Henry Lawson Drive Upgrade - Stage 1B

Traffic and Transport Impact Assessment

Transport for NSW

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Executive Summary

Background

Transport for NSW (Transport) is investigating the upgrade of 7.5-kilometre stretch of Henry Lawson Drive between the M5 Motorway at Milperra and the Hume Highway at Lansdowne. The route corridor of Henry Lawson Drive serves as a major north-south link for movement of freight and general traffic. The land use in the vicinity of the corridor includes a mix of residential, industrial and retail land use as well as airport facilities. The upgrade would help in ensuring that the road corridor can meet growing traffic demand, with residential, commercial, and industrial development expected to increase in the coming years.

The upgrade would be carried out in four stages (Stages 1A, 1B, 2 and 3). In June 2018, the NSW Roads Minister and the Treasurer announced $100 million for upgrading of Henry Lawson Drive between Tower Road and the M5 Motorway (Stages 1A and 1B).

The Stage 1A upgrade of Henry Lawson Drive would provide more capacity for vehicles travelling through the intersection of Henry Lawson Drive, Milperra Road and Newbridge Road. It would improve efficiency along the corridor and safety for motorists and pedestrians.

This proposal, Stage 1B, involves an upgrade of Henry Lawson Drive along a 1.8-kilometre section between Auld Avenue, Milperra and the approach to the M5 Motorway. This includes road widening to increase traffic capacity and improve travel time as well as upgrades of key intersections to enhance capacity and driver safety.

This Traffic and Transport Impact Assessment has been prepared to assess the potential traffic and transport impacts of the Stage 1B proposal. It would support a Review of Environmental Factors (REF) being prepared by Transport under Division 5.1 of *the Environmental Planning and Assessment Act 1979* (EP&A Act).

Proposal overview

Key features of the proposal would include:

- widening Henry Lawson Drive from two to four lanes between Auld Avenue, Milperra and the M5 Motorway, Milperra with a raised central median
- upgrading the Henry Lawson Drive / Bullecourt Avenue signalised intersection, including:
  - an additional right-turn lane from Henry Lawson Drive (northbound) to Bullecourt Avenue (two right-turn lanes total)
  - an additional right-turn lane from Bullecourt Avenue to Henry Lawson Drive (northbound) (two right-turn lanes total)
  - converting the existing dedicated left-turn lane from Bullecourt Avenue to Henry Lawson Drive (southbound) into a dedicated left-turn slip lane
  - maintaining the dedicated left-turn lane from Henry Lawson Drive (southbound) to Bullecourt Avenue
- upgrading the Henry Lawson Drive / Pozieres Avenue signalised intersection, including:
  - a new dedicated right-turn lane from Henry Lawson Drive (southbound) to Pozieres Avenue
  - a new dedicated left-turn lane from Henry Lawson Drive (northbound) to Pozieres Avenue and relocation of the existing bus stop north of the intersection
- providing a new two-lane local link road between Auld Avenue and Keys Parade (about 160 metres), crossing over Milperra Drain, providing access to / from southbound lanes of Henry Lawson Drive and Auld Avenue, and removing up to eight parking spaces on Auld Avenue to accommodate the link road
- extending Raleigh Road about 120 metres to connect with Keys Parade at a roundabout, and removing the direct connection between Raleigh Road and Henry Lawson Drive

- converting the Henry Lawson Drive intersections to be left-in left-out only, at:
  - Ruthven Avenue
  - Whittle Avenue
  - Amiens Avenue
  - Ganmain Crescent
  - Fromelles Avenue
  - Hermies Avenue
- modifying the Bullecourt Avenue / Ashford Avenue intersection to better accommodate heavy vehicle movements
- constructing a three-metre-wide shared path:
  - on the western side of Henry Lawson Drive between Pozieres Avenue and Keys Parade
  - along Keys Parade, the new Auld Avenue local link road and the extended section of Raleigh Road
- reconstruction of some existing shared paths within the proposal area
- constructing a new footpath within the proposal area:
  - on the eastern side of Henry Lawson Drive between the Flower Power and Ingram Avenue
  - along the northern side of Ingram Avenue
  - along the eastern side of Fromelles Avenue
- installing new drainage infrastructure and water quality controls within the proposal area, including:
  - an upgraded longitudinal and transverse drainage pits and pipes network along Henry Lawson Drive
  - a bioretention basin between Henry Lawson Drive, Bullecourt Avenue and Fleurbaix Avenue and maintenance access to this basin
  - swales along Henry Lawson Drive and Keys Parade and installation of Gross Pollutant Traps
- construction activities and ancillary work, including:
  - relocation of utilities (including electrical, gas, water and telecommunications)
  - civil earthworks, drainage work, water quality controls and tie-in work to adjoining sections of Henry Lawson Drive and local roads
  - final roadworks including pavement, kerb and gutters, signs, road furniture, landscaping, lighting and line marking
  - new traffic signals and intelligent transport systems including, but not limited to, closed-circuit television
  - establishment of temporary ancillary facilities to support construction, including compound sites, site offices, stockpile and laydown locations, temporary access tracks and water quality devices.

The concept design would be further refined during detailed design to minimise environmental and social impacts and to consider community feedback to the exhibition of the REF.

Operational traffic impact assessment

Road network changes

The following road network changes would be incorporated:

- Henry Lawson Drive/ Keys Parade intersection upgrade

- Widening to four lanes on Henry Lawson Drive between Auld Avenue and approach of the M5 Motorway
- Henry Lawson Drive/ Bullecourt Avenue intersection upgrade
- Henry Lawson Drive/ Pozieres Avenue intersection upgrade
- Henry Lawson Drive/ Raleigh Road intersection upgrade
- Henry Lawson Drive/ Ruthven Avenue intersection upgrade
- Henry Lawson Drive/ Whittle Avenue intersection upgrade
- Henry Lawson Drive/ Amiens Avenue intersection upgrade
- Henry Lawson Drive/ Ganmain crescent/ Fromelles Avenue intersection upgrade
- Henry Lawson Drive / Hermies Avenue intersection upgrade
- Link road between Auld Avenue and Keys Parade
- Link road between Raleigh Road and Keys Parade

Impact on network performance

A microsimulation model of the study area was created to identify the operational impact of the proposal on intersections, travel times, and network statistics for the years 2031 and 2041, compared to a 'without proposal' scenario.

The traffic assessment was based on:

- two scenarios along Henry Lawson Drive - the 'without proposal' scenario and the 'with proposal' scenario
- both scenarios modelled for the opening year (2031) and ten years after (2041)
- the future year traffic demands from the 2021, 2031 and 2041 STFM sub-area matrices and link volume plots provided by Transport for NSW.

The modelling results have been assessed in the form of overall network statistics, corridor travel time and key intersection delay, including the Level of Service (LOS). In general, for the future 'with proposal' scenario would result in slightly better performance compared to the 'without proposal' scenario in AM, PM and weekend peaks for both 2031 and 2041 due to improved network average speed with the proposal.

Henry Lawson Drive Travel Time

- The 2031 AM peak period in the 'with proposal' scenario shows an average reduction in travel time in the northbound and southbound directions compared to the 'without proposal' scenario. In 2041, there would be an increase in travel times in the northbound direction in the 'with proposal' scenario compared to the 'without proposal' scenario, with the opposite result in the southbound direction. This would be due to queue spill back at the Bullecourt Avenue / Henry Lawson Drive intersection.
- During PM peak periods, Henry Lawson Drive northbound travel time is expected to decrease by more than three minutes in 2031 and by three minutes in 2041 in the 'with proposal' scenario compared to the 'without proposal' scenario. This is due to there being higher demand for northbound traffic in 2041. The average southbound travel time along Henry Lawson Drive is expected to decrease by about 30 seconds in the 'with proposal' scenario compared to the 'without proposal' scenario in both 2031 and 2041. The network would be able to accommodate southbound demand in both 2031 and 2041.
- During the weekend peak in 2031, the average northbound and southbound travel times along Henry Lawson Drive are likely to be similar in both the 'without proposal' and 'with proposal' scenarios. The average southbound travel time along Henry Lawson Drive is expected to reduce by about 20 seconds in the 'with proposal' scenario compared to the 'without proposal' scenario in 2041, with northbound travel times improving by only four seconds on average. This is due to the network being able to accommodate weekend demand in both 2031 and 2041.

- Travel time results suggest a better performance for the ‘with proposal’ scenario compared to the ‘without proposal’ scenario in all time periods modelled, with the 2041 AM peak period being an exception.

Level of Service (LOS)

- Intersection LOS at Keys Parade and Bullecourt Avenue have similar results for the ‘without proposal’ and ‘with proposal’ scenarios in the 2031 AM peak period. This is because a good percentage of vehicles who currently use Milperra Road to reach Bullecourt Avenue in the ’without proposal’ scenario, would reroute to use Henry Lawson Drive in the ‘with proposal’ scenario.
- For 2041 AM peak period, in the ‘with proposal’ scenario, the Bullecourt Avenue intersection operates at LOS C in the first hour and deteriorates to LOS F in the second hour. This is because the right turn traffic movement from Henry Lawson Drive northbound onto Bullecourt Avenue queues back due to capacity constraint along Bullecourt Avenue between Henry Lawson Drive and Ashford Avenue, originating at the Ashford Avenue roundabout. The increase in delay at the intersection is due to an increasing number of vehicles turning at the Henry Lawson Drive / Bullecourt Avenue intersection. In the ‘without proposal’ scenario, they would use Milperra Road and Ashford Avenue (if travelling from north of the proposal area) or turn directly into the local road network (if travelling northbound on Henry Lawson Drive). This traffic congestion propagates further downstream impacting the performance of the Pozieres Avenue intersection.
- For both 2031 and 2041 scenarios, the results suggest a better performance for the ‘with proposal’ scenario in comparison to the ‘without proposal’ scenario in the weekday PM peak period. The weekend modelling produces similar results for the ‘without proposal’ scenario and the ‘with proposal’ scenario.
- In general, the 2041 AM and PM peak periods show that the delays would increase impacting the LOS at signalised intersections within the proposal area in comparison to the 2031 AM and PM due to increased demand in 2041. However, in the 2041 weekend peak for the ‘without proposal’ and ‘with proposal’ scenarios, the overall LOS would not differ substantially from the 2031 modelled values.
- It should be noted that the Henry Lawson Drive traffic performance would likely see the most benefit once the entire Henry Lawson Drive upgrade program is completed. With only the Stage 1A and Stage 1B upgrades, the merging from two to one lane located north of the Tower Road intersection acts as a bottleneck, impacting the performance of vehicles travelling along the corridor.

Impact on property access

During operation, the proposal would maintain access to all properties within the proposal area.

There are five residential properties within the proposal area with direct access to Henry Lawson Drive (497, 499, 503, 553, 553A Henry Lawson Drive, Milperra). 497, 499 and 503 Henry Lawson Drive are located south of the Flower Power Garden Centre and 553 and 553A Henry Lawson Drive are located south of the Hermies Avenue intersection.

For 497, 499 and 503 Henry Lawson Drive, due to the installation of a raised concrete median along Henry Lawson Drive, driveway access would be converted to left-in left-out only. Residents wishing to turn right into their properties would need to use local road detours to access their properties. There would also be adjustments to driveway connections for these properties within the existing road reserve owned by Transport.

For 553 and 553A Henry Lawson Drive, driveway access would also be converted to left-in left-out only. This would be due to the Henry Lawson Drive / Hermies Avenue intersection only permitting left turning vehicles into the kerbside lane to travel south through the Pozieres Avenue intersection. To access the northbound carriageway of Henry Lawson Drive, residents would need to turn around at either Bransgrove Road or Maxwell Avenue, Panania (about 750 metres south of their properties).

The proposal would require adjustments to driveway connections to local roads to the Milperra Sports Centre, at the BP Service Station (5 Bullecourt Avenue, Milperra) and at some residential properties adjacent to road or footpath work on Ingram Avenue and Fromelles Avenue. These driveway connections would be within the existing road reserve owned by Canterbury Bankstown Council.

Landowners and occupiers would be consulted about any potential access impacts prior to and during construction.

Impact on local road access

The proposal would involve installation of a raised concrete median along Henry Lawson Drive within the proposal area, which would convert a number of local road intersections to be left-in left-out only. The concept design proposes left-in left-out only access at the Henry Lawson Drive intersections of Ruthven Avenue, Whittle Avenue, Amiens Avenue, Ganmain Crescent, Fromelles Avenue and Hermies Avenue. Local residents wishing to turn right from Henry Lawson Drive into these local roads would need to turn right at signalised intersections of Keys Parade, Bullecourt Avenue or Pozieres Avenue to access the local road network to access these local roads.

At Hermies Avenue, a raised lane barrier would be installed so that vehicles from Hermies Avenue cannot switch lanes to turn into Pozieres Avenue and must continue to the south.

The proposal would also provide a local link road between Auld Avenue and Keys Parade, extension of Raleigh Road to Keys Parade and roundabout at the Raleigh Road / Keys Parade intersection. These features would provide new local road access routes to the south-west of Henry Lawson Drive to minimise disruption to motorists of the local road access changes.

Impact on public transport

The operation of the proposal would not result in any changes to existing public or school bus services. Bus stops on local roads including on Amiens Avenue, Bullecourt Avenue and Pozieres Avenue would be retained. Most bus stops along Henry Lawson Drive would be retained with like-for-like replacement of the existing bus stop (where relevant).

However, the bus stop located on the Henry Lawson Drive northbound carriageway, south of Pozieres Avenue intersection would be relocated about 25 metres north of Pozieres Avenue.

Impact on active transport

A three-metre-wide concrete shared path is proposed along the western length of Henry Lawson Drive Stage 1B upgrade between the M5 Motorway and Keys Parade.

The existing pedestrian and cyclist movements would be maintained along the length of Henry Lawson Drive:

- between the M5 Motorway and Pozieres Avenue
- between northern end of Ganmain Crescent and eastern end of Ruthven Avenue
- between western end of Ruthven Avenue and Keys Parade.

This concrete pathway would still connect to the existing pedestrian crossing at Henry Lawson Drive/ Pozieres Avenue intersection.

Impact on road safety

Whilst no dedicated road safety upgrades have been undertaken in the preferred Proposal design, the increased intersection capacity and smoother operation of the network in general is expected to significantly improve road safety. Additionally, the following intersection upgrades are expected to improve road safety:

- Henry Lawson Drive intersections of Auld Avenue, Ruthven Avenue, Whittle Avenue, Amiens Avenue, Ganmain Crescent, Fromelles Avenue and Hermies Avenue. Henry Lawson Drive / Auld Avenue
  - Conversion of intersection into a left-in left-out reduces risk of vehicles turning into oncoming traffic

- Henry Lawson Drive / Bullecourt Avenue intersection
  - Provision of additional right turn bays would increase turn storage capacity and reduce risk of road blockage and rear end collisions.
  - Conversion of left turn exit lane from Bullecourt Avenue into slip lane would improve safety of that turn.
- Henry Lawson Drive / Pozieres Avenue intersection
  - Provision of right and left turn bays would increase turn storage capacity and reduce risk of road blockage and rear end collisions.
  - Relocation of the Pozieres Avenue bus stop about 25 metres north from its current location would improve passenger embarking and disembarking and traffic and pedestrian movements at the intersection.

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Abbreviations

GEH	Geoffrey E. Havers; the GEH Statistic is a formula used in traffic modelling to compare two sets of traffic volume data. $$GEH = \sqrt{\frac{2 * (Observed - Modelled)^2}{(Observed + Modelled)}}$$
OD	Origin / Destination zone pair in the model and demand matrices
OSM	OpenStreetMap

1 Introduction

Transport for NSW (Transport) proposes to upgrade Henry Lawson Drive along a 1.8-kilometre section between Auld Avenue, Milperra and the M5 Motorway, Milperra (the proposal). The proposal would include widening Henry Lawson Drive from two to four lanes, constructing a new local link road between Auld Avenue and Keys Parade, extending Raleigh Road and modifying the Bullecourt Avenue / Ashford Avenue intersection. Further details on the proposal are provided in Section 4. This Traffic and Transport Impact Assessment has been prepared to assess the potential traffic and transport impacts of the proposal. It would support a Review of Environmental Factors (REF) being prepared by Transport under Division 5.1 of *the Environmental Planning and Assessment Act 1979* (EP&A Act).

1.1 Proposal background

The proposal forms part of the progressive upgrade to 7.5 kilometres of Henry Lawson Drive between the intersections of Hume Highway, Lansdowne, and the M5 South Western Motorway, Milperra.

The Henry Lawson Drive upgrade would be carried out in four stages (Stages 1A, 1B, 2 and 3) as presented in Figure 1-1. In June 2018, the NSW Roads Minister and the Treasurer announced $100 million for upgrading of Henry Lawson Drive between Tower Road and the M5 Motorway (Stages 1A and 1B).

This Henry Lawson Drive upgrade would improve traffic capacity, decrease travel time and enhance driver safety.

Figure 1-1: Henry Lawson Drive delivery stages

1.2 Proposal location and setting

The proposal is located around 20 kilometres south west of the Sydney CBD in the City of Canterbury-Bankstown local government area (LGA). The proposal is situated mainly along Henry Lawson Drive and includes intersection upgrades at Keys Parade, Raleigh Road, Ruthven Avenue, Amiens Avenue, Whittle Avenue, Bullecourt Avenue, Ganmain Crescent, Fromelles Avenue, Hermies Avenue and Pozieres Avenue.

Henry Lawson Drive is a key connection for traffic moving between the Hume Highway, Milperra Road / Newbridge Road and the M5 Motorway. It is also used for local travel trips between residences and services. In terms of heavy vehicle access, Henry Lawson Drive is designated as a B-Double access route that connects surrounding large industrial areas of Milperra, Revesby, Chipping Norton and Moorebank.

The proposal passes through the suburb of Milperra with Bankstown Golf Course and Flower Power in the north east of the proposal, recreational areas in the north west.

The proposal is shown in Figure 1-2 as an overview, with Figure 1-3 to Figure 1-7 presenting key features along each segment of the proposal.

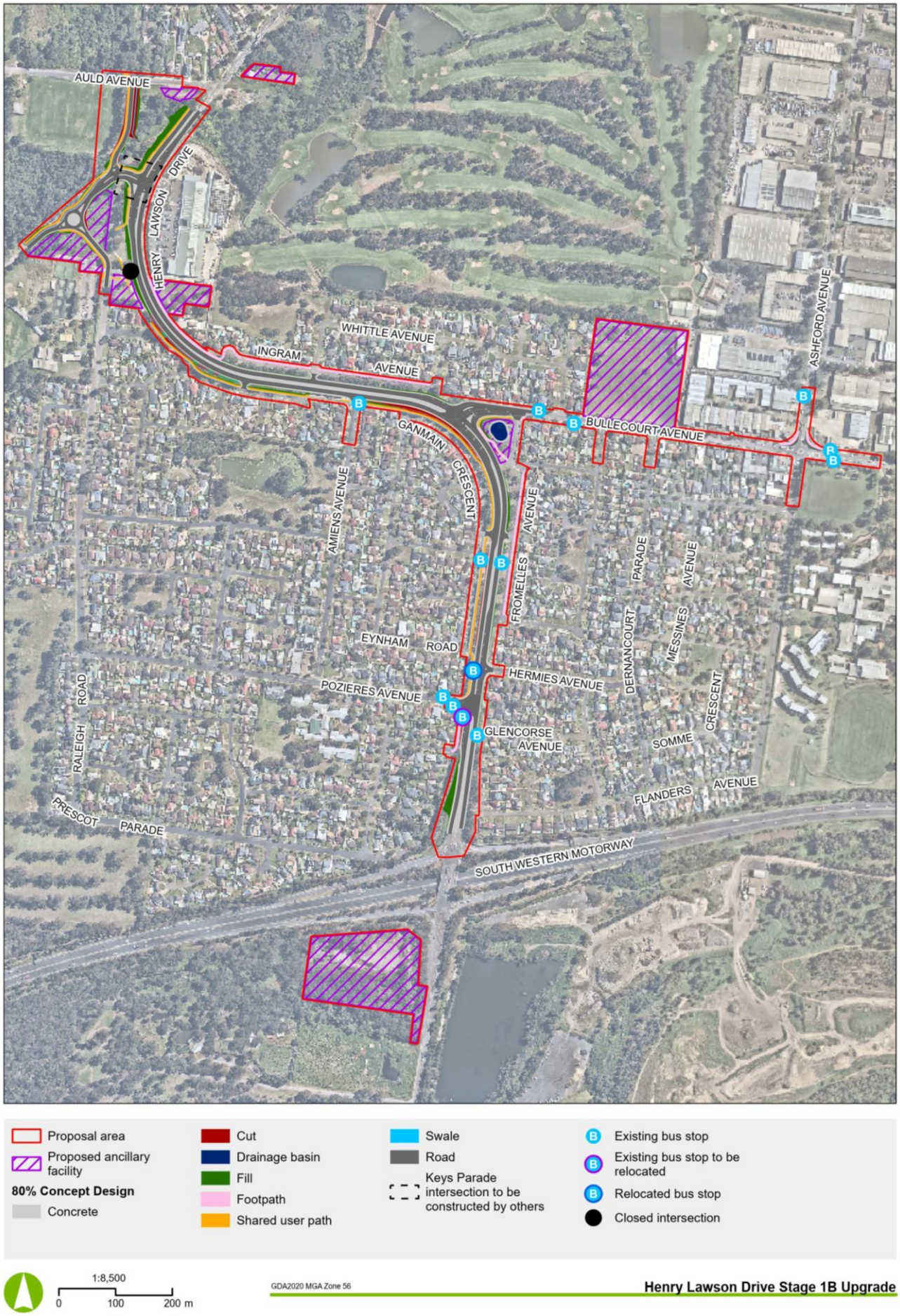


Figure 1-2: The proposal – Overview

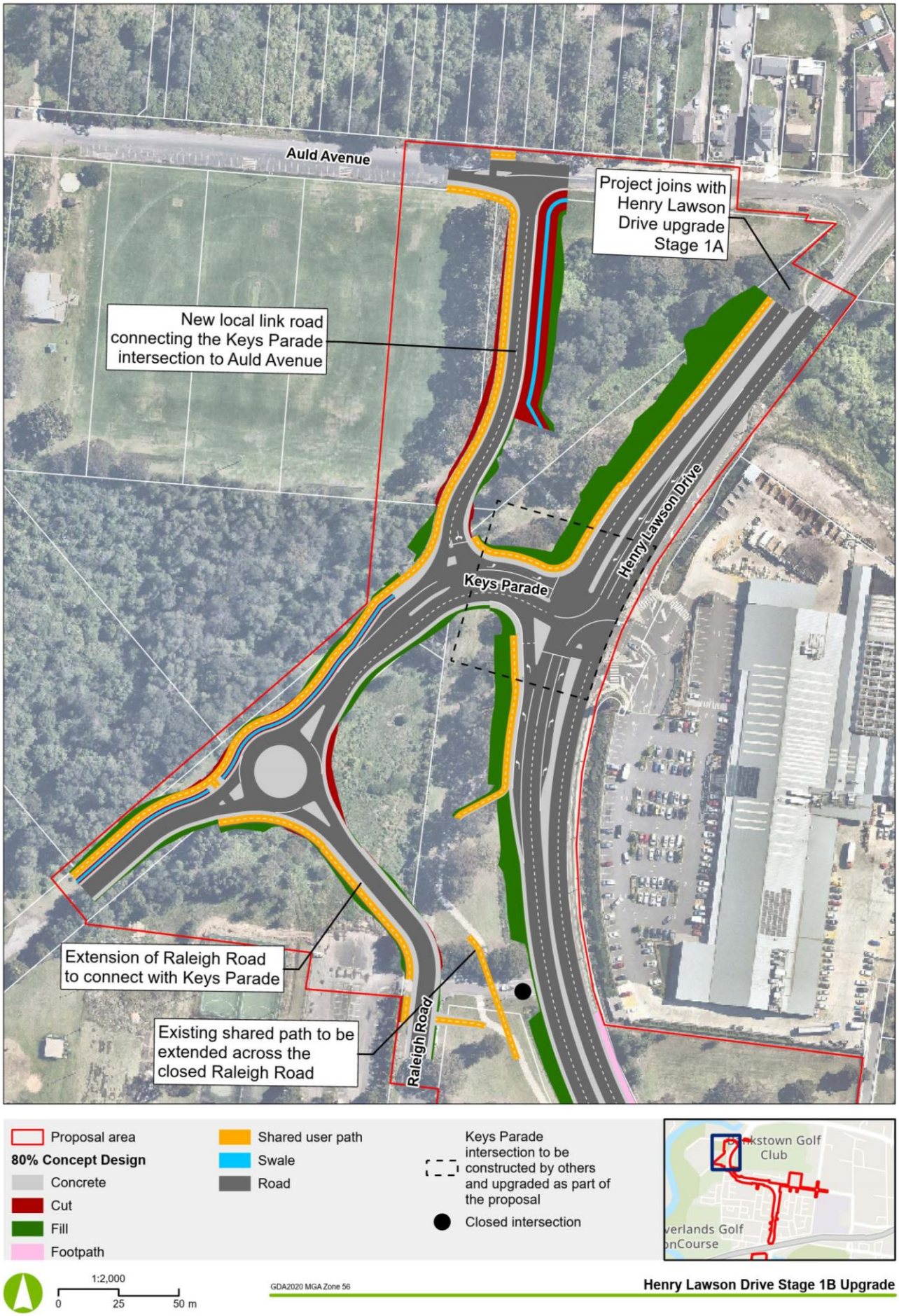


Figure 1-3: Key features of the proposal – Henry Lawson Drive / Keys Parade segment

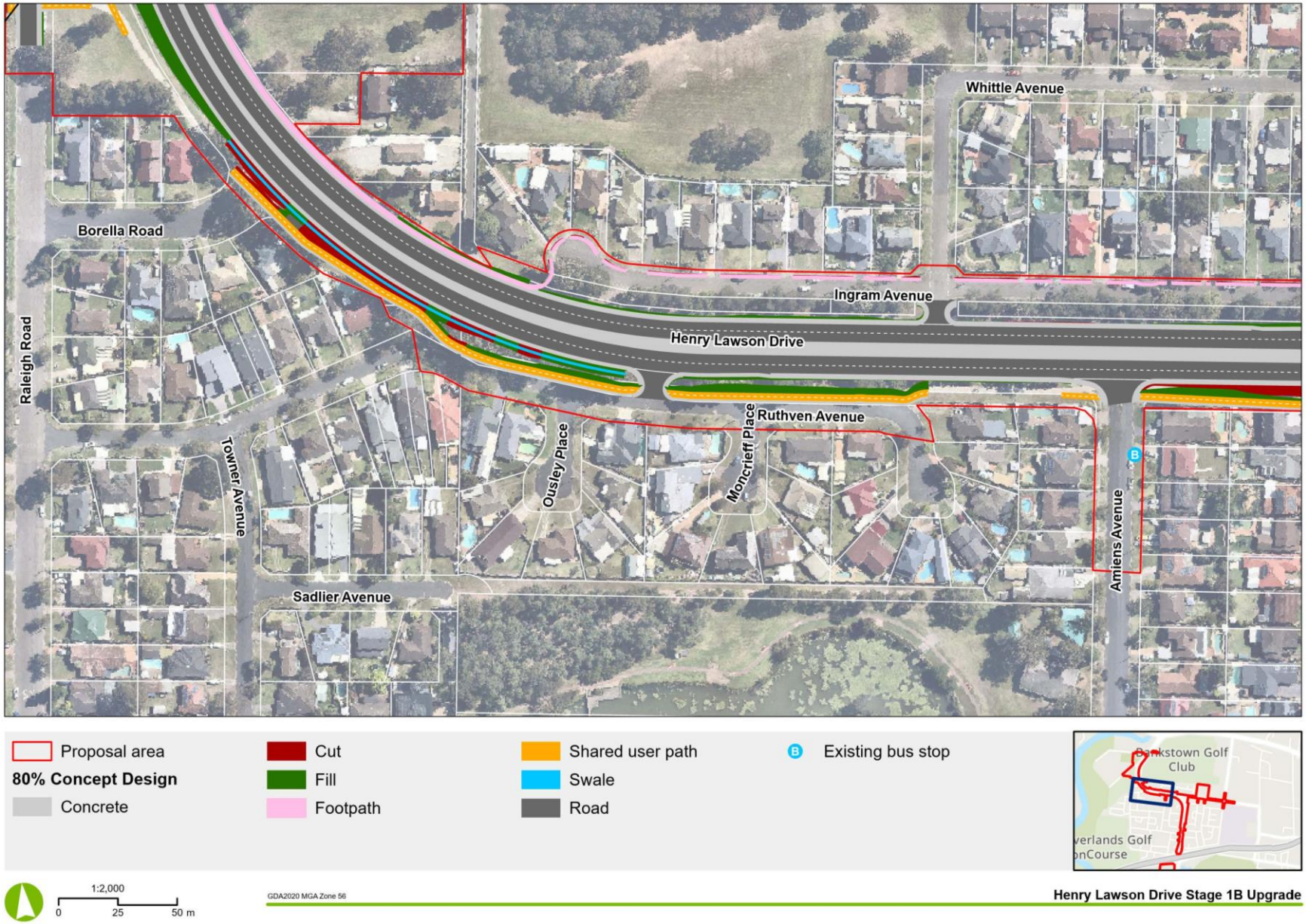


Figure 1-4: Key features of the proposal – Henry Lawson Drive / Amiens Avenue segment

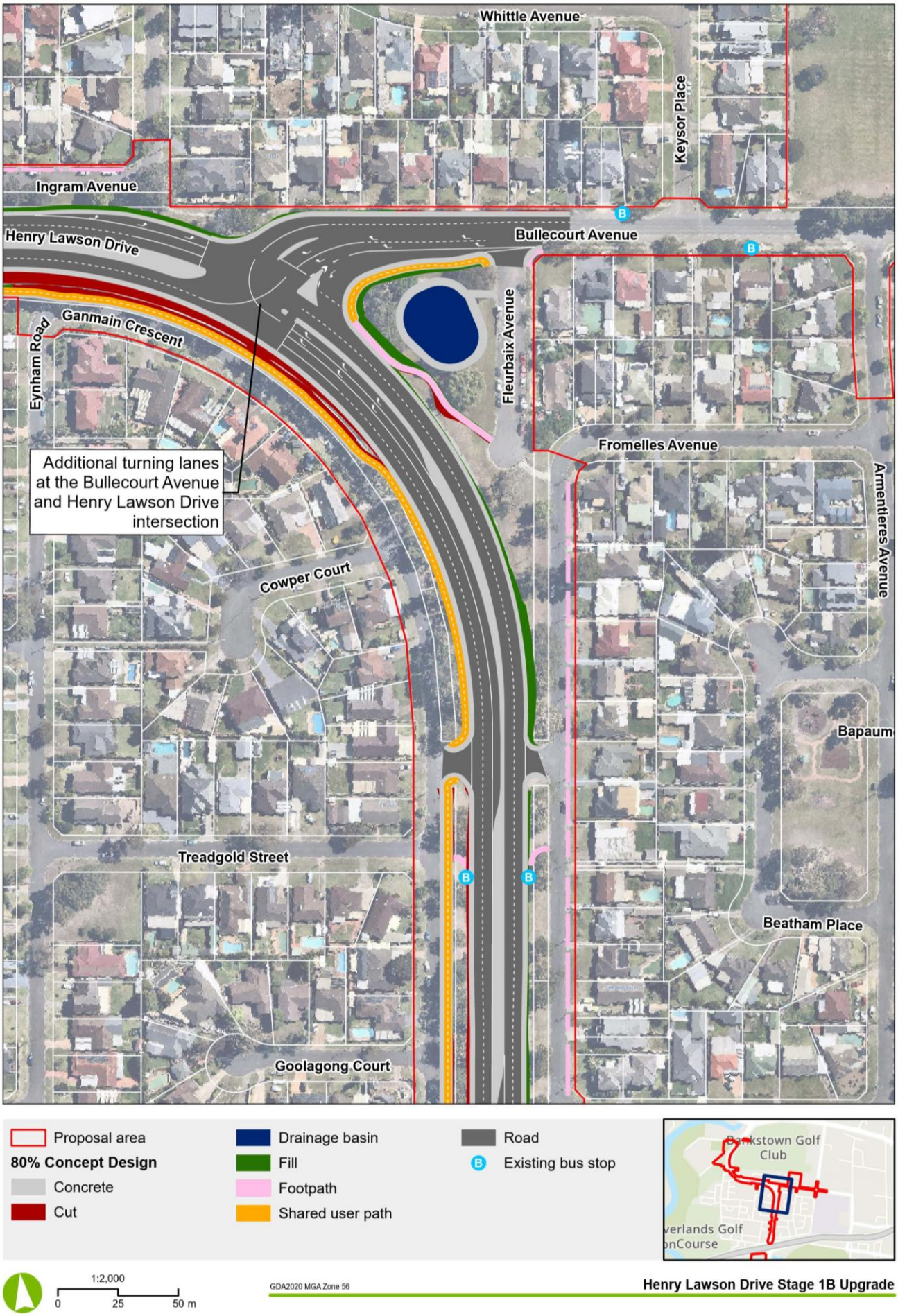


Figure 1-5: Key features of the proposal – Henry Lawson Drive / Bullecourt Avenue segment

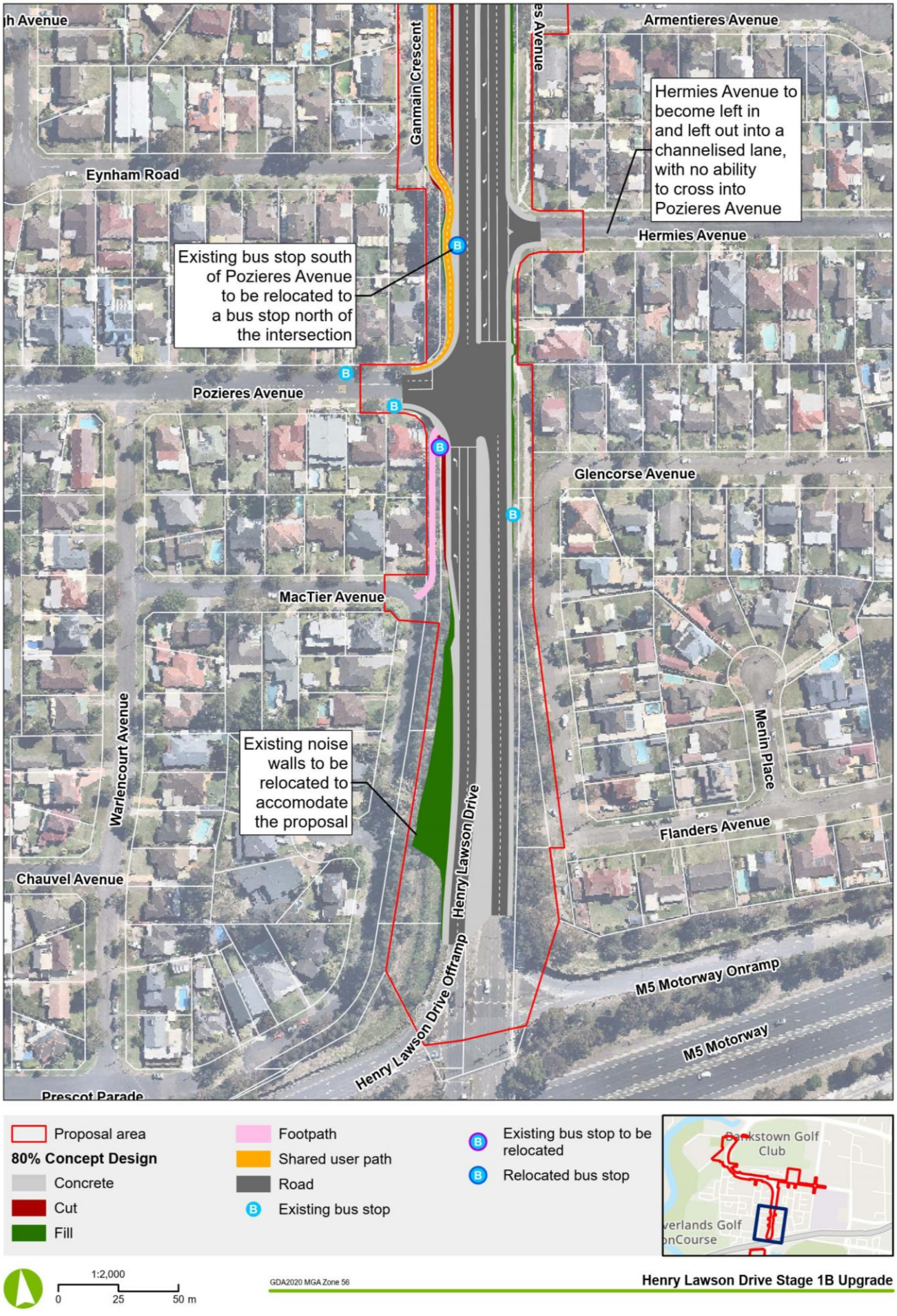


Figure 1-6: Key features of the proposal – Henry Lawson Drive / Pozieres Avenue segment

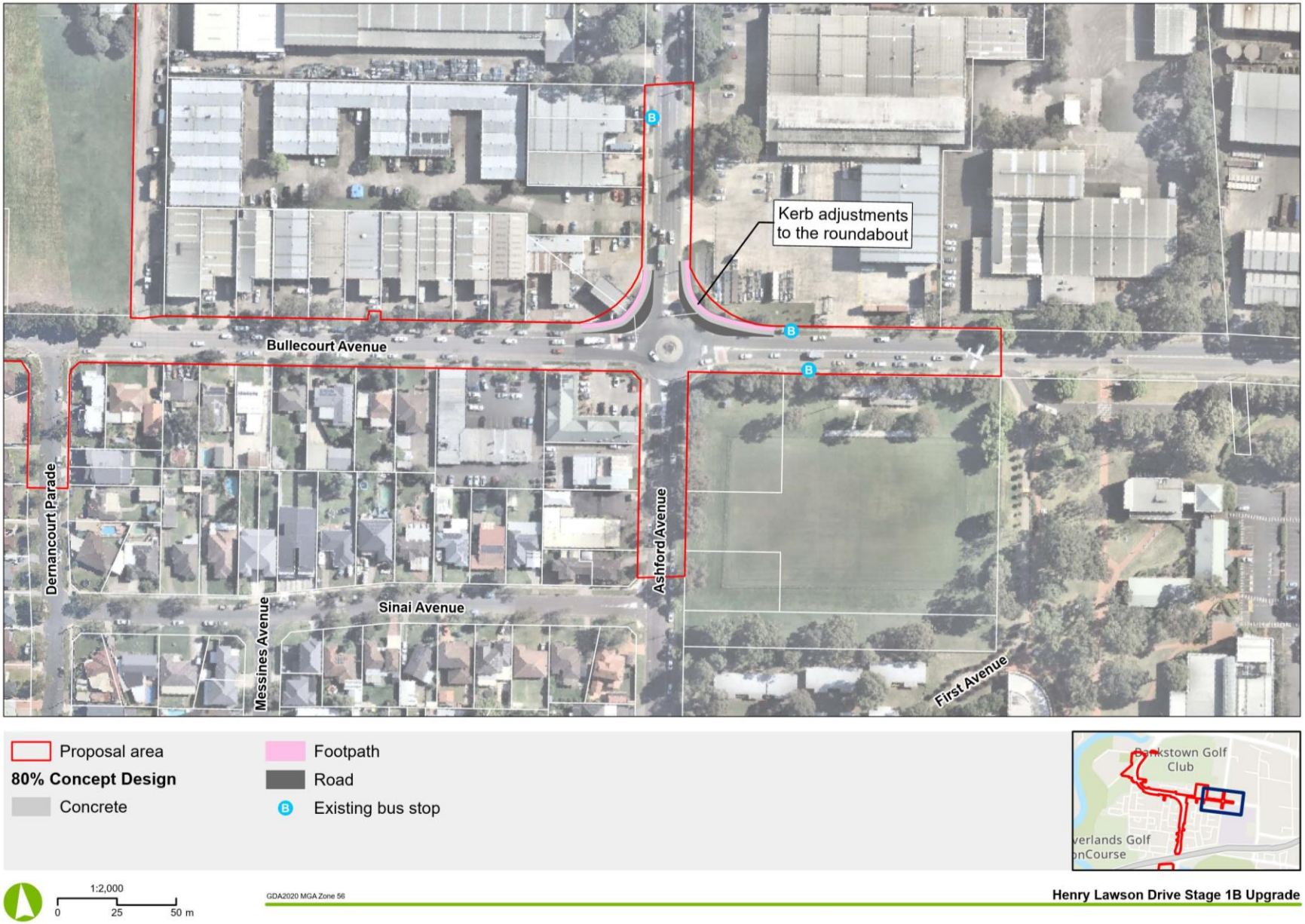


Figure 1-7: Key features of the proposal – Bullecourt Avenue / Ashford Avenue segment

The proposed Stage 1B upgrades include:

- **Widening of Henry Lawson Drive section from Keys Parade and the approach to the M5 Motorway to two lanes:** The section between Keys Parade to the approach of the M5 Motorway is proposed to be widened to four lanes with two lanes either direction. Figure 1-3 to Figure 1-5 presents the proposed section between Keys Parade and Bullecourt Avenue and Figure 1-5 to Figure 1-6 presents the proposed section between the Bullecourt Avenue and approach to the M5 Motorway. The upgrades are described as follows:
  - All unsignalised intersections along this section are proposed to be a “left-in and left-out” to Henry Lawson Drive. This includes Ruthven Avenue, Whittle Avenue, Amiens Avenue, Ganmain Crescent, Fromelles Avenue and Hermies Avenue.
  - The Raleigh Road / Henry Lawson Drive intersection would be removed, and Raleigh Road would be extended north to Keys Parade. This would provide access to traffic coming from Raleigh Road to access Henry Lawson Drive via Keys Parade and vice versa.
  - Upgrades to the existing signalised intersections of Keys Parade / Henry Lawson Drive, Bullecourt Avenue / Henry Lawson Drive and Pozieres Avenue / Henry Lawson Drive. These are discussed separately in this section.

- **Henry Lawson Drive/ Keys Parade intersection upgrade and a Link Road connection between Auld Avenue and Keys Parade**: Figure 1-3 presents the proposed layout of the Keys Parade / Henry Lawson Drive intersection. The intersection upgrades are described as follows:
  - The creation of a left turn slip lane northbound on Henry Lawson Drive to Keys Parade.
  - The widening of Henry Lawson Drive northbound to accommodate two through lanes and a right turn lane for vehicles turning into Flower Power.
  - The widening of Henry Lawson Drive southbound to accommodate two through lanes and two right turn lanes for vehicles turning into Keys Parade. The existing left-hand slip lane into Flower Power would be maintained.
  - The creation of a two-lane local link road between Auld Avenue and Keys Parade.
- **Henry Lawson Drive/ Bullecourt Avenue intersection upgrade**: Figure 1-5 presents the proposed layout of the intersection. The intersection upgrades are:
  - The widening of Henry Lawson Drive southbound to accommodate a 40-metre left turn lane from Henry Lawson Drive to Bullecourt Avenue.
  - The widening of Henry Lawson Drive northbound accommodate two through lanes continuing northbound and two right turn lanes into Bullecourt Avenue.
  - The creation of a left turn slip lane to Henry Lawson Drive from Bullecourt Avenue.
  - The widening of Bullecourt Avenue from Fleurbaix Avenue to the Henry Lawson Drive intersection to accommodate two right turn lanes and one left turn slip lane onto Henry Lawson Drive.

Henry Lawson Drive/ Pozieres Avenue upgrade: Figure 1-6 presents the proposed layout of the intersection. The intersection upgrades are:

- The widening of Henry Lawson Drive northbound to accommodate a 60-metre left turn lane from Henry Lawson Drive to Pozieres Avenue.
- The widening of Henry Lawson Drive southbound to three lanes to increase the capacity for right turn lane from Henry Lawson Drive to Pozieres Avenue.
- The use of solid line on Henry Lawson Drive southbound for the left- most lane between Hermies Avenue to Pozieres Avenue to stopping traffic switching lanes through this section.

1.3 Strategic plans and policies

There are a number of strategic plans and strategies that are relevant to the proposal. These include:

- Transport Road Network Plan – Henry Lawson Drive and Woodville Road
- Future Transport Strategy
- Greater Sydney Region Plan
- NSW Freight and Ports Strategy
- NSW Road Safety Plan 2021
- Transport draft walking and cycling policy

1.3.1 Transport Road Network Plan – Henry Lawson Drive and Woodville Road

The Henry Lawson Drive and Woodville Road network plan provides a framework for the development and management of Henry Lawson Drive / Woodville Road, based on the network's strategic movement and place function and customer needs. The plan outlines the following objective statements:

- A safe road system for every customer supporting the Towards Zero vision of zero fatalities and serious injuries on NSW roads by 2056.
- Improve travel time and reliability for key customer group (freight and car users) along the corridor to support and enhance its function as a primary north-south link between the M5 and Parramatta.
- Support access to safe crossing opportunities of the corridor for active modes, for both commuting and recreational uses, linking local centres, and transport interchanges on parallel rail lines.
- Facilitate the efficient, safe and reliable movement of goods along the corridor and beyond, supporting the growth of freight precincts such as Yennora, Villawood and Bankstown Airport, the metropolitan centre of Parramatta and strategic centres of Fairfield and Bankstown.
- Integrate current and future land use planning with road network development to ensure compatible and complementary uses and functions.

The proposal would help achieve the objectives of the road network plan through the increased capacity of the Henry Lawson Drive, improving travel times and enhancing driver safety, as well as improve connectivity and safety for active transport users.

1.3.2 Future Transport Strategy

The Future Transport Strategy is part of a suite of strategies, policies and plans that integrate and guide long-term land use, transport planning, and the design, delivery and management of transport. It sets the strategic directions for Transport to achieve world-leading mobility for customers, communities, businesses and our people. It was released in September 2022 and replaces Future Transport 2056, which was published in 2018.

This Strategy was updated to address significant economic trends and events including the COVID-19 pandemic, the energy transition, the digital economy, enduring natural disasters and global upheaval. It also considers population growth, new and emerging technology, global megatrends and the impacts of climate change. It includes ground-breaking ideas to revitalise six cities, connect regional communities, encourage thriving local neighbourhoods, and build on that economic success.

The Future Transport Strategy considers every part of our transport system from planning to operations to ensure we have a fully integrated approach. It sets the direction for localised plans and strategies, policy direction and prioritisation. The aim is to connect customers and communities with a safe, reliable, sustainable and integrated transport system, and to help guide the allocation of transport funding to build future cities, towns and regions.

The Future Transport Strategy focuses on getting more out of our existing investments, by reallocating road space to more efficient modes of transport like buses, walking, cycling and micro mobility devices. Stronger investment in public transport, walking and cycling networks would offer convenient alternatives to driving and build a sustainable transport system. Better public transport can make our cities and towns stronger and more sustainable, with seamless networks that deliver more convenient door-to-door journeys. It would embed intelligent sensors and digital systems to improve the real-time management, efficiency and reliability of our networks; prioritise public transport and freight vehicles; and ensure our roads are ready for Connected and Automated Vehicles (CAV).

The proposal would help to alleviate congestion and improve travel times through improvements to existing infrastructure along Henry Lawson Drive and surrounding local roads. It would also improve freight networks and increase freight capacity, thereby aligning with the strategic objectives of the Future Transport Strategy.

1.3.3 Greater Sydney Region Plan

The *Greater Sydney Region Plan: A Metropolis of Three Cities* (GSRP) outlines the vision to transform Greater Sydney into a metropolis of three cities:

- The established Eastern Harbour City – building on its recognised economic strength and addressing liveability and sustainability.
- The developing Central River City – investing in a wide variety of infrastructure and services and improving amenity.
- The emerging Western Parkland City – establishing the framework for the development and success of an emerging new city.

The proposal is located within the developed Central River City. The GSRP highlights the importance of providing infrastructure to support cities, while also having the ability to adapt to meet the needs of future growth. The proposal would contribute to meeting these objectives through the upgrading of infrastructure on Henry Lawson Drive and its connecting roads. This would increase traffic efficiency for local road users and provide for future growth by allowing greater traffic capacity at key intersections.

One of the GSRP objectives also focuses on ensuring the freight and logistics network is competitive and efficient. It highlights the importance of locations surrounding key freight networks and ensuring they are not adversely impacted by traffic patterns and congestion. The upgrade of Henry Lawson Drive would contribute to achieving the GSRP objectives relating to freight and logistic networks through the provision of additional capacity in the direct study area. This would also benefit the community through decreasing traffic congestion on local roads, improving access within the neighbouring communities and providing increased active transport opportunities.

1.3.4 NSW Freight and Ports Plan 2018-2023

In September 2018, Transport released the *Freight and Ports Plan 2018-2023* (FPP) as a supporting plan to the Future Transport Strategy. The FPP was released to provide a guide for the freight industry over a five-year period to make the long-term investments required to benefit the freight industry as well as the State's future growth (Transport 2018c). The main aim of the FPP is for the industry and government to work together to achieve the following objectives:

- Objective 1: Economic growth
- Objective 2: Efficiency, connectivity and access
- Objective 3: Capacity
- Objective 4: Safety
- Objective 5: Sustainability

The proposal aligns closely with the objectives of the FPP through the upgrade of Henry Lawson Drive to increase capacity to address existing congestion issues and accommodate growth. In doing so, the proposal would improve efficiency and provide better connectivity and access for the community and all road users.

The FPP discusses the contribution that congestion makes to the cost of moving freight, particularly around high-density urban areas (Transport 2018c). The proposal would aim to improve freight efficiency and reduce vehicle operating costs on the road network through the upgrade of Henry Lawson Drive.

1.3.5 Road Safety Plan 2021

The *Road Safety Plan 2021* (Road Safety Plan) was established to guide the improvement of road safety in NSW. The plan is based on consultation with the NSW community to identify trends and key issues that can be responded to. The international 'Safe System Approach' is adopted in the plan to achieve the NSW target of 'zero fatalities and serious injuries on our roads by 2056' (Transport, 2018d).

The steps to achieving a safer system that align closely with the proposal include creating safer urban places and communities and building a safe future. Developing 'liveable and safe urban communities' is a priority area highlighted in the Road Safety Plan. Actions that are discussed to achieve this include exploring safety upgrades at intersections in the proposal design (Transport, 2018d). The proposal would upgrade Henry Lawson Drive including intersections to improve road safety outcomes for all road users. This includes motorists, pedestrians and cyclists. This would have benefits for current and future people living and travelling through the proposal area, contributing to the liveability of the community through the provision of safer infrastructure and connections.

1.3.6 Providing for Walking and Cycling in Transport Projects Policy, 2021

The Walking and Cycling Policy outlines Transport's recognition that walking and cycling are integral to the greater good of communities. This policy requires that every transport project funded by Transport includes provision for walking and cycling within the core scope of the project.

The proposal aligns with this policy, improving active transport connectivity through the construction of new shared paths and footpaths through the proposal area

The proposal would provide greater active transport linkage along Henry Lawson Drive, through the development of a three-metre-wide shared use path and footpaths along Henry Lawson Drive in the proposal area. These would connect with existing active transport facilities in the area.

2 Methodology

2.1 Study process

The methodology for this traffic and transport assessment consisted of:

- Reviewing the existing and future conditions of the transport network within and surrounding the proposal using publicly available information as well as data that had been previously collected for the proposal.
- Preparing a microsimulation traffic model for the concept design of the proposal using AIMSUN 20.0.3 software from TSS (Transport Simulation Systems).
- Modelling the traffic performance of the concept design for several scenarios within the study area.
- Assessing the impacts of the proposal on traffic and transport performance during construction and operational stages.
- Recommending management measures to minimise potential traffic or transport impacts from the proposal.

Further details on the methodology are provided in the following sections. The base model calibration and validation report is provided at Appendix A and the Future option modelling report is provided at Appendix B.

2.2 Study area

The study area for Stage 1B adopted in this assessment extends about 1.8 km along Henry Lawson Drive in Milperra from Auld Avenue to the M5 Motorway as shown in Figure 2-1.

The traffic modelling also considered a broader road network (the model study area) than the immediate study area subject to the proposal to:

- Incorporate future projects in the area that would result in increased traffic volumes or changed traffic movements through the proposal area
- Assess the impacts of the proposal on the broader road network.

The model study area covers Henry Lawson Drive between Hume Highway and the M5 Motorway as shown in Figure 2-1. The traffic modelling results in this report detail the impacts of the proposal on intersections and the local road network in the Henry Lawson Drive Stage 1B study area. The intersections in the Stage 1B study area included:

1. Henry Lawson Drive / Keys Parade
2. Henry Lawson Drive / Raleigh Road
3. Henry Lawson Drive / Ruthven Avenue
4. Henry Lawson Drive / Whittle Avenue
5. Henry Lawson Drive / Amiens Avenue
6. Henry Lawson Drive / Bullecourt Ave
7. Henry Lawson Drive / Fromelles Avenue / Ganmain Crescent
8. Henry Lawson Drive / Hermies Avenue
9. Henry Lawson Drive / Pozieres Ave

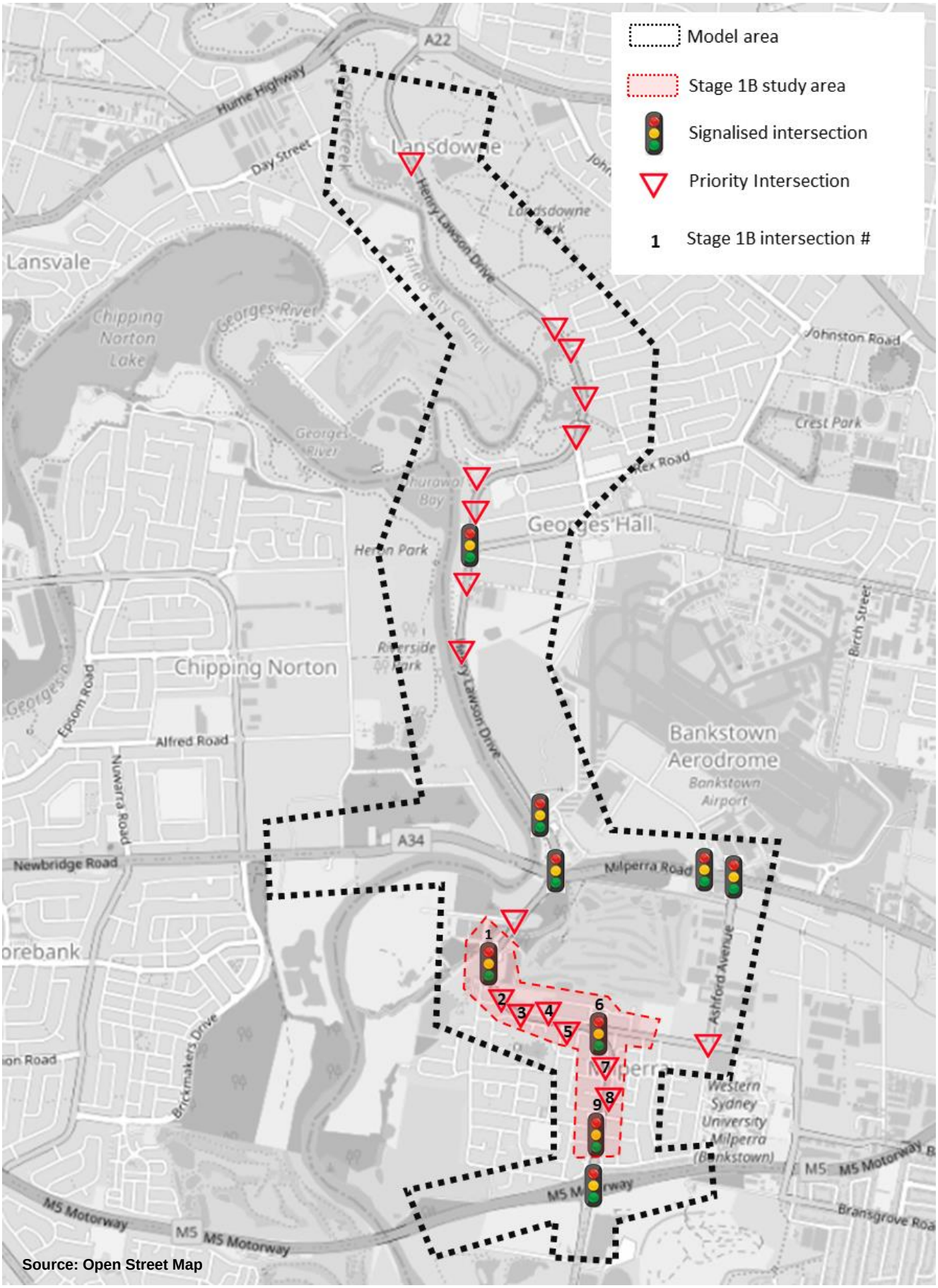


Figure 2-1: Henry Lawson Drive Stage 1B model study area with Stage 1B upgrade

2.3 Detailed modelling method

AIMSUN microsimulation software was chosen as the modelling software which would allow analysis of the intersection performance, and key changes on the road network as a result of the proposal. This software allows reporting of travel times, delays and queuing at signalised and non-signalised intersections and geometric conditions.

The traffic modelling required development of:

- A calibrated and validated Existing traffic model that accurately represents traffic conditions observed within the study area and is suitable for analysing network performance and acting as a benchmark to evaluate performance of the future year scenarios.
- Future year traffic models that draw on the Existing model and Strategic Traffic Forecasting Model (STFM) to compare the expected traffic conditions with and without the proposal under forecast traffic volumes.

Further details on the inputs, Existing and assessment scenario development are detailed in the following sections.

It should be noted that the traffic model was based on the following considerations:

- Traffic surveys were undertaken in 2022, and as such reduced traffic levels during COVID-19 lockdown is not a concern. For the base model, the traffic count data has been sourced from MATRIX surveys undertaken mostly during 2022 for Stage 1B and 2018 for Stage 1A. The traffic counts used for model calibration are therefore a mix of both 2022 and 2018 traffic data. It has however been verified that the collected dates are representative of typical day traffic conditions. Traffic models considered traffic growth rates into the future.
- Future background growth assumptions are based on the latest land use information available. Any potential effects of COVID-19 on future population growth and employment are not reflected in the modelling results.
- Any upstream or downstream congestion outside the model study area on Milperra Road and Henry Lawson Drive were not considered.

2.3.1 Traffic monitoring and existing data

The development of the Existing model for the proposal was validated and calibrated against several key data inputs as presented in Table 2-1.

Table 2-1: Road Network Datasets

Data type	Source	Application
Existing model	Transport / Aurecon – Existing model for Henry Lawson Drive Stage 1A	Existing model from Stage 1A extended to include Stage 1B study area.
Aerial imagery	Open Street Maps, 2019 Nearmap Imagery	Model network coding, geometry verification
Road Classification, Speed Limit Data	Desktop review	Model network coding
Traffic Survey Counts	Transport provided survey data (Matrix) for 19 intersections and five midblock locations	Traffic survey counts is used for the purpose of model calibration.
SCATS traffic count and Signal Data	Transport – Count data for eight intersections and SCATS IDM signal data (phase splits / times and cycle times	Signal coding and model development
Travel Time Survey Data	HERE data provided by Transport.	Used for the purpose of model validation
Public transport operations	Bus stops, route information data and timetable data were obtained from Transport	Coding of bus routes in the Existing model

Data type	Source	Application
Zoning and Traffic demands	Transport Model	Zoning and prior traffic demands from provided model have been retained.
Strategic Travel Model	Transport Model	Future demand projection

2.3.2 Development of the base case traffic model

This section presents a summary of the development of the base case traffic model. A full breakdown of the development process is provided in the Calibration and Validation Report, which has been included as Appendix A of this report.

The base case traffic model for the proposal was developed using AIMSUN v20.0.3 to replicate 2022 base year traffic conditions for the two-hour weekday AM peak (7:45AM – 9:45AM), weekday PM peak period (3:30PM – 5:30PM) and weekend (Saturday) peak period (11:30AM – 1:30PM). This involved developing an AIMSUN network model to match existing lane configurations, intersections, gradients, lane/ turn restrictions, turn lanes and reduced speed areas within the study area.

The Traffic Modelling Guideline, Version 1 (Roads and Maritime, 2013) was used as the main guideline for the base year model development, calibration and validation process. The calibration of the base model involved network verification, demand calibration and route choice calibration. This included development of accurate origin-destination (O-D) matrices calibrated against the intersection turn count data, origin destination data, aerial imagery and other background data collected for the proposal. The model was then validated against HERE travel time data, which confirmed the accuracy of the model. HERE data comprises of the aggregation of multiple data sources such as connected vehicle probes, roadway sensors and live operations centres, which yields real-time traffic data such as speed of travel and travel times along individual segments of a roadway.

The calibration and validation process determined that:

- AM, PM and weekend models satisfy the network wide tolerance limits specified by the Traffic Modelling Guidelines with the majority of light and heavy vehicle turning movements. Tolerance was measured by the GEH statistic, a chi-squared test measuring the variance in differences between surveyed and modelled turning movements. The AM, PM and weekend models all achieved GEH values < 5 for more than 85% of all turn flows, and GEH values of < 10 for all turn flows. This was achieved during all peak hours for both light and heavy vehicles. Furthermore, a high level of calibration was reinforced through R^2 (coefficient of determination) values of 0.99 being consistently achieved during all modelled peak hours for light vehicles, and R^2 values ranging between 0.87 and 0.94 for heavy vehicles.
- Modelled travel times, specifically in the critical direction (westbound), were within the acceptable 15 per cent tolerance band.
- Model stability is consistent across the 5 chosen seed runs.
- Base case model provides a realistic replication of the study area's traffic operations.

As a result, the base case model has been calibrated and validated to achieve an acceptable representation of the existing road network conditions in accordance with the Traffic Modelling Guideline (Roads and Maritime, 2013) and has been considered fit for purpose for use in the assessment of future year scenarios. The base case scenario is identified as the 2022 existing traffic environment.

2.3.3 Development of assessment scenarios for the proposal

This section presents a summary of the future demand estimation process and development of the future 'with proposal' scenario traffic model. A full breakdown of the process is provided in the Future 'with proposal' scenario Report, which has been included as Appendix B of this report.

Future year models were developed for the proposal for the following assessment scenarios:

- 2031 AM/ PM/ Weekend peak period without works ('without proposal')
- 2031 AM/ PM/ Weekend peak period with the proposal ('with proposal')
- 2041 AM/ PM/ Weekend peak period without works ('without proposal')
- 2041 AM/ PM/ Weekend peak period with the proposal ('with proposal')

The future year models for 2031 (opening year) and 2041 (ten years after opening) were developed for the future AM, PM and weekend peaks by adding the predicted traffic growth to the Existing 2022 calibrated demand volumes. The traffic growth was derived using traffic volumes from the Sydney Strategic Traffic Forecasting Model (STFM). The traffic demands used for the future year models have been developed from the 2021, 2031 and 2041 STFM sub-area matrices and link volume plots provided by Transport on 10th May 2022.

It is noted that at the time of modelling, there were several key developments not included within the future land use assumptions within Land Use 2016. Land Use 2016 aligns with the 2016 Census, 2016 NSW Government Population projections and 2014 Metropolitan Strategy 'A Plan for Growing Sydney'. Changes since 2016 include Bankstown Airport redevelopment and Riverlands Golf Course Subdivision. Traffic generated by these developments have been based on the Bankstown Airport Masterplan and the Riverland's Golf Course Residential Subdivision Traffic Impact Assessment (TTPP, 2020) respectively and considered in future traffic volumes.

In addition, the Georges Hall Pinch Point upgrade construction has started north of the proposal on Henry Lawson Drive between Beale Street and Rabaul Road, has been considered in all future year assessment scenarios. The changed traffic movements and improvements to the traffic on Henry Lawson Drive from that project has been modelled in these scenarios.

Table 2-2 summarises the two scenarios that were developed and reported as part of this assessment.

Table 2-2: Future scenarios modelled

Scenario	Year	Road Network
Without proposal	2031 and 2041	■ Committed projects – Georges Hall Intersections Upgrade – Henry Lawson Drive/ Tower Road intersection upgrade – Henry Lawson Drive/ Keys Parade intersection upgrade – Milperra Road/ Murray Jones Drive intersection upgrade ■ Henry Lawson Drive Stage 1A upgrade – Milperra Road and Newbridge intersection upgrade
With proposal	2031 and 2041	■ Committed projects – Georges Hall Intersections Upgrade – Henry Lawson Drive/ Tower Road intersection upgrade – Henry Lawson Drive/ Keys Parade intersection upgrade – Milperra Road/ Murray Jones Drive intersection upgrade ■ Henry Lawson Drive Stage 1A upgrade – Widening to four lanes between Tower Road and Keys Parade – Milperra Road and Newbridge intersection upgrade – Auld Avenue intersection upgrade ■ Henry Lawson Drive Stage 1B upgrade

Scenario	Year	Road Network
		– Widening to four lanes between Keys Parade and approach of M5 motorway – Henry Lawson Drive/ Keys Parade intersection upgrade – Henry Lawson Drive/ Bullecourt Avenue intersection upgrade – Henry Lawson Drive/ Pozieres Avenue intersection upgrade ■ Link road between Auld Avenue and Keys Parade ■ Raleigh Road extension to Keys Parade

2.4 Traffic performance criteria

2.4.1 Level of service criteria for intersections

Intersection operational performance is evaluated by assessing the intersection turning volumes, vehicle delays and level of service (LOS). LOS is a measure used to determine the effectiveness of intersection operation and is commonly used to analyse intersections by categorising traffic flow conditions. For a signalised intersection, the LOS criteria are related to the average intersection delay measured in seconds per vehicle. Table 2-3 below shows the Transport standard LOS criteria for intersection operation.

Table 2-3: Level of Service criteria for intersections

Level of Service	Average Delay per Vehicle (s/veh)	Traffic Signals, Roundabout
A	<14	Good operation
B	15 to 28	Good with acceptable delays & spare capacity
C	29 to 42	Satisfactory
D	43 to 56	Operating near capacity
E	57 to 70	At capacity; at signals, incidents would cause excessive delays Roundabouts requires other control mode
F	>70	Unsatisfactory with excessive queuing

3 Existing conditions

3.1 Study area characteristics

3.1.1 Surrounding land uses

The study area is located within the City of Canterbury-Bankstown local government area (LGA), though it is noted that a minor part of the area encompassing Newbridge Road extends into the Liverpool LGA. Local development within the City of Canterbury-Bankstown LGA is governed by the *Bankstown Local Environmental Plan 2015* (Bankstown LEP), which establishes land zonings that control the types of land uses that are permitted.

Figure 3-1 shows the existing land zoning within Stage 1B study area.

Figure 3-1: Land Zoning

3.1.2 Travel behaviour

Table 3-1 provides a summary of the vehicle ownership and Table 3-2 provides a list of other transport methods used in the City of Canterbury-Bankstown and Liverpool LGAs.

In 2021, vehicle ownership in the broader study area ranged between 1.8 – 2 vehicles per household, with 71 per cent of households having two or more motor vehicles. In comparison, 45 per cent of households in City of Canterbury Bankstown LGA and 46 per cent in Greater Sydney households had access to two or more motor vehicles. Only 4.8 per cent of households in the broader study area had no motor vehicles registered.

Table 3-1: Vehicle ownership in 2021

Indicator	Broader study area		Canterbury-Bankstown LGA		Greater Sydney	
	Number	%	Number	%	Number	%
Dwellings with no vehicles	684	4.8	13,355	11.4	203,081	11.1
Dwellings with access to two or more motor vehicles	-	71	-	45	-	46
Average motor vehicles per dwelling	2	-	1.7	-	1.7	-

Source: Census of Population and Housing (ABS 2021)

Table 3-2: Travel to work data in 2021

Indicator (travel to work - (one method)	Broader study area		Canterbury-Bankstown LGA		Greater Sydney	
	Number	%	Number	%	Number	%
Train	250	1.7%	4,283	4.1%	60,858	3.0%
Bus	64	0.4%	1,035	1.0%	28,786	1.4%
Ferry	4	0.0%	3	0.0%	954	0.0%
Tram/light rail	0	0.0%	17	0.0%	1,243	0.1%
Taxi/ride-share service	27	0.2%	223	0.2%	3,367	0.2%
Car, as driver	7,050	48.8%	48,383	45.9%	8,32,277	40.9%
Car, as passenger	507	3.5%	4,153	3.9%	63,954	3.1%
Truck	155	1.1%	786	0.7%	14,203	0.7%
Motorbike/scooter	37	0.3%	426	0.4%	9,757	0.5%
Bicycle	32	0.2%	265	0.3%	8,990	0.4%
Other	94	0.7%	753	0.7%	11,358	0.6%
Walked only(b)	170	1.2%	2,027	1.9%	56,206	2.8%
Worked at home	6,047	41.9%	43,131	40.9%	9,44,501	46.4%

Source: Census of Population and Housing (ABS 2021)

The following travel patterns were identified from the review of ABS data:

- There is a higher proportion of residents in City of Canterbury Bankstown LGA who commute to work by public transport (train, bus, ferry, tram/light rail) when compared to Greater Sydney.
- The preferred method of travel to work in the broader study area, City of Canterbury Bankstown LGA and Greater Sydney was travel to work by car (as driver) and (as passenger). The high vehicle ownership in the broader study area may be reflective of the levels of advantage or disadvantage in the local community, the reliance on private motor vehicles to travel to work, and lack of public transport or active transport mode choice for residents.
- Travel to work by train was the third most used method of travel to work in the broader study area, City of Canterbury Bankstown LGA and Greater Sydney.

3.2 Road network

3.2.1 Road hierarchy

There are three key road categories in NSW:

- State roads, which form the primary routes for the movement of people and goods within and between major urban centres and include roads classified as Freeways, State Highways and Main Roads under the Roads Act 1993. State Roads are managed by Transport
- Regional roads, which provide for travel between smaller towns and districts as well as perform a sub-arterial function within major urban centres. These roads are managed by local councils but often receive funding from the State Government due to their importance to the road network in NSW
- Local roads, which include collector and local access roads and are managed by local councils.

The study area for the traffic and transport assessment includes several key roads, which are described in the sections below, including:

- State roads – Milperra Road, Henry Lawson Drive, Newbridge Road, M5 South–West Motorway
- Regional roads – Haig Avenue, Ashford Avenue, Bullecourt Avenue
- Local roads – Tower Road, Rabaul Road, Auld Avenue, Raleigh Road, Ruthven Avenue, Whittle Avenue, Amiens Avenue, Ganmain Crescent, Fromelles Avenue, Hermies Avenue, Pozieres Avenue.

3.2.2 Key roads within the study area

Milperra Road

Milperra Road is a State road that runs predominantly east-west from Newbridge Road in Milperra to Canterbury Road in Revesby. It is part of the A34 arterial route which connects Newtown and Liverpool.

Within the study area, Milperra Road intersects with Newbridge Road and Henry Lawson Drive at an at-grade signalised intersection. This section of Milperra Road has three lanes in each direction, with additional auxiliary turning lanes. It is signposted at 70 kilometres per hour.

In 2022, Milperra Road was estimated to carry about 30,300 vehicles per day in both directions combined.

Henry Lawson Drive

Henry Lawson Drive is a 20-kilometre-long State road that runs predominantly north-south from Hume Highway in Villawood to Forest Road in Peakhurst.

Within the study area, Henry Lawson Drive intersects with Bullecourt Avenue at an at-grade signalised intersection. North of this intersection, Henry Lawson Drive has one-lane in each direction, with additional auxiliary turning lanes. South of this intersection, it has one lane in each direction until Pozieres Avenue, where it increases to two lanes in each direction. Both sections are signposted at 60 kilometres per hour.

In 2022, Henry Lawson Drive (between the M5 Motorway and Bullecourt Avenue) was estimated to carry about 27,300 vehicles per day in both directions combined.

Newbridge Road

Newbridge Road is a State road that runs predominantly east-west from Milperra Road in Milperra to Terminus Road/Hume Highway in Liverpool. It is part of the A34 arterial route which connects Newtown and Liverpool.

Within the study area, Newbridge Road intersects with Milperra Road and Henry Lawson Drive at an at-grade signalised intersection. This section of Milperra Road has three lanes in each direction, with additional auxiliary turning lanes. It is sign posted at 70 kilometres per hour.

In 2022, Newbridge Road was estimated to carry about 42,600 vehicles per day in both directions combined.

M5 South–West Motorway

The M5 Motorway is a 29-kilometre-long motorway and is the primary route from Liverpool to the Sydney CBD. It intersects with Henry Lawson Drive at a grade separated interchange, within the study area.

In 2022, the M5 South-West Motorway was estimated to carry approximately 86,100 vehicles per day in both directions combined on the mainline.

Other key roads within the study area

Table 3-3 describes the other key roads within the study area.

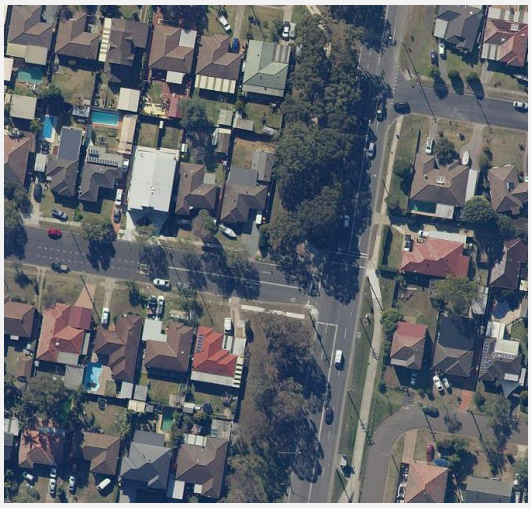
Table 3-3: Description of key roads within the study area

Road	Description
Haig Avenue	Haig Avenue is an east-west regional road that connects Henry Lawson Drive to Georges Crescent/Birdwood Road. It is generally a two-lane undivided road with residences and on-street parking on both sides.
Ashford Avenue	Ashford Avenue is a north-south regional road that connects Milperra Road to the Western Sydney University Bankstown campus and residential areas to the south. It is generally a two-lane undivided road with residential and on street parking on both sides.
Bullecourt Avenue	Bullecourt Avenue is an east- west regional road that connects Henry Lawson Drive to the Western Sydney University Bankstown campus, residential areas and industrial areas to the east. It is generally a two-lane undivided road with residential and on street parking on both sides.
Tower Road	Tower Road is a north-south local road that connects Henry Lawson Drive to Link Road and Bankstown Airport. It is generally a two-lane undivided road with aeronautical industry/golf course on both sides.
Auld Avenue	Auld Avenue is an east-west no through local road that connects Henry Lawson Drive to playing fields and cricket pitches to the west. It is generally a two-lane undivided road with on-street parking on both sides.
Raleigh Road	Raleigh Road is a north-south local road that connects Henry Lawson Drive to Prescot Parade. It is generally a two-lane undivided road with residences and on-street parking on both sides.
Ruthven Avenue	Ruthven Avenue is an east-west local road that connects Henry Lawson Drive residential areas and ends in a cul-de-sac. It is generally a two-lane undivided road with residences and on-street parking on both sides.
Whittle Avenue	Whittle Avenue is an east-west local road that connects Henry Lawson Drive to Keysor Place. It is generally a two-lane undivided road with residences and on-street parking on both sides.
Amiens Avenue	Amiens Avenue is a north-south local road that connects Henry Lawson Drive to Prescot Parade. It is generally a two-lane undivided road with residences and on-street parking on both sides.
Ganmain Crescent	Ganmain Crescent is a north-south local road that connects Henry Lawson Drive to Eynham Road. It is generally a two-lane undivided road with residences and on-street parking on both sides.
Fromelles Avenue	Fromelles Avenue is a north-south local road that connects Henry Lawson Drive to Armentieres Avenue. It is generally a two-lane undivided road with residences and on-street parking on both sides.
Hermies Avenue	Hermies Avenue is an east-west local road that connects Henry Lawson Drive to Dernancourt Parade. It is generally a two-lane undivided road with residences and on-street parking on both sides.
Pozieres Avenue	Pozieres Avenue is an east-west local road that connects Henry Lawson Drive to Raleigh Road. It is generally a two-lane undivided road with residences and on-street parking on both sides.
Rabaul Road	Rabaul Road is an east-west local road that connects Henry Lawson Drive to Tower Road. It is generally a two-lane undivided road with residences and on-street parking on both sides.

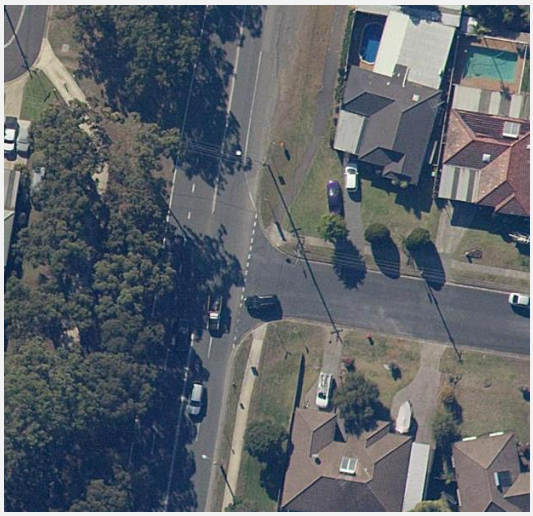
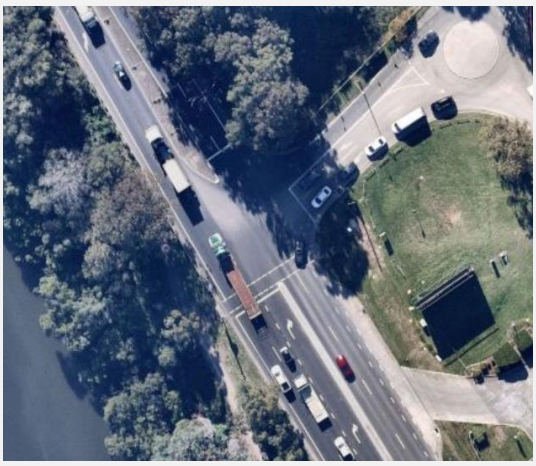
3.2.3 Key intersections within the study area

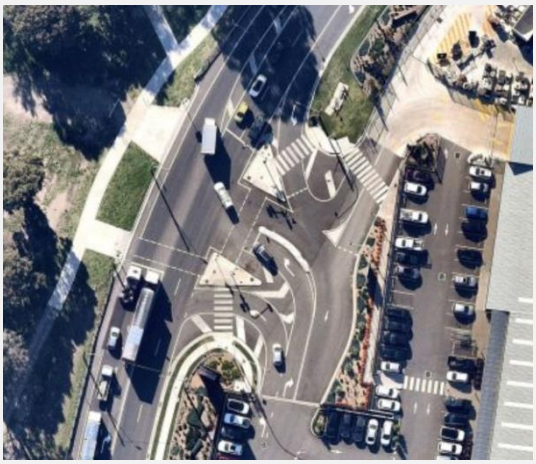
Table 3-4 summarises the existing key intersections and key features of the intersections.

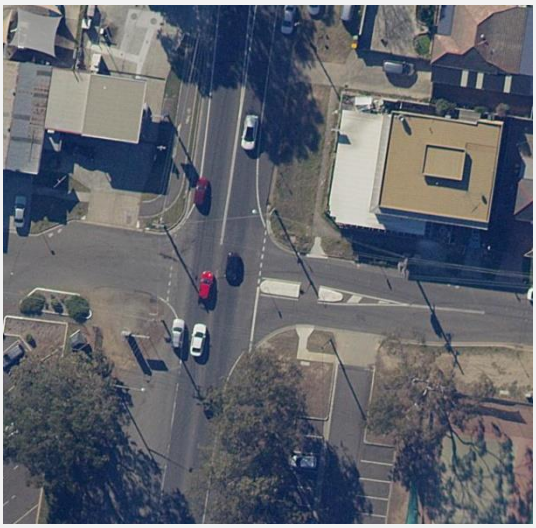
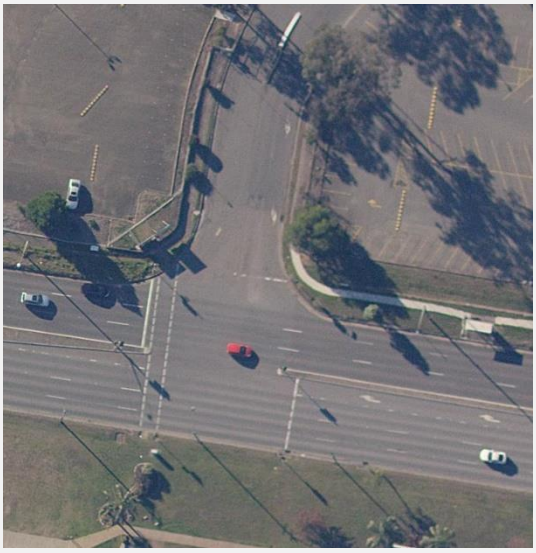
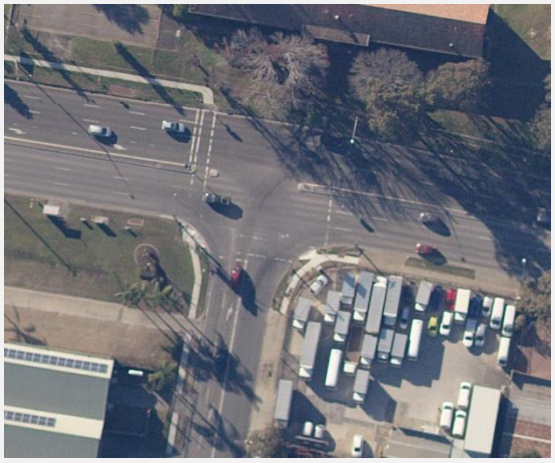
Table 3-4: Summary of key intersections within the study area

Intersection	Image	Layout
Henry Lawson Drive / Bullecourt Avenue		▪ Signalised T-Intersection. ▪ Access to Bullecourt Avenue from Henry Lawson Drive northbound carriageway via right turn short lane. Access from southbound carriageway via a left full-length lane. ▪ Access from Bullecourt Avenue to Henry Lawson Drive via full length (100m) dedicated left and right turn lanes.
Henry Lawson Drive / Pozieres Avenue		▪ Signalised T-Intersection. ▪ Access to Pozieres Avenue from Henry Lawson Drive northbound carriageway via through-left full-length lane. Access from southbound carriageway via a through-right full-length lane. ▪ Access from Pozieres Avenue to Henry Lawson Drive via full length (50m) dedicated left and right turn lanes.
Henry Lawson Drive / Raleigh Road		▪ Priority T-intersection with one lane approach / exit on eastbound (Raleigh Road). Henry Lawson Drive northbound approach with a through full length lane and left turn short lane, and two exit lanes merging to one after 35m. Henry Lawson Drive southbound approach with a through full length lane and right turn short lane, and a one lane exit. ▪ All turning movements permitted. Raleigh Road westbound onto Henry Lawson Drive controlled by Give Way sign.

Intersection	Image	Layout
Henry Lawson Drive / Ruthven Avenue		■ Priority T-intersection with one lane approach / exit on all legs. ■ All turning movements permitted. Ruthven Avenue onto Henry Lawson Drive controlled by Give Way sign.
Henry Lawson Drive / Whittle Avenue		■ Priority T-intersection with one lane approach / exit on all legs, except for Henry Lawson Drive southbound exit lane expanding to two lanes after the intersection. ■ All turning movements permitted. Whittle Avenue onto Henry Lawson Drive controlled by Stop sign.
Henry Lawson Drive / Amiens Avenue		■ Priority T-intersection with one lane approach / exit on all legs, except for Henry Lawson Drive southbound exit, which has two lanes. ■ All turning movements permitted. Amiens Avenue onto Henry Lawson Drive controlled by Give Way sign.
Henry Lawson Drive / Ganmain Crescent / Fromelles Avenue		■ Priority four-way intersection with one lane approach / exit on all legs. ■ All turning movements permitted. Ganmain crescent and Fromelles Avenue onto Henry Lawson Drive controlled by Give Way sign.

Intersection	Image	Layout
Henry Lawson Drive / Hermies Avenue		▪ Priority T-intersection with one lane approach / exit on westbound (Hermies Avenue). Henry Lawson Drive northbound approach with a through full length lane and shared through-right turn full length lane, and two exit lanes. Henry Lawson Drive southbound approach with a through-left full length lane and two lane exit. ▪ All turning movements permitted. Hermies Avenue westbound onto Henry Lawson Drive controlled by Give Way sign.
Henry Lawson Drive / Tower Road		▪ Signalised T-Intersection. At the time of the assessment, Transport acknowledges that the airport redevelopment has removed the roundabout shown in the aerial 30 m east of the intersection. ▪ Access to Tower Road from Henry Lawson Drive northbound carriageway via right turn short lane. Access from southbound carriageway via a through-left full-length lane. ▪ Access from Tower Road to Henry Lawson Drive via full length (30m) dedicated left and right turn lanes. ▪ Noted that this would be upgraded as part of Stage 1A upgrades.
Henry Lawson Drive / Newbridge Road / Milperra Road		▪ Signalised four-way intersection with all turning movements permitted. ▪ Left turns on all approaches are single slip lanes protected by median islands. Two left turn slip lanes are provided on the southern approach of Henry Lawson Drive. ▪ Right turns on all approaches are on single dedicated right turn short lanes. Two right turn lanes are provided on Henry Lawson Drive southbound. ▪ Noted that this would be upgraded as part of Stage 1A upgrades.

Intersection	Image	Layout
Henry Lawson Drive / Auld Avenue		▪ Priority T-intersection with one lane approach / exit on all legs, except for Henry Lawson Drive northbound exit lane expanding to two lanes after the intersection. ▪ All turning movements permitted. Auld Avenue eastbound onto Henry Lawson Drive controlled by Give Way sign. ▪ Noted that this would be upgraded as part of Stage 1A upgrades.
Henry Lawson Drive / Keys Parade		▪ Signalised T intersection for access to/ from Flower Power and Henry Lawson Drive ▪ Access to Flower Power from Henry Lawson Drive northbound carriageway via a right turn short lane. Access from southbound carriageway via a protected short left turn slip lane, with left turn permitted on red. ▪ Access from Flower Power to Henry Lawson Drive northbound via dedicated right turn lane. Access to southbound carriageway via a protected left turn slip lane. ▪ Note that the western leg would be constructed by the Riverlands developer prior to the proposal being constructed.
Henry Lawson Drive / Haig Avenue		▪ Signalised T-Intersection ▪ Access to Haig Avenue from Henry Lawson Drive northbound and southbound via right and left turn short lanes respectively. ▪ Access from Haig Avenue to Henry Lawson Drive southbound carriageway via left-turn short lane. Access to northbound carriageway via right turn full length lane.

Intersection	Image	Layout
Henry Lawson Drive / Rabaul Road		▪ Priority 4-way intersection with one lane approach / exit on all legs. ▪ All turning movements permitted. Rabaul Road westbound controlled by Stop sign, and eastbound controlled by Give Way sign.
Henry Lawson Drive / Murray Jones Drive		• Signalised T-Intersection • Access to Murray Jones Drive from Milperra Road westbound carriageway via a right turn short lane, and from eastbound carriageway via a through-left full-length lane. • Access from Murray Jones Drive to Milperra Road eastbound carriageway via left-turn lane with left turn on red permitted after stopping. Access to westbound carriageway via right turn with seagull treatment.
Milperra Road / Ashford Avenue		▪ Signalised T-Intersection ▪ Access to Ashford Avenue from Milperra Road eastbound carriageway via a right turn short lane, and from westbound carriageway via a through-left full-length lane. ▪ Access from Ashford Avenue to Milperra Road via dedicated left and right turn lanes for access onto eastbound and westbound carriageways respectively.

3.2.4 Simulated traffic flow from the base model

The process of model calibration and validation is a highly iterative process which involves network verification and fine-adjustment of both appropriate model parameters and the origin-destination matrices. The aim of this process is to improve the ability of the model to reproduce observed vehicle / driver behaviour and the match between modelled and observed traffic movements.

Figure 3-2, Figure 3-3 and Figure 3-4 present simulated traffic flow from the 2022 base model in AM, PM and weekend peak hours respectively.

Figure 3-2: Simulated traffic flow in 2022 AM peak hour

Figure 3-3: Simulated traffic flow in 2022 PM peak hour

Figure 3-4: Simulated traffic flow in 2022 weekend peak hour

3.2.5 Intersection performance

The traffic performance of key intersections within the study area as per the Existing model results for the 2022 peak periods are presented in the following sections. The delays are shown in seconds.

AM Model Intersection Level of Service

The LOS has been analysed during 07:45-08:45 AM and 08:45-09:45 AM respectively, at 15 key intersections. Table 3-5 presents a LOS summary of these 15 key intersections during the weekday AM Peak period.

Table 3-5: AM Peak Intersection Level of Service Summary

ID	Intersection	07:45 - 08:45 AM			08:45 - 09:45 AM		
		Intersection			Intersection		
		Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
1	HLD / Haig Avenue	2,404	33	C	2,142	34	C
2	HLD / Tower Road	2,833	26	B	2,601	55	D
3	HLD / Milperra Road	5,771	228	F	5,556	591	F
4	HLD / Auld Avenue	2,101	6	A	1,975	6	A
5	HLD / Keys Parade	1,995	12	A	1,992	16	B
6	HLD / Raleigh Road	1,985	5	A	1,742	5	A
7	HLD / Ruthven Avenue	1,867	3	A	1,655	3	A

ID	Intersection	07:45 - 08:45 AM			08:45 - 09:45 AM		
		Intersection			Intersection		
		Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
8	HLD / Whittle Avenue	1,880	3	A	1,647	3	A
9	HLD / Amiens Avenue	1,919	4	A	1,694	3	A
10	HLD / Bullecourt Avenue	2,298	25	B	2,030	25	B
11	HLD / Fromelles Avenue	2,018	8	A	1,726	7	A
12	HL / Hermies Avenue	2,043	4	A	1,757	3	A
13	HLD / Pozieres Avenue	2,279	17	B	2,004	17	B
14	Murray Jones Drive / Milperra Road	2,976	4	A	2,883	19	B
15	Ashford Avenue / Milperra Road	3,382	35	C	3,282	52	D

Analysis of the three key intersections within the proposal area shows that at:

- Henry Lawson Drive / Keys Parade:
  - In the first AM peak hour, the intersection operates at LOS A with an intersection delay of 12 seconds, and in the second peak hour, at LOS B with an intersection delay of 16 seconds indicating an overall good level of service.
- Henry Lawson Drive / Bullecourt Avenue:
  - During the whole AM peak period, the intersection operates at LOS B with intersection delay of 25 seconds in both peak hours, indicating good level of performance. The traffic demand on northbound, southbound, and eastbound (turning into Bullecourt Avenue) is high which creates a small and short-lasting queue at each approach of the intersection. The model suggests that the queues on all approaches mostly get dissipated during green time for that approach. The users going northbound onto Henry Lawson Drive from Bullecourt Avenue face the most delay. The existing delay on Bullecourt Avenue is 68 seconds.
- Henry Lawson Drive / Pozieres Avenue:
  - During AM peak period, the intersection operates at LOS B with intersection delay of 17 seconds in both hours. The model suggests the users turning from Pozieres Avenue into Henry Lawson Drive may face some delay. The delay for users from Pozieres Avenue is 68 seconds.

PM Model Intersection Level of Service

The LOS has been analysed during 3:30-4:30 PM and 4:30-5:30 PM respectively, at 15 key intersections. Table 3-6 presents a LOS summary of these 15 key intersections during the weekday PM Peak period.

Table 3-6: PM Peak Intersection Level of Service Summary

ID	Intersection	3:30 - 4:30 PM			4:30 - 5:30 PM		
		Intersection			Intersection		
		Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
1	HLD / Haig Avenue	2,408	55	D	2,476	57	E
2	HLD / Tower Road	2,976	35	C	3,135	37	C
3	HLD / Milperra Road	6,545	237	F	6,871	469	F
4	HLD / Auld Avenue	2,221	7	A	2,363	8	A
5	HLD / Keys Parade	2,209	14	A	2,358	17	B
6	HLD / Raleigh Road	2,033	5	A	2,052	5	A
7	HLD / Ruthven Avenue	1,939	3	A	1,930	3	A
8	HLD / Whittle Avenue	1,959	3	A	1,943	3	A
9	HLD / Amiens Avenue	2,015	3	A	1,989	3	A
10	HLD / Bullecourt Avenue	2,355	45	D	2,342	38	C
11	HLD / Fromelles Avenue	1,972	6	A	1,982	5	A
12	HL / Hermies Avenue	2,109	5	A	2,087	4	A

ID	Intersection	3:30 - 4:30 PM			4:30 - 5:30 PM		
		Intersection			Intersection		
		Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
13	HLD / Pozieres Avenue	2,272	12	A	2,253	11	A
14	Murray Jones Drive / Milperra Road	3,578	6	A	3,342	16	B
15	Ashford Avenue / Milperra Road	4,019	18	B	3,698	20	B

Analysis of the three key intersections within the Stage 1B study area shows that at:

- Henry Lawson Drive / Keys Parade:
  - During the first PM peak hour, the intersection operates at LOS A with an intersection delay of 14 seconds and in the second peak hour, operates at LOS B with an intersection delay of 17 seconds indicating a good level of service.
  - During the PM peak period, the demand for traffic turning from Henry Lawson Drive into Flower Power and demand for traffic turning from Flower Power onto Henry Lawson Drive is higher. Also, the demand on Henry Lawson Drive northbound and southbound is high. The delay for Flower Power in the first peak hour is 44 seconds and for the second peak hour is 43 seconds.
- Henry Lawson Drive / Bullecourt Avenue:

  During the first PM peak hour, the intersection operates at LOS D with an intersection delay of 45 seconds and in the second peak hour, the intersection operates at an improved LOS C with an intersection delay of 38 seconds.

  In the PM peak period, the demand from Bullecourt Avenue turning onto Henry Lawson Drive increases considerably resulting in congestion on the approach. The average delay on Bullecourt Avenue in the first peak hour is 112 seconds and in the second peak hour, 92 seconds. The high delay on Bullecourt Avenue approach leads to comparatively higher overall intersection delay and hence an overall LOS D.
- Henry Lawson Drive / Pozieres Avenue:
  - During the PM peak period, the intersection operates at LOS A indicating a good level of performance. The model suggests the users turning from Pozieres Avenue into Henry Lawson Drive may face delays of 51 seconds.

Weekend Model Intersection Level of Service

The LOS has been analysed during 11:30 AM - 12:30 PM and 12:30 PM - 01:30 PM respectively, at 15 key intersections. Table 3-7 presents a LOS summary of these 15 key intersections during the weekend peak period.

Table 3-7: Weekend Peak Intersection Level of Service Summary

ID	Intersection	11:30 AM - 12:30 PM			12:30 PM - 01:30 PM		
		Intersection			Intersection		
		Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
1	HLD / Haig Avenue	2,339	32	C	2,407	34	C
2	HLD / Tower Road	2,779	22	B	2,880	25	B
3	HLD / Milperra Road	5,964	55	D	5,858	102	F
4	HLD / Auld Avenue	2,250	6	A	1,997	5	A
5	HLD / Keys Parade	2,303	17	B	2,075	17	B
6	HLD / Raleigh Road	1,706	3	A	1,532	3	A
7	HLD / Ruthven Avenue	1,589	3	A	1,445	2	A
8	HLD / Whittle Avenue	1,585	3	A	1,441	3	A
9	HLD / Amiens Avenue	1,613	3	A	1,468	2	A
10	HLD / Bullecourt Avenue	1,792	24	B	1,601	23	B
11	HLD / Fromelles Avenue	1,673	5	A	1,625	5	A

ID	Intersection	11:30 AM - 12:30 PM			12:30 PM - 01:30 PM		
		Intersection			Intersection		
		Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
12	HL / Hermies Avenue	1,931	4	A	1,785	4	A
13	HLD / Pozieres Avenue	2,111	13	A	1,949	12	A
14	Murray Jones Drive / Milperra Road	3,179	3	A	3,128	4	A
15	Ashford Avenue / Milperra Road	3,482	23	B	3,449	52	D

Analysis of the three key intersections within the proposal area shows that at:

- Henry Lawson Drive / Keys Parade/ Flower power:
  - In the first weekend peak hour from 11:30 AM - 12:30 PM, the intersection operates at LOS B with an intersection delay of 17 seconds, and in the second peak hour from 12:30 PM - 01:30 PM, the intersection operates at LOS B with an intersection delay of 17 seconds indicating a good level of service.
- Henry Lawson Drive / Bullecourt Avenue:
  - During the weekend peak period from 11:30 AM - 01:30 PM, the intersection operates at LOS B in both peak hours, indicating a good level of performance. The traffic going northbound, southbound, and eastbound (turning into Bullecourt Avenue) creates a small and short-lasting queue at each approach of the intersection. The model suggests that the queues on all approaches mostly get dissipated during green time for that approach. The users going northbound to Henry Lawson Drive from Bullecourt Avenue in the east approach face the most delay. The existing delay on Bullecourt Avenue (east approach is) is 61 seconds.
- Henry Lawson Drive / Pozieres Avenue:
  - During weekend peak period, the intersection operates at LOS A in both hours. The model suggests the users turning from Pozieres Avenue into Henry Lawson Drive may face some delay. The delay for users from Pozieres Avenue is 59 seconds.

3.2.6 Freight

Heavy vehicle numbers

Most of the Sydney's freight is conveyed by road. Henry Lawson Drive is an important route for freight and industrial type business operations that connects surrounding large industrial areas of Milperra, Revesby, Chipping Norton and Moorebank, which are made up of warehouses, manufacturing, storage and logistics businesses. As a result, a range of vehicles including heavy vehicles travel throughout the local road network. Table 3-8 shows the estimated heavy vehicle volumes along different sections of Henry Lawson Drive for a typical weekday for the AM, PM and weekend peaks, based on estimations from several traffic survey data sources for 2022.

It is noted that the modelled demand of heavy vehicles along Henry Lawson Drive during the AM and PM peak periods is lower than the traffic volumes reported in Table 3-8. This is due to congestion at the Milperra Road / Henry Lawson Drive intersection, which limits traffic entering Henry Lawson Drive from Milperra Road in both the northbound and southbound directions during the model simulation period. The number of vehicles, including heavy vehicles, that were unable to enter the network due to queues extending beyond the Milperra Road area are up to 883 vehicles (around 97 heavy vehicles) in the weekday AM peak period and up to 1,454 vehicles (around 117 heavy vehicles) in the weekday PM peak period. However, this issue does not exist in the weekend model and as a result, the heavy vehicle volumes during weekend appears to be similar or higher than the weekday AM and PM peak period.

The proportion of heavy vehicles during the peak periods along Henry Lawson Drive is high compared to the average of 4% across the Sydney Urban Network.

Table 3-8: Average Weekday Estimated Peak Period Heavy Vehicle Volumes - Combined Directions

Midblock	7:45 AM-9:45 AM		3:30 PM-5:30 PM		11:30 AM-1:30 PM	
	Vol	%	Vol	%	Vol	%
Henry Lawson Drive between Haig Avenue and Milperra Road	632	13%	393	8%	369	11%
Henry Lawson Drive between Milperra Road and Bullecourt Avenue	516	13%	342	8%	341	12%
Henry Lawson Drive between Bullecourt Avenue and the M5 Motorway	632	16%	412	10%	441	14%

Access and routes

Figure 3-5 shows the approved B-Double routes for vehicles up to 26 metres in length on the road network surrounding the study area, based on the Transport Restricted Access Vehicles map. These are shown in green.

This shows that the study area is well serviced by roads suitable for heavy vehicles, including Henry Lawson Drive, Newbridge Road, Milperra Road, Ashford Avenue and the M5 Motorway.

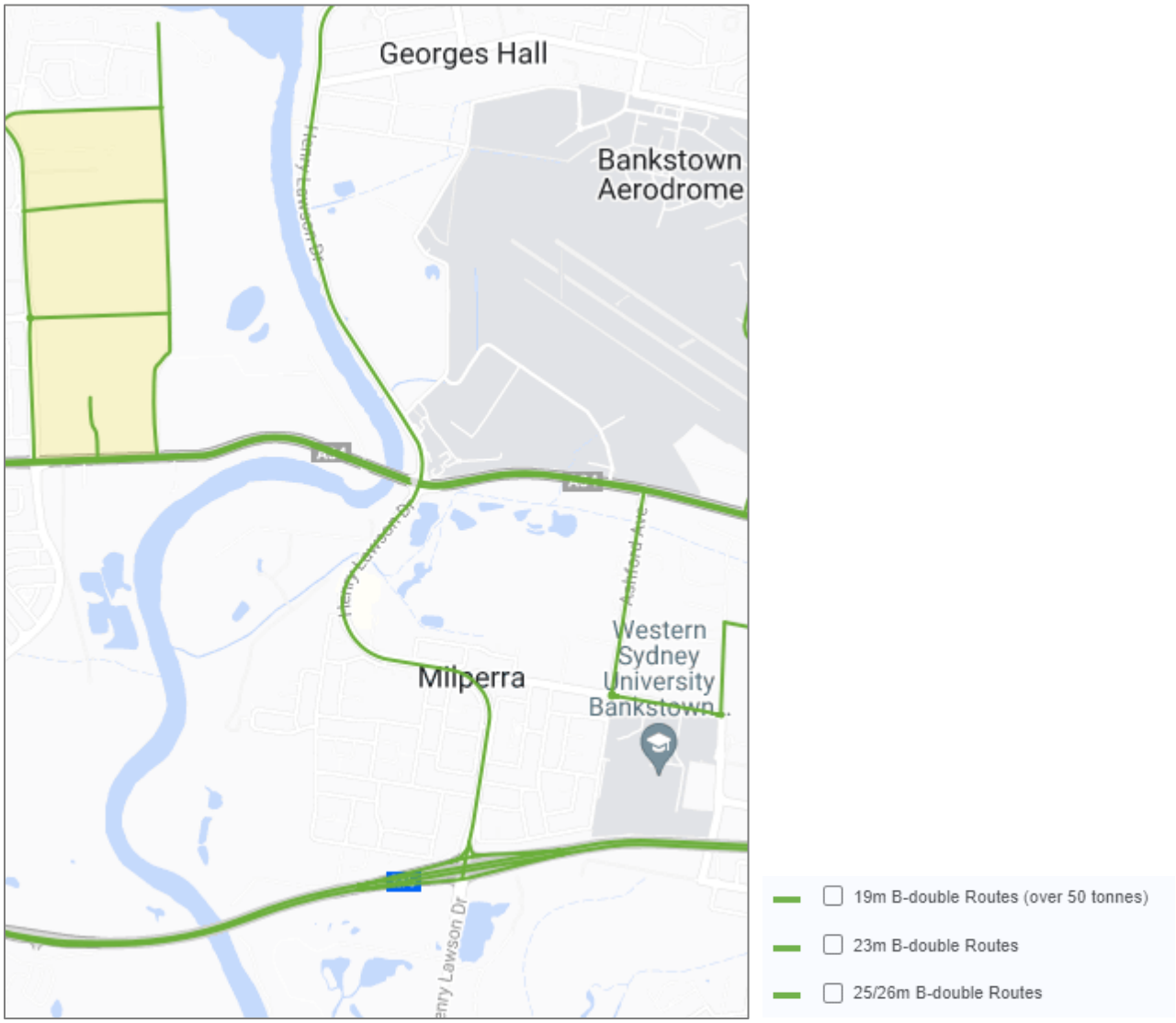


Figure 3-5: B-Double Routes

3.2.7 Crash data analysis

The crash data for the past seven years (2015 to 2021) was received from Transport for Henry Lawson Drive across the study area. The crash map for the study area is shown in Figure 3-8.

