using an ITE Trip to Person Trip conversion factor of 1.28, consistent with the City of Ottawa TIA Guidelines.

Table 4: Person Trip Generation – Office Site

Site	Person Trips Generated ²					
	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Office Portion (ITE 710) ¹	445	73	518	87	457	544
Notes: 1. Trip Generation for the associated Land Use from <i>Trip Generation 10th Edition</i> (Institute of Transportation Engineers, Washington, 2017). Trips have been increased by 28% per City Guidelines.						
2. Person Trips per hour for peak hours.						

The modal shares for the office use are anticipated to be generally consistent with the existing modal shares outlined in the 2011 TRANS O-D Survey Report, specific to the South Nepean region which indicate the modal share values for the AM trips to and within the region as well as the PM trips from and within the region. The active mode share for the office use has been reduced from the South Nepean average with consideration of the surrounding area. The projected person trips by modal share for the office use and the estimated vehicle trips for the industrial portion are shown in **Table 5**.

The trip generation estimate for the development includes peak hour trips by heavy vehicles.

Table 5: Person Trips by Modal Share – Proposed Site

Travel Mode	Modal Share		AM Peak			PM Peak		
	S Nepean	Site	IN	OUT	TOT	IN	OUT	TOT
Office Person Trips			445	73	518	87	457	544
Auto Driver	56%	65%	289	47	336	57	297	354
Auto Passenger	22%	20%	89	15	104	17	91	108
Transit Trips	5%	5%	22	4	26	4	23	27
Active Modes	17%	10%	45	7	52	9	46	55
Anticipated Industrial Vehicle Trips			10	200	210	80	230	310
Total Site Vehicle Trips			299	247	546	137	527	664

The conceptual development is projected to generate 546 two-way vehicle trips during the AM peak hour and 664 two-way vehicle trips during the PM peak hour.

5.1.2 Trip Distribution / Assignment

The overall distribution of trips generated by the development has been estimated (see below) based on population centres in the Ottawa area, the major road network, and logical routing assumptions.

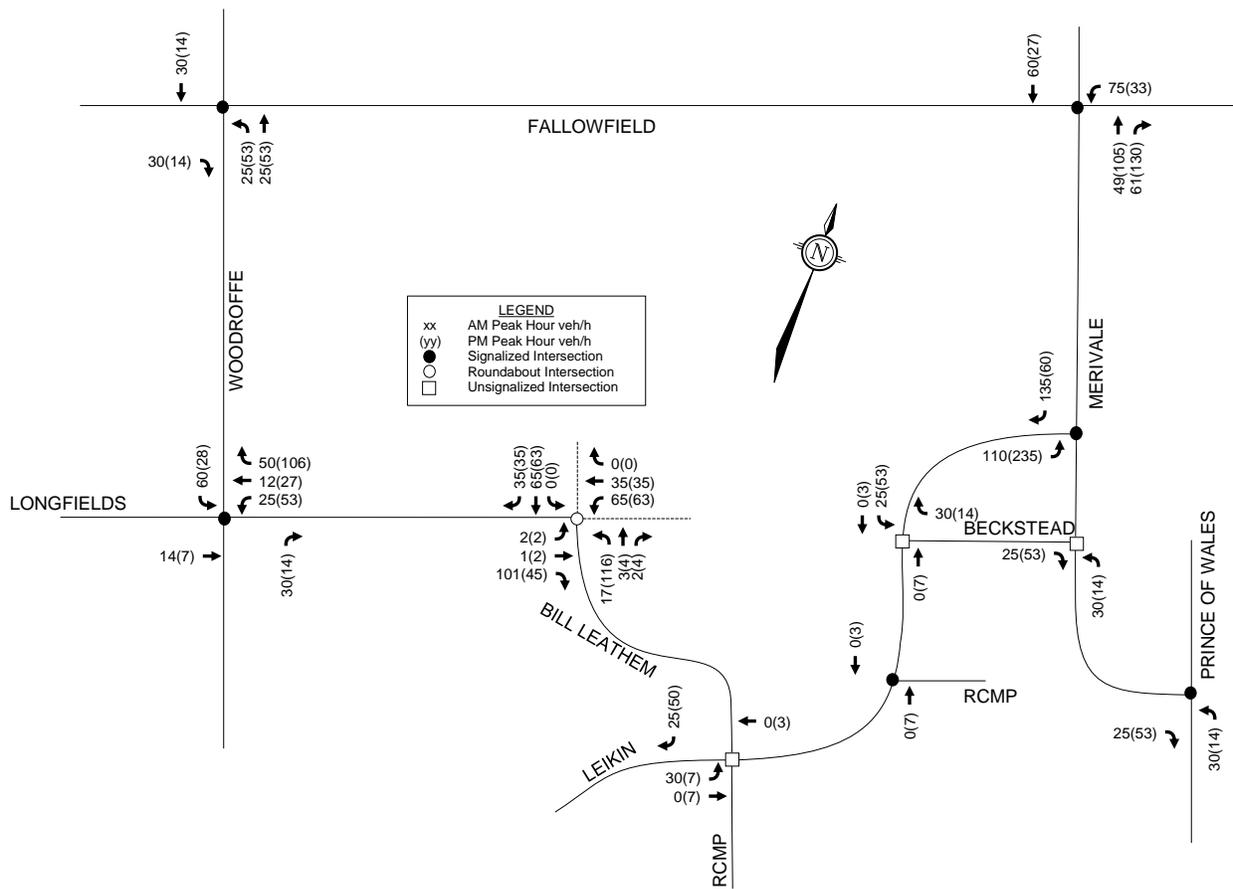
- 25% to/from the north via Prince of Wales Drive;
- 20% to/from the north via Merivale Road;
- 10% to/from the north along Woodroffe Avenue;
- 10% to/from the south along Merivale Road and Prince of Wales Drive;
- 10% to/from the south along Woodroffe Avenue;
- 10% to/from the south along Leikin Drive;
- 5% to/from the west along Longfields Drive; and,
- 10% to/from the west along Fallowfield Road.

It is assumed that there will be a private road running east-west between Longfields Drive, Paragon Avenue, and Leikin Drive through the site. It is assumed that site trips will use this private road to travel east-west.

Traffic to / from the south via Merivale Road and Prince of Wales Drive has been assigned to the Beckstead Road connection.

Site generated traffic volumes have been assigned to the study area intersections and are shown in **Figure 6**.

Figure 6: Assignment of Site Trips



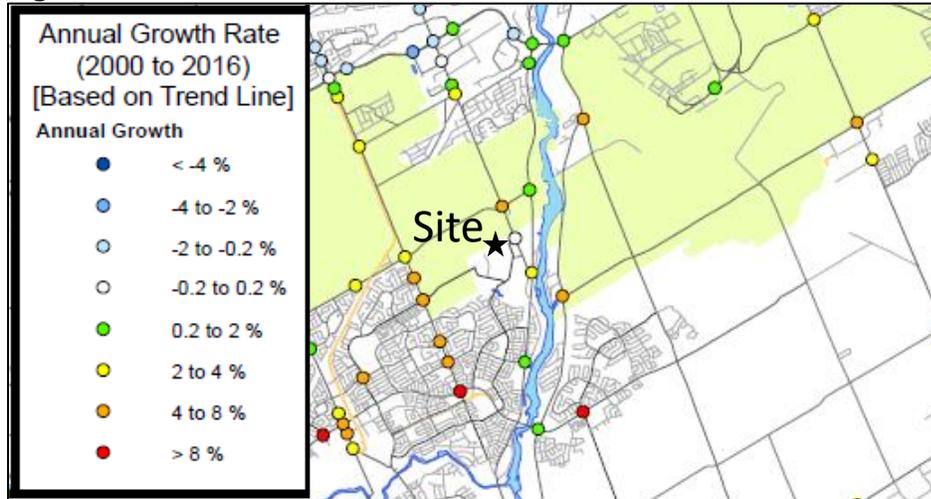
5.2 Background Traffic

5.2.1 Future Background Growth

A rate of background growth has been established through a review of the City of Ottawa’s 2013 TMP and Strategic Long-Range Model (comparing snapshots of 2011 and 2031 AM peak volumes). The snapshots (See **Appendix D**) suggest a growth rate of -0.8% to 1.5% per year in the peak direction on arterial roadways within the study area. For the ‘Barrhaven’ area of Ottawa, Exhibit 2.10 of the 2013 TMP projects population and employment growth rates of approximately 2.5% and 4.8% per year, respectively. A 1.5% background growth rate has been applied to the arterial road traffic in this area.

This 1.5% background growth rate is in line with the annual historical (2000 to 2016) growth rate for this area (-0.2% to 8%) identified by the City of Ottawa (See **Figure 7**).

Figure 7: Area Historical PM Peak Hour Annual Growth Rate - 2000 to 2016



5.2.2 Other Area Development

Other study area developments are likely to occur within this study’s horizon (See **Section 4.2.1**).

The Transportation Brief for a proposed church at 102 Bill Leathem Drive (See **Appendix F**) indicates that the weekday AM and PM peak hour vehicle trips are considered ‘negligible’ and the TIA for a proposed office with ancillary warehouse at 2 Bill Leathem Drive did not include trip distribution or assignment since that site generates fewer than 60 person trips (See **Appendix F**). These background studies considered the weekday AM and PM peak hour trips generated by the sites as negligible and the trips for these sites have not been considered in this study.

5.2.3 Projected Background and Total Traffic

Projected 2026 and 2031 background traffic volumes (with 1.5% background growth) are shown in **Figure 8** and **Figure 9**, respectively. Total Traffic Volumes (**Figures 10** and **11**) have been projected for the Study Area intersections for the weekday AM and PM peak hours in 2026 and 2031 and include background traffic as well as site development (**Figure 6**).

Figure 8: 2026 Future Background Traffic Volumes

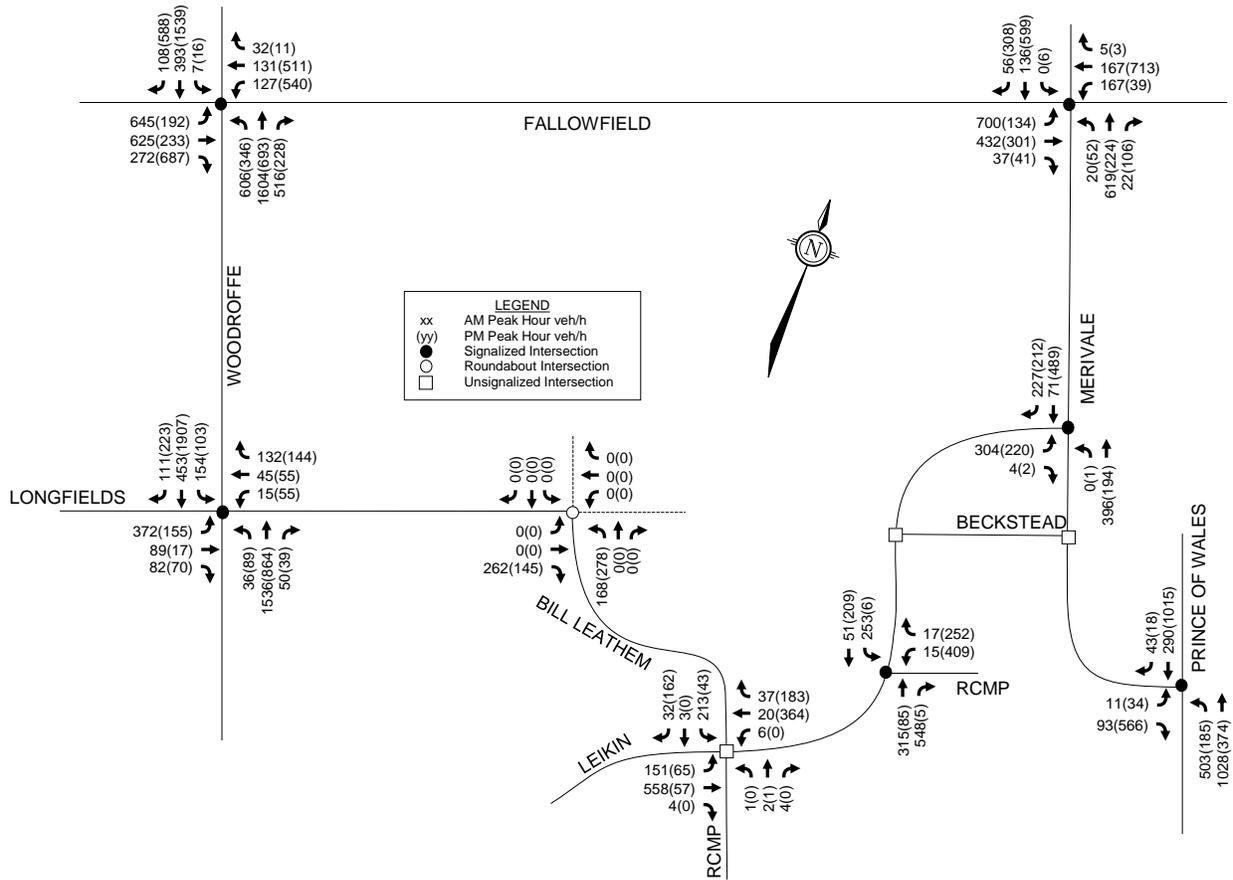


Figure 9: 2031 Future Background Traffic Volumes

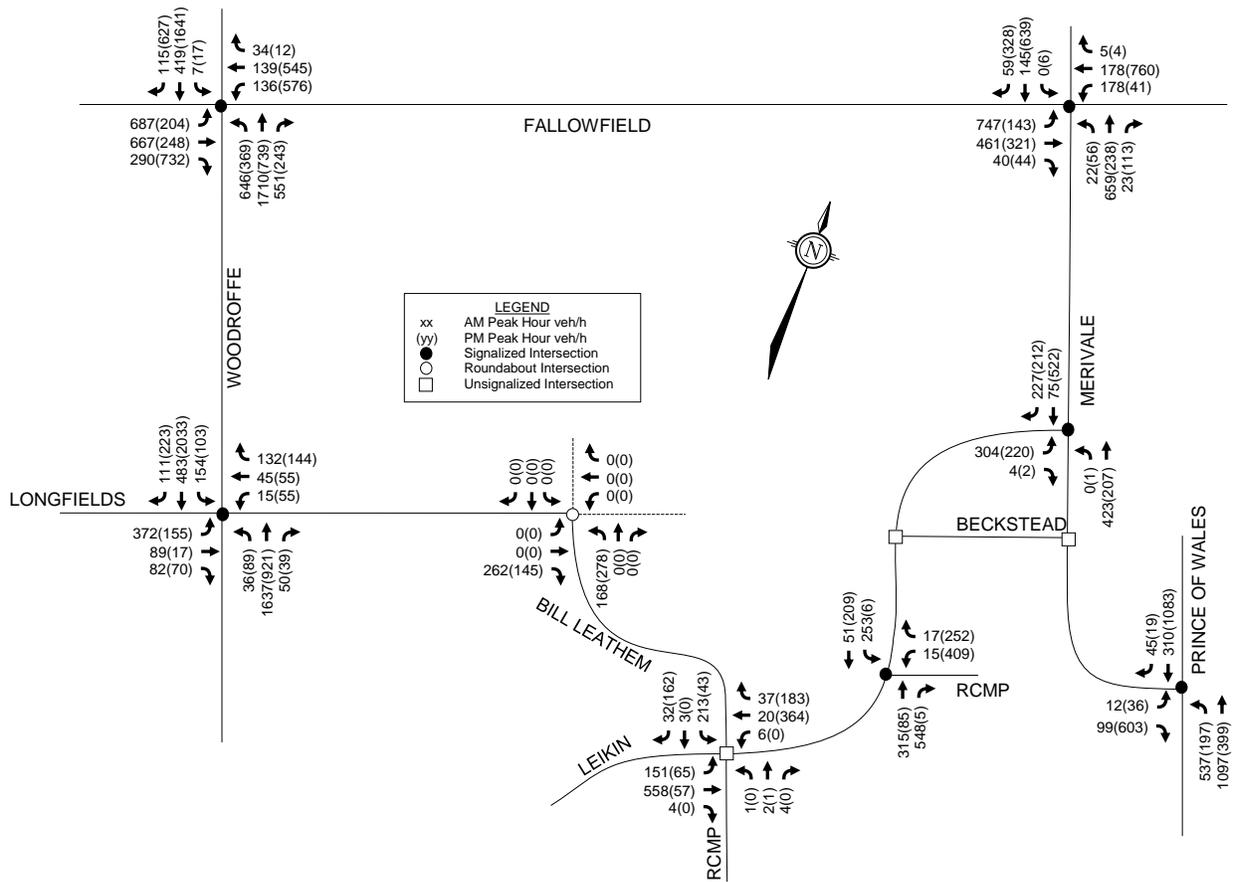


Figure 10: 2026 Total Traffic Volumes with Site Development

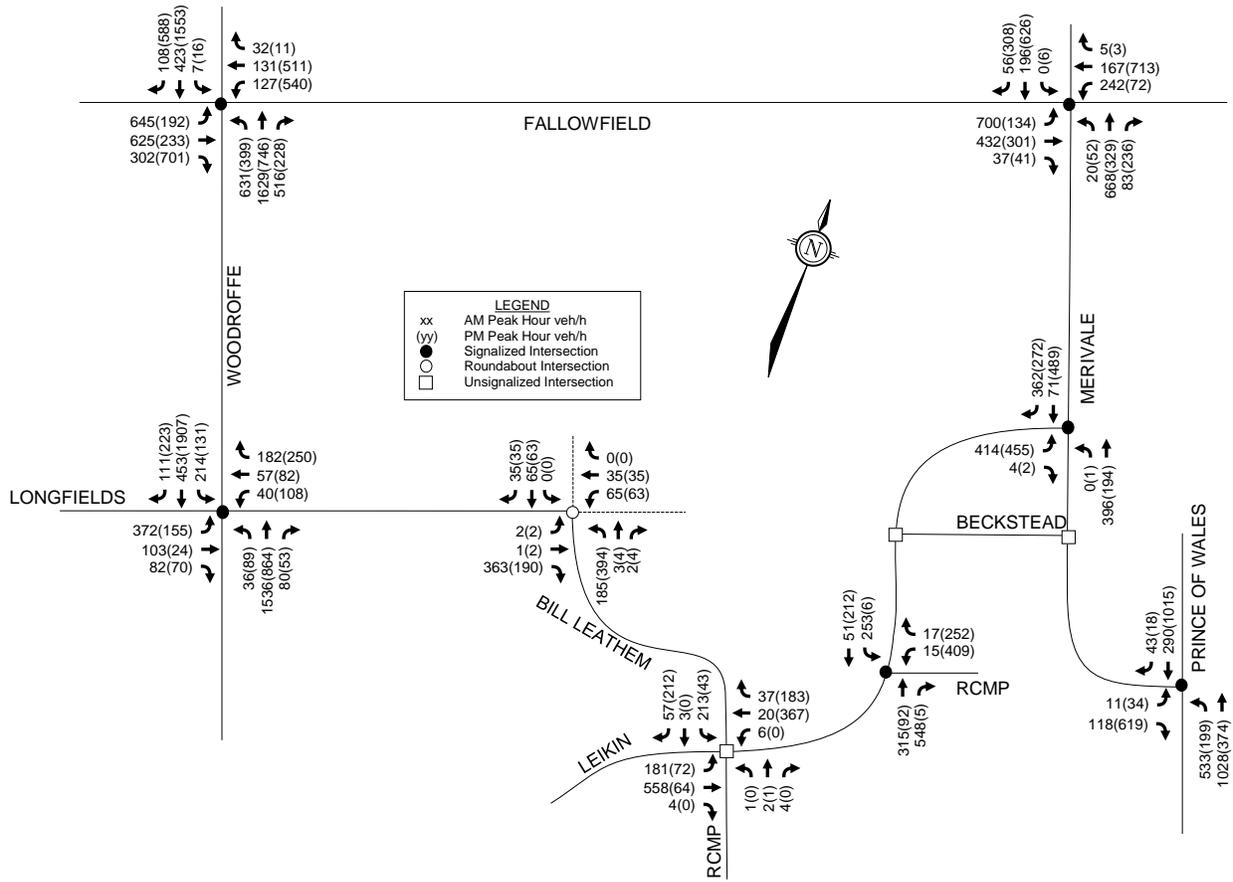
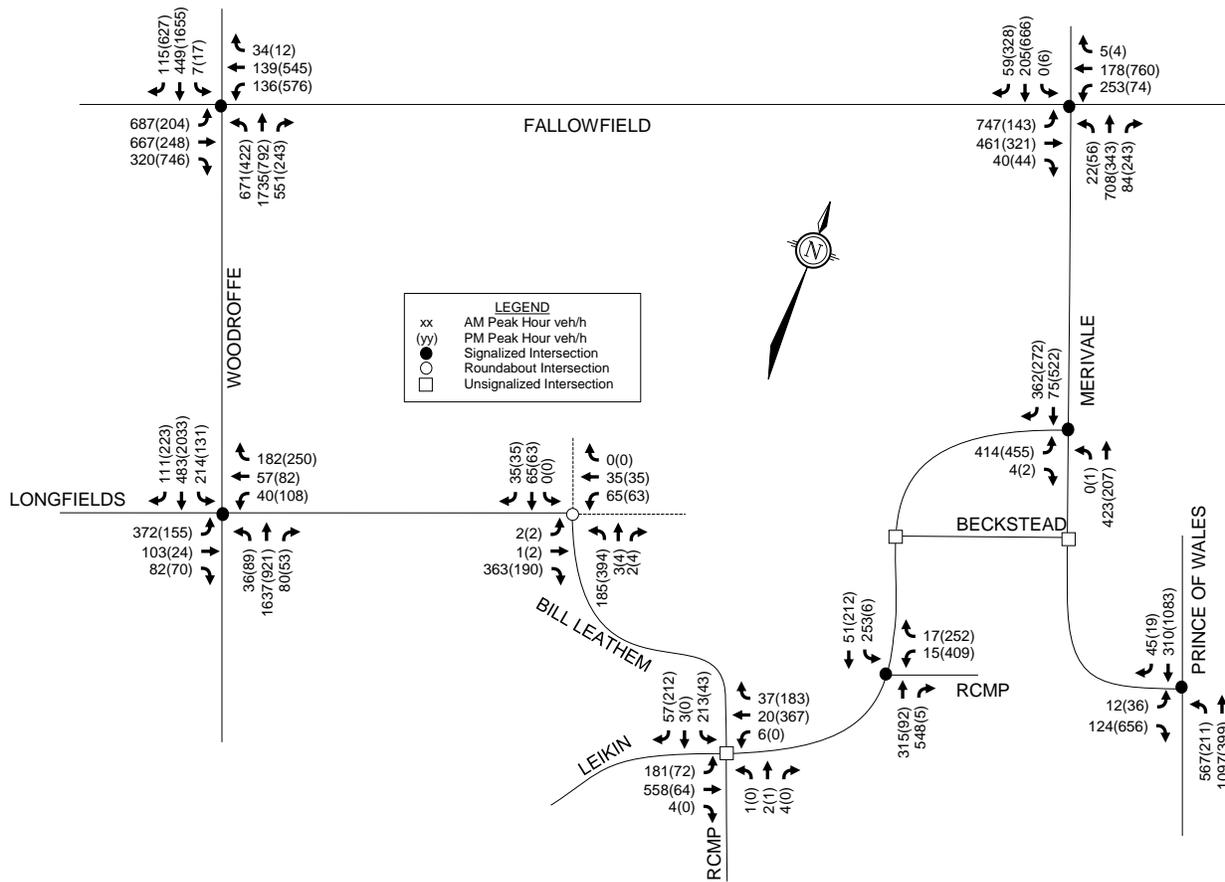


Figure 11: 2031 Total Traffic Volumes with Site Development



5.3 Demand Rationalization

Auto LOS (*Synchro 10*) analysis for the existing as well as the 2026 and 2031 peak periods without the addition of site generated trips are summarized in the following sections. Intersection parameters in the analysis are consistent with the City’s TIA guidelines (saturation flow rate: 1800 vphpl, existing conditions PHF: 0.9, future conditions PHF: 1.0).

Existing signal timing plans obtained from the City of Ottawa are included in **Appendix G**. Detailed *Synchro 10* reports are included in **Appendix K**.

5.3.1 Existing Traffic – Intersection Operations

Intersection capacity analysis has been completed for the existing traffic volumes (See **Figure 5**) and summarized in **Table 6**. Approaches where long queuing is expected are shown with the associated 50th and 95th percentile queue lengths in **Table 7**.

Table 6: Existing Traffic – Intersection Operations

Intersection	AM Peak			PM Peak		
	Max V/C or Delay (sec)	LOS	Mvmt	Max V/C or Delay (sec)	LOS	Mvmt
Woodroffe at Fallowfield	0.95	E	EBL	1.88	F	EBR
Woodroffe at Longfields	1.23	F	EBL	1.08	F	SBT
Merivale at Fallowfield	1.06	F	EBL	1.09	F	WBTR
Merivale at Leikin	0.64	B	EB	0.45	A	EB
Prince of Wales at Merivale	0.76	C	NBT	1.08	F	EBR
Leikin at RCMP Driveway	0.62	B	NBR	0.85	D	WBL
Leikin at Bill Leatham / Driveway ¹	201	F	SB	18	C	SB

1. Unsignalized intersection

Table 7: Existing Traffic – Queuing

Intersection	Mvmt	AM Peak			PM Peak		
		v/c or Delay (sec)	50 th % Queue (m)	95 th % Queue (m)	v/c or Delay (sec)	50 th % Queue (m)	95 th % Queue (m)
Woodroffe at Fallowfield	EBL	0.95	89	#121	1.10	~38	#63
	EBR	0.51	0	21	1.88	~311	#383
	WBL	0.61	17	27	1.01	~96	#133
	NBL	0.61	43	#78	1.33	~78	#109
	NBT	0.87	180	#303	0.39	77	94
	SBT	0.72	52	67	0.99	270	#318
Woodroffe at Longfields	EBL	1.23	~62	#91	0.73	18	#32
	NBT	0.99	178	#233	0.52	54	89
	SBT	0.25	26	46	1.08	~220	#303
Merivale at Fallowfield	EBL	1.06	~153	#237	0.74	26	#59
	WBTR	0.54	39	64	1.09	~242	#328
	NBTR	0.94	150	#211	0.48	61	86
	SBT	0.24	25	41	0.93	163	#216
Prince of Wales at Merivale	EBR	0.20	0	9	1.08	~111	#174
	NBT	0.76	107	168	0.31	29	42
Leikin at Bill Leatham / Driveway ¹	SB	201 sec	-	102	18 sec	-	17

1. Unsignalized intersection

~: Volume exceeds capacity, queue is theoretically infinite

#: volume for the 95th percentile cycle exceeds capacity

Woodroffe at Fallowfield

During the Existing AM peak hour, the EBL movement operates with LOS E, meeting the target since the intersection is within 600m of a rapid transit station. The eastbound left queue on Fallowfield at Woodroffe is 121m in the AM peak, exceeding the available storage (90m). With signal timing adjustments (additional green time for the EBL movement and reduced time for the NBL leading phase) the EBL improves to LOS D, however the EBL queue (103m) would still exceed the available storage (See **Appendix K**). There is no opportunity to increase the EBL storage since the lane is back to back with the WBL for the shopping plaza.

During the Existing PM peak hour, the EBL, EBR, WBL, NBL, and SBT movements operate with LOS E or F. The eastbound queue on Fallowfield at Woodroffe is 383m in the PM peak and queues through the adjacent signal at the Fallowfield Transit Station (245m). The westbound left queue on Fallowfield is 133m, exceeding the available storage (85m). With signal timing adjustments (increased EBL phase) the EBL movement improves to LOS C (See **Appendix K**), however, the EBR, WBL, NBL, and SBT movements would still operate with LOS F. The addition of dual EB right turn lanes improves the EB queue to 152m, no longer extending through the Fallowfield Transit Station access, however the WBL, NBL, and SBT movements would continue to operate with LOS F. To achieve the target LOS E (with the dual EBR), a reduction in the PM peak hour traffic volumes for the following movements are required:

- Westbound left: reduction of approximately 15 vehicles;
- Northbound left: reduction of approximately 75 vehicles; and,
- Southbound through: reduction of approximately 30 vehicles.

To achieve the target (without road modifications), a further reduction of 235 vehicles is required for the Eastbound right.

Woodroffe at Longfields

During the Existing AM peak hour, the EBL and NBT movements operate with LOS F and E, respectively. With signal timing adjustments (increased cycle length to 140 seconds) the intersection improves to LOS E (See **Appendix K**). To achieve the target, a reduction in the AM peak hour traffic volumes for the following movements are required:

- Eastbound left: reduction of approximately 20 vehicles.
- Northbound through: reduction of approximately 120 vehicles.

During the Existing PM peak hour, the SBT movement operates with LOS F. With signal timing adjustments (increased cycle length to 130 seconds) the intersection improves to LOS E (See **Appendix K**). To achieve the target, a reduction in the PM peak hour traffic volumes for the following movement is required:

- Southbound through: reduction of approximately 140 vehicles.

Merivale at Fallowfield

During the Existing AM peak hour, the EBL and NBTR movements operate with LOS F and E, respectively. The eastbound left queue on Fallowfield at Merivale is 237m in the AM peak, exceeding the available storage (110m). The northbound through queue on Merivale is 211m in the AM peak, extending beyond the Boycrest Street intersection (160m). With signal timing adjustments (increased EBL phase) the movements improve to LOS E (See **Appendix K**). With over 600 EBL vehicles during the AM peak hour, dual left turn lanes are warranted. With the installation of dual EBL lanes (and added receiving lane on Merivale) the intersection improves to LOS D. The rights-of-way along Fallowfield and Merivale are constrained in this area with available ROW of about 26m on both streets. Property acquisition is required to accommodate the installation of dual eastbound left turn lanes. An Environmental Assessment (EA) has been completed for the widening of Fallowfield Road. The City's TMP identifies Fallowfield Road between Woodroffe Avenue and Prince of Wales Drive for road widening (two lanes to four). The widening is part of the City's 2031 Network Concept and will not be implemented until after 2031.

During the Existing PM peak hour, the WBTR and SBT movements operate with LOS F and E, respectively. The westbound through queue on Fallowfield at Merivale is 328m, extending beyond the Ashdale Avenue intersection (85m). With signal timing adjustments (additional green time for the WBT movement) the movements improve to LOS E (See **Appendix K**). To achieve the target,

a reduction in the PM peak hour traffic volumes for the following movements are required (with dual EBL, warranted from AM peak):

- Westbound through: reduction of approximately 65 vehicles; and,
- Southbound through: reduction of approximately 30 vehicles.

The need for additional through capacity will ultimately be addressed by the planned Fallowfield widening.

Prince of Wales at Merivale

During the Existing AM peak hour, all movements operate with LOS C or better.

During the Existing PM peak hour, the EBR movement operates with LOS F. The eastbound right queue on Merivale is 174m, extending beyond the Queen Anne Crescent intersection (45m). With signal timing adjustments to favour the EB phase the EBR improves to LOS D, however the EB queue (132m) still extends beyond Queen Anne Crescent (See **Appendix K**).

Leikin at Bill Leatham

The intersection (LOS F for the southbound approach during the AM peak hour) was found to not warrant traffic signals based on existing volumes (See **Appendix H**). However, signals are recommended based on high approach intersection delay during the AM peak hour (SB approach). With signalization of the intersection, the intersection is expected to operate with LOS C (See **Appendix K**).

5.3.2 2026 Background Traffic – Intersection Operations

Intersection capacity analysis has been completed for the projected 2026 background traffic volumes (See **Figure 8**) and summarized in **Table 8**. Approaches where long queuing is expected are shown with the associated 50th and 95th percentile queue lengths in **Table 9**.

Table 8: 2026 Background Traffic – Intersection Operations

Intersection	AM Peak			PM Peak		
	Max V/C or Delay (sec)	LOS	Mvmt	Max V/C or Delay (sec)	LOS	Mvmt
Woodroffe at Fallowfield	0.96	E	EBL	1.92	F	EBR
Woodroffe at Longfields	1.10	F	EBL	1.09	F	SBT
Merivale at Fallowfield	1.10	F	EBL	1.11	F	WBTR
Merivale at Leikin	0.61	B	EB	0.43	A	SBT
Prince of Wales at Merivale	0.76	C	NBT	1.09	F	EBR
Leikin at RCMP Driveway	0.53	A	NBR	0.84	D	WBL
Leikin at Bill Leatham / Driveway ¹	92	F	SB	16	C	SB

1. Unsignalized intersection

Table 9: 2026 Background Traffic – Queuing

Intersection	Mvmt	AM Peak			PM Peak		
		v/c or Delay (sec)	50 th % Queue (m)	95 th % Queue (m)	v/c or Delay (sec)	50 th % Queue (m)	95 th % Queue (m)
Woodroffe at Fallowfield	EBL	0.96	91	#125	1.12	~39	#65
	EBR	0.51	0	21	1.92	~321	#394
	WBL	0.62	18	28	1.03	~102	#137
	NBL	0.62	45	#87	1.36	~80	#112
	NBT	0.90	190	#315	0.40	79	97
	SBT	0.76	54	69	1.01	~292	#330
Woodroffe at Longfields	EBL	1.10	~51	#80	0.67	16	#28
	NBT	0.99	178	#241	0.50	55	91
	SBT	0.24	27	47	1.09	~227	#312
Merivale at Fallowfield	EBL	1.10	~170	#248	0.75	27	#61
	WBTR	0.56	41	66	1.11	~252	#337
	NBTR	0.95	155	#219	0.49	63	89
	SBT	0.25	26	42	0.93	164	#223
Prince of Wales at Merivale	EBR	0.21	0	9	1.09	~114	#177
	NBT	0.76	109	172	0.31	29	42
Leikin at Bill Leatham / Driveway ¹	SB	92	-	65	16	-	13

1. Unsignalized intersection
 ~: Volume exceeds capacity, queue is theoretically infinite
 #: volume for the 95th percentile cycle exceeds capacity

Based on the previous tables, some of the background traffic conditions appear to improve when compared to the existing traffic conditions. This can be attributed to differences in the Peak Hour Factor (set to 0.90 in existing conditions and 1.0 in future conditions, as per the 2017 TIA Guidelines).

Woodroffe at Fallowfield

There is a marginal increase in the v/c ratios and queue lengths during the AM and PM peak hours. To achieve the target (with the dual EBR), a reduction in the PM peak hour traffic volumes for the following movements are required:

- Westbound left: reduction of approximately 30 vehicles;
- Northbound left: reduction of approximately 90 vehicles; and,
- Southbound through: reduction of approximately 60 vehicles.

To achieve the target (without roadway modifications), a further reduction of 280 vehicles is required in the PM peak hour for the Eastbound right.

Woodroffe at Longfields

During the 2026 Future Background AM peak hour, the EBL and NBT movements operate with LOS F and E, respectively. With signal timing adjustments (increased cycle length to 140 seconds) the intersection improves to LOS E (See **Appendix K**). To achieve the target, a reduction in the AM peak hour traffic volumes for the following movement is required:

- Northbound through: reduction of approximately 150 vehicles.

There is a marginal increase in the v/c ratios and queues during the PM peak hour. To achieve the target, a reduction in the PM peak hour traffic volumes for the following movement is required:

- Southbound through: reduction of approximately 150 vehicles.

Merivale at Fallowfield

There is a marginal increase in the v/c ratios and queues during the AM and PM peak hours. To achieve the target, a reduction in the PM peak hour traffic volumes for the following movements are required (with dual EBL, warranted from AM peak):

- Westbound through: reduction of approximately 90 vehicles; and,
- Southbound through: reduction of approximately 50 vehicles.

Prince of Wales at Merivale

There is a marginal increase in the v/c ratios and queues during the AM and PM peak hours.

Leikin at Bill Leatham

The 2026 results show a significant decrease in SB delay (200 seconds in existing conditions to 90 seconds in 2026) due to the 1.0 PHF in future conditions per City Guidelines. Signals were recommended based on the existing high approach delay (SB approach) during the AM peak hour and continue to be recommended. With signalization of the intersection, the intersection is expected to operate with LOS B (See **Appendix K**).

5.3.3 2031 Background Traffic – Intersection Operations

Intersection capacity analysis has been completed for the projected 2031 background traffic volumes (See **Figure 9**) and summarized in **Table 10**. Approaches where long queuing is expected are shown with the associated 50th and 95th percentile queue lengths in **Table 11**.

Table 10: 2031 Background Traffic – Intersection Operations

Intersection	AM Peak			PM Peak		
	Max V/C or Delay (sec)	LOS	Mvmt	Max V/C or Delay (sec)	LOS	Mvmt
Woodroffe at Fallowfield	1.02	F	EBL	2.04	F	EBR
Woodroffe at Longfields	1.10	F	EBL	1.16	F	SBT
Merivale at Fallowfield	1.23	F	EBL	1.23	F	WBTR
Merivale at Leikin	0.61	B	EB	0.46	A	SBT
Prince of Wales at Merivale	0.81	D	NBT	1.19	F	EBR
Leikin at RCMP Driveway	0.53	A	NBR	0.84	D	WBL
Leikin at Bill Leatham / Driveway ¹	92	F	SB	16	C	SB

1. Unsignalized intersection

Table 11: 2031 Background Traffic – Queuing

Intersection	Mvmt	AM Peak			PM Peak		
		v/c or Delay (sec)	50 th % Queue (m)	95 th % Queue (m)	v/c or Delay (sec)	50 th % Queue (m)	95 th % Queue (m)
Woodroffe at Fallowfield	EBL	1.02	~102	#138	1.19	~43	#70
	EBR	0.52	0	20	2.04	~354	#427
	WBL	0.65	19	30	1.10	~115	#151
	NBL	0.70	51	#109	1.45	~89	#121
	NBT	0.98	224	#355	0.42	86	105
	SBT	0.79	59	73	1.08	~330	#367
Woodroffe at Longfields	EBL	1.10	~51	#80	0.67	16	#28
	NBT	1.06	~206	#267	0.53	61	99
	SBT	0.26	29	50	1.16	~255	#340
Merivale at Fallowfield	EBL	1.23	~211	#282	0.81	32	#69
	WBTR	0.62	46	70	1.23	~296	#368
	NBTR	0.96	171	#244	0.50	69	96
	SBT	0.25	28	44	0.96	185	#256
Prince of Wales at Merivale	EBR	0.21	0	9	1.19	~136	#200
	NBT	0.81	128	#245	0.33	32	46
Leikin at Bill Leatham / Driveway ¹	SB	92	-	65	16	-	13

- 1. Unsignalized intersection
- ~: Volume exceeds capacity, queue is theoretically infinite
- #: volume for the 95th percentile cycle exceeds capacity

Woodroffe at Fallowfield

There is a marginal increase in the v/c ratios and queues during the AM peak hour, notably the EBL operates with LOS F. With signal timing adjustments (additional green time for the EBL movement and reduced time for the NBL leading phase, See **Appendix K**) the intersection improves to LOS E.

There is a marginal increase in the v/c ratios and queues during the PM peak hour. To achieve the target (with the dual EBR), a reduction in the PM peak hour traffic volumes for the following movements are required:

- Westbound left: reduction of approximately 85 vehicles;
- Northbound left: reduction of approximately 135 vehicles; and,
- Southbound through: reduction of approximately 310 vehicles.

To achieve the target (without roadway modifications), a further reduction of 370 vehicles is required in the PM peak hour for the Eastbound right.

Woodroffe at Longfields

There is a marginal increase in the v/c ratios and queues during the AM peak hour. To achieve the target, a reduction in the AM peak hour traffic volumes for the following movement is required:

- Northbound through: reduction of approximately 230 vehicles.

There is a marginal increase in the v/c ratios and queues during the PM peak hour. To achieve the target, a reduction in the PM peak hour traffic volumes for the following movement is required:

- Southbound through: reduction of approximately 310 vehicles.

Merivale at Fallowfield

There is a marginal increase in the v/c ratios and queues during the AM peak hour. With the installation of dual EBL lanes (and added receiving lane on Merivale) the intersection improves to LOS E. To achieve the target (with dual EBL lanes), a reduction in the AM peak hour traffic volumes for the following movement is required:

- Northbound through: reduction of approximately 70 vehicles.

There is a marginal increase in the v/c ratios and queues during the PM peak hour. To achieve the target, a reduction in the PM peak hour traffic volumes for the following movements are required (with dual EBL, warranted from AM peak):

- Westbound through: reduction of approximately 130 vehicles; and,
- Southbound through reduction of approximately 100 vehicles.

Prince of Wales at Merivale

There is a marginal increase in the v/c ratios and queues during the AM and PM peak hours.

Leikin at Bill Leathem

There is no anticipated change in the v/c ratios and queues during the peak hours in 2031 Future Background. With signalization of the intersection, the intersection is expected to operate with LOS B (See **Appendix K**).

6.0 ANALYSIS

6.1 Development Design

Conceptually, it is expected that pedestrian facilities will be provided between each building and the parking lots, to be reviewed at site plan. New pedestrian walkways will be constructed, providing connectivity to the frontage roads.

Cyclist access to the sites will be accommodated through shared use lanes at the vehicular accesses. The proposed bicycle parking is anticipated to exceed the minimum requirements of the City's Zoning By-law and will be reviewed at site plan.

OC Transpo's service design guideline for peak period service is to provide service within a five minute (400m) walk of the home, school and work location of 95% of urban residents. The existing bus stops near the subject sites are described in **Section 4.1.5**.

Stops #3521 and 3520 are fronting the east end of the site, while stops #0730 and 0729 are located near the west end of the site (about 450m) and the office use (about 120m). Actual walking distance between exterior access doors and the transit stops will be measured and reviewed at site plan submission.

The development is expected to include a private road running east-west between Longfields Drive, Paragon Avenue, and Leikin Drive through the site. The development blocks include connections to the private road, Leikin Drive (east side), Bill Leathem Drive (office use) and

Longfields Drive (west side). The warehouse and truck transport uses are expected to have separate accesses for trucks and employees. Connections will be further reviewed at site plan. Onsite turning paths of heavy vehicles and review of garbage collection and fire routes will also be reviewed at site plan.

6.2 Parking

The subject site is located in Area C on Schedule 1 and 1A of the City of Ottawa’s ZBL. Relevant minimum vehicular parking rates are identified in the ZBL and are:

- warehouse (0.8 / 100 m² for the first 5,000m² and 0.4 / 100 m² above 5,000m²);
- truck transport terminal (0.8 / 100 m²); and,
- office (2.4 / 100 m²).

Minimum bicycle parking rates for truck transport and warehouse (1 / 2000 m²) and for office (1 / 250 m²) are also identified in the ZBL. It is expected that sufficient onsite vehicular, bicycle, and accessible parking will be provided to accommodate the uses, this will be confirmed at site plan.

Minimum vehicle loading for warehouse, truck transport, and office are identified in the ZBL. It is expected that sufficient onsite loading spaces will be provided to accommodate the uses, this will be confirmed at site plan.

6.3 Boundary Streets

Schedule ‘B’ of the City of Ottawa’s Official Plan indicates the site is in an Urban Employment Area. Targets for pedestrian level of service (PLOS), bicycle level of service (BLOS), transit level of service (TLOS), and truck level of service (TkLOS) for the boundary streets reflect those outlined for an arterial, major collector, and local roads located within an employment area in Exhibit 22 of the MMLOS guidelines. Details on the Segment MMLOS are included in **Appendix I**.

Table 12: Segment MMLOS Summary

Roadway	PLOS	BLOS	TLOS	TkLOS
Merivale Road	F	F	D	B
Target	C	C	No Target	B
Longfields Drive	F	F	D	C
Target	C	C	No Target	D
Bill Leathem Drive	F	F	D	B
Target	C	C	No Target	D
Leikin Drive	F	E	D	B
Target	C	C	No Target	D
Paragon Avenue	F	F	N/A	B
Target	C	-	No Target	E

The PLOS along Merivale Road, Longfields Drive, Bill Leathem Drive, and Leikin Drive and Paragon Avenue fronting the site is currently failing. Merivale Road and Longfields Drive have posted speed limits of 60km/h or higher and more than 3,000 vehicles per day AADT. If sidewalk were installed, the highest attainable PLOS score for each of the roadways is D due to the

roadway speed and volume. Merivale and Longfields have paved shoulders and are considered appropriate given the rural context. The PLOS of Bill Leathem Drive and Leikin Drive is F; to meet the target, a 2m sidewalk is recommended. The PLOS on the east side of Paragon Avenue is C, achieving the target. The PLOS on the west side of Paragon Avenue is F, however as a local road, sidewalk on one side is acceptable per typical City cross sections.

The BLOS along Merivale Road, Longfields Drive, Leikin Drive, and Bill Leathem Drive is currently failing. The paved shoulders along Merivale and Longfields don't achieve the BLOS target, however they are considered appropriate given the rural context. Due to the high operating speed on Leikin, a physically separated bikeway is required to meet the target BLOS. With a 60km/h operating speed on Bill Leathem, 1.5m bike lanes can be installed through line painting to achieve the target C.

The TkLOS along each roadway meets or exceeds the respective target.

6.4 Access Intersections

The site is expected to include a private east-west roadway that connects to the Longfields roundabout, Paragon Avenue, and Leikin Drive. The development concept includes several full movement, STOP controlled connections to Longfields Drive, Leikin Drive, Bill Leathem Drive, and the private roadway.

The driveway configurations with respect to design guidelines and requirements of the City's Private Approach By-law will be reviewed at site plan submission, however the following are noted:

- The Transportation Association of Canada (TAC) outlines minimum clear throat lengths for driveways based on the land use, development size, and type of roadway. For the proposed uses, the clear throat requirements are expected to be:
 - 30m for office driveways to Bill Leathem Drive; and,
 - 15m for industrial driveways to Longfields Drive and Leikin Drive.
- Section 25 (a) of the City's Private Approach By-Law identifies a maximum number of private approaches that can be provided, based on the amount of frontage.
 - With about 320m of frontage to Leikin Drive up to three two-way approaches are permitted, three connections (including the Private road) are shown.
 - With about 260m of frontage to Bill Leathem Drive up to three two-way approaches are permitted, two connections are shown and one connection to the roundabout.
 - With about 85m of frontage to Longfields Drive two two-way approaches are permitted, one connection is shown, as well as one connection to the roundabout.
- Section 25 (m) of the *Private Approach By-Law* identifies a minimum driveway spacing along arterial and major collector roads. For office and industrial sites with over 300 parking spaces, the spacing requirement is 60m between driveways and intersections.
- The Stopping Sight Distance (SSD) along roadways with design speeds of 60km/h and 70km/h are 85m and 105m, respectively. Available SSD will be confirmed at site plan.
- The Transportation Association of Canada Chapter 8, Figure 8.8.2 (TAC, June 2017) provides suggested corner clearances to accesses at major intersections. The corner clearances for this site are as follows:
 - The site's connections to Leikin Drive should be more than 55m from the signalized intersection with Merivale Road.

- The site's connection to Longfields Drive should be placed west of the splitter island for the Bill Leathem roundabout (about 30m from the circle). Roundabout analysis (See **Appendix K**) indicate roundabout queues of only 1-3 vehicles.

6.5 Transportation Demand Management

The TDM infrastructure and measures checklists will be prepared for the site plan submission once more information is known. A copy of the TDM measures checklist is included in **Appendix J**.

6.6 Neighbourhood Traffic Management

Leikin Drive, Bill Leathem Drive, and Longfields Drive are classified as major collector roadways and provide access to the subject site. The following table summarizes 2031 background traffic, proposed additional traffic, and total traffic along these roadways.

Table 13: Neighbourhood Traffic Impacts

Roadway	AM Peak			PM Peak		
	2031 Bkgd	Site	Total	2031 Bkgd	Site	Total
Leikin Dr at Merivale Rd						
Eastbound	308	110	418	222	235	457
Westbound	227	135	362	213	60	273
Two-way	535	245	780	435	295	730
Leikin Dr W of Bill Leathem Dr						
Eastbound	713	30	743	122	14	136
Westbound	53	25	78	526	53	579
Two-way	766	55	821	648	67	715
Longfields Dr at Woodroffe Ave						
Eastbound	293	104	397	159	49	208
Westbound	192	87	279	254	186	440
Two-way	485	191	676	413	235	648

The City of Ottawa Area Traffic Management (ATM) guidelines identify a maximum threshold of 5,000 vehicles per day, or 600 vehicles during the peak hour for major collector roadways. The 2031 total traffic volumes along Leikin Drive and Longfields Drive in this area exceed the ATM threshold. However, it is noted that the overall lane capacity of a collector roadway is estimated at 600 vehicles per hour per lane based on the City's TRANS Long Range Transportation Model. Total peak hour, peak directional traffic volumes along Leikin Drive at Merivale Road equate to a volume to capacity (v/c) ratio of 0.70 (LOS B) during the AM peak hour and 0.76 (LOS C) during the PM peak hour. Total peak hour, peak directional traffic volumes along Leikin Drive at Bill Leathem Drive equate to a volume to capacity (v/c) ratio of 1.24 (LOS F) during the AM peak hour and 0.97 (LOS E) during the PM peak hour. Total peak hour, peak directional traffic volumes along Longfields Drive at Woodroffe Avenue equate to a volume to capacity (v/c) ratio of 0.66 (LOS B) during the AM peak hour and 0.73 (LOS C) during the PM peak hour.

There is sufficient lane capacity along Leikin Drive at Merivale, and Longfields Drive to accommodate the projected traffic. The EB 2031 background traffic on Leikin at Bill Leathem exceeds estimated lane capacity in the AM without development. As background growth has not been applied to the collector roads in the park, the projected background traffic is equivalent to existing traffic. This is identified for further review as part of the City’s Neighbourhood Traffic Calming Program, as required. The site trips are expected to account for about 4% and 11% of the total projected eastbound volumes during the AM peak and westbound volumes during the PM peak, respectively. Site trips of 30 vehicles (AM) and 53 vehicles (PM) per hour are equivalent to 1 vehicle every 2 minutes and 1 vehicle every 68 seconds, respectively. A further review of the intersection operations with site development is provided in **Section 6.8**.

6.7 Transit

Based on the modal share presented in **Table 5**, the proposed development is anticipated to generate an additional 26 transit trips (22 in, 4 out) during the weekday AM peak hour and 27 transit trips (4 in, 23 out) during the weekday PM peak hour. Additional transit stops along Bill Leathem or Longfields near the roundabout should be considered to serve the western portion of the site.

6.8 Intersection Analysis

MMLOS analysis has been completed for the existing conditions using the methodology presented in the City of Ottawa’s MMLOS Guidelines. Auto LOS (*Synchro 10*) analysis for the existing as well as the 2026 and 2031 peak periods without site trips are summarized in **Section 5.3**. Auto LOS analysis with the addition of site generated trips are summarized in the following sections.

6.8.1 Existing MMLOS

The City’s RTTP Network and Schedule ‘B’ of the City of Ottawa’s Official Plan identify the land use designations and policy areas for the study intersections as follows:

Intersection	Land Use / Policy Area
Fallowfield at Woodroffe	Within 600m of a rapid transit station
Woodroffe at Longfields	General Urban Area
Merivale at Fallowfield	Agricultural Resource Area
Merivale at Leikin	Employment Area
Prince of Wales at Merivale	Employment Area
Leikin at RCMP	Employment Area
Leikin at Bill Leathem	Employment Area

The MMLOS targets for these policy areas are indicated in Exhibit 22 of the City’s Multi-Modal Level of Service (MMLOS) Guidelines. Identified and target PLOS, BLOS, TLOS, TkLOS, and Auto LOS for the study area signalized intersections are summarized in **Table 14**. Existing traffic signal timings are included in **Appendix G** and detailed MMLOS calculations are included in **Appendix I**.

Table 14: Intersection MMLOS Summary

Intersection	PLOS	BLOS	TLOS	TkLOS	Auto LOS
Woodroffe at Fallowfield	F	F	F	B	F
Target	A	C	D	D	E
Woodroffe at Longfields	F	F	F	C	F
Target	C	C	D	D	D
Merivale at Fallowfield	F	F	F	E	F
Target	D	C	No Target	D	D
Merivale at Leikin	F	F	E	C	B
Target	C	C	No Target	B	D
Prince of Wales at Merivale	F	F	-	E	F
Target	C	B	No Target	B	D
Leikin at RCMP Driveway	F	E	C	F	D
Target	C	C	No Target	D	D
Leikin at Bill Leatham / Driveway ¹	-	-	-	-	F
Target	-	-	-	-	D

1. Unsignalized intersection, evaluated for Auto LOS only

6.8.1.1 Woodroffe Avenue / Fallowfield Road

Woodroffe Avenue / Fallowfield Road does not meet the target PLOS A, BLOS C, TLOS D, or Auto LOS E.

All approaches have a divided cross-section with a width equivalent to ten lanes crossed or more. There is limited opportunity in improving the PLOS at each approach without reducing the number of travel lanes or restricting turning movements. There is also limited opportunity in improving the delay score for pedestrians without incurring major delays for vehicles.

None of the approaches meet the target BLOS C based on both left and right turn characteristics. Given the high traffic volumes on both roadways, the existing right turn lanes and dual left turn lanes are required. Cyclists would be best served to perform turns at a different intersection. Therefore, no recommendations have been made in improving the BLOS at this intersection.

None of the transit movements (EBR and NBL) meet the target TLOS D. The City’s RTTP Network concept designates Woodroffe Avenue in this area as Transit Priority Corridor (Isolated Measures). This planned modification and demand rationalization are required to improve the TLOS along Woodroffe Avenue.

Auto LOS is discussed in **Section 5.3.1**.

6.8.1.2 Woodroffe Avenue / Longfields Drive

Woodroffe Avenue / Longfields Drive does not meet the target PLOS C, BLOS C, TLOS D, or Auto LOS D.

All approaches have a divided cross-section. The north, south and east approaches all have widths equivalent to ten lanes crossed or more. The west approach has auxiliary turn lanes and a width equivalent to 7 lanes crossed. There is limited opportunity in improving the PLOS at each approach without reducing the number of lanes. Improving the delay scores for pedestrians crossing the north and south approaches would require reducing green time for the heavy northbound and southbound movements and is not desirable.

All approaches do not meet the target BLOS C based on both left and right turn characteristics. Given the high traffic volumes on both roadways, the existing right turn lanes and dual eastbound left turn lanes are required. Cyclists would be best served to perform turns at a different intersection. Therefore, no recommendations have been made in improving the BLOS at this intersection.

Other than the WBR movement (TLOS C), none of the transit movements (EBT, EBR, WBT, NBL, NBT, SBL, and SBT) meet the target TLOS D. The City's RTTP Network concept designates Woodroffe Avenue in this area as Transit Priority Corridor (Isolated Measures). This planned modification and demand rationalization are required to improve the TLOS along Woodroffe Avenue.

Auto LOS is discussed in **Section 5.3.1**.

6.8.1.3 Merivale Road / Fallowfield Road

Merivale Road / Fallowfield Road does not meet the target PLOS D, BLOS C, TkLOS D, or Auto LOS D.

All four approaches have cross-sections with widths equivalent to five or six lanes crossed. The intersection does not have marked crosswalks or pedestrian signal heads. There is limited opportunity in improving the PLOS at each approach without reducing the number of lanes. Improving the delay scores for pedestrians crossing the north and south approaches would require reducing green time for the heavy northbound and southbound movements and is not recommended.

All approaches do not meet the target BLOS C based on right turn and / or left turn characteristics. Given the high travel speeds and the high traffic volumes, there is limited opportunity for improving the BLOS.

The east and west approaches miss the target TkLOS D. An Environmental Assessment (EA) has been completed for the widening of Fallowfield Road. The City's TMP identifies Fallowfield Road between Woodroffe Avenue and Prince of Wales Drive for road widening (two lanes to four). The widening is part of the City's 2031 Network Concept. In the interim, wide paved shoulders are provided on the east and west approaches that assist truck turning movements.

Auto LOS is discussed in **Section 5.3.1**.

6.8.1.4 Merivale Road / Leikin Drive

Merivale Road / Leikin Drive does not meet the target PLOS C, BLOS C, or TkLOS B.

The west approach has a cross-section with a width equivalent to ten lanes crossed or more while the north and south approaches have widths equivalent to five and three lanes crossed. The south approach operates with a PETS I score equivalent to PLOS C. Increasing the available green time for the EB movement by about 6 seconds during the AM peak hour would improve the delay score and the PLOS of the south approach to C.

The south approach does not meet the target BLOS C based on left turn characteristics. Given the high through volumes along Merivale Road, the northbound left turn lane is recommended. Therefore, no recommendations have been made in improving the BLOS at this intersection.

The west approach misses the target TkLOS B, achieving a C. To achieve TkLOS B, a second receiving lane is required on the south approach, however, the TkLOS is close to meeting the City's target and large curb radii are provided to accommodate truck movements.

6.8.1.5 Prince of Wales Drive / Merivale Road

Prince of Wales Drive / Merivale Road does not meet the target PLOS C, BLOS B, TkLOS B, or Auto LOS D.

The north and west approaches have a cross-section with a width equivalent to ten lanes crossed or more while the south approach has a width equivalent to six lanes crossed. There is limited opportunity in improving the PLOS at each approach without reducing the number of lanes. Improving the delay scores for pedestrians crossing the north and south approaches would require reducing green time for the heavy northbound and southbound movements. While timing modifications have been identified to improve the overall intersection operations (See **Appendix K**), the delay score is expected to continue to operate with PLOS E. Recent modifications including zebra markings and smart channels have been implemented and are considered the best trade-off. There are no further recommendations to improve the PLOS.

The south and west approaches do not meet the target BLOS B based on left turn characteristics. Given the high volumes, the northbound and eastbound left turn lanes are recommended. Recent modifications including east-west cross rides and a northbound left turn bike box have been implemented and are considered the best trade-off. There are no further recommendations to improve the BLOS.

The north approach misses the target TkLOS B, achieving E. To achieve TkLOS B, a second receiving lane is required on the west approach, however, the single receiving lane is wide (about 6m) and large curb radii are provided to accommodate truck movements.

Auto LOS is discussed in **Section 5.3.1**.

6.8.1.6 Leikin Drive / RCMP Driveway

Leikin Drive / RCMP Driveway does not meet the target PLOS C, BLOS C, or TkLOS B.

The east approach has a cross-section with a width equivalent to ten lanes crossed or more while the north approach has a width equivalent to five lanes crossed. There is limited opportunity in improving the PLOS at each approach without reducing the number of lanes. With a heavy SBL movement during the AM peak hour (250 vehicles) maintaining the SBL lane is recommended. Improving the delay scores for pedestrians crossing the north approach would require reducing green time for the heavier northbound and southbound movements and is not recommended.

All approaches do not meet the target BLOS C based on left turn or right turn characteristics. Given the volumes, the southbound and westbound left turn lanes are recommended. Therefore, no recommendations have been made in improving the BLOS at this intersection.

The south and east approaches miss the target TkLOS B, achieving D and E, respectively. To achieve TkLOS B, a second receiving lane is required on the north approach and a radius of 10-15 m is required on the southeast corner. This intersection is the access for the RCMP and not a public street. No modifications are recommended at this intersection to accommodate heavy trucks.

6.8.1.7 Leikin Drive / Bill Leathem Drive

Auto LOS is discussed in Section 5.3.1.

6.8.2 2026 Intersection Operations – Total Traffic with Site Generated Trips

Intersection capacity analysis has been completed for the projected 2026 total traffic volumes (See Figure 10) and summarized in Table 14. Approaches where long queuing is expected are shown with the associated 50th and 95th percentile queue lengths in Table 15.

Table 15: 2026 Total Traffic – Intersection Operations

Intersection	AM Peak			PM Peak		
	Max V/C or Delay (sec)	LOS	Mvmt	Max V/C or Delay (sec)	LOS	Mvmt
Woodroffe at Fallowfield	0.96	E	EBL	1.96	F	EBR
Woodroffe at Longfields	1.10	F	EBL	1.13	F	SBT
Merivale at Fallowfield	1.17	F	EBL	1.14	F	WBTR
Merivale at Leikin	0.69	B	EB	0.65	A	SBT
Prince of Wales at Merivale	0.82	C	NBT	1.19	F	EBR
Leikin at RCMP Driveway	0.53	A	NBR	0.84	D	WBL
Leikin at Bill Leathem / Driveway ¹	133	F	SB	18	C	SB
Longfields at Bill Leathem ¹	10	B	EB	7	A	EB

1. Unsignalized intersection

Table 16: 2026 Total Traffic – Queuing

Intersection	Mvmt	AM Peak			PM Peak		
		v/c or Delay (sec)	50 th % Queue (m)	95 th % Queue (m)	v/c or Delay (sec)	50 th % Queue (m)	95 th % Queue (m)
Woodroffe at Fallowfield	EBL	0.96	91	#125	1.12	~39	#65
	EBR	0.54	0	22	1.96	~331	#405
	WBL	0.62	18	28	1.03	~102	#137
	NBL	0.66	47	#96	1.56	~100	#133
	NBT	0.91	195	#323	0.40	87	106
Woodroffe at Longfields	SBT	0.80	59	74	1.02	~297	#335
	EBL	1.10	~51	#80	0.67	16	#28
	NBT	1.02	~202	#241	0.52	61	91
Merivale at Fallowfield	SBT	0.25	29	47	1.13	~238	#312
	EBL	1.17	~181	#251	0.77	28	#61
	WBL	0.91	38	#77	0.18	12	22
	WBTR	0.59	43	66	1.14	~266	#337
	NBTR	1.04	~214	#285	0.81	135	181
Prince of Wales at Merivale	SBT	0.32	39	59	0.95	180	#247
	EBR	0.22	1	10	1.19	~139	#203
Leikin at Bill Leatham / Driveway ¹	NBT	0.82	109	174	0.31	29	42
	SB	133	-	83	18	-	18

- 1. Unsignalized intersection
- ~: Volume exceeds capacity, queue is theoretically infinite
- #: volume for the 95th percentile cycle exceeds capacity

Woodroffe at Fallowfield

There is a marginal increase in the v/c ratios and queue lengths during the AM and PM peak hours.

To achieve the target (with the dual EBR), a further reduction in the PM peak hour traffic volumes is required for the following movements in addition to the reduction for background traffic:

- Westbound left: reduction of approximately 15 vehicles;
- Northbound left: reduction of approximately 35 vehicles; and,
- Southbound through: reduction of approximately 20 vehicles.

To achieve the target (without roadway modifications), a further reduction of 30 vehicles is required in the PM peak hour for the Eastbound right.

Woodroffe at Longfields

During the 2026 AM peak hour with site generated trips, the EBL and NBT movements both operate with LOS F. With signal timing adjustments (increased cycle length to 140 seconds) the intersection improves but remains LOS F (See **Appendix K**). To achieve the target, a further reduction in the AM peak hour traffic volumes is required for the following movement in addition to the reduction for background traffic:

- Northbound through: reduction of approximately 20 vehicles.

There is an increase in the v/c ratios and queues during the PM peak hour. To achieve the target, a further reduction in the PM peak hour traffic volumes is required for the following movements in addition to the reduction for background traffic:

- Southbound through: reduction of approximately 110 vehicles.

Merivale at Fallowfield

There is an increase in the v/c ratios and queues during the AM and PM peak hours with site generated trips. To achieve the target, a reduction in the AM peak hour traffic volumes is required for the following movements (with dual EBL):

- Westbound left: reduction of approximately 5 vehicles; and,
- Northbound through: reduction of approximately 130 vehicles.

To achieve the target, a further reduction in the PM peak hour traffic volumes is required for the following movement (with dual EBL, warranted from AM peak) in addition to the reduction for background traffic:

- Southbound through reduction of approximately 30 vehicles.

Prince of Wales at Merivale

There is a marginal increase in the v/c ratios and queues during the AM and PM peak hours.

Leikin at Bill Leatham

Without signalization, the AM peak hour average delay on the SB approach worsens from 90 seconds to 135 seconds with the addition of site generated trips. Signals were recommended based on the existing high approach delay (SB approach) during the AM peak hour and continue to be recommended. With signalization of the intersection, the intersection is expected to operate with LOS B (See **Appendix K**).

Longfields at Bill Leatham

With the added WB and SB approaches, the roundabout is expected to operate with LOS B or better and minimal queues during the AM and PM peak hours.

6.8.3 2031 Intersection Operations – Total Traffic with Site Generated Trips

Intersection capacity analysis has been completed for the 2031 AM and PM peak hours with the addition of site generated trips (See **Figure 11**). The results of the analysis are summarized in **Table 17** for the weekday AM and PM peak hours. Approaches where long queuing is expected are shown with the associated 50th and 95th percentile queue lengths in **Table 18**.

Table 17: 2031 Total Traffic - Intersection Operations

Intersection	AM Peak			PM Peak		
	Max V/C or Delay (sec)	LOS	Mvmt	Max V/C or Delay (sec)	LOS	Mvmt
Woodroffe at Fallowfield	1.02	F	EBL	2.08	F	EBR
Woodroffe at Longfields	1.10	F	EBL	1.21	F	SBT
Merivale at Fallowfield	1.27	F	EBL	1.25	F	WBTR
Merivale at Leikin	0.69	B	EB	0.65	A	SBT
Prince of Wales at Merivale	0.88	C	NBT	1.29	F	EBR
Leikin at RCMP Driveway	0.53	A	NBR	0.84	D	WBL
Leikin at Bill Leatham / Driveway ¹	133	F	SB	18	C	SB
Longfields at Bill Leatham ¹	10	B	EB	7	A	EB

1. Unsignalized intersection

Table 18: 2031 Total Traffic - Queuing

Intersection	Mvmt	AM Peak			PM Peak		
		v/c or Delay (sec)	50 th % Queue (m)	95 th % Queue (m)	v/c or Delay (sec)	50 th % Queue (m)	95 th % Queue (m)
Woodroffe at Fallowfield	EBL	1.02	~102	#138	1.19	~43	#70
	EBR	0.55	0	22	2.08	~364	#438
	WBL	0.65	19	30	1.10	~115	#151
	NBL	0.75	54	#116	1.65	~108	#142
	NBT	0.99	233	#363	0.45	94	114
Woodroffe at Longfields	EBL	1.10	~51	#80	0.67	16	#28
	NBT	1.09	~228	#267	0.56	66	99
	SBT	0.27	31	50	1.21	~267	#340
Merivale at Fallowfield	EBL	1.27	~213	#283	0.82	31	#68
	WBL	0.97	40	#85	0.19	13	22
	WBTR	0.63	46	70	1.25	~296	#368
	NBTR	1.09	~237	#308	0.82	143	192
	SBT	0.34	41	62	0.98	198	#273
Prince of Wales at Merivale	EBR	0.23	0	10	1.29	~161	#226
	NBT	0.88	128	#247	0.33	32	46
Leikin at Bill Leatham / Driveway ¹	SB	133	-	83	18	-	18

- 1. Unsignalized intersection
- ~: Volume exceeds capacity, queue is theoretically infinite
- #: volume for the 95th percentile cycle exceeds capacity

Woodroffe at Fallowfield

There is a marginal increase in the v/c ratios and queues during the AM peak hour and PM peak hour. With signal timing adjustments (additional green time for the EBL movement and reduced time for the NBL leading phase, (See **Appendix K**) the intersection improves to LOS E.

To achieve the target (with the dual EBR), a further reduction in the PM peak hour traffic volumes is required for the following movements in addition to the reduction for background traffic:

- Northbound left: reduction of approximately 55 vehicles; and,
- Southbound through: reduction of approximately 20 vehicles.

To achieve the target (without roadway modifications), a further reduction of 10 vehicles is required in the PM peak hour for the Eastbound right.

Woodroffe at Longfields

There is an increase in the v/c ratios and queues during the AM peak hour. To achieve the target, a further reduction in the AM peak hour traffic volumes is required for the following movement in addition to the reduction for background traffic:

- Northbound through: reduction of approximately 40 vehicles.

There is an increase in the v/c ratios and queues during the PM peak hour. To achieve the target, a further reduction in the PM peak hour traffic volumes is required for the following movement in addition to the reduction for background traffic:

- Southbound through: reduction of approximately 80 vehicles.

Merivale at Fallowfield

There is an increase in the v/c ratios and queues during the AM peak hour and PM peak hour. With the installation of dual EBL lanes (and added receiving lane on Merivale) the intersection improves to LOS E. To achieve the target (with dual EBL lanes), a further reduction in the AM peak hour traffic volumes is required for the following movements in addition to the reduction for background traffic:

- Westbound left: reduction of approximately 35 vehicles; and,
- Northbound through: reduction of approximately 120 vehicles.

To achieve the target, a further reduction in the PM peak hour traffic volumes for the following movements is required (with dual EBL, warranted from AM peak) in addition to the reduction for background traffic:

- Westbound through: reduction of approximately 20 vehicles; and,
- Southbound through reduction of approximately 15 vehicles.

Prince of Wales at Merivale

There is a marginal increase in the v/c ratios and queues during the AM and PM peak hours.

Leikin at Bill Leathem

There is no anticipated change in the v/c ratios and queues during the peak hours in 2031 Total Traffic. With signalization of the intersection, the intersection is expected to operate with LOS B (See **Appendix K**).

7.0 CONCLUSIONS AND RECOMMENDATIONS

Development Design and Parking

- It is expected that pedestrian facilities will be provided between the main buildings and the parking lots to be reviewed at site plan. New pedestrian walkways will be constructed, providing connectivity to the site frontages.
- Cyclist access to the sites will be accommodated through shared use lanes at the vehicular accesses. The proposed bicycle parking is anticipated to exceed the minimum requirements of the City's Zoning By-law and will be reviewed at site plan.
- The Transportation Demand Management (TDM) infrastructure and measures checklists will be prepared at site plan submission.
- Vehicular, accessible, bicycle, and loading requirements will be confirmed at site plan submission.
- Stops #3521 and 3520 are fronting the east end of the site, while stops #0730 and 0729 are located near the west end of the site (about 450m) and the office use (about 120m). Actual walking distance between exterior access doors and the transit stops will be measured and reviewed at site plan submission.

Boundary Street Multi-Modal Level of Service (MMLOS)

The results of the segment MMLOS analysis for Russell Road and Hunt Club Road can be summarized as follows:

- Merivale Road, Longfields Drive, Bill Leathem Drive, Leikin Drive, and Paragon Avenue all operate with a Pedestrian Level of Service (PLOS) F, missing the target PLOS C;
- Merivale Road (F), Longfields Drive (F), Bill Leathem Drive (F), and Leikin Drive (E) miss the target Bicycle Level of Service (BLOS) of C;
- A 2m sidewalk along Bill Leathem Drive and Leikin Drive should be installed;

- Consider covering on road bicycle lanes on Leikin Drive to cycle tracks; and,
- A 1.5m bike lane can be installed on Bill Leathem Drive through line painting to meet the target C.

Access Design

- The conceptual development will be served by several full movement accesses. Access locations and design will be further reviewed with site plan submission.

Neighbourhood Traffic Management

- There is sufficient lane capacity along Leikin Drive at Merivale, and Longfields Drive to accommodate traffic generated by the development.
- EB 2031 background traffic exceeds estimated lane capacity in the AM without development. As background growth has not been applied to the collector roads in the park, the projected background traffic is equivalent to existing traffic. This is identified for further review as part of the City's Neighbourhood Traffic Calming Program, as required. The site trips are expected to account for about 4% and 11% of the total projected eastbound volumes during the AM peak and westbound volumes during the PM peak, respectively.

Transit

- The proposed development is anticipated to generate an additional 26 transit trips (22 in, 4 out) during the weekday AM peak hour and 27 transit trips (4 in, 23 out) during the weekday PM peak hour.
- Additional transit stops along Bill Leathem or Longfields near the roundabout should be considered.

Intersection Analysis:

- In existing and future traffic conditions, capacity issues have been identified for the following movements:
 - Woodroffe / Fallowfield
 - Eastbound left turn (AM and PM peak)
 - Eastbound right turn (PM peak)
 - Westbound left turn (PM peak)
 - Northbound left turn (PM peak)
 - Northbound through (AM peak)
 - Southbound through (PM peak)
 - Woodroffe / Longfields
 - Eastbound left turn (AM peak)
 - Northbound through (AM peak)
 - Southbound through (PM peak)
 - Merivale / Fallowfield
 - Eastbound left turn (AM peak)
 - Westbound left turn (AM peak)
 - Westbound through (PM peak)
 - Northbound through (AM peak)
 - Southbound through (PM peak)
 - Prince of Wales / Merivale
 - Eastbound right turn (PM peak)
 - Leikin / Bill Leathem / Driveway
 - Southbound approach (AM peak)

Several modifications have been identified for consideration. The need and timing of additional modifications to accommodate access connections will be confirmed at site plan submission. Any functional designs of required road modifications to accommodate the development will be included in the site plan submission. The modifications that have been identified for consideration are:

Existing/Background Traffic:

These modifications are identified for the City's consideration without added site development.

- Signal timing modifications at the Woodroffe / Fallowfield, Woodroffe / Longfields, Merivale / Fallowfield, and Prince of Wales / Merivale intersections.
- Consider dual eastbound right turn lanes on Fallowfield Road at Woodroffe Avenue to improve the level of service and accommodate the existing and projected queues without and with site generated trips.
- Consider dual eastbound left turn lanes on Fallowfield Road at Merivale Road to improve the level of service and accommodate the existing and projected queues without and with site generated trips.
- Install traffic signals at Leikin / Bill Leathem based on high approach intersection delay during the AM peak hour (SB approach).

Site Traffic:

No additional modifications have been identified to accommodate site generated trips; however, a review of site driveway connections and lane requirements will be completed with site plan submission.

NOVATECH

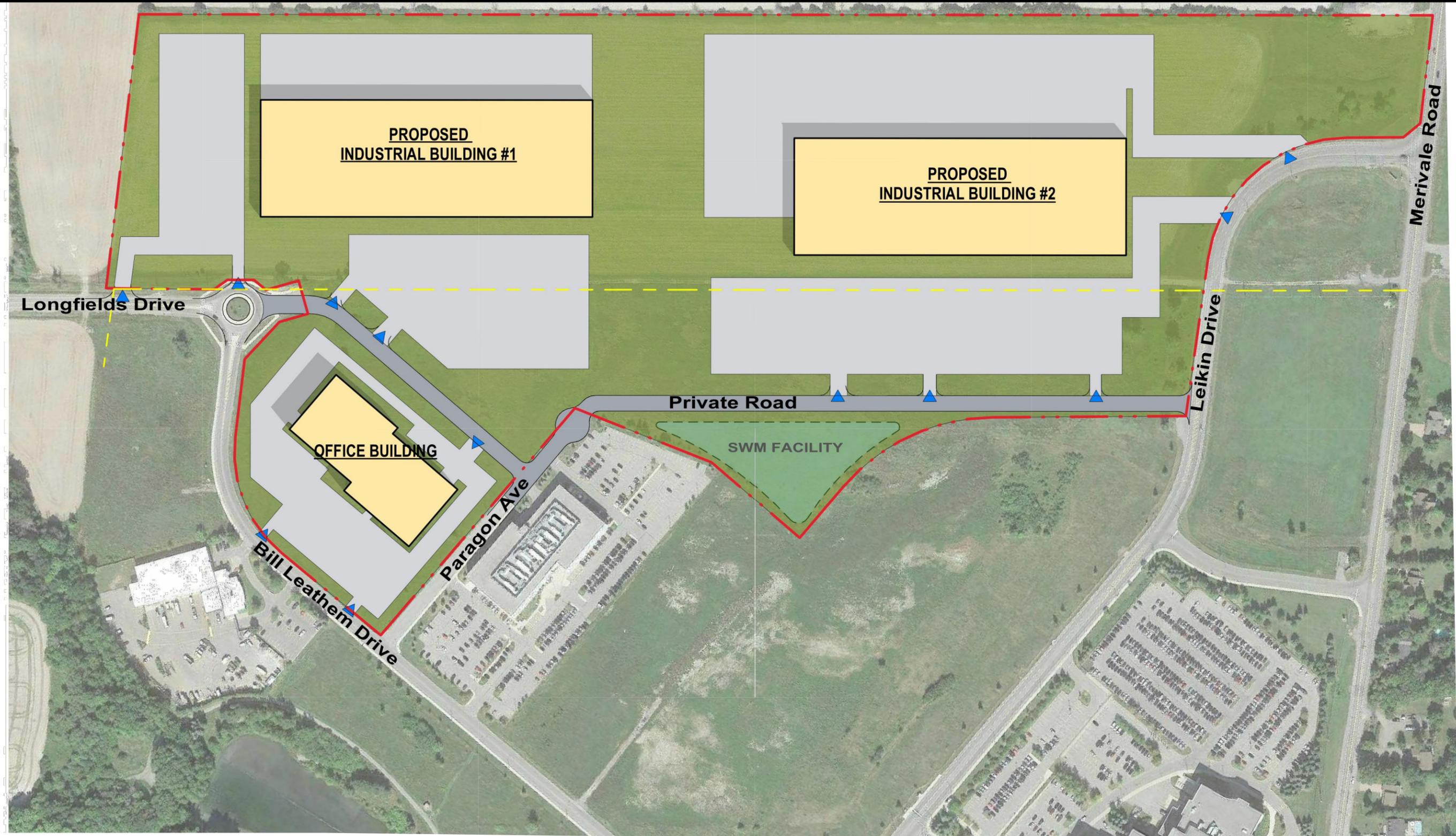
Prepared by:



Patrick Hatton, P.Eng.
Project Manager | Transportation/Traffic

APPENDIX A

Preliminary Concept Plan



M:\2020\120187\CAD\Design\Figures\Concept Plan\CONCEPT PLAN.dwg, CP, Mar 24, 2021 - 12:29pm, amestwarp

NOVATECH

Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6

Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

SOUTH MERIVALE BUSINESS PARK
99 BILL LEATHEM DRIVE, 2 LEIKIN DRIVE
AND 20 LEIKIN DRIVE, CITY OF OTTAWA

CONCEPT PLAN

SCALE	N.T.S		
DATE	MARCH 2021	JOB	120187
FIGURE	CP		

APPENDIX B

TIA Screening Form

City of Ottawa 2017 TIA Guidelines Screening Form

1. Description of Proposed Development

Municipal Address	99 Bill Leathem Drive, 2 Leikin Drive, and 20 Leikin Drive
Description of Location	North of Bill Leathem / Longfields
Land Use Classification	Industrial/office
Development Size (units)	
Development Size (m ²)	TBD
Number of Accesses and Locations	Several connections to Leikin Drive, Paragon Avenue, Longfields Drive, Bill Leathem, and Private Road
Phase of Development	
Buildout Year	2026

If available, please attach a sketch of the development or site plan to this form.

2. Trip Generation Trigger

Considering the Development’s Land Use type and Size (as filled out in the previous section), please refer to the Trip Generation Trigger checks below.

Land Use Type	Minimum Development Size
Single-family homes	40 units
Townhomes or apartments	90 units
Office	3,500 m ²
Industrial	5,000 m ²
Fast-food restaurant or coffee shop	100 m ²
Destination retail	1,000 m ²
Gas station or convenience market	75 m ²

** If the development has a land use type other than what is presented in the table above, estimates of person-trip generation may be made based on average trip generation characteristics represented in the current edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual.*

If the proposed development size is greater than the sizes identified above, the Trip Generation Trigger is satisfied.

3. Location Triggers

	Yes	No
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?		✓
Is the development in a Design Priority Area (DPA) or Transit-oriented Development (TOD) zone?*		✓

*DPA and TOD are identified in the City of Ottawa Official Plan (DPA in Section 2.5.1 and Schedules A and B; TOD in Annex 6). See Chapter 4 for a list of City of Ottawa Planning and Engineering documents that support the completion of TIA).

If any of the above questions were answered with 'Yes,' the Location Trigger is satisfied.

4. Safety Triggers

	Yes	No
Are posted speed limits on a boundary street are 80 km/hr or greater?	✓	
Are there any horizontal/vertical curvatures on a boundary street limits sight lines at a proposed driveway?	✓	
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)?	✓	
Is the proposed driveway within auxiliary lanes of an intersection?		✓
Does the proposed driveway make use of an existing median break that serves an existing site?		✓
Is there is a documented history of traffic operations or safety concerns on the boundary streets within 500 m of the development?		✓
Does the development include a drive-thru facility?		✓

If any of the above questions were answered with 'Yes,' the Safety Trigger is satisfied.

5. Summary

	Yes	No
Does the development satisfy the Trip Generation Trigger?	✓	
Does the development satisfy the Location Trigger?		✓
Does the development satisfy the Safety Trigger?	✓	

If none of the triggers are satisfied, the TIA Study is complete. If one or more of the triggers is satisfied, the TIA Study must continue into the next stage (Screening and Scoping).

APPENDIX C

OC Transpo System Information





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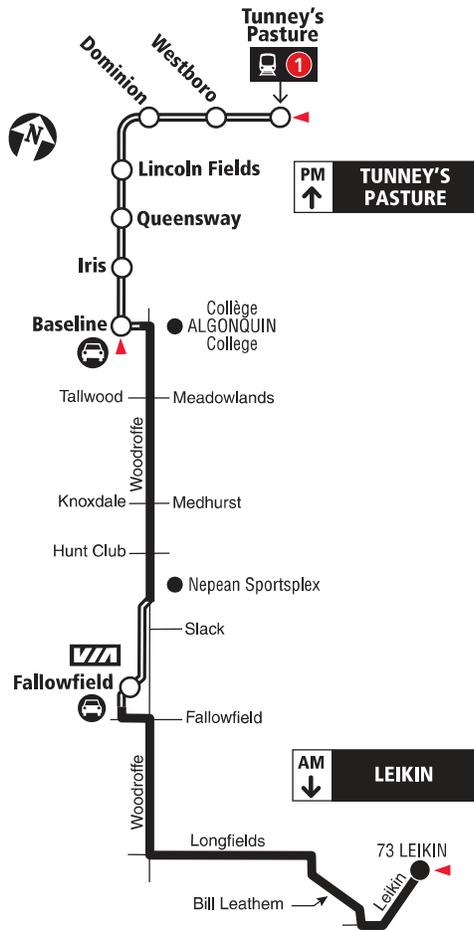
LEIKIN TUNNEY'S PASTURE

Local

Monday to Friday / Lundi au vendredi

Peak periods only

Périodes de pointe seulement



- Transitway & Station
- Park & Ride / Parc-o-bus
- Timepoint / Heures de passage

2019.07

Future route after O-Train Line 1 is open
Trajet du circuit après l'ouverture de la Ligne 1 de l'O-Train

Lost and Found / Objets perdus..... 613-563-4011
 Security / Sécurité 613-741-2478

INFO 613-741-4390
 octranspo.com

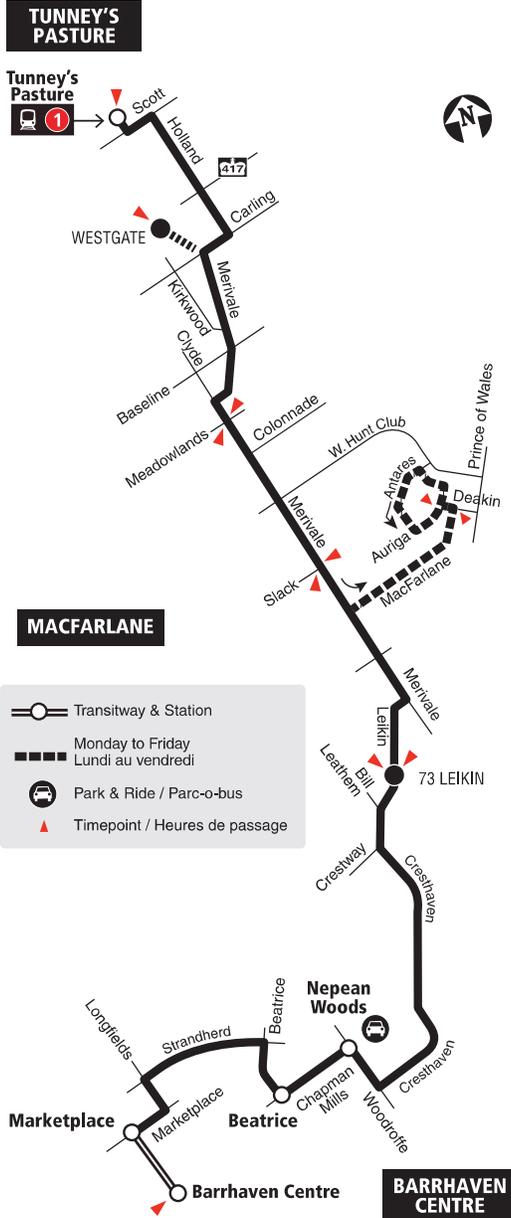


80

BARRHAVEN CENTRE TUNNEY'S PASTURE

Fréquent

7 days a week / 7 jours par semaine
All day service
Service toute la journée



2018.12

 **Schedule / Horaire.....613-560-1000**
Text / Texto560560
plus your four digit bus stop number / plus votre numéro d'arrêt à quatre chiffres

Customer Relations
 Service à la clientèle 613-842-3600

Lost and Found / Objets perdus..... 613-563-4011
 Security / Sécurité..... 613-741-2478

Effective June 24, 2018
En vigueur 24 juin 2018

 **INFO 613-741-4390**
 octranspo.com

199

LEIKIN HURDMAN

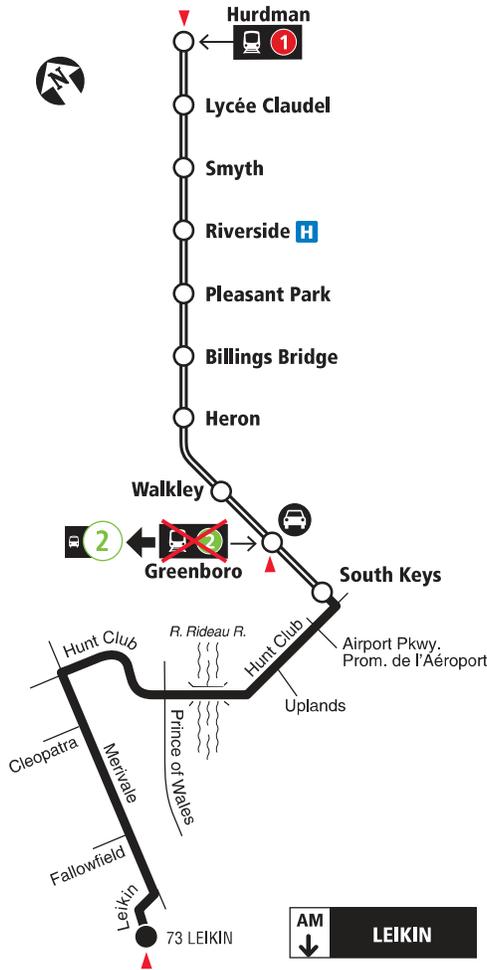
Local

Monday to Friday / Lundi au vendredi

Peak periods only

Périodes de pointe seulement

PM
↑
HURDMAN



AM
↓
LEIKIN

- Transitway & Station
- Park & Ride / Parc-o-bus
- Timepoint / Heures de passage

2020.04



Schedule / Horaire..... 613-560-1000

Text / Texto560560

plus your four digit bus stop number / plus votre numéro d'arrêt à quatre chiffres

Customer Service

Service à la clientèle **613-741-4390**

Lost and Found / Objets perdus..... **613-563-4011**

Security / Sécurité **613-741-2478**

Effective May 3, 2020

En vigueur 3 mai 2020



INFO 613-741-4390
octranspo.com



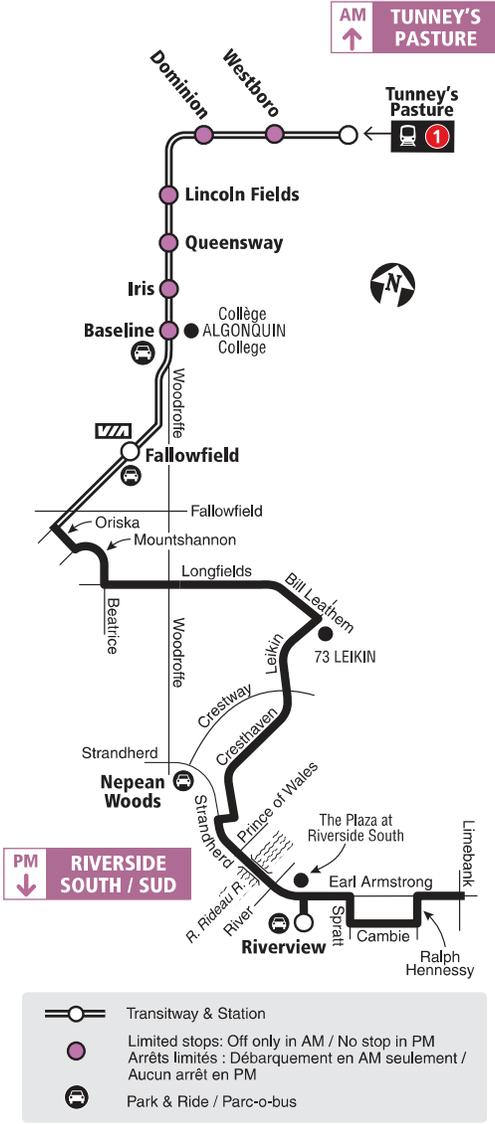
278 RIVERSIDE SOUTH / SUD TUNNEY'S PASTURE

Connexion

Monday to Friday / Lundi au vendredi

Peak periods only

Périodes de pointe seulement



2020.01

Schedule / Horaire.....613-560-1000
Text / Texto560560
plus your four digit bus stop number / plus votre numéro d'arrêt à quatre chiffres

Customer Service
 Service à la clientèle **613-741-4390**

Lost and Found / Objets perdus..... **613-563-4011**
 Security / Sécurité..... **613-741-2478**

Effective December 2, 2018
En vigueur 2 décembre 2018

INFO 613-741-4390
 octranspo.com

APPENDIX D

Traffic Count Data

Turning Movement Count - Peak Hour Diagram

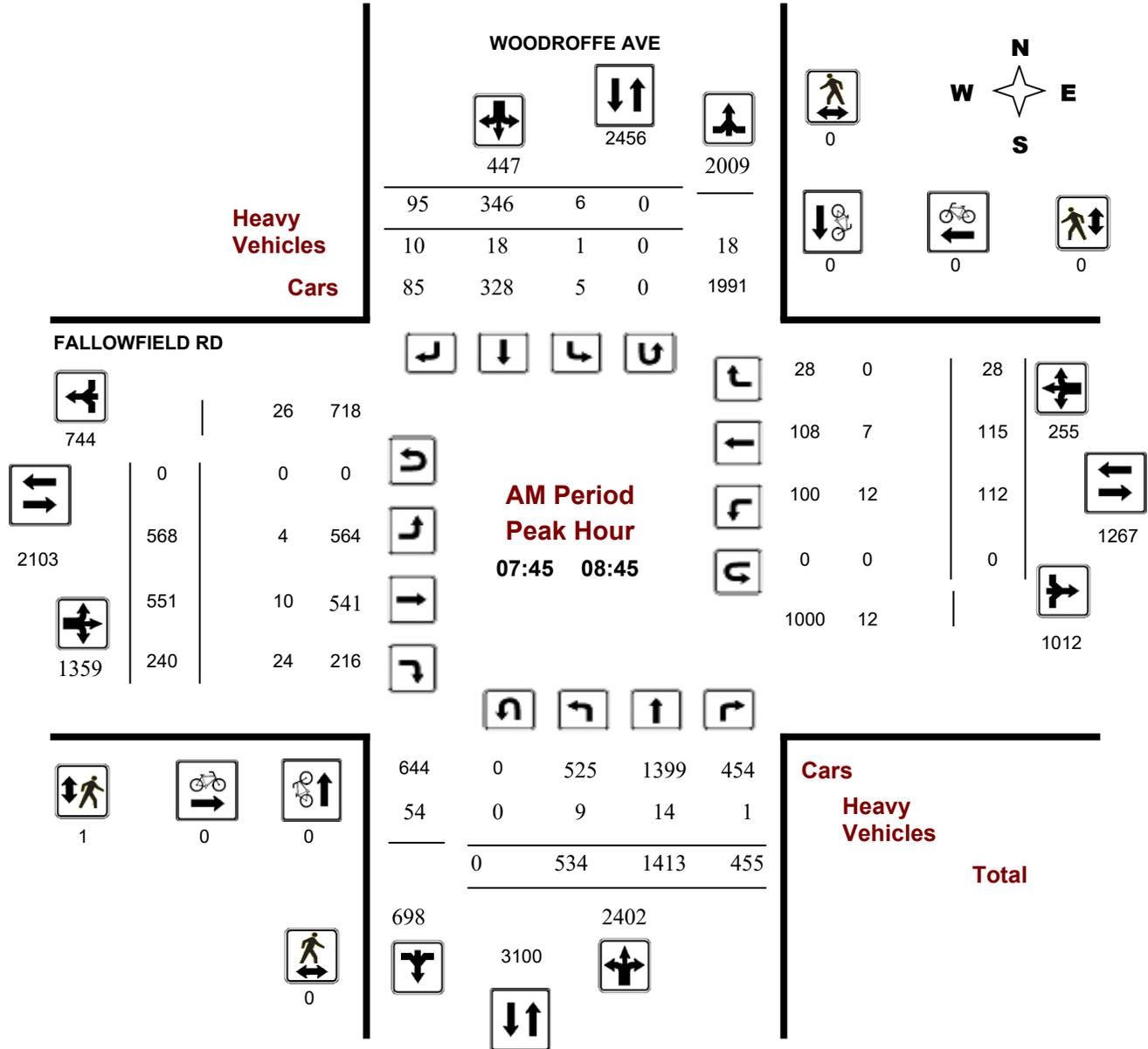
FALLOWFIELD RD @ WOODROFFE AVE

Survey Date: Thursday, March 02, 2017

Start Time: 07:00

WO No: 36731

Device: Miovision



Comments

Turning Movement Count - Peak Hour Diagram

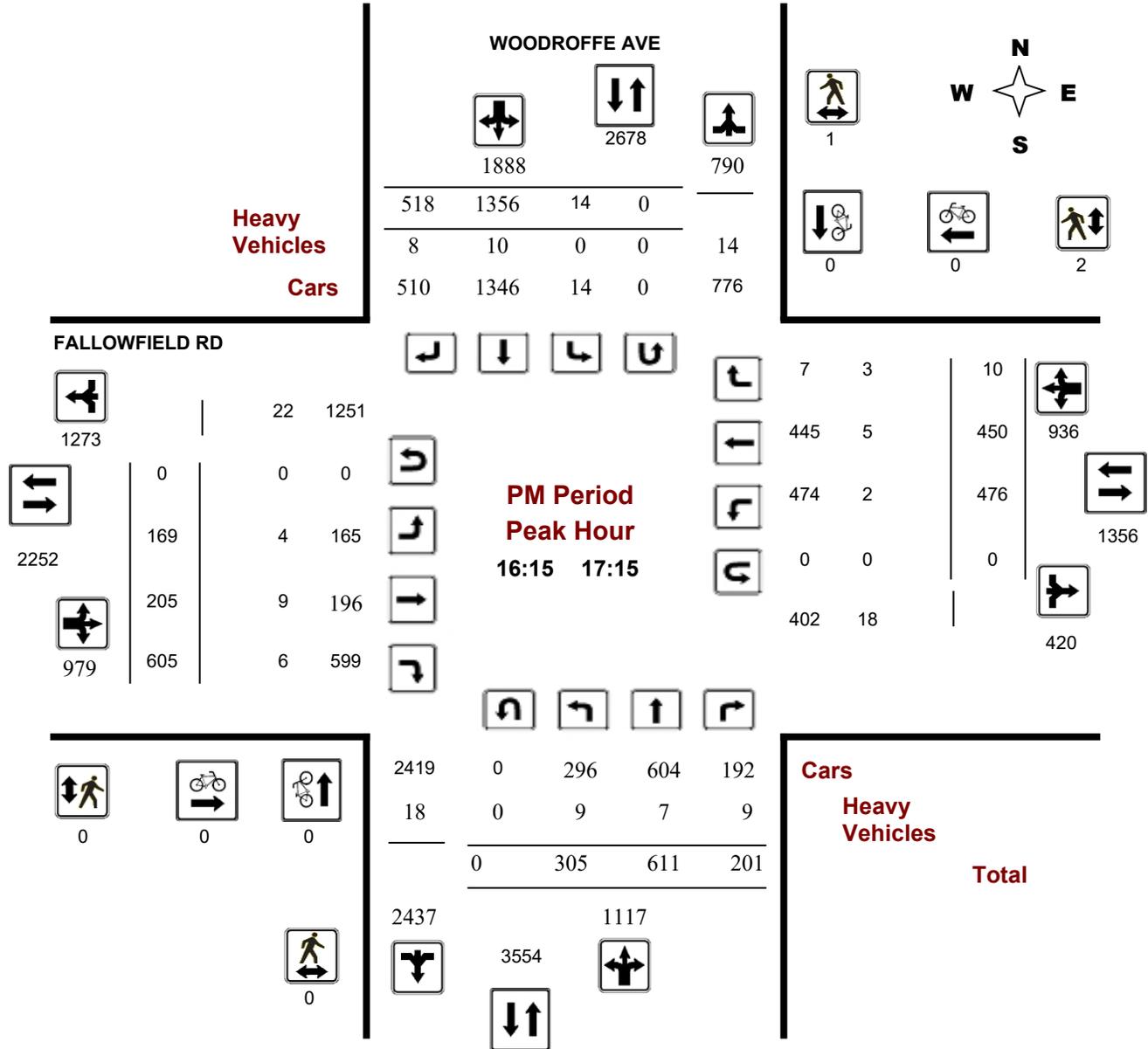
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Survey Date: Thursday, March 02, 2017

Start Time: 07:00

WO No: 36731

Device: Miovision



Turning Movement Count - Peak Hour Diagram

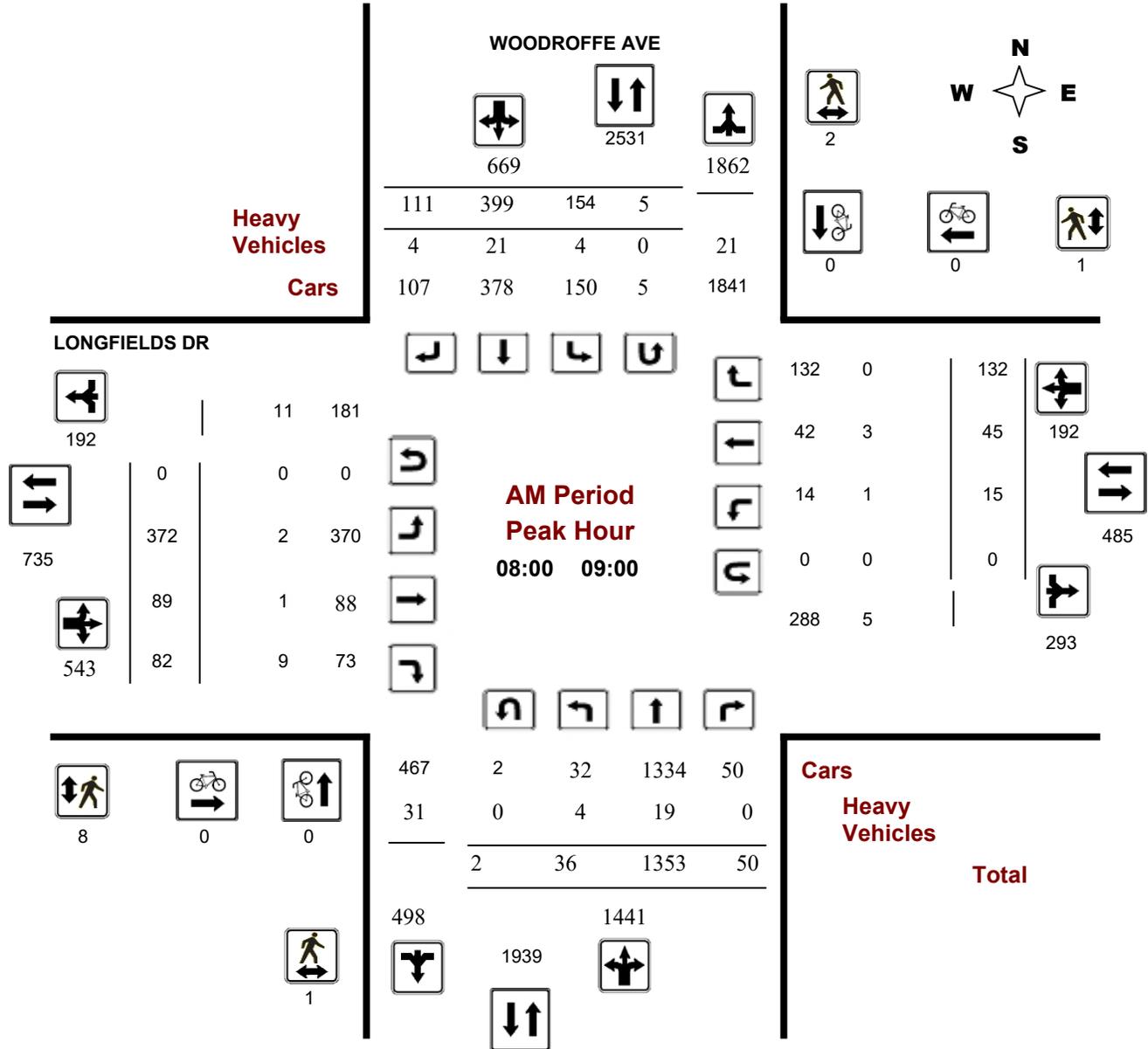
LONGFIELDS DR @ WOODROFFE AVE

Survey Date: Thursday, March 02, 2017

Start Time: 07:00

WO No: 36732

Device: Miovision



Turning Movement Count - Peak Hour Diagram

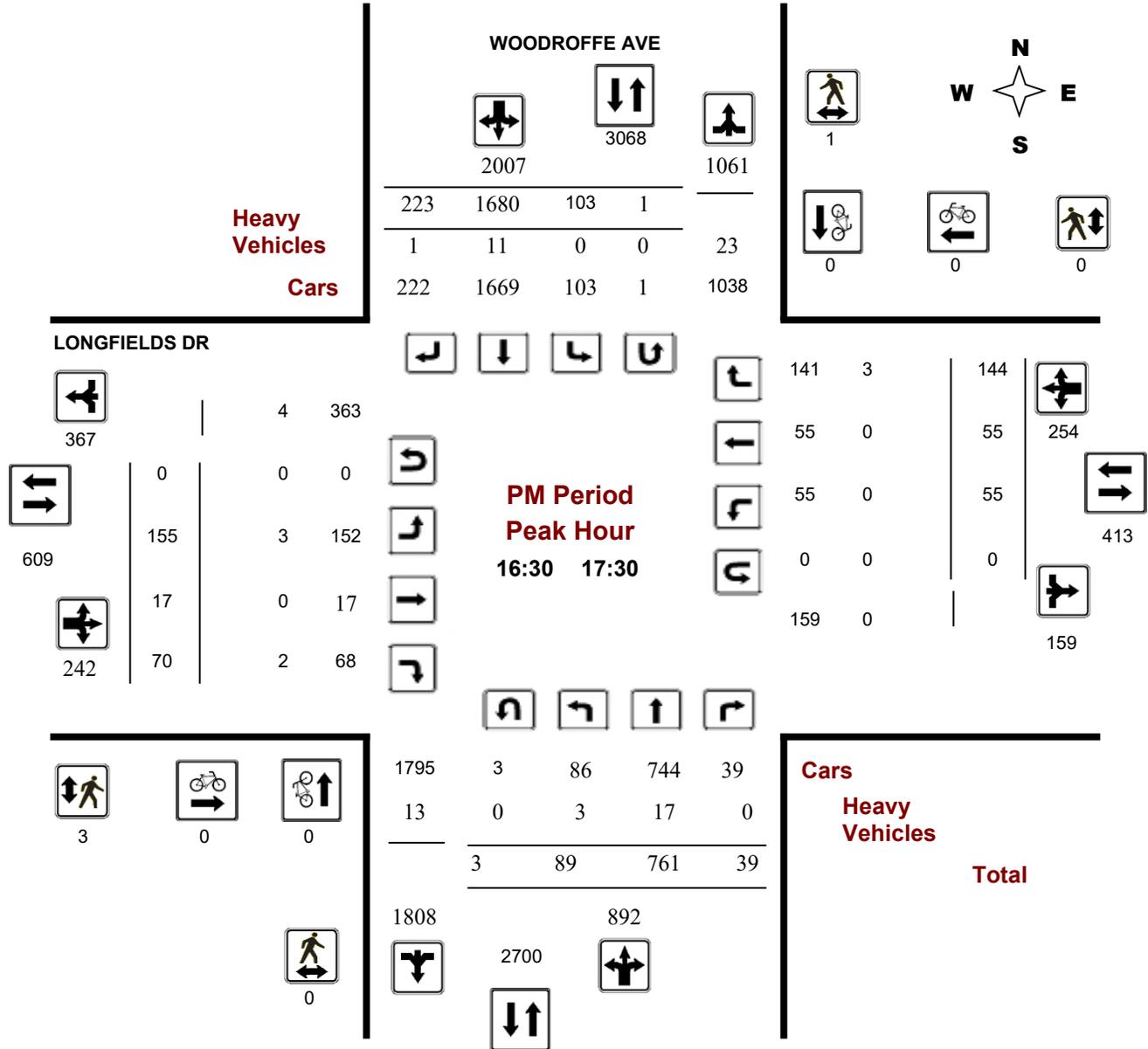
LONGFIELDS DR @ WOODROFFE AVE

Survey Date: Thursday, March 02, 2017

Start Time: 07:00

WO No: 36732

Device: Miovision



Turning Movement Count - Peak Hour Diagram

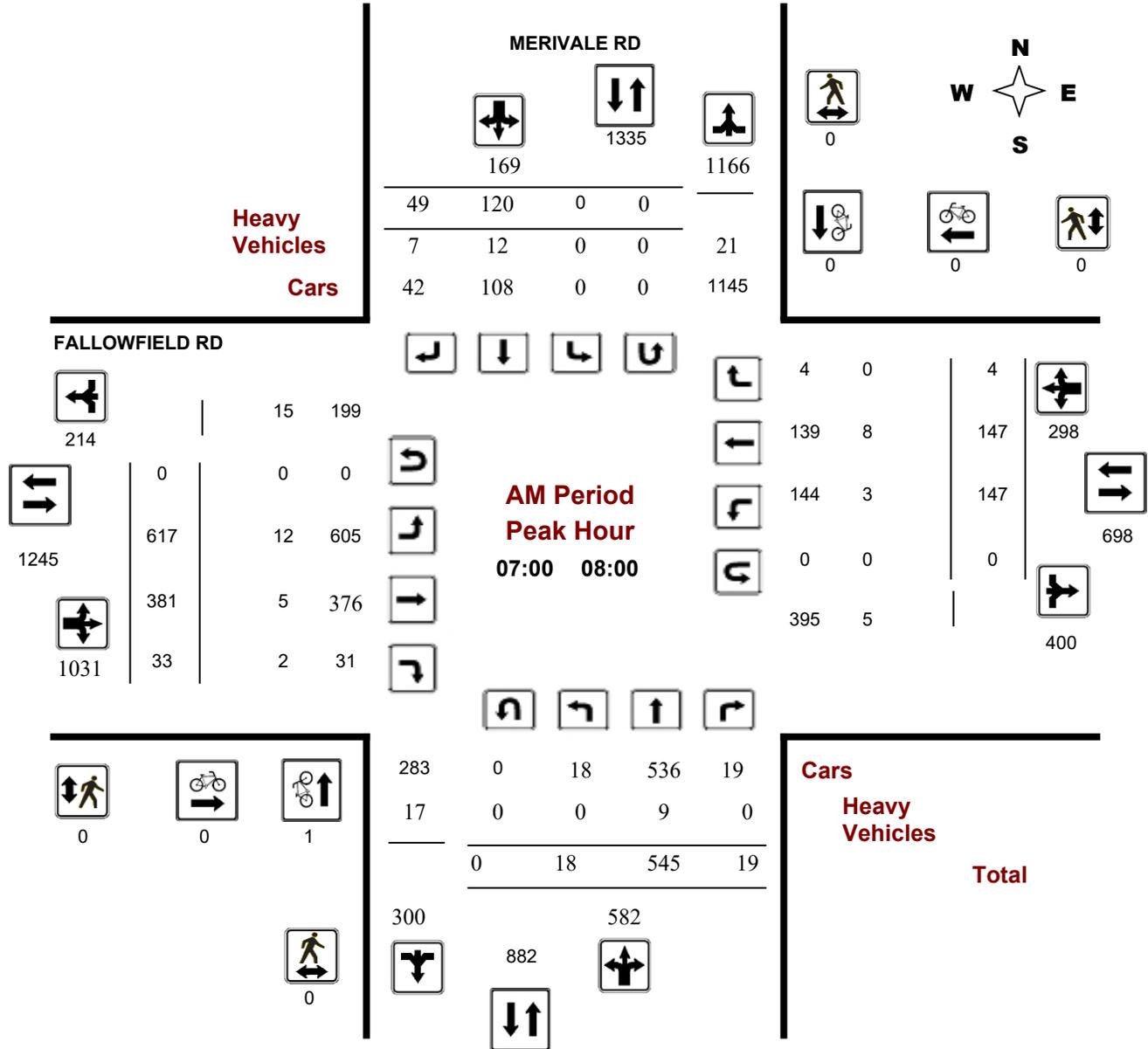
FALLOWFIELD RD @ MERIVALE RD

Survey Date: Thursday, March 02, 2017

Start Time: 07:00

WO No: 36728

Device: Miovision



Turning Movement Count - Peak Hour Diagram

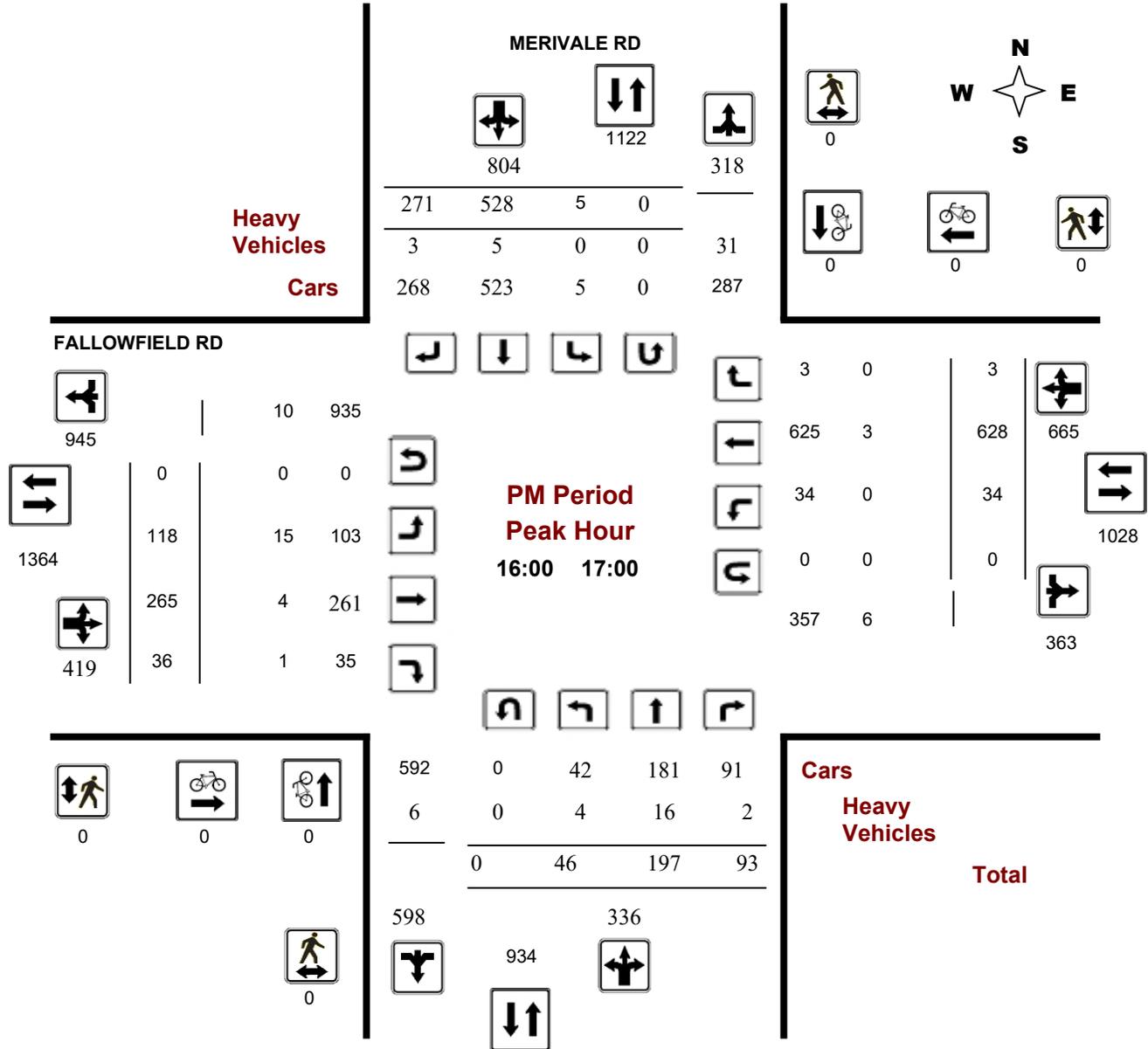
FALLOWFIELD RD @ MERIVALE RD

Survey Date: Thursday, March 02, 2017

Start Time: 07:00

WO No: 36728

Device: Miovision



Turning Movement Count - Peak Hour Diagram

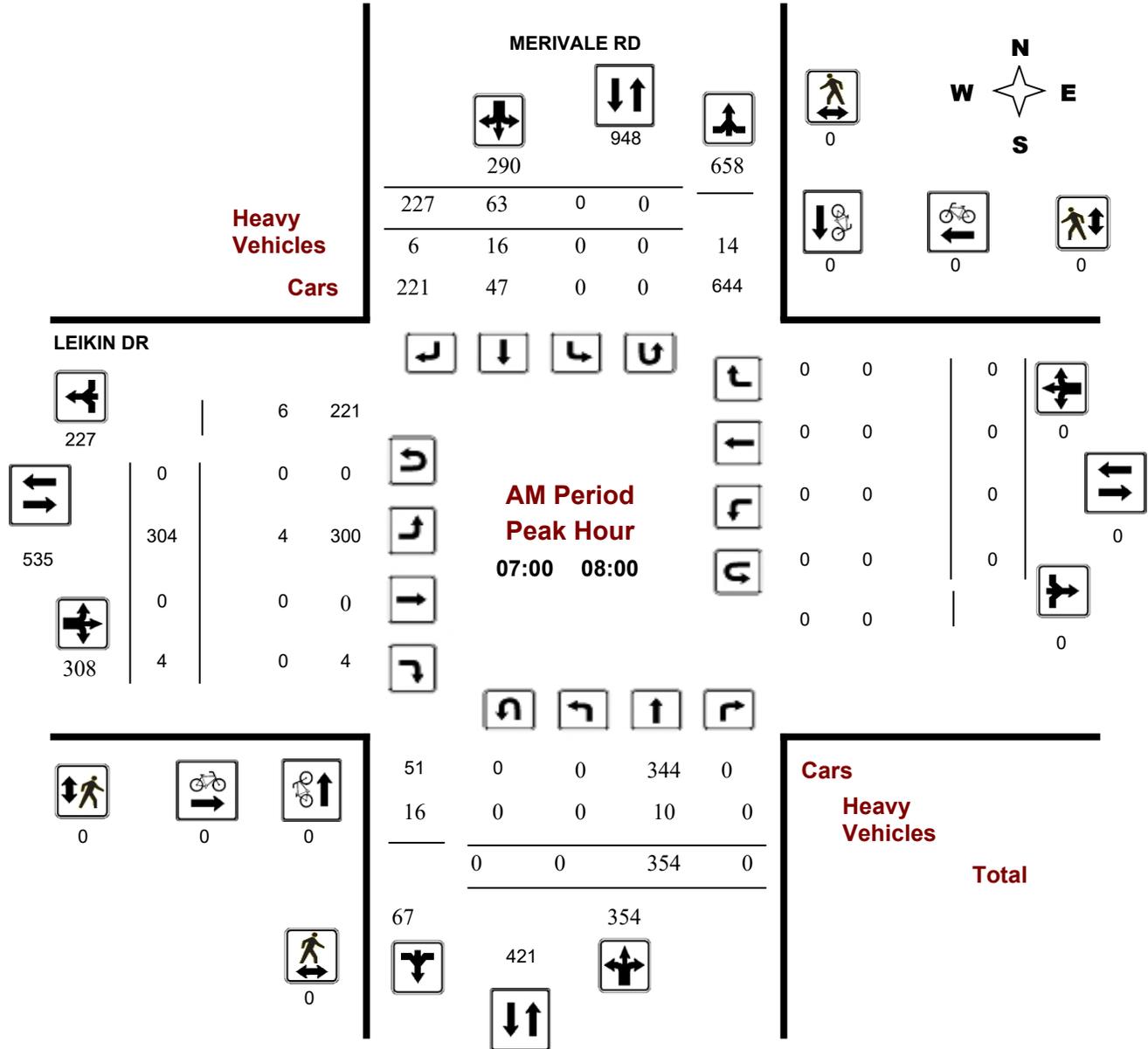
LEIKIN DR @ MERIVALE RD

Survey Date: Wednesday, November 21, 2018

Start Time: 07:00

WO No: 38135

Device: Miovision



Turning Movement Count - Peak Hour Diagram

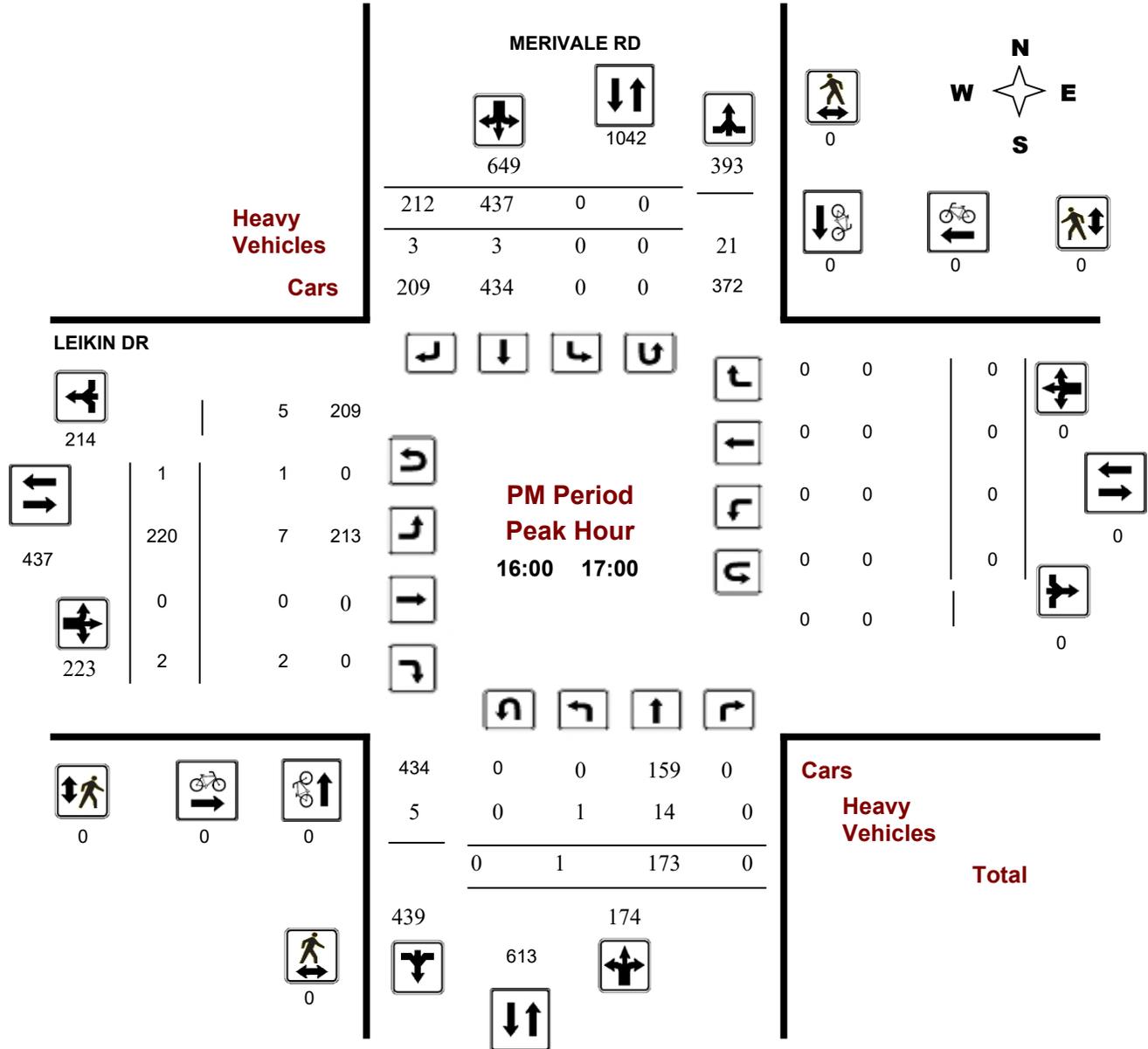
LEIKIN DR @ MERIVALE RD

Survey Date: Wednesday, November 21, 2018

Start Time: 07:00

WO No: 38135

Device: Miovision



Turning Movement Count - Peak Hour Diagram

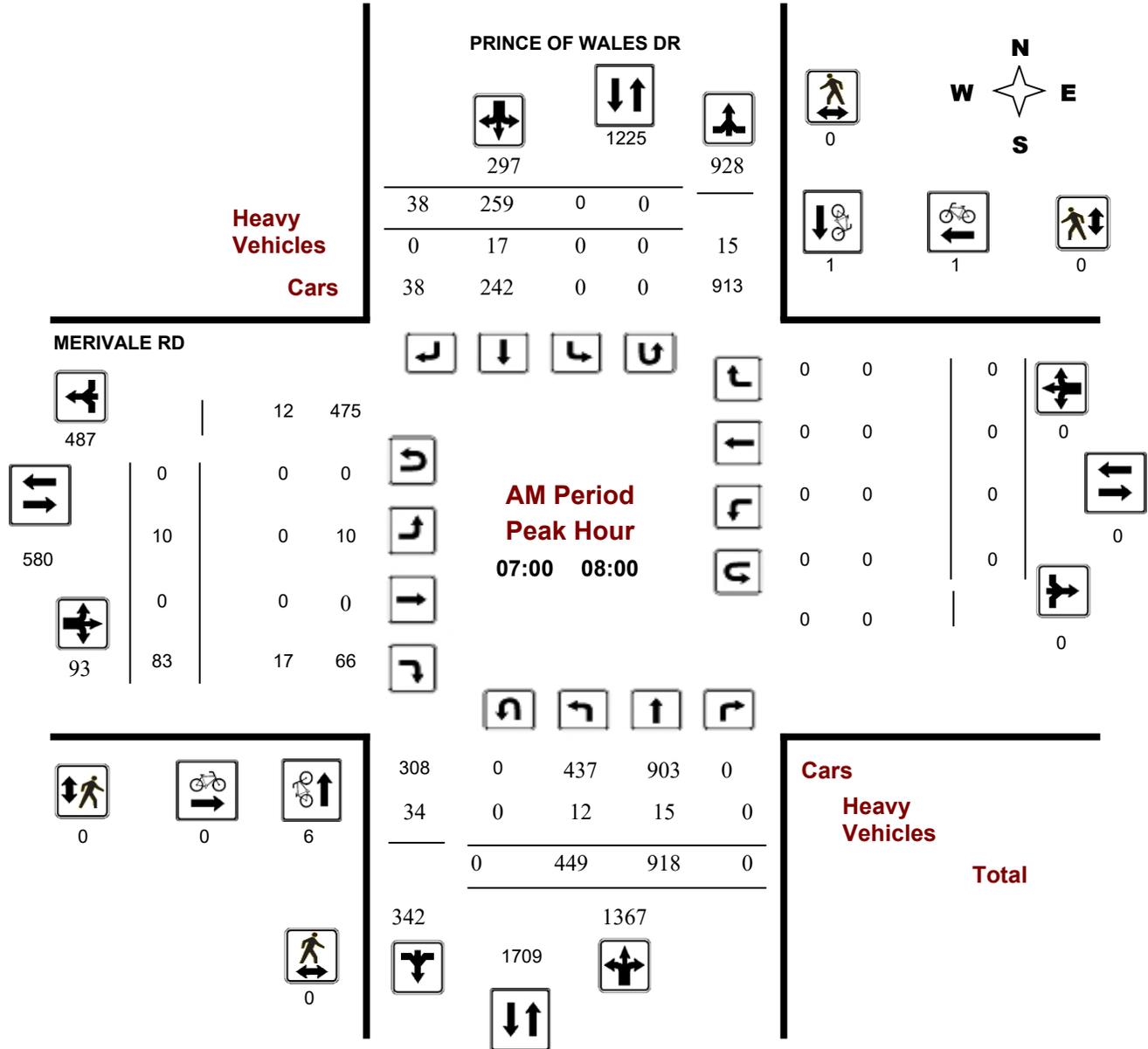
PRINCE OF WALES DR @ MERIVALE RD

Survey Date: Wednesday, June 13, 2018

Start Time: 07:00

WO No: 37904

Device: Miovision



Turning Movement Count - Peak Hour Diagram

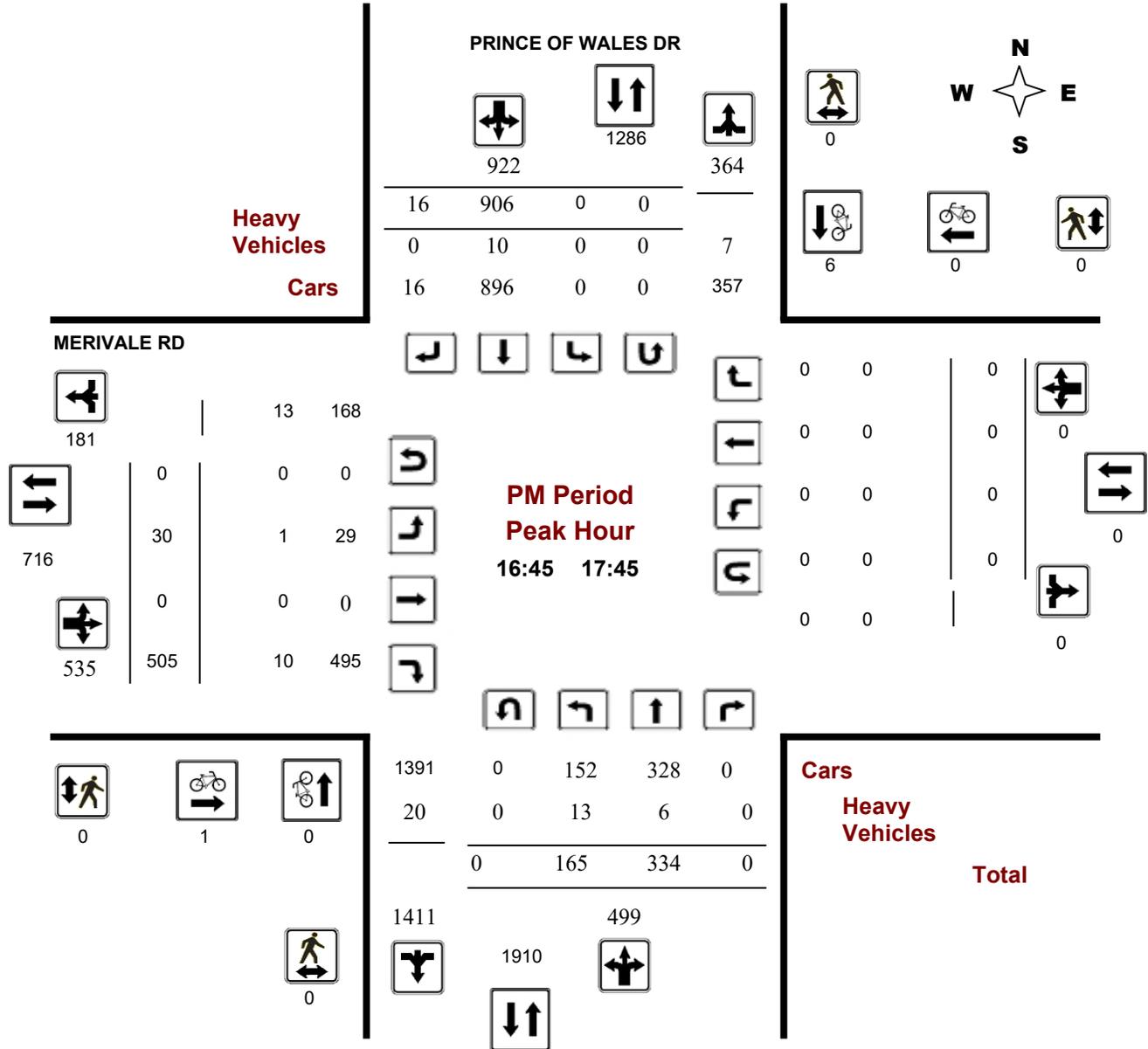
PRINCE OF WALES DR @ MERIVALE RD

Survey Date: Wednesday, June 13, 2018

Start Time: 07:00

WO No: 37904

Device: Miovision





Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

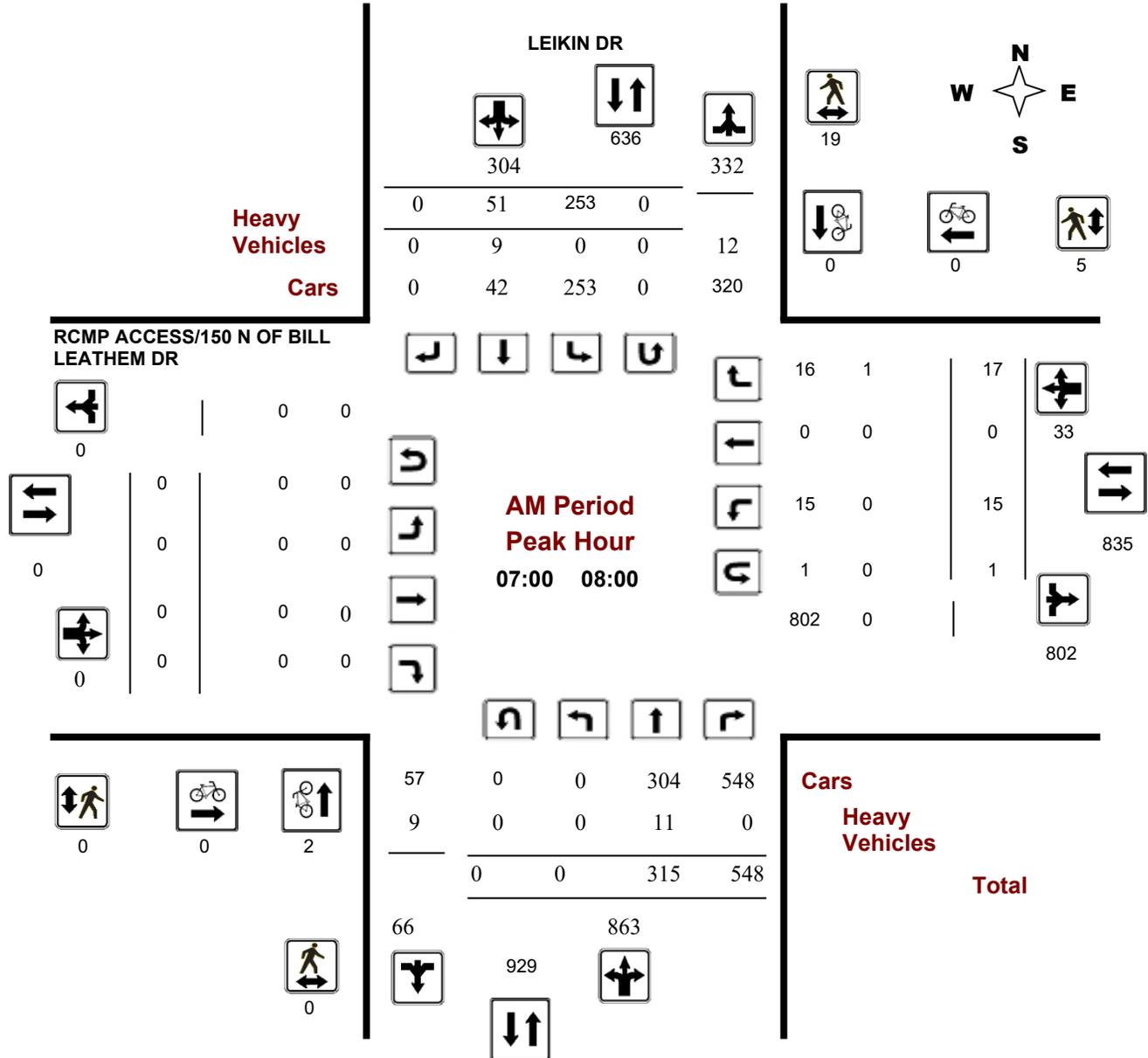
LEIKIN DR @ RCMP ACCESS/150 N OF BILL LEATHEM DR

Survey Date: Tuesday, January 14, 2020

Start Time: 07:00

WO No: 39311

Device: Miovision



Comments 5470790 - TUE JAN 14, 2020 - 8HRS - LORETTA



Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

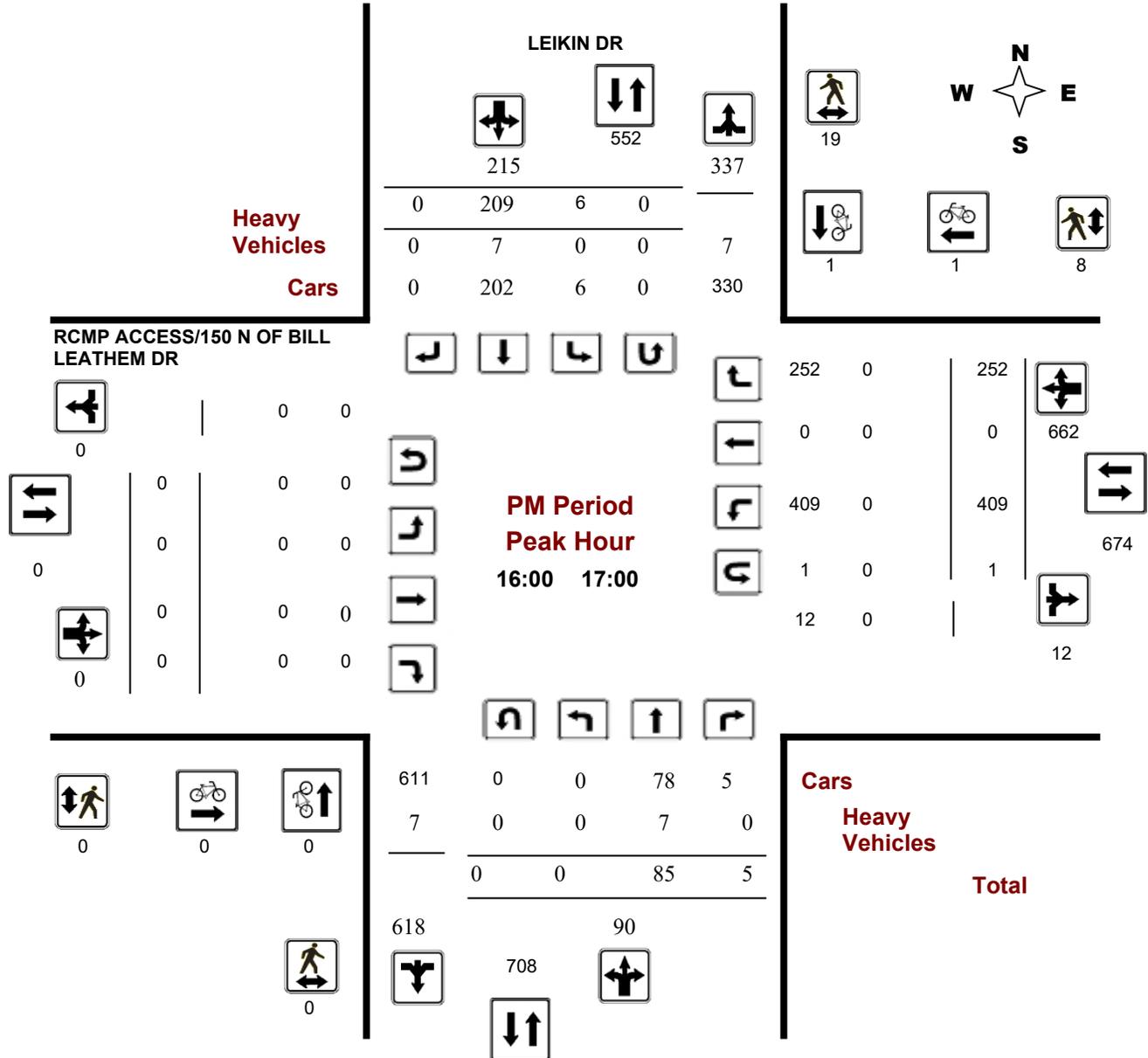
LEIKIN DR @ RCMP ACCESS/150 N OF BILL LEATHEM DR

Survey Date: Tuesday, January 14, 2020

Start Time: 07:00

WO No: 39311

Device: Miovision



Comments 5470790 - TUE JAN 14, 2020 - 8HRS - LORETTA



Transportation Services - Traffic Services

Turning Movement Count - Peak Hour Diagram

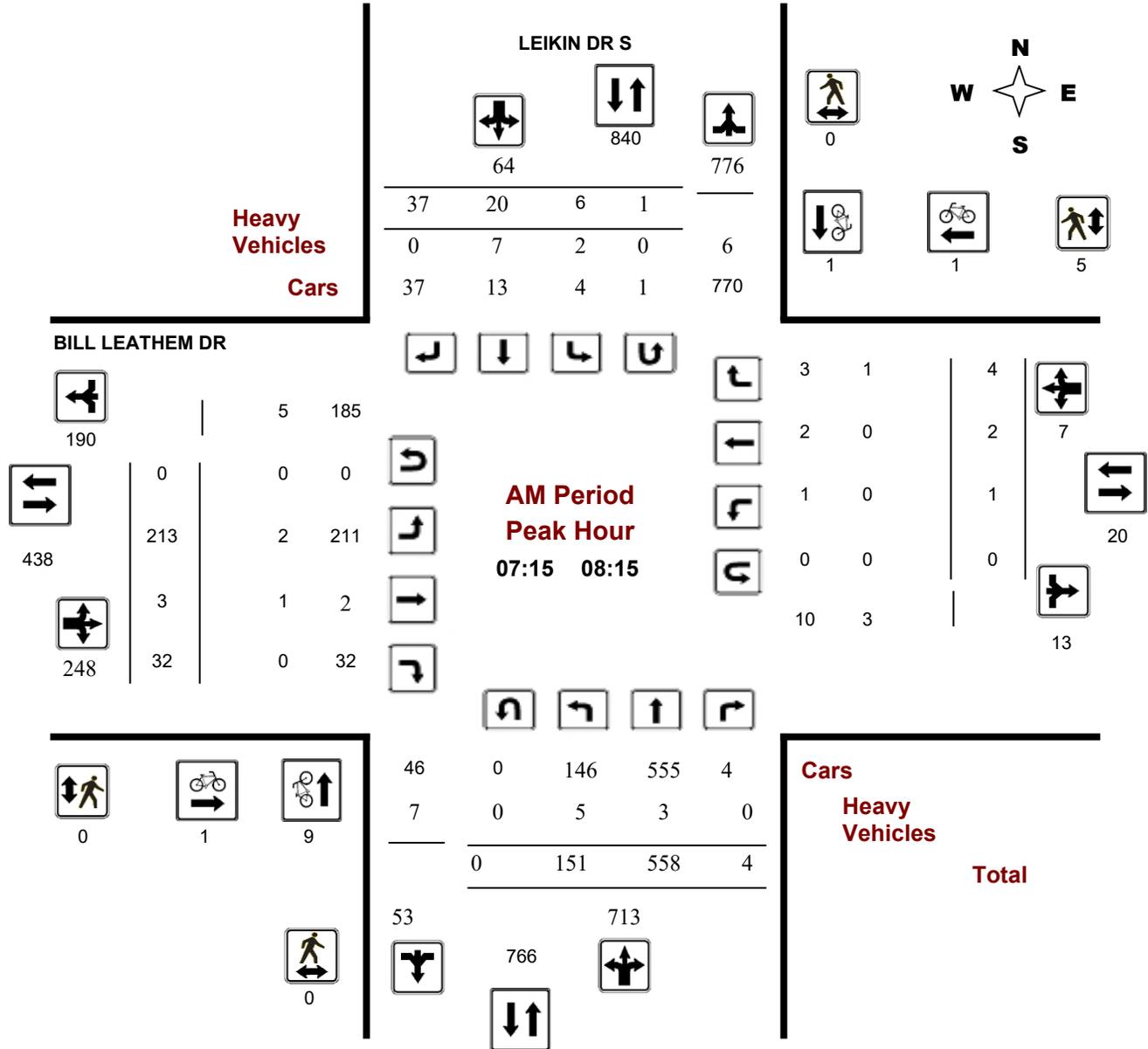
BILL LEATHEM DR @ LEIKIN DR S

Survey Date: Wednesday, June 12, 2019

Start Time: 07:00

WO No: 38659

Device: Miovision



Turning Movement Count - Peak Hour Diagram

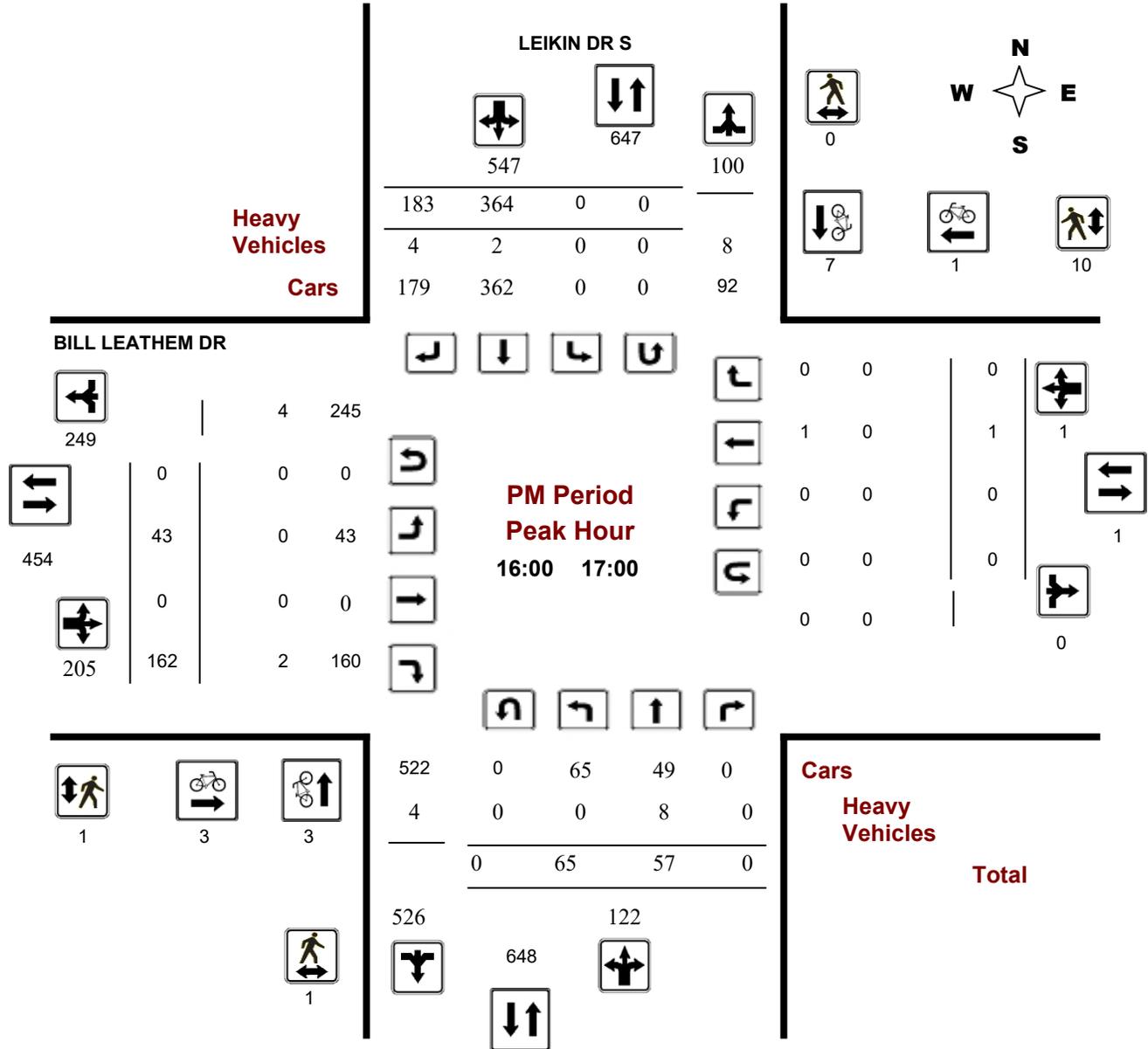
BILL LEATHEM DR @ LEIKIN DR S

Survey Date: Wednesday, June 12, 2019

Start Time: 07:00

WO No: 38659

Device: Miovision



Turning Movement Count - Peak Hour Diagram

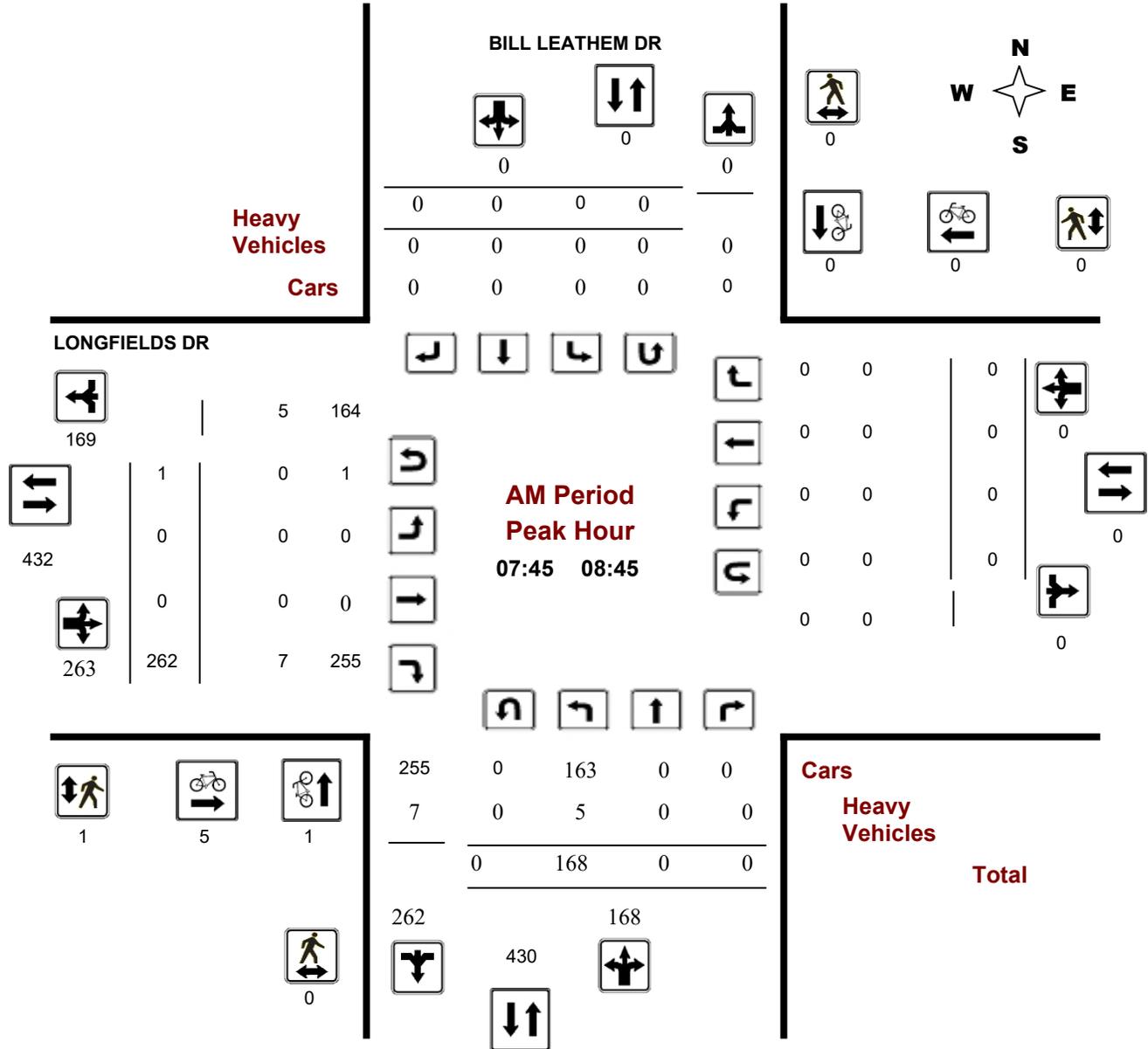
BILL LEATHEM DR @ LONGFIELDS DR

Survey Date: Wednesday, June 10, 2015

Start Time: 07:00

WO No: 35082

Device: Miovision



Turning Movement Count - Peak Hour Diagram

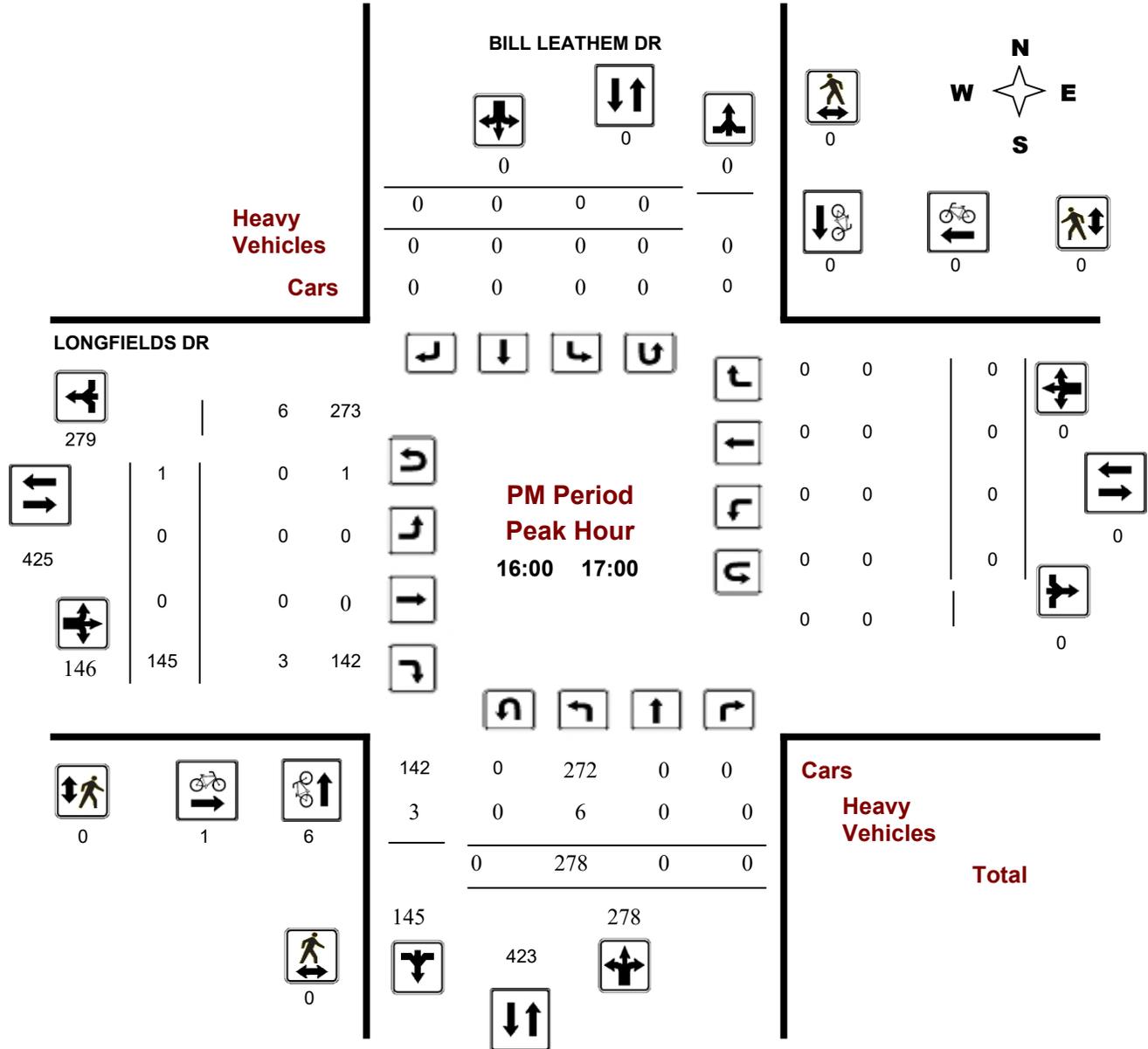
BILL LEATHEM DR @ LONGFIELDS DR

Survey Date: Wednesday, June 10, 2015

Start Time: 07:00

WO No: 35082

Device: Miovision



TRANS Regional Model

Version 2.15 - Assigned June 16, 2020

AM Peak Hour Total Traffic Volume

Woodroffe/PrinceofWales

2011 Model - Basecase

N/A

User Initials: TIMW

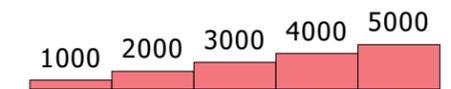
Plot Prepared: Feb 2, 2020

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 a 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

Woodroffe/PrinceofWales

2031 Model - Basecase

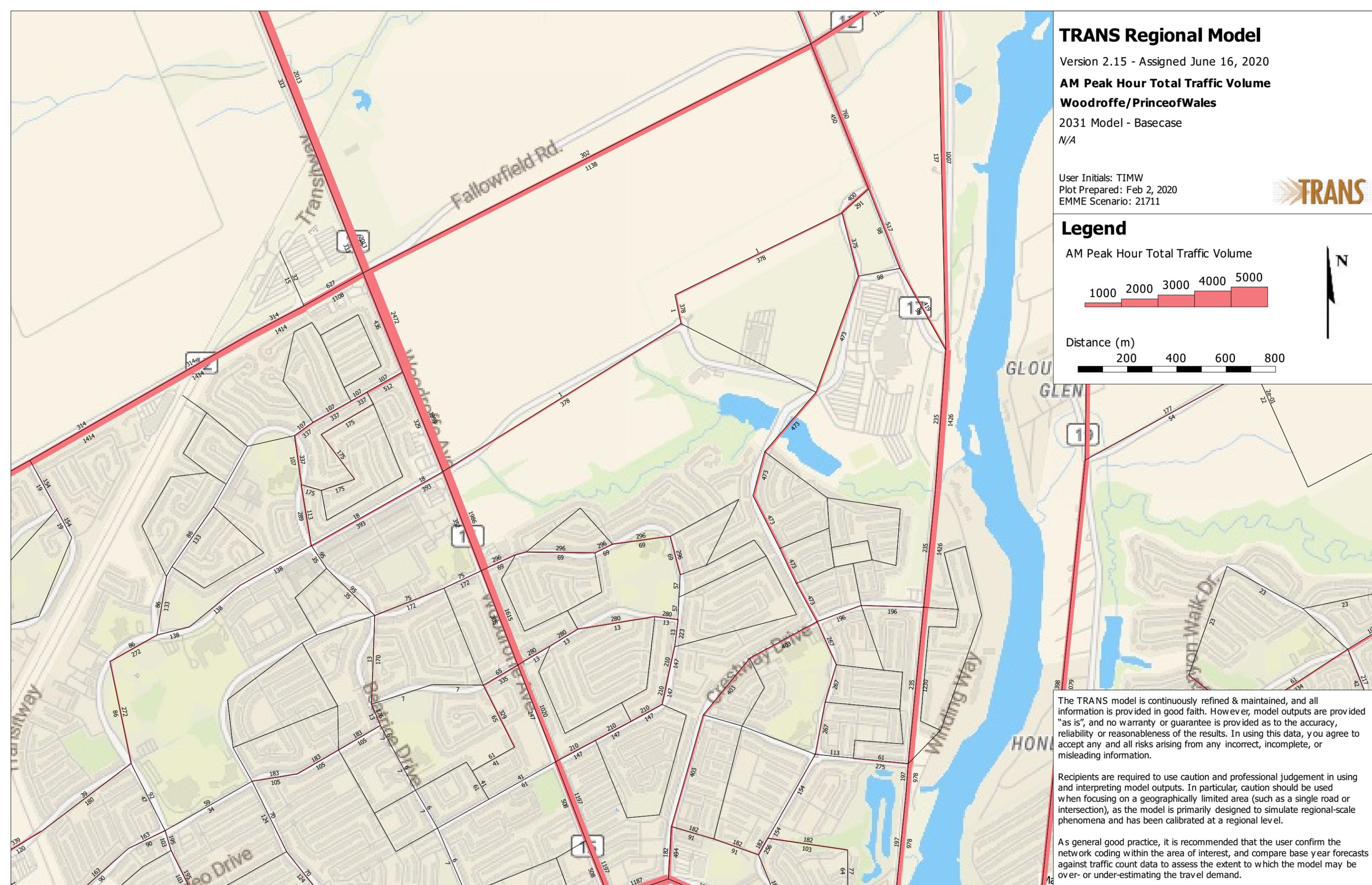
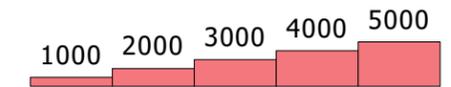
N/A

User Initials: TIMW
Plot Prepared: Feb 2, 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 a 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 E

Collision Records



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: BILL LEATHEM DR @ LEIKIN DR S

Traffic Control: Stop sign

Total Collisions: 6

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2016-Feb-14, Sun,11:12	Drifting Snow	SMV other	P.D. only	Ice	East	Going ahead	Automobile, station wagon	Skidding/sliding	0
2016-Mar-28, Mon,15:59	Clear	Rear end	P.D. only	Wet	South	Going ahead	Pick-up truck	Other motor vehicle	0
					South	Stopped	Passenger van	Other motor vehicle	
2017-Sep-29, Fri,22:50	Rain	Angle	P.D. only	Wet	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Turning left	Automobile, station wagon	Other motor vehicle	
2018-Dec-06, Thu,14:10	Clear	Angle	Non-fatal injury	Dry	East	Going ahead	Truck - closed	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Sep-23, Mon,07:42	Rain	Other	P.D. only	Wet	North	Reversing	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Oct-31, Thu,07:25	Rain	Angle	P.D. only	Wet	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: FALLOWFIELD RD @ MERIVALE RD

Traffic Control: Traffic signal

Total Collisions: 52

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2015-Jan-17, Sat,05:52	Clear	Rear end	P.D. only	Packed snow	East	Going ahead	Pick-up truck	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Jan-17, Sat,14:00	Clear	SMV other	P.D. only	Ice	West	Going ahead	Automobile, station wagon	Ditch	0
2015-Feb-15, Sun,13:04	Clear	Angle	P.D. only	Loose snow	South	Turning right	Pick-up truck	Skidding/sliding	0
					East	Turning left	Pick-up truck	Other motor vehicle	
2015-Apr-06, Mon,15:27	Snow	SMV other	Non-fatal injury	Wet	East	Slowing or stopping	Automobile, station wagon	Pole (utility, power)	0
2015-May-25, Mon,13:49	Rain	Rear end	P.D. only	Other	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					East	Turning left	Automobile, station wagon	Other motor vehicle	
					East	Turning left	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: FALLOWFIELD RD @ MERIVALE RD

Traffic Control: Traffic signal

Total Collisions: 52

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2015-Jul-28, Tue,17:36	Clear	Rear end	P.D. only	Dry	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Pick-up truck	Other motor vehicle	
					South	Stopped	Pick-up truck	Other motor vehicle	
2015-Aug-16, Sun,17:39	Clear	Angle	Non-fatal injury	Dry	North	Going ahead	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Pick-up truck	Other motor vehicle	
2015-Aug-25, Tue,08:00	Clear	Rear end	P.D. only	Dry	West	Going ahead	Pick-up truck	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Aug-28, Fri,22:38	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Oct-03, Sat,04:29	Clear	Angle	P.D. only	Dry	North	Turning right	Unknown	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Nov-18, Wed,17:03	Clear	Rear end	P.D. only	Dry	North	Going ahead	Pick-up truck	Other motor vehicle	0
					North	Stopped	Pick-up truck	Other motor vehicle	
					North	Slowing or stopping	Pick-up truck	Other motor vehicle	
2015-Dec-01, Tue,14:19	Rain	Rear end	P.D. only	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Pick-up truck	Other motor vehicle	
2015-Dec-09, Wed,15:37	Clear	Sideswipe	P.D. only	Dry	South	Turning right	Truck - closed	Other motor vehicle	0
					South	Turning right	Automobile, station wagon	Other motor vehicle	
2015-Dec-17, Thu,12:51	Clear	Turning movement	P.D. only	Wet	South	Turning left	Pick-up truck	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Dec-28, Mon,19:57	Clear	Turning movement	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Turning left	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 **To:** December 31, 2019

Location: FALLOWFIELD RD @ MERIVALE RD

Traffic Control: Traffic signal

Total Collisions: 52

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2016-Jan-18, Mon,09:40	Snow	Rear end	P.D. only	Loose snow	North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2016-Feb-10, Wed,10:31	Clear	Turning movement	P.D. only	Wet	North	Going ahead	Pick-up truck	Other motor vehicle	0
					South	Turning left	Automobile, station wagon	Other motor vehicle	
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Mar-21, Mon,15:28	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2016-Apr-06, Wed,17:02	Snow	Rear end	P.D. only	Slush	North	Slowing or stopping	Passenger van	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2016-May-01, Sun,15:48	Rain	Rear end	P.D. only	Wet	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Pick-up truck	Other motor vehicle	
2016-May-02, Mon,07:44	Clear	SMV other	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Ran off road	0
2016-Jul-12, Tue,18:31	Clear	Rear end	P.D. only	Dry	South	Going ahead	Pick-up truck	Other motor vehicle	0
					South	Going ahead	Passenger van	Other motor vehicle	
2016-Aug-12, Fri,07:44	Clear	Rear end	P.D. only	Wet	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2016-Sep-24, Sat,18:24	Clear	Rear end	Non-fatal injury	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					South	Turning right	Automobile, station wagon	Other motor vehicle	
2016-Oct-11, Tue,11:50	Clear	Rear end	P.D. only	Dry	North	Stopped	Pick-up truck	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: FALLOWFIELD RD @ MERIVALE RD

Traffic Control: Traffic signal

Total Collisions: 52

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2016-Nov-22, Tue,15:49	Clear	Turning movement	Non-fatal injury	Wet	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Dec-19, Mon,02:47	Freezing Rain	SMV other	Non-fatal injury	Ice	East	Going ahead	Automobile, station wagon	Skidding/sliding	0
2017-Jan-05, Thu,17:15	Clear	Rear end	P.D. only	Slush	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Pick-up truck	Other motor vehicle	
2017-Jan-05, Thu,18:32	Freezing Rain	Turning movement	P.D. only	Ice	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					North	Turning left	Municipal transit bus	Other motor vehicle	
2017-Jan-05, Thu,20:01	Freezing Rain	Rear end	P.D. only	Ice	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					South	Slowing or stopping	Pick-up truck	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Jan-19, Thu,16:16	Clear	Rear end	P.D. only	Wet	West	Slowing or stopping	Passenger van	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Mar-14, Tue,13:08	Snow	Rear end	P.D. only	Ice	South	Going ahead	Pick-up truck	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Apr-28, Fri,18:30	Clear	Rear end	P.D. only	Dry	North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Jul-31, Mon,16:53	Clear	Rear end	P.D. only	Dry	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Sep-08, Fri,15:58	Clear	Rear end	Non-fatal injury	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Oct-17, Tue,11:38	Clear	Angle	P.D. only	Dry	North	Going ahead	Pick-up truck	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: FALLOWFIELD RD @ MERIVALE RD

Traffic Control: Traffic signal

Total Collisions: 52

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2017-Oct-30, Mon,10:55	Rain	Turning movement	P.D. only	Wet	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Nov-15, Wed,18:46	Clear	Rear end	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Nov-18, Sat,11:50	Rain	Rear end	P.D. only	Wet	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Dec-09, Sat,22:30	Snow	SMV other	P.D. only	Loose snow	West	Going ahead	Automobile, station wagon	Skidding/sliding	0
2018-Feb-06, Tue,08:45	Clear	Rear end	P.D. only	Slush	North	Going ahead	Automobile, station wagon	Skidding/sliding	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Mar-31, Sat,12:50	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-May-10, Thu,11:28	Rain	Angle	Non-fatal injury	Wet	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-May-28, Mon,11:59	Clear	Angle	Non-fatal injury	Dry	South	Going ahead	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Oct-24, Wed,20:38	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Pick-up truck	Other motor vehicle	
2018-Nov-20, Tue,18:34	Snow	Rear end	P.D. only	Wet	West	Unknown	Unknown	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Jan-25, Fri,21:57	Clear	Angle	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Aug-25, Sun,16:20	Clear	Rear end	Non-fatal injury	Dry	East	Slowing or stopping	Pick-up truck	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: FALLOWFIELD RD @ MERIVALE RD

Traffic Control: Traffic signal

Total Collisions: 52

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2019-Sep-25, Wed,08:37	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2019-Oct-08, Tue,22:02	Clear	Turning movement	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Nov-25, Mon,14:36	Clear	Angle	P.D. only	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					East	Turning left	Automobile, station wagon	Other motor vehicle	
2019-Dec-27, Fri,13:13	Freezing Rain	Rear end	Non-fatal injury	Ice	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Passenger van	Other motor vehicle	

Location: FALLOWFIELD RD @ WOODROFFE AVE

Traffic Control: Traffic signal

Total Collisions: 106

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Jan-02, Fri,12:30	Clear	Rear end	P.D. only	Dry	East	Turning right	Pick-up truck	Other motor vehicle	0
					East	Turning right	Automobile, station wagon	Other motor vehicle	
2015-Jan-31, Sat,19:01	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Pick-up truck	Other motor vehicle	
2015-Feb-01, Sun,18:50	Clear	Rear end	P.D. only	Dry	North	Turning right	Pick-up truck	Other motor vehicle	0
					North	Turning right	Automobile, station wagon	Other motor vehicle	
2015-Mar-13, Fri,17:12	Clear	Rear end	P.D. only	Dry	South	Going ahead	Pick-up truck	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Mar-14, Sat,21:15	Snow	Rear end	P.D. only	Loose snow	West	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Turning left	Pick-up truck	Other motor vehicle	
2015-Mar-23, Mon,07:14	Clear	Rear end	P.D. only	Dry	North	Turning right	Passenger van	Other motor vehicle	0
					North	Turning right	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 **To:** December 31, 2019