The crash history is summarised in Figure 3-6 along with the crash types shown in Figure 3-7**.** Note that casualty crashes include accidents involving fatalities, seriously injury, moderate injury and minor injury.

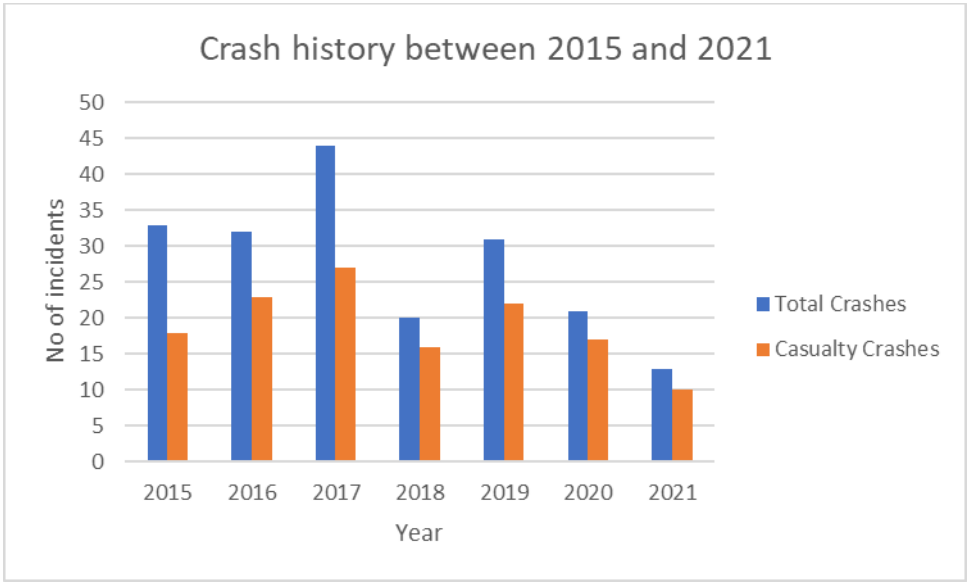


Figure 3-6: Crash history along Henry Lawson Drive and Milperra Road (2010 – 2019)

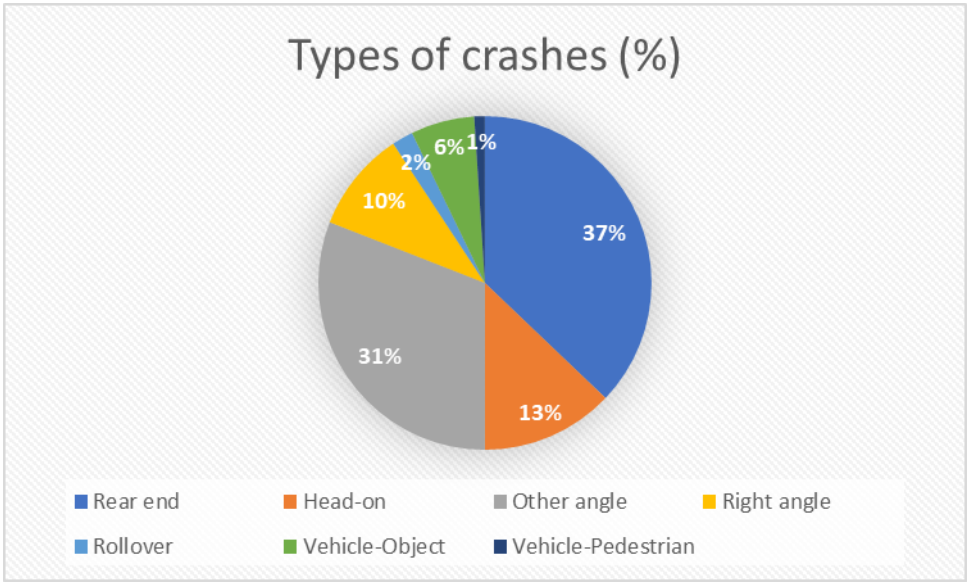


Figure 3-7: Crash by type along Henry Lawson Drive and Milperra Road (2010 – 2019)

The crash history data shows an average of 28 crashes and 19 casualties per year within the study area. The rear end crashes make up the majority of crashes (37 percent) followed by crashes involving an 'other angle' first impact between two vehicles (i.e., not a head-on, right angle or rear end impact), which accounts for 31 percent. Most crashes occur within 10 metres of the intersection (50 percent).

It is noted that COVID-19 years (2020 and 2021) accounts for a smaller number of incidents in comparison to previous years.

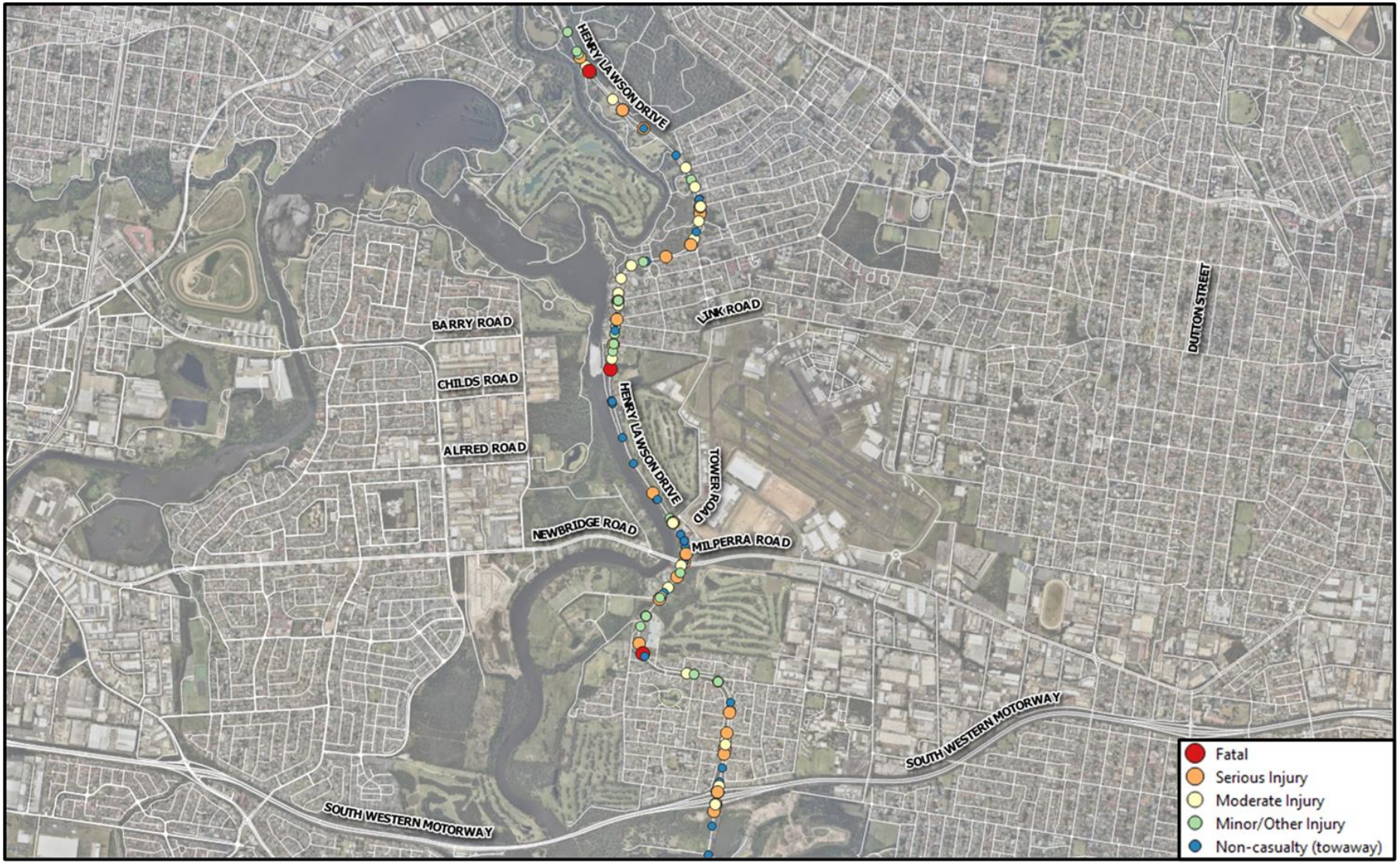


Figure 3-8: Crash Cordon

In addition, overall crash data for the Canterbury-Bankstown LGA (as a proxy for the study area) has been compared to crash data for the Greater Sydney area and NSW. The crash data for the 5-year period 2017 to 2021 for these areas were available from Transport's Centre for Road Safety's *Interactive crash and casualty statistics*. Figure 3-9 to Figure 3-11 presents a comparison of the three areas' crash data for three statistics, namely crashes per year, distribution of crash degree and distribution of crash type.

Figure 3-9 presents the total number of crashes per area per reporting year (period 2017 to 2021). All three areas show a generally consistent decline in the total number of crashes per year from 2017 to 2021. The Canterbury-Bankstown LGA represents a fairly constant 9-10% of the total crashes in the Greater Sydney area, and 5-6% of the total crashes in NSW. Therefore, apart from the number of crashes declining annually in the Canterbury-Bankstown LGA over the reporting period, the rate of decline is similar to the Greater Sydney area and NSW.

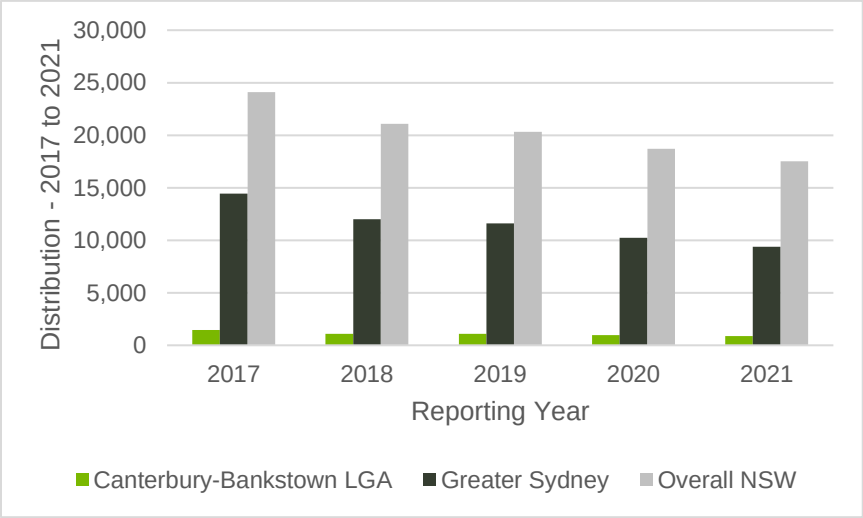


Figure 3-9: Total crashes per area per reporting year (Source: Transport's Centre for Road Safety)

Figure 3-10 presents the distribution of crash degree per area over the reporting period (2017 to 2021). The Canterbury-Bankstown LGA reflects a similar crash degree distribution than the Greater Sydney area, with the exception of 'minor/other injuries' being slightly higher in the Canterbury-Bankstown LGA. This is however balanced with the Canterbury-Bankstown LGA having slightly less 'moderate injury' and 'non-casualty (towaway)' injuries compared to the Greater Sydney area. Compared to NSW, the Canterbury-Bankstown LGA had a consistently lower or similar distribution of injury types, apart from 'minor/other injuries' which were higher in the Canterbury-Bankstown LGA.

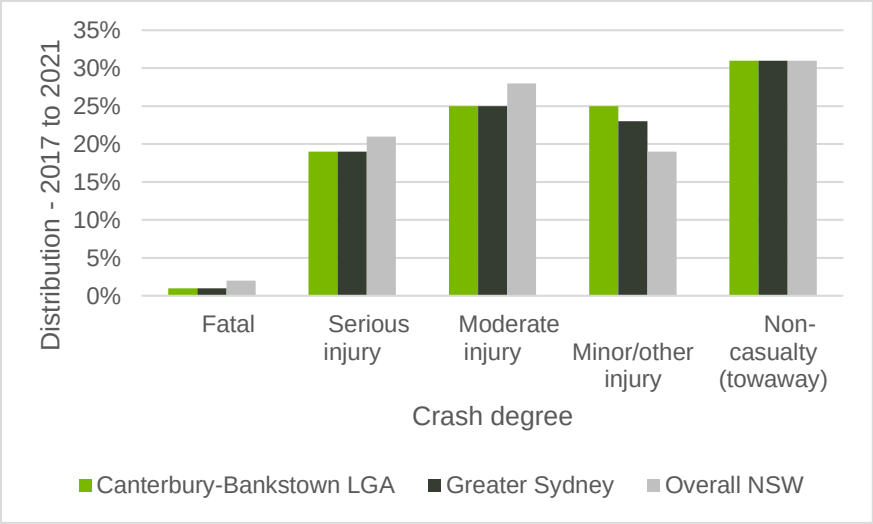


Figure 3-10: Crash degree distribution per area (Source: Transport's Centre for Road Safety)

Figure 3-11 presents the distribution of crash type per area over the reporting period (2017 to 2021). Compared to both the Greater Sydney area and NSW, the Canterbury-Bankstown LGA experienced a higher

distribution of ‘adjacent direction at intersections’ crashes, ‘other opposing direction’ crashes and ‘rear end’ crashes during the reporting period. Similar to the Greater Sydney area and NSW, the Canterbury-Bankstown LGA’s most likely crash type over the reporting period were ‘rear end’ crashes, followed by ‘off path / out of control (on straight)’ crashes, and ‘adjacent directions at intersections’ crashes.

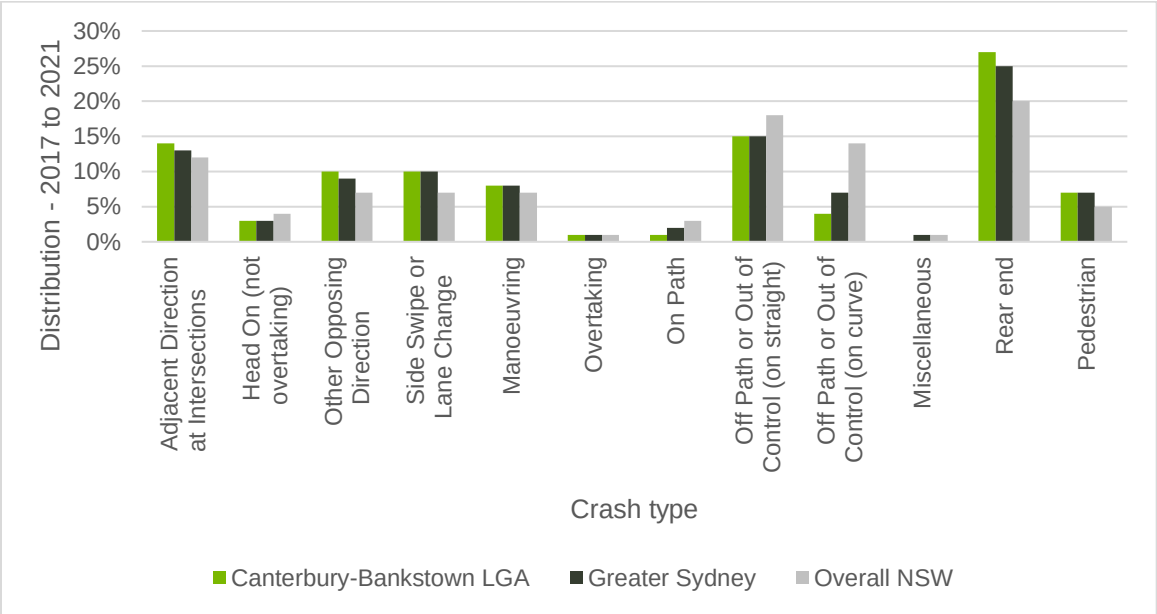


Figure 3-11: Crash type distribution per area (Source: Transport’s Centre for Road Safety)

3.3 Public transport

3.3.1 Rail network

There is no rail network within the study area. The nearest train stations are East Hills station, about four kilometres to the south, and Liverpool Station, about five kilometres to the west.

3.3.2 Bus network

A map of bus routes within the study area has been obtained from Transport for New South Wales website. The study area is serviced by 12 bus routes:

- 922 - Bankstown to East Hills (see Figure 3-12)
- 962 - East Hills to Miranda (see Figure 3-13)
- M90 - Burwood to Liverpool (see Figure 3-14)
- S120 - Beaconsfield Street after Marigold Street, Revesby to Georges River Grammar (see Figure 3-15)
- S129 - WSU Bankstown to Picnic Point High School (see Figure 3-16)
- S162 - WSU Bankstown to Mount St. Joseph Secondary School (see Figure 3-17Figure 3-12)
- S163 - Mount St Joseph Secondary School to East Hills Girls Technology High School (see Figure 3-13)
- S510 - Delfin Drive at Collie Court, Moorebank to East Hills Boys High School (see Figure 3-18)
- S617 - Nuwarra Police Station to De La Salle College (see Figure 3-18)

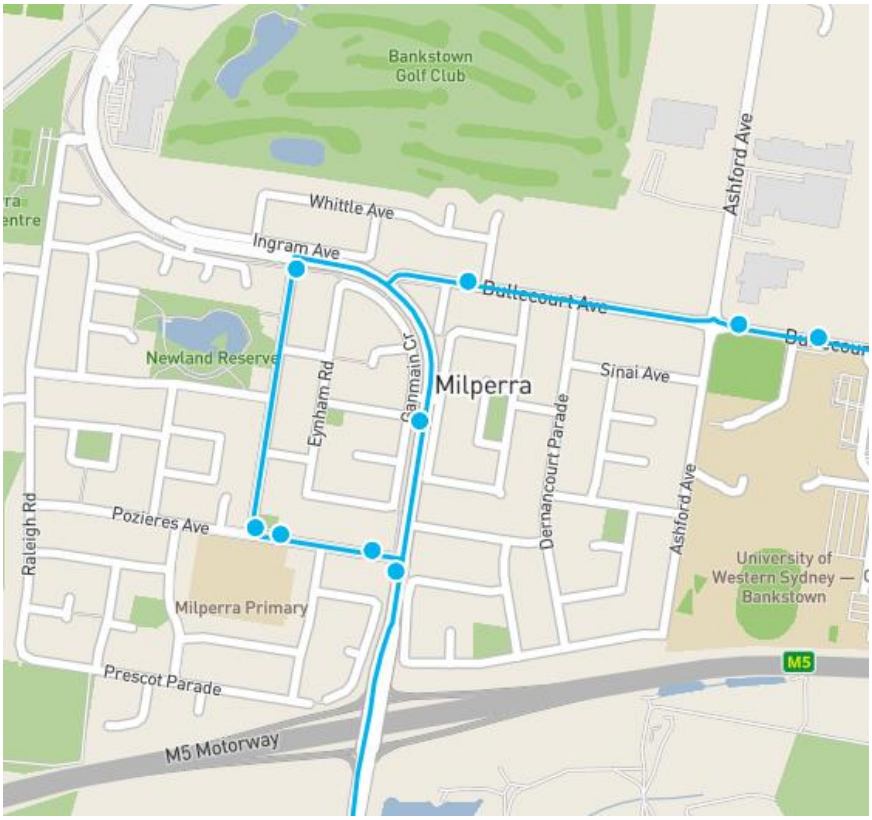


Figure 3-12: Bus Route 922

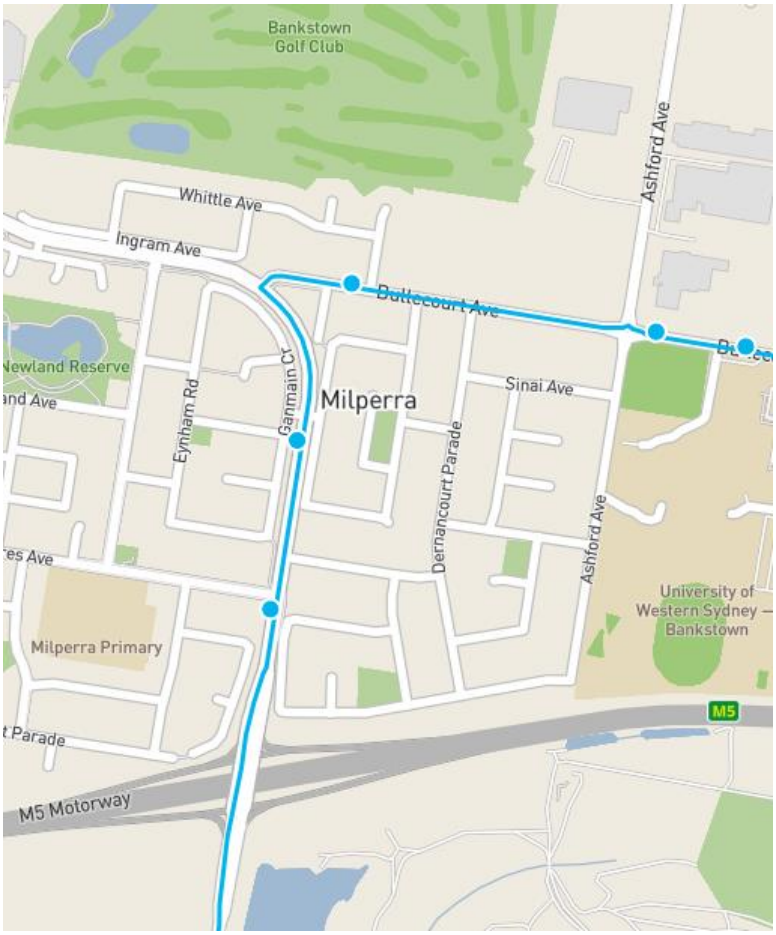


Figure 3-13: Bus Routes 962 and S163

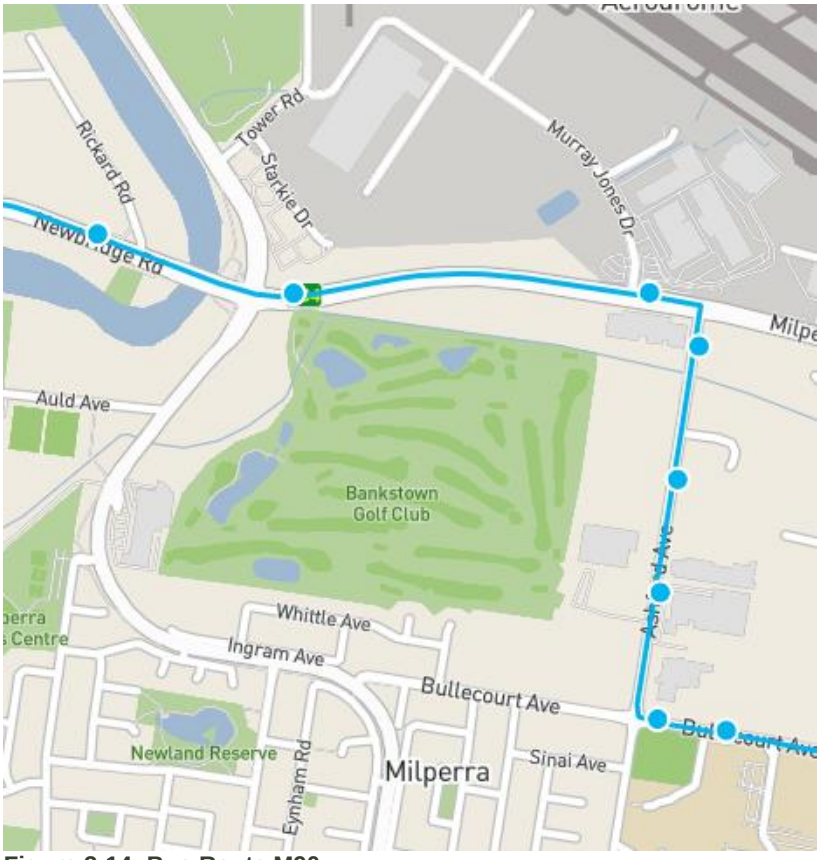


Figure 3-14: Bus Route M90

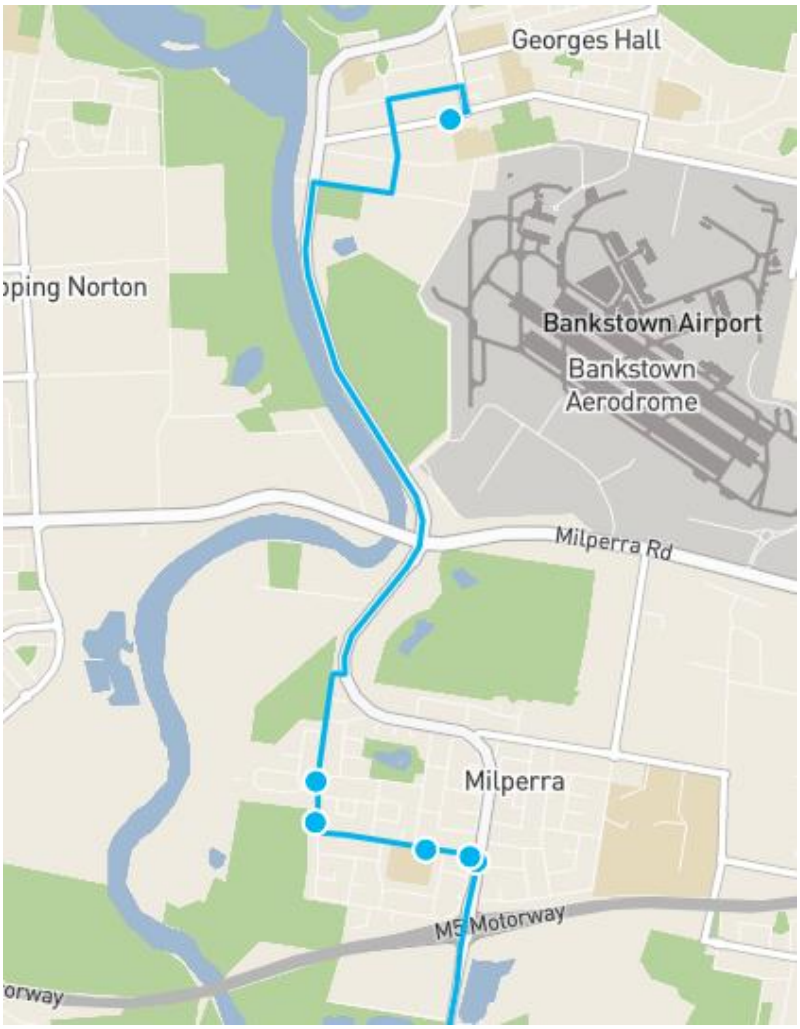


Figure 3-15: Bus Route S120

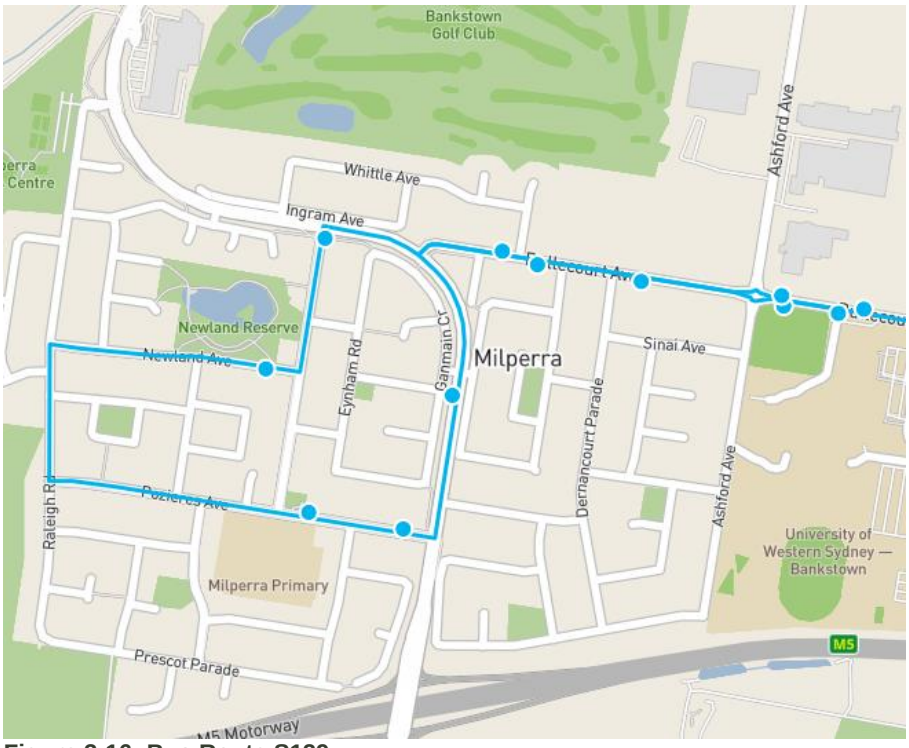


Figure 3-16: Bus Route S129

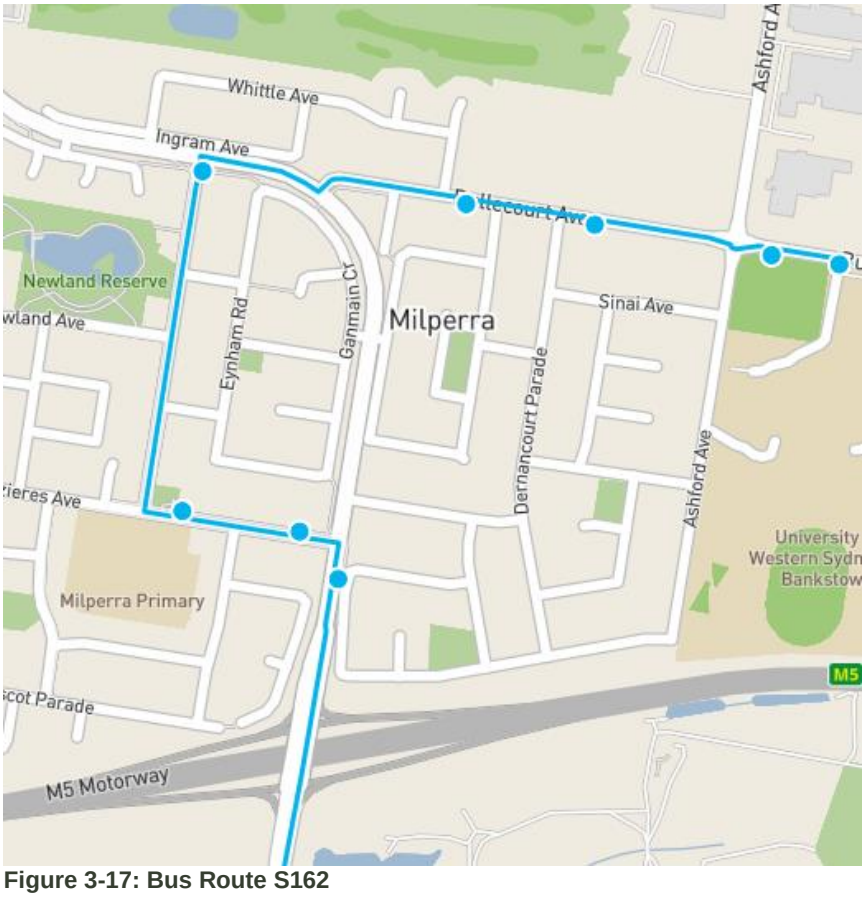


Figure 3-17: Bus Route S162

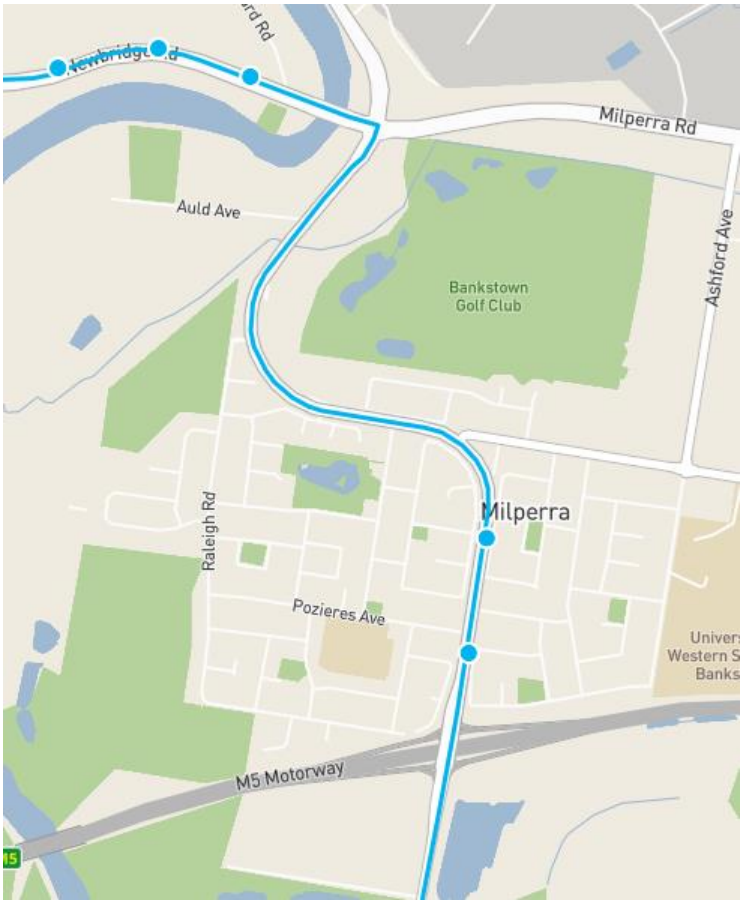


Figure 3-18: Bus Routes S510 and S617

3.4 Active transport

3.4.1 Pedestrian infrastructure

There are existing pedestrian footpaths and shared paths across the proposal area, including existing pathways for pedestrians along:

- Existing shared path along the eastern side of Henry Lawson Drive between M5 and Pozieres Avenue
- A short section of footpath from Ganmain Crescent to the intersection at Pozieres Avenue.
- Sections of footpath along the western side of Henry Lawson Drive that connect the playing fields along Auld Avenue to local roads including Raleigh Road, Borella Road, Ruthven Avenue, Amiens Avenue and Ganmain Crescent.
- A short section of footpath outside Flower Power at the Key Parade intersection.
- Shared paths that run through the reserves and playing fields around Raleigh Road to Auld Avenue.
- Local roads within the residential streets within the proposal area.

The pedestrian infrastructure is shown on Figure 3-19.

3.4.2 Cyclist infrastructure

A map of cyclist infrastructure within the study area has been obtained from Transport Cycleway Finder and is provided in Figure 3-19. It shows that Henry Lawson Drive does not have continuous cycling path along the Stage-1B study corridor. There is an existing concrete shared path along the length of Henry Lawson Drive (i) between the M5 Motorway and Pozieres Avenue; (ii) between northern end of Ganmain Crescent and eastern end of Ruthven Avenue; and (iii) between western end of Ruthven Avenue and Keys Parade. The cyclists use residential streets of Ganmain Crescent and Ruthven Avenue to access cycling path.

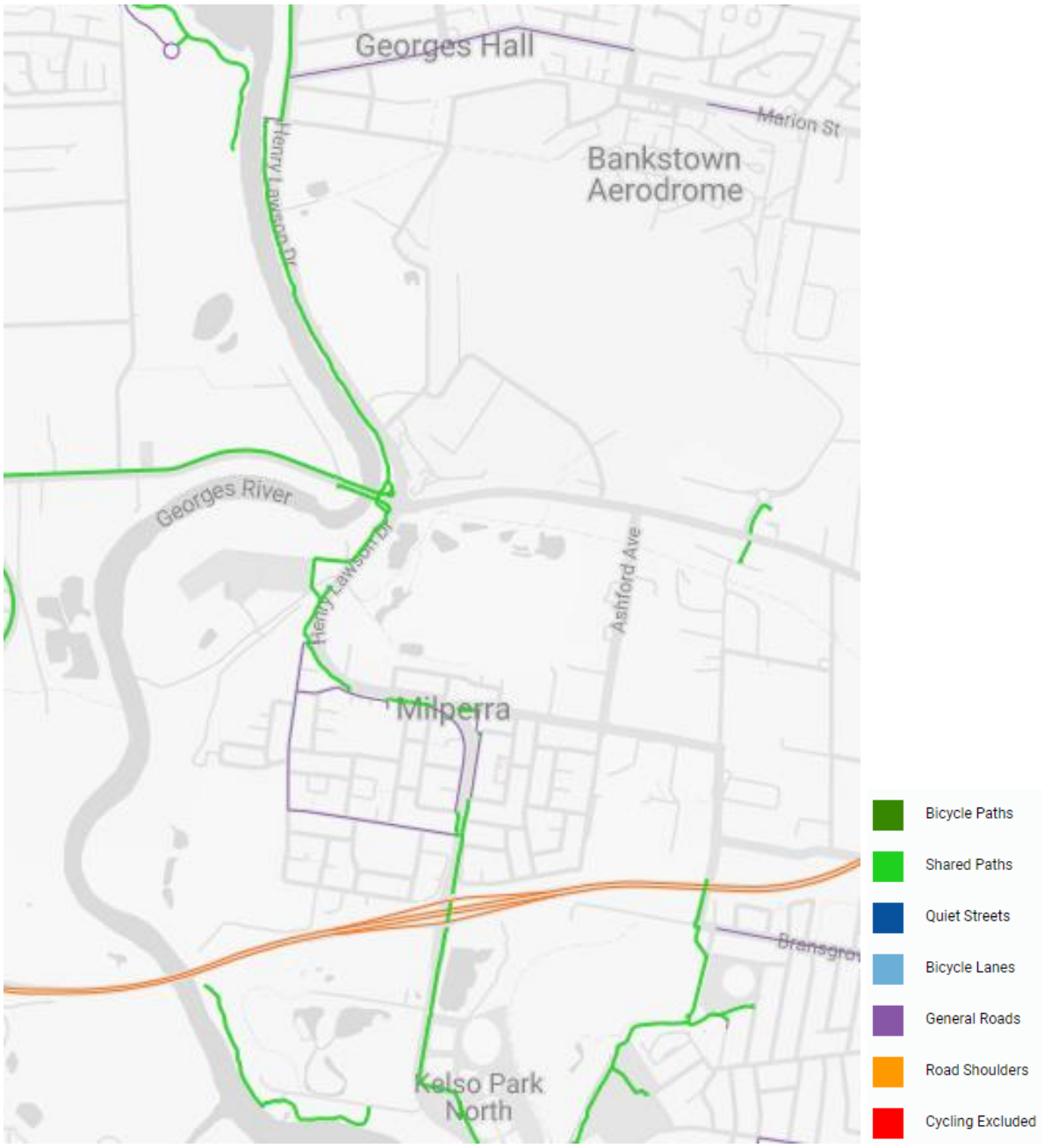


Figure 3-19: Active Transport Infrastructure

3.5 Parking considerations

There is no on-street parking along Henry Lawson Drive. On-street and dedicated parking is available along the local road network. Of note, this includes:

- On-street parking along Bullecourt Avenue between Henry Lawson Drive and Ashford Avenue, providing both for residential and commercial parking. There are no limitations on parking along Bullecourt Avenue.
- On-street parking along Raleigh Road, Ruthven Avenue, Ingram Avenue, Ganmain Crescent and Fromelles Avenue providing parking for local residents. There are no limitations on parking along these local roads.
- Dedicated parking bays on Auld Avenue associated with the playing fields. These are marked car bays with no restrictions.
- Private car park at the Milperra Sports Centre off Raleigh Road.

4 Proposal description

4.1 Proposal overview

Key features of the proposal would include:

- widening Henry Lawson Drive from two to four lanes between Auld Avenue, Milperra and the M5 Motorway, Milperra with a raised central median
- upgrading the Henry Lawson Drive / Bullecourt Avenue signalised intersection, including:
  - an additional right-turn lane from Henry Lawson Drive (northbound) to Bullecourt Avenue (two right-turn lanes total)
  - an additional right-turn lane from Bullecourt Avenue to Henry Lawson Drive (northbound) (two right-turn lanes total)
  - converting the existing dedicated left-turn lane from Bullecourt Avenue to Henry Lawson Drive (southbound) into a dedicated left-turn slip lane
  - maintaining the dedicated left-turn lane from Henry Lawson Drive (southbound) to Bullecourt Avenue
- upgrading the Henry Lawson Drive / Pozieres Avenue signalised intersection, including:
  - a new dedicated right-turn lane from Henry Lawson Drive (southbound) to Pozieres Avenue
  - a new dedicated left-turn lane from Henry Lawson Drive (northbound) to Pozieres Avenue and relocation of the existing bus stop north of the intersection
- providing a new two-lane local link road between Auld Avenue and Keys Parade (about 160 metres), crossing over Milperra Drain, providing access to / from southbound lanes of Henry Lawson Drive and Auld Avenue, and removing up to eight parking spaces on Auld Avenue to accommodate the link road
- extending Raleigh Road about 120 metres to connect with Keys Parade at a roundabout, and removing the direct connection between Raleigh Road and Henry Lawson Drive
- converting the Henry Lawson Drive intersections to be left-in left-out only, at:
  - Ruthven Avenue
  - Whittle Avenue
  - Amiens Avenue
  - Ganmain Crescent
  - Fromelles Avenue
  - Hermies Avenue
- modifying the Bullecourt Avenue / Ashford Avenue intersection to better accommodate heavy vehicle movements
- constructing a three-metre-wide shared path:
  - on the western side of Henry Lawson Drive between Pozieres Avenue and Keys Parade
  - along Keys Parade, the new Auld Avenue local link road and the extended section of Raleigh Road
- reconstruction of some existing shared paths within the proposal area
- constructing a new footpath within the proposal area:
  - on the eastern side of Henry Lawson Drive between the Flower Power and Ingram Avenue
  - along the northern side of Ingram Avenue
  - along the eastern side of Fromelles Avenue
- installing new drainage infrastructure and water quality controls within the proposal area, including:

- an upgraded longitudinal and transverse drainage pits and pipes network along Henry Lawson Drive
- a bioretention basin between Henry Lawson Drive, Bullecourt Avenue and Fleurbaix Avenue and maintenance access to this basin
- swales along Henry Lawson Drive and Keys Parade and installation of Gross Pollutant Traps

- construction activities and ancillary work, including:
  - relocation of utilities (including electrical, gas, water and telecommunications)
  - civil earthworks, drainage work, water quality controls and tie-in work to adjoining sections of Henry Lawson Drive and local roads
  - final roadworks including pavement, kerb and gutters, signs, road furniture, landscaping, lighting and line marking
  - new traffic signals and intelligent transport systems including, but not limited to, closed-circuit television
  - establishment of temporary ancillary facilities to support construction, including compound sites, site offices, stockpile and laydown locations, temporary access tracks and water quality devices.

The concept design would be further refined during detailed design to minimise environmental and social impacts and to consider community feedback to the exhibition of the REF.

4.2 Construction

4.2.1 Construction overview

Construction activities would be carried out in accordance with a construction environmental management plan (CEMP) to ensure work complies with Transport's commitments and legislative requirements. Detailed work methodologies would be identified by the construction contractor.

The proposal is expected to involve the following activities:

- Preliminary and utility works
- Earthworks
- Widening and pavement works
- Bridge and drainage works
- Pedestrian pathway, intersection crossing, and shared path works
- Intersection configuration and traffic signals
- Landscaping and finishing works
- Removal of ancillary facilities and site rehabilitation.

4.2.2 Construction footprint

A construction footprint has been developed for the proposal to cover all works and construction activities.

In general, the construction footprint has assumed a five-metre buffer from the edge of design. The footprint also considers ancillary facilities and works areas for equipment and machinery. Where possible, the footprint has been developed to minimise environmental impacts.

4.2.3 Site establishment

The construction contractor would potentially establish construction compounds on the various vacant land areas as follows:

- Main office at 437 Henry Lawson Drive (following Stage 1A completion).
- Vacant land on the south western corner of Henry Lawson Drive and Auld Ave.
- Vacant land at 491 Henry Lawson Drive. Subject to flooding assessment.
- Area adjacent to Keys Parade (future). Subject to discussions with the owner.
- Raleigh Reserve.
- The Bullecourt Avenue 'triangle'. Use subject to heritage assessment and final design.
- Vacant land on corner of Bullecourt Avenue and Bullecourt Lane. Subject to discussions with owner.

The construction compounds would be used variously for site offices, change rooms, ablutions, secure storage, laydown and parking. Where practicable, temporary buildings and structures would be used to provide a noise barrier between the construction site and adjacent sensitive receptors. The location of temporary buildings and structures would have regard to overlooking and overshadowing impacts on adjacent sensitive receptors.

4.2.4 Construction and traffic staging

Notwithstanding initial setup works, the construction and traffic staging for Henry Lawson Drive Stage 1B is currently proposed to be a two-staged process based on the assumption that major reconstruction of existing pavement is not required.

- Stage 1:
  - Construction work on the widening section of Henry Lawson Drive (future northbound lanes)
  - Keep two-way traffic flow on existing Henry Lawson Drive adjacent to construction works at a reduced speed limit
  - Detours to local road accesses would be required.
  - Nightwork would be required from time to time at major intersections
- Stage 2:
  - Construction work on existing Henry Lawson Drive to correct road levels, install drainage and rehabilitate existing pavement (future southbound lanes)
  - Keep two-way traffic flow on newly built Henry Lawson Drive adjacent to construction works at a reduced speed limit
  - Detours to local road accesses would be required.
  - Nightwork would be required from time to time at major intersections

4.2.5 Construction workforce

The number and types of workers would vary throughout the different stages of construction but would include workers such as:

- plant and machinery operators
- traffic controllers
- labourers
- utilities servicers
- project and site managers.

Final details of the workforce would be identified at a later stage by the construction contractor.

4.2.6 Traffic management and staging

The indicative construction traffic volumes are provided in Table 4-1 below.

Table 4-1: Estimated construction traffic

Vehicle type	Total vehicle movements per day	Vehicle movements per day at peak construction period	AM peak movements	PM peak movements
Construction personnel (cars and private vehicles)	100	160	96	64
Light construction vehicles and utes	40	90	54	36
Heavy vehicles and trucks	50	72	43	29

During construction of the proposal, traffic management controls and staging would be implemented to maintain safety and reduce impacts on the existing road network. The staging process would be confirmed by the construction contractor in a Traffic Management Plan (TMP) prepared for the proposal.

4.2.7 Construction haulage routes

The haulage routes to and from site would generally use existing routes approved for heavy vehicles surrounding the proposal. Haulage within the locality of the proposal area may take several routes including:

- Henry Lawson Drive
- Bullecourt Avenue
- Ashford Avenue
- Pozieres Avenue
- Raleigh Road
- Auld Avenue
- Milperra Road
- Webster Steet, or Bransgrove Road and existing oval area (pending consultation with Council)
- Newbridge Road.

Use of local roads would be minimised, where possible. Final haulage routes would be determined by the construction contractor.

5 Impact assessment

5.1 Construction impacts

5.1.1 Construction traffic impacts

The proposal would generate light and heavy vehicle movements on the road network surrounding the proposal associated with delivery or removal of construction materials and equipment and construction worker movements to and from the construction footprint. The construction traffic for delivery or removal of construction materials and equipment would generally be staged throughout the day. The construction workers would generally arrive and leave site at the start and end of each shift.

The construction footprint is well serviced by roads suitable for heavy vehicles. Therefore, impacts on local roads surrounding the proposal are expected to be limited to short sections of local roads required to access the construction zones. The construction would take 29 months to complete, and impacts are expected for the duration of this period.

In particular, some roads would be used for construction vehicles to turn around such as the roundabout at Bullecourt Avenue and Ashford Avenue or turning around in the carpark off Bransgrove Road.

Overall, while the construction workforce traffic would likely be noticeable, the additional volume of vehicles would be relatively small compared to the existing traffic volumes of vehicles on Henry Lawson Drive. The other local roads near the proposal have sufficient capacity to accommodate construction traffic. Several haulage route options would be available during construction and would enable access to the ancillary facilities and work areas from the north (Hume Highway via Henry Lawson Drive, Milperra Road or Newbridge Road), south (the M5 Motorway) and east (Bullecourt Avenue).

Therefore, any impact on the surrounding road network performance associated with construction traffic from the proposal is expected to be minor to moderate. Construction traffic volumes would be further assessed in the construction staging plan during detailed design.

5.1.2 Impacts associated with site access

The construction and all associated works would result in temporary changes in road and property access, as well as pedestrian and cyclist access across the local road network.

Road access

The construction site would be appropriately fenced, and traffic deflection barriers installed, to avoid public vehicles accidentally accessing the construction site.

While the roads would remain open, there may be a need for temporary lane closures at times during the construction period. In addition, as sections of the upgrade are completed, traffic switches occur to shift traffic onto new sections of the road to enable works on existing pavement to be completed. All impacts to the road network would be undertaken in accordance with a Road Occupancy Licence (ROL) to be obtained from the Transport Management Centre. Access for emergency vehicles would be maintained along project affected roads.

There may be short periods of time where local roads may need to be closed or opened only for residents. These periods would, where possible, be undertaken outside of peak traffic periods, especially on weekends where the playing fields are in use by community sports. In addition, access arrangements would be planned to the south western Milperra road network to ensure access is maintained for local residents. Construction would be staged so access from the local roads to Henry Lawson Drive southbound are not affected concurrently. This would maintain access through the construction period and prior to the opening of the Raleigh Road Key Parade link.

The construction contractor would confirm the need and duration of any road closures in consultation with the community and in accordance with any required Council Road Opening Permit.

Property access

Access to properties would be maintained during construction, though it may need to be disturbed on a short-term basis. Landowners and occupiers would be consulted by the construction contractor about any potential impacts to access and methods to minimise these impacts. Consultation would be undertaken well in advance of property accesses being impacted.

5.1.3 Impacts on parking

While there is no parking on Henry Lawson Drive, there may be temporary disruptions to parking on local roads within the proposal area during construction. Activities which may disrupt local road parking include:

- installation of the footpath on Ingram Avenue and Fromelles Avenue
- work on Auld Avenue, Raleigh Road and Bullecourt Avenue associated with upgrades to these roads
- work adjacent to Ruthven Avenue and Ganmain Crescent associated with the widening of Henry Lawson Drive, installation of a shared path and tie-ins to local roads.

To minimise impacts of parking disruptions to the community, off-road parking for construction vehicles would be provided within the proposal's ancillary facilities. In addition, a Traffic Management Plan would be developed and implemented during construction. This would include requirements to consult with and inform the community of impacts to the local road network, including disruptions to parking, and implement traffic control measures to manage these impacts.

5.1.4 Impacts on public transport

Access for pedestrians and to public transport would be maintained around the construction site during construction. There are seven bus stops within the construction area. These would be temporarily relocated to safe locations to allow for continued access. During the construction of the proposal, the following impacts on buses and passengers would potentially include:

- Longer travel times when travelling through construction areas from speed reduction and additional construction vehicles.
- Temporary relocation of bus stops away from construction zones. Passengers may be required to walk further to relocated bus stops.

Any change to the bus stops in the construction areas would be confirmed by the construction contractor and would be discussed with the bus operator.

5.1.5 Impacts on active transport

Detours for pedestrian / cyclist access would be implemented within the proposal area. In particular, the following routes may be affected:

- Existing shared path between the M5 Motorway and Pozieres Avenue
- Existing shared path (running alongside Henry Lawson Drive) between Ruthven Avenue and Keys Parade

The above routes lie within the zone of road widening works and would be temporarily removed as part of construction. Pedestrian and cyclist access would be detoured, and alternative arrangements managed through signage and wayfinding.

5.2 Operation impacts

This section provides an assessment of the operational impacts of the proposal on road network performance against the 'without proposal' scenario for the future years 2031 and 2041.

The modelling results have been presented in the form of overall network statistics, corridor travel time and key intersection delays along with the Level of Service (LOS). This section presents the overall results with a detailed discussion and assessment of the 'with proposal' scenario in 2031 and 2041 for the AM, PM and weekend peak periods.

5.2.1 Future Traffic Demand

The traffic demands used for the future year models were developed from the 2021, 2031 and 2041 STFM sub-area matrices and link volume plots provided by Transport as part of the proposal. There would be a significant increase in traffic demand in comparison to 2022 existing scenario, which again increases incrementally from year 2031 to 2041. The 'without proposal' scenario modelling suggests an insufficiency in network capacity to cater for the growing traffic demand. The proposal would result in a satisfactory performance in AM, PM and weekend peaks for both 2031 and 2041. Refer to Section 3 in Appendix B.

5.2.2 Intersection performance

AM Peak

Table 5-1 and Table 5-2 present a summary of the performance of the nine key intersections in the study area in 2031 AM peak; while Table 5-3 and Table 5-4 present the intersection performance summary in 2041 AM peak. The six intersections which would be converted to left-in left-out only have been excluded from the following tables.

Table 5-1: 2031 AM Peak Intersection Level of Service Summary 7:45 - 8:45 AM

ID	Intersection	Without proposal			With proposal		
		Volume	Delay	LOS	Volume	Delay	LOS
1	HLD / Haig Ave	2,816	101	F	2,832	100	F
2	HLD / Rabaul Rd	2,640	21	B	2,684	25	B
3	HLD / Tower Rd	3,298	30	C	3,329	37	C
4	HLD/ Milperra Rd	7,154	223	F	7,446	198	F
5	HLD / Keys Pde/Flower power	2,333	31	C	2,461	33	C
6	HLD / Bullecourt Ave	2,546	31	C	2,807	19	B
7	HLD / Pozieres Ave	2,707	18	B	2,728	18	B
8	Milperra Rd / Murray Jones Dr	4,184	43	D	4,259	14	A
9	Milperra Rd / Ashford Ave	4,622	47	D	4,669	30	C

Table 5-2: 2031 AM Peak Intersection Level of Service Summary 8:45 - 9:45 AM

ID	Intersection	Without proposal			With proposal		
		Volume	Delay	LOS	Volume	Delay	LOS
1	HLD / Haig Ave	2,935	100	F	2,978	81	F
2	HLD / Rabaul Rd	2,904	23	B	2,972	19	B
3	HLD / Tower Rd	3,400	39	C	3,598	43	D
4	HLD/ Milperra Rd	6,809	355	F	7,834	321	F
5	HLD / Keys Pde/Flower power	2,509	33	C	2,870	36	C
6	HLD / Bullecourt Ave	2,467	46	D	2,810	45	D
7	HLD / Pozieres Ave	2,376	32	C	2,460	16	B
8	Milperra Rd / Murray Jones Dr	3,620	159	F	4,279	68	E
9	Milperra Rd / Ashford Ave	3,973	80	F	4,549	43	D

Table 5-3: 2041 AM Peak Intersection Level of Service Summary 7:45 - 8:45 AM

ID	Intersection	Without proposal			With proposal		
		Volume	Delay	LOS	Volume	Delay	LOS
1	HLD / Haig Ave	2,849	104	F	2,865	107	F
2	HLD / Rabaul Rd	2,672	22	B	2,688	27	B
3	HLD / Tower Rd	3,311	25	B	3,411	38	C
4	HLD/ Milperra Rd	7,036	242	F	7,599	215	F
5	HLD / Keys Pde/Flower power	2,213	26	B	2,620	48	D
6	HLD / Bullecourt Ave	2,490	40	C	3,012	35	C
7	HLD / Pozieres Ave	2,618	35	C	2,728	24	B
8	Milperra Rd / Murray Jones Dr	4,074	29	C	3,985	5	A
9	Milperra Rd / Ashford Ave	4,568	73	F	4,528	33	C

Table 5-4: 2041 AM Peak Intersection Level of Service Summary 8:45 - 9:45 AM

ID	Intersection	Without proposal			With proposal		
		Volume	Delay	LOS	Volume	Delay	LOS
1	HLD / Haig Ave	2,941	97	F	3,084	106	F
2	HLD / Rabaul Rd	2,944	12	A	3,093	26	B
3	HLD / Tower Rd	3,470	33	C	3,590	66	E
4	HLD / Milperra Rd	6,958	404	F	7,458	323	F
5	HLD / Keys Pde/Flower power	2,705	44	D	2,477	41	C
6	HLD / Bullecourt Ave	2,672	56	D	2,528	89	F
7	HLD / Pozieres Ave	2,633	53	D	2,025	111	F
8	Milperra Rd / Murray Jones Dr	3,895	172	F	4,173	8	A
9	Milperra Rd / Ashford Ave	4,349	117	F	4,648	35	C

Analysis of 2031 AM modelling results show that for the intersections in the proposal area:

- The Keys Parade intersection would perform at LOS C in both the ‘without proposal’ scenario and ‘with proposal’ scenario.
- The Bullecourt Avenue intersection performs at LOS D or better in all scenarios and time periods.
- The Pozieres Avenue intersection performs at LOS C or better in the ‘without proposal’ scenario and LOS B in the ‘with proposal’ scenario.

The Stage 1B intersections at Keys Parade and Bullecourt Avenue have similar results for both 'without proposal' and 'with proposal' scenarios in 2031 AM peak period. This is because a good percentage of vehicles who currently use Milperra Road to reach Bullecourt Avenue in the 'without proposal' scenario, would reroute to use Henry Lawson Drive in the 'with proposal' scenario.

This effect is more pronounced in 2041 AM peak period as follows:

- In the 'with proposal' scenario, the Bullecourt Avenue intersection operates at LOS C in the first hour and deteriorates to LOS F in the second hour. This is because the right turn traffic movement from Henry Lawson Drive northbound onto Bullecourt Avenue queues back due to capacity constraints along Bullecourt Avenue between Henry Lawson Drive and Ashford Avenue originating from the Ashford Avenue / Bullecourt Avenue roundabout as illustrated in Figure 5-1. In the 'without proposal' scenario, Bullecourt Avenue is less constrained because a great proportion of vehicles who accessed Henry Lawson Drive to reach Bullecourt Avenue in the 'with proposal' scenario are using Ashford Avenue to reach Bullecourt Avenue. In addition, instead of accessing the local road network via Bullecourt Avenue, northbound vehicles on Henry Lawson Drive would also be able to directly access the local road network via right turn movements that would be removed as part of the proposal. The 'without proposal' scenario performs at LOS D or better.
- The Pozieres Avenue intersection performs at LOS D or better in the 'without proposal' scenario. The performance in the 'with proposal' scenario deteriorates from LOS B in the first hour to LOS F in the second hour. This is due to traffic congestion queuing back from the Bullecourt Avenue intersection to the Pozieres Avenue intersection.

In general, 2041 AM results show that the delays would increase impacting the LOS in comparison to 2031 AM given the increase in traffic volumes between 2031 and 2041.

Figure 5-1: Queuing up at Bullecourt Avenue / Henry Lawson Drive intersection (2041 AM peak Option Scenario)

PM Peak

Table 5-5 and Table 5-6 present a summary of the performance of the nine key intersections in the study area in 2031 PM peak; while Table 5-7 and Table 5-8 present the intersection performance summary in 2041 PM peak.

Table 5-5: 2031 PM Peak Intersection Level of Service Summary 3:30 - 4:30 PM

ID	Intersection	Without proposal			With proposal		
		Volume	Delay	LOS	Volume	Delay	LOS
1	HLD / Haig Ave	2,422	184	F	2,509	163	F
2	HLD / Rabaul Rd	2,398	78	F	2,517	49	D
3	HLD / Tower Rd	2,962	22	B	3,053	19	B
4	HLD / Milperra Rd	6,882	333	F	7,325	322	F
5	HLD / Keys Pde/Flower power	2,412	29	C	2,659	18	B
6	HLD / Bullecourt Ave	2,354	41	C	2,730	18	B
7	HLD / Pozieres Ave	2,464	19	B	2,559	10	A
8	Milperra Rd / Murray Jones Dr	4,242	16	B	4,197	29	C
9	Milperra Rd / Ashford Ave	4,571	114	F	4,589	148	F

Table 5-6: 2031 PM Peak Intersection Level of Service Summary 4:30 - 5:30 PM

ID	Intersection	Without proposal			With proposal		
		Volume	Delay	LOS	Volume	Delay	LOS
1	HLD / Haig Ave	2,146	286	F	2,270	259	F
2	HLD / Rabaul Rd	2,495	96	F	2,609	85	F
3	HLD / Tower Rd	2,993	41	C	3,105	18	B
4	HLD / Milperra Rd	7,039	475	F	7,520	445	F
5	HLD / Keys Pde/Flower power	2,699	46	D	2,722	56	D
6	HLD / Bullecourt Ave	2,455	78	F	2,789	20	B
7	HLD / Pozieres Ave	2,275	84	F	2,360	11	A
8	Milperra Rd / Murray Jones Dr	4,056	44	D	3,929	58	E
9	Milperra Rd / Ashford Ave	4,400	143	F	4,260	214	F

Table 5-7: 2041 PM Peak Intersection Level of Service Summary 3:30 - 4:30 PM

ID	Intersection	Without proposal			With proposal		
		Volume	Delay	LOS	Volume	Delay	LOS
1	HLD / Haig Ave	2,358	182	F	2,412	159	F
2	HLD / Rabaul Rd	2,338	72	F	2,398	43	D
3	HLD / Tower Rd	2,793	28	B	2,793	17	B
4	HLD / Milperra Rd	7,355	309	F	7,569	316	F
5	HLD / Keys Pde/Flower power	2,554	36	C	2,710	23	B
6	HLD / Bullecourt Ave	2,444	39	C	2,792	19	B
7	HLD / Pozieres Ave	2,702	44	D	2,862	18	B
8	Milperra Rd / Murray Jones Dr	4,527	11	A	4,549	17	B
9	Milperra Rd / Ashford Ave	4,883	82	F	4,929	65	E

Table 5-8: 2041 PM Peak Intersection Level of Service Summary 4:30 - 5:30 PM

ID	Intersection	Without proposal			With proposal		
		Volume	Delay	LOS	Volume	Delay	LOS
1	HLD / Haig Ave	2,155	285	F	2,202	254	F
2	HLD / Rabaul Rd	2,462	95	F	2,545	77	F
3	HLD / Tower Rd	2,742	42	C	2,857	17	B
4	HLD / Milperra Rd	7,431	454	F	7,944	442	F
5	HLD / Keys Pde/Flower power	2,720	43	D	2,883	96	F

ID	Intersection	Without proposal			With proposal		
		Volume	Delay	LOS	Volume	Delay	LOS
6	HLD / Bullecourt Ave	2,436	61	E	2,794	34	C
7	HLD / Pozieres Ave	2,366	98	F	2,638	15	B
8	Milperra Rd / Murray Jones Dr	4,378	40	C	4,345	51	D
9	Milperra Rd / Ashford Ave	4,758	143	F	4,690	196	F

Analysis of 2031 PM modelling results for intersections in the proposal area indicates:

- The Keys Parade intersection would perform at LOS D or better in both the 'without proposal' scenario and 'with proposal' scenario.
- For the 'without proposal' scenario, the Bullecourt Avenue intersection performs at LOS C during first hour and the performance deteriorates to LOS F in the second hour. The 'with proposal' scenario, would see the Bullecourt Avenue intersection operate at a much improved LOS B. The improvement in performance for 'with proposal' scenario is due to the increased capacity along Henry Lawson Drive as a result of the proposal.
- The Pozieres Avenue intersection performs at a LOS B (in the first hour) and LOS F (in the second hour) in the 'without proposal' Scenario. With the proposal, this would improve to LOS A. The improvement in performance for the 'with proposal' scenario is also due to the increased capacity and dedicated right turn lane southbound along Henry Lawson Drive as a result of the proposal.

In the 2041 PM scenario, with the proposal, the Bullecourt and Pozieres Avenue intersections LOS would improve in both peak hours, and the Keys Parade intersection LOS would improve in the first peak hour, compared to without the proposal. However, the results suggest that increasing delays would impact the LOS at these intersections in comparison to the 2031 PM.

For the intersections outside the proposal area, the 2041 PM scenario performs slightly better than the 2031 PM scenario despite generally higher demand in 2041. This is due to an increase in congestion on the eastbound approach to the Milperra Road / Henry Lawson Drive intersection, which constrains vehicles from accessing Henry Lawson Drive from Milperra Road.

For both 2031 and 2041 scenarios, the results suggest overall better performance for the 'with proposal' scenario in comparison to the 'without proposal' scenario in the PM peak period.

Weekend Peak

Table 5-9 and Table 5-10 present a summary of the performance of the nine key intersections in the study area in 2031 weekend peak; while Table 5-11 and Table 5-12 present the intersection performance summary in 2041 weekend peak.

Table 5-9: 2031 Weekend Peak Intersection Level of Service Summary 11:30 AM - 12:30 PM

ID	Intersection	'Without proposal'			'With proposal'		
		Volume	Delay	LOS	Volume	Delay	LOS
1	HLD / Haig Ave	2,969	88	F	2,958	92	F
2	HLD / Rabaul Rd	2,806	8	A	2,790	8	A
3	HLD / Tower Rd	3,356	19	B	3,309	22	B
4	HLD/ Milperra Rd	7,144	70	E	7,302	65	E
5	HLD / Keys Pde/Flower power	2,762	19	B	2,582	31	C
6	HLD / Bullecourt Ave	2,175	25	B	2,394	21	B
7	HLD / Pozieres Ave	2,493	13	A	2,442	12	A
8	Milperra Rd / Murray Jones Dr	4,313	4	A	4,252	6	A
9	Milperra Rd / Ashford Ave	4,702	61	E	4,706	29	C

Table 5-10: 2031 Weekend Peak Intersection Level of Service Summary 12:30 - 01:30 PM

ID	Intersection	'Without proposal'			'With proposal'		
		Volume	Delay	LOS	Volume	Delay	LOS
1	HLD / Haig Ave	3,272	87	F	3,275	93	F
2	HLD / Rabaul Rd	3,189	8	A	3,194	12	A
3	HLD / Tower Rd	3,625	21	B	3,652	26	B
4	HLD / Milperra Rd	7,506	105	F	7,429	70	E
5	HLD / Keys Pde/Flower power	2,746	18	B	2,594	33	C
6	HLD / Bullecourt Ave	2,173	25	B	2,326	23	B
7	HLD / Pozieres Ave	2,427	12	A	2,441	11	A
8	Milperra Rd / Murray Jones Dr	4,429	18	B	4,056	11	A
9	Milperra Rd / Ashford Ave	4,801	83	F	4,475	43	D

Table 5-11: 2041 Weekend Peak Intersection Level of Service Summary 11:30 AM - 12:30 PM

ID	Intersection	'Without proposal'			'With proposal'		
		Volume	Delay	LOS	Volume	Delay	LOS
1	HLD / Haig Ave	2,977	103	F	3,032	91	F
2	HLD / Rabaul Rd	2,772	15	B	2,854	8	A
3	HLD / Tower Rd	3,358	20	B	3,381	22	B
4	HLD / Milperra Rd	7,345	71	F	7,644	76	F
5	HLD / Keys Pde/Flower power	2,851	18	B	2,952	29	C
6	HLD / Bullecourt Ave	2,205	24	B	2,620	23	B
7	HLD / Pozieres Ave	2,547	14	A	2,563	13	A
8	Milperra Rd / Murray Jones Dr	4,418	5	A	4,472	12	A
9	Milperra Rd / Ashford Ave	4,812	52	D	4,832	32	C

Table 5-12: 2041 Weekend Peak Intersection Level of Service Summary 12:30 - 01:30 PM

ID	Intersection	'Without proposal'			'With proposal'		
		Volume	Delay	LOS	Volume	Delay	LOS
1	HLD / Haig Ave	3,349	104	F	3,308	91	F
2	HLD / Rabaul Rd	3,217	19	B	3,229	10	A
3	HLD / Tower Rd	3,692	35	C	3,713	30	C
4	HLD/ Milperra Rd	7,563	92	F	7,711	98	F
5	HLD / Keys Pde/Flower power	2,768	19	B	2,861	29	C
6	HLD / Bullecourt Ave	2,199	27	B	2,487	22	B
7	HLD / Pozieres Ave	2,437	13	A	2,497	10	A
8	Milperra Rd / Murray Jones Dr	4,418	11	A	4,407	24	B
9	Milperra Rd / Ashford Ave	4,826	86	F	4,789	32	C

Analysis of 2031 weekend peak modelling results for intersections in the proposal area:

- The Keys Parade intersection would perform at LOS B in the 'without proposal' scenario and LOS C in the 'with proposal' scenario due to an increase in delay.
- The Bullecourt Avenue intersection would perform at LOS B in all scenarios and time periods.
- The Pozieres Avenue intersection is expected to operate at LOS A in all scenarios and time periods.

In 2041 weekend for the 'without proposal' and 'with proposal' scenario, the overall LOS would not differ much from the 2031 modelled values.

For both 2031 and 2041 scenarios, the results suggest that the weekend modelling produces similar performance for the ‘without proposal’ scenario and ‘with proposal’ scenario.

5.2.3 Travel time

Future travel times along Henry Lawson Drive for the proposal scenario has been assessed against the ‘without proposal’ for the future years 2031 and 2041 for the AM, PM and weekend peaks.

The travel time statistics have been analysed for the following two sections along Henry Lawson Drive illustrated in Figure 5-2.

1. Henry Lawson Drive between the M5 Motorway and Bullecourt Avenue
2. Henry Lawson Drive between Bullecourt Avenue and Milperra Road

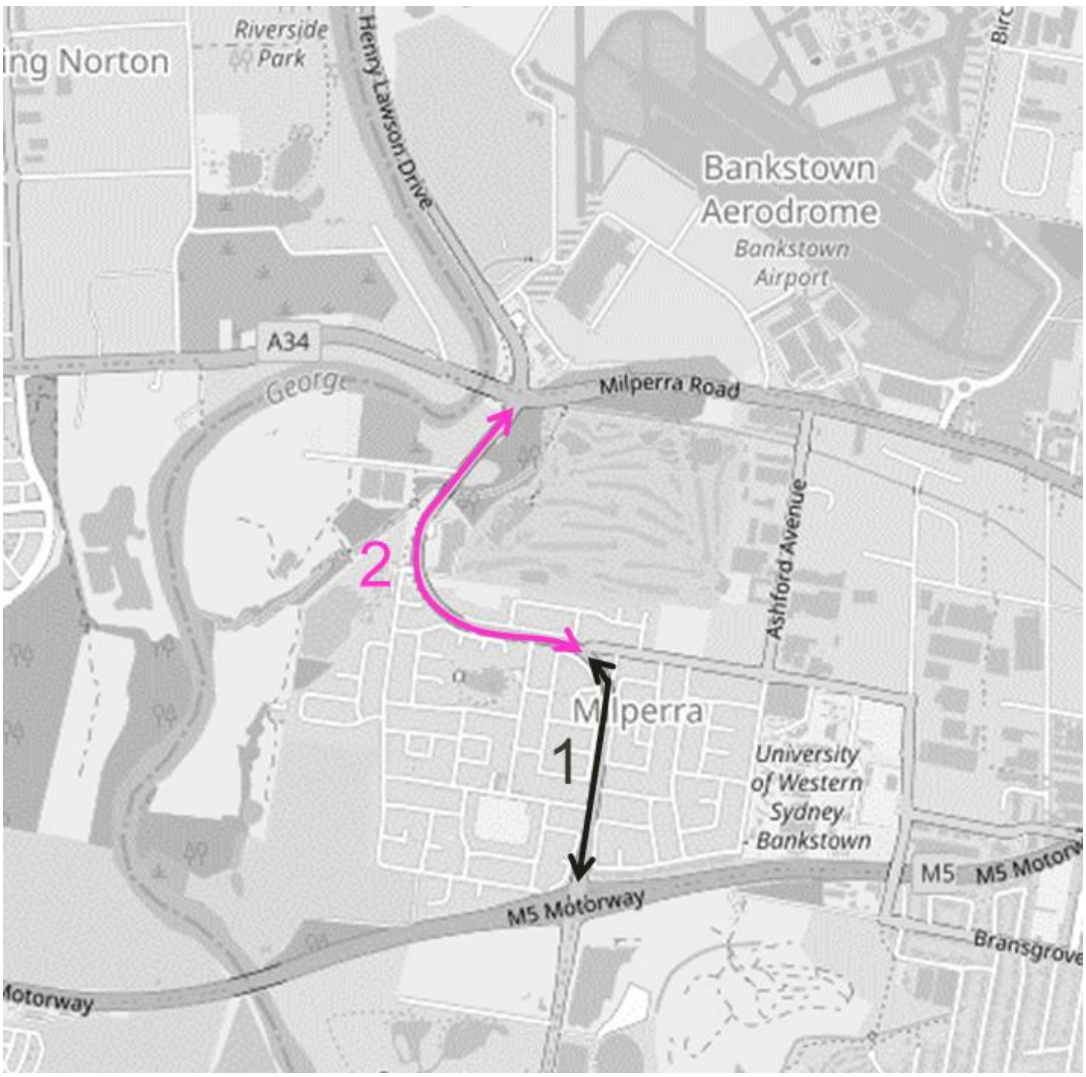


Figure 5-2: Travel Time Route and Sub-sections

AM Peak

For the weekday AM peak period, the travel times in northbound and southbound direction along Henry Lawson Drive for all the modelled scenarios in 2031 and 2041 are presented in Table 5-13.

Table 5-13: AM peak 'with proposal' modelling travel time results comparison

Direction	2031			2041	
	Existing	'Without proposal'	'With proposal'	'Without proposal'	'With proposal'
7:45 AM-8:45 AM					
Northbound	04:03	05:54	04:23	06:29	08:10
Southbound	04:26	04:35	04:33	04:37	04:32
8:45 AM-9:45 AM					
Northbound	05:38	07:08	06:50	09:45	08:35
Southbound	04:22	04:48	04:37	05:20	04:35
Average					
Northbound	04:51	06:31	05:37	08:07	08:23
Southbound	04:24	04:42	04:35	04:59	04:33

During the AM peak in 2031, the average northbound travel time along Henry Lawson Drive is likely to decrease by about one minute for the 'with proposal' scenario compared to the 'without proposal' scenario. The difference in average southbound travel time along Henry Lawson Drive for both scenarios are likely to be negligible (seven seconds difference).

In the 2041 AM peak, the average northbound travel time is expected to increase by 16 seconds with the proposal compared to without the proposal. The average southbound travel time along Henry Lawson Drive is expected to decrease by about 25 seconds in the 'with proposal' scenario compared to the 'without proposal' scenario.

The reason for higher travel times in the 'with proposal' scenario during 2041 AM peak period is due to queue spill back at the Bullecourt Avenue intersection as detailed in Section 5.2.2.

PM Peak

For PM peak, the northbound and southbound travel times along the Henry Lawson Drive for all the modelled scenarios in 2031 and 2041 are presented in Table 5-14.

Table 5-14: PM peak 'with proposal' modelling travel time results comparison

Direction	2031			2041	
	Existing	'Without proposal'	'With proposal'	'Without proposal'	'With proposal'
3:30 PM-4:30 PM					
Northbound	03:55	06:02	04:46	09:02	06:04
Southbound	04:26	04:10	03:43	04:18	03:44
4:30 PM-5:30 PM					
Northbound	03:54	14:22	08:47	16:30	13:29
Southbound	04:23	04:07	03:41	03:58	03:42
Average					
Northbound	03:54	10:12	06:47	12:46	09:47
Southbound	04:24	04:09	03:42	04:08	03:43

During the PM peak in 2031, the average northbound travel time along Henry Lawson Drive is expected to decrease by about three minutes during the 'with proposal' scenario compared to the 'without proposal' scenario. The average southbound travel time along Henry Lawson Drive is expected to decrease by 27 seconds in the 'with proposal' scenario compared to the 'without proposal' scenario. In both directions, the proposal is able to accommodate demand during the PM peak.

In 2041, the average northbound travel time is also expected to decrease by about three minutes in the 'with proposal' scenario compared to the 'without proposal' scenario. The southbound travel time comparison is likely to be similar to 2031 PM (i.e., a 25 second reduction with the proposal compared to without the proposal).

Weekend Peak

For the weekend peak period, the travel times in northbound and southbound direction along the Henry Lawson Drive for all the modelled scenarios in 2031 and 2041 are presented in Table 5-15.

In the absence of available weekend travel time data and for the purpose of comparison, AM travel time data was used for the existing scenario. This adopts the worst-case existing travel time, which is expected to be a conservative estimate of existing travel time for the weekend peak hours.

Table 5-15: Weekend peak with proposal modelling travel time results comparison

Direction	2031			2041	
	Existing	'Without proposal'	'With proposal'	'Without proposal'	'With proposal'
11:30 AM-12:30 PM					
Northbound	04:03	03:57	03:41	03:59	03:49
Southbound	04:26	04:27	04:23	04:30	04:22
12:30 PM-1:30 PM					
Northbound	05:38	04:06	04:07	04:01	04:03
Southbound	04:22	04:41	04:19	04:53	04:20
Average					
Northbound	04:51	04:02	03:54	04:00	03:56
Southbound	04:24	04:34	04:21	04:42	04:21

During the weekend peak in 2031, the average northbound and southbound travel times along Henry Lawson Drive are likely to be similar in both the 'without proposal' and 'with proposal' scenarios ('with proposal showing an improvement of roughly 10 seconds in either direction).

In 2041, the average northbound travel time is also expected to be about the same in both the 'with proposal' and the 'without proposal' scenarios. The average southbound travel times improve by 21 seconds in the 'with proposal' scenario on average compared to the 'without proposal' scenario in 2041.

This is due to the proposed network being able to accommodate weekend demand in 2041.

5.2.4 Overall network performance

Overall network performance can be quantified based on a number of statistical outputs, which provide a level of understanding and comparison between different modelled scenarios. Some of these performance statistics include:

- **VKT (Vehicle Kilometres Travelled)** – Total kilometres travelled by all vehicles in the model. Complete VKT are trips completing a trip from origin to destination. Incomplete VKT are trips that have started but remain in the network after the simulation period has ended.
- **VHT (Vehicle Hours Travelled**) – Total travel hours by all vehicles in the model. Complete VHT include vehicles complete a trip from origin to destination. Incomplete VHT includes vehicles that have started but remain in the network after the simulation period has ended.
- **Total Number of Stops** – Total number of stops for all vehicles determined from the model.
- **Average Speed** – Measures the average traffic speed during the simulation for all vehicles.
- **Latent Demand** – Number of vehicles that were unable to enter the network due to queues extending beyond the model study area.

The network-wide model statistics were extracted from the weekday AM, PM and the weekend scenario models to establish an overall network performance.

Table 5-16, Table 5-17 and Table 5-18 show overall network performance during the AM peak, PM peak and weekend peak in 2031 and 2041. The 'with proposal' scenario is expected to operate with a slightly better performance in comparison to the 'without proposal' in both 2031 and 2041 peak periods.

For the AM network performance outlined in Table 5-16, there is a greater difference in latent demand between the ‘without proposal’ and the ‘with proposal’ scenarios in 2031 than in 2041. This is due to the northbound queuing at the Bullecourt Avenue / Henry Lawson Drive intersection (refer to Figure 5-1).

In the 2041 ‘with proposal’ scenario, the right turn traffic movement from Henry Lawson Drive northbound onto Bullecourt Avenue queues back due to capacity constraints along Bullecourt Avenue between Henry Lawson Drive and Ashford Avenue originating from the Ashford Avenue / Bullecourt Avenue roundabout.

In the 2041 ‘without proposal’ scenario, a great proportion of vehicles travelling north-to-south on the corridor are using Ashford Avenue instead of the congested Henry Lawson Drive. In the ‘with proposal’ scenario, with the increased capacity on Henry Lawson Drive, some of the north-to-south demand transfers to Henry Lawson Drive and Bullecourt Avenue to travel south, resulting in a constrained Bullecourt Avenue. In addition, in the 2041 ‘without proposal’ scenario, northbound vehicles on Henry Lawson Drive access the local road network via right turn movements that would be removed as part of the proposal. In the 2041 ‘with proposal’ scenario, these vehicles would access the local road network via Bullecourt Avenue, adding to the constrained Bullecourt Avenue.

The combination of these impacts result in a greater difference in latent demand between the ‘without proposal’ and the ‘with proposal’ scenarios in 2031 AM peak than in 2041 AM peak.

Table 5-16: Overall Network Performance during AM Peak

Metrics	Units	2022		2031						2041					
		Existing		'Without proposal'		'With proposal'		Absolute diff	% diff	'Without proposal'		'With proposal'		Absolute diff	% diff
		LV	HV	LV	HV	LV	HV			LV	HV	LV	HV		
Total Distance Travelled (VKT)	km	71,065	7,848	84,473	9,665	88,110	10,291	4,262	4%	85,154	17,508	88,029	17,838	3,205	3%
Total Travel Time (VHT)	h	2,723	333	3,475	430	3,405	428	73	2%	3,864	646	3,763	617	130	3%
Latent Demand	veh	572	88	1,614	218	808	118	906	98%	2,569	358	2,107	296	523	18%
Number of Stops	#/veh/km	0.04	0.18	0.06	0.21	0.05	0.19	0.03	13%	0.07	0.20	0.06	0.18	0.03	11%
Total Demand	veh	19,926	2,633	24,765	3,391	24,765	3,391	-	0%	26,129	5,843	26,129	5,843	-	0%
Incomplete Trips	veh	2,186	333	3,811	603	2,748	463	1,203	37%	4,944	777	4,541	726	454	8%
Network Average Speed	km/h	34	25	31	24	32	25	1	4%	29	26	30	28	1	4%
Total Number of Stops	#	66,284	8,565	109,387	14,086	97,044	12,712	13,718	12%	124,467	19,102	116,403	17,291	9,875	7%

Table 5-17: Overall Network Performance during PM Peak

Metrics	Units	2022		2031						2041					
		Existing		'Without proposal'		'With proposal'		Absolute diff	% diff	'Without proposal'		'With proposal'		Absolute diff	% diff
		LV	HV	LV	HV	LV	HV			LV	HV	LV	HV		
Total Distance Travelled (VKT)	km	80,127	5,973	82,728	6,481	85,067	6,524	2,382	3%	84,490	6,971	87,766	7,199	3,504	4%
Total Travel Time (VHT)	h	3,064	225	4,364	341	4,214	310	181	4%	4,513	371	4,357	348	178	4%
Latent Demand	veh	589	32	5,219	334	5,087	339	127	2%	6,010	423	5,539	373	522	8%
Number of Stops	#/veh/km	0.04	0.18	0.07	0.24	0.06	0.20	0.05	19%	0.07	0.24	0.06	0.19	0.06	19%
Total Demand	veh	23,332	2,051	30,315	2,684	30,315	2,684	-	0%	32,028	2,912	32,028	2,912	-	0%
Incomplete Trips	veh	2,278	149	8,272	569	7,986	563	292	3%	9,182	666	8,673	620	555	6%
Network Average Speed	km/h	34	27	27	21	30	24	2	8%	27	22	28	23	1	5%
Total Number of Stops	#	78,687	6,020	138,832	11,260	121,013	9,232	19,846	15%	145,898	12,429	129,384	10,681	18,262	12%

Table 5-18**: Overall Network Performance during Weekend Peak**

Metrics	Units	2022		2031						2041					
		Existing		'Without proposal'		'With proposal'		Absolute diff	% diff	'Without proposal'		'With proposal'		Absolute diff	% diff
		LV	HV	LV	HV	LV	HV			LV	HV	LV	HV		
Total Distance Travelled (VKT)	km	70,364	8,510	86,021	10,981	86,185	11,035	218	0%	86,794	11,084	88,631	10,885	1,637	2%
Total Travel Time (VHT)	h	1,747	212	2,416	317	2,351	303	78	3%	2,499	315	2,487	312	15	1%
Latent Demand	veh	75	15	206	25	277	21	67	23%	291	26	278	26	13	4%
Number of Stops	#/veh/km	0.02	0.15	0.03	0.17	0.03	0.17	-	0%	0.04	0.17	0.03	0.17	0.01	5%
Total Demand	veh	23,332	2,051	30,315	2,684	30,315	2,684	-	0%	32,028	2,912	32,028	2,912	-	0%
Incomplete Trips	veh	1,152	174	1,569	236	1,494	229	83	5%	1,756	276	1,690	281	60	3%
Network Average Speed	km/h	43	34	39	31	41	32	1	3%	39	32	40	31	0	1%
Total Number of Stops	#	34,675	4,384	63,864	8,969	61,047	8,429	3,358	5%	70,691	9,402	64,819	8,583	6,692	8%

5.2.5 Impacts on property access

During operation, the proposal would maintain access to all properties within the proposal area.

There are five residential properties within the proposal area with direct access to Henry Lawson Drive (497, 499, 503, 553, 553A Henry Lawson Drive, Milperra). 497, 499 and 503 Henry Lawson Drive are located south of the Flower Power Garden Centre and 553 and 553A Henry Lawson Drive are located south of the Hermies Avenue intersection.

For 497, 499 and 503 Henry Lawson Drive, due to the installation of a raised concrete median along Henry Lawson Drive, driveway access would be converted to left-in left-out only. Residents wishing to turn right into their properties would need to use local road detours to access their properties. There would also be adjustments to driveway connections for these properties within the existing road reserve owned by Transport.

For 553 and 553A Henry Lawson Drive, driveway access would also be converted to left-in left-out only. This would be due to the Henry Lawson Drive / Hermies Avenue intersection only permitting left turning vehicles into the kerbside lane to travel south through the Pozieres Avenue intersection. To access the northbound carriageway of Henry Lawson Drive, residents would need to turn around at either Bransgrove Road or Maxwell Avenue, Panania (about 750 metres south of their properties).

The proposal would require adjustments to driveway connections to local roads to the Milperra Sports Centre, at the BP Service Station (5 Bullecourt Avenue, Milperra) and at some residential properties adjacent to road or footpath work on Ingram Avenue and Fromelles Avenue. These driveway connections would be within the existing road reserve owned by Canterbury Bankstown Council.

Landowners and occupiers would be consulted about any potential access impacts prior to and during construction.

5.2.6 Impacts on local road access

The proposal would involve installation of a raised concrete median along Henry Lawson Drive within the proposal area, which would convert a number of local road intersections to be left-in left-out only. The concept design proposes left-in left-out only access at the Henry Lawson Drive intersections of Ruthven Avenue, Whittle Avenue, Amiens Avenue, Ganmain Crescent, Fromelles Avenue and Hermies Avenue. Local residents wishing to turn right from Henry Lawson Drive into these local roads would need to turn right at signalised intersections of Keys Parade, Bullecourt Avenue or Pozieres Avenue to access the local road network to access these local roads

At Hermies Avenue, a raised lane barrier would be installed so that vehicles from Hermies Avenue cannot switch lanes to turn into Pozieres Avenue and must continue to the south.

The proposal would also provide a local link road between Auld Avenue and Keys Parade, extension of Raleigh Road to Keys Parade and roundabout at the Raleigh Road / Keys Parade intersection. These features would provide new local road access routes to the south-west of Henry Lawson Drive to minimise disruption to motorists of the local road access changes.

While there are a number of local road access routes that motorists could take due to left in and left out arrangements, the shortest new local access routes are presented in Table 5-19 and are shown in Figure 5-3 and Figure 5-4.

Table 5-19: Local road access changes for proposed left-in left-out intersections

Left-in Left-out Intersection	Impacted right turn direction	Number of vehicles impacted in peak period			Shortest local road access route	Approximate detour distance (m)	Reference Figure
		2031 AM	2031 PM	2031 WK			
Henry Lawson Drive / Ruthven Avenue	Southbound	0	1	0	Right turn at Key Parade intersection - Access to Raleigh Road - to Ruthven Avenue	100	Figure 5-3
Henry Lawson Drive / Whittle Avenue	Northbound	0	12	0	Right turn at Bullecourt Avenue intersection – Left turn at Keysor Place – left turn to Whittle Avenue	250	Figure 5-4
Henry Lawson Drive / Amiens Avenue	Southbound	55	60	78	Right turn at Key Parade intersection - Access to Raleigh Road - to Newland Avenue	1300	Figure 5-3
Henry Lawson Drive / Fromelles Avenue	Northbound	62	1	173	Right turn at Bullecourt Avenue intersection - right turn at Armentieres Avenue – right turn to Fromelles Avenue	1000	Figure 5-4
Henry Lawson Drive / Ganmain Crescent	Southbound	4	21	13	Right turn at Pozieres Avenue intersection - right turn at Amiens Avenue. Alternatively, access Amiens Avenue via Keys Parade (as per the Amiens Avenue access route). From Amiens Avenue, use access via Joynt Avenue or Oakleigh Avenue to Eynham Road and/or Treadgold Street to Ganmain Crescent.	750 - 900	Figure 5-4
Henry Lawson Drive / Hermies Avenue	Northbound	27	102	28	Right turn at Bullecourt Avenue - right turn at Dernancourt Parade (or use Armentieres Avenue and Bapaume Place to access Dernancourt Parade) – right turn onto Hermies Avenue	1300	Figure 5-4

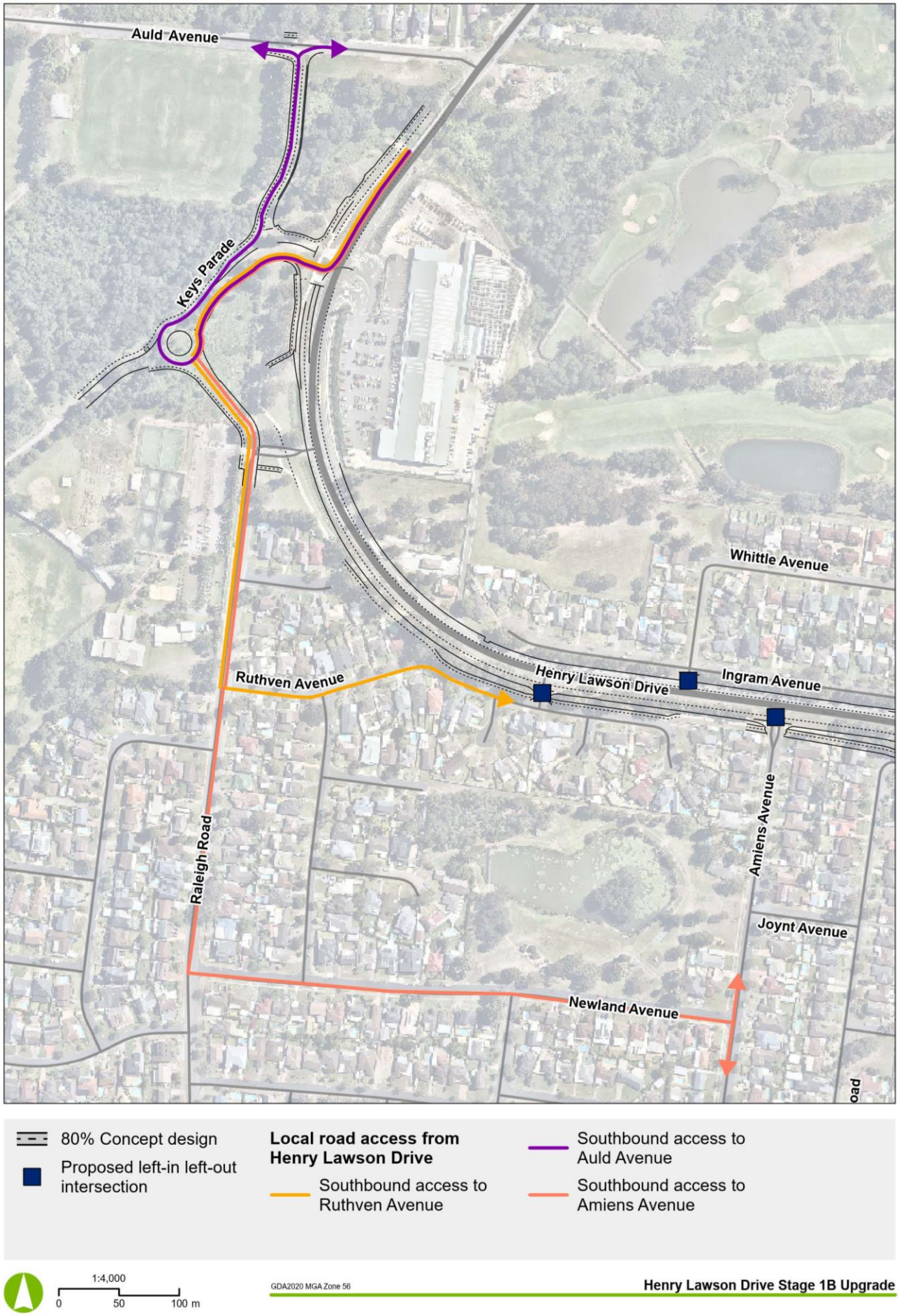


Figure 5-3: Local road access from Henry Lawson Drive (north)

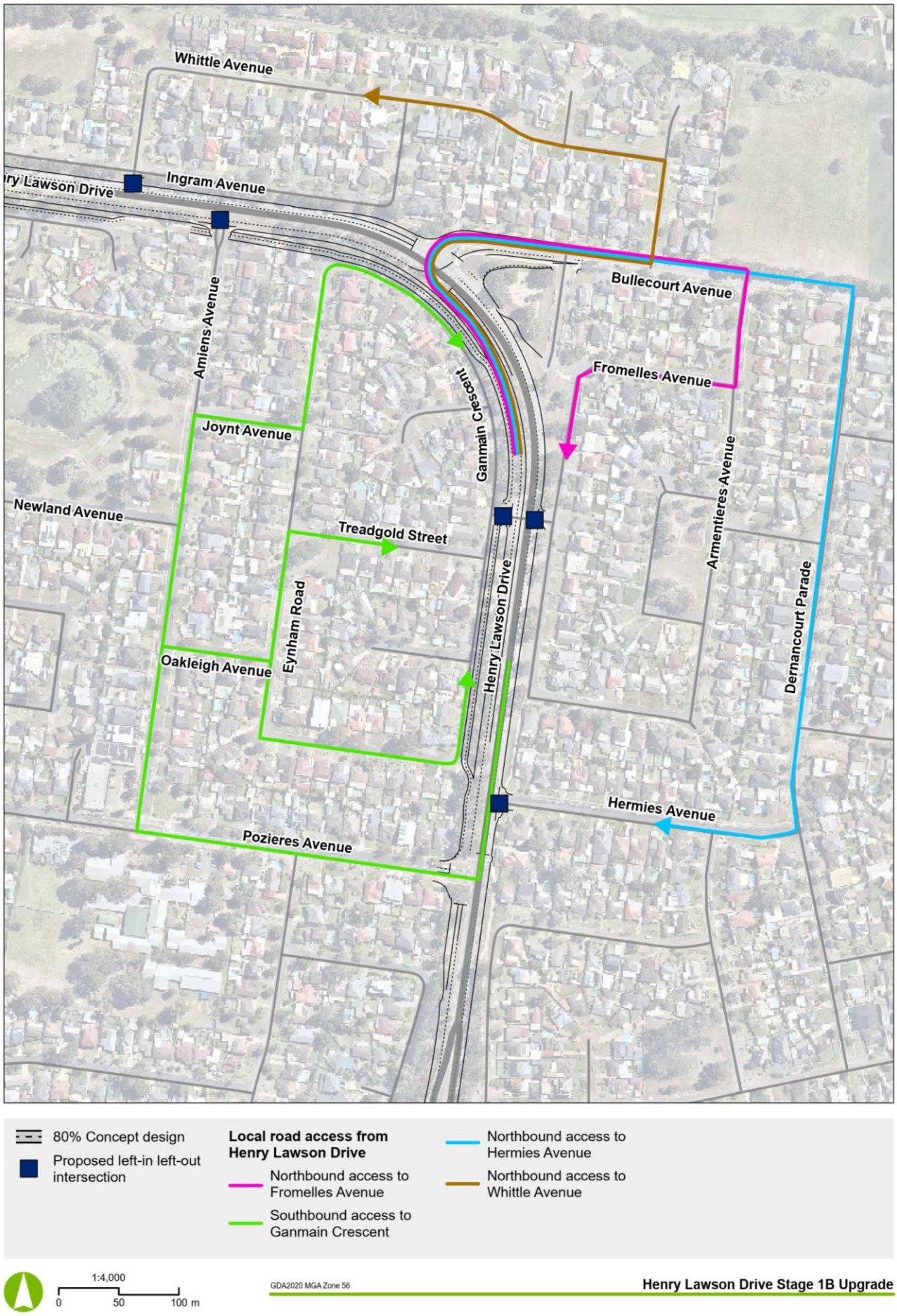


Figure 5-4: Local road access from Henry Lawson Drive (south)

5.2.7 Impacts on parking

To safely connect the Auld Avenue link road with Auld Avenue, up to eight parking spaces on Auld Avenue adjacent to the Gordon Parker Reserve would be removed. This would impact community members using the reserve during sport events and other busy periods. During detailed design, Transport would consider opportunities to minimise the number of parking spaces that need to be removed.

There would be no other changes to parking due to the proposal.

5.2.8 Impacts on public transport

The operation of the proposal would not result in any changes to existing public or school bus services. Most bus stops within the proposal area would be retained with like-for-like replacement of the existing bus stop (where relevant).

However, the bus stop located on the Henry Lawson Drive northbound carriageway, south of Pozieres Avenue intersection would be relocated about 25 metres north of Pozieres Avenue.

5.2.9 Impacts on active transport

There is a proposed three metres wide concrete shared path along the western side of Henry Lawson Drive Stage 1B upgrade between the M5 Motorway and Keys Parade. This shared path would connect into shared path across the new Milperra Drain bridge and along Henry Lawson Drive to connect into existing Council paths.

In addition, new footpaths would be constructed along Ingram Avenue and Fromelles Avenue to provide additional access for pedestrians along the corridor. This would tie into existing lengths of footpaths to the north and south along Henry Lawson Drive.

5.2.10 Operational road safety

Whilst no dedicated road safety upgrades have been undertaken in the preferred ‘with proposal’, the increased intersection capacity and smoother operation of the network in general is expected to significantly improve road safety. Dual carriageway roads generally reduce crashes in relation to single carriageway roads, mainly due to the separation between opposing traffic flows. Head-on collisions are expected to reduce due to the physical separation of the opposing carriageways. Rear end collisions are also expected to reduce due to limiting right turn movements to dedicated right turn lanes at intersections only.

In addition, the following intersection upgrades are expected to improve road safety:

- Lawson Drive intersections of Auld Avenue, Ruthven Avenue, Whittle Avenue, Amiens Avenue, Ganmain Crescent, Fromelles Avenue and Hermies Avenue. Henry Lawson Drive / Auld Avenue
  - Conversion of the intersection into a left-in left-out reduces risk of vehicles turning into incoming traffic.
- Henry Lawson Drive / Bullecourt Avenue intersection
  - Provision of additional right turn bays would increase turn storage capacity and reduce risk of road blockage and rear end collisions.
  - Conversion of left turn exit lane from Bullecourt Avenue into slip lane would improve safety of that turn.
- Henry Lawson Drive / Pozieres Avenue intersection
  - Provision of right and left turn bays would increase turn storage capacity and reduce risk of road blockage and rear end collisions
  - Relocation of the Pozieres Avenue bus stop about 25 metres north from its current location would improve passenger embarking and disembarking as well as traffic and pedestrian movements at the intersection.

6 Management measures

Table 6-1 provides a summary of the mitigation measures and environmental safeguards that are recommended for the proposal based on the assessment of potential traffic and transport impacts.

Table 6-1: Traffic impact mitigation measures

Impact	Environmental safeguard	Responsibility	Timing
Traffic and transport	A Traffic Management Plan (TMP) would be prepared and implemented as part of the CEMP. The TMP would be prepared in accordance with the Transport for NSW Traffic Control at Work Sites Manual (RMS, 2020) and QA Specification G10 Control of Traffic (Transport, 2020). The TMP would include: ■ confirmation of haulage routes ■ swept path analysis of haulage vehicles using the Ashford Avenue roundabout ■ measures to maintain access to local roads and properties ■ construction traffic control plans outlining site-specific traffic control measures (including signage) to manage and regulate traffic movement ■ measures to maintain pedestrian and cyclist access ■ requirements and methods to consult and inform the local community of impacts on the local road network, including disruptions to parking ■ access to construction sites including entry and exit locations and measures to prevent construction vehicles queuing on public roads ■ a response plan for any construction traffic incident ■ consideration of other developments that may be under construction to minimise traffic conflict and congestion that may occur due to the cumulative increase in construction vehicle traffic ■ monitoring, review and amendment mechanisms.	Contractor	Pre-construction/ construction
Construction site access	Construction site access would be designed and implemented in consideration of: ■ road design guidelines and turning paths for heavy vehicles ■ appropriate sight distances to allow traffic to safely enter and exit ■ visibility of compliant warning and way finding signs ■ use of accredited traffic controllers, where appropriate and/or other controls to separate, slow down or temporarily stop traffic for safe entry/exit ■ minimising use of local roads, where practical ■ provision of deceleration lanes at accesses next to highly trafficked roads	Contractor	Pre-construction/ construction

Impact	Environmental safeguard	Responsibility	Timing
Traffic impacts	Further traffic modelling would be carried out during detailed design following confirmation of the construction methodology and traffic staging to confirm the potential for traffic impacts and identify whether any additional mitigation measures or traffic control measures would be required.	Contractor	Detailed design
Impact on bus stops or routes	Temporary and permanent bus stop relocation would be discussed with the relevant bus operator and community notified.	Transport / Contractor	Detailed design/ Pre-construction
Temporary access changes	Detours during temporary access changes would be implemented with directional signage along alternate routes.	Contractor	Construction
Heavy Vehicle Movements	Heavy vehicle movements to be limited during peak traffic periods (i.e., between 7:45 AM to 08:45 AM, 3:30 PM to 4:30 PM, 11:30 AM to 12:30 PM), where practical.	Contractor	Construction
Traffic management measures	Any temporary traffic diversions, clearways and road closures would be implemented in accordance with Transport Management Centre (TMC) and Canterbury Bankstown City Council requirements.	Contractor	Construction
Property access	▪ Property access would be maintained where feasible and reasonable and property owners would be consulted well in advance of work starting that may temporarily restrict or control access. ▪ Consultation will be carried out with the community regarding alternate access arrangements during operation associated with the provision of left-in left-out intersections. ▪ Notification will be issued to emergency services about changes in traffic conditions.	Transport / Contractor	Construction
Local road or shared path closures	Relevant councils would be consulted with prior to any local road or shared path closures to identify suitable mitigation measures such as detour routes.	Contractor	Construction
Parking	Off-road parking for construction vehicles would be provided within the ancillary facility and construction areas.	Contractor	Construction
Damage to local roads	Any damage to the local road network identified to be caused by construction vehicles for the proposal would be remediated by the contractor to be similar to the existing road condition.	Contractor	Construction
Bus stops	Any changes to bus stops would be discussed with bus operators and the community notified prior to the changes.	Contractor	Construction
Auld Avenue parking	During detailed design, Transport will consider opportunities to minimise the number of parking spaces that need to be removed.	Transport	Detailed design

7 Conclusion and justification

Transport proposes to upgrade Henry Lawson Drive along a 1.8-kilometre section between Auld Avenue, Milperra and the M5 Motorway, Milperra (the proposal). The proposal would include widening Henry Lawson Drive from two to four lanes, constructing a new local link road between Auld Avenue and Keys Parade, extending Raleigh Road and modifying the Bullecourt Avenue / Ashford Avenue intersection. The operational traffic performance of the proposal has been assessed using AIMSUN traffic modelling for the preferred scenario against the 'without proposal' scenario in 2031 and 2041. The modelling results show the following:

- Across the future year scenarios, the results suggest a slightly better performance for the 'with proposal' scenario compared to the 'without proposal' scenario in AM, PM and weekend peaks for both 2031 and 2041 due to improved network average speed with the proposal.
- Henry Lawson Drive Travel Time
  - The 2031 AM peak period shows an average reduction in travel time in the northbound and southbound directions compared to the 'without proposal' scenario. In 2041, there would be an increase in travel times in the northbound direction in the 'with proposal' scenario compared to the 'without proposal' scenario, with the opposite result in the southbound direction. This would be due to queue spill back at the Bullecourt Avenue / Henry Lawson Drive intersection.
  - During PM peak periods, Henry Lawson Drive northbound travel time is expected to decrease by more than three minutes in 2031 and by three minutes in 2041 in the 'with proposal' scenario compared to the 'without proposal' scenario. This is due to there being higher demand for northbound traffic in 2041. The average southbound travel time along Henry Lawson Drive is expected to decrease by about 30 seconds in the 'with proposal' scenario compared to the 'without proposal' scenario in both 2031 and 2041. The network would be able to accommodate southbound demand in both 2031 and 2041.
  - During the weekend peak in 2031, the average northbound and southbound travel times along Henry Lawson Drive are likely to be similar in both the 'without proposal' and 'with proposal' scenarios. The average southbound travel time along Henry Lawson Drive is expected to reduce by about 20 seconds in the 'with proposal' scenario compared to the 'without proposal' scenario in 2041, with northbound travel times improving by about four seconds on average. This is due to the network being better able to accommodate weekend demand in both 2031 and 2041.
  - The travel time results suggest a better performance for the 'with proposal' scenario compared to the 'without proposal' scenario in all time periods modelled, 2041 AM peak period being an exception.
- Level of Service (LOS)
  - Intersection LOS at Keys Parade and Bullecourt Avenue have similar results for the 'without proposal' and 'with proposal' scenarios in 2031 AM peak period. This is because a good percentage of vehicles who currently use Milperra Road to reach Bullecourt Avenue in the 'without proposal' scenario, would reroute to use Henry Lawson Drive in the 'with proposal' scenario.
  - For 2041 AM peak period, in the 'with proposal' scenario, the Bullecourt Avenue intersection operates at LOS C in the first hour and deteriorates to LOS F in the second hour. This is because the right turn traffic movement from Henry Lawson Drive northbound onto Bullecourt Avenue queues back due to capacity constraint along Bullecourt Avenue between Henry Lawson Drive and Ashford Avenue, originating at the Ashford Avenue roundabout This traffic congestion propagates further downstream impacting the performance of Pozieres Avenue intersection. This increase in delay at the intersection is due to an increasing number of vehicles turning at the intersection, whereas in the 'without proposal' scenario, they would use Milperra Road and Ashford Avenue (if travelling from north of the proposal area) or turn directly into the local road network (if travelling northbound on Henry Lawson Drive).
  - For both 2031 and 2041 scenarios, the results suggest a better performance for the 'with proposal' scenario in comparison to the 'without proposal' scenario in the weekday PM peak period. The weekend modelling produces similar results for the 'without proposal' scenario and the 'with proposal' scenario.

- In general, 2041 AM and PM peak periods show that the delays would increase impacting the LOS at signalised intersections within the proposal area in comparison to the 2031 AM and PM due to increased demand in 2041. However, in the 2041 weekend peak for the 'without proposal' and 'with proposal' scenarios, the overall LOS would not differ much from the 2031 modelled values.
- It should be noted that the Henry Lawson Drive traffic performance would likely see its best benefits once the entire Henry Lawson Drive upgrade program is completed. With only the Stage 1A and Stage 1B upgrades, the merging from two to one lane located north of the Tower Road intersection acts as a bottleneck, impacting the performance of vehicles travelling along the corridor.

The proposal providing the traffic intersection benefits, in conjunction with other stages of the Henry Lawson Drive upgrade program, would ease traffic congestion issues and improve freight access between the M5 Motorway and Hume Highway.

The concept design proposes a left-in left-out for the Henry Lawson Drive intersections of Ruthven Avenue, Whittle Avenue, Amiens Avenue, Ganmain Crescent, Fromelles Avenue and Hermies Avenue. The local residents wishing to turn right from Henry Lawson Drive into these local roads would need to use signalised intersections at Keys Parade, Bullecourt Avenue and Pozieres Avenue to access the local road network.

There is potential for temporary traffic impacts during construction associated with construction traffic generated by the proposal, construction vehicles accessing the construction zones and temporary access restrictions. Several mitigation measures and safeguards would be implemented to reduce the potential traffic and transport impacts, where possible, which would be outlined in a Construction Traffic Management Plan that would be prepared and approved prior to construction of the proposal. The CTMP would be implemented during construction and would detail the final traffic arrangements, construction boundaries, access points, heavy vehicle haulage routes and strategies to minimise any potential adverse traffic and transport impacts from construction of the proposal.

Appendix A: Base Model Development Report

Henry Lawson Drive Upgrade - Stage 1B

Base Model: Calibration and Validation Report

Transport for NSW

Reference: 520566

Revision: 1

2022-11-23

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Bringing ideas to life

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Abbreviations

	Geoffrey E. Havers; the GEH Statistic is a formula used in traffic modelling to compare two sets of traffic volume data.
GEH	$$GEH = \sqrt{\frac{2 * (Observed - Modelled)^2}{(Observed + Modelled)}}$$
OD	Origin/ Destination zone pair in the model and demand matrices
OSM	OpenStreetMap

1 Introduction

1.1 Background

Aurecon was commissioned by Transport for NSW (TfNSW) to deliver the Concept Design Services for Henry Lawson Drive (HLD) upgrade Stage 1B. For traffic and transportation study, a microsimulation corridor model of Henry Lawson Drive in the study area is required. This model is intended to be used for testing few potential upgrade options. The options modelling will enable TfNSW to test different combinations of upgrades to determine the best possible option to implement on the network to improve network performance.

As part of the model development process, Aurecon undertook a model calibration and validation exercise to ensure that the model developed is fit-for-purpose and can be used for option evaluation. The methodology and parameters adopted for the base model are aligned to the TfNSW Traffic Modelling Guidelines (Modelling Guidelines).

This report outlines the steps undertaken in the development of the Base model, data analysis, network coding and results of model calibration and validation. This document does not include discussion of the various option packages that will be tested from the base model. A separate option modelling report will subsequently be provided to outline the various options, corresponding results, and analysis.

1.2 Project Background

Transport for NSW is investigating the upgrade of 7.5-kilometre stretch of Henry Lawson Drive between M5 Motorway, Milperra, Lansdowne and Hume Highway. The route corridor of Henry Lawson Drive serves as a major north-south link for movement of freight and general traffic. The land use in the vicinity of the corridor includes a mix of residential, industrial and retail land use as well as airport facilities. The upgrade would help in ensuring that the road corridor can meet growing traffic demand, with residential, commercial, and industrial development expected to increase in the coming years.

The upgrade would be carried out in four stages (Stages 1A, 1B, 2 and 3).

The Stage 1A upgrade of Henry Lawson Drive would provide more capacity for vehicles travelling through the intersection of Henry Lawson Drive, Milperra Road and Newbridge Road. It would improve efficiency along the corridor and safety for motorists and pedestrians.

This project, Stage 1B involves upgrade of Henry Lawson Drive along a 1.8-kilometre section between Keys Parade and the approach to the M5 Motorway. The upgrade of key intersections and widening of Henry Lawson Drive would improve traffic capacity, decrease travel time, and enhance and driver safety.

1.2.1 Objectives

The main objectives in developing the microsimulation model are as follows:

- Develop a base case microsimulation model in accordance with the TfNSW Traffic Modelling Guidelines Version 1.0[1] to ensure that it is fit-for-purpose to test future year option scenarios.
- Develop future year flows based on STFM outputs.
- Assess the proposed options along Henry Lawson Drive
- Identify short comings of each option and provide potential remediations to minimise congestion in the study area.

The project study area covers Henry Lawson Drive between Hume Highway and M5 Motorway as shown in Figure 1-1 below.

[1] The latest version of the guidelines - Version 1.0, released in February 2013 have been utilised for this project.

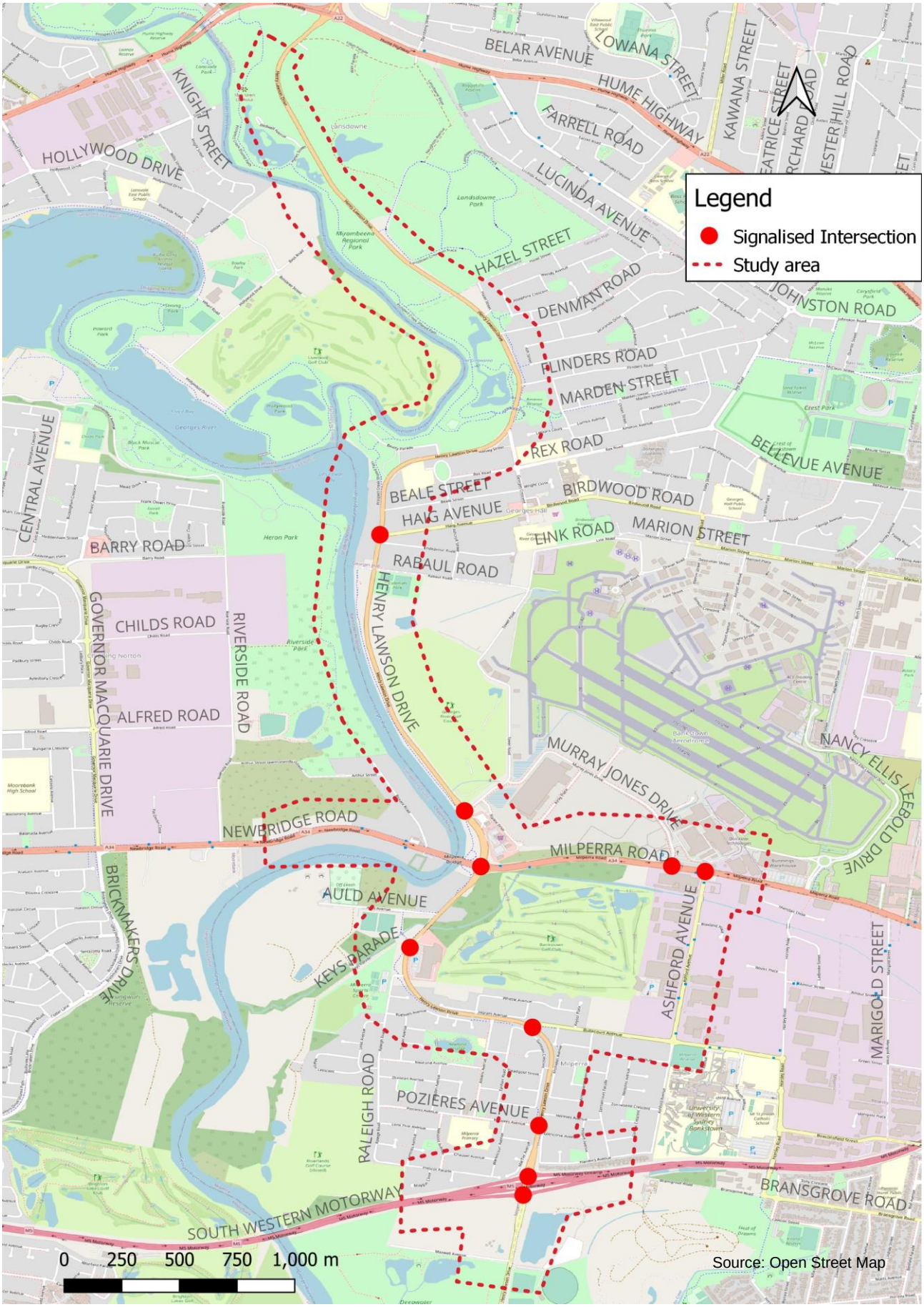


Figure 1-1: Henry Lawson Drive Stage 1B model study area

2 Model Form

The development of the model has been undertaken using the Aimsun software suite. Aimsun is an integrated modelling tool which is often used for large scale and complex networks. Aimsun allows different model tiers to be developed in a single model file, resulting in improved route choice network assignment. The geometry configuration function in Aimsun also allows users to code and manage different model options in a single model file.

As part of concept design for Henry Lawson Drive Stage 1A, a microsimulation traffic model was developed using Aimsun Next Version 20.0.3. For Stage 1B, the existing Aimsun model was extended to include the section of Henry Lawson Drive between Keys Parade and South-Western Motorway (M-5). Further, it is suggested that the same version be used for future option testing.

2.1 Methodology

The key steps in the modelling process include the following:

- Network development and refinement that involved extension of existing model for Henry Lawson Drive Stage 1A to include Stage 1B study area network.
- Traffic demand estimation
- Model calibration and validation.

Data inputs used for the base model and their sources are discussed at length in Chapter 3. Figure 2-1 illustrates the general modelling methodology adopted in building the base model.

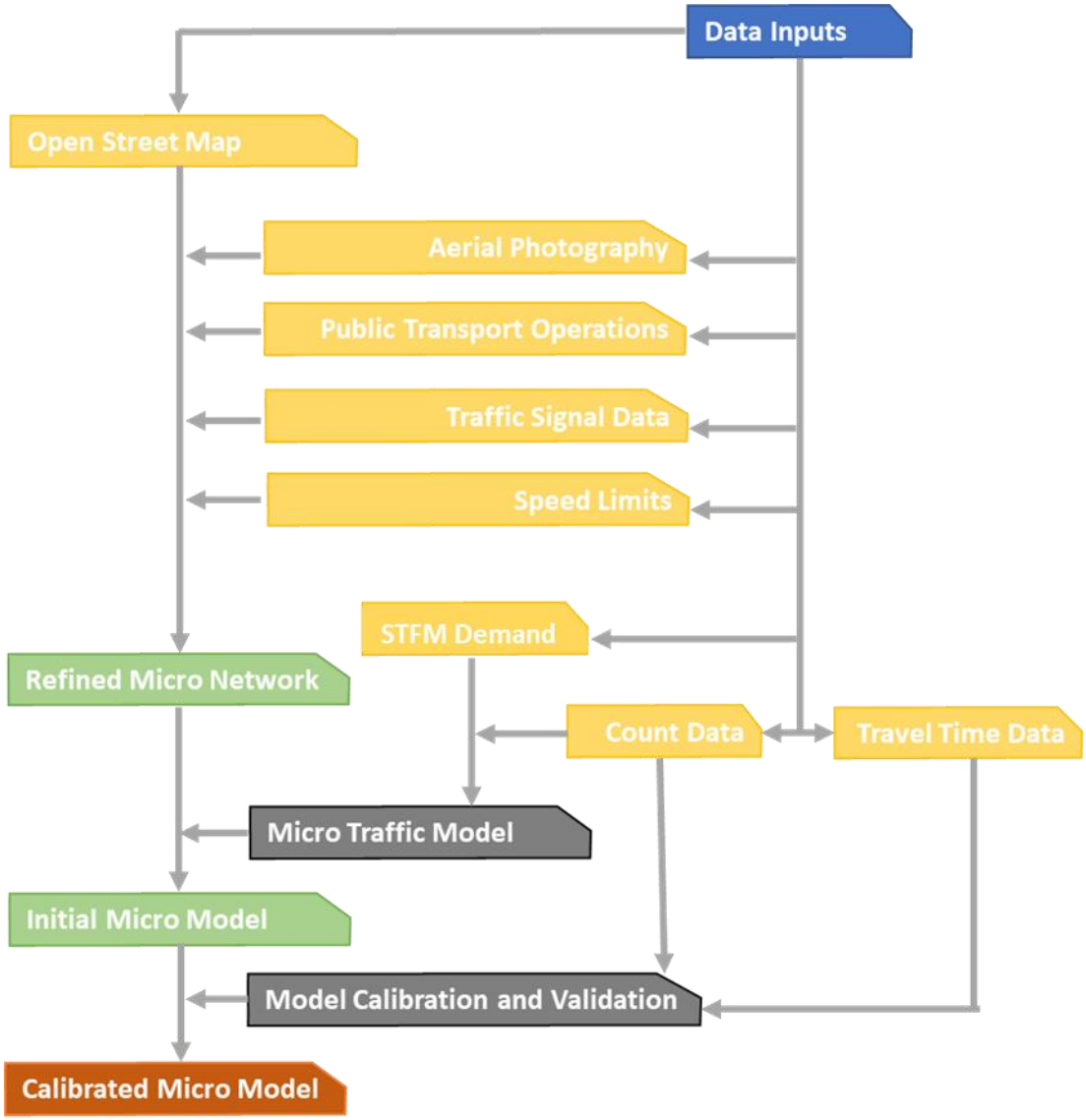


Figure 2-1: Methodology Overview

2.2 Model Network

The modelled base network includes the following mainline extents:

- Henry Lawson Drive southbound between south of Hume Highway and south of M5 motorway off-ramp.
- Henry Lawson Drive northbound between south of M5 Motorway on-ramp and south of Hume Highway.

Figure 2-2 shows the Aimsun base model network, which aligns with the study area in Figure 1-1.

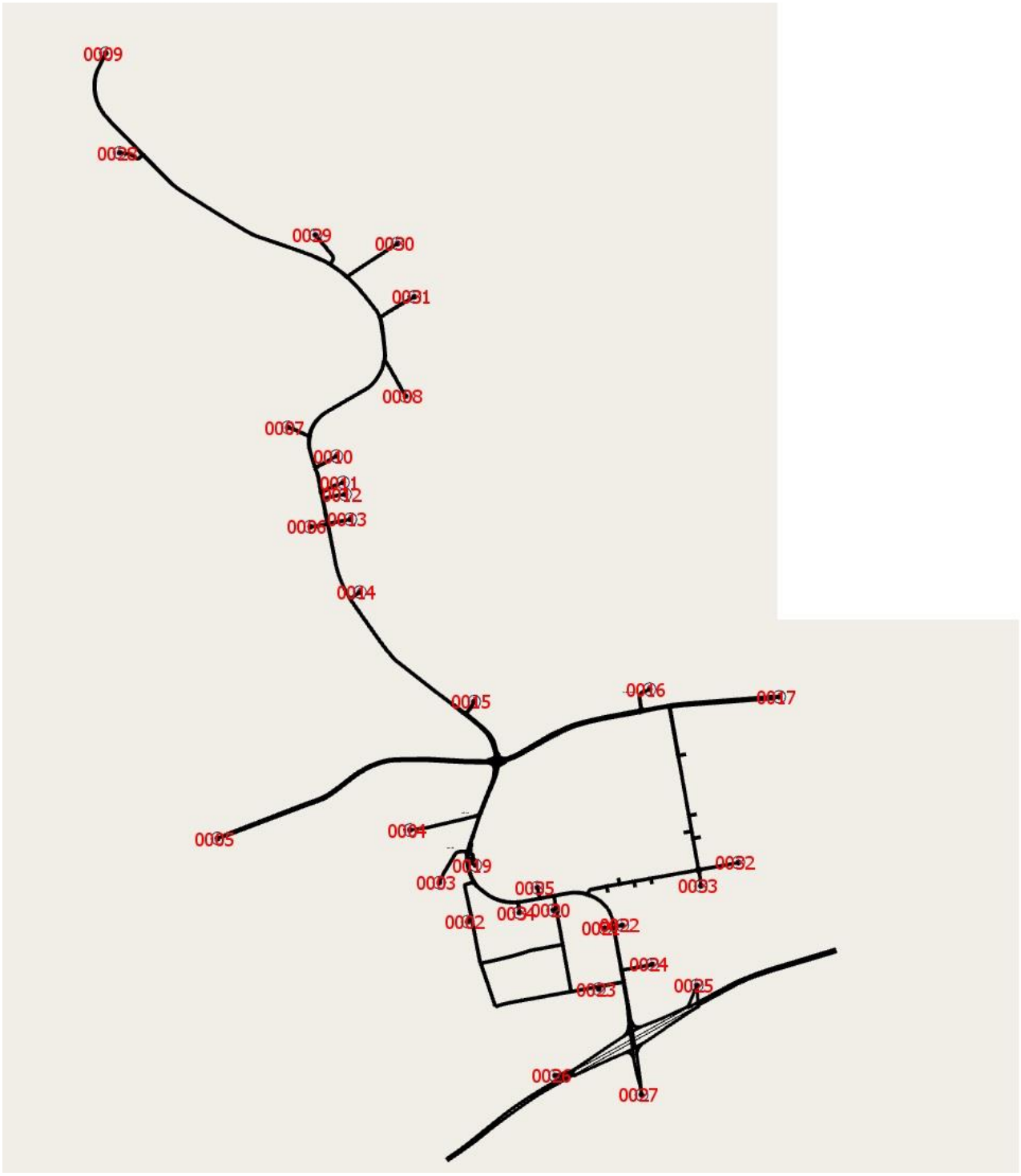


Figure 2-2: Modelled network HLD1B (Aimsun network snapshot with Zone centroid ID's)

2.2.1 Extension of HLD-1A model to include HLD-1B

The key steps in the extension of HLD-1A model (initial model) to include HLD-1B project area are the following:

- Import Open Street Map background to initial model.
- Extend the model to include HLD-1B project area network as shown in Figure 2-3.
- All intersections were coded as per the existing type of intersection control such as priority or signalised. The type of intersection control at each intersection in the project area is shown in Table 2-1.
- Public transport and school bus services were also observed in the study area. The road network infrastructure for bus services beyond Henry Lawson Drive corridor is included in the model and is reserved for use by public transport only. This is to account for the impact of bus services within the study area.

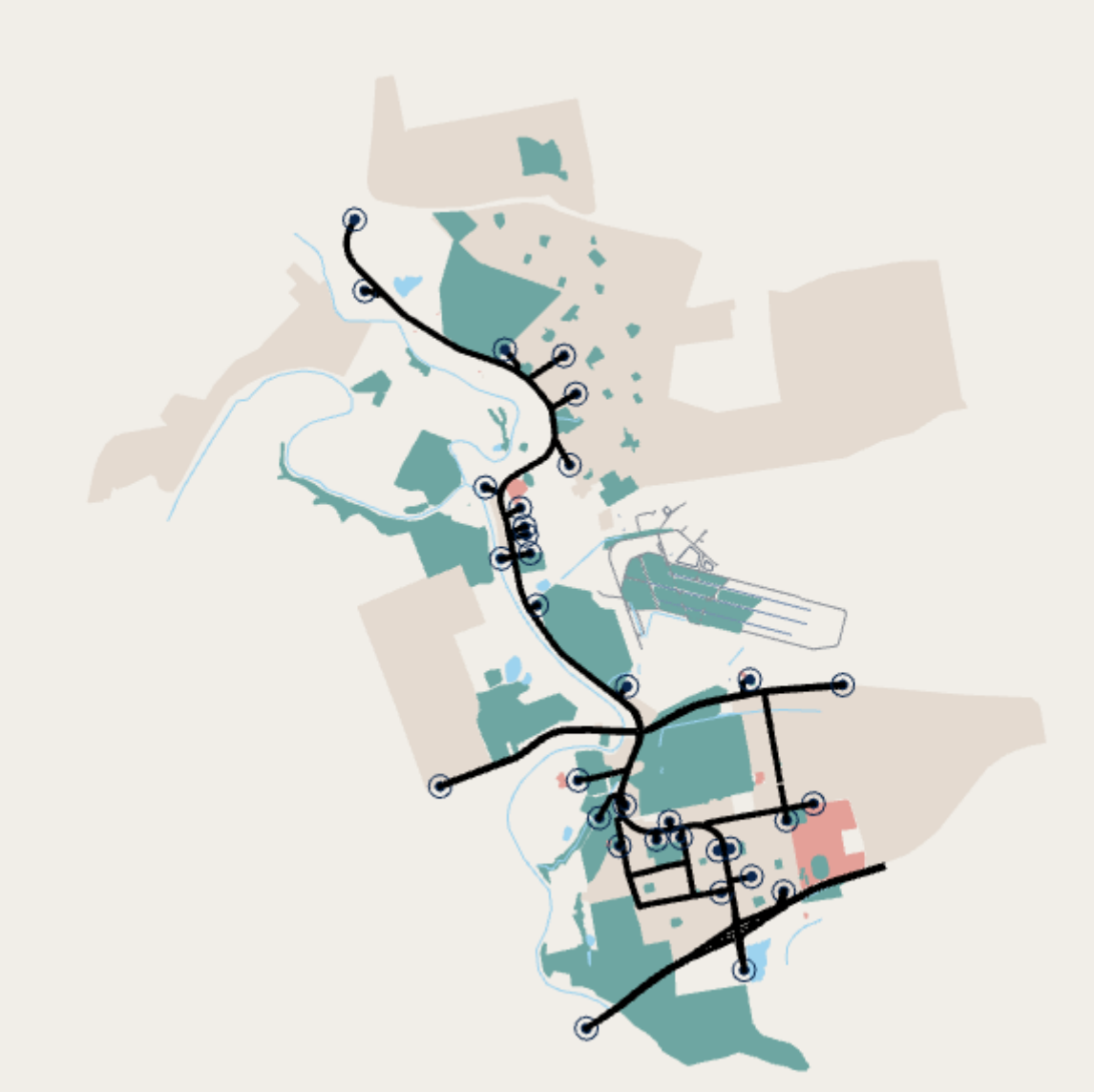


Figure 2-3: Overview of model with open street map background.

Table 2-1: Intersections included in the Base model.

#	Location	Type
1	Henry Lawson Drive & South-Western Motorway	Signalised
2	Henry Lawson Drive & Pozieres Avenue	Signalised
3	Henry Lawson Drive & Hermies Avenue	Priority
4	Henry Lawson Drive & Ganmain Avenue /Fromelles Avenue	Priority
5	Henry Lawson Drive & Bullecourt Avenue	Signalised
6	Bullecourt Avenue & Ashford Avenue	Roundabout
7	Henry Lawson Drive & Amiens Avenue	Priority
8	Henry Lawson Drive & Whittle Avenue	Priority
9	Henry Lawson Drive & Ruthven Avenue	Priority
10	Henry Lawson Drive & Raleigh Road	Signalised
11	Henry Lawson Drive & Keys Parade	Signalised
12	Henry Lawson Drive & Auld Avenue	Priority
13	Henry Lawson Drive & Newbridge Road & Milperra Road	Signalised
14	Milperra Road & Murray Jones Drive	Signalised
15	Milperra Road & Ashford Avenue	Signalised
16	Henry Lawson Drive & Tower Road	Signalised
17	Henry Lawson Drive & Georges River Golf Course	Priority
18	Henry Lawson Drive & Rabaul Road	Priority
19	Henry Lawson Drive & Endevour Road	Priority
20	Henry Lawson Drive & Haig Avenue	Signalised
21	Henry Lawson Drive & Beale Street	Priority
22	Henry Lawson Drive & HLD Reserve Road	Priority
23	Henry Lawson Drive & Georges Crescent	Priority
24	Henry Lawson Drive & Flinders Road	Priority
25	Henry Lawson Drive & Denman Road	Priority
26	Henry Lawson Drive & Hazel Street	Priority
27	Henry Lawson Drive & Hynes Street	Priority

2.3 Model Date and Time Periods

For AM and PM modelling, the traffic surveys were undertaken at various locations in the study area on 23rd March 2022 (Wednesday) and from 28th February 2018 to 5th March 2018. The traffic survey data is collected with a 15-minute interval and their collection locations are presented in Table 3-2.

In the case weekend model, TfNSW provided SCATS detector count data for 26th March 2022 (Saturday), 27th March 2022 (Sunday), 02nd April 2022 (Saturday) and 03rd April 2022 (Sunday), and also traffic survey data for 20th February 2021 (Saturday).

2.3.1 Weekday Peak

An analysis was undertaken to identify the most suitable Weekday AM and PM peak period. The key steps in identifying the peak hour include following:

- Total hourly traffic counts for all surveyed intersections based on 2022 and 2018 traffic survey data was calculated with hours staggered at 15 minutes for AM period (06:00 AM to 10:00 AM) and PM period (03:00 PM to 07:00PM). The staggered hour in both AM and PM period with maximum traffic was identified as peak hour as presented in Figure 2-4.

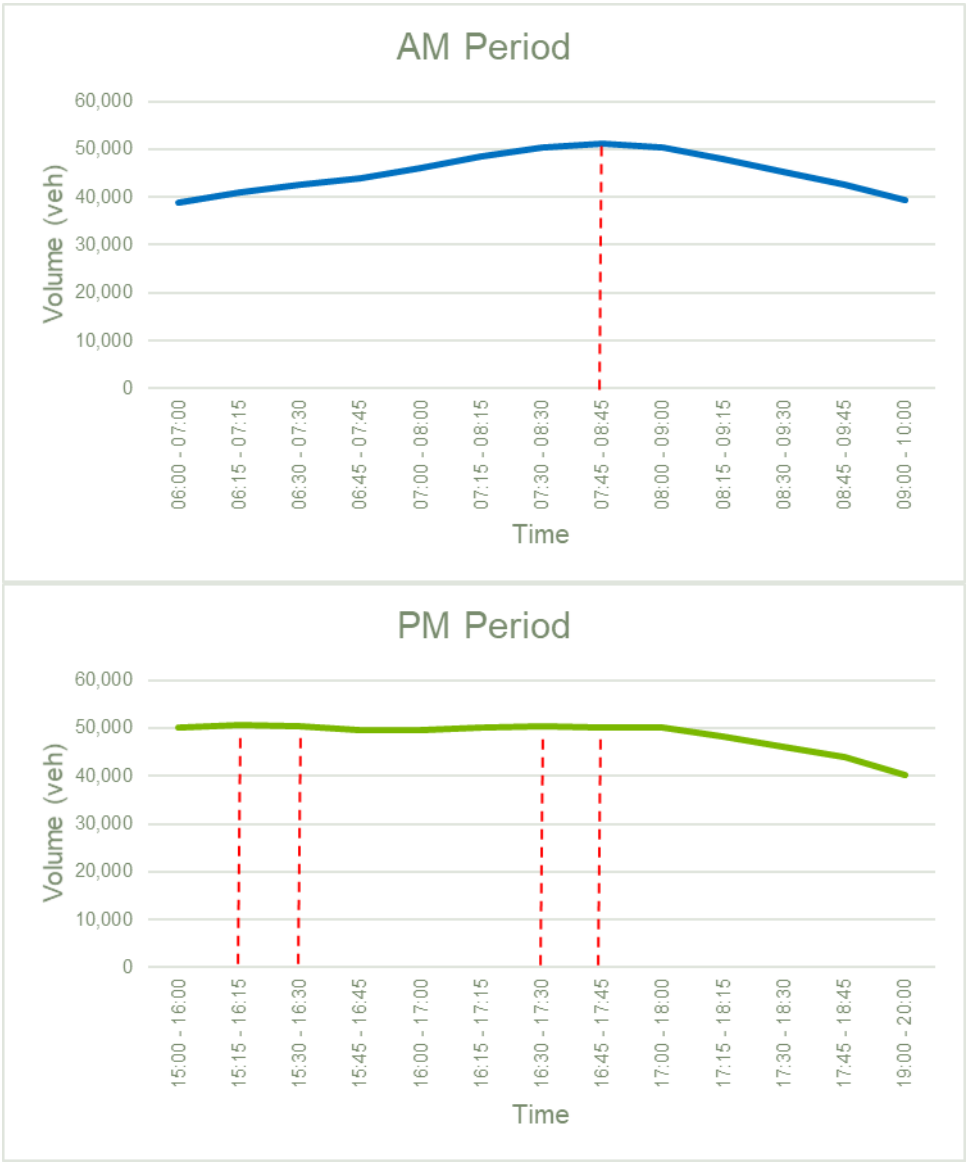


Figure 2-4: Total hourly traffic count during AM and PM peak period staggered at 15-minute interval

- AM peak hour was clearly identified as 07:45 AM to 08:45 AM.
- For PM period, peak traffic was observed for 03:15 PM to 05:45 PM, requiring further analysis to identify clear peak PM period.
- Google's typical traffic volume viewer was used to study typical traffic condition prevailing on Henry Lawson Drive from 02:45 PM to 06:15 PM at 15-minute interval on a representative weekday (Wednesday). The google images for typical traffic on Henry Lawson Drive corridor were collated and compared. This is presented in **Appendix A**. The study of typical traffic suggests that congestion on Henry Lawson Drive peaks between 03:30 PM to 04:30 PM. Considering the peak traffic volume and typical Google traffic, peak hour during PM is identified as 03:30 PM to 04:30 PM.

Based on analysis, the peak traffic time periods were determined as follows:

- Weekday Morning (AM) period: 06:45 – 09:45 AM
  - Warm up: 06:45 – 07:45 AM
  - Peak Hour 1: 07:45 – 08:45 AM
  - Peak Hour 2: 08:45 – 09:45 AM
- Weekday Afternoon (PM) period: 02:30 – 05:30 PM
  - Warm up: 02:30 – 03:30 PM
  - Peak Hour 1: 03:30 – 04:30 PM
  - Peak Hour 2: 04:30 – 05:30 PM

2.3.2 Weekend Peak

An analysis was undertaken to identify the most suitable Weekend peak period. The key steps in identifying the peak hour include following:

- The average of hourly traffic counts of five surveyed midblock counts in 2022 for two weekends was calculated. The staggered hour with maximum traffic was identified as peak hour as presented in Figure 2-5.

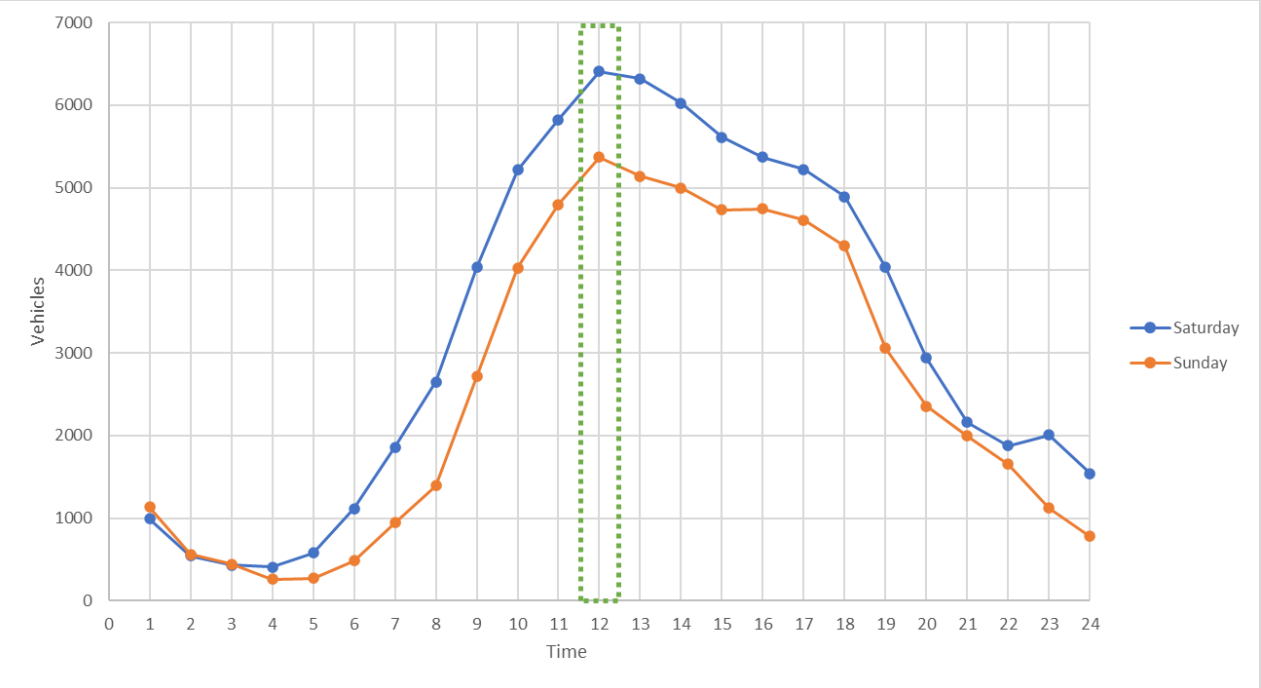


Figure 2-5: Average hourly traffic count during weekend period

- Weekend peak hour was identified as 11:30 AM to 12:30 PM on Saturdays.

Based on analysis, the peak traffic time periods were determined as follows:

- Weekend peak period: 10:30 AM – 01:30 PM
  - Warm up: 010:30 AM – 11:30 AM
  - Peak Hour 1: 11:30 AM – 12:30 PM
  - Peak Hour 2: 12:30 – 01:30 PM

2.4 Assumptions and Limitations

The model has been specifically developed to achieve the objectives of this project. Following enlists some of the modelling assumptions and limitations:

- Calibration has been undertaken for 2022 traffic conditions.
- For AM and PM model, the traffic count data has been sourced from Matrix surveys undertaken during 2022 for Stage 1B and 2018 for Stage 1A portion. The traffic counts used for model calibration are therefore a mix of both 2022 and 2018 traffic data. It has however been verified that the collected dates are representative of typical day traffic conditions. The flow differences have also been checked and balanced through the network.
- For weekend model, the traffic count data has been sourced from TfNSW's SCATS detector data collected in 2022 and traffic survey data collected by Matrix in 2021. The heavy vehicle percentages (HV%) for weekend peak period calculated from 2022 midblock count survey was comparable to the AM peak period. Therefore, HV% from AM peak period was assumed in this model.
- The Travel Time data has been sourced from HERE data and was collected in 2018 with 15-minute intervals.
- It has been assumed that the available traffic data are true representation of existing conditions.
- Any upstream or downstream congestion outside the model study area has not been considered.

3 Data Input

Table 3-1 presents a summary of various data types used for the study, their sources, and application in the model.

Table 3-1: Road Network Datasets

Data type	Source	Application
Base model	TfNSW/ Aurecon – Base model for HLD Stage 1A	Base model from Stage 1A extended to include Stage 1B study area.
Aerial imagery	Open Street Maps, 2019 Nearmap Imagery	Model network coding, geometry verification
Road Classification, Speed Limit Data	Desktop review	Model network coding
Traffic Survey Counts	TfNSW provided survey data (Matrix) for 19 intersections and five midblock locations	Traffic survey counts is used for the purpose of model calibration.
SCATS traffic count and Signal Data	TfNSW – Count data for eight intersections and signal data (phase splits / times and cycle times (IDM))	Signal coding and model development
Travel Time Survey Data	HERE data provided by TfNSW.	Used for the purpose of model validation
Public transport operations	Bus stops, route information data and timetable data were obtained from TfNSW	Coding of bus routes in the base model
Zoning and Traffic demands	TfNSW Model	Zoning and prior traffic demands from provided model have been retained.
Strategic Travel Model	TfNSW Model	Future demand projection

3.1 Traffic Count Data

Intersection survey counts along with midblock counts and SCATS data formed the inputs to model calibration.

A summary of the traffic survey data available for weekdays along with the collection date is presented in Table 3-2.

Table 3-2: Traffic survey count data summary for weekday

#	Intersection	Type	Collection Date	Vehicle Types
1	Henry Lawson Drive/ Flinders Road	Priority	28-02-2018	Light and Heavy Vehicles
2	Henry Lawson Drive/ Keys Parade	Signalised	23-03-2022	Light and Heavy Vehicles
3	Henry Lawson Drive/ Newbridge Road/ Milperra Road	Signalised	10-04-2018	Light and Heavy Vehicles
4	Henry Lawson Drive/ Tower Road	Signalised	23-02-2021	Light and Heavy Vehicles
5	Henry Lawson Drive/ Haig Avenue	Signalised	28-02-2018	Light and Heavy Vehicles
6	Henry Lawson Drive/ Rabaul Road	Priority	19-11-2019	Light and Heavy Vehicles
7	Henry Lawson Drive/ Auld Avenue	Priority	23-02-2021	Light and Heavy Vehicles

#	Intersection	Type	Collection Date	Vehicle Types
8	Milperra Road/ Murray Jones Drive	Signalised	10-04-2018	Light and Heavy Vehicles
9	Milperra Road/ Ashford Avenue	Signalised	23-03-2022	Light and Heavy Vehicles
10	Henry Lawson Drive/ Raleigh Road	Priority	23-03-2022	Light and Heavy Vehicles
11	Henry Lawson Drive/ Ruthven Avenue	Priority	23-03-2022	Light and Heavy Vehicles
12	Henry Lawson Drive/ Whittle Avenue	Priority	23-03-2022	Light and Heavy Vehicles
13	Henry Lawson Drive/ Amiens Avenue	Priority	23-03-2022	Light and Heavy Vehicles
14	Henry Lawson Drive/ Bullecourt Avenue	Signalised	23-03-2022	Light and Heavy Vehicles
15	Henry Lawson Drive/ Ganmain Crescent/ Fromelles Avenue	Priority	23-03-2022	Light and Heavy Vehicles
16	Henry Lawson Drive/ Hermies Avenue	Priority	23-03-2022	Light and Heavy Vehicles
17	Henry Lawson Drive/ Pozieres Avenue	Signalised	23-03-2022	Light and Heavy Vehicles
18	Henry Lawson Drive/ South Western Motorway – M5	Signalised	28-02-2018	Light and Heavy Vehicles

The traffic count data for light and heavy vehicles in AM peak period (7:45 AM to 9:45 AM) and PM peak period (3:30 PM to 5:30 PM) was used for calibration of the Base Model.

A summary of the SCATS detector count data and traffic survey data available for weekends along with the collection date is presented in Table 3-3.

Table 3-3: Available intersection count data for weekend

#	Intersection	Type	Collection Date
1	Henry Lawson Drive/ Keys Parade	Signalised	26-03-2022
2	Henry Lawson Drive/ Auld Avenue	Priority	23-02-2021
3	Henry Lawson Drive/ Newbridge Road/ Milperra Road	Signalised	20-02-2021
4	Henry Lawson Drive/ Tower Road	Signalised	20-02-2021
5	Henry Lawson Drive/ Bullecourt Avenue	Signalised	26-03-2022
6	Henry Lawson Drive/ Pozieres Avenue	Signalised	26-03-2022

The traffic count data in the weekend peak period from11:30 AM to 12:30 PM was used for calibration of the Base Model.

3.2 Traffic Signals

The signalised intersections in the study area are listed as follows and are visually presented in red colour on Figure 1-1 showing the study area and key model intersections:

- Henry Lawson Drive/ Pozieres Avenue
- Henry Lawson Drive/ Bullecourt Avenue
- Henry Lawson Drive/ Keys Parade
- Henry Lawson Drive/ Newbridge Road / Milperra Road
- Henry Lawson Drive/ Tower Road
- Henry Lawson Drive/ Haig Avenue
- Milperra Road/ Murray Jones Drive
- Milperra Road/ Ashford Avenue

All signalised intersections above operate using SCATS and SCATS traffic signal data within the project area was sourced from TfNSW. The SCATS diagrams and phasing information was used to code intersections within the model.

The Aimsun model was developed with a 60-minute fixed time signal plans and phasing (e.g., 7.45 AM - 8.45 AM). The signal timing and phasing data was based on the SCATS IDM data provided by TfNSW. Note that as part of the calibration process, slight adjustments were made to some of the signal phases to replicate existing traffic conditions. These adjustments have been duly noted.

3.3 Travel Time Survey Data

The travel time data for one week from 27/02/2018 to 05/03/2018, was collected from HERE database[2] along Henry Lawson Drive from Flinders Road to South-Western Motorway - M5 in both directions. The data used for travel time validation was extracted for the following time periods:

- Weekday AM Peak: 07:45 AM to 09:45 AM
- Weekday PM Peak: 03:30 PM to 05:30 PM
- Weekend Peak: 11:30 AM to 01:30 PM

[2] HERE travel-time estimates are primarily derived from Global Positioning System (GPS) data obtained from in-vehicle navigation devices.

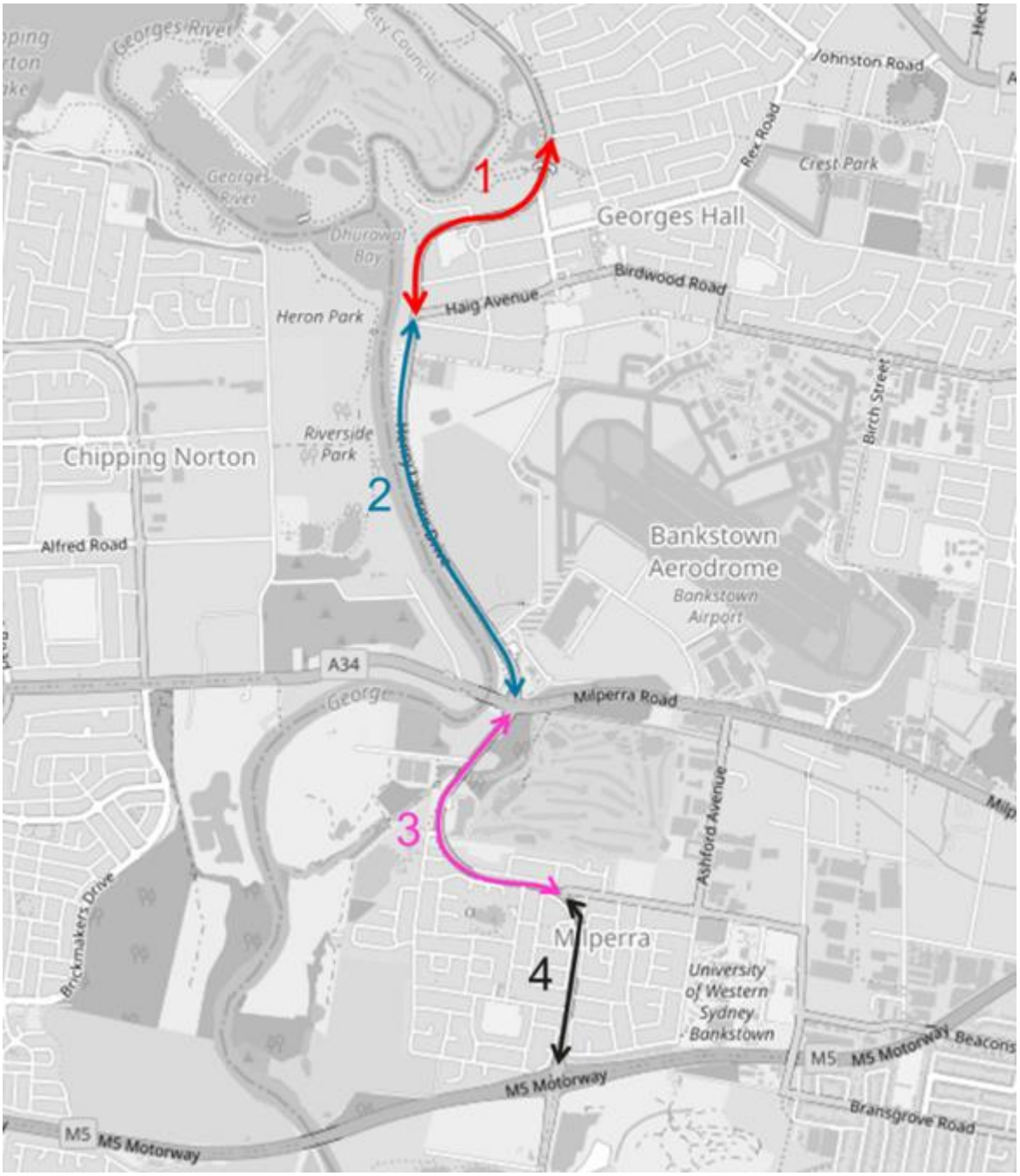


Figure 3-1: Travel Time Route and Sub-sections

The travel time data has been collected for four sub-route sections as shown in Figure 3-1 and listed as follows:

1. Henry Lawson Drive between Flinders Road and Haig Avenue
2. Henry Lawson Drive between Haig Avenue and Milperra Road
3. Henry Lawson Drive between Milperra Road and Bullecourt Avenue
4. Henry Lawson Drive between Bullecourt Avenue and M5

4 Traffic Demand

4.1 Demand Estimation

Figure 4-1 describes the traffic demand estimation methodology. The matrix from the originally calibrated model has been used as the initial/prior matrix for demand estimation. Where the internal road network was removed, the zones were added together to retain the original trip distribution patterns. The internal trips between the zones that have been detached from the network have also been removed.

The demand profiling has been based on the originally profiled demand from the previous modelling exercise. This captured both the 15 -minute profiling and the heavy vehicle classification.

The profiled demand was manually adjusted where necessary to meet calibration and validation targets and ensure consistency between the observed and modelled traffic volumes.

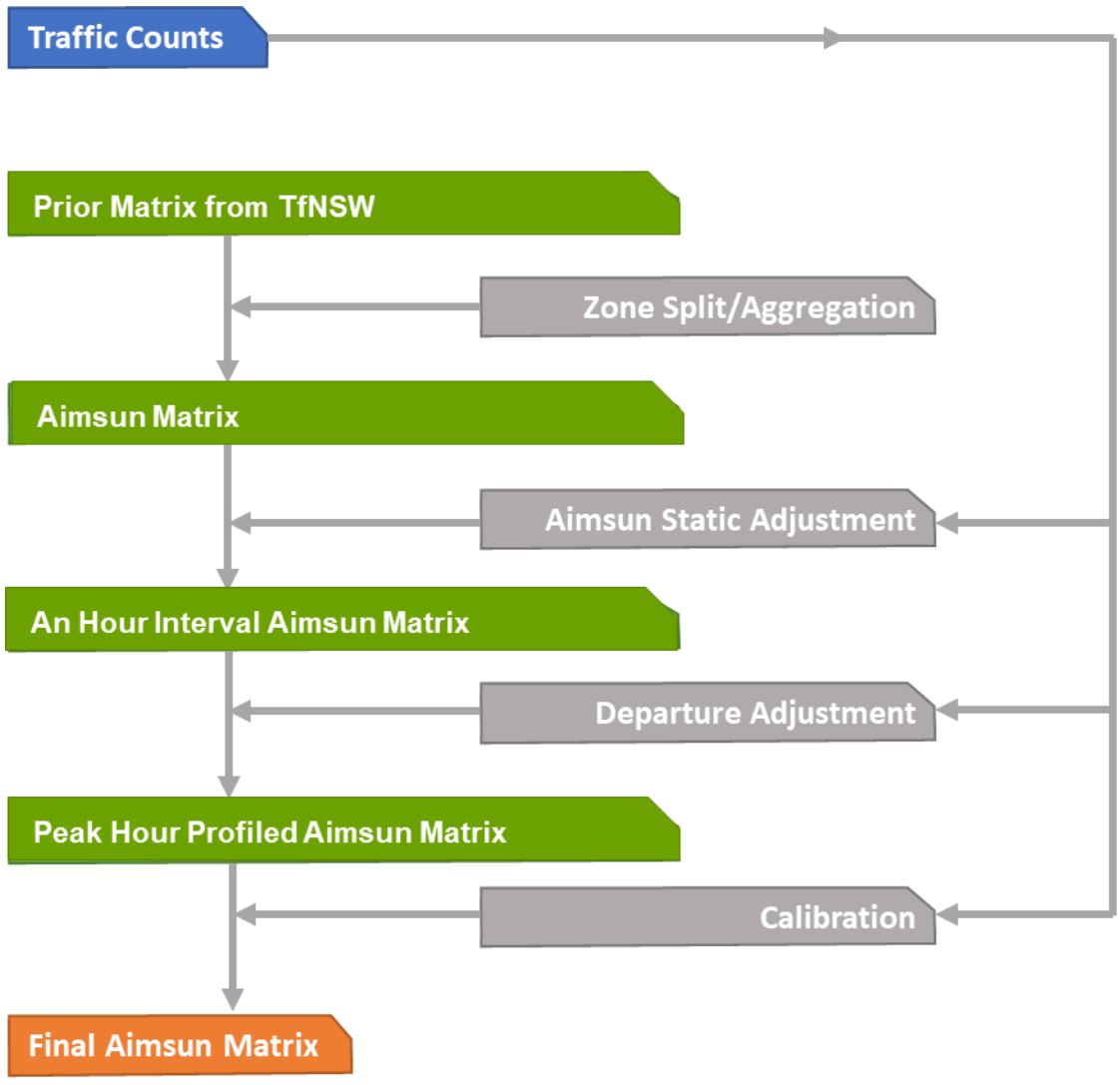


Figure 4-1: Traffic demand estimation methodology

4.2 Trip Balancing

The traffic survey data was analysed and used to develop traffic volume diagrams for every one-hour of the AM, PM and weekend peak periods. As the traffic data available are from different collection dates, discrepancies were identified between the in/out traffic flows at some locations. Therefore, the counts were carefully balanced to reflect a typical day in a week.

4.3 Zone Structure

There were 34 zones in the original Vissim base model of Henry Lawson Drive Stage 1B received from TfNSW. It is noted that few zones from Vissim model were aggregated and new zones were also added in the latest Aimsun model. The modified network resulted in 33 zones and the zone system for the model is aligned with the STFM model zones.

For Aimsun modelling of Stage 1B, the existing Aimsun model from Stage 1A was extended to include the section of Henry Lawson Drive between Keys Parade and South-Western Motorway (M-5). As a result, zone numbers used in Stage 1A was retained and additional centroids were given new zone numbers.

4.4 Heavy Vehicle Proportion

The proportion of heavy vehicles within the network were estimated from the observed data as the trip balancing process outlined in Section 4.2.

HV Breakdown:

- 07:45 – 08:45 AM: 11.33%
- 08:45 – 09:45 AM: 15.01%
- 15:30 – 16:30 PM: 9.23%
- 16:30 – 17:30 PM: 7.45%
- 11:30 AM – 12:30 PM: 11.33%
- 12:30 PM – 01:30 PM: 15.01%

4.5 Demand Profiles

One-hour demands generated through departure adjustment procedure was then further manually profiled into 15-minute intervals. This was achieved by application of a factor to the one-hour matrices to generate a smooth profile. This led to the preparation of 15-minute demand matrices for AM, PM and weekend peak periods.

The heavy vehicle demand matrices were developed by applying a global factor as discussed in Section 4.4.

The modelled traffic demand profiles are as shown in Figure 4-2, Figure 4-3 and Figure 4-4 for AM, PM and weekend peak periods respectively.

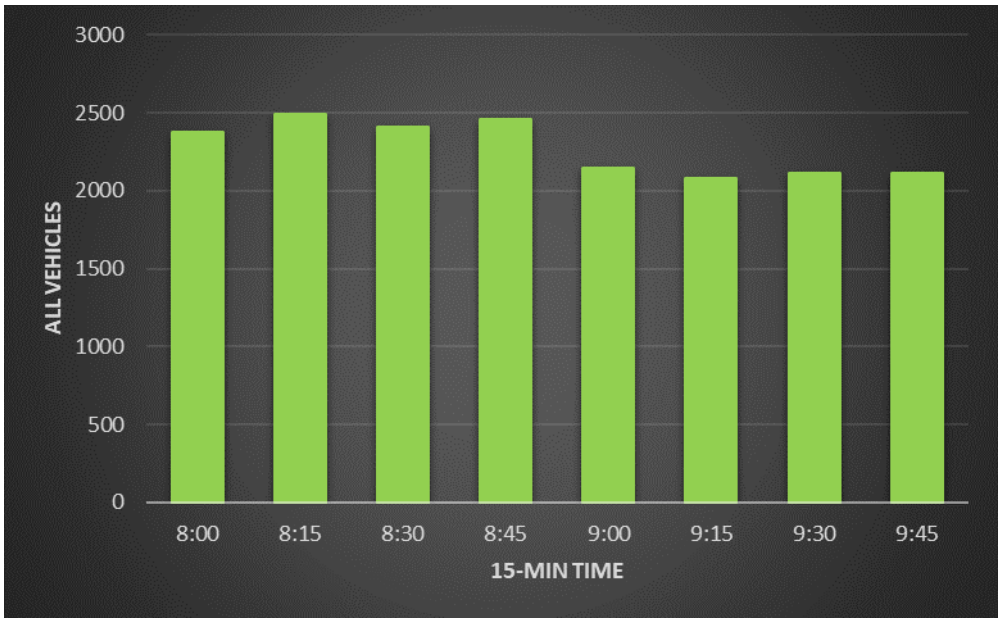


Figure 4-2: Modelled AM Peak Traffic Demand Profiles from 07:45 to 09:45

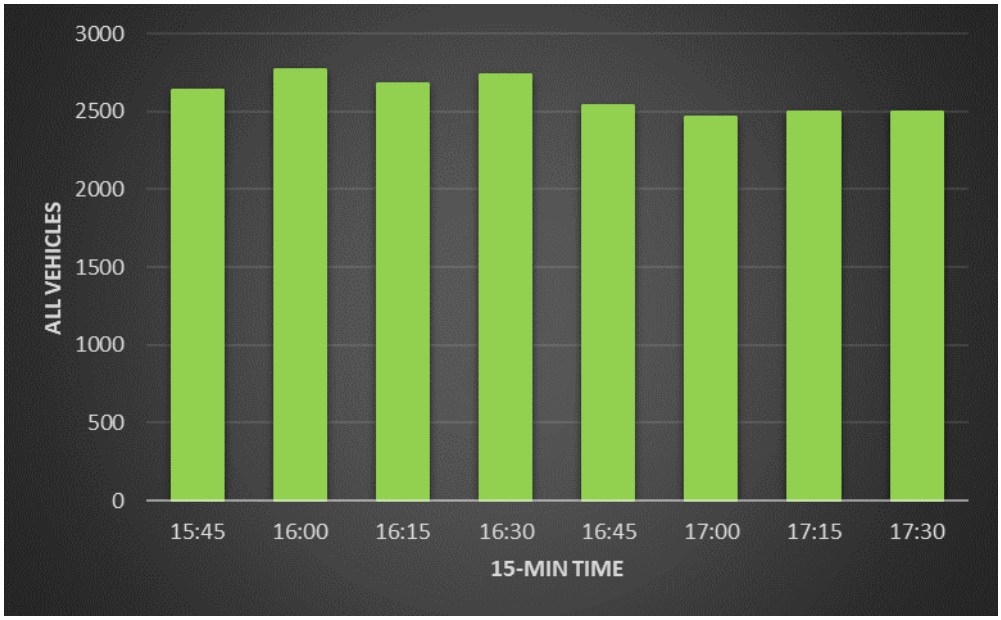


Figure 4-3: Modelled PM Peak Traffic Demand Profiles from 15:30 to 17:30

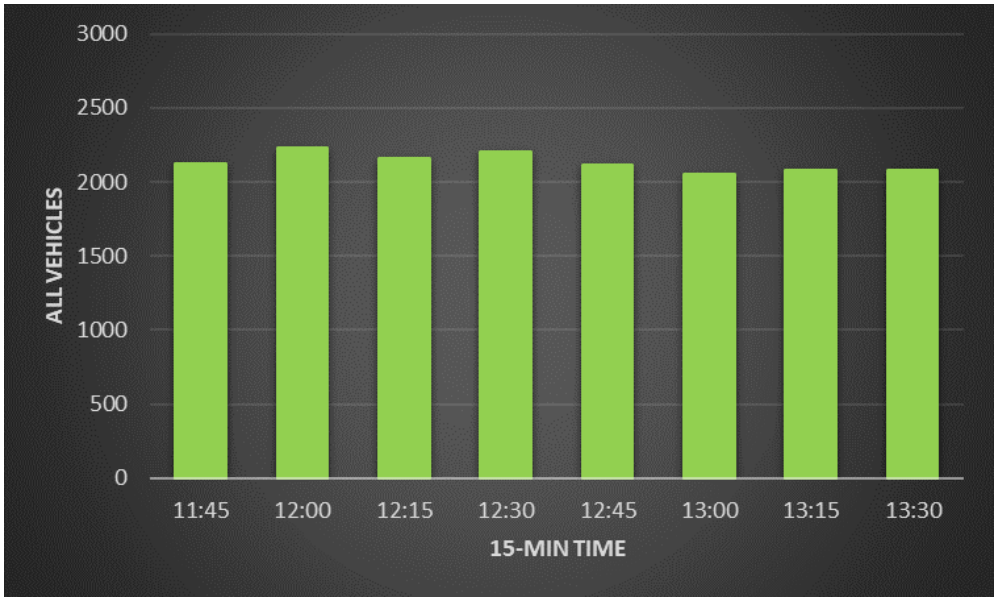


Figure 4-4: Modelled Weekend Peak Traffic Demand Profiles from 11:30 to 13:30

5 Traffic Assignment

5.1 Path Assignment

Within Aimsun, the initial static assignment route choice was calculated using cost equations by taking into consideration section capacity and section travel times. The path assignment from the microsimulation experiment was then based on the set of initial paths generated as part of the static experiment. Figure 5-1 below summarises this path assignment process.

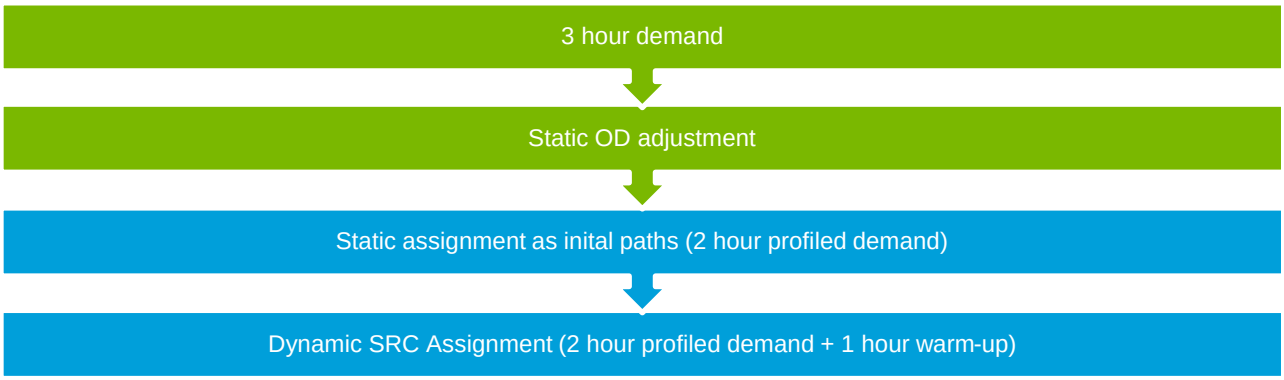


Figure 5-1: Path assignment process

5.2 Static OD Adjustment

The Frank-Wolfe assignment algorithm has been used to run the Static OD adjustment scenario. The matrix and trip length distribution elasticities values of 1 each were used for the assignment. The OD adjustment process adjusts the matrices to match the observed data input into the model as a Real Data Set (RDS) file. This resulted in adjusted hourly OD matrices for each of the vehicle classes.

5.3 Static Assignment

The static macroscopic experiment adopted the Frank-Wolfe assignment model for static equilibrium assignment, with the stopping criteria set at a relative gap (RGap) value of 0.1% and/ or a maximum of 100 iterations.

5.4 Dynamic Route Choice Parameters

The route choice parameters were adopted from Stage 1A model and were refined as part of the model calibration process. Few traffic management strategies were also used during calibration to reflect the traffic flow patterns. The key with route choice values is to achieve a robust model that can also adjust to changes in the network or demands. The route choice model settings are summarised in Table 5-1.

Table 5-1: Route choice model settings

Parameter	Value
Behaviour: Two Lane Car Following Model	Enabled
Number of vehicles	4
Max. speed difference	50 km/hr
Max. distance	100 m
Max. speed difference on ramp	70 km/hr
Speed difference setting	Relative
Queue entry speed	1 m/s
Queue exit speed	4 m/s
Micro Reaction Times	
Simulation Step	0.8 s
Reaction time at Stop	1.20 s
Reaction time at Traffic Light	1.6 s
Arrivals	
Global Arrivals	Exponential
Dynamic Traffic Assignment	

Parameter	Value
Cycle	0:15:00
Number of Intervals	3
Attractiveness Weighting	3
User Defined Cost Weight	1
Use of O/D Routes and Path Assignment Results	
Vehicles following O/D Routes	100%
Vehicles following Path Assignment Results	100%
Route Choice Model	
Route Choice Model	Proportional
Enroute	Disabled
Initial K-SPs	1
Max Number to Keep	3
Max Number of Paths	3
Parameters	
Alpha	1

In model, two prominent route choices for traffic originating and destined to centroid 32 and 33 exists. The following option routes:

Route 1: via Henry Lawson Drive/ Bullecourt Avenue intersection.

Route 2: via Milperra Road/ Ashford Avenue intersection then on to Henry Lawson Drive.

During calibration, traffic management strategies such as forced turn were used to distribute origin-destination based traffic on route 1 and route 2. The traffic management strategies applied in base model are summarised in Table 5-2.

Table 5-2: Traffic management strategies adopted.

Traffic management strategy	O-D Pair	Route 1	Route 2
AM Period			
Forced Turn	5 – 32	20%	80%
Forced Turn	32 – 9	100%	0%
Forced Turn	23 – 5	20%	80%
Forced Turn	32 – 9	100%	0%
PM Period			
Forced Turn	5 – 32	35%	65%
Forced Turn	5 – 33	35%	65%
Forced Turn	32 – 9	100%	0%
Forced Turn	32 – 11	100%	0%
Forced turn	32 – 15	100%	0%
Forced Turn	32 – 31	100%	0%
Forced Turn	32 – 5	35%	65%
Forced Turn	33 – 5	35%	65%
Forced Turn	9 – 32	90%	10%
Forced Turn	11 – 32	100%	0%
Forced Turn	15 – 32	100%	0%
Forced Turn	31 – 32	100%	0%
Weekend Period			

Traffic management strategy	O-D Pair	Route 1	Route 2
Forced Turn	5 – 32	20%	80%
Forced Turn	32 – 9	100%	0%
Forced Turn	23 – 5	20%	80%
Forced Turn	32 – 9	100%	0%

6 Base Model Calibration and Validation

The process of model calibration and validation is a highly iterative process which involves network verification and fine-adjustment of both appropriate model parameters and the origin-destination matrices. The aim of this process is to improve the ability of the model to reproduce observed vehicle / driver behaviour and the match between modelled and observed traffic movements.

Given the range of model parameters affecting vehicle / driver behaviour and iterative nature of calibration and validation, the process was carefully planned and managed

The model calibration and validation results are discussed in the following sections.

6.1 Model Stability

As recommended in the Modelling Guidelines, the microsimulation model results have been based on the average of five replications runs with different random seed values. These random seed values recommended in Modelling guidelines and adopted are 560, 28, 7771, 86524 and 2849 for all assessed peak periods.

The overall network statistics in terms of Vehicle Hours Travelled (VHT), Vehicle Kilometres Travelled (VKT), Average Delay, and Number of Vehicles (NV) for the modelled peak hours have been reported in the following sections. These statistics are generally considered representative of the model variability. Additionally, Coefficient of variance (CoV) has been calculated for the different statistics. CoV is a measure of variation between model runs and informs on the stability of each of the performance measures. Typically, a CoV within 5% is considered to have a good level of correlation between model runs and indicates that the model is stable.

6.1.1 AM Model Stability Results

Table 6-1 summarises the statistics based on five replications and provides the CoV for the AM peak. CoV results are shown to be than 5% which indicates that a good level of model stability has been achieved. Stability plots for VHT and VKT are also presented in Figure 6-1 and Figure 6-2 to graphically show the variability.

Table 6-1: Model Stability during AM Peak

Scenario	Seed	VHT	%Diff from Average	VKT	%Diff from Average	Number of Vehicle Outside (NV)	%Diff from Average
AM Replication 1	560	3,182	4%	78,767	0%	19,613	0%
AM Replication 2	28	3,099	1%	79,157	0%	19,787	1%
AM Replication 3	7771	3,069	0%	77,601	-2%	19,403	-1%
AM Replication 4	86524	2,872	-6%	79,978	1%	19,887	1%
AM Replication 5	2849	3,057	0%	79,065	0%	19,729	0%
AM Average	Avenue	3,056		78,914		19,684	
AM Std Dev	STD DEV	113		860		186	
AM Min	MIN	2,872		77,601		19,403	
AM Max	MAX	3,182		79,978		19,887	
AM Range	RANGE	309		2377		484	
AM CoV	CoV	4%		1%		1%	

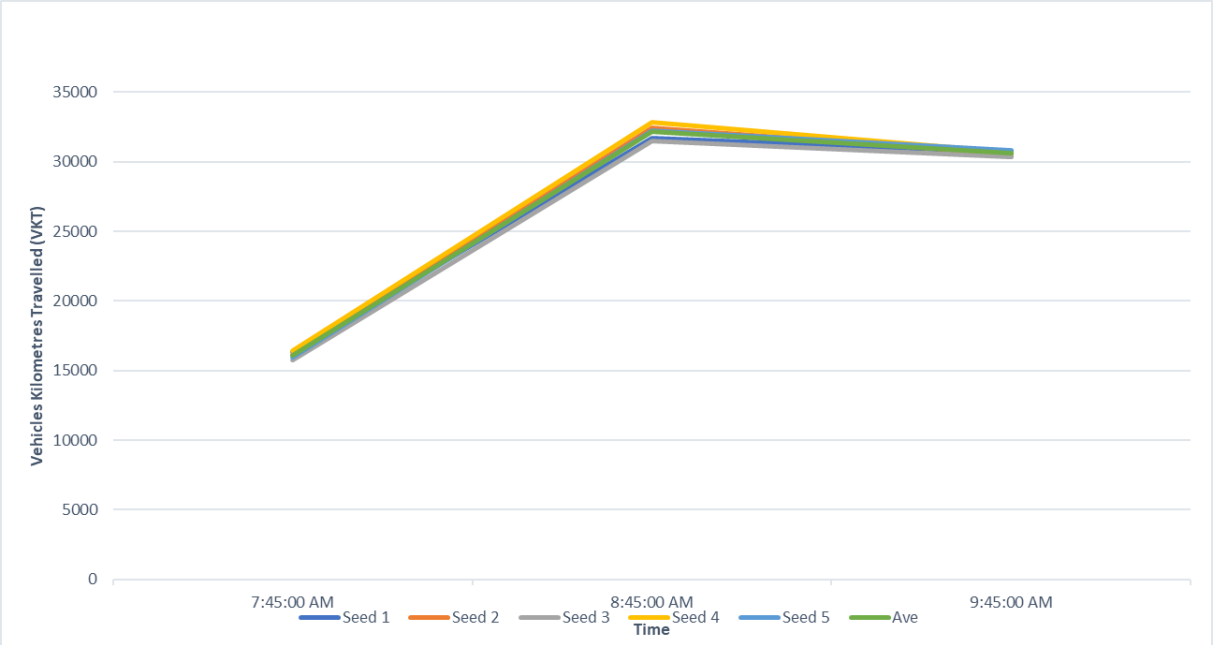


Figure 6-1: VKT (Vehicle Kilometre Travelled) across five seed runs during AM peak

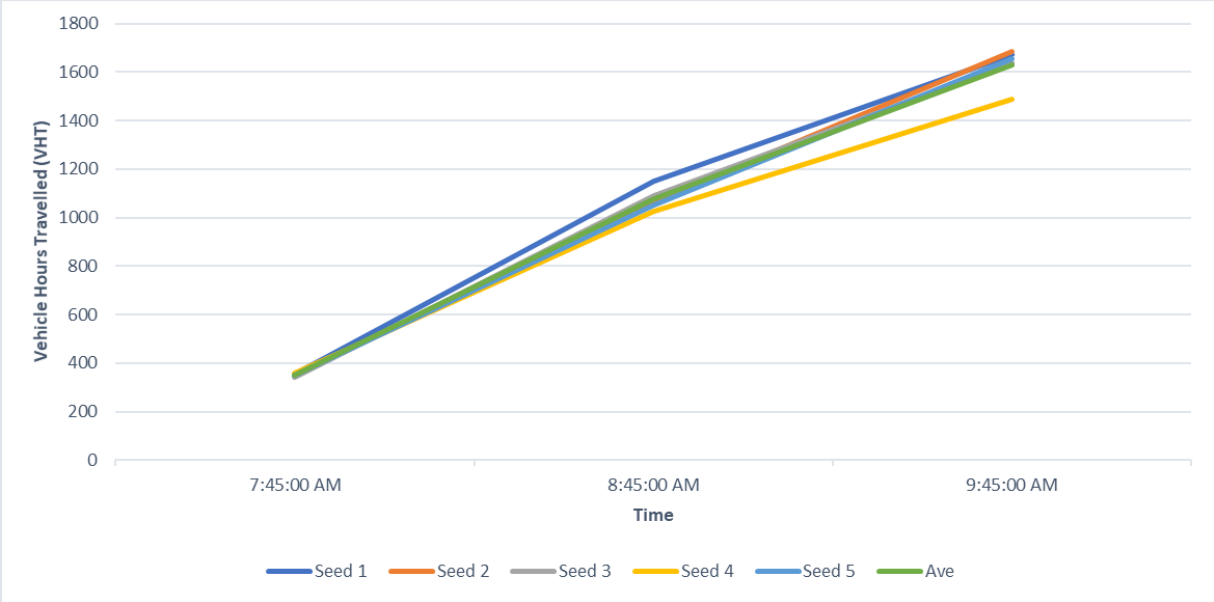


Figure 6-2: VHT (Vehicle Hour Travelled) across 5 seed runs during AM peak

6.1.2 PM Model Stability Results

Table 6-2 summarises the statistics based on five replications and provides the CoV for the PM peak. Stability plots for VHT and VKT are also presented in Figure 6-3 and Figure 6-4 to graphically show the variability.

Table 6-2: Model Stability during PM Peak

Scenario	Seed	VHT	%Diff from Average	VKT	%Diff from Average	Number of Vehicle Outside (NV)	%Diff from Average
PM Replication 1	560	3,496	6%	85,330	-1%	22,399	-1%
PM Replication 2	28	3,646	11%	96,350	12%	24,498	8%
PM Replication 3	7771	3,363	2%	85,933	0%	22,752	0%
PM Replication 4	86524	2,993	-9%	85,953	0%	22,571	0%
PM Replication 5	2849	3,232	-2%	86,945	1%	22,834	1%
PM Average	Avenue	3,289		86,101		22,658	
PM Std Dev	STD DEV	250		4647		848	
PM Min	MIN	2,993		85,330		22,399	
PM Max	MAX	3,646		96,350		24,498	
PM Range	RANGE	653		11020		2099	
PM CoV	CoV	8%		5%		4%	

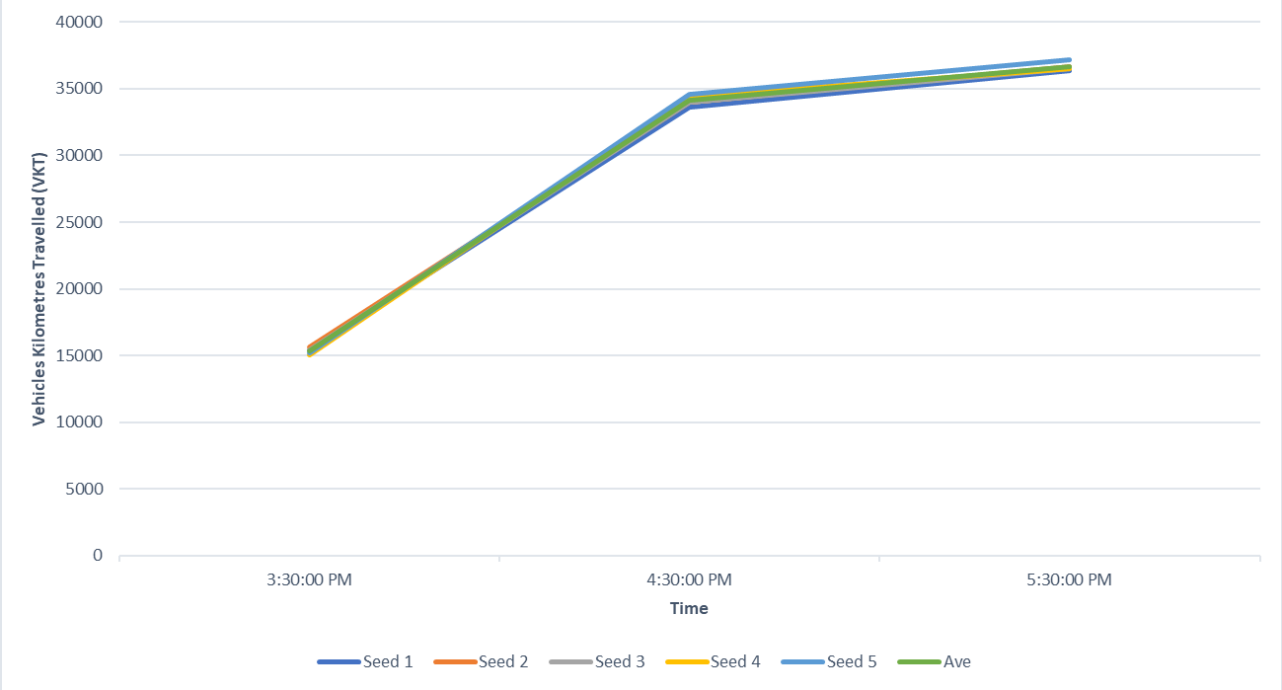


Figure 6-3: VKT (Vehicle Kilometre Travelled) across five seed runs during PM peak

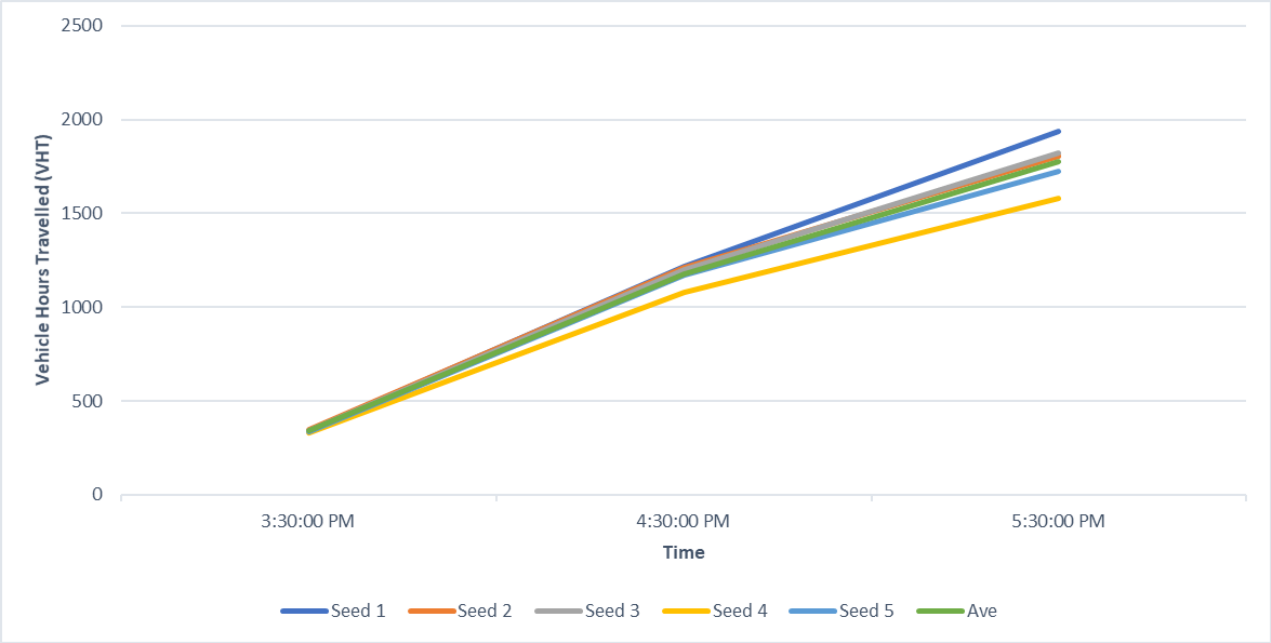


Figure 6-4: VHT (Vehicle Hour Travelled) across 5 seed runs during PM peak

6.1.3 Weekend Model Stability Results

Table 6-3 summarises the statistics based on five replications and provides the CoV for the weekend peak. The stability plots for VHT and VKT are also presented in Figure 6-5 and Figure 6-6 to graphically show the variability.

Table 6-3: Model Stability during Weekend Peak

Scenario	Seed	VHT	%Diff from Average	VKT	%Diff from Average	Number of Vehicle Outside (NV)	%Diff from Average
Replication 1	560	1,943	-1%	79,373	1%	20,021	0%
Replication 2	28	1,937	-1%	79,331	1%	20,056	0%
Replication 3	7771	2,019	3%	79,314	1%	20,119	1%
Replication 4	86524	1,939	-1%	78,618	0%	19,886	0%
Replication 5	2849	1,961	0%	77,738	-1%	19,747	-1%
WK Average	Ave	1,960		78,875		19,966	
WK Std Dev	STD DEV	35		708		149	
WK Min	MIN	1,937		77,738		19,747	
WK Max	MAX	2,019		79,373		20,119	
WK Range	RANGE	83		1635		372	
WK CoV	CoV	2%		1%		1%	

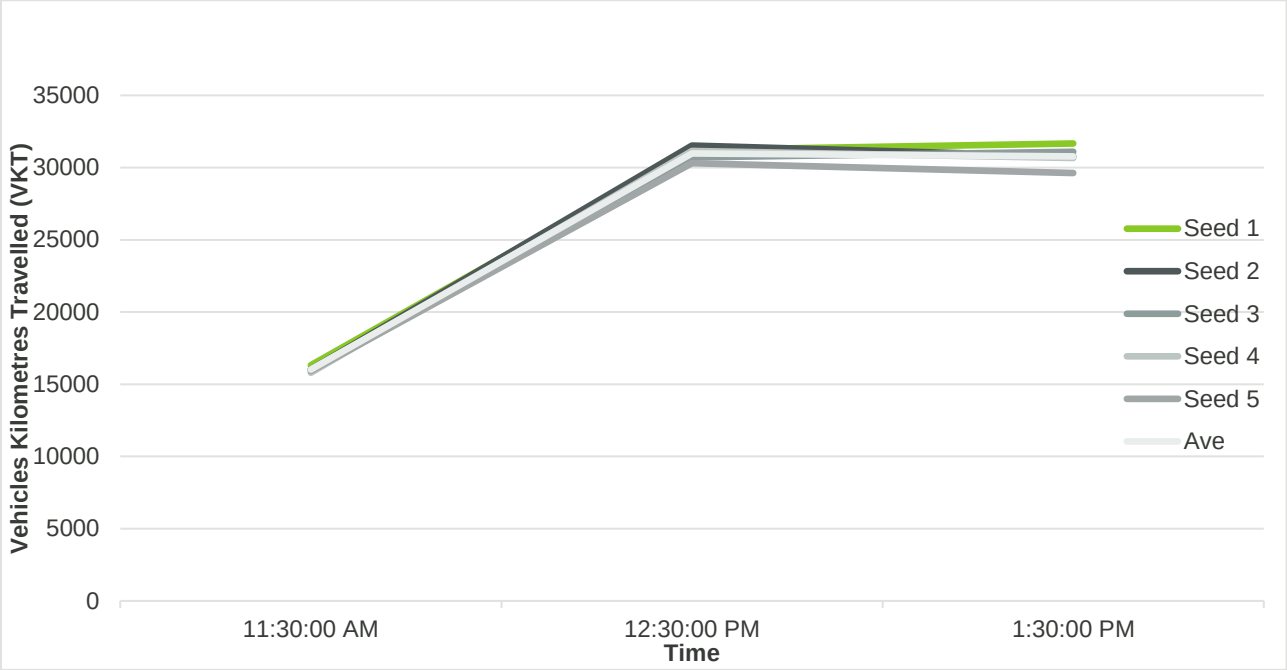


Figure 6-5: VKT (Vehicle Kilometre Travelled) across five seed runs during weekend peak

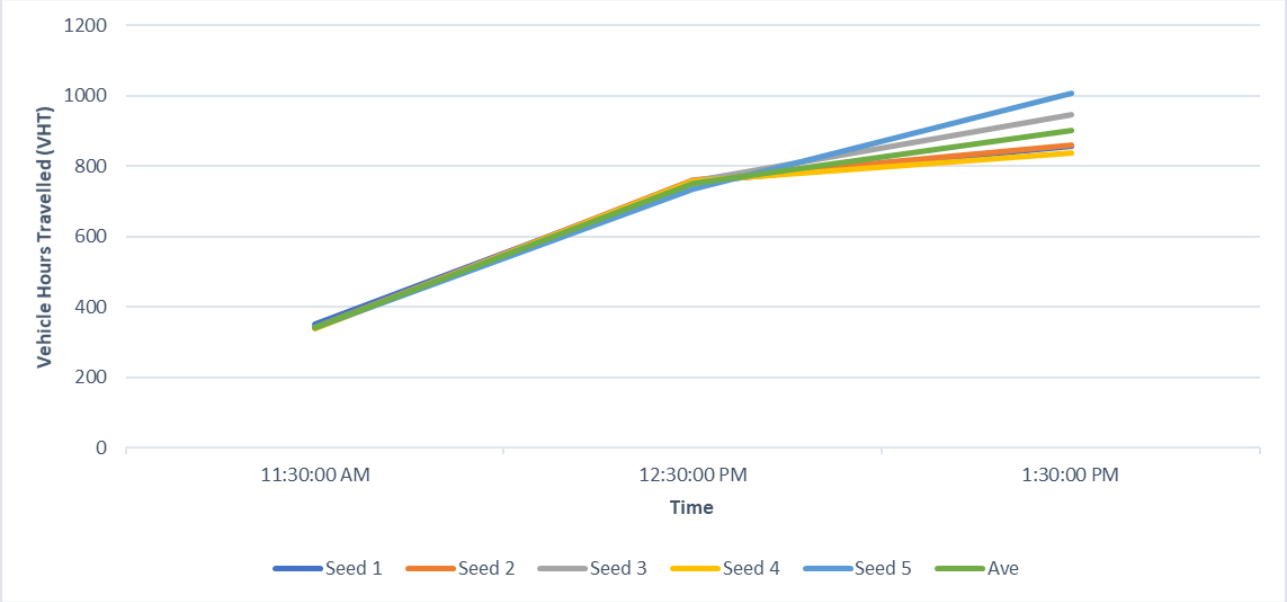


Figure 6-6: VHT (Vehicle Hour Travelled) across 5 seed runs during weekend peak

6.2 Model Calibration Criteria

The calibration criteria presented below are based on the Traffic Modelling Guidelines (Roads and Maritime Services, 2013):

- GEH < 5 minimum 85% of observations to be within these tolerance limits and 100% of observations to be within GEH<10 tolerance limits
- Turn or link flows with GEH > 10 require explanation
- Plots of observed vs modelled hourly flows for all observations and to include lines showing GEH = 5 tolerance limits
- R2 value to be included with plots and to be >0.9
- Slope equation to be included with plots

The GEH statistic is used in the calibration of the traffic models to compare the differences between modelled and observed traffic flows. The GEH statistic is defined as:

$$GEH = \sqrt{\frac{(V_{Observed} - V_{Modelled})^2}{0.5 * (V_{Observed} + V_{Modelled})}}$$

6.3 Traffic Count Calibration

This section summarises the comparisons between observed and modelled traffic counts during the peak hour periods. The information presents the microsimulation results achieved from comparing observed and modelled count data for each of the individual turns. A more detailed outline of the calibration results can be found in **Appendix B**.

6.3.1 AM Model Traffic Count Calibration Results

Table 6-4 and Table 6-5 summarise model calibration results for the weekday during AM peak hours (7:45-8:45 AM and 8:45-9:45 AM) for both light and heavy vehicles. Figure 6-7 to Figure 6-10 show the scatter plots between modelled and observed hourly flows for the above AM peak model periods, respectively.

- During 07:45-08:45 AM and 08:45-09:45 AM, 100 per cent of turn flows have GEH value of less than 10 for both light and heavy vehicles (GEH <10).
- 95.06% (154 of 162) of all movements during 07:45-08:45 AM and 97.53% (158 of 162) of all movements during 08:45-09:45 AM for light vehicles have GEH value of less than 5 (GEH<5).
- 92.59% (150 of 162) of all movements during 07:45-08:45 AM and 93.21% (151 of 162) of all movements during 08:45-09:45 AM for heavy vehicles have GEH value of less than 5 (GEH<5).
- These results are reinforced with a high R^2 value 0.994 and 0.993 for light vehicles and 0.937 and 0.942 for heavy vehicles, which demonstrates that a high level of calibration was achieved for the weekday AM peak period (07:45-08:45 AM and 08:45-09:45 AM).

Table 6-4 AM turn calibration statistic results for light vehicles

Network Wide Calibration Criteria	7:45-8:45 AM	8:45-9:45 AM	Calibration
85% of observations must have GEH < 5	154 (95.06%)	158 (97.53%)	✔
100% of observation must have GEH < 10	162 (100%)	162 (100%)	✔
Total observations	162	162	

Table 6-5 AM turn calibration statistic results for heavy vehicles

Network Wide Calibration Criteria	7:00-8:00 AM	8:00-9:00 AM	Calibration
85% of observations must have GEH < 5	150 (92.59%)	151 (93.21%)	✔
100% of observation must have GEH < 10	162 (100%)	162 (100%)	✔
Total observations	162	162	

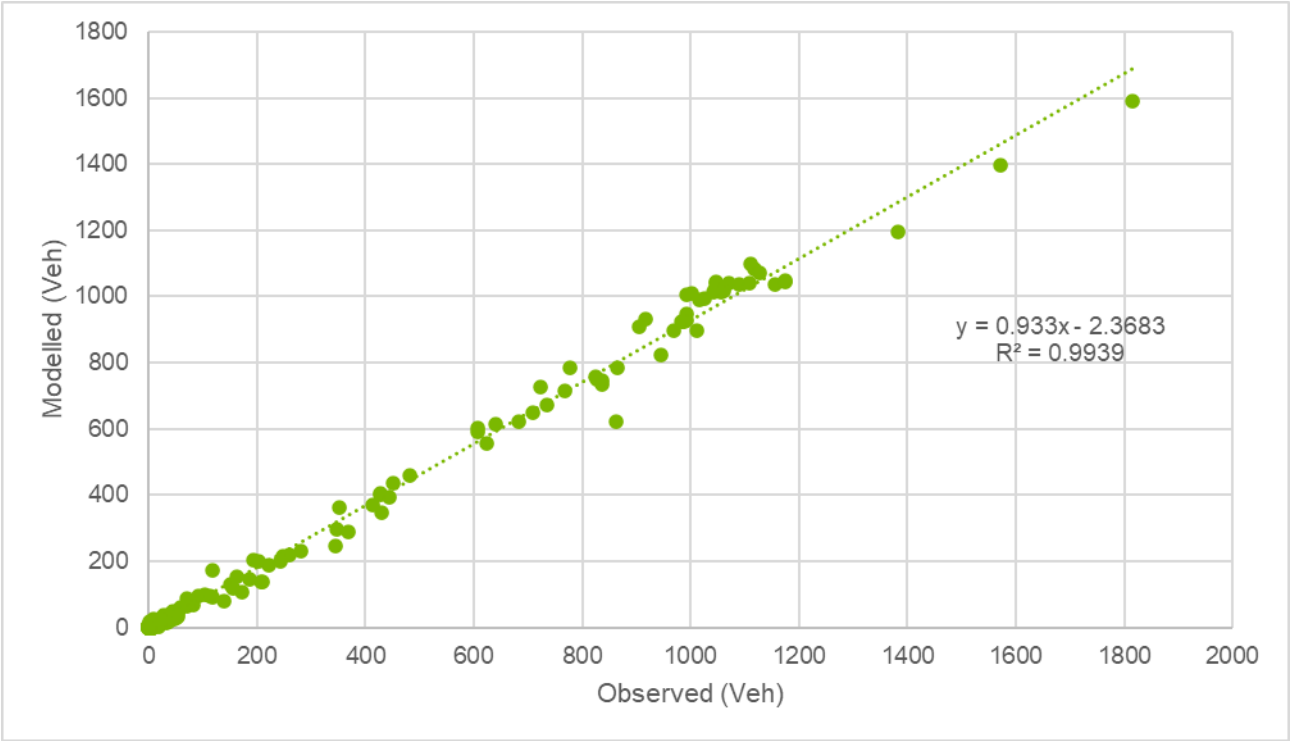


Figure 6-7: 7:45-8:45 AM regression plots for light vehicles

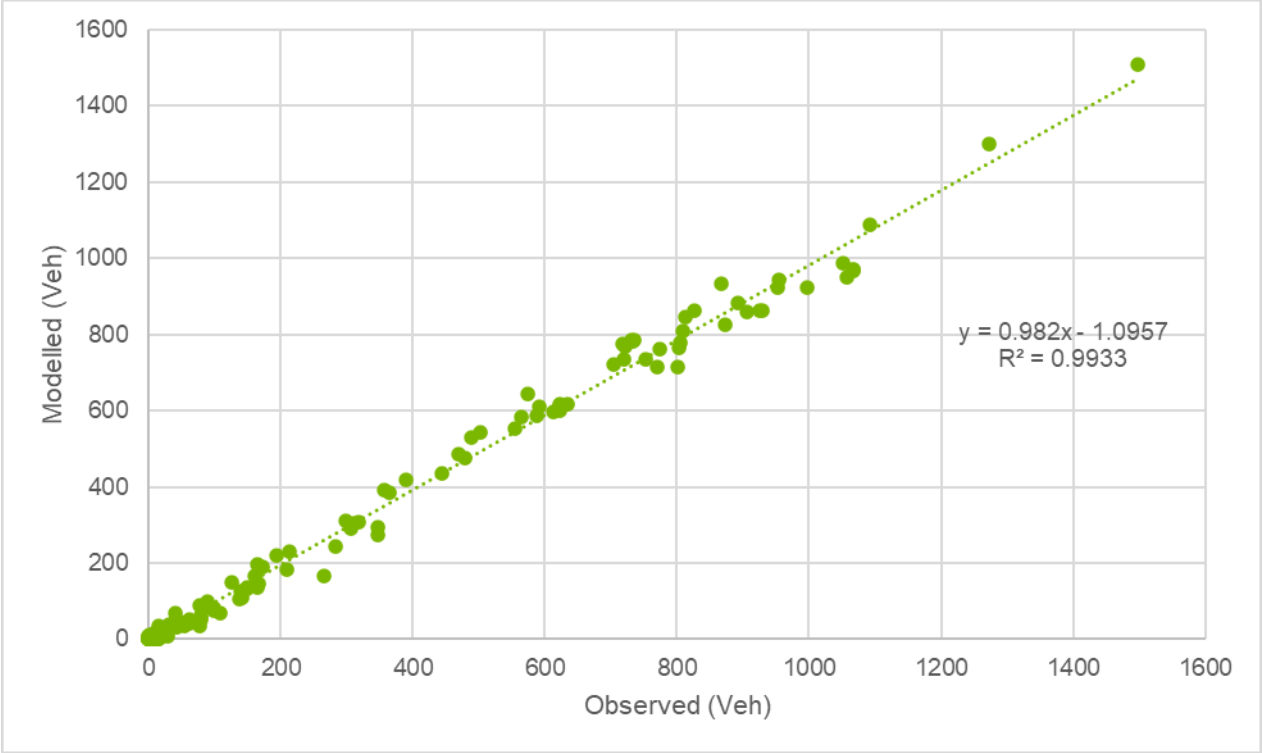


Figure 6-8: 8:45-9:45 AM regression plots for light vehicles

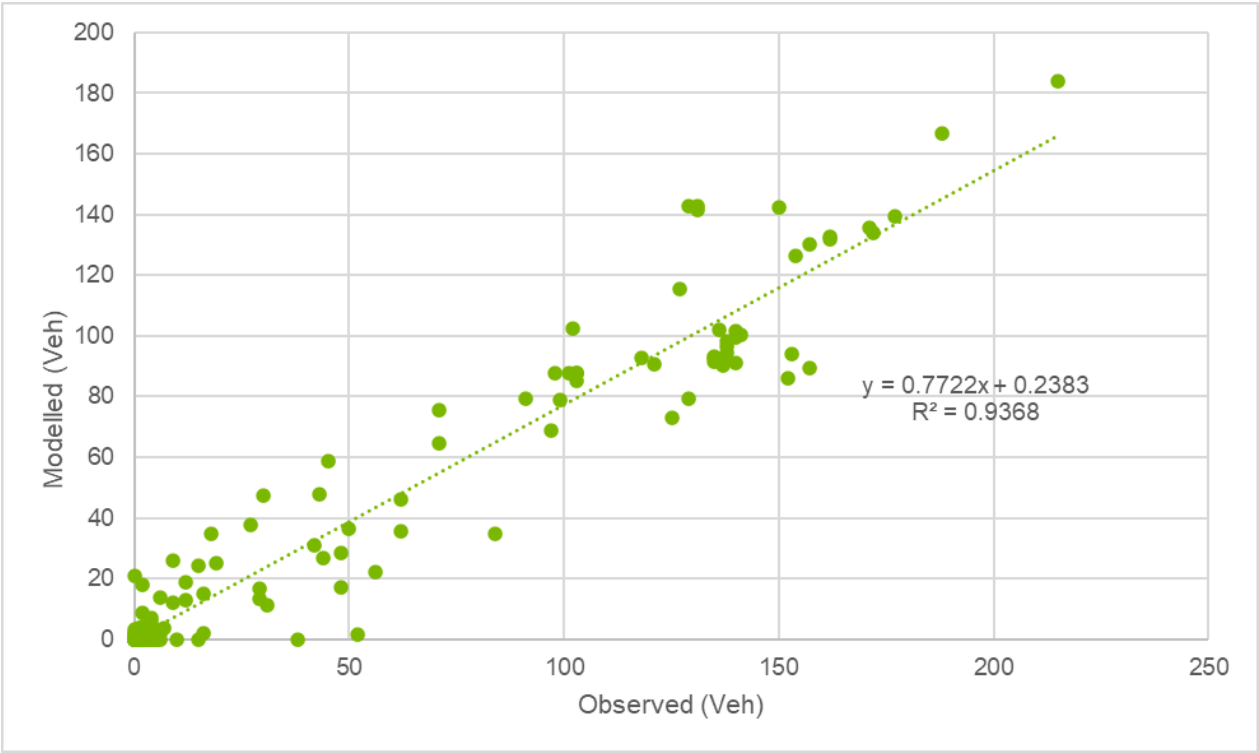


Figure 6-9: 7:45-8:45 AM regression plots for heavy vehicles

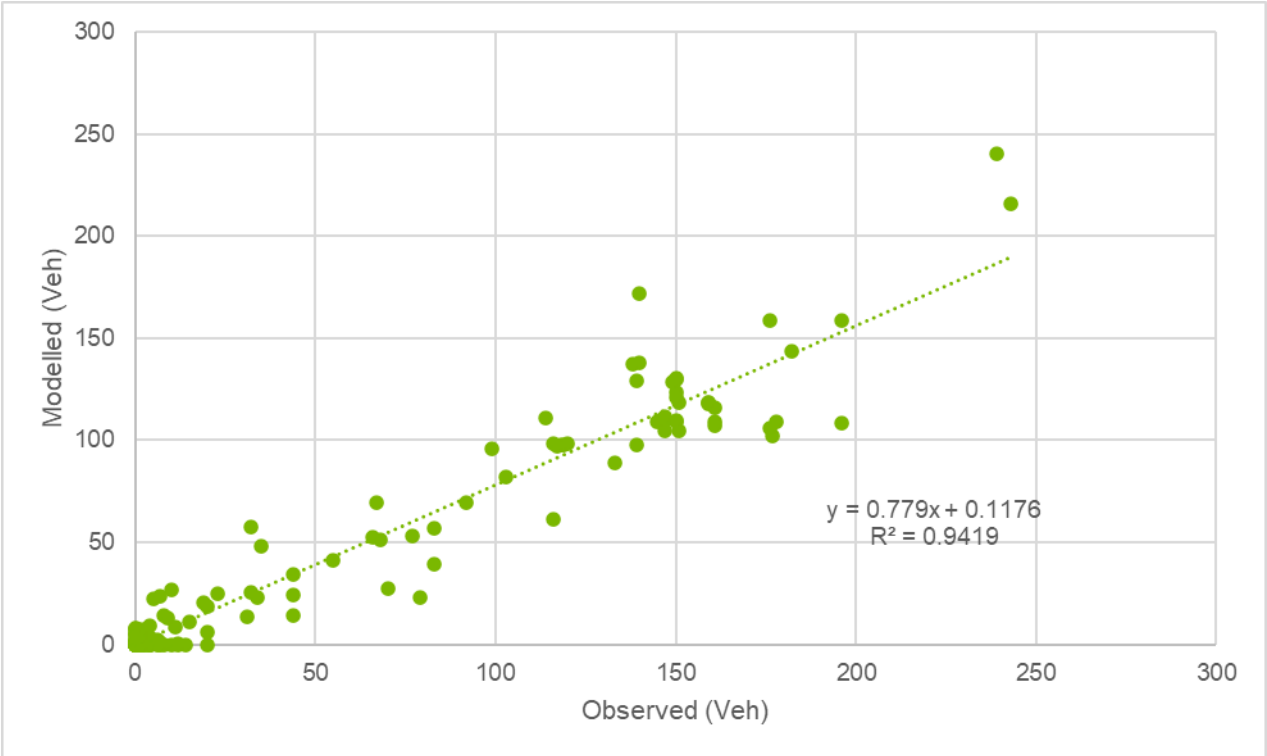


Figure 6-10: 8:45-9:45 AM regression plots for heavy vehicles

6.3.2 PM Model Traffic Count Calibration Results

Table 6-6 and Table 6-7 summarise model calibration results for the weekday during PM peak hours (03:30-04:30 PM and 04:30-05:30 PM) for both light and heavy vehicles. Figure 6-11 to Figure 6-14 show the scatter plots between modelled and observed hourly flows for the above PM peak model periods, respectively.