Location: FALLOWFIELD RD @ WOODROFFE AVE

Traffic Control: Traffic signal

Total Collisions: 106

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2015-Apr-08, Wed,10:15	Clear	Rear end	P.D. only	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle	0
					East	Turning right	Pick-up truck	Other motor vehicle	
2015-Apr-09, Thu,20:13	Clear	Rear end	P.D. only	Dry	South	Going ahead	Pick-up truck	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2015-May-29, Fri,07:18	Clear	Rear end	P.D. only	Dry	North	Turning right	Pick-up truck	Other motor vehicle	0
					North	Turning right	Pick-up truck	Other motor vehicle	
2015-May-29, Fri,08:58	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Pick-up truck	Other motor vehicle	
2015-Jun-01, Mon,16:30	Clear	Angle	P.D. only	Dry	East	Turning right	Unknown	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Jun-04, Thu,18:10	Clear	Rear end	P.D. only	Dry	South	Going ahead	Pick-up truck	Other motor vehicle	0
					South	Slowing or stopping	Pick-up truck	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Jul-05, Sun,08:52	Clear	Angle	Non-fatal injury	Dry	North	Turning right	Pick-up truck	Cyclist	0
					East	Going ahead	Bicycle	Other motor vehicle	
2015-Jul-22, Wed,22:34	Clear	Rear end	Non-fatal injury	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Pick-up truck	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Aug-12, Wed,08:48	Clear	Rear end	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Turning right	Automobile, station wagon	Other motor vehicle	
2015-Aug-20, Thu,21:00	Rain	Sideswipe	P.D. only	Wet	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Turning left	Pick-up truck	Other motor vehicle	
2015-Aug-27, Thu,19:03	Clear	Turning movement	P.D. only	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Pick-up truck	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: FALLOWFIELD RD @ WOODROFFE AVE

Traffic Control: Traffic signal

Total Collisions: 106

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2015-Aug-27, Thu,20:15	Clear	Rear end	P.D. only	Dry	South	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Sep-08, Tue,11:27	Clear	Rear end	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Turning right	Automobile, station wagon	Other motor vehicle	
2015-Sep-29, Tue,08:05	Clear	Rear end	P.D. only	Dry	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Delivery van	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Nov-02, Mon,18:10	Clear	Rear end	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Nov-04, Wed,08:55	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					North	Turning right	Pick-up truck	Other motor vehicle	
2015-Nov-17, Tue,07:41	Clear	Rear end	P.D. only	Dry	South	Turning right	Pick-up truck	Other motor vehicle	0
					South	Turning right	Automobile, station wagon	Other motor vehicle	
2015-Nov-17, Tue,20:48	Clear	Turning movement	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Turning left	Automobile, station wagon	Other motor vehicle	
2016-Jan-16, Sat,15:55	Clear	Rear end	P.D. only	Wet	North	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Turning right	Passenger van	Other motor vehicle	
2016-Jan-26, Tue,16:32	Clear	Rear end	Non-fatal injury	Wet	East	Turning right	Automobile, station wagon	Other motor vehicle	0
					East	Turning right	Pick-up truck	Other motor vehicle	
2016-Feb-16, Tue,20:50	Snow	Sideswipe	P.D. only	Loose snow	North	Turning left	Snow plow	Other motor vehicle	0
					North	Turning left	Municipal transit bus	Other motor vehicle	
2016-Feb-19, Fri,10:22	Clear	Rear end	Non-fatal injury	Dry	North	Slowing or stopping	Delivery van	Other motor vehicle	0
					North	Stopped	Pick-up truck	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 **To:** December 31, 2019

Location: FALLOWFIELD RD @ WOODROFFE AVE

Traffic Control: Traffic signal

Total Collisions: 106

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2016-Mar-08, Tue,07:15	Clear	Rear end	P.D. only	Dry	West	Going ahead	Pick-up truck	Other motor vehicle	0
					West	Slowing or stopping	Pick-up truck	Other motor vehicle	
2016-Mar-09, Wed,08:08	Clear	Rear end	P.D. only	Wet	East	Turning right	Pick-up truck	Other motor vehicle	0
					East	Turning right	Automobile, station wagon	Other motor vehicle	
2016-Mar-24, Thu,17:52	Freezing Rain	SMV other	P.D. only	Loose snow	West	Going ahead	Pick-up truck	Pole (sign, parking meter)	0
2016-May-06, Fri,16:46	Clear	Rear end	P.D. only	Dry	South	Going ahead	Pick-up truck	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2016-May-19, Thu,18:53	Clear	Rear end	Non-fatal injury	Dry	West	Changing lanes	Pick-up truck	Other motor vehicle	0
					West	Turning left	Automobile, station wagon	Other motor vehicle	
2016-Jun-24, Fri,23:03	Clear	Rear end	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Pick-up truck	Other motor vehicle	
2016-Aug-16, Tue,12:00	Clear	Angle	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Sep-08, Thu,07:34	Rain	Rear end	P.D. only	Wet	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Passenger van	Other motor vehicle	
2016-Nov-08, Tue,09:00	Clear	Rear end	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Turning left	Passenger van	Other motor vehicle	
2016-Nov-11, Fri,17:59	Clear	Rear end	P.D. only	Dry	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2016-Nov-12, Sat,15:48	Clear	Angle	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2016-Nov-21, Mon,16:50	Snow	Rear end	P.D. only	Loose snow	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: FALLOWFIELD RD @ WOODROFFE AVE

Traffic Control: Traffic signal

Total Collisions: 106

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2016-Nov-22, Tue,00:25	Snow	Angle	P.D. only	Loose snow	North	Going ahead	Pick-up truck	Other motor vehicle	0
					West	Turning left	Pick-up truck	Other motor vehicle	
2016-Dec-22, Thu,08:27	Clear	Rear end	P.D. only	Loose snow	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Jan-17, Tue,16:20	Clear	Sideswipe	P.D. only	Dry	North	Going ahead	Unknown	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Feb-01, Wed,12:54	Clear	Rear end	P.D. only	Wet	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Feb-10, Fri,17:02	Clear	Rear end	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Mar-02, Thu,13:40	Clear	Rear end	P.D. only	Dry	South	Slowing or stopping	Pick-up truck	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Apr-05, Wed,13:33	Clear	SMV other	P.D. only	Dry	North	Turning left	Automobile, station wagon	Pole (sign, parking meter)	0
2017-Apr-18, Tue,16:22	Clear	Rear end	P.D. only	Dry	North	Turning right	Pick-up truck	Other motor vehicle	0
					North	Turning right	Automobile, station wagon	Other motor vehicle	
2017-Jul-05, Wed,15:44	Clear	Turning movement	Non-fatal injury	Dry	West	Turning right	Automobile, station wagon	Cyclist	0
					West	Going ahead	Bicycle	Other motor vehicle	
2017-Jul-15, Sat,22:00	Clear	Sideswipe	P.D. only	Dry	North	Turning left	Pick-up truck	Other motor vehicle	0
					North	Turning left	Automobile, station wagon	Other motor vehicle	
2017-Aug-08, Tue,08:30	Clear	Rear end	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Turning right	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: FALLOWFIELD RD @ WOODROFFE AVE

Traffic Control: Traffic signal

Total Collisions: 106

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2017-Aug-30, Wed,18:48	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Turning right	Automobile, station wagon	Other motor vehicle	
2017-Sep-16, Sat,10:02	Clear	Turning movement	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Making "U" turn	Passenger van	Other motor vehicle	
2017-Sep-27, Wed,18:15	Clear	Turning movement	P.D. only	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Turning left	Automobile, station wagon	Other motor vehicle	
2017-Oct-03, Tue,17:42	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Nov-29, Wed,06:04	Clear	Sideswipe	Non-fatal injury	Dry	North	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					North	Turning left	Automobile, station wagon	Other motor vehicle	
2017-Dec-02, Sat,17:11	Clear	Rear end	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Pick-up truck	Other motor vehicle	
2017-Dec-11, Mon,18:26	Clear	Rear end	P.D. only	Dry	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Dec-18, Mon,08:11	Snow	Rear end	P.D. only	Loose snow	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Dec-22, Fri,19:47	Snow	Rear end	P.D. only	Loose snow	South	Slowing or stopping	Truck - closed	Other motor vehicle	0
					South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2018-Jan-11, Thu,20:06	Rain	Turning movement	P.D. only	Wet	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Feb-02, Fri,19:52	Snow	Angle	P.D. only	Wet	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Turning right	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: FALLOWFIELD RD @ WOODROFFE AVE

Traffic Control: Traffic signal

Total Collisions: 106

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2018-Feb-07, Wed,13:32	Snow	Rear end	P.D. only	Loose snow	East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Truck - tank	Other motor vehicle	
2018-Mar-14, Wed,16:30	Snow	Rear end	P.D. only	Slush	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Mar-17, Sat,22:46	Clear	SMV other	P.D. only	Dry	North	Turning left	Automobile, station wagon	Pole (sign, parking meter)	0
2018-Apr-01, Sun,10:20	Clear	Rear end	P.D. only	Dry	North	Turning right	Unknown	Other motor vehicle	0
					North	Turning right	Automobile, station wagon	Other motor vehicle	
2018-May-22, Tue,11:15	Rain	Rear end	P.D. only	Wet	West	Turning right	Automobile, station wagon	Other motor vehicle	0
					West	Turning right	Automobile, station wagon	Other motor vehicle	
2018-Jun-12, Tue,16:53	Clear	Rear end	P.D. only	Dry	North	Turning right	Unknown	Other motor vehicle	0
					North	Turning right	Automobile, station wagon	Other motor vehicle	
2018-Jun-15, Fri,17:15	Clear	Rear end	P.D. only	Dry	South	Going ahead	Unknown	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Jul-20, Fri,16:35	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Turning right	Passenger van	Other motor vehicle	
2018-Aug-12, Sun,19:32	Clear	Turning movement	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Turning left	Automobile, station wagon	Other motor vehicle	
2018-Aug-14, Tue,16:55	Rain	Rear end	P.D. only	Wet	West	Going ahead	Passenger van	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Sep-19, Wed,19:20	Clear	Rear end	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Sep-22, Sat,17:45	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: FALLOWFIELD RD @ WOODROFFE AVE

Traffic Control: Traffic signal

Total Collisions: 106

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2018-Sep-30, Sun,11:53	Clear	Rear end	P.D. only	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle	0
					East	Turning right	Automobile, station wagon	Other motor vehicle	
2018-Oct-01, Mon,16:55	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Oct-13, Sat,08:40	Clear	Rear end	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2018-Oct-17, Wed,18:05	Clear	Rear end	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Nov-15, Thu,06:26	Clear	Rear end	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Turning right	Automobile, station wagon	Other motor vehicle	
2018-Nov-16, Fri,08:20	Snow	Other	P.D. only	Wet	North	Reversing	Unknown	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Nov-28, Wed,19:25	Clear	Rear end	P.D. only	Wet	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Dec-07, Fri,16:55	Clear	Rear end	P.D. only	Dry	West	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Dec-14, Fri,07:55	Clear	Rear end	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Turning right	Automobile, station wagon	Other motor vehicle	
2019-Feb-03, Sun,15:20	Snow	Angle	P.D. only	Slush	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Turning left	Automobile, station wagon	Other motor vehicle	
2019-Feb-07, Thu,06:55	Clear	Rear end	P.D. only	Wet	North	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Turning right	Automobile, station wagon	Other motor vehicle	



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Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: FALLOWFIELD RD @ WOODROFFE AVE

Traffic Control: Traffic signal

Total Collisions: 106

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2019-Mar-05, Tue,09:13	Clear	Sideswipe	P.D. only	Dry	South	Turning right	Truck - open	Other motor vehicle	0
					South	Turning right	Automobile, station wagon	Other motor vehicle	
2019-Mar-07, Thu,07:15	Clear	Rear end	P.D. only	Dry	North	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Apr-18, Thu,21:21	Clear	SMV other	Non-fatal injury	Wet	North	Changing lanes	Automobile, station wagon	Curb	0
2019-Apr-26, Fri,16:50	Rain	Rear end	P.D. only	Wet	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					South	Turning right	Automobile, station wagon	Other motor vehicle	
2019-May-10, Fri,11:55	Rain	Angle	P.D. only	Wet	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-May-13, Mon,13:35	Clear	Sideswipe	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Turning left	Automobile, station wagon	Other motor vehicle	
2019-May-13, Mon,14:22	Clear	Rear end	Non-fatal injury	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2019-May-15, Wed,06:42	Fog, mist, smoke, Rear end dust	Rear end	P.D. only	Dry	North	Turning right	Motorcycle	Other motor vehicle	0
					North	Turning right	Automobile, station wagon	Other motor vehicle	
2019-May-27, Mon,16:35	Clear	Other	P.D. only	Dry	South	Reversing	Automobile, station wagon	Other motor vehicle	0
					North	Turning left	Automobile, station wagon	Other motor vehicle	
2019-Jun-11, Tue,18:05	Clear	Rear end	P.D. only	Dry	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2019-Jul-02, Tue,17:02	Clear	Rear end	P.D. only	Dry	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: FALLOWFIELD RD @ WOODROFFE AVE

Traffic Control: Traffic signal

Total Collisions: 106

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2019-Jul-13, Sat,12:45	Clear	Rear end	P.D. only	Dry	South	Turning right	Passenger van	Other motor vehicle	0
					South	Turning right	Automobile, station wagon	Other motor vehicle	
2019-Jul-17, Wed,20:30	Clear	Rear end	Non-fatal injury	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Jul-31, Wed,20:01	Clear	Rear end	P.D. only	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle	0
					East	Turning right	Automobile, station wagon	Other motor vehicle	
2019-Aug-14, Wed,17:20	Clear	Rear end	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Aug-21, Wed,16:00	Clear	Rear end	Non-fatal injury	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Aug-22, Thu,06:40	Clear	Rear end	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Turning right	Automobile, station wagon	Other motor vehicle	
2019-Oct-29, Tue,17:03	Clear	Rear end	P.D. only	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle	0
					East	Turning right	Automobile, station wagon	Other motor vehicle	
2019-Nov-22, Fri,18:59	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2019-Dec-11, Wed,10:29	Clear	Rear end	P.D. only	Dry	North	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Turning right	Automobile, station wagon	Other motor vehicle	
2019-Dec-20, Fri,08:25	Clear	Rear end	P.D. only	Dry	East	Stopped	Pick-up truck	Other motor vehicle	0
					East	Going ahead	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: LEIKIN DR @ MERIVALE RD

Traffic Control: Traffic signal

Total Collisions: 2

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2017-Oct-31, Tue,14:34	Clear	Angle	Non-fatal injury	Dry	East	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Nov-02, Thu,09:04	Rain	SMV other	Non-fatal injury	Wet	East	Going ahead	Pick-up truck	Ran off road	0

Location: LEIKIN DR @ RCMP ACCESS/150 N OF BILL LEATHEM DR

Traffic Control: Traffic signal

Total Collisions: 1

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Dec-19, Wed,14:55	Clear	Angle	P.D. only	Dry	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: LONGFIELDS DR @ WOODROFFE AVE

Traffic Control: Traffic signal

Total Collisions: 42

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Jan-09, Fri,12:15	Clear	Turning movement	P.D. only	Dry	South	Making "U" turn	Pick-up truck	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Jan-13, Tue,12:34	Clear	Sideswipe	P.D. only	Dry	North	Changing lanes	Pick-up truck	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Jan-26, Mon,06:54	Clear	Rear end	P.D. only	Ice	North	Going ahead	Automobile, station wagon	Skidding/sliding	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Feb-08, Sun,13:59	Snow	SMV other	Non-fatal injury	Loose snow	South	Going ahead	Automobile, station wagon	Skidding/sliding	0
2015-Feb-11, Wed,17:44	Snow	Rear end	P.D. only	Loose snow	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Slowing or stopping	Pick-up truck	Other motor vehicle	
2015-Feb-13, Fri,08:16	Clear	Sideswipe	P.D. only	Dry	North	Slowing or stopping	Pick-up truck	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: LONGFIELDS DR @ WOODROFFE AVE

Traffic Control: Traffic signal

Total Collisions: 42

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2015-Apr-02, Thu,15:44	Clear	Angle	P.D. only	Dry	East	Turning right	Pick-up truck	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-May-27, Wed,16:48	Clear	Turning movement	P.D. only	Dry	South	Turning right	Automobile, station wagon	Other motor vehicle	0
					North	Turning left	Automobile, station wagon	Other motor vehicle	
2015-Oct-22, Thu,18:18	Clear	Turning movement	Non-fatal injury	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Nov-19, Thu,08:20	Clear	Rear end	Non-fatal injury	Dry	North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2016-Jan-18, Mon,11:10	Clear	Angle	P.D. only	Slush	North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					West	Turning left	Passenger van	Other motor vehicle	
2016-Mar-09, Wed,17:46	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					South	Turning right	Pick-up truck	Other motor vehicle	
2016-Oct-25, Tue,16:05	Rain	Rear end	P.D. only	Wet	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Turning left	Automobile, station wagon	Other motor vehicle	
					North	Turning left	Municipal transit bus	Other	
2017-Jan-13, Fri,17:30	Clear	Rear end	P.D. only	Dry	South	Going ahead	Pick-up truck	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Feb-07, Tue,16:42	Freezing Rain	SMV other	Non-fatal injury	Ice	West	Going ahead	Automobile, station wagon	Ran off road	0
2017-Feb-14, Tue,23:36	Snow	SMV other	P.D. only	Loose snow	North	Going ahead	Automobile, station wagon	Pole (sign, parking meter)	0
2017-Feb-17, Fri,11:29	Clear	Rear end	P.D. only	Dry	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Slowing or stopping	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 **To:** December 31, 2019

Location: LONGFIELDS DR @ WOODROFFE AVE

Traffic Control: Traffic signal

Total Collisions: 42

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2017-Mar-10, Fri,09:11	Clear	Turning movement	Non-fatal injury	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Mar-24, Fri,09:28	Snow	Rear end	P.D. only	Loose snow	North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Mar-25, Sat,12:35	Clear	Rear end	P.D. only	Dry	North	Going ahead	Passenger van	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Jun-30, Fri,16:07	Rain	Rear end	Non-fatal injury	Wet	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Aug-27, Sun,12:02	Clear	Turning movement	P.D. only	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Sep-27, Wed,15:05	Clear	Rear end	P.D. only	Dry	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Oct-30, Mon,11:50	Clear	Other	P.D. only	Wet	West	Reversing	Pick-up truck	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Nov-21, Tue,16:31	Clear	Rear end	Non-fatal injury	Dry	North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Nov-24, Fri,16:29	Clear	Turning movement	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Making "U" turn	Pick-up truck	Other motor vehicle	
2017-Dec-15, Fri,19:44	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2017-Dec-25, Mon,13:30	Snow	SMV other	P.D. only	Packed snow	South	Turning right	Automobile, station wagon	Skidding/sliding	0



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: LONGFIELDS DR @ WOODROFFE AVE

Traffic Control: Traffic signal

Total Collisions: 42

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2018-Mar-06, Tue,12:31	Clear	Rear end	Non-fatal injury	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2018-Mar-09, Fri,20:18	Snow	Sideswipe	P.D. only	Slush	West	Going ahead	Automobile, station wagon	Other motor vehicle	0
					West	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jul-14, Sat,16:29	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Municipal transit bus	Other motor vehicle	0
					South	Going ahead	Passenger van	Other motor vehicle	
2018-Sep-28, Fri,07:43	Clear	Rear end	P.D. only	Dry	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Nov-16, Fri,18:27	Snow	Turning movement	Non-fatal injury	Packed snow	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Nov-30, Fri,17:06	Clear	Rear end	P.D. only	Dry	South	Changing lanes	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Jan-10, Thu,18:21	Clear	Turning movement	P.D. only	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Mar-26, Tue,20:54	Clear	Turning movement	Non-fatal injury	Dry	South	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Passenger van	Other motor vehicle	
2019-Apr-19, Fri,14:15	Rain	Rear end	P.D. only	Wet	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					North	Turning left	Automobile, station wagon	Other motor vehicle	
2019-May-08, Wed,03:32	Clear	SMV other	P.D. only	Dry	North	Turning left	Automobile, station wagon	Ran off road	0



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 **To:** December 31, 2019

Location: LONGFIELDS DR @ WOODROFFE AVE

Traffic Control: Traffic signal

Total Collisions: 42

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2019-Jul-12, Fri,12:51	Clear	Angle	P.D. only	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Sep-21, Sat,06:40	Clear	Angle	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Turning right	Automobile, station wagon	Other motor vehicle	
2019-Sep-26, Thu,08:13	Rain	Sideswipe	P.D. only	Wet	North	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Pick-up truck	Other motor vehicle	
2019-Nov-29, Fri,17:38	Clear	Sideswipe	P.D. only	Dry	South	Changing lanes	Pick-up truck	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	

Location: PRINCE OF WALES DR @ MERIVALE RD

Traffic Control: Traffic signal

Total Collisions: 30

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuvre	Vehicle type	First Event	No. Ped
2015-Apr-06, Mon,17:09	Clear	Angle	P.D. only	Wet	East	Turning right	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-May-07, Thu,11:59	Clear	Rear end	P.D. only	Dry	South	Turning right	Pick-up truck	Other motor vehicle	0
					South	Turning right	Automobile, station wagon	Other motor vehicle	
2015-Jun-16, Tue,11:59	Clear	Rear end	P.D. only	Dry	East	Going ahead	Pick-up truck	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Aug-25, Tue,09:41	Clear	Rear end	Non-fatal injury	Dry	East	Going ahead	Pick-up truck	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
					East	Stopped	Truck - dump	Other motor vehicle	
2015-Sep-05, Sat,20:56	Clear	Turning movement	Non-fatal injury	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Pick-up truck	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: PRINCE OF WALES DR @ MERIVALE RD

Traffic Control: Traffic signal

Total Collisions: 30

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2015-Sep-08, Tue,17:30	Clear	Rear end	P.D. only	Dry	South	Going ahead	Delivery van	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2015-Oct-25, Sun,14:38	Clear	Turning movement	Non-fatal injury	Dry	North	Turning left	Automobile, station wagon	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2015-Nov-28, Sat,16:09	Clear	Rear end	P.D. only	Dry	East	Turning right	Automobile, station wagon	Other motor vehicle	0
					East	Turning right	Pick-up truck	Other motor vehicle	
2015-Dec-14, Mon,19:00	Rain	Rear end	P.D. only	Wet	East	Turning right	Pick-up truck	Other motor vehicle	0
					East	Turning right	Automobile, station wagon	Other motor vehicle	
2016-Jan-08, Fri,16:59	Clear	Rear end	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	
2016-Oct-21, Fri,16:37	Rain	Rear end	P.D. only	Wet	South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					South	Stopped	Automobile, station wagon	Other motor vehicle	
2016-Nov-22, Tue,17:05	Clear	Rear end	P.D. only	Ice	South	Turning right	Pick-up truck	Other motor vehicle	0
					South	Turning right	Automobile, station wagon	Other motor vehicle	
2017-Jan-20, Fri,14:50	Clear	Rear end	P.D. only	Wet	East	Going ahead	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	
2017-Mar-06, Mon,22:55	Freezing Rain	SMV other	P.D. only	Ice	North	Turning left	Pick-up truck	Pole (utility, power)	0
2017-Apr-02, Sun,05:20	Fog, mist, smoke, dust	SMV other	P.D. only	Wet	South	Turning right	Automobile, station wagon	Ran off road	0
2017-Apr-04, Tue,14:43	Rain	Rear end	Non-fatal injury	Wet	East	Turning right	Pick-up truck	Other motor vehicle	0
					East	Turning right	Automobile, station wagon	Other motor vehicle	
2017-Apr-11, Tue,10:16	Rain	Rear end	P.D. only	Wet	North	Slowing or stopping	Pick-up truck	Other motor vehicle	0
					North	Stopped	Pick-up truck	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: PRINCE OF WALES DR @ MERIVALE RD

Traffic Control: Traffic signal

Total Collisions: 30

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2017-Jun-30, Fri,17:10	Rain	Rear end	P.D. only	Wet	North	Turning left	Delivery van	Other motor vehicle	0
					North	Turning left	Automobile, station wagon	Other motor vehicle	
2017-Jul-26, Wed,12:59	Clear	SMV other	P.D. only	Dry	North	Turning left	Truck - closed	Pole (utility, power)	0
2017-Aug-25, Fri,09:51	Clear	Turning movement	Non-fatal injury	Dry	North	Turning left	Truck - open	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Mar-31, Sat,15:57	Clear	Approaching	Non-fatal injury	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
					North	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Jun-18, Mon,23:05	Clear	Angle	Non-fatal injury	Dry	East	Going ahead	Unknown	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2018-Sep-23, Sun,03:00	Clear	Rear end	P.D. only	Dry	South	Going ahead	Pick-up truck	Other motor vehicle	0
					South	Stopped	Pick-up truck	Other motor vehicle	
2018-Nov-09, Fri,17:00	Snow	Sideswipe	P.D. only	Wet	East	Turning right	Automobile, station wagon	Other motor vehicle	0
					East	Stopped	Truck - tank	Other motor vehicle	
2019-Apr-11, Thu,00:00	Clear	Rear end	P.D. only	Dry	East	Turning right	Pick-up truck	Other motor vehicle	0
					East	Turning right	Automobile, station wagon	Other motor vehicle	
2019-Apr-18, Thu,10:53	Clear	Turning movement	Non-fatal injury	Dry	North	Turning left	Pick-up truck	Other motor vehicle	0
					South	Going ahead	Automobile, station wagon	Other motor vehicle	
2019-Jun-05, Wed,07:03	Clear	Rear end	Non-fatal injury	Dry	North	Slowing or stopping	Automobile, station wagon	Other motor vehicle	0
					North	Stopped	Automobile, station wagon	Other motor vehicle	
2019-Jul-02, Tue,23:45	Clear	Sideswipe	P.D. only	Dry	North	Unknown	Automobile, station wagon	Other motor vehicle	0
					North	Unknown	Automobile, station wagon	Other motor vehicle	
2019-Sep-23, Mon,17:15	Clear	Rear end	P.D. only	Dry	South	Going ahead	Automobile, station wagon	Other motor vehicle	0
					South	Slowing or stopping	Automobile, station wagon	Other motor vehicle	



Transportation Services - Traffic Services

Collision Details Report - Public Version

From: January 1, 2015 To: December 31, 2019

Location: PRINCE OF WALES DR @ MERIVALE RD

Traffic Control: Traffic signal

Total Collisions: 30

Date/Day/Time	Environment	Impact Type	Classification	Surface Cond'n	Veh. Dir	Vehicle Manoeuver	Vehicle type	First Event	No. Ped
2019-Nov-25, Mon,21:00	Clear	Rear end	P.D. only	Dry	East	Going ahead	Delivery van	Other motor vehicle	0
					East	Stopped	Automobile, station wagon	Other motor vehicle	

APPENDIX F

Excerpts from Relevant Traffic Studies

4. Demand Forecasting

4.1 Site Trip Generation – Phase 1

The proposed Phase 1 development will consist of an approximate 7,000 ft² (GFA) church. The appropriate trip generation rates for the proposed land use were obtained from the 9th Edition of the Institute of Transportation Engineers (ITE) Trip Generation Manual, which are summarized in Table 2. Given the church land use does not generate high vehicle volumes during the weekdays, the Sunday peak hour trip generation rates are also provided.

Table 2: ITE Trip Generation Rates

Land Use	Data Source	Trip Rates		
		AM Peak	PM Peak	SUN Peak
Church	ITE 560	$T = 0.56 (X)$	$T = 0.55(X);$ $T = 0.34(X) + 5.24$	$T = 12.04 (X);$ $T = 9.48(X) + 82.08$
Notes: T = Average Vehicle Trip Ends X = 1000 ft ² Gross Floor Area				

Using the above noted trip generation rates for the weekday morning, afternoon and Sunday peak hours, and assuming minimal non-auto modes, the following Table 3 summarizes the Phase 1 site trip generation.

Table 3: Phase 1 Site Generated Vehicle Trip Generation

Land Use	Area	AM Peak (veh/h)			PM Peak (veh/h)			SUN Peak (veh/h)		
		In	Out	Total	In	Out	Total	In	Out	Total
Church	7,060 ft ²	2	2	4	3	5	8	73	76	149

As shown in Table 3, the resulting number of potential ‘new’ two-way vehicle trips generated by Phase 1 of the proposed development during the weekday peak hours is approximately 4 to 8 veh/h. As this amount of vehicle traffic is considered negligible, further weekday peak hour traffic analysis is not required. The projected vehicle traffic travelling to/from the proposed Phase 1 development on a Sunday during the church’s peak hour is approximately 150 veh/h, which has little impact given it is off peak for the roadway network.

4.2 Site Trip Generation – Phase 2

As mentioned previously, Phase 2 of the development will consist of an approximate 4,000 ft² expansion of the church (total of 11,055 ft²). As such, the increased GFA could result in an increase in vehicle trips generated by the site as there will be more seating in the church. The following Table 4 summarizes the Phase 2 site trip generation based on the above-noted vehicle trip generation rates and the expansion of the church GFA.

Table 4: Phase 2 Site Generated Vehicle Trip Generation

Land Use	Area	AM Peak (veh/h)			PM Peak (veh/h)			SUN Peak (veh/h)		
		In	Out	Total	In	Out	Total	In	Out	Total
Church	11,055 ft ²	3	3	6	4	5	9	91	96	187

As shown in Table 4, the total projected vehicle traffic travelling to/from the proposed Phase 2 development on a Sunday during the peak hour is approximately 190 veh/h. Similarly, this has very little impact to the roadway network.

4.3 Traffic Distribution and Assignment

The following assumed traffic distribution was based the site’s local context and our knowledge of the surrounding area:

- 40% to/from the south;
- 30% to/from the west;
- 20% to/from the southeast; and
- 10% to/from the northeast.

The Phase 1 ‘new’ site-generated Sunday peak hour vehicle trips assigned to the proposed driveway connections and to the study area network are illustrated as Figure 8.

Figure 8: ‘New’ Phase 1 Site-Generated Traffic Volumes

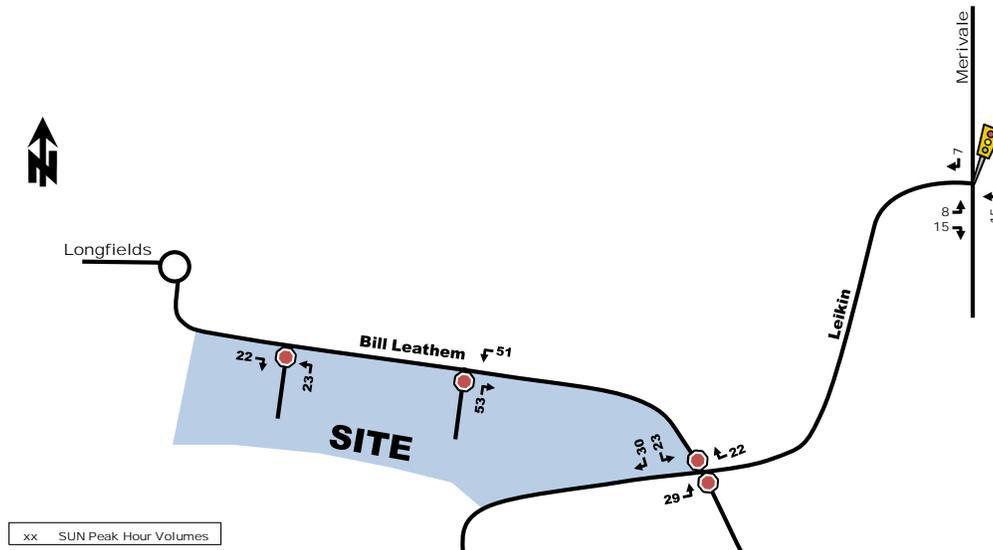
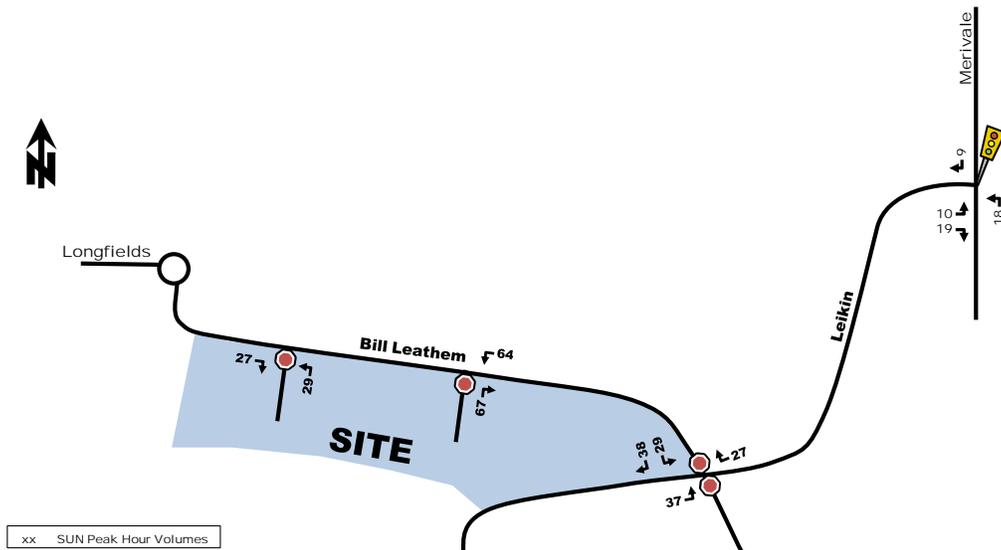


Figure 9 illustrates the proposed Phase 2 ‘new’ site-generated Sunday peak hour vehicle trips assigned to the proposed driveway connections and to the study area network.

Figure 9: ‘New’ Phase 2 Site-Generated Traffic Volumes



1.0 SCREENING FORM

The following section describes the initial assessment of the proposal with respect to the Traffic Impact Assessment (TIA) Screening Form and will provide reasoning for potential triggers. The TIA screening form is attached in Appendix A.

1.1 Trips Generation Triggers

The volume of development-generated vehicular traffic was calculated in accordance with the Institute of Transportation Engineers (ITE) Trip Generation Manual, 10th Edition. The City of Ottawa TIA Guidelines (2017) recommends that when using ITE Trip Generation Manual, assume a 10% non-auto mode share and an average vehicle occupancy of 1.15. As such, a factor of 1.28 was applied to the site generated trips in order to estimate the total site generated person-trips.

Table 1.1.1 Illustrates the total person-trip generation for the AM and PM peak hour.

Table 1.1.1 ITE Development-Generated Trips

ITE Land Use	Unit of Measure	Quantity	Rate		AM Peak Hour			PM Peak Hour		
			AM	PM	In	Out	Total	In	Out	Total
Warehousing (Code 150)	Ksf	20	*	**	27	9	36	10	28	38

* Fitted Curve Equation: $T=0.12(X) + 25.32$, Trips multiplied by 1.28 As per TIA Guidelines

** Fitted Curve Equation: $T=0.12(X) + 27.82$, Trips multiplied by 1.28 As per TIA Guidelines

It is anticipated due to the use of the proposed development that there will not be any pass-by trips associated with the proposed development. As such, the development is expected to generate 36 person-trips in the AM peak hour and 38 in the PM peak hour

1.2 Location Trigger

The development is neither located within a Design Priority Area (DPA) or a Transit-oriented Development (TOD) zone. The development also does not 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. As such, the criteria for a location trigger has not been met.

1.3 Safety Trigger

The development includes two proposed driveway providing access to Bill Leathem Drive, both within 150 m from the roundabout to the north of the proposed development, connecting Longfields Drive and Bill Leathem Drive. As such, the criteria for a safety trigger is met.

APPENDIX G

Existing Signal Timing Plans

Traffic Signal Timing

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

Intersection: Main: Fallowfield Side: Woodroffe
Controller: ATC 3 TSD: 5531
Author: Matthew Anderson Date: 02-Feb-2021

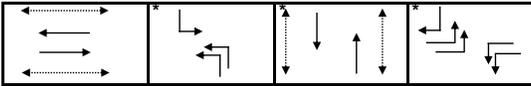
Existing Timing Plans[†]

Plan	Ped Minimum Time								Walk	DW	A+R
	Off Peak 2	Night 4	Weekend 5	AM 11	AM 31	AM 32	PM Peak 23	PM Rush 25			
Cycle	FREE	FREE	FREE	FREE	150	150	FREE	FREE			
Offset	X	X	X	X	150	150	X	X			
EB Thru	max=39.8	max=39.8	max=39.8	max=39.8	55	60	max=39.8	max=36.8	7	26	4.6+2.2
WB Thru	max=39.8	max=39.8	max=39.8	max=39.8	40	40	max=39.8	max=36.8	7	26	4.6+2.2
NB Left (fp)	max=21.8	max=21.8	max=18.8	max=42.8	21	21	max=19.8	max=21.8	-	-	4.6+2.2
SB Left (fp)	max=16.8	max=21.8	max=18.8	max=32.8	12	12	max=16.8	max=16.8	-	-	4.6+2.2
NB Thru	max=36.8	max=36.8	max=36.8	max=85.8	66	60	max=36.8	max=66.8	7	23	4.6+2.2
SB Thru	max=36.8	max=36.8	max=36.8	max=36.8	37	37	max=71.8	max=91.8	7	23	4.6+2.2
NB Left (fp)	-	-	-	-	20	14	-	-	-	-	4.6+2.2
WB Left (fp)	max=21.8	max=20.8	max=17.8	max=32.8	17	18	max=36.8	max=36.8	-	-	4.6+2.2
EB Left (fp)	max=21.8	max=20.8	max=17.8	max=32.8	32	38	max=16.8	max=16.8	-	-	4.6+2.2
SB Right	max=21.8	max=20.8	max=17.8	max=32.8	32	38	max=16.8	max=16.8	-	-	4.6+2.2

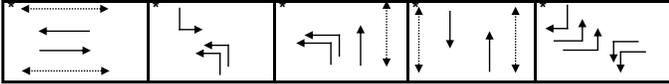
Notes: 1) For plans 31 and 32, if the east-west pedestrian movements are not actuated, the east-west thru movements will be forced off 18 seconds early.

Phasing Sequence[‡]

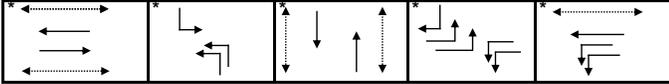
Plans: 4 & 5



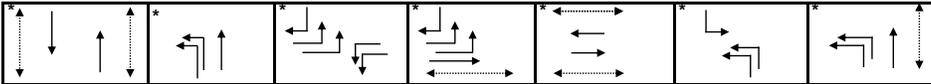
Plans: 2 & 11



Plans: 23 & 25



Plans: 31 & 32



Notes: 1) All plans have minimum recalls for north-south thru and east-west thru of 10 seconds green.

Schedule

Weekday		Weekend	
Time	Plan	Time	Plan
0:10	4	0:10	4
6:30	11	8:30	5
7:00	31	22:30	4
7:40	32		
8:30	31		
9:00	11		
9:30	2		
15:00	23		
16:00	25		
17:30	23		
18:30	2		
22:30	4		

Notes

[†]: Time for each direction includes amber and all red intervals
[‡]: Start of first phase should be used as reference point for offset
 Asterisk (*) Indicates actuated phase
 (fp): Fully Protected Left Turn
 Pedestrian signal

Cost is \$59.96 (\$53.06 + HST)

Traffic Signal Timing

City of Ottawa, Public Works & Services Department

Traffic Operations Unit

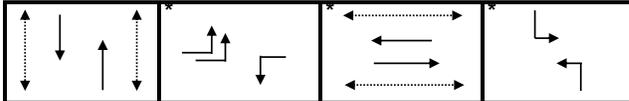
Intersection:	<i>Main:</i> Woodroffe	<i>Side:</i> Longfields
Controller:	ATC3	TSD: 6543
Author:	Matthew Anderson	Date: 02-Feb-21

Existing Timing Plans†

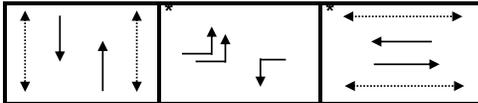
	Plan						Ped Minimum Time		
	AM Peak 1	Off Peak 2	PM Peak 3	Night 4	Weekend 5	AM Heavy 11	Walk	DW	A+R
Cycle	110	105	115	80	90	130			
Offset	80	88	92	X	72	86			
NB Thru	50	46	55	30	42	65	7	16	4.6+1.9
SB Thru	50	46	55	30	42	65	7	16	4.6+1.9
EB Left (fp)	15	14	15	17	15	20	-	-	3.7+2.8
WB Left (fp)	15	14	15	17	15	20	-	-	3.7+2.8
EB Thru	33	33	33	33	33	33	7	19	3.7+2.8
WB Thru	33	33	33	33	33	33	7	19	3.7+2.8
SB Left	12	12	12	-	-	12	-	-	4.6+1.9
NB Left	12	12	12	-	-	12	-	-	4.6+1.9

Phasing Sequence‡

Plans: 1,2,3,11



Plans: 4,5



Schedule

Weekday

Time	Plan
0:15	4
6:00	1
7:00	11
9:00	1
9:30	2
15:00	3
18:30	2
22:30	4

Weekend

Time	Plan
0:15	4
8:30	5
22:30	4

Notes

- †: Time for each direction includes amber and all red intervals
- ‡: Start of first phase should be used as reference point for offset
- Asterisk (*) Indicates actuated phase
- (fp): Fully Protected Left Turn

◄.....► Pedestrian signal

Cost is \$59.96 (\$53.06 + HST)

Traffic Signal Timing

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

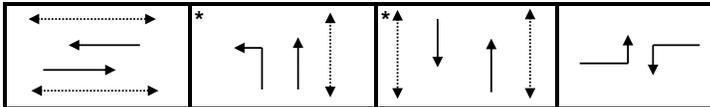
Intersection:	Main: Fallowfield	Side: Merivale
Controller:	MS 3200	TSD: 5573
Author:	Matthew Anderson	Date: 02-Feb-2021

Existing Timing Plans†

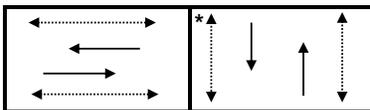
	Plan					Ped Minimum Time		
	AM Peak 1	Off Peak 2	PM Peak 3	Night 4	AM Heavy 11	Walk	DW	A+R
Cycle	Free	Free	Free	Free	Free			
Offset	X	X	X	X	X			
EB Thru	max = 51.6	max = 36.6	max = 46.6	max = 31.6	max = 31.6	10	10	4.6+2.0
WB Thru	max = 26.6	max = 36.6	max = 61.6	max = 31.6	max = 31.6	10	10	4.6+2.0
NB Left	max = 11.6	max = 16.6	max = 11.6	-	max = 11.6	-	-	4.6+2.0
NB Thru	max = 51.4	max = 36.4	max = 66.4	max = 30.4	max = 61.4	7	10	4.6+1.8
SB Thru	max = 41.4	max = 36.4	max = 71.4	max = 30.4	max = 56.4	7	10	4.6+1.8
EB Left	max = 36.5	max = 16.5	max = 21.5	-	max = 46.5	-	-	4.6+1.9
WB Left	max = 11.5	max = 16.5	max = 21.5	-	max = 16.5	-	-	4.6+1.9

Phasing Sequence‡

Plan: 1, 2, 3 & 11



Plan: 4



Schedule

Weekday		Weekend	
Time	Plan	Time	Plan
0:15	4	0:15	4
6:00	1	8:30	2
7:15	11	22:30	4
9:30	2		
15:00	3		
18:30	2		
22:30	4		

NOTES

- †: Time for each direction includes amber and all red intervals
- ‡: Start of first phase should be used as reference point for offset
- Asterisk (*) Indicates actuated phase
- (fp): Fully Protected Left Turn
- ◄.....► Pedestrian signal

Cost is \$59.96 (\$53.06 + HST)

Traffic Signal Timing

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

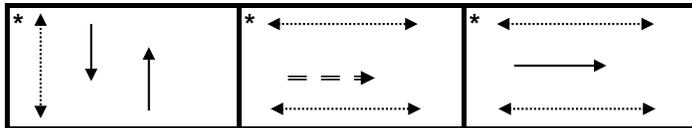
Intersection:	<i>Main:</i> Merivale	<i>Side:</i> Leikin
Controller:	MS 3200	TSD: 6493
Author:	Matthew Anderson	Date: 02-Feb-2021

Existing Timing Plans[†]

	Plan						Ped Minimum Time		
	AM Peak 1	Off Peak 2	PM Peak 3	Night 4	Weekend 5	AM Heavy 11	Walk	DW	A+R
Cycle	Free	Free	Free	Free	Free	Free			
Offset	X	X	X	X	X	X			
NB Thru	max = 46.5	max = 41.5	max = 46.5	max = 41.5	max = 41.5	max = 66.5	-	-	4.6+1.9
SB Thru	max = 46.5	max = 41.5	max = 46.5	max = 41.5	max = 41.5	max = 66.5	7	21	4.6+1.9
EB Bus	max = 8.0	max = 8.0	max = 8.0	max = 8.0	max = 8.0	max = 8.0	-	-	2.0
EB Thru	max = 30.1	max = 25.1	max = 30.1	max = 15.1	max = 25.1	max = 30.1	7	10	3.3+1.8

Phasing Sequence[‡]

Plan: All



Notes: 1) In all plans; the NS phases have a max recall

Schedule

Weekday

Time	Plan
0:15	4
5:30	1
7:45	11
9:30	2
15:00	3
18:30	2
22:00	4

Weekend

Time	Plan
0:10	4
8:30	5
22:30	4

Notes

[†]: Time for each direction includes amber and all red intervals

[‡]: Start of first phase should be used as reference point for offset

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

←.....→ Pedestrian signal

==> Transit signal

Cost is \$59.96 (\$53.06 + HST)

Traffic Signal Timing

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

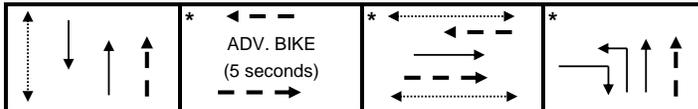
Intersection:	<i>Main:</i> Prince of Wales	<i>Side:</i> Merivale
Controller:	MS 3200	TSD: 6494
Author:	Matthew Anderson	Date: 02-Feb-2021

Existing Timing Plans†

Plan	Plan					Ped Minimum Time		
	AM Peak 1	Off Peak 2	PM Peak 3	Night 4	Weekend 5	Walk	DW	A+R
Cycle	100	Free	120	Free	Free			
Offset	15	X	112	X	X			
NB Thru	72	max = 51.5	89	max = 56.5	max = 51.5	-	-	4.6+1.9
SB Thru	50	max = 51.5	75	max = 56.5	max = 51.5	7	19	4.6+1.9
EB Veh	28	max = 23.8	31	max = 21.8	max = 23.4	-	-	4.6+2.2
EW Bike/Ped	28	max = 23.8	31	max = 21.8	max = 23.4	7	14	4.6+2.2
NB Left	22	max = 16.4	14	-	max = 16.4	-	-	4.6+1.8
EB Right	22	max = 16.4	14	-	max = 16.4	-	-	4.6+1.8

Phasing Sequence‡

Plan: 1, 2, 3 & 5



Plan: 4



- Notes:**
- 1) The Advanced EW Bike phase will display only if the WB bike phase is actuated by demand. Otherwise the split timing is governed by EB vehicle demand and max times.
 - 2) If the EW Ped crossings are actuated the max time will be extended to accommodate the higher crossing times.

Schedule

Weekday		Weekend	
Time	Plan	Time	Plan
0:15	4	0:15	4
6:30	1	6:30	2
9:30	2	11:00	5
15:00	3	19:30	2
18:30	2	22:30	4
22:30	4		

NOTES

- †: Time for each direction includes amber and all red intervals
‡: Start of first phase should be used as reference point for offset
Asterisk (*) Indicates actuated phase
(fp): Fully Protected Left Turn
◄.....► Pedestrian signal
- - - ► Bike signal
Cost is \$59.96 (\$53.06 + HST)

Traffic Signal Timing

City of Ottawa, Transportation Services Department

Traffic Signal Operations Unit

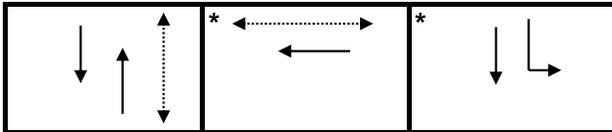
Intersection:	<i>Main:</i> Leikin	<i>Side:</i>	RCMP / 150m N of Bill Leatham
Controller:	MS 3200	TSD:	6754
Author:	Matthew Anderson	Date:	02-Feb-2021

Existing Timing Plans[†]

	Plan					Ped Minimum Time		
	AM Peak 1	Off Peak 2	PM Peak 3	Night 4	Weekend 5	Walk	DW	A+R
Cycle	Free	Free	Free	Free	Free			
Offset	-	-	-	-	-			
NB Thru	max=36.4	max=31.4	max=56.4	max=36.4	max=41.4	18	7	3.7+2.7
SB Thru	max=36.4	max=46.4	max=66.4	max=36.4	max=56.4	-	-	3.7+2.7
WB Thru	max=26.7	max=31.7	max=41.7	max=21.7	max=31.7	7	11	3.3+3.4
SB Left	max=36.4	max=21.4	max=16.4	-	max=21.4	-	-	3.7+2.7

Phasing Sequence[‡]

Plan:



Schedule

Weekday

Time	Plan
0:15	4
6:30	1
9:30	2
15:00	3
18:30	2
22:30	4

Weekend

Time	Plan
0:10	4
8:30	5
22:30	4

NOTES

†: Time for each direction includes amber and all red intervals

‡: Start of first phase should be used as reference point for offset

Asterisk (*) Indicates actuated phase

(fp): Fully Protected Left Turn

←.....→ Pedestrian signal

Cost is \$59.96 (\$53.06 + HST)

APPENDIX H

Signalization Warrant



TRAFFIC SIGNAL JUSTIFICATION

LOCATION: Leikin Drive at Bill Leathem Drive

DATE: June 12, 2019

JUSTIFICATION 1 – Minimum Vehicular Volume

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				PERCENTAGE WARRANT								TOTAL ACROSS
	1		2 or MORE		HOUR ENDING								
FLOW CONDITION	FREE FLOW	RESTR FLOW	FREE FLOW	RESTR FLOW	8:00	9:00	10:00	12:30	13:30	16:00	17:00	18:00	
A.	480	720	600	900	957	863	424	498	392	745	875	690	
	(385)	(575)	(480)	(720)									
ALL APPROACHES	100% FULFILLED				✓	✓				✓	✓		400
	80% FULFILLED											✓	80
	ACTUAL % IF BELOW 80% VALUE						59%	69%	54%				183
TOTAL DOWN:												663	
AVERAGE (TOTAL/8):												83%	

T Intersection Add 50%													
1		2 or MORE											
FLOW CONDITION	FREE FLOW	RESTR FLOW	FREE FLOW	RESTR FLOW	8:00	9:00	10:00	12:30	13:30	16:00	17:00	18:00	TOTAL ACROSS
B.	180	255	180	255	211	236	121	194	142	317	206	225	
	(143)	(203)	(143)	(203)									
MINOR STREET BOTH APPROACHES	120	170	120	170	✓	✓		✓		✓	✓	✓	600
	(95)	(135)	(95)	(135)									
	100% FULFILLED												
80% FULFILLED									✓				71
ACTUAL % IF BELOW 80% VALUE						71%							71
TOTAL DOWN:												751	
AVERAGE (TOTAL/8):												94%	

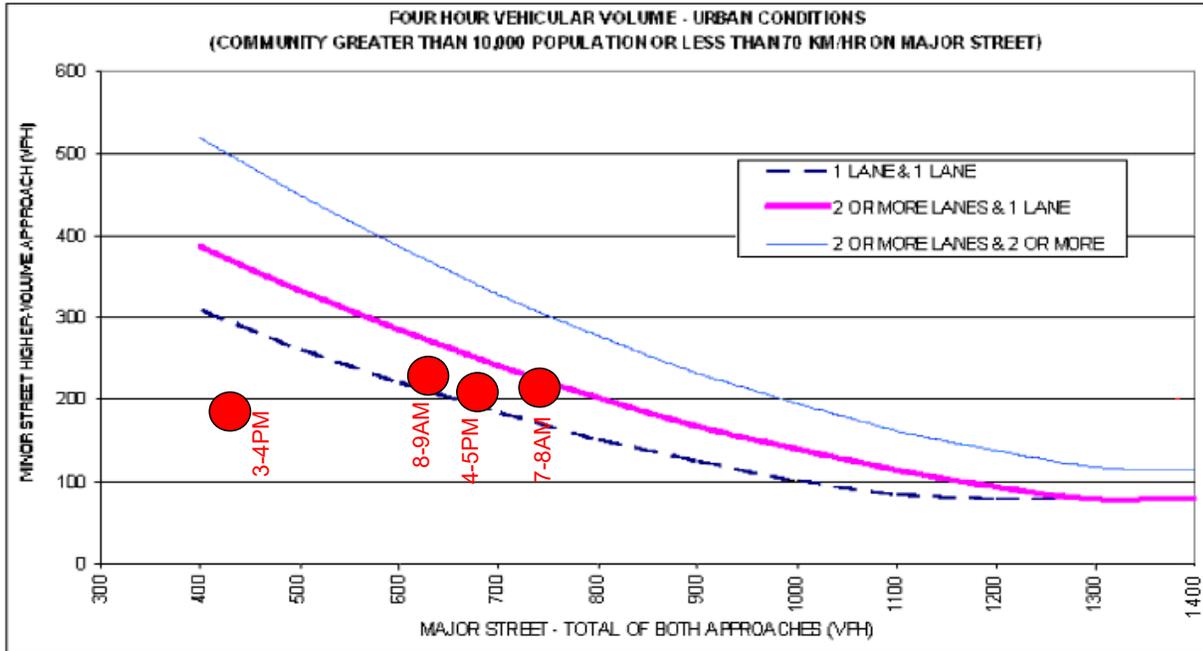
JUSTIFICATION 2 – Delay to Cross Traffic

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				PERCENTAGE WARRANT								TOTAL ACROSS
	1		2 or MORE		HOUR ENDING								
FLOW CONDITION	FREE FLOW	RESTR FLOW	FREE FLOW	RESTR FLOW	8:00	9:00	10:00	12:30	13:30	16:00	17:00	18:00	
A.	480	720	600	900	746	627	303	304	250	428	669	465	
	(385)	(575)	(480)	(720)									
MAJOR STREET BOTH APPROACHES	100% FULFILLED				✓								100
	80% FULFILLED					✓					✓		160
	ACTUAL % IF BELOW 80% VALUE						42%	42%	35%	59%		65%	243
TOTAL DOWN:												503	
AVERAGE (TOTAL/8):												63%	

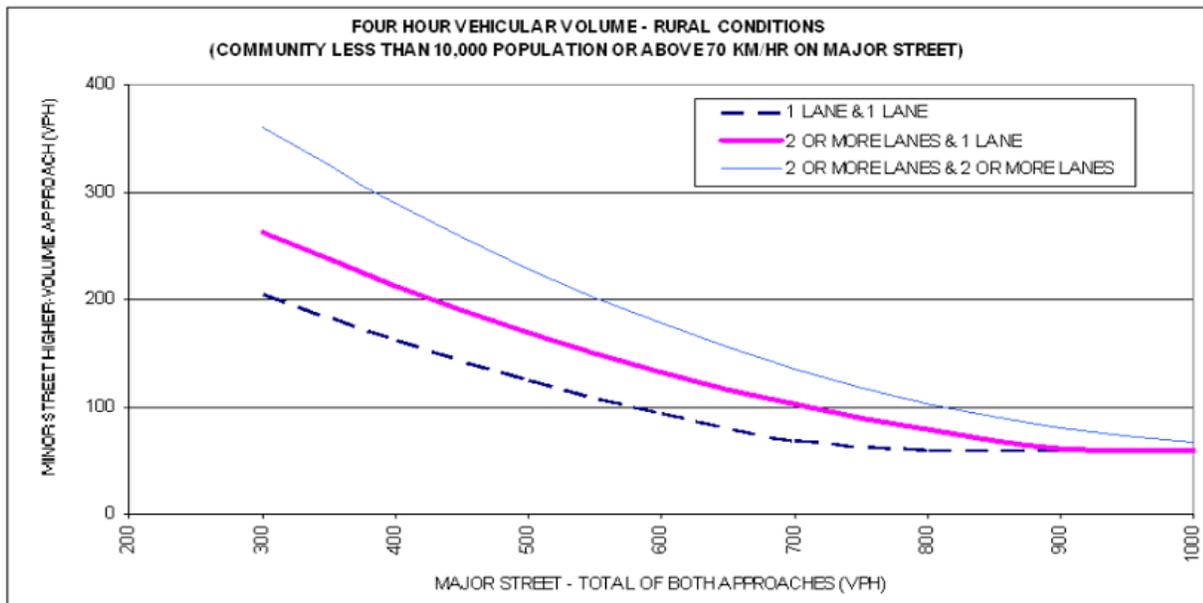
APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				PERCENTAGE WARRANT								TOTAL ACROSS
	1		2 or MORE		HOUR ENDING								
FLOW CONDITION	FREE FLOW	RESTR FLOW	FREE FLOW	RESTR FLOW	8:00	9:00	10:00	12:30	13:30	16:00	17:00	18:00	
B.	50	75	50	75	181	173	72	139	99	181	45	39	
	(40)	(60)	(40)	(60)									
TRAFFIC CROSSING MAJOR STREET	100% FULFILLED				✓	✓		✓	✓	✓			500
	80% FULFILLED						✓						80
	ACTUAL % IF BELOW 80% VALUE										60%	52%	112
TOTAL DOWN:												692	
AVERAGE (TOTAL/8):												87%	

JUSTIFICATION 4 – Minimum Four-Hour Vehicle Volume

A. Restricted Flow



B. Free Flow



TRAFFIC SIGNAL JUSTIFICATION

LOCATION: Leikin Drive at Bill Leatham Drive

DATE: June 12, 2019

JUSTIFICATION	DESCRIPTION	Minimum Requirement		Compliance	
		Free Flow	Restricted Flow	Sectional %	Entire % ⁽²⁾
		Operating Speed ≥ 70km/h	Operating Speed < 70 km/h		
1. MINIMUM VEHICULAR WARRANT	A. Vehicle volume, all approaches for each of the heaviest 8 hours of an average day, and	480 600 (2 or more lane approach)	720 900 (2 or more lane approach)	83%	83%
	B. Vehicle volume, along minor street, for each of the same 8 hours.	120 180 (tee intersection)	170 255 (tee intersection)	94%	
2. DELAY TO CROSS TRAFFIC	A. Vehicle volume, along major street for each of the heaviest 8 hours of an average day, and	480 600 (2 or more lane approach)	720 900 (2 or more lane approach)	63%	63%
	B ⁽¹⁾ . Combined vehicle and pedestrian volume <u>crossing</u> the major street for each of the same 8 hours	50	75	87%	
3. VOLUME/DELAY COMBINATION	The above Justifications (1 and 2) both satisfied to the extent of 80% or more	No			
4. MINIMUM FOUR HOUR VEHICLE VOLUME	Plotted point representing hourly volume for minor approach vs. major approach for four highest hours of an average day fall above the applicable curve	No			
5. COLLISION EXPERIENCE	A. Total reported accidents of types susceptible to correction by a traffic signal, per 12 month period averaged over a 36 month period, and	5			
	B. Adequate trial of less restrictive remedies, where satisfactory observance and enforcement have failed to reduce the number of accidents	No			
6. PEDESTRIAN VOLUME AND DELAY	A. Plotted point representing 8 hour pedestrian volume vs. 8 hour vehicular volume fall in justified zone, and	No			
	B. Plotted point representing 8 hour volume of pedestrian experiencing delays of 10 s or more vs. 8 hour pedestrian volume fall in justified zone	No			

APPENDIX I

Multi-Modal Level of Service (MMLOS)

Segment Level of Service

Pedestrian Level of Service (PLOS)

Side	Sidewalk Width	Boulevard Width	Motor Vehicle Traffic Volume (AADT)	Presence of On-Street Parking	Operating Speed	Segment PLOS
Merivale Road						
East	2	0	> 3,000 vpd	No	90 km/h	F
West	2	0	> 3,000 vpd	No	90 km/h	F
Longfields Drive						
North	2	0	> 3,000 vpd	No	80 km/h	F
South	2	0	> 3,000 vpd	No	80 km/h	F
Bill Leathem Drive						
North	None	0	< 3,000 vpd	No	60 km/h	F
South	2	0	< 3,000 vpd	No	60 km/h	C
Leikin Drive						
East	None	0	< 3,000 vpd	No	70 km/h	F
West	None	0	< 3,000 vpd	No	70 km/h	F
Paragon Avenue						
East	2	0	< 3,000 vpd	No	60 km/h	C
West	None	0	< 3,000 vpd	No	60 km/h	F

Bicycle Level of Service (BLOS)

Bike Route	Type of Bikeway	Travel Lanes	Centreline Markings	Operating Speed	Segment BLOS
Merivale Road					
Spine	Mixed Traffic	2	Yes	90 km/h	F
Longfields Drive					
Local	Mixed Traffic	2	Yes	80 km/h	F
Bill Leathem Drive					
Local	Mixed Traffic	2	Yes	60 km/h	F
Leikin Drive					
Local	Bike Lane	3	Yes	70 km/h	E
Paragon Avenue					
None	Mixed Traffic	2	None	60 km/h	F

Transit Level of Service (TLOS)

Facility Type	Congestion, Friction, and Potential Incidents	Segment TLOS
Merivale Road		
Mixed Traffic Limited parking/driveway friction	Congestion, Low Friction, Medium Incident Type	D
Longfields Drive		
Mixed Traffic Limited parking/driveway friction	Congestion, Low Friction, Medium Incident Type	D
Bill Leathem Drive		
Mixed Traffic Limited parking/driveway friction	Congestion, Low Friction, Medium Incident Type	D
Leikin Drive		
Mixed Traffic Limited parking/driveway friction	Congestion, Low Friction, Medium Incident Type	D

Truck Level of Service (TkLOS)

Curb Lane Width	Travel Lanes	Segment TkLOS
Merivale Road		
3.75m	2 travel lanes	B
Longfields Drive		
3.5m	2 travel lanes	C
Bill Leathem Drive		
>3.7m	2 travel lanes	B
Leikin Drive		
>3.7m	2 travel lanes	B
Paragon Avenue		
>3.7m	2 travel lanes	B

South Merivale Business Park –MMLOS Analysis – Existing

Intersection MMLOS Pedestrian Level of Service

Criteria	North Approach	South Approach	East Approach	West Approach
Woodroffe at Fallowfield				
PETSI SCORE				
<i>CROSSING DISTANCE CONDITIONS</i>				
Median > 2.4m in Width	No	No	No	No
Lanes Crossed (3.5m Lane Width)	10 +	10 +	10 +	10 +
<i>SIGNAL PHASING AND TIMING</i>				
Left Turn Conflict	Protected	Protected	Protected	Protected
Right Turn Conflict	Permissive or Yield	Permissive or Yield	Permissive or Yield	Perm + Prot
Right Turn on Red	RTOR Allowed	N/A	RTOR Allowed	N/A
Leading Pedestrian Interval	No	No	No	No
<i>CORNER RADIUS</i>				
Parallel Radius	> 10m to 15m	> 10m to 15m	> 25m	> 10m to 15m
Parallel Right Turn Channel	No Right Turn Channel	Conventional with Receiving	Conventional without Receiving	No Right Turn Channel
Perpendicular Radius	N/A	> 25m	N/A	> 10m to 15m
Perpendicular Right Turn Channel	N/A	Conventional without Receiving	N/A	Conventional with Receiving
<i>CROSSING TREATMENT</i>				
Treatment	Standard	Standard	Standard	Standard
PETSI SCORE	-7	-7	-7	-7
LOS	F	F	F	F
DELAY SCORE				
Cycle Length	187.2	187.2	150	150
Pedestrian Walk Time	24	4	30.2	7.2
DELAY SCORE	71.1	89.6	47.8	68
LOS	F	F	E	F
OVERALL	F	F	F	F

South Merivale Business Park –MMLOS Analysis – Existing

Criteria	North Approach	South Approach	East Approach	West Approach				
Woodroffe at Longfields								
PETSI SCORE								
<i>CROSSING DISTANCE CONDITIONS</i>								
Median > 2.4m in Width	No	-10	No	-10	No	-10	No	39
Lanes Crossed (3.5m Lane Width)	10 +		10 +		10 +		7	
<i>SIGNAL PHASING AND TIMING</i>								
Left Turn Conflict	Protected	0	Protected	0	Perm + Prot	-8	Perm + Prot	-8
Right Turn Conflict	Permissive or Yield	-5	Permissive or Yield	-5	Permissive or Yield	-5	Permissive or Yield	-5
Right Turn on Red	RTOR Allowed	-3	N/A	0	N/A	0	RTOR Allowed	-3
Leading Pedestrian Interval	No	-2	No	-2	No	-2	No	-2
<i>CORNER RADIUS</i>								
Parallel Radius	> 15m to 25m	-8	> 10m to 15m	-6	> 15m to 25m	-8	> 15m to 25m	-8
Parallel Right Turn Channel	Smart Channel	2	No Right Turn Channel	-4	Smart Channel	2	No Right Turn Channel	-4
Perpendicular Radius	N/A	0	> 15m to 25m	-8	> 15m to 25m	-8	N/A	0
Perpendicular Right Turn Channel	N/A	0	Smart Channel	2	Smart Channel	2	N/A	0
<i>CROSSING TREATMENT</i>								
Treatment	Standard	-7	Standard	-7	Standard	-7	Standard	-7
	PETSI SCORE	-33		-40		-44		2
	LOS	F		F		F		F
DELAY SCORE								
Cycle Length		130		130		115		115
Pedestrian Walk Time		7.5		7.5		32.5		32.5
	DELAY SCORE	57.7		57.7		29.6		29.6
	LOS	E		E		C		C
	OVERALL	F		F		F		F

South Merivale Business Park –MMLOS Analysis – Existing

Criteria	North Approach		South Approach		East Approach		West Approach	
Merivale at Fallowfield								
PETSI SCORE								
<i>CROSSING DISTANCE CONDITIONS</i>								
Median > 2.4m in Width	No	55	No	72	No	72	No	72
Lanes Crossed (3.5m Lane Width)	6		5		5			
<i>SIGNAL PHASING AND TIMING</i>								
Left Turn Conflict	Perm + Prot	-8	Perm + Prot	-8	Permissive	-8	Perm + Prot	-8
Right Turn Conflict	Permissive or Yield	-5	Permissive or Yield	-5	Permissive or Yield	-5	Permissive or Yield	-5
Right Turn on Red	RTOR Allowed	-3	RTOR Allowed	-3	RTOR Allowed	-3	RTOR Allowed	-3
Leading Pedestrian Interval	No	-2	No	-2	No	-2	No	-2
<i>CORNER RADIUS</i>								
Parallel Radius	> 10m to 15m	-6	> 10m to 15m	-6	> 15m to 25m	-8	> 15m to 25m	-8
Parallel Right Turn Channel	No Right Turn Channel	-4	No Right Turn Channel	-4	No Right Turn Channel	-4	No Right Turn Channel	-4
Perpendicular Radius	N/A	0	N/A	0	N/A	0	N/A	0
Perpendicular Right Turn Channel	N/A	0	N/A	0	N/A	0	N/A	0
<i>CROSSING TREATMENT</i>								
Treatment	Standard	-7	Standard	-7	Standard	-7	Standard	-7
	PETSI SCORE	20		37		35		35
	LOS	F		E		E		E
DELAY SCORE								
Cycle Length		146.1		166.1		146.1		146.1
Pedestrian Walk Time		15		45.2		51.6		40
	DELAY SCORE	58.8		44		30.6		38.5
	LOS	E		E		D		D
	OVERALL	F		E		E		E

South Merivale Business Park –MMLOS Analysis – Existing

Criteria	North Approach		South Approach		West Approach	
Merivale at Leikin						
PETSI SCORE						
<i>CROSSING DISTANCE CONDITIONS</i>						
Median > 2.4m in Width	No	72	No	88	No	-10
Lanes Crossed (3.5m Lane Width)	5		4		10 +	
<i>SIGNAL PHASING AND TIMING</i>						
Left Turn Conflict	Permissive	-8	No Left Turn/Prohibited	0	Permissive	-8
Right Turn Conflict	No Right Turn/Prohibited	0	Permissive or Yield	-5	Permissive or Yield	-5
Right Turn on Red	RTOR Allowed	-3	N/A	0	RTOR Allowed	-3
Leading Pedestrian Interval	No	-2	No	-2	No	-2
<i>CORNER RADIUS</i>						
Parallel Radius	No Right Turn	0	> 15m to 25m	-8	> 15m to 25m	-8
Parallel Right Turn Channel	No Right Turn	0	No Right Turn Channel	-4	No Right Turn Channel	-4
Perpendicular Radius	N/A	0	No Right Turn	0	N/A	0
Perpendicular Right Turn Channel	N/A	0	No Right Turn	0	N/A	0
<i>CROSSING TREATMENT</i>						
Treatment	Standard	-7	Standard	-7	Standard	-7
PETSI SCORE		52		62		-47
LOS		D		C		F
DELAY SCORE						
Cycle Length		96.6		96.6		76.6
Pedestrian Walk Time		15		15		19
DELAY SCORE		34.5		34.5		21.7
LOS		D		D		C
OVERALL		D		D		F

South Merivale Business Park –MMLOS Analysis – Existing

Criteria	North Approach		South Approach		West Approach	
Prince of Wales at Merivale						
PETSI SCORE						
<i>CROSSING DISTANCE CONDITIONS</i>						
Median > 2.4m in Width	No	-10	No	55	No	-10
Lanes Crossed (3.5m Lane Width)	10 +		6		10 +	
<i>SIGNAL PHASING AND TIMING</i>						
Left Turn Conflict	Permissive	-8	No Left Turn/Prohibited	0	Perm + Prot	-8
Right Turn Conflict	Permissive or Yield	-5	Perm + Prot	-5	Permissive or Yield	-5
Right Turn on Red	N/A	0	N/A	0	RTOR Allowed	-3
Leading Pedestrian Interval	No	-2	No	-2	No	-2
<i>CORNER RADIUS</i>						
Parallel Radius	No Right Turn	0	> 15m to 25m	-8	> 10m to 15m	-6
Parallel Right Turn Channel	No Right Turn	0	No Right Turn Channel	-4	Smart Channel	2
Perpendicular Radius	> 10m to 15m	-6	No Right Turn	0	N/A	0
Perpendicular Right Turn Channel	Smart Channel	2	No Right Turn	0	N/A	0
<i>CROSSING TREATMENT</i>						
Treatment	Zebra Stripe	-4	Zebra Stripe	-4	Zebra Stripe	-4
PETSI SCORE		-33		32		-36
LOS		F		E		F
DELAY SCORE						
Cycle Length		120		120		100
Pedestrian Walk Time		10.2		10.2		24.5
DELAY SCORE		50.2		50.2		28.5
LOS		E		E		C
OVERALL		F		E		F

South Merivale Business Park –MMLOS Analysis – Existing

Criteria	North Approach		South Approach		East Approach	
Leikin at RCMP						
PETSI SCORE						
<i>CROSSING DISTANCE CONDITIONS</i>						
Median > 2.4m in Width	No	72	N/A	N/A	Yes	0
Lanes Crossed (3.5m Lane Width)	5		N/A		10 +	
<i>SIGNAL PHASING AND TIMING</i>						
Left Turn Conflict	No Left Turn/Prohibited	0	N/A	N/A	Perm + Prot	-8
Right Turn Conflict	Permissive or Yield	-5	N/A	N/A	Permissive or Yield	-5
Right Turn on Red	N/A	0	N/A	N/A	RTOR Allowed	-3
Leading Pedestrian Interval	No	-2	N/A	N/A	No	-2
<i>CORNER RADIUS</i>						
Parallel Radius	> 5m to 10m	-5	N/A	N/A	> 5m to 10m	-5
Parallel Right Turn Channel	No Right Turn Channel	-4	N/A	N/A	No Right Turn Channel	-4
Perpendicular Radius	No Right Turn	0	N/A	N/A	N/A	0
Perpendicular Right Turn Channel	No Right Turn	0	N/A	N/A	N/A	0
<i>CROSSING TREATMENT</i>						
Treatment	Standard	-7	N/A	N/A	Standard	-7
PETSI SCORE		49		N/A		-34
LOS		D		N/A		F
DELAY SCORE						
Cycle Length		99.5		99.5		99.5
Pedestrian Walk Time		9		N/A		23
DELAY SCORE		41.2		N/A		29.4
LOS		E		N/A		C
OVERALL		E		N/A		F

Bicycle Level of Service

Approach	Bikeway Facility Type	Criteria	Travel Lanes and/or Speed ¹	BLOS
Woodroffe at Fallowfield – F Overall				
North Approach	Pocket Bike Lane	Right turn lane characteristics	Right turn lane >50m; turning speed ≤30km/h	D
		Left turn accommodation	2 or more lanes crossed; ≥ 50km/hr	F
South Approach	Pocket Bike Lane	Right turn lane characteristics	Bike lane shifts to the left; Turning speed ≤25km/h	D
		Left turn accommodation	Dual left turn lanes	F
East Approach	Mixed Traffic Approach	Right turn lane characteristics	No impact to LTS	-
		Left turn accommodation	Dual left turn lanes	F
West Approach	Pocket Bike Lane	Right turn lane characteristics	Right turn lane >50m; turning speed ≤30km/h	D
		Left turn accommodation	Dual left turn lanes	F
Woodroffe at Longfields – F Overall				
North Approach	Pocket Bike Lane	Right turn lane characteristics	Right turn lane >50m; turning speed ≤30km/h	D
		Left turn accommodation	2 or more lanes crossed; ≥ 50km/hr	F
South Approach	Pocket Bike Lane	Right turn lane characteristics	Right turn lane >50m; turning speed ≤30km/h	D
		Left turn accommodation	2 or more lanes crossed; ≥ 50km/hr	F
East Approach	Pocket Bike Lane	Right turn lane characteristics	Right turn lane >50m; turning speed ≤30km/h	D
		Left turn accommodation	1 lane crossed; ≥ 60km/hr	E
West Approach	Bike Lane or higher order facility	Right turn lane characteristics	No impact to LTS	-
		Left turn accommodation	Dual left turn lanes	F
Merivale at Fallowfield – F Overall				
North Approach	Mixed Traffic Approach	Right turn lane characteristics	Right turn lane longer than 50m	F
		Left turn accommodation	1 lane crossed; ≥ 60km/hr	F
South Approach	Mixed Traffic Approach	Right turn lane characteristics	No impact to LTS	-
		Left turn accommodation	1 lane crossed; ≥ 60km/hr	F

South Merivale Business Park –MMLOS Analysis – Existing

Approach	Bikeway Facility Type	Criteria	Travel Lanes and/or Speed ¹	BLOS
East Approach	Mixed Traffic Approach	Right turn lane characteristics	No impact to LTS	-
		Left turn accommodation	1 lane crossed; ≥ 60km/hr	F
West Approach	Pocket Bike Lane	Right turn lane characteristics	Right turn lane >50m; turning speed ≤30km/h	D
		Left turn accommodation	1 lane crossed; ≥ 60km/hr	E
Merivale at Leikin – F Overall				
North Approach	Mixed Traffic Approach	Right turn lane characteristics	Right turn lane > 50m	F
South Approach	Mixed Traffic Approach	Left turn accommodation	1 lane crossed; ≥ 60km/hr	F
West Approach	Bike Lane or higher order facility	Right turn lane characteristics	No impact to LTS	-
		Left turn accommodation	No lane crossed; ≥ 60km/hr	C
Prince of Wales at Merivale – F Overall				
North Approach	Pocket Bike Lane	Right turn lane characteristics	Right turn lane ≤50m; turning speed ≤25km/h	B
South Approach	Mixed Traffic Approach	Left turn accommodation	1 lane crossed; ≥ 60km/hr	F
West Approach	Mixed Traffic Approach	Right turn lane characteristics	No impact to LTS	-
		Left turn accommodation	1 lane crossed; ≥ 60km/hr	F
Leikin at RCMP Driveway – E Overall				
North Approach	Bike Lane or higher order facility	Left turn accommodation	1 lane crossed; ≥ 60km/hr	E
South Approach	Pocket Bike Lane	Right turn lane characteristics	Right turn lane >50m; turning speed ≤30km/h	D
East Approach	Mixed Traffic Approach	Right turn lane characteristics	Right turn lane < 50m, turning speed ≤ 25km/h	D
		Left turn accommodation	1 lane crossed; <40km/hr	B

Transit Level of Service

Transit Movement	AM (PM) Delay	LOS
<i>Woodroffe at Fallowfield – F Overall</i>		
EB Right	8 (434)	F
NB Left	31 (232)	F
<i>Woodroffe at Longfields – F Overall</i>		
EB Through	43 (17)	F
EB Right	43 (17)	F
WB Through	54 (48)	F
WB Right	16 (12)	C
NB Left	12 (32)	E
NB Through	57 (20)	F
SB Left	39 (12)	E
SB Through	17 (74)	F
<i>Merivale at Fallowfield – F Overall</i>		
NB Through	63 (32)	F
SB Through	35 (70)	F
<i>Merivale at Leikin– E Overall</i>		
EB Left	39 (26)	E
SB Right	1 (1)	B
<i>Leikin at RCMP Driveway – C Overall</i>		
NB Through	16 (14)	C
SB Through	5 (13)	C

Truck Level of Service

Approach	Effective Corner Radius (m)	Number of Receiving Lanes on Departure from Intersection	LOS
Woodroffe at Fallowfield – B Overall			
North Approach	10-15m	2	B
South Approach	> 15m	2	A
East Approach	10-15m	2	B
West Approach	10-15m	2	B
Woodroffe at Longfields – C Overall			
North Approach	> 15m	1	C
South Approach	> 15m	1	C
East Approach	> 15m	2	A
West Approach	10-15m	2	B
Merivale at Fallowfield – E Overall			
North Approach	> 15m	1	C
South Approach	> 15m	1	C
East Approach	10-15m	1	E
West Approach	10-15m	1	E
Merivale at Leikin – C Overall			
North Approach	> 15m	2	A
South Approach	-	-	-
West Approach	> 15m	1	C
Prince of Wales at Merivale – E Overall			
North Approach	10-15m	1	E
South Approach	-	-	-
West Approach	> 15m	2	A
Leikin at RCMP Driveway – F Overall			
North Approach	-	-	-
South Approach	< 10m	2	D
East Approach	< 10m	1	F

APPENDIX J

Transportation Demand Management

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

Legend	
BASIC	The measure is generally feasible and effective, and in most cases would benefit the development and its users
BETTER	The measure could maximize support for users of sustainable modes, and optimize development performance
★	The measure is one of the most dependably effective tools to encourage the use of sustainable modes

TDM measures: <i>Non-residential developments</i>		Check if proposed & add descriptions
1. TDM PROGRAM MANAGEMENT		
1.1 Program coordinator		
BASIC	★	1.1.1 Designate an internal coordinator, or contract with an external coordinator
1.2 Travel surveys		
BETTER		1.2.1 Conduct periodic surveys to identify travel-related behaviours, attitudes, challenges and solutions, and to track progress
2. WALKING AND CYCLING		
2.1 Information on walking/cycling routes & destinations		
BASIC		2.1.1 Display local area maps with walking/cycling access routes and key destinations at major entrances
2.2 Bicycle skills training		
<i>Commuter travel</i>		
BETTER	★	2.2.1 Offer on-site cycling courses for commuters, or subsidize off-site courses
2.3 Valet bike parking		
<i>Visitor travel</i>		
BETTER		2.3.1 Offer secure valet bike parking during public events when demand exceeds fixed supply (e.g. for festivals, concerts, games)

TDM measures: <i>Non-residential developments</i>		Check if proposed & add descriptions
3. TRANSIT		
3.1 Transit information		
BASIC	3.1.1 Display relevant transit schedules and route maps at entrances	
BASIC	3.1.2 Provide online links to OC Transpo and STO information	
BETTER	3.1.3 Provide real-time arrival information display at entrances	
3.2 Transit fare incentives		
<i>Commuter travel</i>		
BETTER	3.2.1 Offer preloaded PRESTO cards to encourage commuters to use transit	
BETTER ★	3.2.2 Subsidize or reimburse monthly transit pass purchases by employees	
<i>Visitor travel</i>		
BETTER	3.2.3 Arrange inclusion of same-day transit fare in price of tickets (e.g. for festivals, concerts, games)	
3.3 Enhanced public transit service		
<i>Commuter travel</i>		
BETTER	3.3.1 Contract with OC Transpo to provide enhanced transit services (e.g. for shift changes, weekends)	
<i>Visitor travel</i>		
BETTER	3.3.2 Contract with OC Transpo to provide enhanced transit services (e.g. for festivals, concerts, games)	
3.4 Private transit service		
<i>Commuter travel</i>		
BETTER	3.4.1 Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for shift changes, weekends)	
<i>Visitor travel</i>		
BETTER	3.4.2 Provide shuttle service when OC Transpo cannot offer sufficient quality or capacity to serve demand (e.g. for festivals, concerts, games)	

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

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

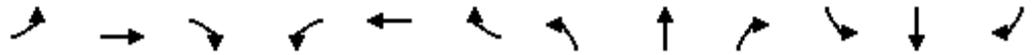
APPENDIX K

Traffic Analysis Reports

South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

Existing AM Peak Hour



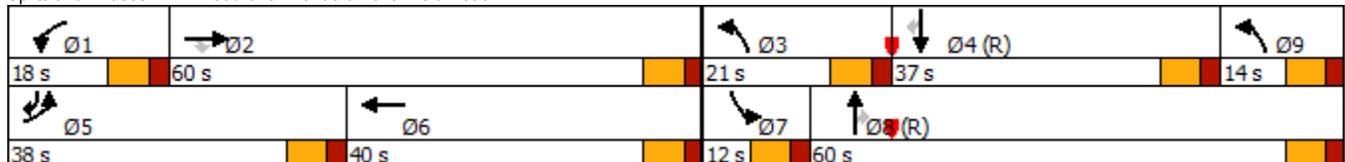
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	568	551	240	112	115	28	534	1413	455	6	346	95
Future Volume (vph)	568	551	240	112	115	28	534	1413	455	6	346	95
Satd. Flow (prot)	3248	3316	1375	2955	3133	0	3216	3349	1513	1445	3221	1363
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3248	3316	1375	2955	3133	0	3211	3349	1513	1445	3221	1345
Satd. Flow (RTOR)			267		18				347			176
Lane Group Flow (vph)	631	612	267	124	159	0	593	1570	506	7	384	106
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2						8			4
Total Split (s)	38.0	60.0	60.0	18.0	40.0			60.0	60.0	12.0	37.0	38.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8			6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	30.8	35.3	35.3	10.4	14.9		45.4	81.0	81.0	6.4	24.9	55.6
Actuated g/C Ratio	0.21	0.24	0.24	0.07	0.10		0.30	0.54	0.54	0.04	0.17	0.37
v/c Ratio	0.95	0.78	0.51	0.61	0.48		0.61	0.87	0.52	0.11	0.72	0.17
Control Delay	82.7	61.2	8.1	80.7	60.5		30.8	36.9	9.5	72.5	66.9	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.7	61.2	8.1	80.7	60.5		30.8	36.9	9.5	72.5	66.9	0.6
LOS	F	E	A	F	E		C	D	A	E	E	A
Approach Delay		60.8			69.3			30.4			52.9	
Approach LOS		E			E			C			D	
Queue Length 50th (m)	88.5	84.5	0.0	17.2	19.6		43.4	180.0	21.6	1.9	52.1	0.0
Queue Length 95th (m)	#120.6	97.6	20.5	27.4	29.1		#78.3	#302.6	66.6	6.7	67.1	0.0
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	675	1176	659	220	707		974	1807	976	61	648	616
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	0.93	0.52	0.41	0.56	0.22		0.61	0.87	0.52	0.11	0.59	0.17