- During 03:30-04:30 PM and 04:30-05:30 PM, 100 per cent of turn flows have GEH value of less than 10 for both light and heavy vehicles (GEH <10).
- 98.15% (159 of 162) of all movements during PM peak for light vehicles have GEH value of less than 5 (GEH<5).
- 96.91% (157 of 162) of all movements during 03:30-04:30 PM and 97.53% (158 of 162) of all movements during 04:30-005:30 PM for heavy vehicles have GEH value of less than 5 (GEH<5).
- These results are reinforced with a high R^2 value 0.993 and 0.991 for light vehicles and 0.943 and 0.931 for heavy vehicles, which demonstrates that a high level of calibration was achieved for the weekday PM peak period (3:30-4:30 PM and 4:30-5:30 PM).

Table 6-6 PM turn calibration statistic results for light vehicles

Network Wide Calibration Criteria	3:30-4:30 PM	4:30-5:30 PM	Calibration
85% of observations must have GEH < 5	159 (98.15%)	159 (98.15%)	✔
100% of observation must have GEH < 10	162 (100%)	162 (100%)	✔
Total observations	162	162	

Table 6-7 PM turn calibration statistic results for heavy vehicles

Network Wide Calibration Criteria	3:30-4:30 PM	4:30-5:30 PM	Calibration
85% of observations must have GEH < 5	157 (96.91%)	158 (97.53%)	✔
100% of observation must have GEH < 10	162 (100%)	162 (100%)	✔
Total observations	162	162	

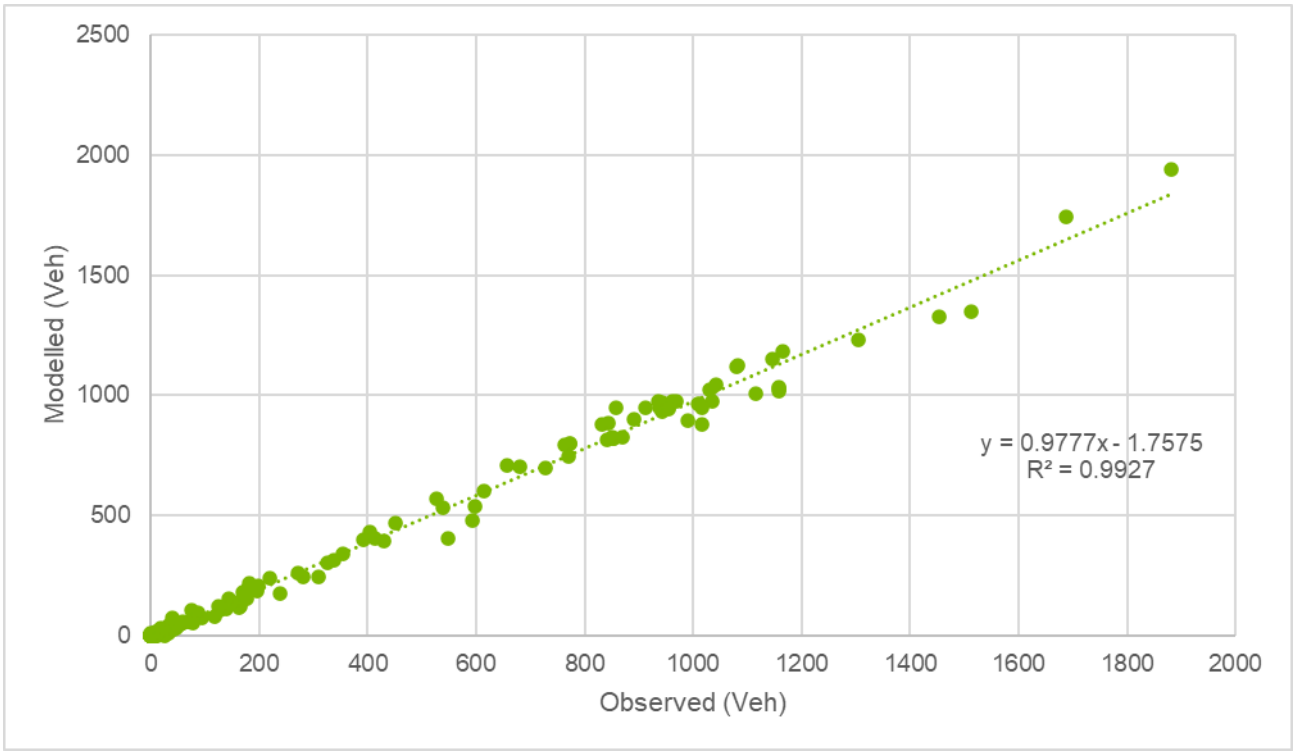


Figure 6-11: 3:30-4:30 PM regression plots for light vehicles

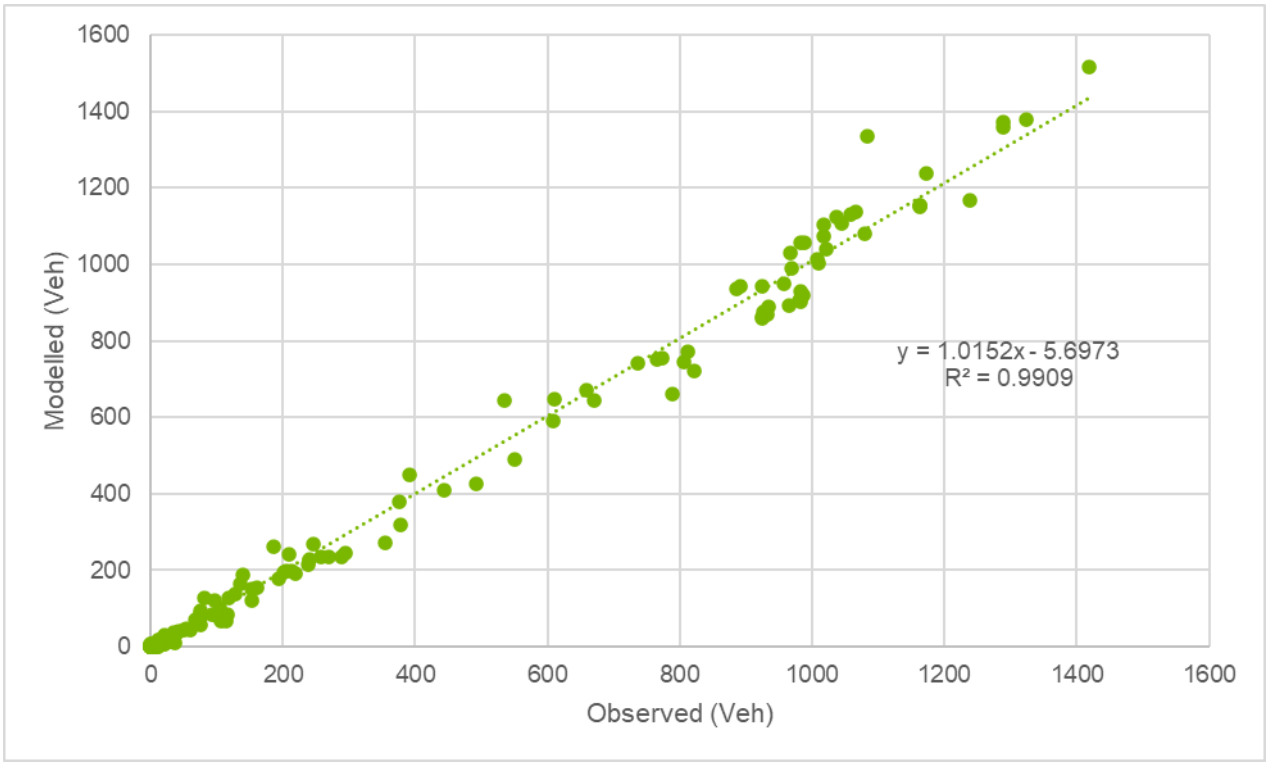


Figure 6-12 : 4:30-5:30 PM regression plots for light vehicles

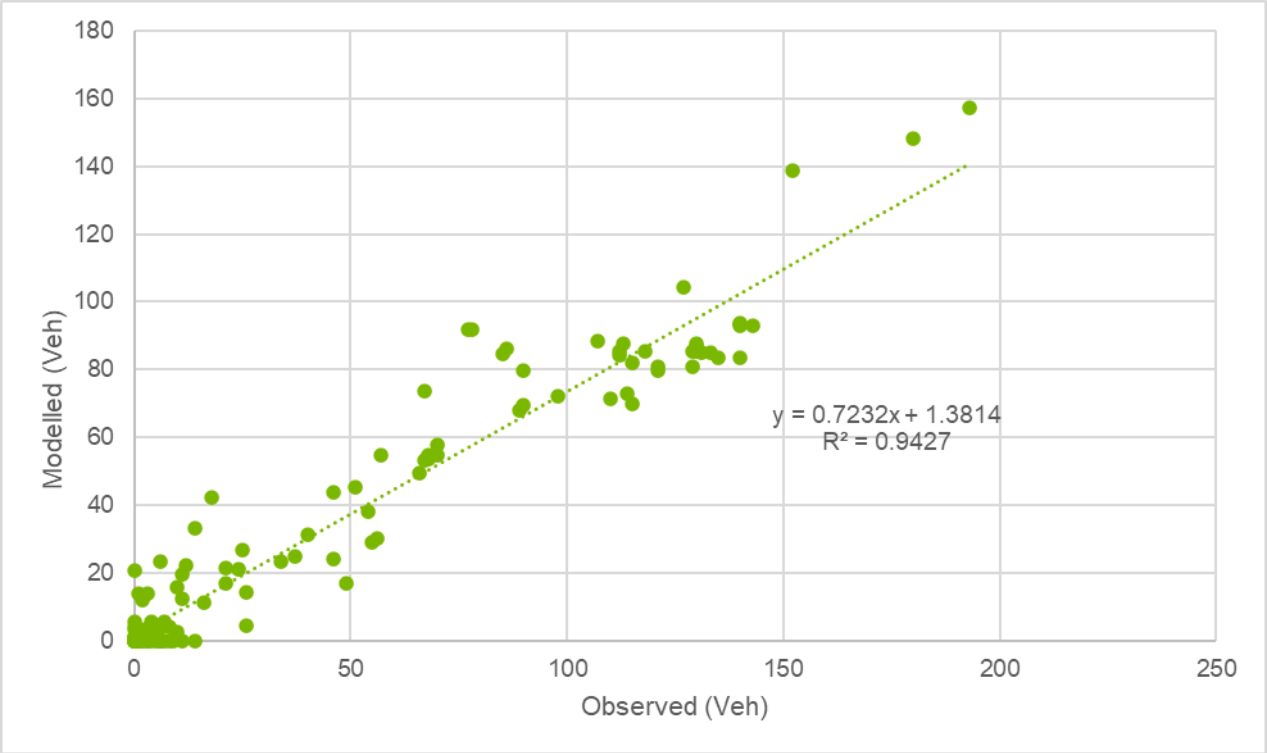


Figure 6-13: 3:30-4:30 PM regression plots for heavy vehicles

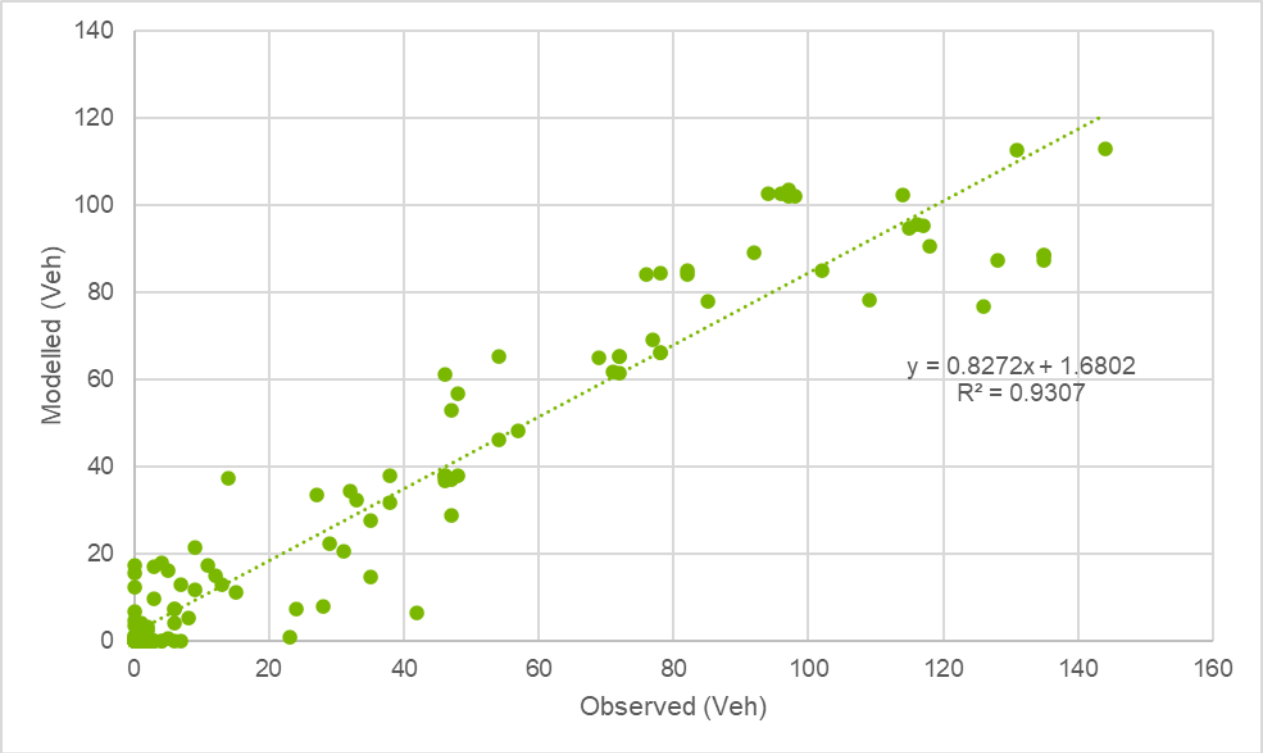


Figure 6-14: 4:30-5:30 PM regression plots for heavy vehicles

6.3.3 Weekend Model Traffic Count Calibration Results

Table 6-8 and Table 6-9 summarise model calibration results for the weekend peak hours (11:30 AM - 12:30 PM and 12:30 PM - 01:30 PM) for both light and heavy vehicles. Figure 6-15 to Figure 6-18 show the scatter plots between modelled and observed hourly flows for the above weekend peak model periods, respectively.

- During 11:30 AM - 12:30 PM and 12:30 PM - 01:30 PM, 100 per cent of turn flows have GEH value of less than 10 for both light and heavy vehicles (GEH <10).
- For light vehicles, 100% of all movements during 11:30 AM - 12:30 PM and 12:30 PM - 01:30 PM have GEH value of less than 5 (GEH<5).
- In case of heavy vehicles, 93.21% (151 of 162) of all movements during 11:30 AM - 12:30 PM and 95.68% (155 of 162) of all movements during 12:30 PM - 01:30 PM have GEH value of less than 5 (GEH<5).
- These results are reinforced with a R^2 value 0.997 and 0.997 for light vehicles and 0.869 and 0.892 for heavy vehicles, which demonstrates that a good level of calibration was achieved for the weekend peak period (11:30 AM - 12:30 PM and 12:30 PM - 01:30 PM).

Table 6-8: Weekend turn calibration statistic results for light vehicles

Network Wide Calibration Criteria	11:30 AM - 12:30 PM	12:30 PM - 01:30 PM	Calibration
85% of observations must have GEH < 5	162 (100%)	162 (100%)	✔
100% of observation must have GEH < 10	162 (100%)	162 (100%)	✔
Total observations	162	162	

Table 6-9: Weekend turn calibration statistic results for heavy vehicles

Network Wide Calibration Criteria	11:30 AM - 12:30 PM	12:30 PM - 01:30 PM	Calibration
85% of observations must have GEH < 5	151 (93.21%)	155 (95.68%)	✔
100% of observation must have GEH < 10	162 (100%)	162 (100%)	✔
Total observations	162	162	

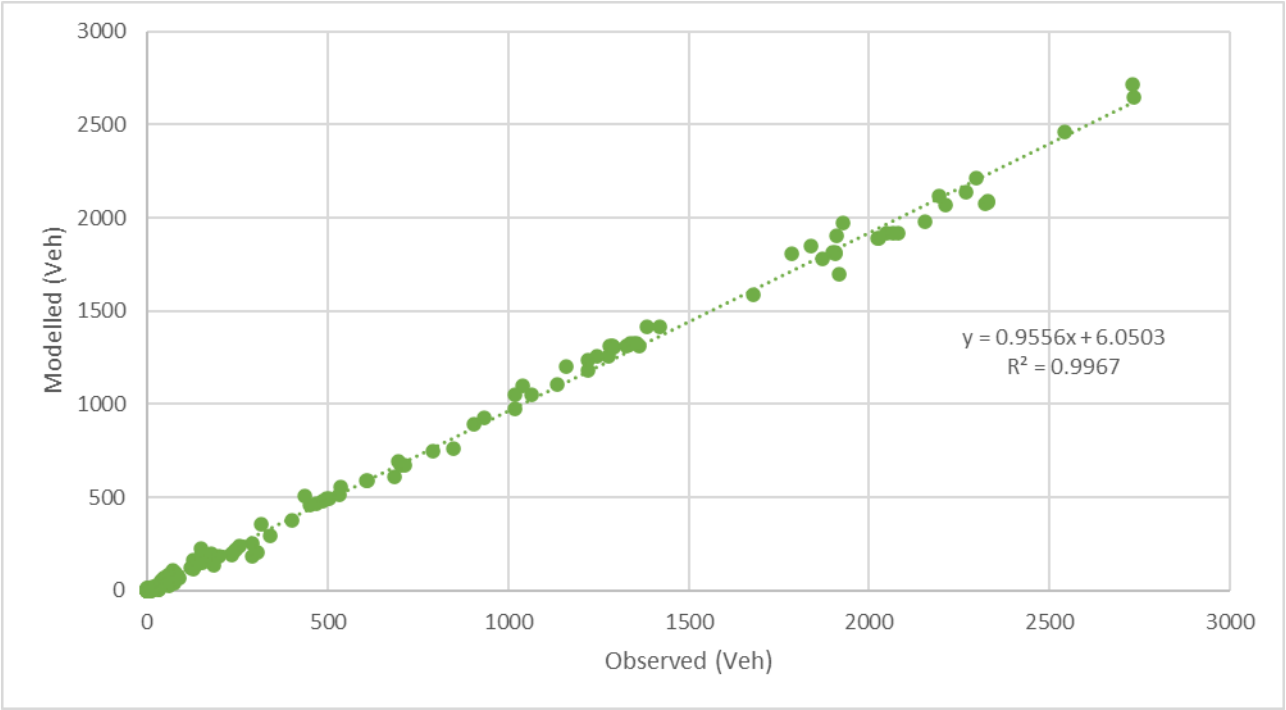


Figure 6-15: 11:30 AM - 12:30 PM regression plots for light vehicles

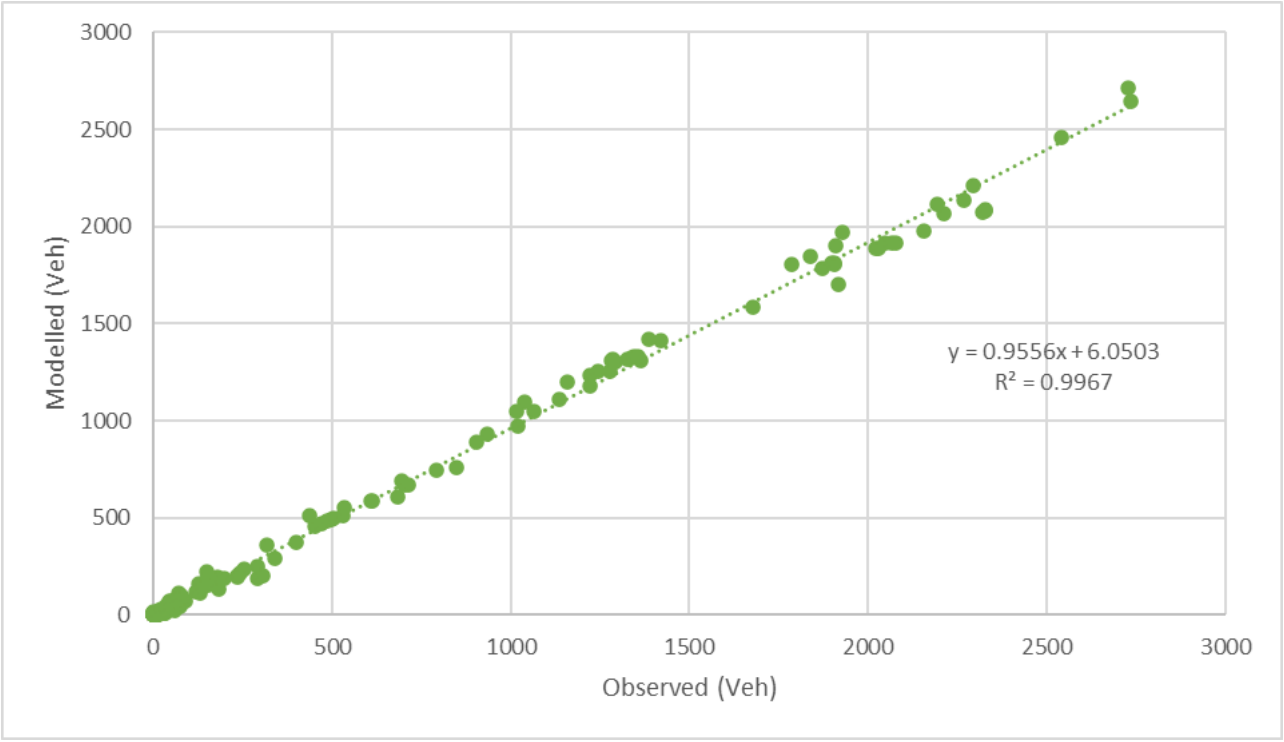


Figure 6-16: 12:30 PM - 01:30 PM regression plots for light vehicles

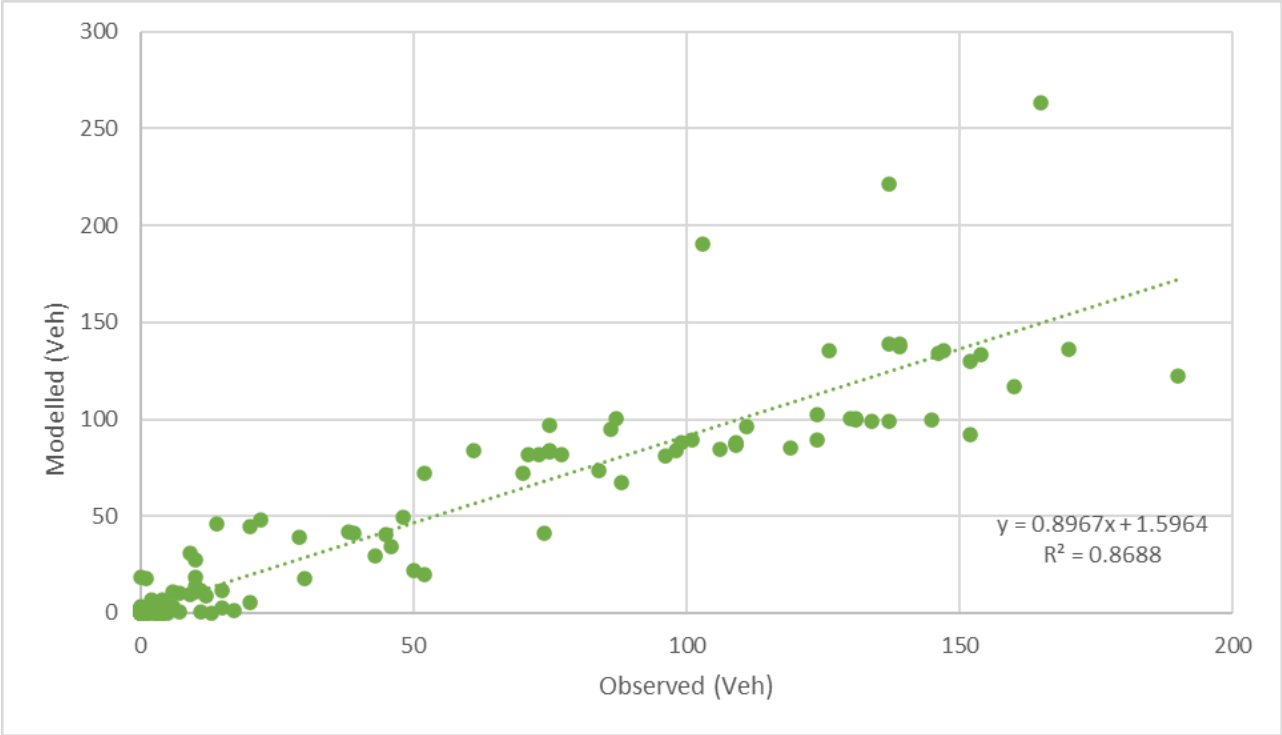


Figure 6-17: 11:30 AM - 12:30 PM regression plots for heavy vehicles

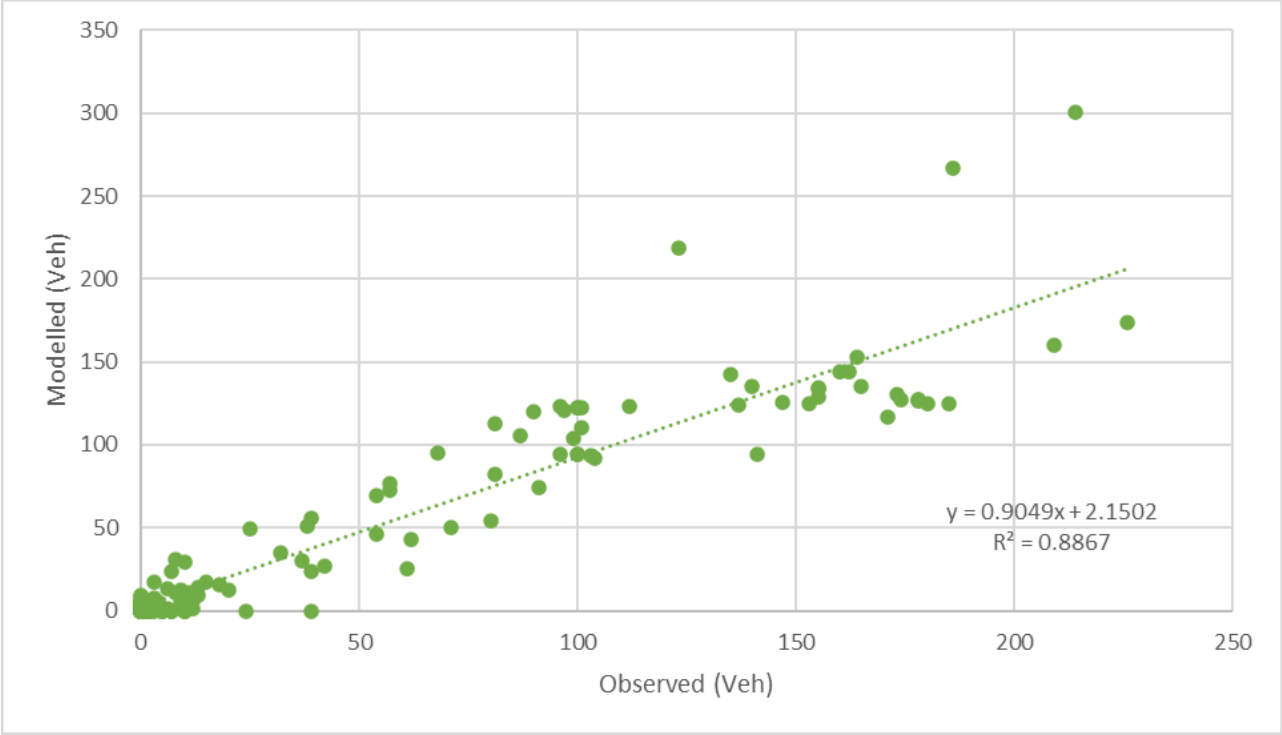


Figure 6-18: 12:30 PM - 01:30 PM regression plots for heavy vehicles

6.4 Model Validation

Model validation involves the comparison of observed and modelled traffic behaviour for datasets that are independent to the datasets used for the model calibration. Model validation is necessary to ensure that a model accurately represents an existing traffic situation and can be used with confidence to test alternatives.

6.4.1 Model Validation Criteria

Based on the Traffic Modelling Guidelines (Roads and Maritime, 2013), the average modelled journey time to be within 15 per cent or one minute (whichever is greater) of average observed journey time for full length of the route.

6.4.2 Network Parameter Modifications

As part of the travel time validation process, the following network parameters were modified from the TfNSW previously developed model and few network parameters were adopted for extension portion:

- During AM period
  - The acceleration factor from Bullecourt Avenue to Keys Parade Northbound has been increased by 2 times, acceleration factor for south approach and east-bound approach to HLD/Bullecourt Avenue intersection has been increased by 3 and acceleration factor from HLD/ M-5 intersection to Fromelles Avenue has been increased by 1.5.
  - For Flinders Road to Milperra Road the acceleration factor has been increased by 2 times, however for the portion between north approach of Beale Street to Endeavour Road the acceleration factor has been increased by 3 times. Similarly, the acceleration factor for (2 lane section) North approach to tower Road has been increased by 3 times.
  - The acceleration factor for South bound from Milperra to M-5 has been increased by 2 times except for the two-lane section between Milperra Road to Auld Avenue and Keys Parade to Raleigh Road.
- During PM period
  - In Northbound, the acceleration factor from Pozieres Avenue to Milperra has been increased by 2 times except for the portion between Keys Parade to Auld Avenue. For south approach and East bound approach of Bullecourt/HLD intersection, the acceleration factor has been increased by 3 times.
  - In South bound, the acceleration factor from Flinders Road to Milperra has been reduced by 0.5 times except for the portion between Haig Avenue to Georges golf course and Tower Road south bound approach for which acceleration factor has been reduced by 0.2 times.
  - The acceleration factor for East bound and West bound approach for HLD/ Milperra intersection has been increased by 3 times. The acceleration factor for the reaming portion of West bound section on Newbridge Road and Milperra road has been increased by 2 times.
- During Weekend period
  - The acceleration factor for northbound and southbound between M5 and Flinders Road has been increased by 5 times.
  - For Milperra Road, an acceleration factor of 5 was used for both eastbound and westbound.
  - Based on midblock survey conducted by Matrix in 2022, the section between M-5 and Bullecourt Avenue had an 85th percentile speed of approximately 70 km/ h. Therefore, attribute override was created to reflect the 85th percentile speed for that section in the model for weekend.

The parameter changes on the AM, PM and weekend peak scenarios were added as Attribute Overrides.

6.4.3 Validation Results for AM Model

The modelled travel times along Henry Lawson Drive have been validated against HERE travel time data for two hours, 07:45-08:45 AM and 08:45-09:45 AM. It should be noted that traffic count data used for calibration purposes is from 2018 and 2022; however, travel time data used during the validation process was collected in 2018. These differences in data collection year may result in discrepancies between the surveyed data, which might impact modelled results.

Figure 6-19 to Figure 6-22 and Table 6-10 present travel time results for the morning peak. Overall, the modelled and HERE travel time data show a good correlation and fit within the 15% range or one minute for northbound section except for southbound section which has travel time difference of 1:33 minutes during 07:45 – 08:45 AM and travel time difference of 1:50 minutes during 08:45 to 09:45 AM. Based on the fact that calibration and validation data were obtained for different dates and that the total travel time difference is within two minutes for the entire corridor, it can be considered that modelled travel times are a good representation of what was observed on site.

Table 6-10: Travel Time Validation Northbound and Southbound during AM Peak

Travel Route	Direction	Time	Observed (mm:ss)	Modelled (mm:ss)	Abs Diff (mm:ss)	Rel Diff %	Result
M5-Flinders Road	Northbound	07:45-08:45 AM	08:26	08:20	00:06	1%	PASS
M5-Flinders Road	Northbound	08:45-09:45 AM	10:43	09:56	00:47	7%	PASS
Flinders Road-M5	Southbound	07:45-08:45 AM	07:37	09:11	01:33	20%	FAIL
Flinders Road-M5	Southbound	08:45-09:45 AM	07:03	08:53	01:50	26%	FAIL
Travel Time Criteria and measure		Criteria	Observed Total		Modelled Achieved	Achieved	Result
±15% or one minute (whichever is greater) of average of full length of routes		≥95% of cases	2		2	100%*	PASS

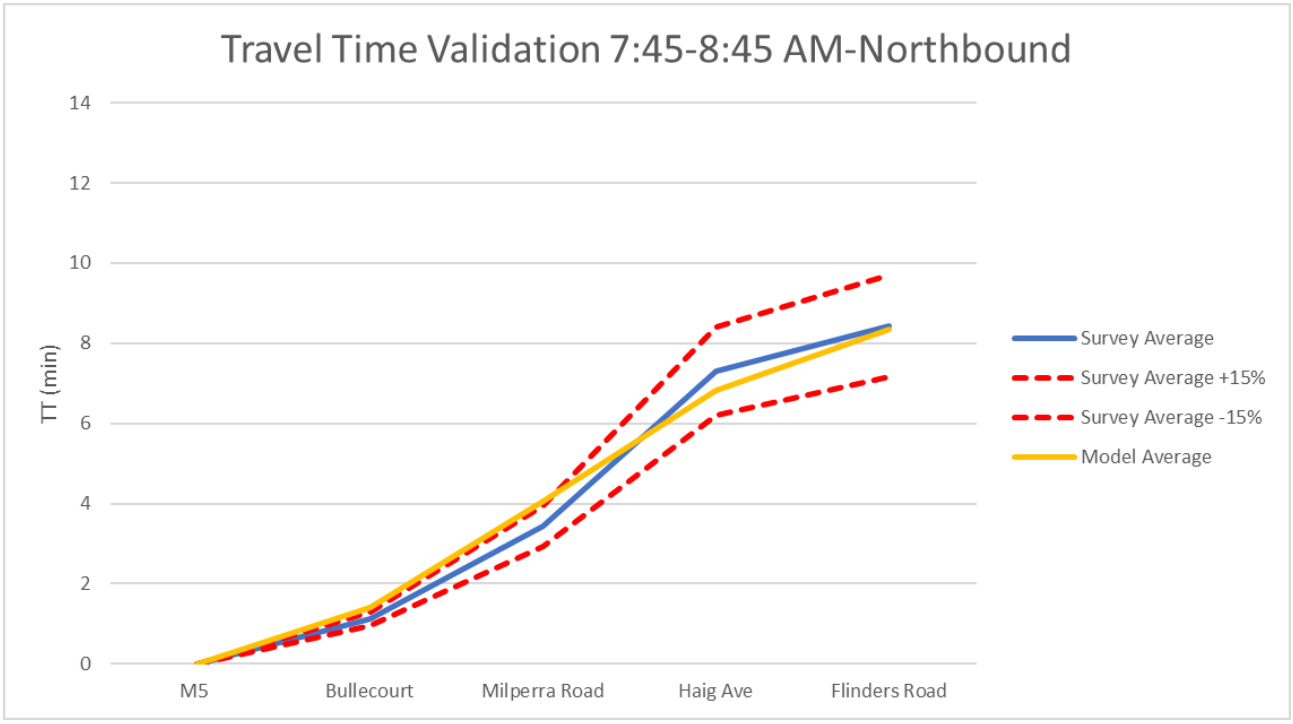


Figure 6-19: Travel time validation northbound 7:45-8:45 AM

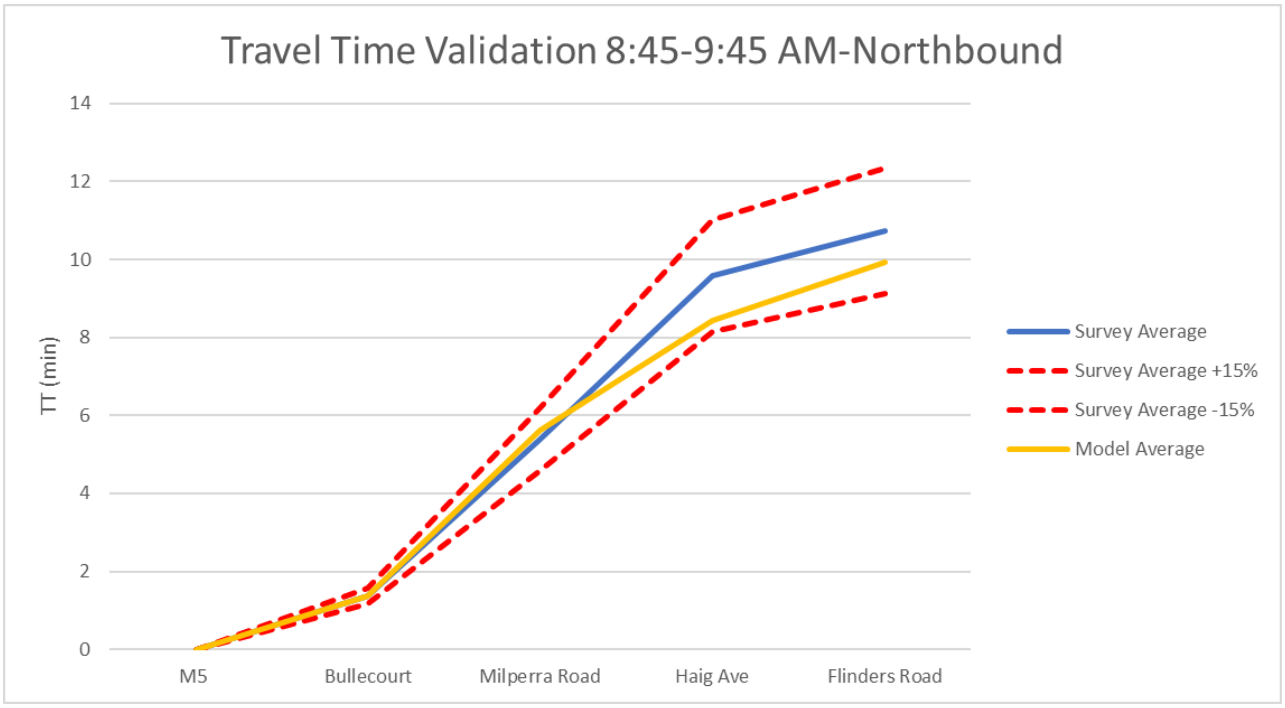


Figure 6-20 Travel time validation northbound 8:45-9:45 AM

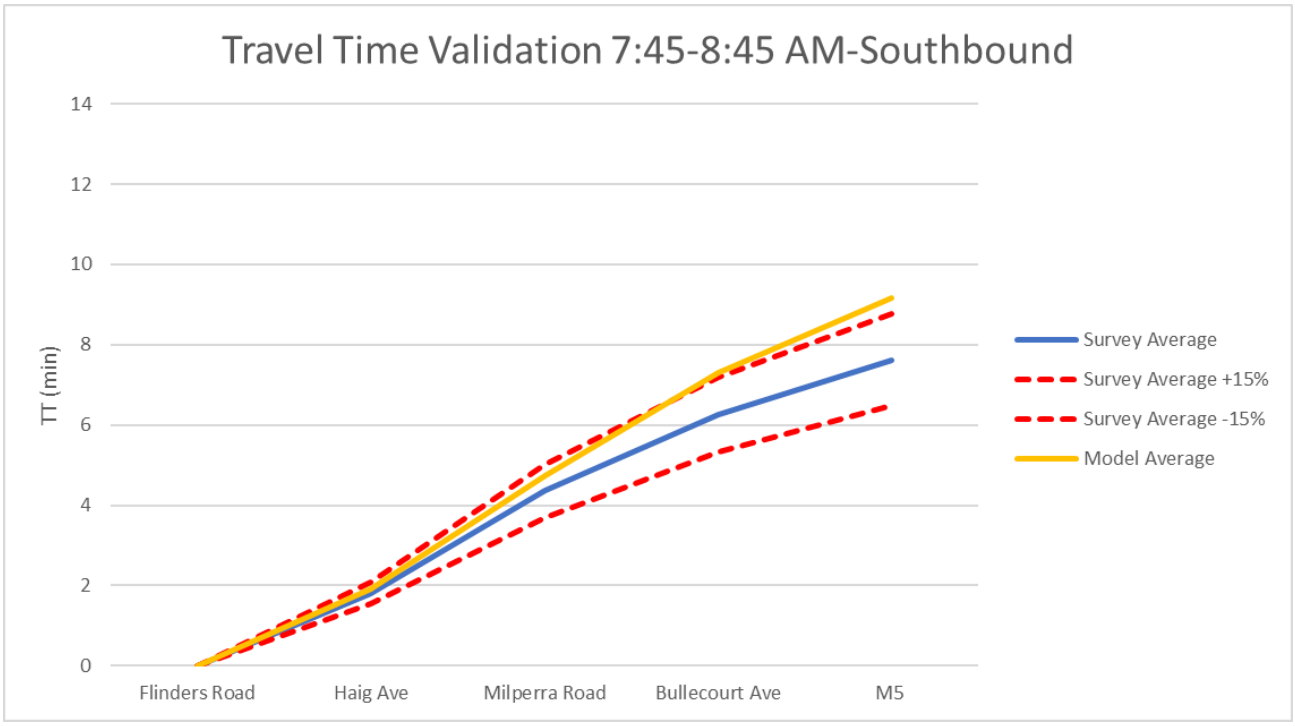


Figure 6-21: Travel time validation southbound 7:45-8:45 AM

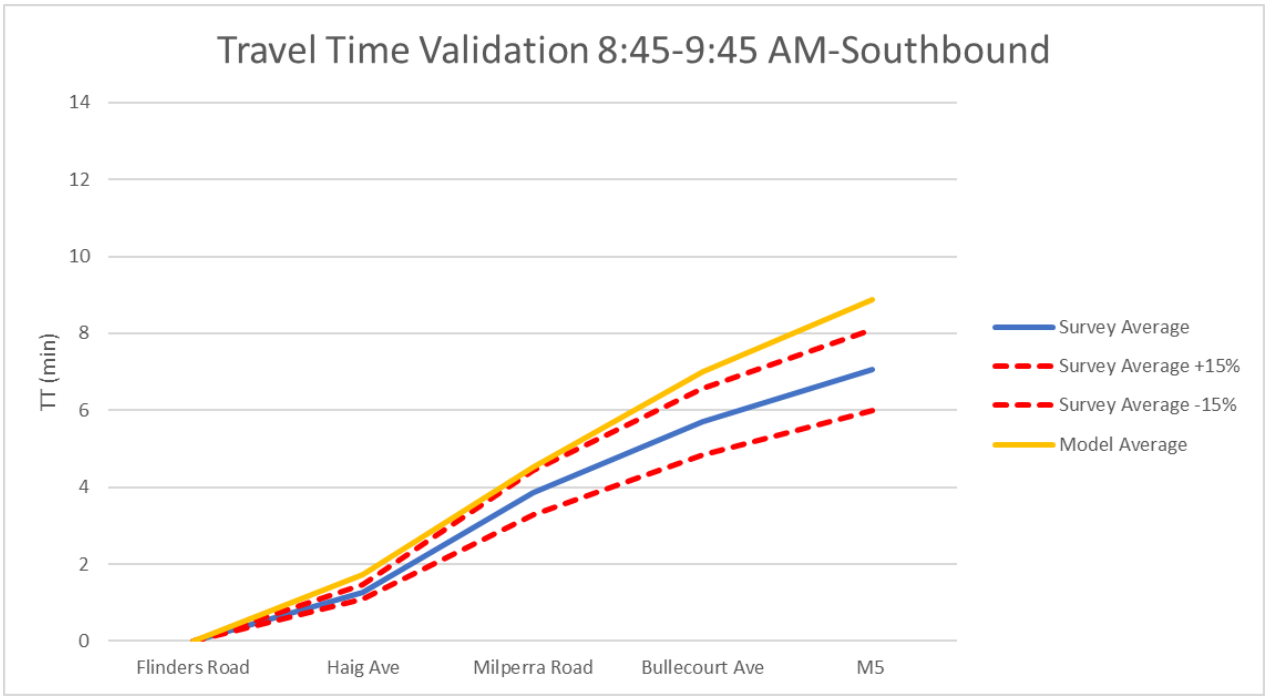


Figure 6-22: Travel time validation southbound 8:45-9:45 AM

6.4.4 Validation Results for PM Model

The modelled travel times along Henry Lawson Drive have been validated against HERE travel time data for two hours, 03:30-04:30 PM and 04:30-05:30 PM. It should be noted that traffic count data used for calibration purposes is from 2018 and 2022; however, travel time data used during the validation process was collected in 2018. These differences in data collection year may result in discrepancies between the surveyed data, which might impact modelled results.

Figure 6-23 to Figure 6-26 and Table 6-11 present travel time results for the evening peak. Overall, the modelled and HERE travel time data show a good correlation and fit within the 15% range or one minute for all analysed sections, satisfying the validation criteria.

Table 6-11: Travel Time Validation Northbound and Southbound during PM Peak

Travel Route	Direction	Time	Observed (mm:ss)	Modelled (mm:ss)	Abs Diff (mm:ss)	Rel Diff %	Result
M5-Flinders Road	Northbound	03:30-04:30 PM	09:30	08:17	01:13	13%	PASS
M5-Flinders Road	Northbound	04:30-05:30 PM	07:57	08:50	00:52	-11%	PASS
Flinders Road-M5	Southbound	03:30-04:30 PM	11:15	10:23	-00:52	8%	PASS
Flinders Road-M5	Southbound	04:30-05:30 PM	10:42	11:27	-00:45	-7%	PASS
Travel Time Criteria and measure		Criteria	Observed Total		Modelled Achieved	Achieved	Result
±15% or one minute (whichever is greater) of average of full length of routes		≥95% of cases	2		2	100%*	PASS

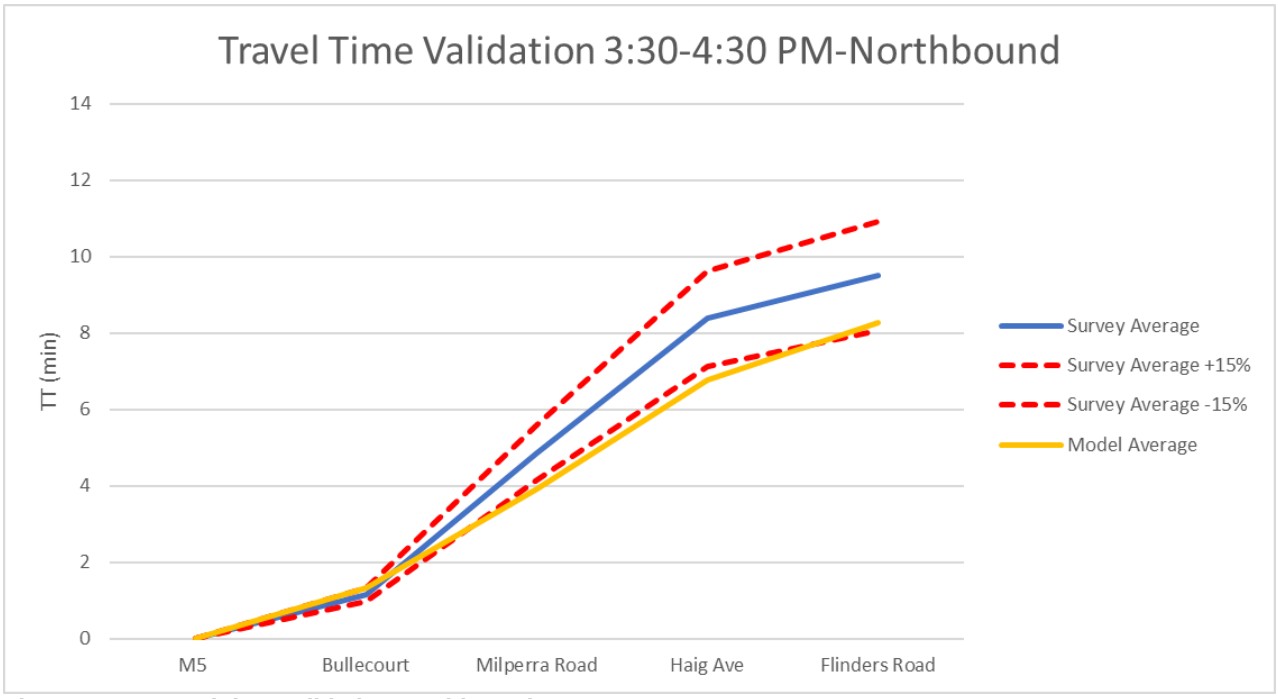


Figure 6-23: Travel time validation northbound 3:30-4:30 PM

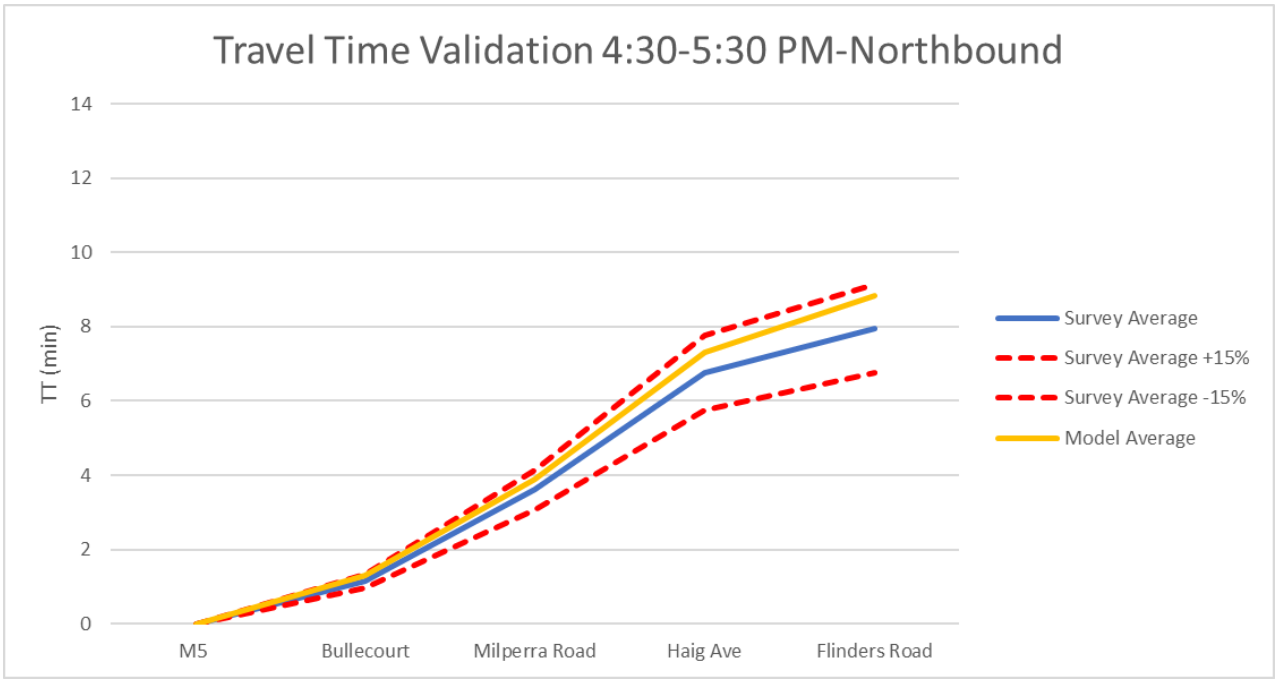


Figure 6-24: Travel time validation northbound 4:30-5:30 PM

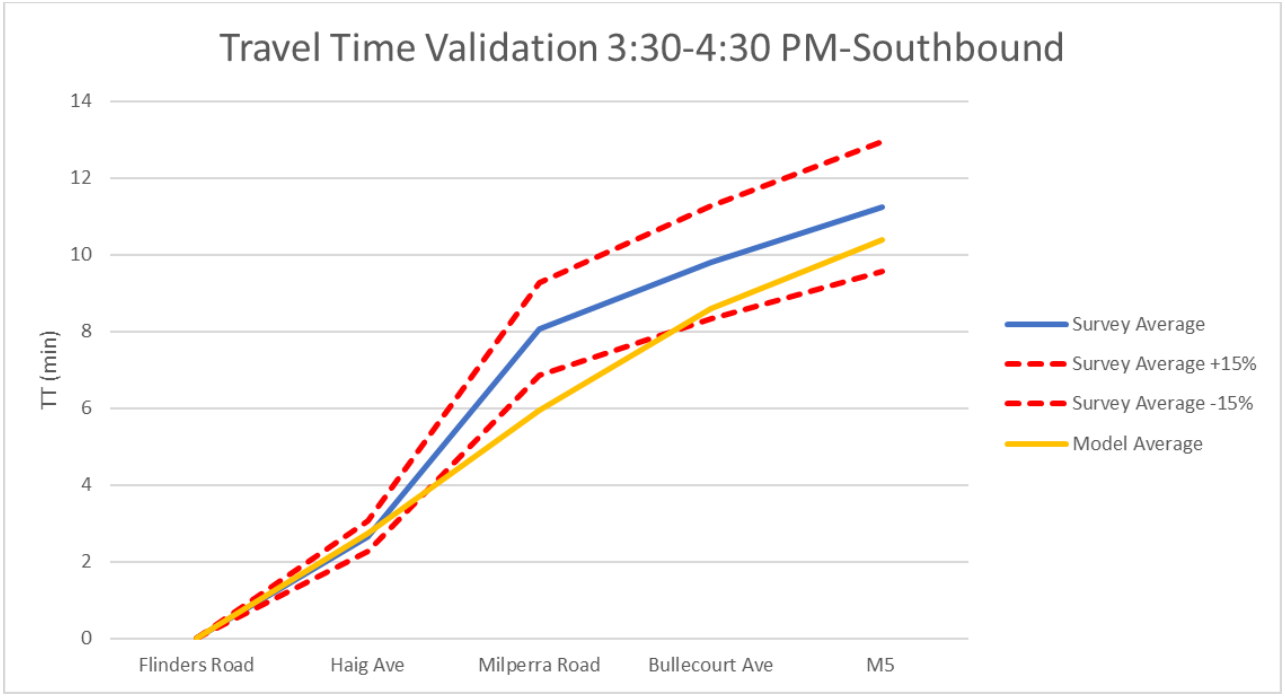


Figure 6-25: Travel time validation southbound 3:30-4:30 PM

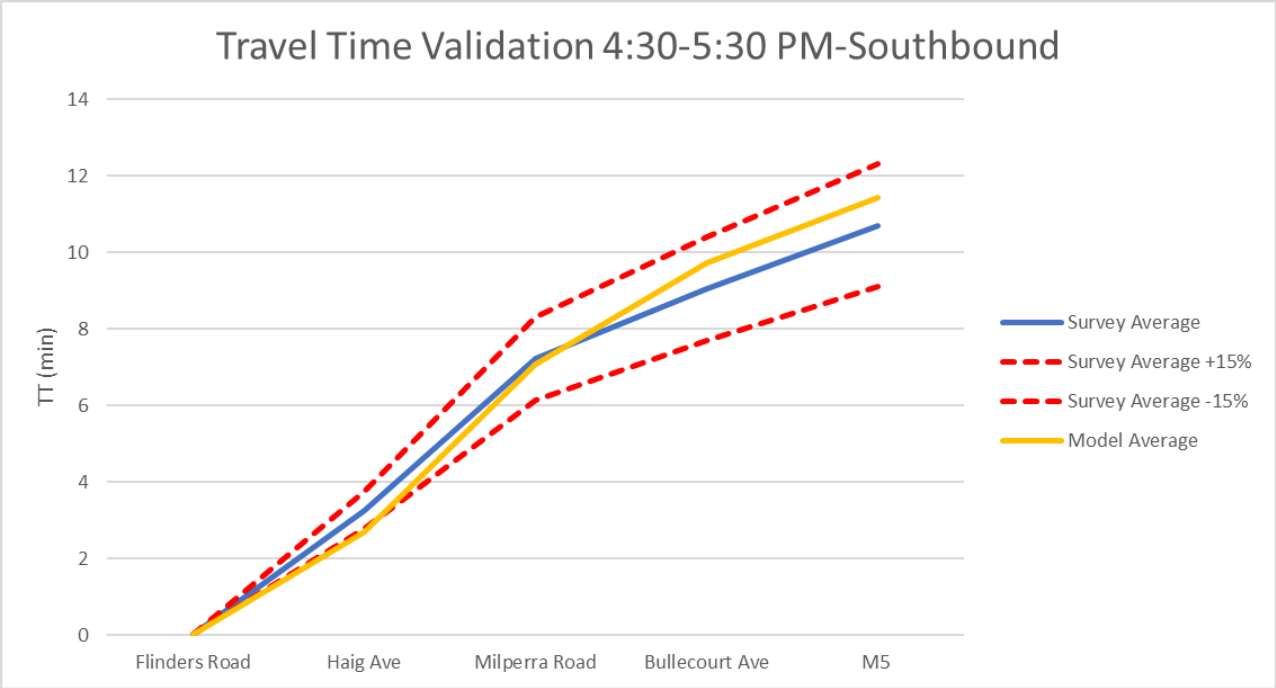


Figure 6-26: Travel time validation southbound 4:30-5:30 PM

6.4.5 Validation Results for Weekend Model

The Modelled travel times along Henry Lawson Drive have been validated against HERE travel time data for two hours, 11:30 AM - 12:30 PM and 12:30 PM - 01:30 PM. It should be noted that traffic count data used for calibration purposes is from 2021 and 2022; however, travel time data used during the validation process was collected in 2018. These differences in data collection year may result in discrepancies between the surveyed data, which might impact modelled results.

Figure 6-27 to Figure 6-30 and Table 6-12 present travel time results for the morning peak. Overall, the modelled and HERE travel time data show a correlation, however, not within the 15% range or one minute for the northbound and southbound sections. For the northbound, there is a travel time difference of 01:40 minutes during 11:30 AM - 12:30 PM and travel time difference of 1:15 minutes during 12:30 PM - 01:30 PM. In the case of southbound, there is a travel time difference of 01:34 minutes during 11:30 AM - 12:30 PM and travel time difference of 2:18 minutes during 12:30 PM - 01:30 PM.

Since the calibration and validation data were obtained for different dates and that the total travel time difference is within two minutes for the entire corridor, it can be considered that modelled travel times are a good representation of what was observed on site.

Table 6-12: Travel Time Validation Northbound and Southbound during AM Peak

Travel Route	Direction	Time	Observed (mm:ss)	Modelled (mm:ss)	Abs Diff (mm:ss)	Rel Diff %	Result
M5-Flinders Road	Northbound	11:30 AM-12:30 PM	06:10	07:50	01:40	27%	FAIL
M5-Flinders Road	Northbound	12:30 PM-01:30 PM	06:47	08:01	01:15	18%	FAIL
Flinders Road-M5	Southbound	11:30 AM-12:30 PM	07:01	08:35	01:34	22%	FAIL
Flinders Road-M5	Southbound	12:30 PM-01:30 PM	06:18	08:36	02:18	36%	PASS

Travel Time Criteria and measure	Criteria	Observed Total	Modelled Achieved	Achieved	Result
±15% or one minute (whichever is greater) of average of full length of routes	≥95% of cases	2	0	0%	FAIL

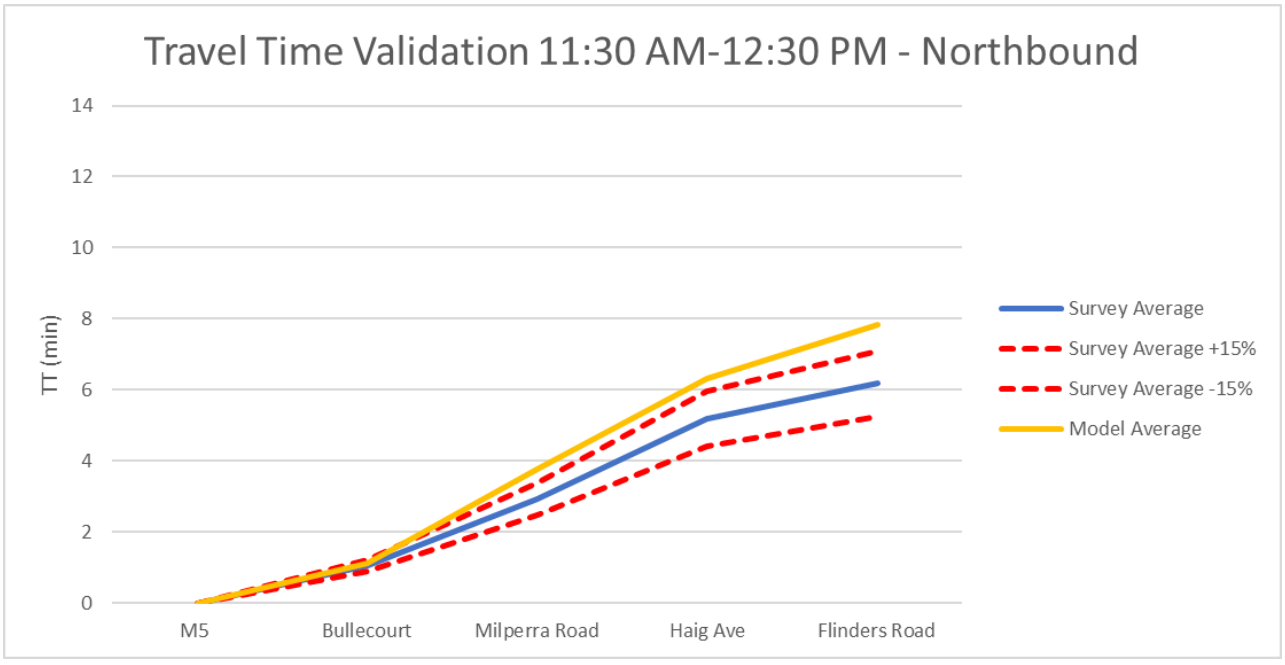


Figure 6-27: Travel time validation northbound 11:30 AM-12:30 PM

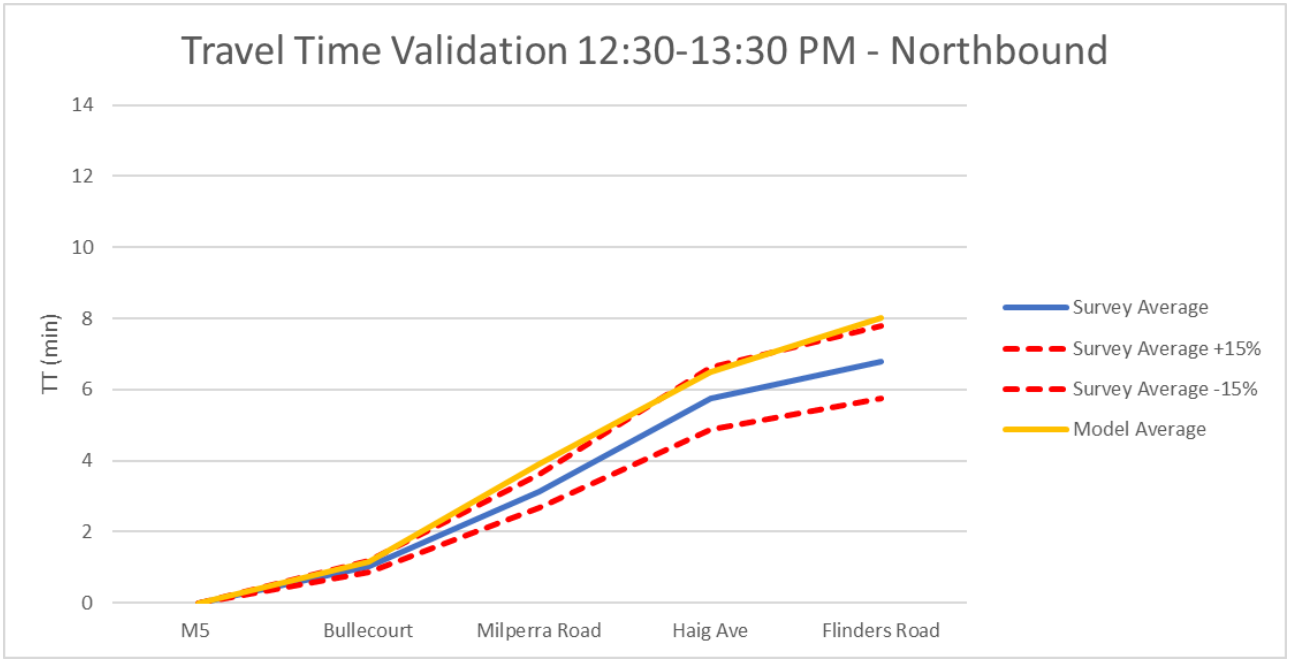


Figure 6-28 Travel time validation northbound 12:30 PM - 01:30 PM

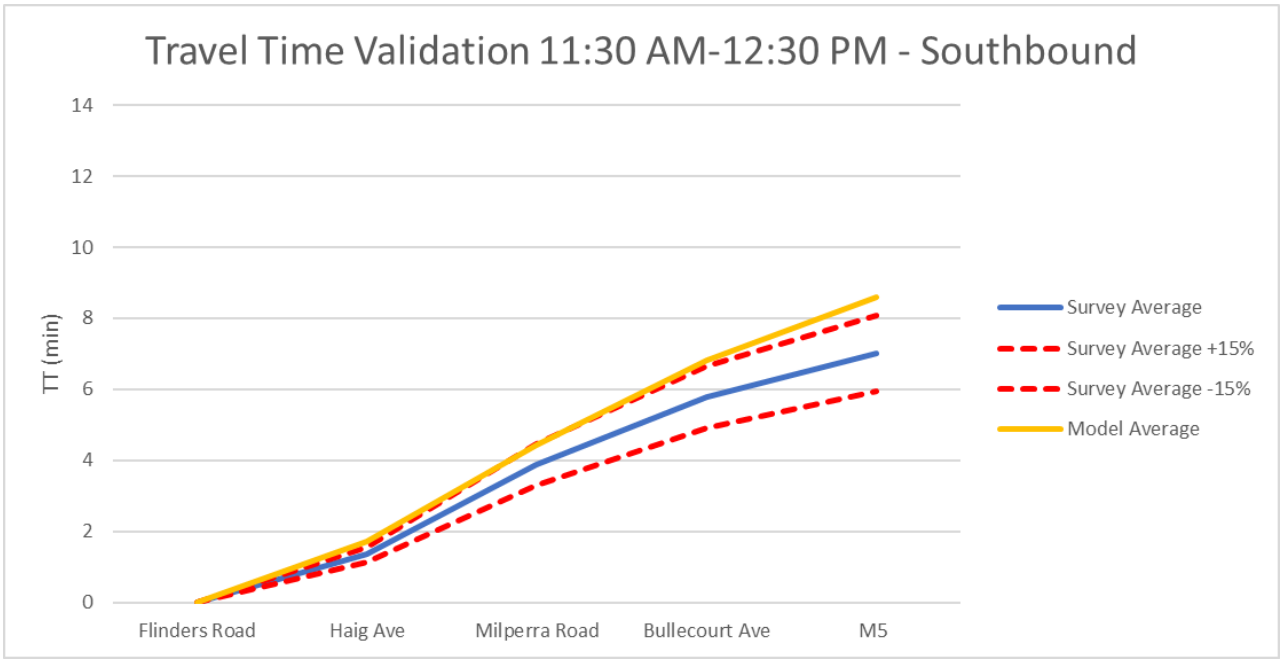


Figure 6-29: Travel time validation southbound 11:30 AM-12:30 PM

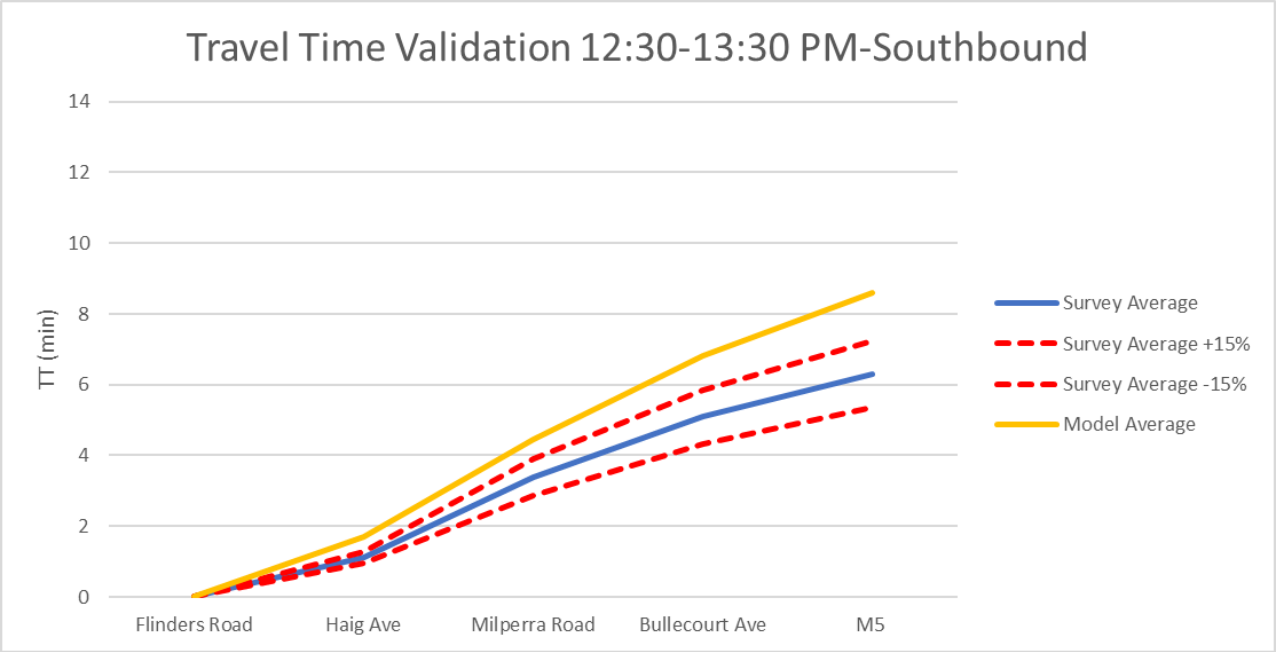


Figure 6-30: Travel time validation southbound 12:30 PM - 01:30 PM

6.5 Intersection Level of Service

This section provides simulated Level of Services (LOS) across the modelled time periods at 15 key intersections in the modelled area. Detailed results are presented in **Appendix C**.

The key indicator of intersection performance level of service (LOS) is delay, where results are ranked on a scale from A to F as shown in Table 6-13 (Traffic Modelling Guidelines, 2013). As intersections become more congested, the delay increases, reducing the intersection LOS towards F. It should be noted that LOS F starts when the average delay reaches 70sec/veh and does not register as anything worse than LOS F even though the delay may increase to two or three times this value. For traffic signals, the average movement delay and level of service over all movements is considered.

Table 6-13 Level of service criteria in accordance with RMS Traffic Modelling Guidelines

Level of service	Average delay per vehicle (s)	Traffic Signal, Roundabouts	Give way and stop signs
A	<14	Good operation	Good operation
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity, at signals, incidents will cause excessive delays	At capacity, requires other control mode
F	>70	Unsatisfactory and requires additional capacity	Unsatisfactory and requires additional capacity

6.5.1 AM Model Intersection Level of Service

The LOS has been analysed during 07:45-08:45 AM and 08:45-09:45 AM respectively, at 15 key intersections. Table 6-14 presents a LOS summary of these 15 key intersections during the weekday AM Peak period, whilst a detailed output is presented in **Appendix C.**

Table 6-14 AM Peak Intersection Level of Service Summary

ID	Intersection	07:45 - 08:45 AM			08:45 - 09:45 AM		
		Intersection			Intersection		
		Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
1	HLD/ Haig Avenue	2,404	33	C	2,142	34	C
2	HLD / Tower Road	2,833	26	B	2,601	55	D
3	HLD / Milperra Road	5,771	228	F	5,556	591	F
4	HLD/ Auld Avenue	2,101	6	A	1,975	6	A
5	HLD / Keys Parade	1,995	12	A	1,992	16	B
6	HLD/ Raleigh Road	1,985	5	A	1,742	5	A
7	HLD/ Ruthven Avenue	1,867	3	A	1,655	3	A
8	HLD/ Whittle Avenue	1,880	3	A	1,647	3	A
9	HLD/ Amiens Avenue	1,919	4	A	1,694	3	A
10	HLD/ Bullecourt Avenue	2,298	25	B	2,030	25	B
11	HLD/ Fromelles Avenue	2,018	8	A	1,726	7	A
12	HL / Hermies Avenue	2,043	4	A	1,757	3	A
13	HLD/ Pozieres Avenue	2,279	17	B	2,004	17	B
14	Murray Jones Drive/ Milperra Road	2,976	4	A	2,883	19	B
15	Ashford Avenue / Milperra Road	3,382	35	C	3,282	52	D

- Henry Lawson Drive / Keys Parade/ Flower power:
  - In the first AM peak hour from 07:45 AM to 08:45 AM, the intersection operates at LOS A with an intersection delay of 12 seconds, and in the second peak hour from 08:45 AM to 09:45 AM, the intersection operates at LOS B with an intersection delay of 16 seconds indicating a good level of service.
  - The demand on Henry Lawson Drive northbound and southbound is high. Figure 6-31 presents the typical intersection operation at Henry Lawson Drive / Keys Parade/Flower power intersection.

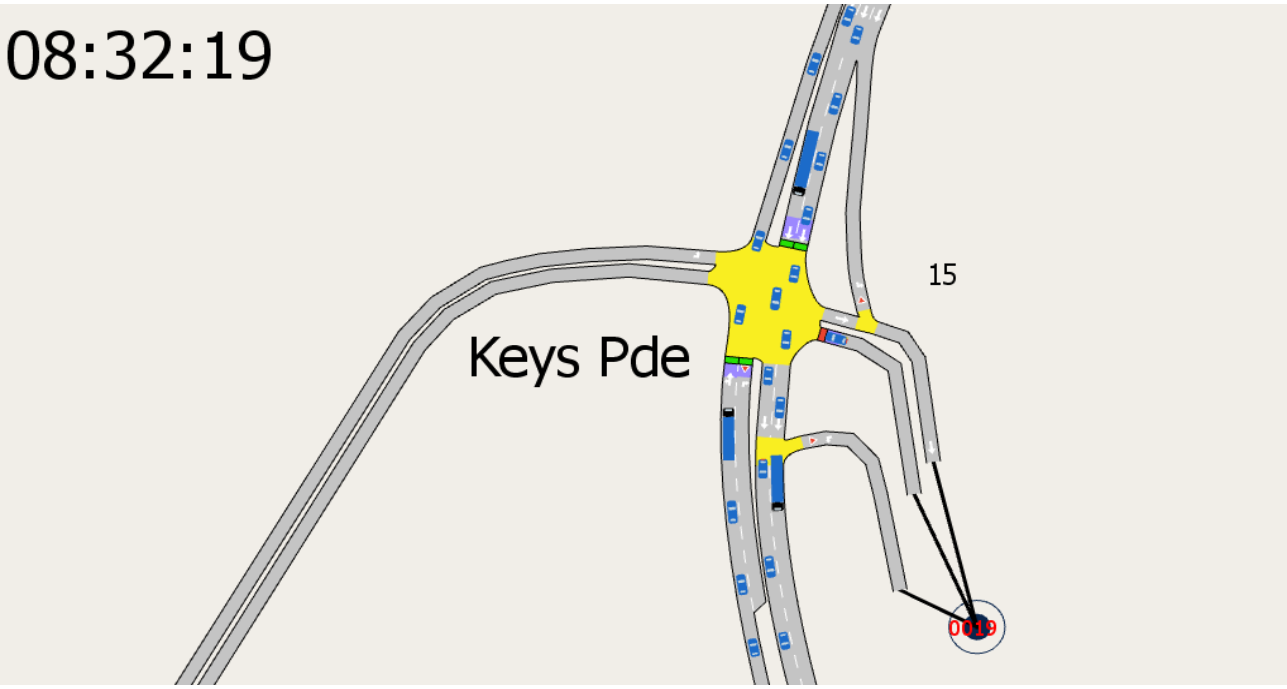


Figure 6-31 : Henry Lawson Drive / Keys Parade / Flower power Weekday AM peak operation screenshot.

- HLD / Bullecourt Avenue:
  - During the AM peak period from 7:45 AM to 9:45 AM, the intersection operates at LOS B with intersection delay of 25 seconds in both peak hours, indicating good level of performance. The traffic demand on northbound, southbound, and eastbound (turning into Bullecourt Avenue) is high which creates a small and short-lasting queue at each approach of the intersection. The model suggests that the queues on all approaches mostly get dissipated during green time for that approach. The users going northbound to Henry Lawson Drive from Bullecourt Avenue in the east approach face the most delay. The existing delay on Bullecourt Avenue is 68 seconds.
  - The Figure 6-32 presents Henry Lawson Drive/ Bullecourt Avenue intersection operation during AM peak in comparison to google typical traffic volume view during AM peak on weekday. Upon comparison, it is seen that the short queues at intersection approaches were captured.

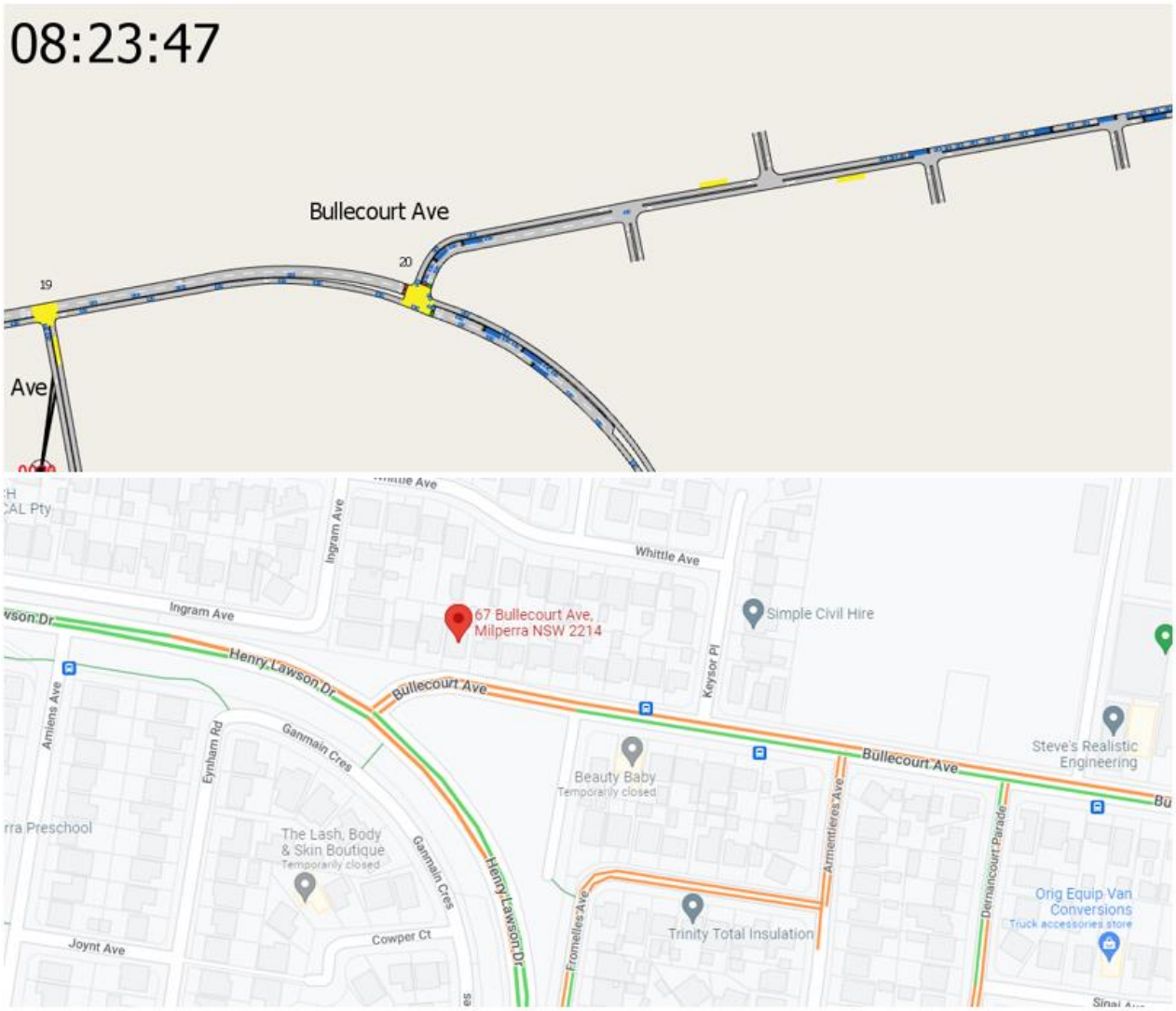
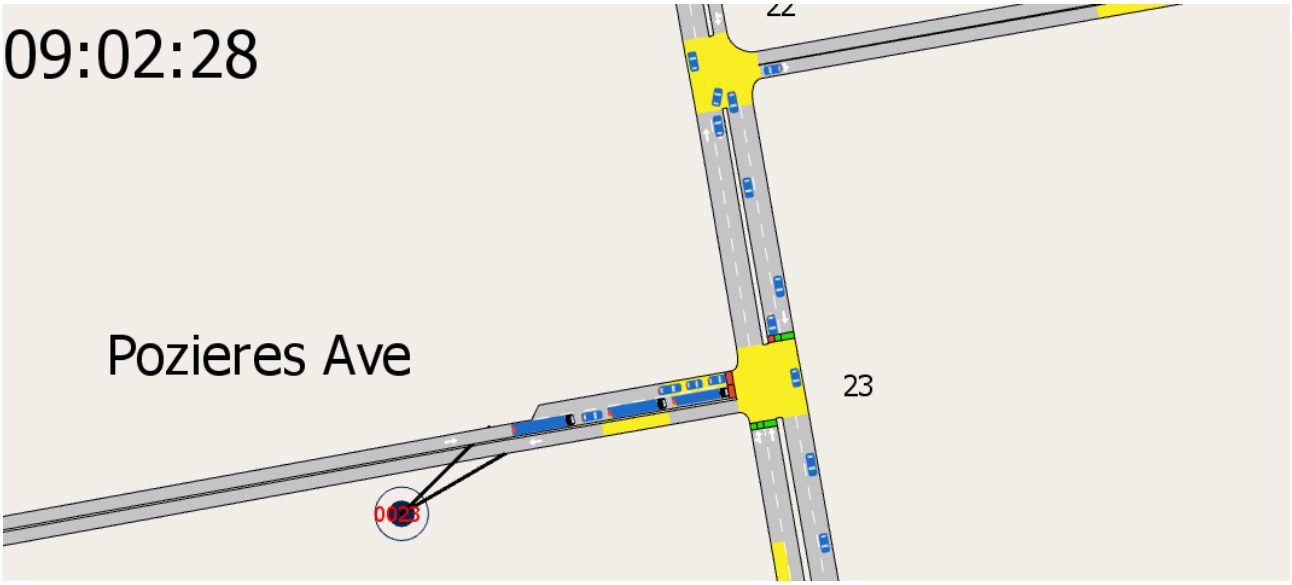


Figure 6-32 : Henry Lawson Drive/ Bullecourt Ave Weekday AM Peak Intersection operation screenshot

- HLD / Pozieres Avenue:
  - During AM peak period, the intersection operates at LOS B with intersection delay of 17 seconds in both hours. The model suggests the users turning from Pozieres Avenue into Henry Lawson Drive may face some delay. The delay for users from Pozieres Avenue is 68 seconds.



6.5.2 PM Model Intersection Level of Service

The LOS has been analysed during 3:30-4:30 PM and 4:30-5:30 PM respectively, at 15 key intersections. Table 6-15 presents a LOS summary of these 15 key intersections during the weekday PM Peak period while a detailed output is presented in **Appendix C**.

Table 6-15: PM Peak Intersection Level of Service Summary

ID	Intersection	3:30 - 4:30 PM			4:30 - 5:30 PM		
		Intersection			Intersection		
		Volume	Delay	LOS	Volume	Delay	LOS
1	HLD/ Haig Avenue	2,408	55	D	2,476	57	E
2	HLD / Tower Road	2,976	35	C	3,135	37	C
3	HLD / Milperra Road	6,545	237	F	6,871	469	F
4	HLD/ Auld Avenue	2,221	7	A	2,363	8	A
5	HLD / Keys Parade	2,209	14	A	2,358	17	B
6	HLD/ Raleigh Road	2,033	5	A	2,052	5	A
7	HLD/ Ruthven Avenue	1,939	3	A	1,930	3	A
8	HLD/ Whittle Avenue	1,959	3	A	1,943	3	A
9	HLD/ Amiens Avenue	2,015	3	A	1,989	3	A
10	HLD/ Bullecourt Avenue	2,355	45	D	2,342	38	C
11	HLD/ Fromelles Avenue	1,972	6	A	1,982	5	A
12	HL / Hermies Avenue	2,109	5	A	2,087	4	A
13	HLD/ Pozieres Avenue	2,272	12	A	2,253	11	A
14	Murray Jones Drive/ Milperra Road	3,578	6	A	3,342	16	B
15	Ashford Avenue / Milperra Road	4,019	18	B	3,698	20	B

- HLD / Keys Parade/Flower power:
  - During the PM peak period from 03:30 PM to 4:30 PM, the intersection operates at LOS A with an intersection delay of 14 seconds and in the second peak hour from 04:30 PM to 05:30 PM, the intersection operates at LOS B with an intersection delay of 17 seconds indicating a good level of service.
  - During PM, the demand for traffic turning from Henry Lawson Drive into Flower Power Access and demand for traffic turning from Flower Power Access into Henry Lawson Drive is higher. Also, the demand on Henry Lawson Drive northbound and southbound is high. The delay for Flower Power Access in the east approach from 03:30 PM to 4:30 PM is 44 seconds and for 04:30 PM to 05:30 PM is 43 seconds. Figure 6-33 presents the intersection operation at Henry Lawson Drive/ Keys Parade/ Flower power intersection.

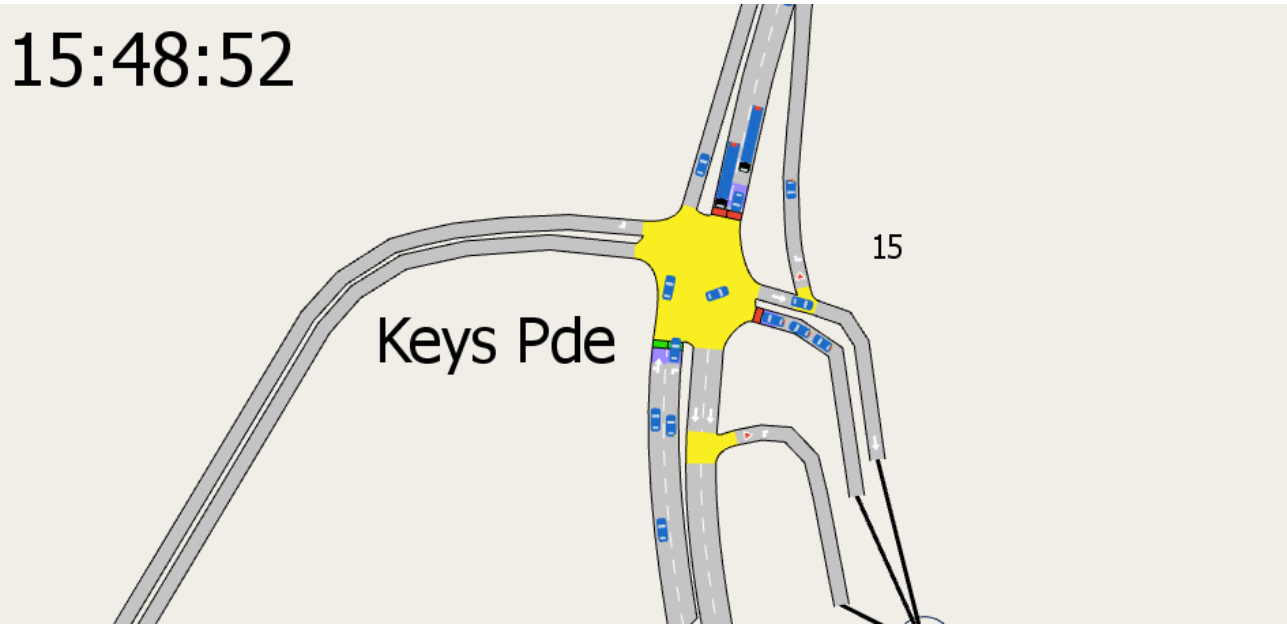


Figure 6-33: Henry Lawson Drive / Keys Parade/Flower power Weekday PM peak operation screenshot.

- HLD / Bullecourt Avenue:
  - During the first PM peak hour from 03:30 PM to 04:30 PM, the intersection operates at LOS D with an intersection delay of 45 seconds and in the second peak hour from 04:30 PM to 05:30 PM, the intersection operates at an improved LOS C with an intersection delay of 38 seconds.
  - In the PM peak period, the demand from Bullecourt Avenue turning into Henry Lawson Drive increases considerably resulting in congestion on the approach. The average delay on Bullecourt Avenue east approach from 03:30 PM to 04:30 PM is 112 seconds and from 04:30 PM to 05:30 PM is 92 seconds. The high delay on Bullecourt Avenue approach leads to comparatively higher overall intersection delay and hence an overall LOS D. The Figure 6-34 presents the operation of Henry Lawson Drive/ Bullecourt Avenue intersection in PM peak in comparison to google typical traffic view during PM peak on a typical weekday. Upon comparison of images, it is seen that the increased length of queues at Bullecourt Avenue approach were captured.

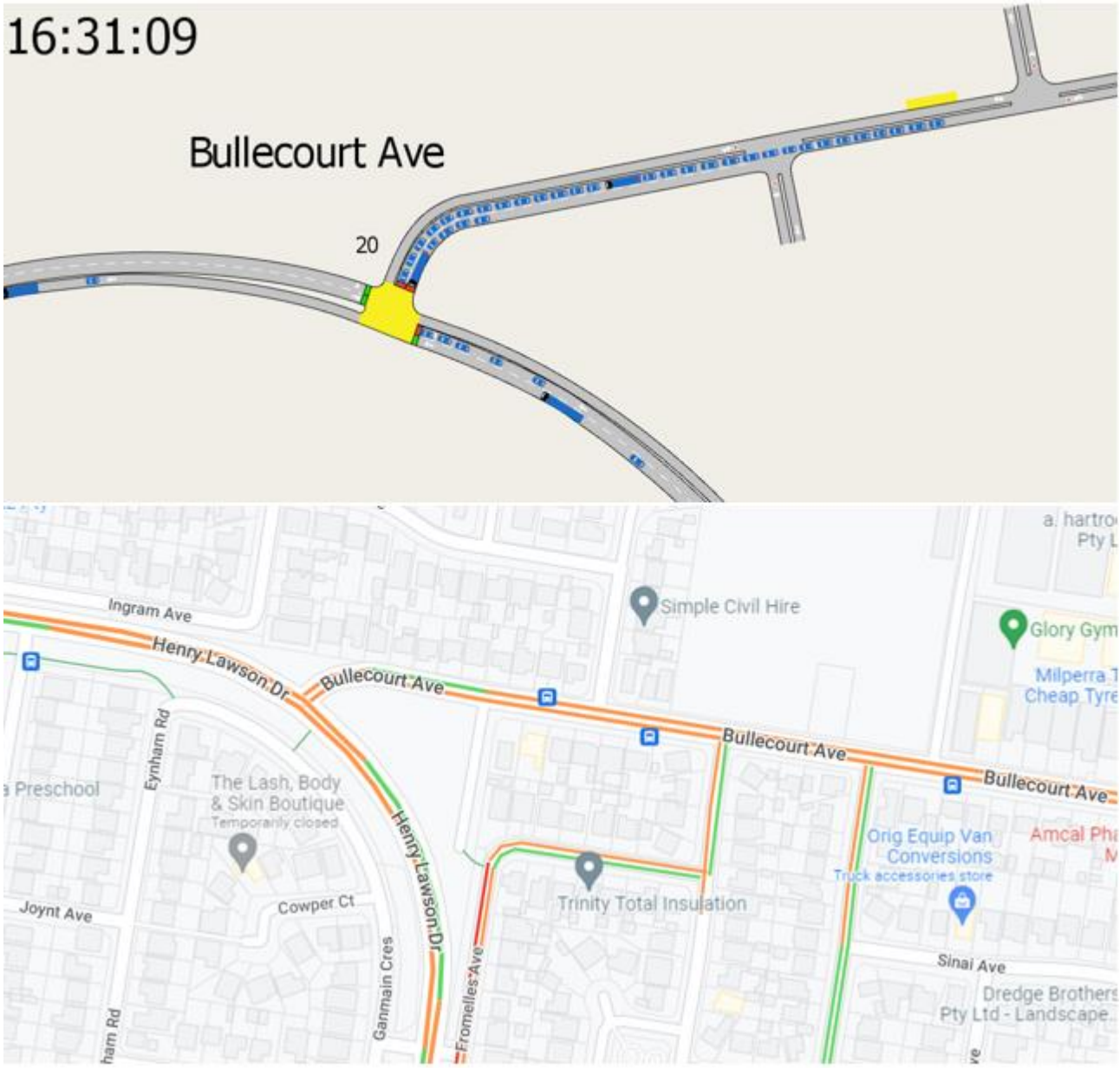


Figure 6-34: Henry Lawson Drive/ Bullecourt Ave Weekday PM Peak Intersection operation screenshot

- HLD / Pozieres Avenue:
  - During the PM peak period from 03:30 PM to 05:30 PM, the intersection operates at LOS A indicating a good level of performance. The model suggests the users turning from Pozieres Avenue into Henry Lawson Drive may face some delay. The delay for vehicles from Pozieres Avenue is 51 seconds.

6.5.3 Weekend Model Intersection Level of Service

The LOS has been analysed during 11:30 AM - 12:30 PM and 12:30 PM - 01:30 PM respectively, at 15 key intersections. Table 6-16 presents a LOS summary of these 15 key intersections during the weekend peak period, whilst a detailed output is presented in **Appendix C.**

Table 6-16: Weekend Peak Intersection Level of Service Summary

ID	Intersection	11:30 AM - 12:30 PM			12:30 PM - 01:30 PM		
		Intersection			Intersection		
		Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
1	HLD/ Haig Avenue	2,339	32	C	2,407	34	C
2	HLD / Tower Road	2,779	22	B	2,880	25	B
3	HLD / Milperra Road	5,964	55	D	5,858	102	F
4	HLD/ Auld Avenue	2,250	6	A	1,997	5	A
5	HLD / Keys Parade	2,303	17	B	2,075	17	B
6	HLD/ Raleigh Road	1,706	3	A	1,532	3	A
7	HLD/ Ruthven Avenue	1,589	3	A	1,445	2	A
8	HLD/ Whittle Avenue	1,585	3	A	1,441	3	A
9	HLD/ Amiens Avenue	1,613	3	A	1,468	2	A
10	HLD/ Bullecourt Avenue	1,792	24	B	1,601	23	B
11	HLD/ Fromelles Avenue	1,673	5	A	1,625	5	A
12	HL / Hermies Avenue	1,931	4	A	1,785	4	A
13	HLD/ Pozieres Avenue	2,111	13	A	1,949	12	A
14	Murray Jones Drive/ Milperra Road	3,179	3	A	3,128	4	A
15	Ashford Avenue / Milperra Road	3,482	23	B	3,449	52	D

- Henry Lawson Drive / Keys Parade / Flower power:
  - In the first weekend peak hour from 11:30 AM - 12:30 PM, the intersection operates at LOS B with an intersection delay of 17 seconds, and in the second peak hour from 12:30 PM - 01:30 PM, the intersection operates at LOS B with an intersection delay of 17 seconds indicating a good level of service.
- HLD / Bullecourt Avenue:
  - During the weekend peak period from 11:30 AM - 01:30 PM, the intersection operates at LOS B in both peak hours, indicating a good level of performance. The traffic going northbound, southbound, and eastbound (turning into Bullecourt Avenue) creates a small and short-lasting queue at each approach of the intersection. The model suggests that the queues on all approaches mostly get dissipated during green time for that approach. The users going northbound to Henry Lawson Drive from Bullecourt Avenue in the east approach face the most delay. The existing delay on Bullecourt Avenue (east approach is) is 61 seconds.
- HLD / Pozieres Avenue:
  - During weekend peak period, the intersection operates at LOS A in both hours. The model suggests the users turning from Pozieres Avenue into Henry Lawson Drive may face some delay. The delay for users from Pozieres Avenue is 59 seconds.

7 Summary and Conclusions

Aurecon was engaged by TfNSW to develop a microsimulation corridor model of Henry Lawson Drive upgrade - Stage 1 B area. This model is intended to be used to analyse potential future road network upgrade options being investigated for the area to relieve congestion and improve capacity. The model has been developed in Aimsun and calibrated to 2022 traffic conditions.

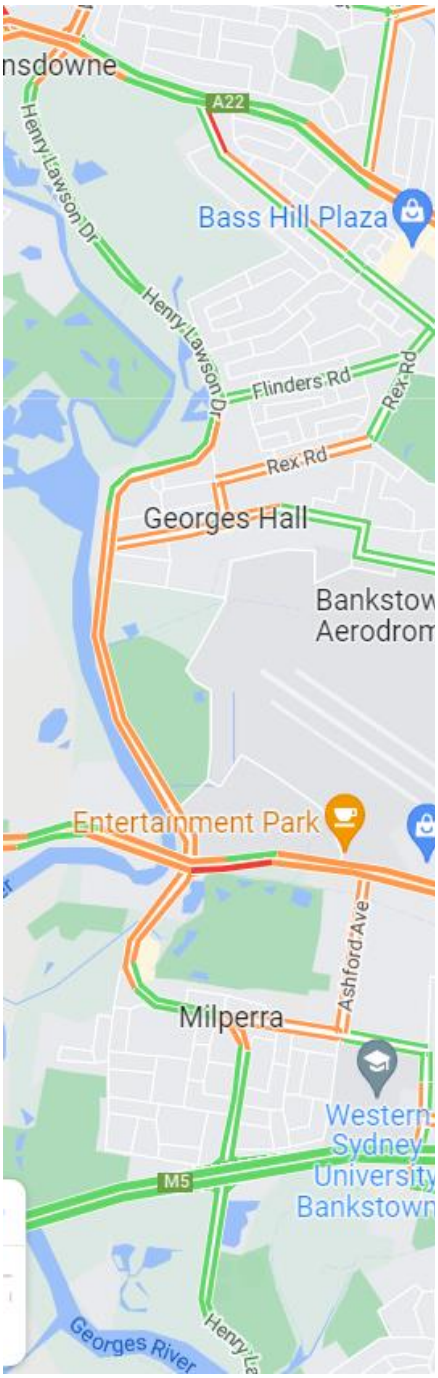
This report has been prepared to document the Base Model calibration and validation outcomes during AM, PM and weekend peak periods. The Base Model calibration and validation results along with observation of the model runs indicate that the model shows a good representation of the 2022 traffic conditions.

In summary, the Base Model adheres to all the criteria mandated by the Traffic Modelling Guidelines (Roads and Maritime, 2013) for calibration and validation, except during the weekend peak period where validation criteria were not satisfied. However, since the calibration and validation data were obtained for different years and that the total travel time difference is within two minutes for the entire corridor, it can be considered that modelled travel times are a good representation of what was observed on site.

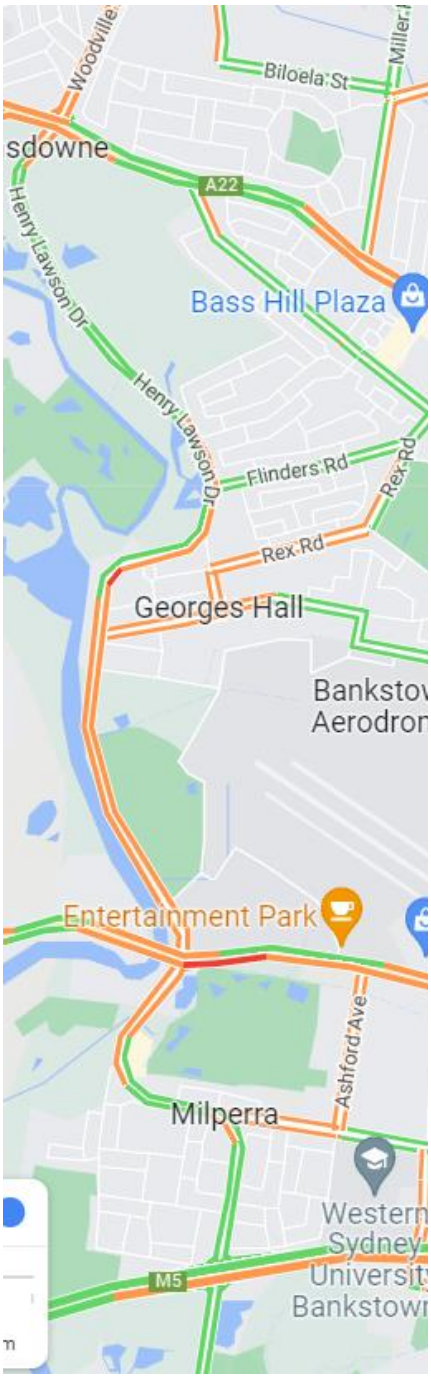
The model stability is consistent across all chosen 5 seed runs.

Overall, the model is representative of the existing traffic conditions within the study area and is therefore considered fit for purpose to be used as the basis for option analysis.