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 4:SBT and 8:NBT, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 44.1
 Intersection Capacity Utilization 93.5%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Intersection LOS: D
 ICU Level of Service F

Splits and Phases: 1: Woodroffe Avenue & Fallowfield Road



South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

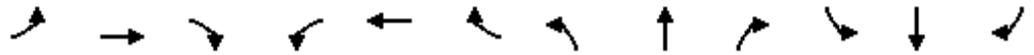
Existing AM Peak Hour

Lane Group	Ø3	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Satd. Flow (RTOR)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	9
Permitted Phases		
Total Split (s)	21.0	14.0
Total Lost Time (s)		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

Existing AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	372	89	82	15	45	132	36	1353	50	154	399	111
Future Volume (vph)	372	89	82	15	45	132	36	1353	50	154	399	111
Satd. Flow (prot)	3248	1551	0	1580	1664	1513	1523	3349	1513	1642	3221	1455
Fit Permitted	0.950			0.950			0.495			0.065		
Satd. Flow (perm)	3248	1551	0	1580	1664	1490	785	3349	1479	112	3221	1393
Satd. Flow (RTOR)		32				138			138			138
Lane Group Flow (vph)	413	190	0	17	50	147	40	1503	56	171	443	123
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Total Split (s)	20.0	33.0		20.0	33.0	33.0	12.0	65.0	65.0	12.0	65.0	65.0
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
Act Effct Green (s)	13.5	28.5		7.0	14.4	14.4	65.2	58.9	58.9	81.3	72.2	72.2
Actuated g/C Ratio	0.10	0.22		0.05	0.11	0.11	0.50	0.45	0.45	0.63	0.56	0.56
v/c Ratio	1.23	0.52		0.20	0.27	0.51	0.09	0.99	0.08	0.63	0.25	0.15
Control Delay	172.7	43.1		63.7	54.1	15.5	12.1	56.5	0.2	38.8	17.0	2.8
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	172.7	43.1		63.7	54.1	15.5	12.1	56.5	0.2	38.8	17.0	2.8
LOS	F	D		E	D	B	B	E	A	D	B	A
Approach Delay		131.9			28.3			53.4			19.7	
Approach LOS		F			C			D			B	
Queue Length 50th (m)	~61.7	32.5		3.9	11.4	2.0	3.0	177.5	0.0	22.3	26.3	0.0
Queue Length 95th (m)	#91.2	54.1		11.1	20.3	18.1	9.4	#232.5	0.0	#82.8	45.7	7.9
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	337	375		164	339	413	429	1517	745	272	1788	834
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	1.23	0.51		0.10	0.15	0.36	0.09	0.99	0.08	0.63	0.25	0.15

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 86 (66%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.23

Intersection Signal Delay: 58.8

Intersection LOS: E

Intersection Capacity Utilization 82.7%

ICU Level of Service E

Analysis Period (min) 15

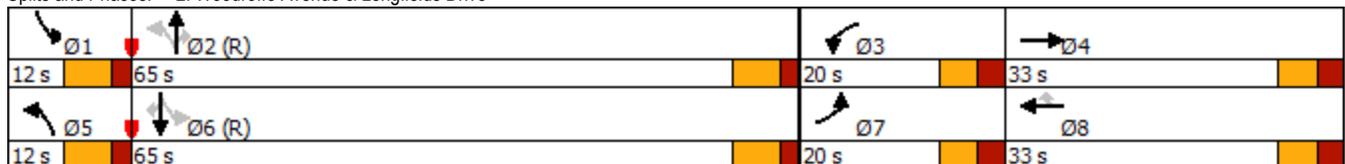
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

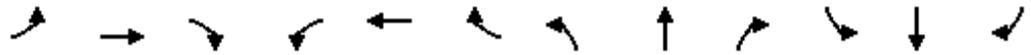
Splits and Phases: 2: Woodroffe Avenue & Longfields Drive



South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

Existing AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	617	381	33	147	147	4	18	545	19	0	120	49
Future Volume (vph)	617	381	33	147	147	4	18	545	19	0	120	49
Satd. Flow (prot)	1658	1762	1427	1658	1690	0	1691	1736	0	1780	1618	1327
Fit Permitted	0.410			0.515			0.574					
Satd. Flow (perm)	715	1762	1427	899	1690	0	1022	1736	0	1780	1618	1327
Satd. Flow (RTOR)			123		1			1				173
Lane Group Flow (vph)	686	423	37	163	167	0	20	627	0	0	133	54
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8				4
Permitted Phases	2		2	6			8			4		4
Total Split (s)	46.5	61.6	61.6	16.5	31.6		11.6	68.0		56.4	56.4	56.4
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effect Green (s)	71.9	55.6	55.6	34.8	25.1		52.9	53.1		46.4	46.4	46.4
Actuated g/C Ratio	0.52	0.40	0.40	0.25	0.18		0.38	0.39		0.34	0.34	0.34
v/c Ratio	1.06	0.60	0.06	0.58	0.54		0.05	0.94		0.24	0.10	0.10
Control Delay	81.2	38.3	0.2	35.7	60.1		25.6	63.2		35.2	0.3	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	81.2	38.3	0.2	35.7	60.1		25.6	63.2		35.2	0.3	0.3
LOS	F	D	A	D	E		C	E		D	A	A
Approach Delay		62.7			48.0			62.1			25.1	
Approach LOS		E			D			E			C	
Queue Length 50th (m)	~153.1	86.4	0.0	22.2	39.3		3.1	149.6		25.4	0.0	0.0
Queue Length 95th (m)	#237.2	126.2	0.0	37.4	64.2		8.1	#211.0		40.9	0.0	0.0
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0					55.0
Base Capacity (vph)	647	710	648	284	308		416	779		588	592	592
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	1.06	0.60	0.06	0.57	0.54		0.05	0.80		0.23	0.09	0.09

Intersection Summary

Cycle Length: 146.1

Actuated Cycle Length: 137.9

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.06

Intersection Signal Delay: 57.4

Intersection LOS: E

Intersection Capacity Utilization 92.2%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Merivale Road & Fallowfield Road

Ø1	Ø2	Ø3	Ø4
16.5 s	61.6 s	11.6 s	56.4 s
Ø5	Ø6	Ø7	Ø8
46.5 s	31.6 s	68 s	

South Merivale Business Park TIA

4: Merivale Road & Leikin Drive

Existing AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	304	4	0	354	63	227
Future Volume (vph)	304	4	0	354	63	227
Satd. Flow (prot)	3252	0	1728	1745	1424	1469
Fit Permitted	0.953					
Satd. Flow (perm)	3252	0	1728	1745	1424	1469
Satd. Flow (RTOR)	1					252
Lane Group Flow (vph)	342	0	0	393	70	252
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Total Split (s)	30.1		66.5	66.5	66.5	66.5
Total Lost Time (s)	5.1		6.5	6.5	6.5	6.5
Act Effct Green (s)	14.1			60.1	60.1	60.1
Actuated g/C Ratio	0.16			0.70	0.70	0.70
v/c Ratio	0.64			0.32	0.07	0.23
Control Delay	39.0			6.2	4.9	1.3
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	39.0			6.2	4.9	1.3
LOS	D			A	A	A
Approach Delay	39.0			6.2	2.0	
Approach LOS	D			A	A	
Queue Length 50th (m)	25.0			19.5	2.8	0.0
Queue Length 95th (m)	37.0			36.5	7.3	6.3
Internal Link Dist (m)	50.7			445.8	100.5	
Turn Bay Length (m)						85.0
Base Capacity (vph)	949			1221	996	1103
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.36			0.32	0.07	0.23

Intersection Summary

Cycle Length: 96.6
 Actuated Cycle Length: 85.8
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.64
 Intersection Signal Delay: 15.6
 Intersection LOS: B
 Intersection Capacity Utilization 38.6%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 4: Merivale Road & Leikin Drive

Ø2	Ø4
66.5 s	30.1 s
Ø6	
66.5 s	

South Merivale Business Park TIA

5: Prince of Wales Drive & Merivale Road

Existing AM Peak Hour



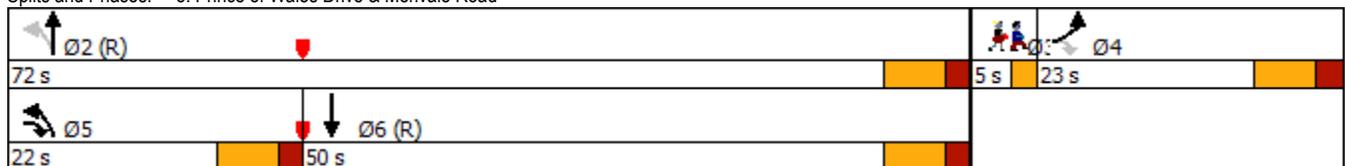
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Lane Configurations							
Traffic Volume (vph)	10	83	449	918	259	38	
Future Volume (vph)	10	83	449	918	259	38	
Satd. Flow (prot)	1691	1261	1642	1745	3118	0	
Fit Permitted	0.950		0.492				
Satd. Flow (perm)	1691	1261	850	1745	3118	0	
Satd. Flow (RTOR)		92			20		
Lane Group Flow (vph)	11	92	499	1020	330	0	
Turn Type	Prot	pm+ov	pm+pt	NA	NA		
Protected Phases	4	5	5	2	6		3
Permitted Phases		4	2				
Total Split (s)	23.0	22.0	22.0	72.0	50.0		5.0
Total Lost Time (s)	6.8	6.4	6.4	6.5	6.5		
Act Effct Green (s)	10.0	30.6	76.2	77.4	53.5		
Actuated g/C Ratio	0.10	0.31	0.76	0.77	0.54		
v/c Ratio	0.07	0.20	0.64	0.76	0.20		
Control Delay	41.9	5.6	9.4	13.5	14.3		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	41.9	5.6	9.4	13.5	14.3		
LOS	D	A	A	B	B		
Approach Delay	9.5			12.2	14.3		
Approach LOS	A			B	B		
Queue Length 50th (m)	1.8	0.0	31.0	106.6	16.3		
Queue Length 95th (m)	6.7	8.7	46.1	167.7	26.4		
Internal Link Dist (m)	226.4			296.0	233.3		
Turn Bay Length (m)	80.0		90.0				
Base Capacity (vph)	273	462	791	1350	1676		
Starvation Cap Reductn	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0		
Reduced v/c Ratio	0.04	0.20	0.63	0.76	0.20		

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 15 (15%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 12.4
 Intersection Capacity Utilization 70.4%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service C

Splits and Phases: 5: Prince of Wales Drive & Merivale Road



South Merivale Business Park TIA

6: Leikin Drive & RCMP Driveway

Existing AM Peak Hour

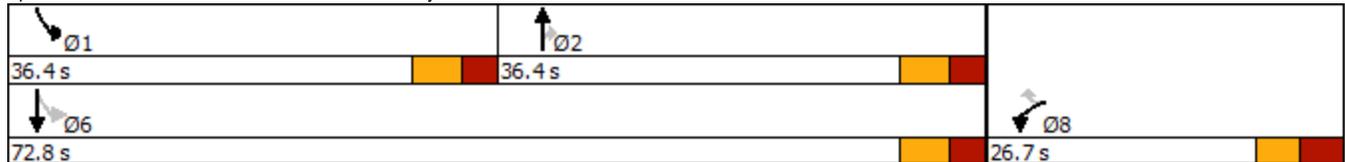


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	15	17	315	548	253	51
Future Volume (vph)	15	17	315	548	253	51
Satd. Flow (prot)	1691	1427	1728	1513	1691	1508
Fit Permitted	0.950				0.429	
Satd. Flow (perm)	1691	1325	1728	1468	761	1508
Satd. Flow (RTOR)		19		609		
Lane Group Flow (vph)	17	19	350	609	281	57
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Total Split (s)	26.7	26.7	36.4	36.4	36.4	72.8
Total Lost Time (s)	6.7	6.7	6.4	6.4	6.4	6.4
Act Effct Green (s)	11.7	11.7	31.4	31.4	47.3	50.7
Actuated g/C Ratio	0.18	0.18	0.49	0.49	0.74	0.79
v/c Ratio	0.05	0.07	0.41	0.59	0.40	0.05
Control Delay	26.5	13.2	16.4	4.5	6.4	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.5	13.2	16.4	4.5	6.4	4.7
LOS	C	B	B	A	A	A
Approach Delay	19.5		8.8			6.2
Approach LOS	B		A			A
Queue Length 50th (m)	1.8	0.0	28.7	0.0	11.2	2.0
Queue Length 95th (m)	6.6	4.7	63.9	20.3	27.0	6.7
Internal Link Dist (m)	69.4		182.1			276.7
Turn Bay Length (m)					200.0	
Base Capacity (vph)	554	447	850	1031	1020	1416
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.04	0.41	0.59	0.28	0.04

Intersection Summary

Cycle Length: 99.5
 Actuated Cycle Length: 63.9
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.59
 Intersection Signal Delay: 8.4
 Intersection LOS: A
 Intersection Capacity Utilization 63.3%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 6: Leikin Drive & RCMP Driveway



South Merivale Business Park TIA

7: Driveway/Bill Leatham Drive & Leikin Drive

Existing AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	151	558	4	6	20	37	1	2	4	213	3	32
Future Volume (Veh/h)	151	558	4	6	20	37	1	2	4	213	3	32
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	168	620	4	7	22	41	1	2	4	237	3	36
Pedestrians								5				
Lane Width (m)								3.5				
Walking Speed (m/s)								1.0				
Percent Blockage								0				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)					206							
pX, platoon unblocked												
vC, conflicting volume	63			629			1036	1040	627	1018	1022	42
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	63			629			1036	1040	627	1018	1022	42
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	89			99			99	99	99	0	99	97
cM capacity (veh/h)	1521			948			182	204	483	193	208	1034
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	168	624	7	63	7	276						
Volume Left	168	0	7	0	1	237						
Volume Right	0	4	0	41	4	36						
cSH	1521	1700	948	1700	297	216						
Volume to Capacity	0.11	0.37	0.01	0.04	0.02	1.28						
Queue Length 95th (m)	2.6	0.0	0.2	0.0	0.5	102.2						
Control Delay (s)	7.7	0.0	8.8	0.0	17.4	200.7						
Lane LOS	A		A		C	F						
Approach Delay (s)	1.6		0.9		17.4	200.7						
Approach LOS					C	F						
Intersection Summary												
Average Delay			49.7									
Intersection Capacity Utilization			59.3%		ICU Level of Service					B		
Analysis Period (min)			15									

South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

Existing PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	169	205	605	476	450	10	305	611	201	14	1356	518
Future Volume (vph)	169	205	605	476	450	10	305	611	201	14	1356	518
Satd. Flow (prot)	3216	3252	1498	3281	3318	0	3185	3349	1455	1691	3349	1483
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	3252	1498	3281	3318	0	3185	3349	1417	1691	3349	1483
Satd. Flow (RTOR)			141		1				223			101
Lane Group Flow (vph)	188	228	672	529	511	0	339	679	223	16	1507	576
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2						8			4
Total Split (s)	16.8	36.8	36.8	36.8	56.8		21.8	96.8	96.8	16.8	91.8	16.8
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8		6.8	6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	10.0	30.0	30.0	30.0	50.0		15.0	97.7	97.7	7.3	85.0	101.8
Actuated g/C Ratio	0.05	0.16	0.16	0.16	0.27		0.08	0.52	0.52	0.04	0.45	0.54
v/c Ratio	1.10	0.44	1.88	1.01	0.58		1.33	0.39	0.26	0.24	0.99	0.68
Control Delay	173.8	74.0	433.6	117.0	62.4		232.3	28.6	3.6	95.2	71.0	29.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	173.8	74.0	433.6	117.0	62.4		232.3	28.6	3.6	95.2	71.0	29.5
LOS	F	E	F	F	E		F	C	A	F	E	C
Approach Delay		313.4			90.2			79.7			59.8	
Approach LOS		F			F			E			E	
Queue Length 50th (m)	~37.5	37.9	~310.5	~96.3	80.9		~77.6	77.1	0.0	5.5	269.8	118.0
Queue Length 95th (m)	#63.2	51.7	#383.2	#133.4	99.5		#109.2	94.4	14.0	14.0	#317.9	160.0
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	171	521	358	525	886		255	1748	846	90	1520	852
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	1.10	0.44	1.88	1.01	0.58		1.33	0.39	0.26	0.18	0.99	0.68

Intersection Summary

Cycle Length: 187.2
 Actuated Cycle Length: 187.2
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.88
 Intersection Signal Delay: 120.5
 Intersection LOS: F
 Intersection Capacity Utilization 110.4%
 ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Woodroffe Avenue & Fallowfield Road

36.8 s	36.8 s	21.8 s	91.8 s
16.8 s	56.8 s	16.8 s	96.8 s

South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

Existing PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	17	70	55	55	144	89	761	39	103	1680	223
Future Volume (vph)	155	17	70	55	55	144	89	761	39	103	1680	223
Satd. Flow (prot)	3216	1528	0	1691	1780	1483	1642	3316	1513	1691	3349	1513
Fit Permitted	0.950			0.950			0.068			0.266		
Satd. Flow (perm)	3216	1528	0	1691	1780	1464	118	3316	1513	473	3349	1472
Satd. Flow (RTOR)		78				160			157			248
Lane Group Flow (vph)	172	97	0	61	61	160	99	846	43	114	1867	248
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Total Split (s)	15.0	33.0		15.0	33.0	33.0	12.0	55.0	55.0	12.0	55.0	55.0
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
Act Effct Green (s)	8.5	16.4		7.9	13.4	13.4	67.4	59.8	59.8	66.9	59.5	59.5
Actuated g/C Ratio	0.07	0.14		0.07	0.12	0.12	0.59	0.52	0.52	0.58	0.52	0.52
v/c Ratio	0.73	0.34		0.53	0.30	0.51	0.58	0.49	0.05	0.32	1.08	0.28
Control Delay	70.3	16.8		68.5	48.2	12.4	31.6	20.0	0.1	12.3	74.1	3.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.3	16.8		68.5	48.2	12.4	31.6	20.0	0.1	12.3	74.1	3.2
LOS	E	B		E	D	B	C	C	A	B	E	A
Approach Delay		51.0			32.3			20.3			63.0	
Approach LOS		D			C			C			E	
Queue Length 50th (m)	18.2	3.7		12.4	12.2	0.0	6.6	54.3	0.0	7.6	~219.1	0.0
Queue Length 95th (m)	#32.3	15.6		25.2	20.8	15.1	#34.2	89.0	0.0	20.1	#302.9	13.5
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	237	412		124	410	460	170	1723	861	353	1732	881
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.24		0.49	0.15	0.35	0.58	0.49	0.05	0.32	1.08	0.28

Intersection Summary

Cycle Length: 115

Actuated Cycle Length: 115

Offset: 92 (80%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 48.7

Intersection LOS: D

Intersection Capacity Utilization 81.8%

ICU Level of Service D

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

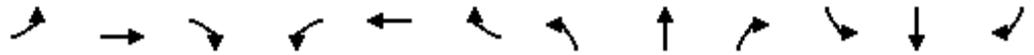
Splits and Phases: 2: Woodroffe Avenue & Longfields Drive

	Ø1		Ø2 (R)		Ø3		Ø4
12 s		55 s		15 s		33 s	
	Ø5		Ø6 (R)		Ø7		Ø8
12 s		55 s		15 s		33 s	

South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

Existing PM Peak Hour

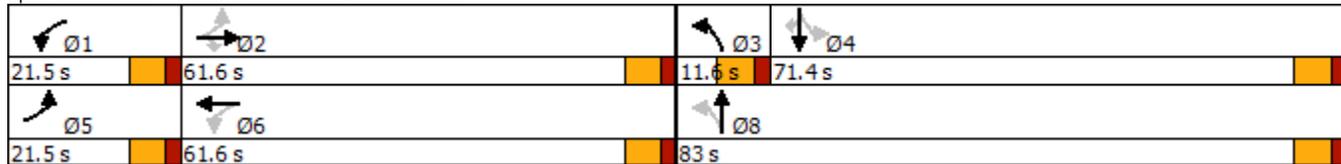


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	118	265	36	34	628	3	45	197	93	5	528	271
Future Volume (vph)	118	265	36	34	628	3	45	197	93	5	528	271
Satd. Flow (prot)	1496	1745	1469	1691	1778	0	1551	1597	0	1691	1762	1498
Fit Permitted	0.063			0.551			0.087			0.534		
Satd. Flow (perm)	99	1745	1469	981	1778	0	142	1597	0	951	1762	1498
Satd. Flow (RTOR)			108					19				162
Lane Group Flow (vph)	131	294	40	38	701	0	50	322	0	6	587	301
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8				4
Permitted Phases	2		2	6			8			4		4
Total Split (s)	21.5	61.6	61.6	21.5	61.6		11.6	83.0		71.4	71.4	71.4
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	76.5	65.6	65.6	63.3	55.7		63.5	63.7		54.8	54.8	54.8
Actuated g/C Ratio	0.50	0.43	0.43	0.41	0.36		0.41	0.42		0.36	0.36	0.36
v/c Ratio	0.74	0.39	0.06	0.09	1.09		0.48	0.48		0.02	0.93	0.47
Control Delay	61.7	36.7	0.2	24.8	107.0		40.8	32.3		31.6	70.2	19.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	61.7	36.7	0.2	24.8	107.0		40.8	32.3		31.6	70.2	19.0
LOS	E	D	A	C	F		D	C		C	E	B
Approach Delay		40.6			102.8			33.5			52.7	
Approach LOS		D			F			C			D	
Queue Length 50th (m)	26.0	63.4	0.0	5.9	~242.1		8.4	61.4		1.1	162.8	29.8
Queue Length 95th (m)	#58.8	95.2	0.0	13.1	#327.7		16.3	86.0		4.4	#216.2	54.8
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0			30.0		55.0
Base Capacity (vph)	187	746	689	524	646		105	817		408	756	735
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	0.70	0.39	0.06	0.07	1.09		0.48	0.39		0.01	0.78	0.41

Intersection Summary

Cycle Length: 166.1
 Actuated Cycle Length: 153.4
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.09
 Intersection Signal Delay: 62.5
 Intersection LOS: E
 Intersection Capacity Utilization 97.2%
 ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Merivale Road & Fallowfield Road



South Merivale Business Park TIA

4: Merivale Road & Leikin Drive

Existing PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	220	2	1	173	437	212
Future Volume (vph)	220	2	1	173	437	212
Satd. Flow (prot)	3184	0	1271	1648	1762	1498
Fit Permitted	0.953		0.465			
Satd. Flow (perm)	3184	0	622	1648	1762	1498
Satd. Flow (RTOR)	1					236
Lane Group Flow (vph)	246	0	1	192	486	236
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Total Split (s)	30.1		46.5	46.5	46.5	46.5
Total Lost Time (s)	5.1		6.5	6.5	6.5	6.5
Act Effct Green (s)	10.8		40.0	40.0	40.0	40.0
Actuated g/C Ratio	0.17		0.64	0.64	0.64	0.64
v/c Ratio	0.45		0.00	0.18	0.43	0.23
Control Delay	25.8		5.0	5.3	7.2	1.4
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	25.8		5.0	5.3	7.2	1.4
LOS	C		A	A	A	A
Approach Delay	25.8			5.3	5.3	
Approach LOS	C			A	A	
Queue Length 50th (m)	12.1		0.0	6.6	20.4	0.0
Queue Length 95th (m)	20.5		0.4	14.7	40.1	5.9
Internal Link Dist (m)	51.0			445.8	100.5	
Turn Bay Length (m)			100.0			85.0
Base Capacity (vph)	1276		398	1057	1130	1045
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.19		0.00	0.18	0.43	0.23

Intersection Summary

Cycle Length: 76.6
 Actuated Cycle Length: 62.4
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.45
 Intersection Signal Delay: 9.6
 Intersection LOS: A
 Intersection Capacity Utilization 42.3%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 4: Merivale Road & Leikin Drive

Ø2	Ø4
46.5 s	30.1 s
Ø6	
46.5 s	

South Merivale Business Park TIA

5: Prince of Wales Drive & Merivale Road

Existing PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Lane Configurations							
Traffic Volume (vph)	30	505	165	334	906	16	
Future Volume (vph)	30	505	165	334	906	16	
Satd. Flow (prot)	1642	1483	1566	1745	3338	0	
Fit Permitted	0.950		0.198				
Satd. Flow (perm)	1642	1483	326	1745	3338	0	
Satd. Flow (RTOR)		147			2		
Lane Group Flow (vph)	33	561	183	371	1025	0	
Turn Type	Prot	pm+ov	pm+pt	NA	NA		
Protected Phases	4	5	5	2	6		3
Permitted Phases		4	2				
Total Split (s)	26.0	14.0	14.0	89.0	75.0		5.0
Total Lost Time (s)	6.8	6.4	6.4	6.5	6.5		
Act Effct Green (s)	19.2	33.6	82.6	82.5	68.5		
Actuated g/C Ratio	0.16	0.28	0.69	0.69	0.57		
v/c Ratio	0.13	1.08	0.61	0.31	0.54		
Control Delay	44.7	92.7	15.5	8.3	17.2		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	44.7	92.7	15.5	8.3	17.2		
LOS	D	F	B	A	B		
Approach Delay	90.0			10.7	17.2		
Approach LOS	F			B	B		
Queue Length 50th (m)	6.2	~111.2	12.7	28.9	68.7		
Queue Length 95th (m)	14.9	#173.6	20.4	41.9	85.1		
Internal Link Dist (m)	226.4			296.0	231.6		
Turn Bay Length (m)	80.0		90.0				
Base Capacity (vph)	262	521	302	1199	1906		
Starvation Cap Reductn	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0		
Reduced v/c Ratio	0.13	1.08	0.61	0.31	0.54		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 112 (93%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.08

Intersection Signal Delay: 35.4

Intersection LOS: D

Intersection Capacity Utilization 70.7%

ICU Level of Service C

Analysis Period (min) 15

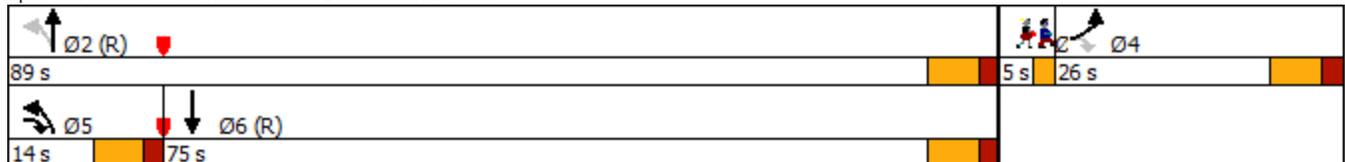
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Prince of Wales Drive & Merivale Road



South Merivale Business Park TIA

6: Leikin Drive & RCMP Driveway

Existing PM Peak Hour



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	409	252	85	5	6	209
Future Volume (vph)	409	252	85	5	6	209
Satd. Flow (prot)	1691	1513	1648	1513	1691	1728
Fit Permitted	0.950				0.618	
Satd. Flow (perm)	1691	1391	1648	1456	1085	1728
Satd. Flow (RTOR)		280		6		
Lane Group Flow (vph)	454	280	94	6	7	232
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Total Split (s)	41.7	41.7	56.4	56.4	16.4	72.8
Total Lost Time (s)	6.7	6.7	6.4	6.4	6.4	6.4
Act Effct Green (s)	30.3	30.3	50.4	50.4	52.6	52.6
Actuated g/C Ratio	0.32	0.32	0.52	0.52	0.55	0.55
v/c Ratio	0.85	0.44	0.11	0.01	0.01	0.25
Control Delay	47.5	5.6	14.2	9.0	11.0	12.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.5	5.6	14.2	9.0	11.0	12.9
LOS	D	A	B	A	B	B
Approach Delay	31.5		13.9			12.8
Approach LOS	C		B			B
Queue Length 50th (m)	68.9	0.0	7.7	0.0	0.5	20.6
Queue Length 95th (m)	#133.5	16.8	19.8	2.2	2.4	34.4
Internal Link Dist (m)	69.4		182.1			276.7
Turn Bay Length (m)					200.0	
Base Capacity (vph)	620	687	863	765	656	1202
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.73	0.41	0.11	0.01	0.01	0.19

Intersection Summary

Cycle Length: 114.5

Actuated Cycle Length: 96.1

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 25.7

Intersection LOS: C

Intersection Capacity Utilization 55.7%

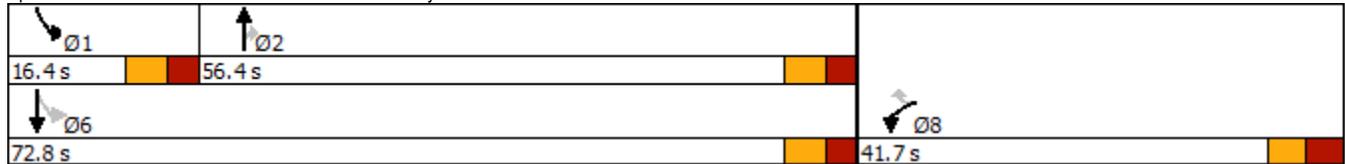
ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: Leikin Drive & RCMP Driveway



South Merivale Business Park TIA

7: Driveway/Bill Leatham Drive & Leikin Drive

Existing PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	57	0	0	364	183	0	1	0	43	0	162
Future Volume (Veh/h)	65	57	0	0	364	183	0	1	0	43	0	162
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	72	63	0	0	404	203	0	1	0	48	0	180
Pedestrians		1						10			1	
Lane Width (m)		3.5						3.5			3.5	
Walking Speed (m/s)		1.0						1.0			1.0	
Percent Blockage		0						1			0	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)					206							
pX, platoon unblocked	0.96						0.96	0.96		0.96	0.96	0.96
vC, conflicting volume	608			73			802	825	73	714	724	508
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	576			73			777	801	73	685	695	471
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			100			100	100	100	85	100	69
cM capacity (veh/h)	971			1525			194	283	985	328	325	573
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	72	63	0	607	1	228						
Volume Left	72	0	0	0	0	48						
Volume Right	0	0	0	203	0	180						
cSH	971	1700	1700	1700	283	495						
Volume to Capacity	0.07	0.04	0.00	0.36	0.00	0.46						
Queue Length 95th (m)	1.7	0.0	0.0	0.0	0.1	16.7						
Control Delay (s)	9.0	0.0	0.0	0.0	17.8	18.3						
Lane LOS	A				C	C						
Approach Delay (s)	4.8		0.0		17.8	18.3						
Approach LOS					C	C						
Intersection Summary												
Average Delay			5.0									
Intersection Capacity Utilization			65.6%		ICU Level of Service				C			
Analysis Period (min)			15									

South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

Existing AM Peak Hour - Timing Adjustments

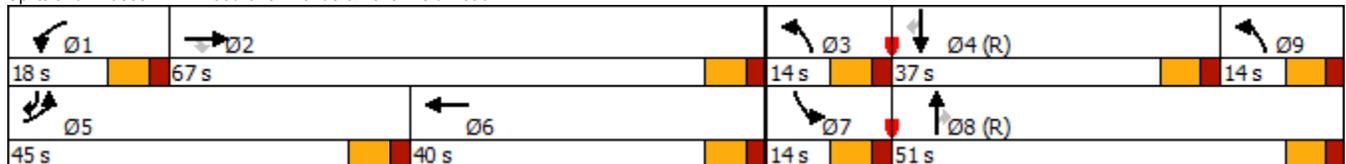
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	568	551	240	112	115	28	534	1413	455	6	346	95
Future Volume (vph)	568	551	240	112	115	28	534	1413	455	6	346	95
Satd. Flow (prot)	3248	3316	1375	2955	3133	0	3216	3349	1513	1445	3221	1363
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3248	3316	1375	2955	3133	0	3211	3349	1513	1445	3221	1345
Satd. Flow (RTOR)			267		18				370			127
Lane Group Flow (vph)	631	612	267	124	159	0	593	1570	506	7	384	106
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2						8			4
Total Split (s)	45.0	67.0	67.0	18.0	40.0			51.0	51.0	14.0	37.0	45.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8			6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	33.8	35.9	35.9	10.4	12.5		46.4	80.4	80.4	6.4	23.4	57.1
Actuated g/C Ratio	0.23	0.24	0.24	0.07	0.08		0.31	0.54	0.54	0.04	0.16	0.38
v/c Ratio	0.86	0.77	0.50	0.61	0.57		0.60	0.88	0.52	0.11	0.77	0.18
Control Delay	68.5	60.0	7.9	80.7	66.7		30.5	37.9	8.7	72.5	70.9	2.0
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	68.5	60.0	7.9	80.7	66.7		30.5	37.9	8.7	72.5	70.9	2.0
LOS	E	E	A	F	E		C	D	A	E	E	A
Approach Delay		54.3			72.8			30.7			56.2	
Approach LOS		D			E			C			E	
Queue Length 50th (m)	86.1	83.5	0.0	17.2	19.9		44.4	184.2	17.8	1.9	53.9	0.0
Queue Length 95th (m)	103.4	96.8	20.3	27.4	30.6		#83.3	#305.3	60.6	6.7	67.1	4.7
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	827	1330	711	220	707		994	1794	982	70	648	631
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	0.76	0.46	0.38	0.56	0.22		0.60	0.88	0.52	0.10	0.59	0.17

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 4:SBT and 8:NBT, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.88
 Intersection Signal Delay: 42.9
 Intersection Capacity Utilization 93.5%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Intersection LOS: D
 ICU Level of Service F

Splits and Phases: 1: Woodroffe Avenue & Fallowfield Road



South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

Existing AM Peak Hour - Timing Adjustments

Lane Group	Ø3	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Satd. Flow (RTOR)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	9
Permitted Phases		
Total Split (s)	14.0	14.0
Total Lost Time (s)		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

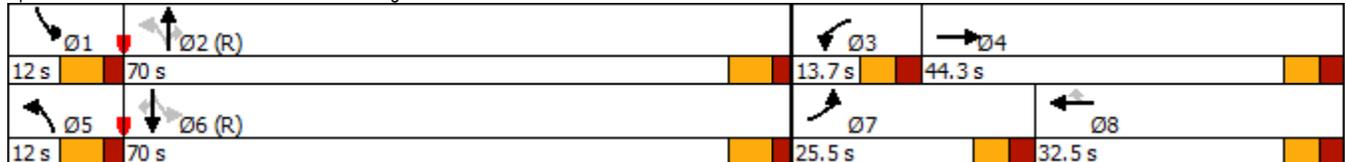
Existing AM Peak Hour - Timing Adjustments

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	372	89	82	15	45	132	36	1353	50	154	399	111
Future Volume (vph)	372	89	82	15	45	132	36	1353	50	154	399	111
Satd. Flow (prot)	3248	1551	0	1580	1664	1513	1523	3349	1513	1642	3221	1455
Fit Permitted	0.950			0.950			0.495			0.061		
Satd. Flow (perm)	3248	1551	0	1580	1664	1490	784	3349	1478	105	3221	1391
Satd. Flow (RTOR)		32				179			179			179
Lane Group Flow (vph)	413	190	0	17	50	147	40	1503	56	171	443	123
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Total Split (s)	25.5	44.3		13.7	32.5	32.5	12.0	70.0	70.0	12.0	70.0	70.0
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
Act Effct Green (s)	19.0	33.5		6.6	13.5	13.5	69.8	63.5	63.5	86.7	77.6	77.6
Actuated g/C Ratio	0.14	0.24		0.05	0.10	0.10	0.50	0.45	0.45	0.62	0.55	0.55
v/c Ratio	0.94	0.48		0.23	0.31	0.48	0.09	0.99	0.07	0.65	0.25	0.14
Control Delay	89.6	42.8		71.6	62.0	8.5	13.1	58.6	0.2	42.7	18.0	0.9
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	89.6	42.8		71.6	62.0	8.5	13.1	58.6	0.2	42.7	18.0	0.9
LOS	F	D		E	E	A	B	E	A	D	B	A
Approach Delay		74.8			26.0			55.4			20.9	
Approach LOS		E			C			E			C	
Queue Length 50th (m)	54.5	34.1		4.2	12.4	0.0	3.4	196.7	0.0	25.8	29.3	0.0
Queue Length 95th (m)	#83.0	54.8		11.7	21.9	9.5	10.1	#246.0	0.0	#91.8	48.5	2.1
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	440	442		81	309	422	424	1519	768	262	1786	851
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	0.94	0.43		0.21	0.16	0.35	0.09	0.99	0.07	0.65	0.25	0.14

Intersection Summary

Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 86 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.99
 Intersection Signal Delay: 49.0
 Intersection LOS: D
 Intersection Capacity Utilization 82.7%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 2: Woodroffe Avenue & Longfields Drive



South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

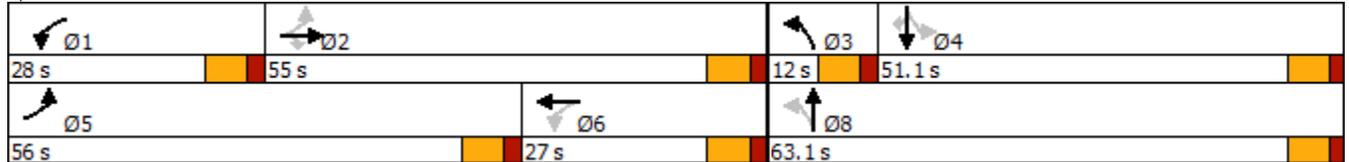
Existing AM Peak Hour - Timing Adjustments

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	617	381	33	147	147	4	18	545	19	0	120	49
Future Volume (vph)	617	381	33	147	147	4	18	545	19	0	120	49
Satd. Flow (prot)	1658	1762	1427	1658	1690	0	1691	1736	0	1780	1618	1327
Fit Permitted	0.343			0.515			0.570					
Satd. Flow (perm)	599	1762	1427	899	1690	0	1015	1736	0	1780	1618	1327
Satd. Flow (RTOR)			123		1			1				173
Lane Group Flow (vph)	686	423	37	163	167	0	20	627	0	0	133	54
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8				4
Permitted Phases	2		2	6			8			4		4
Total Split (s)	56.0	55.0	55.0	28.0	27.0		12.0	63.1		51.1	51.1	51.1
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	76.6	57.1	57.1	33.4	20.4		53.5	53.7			46.7	46.7
Actuated g/C Ratio	0.53	0.40	0.40	0.23	0.14		0.37	0.38			0.33	0.33
v/c Ratio	1.00	0.60	0.06	0.59	0.69		0.05	0.96			0.25	0.10
Control Delay	64.4	40.0	0.2	34.5	74.6		28.3	70.8			38.3	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	64.4	40.0	0.2	34.5	74.6		28.3	70.8			38.3	0.4
LOS	E	D	A	C	E		C	E			D	A
Approach Delay		53.4			54.8			69.5			27.3	
Approach LOS		D			D			E			C	
Queue Length 50th (m)	~162.0	90.0	0.0	22.4	42.9		3.3	159.0			26.9	0.0
Queue Length 95th (m)	#231.5	130.0	0.0	34.7	#70.4		8.5	#227.5			43.3	0.0
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0					55.0
Base Capacity (vph)	686	702	642	378	241		404	688			528	549
Starvation Cap Reductn	0	0	0	0	0		0	0			0	0
Spillback Cap Reductn	0	0	0	0	0		0	0			0	0
Storage Cap Reductn	0	0	0	0	0		0	0			0	0
Reduced v/c Ratio	1.00	0.60	0.06	0.43	0.69		0.05	0.91			0.25	0.10

Intersection Summary

Cycle Length: 146.1
 Actuated Cycle Length: 143.2
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 56.0
 Intersection LOS: E
 Intersection Capacity Utilization 92.2%
 ICU Level of Service F
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

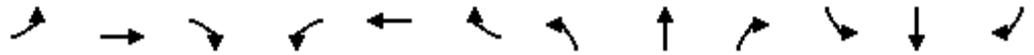
Splits and Phases: 3: Merivale Road & Fallowfield Road



South Merivale Business Park TIA

7: Driveway/Bill Leathem Drive & Leikin Drive

Existing AM Peak Hour - Timing Adjustments



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	558	4	6	20	37	1	2	4	213	3	32
Future Volume (vph)	151	558	4	6	20	37	1	2	4	213	3	32
Satd. Flow (prot)	1610	1726	0	1658	1546	0	0	1611	0	0	1643	0
Fit Permitted	0.716			0.301				0.964			0.751	
Satd. Flow (perm)	1214	1726	0	525	1546	0	0	1564	0	0	1287	0
Satd. Flow (RTOR)					41			4			12	
Lane Group Flow (vph)	168	624	0	7	63	0	0	7	0	0	276	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Total Split (s)	41.5	41.5		41.5	41.5		58.0	58.0		58.0	58.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6		5.0	5.0		5.0	5.0	
Act Effct Green (s)	32.9	32.9		32.9	32.9		18.3	18.3		18.3	18.3	
Actuated g/C Ratio	0.53	0.53		0.53	0.53		0.30	0.30		0.30	0.30	
v/c Ratio	0.26	0.68		0.03	0.08		0.02	0.02		0.02	0.71	
Control Delay	10.6	16.8		9.3	4.9		11.8	11.8		11.8	29.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	10.6	16.8		9.3	4.9		11.8	11.8		11.8	29.6	
LOS	B	B		A	A		B	B		B	C	
Approach Delay		15.5			5.4		11.8	11.8			29.6	
Approach LOS		B			A		B	B			C	
Queue Length 50th (m)	8.7	43.4		0.3	1.0		0.3	0.3		0.3	24.1	
Queue Length 95th (m)	23.0	96.7		2.2	6.5		2.3	2.3		2.3	47.5	
Internal Link Dist (m)		337.1			182.1		90.9	90.9			596.0	
Turn Bay Length (m)	30.0			30.0								
Base Capacity (vph)	713	1014		308	925		1351	1351		1351	1113	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.24	0.62		0.02	0.07		0.01	0.01		0.01	0.25	

Intersection Summary

Cycle Length: 99.5
 Actuated Cycle Length: 62
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.71
 Intersection Signal Delay: 18.2
 Intersection Capacity Utilization 61.4%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service B

Splits and Phases: 7: Driveway/Bill Leathem Drive & Leikin Drive

	Ø2			Ø4	
41.5 s			58 s		
	Ø6			Ø8	
41.5 s			58 s		

South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

Existing AM Peak Hour - Roadway Modifications

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	617	381	33	147	147	4	18	545	19	0	120	49
Future Volume (vph)	617	381	33	147	147	4	18	545	19	0	120	49
Satd. Flow (prot)	3216	1762	1427	1658	1690	0	1691	1736	0	1780	1618	1327
Fit Permitted	0.950			0.950			0.581					
Satd. Flow (perm)	3216	1762	1427	1658	1690	0	1034	1736	0	1780	1618	1327
Satd. Flow (RTOR)			123		1			2				173
Lane Group Flow (vph)	686	423	37	163	167	0	20	627	0	0	133	54
Turn Type	Prot	NA	Perm	Prot	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2				8			4		4
Total Split (s)	36.0	36.0	36.0	28.0	28.0		30.0	82.1		52.1	52.1	52.1
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	29.8	35.3	35.3	16.1	21.6		46.9	47.1			42.1	42.1
Actuated g/C Ratio	0.25	0.30	0.30	0.14	0.18		0.40	0.40			0.36	0.36
v/c Ratio	0.85	0.80	0.07	0.72	0.54		0.04	0.90			0.23	0.09
Control Delay	54.4	53.9	0.3	68.9	53.6		20.2	50.5			28.6	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	54.4	53.9	0.3	68.9	53.6		20.2	50.5			28.6	0.3
LOS	D	D	A	E	D		C	D			C	A
Approach Delay		52.5			61.2			49.5			20.4	
Approach LOS		D			E			D			C	
Queue Length 50th (m)	71.1	82.7	0.0	33.2	32.0		2.5	122.6			18.2	0.0
Queue Length 95th (m)	#125.3	#179.5	0.0	61.0	61.7		6.8	166.5			36.2	0.0
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0					55.0
Base Capacity (vph)	810	526	512	304	309		541	1123			649	636
Starvation Cap Reductn	0	0	0	0	0		0	0			0	0
Spillback Cap Reductn	0	0	0	0	0		0	0			0	0
Storage Cap Reductn	0	0	0	0	0		0	0			0	0
Reduced v/c Ratio	0.85	0.80	0.07	0.54	0.54		0.04	0.56			0.20	0.08

Intersection Summary

Cycle Length: 146.1

Actuated Cycle Length: 118.2

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 50.3

Intersection LOS: D

Intersection Capacity Utilization 77.5%

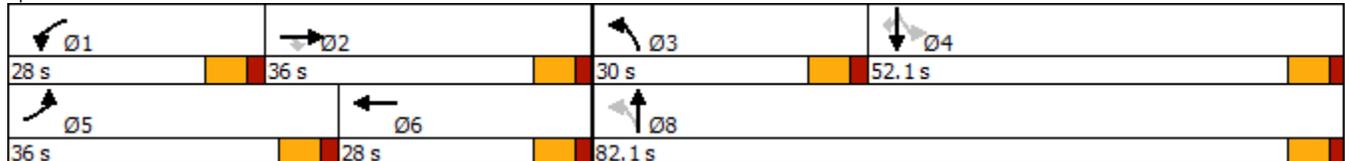
ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Merivale Road & Fallowfield Road



South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

Existing AM Peak Hour - Demand Rationalization

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	352	89	82	15	45	132	36	1233	50	154	399	111
Future Volume (vph)	352	89	82	15	45	132	36	1233	50	154	399	111
Satd. Flow (prot)	3248	1551	0	1580	1664	1513	1523	3349	1513	1642	3221	1455
Fit Permitted	0.950			0.950			0.495			0.061		
Satd. Flow (perm)	3248	1551	0	1580	1664	1490	784	3349	1478	105	3221	1391
Satd. Flow (RTOR)		32				179			179			179
Lane Group Flow (vph)	391	190	0	17	50	147	40	1370	56	171	443	123
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases						8	6		6	2		2
Total Split (s)	25.5	44.3		13.7	32.5	32.5	12.0	70.0	70.0	12.0	70.0	70.0
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
Act Effct Green (s)	18.7	33.2		6.6	13.5	13.5	69.8	63.5	63.5	87.0	77.9	77.9
Actuated g/C Ratio	0.13	0.24		0.05	0.10	0.10	0.50	0.45	0.45	0.62	0.56	0.56
v/c Ratio	0.90	0.48		0.23	0.31	0.48	0.09	0.90	0.07	0.65	0.25	0.14
Control Delay	83.9	43.0		71.6	62.0	8.5	13.1	44.8	0.2	42.2	17.9	0.9
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	83.9	43.0		71.6	62.0	8.5	13.1	44.8	0.2	42.2	17.9	0.9
LOS	F	D		E	E	A	B	D	A	D	B	A
Approach Delay		70.5			26.0			42.2			20.7	
Approach LOS		E			C			D			C	
Queue Length 50th (m)	51.2	34.1		4.2	12.4	0.0	3.4	167.3	0.0	25.8	29.3	0.0
Queue Length 95th (m)	#76.2	54.8		11.7	21.9	9.5	10.1	198.7	0.0	#91.8	48.5	2.1
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	440	442		81	309	422	424	1519	768	265	1792	853
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.43		0.21	0.16	0.35	0.09	0.90	0.07	0.65	0.25	0.14

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 80 (57%), Referenced to phase 2:SBTL and 6:NBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 41.3

Intersection LOS: D

Intersection Capacity Utilization 78.6%

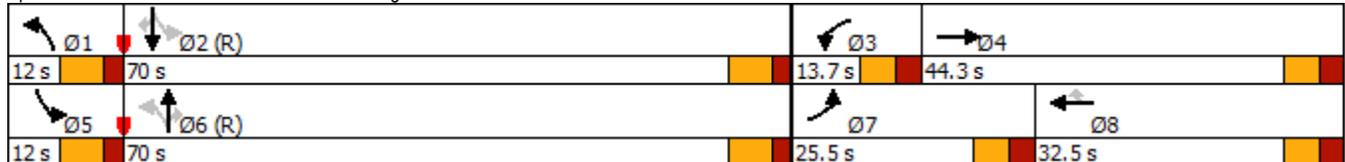
ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Woodroffe Avenue & Longfields Drive



South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

Existing PM Peak Hour - Timing Adjustments



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	169	205	605	476	450	10	305	611	201	14	1356	518
Future Volume (vph)	169	205	605	476	450	10	305	611	201	14	1356	518
Satd. Flow (prot)	3216	3252	1498	3281	3318	0	3185	3349	1455	1691	3349	1483
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	3252	1498	3281	3318	0	3185	3349	1417	1691	3349	1483
Satd. Flow (RTOR)			181		1				223			141
Lane Group Flow (vph)	188	228	672	529	511	0	339	679	223	16	1507	576
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2						8			4
Total Split (s)	22.0	40.0	40.0	36.0	54.0		22.0	96.2	96.2	15.0	89.2	22.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8		6.8	6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	14.4	33.2	33.2	29.2	48.0		15.2	95.6	95.6	7.1	82.4	103.6
Actuated g/C Ratio	0.08	0.18	0.18	0.16	0.26		0.08	0.51	0.51	0.04	0.44	0.55
v/c Ratio	0.76	0.40	1.62	1.04	0.60		1.31	0.40	0.27	0.25	1.02	0.65
Control Delay	104.4	70.5	322.0	123.2	64.7		226.5	29.8	3.7	96.6	79.8	25.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	104.4	70.5	322.0	123.2	64.7		226.5	29.8	3.7	96.6	79.8	25.1
LOS	F	E	F	F	E		F	C	A	F	E	C
Approach Delay		231.7			94.5			78.8			64.9	
Approach LOS		F			F			E			E	
Queue Length 50th (m)	33.1	37.1	~279.0	~100.3	82.6		~77.0	79.2	0.0	5.5	~288.7	103.6
Queue Length 95th (m)	46.7	50.6	#351.7	#135.9	101.6		#108.6	95.5	14.1	14.2	#326.6	142.9
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	261	576	414	511	851		258	1710	832	74	1474	883
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	0.72	0.40	1.62	1.04	0.60		1.31	0.40	0.27	0.22	1.02	0.65

Intersection Summary

Cycle Length: 187.2

Actuated Cycle Length: 187.2

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.62

Intersection Signal Delay: 106.9

Intersection LOS: F

Intersection Capacity Utilization 110.4%

ICU Level of Service H

Analysis Period (min) 15

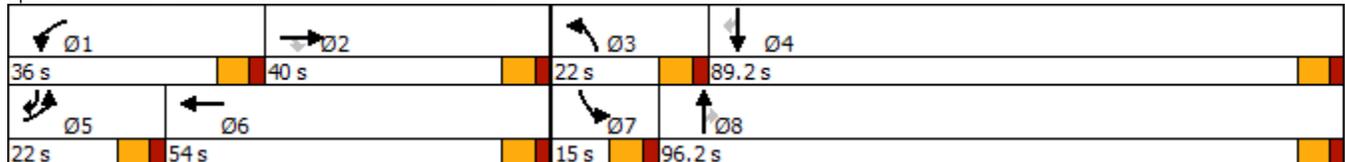
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Woodroffe Avenue & Fallowfield Road



South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

Existing PM Peak Hour - Timing Adjustments



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	17	70	55	55	144	89	761	39	103	1680	223
Future Volume (vph)	155	17	70	55	55	144	89	761	39	103	1680	223
Satd. Flow (prot)	3216	1528	0	1691	1780	1483	1642	3316	1513	1691	3349	1513
Fit Permitted	0.950			0.950			0.055			0.281		
Satd. Flow (perm)	3216	1528	0	1691	1780	1463	95	3316	1513	500	3349	1470
Satd. Flow (RTOR)		78				160			138			248
Lane Group Flow (vph)	172	97	0	61	61	160	99	846	43	114	1867	248
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Total Split (s)	15.0	32.5		15.0	32.5	32.5	11.5	68.5	68.5	14.0	71.0	71.0
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
Act Effct Green (s)	8.5	16.5		8.0	13.5	13.5	82.8	74.3	74.3	81.3	73.5	73.5
Actuated g/C Ratio	0.07	0.13		0.06	0.10	0.10	0.64	0.57	0.57	0.63	0.57	0.57
v/c Ratio	0.82	0.37		0.59	0.33	0.54	0.61	0.45	0.05	0.30	0.99	0.26
Control Delay	88.7	19.2		81.8	57.0	14.2	38.4	17.9	0.1	10.5	45.8	2.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.7	19.2		81.8	57.0	14.2	38.4	17.9	0.1	10.5	45.8	2.7
LOS	F	B		F	E	B	D	B	A	B	D	A
Approach Delay		63.7			38.1			19.2			39.2	
Approach LOS		E			D			B			D	
Queue Length 50th (m)	21.0	4.3		14.2	14.0	0.0	8.2	54.3	0.0	7.6	207.7	0.0
Queue Length 95th (m)	#38.4	17.4		#29.8	23.7	16.6	#44.3	89.3	0.0	19.4	#306.0	12.2
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	210	368		110	356	420	161	1894	923	386	1894	939
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	0.82	0.26		0.55	0.17	0.38	0.61	0.45	0.05	0.30	0.99	0.26

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 92 (71%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 35.6

Intersection LOS: D

Intersection Capacity Utilization 81.8%

ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Woodroffe Avenue & Longfields Drive

14 s	68.5 s	15 s	32.5 s
11.5 s	71 s	15 s	32.5 s

South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

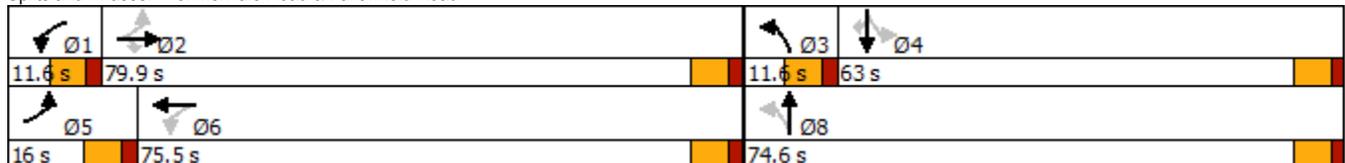
Existing PM Peak Hour - Timing Adjustments

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	118	265	36	34	628	3	45	197	93	5	528	271
Future Volume (vph)	118	265	36	34	628	3	45	197	93	5	528	271
Satd. Flow (prot)	1496	1745	1469	1691	1778	0	1551	1597	0	1691	1762	1498
Fit Permitted	0.073			0.537			0.070			0.523		
Satd. Flow (perm)	115	1745	1469	956	1778	0	114	1597	0	931	1762	1498
Satd. Flow (RTOR)			108					17				149
Lane Group Flow (vph)	131	294	40	38	701	0	50	322	0	6	587	301
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		2	6			8			4		4
Total Split (s)	16.0	79.9	79.9	11.6	75.5		11.6	74.6		63.0	63.0	63.0
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	80.0	72.6	72.6	70.5	65.3		63.5	63.7		54.8	54.8	54.8
Actuated g/C Ratio	0.51	0.46	0.46	0.45	0.41		0.40	0.40		0.35	0.35	0.35
v/c Ratio	0.92	0.37	0.05	0.08	0.96		0.55	0.49		0.02	0.96	0.49
Control Delay	90.3	31.3	0.1	21.2	69.7		53.5	36.6		36.8	79.6	23.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	90.3	31.3	0.1	21.2	69.7		53.5	36.6		36.8	79.6	23.5
LOS	F	C	A	C	E		D	D		D	E	C
Approach Delay		45.2			67.2			38.9			60.4	
Approach LOS		D			E			D			E	
Queue Length 50th (m)	24.1	59.7	0.0	5.7	205.2		9.3	68.1		1.2	177.2	36.1
Queue Length 95th (m)	#65.3	82.8	0.0	11.8	#280.8		#19.2	95.2		4.8	#249.6	63.6
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0			30.0		55.0
Base Capacity (vph)	142	817	745	450	783		91	705		337	637	636
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	0.36	0.05	0.08	0.90		0.55	0.46		0.02	0.92	0.47

Intersection Summary

Cycle Length: 166.1
 Actuated Cycle Length: 158.3
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay: 56.3
 Intersection LOS: E
 Intersection Capacity Utilization 97.2%
 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: 3: Merivale Road & Fallowfield Road



South Merivale Business Park TIA

5: Prince of Wales Drive & Merivale Road

Existing PM Peak Hour - Timing Adjustments



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Lane Configurations							
Traffic Volume (vph)	30	505	165	334	906	16	
Future Volume (vph)	30	505	165	334	906	16	
Satd. Flow (prot)	1642	1483	1566	1745	3338	0	
Fit Permitted	0.950		0.139				
Satd. Flow (perm)	1642	1483	229	1745	3338	0	
Satd. Flow (RTOR)		101			2		
Lane Group Flow (vph)	33	561	183	371	1025	0	
Turn Type	Prot	pm+ov	pm+pt	NA	NA		
Protected Phases	4	5	5	2	6		3
Permitted Phases		4	2				
Total Split (s)	40.0	19.0	19.0	75.0	56.0		5.0
Total Lost Time (s)	6.8	6.4	6.4	6.5	6.5		
Act Effct Green (s)	32.1	50.4	69.7	69.6	51.7		
Actuated g/C Ratio	0.27	0.42	0.58	0.58	0.43		
v/c Ratio	0.08	0.82	0.70	0.37	0.71		
Control Delay	32.8	36.2	29.5	15.0	31.9		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	32.8	36.2	29.5	15.0	31.9		
LOS	C	D	C	B	C		
Approach Delay	36.0			19.8	31.9		
Approach LOS	D			B	C		
Queue Length 50th (m)	5.3	86.5	18.3	41.7	97.4		
Queue Length 95th (m)	12.7	132.1	#36.6	60.5	120.6		
Internal Link Dist (m)	226.4			296.0	231.6		
Turn Bay Length (m)	80.0		90.0				
Base Capacity (vph)	454	678	273	1012	1440		
Starvation Cap Reductn	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0		
Reduced v/c Ratio	0.07	0.83	0.67	0.37	0.71		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 112 (93%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 30.0

Intersection LOS: C

Intersection Capacity Utilization 70.7%

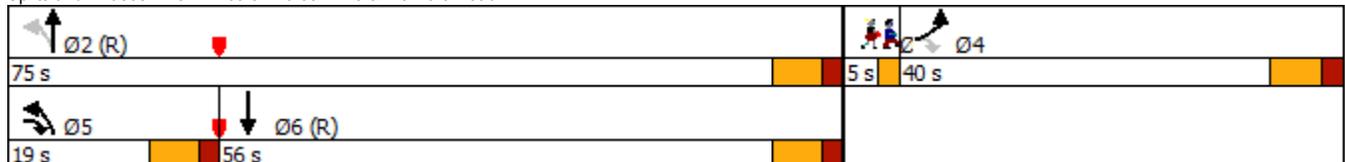
ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Prince of Wales Drive & Merivale Road



South Merivale Business Park TIA

7: Driveway/Bill Leathem Drive & Leikin Drive

Existing PM Peak Hour - Timing Adjustments

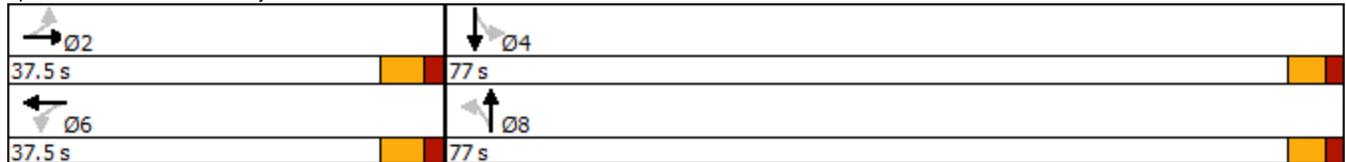
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	57	0	0	364	183	0	1	0	43	0	162
Future Volume (vph)	65	57	0	0	364	183	0	1	0	43	0	162
Satd. Flow (prot)	1691	1534	0	1780	1651	0	0	1780	0	0	1532	0
Fit Permitted	0.368											0.928
Satd. Flow (perm)	655	1534	0	1780	1651	0	0	1780	0	0	1436	0
Satd. Flow (RTOR)					22							160
Lane Group Flow (vph)	72	63	0	0	607	0	0	1	0	0	228	0
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Total Split (s)	37.5	37.5		37.5	37.5		77.0	77.0		77.0	77.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6			5.0			5.0	
Act Effct Green (s)	33.6	33.6			33.6			10.5			10.5	
Actuated g/C Ratio	0.61	0.61			0.61			0.19			0.19	
v/c Ratio	0.18	0.07			0.59			0.00			0.56	
Control Delay	6.4	4.9			9.5			17.0			12.8	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	6.4	4.9			9.5			17.0			12.8	
LOS	A	A			A			B			B	
Approach Delay		5.7			9.5			17.0			12.8	
Approach LOS		A			A			B			B	
Queue Length 50th (m)	2.3	1.9			26.0			0.1			5.1	
Queue Length 95th (m)	7.5	5.6			55.3			0.9			19.4	
Internal Link Dist (m)		337.1			182.1			90.9			596.0	
Turn Bay Length (m)	30.0											
Base Capacity (vph)	401	941			1021			1780			1436	
Starvation Cap Reductn	0	0			0			0			0	
Spillback Cap Reductn	0	0			0			0			0	
Storage Cap Reductn	0	0			0			0			0	
Reduced v/c Ratio	0.18	0.07			0.59			0.00			0.16	

Intersection Summary

Cycle Length: 114.5
 Actuated Cycle Length: 54.8
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.59
 Intersection Signal Delay: 9.7
 Intersection Capacity Utilization 73.8%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service D

Splits and Phases: 7: Driveway/Bill Leathem Drive & Leikin Drive



South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

Existing PM Peak Hour - Roadway Modifications

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	169	205	605	476	450	10	305	611	201	14	1356	518
Future Volume (vph)	169	205	605	476	450	10	305	611	201	14	1356	518
Satd. Flow (prot)	3216	3252	2637	3281	3318	0	3185	3349	1455	1691	3349	1483
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	3252	2637	3281	3318	0	3185	3349	1417	1691	3349	1483
Satd. Flow (RTOR)					1				223			141
Lane Group Flow (vph)	188	228	672	529	511	0	339	679	223	16	1507	576
Turn Type	Prot	NA	pt+ov	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2	2 3	1	6		3	8		7	4	5
Permitted Phases									8			4
Total Split (s)	19.0	40.0		36.0	57.0		22.0	96.2	96.2	15.0	89.2	19.0
Total Lost Time (s)	6.8	6.8		6.8	6.8		6.8	6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	12.2	33.2	55.2	29.2	50.2		15.2	95.6	95.6	7.1	82.4	101.4
Actuated g/C Ratio	0.07	0.18	0.29	0.16	0.27		0.08	0.51	0.51	0.04	0.44	0.54
v/c Ratio	0.90	0.40	0.86	1.04	0.57		1.31	0.40	0.27	0.25	1.02	0.66
Control Delay	125.4	70.5	75.0	123.2	62.2		226.5	29.8	3.7	96.6	79.8	26.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	125.4	70.5	75.0	123.2	62.2		226.5	29.8	3.7	96.6	79.8	26.7
LOS	F	E	E	F	E		F	C	A	F	E	C
Approach Delay		82.7			93.2			78.8			65.4	
Approach LOS		F			F			E			E	
Queue Length 50th (m)	33.8	37.1	125.5	~100.3	80.7		~77.0	79.2	0.0	5.5	~288.7	107.7
Queue Length 95th (m)	#56.2	50.6	152.2	#135.9	99.4		#108.6	95.5	14.1	14.2	#326.6	148.6
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	209	576	777	511	890		258	1710	832	74	1474	867
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	0.90	0.40	0.86	1.04	0.57		1.31	0.40	0.27	0.22	1.02	0.66

Intersection Summary

Cycle Length: 187.2

Actuated Cycle Length: 187.2

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.31

Intersection Signal Delay: 77.2

Intersection LOS: E

Intersection Capacity Utilization 94.1%

ICU Level of Service F

Analysis Period (min) 15

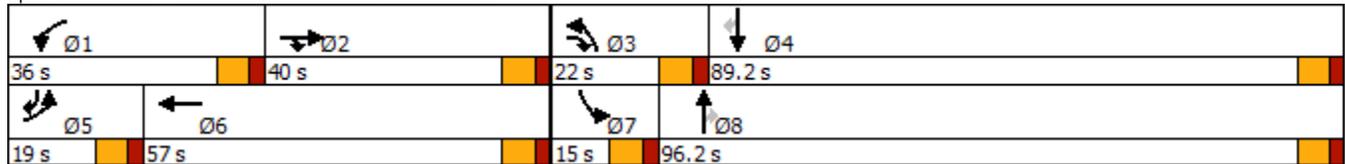
~ Volume exceeds capacity, queue is theoretically infinite.

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: Woodroffe Avenue & Fallowfield Road



South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

Existing PM Peak Hour - Roadway Modifications

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	118	265	36	34	628	3	45	197	93	5	528	271
Future Volume (vph)	118	265	36	34	628	3	45	197	93	5	528	271
Satd. Flow (prot)	2903	1745	1469	1691	1778	0	1551	1597	0	1691	1762	1498
Fit Permitted	0.950			0.950			0.073			0.526		
Satd. Flow (perm)	2903	1745	1469	1691	1778	0	119	1597	0	936	1762	1498
Satd. Flow (RTOR)			108					17				149
Lane Group Flow (vph)	131	294	40	38	701	0	50	322	0	6	587	301
Turn Type	Prot	NA	Perm	Prot	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2				8			4		4
Total Split (s)	15.0	79.9	79.9	11.6	76.5		11.6	74.6		63.0	63.0	63.0
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	8.6	71.3	71.3	5.2	64.9		63.2	63.4		54.6	54.6	54.6
Actuated g/C Ratio	0.05	0.46	0.46	0.03	0.41		0.40	0.40		0.35	0.35	0.35
v/c Ratio	0.82	0.37	0.06	0.69	0.95		0.53	0.49		0.02	0.96	0.49
Control Delay	110.5	31.4	0.1	130.1	68.3		51.5	36.1		36.8	77.7	23.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	110.5	31.4	0.1	130.1	68.3		51.5	36.1		36.8	77.7	23.3
LOS	F	C	A	F	E		D	D		D	E	C
Approach Delay		51.0			71.5			38.2			59.1	
Approach LOS		D			E			D			E	
Queue Length 50th (m)	20.8	59.7	0.0	11.7	203.0		9.3	68.1		1.2	177.2	36.1
Queue Length 95th (m)	#39.8	82.8	0.0	#32.2	#277.4		#18.6	95.2		4.8	#249.6	63.6
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0			30.0		55.0
Base Capacity (vph)	159	828	753	55	804		94	714		342	645	643
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	0.82	0.36	0.05	0.69	0.87		0.53	0.45		0.02	0.91	0.47

Intersection Summary

Cycle Length: 166.1
 Actuated Cycle Length: 156.7
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.96
 Intersection Signal Delay: 58.1
 Intersection LOS: E
 Intersection Capacity Utilization 94.5%
 ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Merivale Road & Fallowfield Road

11.6 s	79.9 s	11.6 s	63 s
15 s	76.5 s	74.6 s	

South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

Existing PM Peak Hour - Demand Rationalization

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	169	205	370	461	450	10	230	611	201	14	1326	518
Future Volume (vph)	169	205	370	461	450	10	230	611	201	14	1326	518
Satd. Flow (prot)	3216	3252	1498	3281	3318	0	3185	3349	1455	1691	3349	1483
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	3252	1498	3281	3318	0	3185	3349	1417	1691	3349	1483
Satd. Flow (RTOR)			181		1				223			141
Lane Group Flow (vph)	188	228	411	512	511	0	256	679	223	16	1473	576
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2						8			4
Total Split (s)	22.0	40.0	40.0	36.0	54.0		22.0	96.2	96.2	15.0	89.2	22.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8		6.8	6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	14.4	33.2	33.2	29.2	48.0		15.2	95.6	95.6	7.1	82.4	103.6
Actuated g/C Ratio	0.08	0.18	0.18	0.16	0.26		0.08	0.51	0.51	0.04	0.44	0.55
v/c Ratio	0.76	0.40	0.99	1.00	0.60		0.99	0.40	0.27	0.25	1.00	0.65
Control Delay	104.4	70.5	83.5	117.0	64.7		137.0	29.8	3.7	96.6	74.6	25.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	104.4	70.5	83.5	117.0	64.7		137.0	29.8	3.7	96.6	74.6	25.1
LOS	F	E	F	F	E		F	C	A	F	E	C
Approach Delay		84.7			90.9			48.5			61.0	
Approach LOS		F			F			D			E	
Queue Length 50th (m)	33.1	37.1	88.3	~92.4	82.6		46.3	79.2	0.0	5.5	265.8	103.6
Queue Length 95th (m)	46.7	50.6	#155.8	#129.3	101.6		#75.2	95.5	14.1	14.2	#314.3	142.9
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	261	576	414	511	851		258	1710	832	74	1474	883
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	0.72	0.40	0.99	1.00	0.60		0.99	0.40	0.27	0.22	1.00	0.65

Intersection Summary

Cycle Length: 187.2

Actuated Cycle Length: 187.2

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 68.0

Intersection LOS: E

Intersection Capacity Utilization 93.8%

ICU Level of Service F

Analysis Period (min) 15

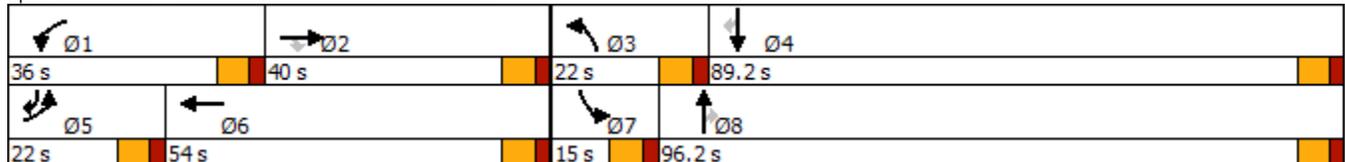
~ Volume exceeds capacity, queue is theoretically infinite.

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: Woodroffe Avenue & Fallowfield Road



South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

Existing PM Peak Hour - Demand Rationalization

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	17	70	55	55	144	89	761	39	103	1540	223
Future Volume (vph)	155	17	70	55	55	144	89	761	39	103	1540	223
Satd. Flow (prot)	3216	1528	0	1691	1780	1483	1642	3316	1513	1691	3349	1513
Fit Permitted	0.950			0.950			0.055			0.281		
Satd. Flow (perm)	3216	1528	0	1691	1780	1463	95	3316	1513	500	3349	1470
Satd. Flow (RTOR)		78				160			138			248
Lane Group Flow (vph)	172	97	0	61	61	160	99	846	43	114	1711	248
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Total Split (s)	15.0	32.5		15.0	32.5	32.5	11.5	68.5	68.5	14.0	71.0	71.0
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
Act Effct Green (s)	8.5	16.5		8.0	13.5	13.5	82.8	74.3	74.3	81.3	73.5	73.5
Actuated g/C Ratio	0.07	0.13		0.06	0.10	0.10	0.64	0.57	0.57	0.63	0.57	0.57
v/c Ratio	0.82	0.37		0.59	0.33	0.54	0.61	0.45	0.05	0.30	0.90	0.26
Control Delay	88.7	19.2		81.8	57.0	14.2	38.4	17.9	0.1	10.5	33.7	2.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.7	19.2		81.8	57.0	14.2	38.4	17.9	0.1	10.5	33.7	2.7
LOS	F	B		F	E	B	D	B	A	B	C	A
Approach Delay		63.7			38.1			19.2			28.7	
Approach LOS		E			D			B			C	
Queue Length 50th (m)	21.0	4.3		14.2	14.0	0.0	8.2	54.3	0.0	7.6	172.4	0.0
Queue Length 95th (m)	#38.4	17.4		#29.8	23.7	16.6	#44.3	89.3	0.0	19.4	#266.0	12.2
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	210	368		110	356	420	161	1894	923	386	1894	939
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	0.82	0.26		0.55	0.17	0.38	0.61	0.45	0.05	0.30	0.90	0.26

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 92 (71%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 29.4

Intersection LOS: C

Intersection Capacity Utilization 77.7%

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.

Splits and Phases: 2: Woodroffe Avenue & Longfields Drive

Ø1	Ø2 (R)	Ø3	Ø4
14 s	68.5 s	15 s	32.5 s
Ø5	Ø6 (R)	Ø7	Ø8
11.5 s	71 s	15 s	32.5 s

South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

Existing PM Peak Hour - Demand Rationalization

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	118	265	36	34	563	3	45	197	93	5	498	271
Future Volume (vph)	118	265	36	34	563	3	45	197	93	5	498	271
Satd. Flow (prot)	2903	1745	1469	1691	1778	0	1551	1597	0	1691	1762	1498
Fit Permitted	0.950			0.950			0.111			0.544		
Satd. Flow (perm)	2903	1745	1469	1691	1778	0	181	1597	0	968	1762	1498
Satd. Flow (RTOR)			108					17				158
Lane Group Flow (vph)	131	294	40	38	629	0	50	322	0	6	553	301
Turn Type	Prot	NA	Perm	Prot	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2				8			4		4
Total Split (s)	14.0	79.9	79.9	11.6	77.5		11.6	74.6		63.0	63.0	63.0
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	7.9	62.2	62.2	5.4	56.1		58.1	58.3		49.7	49.7	49.7
Actuated g/C Ratio	0.06	0.44	0.44	0.04	0.39		0.41	0.41		0.35	0.35	0.35
v/c Ratio	0.82	0.39	0.06	0.60	0.90		0.40	0.49		0.02	0.90	0.48
Control Delay	105.5	31.8	0.2	111.0	59.0		38.1	33.2		35.6	65.0	20.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	105.5	31.8	0.2	111.0	59.0		38.1	33.2		35.6	65.0	20.8
LOS	F	C	A	F	E		D	C		D	E	C
Approach Delay		49.8			62.0			33.8			49.3	
Approach LOS		D			E			C			D	
Queue Length 50th (m)	19.4	59.7	0.0	10.9	168.9		8.1	59.7		1.1	144.7	29.8
Queue Length 95th (m)	#42.7	82.8	0.0	#32.2	219.5		17.9	95.2		4.8	#226.9	61.0
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0			30.0		55.0
Base Capacity (vph)	160	940	841	63	927		124	809		402	733	715
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	0.82	0.31	0.05	0.60	0.68		0.40	0.40		0.01	0.75	0.42

Intersection Summary

Cycle Length: 166.1

Actuated Cycle Length: 142.7

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 50.5

Intersection LOS: D

Intersection Capacity Utilization 89.2%

ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

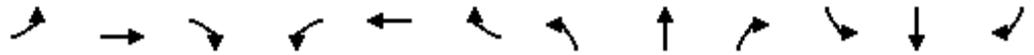
Splits and Phases: 3: Merivale Road & Fallowfield Road

11.6 s	79.9 s	11.6 s	63 s
14 s	77.5 s	74.6 s	

South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

Existing PM Peak Hour - Demand Rationalization with dual EBR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	169	205	605	461	450	10	230	611	201	14	1326	518
Future Volume (vph)	169	205	605	461	450	10	230	611	201	14	1326	518
Satd. Flow (prot)	3216	3252	2637	3281	3318	0	3185	3349	1455	1691	3349	1483
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	3252	2637	3281	3318	0	3185	3349	1417	1691	3349	1483
Satd. Flow (RTOR)					1				223			141
Lane Group Flow (vph)	188	228	672	512	511	0	256	679	223	16	1473	576
Turn Type	Prot	NA	pt+ov	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2	2 3	1	6		3	8		7	4	5
Permitted Phases									8			4
Total Split (s)	19.0	40.0		36.0	57.0		22.0	96.2	96.2	15.0	89.2	19.0
Total Lost Time (s)	6.8	6.8		6.8	6.8		6.8	6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	12.2	33.2	55.2	29.2	50.2		15.2	95.6	95.6	7.1	82.4	101.4
Actuated g/C Ratio	0.07	0.18	0.29	0.16	0.27		0.08	0.51	0.51	0.04	0.44	0.54
v/c Ratio	0.90	0.40	0.86	1.00	0.57		0.99	0.40	0.27	0.25	1.00	0.66
Control Delay	125.4	70.5	75.0	117.0	62.2		137.0	29.8	3.7	96.6	74.6	26.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	125.4	70.5	75.0	117.0	62.2		137.0	29.8	3.7	96.6	74.6	26.7
LOS	F	E	E	F	E		F	C	A	F	E	C
Approach Delay		82.7			89.6			48.5			61.4	
Approach LOS		F			F			D			E	
Queue Length 50th (m)	33.8	37.1	125.5	~92.4	80.7		46.3	79.2	0.0	5.5	265.8	107.7
Queue Length 95th (m)	#56.2	50.6	152.2	#129.3	99.4		#75.2	95.5	14.1	14.2	#314.3	148.6
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	209	576	777	511	890		258	1710	832	74	1474	867
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	0.90	0.40	0.86	1.00	0.57		0.99	0.40	0.27	0.22	1.00	0.66

Intersection Summary

Cycle Length: 187.2
 Actuated Cycle Length: 187.2
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 68.4
 Intersection LOS: E
 Intersection Capacity Utilization 91.9%
 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: Woodroffe Avenue & Fallowfield Road

36 s	40 s	22 s	89.2 s
19 s	57 s	15 s	96.2 s

South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2026 FB AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	645	625	272	127	131	32	606	1604	516	7	393	108
Future Volume (vph)	645	625	272	127	131	32	606	1604	516	7	393	108
Satd. Flow (prot)	3248	3316	1375	2955	3133	0	3216	3349	1513	1445	3221	1363
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3248	3316	1375	2955	3133	0	3212	3349	1513	1445	3221	1345
Satd. Flow (RTOR)			272		18				343			176
Lane Group Flow (vph)	645	625	272	127	163	0	606	1604	516	7	393	108
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	9	8	7	4	5
Permitted Phases			2						8			4
Total Split (s)	38.0	60.0	60.0	18.0	40.0			60.0	60.0	12.0	37.0	38.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8			6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	31.1	36.0	36.0	10.4	15.4		45.4	80.2	80.2	6.4	24.1	55.2
Actuated g/C Ratio	0.21	0.24	0.24	0.07	0.10		0.30	0.53	0.53	0.04	0.16	0.37
v/c Ratio	0.96	0.79	0.51	0.62	0.48		0.62	0.90	0.53	0.11	0.76	0.18
Control Delay	84.5	60.8	8.0	81.3	60.2		31.2	39.4	10.3	72.6	69.7	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.5	60.8	8.0	81.3	60.2		31.2	39.4	10.3	72.6	69.7	0.6
LOS	F	E	A	F	E		C	D	B	E	E	A
Approach Delay		61.4			69.4			32.1			55.0	
Approach LOS		E			E			C			E	
Queue Length 50th (m)	90.9	86.2	0.0	17.6	20.1		45.0	189.8	24.6	1.9	54.2	0.0
Queue Length 95th (m)	#125.1	99.2	20.6	27.9	29.5		#87.0	#315.1	72.4	6.7	68.7	0.0
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	675	1176	663	220	707		974	1790	968	61	648	611
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	0.96	0.53	0.41	0.58	0.23		0.62	0.90	0.53	0.11	0.61	0.18

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 4:SBT and 8:NBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 45.4

Intersection LOS: D

Intersection Capacity Utilization 101.4%

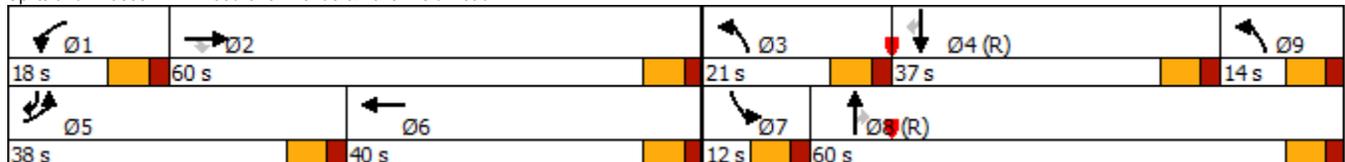
ICU Level of Service G

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Woodroffe Avenue & Fallowfield Road



South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2026 FB AM Peak Hour

Lane Group	Ø3	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Satd. Flow (RTOR)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	9
Permitted Phases		
Total Split (s)	21.0	14.0
Total Lost Time (s)		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

2026 FB AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	372	89	82	15	45	132	36	1536	50	154	453	111
Future Volume (vph)	372	89	82	15	45	132	36	1536	50	154	453	111
Satd. Flow (prot)	3248	1551	0	1580	1664	1513	1523	3349	1513	1642	3221	1455
Fit Permitted	0.950			0.950			0.491			0.064		
Satd. Flow (perm)	3248	1551	0	1580	1664	1490	779	3349	1479	111	3221	1393
Satd. Flow (RTOR)		32				138			138			138
Lane Group Flow (vph)	372	171	0	15	45	132	36	1536	50	154	453	111
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Total Split (s)	20.0	33.0		20.0	33.0	33.0	12.0	65.0	65.0	12.0	65.0	65.0
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
Act Effct Green (s)	13.5	28.2		6.9	14.0	14.0	66.2	60.0	60.0	81.7	75.1	75.1
Actuated g/C Ratio	0.10	0.22		0.05	0.11	0.11	0.51	0.46	0.46	0.63	0.58	0.58
v/c Ratio	1.10	0.47		0.18	0.25	0.46	0.08	0.99	0.07	0.59	0.24	0.13
Control Delay	132.6	41.2		63.2	54.0	12.3	11.8	56.5	0.2	35.3	15.8	2.0
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	132.6	41.2		63.2	54.0	12.3	11.8	56.5	0.2	35.3	15.8	2.0
LOS	F	D		E	D	B	B	E	A	D	B	A
Approach Delay		103.8			26.0			53.8			17.8	
Approach LOS		F			C			D			B	
Queue Length 50th (m)	~51.3	28.2		3.5	10.3	0.0	2.7	178.2	0.0	18.6	26.9	0.0
Queue Length 95th (m)	#79.9	48.2		10.1	18.8	14.0	8.6	#241.1	0.0	#72.6	46.7	5.8
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	337	375		164	339	413	432	1544	756	263	1861	863
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	1.10	0.46		0.09	0.13	0.32	0.08	0.99	0.07	0.59	0.24	0.13

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 86 (66%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 52.5

Intersection LOS: D

Intersection Capacity Utilization 88.1%

ICU Level of Service E

Analysis Period (min) 15

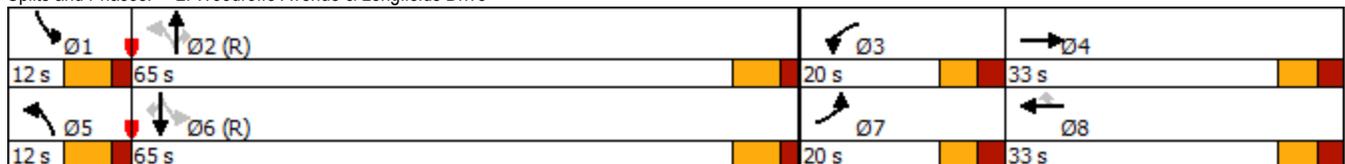
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

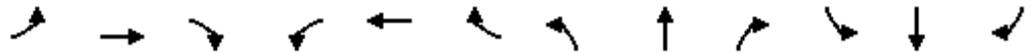
Splits and Phases: 2: Woodroffe Avenue & Longfields Drive



South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

2026 FB AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	700	432	37	167	167	5	20	619	22	0	136	56
Future Volume (vph)	700	432	37	167	167	5	20	619	22	0	136	56
Satd. Flow (prot)	1658	1762	1427	1658	1691	0	1691	1736	0	1780	1618	1327
Fit Permitted	0.398			0.511			0.572					
Satd. Flow (perm)	695	1762	1427	892	1691	0	1018	1736	0	1780	1618	1327
Satd. Flow (RTOR)			123		1			2				173
Lane Group Flow (vph)	700	432	37	167	172	0	20	641	0	0	136	56
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8				4
Permitted Phases	2		2	6			8			4		4
Total Split (s)	46.5	61.6	61.6	16.5	31.6		11.6	68.0		56.4	56.4	56.4
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	71.9	55.6	55.6	34.9	25.1		54.1	54.3			47.6	47.6
Actuated g/C Ratio	0.52	0.40	0.40	0.25	0.18		0.39	0.39			0.34	0.34
v/c Ratio	1.10	0.61	0.06	0.61	0.56		0.05	0.95			0.25	0.10
Control Delay	94.4	39.3	0.2	37.3	61.3		25.6	64.1			35.1	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	94.4	39.3	0.2	37.3	61.3		25.6	64.1			35.1	0.3
LOS	F	D	A	D	E		C	E			D	A
Approach Delay		71.1			49.5			62.9			24.9	
Approach LOS		E			D			E			C	
Queue Length 50th (m)	~169.5	91.3	0.0	23.6	41.4		3.1	154.7			26.0	0.0
Queue Length 95th (m)	#247.5	129.6	0.0	38.5	65.7		8.1	#219.1			41.8	0.0
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0					55.0
Base Capacity (vph)	637	704	643	281	305		419	772			585	590
Starvation Cap Reductn	0	0	0	0	0		0	0			0	0
Spillback Cap Reductn	0	0	0	0	0		0	0			0	0
Storage Cap Reductn	0	0	0	0	0		0	0			0	0
Reduced v/c Ratio	1.10	0.61	0.06	0.59	0.56		0.05	0.83			0.23	0.09

Intersection Summary

Cycle Length: 146.1

Actuated Cycle Length: 139.1

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 61.9

Intersection LOS: E

Intersection Capacity Utilization 102.6%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Merivale Road & Fallowfield Road

Ø1	Ø2	Ø3	Ø4
16.5 s	61.6 s	11.6 s	56.4 s
Ø5	Ø6	Ø7	Ø8
46.5 s	31.6 s	68 s	

South Merivale Business Park TIA

4: Merivale Road & Leikin Drive

2026 FB AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	304	4	0	396	71	227
Future Volume (vph)	304	4	0	396	71	227
Satd. Flow (prot)	3252	0	1728	1745	1424	1469
Fit Permitted	0.953					
Satd. Flow (perm)	3252	0	1728	1745	1424	1469
Satd. Flow (RTOR)	1					227
Lane Group Flow (vph)	308	0	0	396	71	227
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			6	2	
Permitted Phases			6			2
Total Split (s)	30.1		66.5	66.5	66.5	66.5
Total Lost Time (s)	5.1		6.5	6.5	6.5	6.5
Act Effct Green (s)	13.3			60.1	60.1	60.1
Actuated g/C Ratio	0.16			0.71	0.71	0.71
v/c Ratio	0.61			0.32	0.07	0.21
Control Delay	38.5			5.9	4.6	1.2
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	38.5			5.9	4.6	1.2
LOS	D			A	A	A
Approach Delay	38.5			5.9	2.0	
Approach LOS	D			A	A	
Queue Length 50th (m)	22.3			18.8	2.7	0.0
Queue Length 95th (m)	33.6			35.1	7.0	5.8
Internal Link Dist (m)	50.7			445.8	100.5	
Turn Bay Length (m)						85.0
Base Capacity (vph)	958			1233	1006	1104
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.32			0.32	0.07	0.21

Intersection Summary

Cycle Length: 96.6
 Actuated Cycle Length: 85
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 14.8
 Intersection Capacity Utilization 41.0%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 4: Merivale Road & Leikin Drive

 Ø2 66.5 s	 Ø6 66.5 s	 Ø4 30.1 s
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South Merivale Business Park TIA

5: Prince of Wales Drive & Merivale Road

2026 FB AM Peak Hour

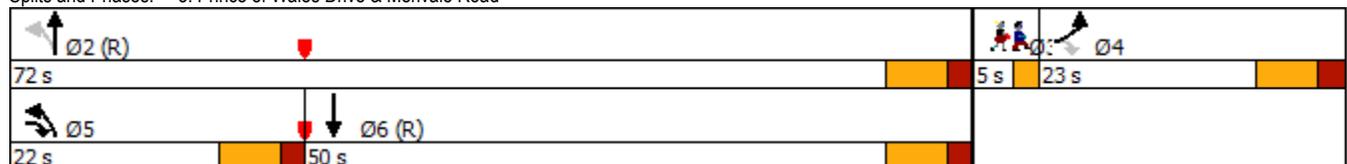


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Lane Configurations							
Traffic Volume (vph)	11	93	503	1028	290	43	
Future Volume (vph)	11	93	503	1028	290	43	
Satd. Flow (prot)	3281	1261	1642	1745	3119	0	
Fit Permitted	0.950		0.490				
Satd. Flow (perm)	3281	1261	847	1745	3119	0	
Satd. Flow (RTOR)		93			21		
Lane Group Flow (vph)	11	93	503	1028	333	0	
Turn Type	Prot	pm+ov	pm+pt	NA	NA		
Protected Phases	4	5	5	2	6		3
Permitted Phases		4	2				
Total Split (s)	23.0	22.0	22.0	72.0	50.0		5.0
Total Lost Time (s)	6.8	6.4	6.4	6.5	6.5		
Act Effct Green (s)	10.0	30.7	76.2	77.4	53.3		
Actuated g/C Ratio	0.10	0.31	0.76	0.77	0.53		
v/c Ratio	0.03	0.21	0.65	0.76	0.20		
Control Delay	41.0	5.5	9.5	13.8	14.4		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	41.0	5.5	9.5	13.8	14.4		
LOS	D	A	A	B	B		
Approach Delay	9.3			12.4	14.4		
Approach LOS	A			B	B		
Queue Length 50th (m)	0.9	0.0	31.3	108.6	16.5		
Queue Length 95th (m)	3.4	8.7	46.7	171.6	26.6		
Internal Link Dist (m)	226.4			296.0	233.3		
Turn Bay Length (m)	80.0		90.0				
Base Capacity (vph)	531	464	790	1350	1673		
Starvation Cap Reductn	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0		
Reduced v/c Ratio	0.02	0.20	0.64	0.76	0.20		

Intersection Summary

Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 15 (15%), Referenced to phase 2:NBTL and 6:SBT, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 12.6
 Intersection LOS: B
 Intersection Capacity Utilization 76.5%
 ICU Level of Service D
 Analysis Period (min) 15

Splits and Phases: 5: Prince of Wales Drive & Merivale Road



South Merivale Business Park TIA

6: Leikin Drive & RCMP Driveway

2026 FB AM Peak Hour

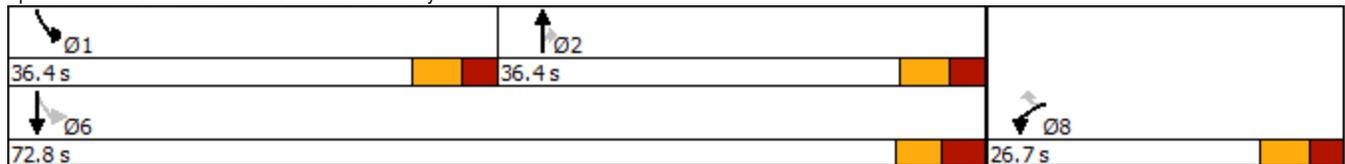


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	15	17	315	548	253	51
Future Volume (vph)	15	17	315	548	253	51
Satd. Flow (prot)	1691	1427	1728	1513	1691	1508
Fit Permitted	0.950				0.466	
Satd. Flow (perm)	1691	1325	1728	1468	826	1508
Satd. Flow (RTOR)		17		548		
Lane Group Flow (vph)	15	17	315	548	253	51
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Total Split (s)	26.7	26.7	36.4	36.4	36.4	72.8
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.7
Act Effct Green (s)	11.6	11.6	31.4	31.4	46.9	51.4
Actuated g/C Ratio	0.19	0.19	0.52	0.52	0.78	0.86
v/c Ratio	0.05	0.06	0.35	0.53	0.33	0.04
Control Delay	24.5	13.2	13.7	3.9	4.9	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.5	13.2	13.7	3.9	4.9	4.0
LOS	C	B	B	A	A	A
Approach Delay	18.5		7.5			4.8
Approach LOS	B		A			A
Queue Length 50th (m)	1.1	0.0	12.2	0.0	0.3	0.0
Queue Length 95th (m)	5.9	4.5	55.2	18.3	24.0	6.1
Internal Link Dist (m)	69.4		182.1			276.7
Turn Bay Length (m)					200.0	
Base Capacity (vph)	598	479	903	1029	1097	1436
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.04	0.35	0.53	0.23	0.04

Intersection Summary

Cycle Length: 99.5
 Actuated Cycle Length: 60
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.53
 Intersection Signal Delay: 7.1
 Intersection LOS: A
 Intersection Capacity Utilization 63.1%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 6: Leikin Drive & RCMP Driveway



South Merivale Business Park TIA

7: Driveway/Bill Leatham Drive & Leikin Drive

2026 FB AM Peak Hour

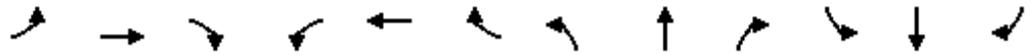


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	151	558	4	6	20	37	1	2	4	213	3	32
Future Volume (Veh/h)	151	558	4	6	20	37	1	2	4	213	3	32
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	151	558	4	6	20	37	1	2	4	213	3	32
Pedestrians								5				
Lane Width (m)								3.5				
Walking Speed (m/s)								1.0				
Percent Blockage								0				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)					206							
pX, platoon unblocked												
vC, conflicting volume	57			567			932	936	565	916	920	38
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	57			567			932	936	565	916	920	38
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			99			100	99	99	7	99	97
cM capacity (veh/h)	1528			1000			218	238	524	229	243	1039
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	151	562	6	57	7	248						
Volume Left	151	0	6	0	1	213						
Volume Right	0	4	0	37	4	32						
cSH	1528	1700	1000	1700	339	255						
Volume to Capacity	0.10	0.33	0.01	0.03	0.02	0.97						
Queue Length 95th (m)	2.3	0.0	0.1	0.0	0.4	64.6						
Control Delay (s)	7.6	0.0	8.6	0.0	15.8	92.1						
Lane LOS	A		A		C	F						
Approach Delay (s)	1.6		0.8		15.8	92.1						
Approach LOS					C	F						
Intersection Summary												
Average Delay			23.4									
Intersection Capacity Utilization			59.3%		ICU Level of Service					B		
Analysis Period (min)			15									

South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2026 FB PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	192	233	687	540	511	11	346	693	228	16	1539	588
Future Volume (vph)	192	233	687	540	511	11	346	693	228	16	1539	588
Satd. Flow (prot)	3216	3252	1498	3281	3318	0	3185	3349	1455	1691	3349	1483
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	3252	1498	3281	3318	0	3185	3349	1417	1691	3349	1483
Satd. Flow (RTOR)			141		1				228			101
Lane Group Flow (vph)	192	233	687	540	522	0	346	693	228	16	1539	588
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2						8			4
Total Split (s)	16.8	36.8	36.8	36.8	56.8		21.8	96.8	96.8	16.8	91.8	16.8
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8		6.8	6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	10.0	30.0	30.0	30.0	50.0		15.0	97.7	97.7	7.3	85.0	101.8
Actuated g/C Ratio	0.05	0.16	0.16	0.16	0.27		0.08	0.52	0.52	0.04	0.45	0.54
v/c Ratio	1.12	0.45	1.92	1.03	0.59		1.36	0.40	0.27	0.24	1.01	0.69
Control Delay	179.7	74.2	451.7	121.0	62.8		242.2	28.7	3.6	95.2	75.9	30.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	179.7	74.2	451.7	121.0	62.8		242.2	28.7	3.6	95.2	75.9	30.2
LOS	F	E	F	F	E		F	C	A	F	E	C
Approach Delay		325.6			92.4			82.5			63.5	
Approach LOS		F			F			F			E	
Queue Length 50th (m)	~38.9	38.8	~321.3	~101.8	83.0		~80.2	79.0	0.0	5.5	~292.0	122.7
Queue Length 95th (m)	#65.0	52.8	#394.0	#137.4	101.7		#111.8	96.9	14.0	14.0	#329.9	166.4
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	171	521	358	525	886		255	1748	848	90	1520	852
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	1.12	0.45	1.92	1.03	0.59		1.36	0.40	0.27	0.18	1.01	0.69

Intersection Summary

Cycle Length: 187.2

Actuated Cycle Length: 187.2

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.92

Intersection Signal Delay: 125.5

Intersection LOS: F

Intersection Capacity Utilization 123.1%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Woodroffe Avenue & Fallowfield Road

36.8 s	36.8 s	21.8 s	91.8 s
16.8 s	56.8 s	16.8 s	96.8 s

South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

2026 FB PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	17	70	55	55	144	89	864	39	103	1907	223
Future Volume (vph)	155	17	70	55	55	144	89	864	39	103	1907	223
Satd. Flow (prot)	3216	1528	0	1691	1780	1483	1642	3316	1513	1691	3349	1513
Fit Permitted	0.950			0.950			0.068			0.259		
Satd. Flow (perm)	3216	1528	0	1691	1780	1464	118	3316	1513	461	3349	1472
Satd. Flow (RTOR)		70				157			157			223
Lane Group Flow (vph)	155	87	0	55	55	144	89	864	39	103	1907	223
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Total Split (s)	15.0	33.0		15.0	33.0	33.0	12.0	55.0	55.0	12.0	55.0	55.0
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
Act Effct Green (s)	8.4	16.3		7.7	13.3	13.3	67.5	60.2	60.2	67.3	60.1	60.1
Actuated g/C Ratio	0.07	0.14		0.07	0.12	0.12	0.59	0.52	0.52	0.59	0.52	0.52
v/c Ratio	0.67	0.32		0.49	0.27	0.47	0.54	0.50	0.05	0.30	1.09	0.25
Control Delay	66.3	16.9		66.1	47.6	10.2	28.5	19.9	0.1	11.8	78.0	3.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.3	16.9		66.1	47.6	10.2	28.5	19.9	0.1	11.8	78.0	3.2
LOS	E	B		E	D	B	C	B	A	B	E	A
Approach Delay		48.5			30.4			19.9			67.5	
Approach LOS		D			C			B			E	
Queue Length 50th (m)	16.3	3.3		11.1	10.9	0.0	5.9	55.4	0.0	6.8	~226.6	0.0
Queue Length 95th (m)	#27.6	14.7		23.2	19.1	12.2	#28.0	91.4	0.0	18.4	#311.7	12.8
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	237	405		124	410	458	165	1736	866	346	1750	875
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	0.65	0.21		0.44	0.13	0.31	0.54	0.50	0.05	0.30	1.09	0.25

Intersection Summary

Cycle Length: 115

Actuated Cycle Length: 115

Offset: 92 (80%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.09

Intersection Signal Delay: 51.1

Intersection LOS: D

Intersection Capacity Utilization 88.4%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

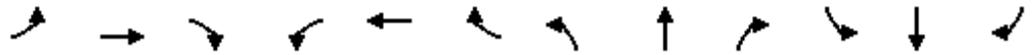
Splits and Phases: 2: Woodroffe Avenue & Longfields Drive

Ø1	Ø2 (R)	Ø3	Ø4
12 s	55 s	15 s	33 s
Ø5	Ø6 (R)	Ø7	Ø8
12 s	55 s	15 s	33 s

South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

2026 FB PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	134	301	41	39	713	3	52	224	106	6	589	308
Future Volume (vph)	134	301	41	39	713	3	52	224	106	6	589	308
Satd. Flow (prot)	1496	1745	1469	1691	1778	0	1551	1598	0	1691	1762	1498
Fit Permitted	0.063			0.541			0.087			0.524		
Satd. Flow (perm)	99	1745	1469	963	1778	0	142	1598	0	933	1762	1498
Satd. Flow (RTOR)			108					19				165
Lane Group Flow (vph)	134	301	41	39	716	0	52	330	0	6	589	308
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8				4
Permitted Phases	2		2	6			8			4		4
Total Split (s)	21.5	61.6	61.6	21.5	61.6		11.6	83.0		71.4	71.4	71.4
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	76.5	65.6	65.6	63.3	55.7		63.7	63.9		55.1	55.1	55.1
Actuated g/C Ratio	0.50	0.43	0.43	0.41	0.36		0.41	0.42		0.36	0.36	0.36
v/c Ratio	0.75	0.40	0.06	0.09	1.11		0.50	0.49		0.02	0.93	0.48
Control Delay	63.6	37.1	0.2	24.9	115.5		42.1	32.6		31.5	70.4	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	63.6	37.1	0.2	24.9	115.5		42.1	32.6		31.5	70.4	19.2
LOS	E	D	A	C	F		D	C		C	E	B
Approach Delay		41.4			110.8			33.9			52.7	
Approach LOS		D			F			C			D	
Queue Length 50th (m)	27.1	65.5	0.0	6.1	~252.4		8.8	63.4		1.1	163.6	30.9
Queue Length 95th (m)	#61.4	97.8	0.0	13.3	#337.1		16.7	88.6		4.4	#222.7	56.1
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0			30.0		55.0
Base Capacity (vph)	187	744	688	517	644		105	816		399	754	736
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	0.72	0.40	0.06	0.08	1.11		0.50	0.40		0.02	0.78	0.42

Intersection Summary

Cycle Length: 166.1

Actuated Cycle Length: 153.7

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.11

Intersection Signal Delay: 65.1

Intersection LOS: E

Intersection Capacity Utilization 106.3%

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: 3: Merivale Road & Fallowfield Road

Ø1	Ø2	Ø3	Ø4
21.5 s	61.6 s	11.6 s	71.4 s
Ø5	Ø6	Ø8	
21.5 s	61.6 s	83 s	

South Merivale Business Park TIA

4: Merivale Road & Leikin Drive

2026 FB PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	220	2	1	194	489	212
Future Volume (vph)	220	2	1	194	489	212
Satd. Flow (prot)	3183	0	1271	1648	1762	1498
Fit Permitted	0.953		0.463			
Satd. Flow (perm)	3183	0	620	1648	1762	1498
Satd. Flow (RTOR)	1					212
Lane Group Flow (vph)	222	0	1	194	489	212
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Total Split (s)	30.1		46.5	46.5	46.5	46.5
Total Lost Time (s)	5.1		6.5	6.5	6.5	6.5
Act Effct Green (s)	10.6		40.0	40.0	40.0	40.0
Actuated g/C Ratio	0.17		0.64	0.64	0.64	0.64
v/c Ratio	0.41		0.00	0.18	0.43	0.20
Control Delay	25.4		4.0	5.1	7.1	1.3
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	25.4		4.0	5.1	7.1	1.3
LOS	C		A	A	A	A
Approach Delay	25.4			5.1	5.3	
Approach LOS	C			A	A	
Queue Length 50th (m)	10.8		0.0	6.7	20.5	0.0
Queue Length 95th (m)	18.7		0.4	14.2	38.9	5.4
Internal Link Dist (m)	51.0			445.8	100.5	
Turn Bay Length (m)			100.0			85.0
Base Capacity (vph)	1280		398	1060	1134	1040
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.17		0.00	0.18	0.43	0.20

Intersection Summary

Cycle Length: 76.6
 Actuated Cycle Length: 62.2
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.43
 Intersection Signal Delay: 9.3
 Intersection LOS: A
 Intersection Capacity Utilization 45.2%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 4: Merivale Road & Leikin Drive

Ø2	Ø4
46.5 s	30.1 s
Ø6	
46.5 s	

South Merivale Business Park TIA

5: Prince of Wales Drive & Merivale Road

2026 FB PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Lane Configurations							
Traffic Volume (vph)	34	566	185	374	1015	18	
Future Volume (vph)	34	566	185	374	1015	18	
Satd. Flow (prot)	1642	1483	1566	1745	3338	0	
Fit Permitted	0.950		0.195				
Satd. Flow (perm)	1642	1483	321	1745	3338	0	
Satd. Flow (RTOR)		145			2		
Lane Group Flow (vph)	34	566	185	374	1033	0	
Turn Type	Prot	pm+ov	pm+pt	NA	NA		
Protected Phases	4	5	5	2	6		3
Permitted Phases		4	2				
Total Split (s)	26.0	14.0	14.0	89.0	75.0		5.0
Total Lost Time (s)	6.8	6.4	6.4	6.5	6.5		
Act Effct Green (s)	19.2	33.6	82.6	82.5	68.5		
Actuated g/C Ratio	0.16	0.28	0.69	0.69	0.57		
v/c Ratio	0.13	1.09	0.62	0.31	0.54		
Control Delay	44.8	97.4	16.1	8.3	17.3		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	44.8	97.4	16.1	8.3	17.3		
LOS	D	F	B	A	B		
Approach Delay	94.4			10.9	17.3		
Approach LOS	F			B	B		
Queue Length 50th (m)	6.4	~114.2	12.8	29.2	69.6		
Queue Length 95th (m)	15.1	#176.6	20.6	42.1	86.1		
Internal Link Dist (m)	226.4			296.0	231.6		
Turn Bay Length (m)	80.0		90.0				
Base Capacity (vph)	262	519	299	1199	1906		
Starvation Cap Reductn	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0		
Reduced v/c Ratio	0.13	1.09	0.62	0.31	0.54		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 112 (93%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.09

Intersection Signal Delay: 36.8

Intersection LOS: D

Intersection Capacity Utilization 78.0%

ICU Level of Service D

Analysis Period (min) 15

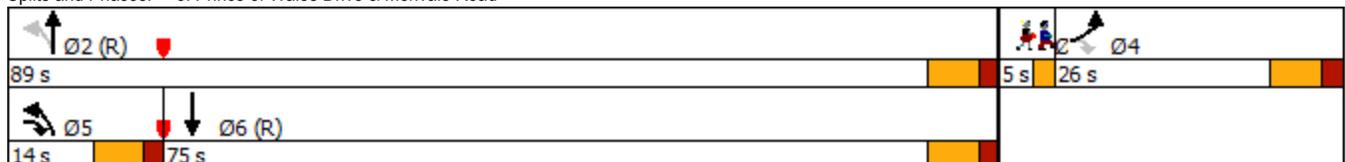
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Prince of Wales Drive & Merivale Road



South Merivale Business Park TIA

6: Leikin Drive & RCMP Driveway

2026 FB PM Peak Hour



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	409	252	85	5	6	209
Future Volume (vph)	409	252	85	5	6	209
Satd. Flow (prot)	1691	1513	1648	1513	1691	1728
Fit Permitted	0.950				0.623	
Satd. Flow (perm)	1691	1391	1648	1456	1093	1728
Satd. Flow (RTOR)		252		5		
Lane Group Flow (vph)	409	252	85	5	6	209
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Total Split (s)	41.7	41.7	56.4	56.4	16.4	72.8
Total Lost Time (s)	6.7	6.7	6.4	6.4	6.4	6.4
Act Effct Green (s)	26.8	26.8	50.6	50.6	52.7	52.7
Actuated g/C Ratio	0.29	0.29	0.55	0.55	0.57	0.57
v/c Ratio	0.84	0.43	0.09	0.01	0.01	0.21
Control Delay	47.2	6.0	13.2	9.0	10.3	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.2	6.0	13.2	9.0	10.3	11.4
LOS	D	A	B	A	B	B
Approach Delay	31.5		13.0			11.4
Approach LOS	C		B			B
Queue Length 50th (m)	59.9	0.0	6.0	0.0	0.4	15.9
Queue Length 95th (m)	#108.2	16.0	18.2	1.9	2.2	31.1
Internal Link Dist (m)	69.4		182.1			276.7
Turn Bay Length (m)					200.0	
Base Capacity (vph)	645	686	899	796	685	1251
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.37	0.09	0.01	0.01	0.17

Intersection Summary

Cycle Length: 114.5

Actuated Cycle Length: 92.7

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 25.3

Intersection LOS: C

Intersection Capacity Utilization 55.7%

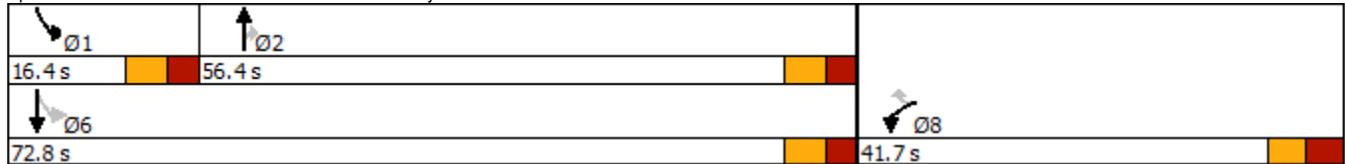
ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 6: Leikin Drive & RCMP Driveway



South Merivale Business Park TIA
7: Driveway/Bill Leatham Drive & Leikin Drive

2026 FB PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	57	0	0	364	183	0	1	0	43	0	162
Future Volume (Veh/h)	65	57	0	0	364	183	0	1	0	43	0	162
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	65	57	0	0	364	183	0	1	0	43	0	162
Pedestrians		1						10			1	
Lane Width (m)		3.5						3.5			3.5	
Walking Speed (m/s)		1.0						1.0			1.0	
Percent Blockage		0						1			0	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)					206							
pX, platoon unblocked	0.98						0.98	0.98		0.98	0.98	0.98
vC, conflicting volume	548			67			724	745	67	644	654	458
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	530			67			709	730	67	627	637	437
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			100			100	100	100	88	100	73
cM capacity (veh/h)	1027			1532			236	320	992	368	361	608
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	65	57	0	547	1	205						
Volume Left	65	0	0	0	0	43						
Volume Right	0	0	0	183	0	162						
cSH	1027	1700	1700	1700	320	535						
Volume to Capacity	0.06	0.03	0.00	0.32	0.00	0.38						
Queue Length 95th (m)	1.4	0.0	0.0	0.0	0.1	12.5						
Control Delay (s)	8.7	0.0	0.0	0.0	16.3	15.8						
Lane LOS	A				C	C						
Approach Delay (s)	4.7		0.0		16.3	15.8						
Approach LOS					C	C						
Intersection Summary												
Average Delay			4.4									
Intersection Capacity Utilization			65.6%		ICU Level of Service				C			
Analysis Period (min)			15									

South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2026 FB AM Peak Hour - Timing Adjustments

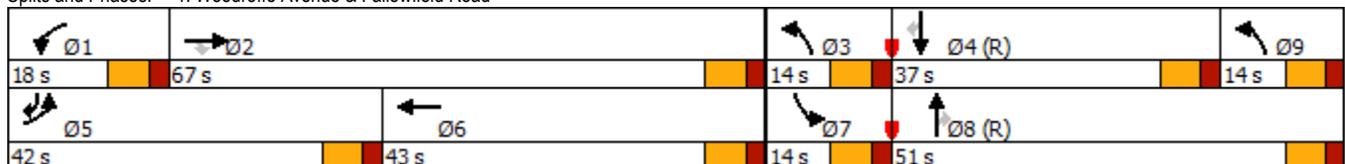
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	645	625	272	127	131	32	606	1604	516	7	393	108
Future Volume (vph)	645	625	272	127	131	32	606	1604	516	7	393	108
Satd. Flow (prot)	3248	3316	1375	2955	3133	0	3216	3349	1513	1445	3221	1363
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3248	3316	1375	2955	3133	0	3212	3349	1513	1445	3221	1345
Satd. Flow (RTOR)			272		19				365			127
Lane Group Flow (vph)	645	625	272	127	163	0	606	1604	516	7	393	108
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	9	8	7	4	5
Permitted Phases			2						8			4
Total Split (s)	42.0	67.0	67.0	18.0	43.0			51.0	51.0	14.0	37.0	42.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8			6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	33.2	35.9	35.9	10.4	13.1		46.0	80.4	80.4	6.4	23.7	56.9
Actuated g/C Ratio	0.22	0.24	0.24	0.07	0.09		0.31	0.54	0.54	0.04	0.16	0.38
v/c Ratio	0.90	0.79	0.51	0.62	0.56		0.61	0.89	0.53	0.11	0.77	0.18
Control Delay	72.8	61.0	8.0	81.3	64.9		30.9	39.2	9.2	72.6	71.1	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.8	61.0	8.0	81.3	64.9		30.9	39.2	9.2	72.6	71.1	2.2
LOS	E	E	A	F	E		C	D	A	E	E	A
Approach Delay		56.6			72.1			31.7			56.5	
Approach LOS		E			E			C			E	
Queue Length 50th (m)	87.7	84.8	0.0	17.6	20.3		46.3	195.2	21.1	1.9	55.2	0.0
Queue Length 95th (m)	#109.6	99.4	20.7	27.9	30.4		#86.4	#314.4	65.6	6.7	68.7	5.4
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	762	1330	714	220	770		987	1794	980	70	648	609
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	0.85	0.47	0.38	0.58	0.21		0.61	0.89	0.53	0.10	0.61	0.18

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 4:SBT and 8:NBT, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 44.1
 Intersection Capacity Utilization 101.4%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Intersection LOS: D
 ICU Level of Service G

Splits and Phases: 1: Woodroffe Avenue & Fallowfield Road



South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

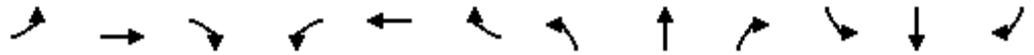
2026 FB AM Peak Hour - Timing Adjustments

Lane Group	Ø3	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Satd. Flow (RTOR)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	9
Permitted Phases		
Total Split (s)	14.0	14.0
Total Lost Time (s)		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

2026 FB AM Peak Hour - Timing Adjustments



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	372	89	82	15	45	132	36	1536	50	154	453	111
Future Volume (vph)	372	89	82	15	45	132	36	1536	50	154	453	111
Satd. Flow (prot)	3248	1551	0	1580	1664	1513	1523	3349	1513	1642	3221	1455
Fit Permitted	0.950			0.950			0.491			0.060		
Satd. Flow (perm)	3248	1551	0	1580	1664	1490	778	3349	1478	104	3221	1391
Satd. Flow (RTOR)		32				179			179			179
Lane Group Flow (vph)	372	171	0	15	45	132	36	1536	50	154	453	111
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Total Split (s)	25.5	44.3		13.7	32.5	32.5	12.0	70.0	70.0	12.0	70.0	70.0
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
Act Effct Green (s)	18.5	32.9		6.5	13.3	13.3	70.4	64.2	64.2	87.4	78.4	78.4
Actuated g/C Ratio	0.13	0.24		0.05	0.10	0.10	0.50	0.46	0.46	0.62	0.56	0.56
v/c Ratio	0.87	0.44		0.21	0.28	0.44	0.08	1.00	0.06	0.59	0.25	0.13
Control Delay	80.0	41.1		70.5	61.3	6.5	12.9	60.6	0.2	38.2	17.8	0.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.0	41.1		70.5	61.3	6.5	12.9	60.6	0.2	38.2	17.8	0.3
LOS	F	D		E	E	A	B	E	A	D	B	A
Approach Delay		67.8			24.3			57.6			19.4	
Approach LOS		E			C			E			B	
Queue Length 50th (m)	48.4	29.5		3.7	11.2	0.0	3.1	199.1	0.0	21.8	30.0	0.0
Queue Length 95th (m)	#70.8	48.7		10.7	20.2	5.6	9.2	#255.4	0.0	#81.3	49.7	0.0
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	440	442		81	309	422	424	1536	775	261	1803	857
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	0.85	0.39		0.19	0.15	0.31	0.08	1.00	0.06	0.59	0.25	0.13

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 86 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 48.4

Intersection LOS: D

Intersection Capacity Utilization 88.1%

ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Woodroffe Avenue & Longfields Drive

Ø1	Ø2 (R)	Ø3	Ø4
12 s	70 s	13.7 s	44.3 s
Ø5	Ø6 (R)	Ø7	Ø8
12 s	70 s	25.5 s	32.5 s

South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

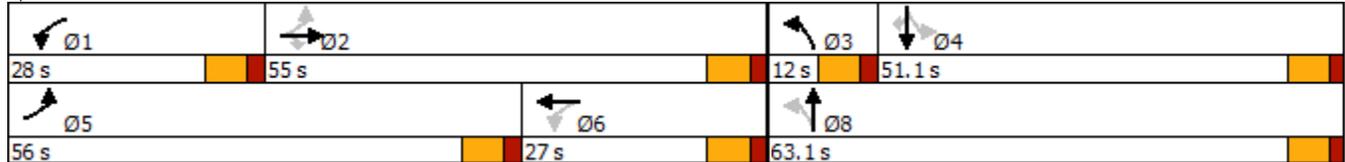
2026 FB AM Peak Hour - Timing Adjustments

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	700	432	37	167	167	5	20	619	22	0	136	56
Future Volume (vph)	700	432	37	167	167	5	20	619	22	0	136	56
Satd. Flow (prot)	1658	1762	1427	1658	1691	0	1691	1736	0	1780	1618	1327
Fit Permitted	0.330			0.511			0.568					
Satd. Flow (perm)	576	1762	1427	892	1691	0	1011	1736	0	1780	1618	1327
Satd. Flow (RTOR)			123		1			1				173
Lane Group Flow (vph)	700	432	37	167	172	0	20	641	0	0	136	56
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		2	6			8			4		4
Total Split (s)	56.0	55.0	55.0	28.0	27.0		12.0	63.1		51.1	51.1	51.1
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	76.5	56.7	56.7	33.7	20.4		54.7	54.9			47.8	47.8
Actuated g/C Ratio	0.53	0.39	0.39	0.23	0.14		0.38	0.38			0.33	0.33
v/c Ratio	1.03	0.62	0.06	0.60	0.72		0.05	0.97			0.25	0.10
Control Delay	74.5	41.3	0.2	35.2	76.8		28.3	72.3			38.2	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	74.5	41.3	0.2	35.2	76.8		28.3	72.3			38.2	0.4
LOS	E	D	A	D	E		C	E			D	A
Approach Delay		59.9			56.3			70.9			27.2	
Approach LOS		E			E			E			C	
Queue Length 50th (m)	~172.3	92.9	0.0	22.9	44.3		3.3	164.6			27.6	0.0
Queue Length 95th (m)	#241.8	133.9	0.0	35.8	#73.1		8.5	#235.9			44.3	0.0
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0					55.0
Base Capacity (vph)	677	692	635	374	239		408	683			535	555
Starvation Cap Reductn	0	0	0	0	0		0	0			0	0
Spillback Cap Reductn	0	0	0	0	0		0	0			0	0
Storage Cap Reductn	0	0	0	0	0		0	0			0	0
Reduced v/c Ratio	1.03	0.62	0.06	0.45	0.72		0.05	0.94			0.25	0.10

Intersection Summary

Cycle Length: 146.1
 Actuated Cycle Length: 144.3
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.03
 Intersection Signal Delay: 59.8
 Intersection LOS: E
 Intersection Capacity Utilization 102.6%
 ICU Level of Service G
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

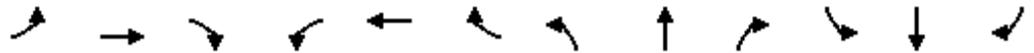
Splits and Phases: 3: Merivale Road & Fallowfield Road



South Merivale Business Park TIA

7: Driveway/Bill Leathem Drive & Leikin Drive

2026 FB AM Peak Hour - Timing Adjustments



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	558	4	6	20	37	1	2	4	213	3	32
Future Volume (vph)	151	558	4	6	20	37	1	2	4	213	3	32
Satd. Flow (prot)	1610	1726	0	1658	1547	0	0	1611	0	0	1645	0
Fit Permitted	0.720			0.333				0.964			0.751	
Satd. Flow (perm)	1221	1726	0	580	1547	0	0	1564	0	0	1288	0
Satd. Flow (RTOR)					37			4			11	
Lane Group Flow (vph)	151	562	0	6	57	0	0	7	0	0	248	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Total Split (s)	41.5	41.5		41.5	41.5		58.0	58.0		58.0	58.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6		5.0	5.0		5.0	5.0	
Act Effct Green (s)	25.5	25.5		25.5	25.5		16.6	16.6		16.6	16.6	
Actuated g/C Ratio	0.48	0.48		0.48	0.48		0.31	0.31		0.31	0.31	
v/c Ratio	0.26	0.68		0.02	0.07		0.01	0.01		0.01	0.61	
Control Delay	10.5	16.4		8.7	4.9		11.4	11.4		11.4	22.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	10.5	16.4		8.7	4.9		11.4	11.4		11.4	22.9	
LOS	B	B		A	A		B	B		B	C	
Approach Delay		15.1			5.3		11.4	11.4			22.9	
Approach LOS		B			A		B	B			C	
Queue Length 50th (m)	7.1	34.4		0.3	0.8		0.2	0.2		0.2	16.6	
Queue Length 95th (m)	19.3	76.2		1.9	5.7		2.4	2.4		2.4	42.5	
Internal Link Dist (m)		337.1			182.1		90.9	90.9			596.0	
Turn Bay Length (m)	30.0			30.0								
Base Capacity (vph)	860	1216		409	1101		1454	1454			1198	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.18	0.46		0.01	0.05		0.00	0.00		0.00	0.21	

Intersection Summary

Cycle Length: 99.5

Actuated Cycle Length: 53.1

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 16.4

Intersection LOS: B

Intersection Capacity Utilization 61.4%

ICU Level of Service B

Analysis Period (min) 15

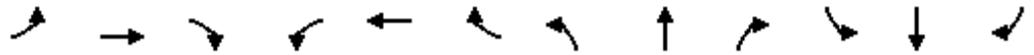
Splits and Phases: 7: Driveway/Bill Leathem Drive & Leikin Drive

	Ø2			Ø4
41.5 s			58 s	
	Ø6			Ø8
41.5 s			58 s	

South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

2026 FB AM Peak Hour - Roadway Modifications



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	700	432	37	167	167	5	20	619	22	0	136	56
Future Volume (vph)	700	432	37	167	167	5	20	619	22	0	136	56
Satd. Flow (prot)	3216	1762	1427	1658	1691	0	1691	1736	0	1780	1618	1327
Fit Permitted	0.950			0.950			0.583					
Satd. Flow (perm)	3216	1762	1427	1658	1691	0	1038	1736	0	1780	1618	1327
Satd. Flow (RTOR)			123		1			2				173
Lane Group Flow (vph)	700	432	37	167	172	0	20	641	0	0	136	56
Turn Type	Prot	NA	Perm	Prot	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2				8			4		4
Total Split (s)	41.0	42.0	42.0	28.0	29.0		12.0	76.1		64.1	64.1	64.1
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	31.2	37.0	37.0	17.1	22.9		50.8	51.0			46.8	46.8
Actuated g/C Ratio	0.25	0.30	0.30	0.14	0.18		0.41	0.41			0.37	0.37
v/c Ratio	0.87	0.83	0.07	0.74	0.55		0.04	0.90			0.22	0.09
Control Delay	58.8	58.2	0.3	73.5	57.7		21.8	51.7			29.0	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	58.8	58.2	0.3	73.5	57.7		21.8	51.7			29.0	0.3
LOS	E	E	A	E	E		C	D			C	A
Approach Delay		56.7			65.5			50.8			20.6	
Approach LOS		E			E			D			C	
Queue Length 50th (m)	78.4	92.4	0.0	37.5	36.8		2.8	138.5			20.3	0.0
Queue Length 95th (m)	#126.5	#181.6	0.0	#67.3	67.2		7.2	186.0			38.2	0.0
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0					55.0
Base Capacity (vph)	903	521	508	290	311		450	986			760	715
Starvation Cap Reductn	0	0	0	0	0		0	0			0	0
Spillback Cap Reductn	0	0	0	0	0		0	0			0	0
Storage Cap Reductn	0	0	0	0	0		0	0			0	0
Reduced v/c Ratio	0.78	0.83	0.07	0.58	0.55		0.04	0.65			0.18	0.08

Intersection Summary

Cycle Length: 146.1

Actuated Cycle Length: 125

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 53.4

Intersection LOS: D

Intersection Capacity Utilization 85.8%

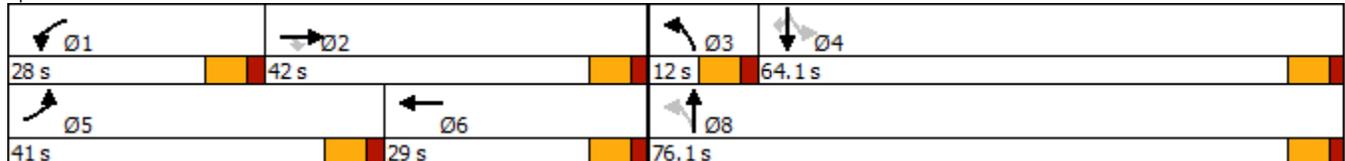
ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Merivale Road & Fallowfield Road



South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2026 FB AM Peak Hour - Demand Rationalization

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	645	625	272	127	131	32	606	1604	516	7	393	108
Future Volume (vph)	645	625	272	127	131	32	606	1604	516	7	393	108
Satd. Flow (prot)	3248	3316	1375	2955	3133	0	3216	3349	1513	1445	3221	1363
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3248	3316	1375	2955	3133	0	3212	3349	1513	1445	3221	1345
Satd. Flow (RTOR)			272		19				365			127
Lane Group Flow (vph)	645	625	272	127	163	0	606	1604	516	7	393	108
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	9	8	7	4	5
Permitted Phases			2						8			4
Total Split (s)	42.0	67.0	67.0	18.0	43.0			51.0	51.0	14.0	37.0	42.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8			6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	33.2	35.9	35.9	10.4	13.1		46.0	80.4	80.4	6.4	23.7	56.9
Actuated g/C Ratio	0.22	0.24	0.24	0.07	0.09		0.31	0.54	0.54	0.04	0.16	0.38
v/c Ratio	0.90	0.79	0.51	0.62	0.56		0.61	0.89	0.53	0.11	0.77	0.18
Control Delay	72.8	61.0	8.0	81.3	64.9		30.9	39.2	9.2	72.6	71.1	2.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.8	61.0	8.0	81.3	64.9		30.9	39.2	9.2	72.6	71.1	2.2
LOS	E	E	A	F	E		C	D	A	E	E	A
Approach Delay		56.6			72.1			31.7			56.5	
Approach LOS		E			E			C			E	
Queue Length 50th (m)	87.7	84.8	0.0	17.6	20.3		46.3	195.2	21.1	1.9	55.2	0.0
Queue Length 95th (m)	#109.6	99.4	20.7	27.9	30.4		#86.4	#314.4	65.6	6.7	68.7	5.4
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	762	1330	714	220	770		987	1794	980	70	648	609
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	0.85	0.47	0.38	0.58	0.21		0.61	0.89	0.53	0.10	0.61	0.18

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 4:SBT and 8:NBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 44.1

Intersection LOS: D

Intersection Capacity Utilization 101.4%

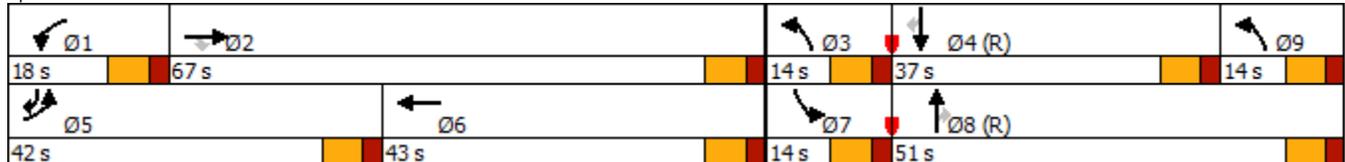
ICU Level of Service G

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Woodroffe Avenue & Fallowfield Road



South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2026 FB AM Peak Hour - Demand Rationalization

Lane Group	Ø3	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Satd. Flow (RTOR)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	9
Permitted Phases		
Total Split (s)	14.0	14.0
Total Lost Time (s)		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

2026 FB AM Peak Hour - Demand Rationalization

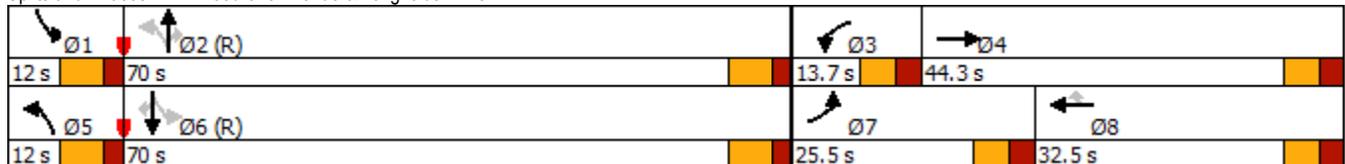


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	372	89	82	15	45	132	36	1386	50	154	453	111
Future Volume (vph)	372	89	82	15	45	132	36	1386	50	154	453	111
Satd. Flow (prot)	3248	1551	0	1580	1664	1513	1523	3349	1513	1642	3221	1455
Fit Permitted	0.950			0.950			0.491			0.060		
Satd. Flow (perm)	3248	1551	0	1580	1664	1490	778	3349	1478	104	3221	1391
Satd. Flow (RTOR)		32				179			179			179
Lane Group Flow (vph)	372	171	0	15	45	132	36	1386	50	154	453	111
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Total Split (s)	25.5	44.3		13.7	32.5	32.5	12.0	70.0	70.0	12.0	70.0	70.0
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
Act Effct Green (s)	18.5	32.9		6.5	13.3	13.3	70.4	64.2	64.2	87.4	78.4	78.4
Actuated g/C Ratio	0.13	0.24		0.05	0.10	0.10	0.50	0.46	0.46	0.62	0.56	0.56
v/c Ratio	0.87	0.44		0.21	0.28	0.44	0.08	0.90	0.06	0.59	0.25	0.13
Control Delay	80.0	41.1		70.5	61.3	6.5	12.9	44.3	0.2	38.2	17.8	0.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.0	41.1		70.5	61.3	6.5	12.9	44.3	0.2	38.2	17.8	0.3
LOS	F	D		E	E	A	B	D	A	D	B	A
Approach Delay		67.8			24.3			42.0			19.4	
Approach LOS		E			C			D			B	
Queue Length 50th (m)	48.4	29.5		3.7	11.2	0.0	3.1	165.8	0.0	21.8	30.0	0.0
Queue Length 95th (m)	#70.8	48.7		10.7	20.2	5.6	9.2	#204.6	0.0	#81.3	49.7	0.0
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	440	442		81	309	422	424	1536	775	261	1803	857
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	0.85	0.39		0.19	0.15	0.31	0.08	0.90	0.06	0.59	0.25	0.13

Intersection Summary

Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 86 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 40.1
 Intersection LOS: D
 Intersection Capacity Utilization 83.7%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 2: Woodroffe Avenue & Longfields Drive



South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

2026 FB AM Peak Hour - Demand Rationalization

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	650	432	37	167	167	5	20	499	22	0	136	56
Future Volume (vph)	650	432	37	167	167	5	20	499	22	0	136	56
Satd. Flow (prot)	1658	1762	1427	1658	1691	0	1691	1735	0	1780	1618	1327
Fit Permitted	0.364			0.511			0.545					
Satd. Flow (perm)	635	1762	1427	892	1691	0	970	1735	0	1780	1618	1327
Satd. Flow (RTOR)			123		1			2				173
Lane Group Flow (vph)	650	432	37	167	172	0	20	521	0	0	136	56
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8				4
Permitted Phases	2		2	6			8			4		4
Total Split (s)	56.0	55.0	55.0	28.0	27.0		12.0	63.1		51.1	51.1	51.1
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	74.8	56.0	56.0	32.8	20.6		43.5	43.7			37.0	37.0
Actuated g/C Ratio	0.57	0.43	0.43	0.25	0.16		0.33	0.33			0.28	0.28
v/c Ratio	0.89	0.58	0.05	0.57	0.65		0.06	0.90			0.30	0.11
Control Delay	39.1	35.2	0.2	31.2	66.7		29.4	61.8			40.5	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	39.1	35.2	0.2	31.2	66.7		29.4	61.8			40.5	0.5
LOS	D	D	A	C	E		C	E			D	A
Approach Delay		36.3			49.2			60.6			28.9	
Approach LOS		D			D			E			C	
Queue Length 50th (m)	108.5	78.1	0.0	18.6	39.8		3.3	120.3			27.6	0.0
Queue Length 95th (m)	#206.5	133.9	0.0	35.8	#73.1		8.5	162.2			44.3	0.0
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0					55.0
Base Capacity (vph)	750	749	677	414	265		350	756			555	569
Starvation Cap Reductn	0	0	0	0	0		0	0			0	0
Spillback Cap Reductn	0	0	0	0	0		0	0			0	0
Storage Cap Reductn	0	0	0	0	0		0	0			0	0
Reduced v/c Ratio	0.87	0.58	0.05	0.40	0.65		0.06	0.69			0.25	0.10

Intersection Summary

Cycle Length: 146.1

Actuated Cycle Length: 131.5

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 43.7

Intersection LOS: D

Intersection Capacity Utilization 93.0%

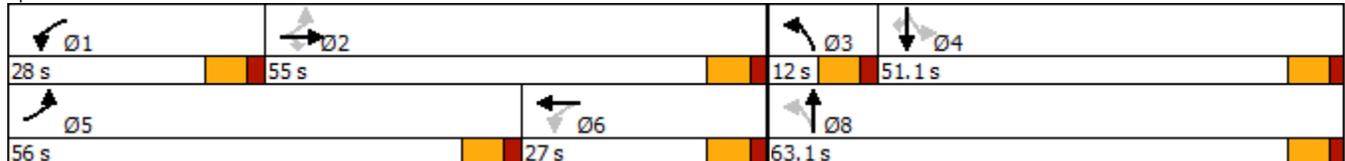
ICU Level of Service F

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

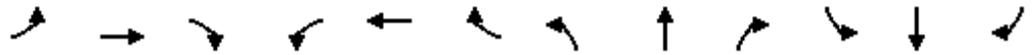
Splits and Phases: 3: Merivale Road & Fallowfield Road



South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2026 FB PM Peak Hour - Adjusted Timings

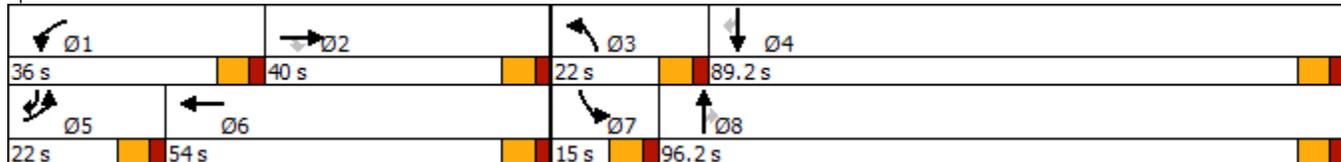


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	192	233	687	540	511	11	346	639	228	16	1539	588
Future Volume (vph)	192	233	687	540	511	11	346	639	228	16	1539	588
Satd. Flow (prot)	3216	3252	1498	3281	3318	0	3185	3349	1455	1691	3349	1483
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	3252	1498	3281	3318	0	3185	3349	1417	1691	3349	1483
Satd. Flow (RTOR)			181		1				228			141
Lane Group Flow (vph)	192	233	687	540	522	0	346	639	228	16	1539	588
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2						8			4
Total Split (s)	22.0	40.0	40.0	36.0	54.0		22.0	96.2	96.2	15.0	89.2	22.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8		6.8	6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	14.5	33.2	33.2	29.2	47.9		15.2	95.6	95.6	7.1	82.4	103.7
Actuated g/C Ratio	0.08	0.18	0.18	0.16	0.26		0.08	0.51	0.51	0.04	0.44	0.55
v/c Ratio	0.77	0.40	1.66	1.06	0.61		1.34	0.37	0.27	0.25	1.04	0.67
Control Delay	105.0	70.7	337.4	128.0	65.2		236.2	29.4	3.7	96.6	85.7	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.0	70.7	337.4	128.0	65.2		236.2	29.4	3.7	96.6	85.7	25.7
LOS	F	E	F	F	E		F	C	A	F	F	C
Approach Delay		241.4			97.2			83.5			69.3	
Approach LOS		F			F			F			E	
Queue Length 50th (m)	33.9	38.0	~289.8	~104.3	84.7		~79.5	73.4	0.0	5.5	~300.7	107.9
Queue Length 95th (m)	#48.0	51.7	#362.5	#140.0	103.9		#111.1	89.0	14.1	14.2	#338.6	148.9
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	261	576	414	511	849		258	1710	835	74	1474	884
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	0.74	0.40	1.66	1.06	0.61		1.34	0.37	0.27	0.22	1.04	0.67

Intersection Summary

Cycle Length: 187.2
 Actuated Cycle Length: 187.2
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.66
 Intersection Signal Delay: 112.4
 Intersection LOS: F
 Intersection Capacity Utilization 123.1%
 ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Woodroffe Avenue & Fallowfield Road



South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

2026 FB PM Peak Hour - Adjusted Timings



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	17	70	55	55	144	89	864	39	103	1907	223
Future Volume (vph)	155	17	70	55	55	144	89	864	39	103	1907	223
Satd. Flow (prot)	3216	1528	0	1691	1780	1483	1642	3316	1513	1691	3349	1513
Fit Permitted	0.950			0.950			0.054			0.274		
Satd. Flow (perm)	3216	1528	0	1691	1780	1463	93	3316	1513	488	3349	1470
Satd. Flow (RTOR)		70				144			138			223
Lane Group Flow (vph)	155	87	0	55	55	144	89	864	39	103	1907	223
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Total Split (s)	14.0	32.5		14.0	32.5	32.5	11.5	69.5	69.5	14.0	72.0	72.0
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
Act Effct Green (s)	7.5	16.2		7.2	13.4	13.4	83.4	75.7	75.7	82.9	75.4	75.4
Actuated g/C Ratio	0.06	0.12		0.06	0.10	0.10	0.64	0.58	0.58	0.64	0.58	0.58
v/c Ratio	0.84	0.35		0.59	0.30	0.52	0.59	0.45	0.04	0.27	0.98	0.24
Control Delay	94.8	19.6		84.8	56.3	14.2	36.3	17.2	0.1	9.7	43.6	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	94.8	19.6		84.8	56.3	14.2	36.3	17.2	0.1	9.7	43.6	2.6
LOS	F	B		F	E	B	D	B	A	A	D	A
Approach Delay		67.8			38.6			18.2			37.9	
Approach LOS		E			D			B			D	
Queue Length 50th (m)	19.0	3.8		12.9	12.6	0.0	6.0	54.1	0.0	6.6	209.1	0.0
Queue Length 95th (m)	#36.4	16.3		#28.6	21.7	15.9	#37.9	90.1	0.0	17.5	#313.0	11.4
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	185	361		97	356	407	151	1930	938	384	1943	946
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	0.84	0.24		0.57	0.15	0.35	0.59	0.45	0.04	0.27	0.98	0.24

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 34.7

Intersection LOS: C

Intersection Capacity Utilization 88.4%

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.

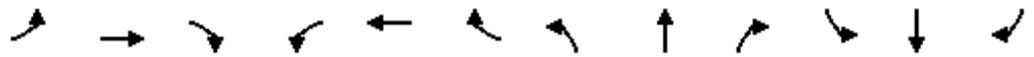
Splits and Phases: 2: Woodroffe Avenue & Longfields Drive

Ø1	Ø2 (R)	Ø3	Ø4
14 s	69.5 s	14 s	32.5 s
Ø5	Ø6 (R)	Ø7	Ø8
11.5 s	72 s	14 s	32.5 s

South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

2026 FB PM Peak Hour - Adjusted Timings

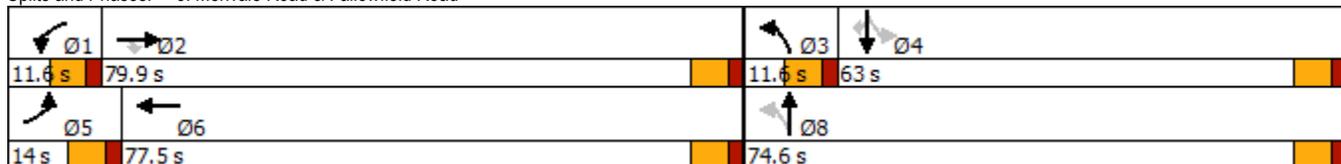


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	134	301	41	39	713	3	52	224	106	6	599	308
Future Volume (vph)	134	301	41	39	713	3	52	224	106	6	599	308
Satd. Flow (prot)	2903	1745	1469	1691	1778	0	1551	1598	0	1691	1762	1498
Fit Permitted	0.950			0.950			0.070			0.516		
Satd. Flow (perm)	2903	1745	1469	1691	1778	0	114	1598	0	918	1762	1498
Satd. Flow (RTOR)			108					17				150
Lane Group Flow (vph)	134	301	41	39	716	0	52	330	0	6	599	308
Turn Type	Prot	NA	Perm	Prot	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2				8			4		4
Total Split (s)	14.0	79.9	79.9	11.6	77.5		11.6	74.6		63.0	63.0	63.0
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	7.6	71.7	71.7	5.1	66.5		65.0	65.2		56.3	56.3	56.3
Actuated g/C Ratio	0.05	0.45	0.45	0.03	0.42		0.41	0.41		0.35	0.35	0.35
v/c Ratio	0.97	0.38	0.06	0.72	0.96		0.57	0.50		0.02	0.96	0.49
Control Delay	143.5	31.9	0.1	136.0	70.3		54.9	36.4		36.8	78.4	23.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	143.5	31.9	0.1	136.0	70.3		54.9	36.4		36.8	78.4	23.8
LOS	F	C	A	F	E		D	D		D	E	C
Approach Delay		60.6			73.7			38.9			59.7	
Approach LOS		E			E			D			E	
Queue Length 50th (m)	~22.2	61.4	0.0	12.0	207.9		9.7	70.3		1.2	182.6	37.9
Queue Length 95th (m)	#44.0	85.0	0.0	#32.8	#283.5		#20.3	98.2		4.7	#256.5	65.6
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0			30.0		55.0
Base Capacity (vph)	138	812	741	54	799		91	701		329	633	634
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	0.97	0.37	0.06	0.72	0.90		0.57	0.47		0.02	0.95	0.49

Intersection Summary

Cycle Length: 166.1
 Actuated Cycle Length: 158.9
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 60.9
 Intersection LOS: E
 Intersection Capacity Utilization 103.2%
 ICU Level of Service G
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Merivale Road & Fallowfield Road



South Merivale Business Park TIA

7: Driveway/Bill Leathem Drive & Leikin Drive

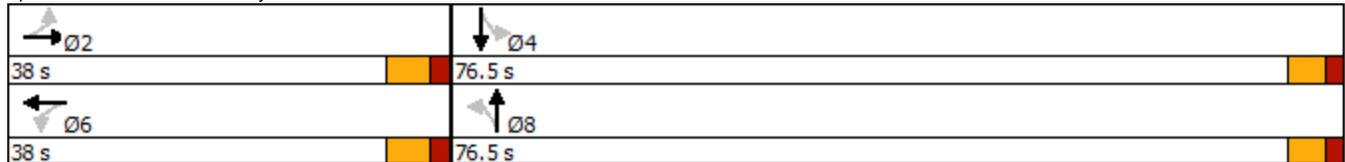
2026 FB PM Peak Hour - Adjusted Timings

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	57	0	0	364	183	0	1	0	43	0	162
Future Volume (vph)	65	57	0	0	364	183	0	1	0	43	0	162
Satd. Flow (prot)	1691	1534	0	1780	1651	0	0	1780	0	0	1532	0
Fit Permitted	0.412										0.929	
Satd. Flow (perm)	733	1534	0	1780	1651	0	0	1780	0	0	1438	0
Satd. Flow (RTOR)					22						162	
Lane Group Flow (vph)	65	57	0	0	547	0	0	1	0	0	205	0
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Total Split (s)	38.0	38.0		38.0	38.0		76.5	76.5		76.5	76.5	
Total Lost Time (s)	5.6	5.6		5.6	5.6			5.0			5.0	
Act Effct Green (s)	34.1	34.1			34.1			10.3			10.3	
Actuated g/C Ratio	0.62	0.62			0.62			0.19			0.19	
v/c Ratio	0.14	0.06			0.53			0.00			0.51	
Control Delay	5.6	4.6			8.2			17.0			11.0	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	5.6	4.6			8.2			17.0			11.0	
LOS	A	A			A			B			B	
Approach Delay		5.1			8.2			17.0			11.0	
Approach LOS		A			A			B			B	
Queue Length 50th (m)	2.0	1.7			21.9			0.1			3.2	
Queue Length 95th (m)	6.1	4.8			43.3			1.0			16.3	
Internal Link Dist (m)		337.1			182.1			90.9			596.0	
Turn Bay Length (m)	30.0											
Base Capacity (vph)	454	950			1030			1780			1438	
Starvation Cap Reductn	0	0			0			0			0	
Spillback Cap Reductn	0	0			0			0			0	
Storage Cap Reductn	0	0			0			0			0	
Reduced v/c Ratio	0.14	0.06			0.53			0.00			0.14	

Intersection Summary

Cycle Length: 114.5
 Actuated Cycle Length: 55
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.53
 Intersection Signal Delay: 8.4
 Intersection Capacity Utilization 73.8%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service D

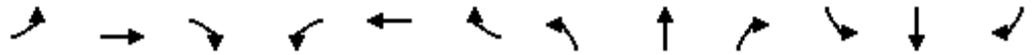
Splits and Phases: 7: Driveway/Bill Leathem Drive & Leikin Drive



South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2026 FB PM Peak Hour - Roadway Modifications



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	192	233	687	540	511	11	346	693	228	16	1539	588
Future Volume (vph)	192	233	687	540	511	11	346	693	228	16	1539	588
Satd. Flow (prot)	3216	3252	2637	3281	3318	0	3185	3349	1455	1691	3349	1483
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	3252	2637	3281	3318	0	3185	3349	1417	1691	3349	1483
Satd. Flow (RTOR)					1				228			141
Lane Group Flow (vph)	192	233	687	540	522	0	346	693	228	16	1539	588
Turn Type	Prot	NA	pt+ov	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2	2 3	1	6		3	8		7	4	5
Permitted Phases									8			4
Total Split (s)	22.0	40.0		36.0	54.0		22.0	96.2	96.2	15.0	89.2	22.0
Total Lost Time (s)	6.8	6.8		6.8	6.8		6.8	6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	14.5	33.2	55.2	29.2	47.9		15.2	95.6	95.6	7.1	82.4	103.7
Actuated g/C Ratio	0.08	0.18	0.29	0.16	0.26		0.08	0.51	0.51	0.04	0.44	0.55
v/c Ratio	0.77	0.40	0.88	1.06	0.61		1.34	0.41	0.27	0.25	1.04	0.67
Control Delay	105.0	70.7	76.9	128.0	65.2		236.2	30.0	3.7	96.6	85.7	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.0	70.7	76.9	128.0	65.2		236.2	30.0	3.7	96.6	85.7	25.7
LOS	F	E	E	F	E		F	C	A	F	F	C
Approach Delay		80.4			97.2			81.6			69.3	
Approach LOS		F			F			F			E	
Queue Length 50th (m)	33.9	38.0	129.3	~104.3	84.7		~79.5	81.2	0.0	5.5	~300.7	107.9
Queue Length 95th (m)	#48.0	51.7	#161.6	#140.0	103.9		#111.1	98.0	14.1	14.2	#338.6	148.9
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	261	576	777	511	849		258	1710	835	74	1474	884
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	0.74	0.40	0.88	1.06	0.61		1.34	0.41	0.27	0.22	1.04	0.67

Intersection Summary

Cycle Length: 187.2

Actuated Cycle Length: 187.2

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.34

Intersection Signal Delay: 79.6

Intersection LOS: E

Intersection Capacity Utilization 103.5%

ICU Level of Service G

Analysis Period (min) 15

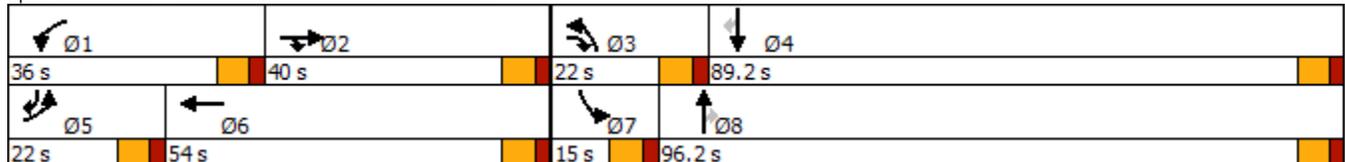
~ Volume exceeds capacity, queue is theoretically infinite.

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: Woodroffe Avenue & Fallowfield Road



South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

2026 FB PM Peak Hour - Roadway Modifications

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	134	301	41	39	713	3	52	224	106	6	599	308
Future Volume (vph)	134	301	41	39	713	3	52	224	106	6	599	308
Satd. Flow (prot)	2903	1745	1469	1691	1778	0	1551	1598	0	1691	1762	1498
Fit Permitted	0.950			0.950			0.068			0.515		
Satd. Flow (perm)	2903	1745	1469	1691	1778	0	111	1598	0	917	1762	1498
Satd. Flow (RTOR)			108					17				150
Lane Group Flow (vph)	134	301	41	39	716	0	52	330	0	6	599	308
Turn Type	Prot	NA	Perm	Prot	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2				8			4		4
Total Split (s)	15.0	79.9	79.9	11.6	76.5		11.6	74.6		63.0	63.0	63.0
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	8.6	72.7	72.7	5.1	66.5		65.2	65.4		56.4	56.4	56.4
Actuated g/C Ratio	0.05	0.45	0.45	0.03	0.42		0.41	0.41		0.35	0.35	0.35
v/c Ratio	0.86	0.38	0.06	0.74	0.97		0.58	0.50		0.02	0.96	0.49
Control Delay	118.8	31.8	0.1	138.0	72.1		56.3	36.8		36.8	79.8	23.9
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	118.8	31.8	0.1	138.0	72.1		56.3	36.8		36.8	79.8	23.9
LOS	F	C	A	F	E		E	D		D	E	C
Approach Delay		53.6			75.6			39.4			60.7	
Approach LOS		D			E			D			E	
Queue Length 50th (m)	21.3	61.4	0.0	12.0	210.3		9.7	70.3		1.2	182.6	37.9
Queue Length 95th (m)	#41.1	85.0	0.0	#32.8	#286.8		#19.0	98.2		4.7	#256.5	65.6
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0			30.0		55.0
Base Capacity (vph)	155	804	734	53	781		90	694		326	626	629
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	0.86	0.37	0.06	0.74	0.92		0.58	0.48		0.02	0.96	0.49

Intersection Summary

Cycle Length: 166.1
 Actuated Cycle Length: 160.1
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 60.6
 Intersection LOS: E
 Intersection Capacity Utilization 103.2%
 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: 3: Merivale Road & Fallowfield Road

11.6 s	79.9 s	11.6 s	63 s
15 s	76.5 s	74.6 s	

South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2026 FB PM Peak Hour - Demand Rationalization

	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)	192	233	407	510	511	11	256	693	228	16	1479	588
Future Volume (vph)	192	233	407	510	511	11	256	693	228	16	1479	588
Satd. Flow (prot)	3216	3252	1498	3281	3318	0	3185	3349	1455	1691	3349	1483
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	3252	1498	3281	3318	0	3185	3349	1417	1691	3349	1483
Satd. Flow (RTOR)			181		1				228			141
Lane Group Flow (vph)	192	233	407	510	522	0	256	693	228	16	1479	588
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2						8			4
Total Split (s)	22.0	40.0	40.0	36.0	54.0		22.0	96.2	96.2	15.0	89.2	22.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8		6.8	6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	14.5	33.2	33.2	29.2	47.9		15.2	95.6	95.6	7.1	82.4	103.7
Actuated g/C Ratio	0.08	0.18	0.18	0.16	0.26		0.08	0.51	0.51	0.04	0.44	0.55
v/c Ratio	0.77	0.40	0.98	1.00	0.61		0.99	0.41	0.27	0.25	1.00	0.67
Control Delay	105.0	70.7	80.9	116.2	65.2		137.0	30.0	3.7	96.6	75.5	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.0	70.7	80.9	116.2	65.2		137.0	30.0	3.7	96.6	75.5	25.7
LOS	F	E	F	F	E		F	C	A	F	E	C
Approach Delay		83.6			90.4			48.2			61.6	
Approach LOS		F			F			D			E	
Queue Length 50th (m)	33.9	38.0	86.5	92.0	84.7		46.3	81.2	0.0	5.5	~269.4	107.9
Queue Length 95th (m)	#48.0	51.7	#153.6	#128.6	103.9		#75.2	98.0	14.1	14.2	#316.1	148.9
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	261	576	414	511	849		258	1710	835	74	1474	884
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	0.74	0.40	0.98	1.00	0.61		0.99	0.41	0.27	0.22	1.00	0.67

Intersection Summary

Cycle Length: 187.2

Actuated Cycle Length: 187.2

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 67.9

Intersection LOS: E

Intersection Capacity Utilization 102.1%

ICU Level of Service G

Analysis Period (min) 15

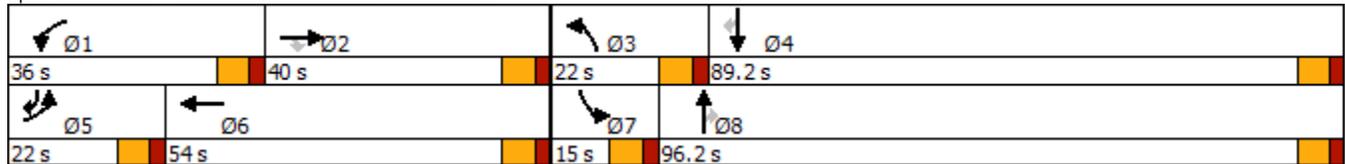
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

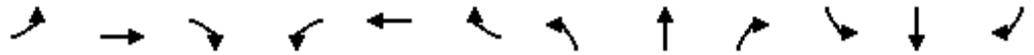
Splits and Phases: 1: Woodroffe Avenue & Fallowfield Road



South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

2026 FB PM Peak Hour - Demand Rationalization



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	17	70	55	55	144	89	864	39	103	1757	223
Future Volume (vph)	155	17	70	55	55	144	89	864	39	103	1757	223
Satd. Flow (prot)	3216	1528	0	1691	1780	1483	1642	3316	1513	1691	3349	1513
Fit Permitted	0.950			0.950			0.054			0.274		
Satd. Flow (perm)	3216	1528	0	1691	1780	1463	93	3316	1513	488	3349	1470
Satd. Flow (RTOR)		70				144			138			223
Lane Group Flow (vph)	155	87	0	55	55	144	89	864	39	103	1757	223
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Total Split (s)	14.0	32.5		14.0	32.5	32.5	11.5	69.5	69.5	14.0	72.0	72.0
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
Act Effct Green (s)	7.5	16.2		7.2	13.4	13.4	83.4	75.7	75.7	82.9	75.4	75.4
Actuated g/C Ratio	0.06	0.12		0.06	0.10	0.10	0.64	0.58	0.58	0.64	0.58	0.58
v/c Ratio	0.84	0.35		0.59	0.30	0.52	0.59	0.45	0.04	0.27	0.90	0.24
Control Delay	94.8	19.6		84.8	56.3	14.2	36.3	17.2	0.1	9.7	32.6	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	94.8	19.6		84.8	56.3	14.2	36.3	17.2	0.1	9.7	32.6	2.6
LOS	F	B		F	E	B	D	B	A	A	C	A
Approach Delay		67.8			38.6			18.2			28.2	
Approach LOS		E			D			B			C	
Queue Length 50th (m)	19.0	3.8		12.9	12.6	0.0	6.0	54.1	0.0	6.6	174.3	0.0
Queue Length 95th (m)	#36.4	16.3		#28.6	21.7	15.9	#37.9	90.1	0.0	17.5	#274.5	11.4
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	185	361		97	356	407	151	1930	938	384	1943	946
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	0.84	0.24		0.57	0.15	0.35	0.59	0.45	0.04	0.27	0.90	0.24

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 28.9

Intersection LOS: C

Intersection Capacity Utilization 84.1%

ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Woodroffe Avenue & Longfields Drive

Ø1	Ø2 (R)	Ø3	Ø4
14 s	69.5 s	14 s	32.5 s
Ø5	Ø6 (R)	Ø7	Ø8
11.5 s	72 s	14 s	32.5 s

South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

2026 FB PM Peak Hour - Demand Rationalization

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	134	301	41	39	623	3	52	224	106	6	549	308
Future Volume (vph)	134	301	41	39	623	3	52	224	106	6	549	308
Satd. Flow (prot)	2903	1745	1469	1691	1778	0	1551	1598	0	1691	1762	1498
Fit Permitted	0.950			0.950			0.114			0.534		
Satd. Flow (perm)	2903	1745	1469	1691	1778	0	186	1598	0	951	1762	1498
Satd. Flow (RTOR)			108					17				163
Lane Group Flow (vph)	134	301	41	39	626	0	52	330	0	6	549	308
Turn Type	Prot	NA	Perm	Prot	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2				8			4		4
Total Split (s)	14.0	79.9	79.9	11.6	77.5		11.6	74.6		63.0	63.0	63.0
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	7.9	61.7	61.7	5.4	55.5		57.7	57.9		49.3	49.3	49.3
Actuated g/C Ratio	0.06	0.44	0.44	0.04	0.39		0.41	0.41		0.35	0.35	0.35
v/c Ratio	0.83	0.40	0.06	0.62	0.90		0.41	0.50		0.02	0.90	0.49
Control Delay	106.5	31.9	0.2	111.1	58.7		38.3	33.3		35.5	64.2	20.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	106.5	31.9	0.2	111.1	58.7		38.3	33.3		35.5	64.2	20.7
LOS	F	C	A	F	E		D	C		D	E	C
Approach Delay		50.2			61.8			34.0			48.5	
Approach LOS		D			E			C			D	
Queue Length 50th (m)	19.7	61.1	0.0	11.1	167.0		8.4	61.3		1.1	142.4	30.2
Queue Length 95th (m)	#44.0	85.0	0.0	#32.8	217.9		18.3	98.2		4.8	#223.7	61.8
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0			30.0		55.0
Base Capacity (vph)	161	948	847	63	935		126	817		399	739	723
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	0.83	0.32	0.05	0.62	0.67		0.41	0.40		0.02	0.74	0.43

Intersection Summary

Cycle Length: 166.1
 Actuated Cycle Length: 141.8
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 50.2
 Intersection LOS: D
 Intersection Capacity Utilization 95.4%
 ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

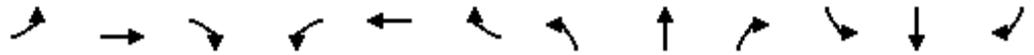
Splits and Phases: 3: Merivale Road & Fallowfield Road

11.6 s	79.9 s	11.6 s	63 s
14 s	77.5 s	74.6 s	

South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2026 FB PM Peak Hour - Demand Rationalization with dual EBR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	192	233	687	510	511	11	256	693	228	16	1479	588
Future Volume (vph)	192	233	687	510	511	11	256	693	228	16	1479	588
Satd. Flow (prot)	3216	3252	2637	3281	3318	0	3185	3349	1455	1691	3349	1483
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	3252	2637	3281	3318	0	3185	3349	1417	1691	3349	1483
Satd. Flow (RTOR)					1				228			141
Lane Group Flow (vph)	192	233	687	510	522	0	256	693	228	16	1479	588
Turn Type	Prot	NA	pt+ov	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2	2 3	1	6		3	8		7	4	5
Permitted Phases									8			4
Total Split (s)	22.0	40.0		36.0	54.0		22.0	96.2	96.2	15.0	89.2	22.0
Total Lost Time (s)	6.8	6.8		6.8	6.8		6.8	6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	14.5	33.2	55.2	29.2	47.9		15.2	95.6	95.6	7.1	82.4	103.7
Actuated g/C Ratio	0.08	0.18	0.29	0.16	0.26		0.08	0.51	0.51	0.04	0.44	0.55
v/c Ratio	0.77	0.40	0.88	1.00	0.61		0.99	0.41	0.27	0.25	1.00	0.67
Control Delay	105.0	70.7	76.9	116.2	65.2		137.0	30.0	3.7	96.6	75.5	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.0	70.7	76.9	116.2	65.2		137.0	30.0	3.7	96.6	75.5	25.7
LOS	F	E	E	F	E		F	C	A	F	E	C
Approach Delay		80.4			90.4			48.2			61.6	
Approach LOS		F			F			D			E	
Queue Length 50th (m)	33.9	38.0	129.3	92.0	84.7		46.3	81.2	0.0	5.5	~269.4	107.9
Queue Length 95th (m)	#48.0	51.7	#161.6	#128.6	103.9		#75.2	98.0	14.1	14.2	#316.1	148.9
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	261	576	777	511	849		258	1710	835	74	1474	884
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	0.74	0.40	0.88	1.00	0.61		0.99	0.41	0.27	0.22	1.00	0.67

Intersection Summary

Cycle Length: 187.2

Actuated Cycle Length: 187.2

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 68.0

Intersection LOS: E

Intersection Capacity Utilization 100.9%

ICU Level of Service G

Analysis Period (min) 15

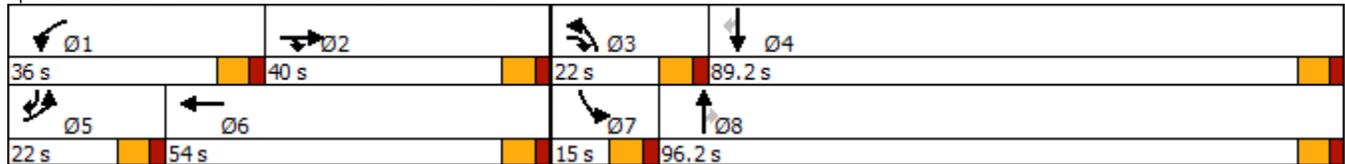
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Woodroffe Avenue & Fallowfield Road



South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2031 FB AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	687	667	290	136	139	34	646	1710	551	7	419	115
Future Volume (vph)	687	667	290	136	139	34	646	1710	551	7	419	115
Satd. Flow (prot)	3248	3316	1375	2955	3133	0	3216	3349	1513	1445	3221	1363
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3248	3316	1375	2955	3133	0	3212	3349	1513	1445	3221	1345
Satd. Flow (RTOR)			290		18				331			176
Lane Group Flow (vph)	687	667	290	136	173	0	646	1710	551	7	419	115
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	9	8	7	4	5
Permitted Phases			2						8			4
Total Split (s)	38.0	60.0	60.0	18.0	40.0			60.0	60.0	12.0	37.0	38.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8			6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	31.2	37.8	37.8	10.6	17.2		43.0	78.3	78.3	6.4	24.6	55.8
Actuated g/C Ratio	0.21	0.25	0.25	0.07	0.11		0.29	0.52	0.52	0.04	0.16	0.37
v/c Ratio	1.02	0.80	0.52	0.65	0.46		0.70	0.98	0.58	0.11	0.79	0.19
Control Delay	96.8	60.1	7.6	83.0	58.3		34.8	51.7	13.1	72.6	71.5	0.9
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	96.8	60.1	7.6	83.0	58.3		34.8	51.7	13.1	72.6	71.5	0.9
LOS	F	E	A	F	E		C	D	B	E	E	A
Approach Delay		66.2			69.2			40.7			56.5	
Approach LOS		E			E			D			E	
Queue Length 50th (m)	~102.2	91.5	0.0	18.9	21.2		50.6	223.5	36.0	1.9	58.7	0.0
Queue Length 95th (m)	#137.6	104.3	20.4	29.6	30.6		#108.5	#355.2	92.8	6.7	73.1	0.6
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	675	1176	674	220	707		922	1748	948	61	648	614
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	1.02	0.57	0.43	0.62	0.24		0.70	0.98	0.58	0.11	0.65	0.19

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 4:SBT and 8:NBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 51.6

Intersection LOS: D

Intersection Capacity Utilization 105.7%

ICU Level of Service G

Analysis Period (min) 15

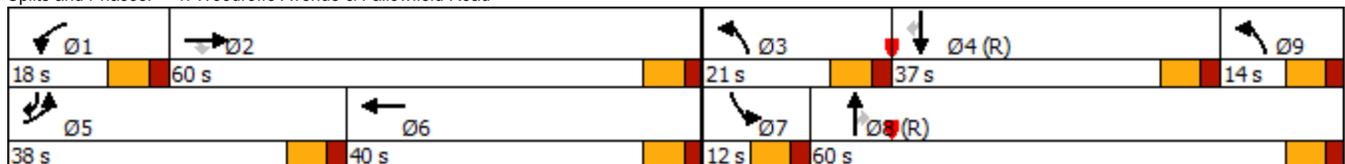
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Woodroffe Avenue & Fallowfield Road



South Merivale Business Park TIA
 1: Woodroffe Avenue & Fallowfield Road

2031 FB AM Peak Hour

Lane Group	Ø3	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Satd. Flow (RTOR)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	9
Permitted Phases		
Total Split (s)	21.0	14.0
Total Lost Time (s)		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

2031 FB AM Peak Hour

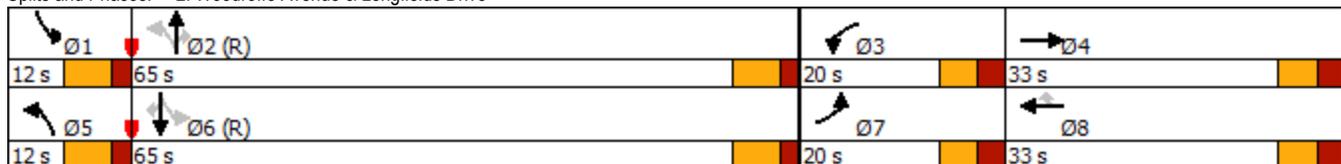


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	372	89	82	15	45	132	36	1637	50	154	483	111
Future Volume (vph)	372	89	82	15	45	132	36	1637	50	154	483	111
Satd. Flow (prot)	3248	1551	0	1580	1664	1513	1523	3349	1513	1642	3221	1455
Fit Permitted	0.950			0.950			0.476			0.064		
Satd. Flow (perm)	3248	1551	0	1580	1664	1490	756	3349	1479	111	3221	1393
Satd. Flow (RTOR)		32				138			138			138
Lane Group Flow (vph)	372	171	0	15	45	132	36	1637	50	154	483	111
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Total Split (s)	20.0	33.0		20.0	33.0	33.0	12.0	65.0	65.0	12.0	65.0	65.0
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
Act Effct Green (s)	13.5	28.2		6.9	14.0	14.0	66.2	60.0	60.0	81.7	75.1	75.1
Actuated g/C Ratio	0.10	0.22		0.05	0.11	0.11	0.51	0.46	0.46	0.63	0.58	0.58
v/c Ratio	1.10	0.47		0.18	0.25	0.46	0.09	1.06	0.07	0.59	0.26	0.13
Control Delay	132.6	41.2		63.2	54.0	12.3	11.8	75.0	0.2	35.3	16.0	2.0
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	132.6	41.2		63.2	54.0	12.3	11.8	75.0	0.2	35.3	16.0	2.0
LOS	F	D		E	D	B	B	E	A	D	B	A
Approach Delay		103.8			26.0			71.5			17.9	
Approach LOS		F			C			E			B	
Queue Length 50th (m)	~51.3	28.2		3.5	10.3	0.0	2.7	~206.3	0.0	18.6	29.1	0.0
Queue Length 95th (m)	#79.9	48.2		10.1	18.8	14.0	8.6	#266.8	0.0	#72.6	50.0	5.8
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	337	375		164	339	413	421	1544	756	263	1861	863
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	1.10	0.46		0.09	0.13	0.32	0.09	1.06	0.07	0.59	0.26	0.13

Intersection Summary

Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 86 (66%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.10
 Intersection Signal Delay: 61.7
 Intersection LOS: E
 Intersection Capacity Utilization 91.0%
 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.