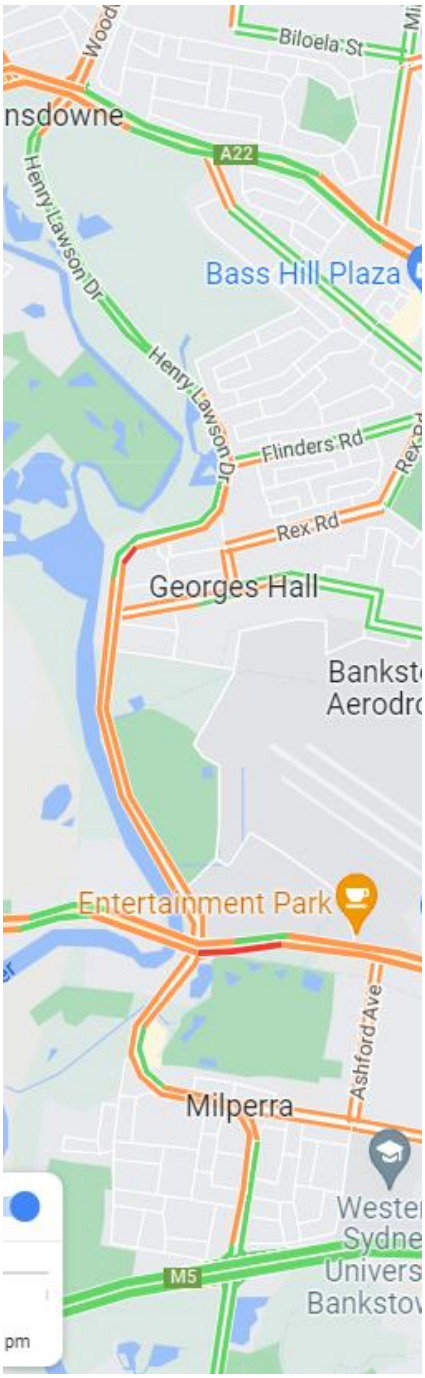
Appendix A: Typical Traffic volume on HLD - Weekday PM period.



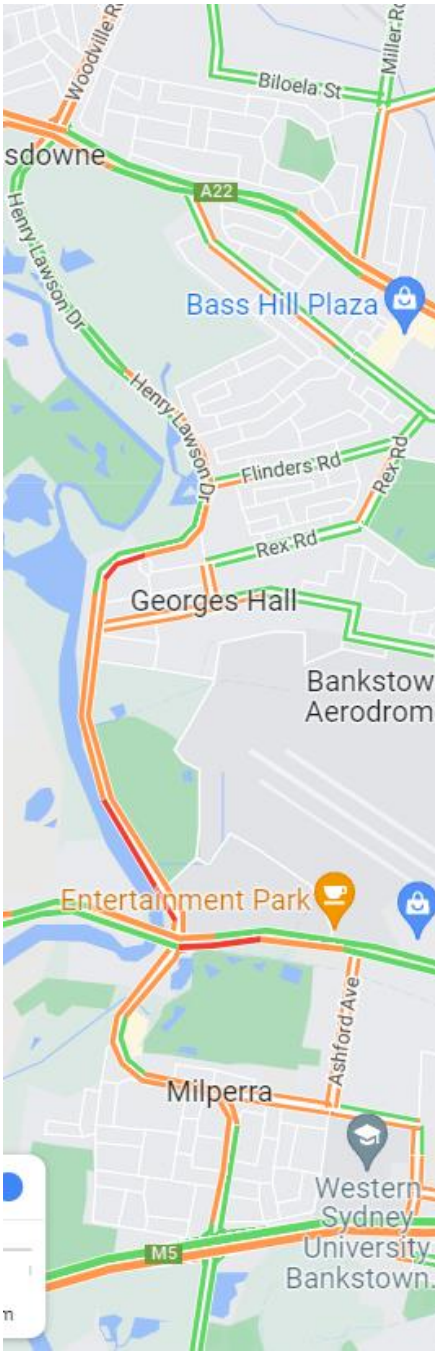
2:45 AM



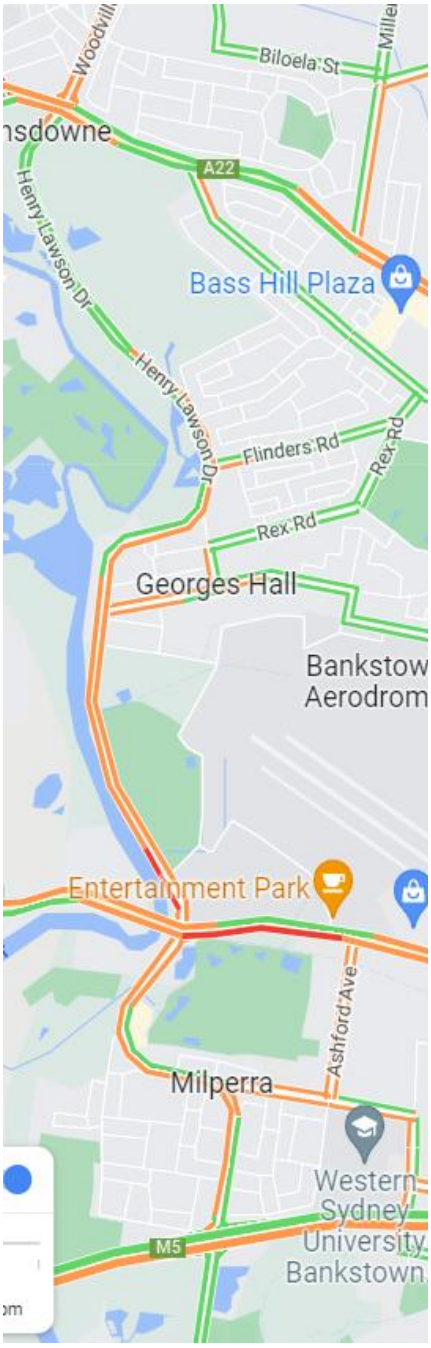
3:00 PM



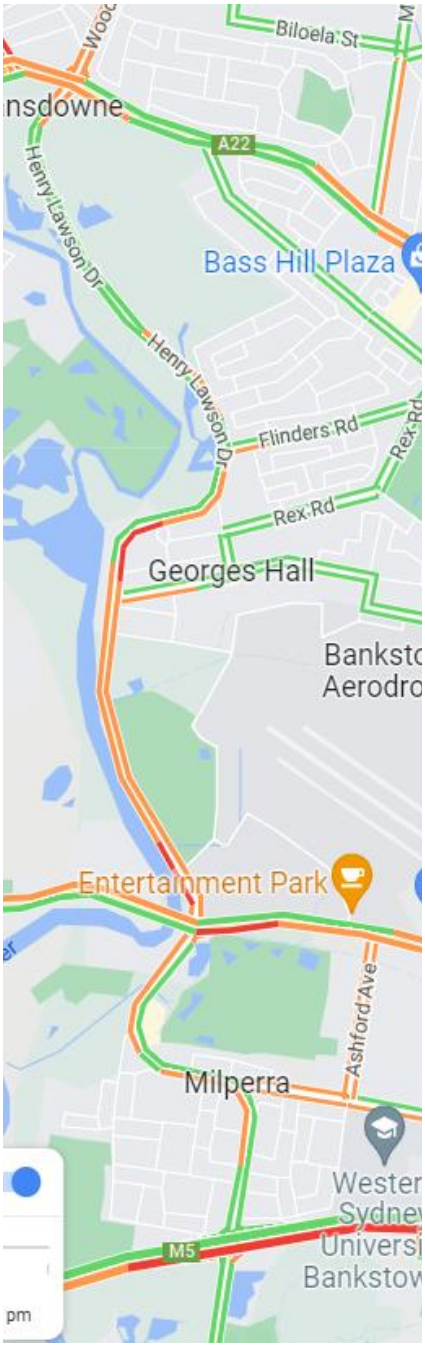
3:15 PM



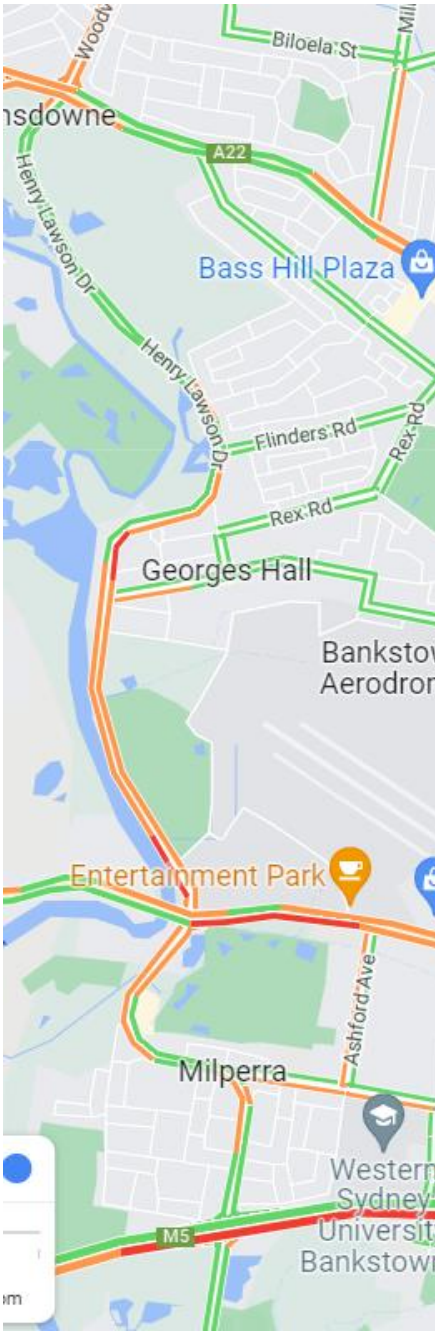
3:30 PM



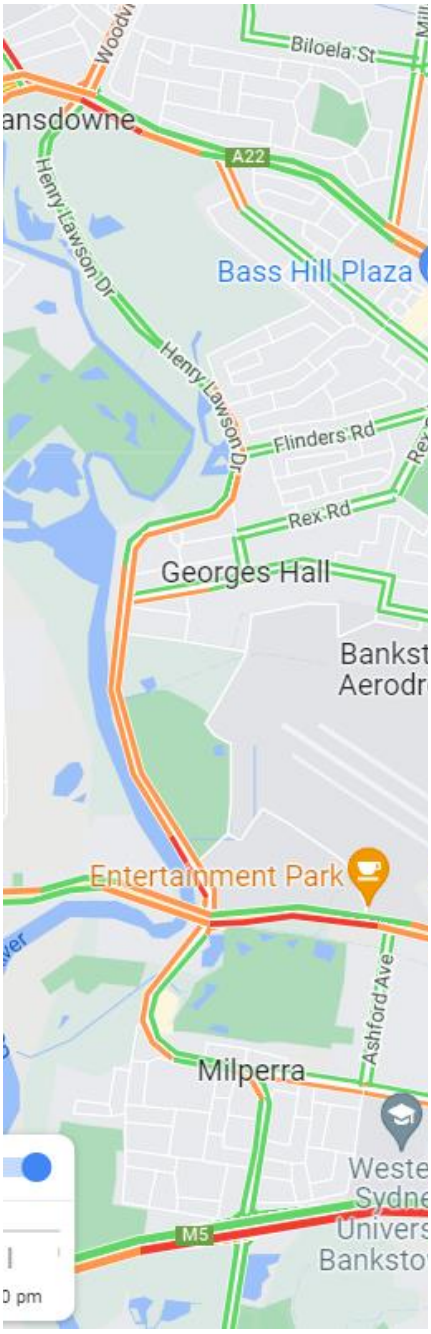
3:45 PM



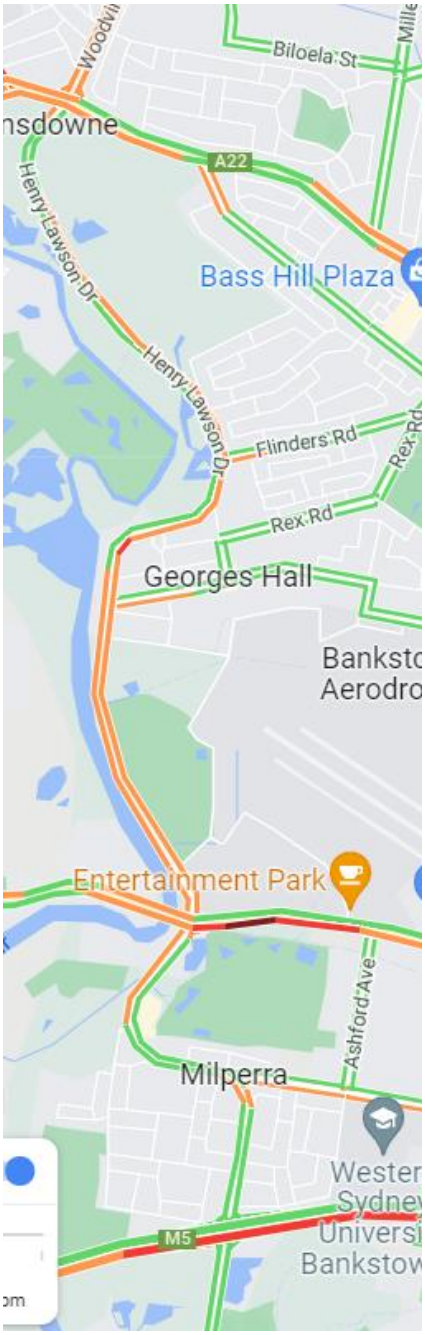
4:00 PM



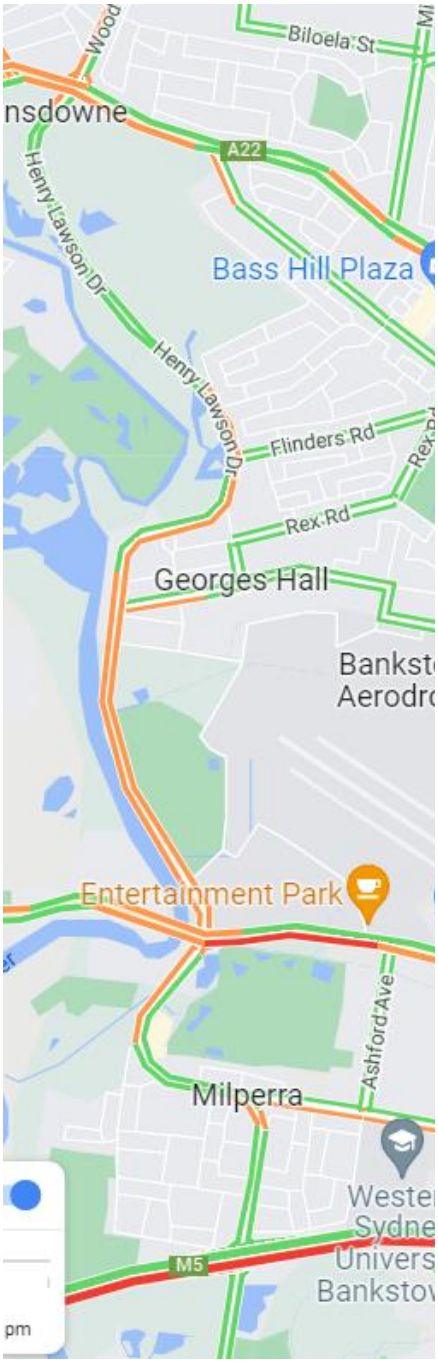
4:15 PM



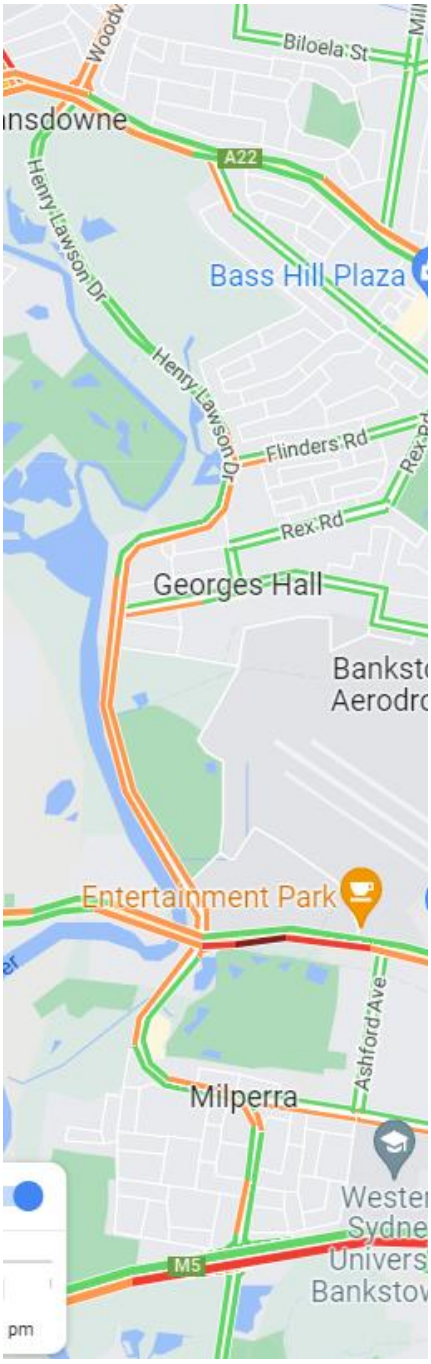
4:30 PM



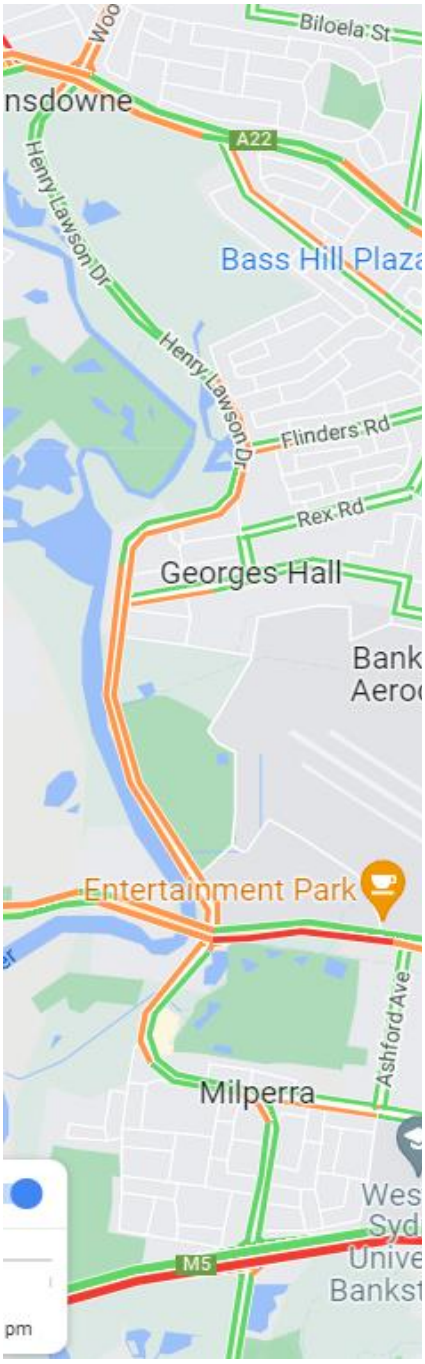
4:45 PM



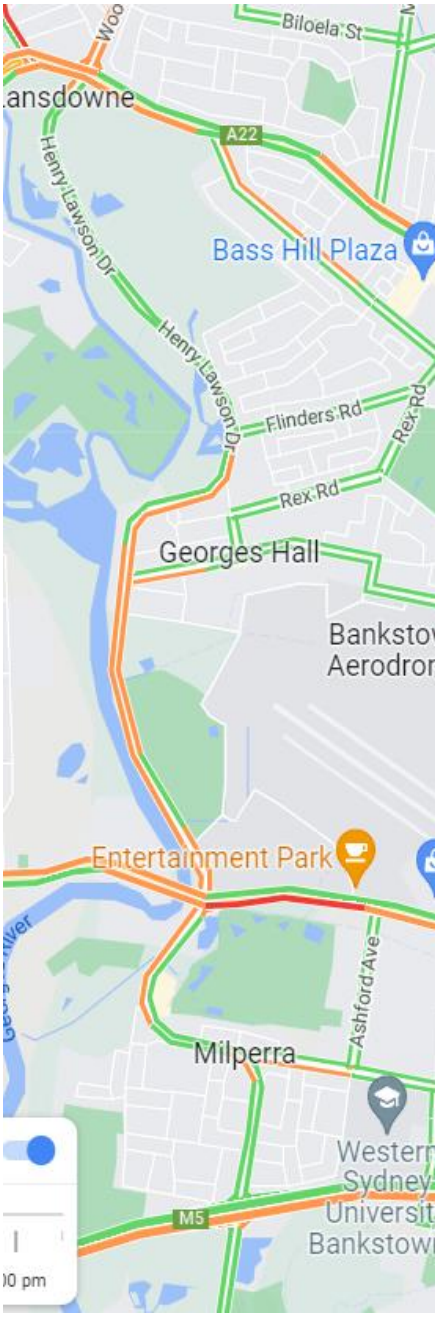
5:00 PM



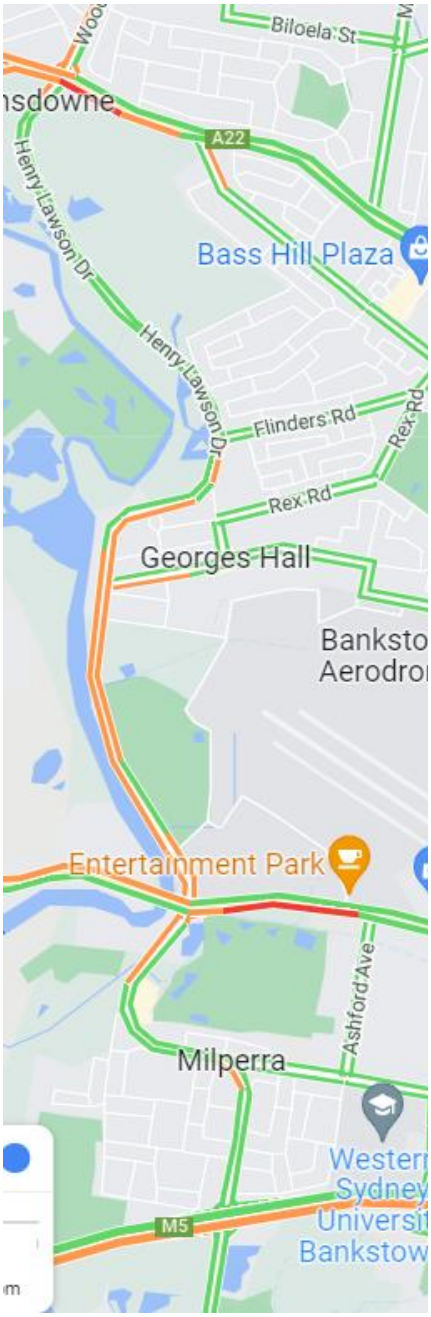
5:15 PM



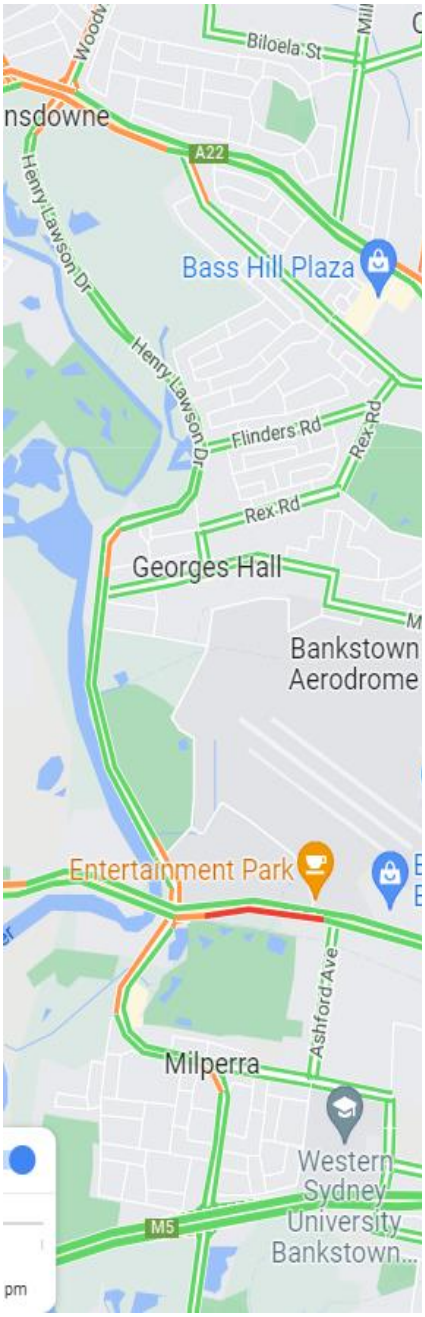
5:30 PM



5:45 PM



6:00 PM



6:15 PM

Appendix B: Model Calibration results.

AM Model
Time period: 7:45-8:45 AM
Vehicle Type: Light Vehicles

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Flinders Road / HLD	Henry Lawson Dr NORTH	L	3058	14	10.2	-3.8	-27.14	1.0924
Flinders Road / HLD	Henry Lawson Dr NORTH	T	5407	1111	1096.8	-14.2	-1.278	0.42739
Flinders Road / HLD	Finders Road EAST	L	2525	156	118.2	-37.8	-24.23	3.2283
Flinders Road / HLD	Finders Road EAST	R	2526	10	9	-1	-10	0.32444
Flinders Road / HLD	Henry Lawson Dr SOUTH	T	2675	982	924.6	-57.4	-5.845	1.8591
Flinders Road / HLD	Henry Lawson Dr SOUTH	R	2676	173	108.2	-64.8	-37.46	5.4649
Haig Avenue / HLD	Henry Lawson Dr NORTH	L	2721	11	11.4	0.4	3.636	0.11952
Haig Avenue / HLD	Henry Lawson Dr NORTH	T	2720	906	907.8	1.8	0.1987	0.059771
Haig Avenue / HLD	Haig Avenue EAST	L	2625	103	99.8	-3.2	-3.107	0.31778
Haig Avenue / HLD	Haig Avenue EAST	R	2626	163	154.6	-8.4	-5.153	0.66658
Haig Avenue / HLD	Henry Lawson Dr SOUTH	T	5854	1012	897	-115	-11.36	3.7223
Haig Avenue / HLD	Henry Lawson Dr SOUTH	R	5855	119	89.4	-29.6	-24.87	2.8997
Rabaul Road / HLD	Henry Lawson Dr NORTH	L	2780	8	3	-5	-62.5	2.132
Rabaul Road / HLD	Henry Lawson Dr NORTH	T	2779	992	1005.2	13.2	1.331	0.41771
Rabaul Road / HLD	Henry Lawson Dr NORTH	R	2781	2	0	-2	-100	2
Rabaul Road / HLD	Rabaul Road EAST	R	4357	55	44	-11	-20	1.5635
Rabaul Road / HLD	Rabaul Road EAST	T	4358	0	0	0	0	0
Rabaul Road / HLD	Rabaul Road EAST	L	4359	1	0	-1	-100	1.4142
Rabaul Road / HLD	Henry Lawson Dr SOUTH	L	5012	4	0.6	-3.4	-85	2.2419
Rabaul Road / HLD	Henry Lawson Dr SOUTH	T	5010	1016	989.2	-26.8	-2.638	0.84639
Rabaul Road / HLD	Henry Lawson Dr SOUTH	R	5011	28	36.2	8.2	29.29	1.4473
Rabaul Road / HLD	Rabaul Road WEST	L	4298	3	0.6	-2.4	-80	1.7889
Rabaul Road / HLD	Rabaul Road WEST	T	4299	0	0	0	0	0
Rabaul Road / HLD	Rabaul Road WEST	R	4300	0	0	0	0	0
HLD / Tower Road	Henry Lawson Dr NORTH	L	1437	8	5.4	-2.6	-32.5	1.0045
HLD / Tower Road	Henry Lawson Dr NORTH	T	5444	1048	1040.2	-7.8	-0.7443	0.24139
HLD / Tower Road	Tower Road EAST	L	5445	208	138.2	-69.8	-33.56	5.3053
HLD / Tower Road	Tower Road EAST	R	2768	3	11.2	8.2	273.3	3.0774
HLD / Tower Road	Henry Lawson Dr SOUTH	T	5443	1042	1012.2	-29.8	-2.86	0.92984
HLD / Tower Road	Henry Lawson Dr SOUTH	R	5446	443	393	-50	-11.29	2.4456

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	L	5468	427	405.8	-21.2	-4.965	1.0389
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	T	2765	482	460.6	-21.4	-4.44	0.98575
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	R	5434	347	296.6	-50.4	-14.52	2.8096
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	L	5461	38	18	-20	-52.63	3.7796
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	T	1845	862	623.8	-238.2	-27.63	8.7393
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	R	5709	193	202.6	9.6	4.974	0.68259
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	L	5457	452	436.8	-15.2	-3.363	0.72104
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	T	1587	608	592.2	-15.8	-2.599	0.64498
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	R	1588	20	21.2	1.2	6	0.26439
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	L	5454	684	621	-63	-9.211	2.4663
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	T	2185	1382	1196.2	-185.8	-13.44	5.1749
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	R	5433	431	348.8	-82.2	-19.07	4.1629
Auld Avenue / HLD	Henry Lawson Dr NORTH	T	1499	946	822.6	-123.4	-13.04	4.1497
Auld Avenue / HLD	Henry Lawson Dr NORTH	R	1500	5	4	-1	-20	0.4714
Auld Avenue / HLD	Henry Lawson Dr SOUTH	L	4922	1	1.8	0.8	80	0.67612
Auld Avenue / HLD	Henry Lawson Dr SOUTH	T	4921	1070	1041.6	-28.4	-2.654	0.87403
Auld Avenue / HLD	Auld Avenue WEST	L	4198	10	26	16	160	3.7712
Auld Avenue / HLD	Auld Avenue WEST	R	4199	7	11.6	4.6	65.71	1.5084
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	L	5512	55	49.2	-5.8	-10.55	0.80354
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	T	5518	864	782.8	-81.2	-9.398	2.8298
HLD / Keys Parade/Flower power	Flower power EAST	L	5505	7	0	-7	-100	3.7417
HLD / Keys Parade/Flower power	Flower Power EAST	R	5507	45	48.8	3.8	8.444	0.55488
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	R	5850	0	2.2	2.2	INF	2.0976
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	T	5506	1026	993	-33	-3.216	1.0386
HLD / Keys Parade/Flower power	Keys Parade WEST	R	5508	33	14.8	-18.2	-55.15	3.7228
HLD / Keys Parade/Flower power	Keys Parade WEST	L	5847	0	2.8	2.8	INF	2.3664
Raleigh Road / HLD	Henry Lawson Dr NORTH	T	3159	825	756.4	-68.6	-8.315	2.4396

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Raleigh Road / HLD	Henry Lawson Dr NORTH	R	3160	46	24.8	-21.2	-46.09	3.5632
Raleigh Road / HLD	Henry Lawson Dr SOUTH	L	3139	3	0	-3	-100	2.4495
Raleigh Road / HLD	Henry Lawson Dr SOUTH	T	5421	988	923.4	-64.6	-6.538	2.0896
Raleigh Road / HLD	Raleigh Road WEST	L	5422	71	85.6	14.6	20.56	1.65
Raleigh Road / HLD	Raleigh Road WEST	R	3132	3	2	-1	-33.33	0.63246
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	T	20959	828	751	-77	-9.3	2.7404
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	R	20960	0	0	0	0	0
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	L	20958	3	0	-3	-100	2.4495
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	T	20957	991	926.6	-64.4	-6.498	2.0798
HLD / Ruthven Avenue	Ruthven Avenue WEST	L	20962	0	0	0	0	0
HLD / Ruthven Avenue	Ruthven Avenue WEST	R	20961	8	0	-8	-100	4
HLD / Whittle Avenue	Henry Lawson Dr NORTH	L	20976	0	0	0	0	0
HLD / Whittle Avenue	Henry Lawson Dr NORTH	T	20977	836	747.2	-88.8	-10.62	3.1562
HLD / Whittle Avenue	Whittle Avenue EAST	L	20979	22	14.6	-7.4	-33.64	1.7298
HLD / Whittle Avenue	Whittle Avenue EAST	R	20978	2	0	-2	-100	2
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	T	20980	992	927.8	-64.2	-6.472	2.0722
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	R	20981	6	0	-6	-100	3.4641
HLD / Amiens Avenue	Henry Lawson Dr NORTH	T	20995	836	736	-100	-11.96	3.5669
HLD / Amiens Avenue	Henry Lawson Dr NORTH	R	20996	22	23.6	1.6	7.273	0.33508
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	L	20998	19	22.8	3.8	20	0.83121
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	T	20997	970	895.2	-74.8	-7.711	2.4494
HLD / Amiens Avenue	Amiens Avenue WEST	L	20999	28	32	4	14.29	0.7303
HLD / Amiens Avenue	Amiens Avenue WEST	R	21000	8	10	2	25	0.66667
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	L	21049	221	189.2	-31.8	-14.39	2.2205
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	T	21050	623	557.4	-65.6	-10.53	2.7003
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	L	21045	93	97	4	4.301	0.41039
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	R	21046	211	138.6	-72.4	-34.31	5.4761
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	T	21048	778	783	5	0.6427	0.17897
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	R	21047	369	290	-79	-21.41	4.3521
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	L	21288	0	0.4	0.4	INF	0.89443
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	T	21287	709	650.8	-58.2	-8.209	2.232
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	R	21289	7	3.4	-3.6	-51.43	1.5787
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	R	21284	26	17.2	-8.8	-33.85	1.8935
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	T	21286	1	7.8	6.8	680	3.2418

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	L	21285	0	0.6	0.6	INF	1.0954
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	L	21295	6	6.6	0.6	10	0.23905
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	T	21294	1108	1041.2	-66.8	-6.029	2.0378
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	R	21293	20	19.8	-0.2	-1	0.044834
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	L	21292	39	41.6	2.6	6.667	0.40956
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	T	21291	2	8.2	6.2	310	2.7454
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	R	21290	9	14.6	5.6	62.22	1.6302
HLD / Hermies Avenue	Henry Lawson Dr NORTH	L	21323	8	8	0	0	0
HLD / Hermies Avenue	Henry Lawson Dr NORTH	T	21322	736	674	-62	-8.424	2.3351
HLD / Hermies Avenue	Hermies Avenue EAST	L	21324	83	68.8	-14.2	-17.11	1.6299
HLD / Hermies Avenue	Hermies Avenue EAST	R	21325	7	0	-7	-100	3.7417
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	T	21320	1127	1071.6	-55.4	-4.916	1.6709
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	R	21321	3	8.4	5.4	180	2.2618
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	T	21341	768	713.8	-54.2	-7.057	1.9912
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	R	21342	51	27.4	-23.6	-46.27	3.7694
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	L	21340	77	74.8	-2.2	-2.857	0.25252
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	T	21339	1060	1018.8	-41.2	-3.887	1.2779
HLD / Pozieres Avenue	Pozieres Avenue WEST	L	21344	70	62.4	-7.6	-10.86	0.93408
HLD / Pozieres Avenue	Pozieres Avenue WEST	R	21343	186	146.8	-39.2	-21.08	3.0389
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	T	21712	640	614.2	-25.8	-4.031	1.0303
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	R	21711	249	215.6	-33.4	-13.41	2.1914
HLD / Swestern Motorway 2	Swestern Motorway EAST	R	21445	28	22.4	-5.6	-20	1.1155
HLD / Swestern Motorway 2	Swestern Motorway EAST	T	21708	1	0	-1	-100	1.4142
HLD / Swestern Motorway 2	Swestern Motorway EAST	L	21709	351	360.8	9.8	2.792	0.51947
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	L	21452	260	217.8	-42.2	-16.23	2.7303
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	T	21707	427	399.4	-27.6	-6.464	1.3578
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	L	21385	346	246.4	-99.6	-28.79	5.7872
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	T	21699	608	603.4	-4.6	-0.7566	0.18691
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	T	21704	724	725.2	1.2	0.1657	0.044579
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	R	21703	54	33	-21	-38.89	3.184
HLD / Swestern Motorway 1	Swestern Motorway WEST	L	21398	413	370.8	-42.2	-10.22	2.1317
HLD / Swestern Motorway 1	Swestern Motorway WEST	T	21700	0	0	0	0	0

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Swestern Motorway 1	Swestern Motorway WEST	R	21701	281	230.4	-50.6	-18.01	3.1644
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	L	4117	0	7	7	INF	3.7417
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	R	4118	4	3.2	-0.8	-20	0.42164
Murray Jones Dr / Milperra Road	Milperra Road EAST	T	5439	1089	1037.2	-51.8	-4.757	1.5887
Murray Jones Dr / Milperra Road	Milperra Road EAST	R	5440	18	3.6	-14.4	-80	4.3818
Murray Jones Dr / Milperra Road	Milperra Road WEST	L	1973	14	7.6	-6.4	-45.71	1.9475
Murray Jones Dr / Milperra Road	Milperra Road WEST	T	1972	1815	1592.4	-222.6	-12.26	5.393
Ashford Avenue / Milperra Road	Milperra Road EAST	L	3685	118	173.4	55.4	46.95	4.5897
Ashford Avenue / Milperra Road	Milperra Road EAST	T	3684	993	949.2	-43.8	-4.411	1.4055
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	L	3768	114	94.2	-19.8	-17.37	1.9406
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	R	3767	203	199.8	-3.2	-1.576	0.22549
Ashford Avenue / Milperra Road	Milperra Road WEST	T	5441	1571	1398.4	-172.6	-10.99	4.4794
Ashford Avenue / Milperra Road	Milperra Road WEST	R	5442	244	199.6	-44.4	-18.2	2.9813
Georges Ces / HLD	Henry Lawson Dr NORTH	L	3084	150	128.2	-21.8	-14.53	1.8484
Georges Ces / HLD	Henry Lawson Dr NORTH	T	5741	1117	1082.2	-34.8	-3.115	1.0495
Georges Ces / HLD	Georges Cres EAST	L	5742	0	0.8	0.8	INF	1.2649
Georges Ces / HLD	Henry Lawson Dr SOUTH	T	4787	1155	1035.4	-119.6	-10.35	3.614
Georges Ces / HLD	Henry Lawson Dr SOUTH	R	4788	0	0	0	0	0
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	T	5181	1057	1013.8	-43.2	-4.087	1.3425
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	R	5739	60	59.2	-0.8	-1.333	0.10363
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	L	5408	0	4	4	INF	2.8284
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	T	4856	1175	1043.4	-131.6	-11.2	3.9514
HLD Reserve Road / HLD	HLD Reserve Road WEST	L	4506	0	0.4	0.4	INF	0.89443
HLD Reserve Road / HLD	HLD Reserve Road WEST	R	4507	0	1.6	1.6	INF	1.7889
Beale Street / HLD	Henry Lawson Dr NORTH	L	4730	140	79.2	-60.8	-43.43	5.8076
Beale Street / HLD	Henry Lawson Dr NORTH	T	4729	917	931	14	1.527	0.46057
Beale Street / HLD	Beale Street EAST	L	4816	0	0.8	0.8	INF	1.2649
Beale Street / HLD	Beale Street EAST	R	4817	0	0.2	0.2	INF	0.63246
Beale Street / HLD	Henry Lawson Dr SOUTH	T	2711	1175	1048.8	-126.2	-10.74	3.7847
Beale Street / HLD	Henry Lawson Dr SOUTH	R	2712	0	0.4	0.4	INF	0.89443
Endevour Road / HLD	Henry Lawson Dr NORTH	L	2770	7	0	-7	-100	3.7417
Endevour Road / HLD	Henry Lawson Dr NORTH	T	5410	1002	1007.6	5.6	0.5589	0.17666
Endevour Road / HLD	Endevour Road EAST	L	5409	0	0.4	0.4	INF	0.89443

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Golf course Road / HLD	Henry Lawson Dr NORTH	L	4905	0	2	2	INF	2
Golf course Road / HLD	Henry Lawson Dr NORTH	T	4904	1047	1042.8	-4.2	-0.4011	0.12993
Golf course Road / HLD	Golf course Road EAST	L	4272	8	15.6	7.6	95	2.2124
Golf course Road / HLD	Golf course Road EAST	R	4273	3	17.2	14.2	473.3	4.4681
Golf course Road / HLD	Henry Lawson Dr SOUTH	T	1693	1045	1019.6	-25.4	-2.431	0.79055
Golf course Road / HLD	Henry Lawson Dr SOUTH	R	1694	0	4.4	4.4	INF	2.9665

AM Model
Time period: 8:45-9:45 AM
Vehicle Type: Light Vehicles

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Flinders Road / HLD	Henry Lawson Dr NORTH	L	3058	9	11.4	2.4	26.67	0.75
Flinders Road / HLD	Henry Lawson Dr NORTH	T	5407	753	733.6	-19.4	-2.576	0.71
Flinders Road / HLD	Finders Road EAST	L	2525	99	73.8	-25.2	-25.45	2.71
Flinders Road / HLD	Finders Road EAST	R	2526	12	8.2	-3.8	-31.67	1.20
Flinders Road / HLD	Henry Lawson Dr SOUTH	T	2675	929	864	-65	-6.997	2.17
Flinders Road / HLD	Henry Lawson Dr SOUTH	R	2676	138	107.2	-30.8	-22.32	2.78
Haig Avenue / HLD	Henry Lawson Dr NORTH	L	2721	15	17	2	13.33	0.50
Haig Avenue / HLD	Henry Lawson Dr NORTH	T	2720	704	722.4	18.4	2.614	0.69
Haig Avenue / HLD	Haig Avenue EAST	L	2625	80	57.2	-22.8	-28.5	2.75
Haig Avenue / HLD	Haig Avenue EAST	R	2626	142	108.6	-33.4	-23.52	2.98
Haig Avenue / HLD	Henry Lawson Dr SOUTH	T	5854	925	863	-62	-6.703	2.07
Haig Avenue / HLD	Henry Lawson Dr SOUTH	R	5855	78	87.6	9.6	12.31	1.06
Rabaul Road / HLD	Henry Lawson Dr NORTH	L	2780	6	1.6	-4.4	-73.33	2.26
Rabaul Road / HLD	Henry Lawson Dr NORTH	T	2779	872	824.4	-47.6	-5.459	1.63
Rabaul Road / HLD	Henry Lawson Dr NORTH	R	2781	1	0	-1	-100	1.41
Rabaul Road / HLD	Rabaul Road EAST	R	4357	34	31.2	-2.8	-8.235	0.49
Rabaul Road / HLD	Rabaul Road EAST	T	4358	-	0	0	0	0.00
Rabaul Road / HLD	Rabaul Road EAST	L	4359	-	0	0	0	0.00
Rabaul Road / HLD	Henry Lawson Dr SOUTH	L	5012	3	1.2	-1.8	-60	1.24
Rabaul Road / HLD	Henry Lawson Dr SOUTH	T	5010	1,057	949.8	-107.2	-10.14	3.38
Rabaul Road / HLD	Henry Lawson Dr SOUTH	R	5011	16	36	20	125	3.92
Rabaul Road / HLD	Rabaul Road WEST	L	4298	2	0.8	-1.2	-60	1.01
Rabaul Road / HLD	Rabaul Road WEST	T	4299	-	0	0	0	0.00
Rabaul Road / HLD	Rabaul Road WEST	R	4300	-	0	0	0	0.00
HLD / Tower Road	Henry Lawson Dr NORTH	L	1437	13	7.4	-5.6	-43.08	1.75
HLD / Tower Road	Henry Lawson Dr NORTH	T	5444	892	883.8	-8.2	-0.9193	0.28
HLD / Tower Road	Tower Road EAST	L	5445	210	183	-27	-12.86	1.93
HLD / Tower Road	Tower Road EAST	R	2768	9	8	-1	-11.11	0.34
HLD / Tower Road	Henry Lawson Dr SOUTH	T	5443	952	921.8	-30.2	-3.172	0.99
HLD / Tower Road	Henry Lawson Dr SOUTH	R	5446	306	292	-14	-4.575	0.81
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	L	5468	389	417.4	28.4	7.301	1.41
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	T	2765	365	384.8	19.8	5.425	1.02

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	R	5434	348	274.4	-73.6	-21.15	4.17
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	L	5461	62	41.6	-20.4	-32.9	2.83
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	T	1845	802	713	-89	-11.1	3.23
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	R	5709	266	167.2	-98.8	-37.14	6.71
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	L	5457	357	392.8	35.8	10.03	1.85
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	T	1587	489	529.6	40.6	8.303	1.80
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	R	1588	22	6.6	-15.4	-70	4.07
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	L	5454	503	543.8	40.8	8.111	1.78
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	T	2185	1,093	1087	-6	-0.5489	0.18
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	R	5433	347	293.8	-53.2	-15.33	2.97
Auld Avenue / HLD	Henry Lawson Dr NORTH	T	1499	770	713.8	-56.2	-7.299	2.06
Auld Avenue / HLD	Henry Lawson Dr NORTH	R	1500	4	4	0	0	0.00
Auld Avenue / HLD	Henry Lawson Dr SOUTH	L	4922	10	7.6	-2.4	-24	0.81
Auld Avenue / HLD	Henry Lawson Dr SOUTH	T	4921	868	934.4	66.4	7.65	2.21
Auld Avenue / HLD	Auld Avenue WEST	L	4198	8	11	3	37.5	0.97
Auld Avenue / HLD	Auld Avenue WEST	R	4199	7	16	9	128.6	2.65
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	L	5512	164	135.4	-28.6	-17.44	2.34
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	T	5518	613	596.4	-16.6	-2.708	0.68
HLD / Keys Parade/Flower power	Flower power EAST	L	5505	40	44.4	4.4	11	0.68
HLD / Keys Parade/Flower power	Flower Power EAST	R	5507	161	167.8	6.8	4.224	0.53
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	L	5850	-	7	7	INF	3.74
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	T	5506	717	776.6	59.6	8.312	2.18
HLD / Keys Parade/Flower power	Keys Parade WEST	R	5508	61	50.6	-10.4	-17.05	1.39
HLD / Keys Parade/Flower power	Keys Parade WEST	L	5847	-	1.8	1.8	INF	1.90
Raleigh Road / HLD	Henry Lawson Dr NORTH	T	3159	623	612.8	-10.2	-1.637	0.41
Raleigh Road / HLD	Henry Lawson Dr NORTH	R	3160	30	28.4	-1.6	-5.333	0.30
Raleigh Road / HLD	Henry Lawson Dr SOUTH	R	3139	10	3	-7	-70	2.75
Raleigh Road / HLD	Henry Lawson Dr SOUTH	T	5421	735	785.8	50.8	6.912	1.84
Raleigh Road / HLD	Raleigh Road WEST	L	5422	43	47.4	4.4	10.23	0.65
Raleigh Road / HLD	Raleigh Road WEST	R	3132	2	1.2	-0.8	-40	0.63
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	T	20959	622	615.8	-6.2	-0.9968	0.25
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	R	20960	3	0	-3	-100	2.45
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	L	20958	5	0	-5	-100	3.16
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	T	20957	731	784.8	53.8	7.36	1.95

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Ruthven Avenue	Ruthven Avenue WEST	L	20962	14	3	-11	-78.57	3.77
HLD / Ruthven Avenue	Ruthven Avenue WEST	R	20961	16	2.4	-13.6	-85	4.48
HLD / Whittle Avenue	Henry Lawson Dr NORTH	L	20976	4	2.4	-1.6	-40	0.89
HLD / Whittle Avenue	Henry Lawson Dr NORTH	T	20977	634	616	-18	-2.839	0.72
HLD / Whittle Avenue	Whittle Avenue EAST	L	20979	4	0	-4	-100	2.83
HLD / Whittle Avenue	Whittle Avenue EAST	R	20978	3	0	-3	-100	2.45
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	T	20980	733	783.4	50.4	6.876	1.83
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	R	20981	4	0	-4	-100	2.83
HLD / Amiens Avenue	Henry Lawson Dr NORTH	T	20995	622	600.8	-21.2	-3.408	0.86
HLD / Amiens Avenue	Henry Lawson Dr NORTH	R	20996	16	16.6	0.6	3.75	0.15
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	L	20998	19	21.4	2.4	12.63	0.53
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	T	20997	722	770.2	48.2	6.676	1.76
HLD / Amiens Avenue	Amiens Avenue WEST	L	20999	15	15	0	0	0.00
HLD / Amiens Avenue	Amiens Avenue WEST	R	21000	7	10.2	3.2	45.71	1.09
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	L	21049	149	132.8	-16.2	-10.87	1.36
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	T	21050	480	475.6	-4.4	-0.9167	0.20
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	L	21045	94	82.2	-11.8	-12.55	1.26
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	R	21046	166	146.6	-19.4	-11.69	1.55
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	T	21048	575	644	69	12	2.79
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	R	21047	284	245.2	-38.8	-13.66	2.39
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	L	21288	4	0.6	-3.4	-85	2.24
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	T	21287	555	553.2	-1.8	-0.3243	0.08
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	R	21289	15	2.6	-12.4	-82.67	4.18
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	R	21284	15	18.4	3.4	22.67	0.83
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	T	21286	-	7.8	7.8	INF	3.95
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	L	21285	1	0.6	-0.4	-40	0.45
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	L	21295	4	4.4	0.4	10	0.20
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	T	21294	813	844.4	31.4	3.862	1.09
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	R	21293	23	15.2	-7.8	-33.91	1.78
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	L	21292	31	37.6	6.6	21.29	1.13
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	T	21291	3	8.4	5.4	180	2.26
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	R	21290	2	10	8	400	3.27
HLD / Hermies Avenue	Henry Lawson Dr NORTH	L	21323	8	1	-7	-87.5	3.30
HLD / Hermies Avenue	Henry Lawson Dr NORTH	T	21322	564	582	18	3.191	0.75

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Hermies Avenue	Hermies Avenue EAST	L	21324	41	50	9	21.95	1.33
HLD / Hermies Avenue	Hermies Avenue EAST	R	21325	14	0	-14	-100	5.29
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	T	21320	826	862.8	36.8	4.455	1.27
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	R	21321	22	17	-5	-22.73	1.13
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	T	21341	592	611	19	3.209	0.77
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	R	21342	13	22	9	69.23	2.15
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	L	21340	98	83.2	-14.8	-15.1	1.55
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	T	21339	808	810.4	2.4	0.297	0.08
HLD / Pozieres Avenue	Pozieres Avenue WEST	L	21344	40	68.8	28.8	72	3.90
HLD / Pozieres Avenue	Pozieres Avenue WEST	R	21343	90	100.2	10.2	11.33	1.05
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	T	21712	445	435	-10	-2.247	0.48
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	R	21711	173	188.6	15.6	9.017	1.16
HLD / Swestern Motorway 2	Swestern Motorway EAST	R	21445	18	24.2	6.2	34.44	1.35
HLD / Swestern Motorway 2	Swestern Motorway EAST	T	21708	-	0	0	0	0.00
HLD / Swestern Motorway 2	Swestern Motorway EAST	L	21709	311	303.4	-7.6	-2.444	0.43
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	L	21452	140	124.6	-15.4	-11	1.34
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	T	21707	298	311.2	13.2	4.43	0.76
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	L	21385	213	228.8	15.8	7.418	1.06
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	T	21699	469	487	18	3.838	0.82
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	T	21704	588	586.2	-1.8	-0.3061	0.07
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	R	21703	21	29.8	8.8	41.9	1.75
HLD / Swestern Motorway 1	Swestern Motorway WEST	L	21398	318	306.4	-11.6	-3.648	0.66
HLD / Swestern Motorway 1	Swestern Motorway WEST	T	21700	-	0	0	0	0.00
HLD / Swestern Motorway 1	Swestern Motorway WEST	R	21701	149	134.4	-14.6	-9.799	1.23
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	L	4117	5	6	1	20	0.43
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	R	4118	78	36.2	-41.8	-53.59	5.53
Murray Jones Dr / Milperra Road	Milperra Road EAST	T	5439	1,052	987	-65	-6.179	2.04
Murray Jones Dr / Milperra Road	Milperra Road EAST	R	5440	10	4.8	-5.2	-52	1.91
Murray Jones Dr / Milperra Road	Milperra Road WEST	L	1973	7	9.4	2.4	34.29	0.84
Murray Jones Dr / Milperra Road	Milperra Road WEST	T	1972	1,497	1509	12	0.8016	0.31
Ashford Avenue / Milperra Road	Milperra Road EAST	L	3685	126	150.2	24.2	19.21	2.06
Ashford Avenue / Milperra Road	Milperra Road EAST	T	3684	954	942.6	-11.4	-1.195	0.37
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	L	3768	108	68.2	-39.8	-36.85	4.24
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	R	3767	164	197.4	33.4	20.37	2.48

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Ashford Avenue / Milperra Road	Milperra Road WEST	T	5441	1,273	1299.2	26.2	2.058	0.73
Ashford Avenue / Milperra Road	Milperra Road WEST	R	5442	193	218.4	25.4	13.16	1.77
Georges Ces / HLD	Henry Lawson Dr NORTH	L	3084	49	46.6	-2.4	-4.898	0.35
Georges Ces / HLD	Henry Lawson Dr NORTH	T	5741	803	763.8	-39.2	-4.882	1.40
Georges Ces / HLD	Georges Cres EAST	L	5742	-	0.2	0.2	INF	0.63
Georges Ces / HLD	Henry Lawson Dr SOUTH	T	4787	1,067	967.2	-99.8	-9.353	3.13
Georges Ces / HLD	Henry Lawson Dr SOUTH	R	4788	-	0	0	0	0.00
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	T	5181	774	763	-11	-1.421	0.40
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	R	5739	29	7.4	-21.6	-74.48	5.06
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	L	5408	-	0.8	0.8	INF	1.26
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	T	4856	1,067	970	-97	-9.091	3.04
HLD Reserve Road / HLD	HLD Reserve Road WEST	L	4506	-	0.4	0.4	INF	0.89
HLD Reserve Road / HLD	HLD Reserve Road WEST	R	4507	-	1	1	INF	1.41
Beale Street / HLD	Henry Lawson Dr NORTH	L	4730	55	34.8	-20.2	-36.73	3.01
Beale Street / HLD	Henry Lawson Dr NORTH	T	4729	719	733.2	14.2	1.975	0.53
Beale Street / HLD	Beale Street EAST	L	4816	-	1.4	1.4	INF	1.67
Beale Street / HLD	Beale Street EAST	R	4817	-	0.2	0.2	INF	0.63
Beale Street / HLD	Henry Lawson Dr SOUTH	T	2711	1,067	969.6	-97.4	-9.128	3.05
Beale Street / HLD	Henry Lawson Dr SOUTH	R	2712	-	0.2	0.2	INF	0.63
Endevour Road / HLD	Henry Lawson Dr NORTH	L	2770	-	0.4	0.4	INF	0.89
Endevour Road / HLD	Henry Lawson Dr NORTH	T	5410	806	779.2	-26.8	-3.325	0.95
Endevour Road / HLD	Endevour Road EAST	L	5409	73	46.6	-26.4	-36.16	3.41
Golf course Road / HLD	Henry Lawson Dr NORTH	L	4905	-	0.4	0.4	INF	0.89
Golf course Road / HLD	Henry Lawson Dr NORTH	T	4904	906	857.8	-48.2	-5.32	1.62
Golf course Road / HLD	Golf course Road EAST	L	4272	42	31	-11	-26.19	1.82
Golf course Road / HLD	Golf course Road EAST	R	4273	79	50.6	-28.4	-35.95	3.53
Golf course Road / HLD	Henry Lawson Dr SOUTH	T	1693	997	924.2	-72.8	-7.302	2.35
Golf course Road / HLD	Henry Lawson Dr SOUTH	R	1694	-	1.6	1.6	INF	1.79

AM Model
Time period: 7:45-8:45 AM
Vehicle Type: Heavy Vehicles

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Flinders Road / HLD	Henry Lawson Dr NORTH	L	3058	-	0	0	0	0.00
Flinders Road / HLD	Henry Lawson Dr NORTH	T	5407	171	135.8	-35.2	-20.58	2.84
Flinders Road / HLD	Finders Road EAST	L	2525	1	0	-1	-100	1.41
Flinders Road / HLD	Finders Road EAST	R	2526	-	0	0	0	0.00
Flinders Road / HLD	Henry Lawson Dr SOUTH	T	2675	137	90.4	-46.6	-34.01	4.37
Flinders Road / HLD	Henry Lawson Dr SOUTH	R	2676	3	0	-3	-100	2.45
Haig Avenue / HLD	Henry Lawson Dr NORTH	L	2721	5	0.8	-4.2	-84	2.47
Haig Avenue / HLD	Henry Lawson Dr NORTH	T	2720	157	130	-27	-17.2	2.25
Haig Avenue / HLD	Haig Avenue EAST	L	2625	12	12.8	0.8	6.667	0.23
Haig Avenue / HLD	Haig Avenue EAST	R	2626	6	13.8	7.8	130	2.48
Haig Avenue / HLD	Henry Lawson Dr SOUTH	T	5854	129	79.2	-49.8	-38.6	4.88
Haig Avenue / HLD	Henry Lawson Dr SOUTH	R	5855	9	12	3	33.33	0.93
Rabaul Road / HLD	Henry Lawson Dr NORTH	L	2780	1	0	-1	-100	1.41
Rabaul Road / HLD	Henry Lawson Dr NORTH	T	2779	129	142.8	13.8	10.7	1.18
Rabaul Road / HLD	Henry Lawson Dr NORTH	R	2781	1	0	-1	-100	1.41
Rabaul Road / HLD	Rabaul Road EAST	R	4357	2	0	-2	-100	2.00
Rabaul Road / HLD	Rabaul Road EAST	T	4358	-	0	0	0	0.00
Rabaul Road / HLD	Rabaul Road EAST	L	4359	-	0	0	0	0.00
Rabaul Road / HLD	Henry Lawson Dr SOUTH	L	5012	-	0	0	0	0.00
Rabaul Road / HLD	Henry Lawson Dr SOUTH	T	5010	137	91.4	-45.6	-33.28	4.27
Rabaul Road / HLD	Henry Lawson Dr SOUTH	R	5011	-	0	0	0	0.00
Rabaul Road / HLD	Rabaul Road WEST	L	4298	1	0	-1	-100	1.41
Rabaul Road / HLD	Rabaul Road WEST	T	4299	-	0	0	0	0.00
Rabaul Road / HLD	Rabaul Road WEST	R	4300	-	0	0	0	0.00
HLD / Tower Road	Henry Lawson Dr NORTH	L	1437	5	0	-5	-100	3.16
HLD / Tower Road	Henry Lawson Dr NORTH	T	5444	177	139.6	-37.4	-21.13	2.97
HLD / Tower Road	Tower Road EAST	L	5445	-	0	0	0	0.00
HLD / Tower Road	Tower Road EAST	R	2768	3	0	-3	-100	2.45
HLD / Tower Road	Henry Lawson Dr SOUTH	T	5443	118	92.6	-25.4	-21.53	2.48
HLD / Tower Road	Henry Lawson Dr SOUTH	R	5446	6	0	-6	-100	3.46
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	L	5468	62	46.2	-15.8	-25.48	2.15

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	T	2765	71	64.8	-6.2	-8.732	0.75
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	R	5434	44	26.8	-17.2	-39.09	2.89
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	L	5461	4	0.2	-3.8	-95	2.62
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	T	1845	99	79	-20	-20.2	2.12
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	R	5709	56	22.2	-33.8	-60.36	5.41
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	L	5457	43	48	5	11.63	0.74
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	T	1587	50	36.4	-13.6	-27.2	2.07
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	R	1588	5	1.4	-3.6	-72	2.01
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	L	5454	18	34.8	16.8	93.33	3.27
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	T	2185	150	142.4	-7.6	-5.067	0.63
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	R	5433	27	37.6	10.6	39.26	1.87
Auld Avenue / HLD	Henry Lawson Dr NORTH	T	1499	102	102.6	0.6	0.5882	0.06
Auld Avenue / HLD	Henry Lawson Dr NORTH	R	1500	-	0	0	0	0.00
Auld Avenue / HLD	Henry Lawson Dr SOUTH	L	4922	5	0	-5	-100	3.16
Auld Avenue / HLD	Henry Lawson Dr SOUTH	T	4921	98	87.6	-10.4	-10.61	1.08
Auld Avenue / HLD	Auld Avenue WEST	L	4198	-	0	0	0	0.00
Auld Avenue / HLD	Auld Avenue WEST	R	4199	-	0	0	0	0.00
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	L	5512	-	0	0	0	0.00
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	T	5518	136	102	-34	-25	3.12
HLD / Keys Parade/Flower power	Flower power EAST	L	5505	4	0	-4	-100	2.83
HLD / Keys Parade/Flower power	Flower Power EAST	R	5507	-	0	0	0	0
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	R	5850	-	0	0	0	0
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	T	5506	103	87.6	-15.4	-14.95	1.5775
HLD / Keys Parade/Flower power	Keys Parade WEST	R	5508	2	0	-2	-100	2
HLD / Keys Parade/Flower power	Keys Parade WEST	L	5847	-	0	0	0	0
Raleigh Road / HLD	Henry Lawson Dr NORTH	T	3159	140	101.8	-38.2	-27.29	3.4742
Raleigh Road / HLD	Henry Lawson Dr NORTH	R	3160	-	0	0	0	0

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Raleigh Road / HLD	Henry Lawson Dr SOUTH	L	3139	2	0	-2	-100	2
Raleigh Road / HLD	Henry Lawson Dr SOUTH	T	5421	101	87.6	-13.4	-13.27	1.3799
Raleigh Road / HLD	Raleigh Road WEST	L	5422	4	0	-4	-100	2.8284
Raleigh Road / HLD	Raleigh Road WEST	R	3132	1	0	-1	-100	1.4142
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	T	20959	141	100.4	-40.6	-28.79	3.6955
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	R	20960	-	0	0	0	0
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	L	20958	-	0	0	0	0
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	T	20957	103	87.6	-15.4	-14.95	1.5775
HLD / Ruthven Avenue	Ruthven Avenue WEST	L	20962	-	0	0	0	0
HLD / Ruthven Avenue	Ruthven Avenue WEST	R	20961	-	0	0	0	0
HLD / Whittle Avenue	Henry Lawson Dr NORTH	L	20976	1	0	-1	-100	1.4142
HLD / Whittle Avenue	Henry Lawson Dr NORTH	T	20977	140	99.4	-40.6	-29	3.7109
HLD / Whittle Avenue	Whittle Avenue EAST	L	20979	-	1.4	1.4	INF	1.6733
HLD / Whittle Avenue	Whittle Avenue EAST	R	20978	-	0	0	0	0
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	T	20980	103	87.6	-15.4	-14.95	1.5775
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	R	20981	-	0	0	0	0
HLD / Amiens Avenue	Henry Lawson Dr NORTH	T	20995	138	96.4	-41.6	-30.14	3.8426
HLD / Amiens Avenue	Henry Lawson Dr NORTH	R	20996	2	4	2	100	1.1547
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	L	20998	6	2	-4	-66.67	2
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	T	20997	103	85.4	-17.6	-17.09	1.8134
HLD / Amiens Avenue	Amiens Avenue WEST	L	20999	-	2.6	2.6	INF	2.2804
HLD / Amiens Avenue	Amiens Avenue WEST	R	21000	2	1	-1	-50	0.8165
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	L	21049	15	24.4	9.4	62.67	2.1178
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	T	21050	125	73	-52	-41.6	5.2262
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	L	21045	29	13.2	-15.8	-54.48	3.4397
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	R	21046	12	18.8	6.8	56.67	1.7328
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	T	21048	97	68.6	-28.4	-29.28	3.1211
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	R	21047	48	28.6	-19.4	-40.42	3.1347
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	L	21288	-	0	0	0	0
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	T	21287	152	86	-66	-43.42	6.0502
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	R	21289	2	0	-2	-100	2
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	R	21284	4	3	-1	-25	0.53452

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	T	21286	-	0.2	0.2	INF	0.63246
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	L	21285	-	0	0	0	0
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	L	21295	2	0.4	-1.6	-80	1.4606
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	T	21294	138	94.4	-43.6	-31.59	4.0447
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	R	21293	-	3.4	3.4	INF	2.6077
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	L	21292	7	3.6	-3.4	-48.57	1.4769
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	T	21291	-	0.4	0.4	INF	0.89443
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	R	21290	1	1.4	0.4	40	0.36515
HLD / Hermies Avenue	Henry Lawson Dr NORTH	L	21323	-	1	1	INF	1.4142
HLD / Hermies Avenue	Henry Lawson Dr NORTH	T	21322	157	89.2	-67.8	-43.18	6.1108
HLD / Hermies Avenue	Hermies Avenue EAST	L	21324	2	8.8	6.8	340	2.9263
HLD / Hermies Avenue	Hermies Avenue EAST	R	21325	2	0	-2	-100	2
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	T	21320	138	98.4	-39.6	-28.7	3.6424
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	R	21321	1	0.2	-0.8	-80	1.0328
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	T	21341	153	94	-59	-38.56	5.3091
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	R	21342	6	3	-3	-50	1.4142
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	L	21340	4	5.4	1.4	35	0.64577
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	T	21339	135	91.4	-43.6	-32.3	4.0979
HLD / Pozieres Avenue	Pozieres Avenue WEST	L	21344	4	7.2	3.2	80	1.3522
HLD / Pozieres Avenue	Pozieres Avenue WEST	R	21343	2	17.8	15.8	790	5.0216
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	T	21712	45	58.8	13.8	30.67	1.9156
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	R	21711	42	30.8	-11.2	-26.67	1.8564
HLD / Swestern Motorway 2	Swestern Motorway EAST	R	21445	2	3.2	1.2	60	0.74421
HLD / Swestern Motorway 2	Swestern Motorway EAST	T	21708	-	0	0	0	0
HLD / Swestern Motorway 2	Swestern Motorway EAST	L	21709	62	35.8	-26.2	-42.26	3.7467
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	L	21452	9	25.8	16.8	186.7	4.0275
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	T	21707	30	47.2	17.2	57.33	2.7684
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	L	21385	84	34.6	-49.4	-58.81	6.415
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	T	21699	71	75.4	4.4	6.197	0.51428
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	T	21704	91	79.2	-11.8	-12.97	1.2791
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	R	21703	1	3.6	2.6	260	1.7144

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Swestern Motorway 1	Swestern Motorway WEST	L	21398	48	17.2	-30.8	-64.17	5.3944
HLD / Swestern Motorway 1	Swestern Motorway WEST	T	21700	-	0	0	0	0
HLD / Swestern Motorway 1	Swestern Motorway WEST	R	21701	16	14.8	-1.2	-7.5	0.30579
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	L	4117	2	0.8	-1.2	-60	1.0142
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	R	4118	5	0.4	-4.6	-92	2.7995
Murray Jones Dr / Milperra Road	Milperra Road EAST	T	5439	154	126.2	-27.8	-18.05	2.3487
Murray Jones Dr / Milperra Road	Milperra Road EAST	R	5440	4	0.8	-3.2	-80	2.0656
Murray Jones Dr / Milperra Road	Milperra Road WEST	L	1973	2	1.2	-0.8	-40	0.63246
Murray Jones Dr / Milperra Road	Milperra Road WEST	T	1972	215	184.2	-30.8	-14.33	2.1801
Ashford Avenue / Milperra Road	Milperra Road EAST	L	3685	19	25.2	6.2	32.63	1.3189
Ashford Avenue / Milperra Road	Milperra Road EAST	T	3684	127	115.6	-11.4	-8.976	1.0351
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	L	3768	31	11.4	-19.6	-63.23	4.2568
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	R	3767	-	21	21	INF	6.4807
Ashford Avenue / Milperra Road	Milperra Road WEST	T	5441	188	166.8	-21.2	-11.28	1.5917
Ashford Avenue / Milperra Road	Milperra Road WEST	R	5442	29	16.6	-12.4	-42.76	2.5969
Georges Ces / HLD	Henry Lawson Dr NORTH	L	3084	-	0	0	0	0
Georges Ces / HLD	Henry Lawson Dr NORTH	T	5741	172	134	-38	-22.09	3.0721
Georges Ces / HLD	Georges Cres EAST	L	5742	-	0	0	0	0
Georges Ces / HLD	Henry Lawson Dr SOUTH	T	4787	140	91	-49	-35	4.5594
Georges Ces / HLD	Henry Lawson Dr SOUTH	R	4788	15	0	-15	-100	5.4772
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	T	5181	162	132.6	-29.4	-18.15	2.4224
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	R	5739	10	0	-10	-100	4.4721
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	L	5408	-	0	0	0	0
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	T	4856	135	92.8	-42.2	-31.26	3.9541
HLD Reserve Road / HLD	HLD Reserve Road WEST	L	4506	-	0	0	0	0
HLD Reserve Road / HLD	HLD Reserve Road WEST	R	4507	-	0	0	0	0
Beale Street / HLD	Henry Lawson Dr NORTH	L	4730	-	0	0	0	0
Beale Street / HLD	Henry Lawson Dr NORTH	T	4729	162	131.8	-30.2	-18.64	2.4917
Beale Street / HLD	Beale Street EAST	L	4816	-	0	0	0	0
Beale Street / HLD	Beale Street EAST	R	4817	-	0	0	0	0
Beale Street / HLD	Henry Lawson Dr SOUTH	T	2711	135	93	-42	-31.11	3.9337
Beale Street / HLD	Henry Lawson Dr SOUTH	R	2712	-	0	0	0	0
Endevour Road / HLD	Henry Lawson Dr NORTH	L	2770	38	0	-38	-100	8.7178
Endevour Road / HLD	Henry Lawson Dr NORTH	T	5410	131	142.8	11.8	9.008	1.0085

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Endevour Road / HLD	Endevour Road EAST	L	5409	-	0	0	0	0
Golf course Road / HLD	Henry Lawson Dr NORTH	L	4905	-	0	0	0	0
Golf course Road / HLD	Henry Lawson Dr NORTH	T	4904	131	141.6	10.6	8.092	0.90794
Golf course Road / HLD	Golf course Road EAST	L	4272	52	1.6	-50.4	-96.92	9.7356
Golf course Road / HLD	Golf course Road EAST	R	4273	16	1.8	-14.2	-88.75	4.7599
Golf course Road / HLD	Henry Lawson Dr SOUTH	T	1693	121	90.6	-30.4	-25.12	2.9555
Golf course Road / HLD	Henry Lawson Dr SOUTH	R	1694	-	1.4	1.4	INF	1.6733

AM Model
Time period: 8:45-9:45 AM
Vehicle Type: Heavy Vehicles

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Flinders Road / HLD	Henry Lawson Dr NORTH	L	3058	0	0.0	0.0	0.0	0.00
Flinders Road / HLD	Henry Lawson Dr NORTH	T	5407	149	128.6	-20.4	-13.7	1.73
Flinders Road / HLD	Finders Road EAST	L	2525	7	0.0	-7.0	-100.0	3.74
Flinders Road / HLD	Finders Road EAST	R	2526	1	0.0	-1.0	-100.0	1.41
Flinders Road / HLD	Henry Lawson Dr SOUTH	T	2675	151	118.6	-32.4	-21.5	2.79
Flinders Road / HLD	Henry Lawson Dr SOUTH	R	2676	8	0.0	-8.0	-100.0	4.00
Haig Avenue / HLD	Henry Lawson Dr NORTH	L	2721	0	2.4	2.4	INF	2.19
Haig Avenue / HLD	Henry Lawson Dr NORTH	T	2720	150	120.8	-29.2	-19.5	2.51
Haig Avenue / HLD	Haig Avenue EAST	L	2625	11	8.4	-2.6	-23.6	0.83
Haig Avenue / HLD	Haig Avenue EAST	R	2626	8	14.0	6.0	75.0	1.81
Haig Avenue / HLD	Henry Lawson Dr SOUTH	T	5854	151	104.4	-46.6	-30.9	4.12
Haig Avenue / HLD	Henry Lawson Dr SOUTH	R	5855	15	10.8	-4.2	-28.0	1.17
Rabaul Road / HLD	Henry Lawson Dr NORTH	L	2780	1	0.0	-1.0	-100.0	1.41
Rabaul Road / HLD	Henry Lawson Dr NORTH	T	2779	138	137.0	-1.0	-0.7	0.09
Rabaul Road / HLD	Henry Lawson Dr NORTH	R	2781	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road EAST	R	4357	2	0.0	-2.0	-100.0	2.00
Rabaul Road / HLD	Rabaul Road EAST	T	4358	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road EAST	L	4359	1	0.0	-1.0	-100.0	1.41
Rabaul Road / HLD	Henry Lawson Dr SOUTH	L	5012	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Henry Lawson Dr SOUTH	T	5010	161	115.8	-45.2	-28.1	3.84
Rabaul Road / HLD	Henry Lawson Dr SOUTH	R	5011	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road WEST	L	4298	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road WEST	T	4299	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road WEST	R	4300	0	0.0	0.0	0.0	0.00
HLD / Tower Road	Henry Lawson Dr NORTH	L	1437	1	0.0	-1.0	-100.0	1.41
HLD / Tower Road	Henry Lawson Dr NORTH	T	5444	182	143.6	-38.4	-21.1	3.01
HLD / Tower Road	Tower Road EAST	L	5445	10	0.0	-10.0	-100.0	4.47
HLD / Tower Road	Tower Road EAST	R	2768	1	0.0	-1.0	-100.0	1.41
HLD / Tower Road	Henry Lawson Dr SOUTH	T	5443	196	108.6	-87.4	-44.6	7.08
HLD / Tower Road	Henry Lawson Dr SOUTH	R	5446	12	0.0	-12.0	-100.0	4.90
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	L	5468	92	69.4	-22.6	-24.6	2.52
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	T	2765	66	52.6	-13.4	-20.3	1.74
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	R	5434	34	23.2	-10.8	-31.8	2.02
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	L	5461	12	0.2	-11.8	-98.3	4.78
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	T	1845	114	111.2	-2.8	-2.5	0.26
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	R	5709	70	27.4	-42.6	-60.9	6.10
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	L	5457	77	53.4	-23.6	-30.7	2.92
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	T	1587	55	41.4	-13.6	-24.7	1.96

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	R	1588	7	1.0	-6.0	-85.7	3.00
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	L	5454	83	39.2	-43.8	-52.8	5.60
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	T	2185	140	171.6	31.6	22.6	2.53
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	R	5433	83	56.8	-26.2	-31.6	3.13
Auld Avenue / HLD	Henry Lawson Dr NORTH	T	1499	161	108.8	-52.2	-32.4	4.49
Auld Avenue / HLD	Henry Lawson Dr NORTH	R	1500	0	0.0	0.0	0.0	0.00
Auld Avenue / HLD	Henry Lawson Dr SOUTH	L	4922	0	0.0	0.0	0.0	0.00
Auld Avenue / HLD	Henry Lawson Dr SOUTH	T	4921	139	97.4	-41.6	-29.9	3.83
Auld Avenue / HLD	Auld Avenue WEST	L	4198	1	0.0	-1.0	-100.0	1.41
Auld Avenue / HLD	Auld Avenue WEST	R	4199	0	0.0	0.0	0.0	0.00
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	L	5512	14	0.0	-14.0	-100.0	5.29
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	T	5518	147	109.4	-37.6	-25.6	3.32
HLD / Keys Parade/Flower power	Flower power EAST	L	5505	3	0.0	-3.0	-100.0	2.45
HLD / Keys Parade/Flower power	Flower Power EAST	R	5507	20	0.0	-20.0	-100.0	6.32
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	R	5850	0	0.0	0.0	0.0	0.00
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	T	5506	119	97.4	-21.6	-18.2	2.08
HLD / Keys Parade/Flower power	Keys Parade WEST	R	5508	1	0.0	-1.0	-100.0	1.41
HLD / Keys Parade/Flower power	Keys Parade WEST	L	5847	0	0.0	0.0	0.0	0.00
Raleigh Road / HLD	Henry Lawson Dr NORTH	T	3159	146	109.6	-36.4	-24.9	3.22
Raleigh Road / HLD	Henry Lawson Dr NORTH	R	3160	4	0.0	-4.0	-100.0	2.83
Raleigh Road / HLD	Henry Lawson Dr SOUTH	L	3139	0	0.0	0.0	0.0	0.00
Raleigh Road / HLD	Henry Lawson Dr SOUTH	T	5421	118	97.4	-20.6	-17.5	1.99
Raleigh Road / HLD	Raleigh Road WEST	L	5422	2	0.0	-2.0	-100.0	2.00
Raleigh Road / HLD	Raleigh Road WEST	R	3132	0	0.0	0.0	0.0	0.00
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	T	20959	146	109.4	-36.6	-25.1	3.24
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	R	20960	0	0.0	0.0	0.0	0.00
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	L	20958	4	0.0	-4.0	-100.0	2.83
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	T	20957	116	98.4	-17.6	-15.2	1.70
HLD / Ruthven Avenue	Ruthven Avenue WEST	L	20962	2	0.0	-2.0	-100.0	2.00
HLD / Ruthven Avenue	Ruthven Avenue WEST	R	20961	4	0.0	-4.0	-100.0	2.83
HLD / Whittle Avenue	Henry Lawson Dr NORTH	L	20976	0	0.0	0.0	0.0	0.00
HLD / Whittle Avenue	Henry Lawson Dr NORTH	T	20977	150	109.6	-40.4	-26.9	3.55
HLD / Whittle Avenue	Whittle Avenue EAST	L	20979	2	0.0	-2.0	-100.0	2.00

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Whittle Avenue	Whittle Avenue EAST	R	20978	0	0.0	0.0	0.0	0.00
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	T	20980	120	98.4	-21.6	-18.0	2.07
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	R	20981	0	0.0	0.0	0.0	0.00
HLD / Amiens Avenue	Henry Lawson Dr NORTH	T	20995	150	109.2	-40.8	-27.2	3.58
HLD / Amiens Avenue	Henry Lawson Dr NORTH	R	20996	2	0.8	-1.2	-60.0	1.01
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	L	20998	6	2.2	-3.8	-63.3	1.88
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	T	20997	117	97.0	-20.0	-17.1	1.93
HLD / Amiens Avenue	Amiens Avenue WEST	L	20999	3	1.2	-1.8	-60.0	1.24
HLD / Amiens Avenue	Amiens Avenue WEST	R	21000	2	1.0	-1.0	-50.0	0.82
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	L	21049	19	20.6	1.6	8.4	0.36
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	T	21050	133	88.6	-44.4	-33.4	4.22
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	L	21045	44	14.2	-29.8	-67.7	5.52
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	R	21046	20	18.4	-1.6	-8.0	0.37
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	T	21048	103	82.2	-20.8	-20.2	2.16
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	R	21047	44	34.2	-9.8	-22.3	1.57
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	L	21288	0	0.0	0.0	0.0	0.00
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	T	21287	177	101.8	-75.2	-42.5	6.37
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	R	21289	0	0.2	0.2	INF	0.63
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	R	21284	0	3.6	3.6	INF	2.68
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	T	21286	0	1.2	1.2	INF	1.55
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	L	21285	1	0.0	-1.0	-100.0	1.41
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	L	21295	1	0.8	-0.2	-20.0	0.21
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	T	21294	145	109.2	-35.8	-24.7	3.18
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	R	21293	1	2.0	1.0	100.0	0.82
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	L	21292	1	7.0	6.0	600.0	3.00
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	T	21291	0	1.4	1.4	INF	1.67
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	R	21290	0	0.8	0.8	INF	1.26
HLD / Hermies Avenue	Henry Lawson Dr NORTH	L	21323	1	0.6	-0.4	-40.0	0.45
HLD / Hermies Avenue	Henry Lawson Dr NORTH	T	21322	176	105.8	-70.2	-39.9	5.91
HLD / Hermies Avenue	Hermies Avenue EAST	L	21324	2	7.4	5.4	270.0	2.49

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Hermies Avenue	Hermies Avenue EAST	R	21325	0	0.0	0.0	0.0	0.00
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	T	21320	147	111.8	-35.2	-24.0	3.09
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	R	21321	4	1.6	-2.4	-60.0	1.43
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	T	21341	178	108.8	-69.2	-38.9	5.78
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	R	21342	0	5.4	5.4	INF	3.29
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	L	21340	31	13.8	-17.2	-55.5	3.63
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	T	21339	147	104.4	-42.6	-29.0	3.80
HLD / Pozieres Avenue	Pozieres Avenue WEST	L	21344	4	9.0	5.0	125.0	1.96
HLD / Pozieres Avenue	Pozieres Avenue WEST	R	21343	5	22.4	17.4	348.0	4.70
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	T	21712	32	57.8	25.8	80.6	3.85
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	R	21711	44	24.2	-19.8	-45.0	3.39
HLD / Swestern Motorway 2	Swestern Motorway EAST	R	21445	1	4.4	3.4	340.0	2.07
HLD / Swestern Motorway 2	Swestern Motorway EAST	T	21708	0	0.0	0.0	0.0	0.00
HLD / Swestern Motorway 2	Swestern Motorway EAST	L	21709	68	51.0	-17.0	-25.0	2.20
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	L	21452	7	23.6	16.6	237.1	4.24
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	T	21707	35	48.4	13.4	38.3	2.08
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	L	21385	116	61.2	-54.8	-47.2	5.82
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	T	21699	67	69.4	2.4	3.6	0.29
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	T	21704	99	95.8	-3.2	-3.2	0.32
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	R	21703	4	3.6	-0.4	-10.0	0.21
HLD / Swestern Motorway 1	Swestern Motorway WEST	L	21398	79	22.8	-56.2	-71.1	7.88
HLD / Swestern Motorway 1	Swestern Motorway WEST	T	21700	0	0.0	0.0	0.0	0.00
HLD / Swestern Motorway 1	Swestern Motorway WEST	R	21701	9	13.0	4.0	44.4	1.21
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	L	4117	0	0.4	0.4	INF	0.89
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	R	4118	0	5.6	5.6	INF	3.35
Murray Jones Dr / Milperra Road	Milperra Road EAST	T	5439	196	158.8	-37.2	-19.0	2.79
Murray Jones Dr / Milperra Road	Milperra Road EAST	R	5440	0	0.6	0.6	INF	1.10
Murray Jones Dr / Milperra Road	Milperra Road WEST	L	1973	0	1.6	1.6	INF	1.79
Murray Jones Dr / Milperra Road	Milperra Road WEST	T	1972	239	240.0	1.0	0.4	0.06
Ashford Avenue / Milperra Road	Milperra Road EAST	L	3685	23	24.8	1.8	7.8	0.37
Ashford Avenue / Milperra Road	Milperra Road EAST	T	3684	176	158.6	-17.4	-9.9	1.35
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	L	3768	20	5.8	-14.2	-71.0	3.95
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	R	3767	10	27.0	17.0	170.0	3.95
Ashford Avenue / Milperra Road	Milperra Road WEST	T	5441	243	215.8	-27.2	-11.2	1.80

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Ashford Avenue / Milperra Road	Milperra Road WEST	R	5442	32	25.4	-6.6	-20.6	1.23
Georges Ces / HLD	Henry Lawson Dr NORTH	L	3084	6	0.0	-6.0	-100.0	3.46
Georges Ces / HLD	Henry Lawson Dr NORTH	T	5741	150	130.2	-19.8	-13.2	1.67
Georges Ces / HLD	Georges Cres EAST	L	5742	0	0.0	0.0	0.0	0.00
Georges Ces / HLD	Henry Lawson Dr SOUTH	T	4787	159	118.0	-41.0	-25.8	3.48
Georges Ces / HLD	Henry Lawson Dr SOUTH	R	4788	0	0.0	0.0	0.0	0.00
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	T	5181	150	129.6	-20.4	-13.6	1.73
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	R	5739	0	0.0	0.0	0.0	0.00
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	L	5408	0	0.0	0.0	0.0	0.00
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	T	4856	159	118.4	-40.6	-25.5	3.45
HLD Reserve Road / HLD	HLD Reserve Road WEST	L	4506	0	0.0	0.0	0.0	0.00
HLD Reserve Road / HLD	HLD Reserve Road WEST	R	4507	0	0.0	0.0	0.0	0.00
Beale Street / HLD	Henry Lawson Dr NORTH	L	4730	0	7.0	7.0	INF	3.74
Beale Street / HLD	Henry Lawson Dr NORTH	T	4729	150	123.4	-26.6	-17.7	2.28
Beale Street / HLD	Beale Street EAST	L	4816	0	0.0	0.0	0.0	0.00
Beale Street / HLD	Beale Street EAST	R	4817	0	0.2	0.2	INF	0.63
Beale Street / HLD	Henry Lawson Dr SOUTH	T	2711	159	118.4	-40.6	-25.5	3.45
Beale Street / HLD	Henry Lawson Dr SOUTH	R	2712	0	0.0	0.0	0.0	0.00
Endevour Road / HLD	Henry Lawson Dr NORTH	L	2770	0	0.0	0.0	0.0	0.00
Endevour Road / HLD	Henry Lawson Dr NORTH	T	5410	139	129.2	-9.8	-7.1	0.85
Endevour Road / HLD	Endevour Road EAST	L	5409	0	7.8	7.8	INF	3.95
Golf course Road / HLD	Henry Lawson Dr NORTH	L	4905	0	0.2	0.2	INF	0.63
Golf course Road / HLD	Henry Lawson Dr NORTH	T	4904	140	138.0	-2.0	-1.4	0.17
Golf course Road / HLD	Golf course Road EAST	L	4272	0	4.6	4.6	INF	3.03
Golf course Road / HLD	Golf course Road EAST	R	4273	0	7.8	7.8	INF	3.95
Golf course Road / HLD	Henry Lawson Dr SOUTH	T	1693	161	107.2	-53.8	-33.4	4.65
Golf course Road / HLD	Henry Lawson Dr SOUTH	R	1694	0	0.0	0.0	0.0	0.00

PM Model
Time period: 3:30-4:30 PM
Vehicle Type: Light Vehicles

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Flinders Road / HLD	Henry Lawson Dr NORTH	L	3058	21	26.6	5.6	26.7	1.15
Flinders Road / HLD	Henry Lawson Dr NORTH	T	5407	857	951.2	94.2	11.0	3.13
Flinders Road / HLD	Finders Road EAST	L	2525	153	141.0	-12.0	-7.8	0.99
Flinders Road / HLD	Finders Road EAST	R	2526	18	19.8	1.8	10.0	0.41
Flinders Road / HLD	Henry Lawson Dr SOUTH	T	2675	991	893.2	-97.8	-9.9	3.19
Flinders Road / HLD	Henry Lawson Dr SOUTH	R	2676	165	122.8	-42.2	-25.6	3.52
Haig Avenue / HLD	Henry Lawson Dr NORTH	L	2721	12	6.8	-5.2	-43.3	1.70
Haig Avenue / HLD	Henry Lawson Dr NORTH	T	2720	832	880.2	48.2	5.8	1.65
Haig Avenue / HLD	Haig Avenue EAST	L	2625	219	242.8	23.8	10.9	1.57
Haig Avenue / HLD	Haig Avenue EAST	R	2626	144	153.0	9.0	6.3	0.74
Haig Avenue / HLD	Henry Lawson Dr SOUTH	T	5854	1015	881.0	-134.0	-13.2	4.35
Haig Avenue / HLD	Henry Lawson Dr SOUTH	R	5855	119	82.8	-36.2	-30.4	3.60
Rabaul Road / HLD	Henry Lawson Dr NORTH	L	2780	2	4.6	2.6	130.0	1.43
Rabaul Road / HLD	Henry Lawson Dr NORTH	T	2779	1079	1117.8	38.8	3.6	1.17
Rabaul Road / HLD	Henry Lawson Dr NORTH	R	2781	2	0.0	-2.0	-100.0	2.00
Rabaul Road / HLD	Rabaul Road EAST	R	4357	126	123.4	-2.6	-2.1	0.23
Rabaul Road / HLD	Rabaul Road EAST	T	4358	1	0.0	-1.0	-100.0	1.41
Rabaul Road / HLD	Rabaul Road EAST	L	4359	5	1.6	-3.4	-68.0	1.87
Rabaul Road / HLD	Henry Lawson Dr SOUTH	L	5012	1	3.4	2.4	240.0	1.62
Rabaul Road / HLD	Henry Lawson Dr SOUTH	T	5010	1011	965.8	-45.2	-4.5	1.44
Rabaul Road / HLD	Henry Lawson Dr SOUTH	R	5011	23	9.8	-13.2	-57.4	3.26
Rabaul Road / HLD	Rabaul Road WEST	L	4298	6	4.0	-2.0	-33.3	0.89
Rabaul Road / HLD	Rabaul Road WEST	T	4299	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road WEST	R	4300	0	0.0	0.0	0.0	0.00
HLD / Tower Road	Henry Lawson Dr NORTH	L	1437	19	19.2	0.2	1.1	0.05
HLD / Tower Road	Henry Lawson Dr NORTH	T	5444	1146	1151.0	5.0	0.4	0.15
HLD / Tower Road	Tower Road EAST	L	5445	391	400.6	9.6	2.5	0.48
HLD / Tower Road	Tower Road EAST	R	2768	25	23.6	-1.4	-5.6	0.28
HLD / Tower Road	Henry Lawson Dr SOUTH	T	5443	1010	962.4	-47.6	-4.7	1.52
HLD / Tower Road	Henry Lawson Dr SOUTH	R	5446	310	246.2	-63.8	-20.6	3.83
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	L	5468	414	403.0	-11.0	-2.7	0.54
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	T	2765	526	572.4	46.4	8.8	1.98
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	R	5434	597	537.4	-59.6	-10.0	2.50
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	L	5461	52	51.0	-1.0	-1.9	0.14
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	T	1845	1513	1348.4	-164.6	-10.9	4.35
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	R	5709	325	306.8	-18.2	-5.6	1.02
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	L	5457	614	601.4	-12.6	-2.1	0.51
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	T	1587	403	431.8	28.8	7.1	1.41
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	R	1588	26	1.2	-24.8	-95.4	6.72
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	L	5454	592	481.8	-110.2	-18.6	4.76

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	T	2185	1015	948.8	-66.2	-6.5	2.11
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	R	5433	547	405.8	-141.2	-25.8	6.47
Auld Avenue / HLD	Henry Lawson Dr NORTH	T	1499	1115	1006.4	-108.6	-9.7	3.33
Auld Avenue / HLD	Henry Lawson Dr NORTH	R	1500	10	17.0	7.0	70.0	1.91
Auld Avenue / HLD	Henry Lawson Dr SOUTH	L	4922	6	3.0	-3.0	-50.0	1.41
Auld Avenue / HLD	Henry Lawson Dr SOUTH	T	4921	1043	1046.8	3.8	0.4	0.12
Auld Avenue / HLD	Auld Avenue WEST	L	4198	11	9.4	-1.6	-14.6	0.50
Auld Avenue / HLD	Auld Avenue WEST	R	4199	6	0.0	-6.0	-100.0	3.46
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	L	5512	239	177.0	-62.0	-25.9	4.30
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	T	5518	869	829.0	-40.0	-4.6	1.37
HLD / Keys Parade/Flower power	Flower power EAST	L	5505	59	52.0	-7.0	-11.9	0.94
HLD / Keys Parade/Flower power	Flower Power EAST	R	5507	87	81.6	-5.4	-6.2	0.59
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	R	5850	0	0.8	0.8	INF	1.26
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	T	5506	944	971.4	27.4	2.9	0.89
HLD / Keys Parade/Flower power	Keys Parade WEST	R	5508	38	29.8	-8.2	-21.6	1.41
HLD / Keys Parade/Flower power	Keys Parade WEST	L	5847	0	1.0	1.0	INF	1.41
Raleigh Road / HLD	Henry Lawson Dr NORTH	T	3159	851	826.8	-24.2	-2.8	0.84
Raleigh Road / HLD	Henry Lawson Dr NORTH	R	3160	77	51.4	-25.6	-33.3	3.20
Raleigh Road / HLD	Henry Lawson Dr SOUTH	L	3139	12	11.2	-0.8	-6.7	0.23
Raleigh Road / HLD	Henry Lawson Dr SOUTH	T	5421	942	931.8	-10.2	-1.1	0.33
Raleigh Road / HLD	Raleigh Road WEST	L	5422	40	72.8	32.8	82.0	4.37
Raleigh Road / HLD	Raleigh Road WEST	R	3132	4	0.0	-4.0	-100.0	2.83
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	T	20959	854	820.8	-33.2	-3.9	1.15
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	R	20960	1	0.0	-1.0	-100.0	1.41
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	L	20958	19	31.8	12.8	67.4	2.54
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	T	20957	954	945.6	-8.4	-0.9	0.27
HLD / Ruthven Avenue	Ruthven Avenue WEST	L	20962	0	0.0	0.0	0.0	0.00
HLD / Ruthven Avenue	Ruthven Avenue WEST	R	20961	10	0.0	-10.0	-100.0	4.47
HLD / Whittle Avenue	Henry Lawson Dr NORTH	L	20976	11	0.0	-11.0	-100.0	4.69
HLD / Whittle Avenue	Henry Lawson Dr NORTH	T	20977	853	820.2	-32.8	-3.8	1.13
HLD / Whittle Avenue	Whittle Avenue EAST	L	20979	4	9.6	5.6	140.0	2.15
HLD / Whittle Avenue	Whittle Avenue EAST	R	20978	5	0.0	-5.0	-100.0	3.16
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	T	20980	968	978.2	10.2	1.1	0.33
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	R	20981	8	7.2	-0.8	-10.0	0.29
HLD / Amiens Avenue	Henry Lawson Dr NORTH	T	20995	842	816.8	-25.2	-3.0	0.88
HLD / Amiens Avenue	Henry Lawson Dr NORTH	R	20996	15	11.8	-3.2	-21.3	0.87
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	L	20998	34	44.4	10.4	30.6	1.66
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	T	20997	962	974.0	12.0	1.2	0.39
HLD / Amiens Avenue	Amiens Avenue WEST	L	20999	14	13.0	-1.0	-7.1	0.27
HLD / Amiens Avenue	Amiens Avenue WEST	R	21000	14	4.8	-9.2	-65.7	3.00
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	L	21049	129	119.8	-9.2	-7.1	0.82
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	T	21050	727	697.0	-30.0	-4.1	1.12
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	L	21045	182	216.8	34.8	19.1	2.46
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	R	21046	338	314.2	-23.8	-7.0	1.32
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	T	21048	658	708.0	50.0	7.6	1.91

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	R	21047	127	107.8	-19.2	-15.1	1.77
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	L	21288	4	4.6	0.6	15.0	0.29
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	T	21287	890	902.0	12.0	1.3	0.40
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	R	21289	15	6.8	-8.2	-54.7	2.48
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	R	21284	59	57.0	-2.0	-3.4	0.26
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	T	21286	2	1.4	-0.6	-30.0	0.46
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	L	21285	0	1.2	1.2	INF	1.55
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	L	21295	8	6.6	-1.4	-17.5	0.52
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	T	21294	763	796.4	33.4	4.4	1.20
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	R	21293	6	1.4	-4.6	-76.7	2.39
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	L	21292	22	23.4	1.4	6.4	0.29
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	T	21291	2	3.2	1.2	60.0	0.74
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	R	21290	4	4.8	0.8	20.0	0.38
HLD / Hermies Avenue	Henry Lawson Dr NORTH	L	21323	15	12.4	-2.6	-17.3	0.70
HLD / Hermies Avenue	Henry Lawson Dr NORTH	T	21322	938	947.2	9.2	1.0	0.30
HLD / Hermies Avenue	Hermies Avenue EAST	L	21324	139	113.6	-25.4	-18.3	2.26
HLD / Hermies Avenue	Hermies Avenue EAST	R	21325	5	5.4	0.4	8.0	0.18
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	T	21320	772	799.4	27.4	3.5	0.98
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	R	21321	53	46.8	-6.2	-11.7	0.88
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	T	21341	1031	1024.8	-6.2	-0.6	0.19
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	R	21342	46	33.8	-12.2	-26.5	1.93
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	L	21340	87	94.8	7.8	9.0	0.82
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	T	21339	772	797.4	25.4	3.3	0.91
HLD / Pozieres Avenue	Pozieres Avenue WEST	L	21344	53	51.2	-1.8	-3.4	0.25
HLD / Pozieres Avenue	Pozieres Avenue WEST	R	21343	94	73.2	-20.8	-22.1	2.27
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	T	21712	539	531.4	-7.6	-1.4	0.33
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	R	21711	429	393.0	-36.0	-8.4	1.78
HLD / Swestern Motorway 2	Swestern Motorway EAST	R	21445	34	13.0	-21.0	-61.8	4.33
HLD / Swestern Motorway 2	Swestern Motorway EAST	T	21708	3	1.2	-1.8	-60.0	1.24
HLD / Swestern Motorway 2	Swestern Motorway EAST	L	21709	271	259.8	-11.2	-4.1	0.69
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	L	21452	169	179.8	10.8	6.4	0.82
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	T	21707	451	467.4	16.4	3.6	0.77
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	L	21385	354	339.8	-14.2	-4.0	0.76
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	T	21699	771	745.6	-25.4	-3.3	0.92
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	T	21704	680	701.4	21.4	3.1	0.81
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	R	21703	42	25.2	-16.8	-40.0	2.90
HLD / Swestern Motorway 1	Swestern Motorway WEST	L	21398	179	196.8	17.8	9.9	1.30
HLD / Swestern Motorway 1	Swestern Motorway WEST	T	21700	0	0.4	0.4	INF	0.89
HLD / Swestern Motorway 1	Swestern Motorway WEST	R	21701	197	187.2	-9.8	-5.0	0.71
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	L	4117	13	21.6	8.6	66.2	2.07
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	R	4118	9	9.6	0.6	6.7	0.20
Murray Jones Dr / Milperra Road	Milperra Road EAST	T	5439	1881	1942.4	61.4	3.3	1.40

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Murray Jones Dr / Milperra Road	Milperra Road EAST	R	5440	6	0.0	-6.0	-100.0	3.46
Murray Jones Dr / Milperra Road	Milperra Road WEST	L	1973	1	0.0	-1.0	-100.0	1.41
Murray Jones Dr / Milperra Road	Milperra Road WEST	T	1972	1454	1329.0	-125.0	-8.6	3.35
Ashford Avenue / Milperra Road	Milperra Road EAST	L	3685	280	244.4	-35.6	-12.7	2.20
Ashford Avenue / Milperra Road	Milperra Road EAST	T	3684	1688	1743.4	55.4	3.3	1.34
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	L	3768	199	209.8	10.8	5.4	0.76
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	R	3767	177	156.4	-20.6	-11.6	1.60
Ashford Avenue / Milperra Road	Milperra Road WEST	T	5441	1304	1233.8	-70.2	-5.4	1.97
Ashford Avenue / Milperra Road	Milperra Road WEST	R	5442	163	117.4	-45.6	-28.0	3.85
Georges Ces / HLD	Henry Lawson Dr NORTH	L	3084	75	109.8	34.8	46.4	3.62
Georges Ces / HLD	Henry Lawson Dr NORTH	T	5741	935	978.0	43.0	4.6	1.39
Georges Ces / HLD	Georges Cres EAST	L	5742	0	2.8	2.8	INF	2.37
Georges Ces / HLD	Henry Lawson Dr SOUTH	T	4787	1159	1018.6	-140.4	-12.1	4.25
Georges Ces / HLD	Henry Lawson Dr SOUTH	R	4788	0	0.0	0.0	0.0	0.00
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	T	5181	912	949.4	37.4	4.1	1.23
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	R	5739	23	20.4	-2.6	-11.3	0.56
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	L	5408	0	3.8	3.8	INF	2.76
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	T	4856	1159	1027.0	-132.0	-11.4	3.99
HLD Reserve Road / HLD	HLD Reserve Road WEST	L	4506	0	1.8	1.8	INF	1.90
HLD Reserve Road / HLD	HLD Reserve Road WEST	R	4507	0	5.0	5.0	INF	3.16
Beale Street / HLD	Henry Lawson Dr NORTH	L	4730	68	58.6	-9.4	-13.8	1.18
Beale Street / HLD	Henry Lawson Dr NORTH	T	4729	844	886.4	42.4	5.0	1.44
Beale Street / HLD	Beale Street EAST	L	4816	0	13.4	13.4	INF	5.18
Beale Street / HLD	Beale Street EAST	R	4817	0	0.0	0.0	0.0	0.00
Beale Street / HLD	Henry Lawson Dr SOUTH	T	2711	1159	1032.0	-127.0	-11.0	3.84
Beale Street / HLD	Henry Lawson Dr SOUTH	R	2712	0	1.2	1.2	INF	1.55
Endevour Road / HLD	Henry Lawson Dr NORTH	L	2770	0	0.6	0.6	INF	1.10
Endevour Road / HLD	Henry Lawson Dr NORTH	T	5410	1083	1122.4	39.4	3.6	1.19
Endevour Road / HLD	Endevour Road EAST	L	5409	0	0.8	0.8	INF	1.26
Golf course Road / HLD	Henry Lawson Dr NORTH	L	4905	40	47.0	7.0	17.5	1.06
Golf course Road / HLD	Henry Lawson Dr NORTH	T	4904	1165	1181.0	16.0	1.4	0.47
Golf course Road / HLD	Golf course Road EAST	L	4272	0	0.0	0.0	0.0	0.00
Golf course Road / HLD	Golf course Road EAST	R	4273	0	0.0	0.0	0.0	0.00
Golf course Road / HLD	Henry Lawson Dr SOUTH	T	1693	1035	977.8	-57.2	-5.5	1.80
Golf course Road / HLD	Henry Lawson Dr SOUTH	R	1694	0	0.0	0.0	0.0	0.00