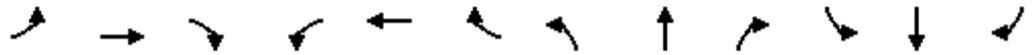
Splits and Phases: 2: Woodroffe Avenue & Longfields Drive



South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

2031 FB AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	747	461	40	178	178	5	22	659	23	0	145	59
Future Volume (vph)	747	461	40	178	178	5	22	659	23	0	145	59
Satd. Flow (prot)	1658	1762	1427	1658	1691	0	1691	1736	0	1780	1618	1327
Fit Permitted	0.366			0.498			0.568					
Satd. Flow (perm)	639	1762	1427	869	1691	0	1011	1736	0	1780	1618	1327
Satd. Flow (RTOR)			123		1			1				173
Lane Group Flow (vph)	747	461	40	178	183	0	22	682	0	0	145	59
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8				4
Permitted Phases	2		2	6			8			4		4
Total Split (s)	46.5	61.6	61.6	16.5	31.6		11.6	68.0		56.4	56.4	56.4
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	71.7	55.3	55.3	35.0	25.0		57.9	58.1			51.3	51.3
Actuated g/C Ratio	0.50	0.39	0.39	0.25	0.18		0.41	0.41			0.36	0.36
v/c Ratio	1.23	0.68	0.06	0.67	0.62		0.05	0.96			0.25	0.10
Control Delay	146.0	43.2	0.2	42.3	65.0		25.4	67.5			34.7	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	146.0	43.2	0.2	42.3	65.0		25.4	67.5			34.7	0.3
LOS	F	D	A	D	E		C	E			C	A
Approach Delay		103.3			53.8			66.2			24.7	
Approach LOS		F			D			E			C	
Queue Length 50th (m)	~211.2	103.3	0.0	26.6	45.7		3.4	171.3			27.9	0.0
Queue Length 95th (m)	#281.8	140.1	0.0	40.7	69.8		8.5	#243.5			44.4	0.0
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0					55.0
Base Capacity (vph)	607	682	627	269	297		434	750			587	591
Starvation Cap Reductn	0	0	0	0	0		0	0			0	0
Spillback Cap Reductn	0	0	0	0	0		0	0			0	0
Storage Cap Reductn	0	0	0	0	0		0	0			0	0
Reduced v/c Ratio	1.23	0.68	0.06	0.66	0.62		0.05	0.91			0.25	0.10

Intersection Summary

Cycle Length: 146.1

Actuated Cycle Length: 142.7

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.23

Intersection Signal Delay: 79.5

Intersection LOS: E

Intersection Capacity Utilization 108.2%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Merivale Road & Fallowfield Road

Ø1	Ø2	Ø3	Ø4
16.5 s	61.6 s	11.6 s	56.4 s
Ø5	Ø6	Ø7	Ø8
46.5 s	31.6 s	68 s	

South Merivale Business Park TIA

4: Merivale Road & Leikin Drive

2031 FB AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	304	4	0	423	75	227
Future Volume (vph)	304	4	0	423	75	227
Satd. Flow (prot)	3252	0	1728	1745	1424	1469
Fit Permitted	0.953					
Satd. Flow (perm)	3252	0	1728	1745	1424	1469
Satd. Flow (RTOR)	1					227
Lane Group Flow (vph)	308	0	0	423	75	227
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Total Split (s)	30.1		66.5	66.5	66.5	66.5
Total Lost Time (s)	5.1		6.5	6.5	6.5	6.5
Act Effct Green (s)	13.3			60.1	60.1	60.1
Actuated g/C Ratio	0.16			0.71	0.71	0.71
v/c Ratio	0.61			0.34	0.07	0.21
Control Delay	38.5			6.1	4.6	1.2
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	38.5			6.1	4.6	1.2
LOS	D			A	A	A
Approach Delay	38.5			6.1	2.0	
Approach LOS	D			A	A	
Queue Length 50th (m)	22.3			20.4	2.9	0.0
Queue Length 95th (m)	33.6			38.0	7.4	5.8
Internal Link Dist (m)	50.7			445.8	100.5	
Turn Bay Length (m)						85.0
Base Capacity (vph)	958			1233	1006	1104
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.32			0.34	0.07	0.21

Intersection Summary

Cycle Length: 96.6
 Actuated Cycle Length: 85
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.61
 Intersection Signal Delay: 14.6
 Intersection Capacity Utilization 42.5%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 4: Merivale Road & Leikin Drive

Ø2	Ø4
66.5 s	30.1 s
Ø6	
66.5 s	

South Merivale Business Park TIA

5: Prince of Wales Drive & Merivale Road

2031 FB AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Lane Configurations							
Traffic Volume (vph)	12	99	537	1097	310	45	
Future Volume (vph)	12	99	537	1097	310	45	
Satd. Flow (prot)	1691	1261	1642	1745	3118	0	
Fit Permitted	0.950		0.478				
Satd. Flow (perm)	1691	1261	826	1745	3118	0	
Satd. Flow (RTOR)		99			20		
Lane Group Flow (vph)	12	99	537	1097	355	0	
Turn Type	Prot	pm+ov	pm+pt	NA	NA		
Protected Phases	4	5	5	2	6		3
Permitted Phases		4	2				
Total Split (s)	23.0	22.0	22.0	72.0	50.0		5.0
Total Lost Time (s)	6.8	6.4	6.4	6.5	6.5		
Act Effct Green (s)	10.0	31.9	76.2	77.4	52.0		
Actuated g/C Ratio	0.10	0.32	0.76	0.77	0.52		
v/c Ratio	0.07	0.21	0.70	0.81	0.22		
Control Delay	42.0	5.4	10.6	16.4	15.2		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	42.0	5.4	10.6	16.4	15.2		
LOS	D	A	B	B	B		
Approach Delay	9.3			14.5	15.2		
Approach LOS	A			B	B		
Queue Length 50th (m)	2.0	0.0	34.5	128.3	18.8		
Queue Length 95th (m)	6.9	9.0	51.2	#245.2	28.4		
Internal Link Dist (m)	226.4			296.0	233.3		
Turn Bay Length (m)	80.0		90.0				
Base Capacity (vph)	273	481	787	1350	1631		
Starvation Cap Reductn	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0		
Reduced v/c Ratio	0.04	0.21	0.68	0.81	0.22		

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 15 (15%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 14.4

Intersection LOS: B

Intersection Capacity Utilization 80.4%

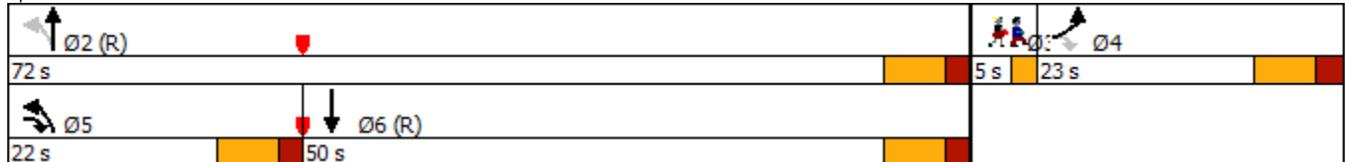
ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Prince of Wales Drive & Merivale Road



South Merivale Business Park TIA

6: Leikin Drive & RCMP Driveway

2031 FB AM Peak Hour

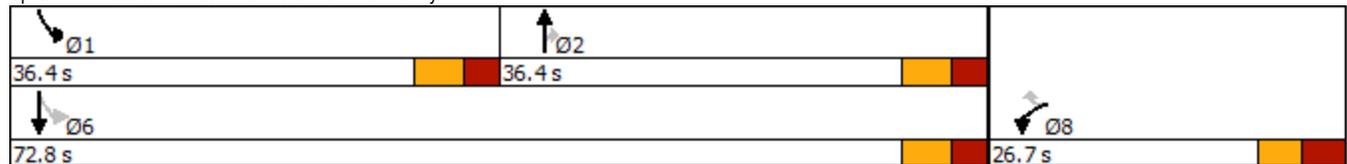


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	15	17	315	548	253	51
Future Volume (vph)	15	17	315	548	253	51
Satd. Flow (prot)	1691	1427	1728	1513	1691	1508
Fit Permitted	0.950				0.466	
Satd. Flow (perm)	1691	1325	1728	1468	826	1508
Satd. Flow (RTOR)		17		548		
Lane Group Flow (vph)	15	17	315	548	253	51
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Total Split (s)	26.7	26.7	36.4	36.4	36.4	72.8
Total Lost Time (s)	6.7	6.7	6.4	6.4	6.4	6.4
Act Effct Green (s)	11.6	11.6	31.4	31.4	46.9	51.6
Actuated g/C Ratio	0.19	0.19	0.52	0.52	0.78	0.86
v/c Ratio	0.05	0.06	0.35	0.53	0.33	0.04
Control Delay	24.7	13.3	13.8	4.0	5.0	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.7	13.3	13.8	4.0	5.0	4.0
LOS	C	B	B	A	A	A
Approach Delay	18.6		7.5			4.8
Approach LOS	B		A			A
Queue Length 50th (m)	1.1	0.0	12.2	0.0	0.3	0.0
Queue Length 95th (m)	5.9	4.5	55.5	18.3	24.3	6.1
Internal Link Dist (m)	69.4		182.1			276.7
Turn Bay Length (m)					200.0	
Base Capacity (vph)	588	472	902	1028	1096	1436
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.04	0.35	0.53	0.23	0.04

Intersection Summary

Cycle Length: 99.5
 Actuated Cycle Length: 60.1
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.53
 Intersection Signal Delay: 7.1
 Intersection LOS: A
 Intersection Capacity Utilization 63.3%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 6: Leikin Drive & RCMP Driveway



South Merivale Business Park TIA
 7: Driveway/Bill Leatham Drive & Leikin Drive

2031 FB AM Peak Hour

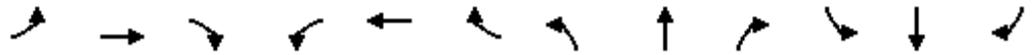


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	151	558	4	6	20	37	1	2	4	213	3	32
Future Volume (Veh/h)	151	558	4	6	20	37	1	2	4	213	3	32
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	151	558	4	6	20	37	1	2	4	213	3	32
Pedestrians								5				
Lane Width (m)								3.5				
Walking Speed (m/s)								1.0				
Percent Blockage								0				
Right turn flare (veh)												
Median type		None			None							
Median storage veh												
Upstream signal (m)					206							
pX, platoon unblocked												
vC, conflicting volume	57			567			932	936	565	916	920	38
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	57			567			932	936	565	916	920	38
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			99			100	99	99	7	99	97
cM capacity (veh/h)	1528			1000			218	238	524	229	243	1039
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	151	562	6	57	7	248						
Volume Left	151	0	6	0	1	213						
Volume Right	0	4	0	37	4	32						
cSH	1528	1700	1000	1700	339	255						
Volume to Capacity	0.10	0.33	0.01	0.03	0.02	0.97						
Queue Length 95th (m)	2.3	0.0	0.1	0.0	0.4	64.6						
Control Delay (s)	7.6	0.0	8.6	0.0	15.8	92.1						
Lane LOS	A		A		C	F						
Approach Delay (s)	1.6		0.8		15.8	92.1						
Approach LOS					C	F						
Intersection Summary												
Average Delay			23.4									
Intersection Capacity Utilization			59.3%		ICU Level of Service					B		
Analysis Period (min)			15									

South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2031 FB PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	248	732	576	545	12	369	739	243	17	1641	627
Future Volume (vph)	204	248	732	576	545	12	369	739	243	17	1641	627
Satd. Flow (prot)	3216	3252	1498	3281	3318	0	3185	3349	1455	1691	3349	1483
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	3252	1498	3281	3318	0	3185	3349	1417	1691	3349	1483
Satd. Flow (RTOR)			141		1				243			101
Lane Group Flow (vph)	204	248	732	576	557	0	369	739	243	17	1641	627
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2						8			4
Total Split (s)	16.8	36.8	36.8	36.8	56.8		21.8	96.8	96.8	16.8	91.8	16.8
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8		6.8	6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	10.0	30.0	30.0	30.0	50.0		15.0	97.6	97.6	7.4	85.0	101.8
Actuated g/C Ratio	0.05	0.16	0.16	0.16	0.27		0.08	0.52	0.52	0.04	0.45	0.54
v/c Ratio	1.19	0.48	2.04	1.10	0.63		1.45	0.42	0.28	0.26	1.08	0.74
Control Delay	199.4	74.9	506.1	137.7	64.0		275.8	29.4	3.5	95.7	95.4	32.9
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	199.4	74.9	506.1	137.7	64.0		275.8	29.4	3.5	95.7	95.4	32.9
LOS	F	E	F	F	E		F	C	A	F	F	C
Approach Delay		363.0			101.5			92.0			78.3	
Approach LOS		F			F			F			E	
Queue Length 50th (m)	~43.4	41.5	~353.7	~115.0	89.7		~88.6	85.8	0.0	5.8	~330.3	138.7
Queue Length 95th (m)	#69.8	56.0	#427.2	#151.0	109.2		#120.9	104.7	14.4	14.4	#367.4	187.4
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	171	521	358	525	886		255	1746	855	90	1520	852
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	1.19	0.48	2.04	1.10	0.63		1.45	0.42	0.28	0.19	1.08	0.74

Intersection Summary

Cycle Length: 187.2

Actuated Cycle Length: 187.2

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 2.04

Intersection Signal Delay: 142.4

Intersection LOS: F

Intersection Capacity Utilization 130.1%

ICU Level of Service H

Analysis Period (min) 15

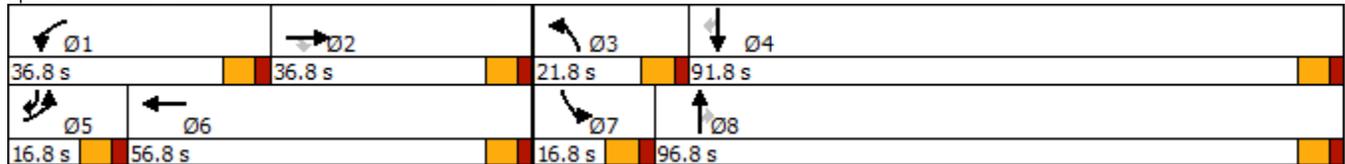
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Woodroffe Avenue & Fallowfield Road



South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

2031 FB PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	17	70	55	55	144	89	921	39	103	2033	223
Future Volume (vph)	155	17	70	55	55	144	89	921	39	103	2033	223
Satd. Flow (prot)	3216	1528	0	1691	1780	1483	1642	3316	1513	1691	3349	1513
Fit Permitted	0.950			0.950			0.068			0.236		
Satd. Flow (perm)	3216	1528	0	1691	1780	1464	118	3316	1513	420	3349	1472
Satd. Flow (RTOR)		70				157			157			223
Lane Group Flow (vph)	155	87	0	55	55	144	89	921	39	103	2033	223
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Total Split (s)	15.0	33.0		15.0	33.0	33.0	12.0	55.0	55.0	12.0	55.0	55.0
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
Act Effct Green (s)	8.4	16.3		7.7	13.3	13.3	67.5	60.2	60.2	67.3	60.1	60.1
Actuated g/C Ratio	0.07	0.14		0.07	0.12	0.12	0.59	0.52	0.52	0.59	0.52	0.52
v/c Ratio	0.67	0.32		0.49	0.27	0.47	0.54	0.53	0.05	0.32	1.16	0.25
Control Delay	66.3	16.9		66.1	47.6	10.2	28.5	20.5	0.1	12.2	106.8	3.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.3	16.9		66.1	47.6	10.2	28.5	20.5	0.1	12.2	106.8	3.2
LOS	E	B		E	D	B	C	C	A	B	F	A
Approach Delay		48.5			30.4			20.4			92.9	
Approach LOS		D			C			C			F	
Queue Length 50th (m)	16.3	3.3		11.1	10.9	0.0	5.9	60.5	0.0	6.8	~255.2	0.0
Queue Length 95th (m)	#27.6	14.7		23.2	19.1	12.2	#28.0	99.2	0.0	18.4	#340.2	12.8
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	237	405		124	410	458	165	1736	866	325	1750	875
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	0.65	0.21		0.44	0.13	0.31	0.54	0.53	0.05	0.32	1.16	0.25

Intersection Summary

Cycle Length: 115

Actuated Cycle Length: 115

Offset: 92 (80%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.16

Intersection Signal Delay: 66.6

Intersection LOS: E

Intersection Capacity Utilization 92.1%

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.

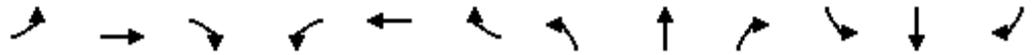
Splits and Phases: 2: Woodroffe Avenue & Longfields Drive

	Ø1		Ø2 (R)		Ø3		Ø4
12 s		55 s		15 s		33 s	
	Ø5		Ø6 (R)		Ø7		Ø8
12 s		55 s		15 s		33 s	

South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

2031 FB PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	321	44	41	760	4	56	238	113	6	639	328
Future Volume (vph)	143	321	44	41	760	4	56	238	113	6	639	328
Satd. Flow (prot)	1496	1745	1469	1691	1778	0	1551	1598	0	1691	1762	1498
Fit Permitted	0.063			0.508			0.066			0.502		
Satd. Flow (perm)	99	1745	1469	904	1778	0	108	1598	0	894	1762	1498
Satd. Flow (RTOR)			108					19				162
Lane Group Flow (vph)	143	321	44	41	764	0	56	351	0	6	639	328
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8				4
Permitted Phases	2		2	6			8			4		4
Total Split (s)	21.5	61.6	61.6	21.5	61.6		11.6	83.0		71.4	71.4	71.4
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	76.5	65.4	65.4	63.2	55.5		68.7	68.9		60.0	60.0	60.0
Actuated g/C Ratio	0.48	0.41	0.41	0.40	0.35		0.43	0.43		0.38	0.38	0.38
v/c Ratio	0.81	0.45	0.07	0.10	1.23		0.61	0.50		0.02	0.96	0.49
Control Delay	73.8	39.7	0.2	25.9	160.6		53.6	32.6		31.3	74.4	20.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	73.8	39.7	0.2	25.9	160.6		53.6	32.6		31.3	74.4	20.8
LOS	E	D	A	C	F		D	C		C	E	C
Approach Delay		45.9			153.7			35.5			56.0	
Approach LOS		D			F			D			E	
Queue Length 50th (m)	31.5	74.8	0.0	6.8	~296.1		9.5	68.8		1.1	185.4	36.9
Queue Length 95th (m)	#68.5	104.8	0.0	13.8	#368.0		#20.6	95.6		4.4	#255.5	63.7
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0			30.0		55.0
Base Capacity (vph)	180	718	668	477	621		92	787		368	727	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	0.79	0.45	0.07	0.09	1.23		0.61	0.45		0.02	0.88	0.46

Intersection Summary

Cycle Length: 166.1

Actuated Cycle Length: 158.7

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.23

Intersection Signal Delay: 80.2

Intersection LOS: F

Intersection Capacity Utilization 112.3%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Merivale Road & Fallowfield Road

Ø1	Ø2	Ø3	Ø4
21.5 s	61.6 s	11.6 s	71.4 s
Ø5	Ø6	Ø8	
21.5 s	61.6 s	83 s	

South Merivale Business Park TIA
 4: Merivale Road & Leikin Drive

2031 FB PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	220	2	1	207	522	212
Future Volume (vph)	220	2	1	207	522	212
Satd. Flow (prot)	3183	0	1271	1648	1762	1498
Fit Permitted	0.953		0.440			
Satd. Flow (perm)	3183	0	589	1648	1762	1498
Satd. Flow (RTOR)	1					212
Lane Group Flow (vph)	222	0	1	207	522	212
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Total Split (s)	30.1		46.5	46.5	46.5	46.5
Total Lost Time (s)	5.1		6.5	6.5	6.5	6.5
Act Effct Green (s)	10.6		40.0	40.0	40.0	40.0
Actuated g/C Ratio	0.17		0.64	0.64	0.64	0.64
v/c Ratio	0.41		0.00	0.20	0.46	0.20
Control Delay	25.4		4.0	5.2	7.4	1.3
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	25.4		4.0	5.2	7.4	1.3
LOS	C		A	A	A	A
Approach Delay	25.4			5.2	5.6	
Approach LOS	C			A	A	
Queue Length 50th (m)	10.8		0.0	7.2	22.5	0.0
Queue Length 95th (m)	18.7		0.4	15.2	42.7	5.4
Internal Link Dist (m)	51.0			445.8	100.5	
Turn Bay Length (m)			100.0			85.0
Base Capacity (vph)	1280		379	1060	1134	1040
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.17		0.00	0.20	0.46	0.20

Intersection Summary

Cycle Length: 76.6
 Actuated Cycle Length: 62.2
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.46
 Intersection Signal Delay: 9.3
 Intersection Capacity Utilization 47.0%
 Analysis Period (min) 15
 Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 4: Merivale Road & Leikin Drive

Ø2 46.5 s	Ø4 30.1 s
Ø6 46.5 s	

South Merivale Business Park TIA

5: Prince of Wales Drive & Merivale Road

2031 FB PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Lane Configurations							
Traffic Volume (vph)	36	603	197	399	1083	19	
Future Volume (vph)	36	603	197	399	1083	19	
Satd. Flow (prot)	1642	1483	1566	1745	3338	0	
Fit Permitted	0.950		0.175				
Satd. Flow (perm)	1642	1483	288	1745	3338	0	
Satd. Flow (RTOR)		130			2		
Lane Group Flow (vph)	36	603	197	399	1102	0	
Turn Type	Prot	pm+ov	pm+pt	NA	NA		
Protected Phases	4	5	5	2	6		3
Permitted Phases		4	2				
Total Split (s)	26.0	14.0	14.0	89.0	75.0		5.0
Total Lost Time (s)	6.8	6.4	6.4	6.5	6.5		
Act Effct Green (s)	19.2	33.6	82.6	82.5	68.5		
Actuated g/C Ratio	0.16	0.28	0.69	0.69	0.57		
v/c Ratio	0.14	1.19	0.71	0.33	0.58		
Control Delay	44.9	133.4	21.9	8.5	18.0		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	44.9	133.4	21.9	8.5	18.0		
LOS	D	F	C	A	B		
Approach Delay	128.5			12.9	18.0		
Approach LOS	F			B	B		
Queue Length 50th (m)	6.8	~136.2	13.8	31.7	76.5		
Queue Length 95th (m)	15.7	#200.0	#24.7	45.5	94.3		
Internal Link Dist (m)	226.4			296.0	231.6		
Turn Bay Length (m)	80.0		90.0				
Base Capacity (vph)	262	508	279	1199	1906		
Starvation Cap Reductn	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0		
Reduced v/c Ratio	0.14	1.19	0.71	0.33	0.58		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 112 (93%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.19

Intersection Signal Delay: 46.9

Intersection LOS: D

Intersection Capacity Utilization 82.4%

ICU Level of Service E

Analysis Period (min) 15

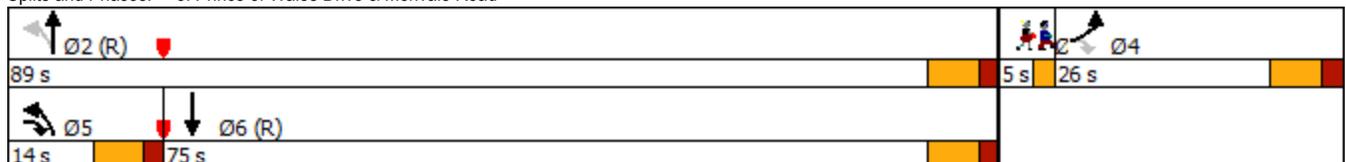
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Prince of Wales Drive & Merivale Road



South Merivale Business Park TIA

6: Leikin Drive & RCMP Driveway

2031 FB PM Peak Hour



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	409	252	85	5	6	209
Future Volume (vph)	409	252	85	5	6	209
Satd. Flow (prot)	1691	1513	1648	1513	1691	1728
Fit Permitted	0.950				0.623	
Satd. Flow (perm)	1691	1391	1648	1456	1093	1728
Satd. Flow (RTOR)		252		5		
Lane Group Flow (vph)	409	252	85	5	6	209
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Total Split (s)	41.7	41.7	56.4	56.4	16.4	72.8
Total Lost Time (s)	6.7	6.7	6.4	6.4	6.4	6.4
Act Effct Green (s)	26.8	26.8	50.6	50.6	52.7	52.7
Actuated g/C Ratio	0.29	0.29	0.55	0.55	0.57	0.57
v/c Ratio	0.84	0.43	0.09	0.01	0.01	0.21
Control Delay	47.2	6.0	13.2	9.0	10.3	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.2	6.0	13.2	9.0	10.3	11.4
LOS	D	A	B	A	B	B
Approach Delay	31.5		13.0			11.4
Approach LOS	C		B			B
Queue Length 50th (m)	59.9	0.0	6.0	0.0	0.4	15.9
Queue Length 95th (m)	#108.2	16.0	18.2	1.9	2.2	31.1
Internal Link Dist (m)	69.4		182.1			276.7
Turn Bay Length (m)					200.0	
Base Capacity (vph)	645	686	899	796	685	1251
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.37	0.09	0.01	0.01	0.17

Intersection Summary

Cycle Length: 114.5

Actuated Cycle Length: 92.7

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 25.3

Intersection LOS: C

Intersection Capacity Utilization 55.7%

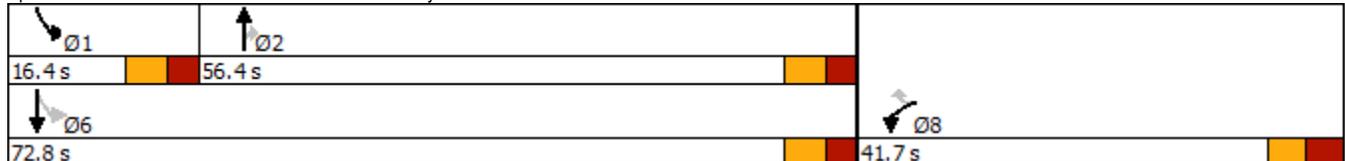
ICU Level of Service B

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

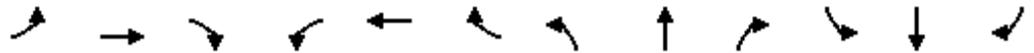
Queue shown is maximum after two cycles.

Splits and Phases: 6: Leikin Drive & RCMP Driveway



South Merivale Business Park TIA
7: Driveway/Bill Leatham Drive & Leikin Drive

2031 FB PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	65	57	0	0	364	183	0	1	0	43	0	162
Future Volume (Veh/h)	65	57	0	0	364	183	0	1	0	43	0	162
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	65	57	0	0	364	183	0	1	0	43	0	162
Pedestrians		1						10			1	
Lane Width (m)		3.5						3.5			3.5	
Walking Speed (m/s)		1.0						1.0			1.0	
Percent Blockage		0						1			0	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)					206							
pX, platoon unblocked	0.98						0.98	0.98		0.98	0.98	0.98
vC, conflicting volume	548			67			724	745	67	644	654	458
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	530			67			709	730	67	627	637	437
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			100			100	100	100	88	100	73
cM capacity (veh/h)	1027			1532			236	320	992	368	361	608
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	65	57	0	547	1	205						
Volume Left	65	0	0	0	0	43						
Volume Right	0	0	0	183	0	162						
cSH	1027	1700	1700	1700	320	535						
Volume to Capacity	0.06	0.03	0.00	0.32	0.00	0.38						
Queue Length 95th (m)	1.4	0.0	0.0	0.0	0.1	12.5						
Control Delay (s)	8.7	0.0	0.0	0.0	16.3	15.8						
Lane LOS	A				C	C						
Approach Delay (s)	4.7		0.0		16.3	15.8						
Approach LOS					C	C						
Intersection Summary												
Average Delay			4.4									
Intersection Capacity Utilization			65.6%		ICU Level of Service				C			
Analysis Period (min)			15									

South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2031 FB AM Peak Hour - Timing Adjustments

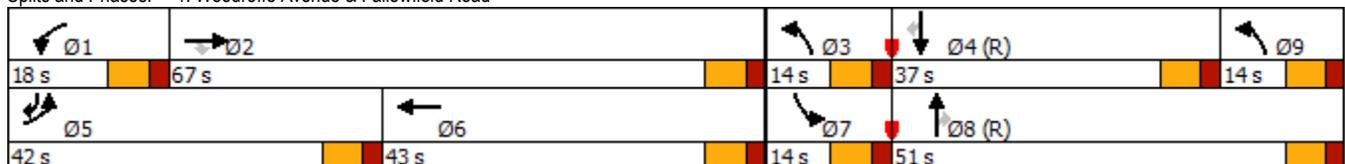
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	687	667	290	136	139	34	646	1710	551	7	419	115
Future Volume (vph)	687	667	290	136	139	34	646	1710	551	7	419	115
Satd. Flow (prot)	3248	3316	1375	2955	3133	0	3216	3349	1513	1445	3221	1363
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3248	3316	1375	2955	3133	0	3212	3349	1513	1445	3221	1345
Satd. Flow (RTOR)			290		19				351			127
Lane Group Flow (vph)	687	667	290	136	173	0	646	1710	551	7	419	115
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	9	8	7	4	5
Permitted Phases			2						8			4
Total Split (s)	42.0	67.0	67.0	18.0	43.0			51.0	51.0	14.0	37.0	42.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8			6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	34.2	38.1	38.1	10.6	14.5		42.7	78.0	78.0	6.4	24.6	58.8
Actuated g/C Ratio	0.23	0.25	0.25	0.07	0.10		0.28	0.52	0.52	0.04	0.16	0.39
v/c Ratio	0.93	0.79	0.51	0.65	0.54		0.71	0.98	0.58	0.11	0.79	0.19
Control Delay	76.1	59.4	7.5	83.0	62.9		35.1	52.8	12.2	72.6	71.5	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	76.1	59.4	7.5	83.0	62.9		35.1	52.8	12.2	72.6	71.5	2.6
LOS	E	E	A	F	E		D	D	B	E	E	A
Approach Delay		57.2			71.7			41.2			56.9	
Approach LOS		E			E			D			E	
Queue Length 50th (m)	95.0	91.6	0.0	18.9	21.7		50.5	223.2	31.8	1.9	58.7	0.0
Queue Length 95th (m)	#125.0	103.4	20.1	29.6	31.3		#110.9	#357.8	87.4	6.7	73.1	6.3
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	762	1330	725	220	770		915	1740	955	70	648	617
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	0.90	0.50	0.40	0.62	0.22		0.71	0.98	0.58	0.10	0.65	0.19

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 4:SBT and 8:NBT, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.98
 Intersection Signal Delay: 49.4
 Intersection Capacity Utilization 105.7%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Intersection LOS: D
 ICU Level of Service G

Splits and Phases: 1: Woodroffe Avenue & Fallowfield Road



South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2031 FB AM Peak Hour - Timing Adjustments

Lane Group	Ø3	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Satd. Flow (RTOR)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	9
Permitted Phases		
Total Split (s)	14.0	14.0
Total Lost Time (s)		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

2031 FB AM Peak Hour - Timing Adjustments

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	372	89	82	15	45	132	44	1637	50	154	483	111
Future Volume (vph)	372	89	82	15	45	132	44	1637	50	154	483	111
Satd. Flow (prot)	3248	1551	0	1580	1664	1513	1523	3349	1513	1642	3221	1455
Fit Permitted	0.950			0.950			0.476			0.059		
Satd. Flow (perm)	3248	1551	0	1580	1664	1490	755	3349	1478	102	3221	1391
Satd. Flow (RTOR)		32				179			179			179
Lane Group Flow (vph)	372	171	0	15	45	132	44	1637	50	154	483	111
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Total Split (s)	24.5	44.3		12.7	32.5	32.5	12.0	71.0	71.0	12.0	71.0	71.0
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
Act Effct Green (s)	17.8	32.6		6.0	13.3	13.3	71.6	65.2	65.2	88.0	78.9	78.9
Actuated g/C Ratio	0.13	0.23		0.04	0.10	0.10	0.51	0.47	0.47	0.63	0.56	0.56
v/c Ratio	0.90	0.44		0.22	0.28	0.44	0.10	1.05	0.06	0.60	0.27	0.13
Control Delay	85.4	41.4		72.7	61.3	6.5	12.6	73.5	0.2	39.0	17.6	0.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.4	41.4		72.7	61.3	6.5	12.6	73.5	0.2	39.0	17.6	0.3
LOS	F	D		E	E	A	B	E	A	D	B	A
Approach Delay		71.5			24.5			69.8			19.4	
Approach LOS		E			C			E			B	
Queue Length 50th (m)	48.8	29.8		3.8	11.2	0.0	3.7	~234.3	0.0	21.9	31.8	0.0
Queue Length 95th (m)	#73.9	48.7		10.7	20.2	5.6	10.6	#280.2	0.0	#81.4	52.3	0.0
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	417	442		69	309	422	420	1560	784	257	1814	861
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.39		0.22	0.15	0.31	0.10	1.05	0.06	0.60	0.27	0.13

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 86 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 55.7

Intersection LOS: E

Intersection Capacity Utilization 91.0%

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: 2: Woodroffe Avenue & Longfields Drive

12 s	71 s	12.7 s	44.3 s
12 s	71 s	24.5 s	32.5 s

South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

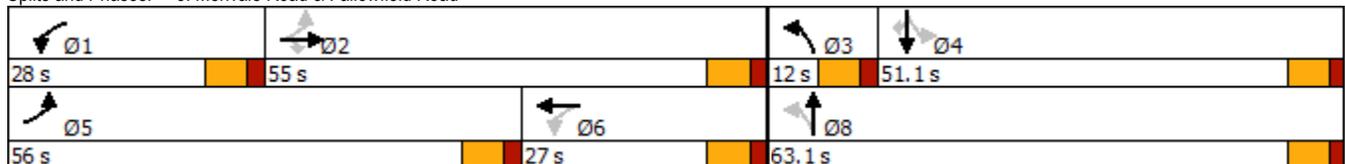
2031 FB AM Peak Hour - Timing Adjustments

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	747	461	40	178	178	5	22	659	23	0	145	59
Future Volume (vph)	747	461	40	178	178	5	22	659	23	0	145	59
Satd. Flow (prot)	1658	1762	1427	1658	1691	0	1691	1736	0	1780	1618	1327
Fit Permitted	0.298			0.498			0.559					
Satd. Flow (perm)	520	1762	1427	869	1691	0	995	1736	0	1780	1618	1327
Satd. Flow (RTOR)			123		1			1				173
Lane Group Flow (vph)	747	461	40	178	183	0	22	682	0	0	145	59
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		2	6			8			4		4
Total Split (s)	56.0	55.0	55.0	28.0	27.0		12.0	63.1		51.1	51.1	51.1
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	76.5	56.0	56.0	34.4	20.4		56.5	56.7		49.5	49.5	49.5
Actuated g/C Ratio	0.52	0.38	0.38	0.24	0.14		0.39	0.39		0.34	0.34	0.34
v/c Ratio	1.14	0.68	0.06	0.64	0.78		0.05	1.01		0.26	0.26	0.10
Control Delay	110.7	44.7	0.2	36.8	82.3		28.3	81.6		38.3	38.3	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	110.7	44.7	0.2	36.8	82.3		28.3	81.6		38.3	38.3	0.4
LOS	F	D	A	D	F		C	F		D	D	A
Approach Delay		82.8			59.9			79.9			27.3	
Approach LOS		F			E			E			C	
Queue Length 50th (m)	~204.5	102.0	0.0	24.7	47.5		3.6	~185.6		29.6	29.6	0.0
Queue Length 95th (m)	#275.1	146.2	0.0	37.8	#80.4		9.1	#260.0		47.0	47.0	0.0
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0					55.0
Base Capacity (vph)	657	674	622	365	236		410	674		548	548	564
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	0.68	0.06	0.49	0.78		0.05	1.01		0.26	0.26	0.10

Intersection Summary

Cycle Length: 146.1
 Actuated Cycle Length: 146.1
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.14
 Intersection Signal Delay: 74.2
 Intersection LOS: E
 Intersection Capacity Utilization 108.2%
 ICU Level of Service G
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

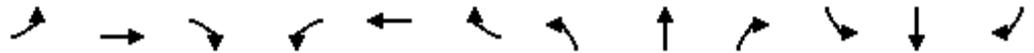
Splits and Phases: 3: Merivale Road & Fallowfield Road



South Merivale Business Park TIA

7: Driveway/Bill Leathem Drive & Leikin Drive

2031 FB AM Peak Hour - Timing Adjustments



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	151	558	4	6	20	37	1	2	4	213	3	32
Future Volume (vph)	151	558	4	6	20	37	1	2	4	213	3	32
Satd. Flow (prot)	1610	1726	0	1658	1547	0	0	1611	0	0	1645	0
Fit Permitted	0.720			0.333				0.964			0.751	
Satd. Flow (perm)	1221	1726	0	580	1547	0	0	1564	0	0	1288	0
Satd. Flow (RTOR)					37			4			11	
Lane Group Flow (vph)	151	562	0	6	57	0	0	7	0	0	248	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Total Split (s)	41.5	41.5		41.5	41.5		58.0	58.0		58.0	58.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6			5.0			5.0	
Act Effct Green (s)	25.5	25.5		25.5	25.5			16.6			16.6	
Actuated g/C Ratio	0.48	0.48		0.48	0.48			0.31			0.31	
v/c Ratio	0.26	0.68		0.02	0.07			0.01			0.61	
Control Delay	10.5	16.4		8.7	4.9			11.4			22.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	10.5	16.4		8.7	4.9			11.4			22.9	
LOS	B	B		A	A			B			C	
Approach Delay		15.1			5.3			11.4			22.9	
Approach LOS		B			A			B			C	
Queue Length 50th (m)	7.1	34.4		0.3	0.8			0.2			16.6	
Queue Length 95th (m)	19.3	76.2		1.9	5.7			2.4			42.5	
Internal Link Dist (m)		337.1			182.1			90.9			596.0	
Turn Bay Length (m)	30.0			30.0								
Base Capacity (vph)	860	1216		409	1101			1454			1198	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.18	0.46		0.01	0.05			0.00			0.21	

Intersection Summary

Cycle Length: 99.5

Actuated Cycle Length: 53.1

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 16.4

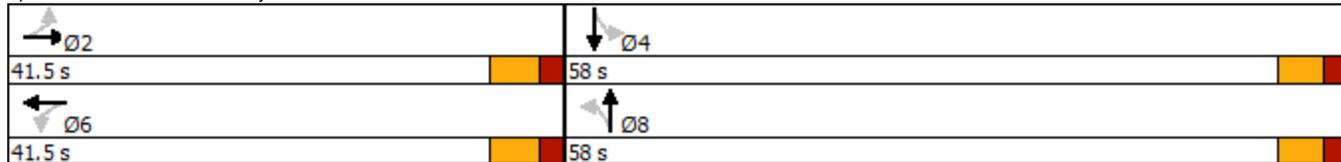
Intersection LOS: B

Intersection Capacity Utilization 61.4%

ICU Level of Service B

Analysis Period (min) 15

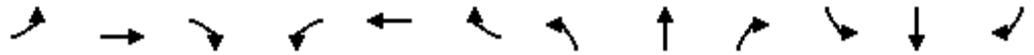
Splits and Phases: 7: Driveway/Bill Leathem Drive & Leikin Drive



South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

2031 FB AM Peak Hour - Roadway Modifications

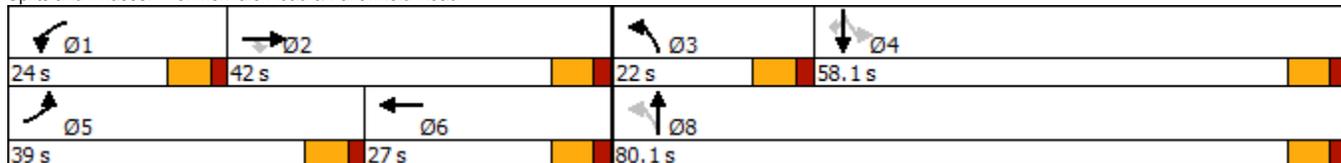


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	747	461	40	178	178	5	22	659	23	0	145	59
Future Volume (vph)	747	461	40	178	178	5	22	659	23	0	145	59
Satd. Flow (prot)	3216	1762	1427	1658	1691	0	1691	1736	0	1780	1618	1327
Fit Permitted	0.950			0.950			0.570					
Satd. Flow (perm)	3216	1762	1427	1658	1691	0	1015	1736	0	1780	1618	1327
Satd. Flow (RTOR)			123		1			2				173
Lane Group Flow (vph)	747	461	40	178	183	0	22	682	0	0	145	59
Turn Type	Prot	NA	Perm	Prot	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2				8			4		4
Total Split (s)	39.0	42.0	42.0	24.0	27.0		22.0	80.1		58.1	58.1	58.1
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effect Green (s)	32.8	36.6	36.6	16.8	20.6		53.9	54.1			46.4	46.4
Actuated g/C Ratio	0.26	0.29	0.29	0.13	0.16		0.42	0.43			0.36	0.36
v/c Ratio	0.90	0.91	0.08	0.81	0.67		0.05	0.92			0.25	0.10
Control Delay	61.7	68.7	0.3	82.8	65.0		19.9	53.0			30.1	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	61.7	68.7	0.3	82.8	65.0		19.9	53.0			30.1	0.3
LOS	E	E	A	F	E		B	D			C	A
Approach Delay		62.3			73.8			52.0			21.5	
Approach LOS		E			E			D			C	
Queue Length 50th (m)	85.5	103.0	0.0	39.8	39.6		2.9	144.7			24.6	0.0
Queue Length 95th (m)	#146.8	#198.2	0.0	#87.7	#80.4		7.2	193.7			39.8	0.0
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0					55.0
Base Capacity (vph)	830	506	497	230	274		512	1016			680	658
Starvation Cap Reductn	0	0	0	0	0		0	0			0	0
Spillback Cap Reductn	0	0	0	0	0		0	0			0	0
Storage Cap Reductn	0	0	0	0	0		0	0			0	0
Reduced v/c Ratio	0.90	0.91	0.08	0.77	0.67		0.04	0.67			0.21	0.09

Intersection Summary

Cycle Length: 146.1
 Actuated Cycle Length: 127.2
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 57.8
 Intersection LOS: E
 Intersection Capacity Utilization 90.4%
 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.

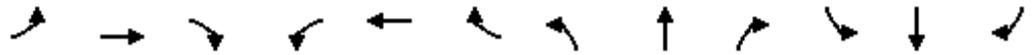
Splits and Phases: 3: Merivale Road & Fallowfield Road



South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

2031 FB AM Peak Hour - Demand Rationalization



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	372	89	82	15	45	132	44	1407	50	154	483	111
Future Volume (vph)	372	89	82	15	45	132	44	1407	50	154	483	111
Satd. Flow (prot)	3248	1551	0	1580	1664	1513	1523	3349	1513	1642	3221	1455
Fit Permitted	0.950			0.950			0.476			0.059		
Satd. Flow (perm)	3248	1551	0	1580	1664	1490	755	3349	1478	102	3221	1391
Satd. Flow (RTOR)		32				179			179			179
Lane Group Flow (vph)	372	171	0	15	45	132	44	1407	50	154	483	111
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Total Split (s)	24.5	44.3		12.7	32.5	32.5	12.0	71.0	71.0	12.0	71.0	71.0
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
Act Effct Green (s)	17.8	32.6		6.0	13.3	13.3	71.6	65.2	65.2	88.0	78.9	78.9
Actuated g/C Ratio	0.13	0.23		0.04	0.10	0.10	0.51	0.47	0.47	0.63	0.56	0.56
v/c Ratio	0.90	0.44		0.22	0.28	0.44	0.10	0.90	0.06	0.60	0.27	0.13
Control Delay	85.4	41.4		72.7	61.3	6.5	12.6	43.6	0.2	39.0	17.6	0.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	85.4	41.4		72.7	61.3	6.5	12.6	43.6	0.2	39.0	17.6	0.3
LOS	F	D		E	E	A	B	D	A	D	B	A
Approach Delay		71.5			24.5			41.3			19.4	
Approach LOS		E			C			D			B	
Queue Length 50th (m)	48.8	29.8		3.8	11.2	0.0	3.7	167.6	0.0	21.9	31.8	0.0
Queue Length 95th (m)	#73.9	48.7		10.7	20.2	5.6	10.6	#206.0	0.0	#81.4	52.3	0.0
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	417	442		69	309	422	420	1560	784	257	1814	861
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.39		0.22	0.15	0.31	0.10	0.90	0.06	0.60	0.27	0.13

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 86 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 40.2

Intersection LOS: D

Intersection Capacity Utilization 84.3%

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.

Splits and Phases: 2: Woodroffe Avenue & Longfields Drive

Ø1	Ø2 (R)	Ø3	Ø4
12 s	71 s	12.7 s	44.3 s
Ø5	Ø6 (R)	Ø7	Ø8
12 s	71 s	24.5 s	32.5 s

South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

2031 FB AM Peak Hour - Demand Rationalization

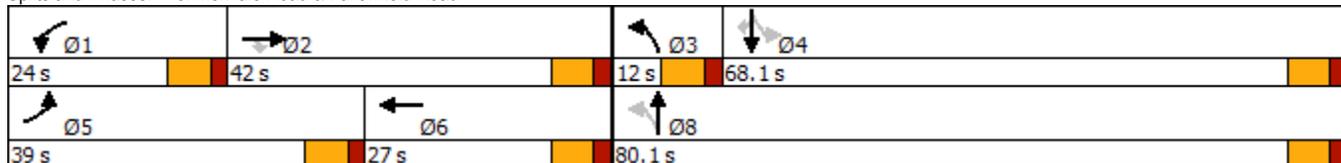


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	747	461	40	178	178	5	22	589	23	0	145	59
Future Volume (vph)	747	461	40	178	178	5	22	589	23	0	145	59
Satd. Flow (prot)	3216	1762	1427	1658	1691	0	1691	1735	0	1780	1618	1327
Fit Permitted	0.950			0.950			0.558					
Satd. Flow (perm)	3216	1762	1427	1658	1691	0	993	1735	0	1780	1618	1327
Satd. Flow (RTOR)			123		1			2				173
Lane Group Flow (vph)	747	461	40	178	183	0	22	612	0	0	145	59
Turn Type	Prot	NA	Perm	Prot	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8				4
Permitted Phases			2				8			4		4
Total Split (s)	39.0	42.0	42.0	24.0	27.0		12.0	80.1		68.1	68.1	68.1
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	32.8	36.6	36.6	16.8	20.6		46.5	46.7			39.9	39.9
Actuated g/C Ratio	0.27	0.31	0.31	0.14	0.17		0.39	0.39			0.33	0.33
v/c Ratio	0.85	0.86	0.08	0.77	0.63		0.05	0.90			0.27	0.11
Control Delay	52.8	57.7	0.3	73.1	58.9		21.2	51.5			31.2	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	52.8	57.7	0.3	73.1	58.9		21.2	51.5			31.2	0.4
LOS	D	E	A	E	E		C	D			C	A
Approach Delay		53.0			65.9			50.5			22.3	
Approach LOS		D			E			D			C	
Queue Length 50th (m)	78.0	93.6	0.0	36.8	36.6		2.9	121.8			24.3	0.0
Queue Length 95th (m)	#134.6	#183.7	0.0	#81.6	#74.0		7.4	165.4			39.0	0.0
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0					55.0
Base Capacity (vph)	880	538	521	244	291		417	1077			840	772
Starvation Cap Reductn	0	0	0	0	0		0	0			0	0
Spillback Cap Reductn	0	0	0	0	0		0	0			0	0
Storage Cap Reductn	0	0	0	0	0		0	0			0	0
Reduced v/c Ratio	0.85	0.86	0.08	0.73	0.63		0.05	0.57			0.17	0.08

Intersection Summary

Cycle Length: 146.1
 Actuated Cycle Length: 119.8
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 51.7
 Intersection LOS: D
 Intersection Capacity Utilization 86.5%
 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.

Splits and Phases: 3: Merivale Road & Fallowfield Road



South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2031 FB PM Peak Hour - Timing Adjustments

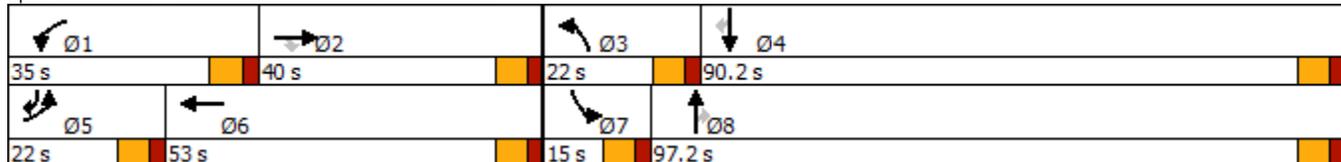


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	248	732	576	545	12	369	739	243	17	1641	627
Future Volume (vph)	204	248	732	576	545	12	369	739	243	17	1641	627
Satd. Flow (prot)	3216	3252	1498	3281	3318	0	3185	3349	1455	1691	3349	1483
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	3252	1498	3281	3318	0	3185	3349	1417	1691	3349	1483
Satd. Flow (RTOR)			181		1				243			141
Lane Group Flow (vph)	204	248	732	576	557	0	369	739	243	17	1641	627
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2						8			4
Total Split (s)	22.0	40.0	40.0	35.0	53.0		22.0	97.2	97.2	15.0	90.2	22.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8		6.8	6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	14.7	33.2	33.2	28.2	46.7		15.2	96.6	96.6	7.1	83.4	104.9
Actuated g/C Ratio	0.08	0.18	0.18	0.15	0.25		0.08	0.52	0.52	0.04	0.45	0.56
v/c Ratio	0.81	0.43	1.77	1.17	0.67		1.43	0.43	0.29	0.27	1.10	0.70
Control Delay	107.6	71.3	384.0	160.1	68.1		269.2	30.0	3.6	97.4	103.2	27.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	107.6	71.3	384.0	160.1	68.1		269.2	30.0	3.6	97.4	103.2	27.2
LOS	F	E	F	F	E		F	C	A	F	F	C
Approach Delay		270.9			114.9			90.6			82.3	
Approach LOS		F			F			F			F	
Queue Length 50th (m)	36.2	40.6	~322.2	~120.8	92.2		~88.0	87.2	0.0	5.8	~335.6	121.4
Queue Length 95th (m)	#53.4	54.8	#395.6	#156.8	112.3		#120.3	104.5	14.4	14.5	#372.8	166.4
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	261	576	414	494	827		258	1727	848	74	1492	893
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	0.78	0.43	1.77	1.17	0.67		1.43	0.43	0.29	0.23	1.10	0.70

Intersection Summary

Cycle Length: 187.2
 Actuated Cycle Length: 187.2
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.77
 Intersection Signal Delay: 127.9
 Intersection LOS: F
 Intersection Capacity Utilization 130.1%
 ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Woodroffe Avenue & Fallowfield Road



South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

2031 FB PM Peak Hour - Timing Adjustments



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	17	70	55	55	144	108	921	39	103	2033	223
Future Volume (vph)	155	17	70	55	55	144	108	921	39	103	2033	223
Satd. Flow (prot)	3216	1528	0	1691	1780	1483	1642	3316	1513	1691	3349	1513
Fit Permitted	0.950			0.950			0.054			0.261		
Satd. Flow (perm)	3216	1528	0	1691	1780	1463	93	3316	1513	465	3349	1470
Satd. Flow (RTOR)		70				144			138			223
Lane Group Flow (vph)	155	87	0	55	55	144	108	921	39	103	2033	223
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Total Split (s)	14.0	32.5		14.0	32.5	32.5	11.5	71.5	71.5	12.0	72.0	72.0
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
Act Effct Green (s)	7.5	16.2		7.2	13.4	13.4	85.6	76.1	76.1	80.7	73.6	73.6
Actuated g/C Ratio	0.06	0.12		0.06	0.10	0.10	0.66	0.59	0.59	0.62	0.57	0.57
v/c Ratio	0.84	0.35		0.59	0.30	0.52	0.62	0.47	0.04	0.29	1.07	0.24
Control Delay	94.8	19.6		84.8	56.3	14.2	38.6	17.3	0.1	10.3	71.5	2.7
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	94.8	19.6		84.8	56.3	14.2	38.6	17.3	0.1	10.3	71.5	2.7
LOS	F	B		F	E	B	D	B	A	B	E	A
Approach Delay		67.8			38.6			18.8			62.3	
Approach LOS		E			D			B			E	
Queue Length 50th (m)	19.0	3.8		12.9	12.6	0.0	10.2	59.1	0.0	6.6	~272.9	0.0
Queue Length 95th (m)	#36.4	16.3		#28.6	21.7	15.9	#49.2	94.8	0.0	17.5	#345.0	11.4
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	185	361		97	356	407	174	1940	942	355	1896	928
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	0.84	0.24		0.57	0.15	0.35	0.62	0.47	0.04	0.29	1.07	0.24

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 92 (71%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 49.3

Intersection LOS: D

Intersection Capacity Utilization 93.2%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Woodroffe Avenue & Longfields Drive

Ø1	Ø2 (R)	Ø3	Ø4
12 s	71.5 s	14 s	32.5 s
Ø5	Ø6 (R)	Ø7	Ø8
11.5 s	72 s	14 s	32.5 s

South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

2031 FB PM Peak Hour - Timing Adjustments

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	321	44	41	760	4	56	238	113	6	639	328
Future Volume (vph)	143	321	44	41	760	4	56	238	113	6	639	328
Satd. Flow (prot)	1496	1745	1469	1691	1778	0	1551	1598	0	1691	1762	1498
Fit Permitted	0.053			0.505			0.063			0.481		
Satd. Flow (perm)	83	1745	1469	899	1778	0	103	1598	0	856	1762	1498
Satd. Flow (RTOR)			108					17				149
Lane Group Flow (vph)	143	321	44	41	764	0	56	351	0	6	639	328
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		2	6			8			4		4
Total Split (s)	16.0	79.9	79.9	11.6	75.5		11.6	74.6		63.0	63.0	63.0
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	83.4	75.8	75.8	74.2	69.0		65.6	65.8		56.7	56.7	56.7
Actuated g/C Ratio	0.51	0.46	0.46	0.45	0.42		0.40	0.40		0.35	0.35	0.35
v/c Ratio	1.15	0.40	0.06	0.10	1.02		0.66	0.54		0.02	1.05	0.53
Control Delay	165.0	32.1	0.2	21.3	84.6		66.4	38.9		36.8	100.8	26.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	165.0	32.1	0.2	21.3	84.6		66.4	38.9		36.8	100.8	26.4
LOS	F	C	A	C	F		E	D		D	F	C
Approach Delay		66.8			81.4			42.7			75.3	
Approach LOS		E			F			D			E	
Queue Length 50th (m)	~40.0	66.5	0.0	6.2	~249.2		10.4	76.2		1.2	~213.6	43.9
Queue Length 95th (m)	#84.0	91.1	0.0	12.4	#321.1		#24.6	105.7		4.8	#283.6	73.4
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0			30.0		55.0
Base Capacity (vph)	124	808	737	431	748		85	676		295	609	615
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	1.15	0.40	0.06	0.10	1.02		0.66	0.52		0.02	1.05	0.53

Intersection Summary

Cycle Length: 166.1

Actuated Cycle Length: 163.8

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.15

Intersection Signal Delay: 70.6

Intersection LOS: E

Intersection Capacity Utilization 112.3%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Merivale Road & Fallowfield Road

Ø1	Ø2	Ø3	Ø4
11.6 s	79.9 s	11.6 s	63 s
Ø5	Ø6	Ø7	Ø8
16 s	75.5 s	74.6 s	

South Merivale Business Park TIA

5: Prince of Wales Drive & Merivale Road

2031 FB PM Peak Hour - Timing Adjustments



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Lane Configurations							
Traffic Volume (vph)	36	603	197	399	1083	19	
Future Volume (vph)	36	603	197	399	1083	19	
Satd. Flow (prot)	1642	1483	1566	1745	3338	0	
Fit Permitted	0.950		0.109				
Satd. Flow (perm)	1642	1483	180	1745	3338	0	
Satd. Flow (RTOR)		92			2		
Lane Group Flow (vph)	36	603	197	399	1102	0	
Turn Type	Prot	pm+ov	pm+pt	NA	NA		
Protected Phases	4	5	5	2	6		3
Permitted Phases		4	2				
Total Split (s)	40.0	19.0	19.0	75.0	56.0		5.0
Total Lost Time (s)	6.8	6.4	6.4	6.5	6.5		
Act Effct Green (s)	32.8	51.7	69.0	68.9	50.4		
Actuated g/C Ratio	0.27	0.43	0.58	0.57	0.42		
v/c Ratio	0.08	0.87	0.81	0.40	0.79		
Control Delay	32.9	41.2	45.8	15.7	35.3		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	32.9	41.2	45.8	15.7	35.3		
LOS	C	D	D	B	D		
Approach Delay	40.7			25.7	35.3		
Approach LOS	D			C	D		
Queue Length 50th (m)	5.8	101.2	22.0	45.8	108.4		
Queue Length 95th (m)	13.4	#164.8	#56.0	65.8	133.6		
Internal Link Dist (m)	226.4			296.0	231.6		
Turn Bay Length (m)	80.0		90.0				
Base Capacity (vph)	454	680	249	1001	1403		
Starvation Cap Reductn	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0		
Reduced v/c Ratio	0.08	0.89	0.79	0.40	0.79		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 112 (93%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay: 34.3

Intersection LOS: C

Intersection Capacity Utilization 82.4%

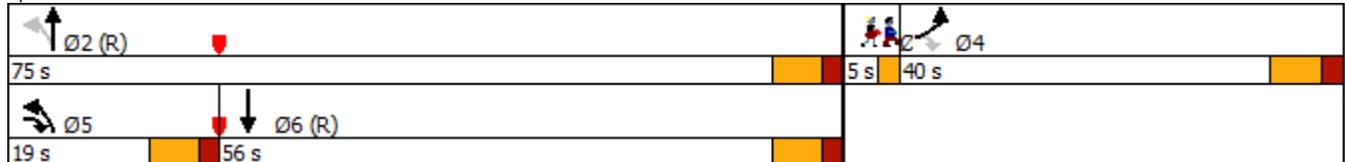
ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Prince of Wales Drive & Merivale Road



South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2031 FB PM Peak Hour - Roadway Modifications

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	248	732	576	545	12	369	739	243	17	1641	627
Future Volume (vph)	204	248	732	576	545	12	369	739	243	17	1641	627
Satd. Flow (prot)	3216	3252	2637	3281	3318	0	3185	3349	1455	1691	3349	1483
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	3252	2637	3281	3318	0	3185	3349	1417	1691	3349	1483
Satd. Flow (RTOR)					1				243			141
Lane Group Flow (vph)	204	248	732	576	557	0	369	739	243	17	1641	627
Turn Type	Prot	NA	pt+ov	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2	2 3	1	6		3	8		7	4	5
Permitted Phases									8			4
Total Split (s)	22.0	40.0		36.0	54.0		22.0	96.2	96.2	15.0	89.2	22.0
Total Lost Time (s)	6.8	6.8		6.8	6.8		6.8	6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	14.7	33.2	55.2	29.2	47.7		15.2	95.6	95.6	7.1	82.4	103.9
Actuated g/C Ratio	0.08	0.18	0.29	0.16	0.25		0.08	0.51	0.51	0.04	0.44	0.56
v/c Ratio	0.81	0.43	0.94	1.13	0.66		1.43	0.43	0.29	0.27	1.11	0.71
Control Delay	107.6	71.3	84.7	147.1	66.9		269.2	30.6	3.6	97.4	108.5	28.0
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	107.6	71.3	84.7	147.1	66.9		269.2	30.6	3.6	97.4	108.5	28.0
LOS	F	E	F	F	E		F	C	A	F	F	C
Approach Delay		85.8			107.7			90.9			86.3	
Approach LOS		F			F			F			F	
Queue Length 50th (m)	36.2	40.6	141.0	~117.5	91.5		~88.0	88.2	0.0	5.8	~339.0	123.1
Queue Length 95th (m)	#53.4	54.8	#180.2	#153.6	111.5		#120.3	105.6	14.5	14.5	#376.1	168.5
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	261	576	777	511	845		258	1709	842	74	1474	886
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	0.78	0.43	0.94	1.13	0.66		1.43	0.43	0.29	0.23	1.11	0.71

Intersection Summary

Cycle Length: 187.2

Actuated Cycle Length: 187.2

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.43

Intersection Signal Delay: 91.3

Intersection LOS: F

Intersection Capacity Utilization 109.3%

ICU Level of Service H

Analysis Period (min) 15

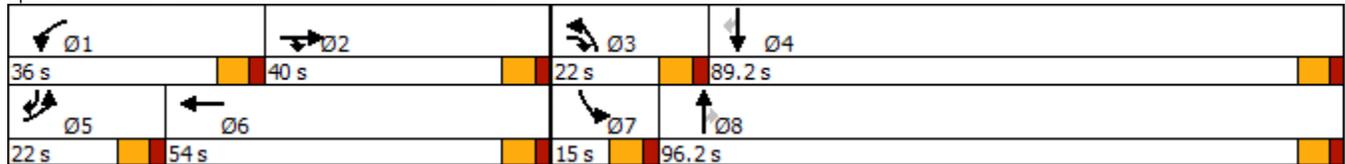
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Woodroffe Avenue & Fallowfield Road



South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

2031 FB PM Peak Hour - Roadway Modifications



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	321	44	41	760	4	56	238	113	6	639	328
Future Volume (vph)	143	321	44	41	760	4	56	238	113	6	639	328
Satd. Flow (prot)	2903	1745	1469	1691	1778	0	1551	1598	0	1691	1762	1498
Fit Permitted	0.950			0.950			0.063			0.481		
Satd. Flow (perm)	2903	1745	1469	1691	1778	0	103	1598	0	856	1762	1498
Satd. Flow (RTOR)			108					17				149
Lane Group Flow (vph)	143	321	44	41	764	0	56	351	0	6	639	328
Turn Type	Prot	NA	Perm	Prot	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8				4
Permitted Phases			2				8			4		4
Total Split (s)	15.0	79.9	79.9	11.6	76.5		11.6	74.6		63.0	63.0	63.0
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effect Green (s)	8.5	75.8	75.8	5.1	70.0		65.6	65.8		56.7	56.7	56.7
Actuated g/C Ratio	0.05	0.46	0.46	0.03	0.43		0.40	0.40		0.35	0.35	0.35
v/c Ratio	0.95	0.40	0.06	0.79	1.01		0.66	0.54		0.02	1.05	0.53
Control Delay	137.1	32.1	0.2	150.6	80.4		66.4	38.9		36.8	100.8	26.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	137.1	32.1	0.2	150.6	80.4		66.4	38.9		36.8	100.8	26.4
LOS	F	C	A	F	F		E	D		D	F	C
Approach Delay		58.9			84.0			42.7				75.3
Approach LOS		E			F			D				E
Queue Length 50th (m)	22.8	66.5	0.0	12.7	~245.9		10.4	76.2		1.2	~213.6	43.9
Queue Length 95th (m)	#44.7	91.1	0.0	#34.7	#317.7		#24.6	105.7		4.8	#283.6	73.4
Internal Link Dist (m)		1803.9			258.6			431.1				330.0
Turn Bay Length (m)	75.0		100.0	25.0			50.0			30.0		55.0
Base Capacity (vph)	150	808	737	52	759		85	676		295	609	615
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	0.95	0.40	0.06	0.79	1.01		0.66	0.52		0.02	1.05	0.53

Intersection Summary

Cycle Length: 166.1

Actuated Cycle Length: 163.8

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 69.9

Intersection LOS: E

Intersection Capacity Utilization 108.2%

ICU Level of Service G

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Merivale Road & Fallowfield Road

Ø1	Ø2	Ø3	Ø4
11.6 s	79.9 s	11.6 s	63 s
Ø5	Ø6	Ø7	Ø8
15 s	76.5 s	74.6 s	

South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2031 FB PM Peak Hour - Demand Rationalization

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	248	412	511	545	12	259	739	243	17	1481	627
Future Volume (vph)	204	248	412	511	545	12	259	739	243	17	1481	627
Satd. Flow (prot)	3216	3252	1498	3281	3318	0	3185	3349	1455	1691	3349	1483
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	3252	1498	3281	3318	0	3185	3349	1417	1691	3349	1483
Satd. Flow (RTOR)			181		1				243			141
Lane Group Flow (vph)	204	248	412	511	557	0	259	739	243	17	1481	627
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2						8			4
Total Split (s)	22.0	40.0	40.0	36.0	54.0		22.0	96.2	96.2	15.0	89.2	22.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8		6.8	6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	14.7	33.2	33.2	29.2	47.7		15.2	95.6	95.6	7.1	82.4	103.9
Actuated g/C Ratio	0.08	0.18	0.18	0.16	0.25		0.08	0.51	0.51	0.04	0.44	0.56
v/c Ratio	0.81	0.43	1.00	1.00	0.66		1.00	0.43	0.29	0.27	1.00	0.71
Control Delay	107.6	71.3	84.2	116.7	66.9		139.5	30.6	3.6	97.4	75.8	28.0
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	107.6	71.3	84.2	116.7	66.9		139.5	30.6	3.6	97.4	75.8	28.0
LOS	F	E	F	F	E		F	C	A	F	E	C
Approach Delay		86.0			90.7			48.1			61.8	
Approach LOS		F			F			D			E	
Queue Length 50th (m)	36.2	40.6	88.9	92.2	91.5		~47.0	88.2	0.0	5.8	~270.7	123.1
Queue Length 95th (m)	#53.4	54.8	#156.5	#128.9	111.5		#76.6	105.6	14.5	14.5	#317.2	168.5
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	261	576	414	511	845		258	1709	842	74	1474	886
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	0.78	0.43	1.00	1.00	0.66		1.00	0.43	0.29	0.23	1.00	0.71

Intersection Summary

Cycle Length: 187.2

Actuated Cycle Length: 187.2

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 68.4

Intersection LOS: E

Intersection Capacity Utilization 102.5%

ICU Level of Service G

Analysis Period (min) 15

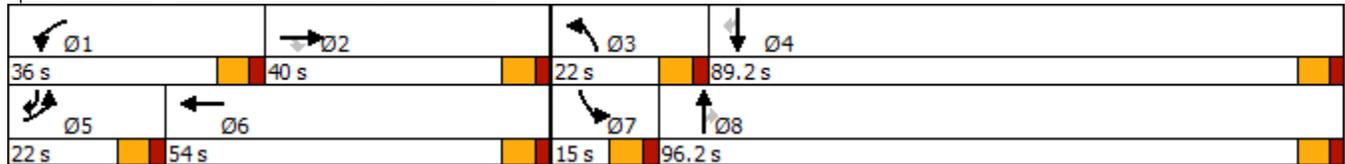
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Woodroffe Avenue & Fallowfield Road



South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

2031 FB PM Peak Hour - Demand Rationalization

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	17	70	55	55	144	108	921	39	103	1723	223
Future Volume (vph)	155	17	70	55	55	144	108	921	39	103	1723	223
Satd. Flow (prot)	3216	1528	0	1691	1780	1483	1642	3316	1513	1691	3349	1513
Fit Permitted	0.950			0.950			0.053			0.262		
Satd. Flow (perm)	3216	1528	0	1691	1780	1463	92	3316	1513	466	3349	1470
Satd. Flow (RTOR)		70				144			138			223
Lane Group Flow (vph)	155	87	0	55	55	144	108	921	39	103	1723	223
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Total Split (s)	14.0	32.5		14.0	32.5	32.5	11.5	71.5	71.5	12.0	72.0	72.0
Total Lost Time (s)	6.5	6.5		6.5	5.6	5.6	6.5	6.5	6.5	6.5	6.5	6.5
Act Effct Green (s)	7.5	15.6		7.2	13.7	13.7	86.1	76.4	76.4	81.2	73.9	73.9
Actuated g/C Ratio	0.06	0.12		0.06	0.11	0.11	0.66	0.59	0.59	0.62	0.57	0.57
v/c Ratio	0.84	0.36		0.59	0.29	0.51	0.61	0.47	0.04	0.29	0.90	0.24
Control Delay	94.8	20.0		84.8	55.7	14.0	38.2	17.1	0.1	10.0	33.5	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	94.8	20.0		84.8	55.7	14.0	38.2	17.1	0.1	10.0	33.5	2.6
LOS	F	C		F	E	B	D	B	A	A	C	A
Approach Delay		67.9			38.3			18.6			28.9	
Approach LOS		E			D			B			C	
Queue Length 50th (m)	19.0	3.8		12.9	12.5	0.0	10.4	59.1	0.0	6.6	175.5	0.0
Queue Length 95th (m)	#36.4	16.5		#28.6	21.7	15.9	#46.5	94.8	0.0	17.1	#265.8	11.4
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	185	361		97	368	416	176	1949	946	359	1904	932
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	0.84	0.24		0.57	0.15	0.35	0.61	0.47	0.04	0.29	0.90	0.24

Intersection Summary

Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 92 (71%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 29.2
 Intersection LOS: C
 Intersection Capacity Utilization 84.2%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 2: Woodroffe Avenue & Longfields Drive

12 s	71.5 s	14 s	32.5 s
11.5 s	72 s	14 s	32.5 s

South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

2031 FB PM Peak Hour - Demand Rationalization

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	321	44	41	630	4	56	238	113	6	539	328
Future Volume (vph)	143	321	44	41	630	4	56	238	113	6	539	328
Satd. Flow (prot)	2903	1745	1469	1691	1778	0	1551	1598	0	1691	1762	1498
Fit Permitted	0.950			0.950			0.113			0.501		
Satd. Flow (perm)	2903	1745	1469	1691	1778	0	185	1598	0	892	1762	1498
Satd. Flow (RTOR)			108					17				177
Lane Group Flow (vph)	143	321	44	41	634	0	56	351	0	6	539	328
Turn Type	Prot	NA	Perm	Prot	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2				8			4		4
Total Split (s)	15.0	79.9	79.9	11.6	76.5		11.6	74.6		63.0	63.0	63.0
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	8.9	63.8	63.8	5.4	56.6		57.1	57.3		48.8	48.8	48.8
Actuated g/C Ratio	0.06	0.44	0.44	0.04	0.39		0.40	0.40		0.34	0.34	0.34
v/c Ratio	0.79	0.41	0.06	0.65	0.90		0.46	0.54		0.02	0.90	0.52
Control Delay	98.9	31.8	0.2	116.3	59.3		41.4	35.6		36.3	66.1	21.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	98.9	31.8	0.2	116.3	59.3		41.4	35.6		36.3	66.1	21.2
LOS	F	C	A	F	E		D	D		D	E	C
Approach Delay		47.9			62.8			36.4			49.0	
Approach LOS		D			E			D			D	
Queue Length 50th (m)	21.4	65.6	0.0	11.9	170.8		9.5	69.2		1.1	143.6	33.1
Queue Length 95th (m)	#44.7	91.1	0.0	#34.7	224.5		19.6	105.7		4.7	#217.4	65.1
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0			30.0		55.0
Base Capacity (vph)	180	937	839	63	911		123	807		369	731	725
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	0.79	0.34	0.05	0.65	0.70		0.46	0.43		0.02	0.74	0.45

Intersection Summary

Cycle Length: 166.1
 Actuated Cycle Length: 143.4
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 50.5
 Intersection LOS: D
 Intersection Capacity Utilization 95.4%
 ICU Level of Service F
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Merivale Road & Fallowfield Road

11.6 s	79.9 s	11.6 s	63 s
15 s	76.5 s	74.6 s	

South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2031 FB PM Peak Hour - Demand Rationalization with dual EBR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	248	732	511	545	12	259	739	243	17	1481	627
Future Volume (vph)	204	248	732	511	545	12	259	739	243	17	1481	627
Satd. Flow (prot)	3216	3252	2637	3281	3318	0	3185	3349	1455	1691	3349	1483
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	3252	2637	3281	3318	0	3185	3349	1417	1691	3349	1483
Satd. Flow (RTOR)					1				243			141
Lane Group Flow (vph)	204	248	732	511	557	0	259	739	243	17	1481	627
Turn Type	Prot	NA	pt+ov	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2	2 3	1	6		3	8		7	4	5
Permitted Phases									8			4
Total Split (s)	22.0	40.0		36.0	54.0		22.0	96.2	96.2	15.0	89.2	22.0
Total Lost Time (s)	6.8	6.8		6.8	6.8		6.8	6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	14.7	33.2	55.2	29.2	47.7		15.2	95.6	95.6	7.1	82.4	103.9
Actuated g/C Ratio	0.08	0.18	0.29	0.16	0.25		0.08	0.51	0.51	0.04	0.44	0.56
v/c Ratio	0.81	0.43	0.94	1.00	0.66		1.00	0.43	0.29	0.27	1.00	0.71
Control Delay	107.6	71.3	84.7	116.7	66.9		139.5	30.6	3.6	97.4	75.8	28.0
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	107.6	71.3	84.7	116.7	66.9		139.5	30.6	3.6	97.4	75.8	28.0
LOS	F	E	F	F	E		F	C	A	F	E	C
Approach Delay		85.8			90.7			48.1			61.8	
Approach LOS		F			F			D			E	
Queue Length 50th (m)	36.2	40.6	141.0	92.2	91.5		~47.0	88.2	0.0	5.8	~270.7	123.1
Queue Length 95th (m)	#53.4	54.8	#180.2	#128.9	111.5		#76.6	105.6	14.5	14.5	#317.2	168.5
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	261	576	777	511	845		258	1709	842	74	1474	886
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	0.78	0.43	0.94	1.00	0.66		1.00	0.43	0.29	0.23	1.00	0.71

Intersection Summary

Cycle Length: 187.2
 Actuated Cycle Length: 187.2
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 69.3
 Intersection LOS: E
 Intersection Capacity Utilization 102.6%
 ICU Level of Service G
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Woodroffe Avenue & Fallowfield Road

36 s	40 s	22 s	89.2 s
22 s	54 s	15 s	96.2 s

South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2026 TT AM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	645	625	302	127	131	32	631	1629	516	7	423	108
Future Volume (vph)	645	625	302	127	131	32	631	1629	516	7	423	108
Satd. Flow (prot)	3248	3316	1375	2955	3133	0	3216	3349	1513	1445	3221	1363
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3248	3316	1375	2955	3133	0	3212	3349	1513	1445	3221	1345
Satd. Flow (RTOR)			302		18				343			176
Lane Group Flow (vph)	645	625	302	127	163	0	631	1629	516	7	423	108
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	9	8	7	4	5
Permitted Phases			2						8			4
Total Split (s)	38.0	60.0	60.0	18.0	40.0			60.0	60.0	12.0	37.0	38.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8			6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	31.1	36.0	36.0	10.4	15.4		44.7	80.2	80.2	6.4	24.8	55.9
Actuated g/C Ratio	0.21	0.24	0.24	0.07	0.10		0.30	0.53	0.53	0.04	0.17	0.37
v/c Ratio	0.96	0.79	0.54	0.62	0.48		0.66	0.91	0.53	0.11	0.80	0.18
Control Delay	84.5	60.8	8.1	81.3	60.2		32.9	40.6	10.3	72.6	71.3	0.6
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.5	60.8	8.1	81.3	60.2		32.9	40.6	10.3	72.6	71.3	0.6
LOS	F	E	A	F	E		C	D	B	E	E	A
Approach Delay		60.4			69.4			33.2			57.2	
Approach LOS		E			E			C			E	
Queue Length 50th (m)	90.9	86.2	0.0	17.6	20.1		47.4	195.4	24.6	1.9	59.2	0.0
Queue Length 95th (m)	#125.1	99.2	21.7	27.9	29.5		#95.8	#322.5	72.4	6.7	73.8	0.0
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	675	1176	682	220	707		959	1790	968	61	648	616
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	0.96	0.53	0.44	0.58	0.23		0.66	0.91	0.53	0.11	0.65	0.18

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 4:SBT and 8:NBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 46.0

Intersection LOS: D

Intersection Capacity Utilization 102.1%

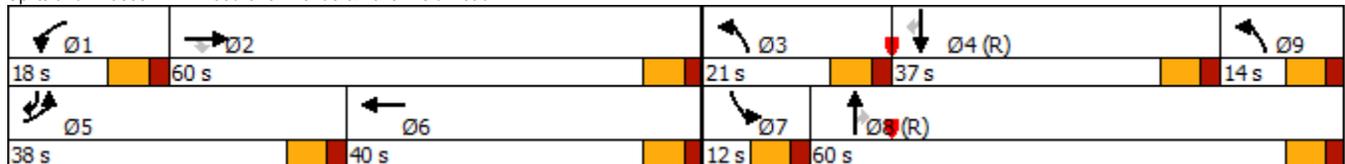
ICU Level of Service G

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Woodroffe Avenue & Fallowfield Road



South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

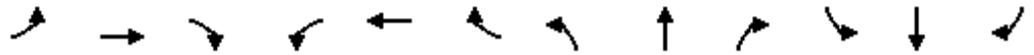
2026 TT AM Peak Hour

Lane Group	Ø3	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Satd. Flow (RTOR)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	9
Permitted Phases		
Total Split (s)	21.0	14.0
Total Lost Time (s)		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

2026 TT AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	372	103	82	40	57	182	36	1536	80	214	453	111
Future Volume (vph)	372	103	82	40	57	182	36	1536	80	214	453	111
Satd. Flow (prot)	3248	1567	0	1580	1664	1513	1523	3349	1513	1642	3221	1455
Fit Permitted	0.950			0.950			0.491			0.063		
Satd. Flow (perm)	3248	1567	0	1580	1664	1490	779	3349	1479	109	3221	1393
Satd. Flow (RTOR)		28				138			138			138
Lane Group Flow (vph)	372	185	0	40	57	182	36	1536	80	214	453	111
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Total Split (s)	20.0	33.0		20.0	33.0	33.0	12.0	65.0	65.0	12.0	65.0	65.0
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
Act Effct Green (s)	13.5	22.8		8.7	15.6	15.6	64.8	58.5	58.5	80.1	73.5	73.5
Actuated g/C Ratio	0.10	0.18		0.07	0.12	0.12	0.50	0.45	0.45	0.62	0.57	0.57
v/c Ratio	1.10	0.62		0.38	0.29	0.61	0.09	1.02	0.11	0.82	0.25	0.13
Control Delay	132.6	52.2		67.3	53.3	23.3	12.4	63.7	0.4	58.4	16.7	2.0
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	132.6	52.2		67.3	53.3	23.3	12.4	63.7	0.4	58.4	16.7	2.0
LOS	F	D		E	D	C	B	E	A	E	B	A
Approach Delay		105.9			35.7			59.5			26.1	
Approach LOS		F			D			E			C	
Queue Length 50th (m)	~51.3	36.2		9.2	12.7	9.7	2.9	~201.8	0.0	34.7	29.0	0.0
Queue Length 95th (m)	#79.9	55.4		19.8	22.5	28.5	8.6	#241.1	0.4	#108.9	46.7	5.8
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	337	352		164	339	413	423	1507	741	260	1822	847
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	1.10	0.53		0.24	0.17	0.44	0.09	1.02	0.11	0.82	0.25	0.13

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 86 (66%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.10

Intersection Signal Delay: 57.4

Intersection LOS: E

Intersection Capacity Utilization 99.4%

ICU Level of Service F

Analysis Period (min) 15

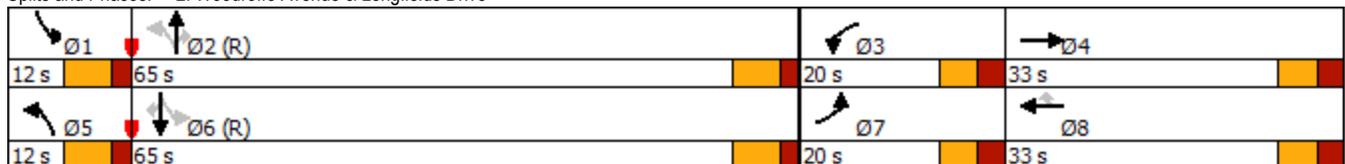
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

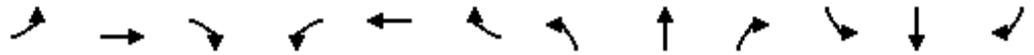
Splits and Phases: 2: Woodroffe Avenue & Longfields Drive



South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

2026 TT AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	700	432	37	242	167	5	20	668	83	0	196	56
Future Volume (vph)	700	432	37	242	167	5	20	668	83	0	196	56
Satd. Flow (prot)	1658	1762	1427	1658	1691	0	1691	1715	0	1780	1618	1327
Fit Permitted	0.382			0.511			0.513					
Satd. Flow (perm)	667	1762	1427	892	1691	0	913	1715	0	1780	1618	1327
Satd. Flow (RTOR)			123		1			5				173
Lane Group Flow (vph)	700	432	37	242	172	0	20	751	0	0	196	56
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8				4
Permitted Phases	2		2	6			8			4		4
Total Split (s)	46.5	61.6	61.6	16.5	31.6		11.6	68.0		56.4	56.4	56.4
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	71.6	55.0	55.0	35.1	25.0		61.4	61.6			54.6	54.6
Actuated g/C Ratio	0.49	0.38	0.38	0.24	0.17		0.42	0.42			0.37	0.37
v/c Ratio	1.17	0.65	0.06	0.91	0.59		0.05	1.04			0.32	0.09
Control Delay	123.3	43.2	0.2	71.7	64.9		25.3	83.8			35.8	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	123.3	43.2	0.2	71.7	64.9		25.3	83.8			35.8	0.3
LOS	F	D	A	E	E		C	F			D	A
Approach Delay		89.8			68.9			82.3			27.9	
Approach LOS		F			E			F			C	
Queue Length 50th (m)	~181.4	94.7	0.0	37.8	42.6		3.1	~213.9			39.1	0.0
Queue Length 95th (m)	#250.9	129.6	0.0	#76.7	65.7		8.1	#285.1			59.1	0.0
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0					55.0
Base Capacity (vph)	598	663	613	266	290		410	725			605	604
Starvation Cap Reductn	0	0	0	0	0		0	0			0	0
Spillback Cap Reductn	0	0	0	0	0		0	0			0	0
Storage Cap Reductn	0	0	0	0	0		0	0			0	0
Reduced v/c Ratio	1.17	0.65	0.06	0.91	0.59		0.05	1.04			0.32	0.09