PM Model
Time period: 4:30-5:30 PM
Vehicle Type: Light Vehicles

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Flinders Road / HLD	Henry Lawson Dr NORTH	L	3058	33	29.2	-3.8	-11.5	0.68
Flinders Road / HLD	Henry Lawson Dr NORTH	T	5407	924	944.0	20.0	2.2	0.65
Flinders Road / HLD	Finders Road EAST	L	2525	140	189.4	49.4	35.3	3.85
Flinders Road / HLD	Finders Road EAST	R	2526	17	18.4	1.4	8.2	0.33
Flinders Road / HLD	Henry Lawson Dr SOUTH	T	2675	958	949.4	-8.6	-0.9	0.28
Flinders Road / HLD	Henry Lawson Dr SOUTH	R	2676	205	197.6	-7.4	-3.6	0.52
Haig Avenue / HLD	Henry Lawson Dr NORTH	L	2721	6	8.6	2.6	43.3	0.96
Haig Avenue / HLD	Henry Lawson Dr NORTH	T	2720	886	935.2	49.2	5.6	1.63
Haig Avenue / HLD	Haig Avenue EAST	L	2625	96	122.0	26.0	27.1	2.49
Haig Avenue / HLD	Haig Avenue EAST	R	2626	153	152.0	-1.0	-0.7	0.08
Haig Avenue / HLD	Henry Lawson Dr SOUTH	T	5854	1010	1003.4	-6.6	-0.7	0.21
Haig Avenue / HLD	Henry Lawson Dr SOUTH	R	5855	104	99.6	-4.4	-4.2	0.44
Rabaul Road / HLD	Henry Lawson Dr NORTH	L	2780	2	3.0	1.0	50.0	0.63
Rabaul Road / HLD	Henry Lawson Dr NORTH	T	2779	1172	1238.4	66.4	5.7	1.91
Rabaul Road / HLD	Henry Lawson Dr NORTH	R	2781	10	8.8	-1.2	-12.0	0.39
Rabaul Road / HLD	Rabaul Road EAST	R	4357	153	122.6	-30.4	-19.9	2.59
Rabaul Road / HLD	Rabaul Road EAST	T	4358	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road EAST	L	4359	9	0.6	-8.4	-93.3	3.83
Rabaul Road / HLD	Henry Lawson Dr SOUTH	L	5012	1	5.8	4.8	480.0	2.60
Rabaul Road / HLD	Henry Lawson Dr SOUTH	T	5010	1044	1107.4	63.4	6.1	1.93
Rabaul Road / HLD	Henry Lawson Dr SOUTH	R	5011	21	7.8	-13.2	-62.9	3.48
Rabaul Road / HLD	Rabaul Road WEST	L	4298	6	3.6	-2.4	-40.0	1.10
Rabaul Road / HLD	Rabaul Road WEST	T	4299	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road WEST	R	4300	0	0.0	0.0	0.0	0.00
HLD / Tower Road	Henry Lawson Dr NORTH	L	1437	19	23.2	4.2	22.1	0.91
HLD / Tower Road	Henry Lawson Dr NORTH	T	5444	1018	1102.2	84.2	8.3	2.59
HLD / Tower Road	Tower Road EAST	L	5445	550	490.0	-60.0	-10.9	2.63
HLD / Tower Road	Tower Road EAST	R	2768	24	24.2	0.2	0.8	0.04
HLD / Tower Road	Henry Lawson Dr SOUTH	T	5443	1058	1129.0	71.0	6.7	2.15
HLD / Tower Road	Henry Lawson Dr SOUTH	R	5446	238	216.4	-21.6	-9.1	1.43
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	L	5468	246	270.2	24.2	9.8	1.51
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	T	2765	534	643.4	109.4	20.5	4.51
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	R	5434	788	661.2	-126.8	-16.1	4.71
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	L	5461	115	68.6	-46.4	-40.4	4.84
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	T	1845	1083	1334.0	251.0	23.2	7.22
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	R	5709	295	244.6	-50.4	-17.1	3.07
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	L	5457	821	720.0	-101.0	-12.3	3.64
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	T	1587	391	449.4	58.4	14.9	2.85
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	R	1588	26	14.8	-11.2	-43.1	2.48
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	L	5454	610	649.0	39.0	6.4	1.55
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	T	2185	1018	1075.0	57.0	5.6	1.76

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	R	5433	378	319.8	-58.2	-15.4	3.12
Auld Avenue / HLD	Henry Lawson Dr NORTH	T	1499	1008	1013.6	5.6	0.6	0.18
Auld Avenue / HLD	Henry Lawson Dr NORTH	R	1500	19	18.4	-0.6	-3.2	0.14
Auld Avenue / HLD	Henry Lawson Dr SOUTH	L	4922	2	2.8	0.8	40.0	0.52
Auld Avenue / HLD	Henry Lawson Dr SOUTH	T	4921	1238	1166.6	-71.4	-5.8	2.06
Auld Avenue / HLD	Auld Avenue WEST	L	4198	12	18.2	6.2	51.7	1.60
Auld Avenue / HLD	Auld Avenue WEST	R	4199	6	4.0	-2.0	-33.3	0.89
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	L	5512	81	127.0	46.0	56.8	4.51
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	T	5518	933	890.6	-42.4	-4.5	1.40
HLD / Keys Parade/Flower power	Flower power EAST	L	5505	68	71.2	3.2	4.7	0.38
HLD / Keys Parade/Flower power	Flower Power EAST	R	5507	257	236.8	-20.2	-7.9	1.29
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	R	5850	0	0.2	0.2	INF	0.63
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	T	5506	983	930.6	-52.4	-5.3	1.69
HLD / Keys Parade/Flower power	Keys Parade WEST	R	5508	37	11.0	-26.0	-70.3	5.31
HLD / Keys Parade/Flower power	Keys Parade WEST	L	5847	0	2.2	2.2	INF	2.10
Raleigh Road / HLD	Henry Lawson Dr NORTH	T	3159	926	874.6	-51.4	-5.6	1.71
Raleigh Road / HLD	Henry Lawson Dr NORTH	R	3160	75	86.6	11.6	15.5	1.29
Raleigh Road / HLD	Henry Lawson Dr SOUTH	L	3139	17	9.8	-7.2	-42.4	1.97
Raleigh Road / HLD	Henry Lawson Dr SOUTH	T	5421	965	891.6	-73.4	-7.6	2.41
Raleigh Road / HLD	Raleigh Road WEST	L	5422	55	48.6	-6.4	-11.6	0.89
Raleigh Road / HLD	Raleigh Road WEST	R	3132	8	0.0	-8.0	-100.0	4.00
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	T	20959	932	868.4	-63.6	-6.8	2.12
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	R	20960	2	1.8	-0.2	-10.0	0.15
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	L	20958	14	14.2	0.2	1.4	0.05
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	T	20957	982	904.0	-78.0	-7.9	2.54
HLD / Ruthven Avenue	Ruthven Avenue WEST	L	20962	0	0.0	0.0	0.0	0.00
HLD / Ruthven Avenue	Ruthven Avenue WEST	R	20961	0	0.0	0.0	0.0	0.00
HLD / Whittle Avenue	Henry Lawson Dr NORTH	L	20976	8	6.8	-1.2	-15.0	0.44
HLD / Whittle Avenue	Henry Lawson Dr NORTH	T	20977	924	860.4	-63.6	-6.9	2.13
HLD / Whittle Avenue	Whittle Avenue EAST	L	20979	16	10.2	-5.8	-36.3	1.60
HLD / Whittle Avenue	Whittle Avenue EAST	R	20978	0	0.0	0.0	0.0	0.00
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	T	20980	987	918.0	-69.0	-7.0	2.24
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	R	20981	10	8.4	-1.6	-16.0	0.53
HLD / Amiens Avenue	Henry Lawson Dr NORTH	T	20995	925	862.0	-63.0	-6.8	2.11
HLD / Amiens Avenue	Henry Lawson Dr NORTH	R	20996	15	9.8	-5.2	-34.7	1.48
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	L	20998	34	36.6	2.6	7.6	0.44
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	T	20997	980	904.8	-75.2	-7.7	2.45
HLD / Amiens Avenue	Amiens Avenue WEST	L	20999	17	21.2	4.2	24.7	0.96
HLD / Amiens Avenue	Amiens Avenue WEST	R	21000	0	5.6	5.6	INF	3.35
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	L	21049	118	127.2	9.2	7.8	0.83
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	T	21050	807	744.6	-62.4	-7.7	2.24
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	L	21045	186	263.0	77.0	41.4	5.14
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	R	21046	355	270.4	-84.6	-23.8	4.78
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	T	21048	659	671.6	12.6	1.9	0.49
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	R	21047	92	84.4	-7.6	-8.3	0.81
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	L	21288	5	5.2	0.2	4.0	0.09
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	T	21287	968	990.0	22.0	2.3	0.70

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	R	21289	20	12.4	-7.6	-38.0	1.89
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	R	21284	60	45.6	-14.4	-24.0	1.98
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	T	21286	1	1.0	0.0	0.0	0.00
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	L	21285	3	7.6	4.6	153.3	2.00
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	L	21295	20	7.6	-12.4	-62.0	3.34
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	T	21294	737	741.4	4.4	0.6	0.16
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	R	21293	11	1.4	-9.6	-87.3	3.86
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	L	21292	11	6.4	-4.6	-41.8	1.56
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	T	21291	7	0.0	-7.0	-100.0	3.74
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	R	21290	3	3.4	0.4	13.3	0.22
HLD / Hermies Avenue	Henry Lawson Dr NORTH	L	21323	10	2.2	-7.8	-78.0	3.16
HLD / Hermies Avenue	Henry Lawson Dr NORTH	T	21322	1021	1039.8	18.8	1.8	0.59
HLD / Hermies Avenue	Hermies Avenue EAST	L	21324	100	81.2	-18.8	-18.8	1.98
HLD / Hermies Avenue	Hermies Avenue EAST	R	21325	3	0.2	-2.8	-93.3	2.21
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	T	21320	765	751.6	-13.4	-1.8	0.49
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	R	21321	50	43.0	-7.0	-14.0	1.03
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	T	21341	1079	1080.2	1.2	0.1	0.04
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	R	21342	42	40.8	-1.2	-2.9	0.19
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	L	21340	116	84.0	-32.0	-27.6	3.20
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	T	21339	774	755.2	-18.8	-2.4	0.68
HLD / Pozieres Avenue	Pozieres Avenue WEST	L	21344	41	37.4	-3.6	-8.8	0.57
HLD / Pozieres Avenue	Pozieres Avenue WEST	R	21343	107	68.2	-38.8	-36.3	4.15
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	T	21712	608	591.8	-16.2	-2.7	0.66
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	R	21711	443	408.2	-34.8	-7.9	1.69
HLD / Swestern Motorway 2	Swestern Motorway EAST	R	21445	12	17.6	5.6	46.7	1.46
HLD / Swestern Motorway 2	Swestern Motorway EAST	T	21708	2	3.0	1.0	50.0	0.63
HLD / Swestern Motorway 2	Swestern Motorway EAST	L	21709	209	242.2	33.2	15.9	2.21
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	L	21452	213	196.8	-16.2	-7.6	1.13
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	T	21707	492	427.4	-64.6	-13.1	3.01
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	L	21385	375	381.0	6.0	1.6	0.31
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	T	21699	811	771.8	-39.2	-4.8	1.39
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	T	21704	671	642.6	-28.4	-4.2	1.11
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	R	21703	30	26.4	-3.6	-12.0	0.68
HLD / Swestern Motorway 1	Swestern Motorway WEST	L	21398	219	192.6	-26.4	-12.1	1.84
HLD / Swestern Motorway 1	Swestern Motorway WEST	T	21700	0	0.0	0.0	0.0	0.00
HLD / Swestern Motorway 1	Swestern Motorway WEST	R	21701	240	228.0	-12.0	-5.0	0.78
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	L	4117	194	177.0	-17.0	-8.8	1.25
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	R	4118	75	57.2	-17.8	-23.7	2.19
Murray Jones Dr / Milperra Road	Milperra Road EAST	T	5439	1418	1516.2	98.2	6.9	2.56
Murray Jones Dr / Milperra Road	Milperra Road EAST	R	5440	3	0.0	-3.0	-100.0	2.45
Murray Jones Dr / Milperra Road	Milperra Road WEST	L	1973	1	0.8	-0.2	-20.0	0.21
Murray Jones Dr / Milperra Road	Milperra Road WEST	T	1972	1289	1359.4	70.4	5.5	1.93
Ashford Avenue / Milperra Road	Milperra Road EAST	L	3685	270	234.8	-35.2	-13.0	2.22
Ashford Avenue / Milperra Road	Milperra Road EAST	T	3684	1288	1370.4	82.4	6.4	2.26

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	L	3768	127	136.4	9.4	7.4	0.82
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	R	3767	135	166.0	31.0	23.0	2.53
Ashford Avenue / Milperra Road	Milperra Road WEST	T	5441	1323	1378.2	55.2	4.2	1.50
Ashford Avenue / Milperra Road	Milperra Road WEST	R	5442	160	155.0	-5.0	-3.1	0.40
Georges Ces / HLD	Henry Lawson Dr NORTH	L	3084	75	77.6	2.6	3.5	0.30
Georges Ces / HLD	Henry Lawson Dr NORTH	T	5741	989	1057.2	68.2	6.9	2.13
Georges Ces / HLD	Georges Cres EAST	L	5742	0	5.8	5.8	INF	3.41
Georges Ces / HLD	Henry Lawson Dr SOUTH	T	4787	1163	1151.4	-11.6	-1.0	0.34
Georges Ces / HLD	Henry Lawson Dr SOUTH	R	4788	0	0.0	0.0	0.0	0.00
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	T	5181	967	1030.6	63.6	6.6	2.01
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	R	5739	22	29.6	7.6	34.6	1.50
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	L	5408	0	0.8	0.8	INF	1.26
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	T	4856	1163	1153.0	-10.0	-0.9	0.29
HLD Reserve Road / HLD	HLD Reserve Road WEST	L	4506	0	0.4	0.4	INF	0.89
HLD Reserve Road / HLD	HLD Reserve Road WEST	R	4507	0	0.8	0.8	INF	1.26
Beale Street / HLD	Henry Lawson Dr NORTH	L	4730	75	94.6	19.6	26.1	2.13
Beale Street / HLD	Henry Lawson Dr NORTH	T	4729	892	941.6	49.6	5.6	1.64
Beale Street / HLD	Beale Street EAST	L	4816	0	0.2	0.2	INF	0.63
Beale Street / HLD	Beale Street EAST	R	4817	0	0.0	0.0	0.0	0.00
Beale Street / HLD	Henry Lawson Dr SOUTH	T	2711	1163	1153.6	-9.4	-0.8	0.28
Beale Street / HLD	Henry Lawson Dr SOUTH	R	2712	0	2.2	2.2	INF	2.10
Endevour Road / HLD	Henry Lawson Dr NORTH	L	2770	0	0.0	0.0	0.0	0.00
Endevour Road / HLD	Henry Lawson Dr NORTH	T	5410	982	1056.8	74.8	7.6	2.34
Endevour Road / HLD	Endevour Road EAST	L	5409	202	195.2	-6.8	-3.4	0.48
Golf course Road / HLD	Henry Lawson Dr NORTH	L	4905	288	235.6	-52.4	-18.2	3.24
Golf course Road / HLD	Henry Lawson Dr NORTH	T	4904	1037	1124.0	87.0	8.4	2.65
Golf course Road / HLD	Golf course Road EAST	L	4272	0	0.0	0.0	0.0	0.00
Golf course Road / HLD	Golf course Road EAST	R	4273	0	0.0	0.0	0.0	0.00
Golf course Road / HLD	Henry Lawson Dr SOUTH	T	1693	1066	1137.0	71.0	6.7	2.14
Golf course Road / HLD	Henry Lawson Dr SOUTH	R	1694	16	15.0	-1.0	-6.3	0.25

PM Model
Time period: 3:30-4:30 PM
Vehicle Type: Heavy Vehicles

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Flinders Road / HLD	Henry Lawson Dr NORTH	L	3058	0	0.0	0.0	0.0	0.00
Flinders Road / HLD	Henry Lawson Dr NORTH	T	5407	115	81.8	-33.2	-28.9	3.35
Flinders Road / HLD	Finders Road EAST	L	2525	6	0.0	-6.0	-100.0	3.46
Flinders Road / HLD	Finders Road EAST	R	2526	0	0.0	0.0	0.0	0.00
Flinders Road / HLD	Henry Lawson Dr SOUTH	T	2675	143	93.0	-50.0	-35.0	4.60
Flinders Road / HLD	Henry Lawson Dr SOUTH	R	2676	0	0.0	0.0	0.0	0.00
Haig Avenue / HLD	Henry Lawson Dr NORTH	L	2721	4	0.4	-3.6	-90.0	2.43
Haig Avenue / HLD	Henry Lawson Dr NORTH	T	2720	110	71.4	-38.6	-35.1	4.05
Haig Avenue / HLD	Haig Avenue EAST	L	2625	0	20.8	20.8	INF	6.45
Haig Avenue / HLD	Haig Avenue EAST	R	2626	11	12.4	1.4	12.7	0.41
Haig Avenue / HLD	Henry Lawson Dr SOUTH	T	5854	129	80.8	-48.2	-37.4	4.71
Haig Avenue / HLD	Henry Lawson Dr SOUTH	R	5855	8	4.0	-4.0	-50.0	1.63
Rabaul Road / HLD	Henry Lawson Dr NORTH	L	2780	1	0.0	-1.0	-100.0	1.41
Rabaul Road / HLD	Henry Lawson Dr NORTH	T	2779	77	92.0	15.0	19.5	1.63
Rabaul Road / HLD	Henry Lawson Dr NORTH	R	2781	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road EAST	R	4357	9	0.0	-9.0	-100.0	4.24
Rabaul Road / HLD	Rabaul Road EAST	T	4358	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road EAST	L	4359	1	0.0	-1.0	-100.0	1.41
Rabaul Road / HLD	Henry Lawson Dr SOUTH	L	5012	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Henry Lawson Dr SOUTH	T	5010	112	85.2	-26.8	-23.9	2.70
Rabaul Road / HLD	Henry Lawson Dr SOUTH	R	5011	6	0.0	-6.0	-100.0	3.46
Rabaul Road / HLD	Rabaul Road WEST	L	4298	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road WEST	T	4299	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road WEST	R	4300	0	0.0	0.0	0.0	0.00
HLD / Tower Road	Henry Lawson Dr NORTH	L	1437	1	0.0	-1.0	-100.0	1.41
HLD / Tower Road	Henry Lawson Dr NORTH	T	5444	85	84.8	-0.2	-0.2	0.02
HLD / Tower Road	Tower Road EAST	L	5445	14	0.0	-14.0	-100.0	5.29
HLD / Tower Road	Tower Road EAST	R	2768	5	0.0	-5.0	-100.0	3.16
HLD / Tower Road	Henry Lawson Dr SOUTH	T	5443	113	87.6	-25.4	-22.5	2.54
HLD / Tower Road	Henry Lawson Dr SOUTH	R	5446	4	0.0	-4.0	-100.0	2.83
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	L	5468	34	23.2	-10.8	-31.8	2.02
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	T	2765	40	31.4	-8.6	-21.5	1.44
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	R	5434	25	26.8	1.8	7.2	0.35
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	L	5461	11	0.0	-11.0	-100.0	4.69
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	T	1845	67	73.8	6.8	10.2	0.81
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	R	5709	49	16.8	-32.2	-65.7	5.61
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	L	5457	51	45.2	-5.8	-11.4	0.84
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	T	1587	54	38.2	-15.8	-29.3	2.33
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	R	1588	7	0.0	-7.0	-100.0	3.74
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	L	5454	14	33.0	19.0	135.7	3.92
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	T	2185	152	138.6	-13.4	-8.8	1.11

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	R	5433	6	23.4	17.4	290.0	4.54
Auld Avenue / HLD	Henry Lawson Dr NORTH	T	1499	57	54.8	-2.2	-3.9	0.29
Auld Avenue / HLD	Henry Lawson Dr NORTH	R	1500	0	0.0	0.0	0.0	0.00
Auld Avenue / HLD	Henry Lawson Dr SOUTH	L	4922	0	0.0	0.0	0.0	0.00
Auld Avenue / HLD	Henry Lawson Dr SOUTH	T	4921	112	84.4	-27.6	-24.6	2.79
Auld Avenue / HLD	Auld Avenue WEST	L	4198	0	0.0	0.0	0.0	0.00
Auld Avenue / HLD	Auld Avenue WEST	R	4199	0	0.0	0.0	0.0	0.00
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	L	5512	0	0.0	0.0	0.0	0.00
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	T	5518	70	54.6	-15.4	-22.0	1.95
HLD / Keys Parade/Flower power	Flower power EAST	L	5505	6	0.0	-6.0	-100.0	3.46
HLD / Keys Parade/Flower power	Flower Power EAST	R	5507	0	0.0	0.0	0.0	0.00
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	R	5850	0	0.0	0.0	0.0	0.00
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	T	5506	130	85.4	-44.6	-34.3	4.30
HLD / Keys Parade/Flower power	Keys Parade WEST	R	5508	3	0.0	-3.0	-100.0	2.45
HLD / Keys Parade/Flower power	Keys Parade WEST	L	5847	0	0.0	0.0	0.0	0.00
Raleigh Road / HLD	Henry Lawson Dr NORTH	T	3159	68	54.6	-13.4	-19.7	1.71
Raleigh Road / HLD	Henry Lawson Dr NORTH	R	3160	8	0.0	-8.0	-100.0	4.00
Raleigh Road / HLD	Henry Lawson Dr SOUTH	L	3139	1	0.0	-1.0	-100.0	1.41
Raleigh Road / HLD	Henry Lawson Dr SOUTH	T	5421	131	85.0	-46.0	-35.1	4.43
Raleigh Road / HLD	Raleigh Road WEST	L	5422	2	0.0	-2.0	-100.0	2.00
Raleigh Road / HLD	Raleigh Road WEST	R	3132	0	0.0	0.0	0.0	0.00
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	T	20959	68	53.6	-14.4	-21.2	1.85
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	R	20960	0	0.0	0.0	0.0	0.00
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	L	20958	1	2.4	1.4	140.0	1.07
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	T	20957	129	85.4	-43.6	-33.8	4.21
HLD / Ruthven Avenue	Ruthven Avenue WEST	L	20962	3	0.0	-3.0	-100.0	2.45
HLD / Ruthven Avenue	Ruthven Avenue WEST	R	20961	0	0.0	0.0	0.0	0.00
HLD / Whittle Avenue	Henry Lawson Dr NORTH	L	20976	1	0.0	-1.0	-100.0	1.41
HLD / Whittle Avenue	Henry Lawson Dr NORTH	T	20977	67	53.4	-13.6	-20.3	1.75
HLD / Whittle Avenue	Whittle Avenue EAST	L	20979	1	1.2	0.2	20.0	0.19
HLD / Whittle Avenue	Whittle Avenue EAST	R	20978	0	0.0	0.0	0.0	0.00
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	T	20980	130	87.8	-42.2	-32.5	4.04
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	R	20981	0	0.4	0.4	INF	0.89
HLD / Amiens Avenue	Henry Lawson Dr NORTH	T	20995	68	54.4	-13.6	-20.0	1.74
HLD / Amiens Avenue	Henry Lawson Dr NORTH	R	20996	0	0.4	0.4	INF	0.89
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	L	20998	6	4.0	-2.0	-33.3	0.89
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	T	20997	130	86.8	-43.2	-33.2	4.15
HLD / Amiens Avenue	Amiens Avenue WEST	L	20999	0	1.2	1.2	INF	1.55
HLD / Amiens Avenue	Amiens Avenue WEST	R	21000	2	0.6	-1.4	-70.0	1.23
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	L	21049	4	5.6	1.6	40.0	0.73
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	T	21050	66	49.4	-16.6	-25.2	2.19
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	L	21045	24	21.2	-2.8	-11.7	0.59
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	R	21046	21	21.4	0.4	1.9	0.09
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	T	21048	115	69.8	-45.2	-39.3	4.70
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	R	21047	26	14.4	-11.6	-44.6	2.58
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	L	21288	1	1.2	0.2	20.0	0.19
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	T	21287	89	68.0	-21.0	-23.6	2.37

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	R	21289	0	0.8	0.8	INF	1.26
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	R	21284	0	4.2	4.2	INF	2.90
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	T	21286	0	0.4	0.4	INF	0.89
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	L	21285	6	0.4	-5.6	-93.3	3.13
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	L	21295	5	0.6	-4.4	-88.0	2.63
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	T	21294	135	83.4	-51.6	-38.2	4.94
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	R	21293	0	0.2	0.2	INF	0.63
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	L	21292	0	1.0	1.0	INF	1.41
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	T	21291	0	0.2	0.2	INF	0.63
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	R	21290	1	0.4	-0.6	-60.0	0.72
HLD / Hermies Avenue	Henry Lawson Dr NORTH	L	21323	0	3.2	3.2	INF	2.53
HLD / Hermies Avenue	Henry Lawson Dr NORTH	T	21322	90	69.4	-20.6	-22.9	2.31
HLD / Hermies Avenue	Hermies Avenue EAST	L	21324	1	14.0	13.0	1300.0	4.75
HLD / Hermies Avenue	Hermies Avenue EAST	R	21325	0	0.8	0.8	INF	1.26
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	T	21320	140	83.6	-56.4	-40.3	5.33
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	R	21321	3	3.8	0.8	26.7	0.43
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	T	21341	90	79.6	-10.4	-11.6	1.13
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	R	21342	1	3.4	2.4	240.0	1.62
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	L	21340	2	11.8	9.8	490.0	3.73
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	T	21339	133	85.0	-48.0	-36.1	4.60
HLD / Pozieres Avenue	Pozieres Avenue WEST	L	21344	10	2.4	-7.6	-76.0	3.05
HLD / Pozieres Avenue	Pozieres Avenue WEST	R	21343	26	4.6	-21.4	-82.3	5.47
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	T	21712	18	42.2	24.2	134.4	4.41
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	R	21711	55	29.0	-26.0	-47.3	4.01
HLD / Swestern Motorway 2	Swestern Motorway EAST	R	21445	1	1.8	0.8	80.0	0.68
HLD / Swestern Motorway 2	Swestern Motorway EAST	T	21708	0	0.2	0.2	INF	0.63
HLD / Swestern Motorway 2	Swestern Motorway EAST	L	21709	56	30.2	-25.8	-46.1	3.93
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	L	21452	11	19.4	8.4	76.4	2.15
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	T	21707	46	43.8	-2.2	-4.8	0.33
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	L	21385	46	24.2	-21.8	-47.4	3.68
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	T	21699	70	57.8	-12.2	-17.4	1.53
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	T	21704	98	72.0	-26.0	-26.5	2.82
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	R	21703	4	1.8	-2.2	-55.0	1.29
HLD / Swestern Motorway 1	Swestern Motorway WEST	L	21398	37	25.0	-12.0	-32.4	2.16
HLD / Swestern Motorway 1	Swestern Motorway WEST	T	21700	0	0.4	0.4	INF	0.89
HLD / Swestern Motorway 1	Swestern Motorway WEST	R	21701	3	14.0	11.0	366.7	3.77
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	L	4117	3	2.4	-0.6	-20.0	0.37
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	R	4118	0	0.8	0.8	INF	1.26
Murray Jones Dr / Milperra Road	Milperra Road EAST	T	5439	127	104.2	-22.8	-18.0	2.12
Murray Jones Dr / Milperra Road	Milperra Road EAST	R	5440	1	0.0	-1.0	-100.0	1.41
Murray Jones Dr / Milperra Road	Milperra Road WEST	L	1973	0	0.0	0.0	0.0	0.00
Murray Jones Dr / Milperra Road	Milperra Road WEST	T	1972	193	157.4	-35.6	-18.5	2.69
Ashford Avenue / Milperra Road	Milperra Road EAST	L	3685	12	22.2	10.2	85.0	2.47
Ashford Avenue / Milperra Road	Milperra Road EAST	T	3684	107	88.4	-18.6	-17.4	1.88

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	L	3768	21	16.8	-4.2	-20.0	0.97
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	R	3767	10	15.8	5.8	58.0	1.61
Ashford Avenue / Milperra Road	Milperra Road WEST	T	5441	180	148.0	-32.0	-17.8	2.50
Ashford Avenue / Milperra Road	Milperra Road WEST	R	5442	16	11.4	-4.6	-28.8	1.24
Georges Ces / HLD	Henry Lawson Dr NORTH	L	3084	0	0.0	0.0	0.0	0.00
Georges Ces / HLD	Henry Lawson Dr NORTH	T	5741	121	81.0	-40.0	-33.1	3.98
Georges Ces / HLD	Georges Cres EAST	L	5742	0	0.0	0.0	0.0	0.00
Georges Ces / HLD	Henry Lawson Dr SOUTH	T	4787	140	93.6	-46.4	-33.1	4.29
Georges Ces / HLD	Henry Lawson Dr SOUTH	R	4788	0	0.0	0.0	0.0	0.00
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	T	5181	121	79.8	-41.2	-34.1	4.11
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	R	5739	0	0.0	0.0	0.0	0.00
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	L	5408	0	0.0	0.0	0.0	0.00
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	T	4856	140	93.4	-46.6	-33.3	4.31
HLD Reserve Road / HLD	HLD Reserve Road WEST	L	4506	0	0.0	0.0	0.0	0.00
HLD Reserve Road / HLD	HLD Reserve Road WEST	R	4507	0	0.0	0.0	0.0	0.00
Beale Street / HLD	Henry Lawson Dr NORTH	L	4730	7	5.6	-1.4	-20.0	0.56
Beale Street / HLD	Henry Lawson Dr NORTH	T	4729	114	73.0	-41.0	-36.0	4.24
Beale Street / HLD	Beale Street EAST	L	4816	0	0.2	0.2	INF	0.63
Beale Street / HLD	Beale Street EAST	R	4817	0	1.0	1.0	INF	1.41
Beale Street / HLD	Henry Lawson Dr SOUTH	T	2711	140	92.8	-47.2	-33.7	4.37
Beale Street / HLD	Henry Lawson Dr SOUTH	R	2712	0	0.2	0.2	INF	0.63
Endevour Road / HLD	Henry Lawson Dr NORTH	L	2770	0	0.0	0.0	0.0	0.00
Endevour Road / HLD	Henry Lawson Dr NORTH	T	5410	78	92.0	14.0	18.0	1.52
Endevour Road / HLD	Endevour Road EAST	L	5409	0	0.0	0.0	0.0	0.00
Golf course Road / HLD	Henry Lawson Dr NORTH	L	4905	0	5.4	5.4	INF	3.29
Golf course Road / HLD	Henry Lawson Dr NORTH	T	4904	86	86.0	0.0	0.0	0.00
Golf course Road / HLD	Golf course Road EAST	L	4272	0	0.0	0.0	0.0	0.00
Golf course Road / HLD	Golf course Road EAST	R	4273	0	0.0	0.0	0.0	0.00
Golf course Road / HLD	Henry Lawson Dr SOUTH	T	1693	118	85.2	-32.8	-27.8	3.25
Golf course Road / HLD	Henry Lawson Dr SOUTH	R	1694	0	0.0	0.0	0.0	0.00

PM Model
Time period: 4:30-5:30 PM
Vehicle Type: Heavy Vehicles

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Flinders Road / HLD	Henry Lawson Dr NORTH	L	3058	3	0.0	-3.0	-100.0	2.45
Flinders Road / HLD	Henry Lawson Dr NORTH	T	5407	69	65.0	-4.0	-5.8	0.49
Flinders Road / HLD	Finders Road EAST	L	2525	3	0.0	-3.0	-100.0	2.45
Flinders Road / HLD	Finders Road EAST	R	2526	0	0.0	0.0	0.0	0.00
Flinders Road / HLD	Henry Lawson Dr SOUTH	T	2675	128	87.4	-40.6	-31.7	3.91
Flinders Road / HLD	Henry Lawson Dr SOUTH	R	2676	7	0.0	-7.0	-100.0	3.74
Haig Avenue / HLD	Henry Lawson Dr NORTH	L	2721	1	0.2	-0.8	-80.0	1.03
Haig Avenue / HLD	Henry Lawson Dr NORTH	T	2720	71	61.6	-9.4	-13.2	1.15
Haig Avenue / HLD	Haig Avenue EAST	L	2625	6	7.4	1.4	23.3	0.54
Haig Avenue / HLD	Haig Avenue EAST	R	2626	9	11.8	2.8	31.1	0.87
Haig Avenue / HLD	Henry Lawson Dr SOUTH	T	5854	126	76.8	-49.2	-39.1	4.89
Haig Avenue / HLD	Henry Lawson Dr SOUTH	R	5855	6	7.2	1.2	20.0	0.47
Rabaul Road / HLD	Henry Lawson Dr NORTH	L	2780	1	0.0	-1.0	-100.0	1.41
Rabaul Road / HLD	Henry Lawson Dr NORTH	T	2779	76	84.2	8.2	10.8	0.92
Rabaul Road / HLD	Henry Lawson Dr NORTH	R	2781	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road EAST	R	4357	2	0.0	-2.0	-100.0	2.00
Rabaul Road / HLD	Rabaul Road EAST	T	4358	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road EAST	L	4359	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Henry Lawson Dr SOUTH	L	5012	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Henry Lawson Dr SOUTH	T	5010	82	84.0	2.0	2.4	0.22
Rabaul Road / HLD	Henry Lawson Dr SOUTH	R	5011	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road WEST	L	4298	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road WEST	T	4299	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road WEST	R	4300	0	0.0	0.0	0.0	0.00
HLD / Tower Road	Henry Lawson Dr NORTH	L	1437	0	0.0	0.0	0.0	0.00
HLD / Tower Road	Henry Lawson Dr NORTH	T	5444	78	66.2	-11.8	-15.1	1.39
HLD / Tower Road	Tower Road EAST	L	5445	6	0.0	-6.0	-100.0	3.46
HLD / Tower Road	Tower Road EAST	R	2768	3	0.0	-3.0	-100.0	2.45
HLD / Tower Road	Henry Lawson Dr SOUTH	T	5443	102	85.0	-17.0	-16.7	1.76
HLD / Tower Road	Henry Lawson Dr SOUTH	R	5446	4	0.0	-4.0	-100.0	2.83
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	L	5468	28	8.0	-20.0	-71.4	4.71
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	T	2765	29	22.2	-6.8	-23.5	1.34
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	R	5434	27	33.6	6.6	24.4	1.20
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	L	5461	5	0.6	-4.4	-88.0	2.63
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	T	1845	78	84.4	6.4	8.2	0.71
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	R	5709	35	14.6	-20.4	-58.3	4.10
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	L	5457	54	65.2	11.2	20.7	1.45
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	T	1587	38	38.0	0.0	0.0	0.00
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	R	1588	2	0.0	-2.0	-100.0	2.00
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	L	5454	33	32.2	-0.8	-2.4	0.14
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	T	2185	114	102.4	-11.6	-10.2	1.12

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	R	5433	12	15.0	3.0	25.0	0.82
Auld Avenue / HLD	Henry Lawson Dr NORTH	T	1499	46	37.6	-8.4	-18.3	1.30
Auld Avenue / HLD	Henry Lawson Dr NORTH	R	1500	0	0.0	0.0	0.0	0.00
Auld Avenue / HLD	Henry Lawson Dr SOUTH	L	4922	4	0.0	-4.0	-100.0	2.83
Auld Avenue / HLD	Henry Lawson Dr SOUTH	T	4921	94	102.6	8.6	9.1	0.87
Auld Avenue / HLD	Auld Avenue WEST	L	4198	1	0.0	-1.0	-100.0	1.41
Auld Avenue / HLD	Auld Avenue WEST	R	4199	0	0.0	0.0	0.0	0.00
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	L	5512	0	0.0	0.0	0.0	0.00
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	T	5518	46	37.8	-8.2	-17.8	1.27
HLD / Keys Parade/Flower power	Flower power EAST	L	5505	0	0.0	0.0	0.0	0.00
HLD / Keys Parade/Flower power	Flower Power EAST	R	5507	0	0.0	0.0	0.0	0.00
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	R	5850	0	0.0	0.0	0.0	0.00
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	T	5506	98	102.0	4.0	4.1	0.40
HLD / Keys Parade/Flower power	Keys Parade WEST	R	5508	0	0.0	0.0	0.0	0.00
HLD / Keys Parade/Flower power	Keys Parade WEST	L	5847	0	0.0	0.0	0.0	0.00
Raleigh Road / HLD	Henry Lawson Dr NORTH	T	3159	46	37.8	-8.2	-17.8	1.27
Raleigh Road / HLD	Henry Lawson Dr NORTH	R	3160	0	0.0	0.0	0.0	0.00
Raleigh Road / HLD	Henry Lawson Dr SOUTH	L	3139	1	0.0	-1.0	-100.0	1.41
Raleigh Road / HLD	Henry Lawson Dr SOUTH	T	5421	96	102.6	6.6	6.9	0.66
Raleigh Road / HLD	Raleigh Road WEST	L	5422	2	0.0	-2.0	-100.0	2.00
Raleigh Road / HLD	Raleigh Road WEST	R	3132	2	0.0	-2.0	-100.0	2.00
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	T	20959	48	37.8	-10.2	-21.3	1.56
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	R	20960	0	0.2	0.2	INF	0.63
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	L	20958	0	0.4	0.4	INF	0.89
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	T	20957	97	102.6	5.6	5.8	0.56
HLD / Ruthven Avenue	Ruthven Avenue WEST	L	20962	0	0.0	0.0	0.0	0.00
HLD / Ruthven Avenue	Ruthven Avenue WEST	R	20961	0	0.0	0.0	0.0	0.00
HLD / Whittle Avenue	Henry Lawson Dr NORTH	L	20976	1	0.4	-0.6	-60.0	0.72
HLD / Whittle Avenue	Henry Lawson Dr NORTH	T	20977	47	37.0	-10.0	-21.3	1.54
HLD / Whittle Avenue	Whittle Avenue EAST	L	20979	1	0.0	-1.0	-100.0	1.41
HLD / Whittle Avenue	Whittle Avenue EAST	R	20978	0	0.0	0.0	0.0	0.00
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	T	20980	97	103.4	6.4	6.6	0.64
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	R	20981	0	0.0	0.0	0.0	0.00
HLD / Amiens Avenue	Henry Lawson Dr NORTH	T	20995	46	36.8	-9.2	-20.0	1.43
HLD / Amiens Avenue	Henry Lawson Dr NORTH	R	20996	2	0.2	-1.8	-90.0	1.72
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	L	20998	6	4.0	-2.0	-33.3	0.89
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	T	20997	97	102.0	5.0	5.2	0.50
HLD / Amiens Avenue	Amiens Avenue WEST	L	20999	0	1.0	1.0	INF	1.41
HLD / Amiens Avenue	Amiens Avenue WEST	R	21000	0	0.4	0.4	INF	0.89
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	L	21049	8	5.2	-2.8	-35.0	1.09
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	T	21050	38	31.6	-6.4	-16.8	1.08
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	L	21045	9	21.4	12.4	137.8	3.18
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	R	21046	11	17.2	6.2	56.4	1.65
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	T	21048	92	89.0	-3.0	-3.3	0.32
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	R	21047	24	7.4	-16.6	-69.2	4.19
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	L	21288	0	0.2	0.2	INF	0.63
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	T	21287	47	52.8	5.8	12.3	0.82

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	R	21289	0	0.2	0.2	INF	0.63
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	R	21284	1	4.0	3.0	300.0	1.90
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	T	21286	0	0.2	0.2	INF	0.63
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	L	21285	0	0.2	0.2	INF	0.63
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	L	21295	1	0.4	-0.6	-60.0	0.72
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	T	21294	115	94.8	-20.2	-17.6	1.97
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	R	21293	0	0.0	0.0	0.0	0.00
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	L	21292	1	0.8	-0.2	-20.0	0.21
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	T	21291	1	0.0	-1.0	-100.0	1.41
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	R	21290	0	0.0	0.0	0.0	0.00
HLD / Hermies Avenue	Henry Lawson Dr NORTH	L	21323	0	0.0	0.0	0.0	0.00
HLD / Hermies Avenue	Henry Lawson Dr NORTH	T	21322	48	56.8	8.8	18.3	1.22
HLD / Hermies Avenue	Hermies Avenue EAST	L	21324	0	6.6	6.6	INF	3.63
HLD / Hermies Avenue	Hermies Avenue EAST	R	21325	0	0.0	0.0	0.0	0.00
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	T	21320	116	95.4	-20.6	-17.8	2.00
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	R	21321	2	3.0	1.0	50.0	0.63
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	T	21341	46	61.2	15.2	33.0	2.08
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	R	21342	2	2.2	0.2	10.0	0.14
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	L	21340	3	9.6	6.6	220.0	2.63
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	T	21339	117	95.2	-21.8	-18.6	2.12
HLD / Pozieres Avenue	Pozieres Avenue WEST	L	21344	1	3.2	2.2	220.0	1.52
HLD / Pozieres Avenue	Pozieres Avenue WEST	R	21343	42	6.4	-35.6	-84.8	7.24
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	T	21712	14	37.4	23.4	167.1	4.62
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	R	21711	47	28.6	-18.4	-39.2	2.99
HLD / Swestern Motorway 2	Swestern Motorway EAST	R	21445	0	1.0	1.0	INF	1.41
HLD / Swestern Motorway 2	Swestern Motorway EAST	T	21708	0	0.0	0.0	0.0	0.00
HLD / Swestern Motorway 2	Swestern Motorway EAST	L	21709	54	46.2	-7.8	-14.4	1.10
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	L	21452	5	16.2	11.2	224.0	3.44
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	T	21707	32	34.2	2.2	6.9	0.38
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	L	21385	31	20.6	-10.4	-33.6	2.05
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	T	21699	57	48.2	-8.8	-15.4	1.21
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	T	21704	85	77.8	-7.2	-8.5	0.80
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	R	21703	1	2.0	1.0	100.0	0.82
HLD / Swestern Motorway 1	Swestern Motorway WEST	L	21398	35	27.6	-7.4	-21.1	1.32
HLD / Swestern Motorway 1	Swestern Motorway WEST	T	21700	1	0.0	-1.0	-100.0	1.41
HLD / Swestern Motorway 1	Swestern Motorway WEST	R	21701	4	17.8	13.8	345.0	4.18
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	L	4117	0	12.2	12.2	INF	4.94
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	R	4118	0	3.4	3.4	INF	2.61
Murray Jones Dr / Milperra Road	Milperra Road EAST	T	5439	118	90.4	-27.6	-23.4	2.70
Murray Jones Dr / Milperra Road	Milperra Road EAST	R	5440	0	0.0	0.0	0.0	0.00
Murray Jones Dr / Milperra Road	Milperra Road WEST	L	1973	0	0.0	0.0	0.0	0.00
Murray Jones Dr / Milperra Road	Milperra Road WEST	T	1972	144	113.0	-31.0	-21.5	2.73
Ashford Avenue / Milperra Road	Milperra Road EAST	L	3685	3	17.0	14.0	466.7	4.43
Ashford Avenue / Milperra Road	Milperra Road EAST	T	3684	109	78.2	-30.8	-28.3	3.18

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	L	3768	15	11.0	-4.0	-26.7	1.11
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	R	3767	7	13.0	6.0	85.7	1.90
Ashford Avenue / Milperra Road	Milperra Road WEST	T	5441	131	112.6	-18.4	-14.1	1.67
Ashford Avenue / Milperra Road	Milperra Road WEST	R	5442	13	12.8	-0.2	-1.5	0.06
Georges Ces / HLD	Henry Lawson Dr NORTH	L	3084	0	0.0	0.0	0.0	0.00
Georges Ces / HLD	Henry Lawson Dr NORTH	T	5741	72	65.2	-6.8	-9.4	0.82
Georges Ces / HLD	Georges Cres EAST	L	5742	0	0.0	0.0	0.0	0.00
Georges Ces / HLD	Henry Lawson Dr SOUTH	T	4787	135	87.4	-47.6	-35.3	4.51
Georges Ces / HLD	Henry Lawson Dr SOUTH	R	4788	0	0.0	0.0	0.0	0.00
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	T	5181	72	65.2	-6.8	-9.4	0.82
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	R	5739	0	0.0	0.0	0.0	0.00
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	L	5408	0	0.0	0.0	0.0	0.00
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	T	4856	135	88.4	-46.6	-34.5	4.41
HLD Reserve Road / HLD	HLD Reserve Road WEST	L	4506	0	0.0	0.0	0.0	0.00
HLD Reserve Road / HLD	HLD Reserve Road WEST	R	4507	0	0.0	0.0	0.0	0.00
Beale Street / HLD	Henry Lawson Dr NORTH	L	4730	0	4.6	4.6	INF	3.03
Beale Street / HLD	Henry Lawson Dr NORTH	T	4729	72	61.4	-10.6	-14.7	1.30
Beale Street / HLD	Beale Street EAST	L	4816	0	0.0	0.0	0.0	0.00
Beale Street / HLD	Beale Street EAST	R	4817	0	0.0	0.0	0.0	0.00
Beale Street / HLD	Henry Lawson Dr SOUTH	T	2711	135	88.4	-46.6	-34.5	4.41
Beale Street / HLD	Henry Lawson Dr SOUTH	R	2712	0	0.0	0.0	0.0	0.00
Endevour Road / HLD	Henry Lawson Dr NORTH	L	2770	0	0.0	0.0	0.0	0.00
Endevour Road / HLD	Henry Lawson Dr NORTH	T	5410	77	69.2	-7.8	-10.1	0.91
Endevour Road / HLD	Endevour Road EAST	L	5409	0	15.6	15.6	INF	5.59
Golf course Road / HLD	Henry Lawson Dr NORTH	L	4905	0	17.2	17.2	INF	5.87
Golf course Road / HLD	Henry Lawson Dr NORTH	T	4904	78	66.2	-11.8	-15.1	1.39
Golf course Road / HLD	Golf course Road EAST	L	4272	0	0.0	0.0	0.0	0.00
Golf course Road / HLD	Golf course Road EAST	R	4273	0	0.0	0.0	0.0	0.00
Golf course Road / HLD	Henry Lawson Dr SOUTH	T	1693	82	85.0	3.0	3.7	0.33
Golf course Road / HLD	Henry Lawson Dr SOUTH	R	1694	23	0.8	-22.2	-96.5	6.44

Weekend Model
Time period: 11:30 AM - 12:30 PM
Vehicle Type: Light Vehicles

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Flinders Rd / HLD	Henry Lawson Dr NORTH	L	3058	23	27.2	4.2	18.26	0.59279
Flinders Rd / HLD	Henry Lawson Dr NORTH	T	5407	1679	1584.8	-94.2	-5.61	1.6489
Flinders Rd / HLD	Finders Rd EAST	L	2525	255	236.6	-18.4	-7.216	0.82987
Flinders Rd / HLD	Finders Rd EAST	R	2526	22	15	-7	-31.82	1.1508
Flinders Rd / HLD	Henry Lawson Dr SOUTH	T	2675	2028	1889.8	-138.2	-6.815	2.2079
Flinders Rd / HLD	Henry Lawson Dr SOUTH	R	2676	291	185.4	-105.6	-36.29	4.8381
Haig Ave / HLD	Henry Lawson Dr NORTH	L	2721	29	25.8	-3.2	-11.03	0.43227
Haig Ave / HLD	Henry Lawson Dr NORTH	T	2720	1872	1782.4	-89.6	-4.786	1.4822
Haig Ave / HLD	Haig Ave EAST	L	2625	183	136	-47	-25.68	2.6315
Haig Ave / HLD	Haig Ave EAST	R	2626	305	203.6	-101.4	-33.25	4.4962
Haig Ave / HLD	Henry Lawson Dr SOUTH	T	5854	2023	1887	-136	-6.723	2.175
Haig Ave / HLD	Henry Lawson Dr SOUTH	R	5855	199	185	-14	-7.035	0.71443
Rabaul Rd / HLD	Henry Lawson Dr NORTH	L	2780	14	4	-10	-71.43	2.357
Rabaul Rd / HLD	Henry Lawson Dr NORTH	T	2779	2066	1917.6	-148.4	-7.183	2.3512
Rabaul Rd / HLD	Henry Lawson Dr NORTH	R	2781	4	0	-4	-100	2
Rabaul Rd / HLD	Rabaul Rd EAST	R	4357	89	69.2	-19.8	-22.25	1.5742
Rabaul Rd / HLD	Rabaul Rd EAST	T	4358	0	0	0	0	0
Rabaul Rd / HLD	Rabaul Rd EAST	L	4359	2	0	-2	-100	1.4142
Rabaul Rd / HLD	Henry Lawson Dr SOUTH	L	5012	7	3.6	-3.4	-48.57	1.0443
Rabaul Rd / HLD	Henry Lawson Dr SOUTH	T	5010	2213	2069.4	-143.6	-6.489	2.1944
Rabaul Rd / HLD	Henry Lawson Dr SOUTH	R	5011	44	69	25	56.82	2.3518
Rabaul Rd / HLD	Rabaul Rd WEST	L	4298	5	2	-3	-60	1.1339
Rabaul Rd / HLD	Rabaul Rd WEST	T	4299	0	0	0	0	0
Rabaul Rd / HLD	Rabaul Rd WEST	R	4300	0	0	0	0	0
HLD / Tower Rd	Henry Lawson Dr NORTH	L	1437	67	56.8	-10.2	-15.22	0.91673
HLD / Tower Rd	Henry Lawson Dr NORTH	T	5444	2048	1915	-133	-6.494	2.1127
HLD / Tower Rd	Tower Rd EAST	L	5445	452	458.4	6.4	1.416	0.21211
HLD / Tower Rd	Tower Rd EAST	R	2768	73	41.4	-31.6	-43.29	2.9544
HLD / Tower Rd	Henry Lawson Dr SOUTH	T	5443	2195	2115.6	-79.4	-3.617	1.2093
HLD / Tower Rd	Henry Lawson Dr SOUTH	R	5446	535	555.8	20.8	3.888	0.62978
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr NORTH	L	5468	712	669.8	-42.2	-5.927	1.1352
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr NORTH	T	2765	935	930	-5	-0.5348	0.11578
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr NORTH	R	5434	849	762.4	-86.6	-10.2	2.1573
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Milperra Rd EAST	L	5461	178	197.4	19.4	10.9	1.0013
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Milperra Rd EAST	T	1845	1918	1700.4	-217.6	-11.35	3.6174
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Milperra Rd EAST	R	5709	685	609.6	-75.4	-11.01	2.0956
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr SOUTH	L	5457	791	746.2	-44.8	-5.664	1.1426
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr SOUTH	T	1587	1039	1099.8	60.8	5.852	1.3147
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr SOUTH	R	1588	151	151.2	0.2	0.1325	0.011505
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Newbridge Rd WEST	L	5454	1019	974.4	-44.6	-4.377	0.99894
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Newbridge Rd WEST	T	2185	1910	1900.2	-9.8	-0.5131	0.15876
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Newbridge Rd WEST	R	5433	695	690	-5	-0.7194	0.13435
Auld Ave / HLD	Henry Lawson Dr NORTH	T	1499	1785	1804.6	19.6	1.098	0.32714
Auld Ave / HLD	Henry Lawson Dr NORTH	R	1500	32	7	-25	-78.13	4.0032
Auld Ave / HLD	Henry Lawson Dr SOUTH	L	4922	31	8	-23	-74.19	3.6829
Auld Ave / HLD	Henry Lawson Dr SOUTH	T	4921	1929	1972	43	2.229	0.68846
Auld Ave / HLD	Auld Ave WEST	L	4198	38	37.2	-0.8	-2.105	0.092253
Auld Ave / HLD	Auld Ave WEST	R	4199	28	27.2	-0.8	-2.857	0.10768

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Keys Pde/Flower power	Henry Lawson Dr NORTH	L	5512	612	587.8	-24.2	-3.954	0.69865
HLD / Keys Pde/Flower power	Henry Lawson Dr NORTH	T	5518	1220	1233.4	13.4	1.098	0.27053
HLD / Keys Pde/Flower power	Flower power EAST	L	5505	148	181.6	33.6	22.7	1.8507
HLD / Keys Pde/Flower power	Flower Power EAST	R	5507	703	673.2	-29.8	-4.239	0.8033
HLD / Keys Pde/Flower power	Henry Lawson Dr SOUTH	R	5850	0	9.6	9.6	INF	3.0984
HLD / Keys Pde/Flower power	Henry Lawson Dr SOUTH	T	5506	1291	1305.4	14.4	1.115	0.2826
HLD / Keys Pde/Flower power	Keys Pde WEST	R	5508	120	119	-1	-0.8333	0.064685
HLD / Keys Pde/Flower power	Keys Pde WEST	L	5847	0	1.4	1.4	INF	1.1832
Raleigh Rd / HLD	Henry Lawson Dr NORTH	T	3159	1287	1314.2	27.2	2.113	0.53331
Raleigh Rd / HLD	Henry Lawson Dr NORTH	R	3160	79	97.2	18.2	23.04	1.3711
Raleigh Rd / HLD	Henry Lawson Dr SOUTH	L	3139	12	3.8	-8.2	-68.33	2.0629
Raleigh Rd / HLD	Henry Lawson Dr SOUTH	T	5421	1337	1325.6	-11.4	-0.8527	0.22093
Raleigh Rd / HLD	Raleigh Rd WEST	L	5422	70	109	39	55.71	2.915
Raleigh Rd / HLD	Raleigh Rd WEST	R	3132	5	0.4	-4.6	-92	1.9795
HLD / Ruthven Ave	Henry Lawson Dr NORTH	T	20959	1287	1312.2	25.2	1.958	0.49429
HLD / Ruthven Ave	Henry Lawson Dr NORTH	R	20960	1	0	-1	-100	1
HLD / Ruthven Ave	Henry Lawson Dr SOUTH	L	20958	11	0	-11	-100	3.3166
HLD / Ruthven Ave	Henry Lawson Dr SOUTH	T	20957	1347	1327.2	-19.8	-1.47	0.38288
HLD / Ruthven Ave	Ruthven Ave WEST	L	20962	0	3.6	3.6	INF	1.8974
HLD / Ruthven Ave	Ruthven Ave WEST	R	20961	0	2.8	2.8	INF	1.6733
HLD / Whittle Ave	Henry Lawson Dr NORTH	L	20976	5	2.8	-2.2	-44	0.78773
HLD / Whittle Ave	Henry Lawson Dr NORTH	T	20977	1282	1310.2	28.2	2.2	0.55388
HLD / Whittle Ave	Whittle Ave EAST	L	20979	0	0.4	0.4	INF	0.63246
HLD / Whittle Ave	Whittle Ave EAST	R	20978	0	0	0	0	0
HLD / Whittle Ave	Henry Lawson Dr SOUTH	T	20980	1356	1327.4	-28.6	-2.109	0.55211
HLD / Whittle Ave	Henry Lawson Dr SOUTH	R	20981	10	0	-10	-100	3.1623
HLD / Amiens Ave	Henry Lawson Dr NORTH	T	20995	1246	1257.6	11.6	0.931	0.23183
HLD / Amiens Ave	Henry Lawson Dr NORTH	R	20996	38	52.4	14.4	37.89	1.5145
HLD / Amiens Ave	Henry Lawson Dr SOUTH	L	20998	35	28.8	-6.2	-17.71	0.77621
HLD / Amiens Ave	Henry Lawson Dr SOUTH	T	20997	1363	1313	-50	-3.668	0.96656
HLD / Amiens Ave	Amiens Ave WEST	L	20999	0	15	15	INF	3.873
HLD / Amiens Ave	Amiens Ave WEST	R	21000	0	7.4	7.4	INF	2.7203
HLD / Bullecourt Ave	Henry Lawson Dr NORTH	L	21049	243	216	-27	-11.11	1.2603
HLD / Bullecourt Ave	Henry Lawson Dr NORTH	T	21050	1018	1047.6	29.6	2.908	0.65128
HLD / Bullecourt Ave	Bullecourt Ave EAST	L	21045	163	168.4	5.4	3.313	0.29663
HLD / Bullecourt Ave	Bullecourt Ave EAST	R	21046	339	292.4	-46.6	-13.75	1.8545
HLD / Bullecourt Ave	Henry Lawson Dr SOUTH	T	21048	1064	1049.8	-14.2	-1.335	0.30886
HLD / Bullecourt Ave	Henry Lawson Dr SOUTH	R	21047	138	143.8	5.8	4.203	0.34551
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr NORTH	L	21288	4	0.6	-3.4	-85	1.5853
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr NORTH	T	21287	1159	1202.8	43.8	3.779	0.90127
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr NORTH	R	21289	19	11	-8	-42.11	1.4606
HLD / Ganmain Cres / Fromelles Ave	Fromelles Ave EAST	R	21284	234	192.4	-41.6	-17.78	2.0146
HLD / Ganmain Cres / Fromelles Ave	Fromelles Ave EAST	T	21286	0	11.2	11.2	INF	3.3466
HLD / Ganmain Cres / Fromelles Ave	Fromelles Ave EAST	L	21285	4	0.6	-3.4	-85	1.5853
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr SOUTH	L	21295	76	90.8	14.8	19.47	1.1459
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr SOUTH	T	21294	1135	1107	-28	-2.467	0.59134
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr SOUTH	R	21293	129	114.6	-14.4	-11.16	0.92262
HLD / Ganmain Cres / Fromelles Ave	Ganmain Cres WEST	L	21292	65	86.2	21.2	32.62	1.7241
HLD / Ganmain Cres / Fromelles Ave	Ganmain Cres WEST	T	21291	5	12.4	7.4	148	1.774
HLD / Ganmain Cres / Fromelles Ave	Ganmain Cres WEST	R	21290	59	25	-34	-57.63	3.7097
HLD / Hermies Ave	Henry Lawson Dr NORTH	L	21323	11	7.2	-3.8	-34.55	0.89073

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Hermies Ave	Henry Lawson Dr NORTH	T	21322	1419	1414.2	-4.8	-0.3383	0.090178
HLD / Hermies Ave	Hermies Ave EAST	L	21324	531	512.6	-18.4	-3.465	0.56957
HLD / Hermies Ave	Hermies Ave EAST	R	21325	2	0	-2	-100	1.4142
HLD / Hermies Ave	Henry Lawson Dr SOUTH	T	21320	1327	1314.2	-12.8	-0.9646	0.24906
HLD / Hermies Ave	Henry Lawson Dr SOUTH	R	21321	14	20.6	6.6	47.14	1.122
HLD / Pozieres Ave	Henry Lawson Dr NORTH	T	21341	1838	1850	12	0.6529	0.1976
HLD / Pozieres Ave	Henry Lawson Dr NORTH	R	21342	58	77.8	19.8	34.14	1.6991
HLD / Pozieres Ave	Henry Lawson Dr SOUTH	L	21340	132	130.6	-1.4	-1.061	0.086393
HLD / Pozieres Ave	Henry Lawson Dr SOUTH	T	21339	1278	1254.6	-23.4	-1.831	0.46498
HLD / Pozieres Ave	Pozieres Ave WEST	L	21344	65	80.2	15.2	23.38	1.2614
HLD / Pozieres Ave	Pozieres Ave WEST	R	21343	128	161	33	25.78	1.9412
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	T	21712	1220	1182.4	-37.6	-3.082	0.76712
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	R	21711	486	481	-5	-1.029	0.16079
HLD / Swestern Motorway 2	Swestern Motorway EAST	R	21445	46	46.6	0.6	1.304	0.062351
HLD / Swestern Motorway 2	Swestern Motorway EAST	T	21708	1	0	-1	-100	1
HLD / Swestern Motorway 2	Swestern Motorway EAST	L	21709	469	467.8	-1.2	-0.2559	0.039206
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	L	21452	400	375	-25	-6.25	0.89803
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	T	21707	496	493	-3	-0.6048	0.095394
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	L	21385	607	590.4	-16.6	-2.735	0.47972
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	T	21699	1386	1418.2	32.2	2.323	0.60807
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	T	21704	905	891.2	-13.8	-1.525	0.32561
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	R	21703	49	69	20	40.82	1.8411
HLD / Swestern Motorway 1	Swestern Motorway WEST	L	21398	504	495.4	-8.6	-1.706	0.27204
HLD / Swestern Motorway 1	Swestern Motorway WEST	T	21700	0	0	0	0	0
HLD / Swestern Motorway 1	Swestern Motorway WEST	R	21701	291	249.8	-41.2	-14.16	1.7717
Murray Jones Dr / Milperra Rd	Murray Jones Dr NORTH	L	4117	7	10.8	3.8	54.29	0.90069
Murray Jones Dr / Milperra Rd	Murray Jones Dr NORTH	R	4118	9	2	-7	-77.78	2.1106
Murray Jones Dr / Milperra Rd	Milperra Rd EAST	T	5439	2735	2646.2	-88.8	-3.247	1.2105
Murray Jones Dr / Milperra Rd	Milperra Rd EAST	R	5440	29	10.6	-18.4	-63.45	2.924
Murray Jones Dr / Milperra Rd	Milperra Rd WEST	L	1973	21	21.6	0.6	2.857	0.091928
Murray Jones Dr / Milperra Rd	Milperra Rd WEST	T	1972	2730	2716.6	-13.4	-0.4908	0.18157
Ashford Ave / Milperra Rd	Milperra Rd EAST	L	3685	149	222.8	73.8	49.53	3.8274
Ashford Ave / Milperra Rd	Milperra Rd EAST	T	3684	2541	2460.2	-80.8	-3.18	1.1425
Ashford Ave / Milperra Rd	Ashford Ave SOUTH	L	3768	235	199.4	-35.6	-15.15	1.7081
Ashford Ave / Milperra Rd	Ashford Ave SOUTH	R	3767	316	357.8	41.8	13.23	1.6103
Ashford Ave / Milperra Rd	Milperra Rd WEST	T	5441	2295	2210	-85	-3.704	1.2664
Ashford Ave / Milperra Rd	Milperra Rd WEST	R	5442	438	510.4	72.4	16.53	2.3509
Georges Ces / HLD	Henry Lawson Dr NORTH	L	3084	0	6	6	INF	2.4495
Georges Ces / HLD	Henry Lawson Dr NORTH	T	5741	1906	1813.6	-92.4	-4.848	1.515
Georges Ces / HLD	Georges Cres EAST	L	5742	0	2.2	2.2	INF	1.4832
Georges Ces / HLD	Henry Lawson Dr SOUTH	T	4787	2322	2077.4	-244.6	-10.53	3.6877
Georges Ces / HLD	Henry Lawson Dr SOUTH	R	4788	0	0.2	0.2	INF	0.44721
HLD Reserve Rd / HLD	Henry Lawson Dr NORTH	T	5181	1907	1808.8	-98.2	-5.149	1.611
HLD Reserve Rd / HLD	Henry Lawson Dr NORTH	R	5739	0	0.4	0.4	INF	0.63246
HLD Reserve Rd / HLD	Henry Lawson Dr SOUTH	L	5408	0	6	6	INF	2.4495
HLD Reserve Rd / HLD	Henry Lawson Dr SOUTH	T	4856	2328	2080.8	-247.2	-10.62	3.723
HLD Reserve Rd / HLD	HLD Reserve Rd WEST	L	4506	0	0.6	0.6	INF	0.7746
HLD Reserve Rd / HLD	HLD Reserve Rd WEST	R	4507	0	2.8	2.8	INF	1.6733
Beale St / HLD	Henry Lawson Dr NORTH	L	4730	0	0	0	0	0
Beale St / HLD	Henry Lawson Dr NORTH	T	4729	1899	1811.2	-87.8	-4.623	1.4414
Beale St / HLD	Beale St EAST	L	4816	0	0.8	0.8	INF	0.89443

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Beale St / HLD	Beale St EAST	R	4817	0	0	0	0	0
Beale St / HLD	Henry Lawson Dr SOUTH	T	2711	2328	2088.2	-239.8	-10.3	3.6085
Beale St / HLD	Henry Lawson Dr SOUTH	R	2712	0	0.2	0.2	INF	0.44721
Endevour Rd / HLD	Henry Lawson Dr NORTH	L	2770	0	0	0	0	0
Endevour Rd / HLD	Henry Lawson Dr NORTH	T	5410	2079	1918.4	-160.6	-7.725	2.5401
Endevour Rd / HLD	Endevour Rd EAST	L	5409	0	3.2	3.2	INF	1.7889
Golf course Rd / HLD	Henry Lawson Dr NORTH	L	4905	0	2	2	INF	1.4142
Golf course Rd / HLD	Henry Lawson Dr NORTH	T	4904	2155	1981	-174	-8.074	2.7056
Golf course Rd / HLD	Golf course Rd EAST	L	4272	0	5	5	INF	2.2361
Golf course Rd / HLD	Golf course Rd EAST	R	4273	0	9.8	9.8	INF	3.1305
Golf course Rd / HLD	Henry Lawson Dr SOUTH	T	1693	2267	2136.2	-130.8	-5.77	1.9712
Golf course Rd / HLD	Henry Lawson Dr SOUTH	R	1694	0	7.2	7.2	INF	2.6833

Weekend Model
Time period: 12:30 PM - 01:30 PM
Vehicle Type: Light Vehicles

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Flinders Rd / HLD	Henry Lawson Dr NORTH	L	3058	23	27.2	4.2	18.26	0.59
Flinders Rd / HLD	Henry Lawson Dr NORTH	T	5407	1,679	1584.8	-94.2	-5.61	1.65
Flinders Rd / HLD	Finders Rd EAST	L	2525	255	236.6	-18.4	-7.216	0.83
Flinders Rd / HLD	Finders Rd EAST	R	2526	22	15	-7	-31.82	1.15
Flinders Rd / HLD	Henry Lawson Dr SOUTH	T	2675	2,028	1889.8	-138.2	-6.815	2.21
Flinders Rd / HLD	Henry Lawson Dr SOUTH	R	2676	291	185.4	-105.6	-36.29	4.84
Haig Ave / HLD	Henry Lawson Dr NORTH	L	2721	29	25.8	-3.2	-11.03	0.43
Haig Ave / HLD	Henry Lawson Dr NORTH	T	2720	1,872	1782.4	-89.6	-4.786	1.48
Haig Ave / HLD	Haig Ave EAST	L	2625	183	136	-47	-25.68	2.63
Haig Ave / HLD	Haig Ave EAST	R	2626	305	203.6	-101.4	-33.25	4.50
Haig Ave / HLD	Henry Lawson Dr SOUTH	T	5854	2,023	1887	-136	-6.723	2.18
Haig Ave / HLD	Henry Lawson Dr SOUTH	R	5855	199	185	-14	-7.035	0.71
Rabaul Rd / HLD	Henry Lawson Dr NORTH	L	2780	14	4	-10	-71.43	2.36
Rabaul Rd / HLD	Henry Lawson Dr NORTH	T	2779	2,066	1917.6	-148.4	-7.183	2.35
Rabaul Rd / HLD	Henry Lawson Dr NORTH	R	2781	4	0	-4	-100	2.00
Rabaul Rd / HLD	Rabaul Rd EAST	R	4357	89	69.2	-19.8	-22.25	1.57
Rabaul Rd / HLD	Rabaul Rd EAST	T	4358	-	0	0	0	0.00
Rabaul Rd / HLD	Rabaul Rd EAST	L	4359	2	0	-2	-100	1.41
Rabaul Rd / HLD	Henry Lawson Dr SOUTH	L	5012	7	3.6	-3.4	-48.57	1.04
Rabaul Rd / HLD	Henry Lawson Dr SOUTH	T	5010	2,213	2069.4	-143.6	-6.489	2.19
Rabaul Rd / HLD	Henry Lawson Dr SOUTH	R	5011	44	69	25	56.82	2.35
Rabaul Rd / HLD	Rabaul Rd WEST	L	4298	5	2	-3	-60	1.13
Rabaul Rd / HLD	Rabaul Rd WEST	T	4299	-	0	0	0	0.00
Rabaul Rd / HLD	Rabaul Rd WEST	R	4300	-	0	0	0	0.00
HLD / Tower Rd	Henry Lawson Dr NORTH	L	1437	67	56.8	-10.2	-15.22	0.92
HLD / Tower Rd	Henry Lawson Dr NORTH	T	5444	2,048	1915	-133	-6.494	2.11
HLD / Tower Rd	Tower Rd EAST	L	5445	452	458.4	6.4	1.416	0.21
HLD / Tower Rd	Tower Rd EAST	R	2768	73	41.4	-31.6	-43.29	2.95
HLD / Tower Rd	Henry Lawson Dr SOUTH	T	5443	2,195	2115.6	-79.4	-3.617	1.21
HLD / Tower Rd	Henry Lawson Dr SOUTH	R	5446	535	555.8	20.8	3.888	0.63
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr NORTH	L	5468	712	669.8	-42.2	-5.927	1.14
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr NORTH	T	2765	935	930	-5	-0.5348	0.12
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr NORTH	R	5434	849	762.4	-86.6	-10.2	2.16
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Milperra Rd EAST	L	5461	178	197.4	19.4	10.9	1.00
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Milperra Rd EAST	T	1845	1,918	1700.4	-217.6	-11.35	3.62
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Milperra Rd EAST	R	5709	685	609.6	-75.4	-11.01	2.10
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr SOUTH	L	5457	791	746.2	-44.8	-5.664	1.14
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr SOUTH	T	1587	1,039	1099.8	60.8	5.852	1.31
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr SOUTH	R	1588	151	151.2	0.2	0.1325	0.01
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Newbridge Rd WEST	L	5454	1,019	974.4	-44.6	-4.377	1.00
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Newbridge Rd WEST	T	2185	1,910	1900.2	-9.8	-0.5131	0.16
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Newbridge Rd WEST	R	5433	695	690	-5	-0.7194	0.13
Auld Ave / HLD	Henry Lawson Dr NORTH	T	1499	1,785	1804.6	19.6	1.098	0.33
Auld Ave / HLD	Henry Lawson Dr NORTH	R	1500	32	7	-25	-78.13	4.00
Auld Ave / HLD	Henry Lawson Dr SOUTH	L	4922	31	8	-23	-74.19	3.68
Auld Ave / HLD	Henry Lawson Dr SOUTH	T	4921	1,929	1972	43	2.229	0.69
Auld Ave / HLD	Auld Ave WEST	L	4198	38	37.2	-0.8	-2.105	0.09
Auld Ave / HLD	Auld Ave WEST	R	4199	28	27.2	-0.8	-2.857	0.11

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Keys Pde/Flower power	Henry Lawson Dr NORTH	L	5512	612	587.8	-24.2	-3.954	0.70
HLD / Keys Pde/Flower power	Henry Lawson Dr NORTH	T	5518	1,220	1233.4	13.4	1.098	0.27
HLD / Keys Pde/Flower power	Flower power EAST	L	5505	148	181.6	33.6	22.7	1.85
HLD / Keys Pde/Flower power	Flower Power EAST	R	5507	703	673.2	-29.8	-4.239	0.80
HLD / Keys Pde/Flower power	Henry Lawson Dr SOUTH	R	5850	-	9.6	9.6	INF	3.10
HLD / Keys Pde/Flower power	Henry Lawson Dr SOUTH	T	5506	1,291	1305.4	14.4	1.115	0.28
HLD / Keys Pde/Flower power	Keys Pde WEST	R	5508	120	119	-1	-0.8333	0.06
HLD / Keys Pde/Flower power	Keys Pde WEST	L	5847	-	1.4	1.4	INF	1.18
Raleigh Rd / HLD	Henry Lawson Dr NORTH	T	3159	1,287	1314.2	27.2	2.113	0.53
Raleigh Rd / HLD	Henry Lawson Dr NORTH	R	3160	79	97.2	18.2	23.04	1.37
Raleigh Rd / HLD	Henry Lawson Dr SOUTH	L	3139	12	3.8	-8.2	-68.33	2.06
Raleigh Rd / HLD	Henry Lawson Dr SOUTH	T	5421	1,337	1325.6	-11.4	-0.8527	0.22
Raleigh Rd / HLD	Raleigh Rd WEST	L	5422	70	109	39	55.71	2.92
Raleigh Rd / HLD	Raleigh Rd WEST	R	3132	5	0.4	-4.6	-92	1.98
HLD / Ruthven Ave	Henry Lawson Dr NORTH	T	20959	1,287	1312.2	25.2	1.958	0.49
HLD / Ruthven Ave	Henry Lawson Dr NORTH	R	20960	1	0	-1	-100	1.00
HLD / Ruthven Ave	Henry Lawson Dr SOUTH	L	20958	11	0	-11	-100	3.32
HLD / Ruthven Ave	Henry Lawson Dr SOUTH	T	20957	1,347	1327.2	-19.8	-1.47	0.38
HLD / Ruthven Ave	Ruthven Ave WEST	L	20962	-	3.6	3.6	INF	1.90
HLD / Ruthven Ave	Ruthven Ave WEST	R	20961	-	2.8	2.8	INF	1.67
HLD / Whittle Ave	Henry Lawson Dr NORTH	L	20976	5	2.8	-2.2	-44	0.79
HLD / Whittle Ave	Henry Lawson Dr NORTH	T	20977	1,282	1310.2	28.2	2.2	0.55
HLD / Whittle Ave	Whittle Ave EAST	L	20979	-	0.4	0.4	INF	0.63
HLD / Whittle Ave	Whittle Ave EAST	R	20978	-	0	0	0	0.00
HLD / Whittle Ave	Henry Lawson Dr SOUTH	T	20980	1,356	1327.4	-28.6	-2.109	0.55
HLD / Whittle Ave	Henry Lawson Dr SOUTH	R	20981	10	0	-10	-100	3.16
HLD / Amiens Ave	Henry Lawson Dr NORTH	T	20995	1,246	1257.6	11.6	0.931	0.23
HLD / Amiens Ave	Henry Lawson Dr NORTH	R	20996	38	52.4	14.4	37.89	1.51
HLD / Amiens Ave	Henry Lawson Dr SOUTH	L	20998	35	28.8	-6.2	-17.71	0.78
HLD / Amiens Ave	Henry Lawson Dr SOUTH	T	20997	1,363	1313	-50	-3.668	0.97
HLD / Amiens Ave	Amiens Ave WEST	L	20999	-	15	15	INF	3.87
HLD / Amiens Ave	Amiens Ave WEST	R	21000	-	7.4	7.4	INF	2.72
HLD / Bullecourt Ave	Henry Lawson Dr NORTH	L	21049	243	216	-27	-11.11	1.26
HLD / Bullecourt Ave	Henry Lawson Dr NORTH	T	21050	1,018	1047.6	29.6	2.908	0.65
HLD / Bullecourt Ave	Bullecourt Ave EAST	L	21045	163	168.4	5.4	3.313	0.30
HLD / Bullecourt Ave	Bullecourt Ave EAST	R	21046	339	292.4	-46.6	-13.75	1.85
HLD / Bullecourt Ave	Henry Lawson Dr SOUTH	T	21048	1,064	1049.8	-14.2	-1.335	0.31
HLD / Bullecourt Ave	Henry Lawson Dr SOUTH	R	21047	138	143.8	5.8	4.203	0.35
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr NORTH	L	21288	4	0.6	-3.4	-85	1.59
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr NORTH	T	21287	1,159	1202.8	43.8	3.779	0.90
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr NORTH	R	21289	19	11	-8	-42.11	1.46
HLD / Ganmain Cres / Fromelles Ave	Fromelles Ave EAST	R	21284	234	192.4	-41.6	-17.78	2.01
HLD / Ganmain Cres / Fromelles Ave	Fromelles Ave EAST	T	21286	-	11.2	11.2	INF	3.35
HLD / Ganmain Cres / Fromelles Ave	Fromelles Ave EAST	L	21285	4	0.6	-3.4	-85	1.59
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr SOUTH	L	21295	76	90.8	14.8	19.47	1.15
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr SOUTH	T	21294	1,135	1107	-28	-2.467	0.59
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr SOUTH	R	21293	129	114.6	-14.4	-11.16	0.92
HLD / Ganmain Cres / Fromelles Ave	Ganmain Cres WEST	L	21292	65	86.2	21.2	32.62	1.72
HLD / Ganmain Cres / Fromelles Ave	Ganmain Cres WEST	T	21291	5	12.4	7.4	148	1.77
HLD / Ganmain Cres / Fromelles Ave	Ganmain Cres WEST	R	21290	59	25	-34	-57.63	3.71
HLD / Hermies Ave	Henry Lawson Dr NORTH	L	21323	11	7.2	-3.8	-34.55	0.89

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Hermies Ave	Henry Lawson Dr NORTH	T	21322	1,419	1414.2	-4.8	-0.3383	0.09
HLD / Hermies Ave	Hermies Ave EAST	L	21324	531	512.6	-18.4	-3.465	0.57
HLD / Hermies Ave	Hermies Ave EAST	R	21325	2	0	-2	-100	1.41
HLD / Hermies Ave	Henry Lawson Dr SOUTH	T	21320	1,327	1314.2	-12.8	-0.9646	0.25
HLD / Hermies Ave	Henry Lawson Dr SOUTH	R	21321	14	20.6	6.6	47.14	1.12
HLD / Pozieres Ave	Henry Lawson Dr NORTH	T	21341	1,838	1850	12	0.6529	0.20
HLD / Pozieres Ave	Henry Lawson Dr NORTH	R	21342	58	77.8	19.8	34.14	1.70
HLD / Pozieres Ave	Henry Lawson Dr SOUTH	L	21340	132	130.6	-1.4	-1.061	0.09
HLD / Pozieres Ave	Henry Lawson Dr SOUTH	T	21339	1,278	1254.6	-23.4	-1.831	0.46
HLD / Pozieres Ave	Pozieres Ave WEST	L	21344	65	80.2	15.2	23.38	1.26
HLD / Pozieres Ave	Pozieres Ave WEST	R	21343	128	161	33	25.78	1.94
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	T	21712	1,220	1182.4	-37.6	-3.082	0.77
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	R	21711	486	481	-5	-1.029	0.16
HLD / Swestern Motorway 2	Swestern Motorway EAST	R	21445	46	46.6	0.6	1.304	0.06
HLD / Swestern Motorway 2	Swestern Motorway EAST	T	21708	1	0	-1	-100	1.00
HLD / Swestern Motorway 2	Swestern Motorway EAST	L	21709	469	467.8	-1.2	-0.2559	0.04
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	L	21452	400	375	-25	-6.25	0.90
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	T	21707	496	493	-3	-0.6048	0.10
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	L	21385	607	590.4	-16.6	-2.735	0.48
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	T	21699	1,386	1418.2	32.2	2.323	0.61
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	T	21704	905	891.2	-13.8	-1.525	0.33
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	R	21703	49	69	20	40.82	1.84
HLD / Swestern Motorway 1	Swestern Motorway WEST	L	21398	504	495.4	-8.6	-1.706	0.27
HLD / Swestern Motorway 1	Swestern Motorway WEST	T	21700	-	0	0	0	0.00
HLD / Swestern Motorway 1	Swestern Motorway WEST	R	21701	291	249.8	-41.2	-14.16	1.77
Murray Jones Dr / Milperra Rd	Murray Jones Dr NORTH	L	4117	7	10.8	3.8	54.29	0.90
Murray Jones Dr / Milperra Rd	Murray Jones Dr NORTH	R	4118	9	2	-7	-77.78	2.11
Murray Jones Dr / Milperra Rd	Milperra Rd EAST	T	5439	2,735	2646.2	-88.8	-3.247	1.21
Murray Jones Dr / Milperra Rd	Milperra Rd EAST	R	5440	29	10.6	-18.4	-63.45	2.92
Murray Jones Dr / Milperra Rd	Milperra Rd WEST	L	1973	21	21.6	0.6	2.857	0.09
Murray Jones Dr / Milperra Rd	Milperra Rd WEST	T	1972	2,730	2716.6	-13.4	-0.4908	0.18
Ashford Ave / Milperra Rd	Milperra Rd EAST	L	3685	149	222.8	73.8	49.53	3.83
Ashford Ave / Milperra Rd	Milperra Rd EAST	T	3684	2,541	2460.2	-80.8	-3.18	1.14
Ashford Ave / Milperra Rd	Ashford Ave SOUTH	L	3768	235	199.4	-35.6	-15.15	1.71
Ashford Ave / Milperra Rd	Ashford Ave SOUTH	R	3767	316	357.8	41.8	13.23	1.61
Ashford Ave / Milperra Rd	Milperra Rd WEST	T	5441	2,295	2210	-85	-3.704	1.27
Ashford Ave / Milperra Rd	Milperra Rd WEST	R	5442	438	510.4	72.4	16.53	2.35
Georges Ces / HLD	Henry Lawson Dr NORTH	L	3084	-	6	6	INF	2.45
Georges Ces / HLD	Henry Lawson Dr NORTH	T	5741	1,906	1813.6	-92.4	-4.848	1.52
Georges Ces / HLD	Georges Cres EAST	L	5742	-	2.2	2.2	INF	1.48
Georges Ces / HLD	Henry Lawson Dr SOUTH	T	4787	2,322	2077.4	-244.6	-10.53	3.69
Georges Ces / HLD	Henry Lawson Dr SOUTH	R	4788	-	0.2	0.2	INF	0.45
HLD Reserve Rd / HLD	Henry Lawson Dr NORTH	T	5181	1,907	1808.8	-98.2	-5.149	1.61
HLD Reserve Rd / HLD	Henry Lawson Dr NORTH	R	5739	-	0.4	0.4	INF	0.63
HLD Reserve Rd / HLD	Henry Lawson Dr SOUTH	L	5408	-	6	6	INF	2.45
HLD Reserve Rd / HLD	Henry Lawson Dr SOUTH	T	4856	2,328	2080.8	-247.2	-10.62	3.72
HLD Reserve Rd / HLD	HLD Reserve Rd WEST	L	4506	-	0.6	0.6	INF	0.77
HLD Reserve Rd / HLD	HLD Reserve Rd WEST	R	4507	-	2.8	2.8	INF	1.67
Beale St / HLD	Henry Lawson Dr NORTH	L	4730	-	0	0	0	0.00
Beale St / HLD	Henry Lawson Dr NORTH	T	4729	1,899	1811.2	-87.8	-4.623	1.44
Beale St / HLD	Beale St EAST	L	4816	-	0.8	0.8	INF	0.89

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Beale St / HLD	Beale St EAST	R	4817	-	0	0	0	0.00
Beale St / HLD	Henry Lawson Dr SOUTH	T	2711	2,328	2088.2	-239.8	-10.3	3.61
Beale St / HLD	Henry Lawson Dr SOUTH	R	2712	-	0.2	0.2	INF	0.45
Endevour Rd / HLD	Henry Lawson Dr NORTH	L	2770	-	0	0	0	0.00
Endevour Rd / HLD	Henry Lawson Dr NORTH	T	5410	2,079	1918.4	-160.6	-7.725	2.54
Endevour Rd / HLD	Endevour Rd EAST	L	5409	-	3.2	3.2	INF	1.79
Golf course Rd / HLD	Henry Lawson Dr NORTH	L	4905	-	2	2	INF	1.41
Golf course Rd / HLD	Henry Lawson Dr NORTH	T	4904	2,155	1981	-174	-8.074	2.71
Golf course Rd / HLD	Golf course Rd EAST	L	4272	-	5	5	INF	2.24
Golf course Rd / HLD	Golf course Rd EAST	R	4273	-	9.8	9.8	INF	3.13
Golf course Rd / HLD	Henry Lawson Dr SOUTH	T	1693	2,267	2136.2	-130.8	-5.77	1.97
Golf course Rd / HLD	Henry Lawson Dr SOUTH	R	1694	-	7.2	7.2	INF	2.68

Weekend Model
Time period: 11:30 AM - 12:30 PM
Vehicle Type: Heavy Vehicles

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Flinders Rd / HLD	Henry Lawson Dr NORTH	L	3058	-	0	0	0	0.00
Flinders Rd / HLD	Henry Lawson Dr NORTH	T	5407	126	135.6	9.6	7.619	0.84
Flinders Rd / HLD	Finders Rd EAST	L	2525	1	0	-1	-100	1.41
Flinders Rd / HLD	Finders Rd EAST	R	2526	-	0	0	0	0.00
Flinders Rd / HLD	Henry Lawson Dr SOUTH	T	2675	134	99.2	-34.8	-25.97	3.22
Flinders Rd / HLD	Henry Lawson Dr SOUTH	R	2676	3	0	-3	-100	2.45
Haig Ave / HLD	Henry Lawson Dr NORTH	L	2721	2	2.6	0.6	30	0.40
Haig Ave / HLD	Henry Lawson Dr NORTH	T	2720	152	130	-22	-14.47	1.85
Haig Ave / HLD	Haig Ave EAST	L	2625	12	8.6	-3.4	-28.33	1.06
Haig Ave / HLD	Haig Ave EAST	R	2626	6	11	5	83.33	1.72
Haig Ave / HLD	Henry Lawson Dr SOUTH	T	5854	124	89.6	-34.4	-27.74	3.33
Haig Ave / HLD	Henry Lawson Dr SOUTH	R	5855	9	9.4	0.4	4.444	0.13
Rabaul Rd / HLD	Henry Lawson Dr NORTH	L	2780	1	0	-1	-100	1.41
Rabaul Rd / HLD	Henry Lawson Dr NORTH	T	2779	137	138.8	1.8	1.314	0.15
Rabaul Rd / HLD	Henry Lawson Dr NORTH	R	2781	-	0	0	0	0.00
Rabaul Rd / HLD	Rabaul Rd EAST	R	4357	2	0	-2	-100	2.00
Rabaul Rd / HLD	Rabaul Rd EAST	T	4358	-	0	0	0	0.00
Rabaul Rd / HLD	Rabaul Rd EAST	L	4359	-	0	0	0	0.00
Rabaul Rd / HLD	Henry Lawson Dr SOUTH	L	5012	-	0	0	0	0.00
Rabaul Rd / HLD	Henry Lawson Dr SOUTH	T	5010	145	100	-45	-31.03	4.07
Rabaul Rd / HLD	Henry Lawson Dr SOUTH	R	5011	-	0	0	0	0.00
Rabaul Rd / HLD	Rabaul Rd WEST	L	4298	1	0	-1	-100	1.41
Rabaul Rd / HLD	Rabaul Rd WEST	T	4299	-	0	0	0	0.00
Rabaul Rd / HLD	Rabaul Rd WEST	R	4300	-	0	0	0	0.00
HLD / Tower Rd	Henry Lawson Dr NORTH	L	1437	4	0	-4	-100	2.83
HLD / Tower Rd	Henry Lawson Dr NORTH	T	5444	170	136	-34	-20	2.75
HLD / Tower Rd	Tower Rd EAST	L	5445	-	0	0	0	0.00
HLD / Tower Rd	Tower Rd EAST	R	2768	5	0	-5	-100	3.16
HLD / Tower Rd	Henry Lawson Dr SOUTH	T	5443	124	102.4	-21.6	-17.42	2.03
HLD / Tower Rd	Henry Lawson Dr SOUTH	R	5446	4	0	-4	-100	2.83
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr NORTH	L	5468	52	72.2	20.2	38.85	2.56
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr NORTH	T	2765	74	41.2	-32.8	-44.32	4.32

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr NORTH	R	5434	52	20.2	-31.8	-61.15	5.29
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Milperra Rd EAST	L	5461	11	0.6	-10.4	-94.55	4.32
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Milperra Rd EAST	T	1845	111	96.4	-14.6	-13.15	1.43
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Milperra Rd EAST	R	5709	50	21.8	-28.2	-56.4	4.71
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr SOUTH	L	5457	39	41.4	2.4	6.154	0.38
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr SOUTH	T	1587	46	34.6	-11.4	-24.78	1.80
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr SOUTH	R	1588	15	3	-12	-80	4.00
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Newbridge Rd WEST	L	5454	14	46	32	228.6	5.84
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Newbridge Rd WEST	T	2185	103	190.8	87.8	85.24	7.24
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Newbridge Rd WEST	R	5433	22	48	26	118.2	4.39
Auld Ave / HLD	Henry Lawson Dr NORTH	T	1499	101	89.6	-11.4	-11.29	1.17
Auld Ave / HLD	Henry Lawson Dr NORTH	R	1500	-	0	0	0	0.00
Auld Ave / HLD	Henry Lawson Dr SOUTH	L	4922	3	0	-3	-100	2.45
Auld Ave / HLD	Henry Lawson Dr SOUTH	T	4921	96	81.4	-14.6	-15.21	1.55
Auld Ave / HLD	Auld Ave WEST	L	4198	-	0	0	0	0.00
Auld Ave / HLD	Auld Ave WEST	R	4199	-	0	0	0	0.00
HLD / Keys Pde/Flower power	Henry Lawson Dr NORTH	L	5512	-	0	0	0	0.00
HLD / Keys Pde/Flower power	Henry Lawson Dr NORTH	T	5518	99	88.2	-10.8	-10.91	1.12
HLD / Keys Pde/Flower power	Flower power EAST	L	5505	13	0	-13	-100	5.10
HLD / Keys Pde/Flower power	Flower Power EAST	R	5507	-	0	0	0	0
HLD / Keys Pde/Flower power	Henry Lawson Dr SOUTH	R	5850	-	0	0	0	0
HLD / Keys Pde/Flower power	Henry Lawson Dr SOUTH	T	5506	71	82	11	15.49	1.2577
HLD / Keys Pde/Flower power	Keys Pde WEST	R	5508	4	0	-4	-100	2.8284
HLD / Keys Pde/Flower power	Keys Pde WEST	L	5847	-	0	0	0	0
Raleigh Rd / HLD	Henry Lawson Dr NORTH	T	3159	109	87.8	-21.2	-19.45	2.1372
Raleigh Rd / HLD	Henry Lawson Dr NORTH	R	3160	-	0	0	0	0
Raleigh Rd / HLD	Henry Lawson Dr SOUTH	L	3139	-	0	0	0	0
Raleigh Rd / HLD	Henry Lawson Dr SOUTH	T	5421	73	82	9	12.33	1.0223
Raleigh Rd / HLD	Raleigh Rd WEST	L	5422	3	0	-3	-100	2.4495
Raleigh Rd / HLD	Raleigh Rd WEST	R	3132	1	0	-1	-100	1.4142
HLD / Ruthven Ave	Henry Lawson Dr NORTH	T	20959	109	87.2	-21.8	-20	2.201
HLD / Ruthven Ave	Henry Lawson Dr NORTH	R	20960	-	0	0	0	0
HLD / Ruthven Ave	Henry Lawson Dr SOUTH	L	20958	-	0	0	0	0
HLD / Ruthven Ave	Henry Lawson Dr SOUTH	T	20957	75	83	8	10.67	0.90007

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Ruthven Ave	Ruthven Ave WEST	L	20962	-	0	0	0	0
HLD / Ruthven Ave	Ruthven Ave WEST	R	20961	-	0	0	0	0
HLD / Whittle Ave	Henry Lawson Dr NORTH	L	20976	-	0	0	0	0
HLD / Whittle Ave	Henry Lawson Dr NORTH	T	20977	109	86.6	-22.4	-20.55	2.2651
HLD / Whittle Ave	Whittle Ave EAST	L	20979	-	1.8	1.8	INF	1.8974
HLD / Whittle Ave	Whittle Ave EAST	R	20978	-	0	0	0	0
HLD / Whittle Ave	Henry Lawson Dr SOUTH	T	20980	75	84	9	12	1.0094
HLD / Whittle Ave	Henry Lawson Dr SOUTH	R	20981	-	0	0	0	0
HLD / Amiens Ave	Henry Lawson Dr NORTH	T	20995	106	84.4	-21.6	-20.38	2.2138
HLD / Amiens Ave	Henry Lawson Dr NORTH	R	20996	2	3.6	1.6	80	0.95618
HLD / Amiens Ave	Henry Lawson Dr SOUTH	L	20998	3	4.4	1.4	46.67	0.72783
HLD / Amiens Ave	Henry Lawson Dr SOUTH	T	20997	77	81.6	4.6	5.974	0.51656
HLD / Amiens Ave	Amiens Ave WEST	L	20999	-	2.6	2.6	INF	2.2804
HLD / Amiens Ave	Amiens Ave WEST	R	21000	-	0.6	0.6	INF	1.0954
HLD / Bullecourt Ave	Henry Lawson Dr NORTH	L	21049	10	11	1	10	0.30861
HLD / Bullecourt Ave	Henry Lawson Dr NORTH	T	21050	84	73.4	-10.6	-12.62	1.1949
HLD / Bullecourt Ave	Bullecourt Ave EAST	L	21045	15	11.4	-3.6	-24	0.99087
HLD / Bullecourt Ave	Bullecourt Ave EAST	R	21046	10	13.6	3.6	36	1.048
HLD / Bullecourt Ave	Henry Lawson Dr SOUTH	T	21048	70	72.2	2.2	3.143	0.26091
HLD / Bullecourt Ave	Henry Lawson Dr SOUTH	R	21047	10	27.6	17.6	176	4.0591
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr NORTH	L	21288	-	0.4	0.4	INF	0.89443
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr NORTH	T	21287	98	84	-14	-14.29	1.4676
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr NORTH	R	21289	1	0	-1	-100	1.4142
HLD / Ganmain Cres / Fromelles Ave	Fromelles Ave EAST	R	21284	17	1.2	-15.8	-92.94	5.2376
HLD / Ganmain Cres / Fromelles Ave	Fromelles Ave EAST	T	21286	-	1.4	1.4	INF	1.6733
HLD / Ganmain Cres / Fromelles Ave	Fromelles Ave EAST	L	21285	-	0	0	0	0
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr SOUTH	L	21295	7	0.4	-6.6	-94.29	3.4312
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr SOUTH	T	21294	75	96.6	21.6	28.8	2.3319
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr SOUTH	R	21293	-	3.4	3.4	INF	2.6077
HLD / Ganmain Cres / Fromelles Ave	Ganmain Cres WEST	L	21292	6	3.4	-2.6	-43.33	1.1993
HLD / Ganmain Cres / Fromelles Ave	Ganmain Cres WEST	T	21291	-	2.4	2.4	INF	2.1909
HLD / Ganmain Cres / Fromelles Ave	Ganmain Cres WEST	R	21290	3	0.4	-2.6	-86.67	1.9941
HLD / Hermies Ave	Henry Lawson Dr NORTH	L	21323	-	0.6	0.6	INF	1.0954
HLD / Hermies Ave	Henry Lawson Dr NORTH	T	21322	119	85.2	-33.8	-28.4	3.3451

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Hermies Ave	Hermies Ave EAST	L	21324	7	10	3	42.86	1.029
HLD / Hermies Ave	Hermies Ave EAST	R	21325	-	0	0	0	0
HLD / Hermies Ave	Henry Lawson Dr SOUTH	T	21320	87	100.6	13.6	15.63	1.4042
HLD / Hermies Ave	Henry Lawson Dr SOUTH	R	21321	1	0.8	-0.2	-20	0.21082
HLD / Pozieres Ave	Henry Lawson Dr NORTH	T	21341	152	92.4	-59.6	-39.21	5.3915
HLD / Pozieres Ave	Henry Lawson Dr NORTH	R	21342	5	2.4	-2.6	-52	1.3517
HLD / Pozieres Ave	Henry Lawson Dr SOUTH	L	21340	4	7	3	75	1.2792
HLD / Pozieres Ave	Henry Lawson Dr SOUTH	T	21339	86	94.8	8.8	10.23	0.92555
HLD / Pozieres Ave	Pozieres Ave WEST	L	21344	2	6.8	4.8	240	2.2883
HLD / Pozieres Ave	Pozieres Ave WEST	R	21343	1	17.6	16.6	1660	5.4434
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	T	21712	48	49.6	1.6	3.333	0.22904
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	R	21711	43	29.2	-13.8	-32.09	2.2968
HLD / Swestern Motorway 2	Swestern Motorway EAST	R	21445	2	1.8	-0.2	-10	0.1451
HLD / Swestern Motorway 2	Swestern Motorway EAST	T	21708	-	0	0	0	0
HLD / Swestern Motorway 2	Swestern Motorway EAST	L	21709	38	41.8	3.8	10	0.60159
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	L	21452	9	30.6	21.6	240	4.8542
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	T	21707	20	45	25	125	4.3853
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	L	21385	45	40.6	-4.4	-9.778	0.67256
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	T	21699	88	67.2	-20.8	-23.64	2.3612
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	T	21704	61	84	23	37.7	2.7012
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	R	21703	-	2.8	2.8	INF	2.3664
HLD / Swestern Motorway 1	Swestern Motorway WEST	L	21398	30	17.6	-12.4	-41.33	2.5418
HLD / Swestern Motorway 1	Swestern Motorway WEST	T	21700	-	0	0	0	0
HLD / Swestern Motorway 1	Swestern Motorway WEST	R	21701	11	11.6	0.6	5.455	0.17849
Murray Jones Dr / Milperra Rd	Murray Jones Dr NORTH	L	4117	-	0.2	0.2	INF	0.63246
Murray Jones Dr / Milperra Rd	Murray Jones Dr NORTH	R	4118	1	0.6	-0.4	-40	0.44721
Murray Jones Dr / Milperra Rd	Milperra Rd EAST	T	5439	190	122.2	-67.8	-35.68	5.4266
Murray Jones Dr / Milperra Rd	Milperra Rd EAST	R	5440	3	0.4	-2.6	-86.67	1.9941
Murray Jones Dr / Milperra Rd	Milperra Rd WEST	L	1973	2	1.2	-0.8	-40	0.63246
Murray Jones Dr / Milperra Rd	Milperra Rd WEST	T	1972	165	263.2	98.2	59.52	6.7112
Ashford Ave / Milperra Rd	Milperra Rd EAST	L	3685	10	18.6	8.6	86	2.2742
Ashford Ave / Milperra Rd	Milperra Rd EAST	T	3684	160	117	-43	-26.88	3.6538
Ashford Ave / Milperra Rd	Ashford Ave SOUTH	L	3768	20	5.6	-14.4	-72	4.0249
Ashford Ave / Milperra Rd	Ashford Ave SOUTH	R	3767	-	18.6	18.6	INF	6.0992

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Ashford Ave / Milperra Rd	Milperra Rd WEST	T	5441	137	221.6	84.6	61.75	6.318
Ashford Ave / Milperra Rd	Milperra Rd WEST	R	5442	29	39.4	10.4	35.86	1.7784
Georges Ces / HLD	Henry Lawson Dr NORTH	L	3084	-	0	0	0	0
Georges Ces / HLD	Henry Lawson Dr NORTH	T	5741	147	135.2	-11.8	-8.027	0.99339
Georges Ces / HLD	Georges Cres EAST	L	5742	-	0	0	0	0
Georges Ces / HLD	Henry Lawson Dr SOUTH	T	4787	137	99.2	-37.8	-27.59	3.4783
Georges Ces / HLD	Henry Lawson Dr SOUTH	R	4788	-	0	0	0	0
HLD Reserve Rd / HLD	Henry Lawson Dr NORTH	T	5181	146	134	-12	-8.219	1.0142
HLD Reserve Rd / HLD	Henry Lawson Dr NORTH	R	5739	-	0	0	0	0
HLD Reserve Rd / HLD	Henry Lawson Dr SOUTH	L	5408	-	0	0	0	0
HLD Reserve Rd / HLD	Henry Lawson Dr SOUTH	T	4856	131	100	-31	-23.66	2.8845
HLD Reserve Rd / HLD	HLD Reserve Rd WEST	L	4506	-	0	0	0	0
HLD Reserve Rd / HLD	HLD Reserve Rd WEST	R	4507	-	0	0	0	0
Beale St / HLD	Henry Lawson Dr NORTH	L	4730	-	0	0	0	0
Beale St / HLD	Henry Lawson Dr NORTH	T	4729	154	133.2	-20.8	-13.51	1.7357
Beale St / HLD	Beale St EAST	L	4816	-	0	0	0	0
Beale St / HLD	Beale St EAST	R	4817	-	0	0	0	0
Beale St / HLD	Henry Lawson Dr SOUTH	T	2711	131	100.2	-30.8	-23.51	2.8647
Beale St / HLD	Henry Lawson Dr SOUTH	R	2712	-	0.2	0.2	INF	0.63246
Endevour Rd / HLD	Henry Lawson Dr NORTH	L	2770	-	0	0	0	0
Endevour Rd / HLD	Henry Lawson Dr NORTH	T	5410	139	138.6	-0.4	-0.2878	0.033952
Endevour Rd / HLD	Endevour Rd EAST	L	5409	-	0.2	0.2	INF	0.63246
Golf course Rd / HLD	Henry Lawson Dr NORTH	L	4905	-	0	0	0	0
Golf course Rd / HLD	Henry Lawson Dr NORTH	T	4904	139	137.2	-1.8	-1.295	0.15317
Golf course Rd / HLD	Golf course Rd EAST	L	4272	-	2	2	INF	2
Golf course Rd / HLD	Golf course Rd EAST	R	4273	-	0.6	0.6	INF	1.0954
Golf course Rd / HLD	Henry Lawson Dr SOUTH	T	1693	130	100.2	-29.8	-22.92	2.7777
Golf course Rd / HLD	Henry Lawson Dr SOUTH	R	1694	-	0.2	0.2	INF	0.63246

Weekend Model
Time period: 12:30 PM - 01:30 PM
Vehicle Type: Heavy Vehicles

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Flinders Rd / HLD	Henry Lawson Dr NORTH	L	3058	0	0.0	0.0	0.0	0.00
Flinders Rd / HLD	Henry Lawson Dr NORTH	T	5407	140	135.4	-4.6	-3.3	0.39
Flinders Rd / HLD	Finders Rd EAST	L	2525	7	0.0	-7.0	-100.0	3.74
Flinders Rd / HLD	Finders Rd EAST	R	2526	1	0.0	-1.0	-100.0	1.41
Flinders Rd / HLD	Henry Lawson Dr SOUTH	T	2675	174	127.2	-46.8	-26.9	3.81
Flinders Rd / HLD	Henry Lawson Dr SOUTH	R	2676	7	0.0	-7.0	-100.0	3.74
Haig Ave / HLD	Henry Lawson Dr NORTH	L	2721	0	4.2	4.2	INF	2.90
Haig Ave / HLD	Henry Lawson Dr NORTH	T	2720	153	124.8	-28.2	-18.4	2.39
Haig Ave / HLD	Haig Ave EAST	L	2625	11	10.8	-0.2	-1.8	0.06
Haig Ave / HLD	Haig Ave EAST	R	2626	8	10.8	2.8	35.0	0.91
Haig Ave / HLD	Henry Lawson Dr SOUTH	T	5854	171	116.8	-54.2	-31.7	4.52
Haig Ave / HLD	Henry Lawson Dr SOUTH	R	5855	13	13.8	0.8	6.2	0.22
Rabaul Rd / HLD	Henry Lawson Dr NORTH	L	2780	1	0.0	-1.0	-100.0	1.41
Rabaul Rd / HLD	Henry Lawson Dr NORTH	T	2779	160	143.8	-16.2	-10.1	1.31
Rabaul Rd / HLD	Henry Lawson Dr NORTH	R	2781	0	0.0	0.0	0.0	0.00
Rabaul Rd / HLD	Rabaul Rd EAST	R	4357	2	0.0	-2.0	-100.0	2.00
Rabaul Rd / HLD	Rabaul Rd EAST	T	4358	0	0.0	0.0	0.0	0.00
Rabaul Rd / HLD	Rabaul Rd EAST	L	4359	0	0.0	0.0	0.0	0.00
Rabaul Rd / HLD	Henry Lawson Dr SOUTH	L	5012	0	0.0	0.0	0.0	0.00
Rabaul Rd / HLD	Henry Lawson Dr SOUTH	T	5010	173	130.4	-42.6	-24.6	3.46
Rabaul Rd / HLD	Henry Lawson Dr SOUTH	R	5011	0	0.0	0.0	0.0	0.00
Rabaul Rd / HLD	Rabaul Rd WEST	L	4298	0	0.0	0.0	0.0	0.00
Rabaul Rd / HLD	Rabaul Rd WEST	T	4299	0	0.0	0.0	0.0	0.00
Rabaul Rd / HLD	Rabaul Rd WEST	R	4300	0	0.0	0.0	0.0	0.00
HLD / Tower Rd	Henry Lawson Dr NORTH	L	1437	3	0.0	-3.0	-100.0	2.45
HLD / Tower Rd	Henry Lawson Dr NORTH	T	5444	164	152.8	-11.2	-6.8	0.89
HLD / Tower Rd	Tower Rd EAST	L	5445	10	0.0	-10.0	-100.0	4.47
HLD / Tower Rd	Tower Rd EAST	R	2768	5	0.0	-5.0	-100.0	3.16
HLD / Tower Rd	Henry Lawson Dr SOUTH	T	5443	180	124.8	-55.2	-30.7	4.47
HLD / Tower Rd	Henry Lawson Dr SOUTH	R	5446	10	0.0	-10.0	-100.0	4.47
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr NORTH	L	5468	57	77.0	20.0	35.1	2.44
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr NORTH	T	2765	71	50.4	-20.6	-29.0	2.64
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr NORTH	R	5434	42	27.0	-15.0	-35.7	2.55
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Milperra Rd EAST	L	5461	12	1.2	-10.8	-90.0	4.20
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Milperra Rd EAST	T	1845	135	142.4	7.4	5.5	0.63