Intersection Summary

Cycle Length: 146.1

Actuated Cycle Length: 146.1

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.17

Intersection Signal Delay: 78.3

Intersection LOS: E

Intersection Capacity Utilization 109.2%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Merivale Road & Fallowfield Road

Ø1	Ø2	Ø3	Ø4
16.5 s	61.6 s	11.6 s	56.4 s
Ø5	Ø6	Ø7	Ø8
46.5 s	31.6 s	68 s	

South Merivale Business Park TIA
 4: Merivale Road & Leikin Drive

2026 TT AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	414	4	0	396	71	362
Future Volume (vph)	414	4	0	396	71	362
Satd. Flow (prot)	3255	0	1728	1745	1424	1469
Fit Permitted	0.953					
Satd. Flow (perm)	3255	0	1728	1745	1424	1469
Satd. Flow (RTOR)	1					362
Lane Group Flow (vph)	418	0	0	396	71	362
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			6	2	
Permitted Phases			6			2
Total Split (s)	30.1		66.5	66.5	66.5	66.5
Total Lost Time (s)	5.1		6.5	6.5	6.5	6.5
Act Effct Green (s)	16.4			60.1	60.1	60.1
Actuated g/C Ratio	0.19			0.68	0.68	0.68
v/c Ratio	0.69			0.33	0.07	0.32
Control Delay	39.7			7.2	5.6	1.5
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	39.7			7.2	5.6	1.5
LOS	D			A	A	A
Approach Delay	39.7			7.2	2.2	
Approach LOS	D			A	A	
Queue Length 50th (m)	31.4			21.8	3.2	0.0
Queue Length 95th (m)	44.7			41.0	8.2	8.1
Internal Link Dist (m)	50.7			445.8	100.5	
Turn Bay Length (m)						85.0
Base Capacity (vph)	925			1190	971	1117
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.45			0.33	0.07	0.32

Intersection Summary

Cycle Length: 96.6
 Actuated Cycle Length: 88.1
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 16.3
 Intersection LOS: B
 Intersection Capacity Utilization 44.3%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 4: Merivale Road & Leikin Drive

Ø2 66.5 s	Ø4 30.1 s
Ø6 66.5 s	

South Merivale Business Park TIA

5: Prince of Wales Drive & Merivale Road

2026 TT AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Lane Configurations							
Traffic Volume (vph)	11	118	533	1028	290	43	
Future Volume (vph)	11	118	533	1028	290	43	
Satd. Flow (prot)	3281	1261	1642	1745	3119	0	
Fit Permitted	0.950		0.484				
Satd. Flow (perm)	3281	1261	836	1745	3119	0	
Satd. Flow (RTOR)		118			21		
Lane Group Flow (vph)	11	118	533	1028	333	0	
Turn Type	Prot	pm+ov	pm+pt	NA	NA		
Protected Phases	4	5	5	2	6		3
Permitted Phases		4	2				
Total Split (s)	23.0	22.0	22.0	72.0	50.0		5.0
Total Lost Time (s)	6.8	6.4	6.4	6.5	6.5		
Act Effct Green (s)	10.1	35.8	71.7	71.6	46.3		
Actuated g/C Ratio	0.10	0.36	0.72	0.72	0.46		
v/c Ratio	0.03	0.22	0.71	0.82	0.23		
Control Delay	40.8	5.0	11.7	17.1	16.1		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	40.8	5.0	11.7	17.1	16.1		
LOS	D	A	B	B	B		
Approach Delay	8.1			15.3	16.1		
Approach LOS	A			B	B		
Queue Length 50th (m)	0.9	0.0	34.1	108.6	17.2		
Queue Length 95th (m)	3.4	9.8	51.3	173.8	26.6		
Internal Link Dist (m)	226.4			296.0	233.3		
Turn Bay Length (m)	80.0		90.0				
Base Capacity (vph)	531	523	754	1250	1456		
Starvation Cap Reductn	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0		
Reduced v/c Ratio	0.02	0.23	0.71	0.82	0.23		

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 15 (15%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 14.9

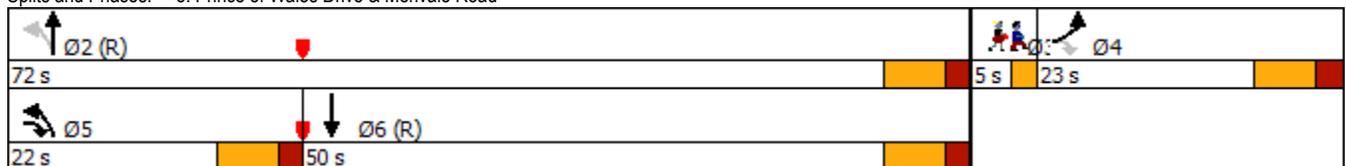
Intersection LOS: B

Intersection Capacity Utilization 76.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 5: Prince of Wales Drive & Merivale Road



South Merivale Business Park TIA

6: Leikin Drive & RCMP Driveway

2026 TT AM Peak Hour

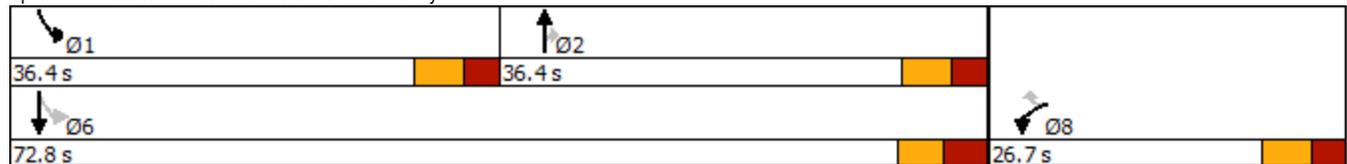


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	15	17	315	548	253	51
Future Volume (vph)	15	17	315	548	253	51
Satd. Flow (prot)	1691	1427	1728	1513	1691	1508
Fit Permitted	0.950				0.466	
Satd. Flow (perm)	1691	1325	1728	1468	826	1508
Satd. Flow (RTOR)		17		548		
Lane Group Flow (vph)	15	17	315	548	253	51
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Total Split (s)	26.7	26.7	36.4	36.4	36.4	72.8
Total Lost Time (s)	6.4	6.4	6.4	6.4	6.4	6.7
Act Effct Green (s)	11.6	11.6	31.4	31.4	46.9	51.4
Actuated g/C Ratio	0.19	0.19	0.52	0.52	0.78	0.86
v/c Ratio	0.05	0.06	0.35	0.53	0.33	0.04
Control Delay	24.5	13.2	13.7	3.9	4.9	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.5	13.2	13.7	3.9	4.9	4.0
LOS	C	B	B	A	A	A
Approach Delay	18.5		7.5			4.8
Approach LOS	B		A			A
Queue Length 50th (m)	1.1	0.0	12.2	0.0	0.3	0.0
Queue Length 95th (m)	5.9	4.5	55.2	18.3	24.0	6.1
Internal Link Dist (m)	69.4		182.1			276.7
Turn Bay Length (m)					200.0	
Base Capacity (vph)	598	479	903	1029	1097	1436
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.04	0.35	0.53	0.23	0.04

Intersection Summary

Cycle Length: 99.5
 Actuated Cycle Length: 60
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.53
 Intersection Signal Delay: 7.1
 Intersection LOS: A
 Intersection Capacity Utilization 63.1%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 6: Leikin Drive & RCMP Driveway



South Merivale Business Park TIA

7: Driveway/Bill Leatham Drive & Leikin Drive

2026 TT AM Peak Hour

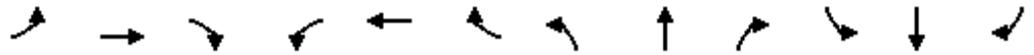


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	181	558	4	6	20	37	1	2	4	213	3	57
Future Volume (Veh/h)	181	558	4	6	20	37	1	2	4	213	3	57
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	181	558	4	6	20	37	1	2	4	213	3	57
Pedestrians								5				
Lane Width (m)								3.5				
Walking Speed (m/s)								1.0				
Percent Blockage								0				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)					206							
pX, platoon unblocked												
vC, conflicting volume	57			567			1018	996	565	976	980	38
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	57			567			1018	996	565	976	980	38
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	88			99			99	99	99	0	99	95
cM capacity (veh/h)	1528			1000			183	215	524	205	219	1039
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	181	562	6	57	7	273						
Volume Left	181	0	6	0	1	213						
Volume Right	0	4	0	37	4	57						
cSH	1528	1700	1000	1700	312	246						
Volume to Capacity	0.12	0.33	0.01	0.03	0.02	1.11						
Queue Length 95th (m)	2.8	0.0	0.1	0.0	0.5	83.4						
Control Delay (s)	7.7	0.0	8.6	0.0	16.8	132.6						
Lane LOS	A		A		C	F						
Approach Delay (s)	1.9		0.8		16.8	132.6						
Approach LOS					C	F						
Intersection Summary												
Average Delay			34.8									
Intersection Capacity Utilization			60.9%		ICU Level of Service					B		
Analysis Period (min)			15									

South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2026 TT PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	192	233	701	540	511	11	399	746	228	16	1553	588
Future Volume (vph)	192	233	701	540	511	11	399	746	228	16	1553	588
Satd. Flow (prot)	3216	3252	1498	3281	3318	0	3185	3349	1455	1691	3349	1483
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	3252	1498	3281	3318	0	3185	3349	1417	1691	3349	1483
Satd. Flow (RTOR)			141		1				228			101
Lane Group Flow (vph)	192	233	701	540	522	0	399	746	228	16	1553	588
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2						8			4
Total Split (s)	16.8	36.8	36.8	36.8	56.8		21.8	96.8	96.8	16.8	91.8	16.8
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8		6.8	6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	10.0	30.0	30.0	30.0	50.0		15.0	97.7	97.7	7.3	85.0	101.8
Actuated g/C Ratio	0.05	0.16	0.16	0.16	0.27		0.08	0.52	0.52	0.04	0.45	0.54
v/c Ratio	1.12	0.45	1.96	1.03	0.59		1.56	0.43	0.27	0.24	1.02	0.69
Control Delay	179.7	74.2	468.6	121.0	62.8		321.4	29.4	3.6	95.2	78.1	30.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	179.7	74.2	468.6	121.0	62.8		321.4	29.4	3.6	95.2	78.1	30.2
LOS	F	E	F	F	E		F	C	A	F	E	C
Approach Delay		337.7			92.4			109.9			65.2	
Approach LOS		F			F			F			E	
Queue Length 50th (m)	~38.9	38.8	~331.4	~101.8	83.0		~99.6	86.8	0.0	5.5	~297.3	122.7
Queue Length 95th (m)	#65.0	52.8	#404.8	#137.4	101.7		#132.7	105.6	14.0	14.0	#334.8	166.4
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	171	521	358	525	886		255	1748	848	90	1520	852
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	1.12	0.45	1.96	1.03	0.59		1.56	0.43	0.27	0.18	1.02	0.69

Intersection Summary

Cycle Length: 187.2

Actuated Cycle Length: 187.2

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.96

Intersection Signal Delay: 134.6

Intersection LOS: F

Intersection Capacity Utilization 124.4%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Woodroffe Avenue & Fallowfield Road

36.8 s	36.8 s	21.8 s	91.8 s
16.8 s	56.8 s	16.8 s	96.8 s

South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

2026 TT PM Peak Hour

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	24	70	108	82	250	89	864	53	131	1907	223
Future Volume (vph)	155	24	70	108	82	250	89	864	53	131	1907	223
Satd. Flow (prot)	3216	1546	0	1691	1780	1483	1642	3316	1513	1691	3349	1513
Fit Permitted	0.950			0.950			0.070			0.251		
Satd. Flow (perm)	3216	1546	0	1691	1780	1464	121	3316	1513	447	3349	1472
Satd. Flow (RTOR)		70				160			157			223
Lane Group Flow (vph)	155	94	0	108	82	250	89	864	53	131	1907	223
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Total Split (s)	15.0	33.0		15.0	33.0	33.0	12.0	55.0	55.0	12.0	55.0	55.0
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
Act Effct Green (s)	8.4	15.3		8.5	15.5	15.5	64.7	57.3	57.3	65.7	57.8	57.8
Actuated g/C Ratio	0.07	0.13		0.07	0.13	0.13	0.56	0.50	0.50	0.57	0.50	0.50
v/c Ratio	0.67	0.35		0.87	0.34	0.75	0.54	0.52	0.06	0.39	1.13	0.26
Control Delay	66.3	18.1		105.4	47.1	31.0	29.1	22.1	0.2	14.4	96.9	3.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.3	18.1		105.4	47.1	31.0	29.1	22.1	0.2	14.4	96.9	3.4
LOS	E	B		F	D	C	C	C	A	B	F	A
Approach Delay		48.1			52.3			21.6			82.9	
Approach LOS		D			D			C			F	
Queue Length 50th (m)	16.3	4.6		22.6	16.0	18.0	6.5	60.6	0.0	9.8	~238.2	0.0
Queue Length 95th (m)	#27.6	16.4		#52.5	26.3	39.4	#27.5	91.4	0.0	22.7	#311.7	12.8
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	237	410		124	410	460	166	1651	832	340	1682	850
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	0.65	0.23		0.87	0.20	0.54	0.54	0.52	0.06	0.39	1.13	0.26

Intersection Summary

Cycle Length: 115

Actuated Cycle Length: 115

Offset: 92 (80%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.13

Intersection Signal Delay: 61.7

Intersection LOS: E

Intersection Capacity Utilization 90.4%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Woodroffe Avenue & Longfields Drive

Ø1	Ø2 (R)	Ø3	Ø4
12 s	55 s	15 s	33 s
Ø5	Ø6 (R)	Ø7	Ø8
12 s	55 s	15 s	33 s

South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

2026 TT PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	134	301	41	72	713	3	52	329	236	6	626	308
Future Volume (vph)	134	301	41	72	713	3	52	329	236	6	626	308
Satd. Flow (prot)	1496	1745	1469	1691	1778	0	1551	1581	0	1691	1762	1498
Fit Permitted	0.066			0.492			0.078			0.267		
Satd. Flow (perm)	104	1745	1469	876	1778	0	127	1581	0	475	1762	1498
Satd. Flow (RTOR)			108					29				155
Lane Group Flow (vph)	134	301	41	72	716	0	52	565	0	6	626	308
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		2	6			8			4		4
Total Split (s)	21.5	61.6	61.6	21.5	61.6		11.6	83.0		71.4	71.4	71.4
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	74.7	60.5	60.5	65.0	55.6		67.3	67.5		58.6	58.6	58.6
Actuated g/C Ratio	0.48	0.39	0.39	0.41	0.35		0.43	0.43		0.37	0.37	0.37
v/c Ratio	0.77	0.45	0.06	0.18	1.14		0.52	0.81		0.03	0.95	0.47
Control Delay	66.2	41.2	0.2	25.9	126.0		44.1	46.9		32.2	73.0	20.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	66.2	41.2	0.2	25.9	126.0		44.1	46.9		32.2	73.0	20.1
LOS	E	D	A	C	F		D	D		C	E	C
Approach Delay		44.7			116.8			46.7			55.4	
Approach LOS		D			F			D			E	
Queue Length 50th (m)	28.1	70.4	0.0	12.2	~265.9		8.8	135.0		1.1	179.6	33.3
Queue Length 95th (m)	#61.4	100.5	0.0	21.5	#337.1		16.7	181.1		4.5	#246.7	58.8
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0			30.0		55.0
Base Capacity (vph)	184	672	632	474	629		100	794		198	737	716
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	0.73	0.45	0.06	0.15	1.14		0.52	0.71		0.03	0.85	0.43

Intersection Summary

Cycle Length: 166.1
 Actuated Cycle Length: 157
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.14
 Intersection Signal Delay: 68.9
 Intersection LOS: E
 Intersection Capacity Utilization 109.5%
 ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Merivale Road & Fallowfield Road

Ø1	Ø2	Ø3	Ø4
21.5 s	61.6 s	11.6 s	71.4 s
Ø5	Ø6	Ø8	
21.5 s	61.6 s	83 s	

South Merivale Business Park TIA

4: Merivale Road & Leikin Drive

2026 TT PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	455	2	1	194	489	272
Future Volume (vph)	455	2	1	194	489	272
Satd. Flow (prot)	3188	0	1271	1648	1762	1498
Fit Permitted	0.953		0.446			
Satd. Flow (perm)	3188	0	597	1648	1762	1498
Satd. Flow (RTOR)	1					272
Lane Group Flow (vph)	457	0	1	194	489	272
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Total Split (s)	30.1		46.5	46.5	46.5	46.5
Total Lost Time (s)	5.1		6.5	6.5	6.5	6.5
Act Effct Green (s)	14.5		40.1	40.1	40.1	40.1
Actuated g/C Ratio	0.22		0.61	0.61	0.61	0.61
v/c Ratio	0.65		0.00	0.19	0.46	0.27
Control Delay	28.1		6.0	7.1	9.5	1.8
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	28.1		6.0	7.1	9.5	1.8
LOS	C		A	A	A	A
Approach Delay	28.1			7.1	6.7	
Approach LOS	C			A	A	
Queue Length 50th (m)	24.3		0.1	8.6	26.5	0.0
Queue Length 95th (m)	36.2		0.6	19.3	52.5	7.9
Internal Link Dist (m)	51.0			445.8	100.5	
Turn Bay Length (m)			100.0			85.0
Base Capacity (vph)	1206		361	997	1066	1013
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.38		0.00	0.19	0.46	0.27

Intersection Summary

Cycle Length: 76.6
 Actuated Cycle Length: 66.2
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.65
 Intersection Signal Delay: 13.7
 Intersection LOS: B
 Intersection Capacity Utilization 50.6%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 4: Merivale Road & Leikin Drive

Ø2	Ø4
46.5 s	30.1 s
Ø6	
46.5 s	

South Merivale Business Park TIA

5: Prince of Wales Drive & Merivale Road

2026 TT PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Lane Configurations							
Traffic Volume (vph)	34	619	199	374	1015	18	
Future Volume (vph)	34	619	199	374	1015	18	
Satd. Flow (prot)	1642	1483	1566	1745	3338	0	
Fit Permitted	0.950		0.195				
Satd. Flow (perm)	1642	1483	321	1745	3338	0	
Satd. Flow (RTOR)		145			2		
Lane Group Flow (vph)	34	619	199	374	1033	0	
Turn Type	Prot	pm+ov	pm+pt	NA	NA		
Protected Phases	4	5	5	2	6		3
Permitted Phases		4	2				
Total Split (s)	26.0	14.0	14.0	89.0	75.0		5.0
Total Lost Time (s)	6.8	6.4	6.4	6.5	6.5		
Act Effct Green (s)	19.2	33.6	82.6	82.5	68.5		
Actuated g/C Ratio	0.16	0.28	0.69	0.69	0.57		
v/c Ratio	0.13	1.19	0.67	0.31	0.54		
Control Delay	44.8	134.6	18.4	8.3	17.3		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	44.8	134.6	18.4	8.3	17.3		
LOS	D	F	B	A	B		
Approach Delay	129.9			11.8	17.3		
Approach LOS	F			B	B		
Queue Length 50th (m)	6.4	~138.5	13.9	29.2	69.6		
Queue Length 95th (m)	15.1	#202.8	22.0	42.1	86.1		
Internal Link Dist (m)	226.4			296.0	231.6		
Turn Bay Length (m)	80.0		90.0				
Base Capacity (vph)	262	519	299	1199	1906		
Starvation Cap Reductn	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0		
Reduced v/c Ratio	0.13	1.19	0.67	0.31	0.54		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 112 (93%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.19

Intersection Signal Delay: 48.5

Intersection LOS: D

Intersection Capacity Utilization 81.4%

ICU Level of Service D

Analysis Period (min) 15

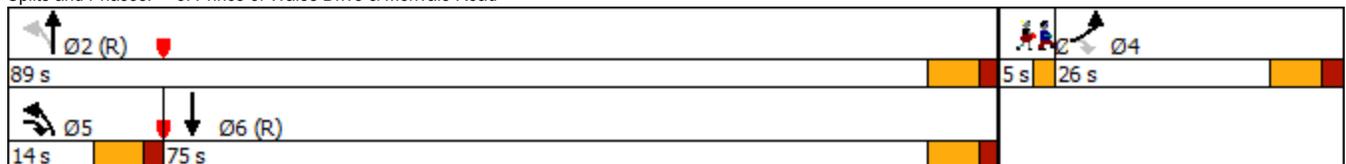
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Prince of Wales Drive & Merivale Road



South Merivale Business Park TIA

6: Leikin Drive & RCMP Driveway

2026 TT PM Peak Hour

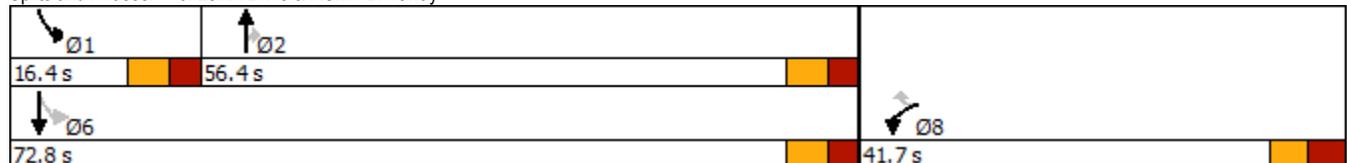


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	409	252	92	5	6	212
Future Volume (vph)	409	252	92	5	6	212
Satd. Flow (prot)	1691	1513	1648	1513	1691	1728
Fit Permitted	0.950				0.619	
Satd. Flow (perm)	1691	1391	1648	1456	1086	1728
Satd. Flow (RTOR)		252		5		
Lane Group Flow (vph)	409	252	92	5	6	212
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Total Split (s)	41.7	41.7	56.4	56.4	16.4	72.8
Total Lost Time (s)	6.7	6.7	6.4	6.4	6.4	6.4
Act Effct Green (s)	26.8	26.8	50.6	50.6	52.7	52.7
Actuated g/C Ratio	0.29	0.29	0.55	0.55	0.57	0.57
v/c Ratio	0.84	0.43	0.10	0.01	0.01	0.22
Control Delay	47.2	6.0	13.2	9.0	10.3	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.2	6.0	13.2	9.0	10.3	11.4
LOS	D	A	B	A	B	B
Approach Delay	31.5		13.0			11.4
Approach LOS	C		B			B
Queue Length 50th (m)	59.9	0.0	6.5	0.0	0.4	16.1
Queue Length 95th (m)	#108.2	16.0	19.3	1.9	2.2	31.4
Internal Link Dist (m)	69.4		182.1			276.7
Turn Bay Length (m)					200.0	
Base Capacity (vph)	645	686	899	796	682	1251
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.37	0.10	0.01	0.01	0.17

Intersection Summary

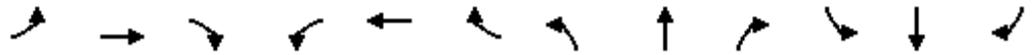
Cycle Length: 114.5
 Actuated Cycle Length: 92.7
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 25.2
 Intersection LOS: C
 Intersection Capacity Utilization 55.7%
 ICU Level of Service B
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 6: Leikin Drive & RCMP Driveway



South Merivale Business Park TIA
7: Driveway/Bill Leatham Drive & Leikin Drive

2026 TT PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	64	0	0	367	183	0	1	0	43	0	212
Future Volume (Veh/h)	72	64	0	0	367	183	0	1	0	43	0	212
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	72	64	0	0	367	183	0	1	0	43	0	212
Pedestrians		1						10			1	
Lane Width (m)		3.5						3.5			3.5	
Walking Speed (m/s)		1.0						1.0			1.0	
Percent Blockage		0						1			0	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)					206							
pX, platoon unblocked	0.98						0.98	0.98		0.98	0.98	0.98
vC, conflicting volume	551			74			798	769	74	668	678	460
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	531			74			783	754	74	651	660	439
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			100			100	100	100	88	100	65
cM capacity (veh/h)	1024			1523			185	307	984	352	347	606
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	72	64	0	550	1	255						
Volume Left	72	0	0	0	0	43						
Volume Right	0	0	0	183	0	212						
cSH	1024	1700	1700	1700	307	541						
Volume to Capacity	0.07	0.04	0.00	0.32	0.00	0.47						
Queue Length 95th (m)	1.6	0.0	0.0	0.0	0.1	17.5						
Control Delay (s)	8.8	0.0	0.0	0.0	16.8	17.5						
Lane LOS	A				C	C						
Approach Delay (s)	4.6		0.0		16.8	17.5						
Approach LOS					C	C						
Intersection Summary												
Average Delay			5.4									
Intersection Capacity Utilization			69.5%		ICU Level of Service				C			
Analysis Period (min)			15									

Scheme Summary

Control Data

Control Data and Model Parameters

120187	2026 PHF Flow Profile (veh)
2026 Total Traffic Volumes	7.5 min Time Slice
Rodel-Win1	Queuing Delays (sec)
Right Hand Drive	Daylight conditions
AM Peak Hour	Peak 60/15 min Results
AVERAGE DELAY to Geometry	Output flows: Vehicles
Metric Units (m)	85% Confidence Level

Available Data

Entry Capacity Calibrated	No
Entry Capacity Modified	No
Crosswalks	No
Flows Factored	No
Approach/Exit Road Capacity Calibrated	No
Accidents	No
Accident Costs	No
Bypass Model	No
Bypass Calibration	No
Global Results	Yes

Operational Data

Main Geometry (m)

Geometry and Design Target

Leg	Leg Names	Approach Geometry (m)				Target Average Delay (sec/veh)	Circulating and Exit Geom		
		Bearing (deg)	Grade Sep G	Half Width V	Lanes n		Inscribed Diameter D	Half Width Vx	Lanes n
1	SB - Access	0	0	4.20	1	30	40.00	5.50	1
2	EB - Longfields	90	0	3.50	1	30	40.00	4.20	1
3	NB - Bill Leathem	180	0	5.50	1	30	40.00	4.20	1
4	WB - Access	270	0	4.20	1	30	40.00	3.50	1

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (m)	Default Capacity	Calib Capacity	V (m)	Default Capacity	Calib Capacity
1	SB - Access	0	1.000	0	1.000	6.00	2058	0	5.50	2695	0
2	EB - Longfields	0	1.000	0	1.000	6.00	1715	0	4.20	2058	0
3	NB - Bill Leathem	0	1.000	0	1.000	6.00	2695	0	4.20	2058	0
4	WB - Access	0	1.000	0	1.000	6.00	2058	0	3.50	1715	0

Traffic Flow Data (veh/hr)

2026 AM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers		
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor	Peak Hour Factor
1	SB - Access	0	0	65	35	0	10.0	1.00	1.000
2	EB - Longfields	0	2	1	363	0	10.0	1.00	1.000
3	NB - Bill Leathem	0	185	3	2	0	10.0	1.00	1.000
4	WB - Access	0	65	35	0	0	10.0	1.00	1.000

Operational Results

Geometry for Target Input

Geometry Options for 2026 AM Peak

				Leg 1 - SB - Access	
nv	ne	nc	nx	E (m)	L' (m)
1	1	3	2	4.20	0.00

Geometry Options for 2026 AM Peak

				Leg 2 - EB - Longfields	
nv	ne	nc	nx	E (m)	L' (m)
1	1	3	2	3.50	0.00

Geometry Options for 2026 AM Peak

				Leg 3 - NB - Bill Leathem	
nv	ne	nc	nx	E (m)	L' (m)
1	1	3	1	5.50	0.00

Geometry Options for 2026 AM Peak

				Leg 4 - WB - Access	
nv	ne	nc	nx	E (m)	L' (m)
1	1	3	2	4.20	0.00

2026 AM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	SB - Access	None	100		285		5	736		0.1358	
2	EB - Longfields	None	366		130		255	645		0.5678	
3	NB - Bill Leatham	None	190		3		493	1204		0.1577	
4	WB - Access	None	100		190		3	785		0.1275	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	SB - Access	None	5.06		5.06	0.37		A		A
2	EB - Longfields	None	10.39		10.39	2.72		B		B
3	NB - Bill Leatham	None	3.17		3.17	0.44		A		A
4	WB - Access	None	4.71		4.71	0.35		A		A

2026 AM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	SB - Access	None	100		285		5	736		0.1358	
2	EB - Longfields	None	366		130		255	645		0.5678	
3	NB - Bill Leatham	None	190		3		493	1204		0.1577	
4	WB - Access	None	100		190		3	785		0.1275	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	SB - Access	None	5.06		5.06	0.37		A		A
2	EB - Longfields	None	10.44		10.44	2.72		B		B
3	NB - Bill Leatham	None	3.17		3.17	0.44		A		A
4	WB - Access	None	4.71		4.71	0.35		A		A

Scheme Summary

Control Data

Control Data and Model Parameters

120187	2026 PHF Flow Profile (veh)
2026 Total Traffic Volumes	7.5 min Time Slice
Rodel-Win1	Queuing Delays (sec)
Right Hand Drive	Daylight conditions
PM Peak Hour	Peak 60/15 min Results
AVERAGE DELAY to Geometry	Output flows: Vehicles
Metric Units (m)	85% Confidence Level

Available Data

Entry Capacity Calibrated	No
Entry Capacity Modified	No
Crosswalks	No
Flows Factored	No
Approach/Exit Road Capacity Calibrated	No
Accidents	No
Accident Costs	No
Bypass Model	No
Bypass Calibration	No
Global Results	Yes

Operational Data

Main Geometry (m)

Geometry and Design Target

Leg	Leg Names	Approach Geometry (m)				Target Average Delay (sec/veh)	Circulating and Exit Geom		
		Bearing (deg)	Grade Sep G	Half Width V	Lanes n		Inscribed Diameter D	Half Width Vx	Lanes n
1	SB - Access	0	0	4.20	1	30	40.00	5.50	1
2	EB - Longfields	90	0	3.50	1	30	40.00	4.20	1
3	NB - Bill Leathem	180	0	5.50	1	30	40.00	4.20	1
4	WB - Access	270	0	4.20	1	30	40.00	3.50	1

Capacity Modifiers and Capacity Calibration (veh/hr)

Leg	Leg Names	Entry Capacity		Entry Calibration		Approach Road			Exit Road		
		Capacity + or -	XWalk Factor	Intercept + or -	Slope Factor	V (m)	Default Capacity	Calib Capacity	V (m)	Default Capacity	Calib Capacity
1	SB - Access	0	1.000	0	1.000	6.00	2058	0	5.50	2695	0
2	EB - Longfields	0	1.000	0	1.000	6.00	1715	0	4.20	2058	0
3	NB - Bill Leathem	0	1.000	0	1.000	6.00	2695	0	4.20	2058	0
4	WB - Access	0	1.000	0	1.000	6.00	2058	0	3.50	1715	0

Traffic Flow Data (veh/hr)

2026 PM Peak Peak Hour Flows

Leg	Leg Names	Turning Flows					Flow Modifiers		
		U-Turn	Exit-3	Exit-2	Exit-1	Bypass	Trucks %	Flow Factor	Peak Hour Factor
1	SB - Access	0	0	63	35	0	10.0	1.00	1.000
2	EB - Longfields	0	2	2	190	0	10.0	1.00	1.000
3	NB - Bill Leathem	0	394	4	4	0	10.0	1.00	1.000
4	WB - Access	0	63	35	0	0	10.0	1.00	1.000

Operational Results

Geometry for Target Input

Geometry Options for 2026 PM Peak

				Leg 1 - SB - Access	
nv	ne	nc	nx	E (m)	L' (m)
1	1	1	1	4.20	0.00

Geometry Options for 2026 PM Peak

				Leg 2 - EB - Longfields	
nv	ne	nc	nx	E (m)	L' (m)
1	1	1	1	3.50	0.00

Geometry Options for 2026 PM Peak

				Leg 3 - NB - Bill Leathem	
nv	ne	nc	nx	E (m)	L' (m)
1	1	1	1	5.50	0.00

Geometry Options for 2026 PM Peak

				Leg 4 - WB - Access	
nv	ne	nc	nx	E (m)	L' (m)
1	1	1	1	4.20	0.00

2026 PM Peak - 60 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	SB - Access	None	98		492		6	632		0.1551	
2	EB - Longfields	None	194		126		464	646		0.3001	
3	NB - Bill Leatham	None	402		4		316	1204		0.3339	
4	WB - Access	None	98		400		6	678		0.1445	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	SB - Access	None	6.01		6.01	0.43		A		A
2	EB - Longfields	None	6.93		6.93	0.98		A		A
3	NB - Bill Leatham	None	3.89		3.89	1.14		A		A
4	WB - Access	None	5.54		5.54	0.40		A		A

2026 PM Peak - 15 minutes

Flows and Capacity

Leg	Leg Names	Bypass Type	Flows (veh/hr)					Capacity (veh/hr)			
			Arrival Flow		Opposing Flow		Exit Flow	Capacity		Average VCR	
			Entry	Bypass	Entry	Bypass		Entry	Bypass	Entry	Bypass
1	SB - Access	None	98		492		6	632		0.1551	
2	EB - Longfields	None	194		126		464	646		0.3001	
3	NB - Bill Leatham	None	402		4		316	1204		0.3339	
4	WB - Access	None	98		400		6	678		0.1445	

Delays, Queues and Level of Service

Leg	Leg Names	Bypass Type	Average Delay (sec)			95% Queue (veh)		Level of Service		
			Entry	Bypass	Leg	Entry	Bypass	Entry	Bypass	Leg
1	SB - Access	None	6.02		6.02	0.43		A		A
2	EB - Longfields	None	6.95		6.95	0.98		A		A
3	NB - Bill Leatham	None	3.90		3.90	1.14		A		A
4	WB - Access	None	5.55		5.55	0.40		A		A

South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2026 TT AM Peak Hour - Timing Adjustments

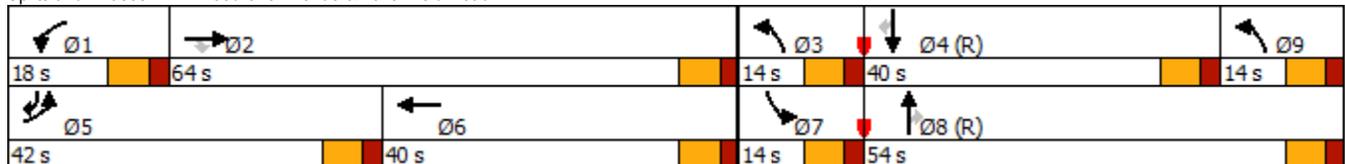
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	645	625	302	127	131	32	631	1629	516	7	423	108
Future Volume (vph)	645	625	302	127	131	32	631	1629	516	7	423	108
Satd. Flow (prot)	3248	3316	1375	2955	3133	0	3216	3349	1513	1445	3221	1363
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3248	3316	1375	2955	3133	0	3212	3349	1513	1445	3221	1345
Satd. Flow (RTOR)			302		18				364			127
Lane Group Flow (vph)	645	625	302	127	163	0	631	1629	516	7	423	108
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	9	8	7	4	5
Permitted Phases			2						8			4
Total Split (s)	42.0	64.0	64.0	18.0	40.0			54.0	54.0	14.0	40.0	42.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8			6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	33.2	35.9	35.9	10.4	13.1		44.7	80.3	80.3	6.4	24.9	58.1
Actuated g/C Ratio	0.22	0.24	0.24	0.07	0.09		0.30	0.54	0.54	0.04	0.17	0.39
v/c Ratio	0.90	0.79	0.54	0.62	0.56		0.66	0.91	0.53	0.11	0.79	0.18
Control Delay	72.8	60.9	8.1	81.3	65.4		31.2	40.5	9.3	72.6	70.9	2.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.8	60.9	8.1	81.3	65.4		31.2	40.5	9.3	72.6	70.9	2.1
LOS	E	E	A	F	E		C	D	A	E	E	A
Approach Delay		55.7			72.4			32.6			57.1	
Approach LOS		E			E			C			E	
Queue Length 50th (m)	87.7	84.8	0.0	17.6	20.5		48.7	201.1	21.3	1.9	59.3	0.0
Queue Length 95th (m)	#109.6	99.4	21.7	27.9	30.5		#89.5	#321.9	65.9	6.7	73.4	5.1
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	762	1264	711	220	707		959	1793	979	70	712	619
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	0.85	0.49	0.42	0.58	0.23		0.66	0.91	0.53	0.10	0.59	0.17

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 4:SBT and 8:NBT, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.91
 Intersection Signal Delay: 44.4
 Intersection Capacity Utilization 102.1%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Intersection LOS: D
 ICU Level of Service G

Splits and Phases: 1: Woodroffe Avenue & Fallowfield Road



South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2026 TT AM Peak Hour - Timing Adjustments

Lane Group	Ø3	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Satd. Flow (RTOR)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	9
Permitted Phases		
Total Split (s)	14.0	14.0
Total Lost Time (s)		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

2026 TT AM Peak Hour - Timing Adjustments

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	372	103	82	40	57	182	36	1536	80	214	453	111
Future Volume (vph)	372	103	82	40	57	182	36	1536	80	214	453	111
Satd. Flow (prot)	3248	1567	0	1580	1664	1513	1523	3349	1513	1642	3221	1455
Fit Permitted	0.950			0.950			0.491			0.058		
Satd. Flow (perm)	3248	1567	0	1580	1664	1490	778	3349	1478	100	3221	1391
Satd. Flow (RTOR)		28				179			179			179
Lane Group Flow (vph)	372	185	0	40	57	182	36	1536	80	214	453	111
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Total Split (s)	25.5	44.3		13.7	32.5	32.5	12.0	70.0	70.0	12.0	70.0	70.0
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
Act Effct Green (s)	18.5	27.6		6.9	13.6	13.6	69.7	63.5	63.5	87.1	78.1	78.1
Actuated g/C Ratio	0.13	0.20		0.05	0.10	0.10	0.50	0.45	0.45	0.62	0.56	0.56
v/c Ratio	0.87	0.56		0.52	0.35	0.59	0.09	1.01	1.01	0.81	0.25	0.13
Control Delay	80.0	49.6		88.1	63.2	16.1	13.1	63.8	0.3	59.5	17.9	0.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.0	49.6		88.1	63.2	16.1	13.1	63.8	0.3	59.5	17.9	0.3
LOS	F	D		F	E	B	B	E	A	E	B	A
Approach Delay		69.9			36.0			59.6			26.8	
Approach LOS		E			D			E			C	
Queue Length 50th (m)	48.4	38.5		10.1	14.2	0.7	3.1	~209.0	0.0	38.2	30.0	0.0
Queue Length 95th (m)	#70.8	53.8		#23.0	24.3	19.7	9.2	#255.4	0.0	#119.9	49.7	0.0
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	440	443		81	309	422	420	1519	768	265	1797	855
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	0.85	0.42		0.49	0.18	0.43	0.09	1.01	1.01	0.81	0.25	0.13

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 86 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 51.5

Intersection LOS: D

Intersection Capacity Utilization 99.4%

ICU Level of Service F

Analysis Period (min) 15

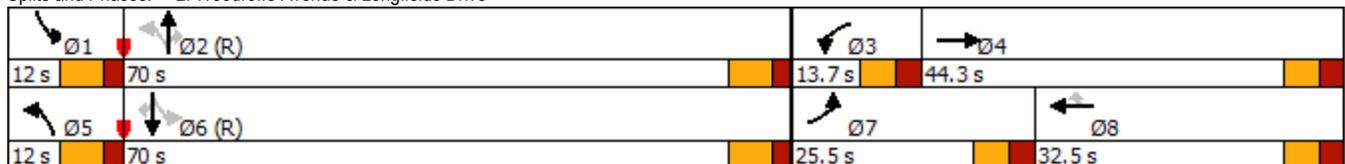
~ Volume exceeds capacity, queue is theoretically infinite.

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: 2: Woodroffe Avenue & Longfields Drive



South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

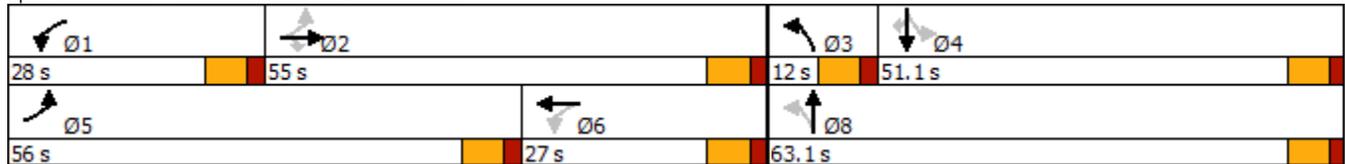
2026 TT AM Peak Hour - Timing Adjustments

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	700	432	37	242	167	5	20	668	83	0	196	56
Future Volume (vph)	700	432	37	242	167	5	20	668	83	0	196	56
Satd. Flow (prot)	1658	1762	1427	1658	1691	0	1691	1715	0	1780	1618	1327
Fit Permitted	0.324			0.511			0.495					
Satd. Flow (perm)	565	1762	1427	892	1691	0	881	1715	0	1780	1618	1327
Satd. Flow (RTOR)			123		1			5				173
Lane Group Flow (vph)	700	432	37	242	172	0	20	751	0	0	196	56
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8				4
Permitted Phases	2		2	6			8			4		4
Total Split (s)	56.0	55.0	55.0	28.0	27.0		12.0	63.1		51.1	51.1	51.1
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	76.5	52.8	52.8	37.6	20.4		56.5	56.7			49.5	49.5
Actuated g/C Ratio	0.52	0.36	0.36	0.26	0.14		0.39	0.39			0.34	0.34
v/c Ratio	1.05	0.68	0.06	0.76	0.73		0.05	1.12			0.36	0.10
Control Delay	80.1	46.8	0.2	42.4	78.2		28.4	115.1			40.1	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	80.1	46.8	0.2	42.4	78.2		28.4	115.1			40.1	0.4
LOS	F	D	A	D	E		C	F			D	A
Approach Delay		65.3			57.3			112.8			31.3	
Approach LOS		E			E			F			C	
Queue Length 50th (m)	~173.4	97.4	0.0	35.0	44.3		3.3	~230.1			41.4	0.0
Queue Length 95th (m)	#242.9	139.7	0.0	51.4	#73.1		8.5	#301.3			62.6	0.0
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0					55.0
Base Capacity (vph)	666	636	593	369	236		370	668			548	564
Starvation Cap Reductn	0	0	0	0	0		0	0			0	0
Spillback Cap Reductn	0	0	0	0	0		0	0			0	0
Storage Cap Reductn	0	0	0	0	0		0	0			0	0
Reduced v/c Ratio	1.05	0.68	0.06	0.66	0.73		0.05	1.12			0.36	0.10

Intersection Summary

Cycle Length: 146.1
 Actuated Cycle Length: 146.1
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.12
 Intersection Signal Delay: 74.8
 Intersection LOS: E
 Intersection Capacity Utilization 109.2%
 ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Merivale Road & Fallowfield Road



South Merivale Business Park TIA

7: Driveway/Bill Leathem Drive & Leikin Drive

2026 TT AM Peak Hour - Timing Adjustments

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	181	558	4	6	20	37	1	2	4	213	3	57
Future Volume (vph)	181	558	4	6	20	37	1	2	4	213	3	57
Satd. Flow (prot)	1610	1726	0	1658	1547	0	0	1611	0	0	1632	0
Fit Permitted	0.720			0.325				0.963			0.769	
Satd. Flow (perm)	1221	1726	0	566	1547	0	0	1562	0	0	1304	0
Satd. Flow (RTOR)					37			4			20	
Lane Group Flow (vph)	181	562	0	6	57	0	0	7	0	0	273	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Total Split (s)	41.5	41.5		41.5	41.5		58.0	58.0		58.0	58.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6		5.0	5.0		5.0	5.0	
Act Effct Green (s)	25.2	25.2		25.2	25.2		17.4	17.4		17.4	17.4	
Actuated g/C Ratio	0.47	0.47		0.47	0.47		0.32	0.32		0.32	0.32	
v/c Ratio	0.32	0.69		0.02	0.08		0.01	0.01		0.01	0.63	
Control Delay	11.6	17.3		9.2	5.1		11.3	11.3		11.3	22.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	11.6	17.3		9.2	5.1		11.3	11.3		11.3	22.6	
LOS	B	B		A	A		B	B		B	C	
Approach Delay		15.9			5.5		11.3	11.3			22.6	
Approach LOS		B			A		B	B			C	
Queue Length 50th (m)	9.1	35.8		0.3	0.9		0.2	0.2		0.2	18.2	
Queue Length 95th (m)	24.0	79.6		2.0	6.0		2.4	2.4		2.4	46.0	
Internal Link Dist (m)		337.1			182.1		90.9	90.9			596.0	
Turn Bay Length (m)	30.0			30.0								
Base Capacity (vph)	859	1214		398	1099		1438	1438			1202	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.21	0.46		0.02	0.05		0.00	0.00		0.00	0.23	

Intersection Summary

Cycle Length: 99.5

Actuated Cycle Length: 53.7

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 17.0

Intersection LOS: B

Intersection Capacity Utilization 63.1%

ICU Level of Service B

Analysis Period (min) 15

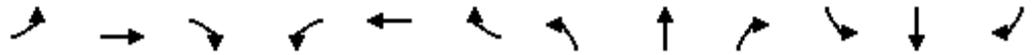
Splits and Phases: 7: Driveway/Bill Leathem Drive & Leikin Drive

	Ø2			Ø4	
41.5 s			58 s		
	Ø6			Ø8	
41.5 s			58 s		

South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

2026 TT AM Peak Hour - Roadway Modifications

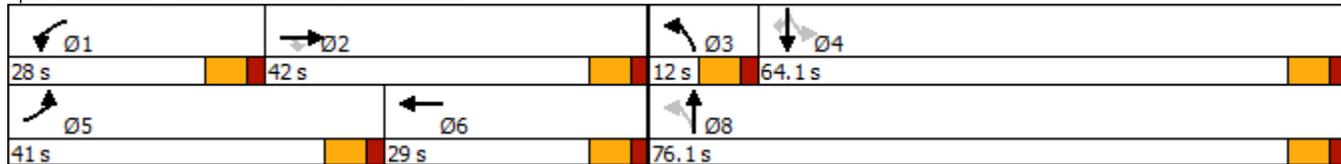


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	700	432	37	242	167	5	20	668	83	0	196	56
Future Volume (vph)	700	432	37	242	167	5	20	668	83	0	196	56
Satd. Flow (prot)	3216	1762	1427	1658	1691	0	1691	1715	0	1780	1618	1327
Fit Permitted	0.950			0.950			0.527					
Satd. Flow (perm)	3216	1762	1427	1658	1691	0	938	1715	0	1780	1618	1327
Satd. Flow (RTOR)			123		1			6				173
Lane Group Flow (vph)	700	432	37	242	172	0	20	751	0	0	196	56
Turn Type	Prot	NA	Perm	Prot	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8				4
Permitted Phases			2				8			4		4
Total Split (s)	41.0	42.0	42.0	28.0	29.0		12.0	76.1		64.1	64.1	64.1
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	32.8	35.5	35.5	21.6	24.3		63.6	63.8			56.9	56.9
Actuated g/C Ratio	0.23	0.25	0.25	0.15	0.17		0.45	0.45			0.40	0.40
v/c Ratio	0.93	0.97	0.08	0.95	0.59		0.04	0.96			0.30	0.09
Control Delay	73.2	88.4	0.4	104.9	64.7		20.8	60.6			30.6	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	73.2	88.4	0.4	104.9	64.7		20.8	60.6			30.6	0.3
LOS	E	F	A	F	E		C	E			C	A
Approach Delay		76.5			88.2			59.6			23.9	
Approach LOS		E			F			E			C	
Queue Length 50th (m)	94.7	~118.4	0.0	65.3	43.6		2.8	181.4			35.7	0.0
Queue Length 95th (m)	#126.5	#181.6	0.0	#116.1	67.2		7.2	#257.9			54.1	0.0
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0					55.0
Base Capacity (vph)	792	445	452	254	293		454	856			676	655
Starvation Cap Reductn	0	0	0	0	0		0	0			0	0
Spillback Cap Reductn	0	0	0	0	0		0	0			0	0
Storage Cap Reductn	0	0	0	0	0		0	0			0	0
Reduced v/c Ratio	0.88	0.97	0.08	0.95	0.59		0.04	0.88			0.29	0.09

Intersection Summary

Cycle Length: 146.1
 Actuated Cycle Length: 140.5
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.97
 Intersection Signal Delay: 68.3
 Intersection LOS: E
 Intersection Capacity Utilization 96.8%
 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: 3: Merivale Road & Fallowfield Road



South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

2026 TT AM Peak Hour - Demand Rationalization

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	372	103	82	40	57	182	36	1366	80	214	453	111
Future Volume (vph)	372	103	82	40	57	182	36	1366	80	214	453	111
Satd. Flow (prot)	3248	1567	0	1580	1664	1513	1523	3349	1513	1642	3221	1455
Fit Permitted	0.950			0.950			0.491			0.058		
Satd. Flow (perm)	3248	1567	0	1580	1664	1490	778	3349	1478	100	3221	1391
Satd. Flow (RTOR)		28				179			179			179
Lane Group Flow (vph)	372	185	0	40	57	182	36	1366	80	214	453	111
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Total Split (s)	25.5	44.3		13.7	32.5	32.5	12.0	70.0	70.0	12.0	70.0	70.0
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
Act Effct Green (s)	18.5	27.6		6.9	13.6	13.6	69.7	63.5	63.5	87.1	78.1	78.1
Actuated g/C Ratio	0.13	0.20		0.05	0.10	0.10	0.50	0.45	0.45	0.62	0.56	0.56
v/c Ratio	0.87	0.56		0.52	0.35	0.59	0.09	0.90	0.10	0.81	0.25	0.13
Control Delay	80.0	49.6		88.1	63.2	16.1	13.1	44.6	0.3	59.5	17.9	0.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.0	49.6		88.1	63.2	16.1	13.1	44.6	0.3	59.5	17.9	0.3
LOS	F	D		F	E	B	B	D	A	E	B	A
Approach Delay		69.9			36.0			41.4			26.8	
Approach LOS		E			D			D			C	
Queue Length 50th (m)	48.4	38.5		10.1	14.2	0.7	3.1	166.4	0.0	38.2	30.0	0.0
Queue Length 95th (m)	#70.8	53.8		#23.0	24.3	19.7	9.2	197.7	0.0	#119.9	49.7	0.0
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	440	443		81	309	422	420	1519	768	265	1797	855
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	0.85	0.42		0.49	0.18	0.43	0.09	0.90	0.10	0.81	0.25	0.13

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 86 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 42.4

Intersection LOS: D

Intersection Capacity Utilization 94.4%

ICU Level of Service F

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

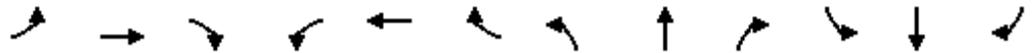
Splits and Phases: 2: Woodroffe Avenue & Longfields Drive

12 s	70 s	13.7 s	44.3 s
12 s	70 s	25.5 s	32.5 s

South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

2026 TT AM Peak Hour - Demand Rationalization

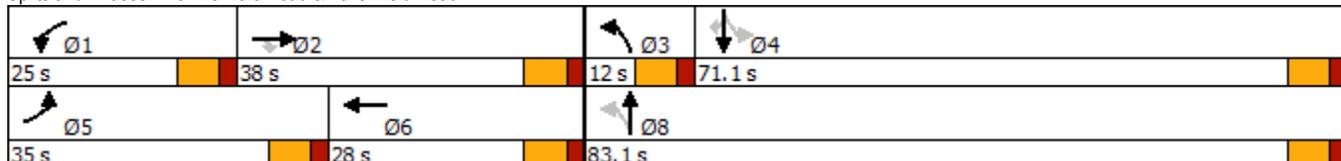


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	700	432	37	237	167	5	20	538	83	0	196	56
Future Volume (vph)	700	432	37	237	167	5	20	538	83	0	196	56
Satd. Flow (prot)	3216	1762	1427	1658	1691	0	1691	1710	0	1780	1618	1327
Fit Permitted	0.950			0.950			0.507					
Satd. Flow (perm)	3216	1762	1427	1658	1691	0	902	1710	0	1780	1618	1327
Satd. Flow (RTOR)			123		1			8				173
Lane Group Flow (vph)	700	432	37	237	172	0	20	621	0	0	196	56
Turn Type	Prot	NA	Perm	Prot	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8				4
Permitted Phases			2				8			4		4
Total Split (s)	35.0	38.0	38.0	25.0	28.0		12.0	83.1		71.1	71.1	71.1
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	28.8	31.7	31.7	18.7	21.6		46.4	46.6			42.2	42.2
Actuated g/C Ratio	0.25	0.27	0.27	0.16	0.19		0.40	0.40			0.36	0.36
v/c Ratio	0.88	0.90	0.08	0.89	0.55		0.05	0.90			0.34	0.09
Control Delay	57.5	66.0	0.3	83.7	53.1		19.9	49.7			29.3	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	57.5	66.0	0.3	83.7	53.1		19.9	49.7			29.3	0.3
LOS	E	E	A	F	D		B	D			C	A
Approach Delay		58.8			70.8			48.7			22.8	
Approach LOS		E			E			D			C	
Queue Length 50th (m)	72.5	86.7	0.0	48.8	32.5		2.5	118.5			27.5	0.0
Queue Length 95th (m)	#130.2	#175.4	0.0	#111.4	62.9		6.7	162.5			50.5	0.0
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0					55.0
Base Capacity (vph)	793	478	477	265	314		395	1138			906	819
Starvation Cap Reductn	0	0	0	0	0		0	0			0	0
Spillback Cap Reductn	0	0	0	0	0		0	0			0	0
Storage Cap Reductn	0	0	0	0	0		0	0			0	0
Reduced v/c Ratio	0.88	0.90	0.08	0.89	0.55		0.05	0.55			0.22	0.07

Intersection Summary

Cycle Length: 146.1
 Actuated Cycle Length: 116.7
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 54.5
 Intersection LOS: D
 Intersection Capacity Utilization 89.3%
 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.

Splits and Phases: 3: Merivale Road & Fallowfield Road



South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2026 TT PM Peak Hour - Timing Adjustments



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	192	233	701	540	511	11	399	746	228	16	1553	588
Future Volume (vph)	192	233	701	540	511	11	399	746	228	16	1553	588
Satd. Flow (prot)	3216	3252	1498	3281	3318	0	3185	3349	1455	1691	3349	1483
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	3252	1498	3281	3318	0	3185	3349	1417	1691	3349	1483
Satd. Flow (RTOR)			181		1				228			141
Lane Group Flow (vph)	192	233	701	540	522	0	399	746	228	16	1553	588
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2						8			4
Total Split (s)	22.0	40.0	40.0	36.0	54.0		22.0	96.2	96.2	15.0	89.2	22.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8		6.8	6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	14.5	33.2	33.2	29.2	47.9		15.2	95.6	95.6	7.1	82.4	103.7
Actuated g/C Ratio	0.08	0.18	0.18	0.16	0.26		0.08	0.51	0.51	0.04	0.44	0.55
v/c Ratio	0.77	0.40	1.69	1.06	0.61		1.55	0.44	0.27	0.25	1.05	0.67
Control Delay	105.0	70.7	351.9	128.0	65.2		313.9	30.7	3.7	96.6	88.5	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.0	70.7	351.9	128.0	65.2		313.9	30.7	3.7	96.6	88.5	25.7
LOS	F	E	F	F	E		F	C	A	F	F	C
Approach Delay		251.6			97.2			108.5			71.5	
Approach LOS		F			F			F			E	
Queue Length 50th (m)	33.9	38.0	~299.9	~104.3	84.7		~99.0	89.2	0.0	5.5	~306.0	107.9
Queue Length 95th (m)	#48.0	51.7	#373.3	#140.0	103.9		#132.1	106.9	14.1	14.2	#343.5	148.9
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	261	576	414	511	849		258	1710	835	74	1474	884
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	0.74	0.40	1.69	1.06	0.61		1.55	0.44	0.27	0.22	1.05	0.67

Intersection Summary

Cycle Length: 187.2
 Actuated Cycle Length: 187.2
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.69
 Intersection Signal Delay: 120.6
 Intersection LOS: F
 Intersection Capacity Utilization 124.4%
 ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: Woodroffe Avenue & Fallowfield Road

36 s	40 s	22 s	89.2 s
22 s	54 s	15 s	96.2 s

South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

2026 TT PM Peak Hour - Timing Adjustments

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	24	70	108	82	250	89	864	53	131	1907	223
Future Volume (vph)	155	24	70	108	82	250	89	864	53	131	1907	223
Satd. Flow (prot)	3216	1546	0	1691	1780	1483	1642	3316	1513	1691	3349	1513
Fit Permitted	0.950			0.950			0.056			0.266		
Satd. Flow (perm)	3216	1546	0	1691	1780	1463	97	3316	1513	473	3349	1470
Satd. Flow (RTOR)		70				162			138			223
Lane Group Flow (vph)	155	94	0	108	82	250	89	864	53	131	1907	223
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Total Split (s)	16.0	32.5		16.0	32.5	32.5	11.5	69.5	69.5	12.0	70.0	70.0
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
Act Effct Green (s)	9.3	15.7		9.5	15.9	15.9	78.8	70.9	70.9	78.8	70.8	70.8
Actuated g/C Ratio	0.07	0.12		0.07	0.12	0.12	0.61	0.55	0.55	0.61	0.54	0.54
v/c Ratio	0.68	0.38		0.88	0.38	0.78	0.58	0.48	0.06	0.36	1.05	0.25
Control Delay	74.1	20.8		113.0	55.6	36.0	35.8	20.2	0.1	13.2	63.8	2.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.1	20.8		113.0	55.6	36.0	35.8	20.2	0.1	13.2	63.8	2.9
LOS	E	C		F	E	D	D	C	A	B	E	A
Approach Delay		54.0			58.5			20.5			54.9	
Approach LOS		D			E			C			D	
Queue Length 50th (m)	18.7	5.2		25.7	18.4	20.5	6.8	63.0	0.0	10.3	~254.7	0.0
Queue Length 95th (m)	#29.6	18.2		#57.0	29.9	44.1	#37.0	90.1	0.0	22.5	#319.6	11.8
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	235	365		123	356	422	153	1807	887	361	1824	902
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.26		0.88	0.23	0.59	0.58	0.48	0.06	0.36	1.05	0.25

Intersection Summary

Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 92 (71%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.05
 Intersection Signal Delay: 46.5
 Intersection LOS: D
 Intersection Capacity Utilization 90.4%
 ICU Level of Service E
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 2: Woodroffe Avenue & Longfields Drive

Ø1	Ø2 (R)	Ø3	Ø4
12 s	69.5 s	16 s	32.5 s
Ø5	Ø6 (R)	Ø7	Ø8
11.5 s	70 s	16 s	32.5 s

South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

2026 TT PM Peak Hour - Timing Adjustments

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	134	301	41	72	713	3	52	329	236	6	626	308
Future Volume (vph)	134	301	41	72	713	3	52	329	236	6	626	308
Satd. Flow (prot)	2903	1745	1469	1691	1778	0	1551	1581	0	1691	1762	1498
Fit Permitted	0.950			0.950			0.063			0.243		
Satd. Flow (perm)	2903	1745	1469	1691	1778	0	103	1581	0	433	1762	1498
Satd. Flow (RTOR)			108					26				143
Lane Group Flow (vph)	134	301	41	72	716	0	52	565	0	6	626	308
Turn Type	Prot	NA	Perm	Prot	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8				4
Permitted Phases			2				8			4		4
Total Split (s)	15.0	76.5	76.5	15.0	76.5		11.6	74.6		63.0	63.0	63.0
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	8.5	66.6	66.6	8.5	66.6		65.7	65.9		56.9	56.9	56.9
Actuated g/C Ratio	0.05	0.41	0.41	0.05	0.41		0.41	0.41		0.35	0.35	0.35
v/c Ratio	0.87	0.42	0.06	0.81	0.97		0.60	0.85		0.04	1.00	0.49
Control Delay	119.6	35.6	0.2	127.4	72.9		58.9	55.0		38.0	88.3	25.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	119.6	35.6	0.2	127.4	72.9		58.9	55.0		38.0	88.3	25.0
LOS	F	D	A	F	E		E	D		D	F	C
Approach Delay		56.2			77.9			55.3			67.2	
Approach LOS		E			E			E			E	
Queue Length 50th (m)	21.3	63.8	0.0	22.2	210.3		9.7	149.5		1.2	~205.4	39.7
Queue Length 95th (m)	#41.1	88.4	0.0	#50.3	#286.8		#20.9	#204.7		4.9	#274.8	67.6
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0			30.0		55.0
Base Capacity (vph)	154	763	703	89	778		87	690		153	624	623
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	0.87	0.39	0.06	0.81	0.92		0.60	0.82		0.04	1.00	0.49

Intersection Summary

Cycle Length: 166.1

Actuated Cycle Length: 160.6

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 65.7

Intersection LOS: E

Intersection Capacity Utilization 105.8%

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: 3: Merivale Road & Fallowfield Road

Ø1	Ø2	Ø3	Ø4
15 s	76.5 s	11.6 s	63 s
Ø5	Ø6	Ø8	
15 s	76.5 s	74.6 s	

South Merivale Business Park TIA

5: Prince of Wales Drive & Merivale Road

2026 TT PM Peak Hour - Timing Adjustments

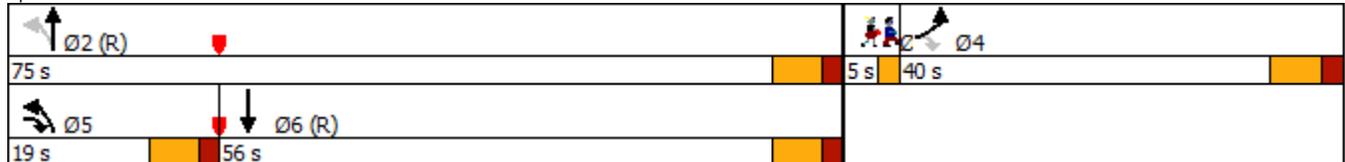


Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Lane Configurations							
Traffic Volume (vph)	34	619	199	374	1015	18	
Future Volume (vph)	34	619	199	374	1015	18	
Satd. Flow (prot)	1642	1483	1566	1745	3338	0	
Fit Permitted	0.950		0.130				
Satd. Flow (perm)	1642	1483	214	1745	3338	0	
Satd. Flow (RTOR)		100			2		
Lane Group Flow (vph)	34	619	199	374	1033	0	
Turn Type	Prot	pm+ov	pm+pt	NA	NA		
Protected Phases	4	5	5	2	6		3
Permitted Phases		4	2				
Total Split (s)	40.0	19.0	19.0	75.0	56.0		5.0
Total Lost Time (s)	6.8	6.4	6.4	6.5	6.5		
Act Effct Green (s)	33.1	51.8	68.7	68.6	50.3		
Actuated g/C Ratio	0.28	0.43	0.57	0.57	0.42		
v/c Ratio	0.08	0.89	0.78	0.37	0.74		
Control Delay	32.8	42.7	37.9	15.4	33.3		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	32.8	42.7	37.9	15.4	33.3		
LOS	C	D	D	B	C		
Approach Delay	42.1			23.2	33.3		
Approach LOS	D			C	C		
Queue Length 50th (m)	5.5	104.4	20.1	42.1	98.6		
Queue Length 95th (m)	12.9	#170.5	#49.5	60.8	122.0		
Internal Link Dist (m)	226.4			296.0	231.6		
Turn Bay Length (m)	80.0		90.0				
Base Capacity (vph)	454	683	264	998	1401		
Starvation Cap Reductn	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0		
Reduced v/c Ratio	0.07	0.91	0.75	0.37	0.74		

Intersection Summary

Cycle Length: 120
 Actuated Cycle Length: 120
 Offset: 112 (93%), Referenced to phase 2:NBT and 6:SBT, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.89
 Intersection Signal Delay: 33.3
 Intersection LOS: C
 Intersection Capacity Utilization 81.4%
 ICU Level of Service D
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 5: Prince of Wales Drive & Merivale Road



South Merivale Business Park TIA

7: Driveway/Bill Leathem Drive & Leikin Drive

2026 TT PM Peak Hour - Timing Adjustments

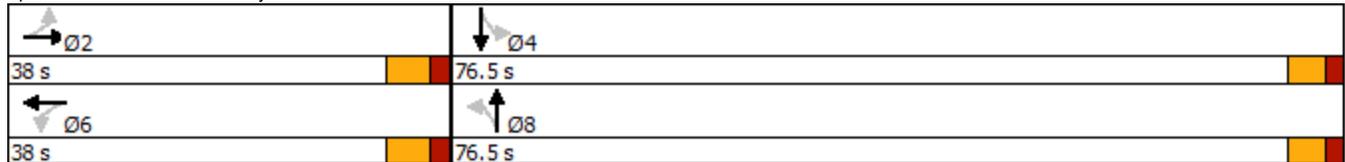
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	64	0	0	367	183	0	1	0	43	0	212
Future Volume (vph)	72	64	0	0	367	183	0	1	0	43	0	212
Satd. Flow (prot)	1691	1534	0	1780	1651	0	0	1780	0	0	1524	0
Fit Permitted	0.407										0.943	
Satd. Flow (perm)	724	1534	0	1780	1651	0	0	1780	0	0	1449	0
Satd. Flow (RTOR)					22						198	
Lane Group Flow (vph)	72	64	0	0	550	0	0	1	0	0	255	0
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Total Split (s)	38.0	38.0		38.0	38.0		76.5	76.5		76.5	76.5	
Total Lost Time (s)	5.6	5.6		5.6	5.6			5.0			5.0	
Act Effct Green (s)	32.8	32.8			32.8			10.5			10.5	
Actuated g/C Ratio	0.61	0.61			0.61			0.19			0.19	
v/c Ratio	0.16	0.07			0.54			0.00			0.58	
Control Delay	6.0	4.8			8.6			17.0			11.7	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	6.0	4.8			8.6			17.0			11.7	
LOS	A	A			A			B			B	
Approach Delay		5.5			8.6			17.0			11.7	
Approach LOS		A			A			B			B	
Queue Length 50th (m)	2.3	1.9			22.1			0.1			4.3	
Queue Length 95th (m)	7.2	5.7			47.0			1.0			19.2	
Internal Link Dist (m)		337.1			182.1			90.9			596.0	
Turn Bay Length (m)	30.0											
Base Capacity (vph)	440	933			1012			1780			1449	
Starvation Cap Reductn	0	0			0			0			0	
Spillback Cap Reductn	0	0			0			0			0	
Storage Cap Reductn	0	0			0			0			0	
Reduced v/c Ratio	0.16	0.07			0.54			0.00			0.18	

Intersection Summary

Cycle Length: 114.5
 Actuated Cycle Length: 53.9
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.58
 Intersection Signal Delay: 9.0
 Intersection Capacity Utilization 77.1%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service D

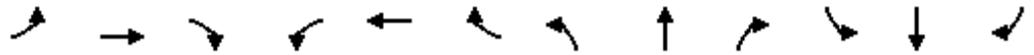
Splits and Phases: 7: Driveway/Bill Leathem Drive & Leikin Drive



South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2026 TT PM Peak Hour - Roadway Modifications



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	192	233	701	540	511	11	399	746	228	16	1553	588
Future Volume (vph)	192	233	701	540	511	11	399	746	228	16	1553	588
Satd. Flow (prot)	3216	3252	2637	3281	3318	0	3185	3349	1455	1691	3349	1483
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	3252	2637	3281	3318	0	3185	3349	1417	1691	3349	1483
Satd. Flow (RTOR)					1				228			141
Lane Group Flow (vph)	192	233	701	540	522	0	399	746	228	16	1553	588
Turn Type	Prot	NA	pt+ov	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2	2 3	1	6		3	8		7	4	5
Permitted Phases									8			4
Total Split (s)	22.0	40.0		36.0	54.0		22.0	96.2	96.2	15.0	89.2	22.0
Total Lost Time (s)	6.8	6.8		6.8	6.8		6.8	6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	14.5	33.2	55.2	29.2	47.9		15.2	95.6	95.6	7.1	82.4	103.7
Actuated g/C Ratio	0.08	0.18	0.29	0.16	0.26		0.08	0.51	0.51	0.04	0.44	0.55
v/c Ratio	0.77	0.40	0.90	1.06	0.61		1.55	0.44	0.27	0.25	1.05	0.67
Control Delay	105.0	70.7	79.0	128.0	65.2		313.9	30.7	3.7	96.6	88.5	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.0	70.7	79.0	128.0	65.2		313.9	30.7	3.7	96.6	88.5	25.7
LOS	F	E	E	F	E		F	C	A	F	F	C
Approach Delay		81.7			97.2			108.5			71.5	
Approach LOS		F			F			F			E	
Queue Length 50th (m)	33.9	38.0	132.9	~104.3	84.7		~99.0	89.2	0.0	5.5	~306.0	107.9
Queue Length 95th (m)	#48.0	51.7	#167.7	#140.0	103.9		#132.1	106.9	14.1	14.2	#343.5	148.9
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	261	576	777	511	849		258	1710	835	74	1474	884
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	0.74	0.40	0.90	1.06	0.61		1.55	0.44	0.27	0.22	1.05	0.67

Intersection Summary

Cycle Length: 187.2

Actuated Cycle Length: 187.2

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.55

Intersection Signal Delay: 87.2

Intersection LOS: F

Intersection Capacity Utilization 104.6%

ICU Level of Service G

Analysis Period (min) 15

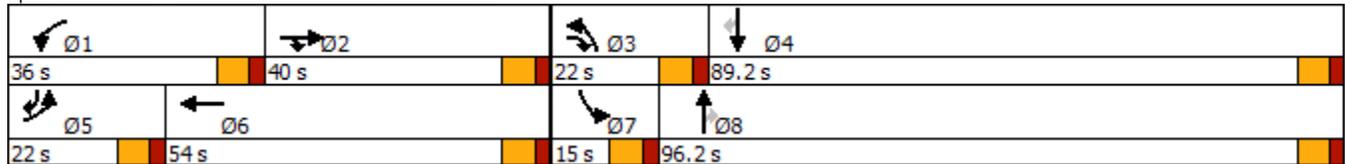
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Woodroffe Avenue & Fallowfield Road



South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

2026 TT PM Peak Hour - Roadway Modifications

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	134	301	41	72	713	3	52	329	236	6	626	308
Future Volume (vph)	134	301	41	72	713	3	52	329	236	6	626	308
Satd. Flow (prot)	2903	1745	1469	1691	1778	0	1551	1581	0	1691	1762	1498
Fit Permitted	0.950			0.950			0.063			0.243		
Satd. Flow (perm)	2903	1745	1469	1691	1778	0	103	1581	0	433	1762	1498
Satd. Flow (RTOR)			108					26				143
Lane Group Flow (vph)	134	301	41	72	716	0	52	565	0	6	626	308
Turn Type	Prot	NA	Perm	Prot	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2				8			4		4
Total Split (s)	15.0	79.9	79.9	11.6	76.5		11.6	74.6		63.0	63.0	63.0
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	8.5	70.0	70.0	5.1	66.6		65.7	65.9		56.9	56.9	56.9
Actuated g/C Ratio	0.05	0.44	0.44	0.03	0.41		0.41	0.41		0.35	0.35	0.35
v/c Ratio	0.87	0.40	0.06	1.36	0.97		0.60	0.85		0.04	1.00	0.49
Control Delay	119.6	33.0	0.2	296.8	72.9		58.9	55.0		38.0	88.3	25.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	119.6	33.0	0.2	296.8	72.9		58.9	55.0		38.0	88.3	25.0
LOS	F	C	A	F	E		E	D		D	F	C
Approach Delay		54.5			93.4			55.3			67.2	
Approach LOS		D			F			E			E	
Queue Length 50th (m)	21.3	61.4	0.0	~29.0	210.3		9.7	149.5		1.2	~205.4	39.7
Queue Length 95th (m)	#41.1	85.0	0.0	#61.2	#286.8		#20.9	#204.7		4.9	#274.8	67.6
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0			30.0		55.0
Base Capacity (vph)	154	801	732	53	778		87	690		153	624	623
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	0.87	0.38	0.06	1.36	0.92		0.60	0.82		0.04	1.00	0.49

Intersection Summary

Cycle Length: 166.1
 Actuated Cycle Length: 160.6
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.36
 Intersection Signal Delay: 69.8
 Intersection LOS: E
 Intersection Capacity Utilization 105.8%
 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: 3: Merivale Road & Fallowfield Road

Ø1	Ø2	Ø3	Ø4
11.6 s	79.9 s	11.6 s	63 s
Ø5	Ø6	Ø7	Ø8
15 s	76.5 s	74.6 s	

South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2026 TT PM Peak Hour - Demand Rationalization

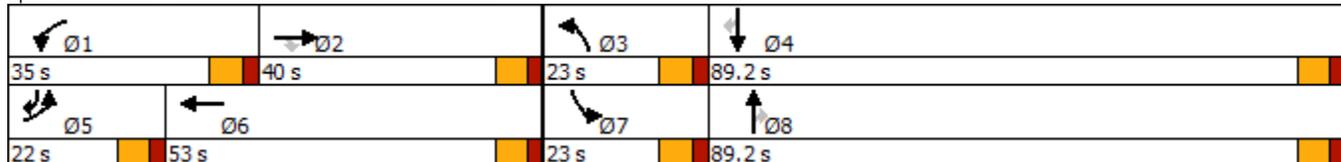


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	192	233	391	495	511	11	274	746	228	16	1473	588
Future Volume (vph)	192	233	391	495	511	11	274	746	228	16	1473	588
Satd. Flow (prot)	3216	3252	1498	3281	3318	0	3185	3349	1455	1691	3349	1483
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	3252	1498	3281	3318	0	3185	3349	1417	1691	3349	1483
Satd. Flow (RTOR)			157		1				228			101
Lane Group Flow (vph)	192	233	391	495	522	0	274	746	228	16	1473	588
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2						8			4
Total Split (s)	22.0	40.0	40.0	35.0	53.0		23.0	89.2	89.2	23.0	89.2	22.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8		6.8	6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	14.5	33.2	33.2	28.2	46.9		16.2	96.3	96.3	7.3	82.4	103.7
Actuated g/C Ratio	0.08	0.18	0.18	0.15	0.25		0.09	0.51	0.51	0.04	0.44	0.55
v/c Ratio	0.77	0.40	0.99	1.00	0.63		1.00	0.43	0.27	0.24	1.00	0.68
Control Delay	105.0	70.7	87.4	118.1	66.4		135.9	30.3	3.7	95.2	74.6	28.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.0	70.7	87.4	118.1	66.4		135.9	30.3	3.7	95.2	74.6	28.7
LOS	F	E	F	F	E		F	C	A	F	E	C
Approach Delay		86.8			91.6			48.6			61.8	
Approach LOS		F			F			D			E	
Queue Length 50th (m)	33.9	38.0	88.7	~89.5	85.4		49.5	88.2	0.0	5.5	265.8	118.6
Queue Length 95th (m)	#48.0	51.7	#155.8	#125.9	104.7		#79.4	107.3	14.2	14.0	#314.3	160.9
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	261	576	394	494	831		275	1723	839	146	1474	866
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	0.74	0.40	0.99	1.00	0.63		1.00	0.43	0.27	0.11	1.00	0.68

Intersection Summary

Cycle Length: 187.2
 Actuated Cycle Length: 187.2
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 68.4
 Intersection LOS: E
 Intersection Capacity Utilization 100.4%
 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: Woodroffe Avenue & Fallowfield Road



South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

2026 TT PM Peak Hour - Demand Rationalization

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	24	70	108	82	250	89	864	53	131	1647	223
Future Volume (vph)	155	24	70	108	82	250	89	864	53	131	1647	223
Satd. Flow (prot)	3216	1546	0	1691	1780	1483	1642	3316	1513	1691	3349	1513
Fit Permitted	0.950			0.950			0.056			0.266		
Satd. Flow (perm)	3216	1546	0	1691	1780	1463	97	3316	1513	473	3349	1470
Satd. Flow (RTOR)		70				162			138			223
Lane Group Flow (vph)	155	94	0	108	82	250	89	864	53	131	1647	223
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Total Split (s)	16.0	32.5		16.0	32.5	32.5	11.5	69.5	69.5	12.0	70.0	70.0
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
Act Effct Green (s)	9.3	15.7		9.5	15.9	15.9	78.8	70.9	70.9	78.8	70.8	70.8
Actuated g/C Ratio	0.07	0.12		0.07	0.12	0.12	0.61	0.55	0.55	0.61	0.54	0.54
v/c Ratio	0.68	0.38		0.88	0.38	0.78	0.58	0.48	0.06	0.36	0.90	0.25
Control Delay	74.1	20.8		113.0	55.6	36.0	35.8	20.2	0.1	13.2	35.6	2.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.1	20.8		113.0	55.6	36.0	35.8	20.2	0.1	13.2	35.6	2.9
LOS	E	C		F	E	D	D	C	A	B	D	A
Approach Delay		54.0			58.5			20.5			30.5	
Approach LOS		D			E			C			C	
Queue Length 50th (m)	18.7	5.2		25.7	18.4	20.5	6.8	63.0	0.0	10.3	174.7	0.0
Queue Length 95th (m)	#29.6	18.2		#57.0	29.9	44.1	#37.0	90.1	0.0	22.5	#252.8	11.8
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	235	365		123	356	422	153	1807	887	361	1824	902
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.26		0.88	0.23	0.59	0.58	0.48	0.06	0.36	0.90	0.25

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 92 (71%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 32.7

Intersection LOS: C

Intersection Capacity Utilization 82.8%

ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Woodroffe Avenue & Longfields Drive

Ø1	Ø2 (R)	Ø3	Ø4
12 s	69.5 s	16 s	32.5 s
Ø5	Ø6 (R)	Ø7	Ø8
11.5 s	70 s	16 s	32.5 s

South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

2026 TT PM Peak Hour - Demand Rationalization

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	134	301	41	72	623	3	52	329	236	6	546	308
Future Volume (vph)	134	301	41	72	623	3	52	329	236	6	546	308
Satd. Flow (prot)	2903	1745	1469	1691	1778	0	1551	1581	0	1691	1762	1498
Fit Permitted	0.950			0.950			0.121			0.253		
Satd. Flow (perm)	2903	1745	1469	1691	1778	0	198	1581	0	450	1762	1498
Satd. Flow (RTOR)			108					26				164
Lane Group Flow (vph)	134	301	41	72	626	0	52	565	0	6	546	308
Turn Type	Prot	NA	Perm	Prot	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8				4
Permitted Phases			2				8			4		4
Total Split (s)	15.0	76.5	76.5	15.0	76.5		11.6	74.6		63.0	63.0	63.0
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	8.9	56.0	56.0	8.8	55.9		57.9	58.2		49.6	49.6	49.6
Actuated g/C Ratio	0.06	0.39	0.39	0.06	0.39		0.40	0.41		0.35	0.35	0.35
v/c Ratio	0.74	0.44	0.06	0.69	0.90		0.40	0.86		0.04	0.90	0.49
Control Delay	94.3	35.4	0.2	104.0	59.8		38.1	52.3		37.0	65.0	20.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	94.3	35.4	0.2	104.0	59.8		38.1	52.3		37.0	65.0	20.8
LOS	F	D	A	F	E		D	D		D	E	C
Approach Delay		49.0			64.4			51.1			49.0	
Approach LOS		D			E			D			D	
Queue Length 50th (m)	19.9	63.6	0.0	20.7	169.0		8.6	133.5		1.1	144.1	30.6
Queue Length 95th (m)	#41.1	88.4	0.0	#50.3	220.3		18.3	#204.7		4.9	#222.5	61.6
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0			30.0		55.0
Base Capacity (vph)	180	891	803	105	908		129	801		186	729	716
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	0.74	0.34	0.05	0.69	0.69		0.40	0.71		0.03	0.75	0.43

Intersection Summary

Cycle Length: 166.1
 Actuated Cycle Length: 143.4
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 53.5
 Intersection LOS: D
 Intersection Capacity Utilization 100.8%
 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: 3: Merivale Road & Fallowfield Road

15 s	76.5 s	11.6 s	63 s
15 s	76.5 s	74.6 s	

South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2026 TT PM Peak Hour - Demand Rationalization with dual EBR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	192	233	701	495	511	11	274	746	228	16	1473	588
Future Volume (vph)	192	233	701	495	511	11	274	746	228	16	1473	588
Satd. Flow (prot)	3216	3252	2637	3281	3318	0	3185	3349	1455	1691	3349	1483
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	3252	2637	3281	3318	0	3185	3349	1417	1691	3349	1483
Satd. Flow (RTOR)					1				228			141
Lane Group Flow (vph)	192	233	701	495	522	0	274	746	228	16	1473	588
Turn Type	Prot	NA	pt+ov	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2	2 3	1	6		3	8		7	4	5
Permitted Phases									8			4
Total Split (s)	22.0	40.0		35.0	53.0		23.0	96.2	96.2	16.0	89.2	22.0
Total Lost Time (s)	6.8	6.8		6.8	6.8		6.8	6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	14.5	33.2	56.2	28.2	46.9		16.2	96.4	96.4	7.3	82.4	103.7
Actuated g/C Ratio	0.08	0.18	0.30	0.15	0.25		0.09	0.51	0.51	0.04	0.44	0.55
v/c Ratio	0.77	0.40	0.89	1.00	0.63		1.00	0.43	0.27	0.25	1.00	0.67
Control Delay	105.0	70.7	76.4	118.1	66.4		135.9	30.2	3.6	95.6	74.6	25.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	105.0	70.7	76.4	118.1	66.4		135.9	30.2	3.6	95.6	74.6	25.7
LOS	F	E	E	F	E		F	C	A	F	E	C
Approach Delay		80.1			91.6			48.6			60.9	
Approach LOS		F			F			D			E	
Queue Length 50th (m)	33.9	38.0	131.9	~89.5	85.4		49.5	88.2	0.0	5.5	265.8	107.9
Queue Length 95th (m)	#48.0	51.7	#164.8	#125.9	104.7		#79.4	106.9	14.1	14.1	#314.3	148.9
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	261	576	791	494	831		275	1724	840	83	1474	884
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	0.74	0.40	0.89	1.00	0.63		1.00	0.43	0.27	0.19	1.00	0.67

Intersection Summary

Cycle Length: 187.2
 Actuated Cycle Length: 187.2
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 67.7
 Intersection LOS: E
 Intersection Capacity Utilization 100.8%
 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.