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Milperra Rd EAST	R	5709	61	25.2	-35.8	-58.7	5.45
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr SOUTH	L	5457	62	43.0	-19.0	-30.7	2.62
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr SOUTH	T	1587	54	46.0	-8.0	-14.8	1.13
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr SOUTH	R	1588	9	5.2	-3.8	-42.2	1.43
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Newbridge Rd WEST	L	5454	80	54.0	-26.0	-32.5	3.18
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Newbridge Rd WEST	T	2185	123	219.0	96.0	78.1	7.34
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Newbridge Rd WEST	R	5433	57	73.0	16.0	28.1	1.98
Auld Ave / HLD	Henry Lawson Dr NORTH	T	1499	137	124.4	-12.6	-9.2	1.10
Auld Ave / HLD	Henry Lawson Dr NORTH	R	1500	0	0.0	0.0	0.0	0.00
Auld Ave / HLD	Henry Lawson Dr SOUTH	L	4922	0	0.0	0.0	0.0	0.00
Auld Ave / HLD	Henry Lawson Dr SOUTH	T	4921	141	94.2	-46.8	-33.2	4.32
Auld Ave / HLD	Auld Ave WEST	L	4198	2	0.0	-2.0	-100.0	2.00
Auld Ave / HLD	Auld Ave WEST	R	4199	0	0.0	0.0	0.0	0.00
HLD / Keys Pde/Flower power	Henry Lawson Dr NORTH	L	5512	24	0.0	-24.0	-100.0	6.93
HLD / Keys Pde/Flower power	Henry Lawson Dr NORTH	T	5518	96	123.4	27.4	28.5	2.62
HLD / Keys Pde/Flower power	Flower power EAST	L	5505	5	0.0	-5.0	-100.0	3.16
HLD / Keys Pde/Flower power	Flower Power EAST	R	5507	39	0.0	-39.0	-100.0	8.83
HLD / Keys Pde/Flower power	Henry Lawson Dr SOUTH	R	5850	0	0.0	0.0	0.0	0.00
HLD / Keys Pde/Flower power	Henry Lawson Dr SOUTH	T	5506	96	94.0	-2.0	-2.1	0.21
HLD / Keys Pde/Flower power	Keys Pde WEST	R	5508	1	0.0	-1.0	-100.0	1.41
HLD / Keys Pde/Flower power	Keys Pde WEST	L	5847	0	0.0	0.0	0.0	0.00
Raleigh Rd / HLD	Henry Lawson Dr NORTH	T	3159	101	122.8	21.8	21.6	2.06
Raleigh Rd / HLD	Henry Lawson Dr NORTH	R	3160	5	0.0	-5.0	-100.0	3.16
Raleigh Rd / HLD	Henry Lawson Dr SOUTH	L	3139	0	0.0	0.0	0.0	0.00
Raleigh Rd / HLD	Henry Lawson Dr SOUTH	T	5421	100	94.0	-6.0	-6.0	0.61
Raleigh Rd / HLD	Raleigh Rd WEST	L	5422	1	0.0	-1.0	-100.0	1.41
Raleigh Rd / HLD	Raleigh Rd WEST	R	3132	0	0.0	0.0	0.0	0.00
HLD / Ruthven Ave	Henry Lawson Dr NORTH	T	20959	100	122.6	22.6	22.6	2.14
HLD / Ruthven Ave	Henry Lawson Dr NORTH	R	20960	0	0.0	0.0	0.0	0.00
HLD / Ruthven Ave	Henry Lawson Dr SOUTH	L	20958	1	0.0	-1.0	-100.0	1.41
HLD / Ruthven Ave	Henry Lawson Dr SOUTH	T	20957	100	94.2	-5.8	-5.8	0.59
HLD / Ruthven Ave	Ruthven Ave WEST	L	20962	0	0.0	0.0	0.0	0.00
HLD / Ruthven Ave	Ruthven Ave WEST	R	20961	0	0.0	0.0	0.0	0.00
HLD / Whittle Ave	Henry Lawson Dr NORTH	L	20976	0	0.0	0.0	0.0	0.00
HLD / Whittle Ave	Henry Lawson Dr NORTH	T	20977	100	122.8	22.8	22.8	2.16
HLD / Whittle Ave	Whittle Ave EAST	L	20979	0	0.0	0.0	0.0	0.00
HLD / Whittle Ave	Whittle Ave EAST	R	20978	0	0.0	0.0	0.0	0.00
HLD / Whittle Ave	Henry Lawson Dr SOUTH	T	20980	103	93.4	-9.6	-9.3	0.97

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Whittle Ave	Henry Lawson Dr SOUTH	R	20981	0	0.0	0.0	0.0	0.00
HLD / Amiens Ave	Henry Lawson Dr NORTH	T	20995	97	120.8	23.8	24.5	2.28
HLD / Amiens Ave	Henry Lawson Dr NORTH	R	20996	2	2.4	0.4	20.0	0.27
HLD / Amiens Ave	Henry Lawson Dr SOUTH	L	20998	3	2.8	-0.2	-6.7	0.12
HLD / Amiens Ave	Henry Lawson Dr SOUTH	T	20997	104	92.0	-12.0	-11.5	1.21
HLD / Amiens Ave	Amiens Ave WEST	L	20999	0	1.2	1.2	INF	1.55
HLD / Amiens Ave	Amiens Ave WEST	R	21000	0	1.0	1.0	INF	1.41
HLD / Bullecourt Ave	Henry Lawson Dr NORTH	L	21049	13	9.0	-4.0	-30.8	1.21
HLD / Bullecourt Ave	Henry Lawson Dr NORTH	T	21050	81	112.4	31.4	38.8	3.19
HLD / Bullecourt Ave	Bullecourt Ave EAST	L	21045	11	7.6	-3.4	-30.9	1.11
HLD / Bullecourt Ave	Bullecourt Ave EAST	R	21046	20	12.6	-7.4	-37.0	1.83
HLD / Bullecourt Ave	Henry Lawson Dr SOUTH	T	21048	81	82.6	1.6	2.0	0.18
HLD / Bullecourt Ave	Henry Lawson Dr SOUTH	R	21047	10	29.4	19.4	194.0	4.37
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr NORTH	L	21288	0	0.0	0.0	0.0	0.00
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr NORTH	T	21287	90	120.2	30.2	33.6	2.95
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr NORTH	R	21289	0	0.2	0.2	INF	0.63
HLD / Ganmain Cres / Fromelles Ave	Fromelles Ave EAST	R	21284	0	2.6	2.6	INF	2.28
HLD / Ganmain Cres / Fromelles Ave	Fromelles Ave EAST	T	21286	0	0.6	0.6	INF	1.10
HLD / Ganmain Cres / Fromelles Ave	Fromelles Ave EAST	L	21285	0	0.0	0.0	0.0	0.00
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr SOUTH	L	21295	6	1.2	-4.8	-80.0	2.53
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr SOUTH	T	21294	87	105.4	18.4	21.2	1.88
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr SOUTH	R	21293	3	3.6	0.6	20.0	0.33
HLD / Ganmain Cres / Fromelles Ave	Ganmain Cres WEST	L	21292	1	6.6	5.6	560.0	2.87
HLD / Ganmain Cres / Fromelles Ave	Ganmain Cres WEST	T	21291	0	1.0	1.0	INF	1.41
HLD / Ganmain Cres / Fromelles Ave	Ganmain Cres WEST	R	21290	0	0.8	0.8	INF	1.26
HLD / Hermies Ave	Henry Lawson Dr NORTH	L	21323	0	0.2	0.2	INF	0.63
HLD / Hermies Ave	Henry Lawson Dr NORTH	T	21322	112	123.6	11.6	10.4	1.07
HLD / Hermies Ave	Hermies Ave EAST	L	21324	12	6.2	-5.8	-48.3	1.92
HLD / Hermies Ave	Hermies Ave EAST	R	21325	0	0.0	0.0	0.0	0.00
HLD / Hermies Ave	Henry Lawson Dr SOUTH	T	21320	101	110.4	9.4	9.3	0.91
HLD / Hermies Ave	Henry Lawson Dr SOUTH	R	21321	2	2.0	0.0	0.0	0.00
HLD / Pozieres Ave	Henry Lawson Dr NORTH	T	21341	147	125.8	-21.2	-14.4	1.82
HLD / Pozieres Ave	Henry Lawson Dr NORTH	R	21342	0	4.2	4.2	INF	2.90
HLD / Pozieres Ave	Henry Lawson Dr SOUTH	L	21340	9	12.6	3.6	40.0	1.10
HLD / Pozieres Ave	Henry Lawson Dr SOUTH	T	21339	99	104.2	5.2	5.3	0.52
HLD / Pozieres Ave	Pozieres Ave WEST	L	21344	3	8.0	5.0	166.7	2.13
HLD / Pozieres Ave	Pozieres Ave WEST	R	21343	3	17.2	14.2	473.3	4.47

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	T	21712	39	56.2	17.2	44.1	2.49
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	R	21711	37	30.4	-6.6	-17.8	1.14
HLD / Swestern Motorway 2	Swestern Motorway EAST	R	21445	1	3.8	2.8	280.0	1.81
HLD / Swestern Motorway 2	Swestern Motorway EAST	T	21708	0	0.0	0.0	0.0	0.00
HLD / Swestern Motorway 2	Swestern Motorway EAST	L	21709	38	51.2	13.2	34.7	1.98
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	L	21452	7	23.8	16.8	240.0	4.28
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	T	21707	25	49.0	24.0	96.0	3.95
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	L	21385	54	69.8	15.8	29.3	2.01
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	T	21699	91	74.0	-17.0	-18.7	1.87
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	T	21704	68	95.2	27.2	40.0	3.01
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	R	21703	4	5.0	1.0	25.0	0.47
HLD / Swestern Motorway 1	Swestern Motorway WEST	L	21398	39	23.4	-15.6	-40.0	2.79
HLD / Swestern Motorway 1	Swestern Motorway WEST	T	21700	0	0.0	0.0	0.0	0.00
HLD / Swestern Motorway 1	Swestern Motorway WEST	R	21701	6	13.6	7.6	126.7	2.43
Murray Jones Dr / Milperra Rd	Murray Jones Dr NORTH	L	4117	0	1.8	1.8	INF	1.90
Murray Jones Dr / Milperra Rd	Murray Jones Dr NORTH	R	4118	0	9.0	9.0	INF	4.24
Murray Jones Dr / Milperra Rd	Milperra Rd EAST	T	5439	226	174.0	-52.0	-23.0	3.68
Murray Jones Dr / Milperra Rd	Milperra Rd EAST	R	5440	0	0.4	0.4	INF	0.89
Murray Jones Dr / Milperra Rd	Milperra Rd WEST	L	1973	0	1.2	1.2	INF	1.55
Murray Jones Dr / Milperra Rd	Milperra Rd WEST	T	1972	214	300.8	86.8	40.6	5.41
Ashford Ave / Milperra Rd	Milperra Rd EAST	L	3685	15	17.6	2.6	17.3	0.64
Ashford Ave / Milperra Rd	Milperra Rd EAST	T	3684	209	160.2	-48.8	-23.4	3.59
Ashford Ave / Milperra Rd	Ashford Ave SOUTH	L	3768	18	15.4	-2.6	-14.4	0.64
Ashford Ave / Milperra Rd	Ashford Ave SOUTH	R	3767	8	30.6	22.6	282.5	5.14
Ashford Ave / Milperra Rd	Milperra Rd WEST	T	5441	186	267.2	81.2	43.7	5.39
Ashford Ave / Milperra Rd	Milperra Rd WEST	R	5442	32	35.0	3.0	9.4	0.52
Georges Ces / HLD	Henry Lawson Dr NORTH	L	3084	0	0.0	0.0	0.0	0.00
Georges Ces / HLD	Henry Lawson Dr NORTH	T	5741	155	134.4	-20.6	-13.3	1.71
Georges Ces / HLD	Georges Cres EAST	L	5742	0	0.0	0.0	0.0	0.00
Georges Ces / HLD	Henry Lawson Dr SOUTH	T	4787	178	127.6	-50.4	-28.3	4.08
Georges Ces / HLD	Henry Lawson Dr SOUTH	R	4788	0	0.0	0.0	0.0	0.00
HLD Reserve Rd / HLD	Henry Lawson Dr NORTH	T	5181	155	134.0	-21.0	-13.6	1.75
HLD Reserve Rd / HLD	Henry Lawson Dr NORTH	R	5739	0	0.0	0.0	0.0	0.00
HLD Reserve Rd / HLD	Henry Lawson Dr SOUTH	L	5408	0	0.0	0.0	0.0	0.00
HLD Reserve Rd / HLD	Henry Lawson Dr SOUTH	T	4856	178	127.0	-51.0	-28.7	4.13
HLD Reserve Rd / HLD	HLD Reserve Rd WEST	L	4506	0	0.0	0.0	0.0	0.00
HLD Reserve Rd / HLD	HLD Reserve Rd WEST	R	4507	0	0.0	0.0	0.0	0.00

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Beale St / HLD	Henry Lawson Dr NORTH	L	4730	0	5.4	5.4	INF	3.29
Beale St / HLD	Henry Lawson Dr NORTH	T	4729	155	129.2	-25.8	-16.7	2.16
Beale St / HLD	Beale St EAST	L	4816	0	0.0	0.0	0.0	0.00
Beale St / HLD	Beale St EAST	R	4817	0	0.0	0.0	0.0	0.00
Beale St / HLD	Henry Lawson Dr SOUTH	T	2711	178	126.8	-51.2	-28.8	4.15
Beale St / HLD	Henry Lawson Dr SOUTH	R	2712	0	0.6	0.6	INF	1.10
Endevour Rd / HLD	Henry Lawson Dr NORTH	L	2770	0	0.0	0.0	0.0	0.00
Endevour Rd / HLD	Henry Lawson Dr NORTH	T	5410	165	135.6	-29.4	-17.8	2.40
Endevour Rd / HLD	Endevour Rd EAST	L	5409	0	8.2	8.2	INF	4.05
Golf course Rd / HLD	Henry Lawson Dr NORTH	L	4905	0	0.0	0.0	0.0	0.00
Golf course Rd / HLD	Henry Lawson Dr NORTH	T	4904	162	144.4	-17.6	-10.9	1.42
Golf course Rd / HLD	Golf course Rd EAST	L	4272	0	6.8	6.8	INF	3.69
Golf course Rd / HLD	Golf course Rd EAST	R	4273	0	5.2	5.2	INF	3.22
Golf course Rd / HLD	Henry Lawson Dr SOUTH	T	1693	185	124.6	-60.4	-32.7	4.85
Golf course Rd / HLD	Henry Lawson Dr SOUTH	R	1694	0	0.0	0.0	0.0	0.00

Appendix C: LOS Results

AM Model
Time Period: 7:45-8:45 AM
Year: 2022

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	Haig Avenue / HLD	N	L	12	24	1,046	36	C	2,404	33	C
		N	T	1,034	36						
		E	L	113	46	281	58	E			
		E	R	168	66						
		S	T	976	19	1,077	22	B			
		S	R	101	50						
2	HLD / Tower Road	N	L	5	27	1,185	28	B	2,833	26	B
		N	T	1,180	28						
		E	L	138	33	149	35	C			
		E	R	11	62						
		S	T	1,106	8	1,499	23	B			
		S	R	393	65						
3	Henry Lawson Dr / Newbridge Road / Milperra Road	N	L	452	6	1,300	28	B	5,771	228	F
		N	T	525	38						
		N	R	323	44						
		E	L	18	162	946	316	F			
		E	T	703	380						
		E	R	225	128						
		S	L	486	12	1,139	36	C			
		S	T	630	54						
		S	R	23	78						
		W	L	656	348	2,386	392	F			
		W	T	1,343	441						
		W	R	387	296						
4	Auld Avenue / HLD	N	T	926	8	930	8	A	2,101	6	A
		N	R	4	13						
		S	L	2	6	1,133	2	A			
		S	T	1,131	2						
		W	L	26	24	38	31	C			
		W	R	12	46						
5	HLD / Keys Parade/Flower power	N	L	49	5	935	13	A	1,995	12	A

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		N	T	886	13						
		E	L	-	-1	49	64	E			
		E	R	49	64						
		S	R	15	20	1,011	7	A			
		S	T	996	7						
		W	R	#N/A		#N/A		#N/A			
		W	L	#N/A							
6	Raleigh Road / HLD	N	T	859	6	884	7	A	1,985	5	A
		N	R	25	25						
		S	L	-	-1	1,012	3	A			
		S	T	1,012	3						
		W	L	87	2	89	3	A			
		W	R	2	25						
7	HLD / Ruthven Avenue	N	T	852	3	852	3	A	1,867	3	A
		N	R	-	-1						
		S	L	-	-1	1,015	2	A			
		S	T	1,015	2						
		W	L	-	-1	-		#N/A			
		W	R	-	-1						
8	HLD / Whittle Avenue	N	L	-	-1	848	5	A	1,880	3	A
		N	T	848	5						
		E	L	16	16	16	16	B			
		E	R	-	-1						
		S	T	1,016	1	1,016	1	A			
		S	R	-	-1						
9	HLD / Amiens Avenue	N	T	833	4	861	4	A	1,919	4	A
		N	R	28	6						
		S	L	30	7	1,012	2	A			
		S	T	982	2						
		W	L	35	14	46	16	B			
		W	R	11	21						
10	HLD / Bullecourt Avenue	N	L	214	9	845	22	B	2,298	25	B
		N	T	631	27						
		E	L	114	28	274	53	D			
		E	R	160	71						

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		S	T	855	7	1,179	19	B			
		S	R	324	50						
11	HLD / Ganmain Cres / Fromelles Avenue	N	L	-	3	745	3	A	2,018	8	A
		N	T	742	3						
		N	R	3	2						
		E	R	1	2	29	8	A			
		E	T	8	1						
		E	L	20	11						
		S	L	7	16	1,174	10	A			
		S	T	1,144	10						
		S	R	23	14						
		W	L	45	23	70	21	B			
		W	T	9	8						
		W	R	16	24						
12	HLD / Hermies Avenue	N	L	9	4	778	3	A	2,043	4	A
		N	T	769	3						
		E	L	78	10	78	10	A			
		E	R	-	-1						
		S	T	1,178	3	1,187	3	A			
		S	R	9	3						
13	HLD / Pozieres Avenue	N	T	813	3	843	5	A	2,279	17	B
		N	R	30	56						
		S	L	81	10	1,196	13	A			
		S	T	1,115	14						
		W	L	73	59	240	68	E			
		W	R	167	72						
14	Murray Jones Dr / Newbridge Road	N	L	8	83	12	84	F	2,976	4	A
		N	R	4	88						
		E	T	1,169	1	1,173	2	A			
		E	R	4	27						
		W	L	9	13	1,791	5	A			
		W	T	1,782	5						
15	Ashford Avenue / Newbridge Road	E	L	199	15	1,264	13	A	3,382	35	C
		E	T	1,065	12						
		S	L	111	144	332	270	F			

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		S	R	221	333						
		W	T	1,565	3	1,786	7	A			
		W	R	221	35						

AM Model
Time Period: 8:45-9:45 AM
Year: 2022

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	Haig Avenue / HLD	N	L	15	22	849	28	B	2,142	34	C
		N	T	834	28						
		E	L	77	123	193	163	F			
		E	R	116	190						
		S	T	999	14	1,100	16	B			
		S	R	101	30						
2	HLD / Tower Road	N	L	5	15	1,039	23	B	2,601	55	D
		N	T	1,034	23						
		E	L	183	43	188	44	D			
		E	R	5	64						
		S	T	1,078	16	1,374	81	F			
		S	R	296	315						
3	Henry Lawson Dr / Newbridge Road / Milperra Road	N	L	477	11	1,237	40	C	5,556	591	F
		N	T	468	62						
		N	R	292	53						
		E	L	46	993	1,117	1035	F			
		E	T	844	1160						
		E	R	227	579						
		S	L	457	32	1,096	106	F			
		S	T	630	160						
		S	R	9	85						
		W	L	547	777	2,106	929	F			
		W	T	1,209	1041						
		W	R	350	781						
4	Auld Avenue / HLD	N	T	854	7	860	7	A	1,975	6	A
		N	R	6	11						
		S	L	5	6	1,088	3	A			
		S	T	1,083	3						
		W	L	8	15	27	31	C			
		W	R	19	37						
5	HLD / Keys Parade/Flower power	N	L	138	5	874	14	A	1,992	16	B
		N	T	736	15						
		E	L	32	4	208	45	D			

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		E	R	176	52						
		S	L	59	23	910	11	A			
		S	T	851	10						
		W	R	#N/A		#N/A		#N/A			
		W	L	#N/A							
6	Raleigh Road / HLD	N	T	730	6	770	7	A	1,742	5	A
		N	R	40	19						
		S	L	3	3	918	2	A			
		S	T	915	2						
		W	L	54	2	54	2	A			
		W	R	-	-1						
7	HLD / Ruthven Avenue	N	T	729	3	729	3	A	1,655	3	A
		N	R	-	-1						
		S	R	-	-1	921	2	A			
		S	T	921	2						
		W	L	3	37	5	45	D			
		W	R	2	58						
8	HLD / Whittle Avenue	N	L	-	-1	728	5	A	1,647	3	A
		N	T	728	5						
		E	L	-	-1	-		#N/A			
		E	R	-	-1						
		S	T	919	1	919	1	A			
		S	R	-	-1						
9	HLD / Amiens Avenue	N	T	715	3	731	3	A	1,694	3	A
		N	R	16	5						
		S	L	35	6	938	2	A			
		S	T	903	2						
		W	L	18	11	25	12	A			
		W	R	7	12						
10	HLD / Bullecourt Avenue	N	L	169	7	717	20	B	2,030	25	B
		N	T	548	24						
		E	L	103	30	291	68	E			
		E	R	188	89						
		S	T	750	5	1,022	14	A			
		S	R	272	40						

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
11	HLD / Ganmain Cres / Fromelles Avenue	N	L	-	-1	651	3	A	1,726	7	A
		N	T	648	3						
		N	R	3	2						
		E	R	-	-1	19	13	A			
		E	T	4	0						
		E	L	15	17						
		S	L	6	10	990	8	A			
		S	T	964	8						
		S	R	20	10						
		W	L	49	16	66	15	B			
		W	T	5	1						
		W	R	12	19						
12	HLD / Hermies Avenue	N	L	2	5	677	2	A	1,757	3	A
		N	T	675	2						
		E	L	67	6	67	6	A			
		E	R	-	-1						
		S	T	989	3	1,013	3	A			
		S	R	24	5						
13	HLD / Pozieres Avenue	N	T	714	3	745	5	A	2,004	17	B
		N	R	31	48						
		S	L	108	16	1,046	16	B			
		S	T	938	16						
		W	L	74	52	213	64	E			
		W	R	139	70						
14	Murray Jones Dr / Newbridge Road	N	L	7	90	43	131	F	2,883	19	B
		N	R	36	139						
		E	T	1,125	32	1,134	32	C			
		E	R	9	38						
		W	L	8	8	1,706	7	A			
		W	T	1,698	7						
15	Ashford Avenue / Newbridge Road	E	L	186	18	1,265	15	B	3,282	52	D
		E	T	1,079	14						
		S	L	83	267	316	439	F			
		S	R	233	500						
		W	T	1,458	3	1,701	8	A			

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		W	R	243	34						

PM Model
Time Period: 3:30-4:30 AM
Year: 2022

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	Haig Avenue / HLD	N	L	7	59	936	85	F	2,408	55	D
		N	T	929	85						
		E	L	264	70	429	72	F			
		E	R	165	74						
		S	T	956	16	1,043	19	B			
		S	R	87	60						
2	HLD / Tower Road	N	L	19	36	1,255	38	C	2,976	35	C
		N	T	1,236	38						
		E	L	401	38	425	39	C			
		E	R	24	54						
		S	T	1,050	14	1,296	29	C			
		S	R	246	94						
3	Henry Lawson Dr / Newbridge Road / Milperra Road	N	L	426	6	1,594	40	C	6,545	237	F
		N	T	604	44						
		N	R	564	62						
		E	L	51	154	1,797	249	F			
		E	T	1,422	287						
		E	R	324	100						
		S	L	647	33	1,118	40	C			
		S	T	470	49						
		S	R	1	96						
		W	L	515	327	2,036	486	F			
		W	T	1,092	421						
		W	R	429	845						
4	Auld Avenue / HLD	N	T	1,061	11	1,078	11	A	2,221	7	A
		N	R	17	12						
		S	L	3	5	1,134	2	A			
		S	T	1,131	2						
		W	L	9	12	9	12	A			
		W	R	-	-1						
5	HLD / Keys Parade/Flower power	N	L	177	6	1,061	12	A	2,209	14	A
		N	T	884	14						

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		E	L	52	6	134	44	D			
		E	R	82	68						
		S	R	30	103	1,014	11	A			
		S	T	984	8						
		W	R	#N/A		#N/A		#N/A			
		W	L	#N/A							
6	Raleigh Road / HLD	N	T	881	5	932	6	A	2,033	5	A
		N	R	51	20						
		S	L	11	4	1,028	3	A			
		S	T	1,017	3						
		W	L	73	2	73	2	A			
		W	R	-	-1						
7	HLD / Ruthven Avenue	N	T	874	3	874	3	A	1,939	3	A
		N	R	-	-1						
		S	L	34	5	1,065	2	A			
		S	T	1,031	2						
		W	L	-	-1	-		#N/A			
		W	R	-	-1						
8	HLD / Whittle Avenue	N	L	-	-1	874	4	A	1,959	3	A
		N	T	874	4						
		E	L	11	17	11	17	B			
		E	R	-	-1						
		S	T	1,066	1	1,074	1	A			
		S	R	8	3						
9	HLD / Amiens Avenue	N	T	871	2	883	2	A	2,015	3	A
		N	R	12	4						
		S	L	52	6	1,113	3	A			
		S	T	1,061	2						
		W	L	14	13	19	18	B			
		W	R	5	31						
10	HLD / Bullecourt Avenue	N	L	125	4	871	27	B	2,355	45	D
		N	T	746	30						
		E	L	240	79	578	112	F			
		E	R	338	136						
		S	T	780	9	906	18	B			

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		S	R	126	74						
11	HLD / Ganmain Cres / Fromelles Avenue	N	L	6	6	986	3	A	1,972	6	A
		N	T	972	3						
		N	R	8	4						
		E	R	2	22	65	12	A			
		E	T	2	9						
		E	L	61	11						
		S	L	7	8	889	7	A			
		S	T	880	7						
		S	R	2	7						
		W	L	24	12	32	13	A			
		W	T	3	1						
		W	R	5	24						
12	HLD / Hermies Avenue	N	L	16	5	1,035	3	A	2,109	5	A
		N	T	1,019	3						
		E	L	128	15	134	16	B			
		E	R	6	27						
		S	T	889	3	940	4	A			
		S	R	51	17						
13	HLD / Pozieres Avenue	N	T	1,106	4	1,143	6	A	2,272	12	A
		N	R	37	67						
		S	L	107	16	993	12	A			
		S	T	886	11						
		W	L	56	38	136	49	D			
		W	R	80	57						
14	Murray Jones Dr / Newbridge Road	N	L	24	67	34	66	E	3,578	6	A
		N	R	10	63						
		E	T	2,053	4	2,053	4	A			
		E	R	-	-1						
		W	L	-	-1	1,491	5	A			
		W	T	1,491	5						
15	Ashford Avenue / Newbridge Road	E	L	267	21	2,099	17	B	4,019	18	B
		E	T	1,832	16						
		S	L	233	51	405	68	E			
		S	R	172	91						

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		W	T	1,382	3	1,515	6	A			
		W	R	133	42						

PM Model
Time Period: 4:30-5:30 AM
Year: 2022

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	Haig Avenue / HLD	N	L	9	66	1,000	82	F	2,476	57	E
		N	T	991	82						
		E	L	129	59	293	64	E			
		E	R	164	68						
		S	T	1,076	28	1,183	32	C			
		S	R	107	79						
2	HLD / Tower Road	N	L	23	27	1,191	31	C	3,135	37	C
		N	T	1,168	31						
		E	L	490	89	514	88	F			
		E	R	24	56						
		S	T	1,214	13	1,430	23	B			
		S	R	216	80						
3	Henry Lawson Dr / Newbridge Road / Milperra Road	N	L	278	5	1,639	108	F	6,871	469	F
		N	T	666	42						
		N	R	695	212						
		E	L	69	362	1,746	455	F			
		E	T	1,418	498						
		E	R	259	241						
		S	L	785	41	1,287	43	D			
		S	T	487	45						
		S	R	15	73						
		W	L	681	739	2,199	999	F			
		W	T	1,183	764						
		W	R	335	2355						
4	Auld Avenue / HLD	N	T	1,051	13	1,069	13	A	2,363	8	A
		N	R	18	15						
		S	L	3	6	1,272	2	A			
		S	T	1,269	2						
		W	L	18	43	22	63	E			
		W	R	4	154						
5	HLD / Keys Parade/Flower power	N	L	127	6	1,055	14	A	2,358	17	B
		N	T	928	15						
		E	L	71	6	308	43	D			

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		E	R	237	54						
		S	R	11	91	995	12	A			
		S	T	984	11						
		W	R	#N/A		#N/A		#N/A			
		W	L	#N/A							
6	Raleigh Road / HLD	N	T	912	5	999	7	A	2,052	5	A
		N	R	87	21						
		S	L	10	4	1,004	3	A			
		S	T	994	3						
		W	L	49	2	49	2	A			
		W	R	-	-1						
7	HLD / Ruthven Avenue	N	T	906	3	908	3	A	1,930	3	A
		N	R	2	9						
		S	L	15	5	1,022	2	A			
		S	T	1,007	2						
		W	L	-	-1	-		#N/A			
		W	R	-	-1						
8	HLD / Whittle Avenue	N	L	7	6	904	5	A	1,943	3	A
		N	T	897	5						
		E	L	10	12	10	12	A			
		E	R	-	-1						
		S	T	1,021	1	1,029	1	A			
		S	R	8	4						
9	HLD / Amiens Avenue	N	T	899	2	909	2	A	1,989	3	A
		N	R	10	3						
		S	L	45	6	1,052	3	A			
		S	T	1,007	3						
		W	L	22	13	28	15	B			
		W	R	6	23						
10	HLD / Bullecourt Avenue	N	L	132	4	908	23	B	2,342	38	C
		N	T	776	27						
		E	L	285	71	575	92	F			
		E	R	290	112						
		S	T	763	10	859	15	B			
		S	R	96	53						

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
11	HLD / Ganmain Cres / Fromelles Avenue	N	L	5	6	1,062	3	A	1,982	5	A
		N	T	1,044	3						
		N	R	13	4						
		E	R	8	21	59	15	B			
		E	T	1	0						
		E	L	50	15						
		S	L	8	8	851	5	A			
		S	T	842	5						
		S	R	1	13						
		W	L	7	11	10	15	B			
		W	T	-	-1						
		W	R	3	22						
12	HLD / Hermies Avenue	N	L	2	4	1,100	3	A	2,087	4	A
		N	T	1,098	3						
		E	L	88	16	88	16	B			
		E	R	-	48						
		S	T	853	2	899	2	A			
		S	R	46	5						
13	HLD / Pozieres Avenue	N	T	1,142	4	1,185	7	A	2,253	11	A
		N	R	43	75						
		S	L	94	13	948	11	A			
		S	T	854	11						
		W	L	43	43	120	51	D			
		W	R	77	55						
14	Murray Jones Dr / Newbridge Road	N	L	189	83	250	95	F	3,342	16	B
		N	R	61	134						
		E	T	1,613	12	1,613	12	A			
		E	R	-	-1						
		W	L	1	11	1,479	6	A			
		W	T	1,478	6						
15	Ashford Avenue / Newbridge Road	E	L	252	23	1,701	20	B	3,698	20	B
		E	T	1,449	19						
		S	L	153	51	332	77	F			
		S	R	179	99						
		W	T	1,491	3	1,665	9	A			

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		W	R	174	58						

Weekend Model
Time period: 11:30 AM - 12:30 PM
Year: 2022

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	Flinders Rd / HLD	N	L	14	5	926	3	A	2,193	5	A
		N	T	912	3						
		E	L	136	12	144	13	A			
		E	R	8	32						
		S	T	1,026	3	1,123	3	A			
		S	R	97	11						
2	Haig Ave / HLD	N	L	14	17	1,027	24	B	2,339	32	C
		N	T	1,013	24						
		E	L	80	131	212	167	F			
		E	R	132	188						
		S	T	998	11	1,100	13	A			
		S	R	102	33						
3	Rabaul Rd / HLD	N	L	2	3	1,098	2	A	2,277	5	A
		N	T	1,096	2						
		N	R	-	-1						
		E	R	-	-1	35	26	B			
		E	T	-	-1						
		E	L	35	26						
		S	L	2	7	1,143	5	A			
		S	T	1,105	5						
		S	R	36	20						
		W	L	1	3	1	3	A			
		W	T	-	-1						
		W	R	-	-1						
4	HLD / Tower Rd	N	L	24	23	1,116	21	B	2,779	22	B
		N	T	1,092	21						
		E	L	213	42	221	43	D			
		E	R	8	63						
		S	T	1,146	5	1,442	18	B			
		S	R	296	69						
5	Henry Lawson Dr / Newbridge Rd / Milperra Rd	N	L	410	3	1,289	36	C	5,964	55	D
		N	T	531	44						
		N	R	348	63						
		E	L	106	8	1,399	60	E			
		E	T	954	42						
		E	R	339	127						
		S	L	468	15	1,181	40	C			
		S	T	613	56						
		S	R	100	59						
		W	L	499	41	2,095	70	E			
		W	T	1,204	80						
		W	R	392	75						
6	Auld Ave / HLD	N	T	1,023	7	1,026	7	A	2,250	6	A
		N	R	3	13						
		S	L	4	5	1,188	2	A			
		S	T	1,184	2						

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		W	L	21	29	36	51	D			
		W	R	15	80						
7	HLD / Keys Pde/Flower power	N	L	323	5	1,032	9	A	2,303	17	B
		N	T	709	10						
		E	L	99	3	446	55	D			
		E	R	347	70						
		S	R	51	16	825	7	A			
		S	T	774	6						
		W	R	#N/A		#N/A		#N/A			
		W	L	#N/A							
8	Raleigh Rd / HLD	N	T	756	3	804	4	A	1,706	3	A
		N	R	48	9						
		S	L	2	3	833	2	A			
		S	T	831	2						
		W	L	69	2	69	2	A			
		W	R	-	51						
9	HLD / Ruthven Ave	N	T	753	3	753	3	A	1,589	3	A
		N	R	-	-1						
		S	L	-	-1	833	2	A			
		S	T	833	2						
		W	L	2	7	3	7	A			
		W	R	1	8						
10	HLD / Whittle Ave	N	L	-	-1	748	4	A	1,585	3	A
		N	T	748	4						
		E	L	2	19	2	19	B			
		E	R	-	-1						
		S	T	835	1	835	1	A			
		S	R	-	-1						
11	HLD / Amiens Ave	N	T	719	2	748	3	A	1,613	3	A
		N	R	29	6						
		S	L	23	5	850	2	A			
		S	T	827	2						
		W	L	10	10	15	10	A			
		W	R	5	12						
12	HLD / Bullecourt Ave	N	L	143	7	721	22	B	1,792	24	B
		N	T	578	25						
		E	L	106	29	302	59	E			
		E	R	196	76						
		S	T	656	6	769	12	A			
		S	R	113	47						
13	HLD / Ganmain Cres / Fromelles Ave	N	L	1	6	683	3	A	1,673	5	A
		N	T	680	3						
		N	R	2	4						
		E	R	-	-1	103	9	A			
		E	T	7	3						
		E	L	96	10						
		S	L	33	6	821	4	A			
		S	T	724	4						
		S	R	64	5						

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		W	L	46	6	66	7	A			
		W	T	9	3						
		W	R	11	17						
14	HLD / Hermies Ave	N	L	5	5	789	2	A	1,931	4	A
		N	T	784	2						
		E	L	309	14	309	14	A			
		E	R	-	-1						
		S	T	823	1	833	1	A			
		S	R	10	4						
15	HLD / Pozieres Ave	N	T	1,039	4	1,091	7	A	2,111	13	A
		N	R	52	69						
		S	L	73	13	841	12	A			
		S	T	768	11						
		W	L	67	43	179	56	D			
		W	R	112	64						
16	HLD / Swestern Motorway 2	N	T	712	3	990	29	C	1,867	29	C
		N	R	278	95						
		E	R	308	50	335	47	D			
		E	T	-	-1						
		E	L	27	4						
		S	L	251	3	542	18	B			
		S	T	291	31						
17	HLD / Swestern Motorway 1	N	L	301	2	1,144	26	B	2,177	20	B
		N	T	843	35						
		S	T	559	3	597	6	A			
		S	R	38	41						
		W	L	283	4	436	19	B			
		W	T	-	-1						
		W	R	153	46						
18	Murray Jones Dr / Newbridge Rd	N	L	5	70	6	74	F	3,179	3	A
		N	R	1	96						
		E	T	1,442	1	1,448	1	A			
		E	R	6	24						
		W	L	11	12	1,725	4	A			
		W	T	1,714	4						
19	Ashford Ave / Newbridge Rd	E	L	117	16	1,481	14	A	3,482	23	B
		E	T	1,364	14						
		S	L	84	73	291	135	F			
		S	R	207	161						
		W	T	1,403	2	1,710	11	A			
		W	R	307	53						
20	Georges Ces / HLD	N	L	6	2	1,048	3	A	2,172	5	A
		N	T	1,042	3						
		E	L	2	15	2	15	B			
		S	T	1,122	6	1,122	6	A			
		S	R	-	2						
21	HLD Reserve Rd / HLD	N	T	1,038	7	1,038	7	A	2,165	5	A
		N	R	-	9						
		S	L	4	4	1,126	3	A			

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		S	T	1,122	3						
		W	L	-	2	1	63	E			
		W	R	1	63						
22	Beale St / HLD	N	L	-	-1	1,032	11	A	2,160	7	A
		N	T	1,032	11						
		E	L	-	-1	-		#N/A			
		E	R	-	-1						
		S	T	1,128	2	1,128	2	A			
		S	R	-	20						
23	Endevour Rd / HLD	N	L	-	-1	1,016	10	A	1,019	11	A
		N	T	1,016	10						
		E	L	3	15	3	15	B			
24	Golf course Rd / HLD	N	L	1	5	1,125	5	A	2,280	7	A
		N	T	1,124	5						
		E	L	5	29	14	52	D			
		E	R	9	65						
		S	T	1,137	7	1,141	7	A			
		S	R	4	7						

Weekend Model
Time period: 12:30 PM - 01:30 PM
Year: 2022

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	Flinders Rd / HLD	N	L	13	4	956	3	A	2,242	5	A
		N	T	943	3						
		E	L	100	14	107	16	B			
		E	R	7	54						
		S	T	1,090	3	1,179	4	A			
		S	R	89	13						
2	Haig Ave / HLD	N	L	18	20	1,037	22	B	2,407	34	C
		N	T	1,019	22						
		E	L	76	177	169	248	F			
		E	R	93	306						
		S	T	1,094	11	1,201	13	A			
		S	R	107	31						
3	Rabaul Rd / HLD	N	L	2	3	1,106	2	A	2,371	5	A
		N	T	1,104	2						
		N	R	-	-1						
		E	R	-	-1	34	24	B			
		E	T	-	-1						
		E	L	34	24						
		S	L	2	10	1,230	6	A			
		S	T	1,195	6						
		S	R	33	14						
		W	L	1	17	1	17	B			
		W	T	-	-1						
		W	R	-	-1						
4	HLD / Tower Rd	N	L	33	21	1,144	23	B	2,880	25	B
		N	T	1,111	23						
		E	L	245	44	279	46	D			
		E	R	34	60						
		S	T	1,197	6	1,457	22	B			
		S	R	260	92						
5	Henry Lawson Dr / Newbridge Rd / Milperra Rd	N	L	409	3	1,361	37	C	5,858	102	F
		N	T	490	46						
		N	R	462	58						
		E	L	94	10	1,396	184	F			
		E	T	985	78						
		E	R	317	564						
		S	L	363	14	989	46	D			
		S	T	567	63						
		S	R	59	74						
		W	L	575	72	2,112	114	F			
		W	T	1,118	125						
		W	R	419	143						
6	Auld Ave / HLD	N	T	996	6	1,000	6	A	1,997	5	A
		N	R	4	7						
		S	L	4	4	968	2	A			
		S	T	964	2						

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		W	L	16	14	29	27	B			
		W	R	13	42						
7	HLD / Keys Pde/Flower power	N	L	264	5	1,000	9	A	2,075	17	B
		N	T	736	11						
		E	L	83	4	409	49	D			
		E	R	326	60						
		S	R	68	12	666	6	A			
		S	T	598	6						
		W	R	#N/A		#N/A		#N/A			
		W	L	#N/A							
8	Raleigh Rd / HLD	N	T	769	3	819	3	A	1,532	3	A
		N	R	50	8						
		S	R	2	3	673	2	A			
		S	T	671	2						
		W	L	40	2	40	2	A			
		W	R	-	1						
9	HLD / Ruthven Ave	N	T	769	2	769	2	A	1,445	2	A
		N	R	-	-1						
		S	L	-	-1	672	1	A			
		S	T	672	1						
		W	L	2	13	4	9	A			
		W	R	2	6						
10	HLD / Whittle Ave	N	L	-	-1	771	3	A	1,441	3	A
		N	T	771	3						
		E	L	-	10	-		#N/A			
		E	R	-	-1						
		S	T	670	1	670	1	A			
		S	R	-	-1						
11	HLD / Amiens Ave	N	T	744	2	774	2	A	1,468	2	A
		N	R	30	4						
		S	L	21	5	681	2	A			
		S	T	660	1						
		W	L	9	6	13	8	A			
		W	R	4	12						
12	HLD / Bullecourt Ave	N	L	93	7	748	23	B	1,601	23	B
		N	T	655	25						
		E	L	81	27	208	61	E			
		E	R	127	83						
		S	T	553	5	645	10	A			
		S	R	92	41						
13	HLD / Ganmain Cres / Fromelles Ave	N	L	-	4	736	3	A	1,625	5	A
		N	T	727	3						
		N	R	9	4						
		E	R	1	5	107	10	A			
		E	T	6	5						
		E	L	100	11						
		S	L	59	6	710	5	A			
		S	T	593	4						
		S	R	58	5						

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		W	L	50	7	72	9	A			
		W	T	7	1						
		W	R	15	18						
14	HLD / Hermies Ave	N	L	3	5	842	3	A	1,785	4	A
		N	T	839	3						
		E	L	220	14	220	14	A			
		E	R	-	-1						
		S	T	710	1	723	1	A			
		S	R	13	2						
15	HLD / Pozieres Ave	N	T	1,029	3	1,061	5	A	1,949	12	A
		N	R	32	51						
		S	L	78	14	768	13	A			
		S	T	690	13						
		W	L	32	44	120	59	E			
		W	R	88	65						
16	HLD / Swestern Motorway 2	N	T	580	3	842	32	C	1,599	31	C
		N	R	262	97						
		E	R	253	49	279	44	D			
		E	T	-	-1						
		E	L	26	3						
		S	L	178	3	478	20	B			
		S	T	300	30						
17	HLD / Swestern Motorway 1	N	L	400	2	1,120	24	B	2,048	19	B
		N	T	720	37						
		S	T	515	3	553	5	A			
		S	R	38	42						
		W	L	253	4	375	19	B			
		W	T	-	-1						
		W	R	122	52						
18	Murray Jones Dr / Newbridge Rd	N	L	8	74	18	73	F	3,128	4	A
		N	R	10	73						
		E	T	1,512	2	1,518	2	A			
		E	R	6	24						
		W	L	13	13	1,592	3	A			
		W	T	1,579	3						
19	Ashford Ave / Newbridge Rd	E	L	142	18	1,516	14	A	3,449	52	D
		E	T	1,374	14						
		S	L	148	280	348	393	F			
		S	R	200	478						
		W	T	1,296	2	1,585	11	A			
		W	R	289	53						
20	Georges Ces / HLD	N	L	-	-1	1,041	3	A	2,223	6	A
		N	T	1,041	3						
		E	L	-	-1	-		#N/A			
		S	T	1,182	7	1,182	7	A			
		S	R	-	-1						
21	HLD Reserve Rd / HLD	N	T	1,039	7	1,039	7	A	2,227	5	A
		N	R	-	-1						
		S	L	2	4	1,187	3	A			

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		S	T	1,185	3						
		W	L	-	2	1	35	C			
		W	R	1	35						
22	Beale St / HLD	N	L	5	16	1,044	10	A	2,234	6	A
		N	T	1,039	10						
		E	L	1	2	1	2	A			
		E	R	-	-1						
		S	T	1,188	2	1,189	2	A			
		S	R	1	27						
23	Endevour Rd / HLD	N	L	-	-1	1,021	9	A	1,030	10	A
		N	T	1,021	9						
		E	L	9	14	9	14	A			
24	Golf course Rd / HLD	N	L	1	6	1,139	5	A	2,381	7	A
		N	T	1,138	5						
		E	L	9	33	15	56	D			
		E	R	6	92						
		S	T	1,224	7	1,227	7	A			
		S	R	3	8						

Document prepared by

Aurecon Australasia Pty Ltd
ABN 54 005 139 873
Level 5, 116 Military Road
Neutral Bay NSW 2089
PO Box 538
Neutral Bay NSW 2089
Australia

T +61 2 9465 5599
F +61 2 9465 5598
E sydney@aurecongroup.com
W aurecongroup.com

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Bringing ideas to life

Appendix B: Future Option Modelling Report

Henry Lawson Drive Upgrade - Stage 1B

Future Option Modelling Report

Transport for NSW

Reference: 520566

Revision: 5

2023-05-18

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Bringing ideas to life

Contents

Appendices

Figures

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Abbreviations

GEH	Geoffrey E. Havers; the GEH Statistic is a formula used in traffic modelling to compare two sets of traffic volume data.

$$GEH = \sqrt{\frac{2 * (Observed - Modelled)^2}{(Observed + Modelled)}}$$

OD	Origin / Destination zone pair in the model and demand matrices
OSM	OpenStreetMap

1 Introduction

1.1 Background

Aurecon was commissioned by Transport for NSW (TfNSW) to deliver the Concept Design Services for Henry Lawson Drive upgrade Stage 1B. For traffic assessment, Aurecon developed a 2022 Base Model, undertook a calibration and validation exercise to ensure that the model is fit-for-purpose and can be used for future option evaluation. The methodology and parameters adopted for the Base model are aligned to the TfNSW Traffic Modelling Guidelines (Modelling Guidelines).

The options modelling will enable TfNSW to test different combinations of upgrades to determine the best possible option to implement on the network to improve network performance.

This report outlines the steps undertaken in the development of the future year model options including demand development, network coding and results.

1.2 Project Background

The upgrade would be carried out in four stages (Stages 1A, 1B, 2 and 3).

As part of the option assessment of the Henry Lawson Drive Stage 1A Upgrade - proposed to occur along the Henry Lawson Drive between Tower Road and Keys Parade, Aurecon has developed an Aimsun microsimulation traffic model covering 7.5 km of the route corridor, refer to HLDS1A-AURC-NWW-TM-RPT-000001. The option modelling has been undertaken for 2026 and 2036 years, which are in-line with the proposed upgrade stages of Henry Lawson Drive as detailed in the technical memorandum HLDS1A-AURC-NWW-TP-MEM-000004.

This project, Henry Lawson Drive Stage 1B involves upgrade of Henry Lawson Drive along a 1.8-kilometre section between the Keys Parade and the approach to the M5 Motorway. The upgrade of key intersections and widening of Henry Lawson Drive would improve traffic capacity, decrease travel time, and enhance driver safety.

1.2.1 Objectives

The main objective of this report is to document the development of future scenarios and assess their performance.

The project study area covers the Henry Lawson Drive between Hume Highway and M5 Motorway as shown in Figure 1-1 below.

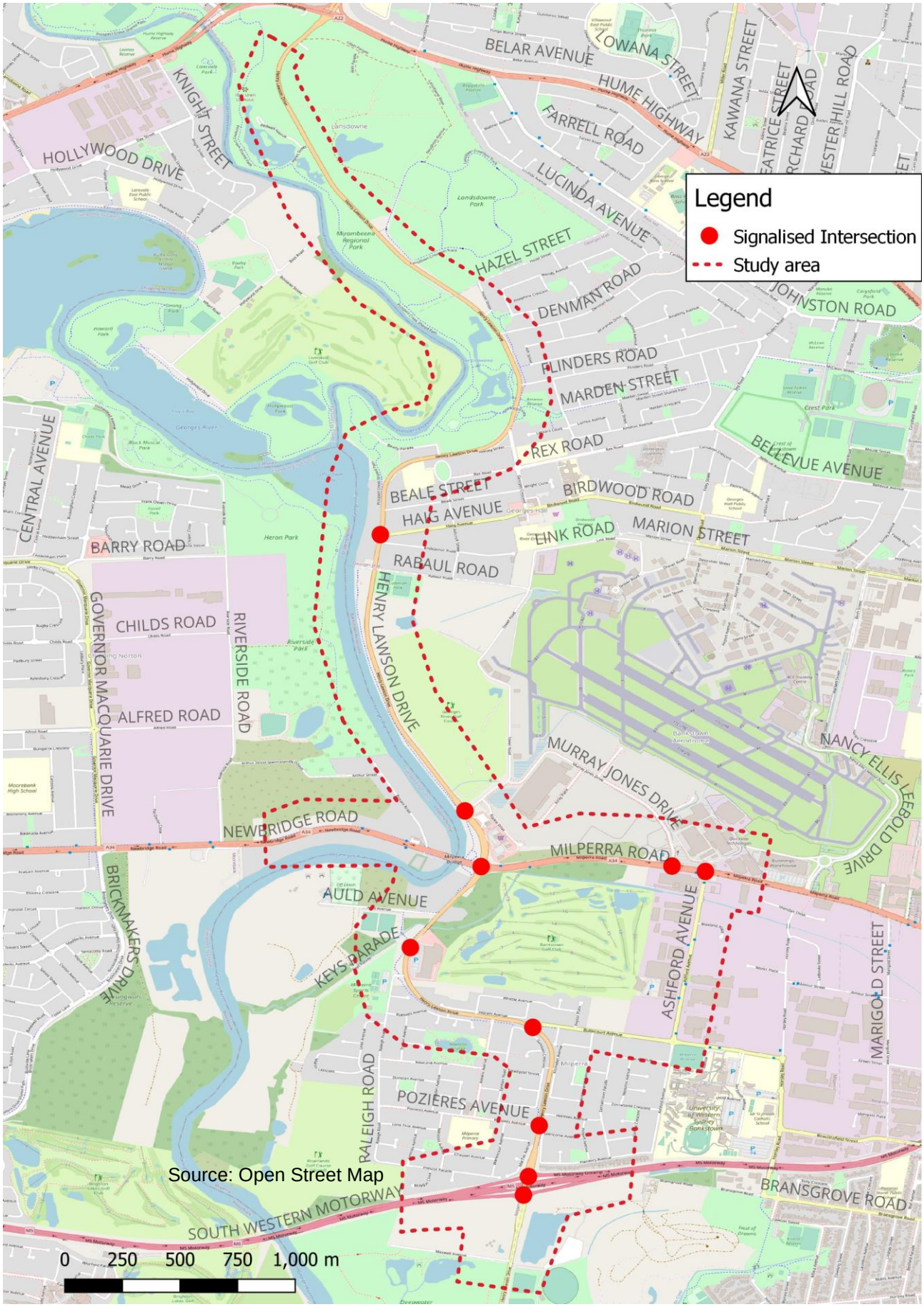


Figure 1-1: Henry Lawson Drive Stage 1B model study area

1.3 Base Model Overview

The Base Model was developed in Aimsun version 20.0.3 and calibrated to 2022 Weekday AM, PM and weekend peak traffic conditions.

The model study area covers the Henry Lawson Drive, located along the border of Hume Highway, Ashford Avenue, Bullecourt Avenue and Southwestern Motorway. The study area and the key intersections are shown in Figure 1-1.

Based on the analysis and in line with the collected data, it was identified that the Weekday AM peak period occurred from 07:45 AM to 09:45 AM, the PM peak period occurred from 03:30 PM to 05:30 PM and the weekend peak period was from 11:30 AM to 01:30 PM. A two hour model with an additional one hour warm-up period was developed for AM, PM and weekend peak periods.

The Base Model satisfies the calibration and validation criteria such as hourly GEH counts, R squared values, and travel times as specified in the TfNSW Traffic Modelling Guidelines (Roads and Maritime Services). Overall, the model is representative of 2022 traffic conditions within the study area and is therefore considered fit for purpose to be used as the basis for option analysis.

The approved Base Model calibration and validation report for Henry Lawson Drive Stage-1B is presented in **Appendix A**. The report describes the procedure undertaken for development of the Base Model, including data analysis, network coding and results from model calibration and validation.

2 Future Year Network

2.1 Model Years

The option modelling has been undertaken for 2031 and 2041 years, which are in-line with the proposed upgrade stages of the Henry Lawson Drive Stage 1B.

2.2 Do-Minimum Scenario

The Do-Minimum scenario includes all committed projects in the Henry Lawson Drive study area. These proposed projects are detailed overpage.

Henry Lawson Drive/ Keys Parade/ Flower Power intersection upgrade: Figure 2-1 presents the proposed layout of the intersection. This includes the provision of access to proposed Riverlands Development on the west.

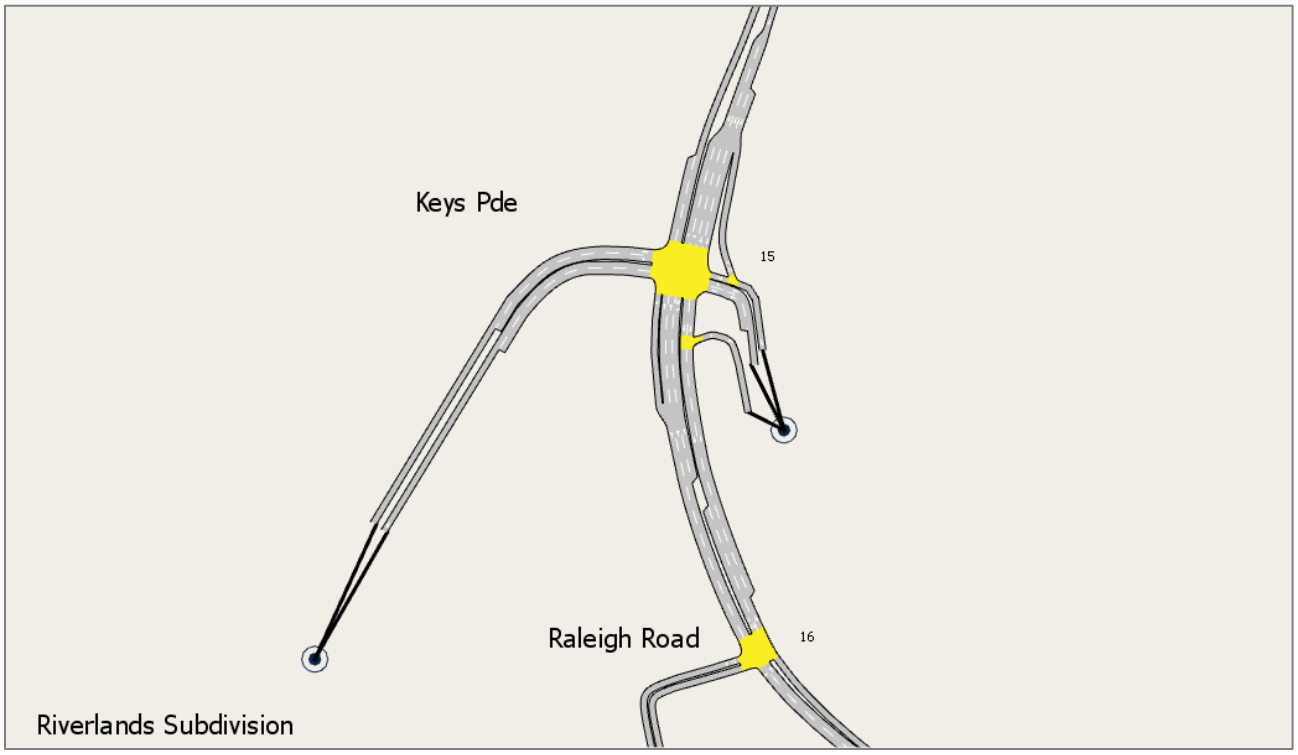


Figure 2-1: Henry Lawson Drive/ Keys Parade intersection upgrade

Georges Hall intersection Upgrade: Figure 2-2 presents the layout of the proposed intersection upgrades along this section of Henry Lawson Drive. These upgrades are described as follows:

- Use of the existing shoulder between the Endeavour Road and Rabaul Road to construct an additional southbound lane
- The extension of the Henry Lawson Drive southbound left-most exit leg to 100m south of the Rabaul Road
- The ban of the existing northbound right turn from Henry Lawson Drive to Rabaul Road

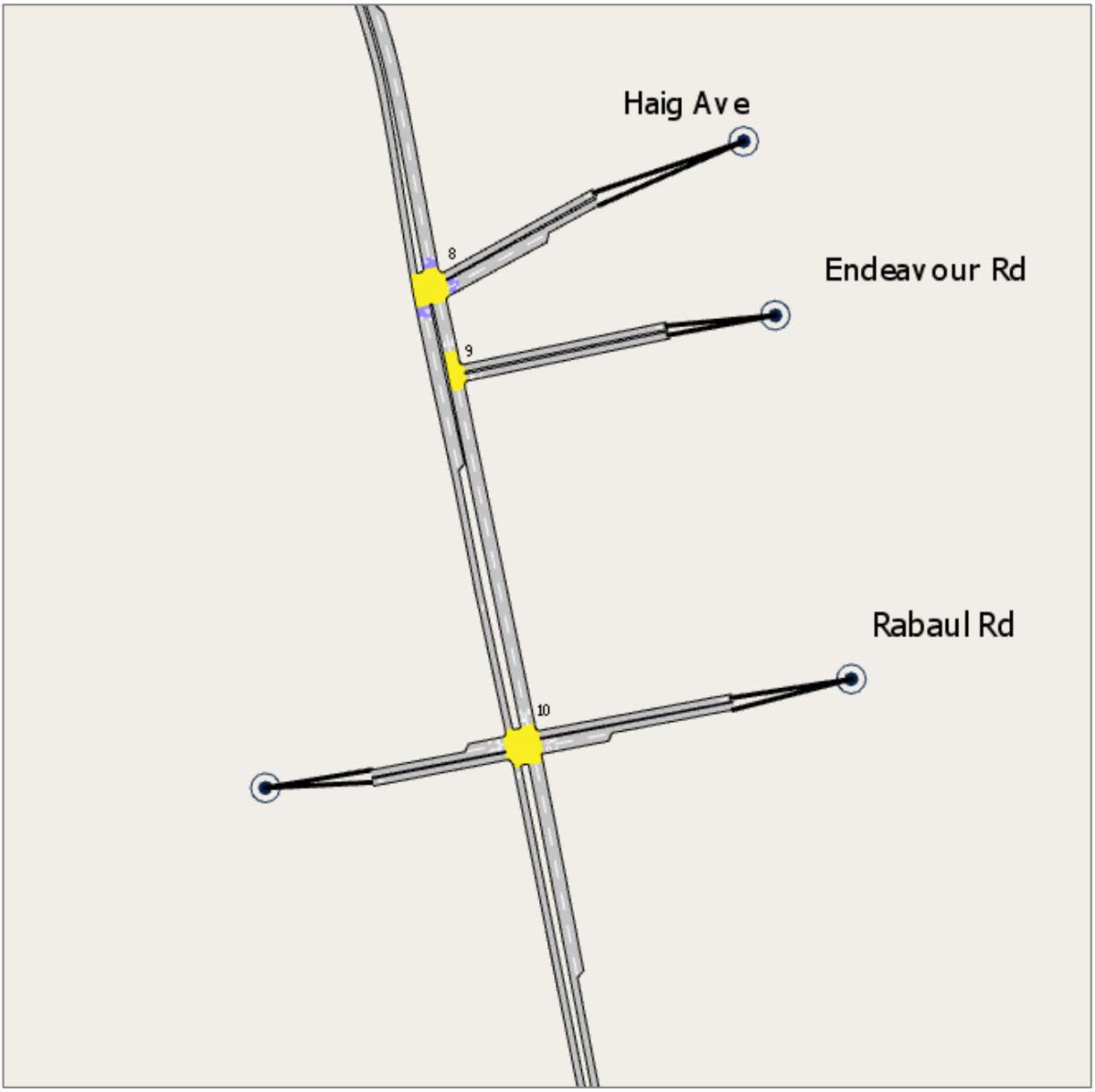


Figure 2-2 Georges Hall Intersections Upgrade

Milperra Road/ Murray Jones Drive intersection upgrade: Figure 2-3 presents the proposed layout of the intersection. The intersection upgrades are described as follows:

- The creation of an additional right turn bay on the Milperra Road westbound to the Murray Jones Drive (75m)
- The widening of the Murray Jones Drive entry and exit leg to accommodate two full lanes.
- The creation of an additional left turn bay on the Milperra Road eastbound to the Murray Jones Drive (60m)

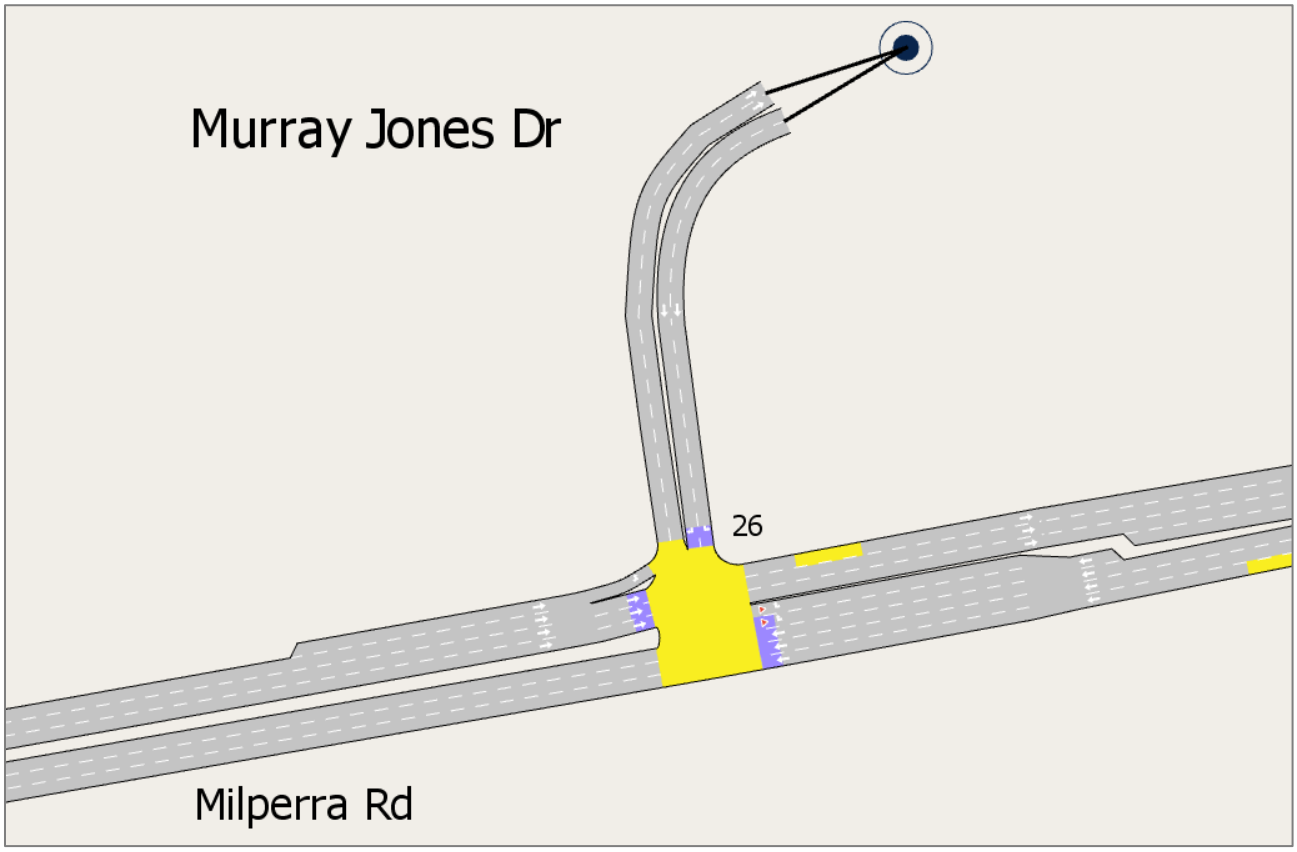


Figure 2-3:Milperra Road/ Murray Jones Drive intersection upgrade

Henry Lawson Drive/ Tower Road intersection upgrade: Figure 2-4 presents the proposed layout of the intersection alongside a screenshot of the intersection coding in Aimsun. The intersection upgrades are described as follows:

- The creation of an additional 100m right turn bay on the south approach to the Tower Road.
- The extension of the left-most exit leg on the north approach from 60m to 180m.
- The widening of the Tower Road to accommodate dual right turn lanes and a left turn slip lane of 40m.
- The provision of a pedestrian crossing across the south-east slip lane.
- The provision of a signalised pedestrian crossing across the Tower Road.
- The widening of the north approach to create a 60m left turn bay to the Tower Road and extension of the adjacent through lane from 105m to 180m.

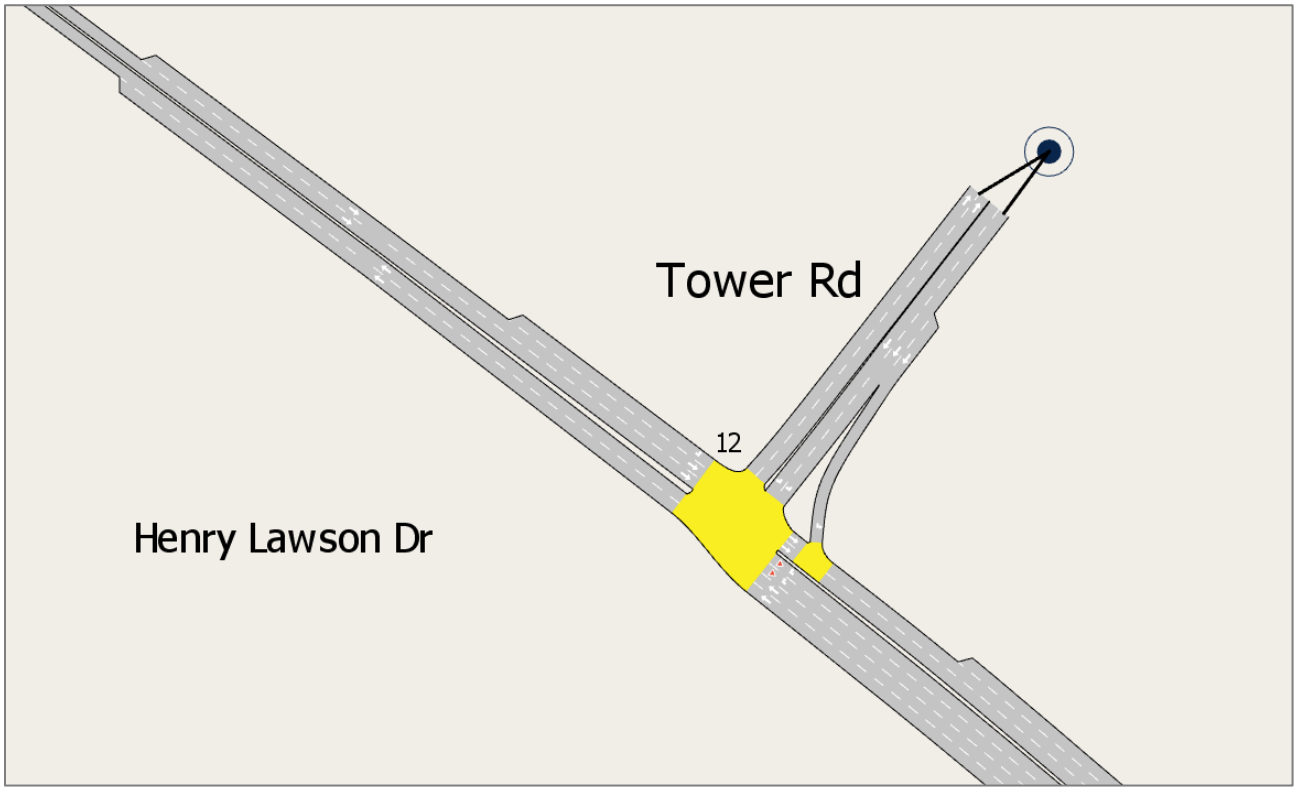


Figure 2-4: Henry Lawson Drive/ Tower Road intersection upgrade

Henry Lawson Drive / Milperra Road / Newbridge Road intersection Upgrade: Figure 2-5 presents the proposed layout of the intersection alongside a screenshot of the intersection coding in Aimsun. The intersection upgrades are described as follows:

- Extension of the dual right turn bays on the northern approach, from 85m and 160m to 220m and 240m respectively.
- Widening of the northern approach to create a third straight through lane of 240m and a left turn slip lane of 150m.
- Creation of an additional right turn bay on the southern approach onto Milperra Road of 160m and lengthening the existing right turn bay from 55m to 170m.
- Extension of the left turn slip lanes on the southern approach, from 60m and 120m to 150m and 190m respectively.
- Widening of the exit leg on the southern approach to include two full lanes and a short lane of 200m.
- Conversion of the existing bus short lane on Milperra Road to a full lane for general traffic.
- Creation of an additional right turn lane on Milperra Road of 200m.
- Extension of the left turn slip lane on the eastern approach, from 50m to 130m.
- Creation of an additional right turn bay on Newbridge Road of 30m.

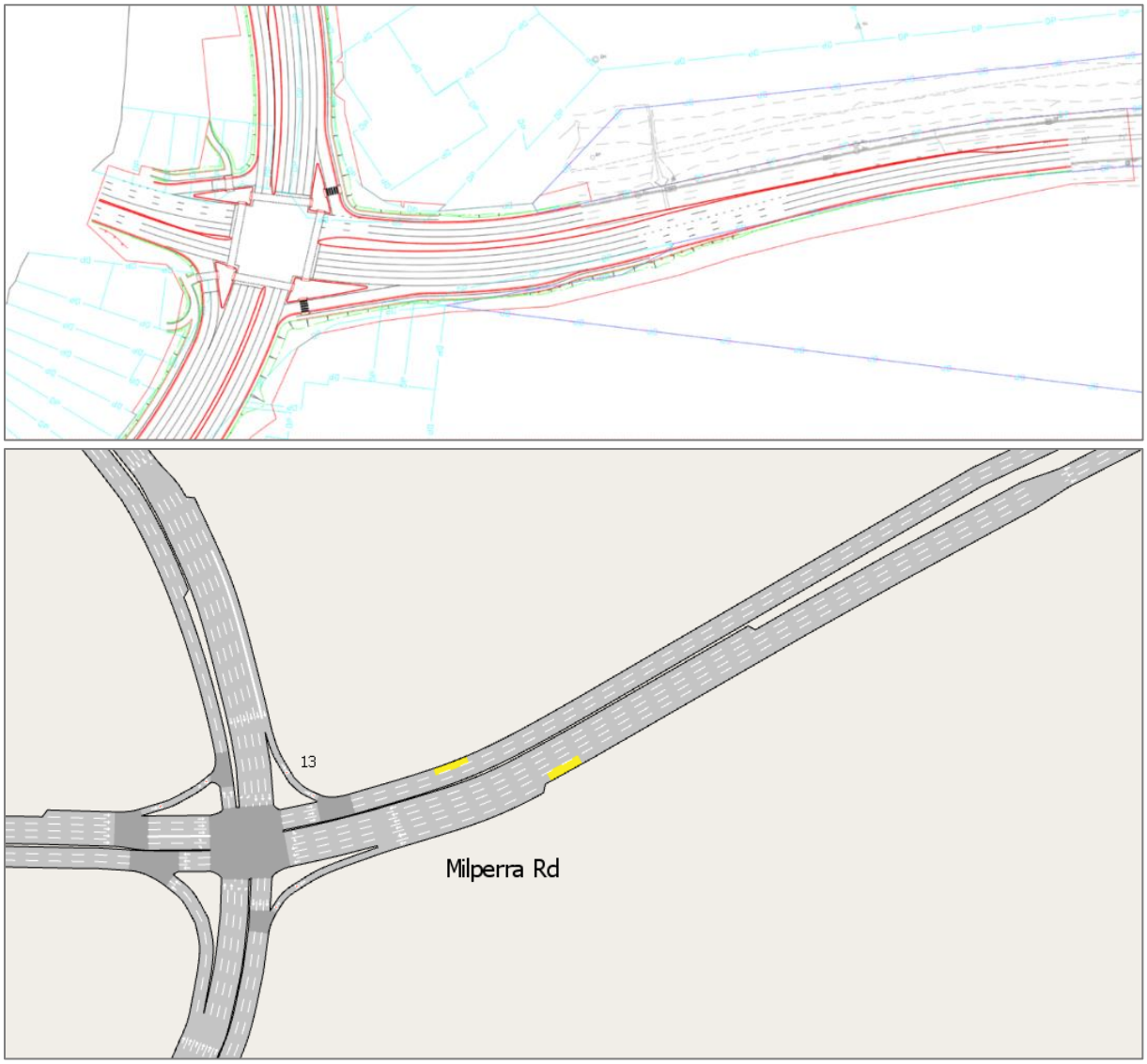


Figure 2-5: Henry Lawson Drive / Milperra Road / Newbridge Road Intersection Upgrade – Proposed drawing (top), Aimsun Model screenshot (bottom)

2.3 Option Scenario

The Option Scenario is a combination of the Henry Lawson Drive Stage 1A and Stage 1B upgrades. The Stage 1A upgrades are detailed in the technical memorandum HLDS1A-AURC-NWW-TP-MEM-000004. In this report, the Stage 1B upgrades are discussed in detail:

Widening of the Henry Lawson Drive section from the Keys Parade and the approach to M5 motorway to two lanes: The section between the Keys Parade to the approach of M5 motorway is proposed to be widened to four lanes with two lanes on each side. The Figure 2-6 presents the proposed section between the Keys Parade and Bullecourt Avenue and the Figure 2-7 presents the proposed section between the Bullecourt Avenue and approach to M5 Motorway. The upgrades are described as follows:

- All unsignalised intersections along this section are proposed to be a “left-in and left-out” to Henry Lawson Drive. The Connections of the Ruthven Avenue, Whittle Avenue, Amiens Avenue, Ganmain crescent, Fromelles Avenue and Hermies Avenue to the Henry Lawson Drive will be a “left-in and left-out”.
- The Raleigh Road/ HLD intersection will be removed and a Link Road connection is proposed to connect the Raleigh Road to the Keys Parade. This Link Road will provide access to traffic coming from the Raleigh Road to the Henry Lawson Drive via Keys Parade and vice vera.

- Upgrades to the existing signalised intersections of Keys Parade/ HLD, Bullecourt Avenue/ HLD and Pozieres Avenue/ HLD are also proposed in Option Scenario and are discussed separately in this section.

Figure 2-6: Widening of Henry Lawson Drive between Keys Parade and Bullecourt Avenue

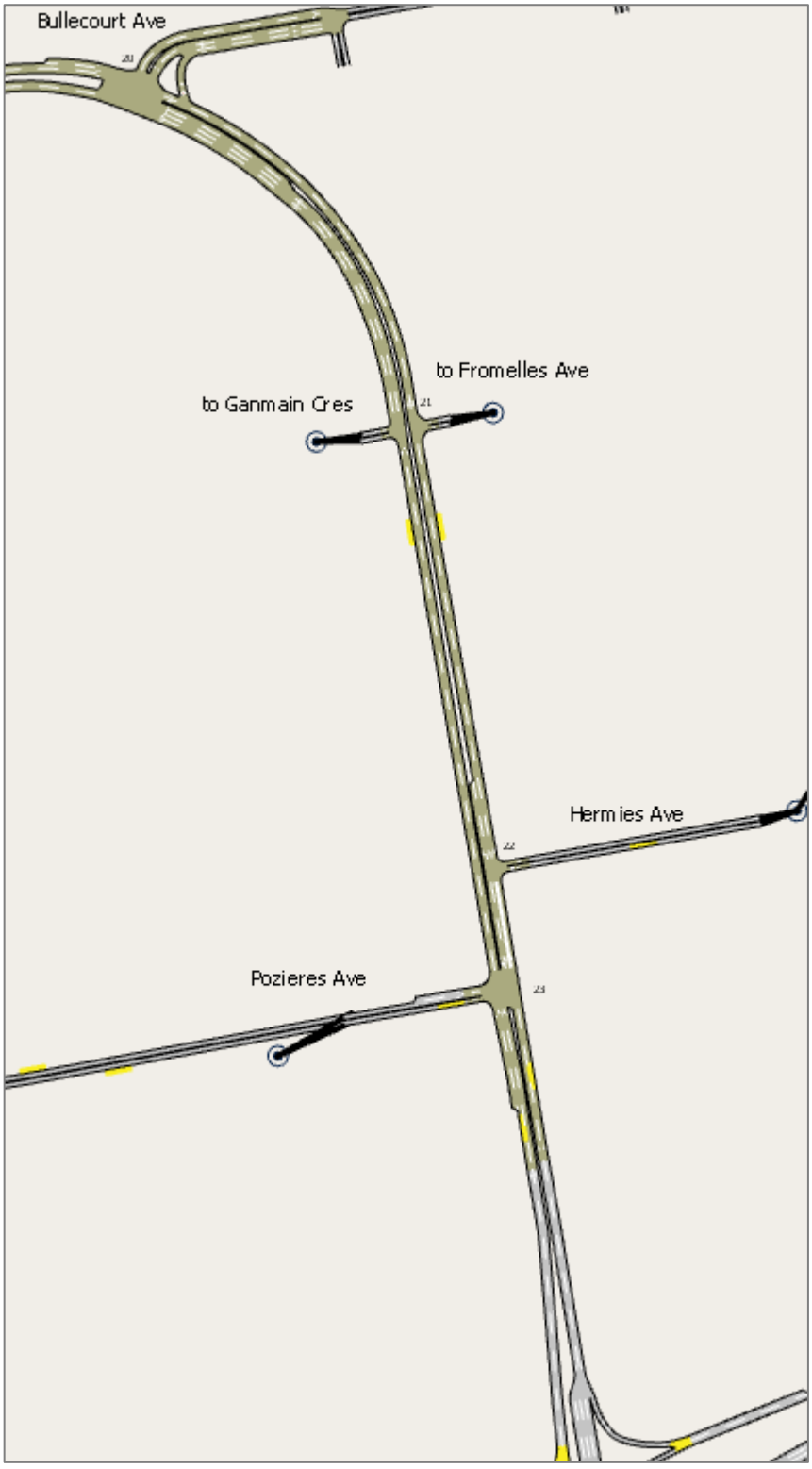


Figure 2-7: Widening of Henry Lawson Drive between Bullecourt Avenue and approach of M5 motorway

Henry Lawson Drive/ Keys Parade intersection upgrade and a Link Road connection between Auld Avenue and Keys Parade: The Figure 2-8 presents the proposed layout of the Keys Parade/ HLD intersection in Aimsun. The intersection upgrades are described as follows:

- The creation of a left turn slip lane from the south approach on the Henry Lawson Drive to the Keys Parade.
- The widening of south approach of the Henry Lawson Drive to accommodate two through lanes and a right turn lane for vehicles turning to the Flower Power Access.
- The creation of connection between the Auld Avenue and Keys Parade.

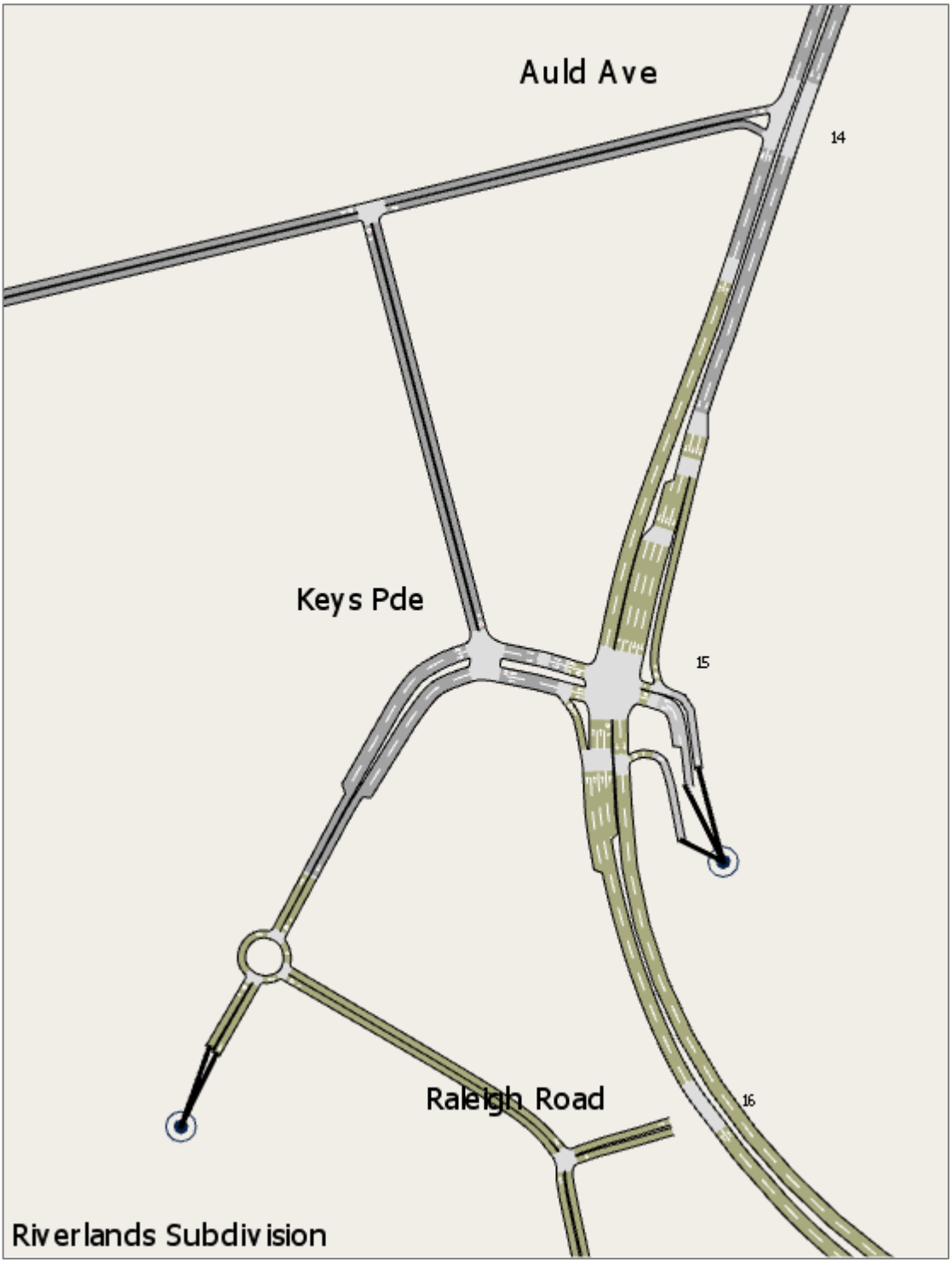


Figure 2-8: Upgrades to Henry Lawson Drive/ Keys Parade/ Flower Power intersection

Henry Lawson Drive/ Bullecourt Avenue intersection upgrade: The Figure 2-9 presents the proposed layout of the intersection alongside a screenshot of the intersection coding in Aimsun. The intersection upgrades are described as follows:

- The widening of the north approach to accommodate a 40m left turn lane from the Henry Lawson Drive to the Bullecourt Avenue.
- The widening of 80m length of the south approach to accommodate two through lanes continuing northbound and two right turn lanes for vehicle movement from the Henry Lawson Drive to the Bullecourt Avenue.
- The widening of the Bullecourt Avenue approach from the Fleurbaix Avenue to the Henry Lawson Drive intersection to accommodate three lanes.
- The creation of a left turn slip lane to the Henry Lawson Drive from the Bullecourt Avenue.

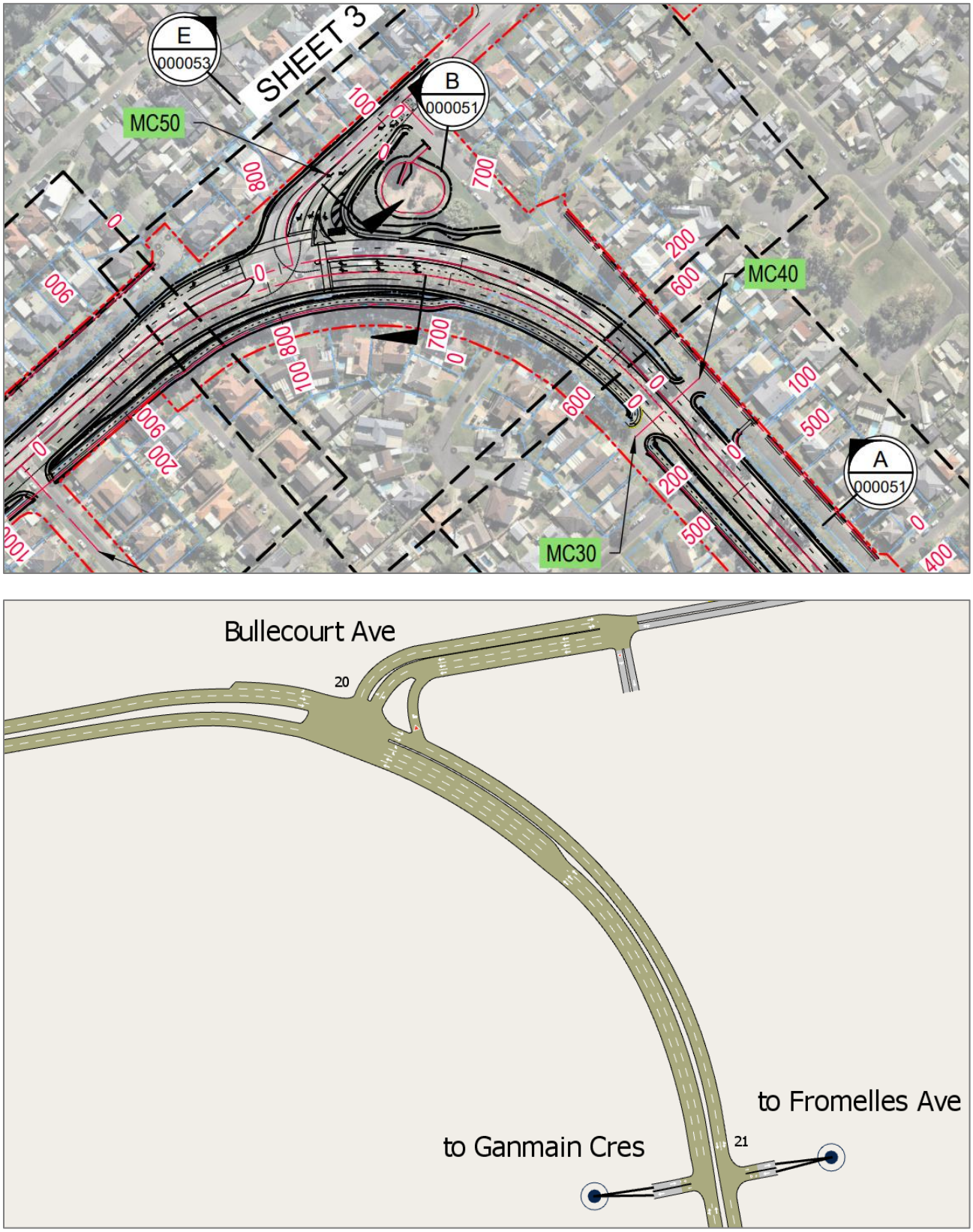


Figure 2-9: Upgrades to Henry Lawson Drive/ Bullecourt Avenue intersection

Henry Lawson Drive/ Pozieres Avenue upgrade: The Figure 2-10 presents the proposed layout of the intersection in Aimsun. The intersection upgrades are described as follows:

- The widening of the south approach to accommodate a 60m left turn lane from the Henry Lawson Drive to the Pozieres Avenue.
- The widening of the north approach to three lanes for 130m length in order to increase the capacity for right turn lane from the Henry Lawson Drive to the Pozieres Ave.

- The use of solid line on the north approach for the left- most lane from the Hermies Avenue to the Pozieres Avenue.

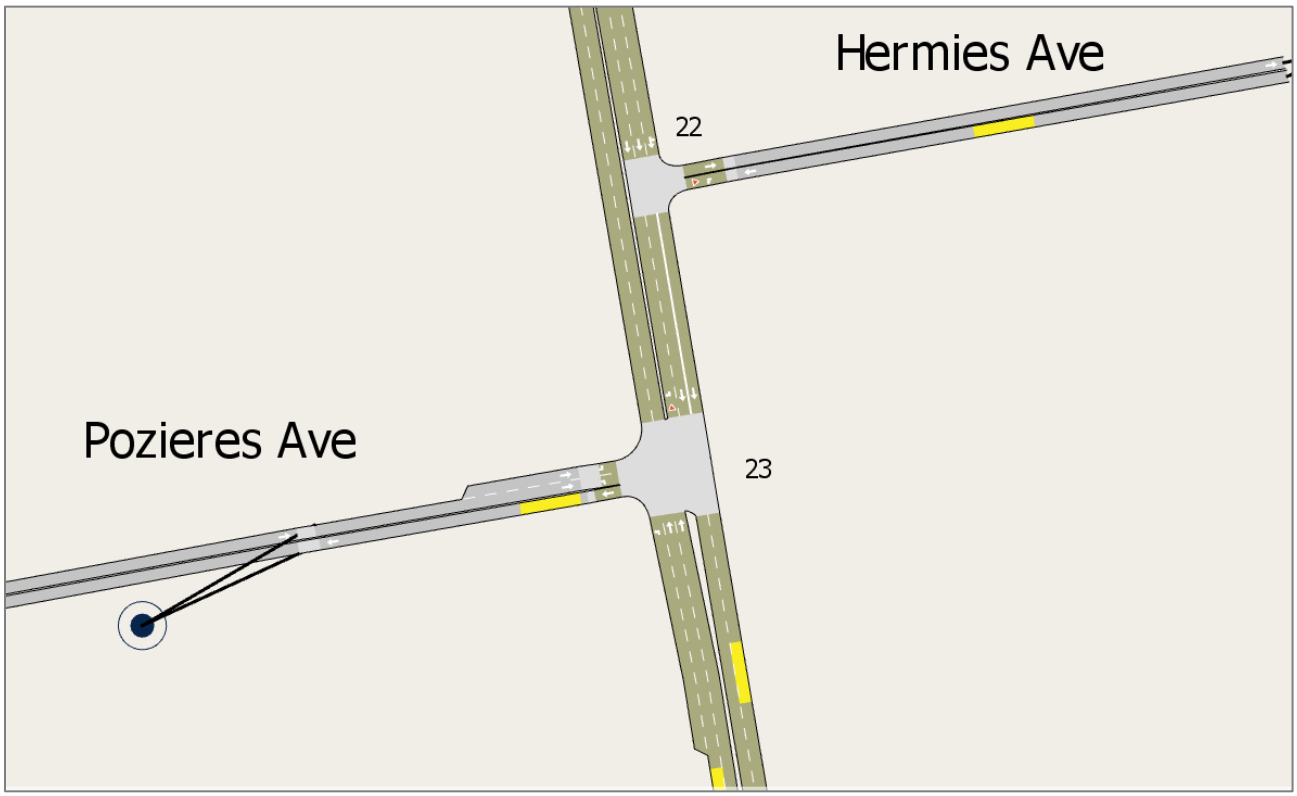


Figure 2-10: Upgrades to Henry Lawson Drive/ Pozieres Avenue intersection

2.4 Signal control

Due to the intersection layout changes and travel demand growth in 2031 and 2041, signal phasing and timings for all signalised intersections in the study area are also required to be updated.

2.5 Modelled Future Network Scenarios

Table 2-1 summarises the two scenarios that were developed and reported as part of this assessment.

Table 2-1: Future Scenarios Modelled

Scenario	Year	Road Network
Do-Minimum	2031 and 2041	• Committed projects ○ Georges Hall Intersections Upgrade ○ Henry Lawson Drive/ Tower Road intersection upgrade ○ Henry Lawson Drive/ Keys Parade intersection upgrade ○ Milperra Road/ Murray Jones Drive intersection upgrade • Henry Lawson drive stage 1A upgrade ○ Milperra Road and Newbridge intersection upgrade

Scenario	Year	Road Network

Option	2031 and 2041	• Committed projects
		  ○ Georges Hall Intersections Upgrade
		  ○ Henry Lawson Drive/ Tower Road intersection upgrade
		  ○ Henry Lawson Drive/ Keys Parade intersection upgrade
		  ○ Milperra Road/ Murray Jones Drive intersection upgrade
		• Henry Lawson drive stage 1A upgrade
		  ○ Widening to four lanes between Tower Road and Keys Parade
		  ○ Milperra Road and Newbridge intersection upgrade
		  ○ Auld Avenue intersection upgrade
		• Henry Lawson drive stage 1 B upgrade
		  ○ Widening to four lanes between Keys Parade and approach of M5 motorway
		  ○ Henry Lawson Drive/ Keys Parade intersection upgrade
		  ○ Henry Lawson Drive/ Bullecourt Avenue intersection upgrade
		  ○ Henry Lawson Drive/ Pozieres Avenue intersection upgrade
		• Link road between Auld Avenue and Keys Parade
		• Link road between Raleigh Road and Keys Parade

3 Future Traffic Demand Development

The traffic demands used for the future year models have been developed from the 2021, 2031 and 2041 STFM sub-area matrices and link volume plots provided by TfNSW. The STFM data was provided for 2-hour AM and PM peak weekday periods.

As an example, the general methodology adopted to develop 2031 weekday AM, PM and weekend demands is explained in the following steps:

1. The STFM matrices were disaggregated to align with the Aimsun zone structure.
2. The per origin-destination pair cell difference between the 2021 and 2031 STFM matrices was initially calculated. This led to the calculation of overall Origin and Destination growth rate between the 2021 and 2031 STFM matrices.
3. After comparing several different growth methods, an origin percentage growth method was adopted as this resulted in a closer overall demand growth rate as STFM. The percentage growth of the zone origin totals between the STFM matrices was used to grow the 2022 Aimsun origin/ destination pairs to a 2031 future year level for the peak period.

The same approach has been adopted for the year 2041.

In the absence of STFM data for weekend model, the percentage growth of the zone origin totals between the STFM matrices in the AM model was used to grow the 2022 weekend origin/ destination pairs to a 2031 and 2041 future demands.

Some assumptions made in the process are explained in the following sections.

3.1 Growth Rates for Zones not reflected in STFM

A link volume plot of 2031 AM peak STFM Matrix has been presented in Figure 3-1. The corresponding sub-area network plot extracted from the STFM is presented along with the existing Aimsun zone structure in Figure 3-2.

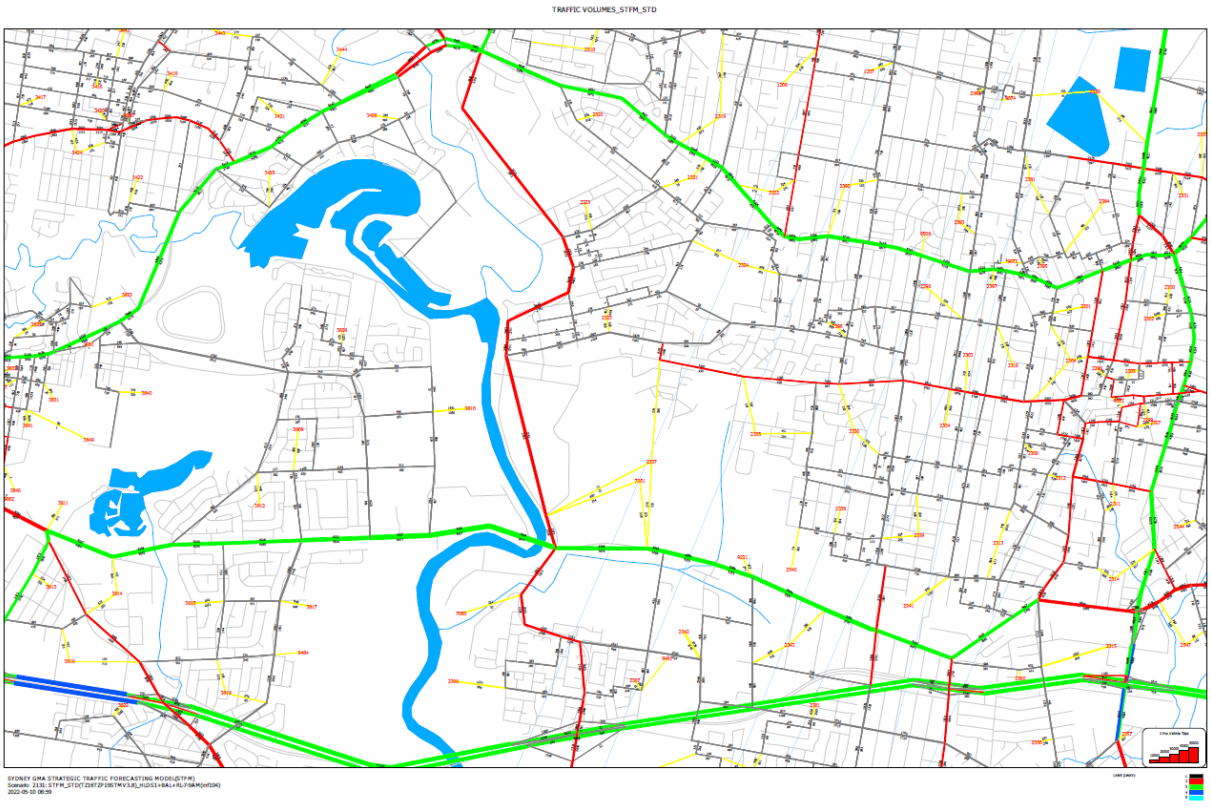


Figure 3-1: STFM Link Volume Plot for AM peak period from 07:00 AM to 09:00 AM

Figure 3-2: Aimsun Zoning Structure (left) STFM Sub Area Network Zoning Structure (right)

Being of strategic nature, STFM does not represent the smaller zones used in the microsimulation model. In these cases, some assumptions have been made on estimating growth rate for these zones.
Case 1: For the zones that are in close proximity to the STFM Zones, the growth rate of the corresponding STFM zone was applied. Such examples include zones 12 and 13 for which the STFM growth rate for zone 11 was adopted.

Case 2: For other zones a nominal per annum growth rate of 1% was assumed. These include zones 2, 4, 6, 7, 10, 13, 14, 19, 21, 22, 34 and 35.

3.2 Growth rates for Zones with Significant Future Development

In some cases, the calculated growth rate was significantly high compared to the Base case, indicating a new development in the area. These zones include:

- Zones 15,16: Airport precinct development zones
- Zone 3: Riverlands residential township development

In the case of zones 15 and 16, the STFM future demand was used by applying the trip distribution from the calibrated Base model.

The Zone 3 on the other hand had no demand in the Base case as there is no existing development. In this case, the STFM generation and distribution were adopted. The temporal profiling was then undertaken by applying the 2021 global matrix profiles.

3.3 Negative Growth

In cases where the origin-destination pair cell difference between the 2021 and 2031 STFM matrices was a negative number, the 2022 demand was assumed conservatively.

3.4 Option Scenario

As detailed in Section 2, the Future Option Case scenario assumes a left-in left-out layout for the intersections of Auld Avenue/ HLD, Ruthven Avenue/ HLD, Whittle Avenue/ HLD, Amiens Avenue/ HLD, Ganmain Crescent/ Fromelles Avenue/ HLD and Hermies Avenue/ HLD. The Raleigh Road/ HLD intersection is removed, and a Link Road connection is added to connect the Raleigh Road to the Keys Parade, in addition to the Link Road connection between Auld Avenue and Keys Parade.

Unlike Do-Minimum, where right turn movements are possible from/ to the Auld Avenue, Raleigh Road, Ruthven Avenue, Whittle Avenue, Amiens Avenue, Ganmain Crescent, Fromelles Avenue and Hermies Avenue, the Option Scenario restricts these movements. In Option Scenario, however, all traffic impacted by the restricted movements have been re-allocated to the appropriate detour in the model.

4 Option Modelling Results

The modelling results have been presented in the form of overall network statistics, corridor travel time and key intersection delays along with the Level of Service (LOS). This section presents the overall results with a detailed discussion and assessment of options in 2031 and 2041 for the AM, PM and weekend peak periods.

It is important to note that the number of incomplete trips and latent demand are higher for scenarios in 2041 in comparison to 2031, which may result in improved network performance and travel time in some cases for 2041 scenarios. However, this increase in incomplete trips and latent demand in 2041 is consistent across both Do-Minimum and Option scenarios. So, the comparison between both scenarios is not impacted.

4.1 Overall Network Performance

The network-wide model statistics were extracted from the weekday AM, PM and the weekend scenario models to establish an overall network performance. Figure 4-1 presents the road network extent modelled for Henry Lawson Drive Stage 1B.