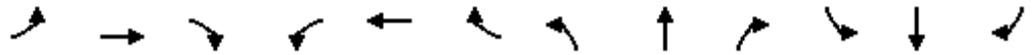
Splits and Phases: 1: Woodroffe Avenue & Fallowfield Road

35 s	40 s	23 s	89.2 s
22 s	53 s	16 s	96.2 s

South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2031 TT AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	687	667	320	136	139	34	671	1735	551	7	449	115
Future Volume (vph)	687	667	320	136	139	34	671	1735	551	7	449	115
Satd. Flow (prot)	3248	3316	1375	2955	3133	0	3216	3349	1513	1445	3221	1363
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3248	3316	1375	2955	3133	0	3212	3349	1513	1445	3221	1345
Satd. Flow (RTOR)			320		18				331			176
Lane Group Flow (vph)	687	667	320	136	173	0	671	1735	551	7	449	115
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	9	8	7	4	5
Permitted Phases			2						8			4
Total Split (s)	38.0	60.0	60.0	18.0	40.0			60.0	60.0	12.0	37.0	38.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8			6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	31.2	37.9	37.9	10.6	17.3		41.8	78.1	78.1	6.4	25.7	56.9
Actuated g/C Ratio	0.21	0.25	0.25	0.07	0.12		0.28	0.52	0.52	0.04	0.17	0.38
v/c Ratio	1.02	0.80	0.55	0.65	0.46		0.75	0.99	0.58	0.11	0.81	0.18
Control Delay	96.8	59.7	7.7	83.0	58.1		37.9	55.5	13.2	72.6	72.1	0.8
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	96.8	59.7	7.7	83.0	58.1		37.9	55.5	13.2	72.6	72.1	0.8
LOS	F	E	A	F	E		D	E	B	E	E	A
Approach Delay		65.0			69.0			43.6			57.7	
Approach LOS		E			E			D			E	
Queue Length 50th (m)	~102.2	90.8	0.0	18.9	21.1		53.8	233.2	36.6	1.9	62.9	0.0
Queue Length 95th (m)	#137.6	104.3	21.7	29.6	30.6		#115.9	#362.6	92.8	6.7	78.6	0.6
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	675	1176	694	220	707		896	1744	946	61	648	623
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	1.02	0.57	0.46	0.62	0.24		0.75	0.99	0.58	0.11	0.69	0.18

Intersection Summary

Cycle Length: 150

Actuated Cycle Length: 150

Offset: 0 (0%), Referenced to phase 4:SBT and 8:NBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.02

Intersection Signal Delay: 53.0

Intersection LOS: D

Intersection Capacity Utilization 106.5%

ICU Level of Service G

Analysis Period (min) 15

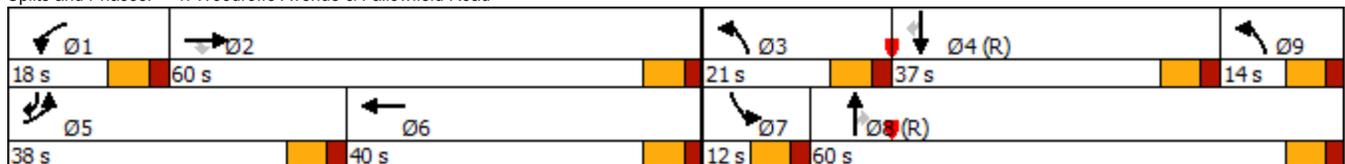
~ Volume exceeds capacity, queue is theoretically infinite.

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: Woodroffe Avenue & Fallowfield Road



South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2031 TT AM Peak Hour

Lane Group	Ø3	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Satd. Flow (RTOR)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	9
Permitted Phases		
Total Split (s)	21.0	14.0
Total Lost Time (s)		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

2031 TT AM Peak Hour

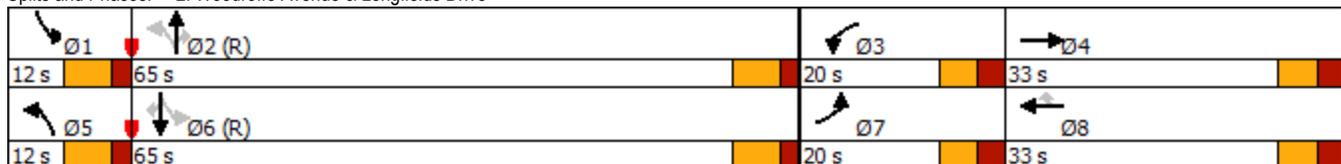


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	372	103	82	40	57	182	36	1637	80	214	483	111
Future Volume (vph)	372	103	82	40	57	182	36	1637	80	214	483	111
Satd. Flow (prot)	3248	1567	0	1580	1664	1513	1523	3349	1513	1642	3221	1455
Fit Permitted	0.950			0.950			0.476			0.063		
Satd. Flow (perm)	3248	1567	0	1580	1664	1490	756	3349	1479	109	3221	1393
Satd. Flow (RTOR)		28				138			138			138
Lane Group Flow (vph)	372	185	0	40	57	182	36	1637	80	214	483	111
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Total Split (s)	20.0	33.0		20.0	33.0	33.0	12.0	65.0	65.0	12.0	65.0	65.0
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
Act Effct Green (s)	13.5	22.8		8.7	15.6	15.6	64.8	58.5	58.5	80.1	73.5	73.5
Actuated g/C Ratio	0.10	0.18		0.07	0.12	0.12	0.50	0.45	0.45	0.62	0.57	0.57
v/c Ratio	1.10	0.62		0.38	0.29	0.61	0.09	1.09	0.11	0.82	0.27	0.13
Control Delay	132.6	52.2		67.3	53.3	23.3	12.4	85.1	0.4	58.4	16.9	2.0
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	132.6	52.2		67.3	53.3	23.3	12.4	85.1	0.4	58.4	16.9	2.0
LOS	F	D		E	D	C	B	F	A	E	B	A
Approach Delay		105.9			35.7			79.7			25.9	
Approach LOS		F			D			E			C	
Queue Length 50th (m)	~51.3	36.2		9.2	12.7	9.7	2.9	~227.9	0.0	34.7	31.2	0.0
Queue Length 95th (m)	#79.9	55.4		19.8	22.5	28.5	8.6	#266.8	0.4	#108.9	50.0	5.8
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	337	352		164	339	413	413	1507	741	260	1822	847
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	1.10	0.53		0.24	0.17	0.44	0.09	1.09	0.11	0.82	0.27	0.13

Intersection Summary

Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 86 (66%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.10
 Intersection Signal Delay: 67.6
 Intersection LOS: E
 Intersection Capacity Utilization 102.3%
 ICU Level of Service G
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

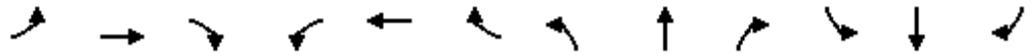
Splits and Phases: 2: Woodroffe Avenue & Longfields Drive



South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

2031 TT AM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	747	461	40	253	178	5	22	708	84	0	205	59
Future Volume (vph)	747	461	40	253	178	5	22	708	84	0	205	59
Satd. Flow (prot)	1658	1762	1427	1658	1691	0	1691	1717	0	1780	1618	1327
Fit Permitted	0.359			0.498			0.503					
Satd. Flow (perm)	626	1762	1427	869	1691	0	895	1717	0	1780	1618	1327
Satd. Flow (RTOR)			123		1			5				173
Lane Group Flow (vph)	747	461	40	253	183	0	22	792	0	0	205	59
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8				4
Permitted Phases	2		2	6			8			4		4
Total Split (s)	46.5	61.6	61.6	16.5	31.6		11.6	68.0		56.4	56.4	56.4
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	71.6	55.0	55.0	35.1	25.0		61.4	61.6			54.6	54.6
Actuated g/C Ratio	0.49	0.38	0.38	0.24	0.17		0.42	0.42			0.37	0.37
v/c Ratio	1.27	0.70	0.07	0.97	0.63		0.05	1.09			0.34	0.10
Control Delay	162.2	45.2	0.2	84.0	66.7		25.4	100.5			36.1	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	162.2	45.2	0.2	84.0	66.7		25.4	100.5			36.1	0.3
LOS	F	D	A	F	E		C	F			D	A
Approach Delay		113.8			76.8			98.5			28.1	
Approach LOS		F			E			F			C	
Queue Length 50th (m)	~212.8	103.3	0.0	39.8	45.7		3.4	~236.6			41.1	0.0
Queue Length 95th (m)	#283.4	140.1	0.0	#85.2	69.8		8.5	#308.4			61.9	0.0
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0					55.0
Base Capacity (vph)	589	663	613	262	290		403	726			605	604
Starvation Cap Reductn	0	0	0	0	0		0	0			0	0
Spillback Cap Reductn	0	0	0	0	0		0	0			0	0
Storage Cap Reductn	0	0	0	0	0		0	0			0	0
Reduced v/c Ratio	1.27	0.70	0.07	0.97	0.63		0.05	1.09			0.34	0.10

Intersection Summary

Cycle Length: 146.1

Actuated Cycle Length: 146.1

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.27

Intersection Signal Delay: 95.2

Intersection LOS: F

Intersection Capacity Utilization 114.9%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Merivale Road & Fallowfield Road

Ø1	Ø2	Ø3	Ø4
16.5 s	61.6 s	11.6 s	56.4 s
Ø5	Ø6	Ø7	Ø8
46.5 s	31.6 s	68 s	

South Merivale Business Park TIA

4: Merivale Road & Leikin Drive

2031 TT AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	414	4	0	423	75	362
Future Volume (vph)	414	4	0	423	75	362
Satd. Flow (prot)	3255	0	1728	1745	1424	1469
Fit Permitted	0.953					
Satd. Flow (perm)	3255	0	1728	1745	1424	1469
Satd. Flow (RTOR)	1					362
Lane Group Flow (vph)	418	0	0	423	75	362
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Total Split (s)	30.1		66.5	66.5	66.5	66.5
Total Lost Time (s)	5.1		6.5	6.5	6.5	6.5
Act Effct Green (s)	16.4			60.1	60.1	60.1
Actuated g/C Ratio	0.19			0.68	0.68	0.68
v/c Ratio	0.69			0.36	0.08	0.32
Control Delay	39.7			7.4	5.7	1.5
Queue Delay	0.0			0.0	0.0	0.0
Total Delay	39.7			7.4	5.7	1.5
LOS	D			A	A	A
Approach Delay	39.7			7.4	2.2	
Approach LOS	D			A	A	
Queue Length 50th (m)	31.4			23.8	3.4	0.0
Queue Length 95th (m)	44.7			44.5	8.7	8.1
Internal Link Dist (m)	50.7			445.8	100.5	
Turn Bay Length (m)						85.0
Base Capacity (vph)	925			1190	971	1117
Starvation Cap Reductn	0			0	0	0
Spillback Cap Reductn	0			0	0	0
Storage Cap Reductn	0			0	0	0
Reduced v/c Ratio	0.45			0.36	0.08	0.32

Intersection Summary

Cycle Length: 96.6
 Actuated Cycle Length: 88.1
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.69
 Intersection Signal Delay: 16.2
 Intersection Capacity Utilization 45.8%
 Analysis Period (min) 15

Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 4: Merivale Road & Leikin Drive

Ø2	Ø4
66.5 s	30.1 s
Ø6	
66.5 s	

South Merivale Business Park TIA

5: Prince of Wales Drive & Merivale Road

2031 TT AM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Lane Configurations							
Traffic Volume (vph)	12	124	567	1097	310	45	
Future Volume (vph)	12	124	567	1097	310	45	
Satd. Flow (prot)	1691	1261	1642	1745	3118	0	
Fit Permitted	0.950		0.472				
Satd. Flow (perm)	1691	1261	816	1745	3118	0	
Satd. Flow (RTOR)		124			20		
Lane Group Flow (vph)	12	124	567	1097	355	0	
Turn Type	Prot	pm+ov	pm+pt	NA	NA		
Protected Phases	4	5	5	2	6		3
Permitted Phases		4	2				
Total Split (s)	23.0	22.0	22.0	72.0	50.0		5.0
Total Lost Time (s)	6.8	6.4	6.4	6.5	6.5		
Act Effct Green (s)	10.1	37.0	71.7	71.6	45.1		
Actuated g/C Ratio	0.10	0.37	0.72	0.72	0.45		
v/c Ratio	0.07	0.23	0.76	0.88	0.25		
Control Delay	41.8	4.9	13.5	21.2	16.9		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	41.8	4.9	13.5	21.2	16.9		
LOS	D	A	B	C	B		
Approach Delay	8.2			18.6	16.9		
Approach LOS	A			B	B		
Queue Length 50th (m)	2.0	0.0	37.4	128.3	19.3		
Queue Length 95th (m)	6.8	10.1	57.1	#246.8	28.4		
Internal Link Dist (m)	226.4			296.0	233.3		
Turn Bay Length (m)	80.0		90.0				
Base Capacity (vph)	273	540	750	1249	1418		
Starvation Cap Reductn	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0		
Reduced v/c Ratio	0.04	0.23	0.76	0.88	0.25		

Intersection Summary

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 15 (15%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 17.7

Intersection LOS: B

Intersection Capacity Utilization 80.4%

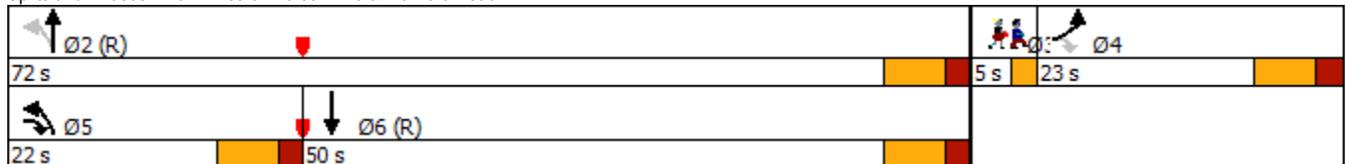
ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Prince of Wales Drive & Merivale Road



South Merivale Business Park TIA

6: Leikin Drive & RCMP Driveway

2031 TT AM Peak Hour

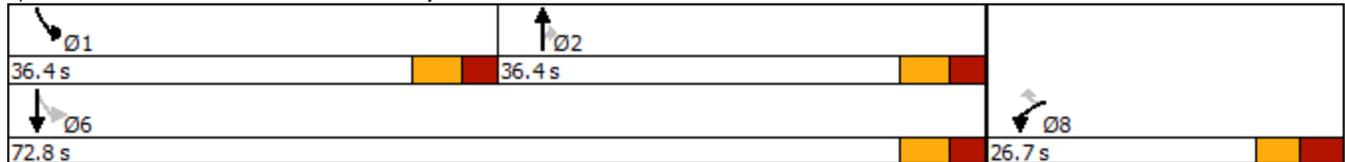


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	15	17	315	548	253	51
Future Volume (vph)	15	17	315	548	253	51
Satd. Flow (prot)	1691	1427	1728	1513	1691	1508
Fit Permitted	0.950				0.466	
Satd. Flow (perm)	1691	1325	1728	1468	826	1508
Satd. Flow (RTOR)		17		548		
Lane Group Flow (vph)	15	17	315	548	253	51
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Total Split (s)	26.7	26.7	36.4	36.4	36.4	72.8
Total Lost Time (s)	6.7	6.7	6.4	6.4	6.4	6.4
Act Effct Green (s)	11.6	11.6	31.4	31.4	46.9	51.6
Actuated g/C Ratio	0.19	0.19	0.52	0.52	0.78	0.86
v/c Ratio	0.05	0.06	0.35	0.53	0.33	0.04
Control Delay	24.7	13.3	13.8	4.0	5.0	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.7	13.3	13.8	4.0	5.0	4.0
LOS	C	B	B	A	A	A
Approach Delay	18.6		7.5			4.8
Approach LOS	B		A			A
Queue Length 50th (m)	1.1	0.0	12.2	0.0	0.3	0.0
Queue Length 95th (m)	5.9	4.5	55.5	18.3	24.3	6.1
Internal Link Dist (m)	69.4		182.1			276.7
Turn Bay Length (m)					200.0	
Base Capacity (vph)	588	472	902	1028	1096	1436
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.04	0.35	0.53	0.23	0.04

Intersection Summary

Cycle Length: 99.5
 Actuated Cycle Length: 60.1
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.53
 Intersection Signal Delay: 7.1
 Intersection LOS: A
 Intersection Capacity Utilization 63.3%
 ICU Level of Service B
 Analysis Period (min) 15

Splits and Phases: 6: Leikin Drive & RCMP Driveway



South Merivale Business Park TIA

7: Driveway/Bill Leatham Drive & Leikin Drive

2031 TT AM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	181	558	4	6	20	37	1	2	4	213	3	57
Future Volume (Veh/h)	181	558	4	6	20	37	1	2	4	213	3	57
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	181	558	4	6	20	37	1	2	4	213	3	57
Pedestrians								5				
Lane Width (m)								3.5				
Walking Speed (m/s)								1.0				
Percent Blockage								0				
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)					206							
pX, platoon unblocked												
vC, conflicting volume	57			567			1018	996	565	976	980	38
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	57			567			1018	996	565	976	980	38
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	88			99			99	99	99	0	99	95
cM capacity (veh/h)	1528			1000			183	215	524	205	219	1039
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	181	562	6	57	7	273						
Volume Left	181	0	6	0	1	213						
Volume Right	0	4	0	37	4	57						
cSH	1528	1700	1000	1700	312	246						
Volume to Capacity	0.12	0.33	0.01	0.03	0.02	1.11						
Queue Length 95th (m)	2.8	0.0	0.1	0.0	0.5	83.4						
Control Delay (s)	7.7	0.0	8.6	0.0	16.8	132.6						
Lane LOS	A		A		C	F						
Approach Delay (s)	1.9		0.8		16.8	132.6						
Approach LOS					C	F						
Intersection Summary												
Average Delay			34.8									
Intersection Capacity Utilization			60.9%		ICU Level of Service					B		
Analysis Period (min)			15									

South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2031 TT PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	248	746	576	545	12	422	792	243	17	1655	627
Future Volume (vph)	204	248	746	576	545	12	422	792	243	17	1655	627
Satd. Flow (prot)	3216	3252	1498	3281	3318	0	3185	3349	1455	1691	3349	1483
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	3252	1498	3281	3318	0	3185	3349	1417	1691	3349	1483
Satd. Flow (RTOR)			141		1				243			101
Lane Group Flow (vph)	204	248	746	576	557	0	422	792	243	17	1655	627
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2						8			4
Total Split (s)	16.8	36.8	36.8	36.8	56.8		21.8	96.8	96.8	16.8	91.8	16.8
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8		6.8	6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	10.0	30.0	30.0	30.0	50.0		15.0	97.6	97.6	7.4	85.0	101.8
Actuated g/C Ratio	0.05	0.16	0.16	0.16	0.27		0.08	0.52	0.52	0.04	0.45	0.54
v/c Ratio	1.19	0.48	2.08	1.10	0.63		1.65	0.45	0.28	0.26	1.09	0.74
Control Delay	199.4	74.9	523.1	137.7	64.0		357.3	30.0	3.5	95.7	98.6	32.9
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	199.4	74.9	523.1	137.7	64.0		357.3	30.0	3.5	95.7	98.6	32.9
LOS	F	E	F	F	E		F	C	A	F	F	C
Approach Delay		375.2			101.5			120.4			80.6	
Approach LOS		F			F			F			F	
Queue Length 50th (m)	~43.4	41.5	~363.8	~115.0	89.7		~108.1	94.0	0.0	5.8	~335.5	138.7
Queue Length 95th (m)	#69.8	56.0	#438.0	#151.0	109.2		#141.5	113.9	14.4	14.4	#372.3	187.4
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	171	521	358	525	886		255	1746	855	90	1520	852
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	1.19	0.48	2.08	1.10	0.63		1.65	0.45	0.28	0.19	1.09	0.74

Intersection Summary

Cycle Length: 187.2

Actuated Cycle Length: 187.2

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 2.08

Intersection Signal Delay: 152.0

Intersection LOS: F

Intersection Capacity Utilization 131.4%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

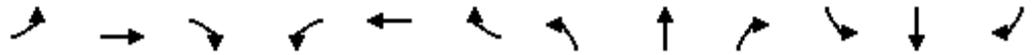
Splits and Phases: 1: Woodroffe Avenue & Fallowfield Road

36.8 s	36.8 s	21.8 s	91.8 s
16.8 s	56.8 s	16.8 s	96.8 s

South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

2031 TT PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	24	70	108	82	250	89	921	53	131	2033	223
Future Volume (vph)	155	24	70	108	82	250	89	921	53	131	2033	223
Satd. Flow (prot)	3216	1546	0	1691	1780	1483	1642	3316	1513	1691	3349	1513
Fit Permitted	0.950			0.950			0.070			0.228		
Satd. Flow (perm)	3216	1546	0	1691	1780	1464	121	3316	1513	406	3349	1472
Satd. Flow (RTOR)		70				157			157			223
Lane Group Flow (vph)	155	94	0	108	82	250	89	921	53	131	2033	223
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Total Split (s)	15.0	33.0		15.0	33.0	33.0	12.0	55.0	55.0	12.0	55.0	55.0
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
Act Effct Green (s)	8.4	15.4		8.5	15.5	15.5	64.6	57.2	57.2	65.6	57.7	57.7
Actuated g/C Ratio	0.07	0.13		0.07	0.13	0.13	0.56	0.50	0.50	0.57	0.50	0.50
v/c Ratio	0.67	0.35		0.87	0.34	0.75	0.54	0.56	0.06	0.41	1.21	0.26
Control Delay	66.3	18.0		105.4	47.0	31.8	29.1	22.9	0.2	15.1	128.7	3.4
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	66.3	18.0		105.4	47.0	31.8	29.1	22.9	0.2	15.1	128.7	3.4
LOS	E	B		F	D	C	C	C	A	B	F	A
Approach Delay		48.1			52.7			22.3			110.7	
Approach LOS		D			D			C			F	
Queue Length 50th (m)	16.3	4.5		22.6	16.0	18.6	6.5	66.4	0.0	9.8	~267.4	0.0
Queue Length 95th (m)	#27.6	16.4		#52.5	26.3	40.0	#27.5	99.2	0.0	22.7	#340.2	12.8
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	237	410		124	410	458	166	1648	831	320	1679	849
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	0.65	0.23		0.87	0.20	0.55	0.54	0.56	0.06	0.41	1.21	0.26

Intersection Summary

Cycle Length: 115

Actuated Cycle Length: 115

Offset: 92 (80%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.21

Intersection Signal Delay: 78.1

Intersection LOS: E

Intersection Capacity Utilization 94.0%

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.

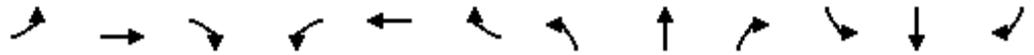
Splits and Phases: 2: Woodroffe Avenue & Longfields Drive

Ø1	Ø2 (R)	Ø3	Ø4
12 s	55 s	15 s	33 s
Ø5	Ø6 (R)	Ø7	Ø8
12 s	55 s	15 s	33 s

South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

2031 TT PM Peak Hour



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	321	44	74	760	4	56	343	243	6	666	328
Future Volume (vph)	143	321	44	74	760	4	56	343	243	6	666	328
Satd. Flow (prot)	1496	1745	1469	1691	1778	0	1551	1582	0	1691	1762	1498
Fit Permitted	0.066			0.459			0.060			0.257		
Satd. Flow (perm)	104	1745	1469	817	1778	0	98	1582	0	457	1762	1498
Satd. Flow (RTOR)			108					28				155
Lane Group Flow (vph)	143	321	44	74	764	0	56	586	0	6	666	328
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		2	6			8			4		4
Total Split (s)	21.5	61.6	61.6	21.5	61.6		11.6	83.0		71.4	71.4	71.4
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	75.0	60.4	60.4	64.8	55.2		71.2	71.4		62.4	62.4	62.4
Actuated g/C Ratio	0.47	0.38	0.38	0.40	0.34		0.44	0.44		0.39	0.39	0.39
v/c Ratio	0.82	0.49	0.07	0.19	1.25		0.64	0.82		0.03	0.98	0.49
Control Delay	75.2	43.4	0.2	26.6	169.6		57.6	47.3		32.2	77.0	21.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	75.2	43.4	0.2	26.6	169.6		57.6	47.3		32.2	77.0	21.5
LOS	E	D	A	C	F		E	D		C	E	C
Approach Delay		48.6			157.0			48.2			58.5	
Approach LOS		D			F			D			E	
Queue Length 50th (m)	31.1	76.3	0.0	12.6	~296.1		9.5	143.4		1.1	198.1	38.6
Queue Length 95th (m)	#68.4	107.7	0.0	22.1	#368.0		#22.8	192.2		4.5	#273.2	65.6
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0			30.0		55.0
Base Capacity (vph)	179	655	618	439	610		88	771		185	715	700
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	0.80	0.49	0.07	0.17	1.25		0.64	0.76		0.03	0.93	0.47

Intersection Summary

Cycle Length: 166.1

Actuated Cycle Length: 160.8

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.25

Intersection Signal Delay: 82.2

Intersection LOS: F

Intersection Capacity Utilization 115.5%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Merivale Road & Fallowfield Road

Ø1	Ø2	Ø3	Ø4
21.5 s	61.6 s	11.6 s	71.4 s
Ø5	Ø6	Ø8	
21.5 s	61.6 s	83 s	

South Merivale Business Park TIA

4: Merivale Road & Leikin Drive

2031 TT PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	455	2	1	207	522	272
Future Volume (vph)	455	2	1	207	522	272
Satd. Flow (prot)	3188	0	1271	1648	1762	1498
Fit Permitted	0.953		0.422			
Satd. Flow (perm)	3188	0	565	1648	1762	1498
Satd. Flow (RTOR)	1					272
Lane Group Flow (vph)	457	0	1	207	522	272
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	6	
Permitted Phases			2			6
Total Split (s)	30.1		46.5	46.5	46.5	46.5
Total Lost Time (s)	5.1		6.5	6.5	6.5	6.5
Act Effct Green (s)	14.5		40.1	40.1	40.1	40.1
Actuated g/C Ratio	0.22		0.61	0.61	0.61	0.61
v/c Ratio	0.65		0.00	0.21	0.49	0.27
Control Delay	28.1		6.0	7.2	9.9	1.8
Queue Delay	0.0		0.0	0.0	0.0	0.0
Total Delay	28.1		6.0	7.2	9.9	1.8
LOS	C		A	A	A	A
Approach Delay	28.1			7.2	7.1	
Approach LOS	C			A	A	
Queue Length 50th (m)	24.3		0.1	9.3	29.0	0.0
Queue Length 95th (m)	36.2		0.6	20.6	57.6	7.9
Internal Link Dist (m)	51.0			445.8	100.5	
Turn Bay Length (m)			100.0			85.0
Base Capacity (vph)	1206		341	997	1066	1013
Starvation Cap Reductn	0		0	0	0	0
Spillback Cap Reductn	0		0	0	0	0
Storage Cap Reductn	0		0	0	0	0
Reduced v/c Ratio	0.38		0.00	0.21	0.49	0.27

Intersection Summary

Cycle Length: 76.6
 Actuated Cycle Length: 66.2
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.65
 Intersection Signal Delay: 13.7
 Intersection LOS: B
 Intersection Capacity Utilization 52.4%
 ICU Level of Service A
 Analysis Period (min) 15

Splits and Phases: 4: Merivale Road & Leikin Drive

Ø2	Ø4
46.5 s	30.1 s
Ø6	
46.5 s	

South Merivale Business Park TIA

5: Prince of Wales Drive & Merivale Road

2031 TT PM Peak Hour



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Lane Configurations							
Traffic Volume (vph)	36	656	211	399	1083	19	
Future Volume (vph)	36	656	211	399	1083	19	
Satd. Flow (prot)	1642	1483	1566	1745	3338	0	
Fit Permitted	0.950		0.175				
Satd. Flow (perm)	1642	1483	288	1745	3338	0	
Satd. Flow (RTOR)		130			2		
Lane Group Flow (vph)	36	656	211	399	1102	0	
Turn Type	Prot	pm+ov	pm+pt	NA	NA		
Protected Phases	4	5	5	2	6		3
Permitted Phases		4	2				
Total Split (s)	26.0	14.0	14.0	89.0	75.0		5.0
Total Lost Time (s)	6.8	6.4	6.4	6.5	6.5		
Act Effct Green (s)	19.2	33.6	82.6	82.5	68.5		
Actuated g/C Ratio	0.16	0.28	0.69	0.69	0.57		
v/c Ratio	0.14	1.29	0.76	0.33	0.58		
Control Delay	44.9	175.0	26.0	8.5	18.0		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	44.9	175.0	26.0	8.5	18.0		
LOS	D	F	C	A	B		
Approach Delay	168.3			14.6	18.0		
Approach LOS	F			B	B		
Queue Length 50th (m)	6.8	~160.5	14.9	31.7	76.5		
Queue Length 95th (m)	15.7	#225.7	#30.5	45.5	94.3		
Internal Link Dist (m)	226.4			296.0	231.6		
Turn Bay Length (m)	80.0		90.0				
Base Capacity (vph)	262	508	279	1199	1906		
Starvation Cap Reductn	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0		
Reduced v/c Ratio	0.14	1.29	0.76	0.33	0.58		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 112 (93%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.29

Intersection Signal Delay: 60.4

Intersection LOS: E

Intersection Capacity Utilization 85.9%

ICU Level of Service E

Analysis Period (min) 15

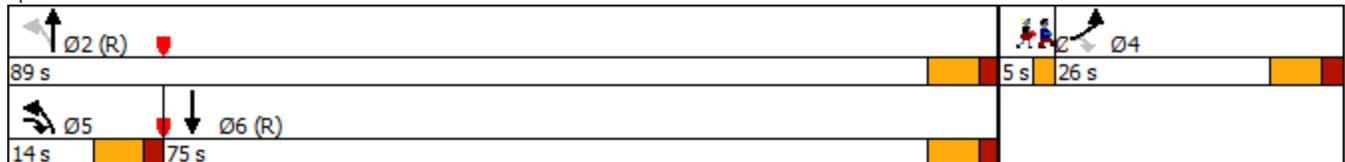
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Prince of Wales Drive & Merivale Road



South Merivale Business Park TIA

6: Leikin Drive & RCMP Driveway

2031 TT PM Peak Hour

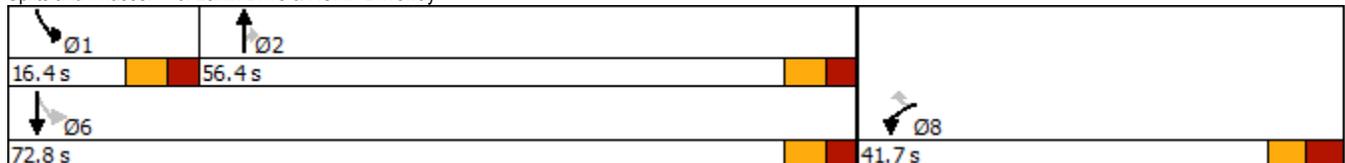


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	409	252	92	5	6	212
Future Volume (vph)	409	252	92	5	6	212
Satd. Flow (prot)	1691	1513	1648	1513	1691	1728
Fit Permitted	0.950				0.619	
Satd. Flow (perm)	1691	1391	1648	1456	1086	1728
Satd. Flow (RTOR)		252		5		
Lane Group Flow (vph)	409	252	92	5	6	212
Turn Type	Prot	Perm	NA	Perm	pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8		2	6	
Total Split (s)	41.7	41.7	56.4	56.4	16.4	72.8
Total Lost Time (s)	6.7	6.7	6.4	6.4	6.4	6.4
Act Effct Green (s)	26.8	26.8	50.6	50.6	52.7	52.7
Actuated g/C Ratio	0.29	0.29	0.55	0.55	0.57	0.57
v/c Ratio	0.84	0.43	0.10	0.01	0.01	0.22
Control Delay	47.2	6.0	13.2	9.0	10.3	11.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	47.2	6.0	13.2	9.0	10.3	11.4
LOS	D	A	B	A	B	B
Approach Delay	31.5		13.0			11.4
Approach LOS	C		B			B
Queue Length 50th (m)	59.9	0.0	6.5	0.0	0.4	16.1
Queue Length 95th (m)	#108.2	16.0	19.3	1.9	2.2	31.4
Internal Link Dist (m)	69.4		182.1			276.7
Turn Bay Length (m)					200.0	
Base Capacity (vph)	645	686	899	796	682	1251
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.37	0.10	0.01	0.01	0.17

Intersection Summary

Cycle Length: 114.5
 Actuated Cycle Length: 92.7
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.84
 Intersection Signal Delay: 25.2
 Intersection LOS: C
 Intersection Capacity Utilization 55.7%
 ICU Level of Service B
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 6: Leikin Drive & RCMP Driveway



South Merivale Business Park TIA
 7: Driveway/Bill Leatham Drive & Leikin Drive

2031 TT PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	72	64	0	0	367	183	0	1	0	43	0	212
Future Volume (Veh/h)	72	64	0	0	367	183	0	1	0	43	0	212
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Hourly flow rate (vph)	72	64	0	0	367	183	0	1	0	43	0	212
Pedestrians		1						10			1	
Lane Width (m)		3.5						3.5			3.5	
Walking Speed (m/s)		1.0						1.0			1.0	
Percent Blockage		0						1			0	
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)					206							
pX, platoon unblocked	0.98						0.98	0.98		0.98	0.98	0.98
vC, conflicting volume	551			74			798	769	74	668	678	460
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	531			74			783	754	74	651	660	439
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			100			100	100	100	88	100	65
cM capacity (veh/h)	1024			1523			185	307	984	352	347	606
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1						
Volume Total	72	64	0	550	1	255						
Volume Left	72	0	0	0	0	43						
Volume Right	0	0	0	183	0	212						
cSH	1024	1700	1700	1700	307	541						
Volume to Capacity	0.07	0.04	0.00	0.32	0.00	0.47						
Queue Length 95th (m)	1.6	0.0	0.0	0.0	0.1	17.5						
Control Delay (s)	8.8	0.0	0.0	0.0	16.8	17.5						
Lane LOS	A				C	C						
Approach Delay (s)	4.6		0.0		16.8	17.5						
Approach LOS					C	C						
Intersection Summary												
Average Delay			5.4									
Intersection Capacity Utilization			69.5%		ICU Level of Service				C			
Analysis Period (min)			15									

South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2031 TT AM Peak Hour - Timing Adjustments

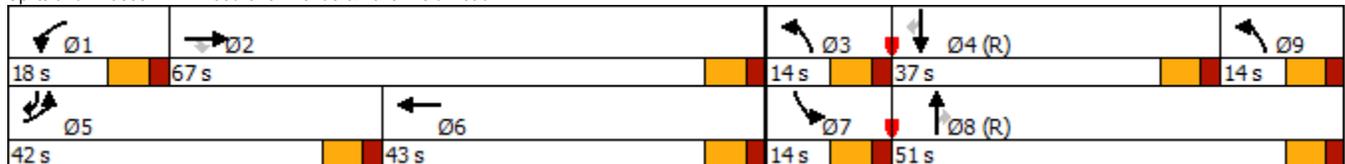
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	687	667	320	136	139	34	671	1735	551	7	449	115
Future Volume (vph)	687	667	320	136	139	34	671	1735	551	7	449	115
Satd. Flow (prot)	3248	3316	1375	2955	3133	0	3216	3349	1513	1445	3221	1363
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3248	3316	1375	2955	3133	0	3212	3349	1513	1445	3221	1345
Satd. Flow (RTOR)			320		19				351			127
Lane Group Flow (vph)	687	667	320	136	173	0	671	1735	551	7	449	115
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2						8			4
Total Split (s)	42.0	67.0	67.0	18.0	43.0			51.0	51.0	14.0	37.0	42.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8			6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	34.2	38.1	38.1	10.6	14.5		41.6	78.0	78.0	6.4	25.7	59.9
Actuated g/C Ratio	0.23	0.25	0.25	0.07	0.10		0.28	0.52	0.52	0.04	0.17	0.40
v/c Ratio	0.93	0.79	0.54	0.65	0.54		0.75	1.00	0.58	0.11	0.81	0.19
Control Delay	76.1	59.4	7.6	83.0	62.8		38.0	56.2	12.2	72.6	72.1	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	76.1	59.4	7.6	83.0	62.8		38.0	56.2	12.2	72.6	72.1	2.6
LOS	E	E	A	F	E		D	E	B	E	E	A
Approach Delay		56.3			71.7			43.9			58.1	
Approach LOS		E			E			D			E	
Queue Length 50th (m)	95.0	91.5	0.0	18.9	21.7		53.0	230.3	31.8	1.9	62.9	0.0
Queue Length 95th (m)	#125.0	103.4	21.5	29.6	31.3		#118.4	#365.3	87.4	6.7	78.6	6.3
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	762	1330	743	220	770		892	1740	955	70	648	625
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	0.90	0.50	0.43	0.62	0.22		0.75	1.00	0.58	0.10	0.69	0.18

Intersection Summary

Cycle Length: 150
 Actuated Cycle Length: 150
 Offset: 0 (0%), Referenced to phase 4:SBT and 8:NBT, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.00
 Intersection Signal Delay: 50.7
 Intersection Capacity Utilization 106.5%
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Intersection LOS: D
 ICU Level of Service G

Splits and Phases: 1: Woodroffe Avenue & Fallowfield Road



South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2031 TT AM Peak Hour - Timing Adjustments

Lane Group	Ø3	Ø9
Lane Configurations		
Traffic Volume (vph)		
Future Volume (vph)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Satd. Flow (RTOR)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	3	9
Permitted Phases		
Total Split (s)	14.0	14.0
Total Lost Time (s)		
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (m)		
Queue Length 95th (m)		
Internal Link Dist (m)		
Turn Bay Length (m)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
Reduced v/c Ratio		
Intersection Summary		

South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

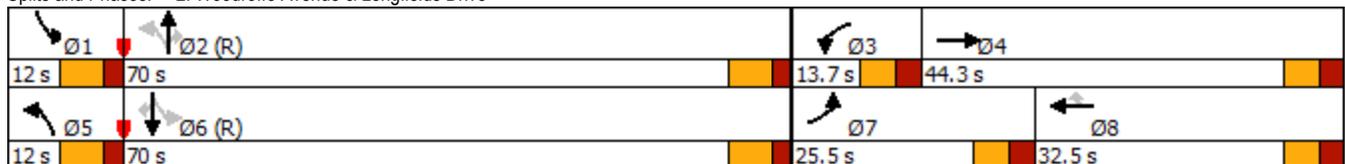
2031 TT AM Peak Hour - Timing Adjustments

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	372	103	82	40	57	182	36	1637	50	214	483	111
Future Volume (vph)	372	103	82	40	57	182	36	1637	50	214	483	111
Satd. Flow (prot)	3248	1567	0	1580	1664	1513	1523	3349	1513	1642	3221	1455
Fit Permitted	0.950			0.950			0.476			0.058		
Satd. Flow (perm)	3248	1567	0	1580	1664	1490	755	3349	1478	100	3221	1391
Satd. Flow (RTOR)		28				179			179			179
Lane Group Flow (vph)	372	185	0	40	57	182	36	1637	50	214	483	111
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Total Split (s)	25.5	44.3		13.7	32.5	32.5	12.0	70.0	70.0	12.0	70.0	70.0
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
Act Effct Green (s)	18.5	27.6		6.9	13.6	13.6	69.7	63.5	63.5	87.1	78.1	78.1
Actuated g/C Ratio	0.13	0.20		0.05	0.10	0.10	0.50	0.45	0.45	0.62	0.56	0.56
v/c Ratio	0.87	0.56		0.52	0.35	0.59	0.09	1.08	0.07	0.81	0.27	0.13
Control Delay	80.0	49.6		88.1	63.2	16.1	13.1	84.0	0.2	59.5	18.1	0.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.0	49.6		88.1	63.2	16.1	13.1	84.0	0.2	59.5	18.1	0.3
LOS	F	D		F	E	B	B	F	A	E	B	A
Approach Delay		69.9			36.0			80.1			26.6	
Approach LOS		E			D			F			C	
Queue Length 50th (m)	48.4	38.5		10.1	14.2	0.7	3.1	~244.3	0.0	38.2	32.4	0.0
Queue Length 95th (m)	#70.8	53.8		#23.0	24.3	19.7	9.2	#283.6	0.0	#119.9	53.0	0.0
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	440	443		81	309	422	409	1519	768	265	1797	855
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	0.85	0.42		0.49	0.18	0.43	0.09	1.08	0.07	0.81	0.27	0.13

Intersection Summary

Cycle Length: 140
 Actuated Cycle Length: 140
 Offset: 86 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.08
 Intersection Signal Delay: 61.9
 Intersection LOS: E
 Intersection Capacity Utilization 102.3%
 ICU Level of Service G
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 2: Woodroffe Avenue & Longfields Drive



South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

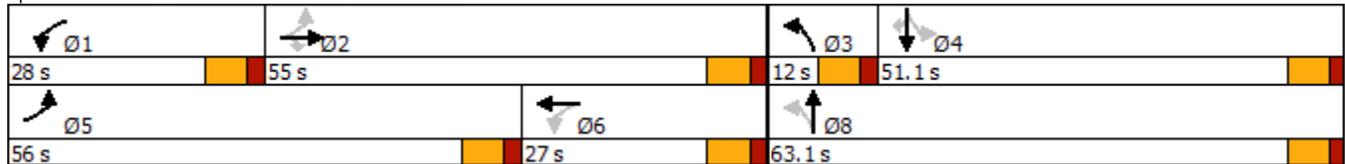
2031 TT AM Peak Hour - Timing Adjustments

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	747	461	40	253	178	5	22	708	84	0	205	59
Future Volume (vph)	747	461	40	253	178	5	22	708	84	0	205	59
Satd. Flow (prot)	1658	1762	1427	1658	1691	0	1691	1717	0	1780	1618	1327
Fit Permitted	0.298			0.498			0.484					
Satd. Flow (perm)	520	1762	1427	869	1691	0	862	1717	0	1780	1618	1327
Satd. Flow (RTOR)			123		1			5				173
Lane Group Flow (vph)	747	461	40	253	183	0	22	792	0	0	205	59
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases	2		2	6			8			4		4
Total Split (s)	56.0	55.0	55.0	28.0	27.0		12.0	63.1		51.1	51.1	51.1
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	76.5	52.3	52.3	38.1	20.4		56.5	56.7		49.5	49.5	49.5
Actuated g/C Ratio	0.52	0.36	0.36	0.26	0.14		0.39	0.39		0.34	0.34	0.34
v/c Ratio	1.14	0.73	0.07	0.79	0.78		0.06	1.18		0.37	0.37	0.10
Control Delay	110.7	49.7	0.2	45.1	82.3		28.4	136.8		40.5	40.5	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	110.7	49.7	0.2	45.1	82.3		28.4	136.8		40.5	40.5	0.4
LOS	F	D	A	D	F		C	F		D	D	A
Approach Delay		84.6			60.7			133.9			31.5	
Approach LOS		F			E			F			C	
Queue Length 50th (m)	~204.5	107.1	0.0	36.9	47.5		3.6	~252.9		43.6	43.6	0.0
Queue Length 95th (m)	#275.1	151.0	0.0	56.5	#80.4		9.1	#324.6		65.6	65.6	0.0
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0					55.0
Base Capacity (vph)	657	630	589	365	236		363	669		548	548	564
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	0.73	0.07	0.69	0.78		0.06	1.18		0.37	0.37	0.10

Intersection Summary

Cycle Length: 146.1
 Actuated Cycle Length: 146.1
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.18
 Intersection Signal Delay: 90.3
 Intersection LOS: F
 Intersection Capacity Utilization 114.9%
 ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Merivale Road & Fallowfield Road



South Merivale Business Park TIA

7: Driveway/Bill Leathem Drive & Leikin Drive

2031 TT AM Peak Hour - Timing Adjustments

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	181	558	4	6	20	37	1	2	4	213	3	57
Future Volume (vph)	181	558	4	6	20	37	1	2	4	213	3	57
Satd. Flow (prot)	1610	1726	0	1658	1547	0	0	1611	0	0	1632	0
Fit Permitted	0.720			0.325				0.963			0.769	
Satd. Flow (perm)	1221	1726	0	566	1547	0	0	1562	0	0	1304	0
Satd. Flow (RTOR)					37			4			20	
Lane Group Flow (vph)	181	562	0	6	57	0	0	7	0	0	273	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Total Split (s)	41.5	41.5		41.5	41.5		58.0	58.0		58.0	58.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6			5.0			5.0	
Act Effct Green (s)	25.2	25.2		25.2	25.2			17.4			17.4	
Actuated g/C Ratio	0.47	0.47		0.47	0.47			0.32			0.32	
v/c Ratio	0.32	0.69		0.02	0.08			0.01			0.63	
Control Delay	11.6	17.3		9.2	5.1			11.3			22.6	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	11.6	17.3		9.2	5.1			11.3			22.6	
LOS	B	B		A	A			B			C	
Approach Delay		15.9			5.5			11.3			22.6	
Approach LOS		B			A			B			C	
Queue Length 50th (m)	9.1	35.8		0.3	0.9			0.2			18.2	
Queue Length 95th (m)	24.0	79.6		2.0	6.0			2.4			46.0	
Internal Link Dist (m)		337.1			182.1			90.9			596.0	
Turn Bay Length (m)	30.0			30.0								
Base Capacity (vph)	859	1214		398	1099			1438			1202	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.21	0.46		0.02	0.05			0.00			0.23	

Intersection Summary

Cycle Length: 99.5

Actuated Cycle Length: 53.7

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 17.0

Intersection LOS: B

Intersection Capacity Utilization 63.1%

ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 7: Driveway/Bill Leathem Drive & Leikin Drive

	Ø2			Ø4
41.5 s			58 s	
	Ø6			Ø8
41.5 s			58 s	

South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

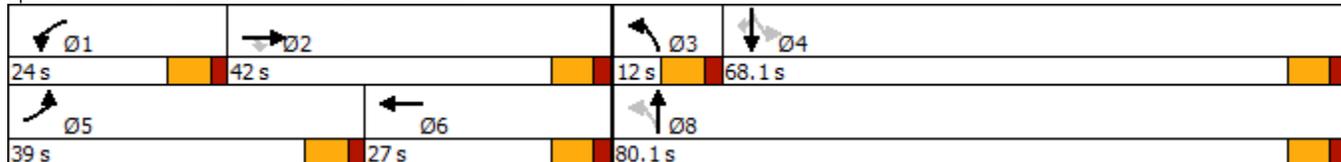
2031 TT AM Peak Hour - Roadway Modifications

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	747	461	40	253	178	5	22	708	84	0	205	59
Future Volume (vph)	747	461	40	253	178	5	22	708	84	0	205	59
Satd. Flow (prot)	3216	1762	1427	1658	1691	0	1691	1717	0	1780	1618	1327
Fit Permitted	0.950			0.950			0.528					
Satd. Flow (perm)	3216	1762	1427	1658	1691	0	940	1717	0	1780	1618	1327
Satd. Flow (RTOR)			123		1			6				173
Lane Group Flow (vph)	747	461	40	253	183	0	22	792	0	0	205	59
Turn Type	Prot	NA	Perm	Prot	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2				8			4		4
Total Split (s)	39.0	42.0	42.0	24.0	27.0		12.0	80.1		68.1	68.1	68.1
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	32.7	35.6	35.6	17.6	20.5		66.9	67.1		60.2	60.2	60.2
Actuated g/C Ratio	0.23	0.25	0.25	0.13	0.15		0.48	0.48		0.43	0.43	0.43
v/c Ratio	0.99	1.03	0.09	1.22	0.74		0.05	0.96		0.29	0.29	0.09
Control Delay	85.1	101.5	0.4	183.0	76.4		18.7	57.3		28.1	28.1	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	85.1	101.5	0.4	183.0	76.4		18.7	57.3		28.1	28.1	0.3
LOS	F	F	A	F	E		B	E		C	C	A
Approach Delay		88.4			138.2			56.3			21.9	
Approach LOS		F			F			E			C	
Queue Length 50th (m)	~110.9	~136.8	0.0	~85.0	47.5		2.9	188.3		35.8	35.8	0.0
Queue Length 95th (m)	#146.8	#198.2	0.0	#135.8	#80.4		7.2	#267.9		53.9	53.9	0.0
Internal Link Dist (m)		1803.9			258.6			431.1		330.0	330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0					55.0
Base Capacity (vph)	751	447	454	208	248		478	912		724	689	689
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	1.03	0.09	1.22	0.74		0.05	0.87		0.28	0.28	0.09

Intersection Summary

Cycle Length: 146.1
 Actuated Cycle Length: 139.8
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.22
 Intersection Signal Delay: 80.5
 Intersection LOS: F
 Intersection Capacity Utilization 101.4%
 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.

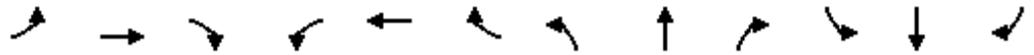
Splits and Phases: 3: Merivale Road & Fallowfield Road



South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

2031 TT AM Peak Hour - Demand Rationalization



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	372	103	82	40	57	182	36	1367	80	214	483	111
Future Volume (vph)	372	103	82	40	57	182	36	1367	80	214	483	111
Satd. Flow (prot)	3248	1567	0	1580	1664	1513	1523	3349	1513	1642	3221	1455
Fit Permitted	0.950			0.950			0.476			0.058		
Satd. Flow (perm)	3248	1567	0	1580	1664	1490	755	3349	1478	100	3221	1391
Satd. Flow (RTOR)		28				179			179			179
Lane Group Flow (vph)	372	185	0	40	57	182	36	1367	80	214	483	111
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Total Split (s)	25.5	44.3		13.7	32.5	32.5	12.0	70.0	70.0	12.0	70.0	70.0
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
Act Effct Green (s)	18.5	27.6		6.9	13.6	13.6	69.7	63.5	63.5	87.1	78.1	78.1
Actuated g/C Ratio	0.13	0.20		0.05	0.10	0.10	0.50	0.45	0.45	0.62	0.56	0.56
v/c Ratio	0.87	0.56		0.52	0.35	0.59	0.09	0.90	0.10	0.81	0.27	0.13
Control Delay	80.0	49.6		88.1	63.2	16.1	13.1	44.6	0.3	59.5	18.1	0.3
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.0	49.6		88.1	63.2	16.1	13.1	44.6	0.3	59.5	18.1	0.3
LOS	F	D		F	E	B	B	D	A	E	B	A
Approach Delay		69.9			36.0			41.5			26.6	
Approach LOS		E			D			D			C	
Queue Length 50th (m)	48.4	38.5		10.1	14.2	0.7	3.1	166.6	0.0	38.2	32.4	0.0
Queue Length 95th (m)	#70.8	53.8		#23.0	24.3	19.7	9.2	198.1	0.0	#119.9	53.0	0.0
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	440	443		81	309	422	409	1519	768	265	1797	855
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	0.85	0.42		0.49	0.18	0.43	0.09	0.90	0.10	0.81	0.27	0.13

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 140

Offset: 86 (61%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 42.2

Intersection LOS: D

Intersection Capacity Utilization 94.5%

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: 2: Woodroffe Avenue & Longfields Drive

Ø1	Ø2 (R)	Ø3	Ø4
12 s	70 s	13.7 s	44.3 s
Ø5	Ø6 (R)	Ø7	Ø8
12 s	70 s	25.5 s	32.5 s

South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

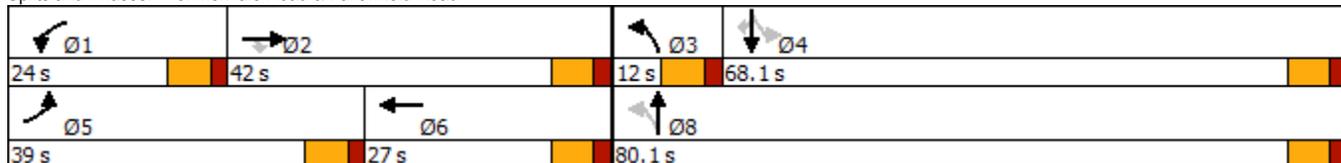
2031 TT AM Peak Hour - Demand Rationalization

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	747	461	40	218	178	5	22	518	84	0	205	59
Future Volume (vph)	747	461	40	218	178	5	22	518	84	0	205	59
Satd. Flow (prot)	3216	1762	1427	1658	1691	0	1691	1708	0	1780	1618	1327
Fit Permitted	0.950			0.950			0.491					
Satd. Flow (perm)	3216	1762	1427	1658	1691	0	874	1708	0	1780	1618	1327
Satd. Flow (RTOR)			123		1			8				173
Lane Group Flow (vph)	747	461	40	218	183	0	22	602	0	0	205	59
Turn Type	Prot	NA	Perm	Prot	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2				8			4		4
Total Split (s)	39.0	42.0	42.0	24.0	27.0		12.0	80.1		68.1	68.1	68.1
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	32.8	35.7	35.7	17.7	20.6		46.1	46.3			41.9	41.9
Actuated g/C Ratio	0.27	0.30	0.30	0.15	0.17		0.39	0.39			0.35	0.35
v/c Ratio	0.85	0.87	0.08	0.89	0.63		0.06	0.90			0.36	0.10
Control Delay	52.4	60.0	0.3	86.8	58.5		21.4	51.3			31.3	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	52.4	60.0	0.3	86.8	58.5		21.4	51.3			31.3	0.4
LOS	D	E	A	F	E		C	D			C	A
Approach Delay		53.5			73.9			50.3			24.3	
Approach LOS		D			E			D			C	
Queue Length 50th (m)	77.6	93.2	0.0	46.2	36.4		2.9	118.3			30.3	0.0
Queue Length 95th (m)	#134.4	#183.0	0.0	#105.8	#73.7		7.4	161.5			54.6	0.0
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0					55.0
Base Capacity (vph)	883	527	513	245	292		374	1067			844	774
Starvation Cap Reductn	0	0	0	0	0		0	0			0	0
Spillback Cap Reductn	0	0	0	0	0		0	0			0	0
Storage Cap Reductn	0	0	0	0	0		0	0			0	0
Reduced v/c Ratio	0.85	0.87	0.08	0.89	0.63		0.06	0.56			0.24	0.08

Intersection Summary

Cycle Length: 146.1
 Actuated Cycle Length: 119.4
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 52.9
 Intersection LOS: D
 Intersection Capacity Utilization 88.8%
 ICU Level of Service E
 Analysis Period (min) 15
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Merivale Road & Fallowfield Road



South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2031 TT PM Peak Hour - Timing Adjustments



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	248	746	576	545	12	422	792	243	17	1655	627
Future Volume (vph)	204	248	746	576	545	12	422	792	243	17	1655	627
Satd. Flow (prot)	3216	3252	1498	3281	3318	0	3185	3349	1455	1691	3349	1483
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	3252	1498	3281	3318	0	3185	3349	1417	1691	3349	1483
Satd. Flow (RTOR)			181		1				243			141
Lane Group Flow (vph)	204	248	746	576	557	0	422	792	243	17	1655	627
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2						8			4
Total Split (s)	22.0	40.0	40.0	35.0	53.0		22.0	97.2	97.2	15.0	90.2	22.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8		6.8	6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	14.7	33.2	33.2	28.2	46.7		15.2	96.6	96.6	7.1	83.4	104.9
Actuated g/C Ratio	0.08	0.18	0.18	0.15	0.25		0.08	0.52	0.52	0.04	0.45	0.56
v/c Ratio	0.81	0.43	1.80	1.17	0.67		1.64	0.46	0.29	0.27	1.11	0.70
Control Delay	107.6	71.3	398.5	160.1	68.1		349.4	30.7	3.6	97.4	106.6	27.2
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	107.6	71.3	398.5	160.1	68.1		349.4	30.7	3.6	97.4	106.6	27.2
LOS	F	E	F	F	E		F	C	A	F	F	C
Approach Delay		281.3			114.9			118.5			84.9	
Approach LOS		F			F			F			F	
Queue Length 50th (m)	36.2	40.6	~332.3	~120.8	92.2		~107.5	95.4	0.0	5.8	~340.9	121.4
Queue Length 95th (m)	#53.4	54.8	#406.5	#156.8	112.3		#140.9	113.6	14.4	14.5	#377.6	166.4
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	261	576	414	494	827		258	1727	848	74	1492	893
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	0.78	0.43	1.80	1.17	0.67		1.64	0.46	0.29	0.23	1.11	0.70

Intersection Summary

Cycle Length: 187.2

Actuated Cycle Length: 187.2

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.80

Intersection Signal Delay: 137.2

Intersection LOS: F

Intersection Capacity Utilization 131.4%

ICU Level of Service H

Analysis Period (min) 15

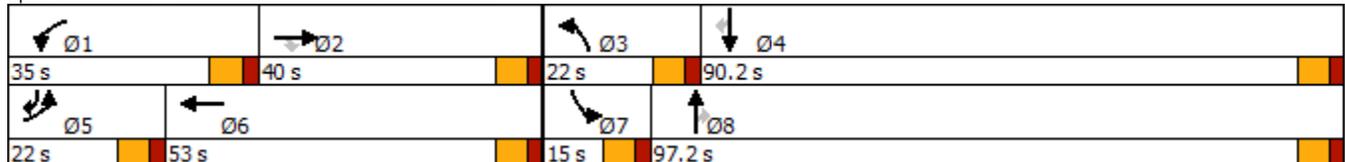
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Woodroffe Avenue & Fallowfield Road



South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

2031 TT PM Peak Hour - Timing Adjustments

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	24	70	108	82	250	89	921	53	131	2033	223
Future Volume (vph)	155	24	70	108	82	250	89	921	53	131	2033	223
Satd. Flow (prot)	3216	1546	0	1691	1780	1483	1642	3316	1513	1691	3349	1513
Fit Permitted	0.950			0.950			0.057			0.241		
Satd. Flow (perm)	3216	1546	0	1691	1780	1463	99	3316	1513	429	3349	1470
Satd. Flow (RTOR)		70				149			138			223
Lane Group Flow (vph)	155	94	0	108	82	250	89	921	53	131	2033	223
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Total Split (s)	16.0	32.5		16.0	32.5	32.5	11.5	69.5	69.5	12.0	70.0	70.0
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
Act Effct Green (s)	9.3	16.4		9.5	16.6	16.6	78.1	70.1	70.1	78.1	70.1	70.1
Actuated g/C Ratio	0.07	0.13		0.07	0.13	0.13	0.60	0.54	0.54	0.60	0.54	0.54
v/c Ratio	0.68	0.37		0.88	0.36	0.79	0.58	0.51	0.06	0.39	1.13	0.25
Control Delay	74.1	20.3		113.0	54.4	39.3	35.3	21.3	0.1	14.2	94.0	3.0
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	74.1	20.3		113.0	54.4	39.3	35.3	21.3	0.1	14.2	94.0	3.0
LOS	E	C		F	D	D	D	C	A	B	F	A
Approach Delay		53.8			60.2			21.4			81.1	
Approach LOS		D			E			C			F	
Queue Length 50th (m)	18.7	5.2		25.7	18.2	23.7	7.0	70.4	0.0	10.6	~291.2	0.0
Queue Length 95th (m)	#29.6	18.2		#57.0	29.9	47.5	#36.5	98.1	0.0	22.5	#351.6	11.8
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	235	365		123	356	411	154	1789	879	335	1806	895
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.26		0.88	0.23	0.61	0.58	0.51	0.06	0.39	1.13	0.25

Intersection Summary

Cycle Length: 130
 Actuated Cycle Length: 130
 Offset: 92 (71%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 1.13
 Intersection Signal Delay: 61.9
 Intersection Capacity Utilization 94.0%
 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.

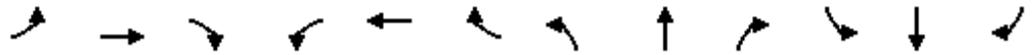
Splits and Phases: 2: Woodroffe Avenue & Longfields Drive

12 s	69.5 s	16 s	32.5 s
11.5 s	70 s	16 s	32.5 s

South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

2031 TT PM Peak Hour - Timing Adjustments



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	321	44	74	760	4	56	343	243	6	666	328
Future Volume (vph)	143	321	44	74	760	4	56	343	243	6	666	328
Satd. Flow (prot)	1496	1745	1469	1691	1778	0	1551	1582	0	1691	1762	1498
Fit Permitted	0.054			0.493			0.063			0.205		
Satd. Flow (perm)	85	1745	1469	878	1778	0	103	1582	0	365	1762	1498
Satd. Flow (RTOR)			108					26				143
Lane Group Flow (vph)	143	321	44	74	764	0	56	586	0	6	666	328
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8				4
Permitted Phases	2		2	6			8			4		4
Total Split (s)	16.0	79.9	79.9	11.6	75.5		11.6	74.6		63.0	63.0	63.0
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	83.0	73.4	73.4	74.2	69.0		65.6	65.8		56.7	56.7	56.7
Actuated g/C Ratio	0.51	0.45	0.45	0.45	0.42		0.40	0.40		0.35	0.35	0.35
v/c Ratio	1.14	0.41	0.06	0.18	1.02		0.66	0.90		0.05	1.09	0.54
Control Delay	162.0	33.1	0.2	22.5	84.6		66.4	61.9		38.5	113.7	27.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	162.0	33.1	0.2	22.5	84.6		66.4	61.9		38.5	113.7	27.3
LOS	F	C	A	C	F		E	E		D	F	C
Approach Delay		66.5			79.1			62.3			84.9	
Approach LOS		E			E			E			F	
Queue Length 50th (m)	~39.4	66.5	0.0	11.3	~249.2		10.4	158.5		1.2	~230.7	45.6
Queue Length 95th (m)	#83.4	91.1	0.0	19.9	#321.1		#24.6	#223.3		4.9	#301.3	75.2
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0			30.0		55.0
Base Capacity (vph)	125	781	717	422	748		85	674		126	609	611
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	0.41	0.06	0.18	1.02		0.66	0.87		0.05	1.09	0.54

Intersection Summary

Cycle Length: 166.1
 Actuated Cycle Length: 163.8
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 1.14
 Intersection Signal Delay: 75.3
 Intersection LOS: E
 Intersection Capacity Utilization 115.5%
 ICU Level of Service H
 Analysis Period (min) 15
 ~ Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Merivale Road & Fallowfield Road

Ø1	Ø2	Ø3	Ø4	Ø5	Ø6
11.6 s	79.9 s	11.6 s	63 s	16 s	75.5 s
Ø7	Ø8	Ø9	Ø10	Ø11	Ø12

South Merivale Business Park TIA

5: Prince of Wales Drive & Merivale Road

2031 TT PM Peak Hour - Timing Adjustments



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø3
Lane Configurations							
Traffic Volume (vph)	36	656	211	399	1083	19	
Future Volume (vph)	36	656	211	399	1083	19	
Satd. Flow (prot)	1642	1483	1566	1745	3338	0	
Fit Permitted	0.950		0.089				
Satd. Flow (perm)	1642	1483	147	1745	3338	0	
Satd. Flow (RTOR)		88			2		
Lane Group Flow (vph)	36	656	211	399	1102	0	
Turn Type	Prot	pm+ov	pm+pt	NA	NA		
Protected Phases	4	5	5	2	6		3
Permitted Phases		4	2				
Total Split (s)	40.0	25.0	25.0	75.0	50.0		5.0
Total Lost Time (s)	6.8	6.4	6.4	6.5	6.5		
Act Effct Green (s)	33.2	55.5	68.6	68.5	46.6		
Actuated g/C Ratio	0.28	0.46	0.57	0.57	0.39		
v/c Ratio	0.08	0.90	0.79	0.40	0.85		
Control Delay	32.8	41.6	46.9	15.8	41.6		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	32.8	41.6	46.9	15.8	41.6		
LOS	C	D	D	B	D		
Approach Delay	41.2			26.6	41.6		
Approach LOS	D			C	D		
Queue Length 50th (m)	5.8	111.1	29.0	45.8	115.8		
Queue Length 95th (m)	13.4	#176.3	#54.5	65.8	#155.6		
Internal Link Dist (m)	226.4			296.0	231.6		
Turn Bay Length (m)	80.0		90.0				
Base Capacity (vph)	454	732	303	996	1298		
Starvation Cap Reductn	0	0	0	0	0		
Spillback Cap Reductn	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0		
Reduced v/c Ratio	0.08	0.90	0.70	0.40	0.85		

Intersection Summary

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 112 (93%), Referenced to phase 2:NBT and 6:SBT, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 37.6

Intersection LOS: D

Intersection Capacity Utilization 85.9%

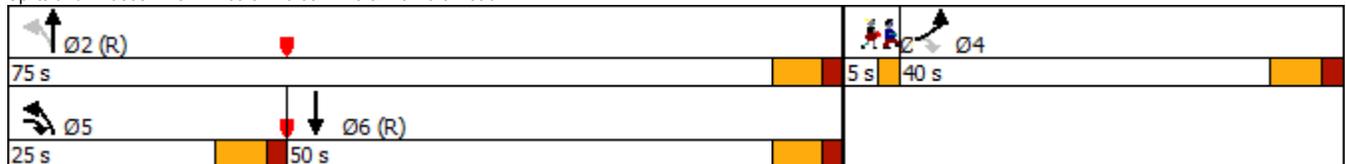
ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 5: Prince of Wales Drive & Merivale Road



South Merivale Business Park TIA

7: Driveway/Bill Leathem Drive & Leikin Drive

2031 TT PM Peak Hour - Timing Adjustments

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	72	64	0	0	367	183	0	1	0	43	0	212
Future Volume (vph)	72	64	0	0	367	183	0	1	0	43	0	212
Satd. Flow (prot)	1691	1534	0	1780	1654	0	0	1780	0	0	1521	0
Fit Permitted	0.363										0.947	
Satd. Flow (perm)	646	1534	0	1780	1654	0	0	1780	0	0	1452	0
Satd. Flow (RTOR)					43						212	
Lane Group Flow (vph)	72	64	0	0	550	0	0	1	0	0	255	0
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		
Total Split (s)	78.5	78.5		78.5	78.5		36.0	36.0		36.0	36.0	
Total Lost Time (s)	5.6	5.6		5.6	5.6			5.0			5.0	
Act Effct Green (s)	18.1	18.1			18.1			10.7			10.7	
Actuated g/C Ratio	0.46	0.46			0.46			0.27			0.27	
v/c Ratio	0.24	0.09			0.71			0.00			0.47	
Control Delay	8.7	6.1			13.4			14.0			7.5	
Queue Delay	0.0	0.0			0.0			0.0			0.0	
Total Delay	8.7	6.1			13.4			14.0			7.5	
LOS	A	A			B			B			A	
Approach Delay		7.4			13.4			14.0			7.5	
Approach LOS		A			B			B			A	
Queue Length 50th (m)	2.3	1.9			20.9			0.1			1.8	
Queue Length 95th (m)	7.8	5.9			47.0			0.9			16.4	
Internal Link Dist (m)		337.1			182.1			90.9			596.0	
Turn Bay Length (m)	30.0											
Base Capacity (vph)	646	1534			1654			1427			1206	
Starvation Cap Reductn	0	0			0			0			0	
Spillback Cap Reductn	0	0			0			0			0	
Storage Cap Reductn	0	0			0			0			0	
Reduced v/c Ratio	0.11	0.04			0.33			0.00			0.21	

Intersection Summary

Cycle Length: 114.5	
Actuated Cycle Length: 39.6	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.71	
Intersection Signal Delay: 11.0	Intersection LOS: B
Intersection Capacity Utilization 77.1%	ICU Level of Service D
Analysis Period (min) 15	

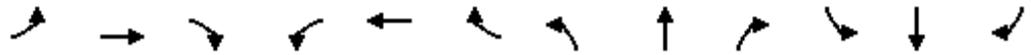
Splits and Phases: 7: Driveway/Bill Leathem Drive & Leikin Drive

	Ø2				Ø4
78.5 s				36 s	
	Ø6				Ø8
78.5 s				36 s	

South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2031 TT PM Peak Hour - Roadway Modifications



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	248	746	576	545	12	422	792	243	17	1655	627
Future Volume (vph)	204	248	746	576	545	12	422	792	243	17	1655	627
Satd. Flow (prot)	3216	3252	2637	3281	3318	0	3185	3349	1455	1691	3349	1483
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	3252	2637	3281	3318	0	3185	3349	1417	1691	3349	1483
Satd. Flow (RTOR)					1				243			141
Lane Group Flow (vph)	204	248	746	576	557	0	422	792	243	17	1655	627
Turn Type	Prot	NA	pt+ov	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2	2 3	1	6		3	8		7	4	5
Permitted Phases									8			4
Total Split (s)	22.0	40.0		36.0	54.0		22.0	96.2	96.2	15.0	89.2	22.0
Total Lost Time (s)	6.8	6.8		6.8	6.8		6.8	6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	14.7	33.2	55.2	29.2	47.7		15.2	95.6	95.6	7.1	82.4	103.9
Actuated g/C Ratio	0.08	0.18	0.29	0.16	0.25		0.08	0.51	0.51	0.04	0.44	0.56
v/c Ratio	0.81	0.43	0.96	1.13	0.66		1.64	0.46	0.29	0.27	1.12	0.71
Control Delay	107.6	71.3	87.9	147.1	66.9		349.4	31.4	3.6	97.4	112.0	28.0
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	107.6	71.3	87.9	147.1	66.9		349.4	31.4	3.6	97.4	112.0	28.0
LOS	F	E	F	F	E		F	C	A	F	F	C
Approach Delay		87.8			107.7			118.8			89.0	
Approach LOS		F			F			F			F	
Queue Length 50th (m)	36.2	40.6	144.8	~117.5	91.5		~107.5	96.4	0.0	5.8	~344.3	123.1
Queue Length 95th (m)	#53.4	54.8	#186.3	#153.6	111.5		#140.9	114.9	14.5	14.5	#381.0	168.5
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	261	576	777	511	845		258	1709	842	74	1474	886
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	0.78	0.43	0.96	1.13	0.66		1.64	0.46	0.29	0.23	1.12	0.71

Intersection Summary

Cycle Length: 187.2

Actuated Cycle Length: 187.2

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.64

Intersection Signal Delay: 99.4

Intersection LOS: F

Intersection Capacity Utilization 110.2%

ICU Level of Service H

Analysis Period (min) 15

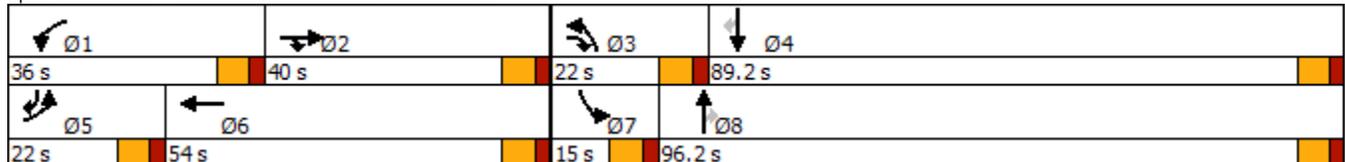
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Woodroffe Avenue & Fallowfield Road



South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

2031 TT PM Peak Hour - Roadway Modifications

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	321	44	74	760	4	56	343	243	6	666	328
Future Volume (vph)	143	321	44	74	760	4	56	343	243	6	666	328
Satd. Flow (prot)	2903	1745	1469	1691	1778	0	1551	1582	0	1691	1762	1498
Fit Permitted	0.950			0.950			0.063			0.205		
Satd. Flow (perm)	2903	1745	1469	1691	1778	0	103	1582	0	365	1762	1498
Satd. Flow (RTOR)			108					26				143
Lane Group Flow (vph)	143	321	44	74	764	0	56	586	0	6	666	328
Turn Type	Prot	NA	Perm	Prot	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2				8			4		4
Total Split (s)	15.0	79.9	79.9	11.6	76.5		11.6	74.6		63.0	63.0	63.0
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	8.5	73.4	73.4	5.1	70.0		65.6	65.8		56.7	56.7	56.7
Actuated g/C Ratio	0.05	0.45	0.45	0.03	0.43		0.40	0.40		0.35	0.35	0.35
v/c Ratio	0.95	0.41	0.06	1.42	1.01		0.66	0.90		0.05	1.09	0.54
Control Delay	137.1	33.1	0.2	324.8	80.4		66.4	61.9		38.5	113.7	27.3
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	137.1	33.1	0.2	324.8	80.4		66.4	61.9		38.5	113.7	27.3
LOS	F	C	A	F	F		E	E		D	F	C
Approach Delay		59.5			102.0			62.3			84.9	
Approach LOS		E			F			E			F	
Queue Length 50th (m)	22.8	66.5	0.0	~30.3	~245.9		10.4	158.5		1.2	~230.7	45.6
Queue Length 95th (m)	#44.7	91.1	0.0	#63.1	#317.7		#24.6	#223.3		4.9	#301.3	75.2
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0			30.0		55.0
Base Capacity (vph)	150	781	717	52	759		85	674		126	609	611
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	0.95	0.41	0.06	1.42	1.01		0.66	0.87		0.05	1.09	0.54

Intersection Summary

Cycle Length: 166.1

Actuated Cycle Length: 163.8

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.42

Intersection Signal Delay: 80.5

Intersection LOS: F

Intersection Capacity Utilization 111.4%

ICU Level of Service H

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 3: Merivale Road & Fallowfield Road

Ø1	Ø2	Ø3	Ø4
11.6 s	79.9 s	11.6 s	63 s
Ø5	Ø6	Ø7	Ø8
15 s	76.5 s	74.6 s	

South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2031 TT PM Peak Hour - Demand Rationalization

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	248	416	511	545	12	257	792	243	17	1475	627
Future Volume (vph)	204	248	416	511	545	12	257	792	243	17	1475	627
Satd. Flow (prot)	3216	3252	1498	3281	3318	0	3185	3349	1455	1691	3349	1483
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	3252	1498	3281	3318	0	3185	3349	1417	1691	3349	1483
Satd. Flow (RTOR)			181		1				243			141
Lane Group Flow (vph)	204	248	416	511	557	0	257	792	243	17	1475	627
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases			2						8			4
Total Split (s)	22.0	40.0	40.0	36.0	54.0		22.0	96.2	96.2	15.0	89.2	22.0
Total Lost Time (s)	6.8	6.8	6.8	6.8	6.8		6.8	6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	14.7	33.2	33.2	29.2	47.7		15.2	95.6	95.6	7.1	82.4	103.9
Actuated g/C Ratio	0.08	0.18	0.18	0.16	0.25		0.08	0.51	0.51	0.04	0.44	0.56
v/c Ratio	0.81	0.43	1.00	1.00	0.66		1.00	0.46	0.29	0.27	1.00	0.71
Control Delay	107.6	71.3	86.6	116.7	66.9		138.0	31.4	3.6	97.4	74.9	28.0
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	107.6	71.3	86.6	116.7	66.9		138.0	31.4	3.6	97.4	74.9	28.0
LOS	F	E	F	F	E		F	C	A	F	E	C
Approach Delay		87.2			90.7			47.4			61.2	
Approach LOS		F			F			D			E	
Queue Length 50th (m)	36.2	40.6	~91.5	92.2	91.5		46.4	96.4	0.0	5.8	~266.9	123.1
Queue Length 95th (m)	#53.4	54.8	#160.1	#128.9	111.5		#75.9	114.9	14.5	14.5	#315.0	168.5
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	261	576	414	511	845		258	1709	842	74	1474	886
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	0.78	0.43	1.00	1.00	0.66		1.00	0.46	0.29	0.23	1.00	0.71

Intersection Summary

Cycle Length: 187.2

Actuated Cycle Length: 187.2

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 68.0

Intersection LOS: E

Intersection Capacity Utilization 102.6%

ICU Level of Service G

Analysis Period (min) 15

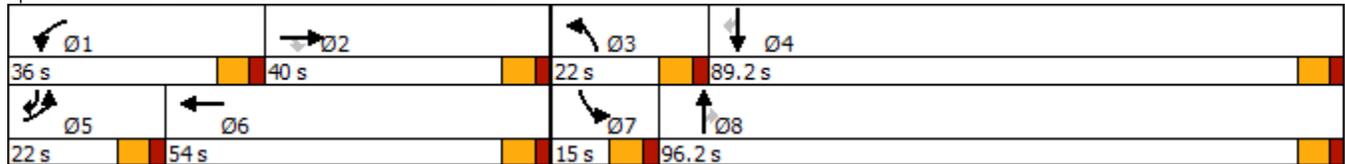
~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 1: Woodroffe Avenue & Fallowfield Road



South Merivale Business Park TIA

2: Woodroffe Avenue & Longfields Drive

2031 TT PM Peak Hour - Demand Rationalization



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	24	70	108	82	250	89	921	53	131	1643	223
Future Volume (vph)	155	24	70	108	82	250	89	921	53	131	1643	223
Satd. Flow (prot)	3216	1546	0	1691	1780	1483	1642	3316	1513	1691	3349	1513
Fit Permitted	0.950			0.950			0.057			0.243		
Satd. Flow (perm)	3216	1546	0	1691	1780	1463	99	3316	1513	433	3349	1470
Satd. Flow (RTOR)		70				149			138			223
Lane Group Flow (vph)	155	94	0	108	82	250	89	921	53	131	1643	223
Turn Type	Prot	NA		Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases						8	2		2	6		6
Total Split (s)	16.0	32.5		16.0	32.5	32.5	11.5	69.5	69.5	12.0	70.0	70.0
Total Lost Time (s)	6.5	6.5		6.5	5.6	5.6	6.5	6.5	6.5	6.5	6.5	6.5
Act Effct Green (s)	9.3	15.7		9.5	16.8	16.8	78.9	70.7	70.7	78.8	70.7	70.7
Actuated g/C Ratio	0.07	0.12		0.07	0.13	0.13	0.61	0.54	0.54	0.61	0.54	0.54
v/c Ratio	0.68	0.38		0.88	0.36	0.79	0.57	0.51	0.06	0.39	0.90	0.25
Control Delay	74.1	20.9		113.0	54.3	38.8	34.4	20.9	0.1	13.3	35.7	2.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.1	20.9		113.0	54.3	38.8	34.4	20.9	0.1	13.3	35.7	2.9
LOS	E	C		F	D	D	C	C	A	B	D	A
Approach Delay		54.0			59.9			21.0			30.6	
Approach LOS		D			E			C			C	
Queue Length 50th (m)	18.7	5.2		25.7	18.2	23.7	6.9	69.1	0.0	10.3	174.7	0.0
Queue Length 95th (m)	#29.6	18.4		#57.0	29.9	47.5	#33.6	98.1	0.0	22.1	#252.1	11.8
Internal Link Dist (m)		414.1			608.0			438.8			832.6	
Turn Bay Length (m)	80.0			100.0		115.0	70.0		70.0	75.0		190.0
Base Capacity (vph)	235	365		123	368	420	156	1803	885	340	1820	901
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.66	0.26		0.88	0.22	0.60	0.57	0.51	0.06	0.39	0.90	0.25

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 92 (71%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 32.9

Intersection LOS: C

Intersection Capacity Utilization 81.9%

ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Woodroffe Avenue & Longfields Drive

Ø1	Ø2 (R)	Ø3	Ø4
12 s	69.5 s	16 s	32.5 s
Ø5	Ø6 (R)	Ø7	Ø8
11.5 s	70 s	16 s	32.5 s

South Merivale Business Park TIA

3: Merivale Road & Fallowfield Road

2031 TT PM Peak Hour - Demand Rationalization

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	143	321	44	74	610	4	56	343	243	6	551	328
Future Volume (vph)	143	321	44	74	610	4	56	343	243	6	551	328
Satd. Flow (prot)	2903	1745	1469	1691	1778	0	1551	1582	0	1691	1762	1498
Fit Permitted	0.950			0.950			0.125			0.237		
Satd. Flow (perm)	2903	1745	1469	1691	1778	0	204	1582	0	422	1762	1498
Satd. Flow (RTOR)			108					26				173
Lane Group Flow (vph)	143	321	44	74	614	0	56	586	0	6	551	328
Turn Type	Prot	NA	Perm	Prot	NA		pm+pt	NA		Perm	NA	Perm
Protected Phases	5	2		1	6		3	8			4	
Permitted Phases			2				8			4		4
Total Split (s)	15.0	77.5	77.5	14.0	76.5		11.6	74.6		63.0	63.0	63.0
Total Lost Time (s)	6.5	6.6	6.6	6.5	6.6		6.6	6.4		6.4	6.4	6.4
Act Effct Green (s)	8.9	55.6	55.6	7.8	54.6		58.6	58.8		50.2	50.2	50.2
Actuated g/C Ratio	0.06	0.39	0.39	0.05	0.38		0.41	0.41		0.35	0.35	0.35
v/c Ratio	0.79	0.47	0.07	0.80	0.90		0.42	0.88		0.04	0.89	0.51
Control Delay	98.4	35.8	0.2	121.0	60.1		38.3	53.5		36.7	63.1	21.1
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	98.4	35.8	0.2	121.0	60.1		38.3	53.5		36.7	63.1	21.1
LOS	F	D	A	F	E		D	D		D	E	C
Approach Delay		50.4			66.7			52.1			47.4	
Approach LOS		D			E			D			D	
Queue Length 50th (m)	21.0	68.2	0.0	21.2	164.4		9.1	137.9		1.1	142.9	32.8
Queue Length 95th (m)	#44.7	93.6	0.0	#55.4	214.2		19.6	#223.3		4.9	#225.6	66.3
Internal Link Dist (m)		1803.9			258.6			431.1			330.0	
Turn Bay Length (m)	75.0		100.0	25.0			50.0			30.0		55.0
Base Capacity (vph)	180	905	814	92	910		133	802		174	730	722
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	0.79	0.35	0.05	0.80	0.67		0.42	0.73		0.03	0.75	0.45

Intersection Summary

Cycle Length: 166.1
 Actuated Cycle Length: 142.6
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.90
 Intersection Signal Delay: 53.9
 Intersection LOS: D
 Intersection Capacity Utilization 103.1%
 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.

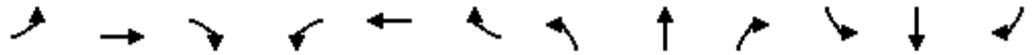
Splits and Phases: 3: Merivale Road & Fallowfield Road

14 s	77.5 s	11.6 s	63 s
15 s	76.5 s	74.6 s	

South Merivale Business Park TIA

1: Woodroffe Avenue & Fallowfield Road

2031 TT PM Peak Hour - Demand Rationalization with dual EBR



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	204	248	746	511	545	12	257	792	243	17	1475	627
Future Volume (vph)	204	248	746	511	545	12	257	792	243	17	1475	627
Satd. Flow (prot)	3216	3252	2637	3281	3318	0	3185	3349	1455	1691	3349	1483
Fit Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3216	3252	2637	3281	3318	0	3185	3349	1417	1691	3349	1483
Satd. Flow (RTOR)					1				243			141
Lane Group Flow (vph)	204	248	746	511	557	0	257	792	243	17	1475	627
Turn Type	Prot	NA	pt+ov	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2	2 3	1	6		3	8		7	4	5
Permitted Phases									8			4
Total Split (s)	22.0	40.0		36.0	54.0		22.0	96.2	96.2	15.0	89.2	22.0
Total Lost Time (s)	6.8	6.8		6.8	6.8		6.8	6.8	6.8	6.8	6.8	6.8
Act Effct Green (s)	14.7	33.2	55.2	29.2	47.7		15.2	95.6	95.6	7.1	82.4	103.9
Actuated g/C Ratio	0.08	0.18	0.29	0.16	0.25		0.08	0.51	0.51	0.04	0.44	0.56
v/c Ratio	0.81	0.43	0.96	1.00	0.66		1.00	0.46	0.29	0.27	1.00	0.71
Control Delay	107.6	71.3	87.9	116.7	66.9		138.0	31.4	3.6	97.4	74.9	28.0
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	107.6	71.3	87.9	116.7	66.9		138.0	31.4	3.6	97.4	74.9	28.0
LOS	F	E	F	F	E		F	C	A	F	E	C
Approach Delay		87.8			90.7			47.4			61.2	
Approach LOS		F			F			D			E	
Queue Length 50th (m)	36.2	40.6	144.8	92.2	91.5		46.4	96.4	0.0	5.8	~266.9	123.1
Queue Length 95th (m)	#53.4	54.8	#186.3	#128.9	111.5		#75.9	114.9	14.5	14.5	#315.0	168.5
Internal Link Dist (m)		428.1			118.6			832.6			662.7	
Turn Bay Length (m)	80.0		115.0	85.0			45.0		230.0	70.0		300.0
Base Capacity (vph)	261	576	777	511	845		258	1709	842	74	1474	886
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	0.78	0.43	0.96	1.00	0.66		1.00	0.46	0.29	0.23	1.00	0.71

Intersection Summary

Cycle Length: 187.2

Actuated Cycle Length: 187.2

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 69.2

Intersection LOS: E

Intersection Capacity Utilization 103.0%

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: Woodroffe Avenue & Fallowfield Road

36 s	40 s	22 s	89.2 s
22 s	54 s	15 s	96.2 s