Table 4-1, Table 4-2 and Table 4-3 show overall network performance during the AM peak, PM peak and weekend peak in 2031 and 2041. The Option Scenario is expected to operate with a slightly better performance in comparison to the Do-Minimum in 2031 and 2041 peak periods.

Note that the incomplete trips are the addition of latent demand, vehicles lost inside, vehicles lost outside, vehicles inside and missing turns.

Appendix C presents the location and extent of the latent demand recorded for 2031 and 2041 years, for all scenarios during the weekday AM, PM and the weekend peak periods.

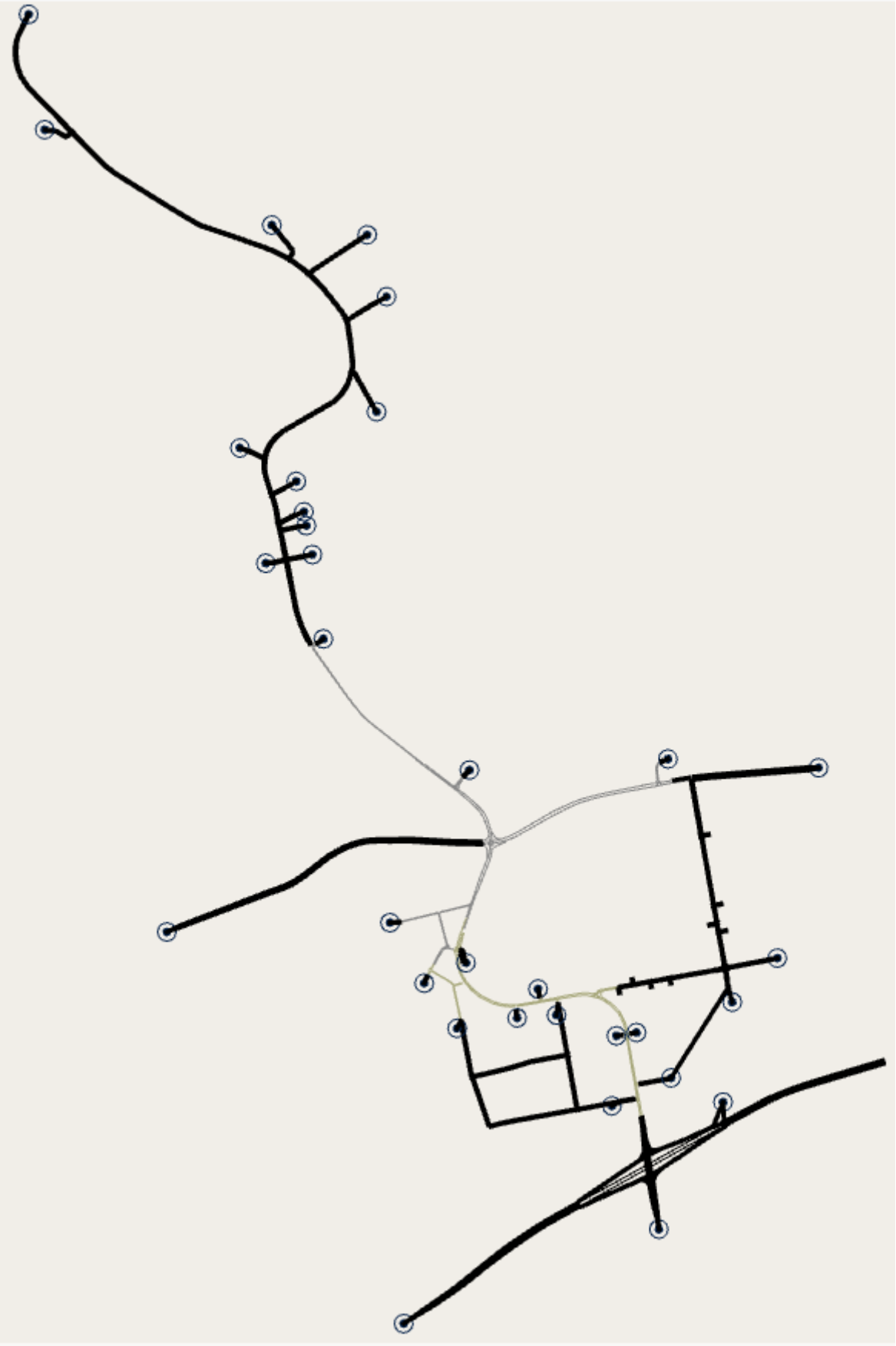


Figure 4-1: Henry Lawson Drive Stage 1B - road network model extent

Table 4-1: Overall Network Performance during AM Peak

Metrics	Units	2022		2031				2041			
		Base		Do-Minimum		Option		Do-Minimum		Option	
		LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Total Distance Travelled (VKT)	km	71,065	7,848	84,473	9,665	88,110	10,291	85,154	17,508	88,029	17,838
Total Travel Time (VHT)	h	2,723	333	3,475	430	3,405	428	3,864	646	3,763	617
Latent Demand	veh	572	88	1,614	218	808	118	2,569	358	2,107	296
Number of Stops	#/veh/km	0.04	0.18	0.06	0.21	0.05	0.19	0.07	0.20	0.06	0.18
Total Demand	veh	19,926	2,633	24,765	3,391	24,765	3,391	26,129	5,843	26,129	5,843
Incomplete Trips	veh	2,186	333	3,811	603	2,748	463	4,944	777	4,541	726
Network Average Speed	km/h	34	25	31	24	32	25	29	26	30	28
Total Number of Stops	#	66,284	8,565	109,387	14,086	97,044	12,712	124,467	19,102	116,403	17,291

Table 4-2: Overall Network Performance during PM Peak

Metrics	Units	2022		2031				2041			
		Base		Do-Minimum		Option		Do-Minimum		Option	
		LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Total Distance Travelled (VKT)	km	80,127	5,973	82,728	6,481	85,067	6,524	84,490	6,971	87,766	7,199
Total Travel Time (VHT)	h	3,064	225	4,364	341	4,214	310	4,513	371	4,357	348
Latent Demand	veh	589	32	5,219	334	5,087	339	6,010	423	5,539	373
Number of Stops	#/veh/km	0.04	0.18	0.07	0.24	0.06	0.20	0.07	0.24	0.06	0.19
Total Demand	veh	23,332	2,051	30,315	2,684	30,315	2,684	32,028	2,912	32,028	2,912
Incomplete Trips	veh	2,278	149	8,272	569	7,986	563	9,182	666	8,673	620
Network Average Speed	km/h	34	27	27	21	30	24	27	22	28	23
Total Number of Stops	#	78,687	6,020	138,832	11,260	121,013	9,232	145,898	12,429	129,384	10,681

Table 4-3: Overall Network Performance during Weekend Peak

Metrics	Units	2022		2031				2041			
		Base		Do-Minimum		Option		Do-Minimum		Option	
		LV	HV	LV	HV	LV	HV	LV	HV	LV	HV
Total Distance Travelled (VKT)	km	70,364	8,510	86,021	10,981	85,810	10,964	86,794	11,084	88,029	17,838
Total Travel Time (VHT)	h	1,747	212	2,416	317	2,325	300	2,499	315	3,763	617
Latent Demand	veh	75	15	206	25	342	29	291	26	2,107	296
Number of Stops	#/veh/km	0.02	0.15	0.03	0.17	0.03	0.16	0.04	0.17	0.06	0.18
Total Demand	veh	23,332	2,051	30,315	2,684	30,315	2,684	32,028	2,912	26,129	5,843
Incomplete Trips	veh	1,152	174	1,569	236	1,632	261	1,756	276	4,541	726
Network Average Speed	km/h	43	34	39	31	41	32	39	32	30	28
Total Number of Stops	#	34,675	4,384	63,864	8,969	60,001	8,321	70,691	9,402	116,403	17,291

4.2 Travel Time results

The travel time statistics have been analysed for the following four sections along Henry Lawson Drive illustrated in Figure 4-2.

1. Henry Lawson Drive between Flinders Road and Haig Avenue
2. Henry Lawson Drive between Haig Avenue and Milperra Road
3. Henry Lawson Drive between Milperra Road and Bullecourt Avenue
4. Henry Lawson Drive between Bullecourt Avenue and M5

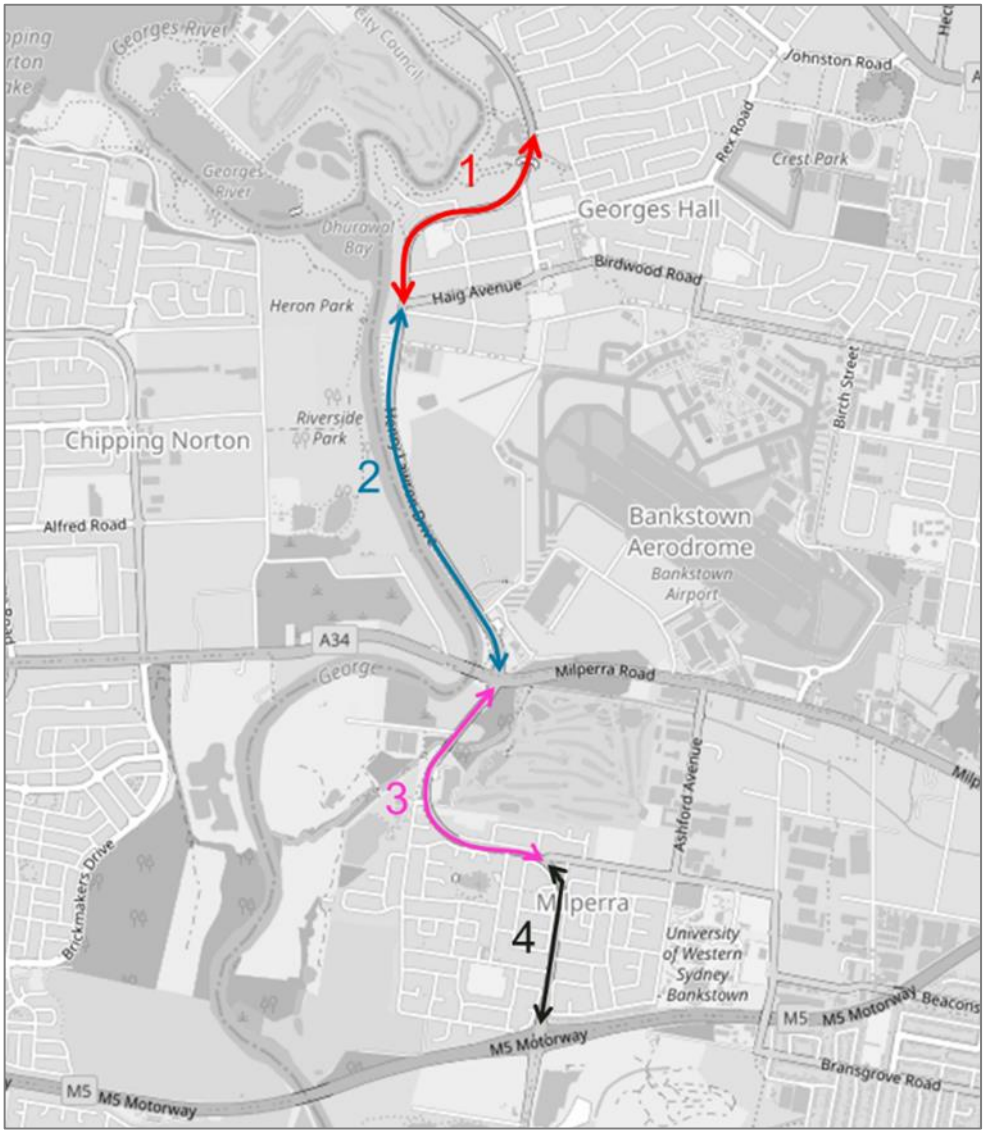


Figure 4-2: Travel Time Route and Sub-sections

4.2.1 AM Peak Period

For the weekday AM peak period, the travel times in northbound and southbound directions along the Henry Lawson Drive for all the modelled scenarios in 2031 and 2041 are presented in Table 4-4 and their corresponding graphs showing the cumulative travel times are shown in Figure 4-3 to Figure 4-6.

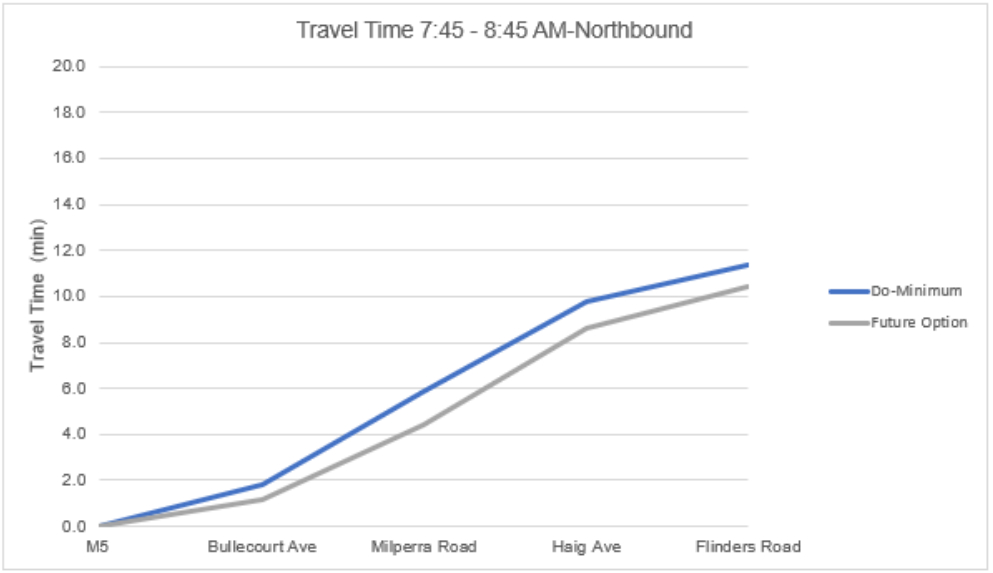
Table 4-4: AM Peak Option Modelling Travel Time Results Comparison

Direction	2022	2031				2041			
	Base	Do-Minimum		Option		Do-Minimum		Option	
	A (mm:ss)	B (mm:ss)	Diff = B-A (mm:ss)	C (mm:ss)	Diff = C-A (mm:ss)	D (mm:ss)	Diff = D-A (mm:ss)	E (mm:ss)	Diff = E-A (mm:ss)
		7:45 AM-8:45 AM							
Northbound	08:20	11:20	03:00	10:24	02:04	12:12	03:51	15:12	06:52
Southbound	09:11	11:06	01:55	11:00	01:49	11:14	02:04	11:00	01:49
		8:45 AM-9:45 AM							
Northbound	09:56	14:09	04:13	12:42	02:46	14:49	04:53	16:12	06:16
Southbound	08:53	11:28	02:35	11:06	02:13	12:18	03:25	12:30	03:37
		Average							
Northbound	09:08	12:44	03:36	11:33	02:25	13:31	04:22	15:42	06:34
Southbound	09:02	11:17	02:15	11:03	02:01	11:46	02:44	11:45	02:43

During the AM peak in 2031, the average northbound travel time along Henry Lawson Drive is likely to increase by two and a half minutes in the Option Scenario and increase by three and a half minutes in the Do-Minimum Scenario when compared to the Base Case year. The southbound travel time along Henry Lawson Drive is expected to increase from around nine minutes in the Base Case to around 11 minutes in both Do-Minimum and Option scenarios.

In 2041 AM peak, the northbound average travel time is expected to increase by over four minutes in the Do-Minimum and over six and a half minutes in the Option Scenario when compared to the Base Case Scenario. The southbound travel time is likely to increase almost three minutes on average in the Do-Minimum and seven minutes in the Option scenario.

The reason for higher travel times in Option Scenario during 2041 AM peak period is explained in detail in Section 4.3.



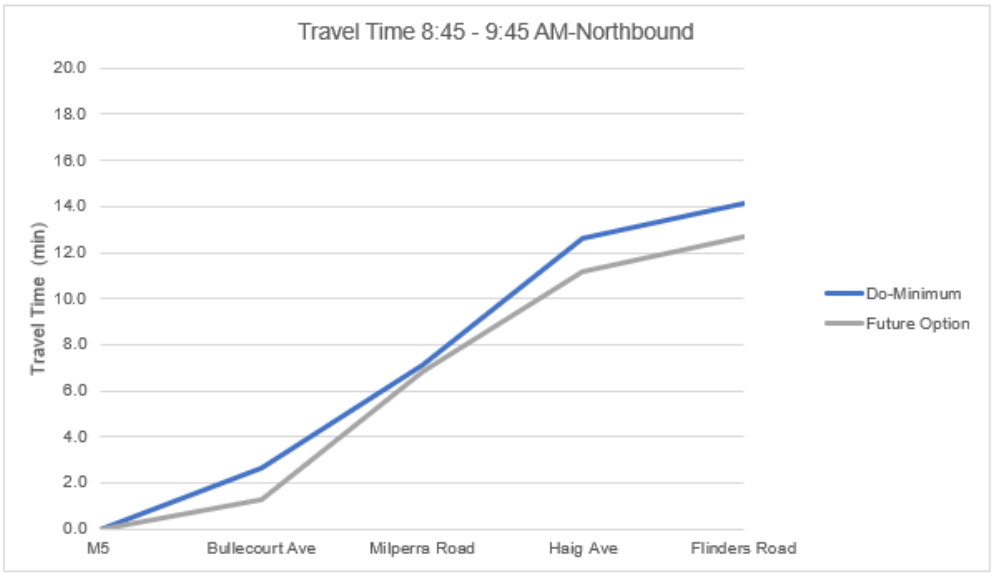
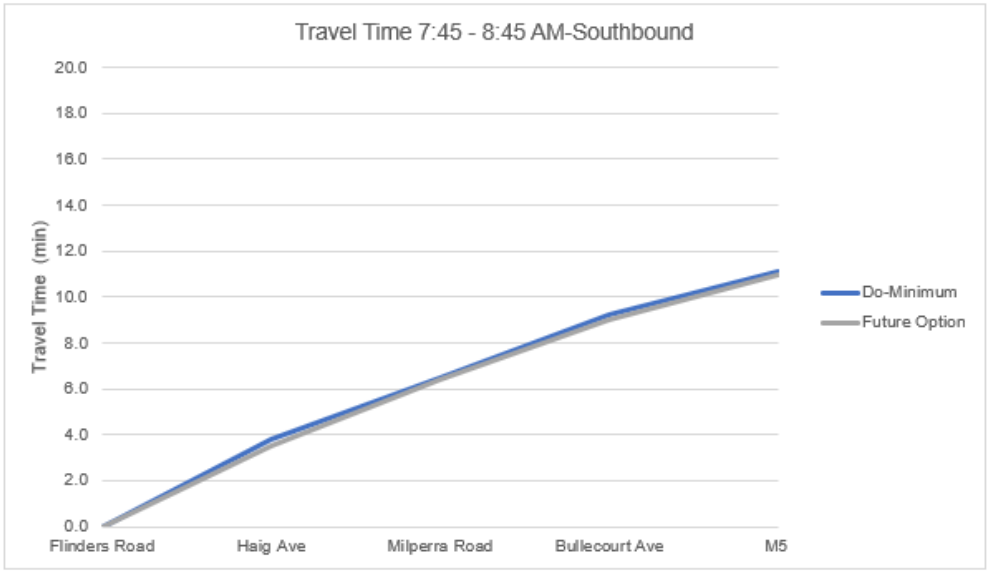


Figure 4-3: Henry Lawson Drive Northbound – 2031 Weekday AM Peak Modelled Travel Time Comparison



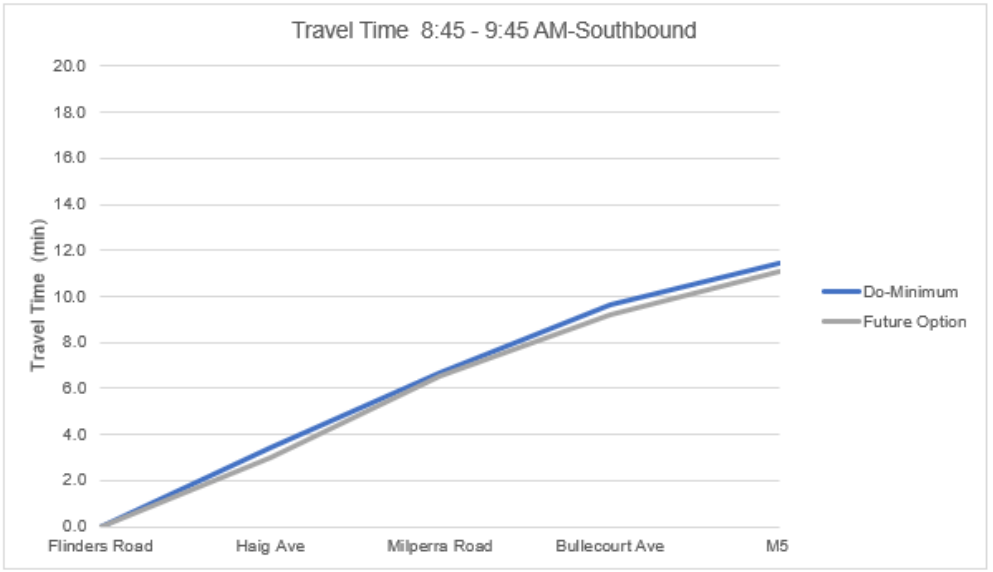
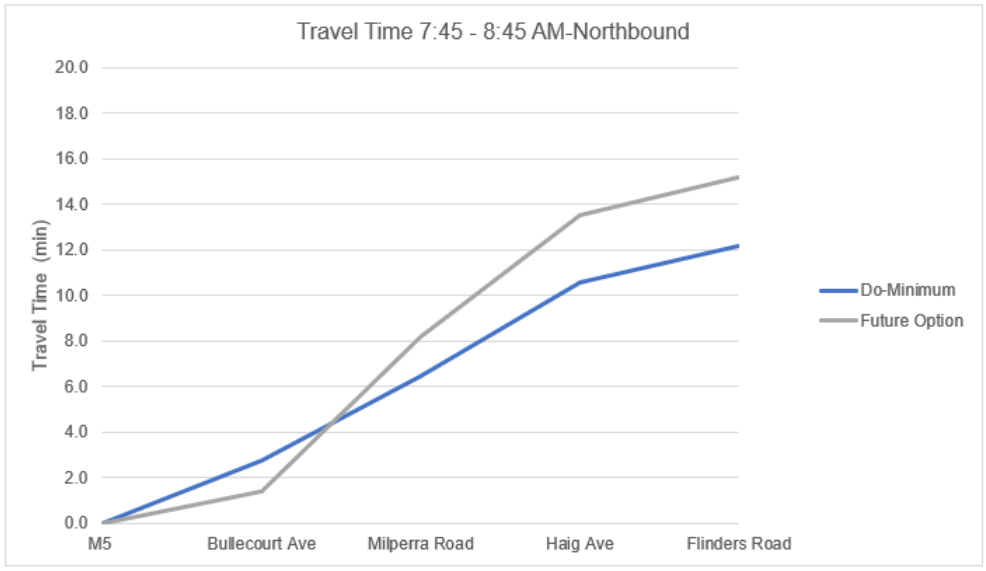


Figure 4-4 Henry Lawson Drive Southbound – 2031 Weekday AM Peak Modelled Travel Time Comparison



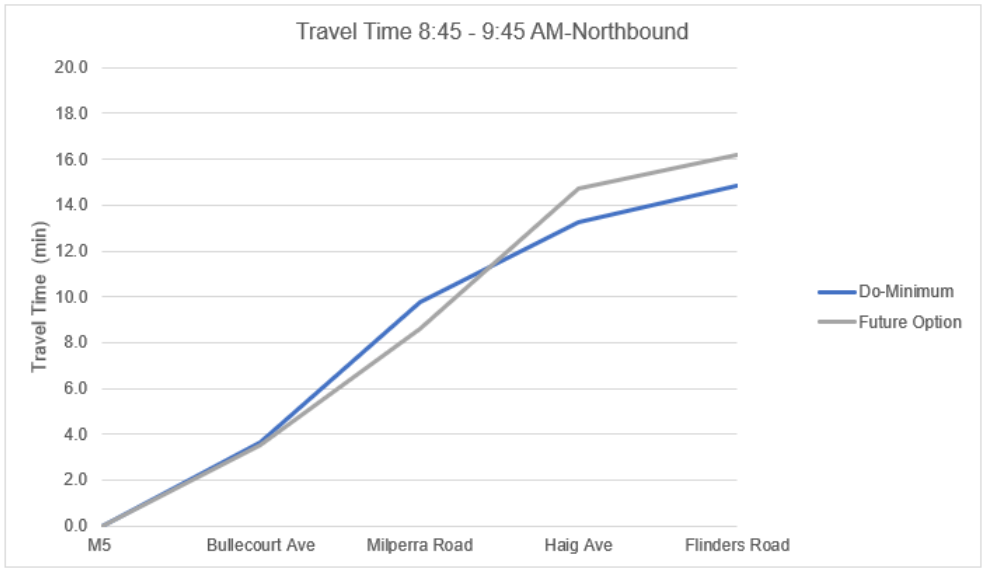
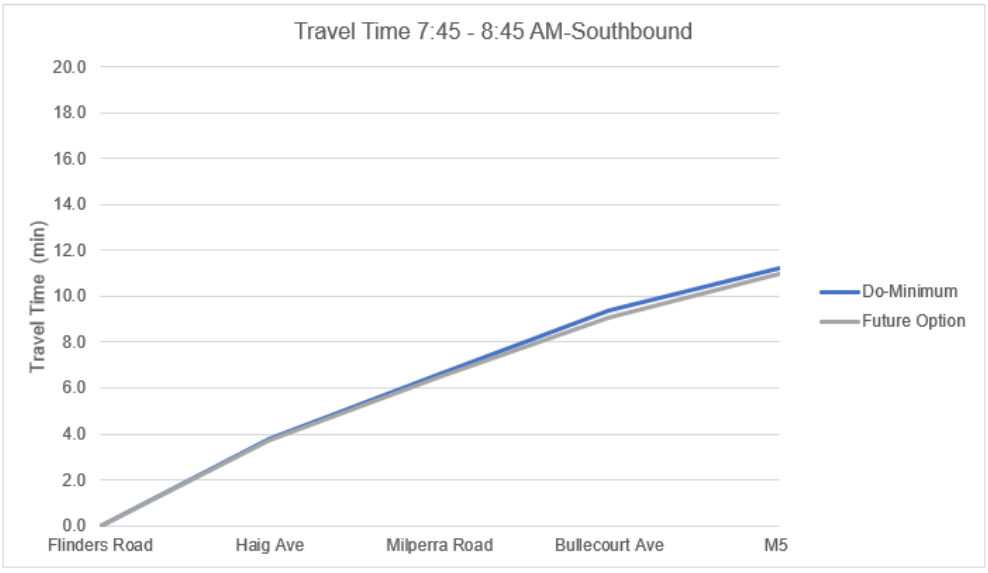


Figure 4-5: Henry Lawson Drive Northbound – 2041 Weekday AM Peak Modelled Travel Time Comparison



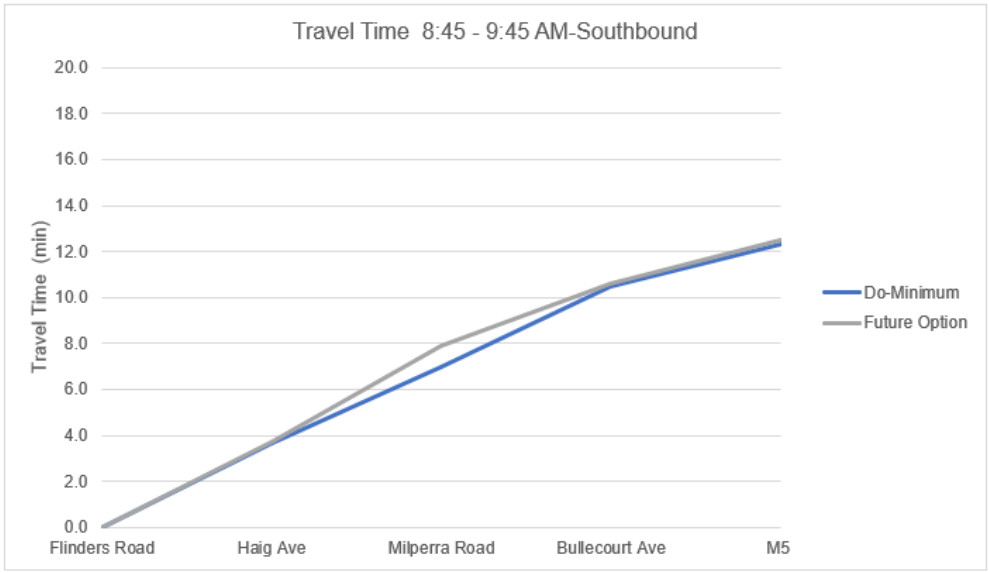


Figure 4-6: Henry Lawson Drive Southbound – 2041 Weekday AM Peak Modelled Travel Time Comparison

4.2.2 PM Peak Period

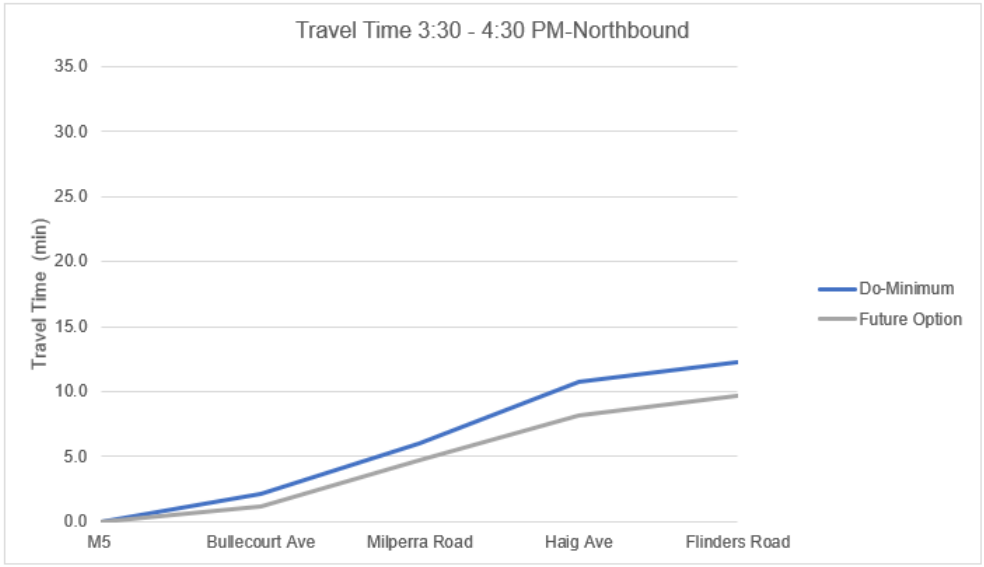
For PM peak, the northbound and southbound travel times along Henry Lawson Drive for all the modelled scenarios in 2031 and 2041 are presented in Table 4-5 and their corresponding graphs showing the cumulative travel times are shown in Figure 4-7 to Figure 4-10.

Table 4-5: PM Peak Option Modelling Travel Time Results Comparison

Direction	2022	2031				2041			
	Base	Do-Minimum		Option		Do-Minimum		Option	
	A (mm:ss)	B (mm:ss)	Diff = B-A (mm:ss)	C (mm:ss)	Diff = C-A (mm:ss)	D (mm:ss)	Diff = D-A (mm:ss)	E (mm:ss)	Diff = E-A (mm:ss)
		7:45 AM-8:45 AM							
Northbound	08:17	12:16	04:00	09:41	01:24	15:24	07:08	10:33	02:16
Southbound	10:23	18:28	08:05	17:01	06:38	19:19	08:56	17:41	07:17
		8:45 AM-9:45 AM							
Northbound	08:50	22:29	13:39	14:14	05:24	24:25	15:36	18:16	09:27
Southbound	11:27	28:16	16:49	30:25	18:58	30:10	18:44	33:57	22:30
		Average							
Northbound	08:33	17:23	08:49	11:58	03:24	19:55	11:22	14:25	05:51
Southbound	10:55	23:22	12:27	23:43	12:48	24:45	13:50	25:49	14:54

During the PM peak in 2031, the average northbound travel time along the Henry Lawson Drive is expected to increase by almost nine minutes in the Do-Minimum and three and a half minutes in the Option Scenario when compared to the Base Case. The southbound average travel time along Henry Lawson Drive is expected to increase from around 11 minutes in the Base Case year to around 23.5 minutes in both Do-Minimum and Option scenarios.

In 2041, the average northbound travel time is expected to increase by over 11 minutes in the Do-Minimum and almost six minutes in the Option Scenario when compared to the Base Case. The southbound average travel time along Henry Lawson Drive is expected to increase from around 11 minutes in the Base Case year to nearly 25 minutes in the Do-Minimum and nearly 26 minutes in the Option scenario.



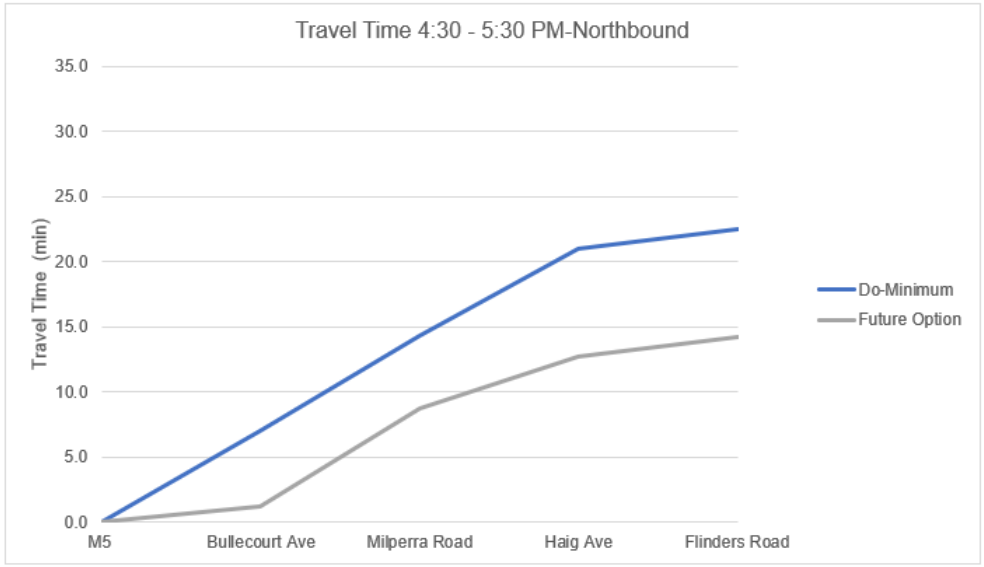
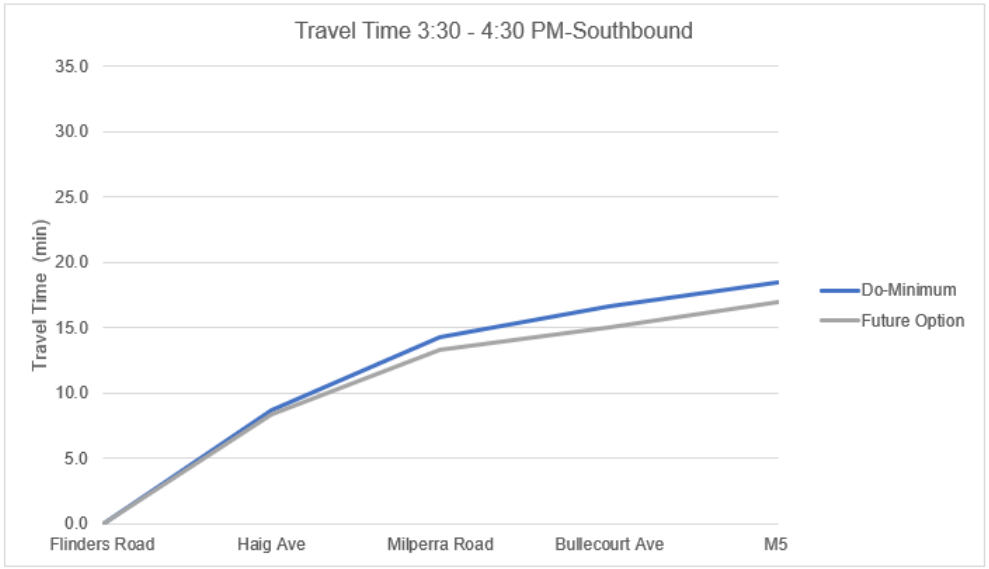


Figure 4-7: Henry Lawson Drive Northbound – 2031 Weekday PM Peak Modelled Travel Time Comparison



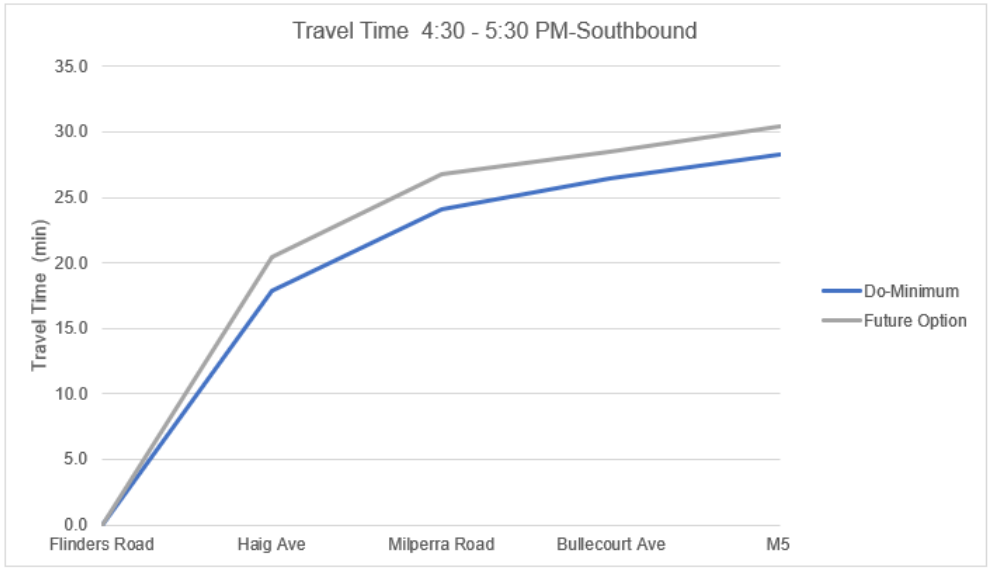
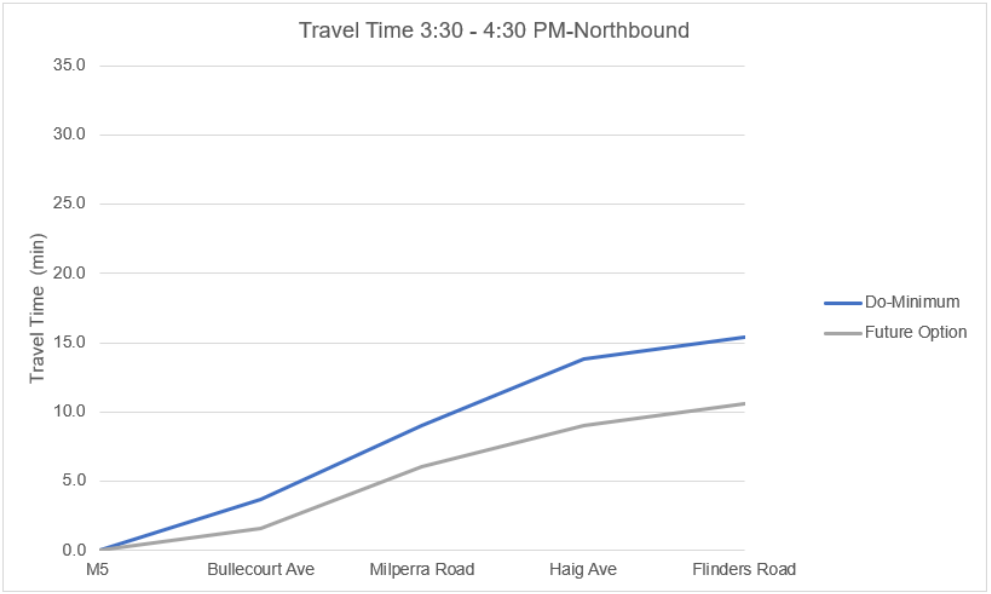


Figure 4-8 Henry Lawson Drive Southbound – 2031 Weekday PM Peak Modelled Travel Time Comparison



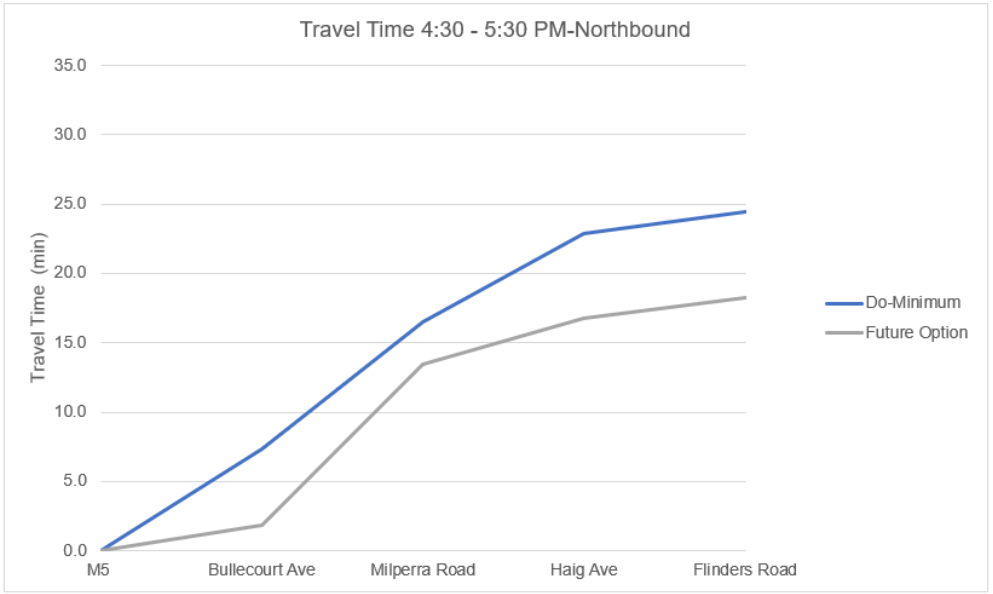
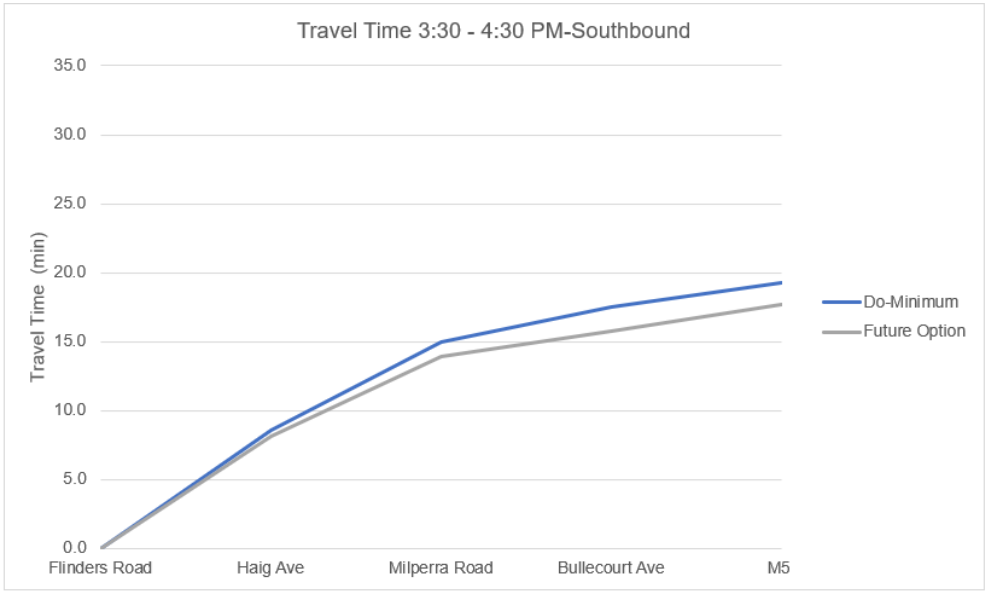


Figure 4-9: Henry Lawson Drive Northbound – 2041 Weekday PM Peak Modelled Travel Time Comparison



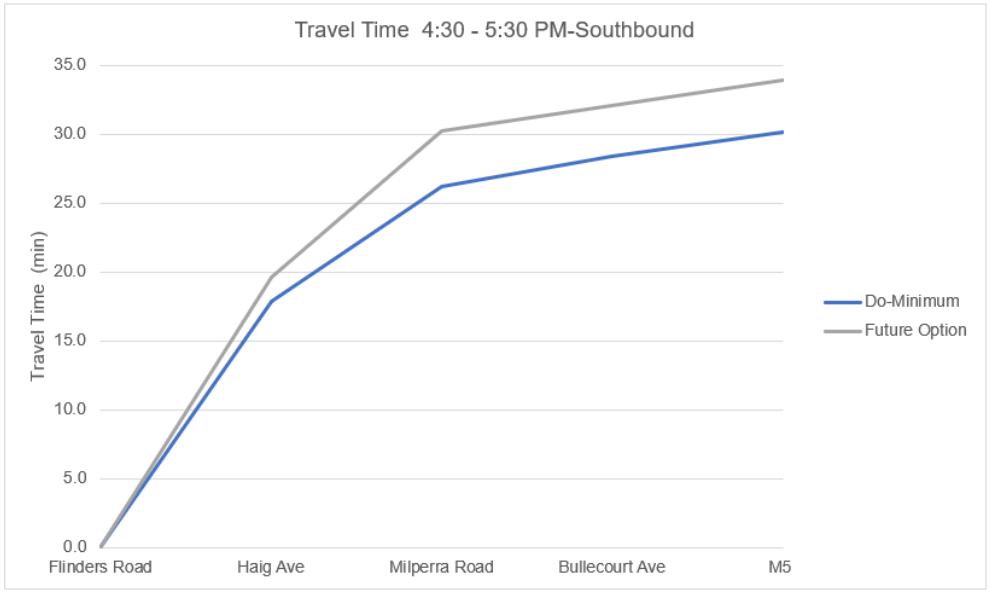


Figure 4-10 Henry Lawson Drive Southbound – 2041 Weekday PM Peak Modelled Travel Time Comparison

The delay in the southbound direction is observed to happen near the Haig Avenue/ HLD and Rabaul Road/ HLD intersections, where the two lanes merge to one lane slowing traffic at the merge location creating a traffic bottleneck as shown in Figure 4-11 and as a result the congestion propagates downstream causing high delays.

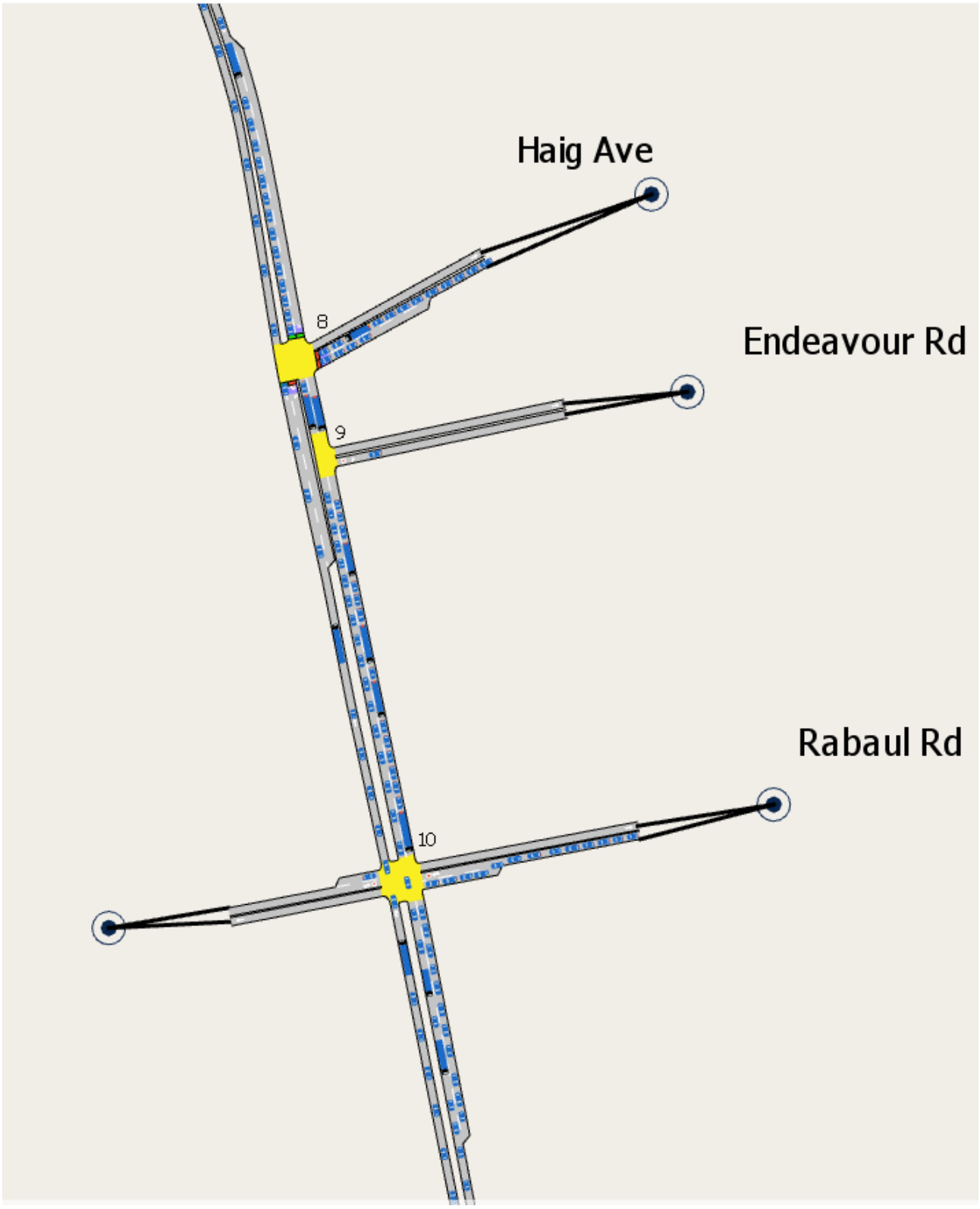


Figure 4-11: Traffic bottleneck upstream (SB direction) of Rabaul Road/ HLD intersection

4.2.3 Weekend Peak Period

For the weekend peak period, the travel times in the northbound and southbound directions along Henry Lawson Drive for all the modelled scenarios in 2031 and 2041 are presented in Table 4-6 and their corresponding graphs showing the cumulative travel times are shown in Figure 4-12 to Figure 4-15.

Table 4-6: Weekend Peak Option Modelling Travel Time Results Comparison

Direction	2022	2031				2041			
	Base	Do-Minimum		Option		Do-Minimum		Option	
	A (mm:ss)	B (mm:ss)	Diff = B-A (mm:ss)	C (mm:ss)	Diff = C-A (mm:ss)	D (mm:ss)	Diff = D-A (mm:ss)	E (mm:ss)	Diff = E-A (mm:ss)
		7:45 AM-8:45 AM							
Northbound	08:20	08:28	00:08	08:14	00:06	09:14	00:54	08:25	00:05
Southbound	09:11	11:02	01:51	11:14	02:04	11:17	02:07	11:10	02:00
		8:45 AM-9:45 AM							
Northbound	09:56	08:40	01:16	09:04	00:53	10:35	00:38	08:49	01:07
Southbound	08:53	11:08	02:16	11:06	02:13	11:36	02:43	11:14	02:21
		Average							
Northbound	09:08	08:34	00:34	08:39	00:29	09:54	00:46	08:37	00:31
Southbound	09:02	11:05	02:03	11:10	02:08	11:27	02:25	11:12	02:10

During the weekend peak in 2031, the northbound average travel time along Henry Lawson Drive is likely to be improved by around 30 seconds for both Do-Minimum and Option scenarios in comparison to the Base Case year. The southbound average travel time along Henry Lawson Drive is expected to increase from around nine minutes in the Base Case to over 11 minutes in both Do-Minimum and Option scenarios.

During the weekend peak in 2041, the northbound average travel time along Henry Lawson Drive is likely to be improved by about 30 seconds for the Option Scenario in comparison to the Base Case year, whereas the Do Minimum scenario sees in increase of nearly one minute along the same route.

The southbound average travel time is expected to increase from around nine minutes in the Base Case year to approximately over 11 minutes in both Do-Minimum and Option scenarios.

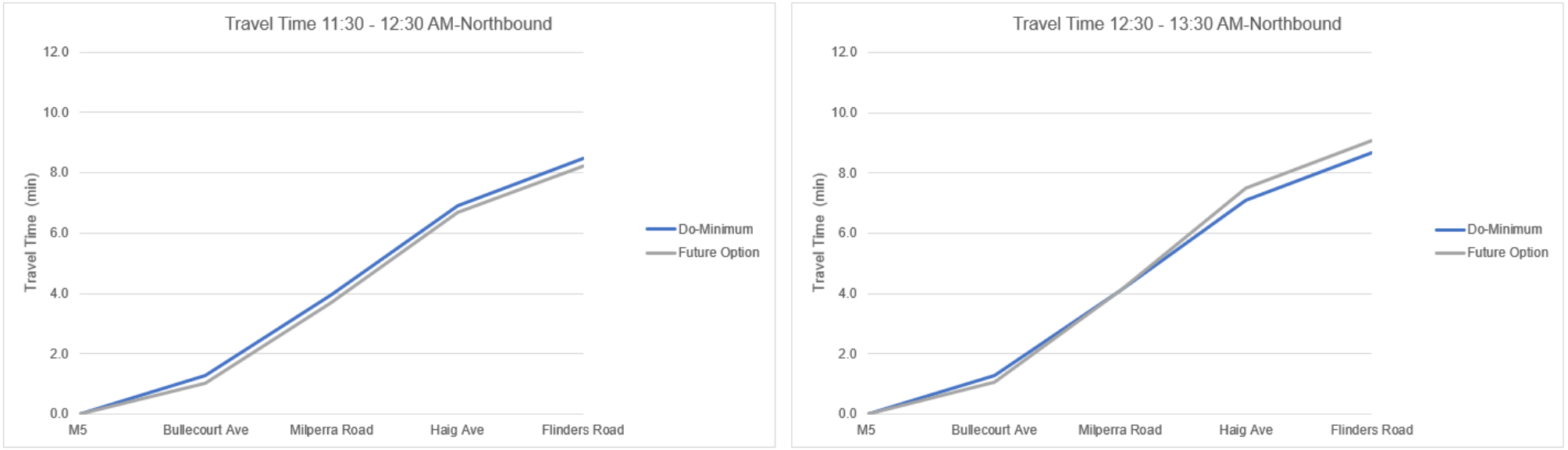


Figure 4-12: Henry Lawson Drive Northbound – 2031 Weekend Peak Modelled Travel Time Comparison

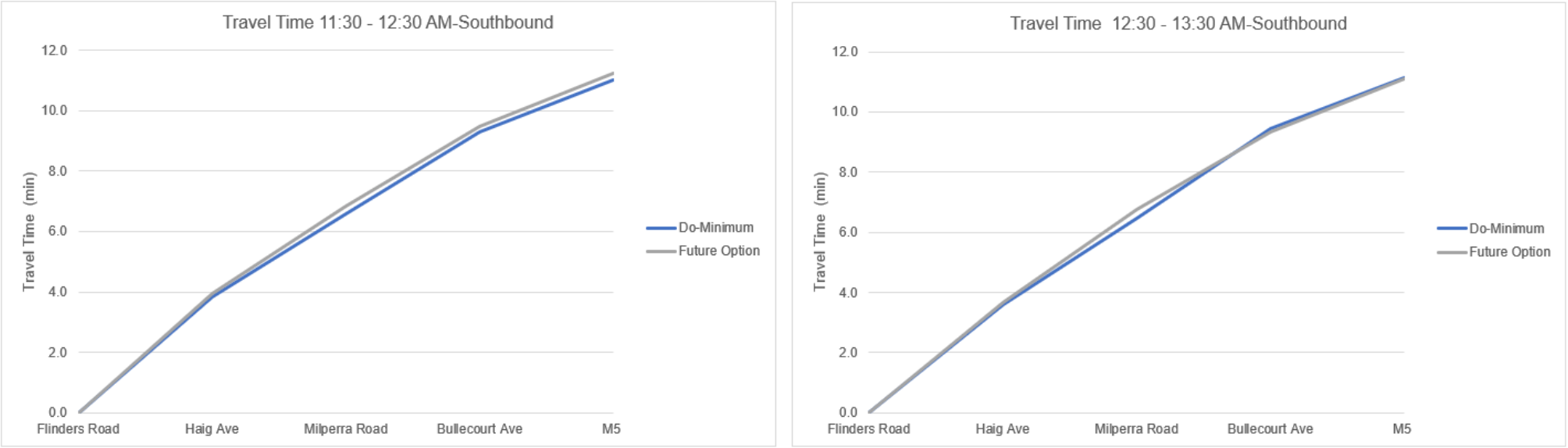
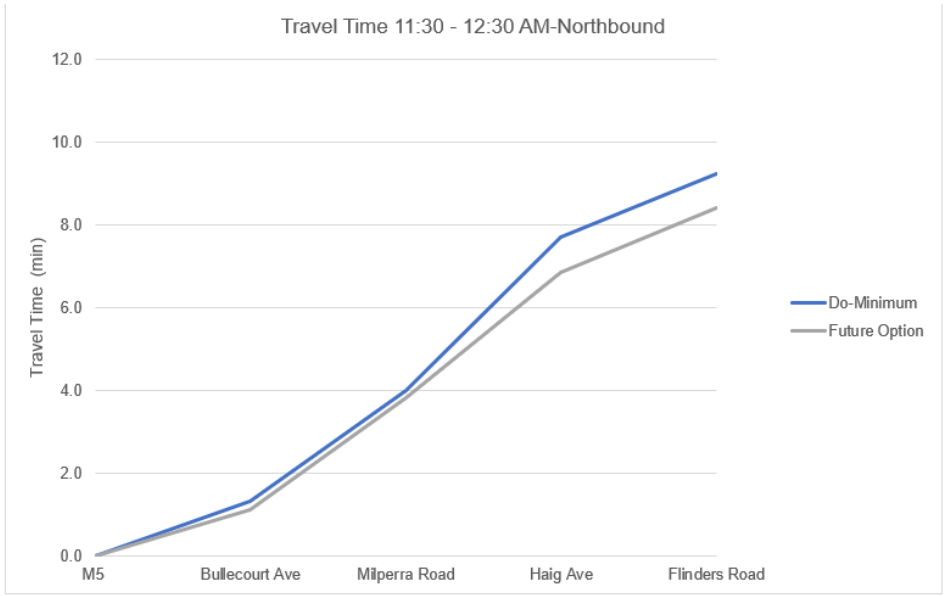


Figure 4-13: Henry Lawson Drive Southbound – 2031 Weekend Peak Modelled Travel Time Comparison



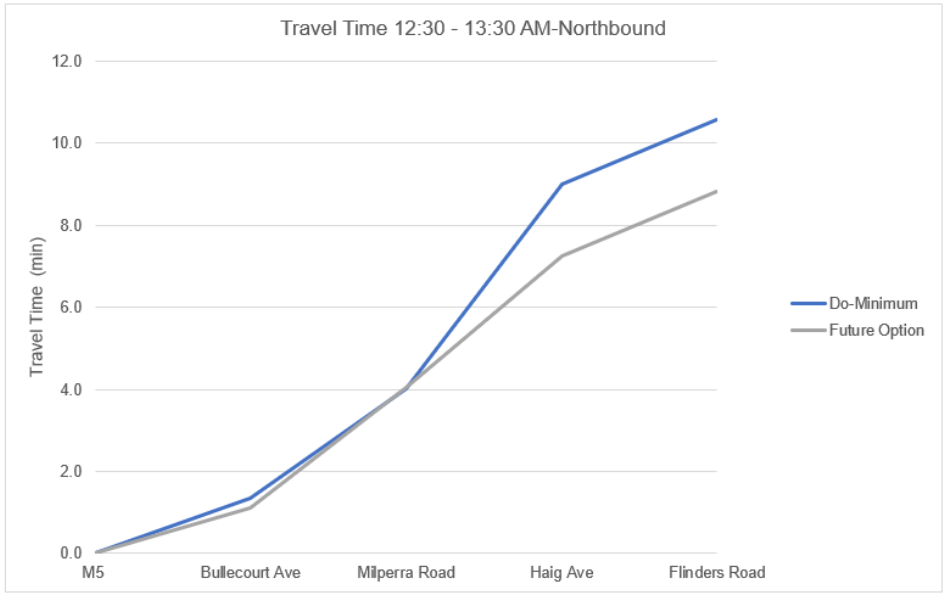
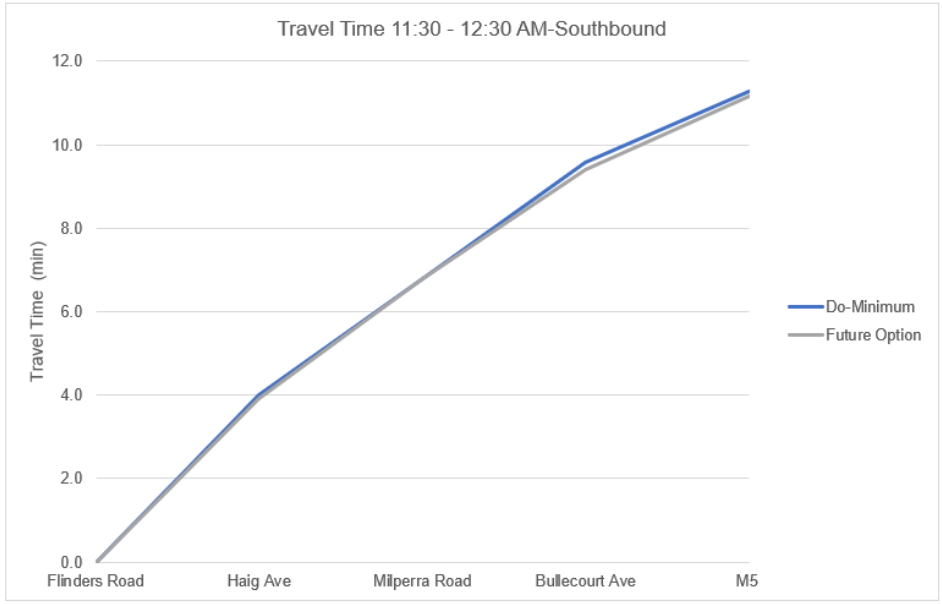


Figure 4-14: Henry Lawson Drive Northbound – 2041 Weekend Peak Modelled Travel Time Comparison



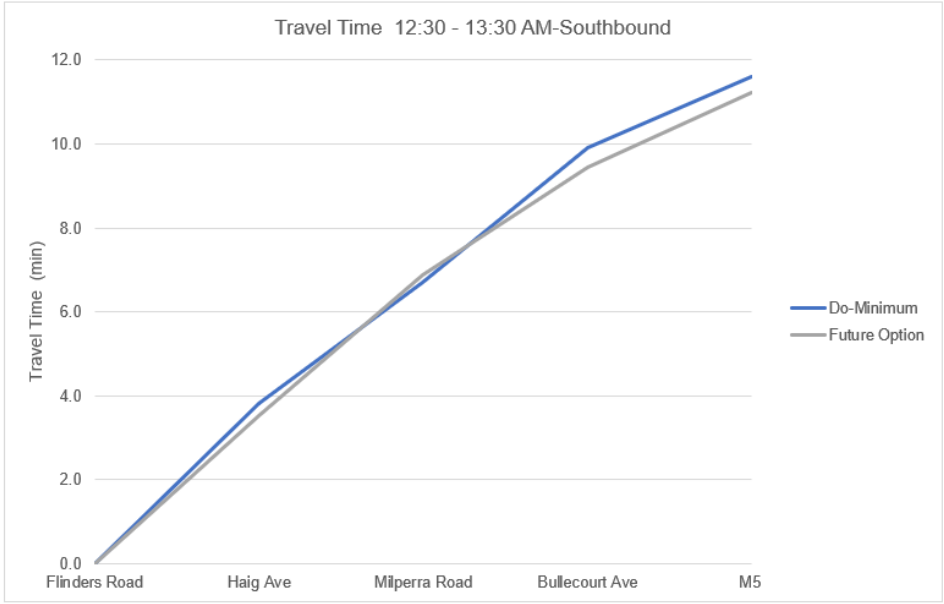


Figure 4-15: Henry Lawson Drive Southbound – 2041 Weekend Peak Modelled Travel Time Comparison

4.3 Intersection Level of Service

This section provides a simulated Level of Services (LOS) across the modelled time periods at the nine key intersections in the modelled area. The detailed results are presented in **Appendix B**.

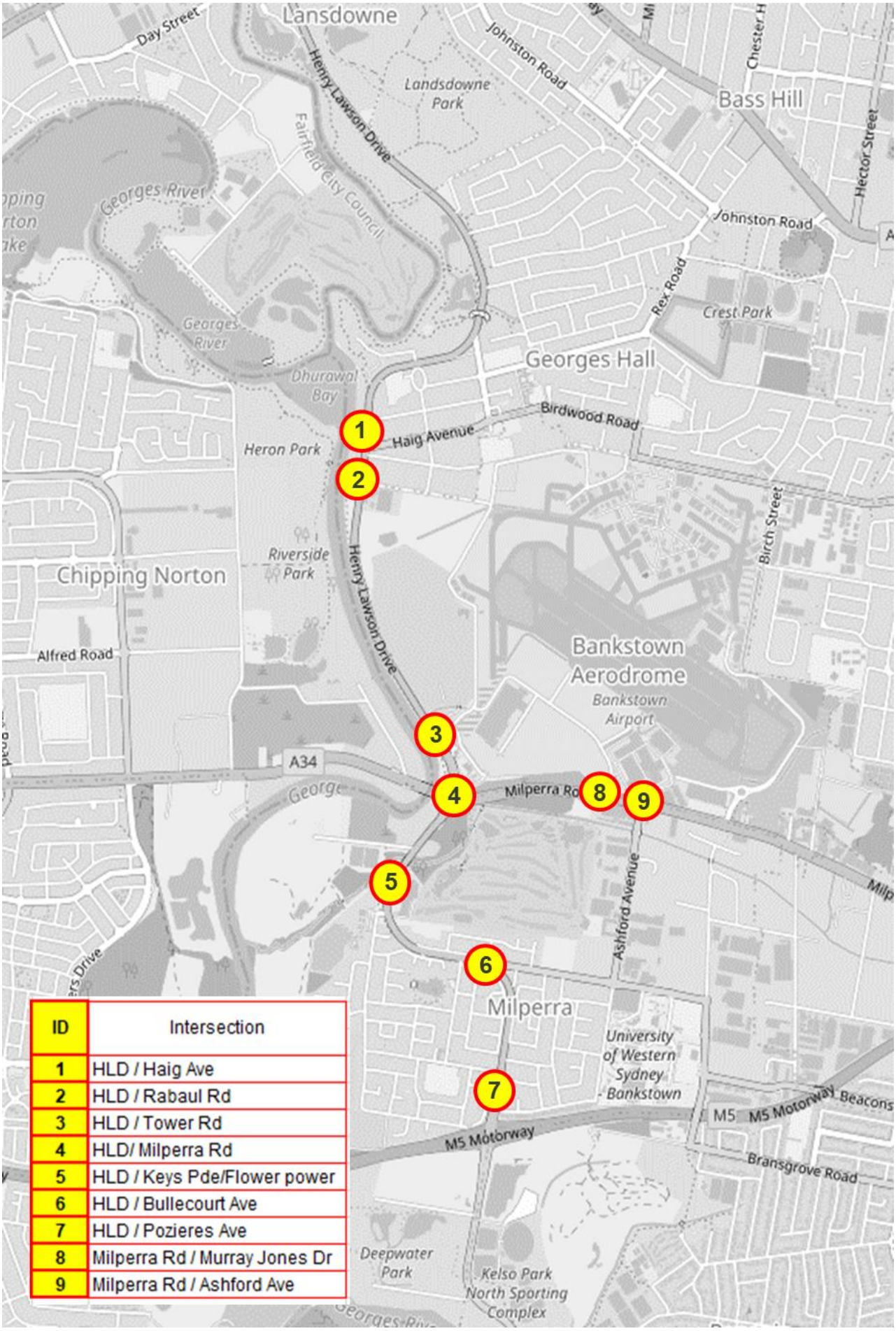
The key indicator of intersection performance level of service (LOS) is delay, where results are ranked on a scale from A to F as shown in Table 4-7 (Traffic Modelling Guidelines, 2013). As intersections become more congested, the delay increases, reducing the intersection LOS towards F. LOS F starts when the average delay reaches 70 seconds per vehicle and is the final category, regardless of how high delays reach. For traffic signals, the average movement delay and overall LOS for all movements is reported.

Intersections classified as LOS D are considered to operate within acceptable limits. Intersections classified as LOS E and F are not considered to operate within acceptable limits.

Table 4-7: Level of Service criteria in accordance with RMS Traffic Modelling Guidelines

Level of service	Average delay per vehicle (s)	Traffic Signal, Roundabouts	Give way and stop signs
A	<14	Good operation	Good operation
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity, at signals, incidents will cause excessive delays	At capacity, requires other control mode
F	>70	Unsatisfactory and requires additional capacity	Unsatisfactory and requires additional capacity

Figure 4-16 illustrates the key map where intersection locations and IDs are shown for readability.



ID	Intersection
1	HLD / Haig Ave
2	HLD / Rabaul Rd
3	HLD / Tower Rd
4	HLD/ Milperra Rd
5	HLD / Keys Pde/Flower power
6	HLD / Bullecourt Ave
7	HLD / Pozieres Ave
8	Milperra Rd / Murray Jones Dr
9	Milperra Rd / Ashford Ave

Figure 4-16: Key map with intersection locations and IDs

4.3.1 2031 AM Peak Period

Table 4-8 and Table 4-9 present a summary of the performance of the nine key intersections in the study area in 2031 AM peak.

Table 4-8: 2031 AM Peak Intersection Level of Service Summary 7:45 - 8:45 AM

ID	Intersection	Do minimum			Option		
		Volume	Delay (s)	LOS	Volume	Volume	Delay (s)
1	HLD / Haig Ave	2,816	101	F	2,832	100	F
2	HLD / Rabaul Rd	2,640	21	B	2,684	25	B
3	HLD / Tower Rd	3,298	30	C	3,329	37	C
4	HLD/ Milperra Rd	7,154	223	F	7,446	198	F
5	HLD / Keys Pde/Flower power	2,333	31	C	2,461	33	C
6	HLD / Bullecourt Ave	2,546	31	C	2,807	19	B
7	HLD / Pozieres Ave	2,707	18	B	2,728	18	B
8	Milperra Rd / Murray Jones Dr	4,184	43	D	4,259	14	A
9	Milperra Rd / Ashford Ave	4,622	47	D	4,669	30	C

Table 4-9: 2031 AM Peak Intersection Level of Service Summary 8:45 - 9:45 AM

ID	Intersection	Do minimum			Option		
		Volume	Delay (s)	LOS	Volume	Volume	Delay (s)
1	HLD / Haig Ave	2,935	100	F	2,978	81	F
2	HLD / Rabaul Rd	2,904	23	B	2,972	19	B
3	HLD / Tower Rd	3,400	39	C	3,598	43	D
4	HLD/ Milperra Rd	6,809	355	F	7,834	321	F
5	HLD / Keys Pde/Flower power	2,509	33	C	2,870	36	C
6	HLD / Bullecourt Ave	2,467	46	D	2,810	45	D
7	HLD / Pozieres Ave	2,376	32	C	2,460	16	B
8	Milperra Rd / Murray Jones Dr	3,620	159	F	4,279	68	E
9	Milperra Rd / Ashford Ave	3,973	80	F	4,549	43	D

Summary of 2031 AM modelling results discussed below:

- Below mentioned intersections are performing within acceptable operational limits for all scenarios in all time periods.
    - Henry Lawson Drive/ Rabaul Road
    - Henry Lawson Drive/ Tower Road
    - Henry Lawson Drive/ Keys Parade
    - Henry Lawson Drive/ Bullecourt Avenue
    - Henry Lawson Drive/ Pozieres Avenue
- These intersections do not operate within acceptable operational limits for all scenarios in all time periods.
    - Henry Lawson Drive/ Haig Avenue
    - Henry Lawson Drive/ Milperra Road

- These intersections operate within acceptable operational limits only for the Future Option scenario.
    - Milperra Road/ Murray Jones Drive
    - Milperra Road/ Ashford Avenue

- The Milperra Road and Newbridge Road intersection performs at LOS F with high delays in all scenarios and time periods. This suggests that the intersection does not have enough capacity to cater for the traffic demand.

- The Haig Avenue intersection performs at LOS F in all scenarios and time periods. Analysis of both scenarios modelling performance indicates that the high delays in the northbound are caused by increased volume of traffic at the intersection because of improved throughput south of intersection by virtue of the Stage 1A upgrade in both Do-Minimum and Option scenarios. The delay in the southbound direction is the result of only one lane running southbound, north of the Beale Street intersection and two lanes merge to one lane, south of the Rabaul Road intersection.

- The intersections at Keys Parade and Bullecourt Avenue have comparable results for both Do-Minimum and Future Option scenarios in 2031 AM peak period, albeit Do-Minimum scenario having less capacity on Henry Lawson Drive between these two intersections. The reason is, a good percentage of vehicles who accessed Henry Lawson Drive to reach Bullecourt Avenue in the Future Option scenario, are using Ashford Avenue to reach Bullecourt Avenue in the Do-Minimum scenario. However, this phenomenon is also impacting the performance of Ashford Avenue/ Milperra Road intersection in the Do-Minimum Scenario.

4.3.2 2041 AM Peak Period

Table 4-10 and Table 4-11 present a summary of the performance of the nine key intersections in the study area in 2041 AM peak.

Table 4-10: 2041 AM Peak Intersection Level of Service Summary 7:45 - 8:45 AM

ID	Intersection	Do minimum			Option		
		Volume	Delay (s)	LOS	Volume	Volume	LOS
1	HLD / Haig Ave	2,849	104	F	2,865	107	F
2	HLD / Rabaul Rd	2,672	22	B	2,688	27	B
3	HLD / Tower Rd	3,311	25	B	3,411	38	C
4	HLD/ Milperra Rd	7,036	242	F	7,599	215	F
5	HLD / Keys Pde/Flower power	2,213	26	B	2,620	48	D
6	HLD / Bullecourt Ave	2,490	40	C	3,012	35	C
7	HLD / Pozieres Ave	2,618	35	C	2,728	24	B
8	Milperra Rd / Murray Jones Dr	4,074	29	C	3,985	5	A
9	Milperra Rd / Ashford Ave	4,568	73	F	4,528	33	C

Table 4-11: 2041 AM Peak Intersection Level of Service Summary 8:45 - 9:45 AM

ID	Intersection	Do minimum			Option		
		Volume	Delay (s)	LOS	Volume	Volume	LOS
1	HLD / Haig Ave	2,941	97	F	3,084	106	F
2	HLD / Rabaul Rd	2,944	12	A	3,093	26	B
3	HLD / Tower Rd	3,470	33	C	3,590	66	E
4	HLD/ Milperra Rd	6,958	404	F	7,458	323	F
5	HLD / Keys Pde/Flower power	2,705	44	D	2,477	41	C
6	HLD / Bullecourt Ave	2,672	56	D	2,528	89	F
7	HLD / Pozieres Ave	2,633	53	D	2,025	111	F
8	Milperra Rd / Murray Jones Dr	3,895	172	F	4,173	8	A
9	Milperra Rd / Ashford Ave	4,349	117	F	4,648	35	C

Summary of 2041 AM modelling results discussed below:

- Henry Lawson Drive/ Rabaul Road intersection is performing within acceptable operational limits for all scenarios in all time periods.
- Below mentioned intersections do not operate within acceptable operational limits for all scenarios in all time periods.
    - Henry Lawson Drive/ Haig Avenue
    - Henry Lawson Drive/ Milperra Road
- These intersections operate within acceptable operational limits only for the Future Option scenario.
    - Milperra Road/ Murray Jones Drive
    - Milperra Road/ Ashford Avenue
- These intersections operate within acceptable operational limits only for the Do-Minimum scenario.
    - Henry Lawson Drive/ Tower Road
    - Henry Lawson Drive/ Keys Parade
    - Henry Lawson Drive/ Bullecourt Avenue
    - Henry Lawson Drive/ Pozieres Avenue
- The intersections at Keys Parade and Bullecourt Avenue are performing within acceptable operational limits for the Do-Minimum scenario in 2041 AM peak period, albeit Do-Minimum scenario having less capacity on Henry Lawson Drive between these two intersections. The reason is, a good percentage of vehicles who accessed Henry Lawson Drive to reach Bullecourt Avenue in the Future Option scenario, are using Ashford Avenue to reach Bullecourt Avenue in the Do-Minimum scenario. However, this phenomenon is negatively impacting the performance of Ashford Avenue/ Milperra Road and Milperra Road/ Murray Jones Drive intersections in the Do-Minimum Scenario.
- For instance, in 2041 AM (08:30–08:45 AM), 55% of total vehicles coming from north of the Milperra Road intersection used Henry Lawson Drive to reach Bullecourt Avenue and 45% used Ashford Avenue to reach Bullecourt Avenue in the case of Do-Minimum scenario. However, for the Future Option scenario, a staggering 89% of total vehicles used Henry Lawson Drive to reach Bullecourt Avenue in the same period. This explains the above phenomenon.

- In the Option Scenario, the Bullecourt Avenue intersection operates at LOS C in the first hour and deteriorates to LOS F in the second hour. This is because the right turn traffic movement from the south approach at the Bullecourt Avenue/ HLD intersection queues up because of spill back resulting from a capacity constraint along Bullecourt Avenue between Henry Lawson Drive and Ashford Avenue as illustrated in Figure 4-17. In the Do-Minimum Scenario, Bullecourt Avenue is less constrained because a great proportion of vehicles who accessed Henry Lawson Drive to reach Bullecourt Avenue in Future Option scenario, are using Ashford Avenue to reach Bullecourt Avenue. The Do-Minimum Scenario performs at LOS D or better.

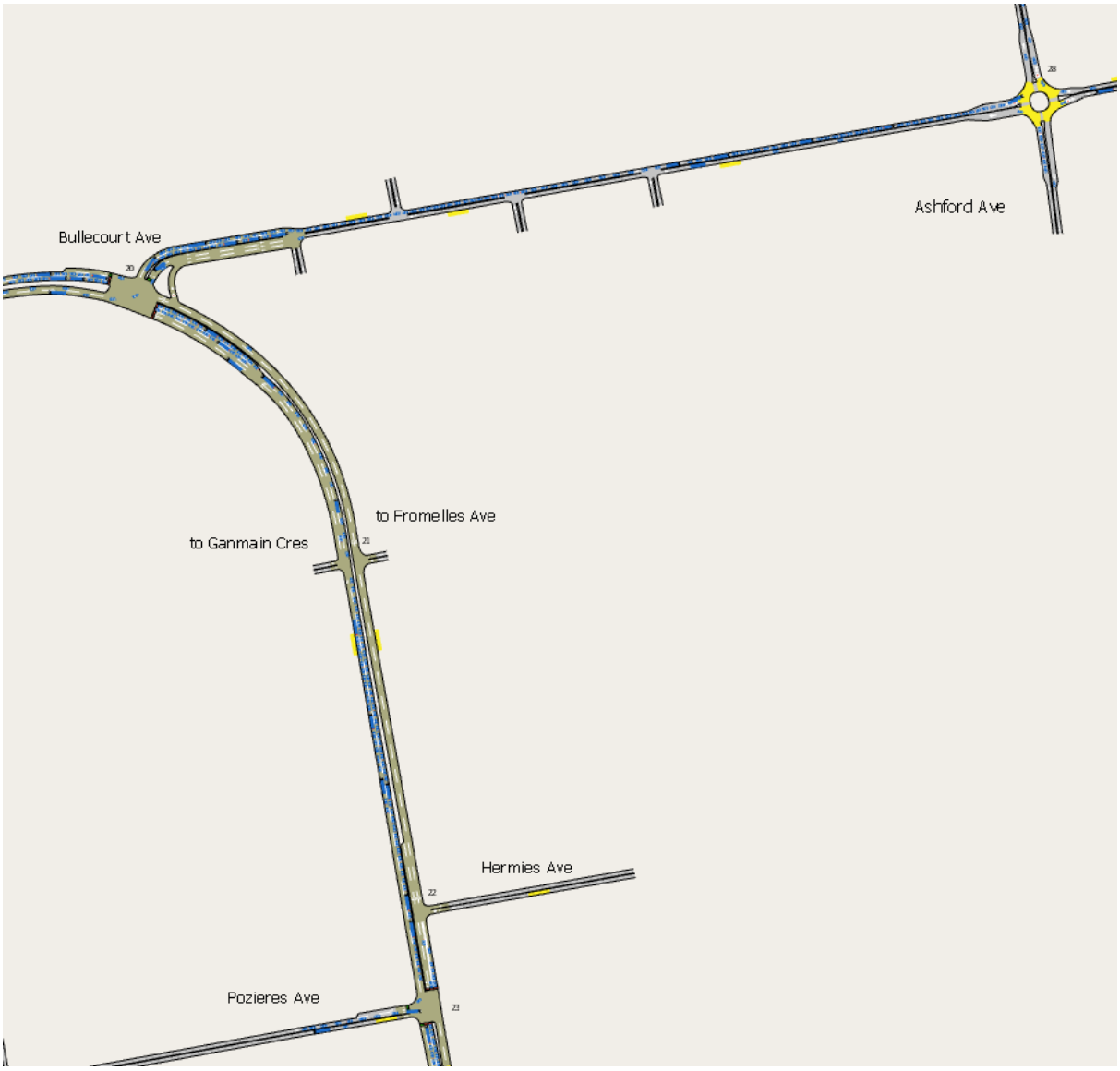


Figure 4-17: Queuing up at Bullecourt Avenue/ HLD intersection (2041 AM Peak Option Scenario)

- The Pozieres Avenue intersection performs at LOS D or better in the Do-Minimum scenario. The performance in the Future Option scenario deteriorates from LOS B in the first hour to LOS F in the second hour due to traffic congestion propagating from the Bullecourt Avenue intersection to the Pozieres Avenue intersection as shown in Figure 4-17.

- The Milperra Road/ Ashford Avenue intersection is expected to operate at LOS D or better in the Options Scenario. The Do-Minimum Scenario would operate at LOS F in 2041 AM peak period with high delay particularly in the second peak hour, impacting the performance of the adjacent Milperra Road/ Murray Jones Drive intersection. This can be attributed to the extra vehicles coming from the North and West of Milperra Road/ Henry Lawson Drive intersection using Ashford Avenue to reach Bullecourt Avenue.

In general, 2041 AM results suggest that the delays will increase impacting the LOS in comparison to 2031 AM.

4.3.3 2031 PM Peak Period

Table 4-12 and Table 4-13 present a summary of the performance of the nine key intersections in the study area in 2031 PM peak.

Table 4-12: 2031 PM Peak Intersection Level of Service Summary 3:30 - 4:30 PM

ID	Intersection	Do minimum			Option		
		Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
1	HLD / Haig Ave	2,422	184	F	2,509	163	F
2	HLD / Rabaul Rd	2,398	78	F	2,517	49	D
3	HLD / Tower Rd	2,962	22	B	3,053	19	B
4	HLD/ Milperra Rd	6,882	333	F	7,325	322	F
5	HLD / Keys Pde/Flower power	2,412	29	C	2,659	18	B
6	HLD / Bullecourt Ave	2,354	41	C	2,730	18	B
7	HLD / Pozieres Ave	2,464	19	B	2,559	10	A
8	Milperra Rd / Murray Jones Dr	4,242	16	B	4,197	29	C
9	Milperra Rd / Ashford Ave	4,571	114	F	4,589	148	F

Table 4-13: 2031 PM Peak Intersection Level of Service Summary 4:30 - 5:30 PM

ID	Intersection	Do minimum			Option		
		Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
1	HLD / Haig Ave	2,146	286	F	2,270	259	F
2	HLD / Rabaul Rd	2,495	96	F	2,609	85	F
3	HLD / Tower Rd	2,993	41	C	3,105	18	B
4	HLD/ Milperra Rd	7,039	475	F	7,520	445	F
5	HLD / Keys Pde/Flower power	2,699	46	D	2,722	56	D
6	HLD / Bullecourt Ave	2,455	78	F	2,789	20	B
7	HLD / Pozieres Ave	2,275	84	F	2,360	11	A
8	Milperra Rd / Murray Jones Dr	4,056	44	D	3,929	58	E
9	Milperra Rd / Ashford Ave	4,400	143	F	4,260	214	F

Summary of 2031 PM modelling results discussed below:

- Below mentioned intersections are performing within acceptable operational limits for all scenarios in all time periods.
    - Henry Lawson Drive/ Tower Road
    - Henry Lawson Drive/ Keys Parade
- These intersections do not operate within acceptable operational limits for all scenarios in all time periods.
    - Henry Lawson Drive/ Haig Avenue
    - Henry Lawson Drive/ Milperra Road
    - Milperra Road/ Ashford Avenue
- These intersections operate within acceptable operational limits only for the Future Option scenario.
    - Henry Lawson Drive/ Bullecourt Avenue
    - Henry Lawson Drive/ Pozieres Avenue

- The Milperra Road/ Murray Jones Drive intersection operates within acceptable operational limits only for the Do-Minimum scenario. This intersection only .just eclipses acceptable LOS criteria in the 2nd hour of the PM peak with the future option scenario

- The Milperra Road and Newbridge Road intersection would perform at LOS F with high delays in all scenarios and time periods. This suggests that the intersection does not have enough capacity to cater for the traffic demand.

- The Haig Avenue intersection performs at LOS F in all scenarios and time periods. Analysis of both scenarios modelling performance indicates that the high delays in the northbound are caused by increased volume of traffic at the intersection because of improved throughput south of intersection by virtue of the Stage 1A upgrade in both Do-Minimum and Option scenarios. The delay in the southbound direction is the result of only one lane running southbound, north of the Beale Street intersection and two lanes merge to one lane, south of the Rabaul Road intersection.

- For the Do-Minimum scenario, the Bullecourt Avenue intersection performs at LOS C during first hour and the performance deteriorates to LOS F in the second hour. For the Option scenario, the Bullecourt Avenue intersection operates at LOS B. The deterioration in performance for the Do-Minimum is due to the formation of queues on the Keys Parade south approach which propagates traffic shockwaves to downstream resulting in congestion at the Bullecourt Avenue intersection. This effect in the Do-Minimum Scenario is due to less capacity in comparison to the Option scenario.
- The Pozieres Avenue intersection performs at LOS A in the Option Scenario. The performance in the Do-Minimum Scenario is LOS B during the first hour and it deteriorates to LOS F in the second hour.

4.3.4 2041 PM Peak Period

Table 4-14 and Table 4-15 present a summary of the performance of the nine key intersections in the study area in 2041 PM peak.

Table 4-14: 2041 PM Peak Intersection Level of Service Summary 3:30 - 4:30 PM

ID	Intersection	Do minimum			Option		
		Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
1	HLD / Haig Ave	2,358	182	F	2,412	159	F
2	HLD / Rabaul Rd	2,338	72	F	2,398	43	D
3	HLD / Tower Rd	2,793	28	B	2,793	17	B
4	HLD/ Milperra Rd	7,355	309	F	7,569	316	F
5	HLD / Keys Pde/Flower power	2,554	36	C	2,710	23	B
6	HLD / Bullecourt Ave	2,444	39	C	2,792	19	B
7	HLD / Pozieres Ave	2,702	44	D	2,862	18	B
8	Milperra Rd / Murray Jones Dr	4,527	11	A	4,549	17	B
9	Milperra Rd / Ashford Ave	4,883	82	F	4,929	65	E

Table 4-15: 2041 PM Peak Intersection Level of Service Summary 4:30 - 5:30 PM

ID	Intersection	Do minimum			Option		
		Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
1	HLD / Haig Ave	2,155	285	F	2,202	254	F
2	HLD / Rabaul Rd	2,462	95	F	2,545	77	F
3	HLD / Tower Rd	2,742	42	C	2,857	17	B
4	HLD/ Milperra Rd	7,431	454	F	7,944	442	F
5	HLD / Keys Pde/Flower power	2,720	43	D	2,883	96	F
6	HLD / Bullecourt Ave	2,436	61	E	2,794	34	C
7	HLD / Pozieres Ave	2,366	98	F	2,638	15	B
8	Milperra Rd / Murray Jones Dr	4,378	40	C	4,345	51	D
9	Milperra Rd / Ashford Ave	4,758	143	F	4,690	196	F

Summary of 2041 PM modelling results discussed below:

- Below mentioned intersections are performing within acceptable operational limits for all scenarios in all time periods.
    - Henry Lawson Drive/ Tower Road
    - Milperra Road/ Murray Jones Drive
- These intersections do not operate within acceptable operational limits for all scenarios in all time periods.
    - Henry Lawson Drive/ Haig Avenue
    - Henry Lawson Drive/ Milperra Road
    - Milperra Road/ Ashford Avenue
- These intersections operate within acceptable operational limits only for the Future Option scenario.
    - Henry Lawson Drive/ Bullecourt Avenue
    - Henry Lawson Drive/ Pozieres Avenue
- The Henry Lawson Drive/ Keys Parade intersection operates within acceptable operational limits only for the Do-Minimum scenario.
- The Keys Parade intersection performs at LOS D (in the second hour) on the ‘without proposal’ scenario compared to LOS F in the ‘with project’ scenario. This can be attributed to the northbound capacity issues present on the upstream Bullecourt Avenue and Pozieres Avenue intersections with Henry Lawson Drive in the ‘without project’ scenario, as evidenced by the lower intersection throughput volumes and longer northbound travel times compared to the ‘with project’ scenario seen in Table 4-5.

For both 2031 and 2041 scenarios, the results suggest a better performance for the Option Scenario in comparison to the Do-Minimum Scenario in the PM peak period.

4.3.5 2031 Weekend Peak Period

Table 4-16 and Table 4-17 present a summary of the performance of the nine key intersections in the study area in 2031 weekend peak.

Table 4-16: 2031 Weekend Peak Intersection Level of Service Summary 11:30 AM - 12:30 PM

ID	Intersection	Do minimum			Option		
		Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
1	HLD / Haig Ave	2,969	88	F	2,958	92	F
2	HLD / Rabaul Rd	2,806	8	A	2,790	8	A
3	HLD / Tower Rd	3,356	19	B	3,309	22	B
4	HLD/ Milperra Rd	7,144	70	E	7,302	65	E
5	HLD / Keys Pde/Flower power	2,762	19	B	2,582	31	C
6	HLD / Bullecourt Ave	2,175	25	B	2,394	21	B
7	HLD / Pozieres Ave	2,493	13	A	2,442	12	A
8	Milperra Rd / Murray Jones Dr	4,313	4	A	4,252	6	A
9	Milperra Rd / Ashford Ave	4,702	61	E	4,706	29	C

Table 4-17: 2031 Weekend Peak Intersection Level of Service Summary 12:30 - 01:30 PM

ID	Intersection	Do minimum			Option		
		Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
1	HLD / Haig Ave	3,272	87	F	3,275	93	F
2	HLD / Rabaul Rd	3,189	8	A	3,194	12	A
3	HLD / Tower Rd	3,625	21	B	3,652	26	B
4	HLD/ Milperra Rd	7,506	105	F	7,429	70	E
5	HLD / Keys Pde/Flower power	2,746	18	B	2,594	33	C
6	HLD / Bullecourt Ave	2,173	25	B	2,326	23	B
7	HLD / Pozieres Ave	2,427	12	A	2,441	11	A
8	Milperra Rd / Murray Jones Dr	4,429	18	B	4,056	11	A
9	Milperra Rd / Ashford Ave	4,801	83	F	4,475	43	D

Summary of 2031 weekend modelling results discussed below:

- Below mentioned intersections are performing within acceptable operational limits for all scenarios in all time periods.
    - Henry Lawson Drive/ Rabaul Road
    - Henry Lawson Drive/ Tower Road
    - Henry Lawson Drive/ Keys Parade
    - Henry Lawson Drive/ Bullecourt Avenue
    - Henry Lawson Drive/ Pozieres Avenue
    - Milperra Road/ Murray Jones Drive
- These intersections do not operate within acceptable operational limits for all scenarios in all time periods.
    - Henry Lawson Drive/ Haig Avenue
    - Henry Lawson Drive/ Milperra Road

- The Milperra Road/ Ashford Avenue intersection operates within acceptable operational limits only for the Future Option scenario.

- The Milperra Road and Newbridge Road intersection would perform at LOS E in the first hour and the performance deteriorates to LOS F in the second hour for Do-Minimum and LOS E in the Future Option scenario. This suggests that the intersection does not have enough capacity to cater for the traffic demand. In general, the delay is considerably low in comparison to AM and PM peak periods.
- The Haig Avenue intersection performs at LOS F in all scenarios and time periods. Analysis of both scenarios modelling performance indicates that the delays in the northbound are caused by increased volume of traffic at the intersection because of improved throughput south of intersection by virtue of the Stage 1A upgrade in both Do-Minimum and Option scenarios. The delay in the southbound direction is the result of only one lane running southbound, north of the Beale Street intersection and two lanes merge to one lane, south of the Rabaul Road intersection.

- The Milperra Road/ Ashford Avenue intersection would perform at LOS D or better in the Option Scenario. However, the intersection is expected to operate at LOS F in the Do-Minimum Scenario.

4.3.6 2041 Weekend Peak Period

Table 4-18 and Table 4-19 present a summary of the performance of the nine key intersections in the study area in 2041 weekend peak.

Table 4-18: 2041 Weekend Peak Intersection Level of Service Summary 11:30 AM - 12:30 PM

ID	Intersection	Do minimum			Option		
		Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
1	HLD / Haig Ave	2,977	103	F	3,032	91	F
2	HLD / Rabaul Rd	2,772	15	B	2,854	8	A
3	HLD / Tower Rd	3,358	20	B	3,381	22	B
4	HLD/ Milperra Rd	7,345	71	F	7,644	76	F
5	HLD / Keys Pde/Flower power	2,851	18	B	2,952	29	C
6	HLD / Bullecourt Ave	2,205	24	B	2,620	23	B
7	HLD / Pozieres Ave	2,547	14	A	2,563	13	A
8	Milperra Rd / Murray Jones Dr	4,418	5	A	4,472	12	A
9	Milperra Rd / Ashford Ave	4,812	52	D	4,832	32	C

Table 4-19: 2041 Weekend Peak Intersection Level of Service Summary 12:30 - 01:30 PM

ID	Intersection	Do minimum			Option		
		Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
1	HLD / Haig Ave	3,349	104	F	3,344	87	F
2	HLD / Rabaul Rd	3,217	19	B	3,257	11	A
3	HLD / Tower Rd	3,692	35	C	3,736	29	C
4	HLD/ Milperra Rd	7,563	92	F	7,757	97	F
5	HLD / Keys Pde/Flower power	2,768	19	B	2,992	28	B
6	HLD / Bullecourt Ave	2,199	27	B	2,662	27	B
7	HLD / Pozieres Ave	2,437	13	A	2,488	11	A
8	Milperra Rd / Murray Jones Dr	4,418	11	A	4,389	21	B
9	Milperra Rd / Ashford Ave	4,826	86	F	4,696	29	C

In 2041 weekend, for the Do-Minimum and Option Scenario, the overall LOS would not differ much from the 2031 modelled values.

For both 2031 and 2041 scenarios, the results suggest that the weekend modelling produces comparable performance for the Do-Minimum Scenario and Option Scenario.

5 Summary and Conclusions

This report has been prepared to document the development of future scenarios and assess their performance.

The following lists some of the key items of the study:

- Two scenarios along the Henry Lawson Drive were considered, the Do-Minimum Scenario and Option Scenario.
- Both the scenarios were modelled for the opening year (2031) and ten years after (2041).
- The traffic demands used for the future year models were developed from the 2021, 2031 and 2041 STFM sub-area matrices and link volume plots provided by TfNSW as part of the project.

The modelling results have been assessed in the form of overall network statistics, corridor travel time and key intersection delay, including the Level of Service (LOS):

Network Performance Statistics

- Across the future year scenarios, the results suggest a slightly better performance for the Option Scenario compared to the Do-Minimum Scenario in AM, PM and weekend peaks for both 2031 and 2041.
- There is a significant increase in the number of unreleased vehicles and incomplete trips compared to the Base Case Scenario, which increases incrementally from years 2031 to 2041, suggesting an insufficiency in network capacity to cater for the growing traffic demand.

Level of Service (LOS)

- The intersections at Keys Parade and Bullecourt Avenue have comparable results for both Do-Minimum and Future Option scenarios in 2031 AM peak period, albeit Do-Minimum scenario having less capacity on Henry Lawson Drive between these two intersections. This is because a good percentage of vehicles who access Henry Lawson Drive to reach Bullecourt Avenue in the Future Option scenario, are using Ashford Avenue via Milperra Road to reach Bullecourt Avenue in the Do-Minimum scenario. However, this phenomenon is impacting the performance of Ashford Avenue/ Milperra Road intersection in the Do-Minimum scenario. This effect is more pronounced in 2041 AM peak period.
- For both 2031 and 2041 scenarios, the results suggest a better performance for the Option Scenario in comparison to the Do-Minimum Scenario in the PM peak period. The weekend modelling produces comparable performance for the Do-Minimum Scenario and Option Scenario, except for the Milperra Road/ Ashford Avenue intersection, where the delay is high for the Do-Minimum.
- For 2041 AM peak period, in the Option Scenario, the Bullecourt Avenue intersection operates at LOS C in the first hour and deteriorates to LOS F in the second hour. This is because the right turn traffic movement from the south approach at the Bullecourt Avenue/ HLD intersection queues up because of spill back resulting from a capacity constraint along Bullecourt Avenue between Henry Lawson Drive and Ashford Avenue. This traffic congestion propagates further downstream impacting the performance of Pozieres Avenue intersection. However, in the Do-Minimum Scenario, Bullecourt Avenue is less constrained because a great proportion of vehicles who accessed Henry Lawson Drive to reach Bullecourt Avenue in Future Option scenario, are using Ashford Avenue to reach Bullecourt Avenue. The Do-Minimum Scenario performs at LOS D or better.
- In general, 2041 AM and PM results suggest that the delays will increase impacting the LOS in comparison to the 2031 AM and PM due to increased demand in 2041. However, in 2041 weekend for the Do-Minimum and Option Scenario, the overall LOS would not differ much from the 2031 modelled values.

- The Milperra Road and Newbridge Road intersection would perform at unacceptable LOS E or LOS F in all scenarios and time periods. The modelled delays are high, suggesting that the intersection does not have enough capacity to cater for the traffic demand in the tested scenarios.
- The Haig Avenue intersection performs at LOS F in all scenarios and time periods. Analysis of both scenarios modelling performance indicates that the high delays in the northbound are caused by increased volume of traffic at the intersection because of improved throughput south of intersection by virtue of the Stage 1A upgrade in both Do-Minimum and Option scenarios. The delay in the southbound direction is the result of only one lane running southbound, north of the Beale Street intersection and two lanes merge to one lane, south of the Rabaul Road intersection.
- It should be noted that the Henry Lawson Drive traffic performance will likely see its best benefits once all upgrade stages are completed. With only the Stage 1A and Stage 1B upgrades, the merging from two to one lane located north of the Tower Road acts as a bottleneck, impacting the performance of upstream vehicles travelling along the corridor.

Henry Lawson Drive Travel Time

- The 2031 AM peak period shows an average reduction in travel time in the northbound and southbound directions compared to the Do Minimum scenario. In 2041, there would be an increase in travel times in the northbound direction in the future upgrade scenario compared to the Do Minimum scenario, with negligible difference in travel time in the southbound direction. This would be due to queue spill back at the Bullecourt Avenue / Henry Lawson Drive intersection.
- During PM peak periods, Henry Lawson Drive northbound travel time is expected to decrease by over five minutes in 2031 and five and a half minutes in 2041 in the Future Upgrade scenario compared to the Do Minimum scenario. This is due to there being higher demand for northbound traffic in 2041. The average southbound travel time along Henry Lawson Drive is expected to increase by 20 seconds in the Future Upgrade scenario compared to the Do Minimum scenario in 2031 and by a minute in 2041. The segment of Henry Lawson Drive specifically between Flinders Road and Haig Avenue if predicted to be the most impacted by the Future Option delays.
- During the weekend peak in 2031, the average northbound and southbound travel times along Henry Lawson Drive are likely to be similar in both the Do Minimum and Future Upgrade scenarios. The average southbound travel time along Henry Lawson Drive is expected to be marginally different between the Future Upgrade scenario and the Do Minimum scenario in 2041, with northbound travel times improving by almost one and a half minutes. This is due to the network being able to accommodate weekend demand in both 2031 and 2041.
- In the northbound and southbound directions, high delays are observed at the Milperra Road intersection for all tested scenarios and time periods in both 2031 and 2041.
- The travel time results suggest a better performance for the Future Upgrade scenario compared to the Do Minimum scenario in all time periods modelled, 2041 AM peak period being an exception.

Appendix A: Base Model Development Report

Henry Lawson Drive Upgrade - Stage 1B

Base Model: Calibration and Validation Report

Transport for NSW

Reference: 520566

Revision: 1

2022-11-23

aurecon

Bringing ideas to life

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Abbreviations

	Geoffrey E. Havers; the GEH Statistic is a formula used in traffic modelling to compare two sets of traffic volume data.
GEH	$$GEH = \sqrt{\frac{2 * (Observed - Modelled)^2}{(Observed + Modelled)}}$$
OD	Origin/ Destination zone pair in the model and demand matrices
OSM	OpenStreetMap

1 Introduction

1.1 Background

Aurecon was commissioned by Transport for NSW (TfNSW) to deliver the Concept Design Services for Henry Lawson Drive (HLD) upgrade Stage 1B. For traffic and transportation study, a microsimulation corridor model of Henry Lawson Drive in the study area is required. This model is intended to be used for testing few potential upgrade options. The options modelling will enable TfNSW to test different combinations of upgrades to determine the best possible option to implement on the network to improve network performance.

As part of the model development process, Aurecon undertook a model calibration and validation exercise to ensure that the model developed is fit-for-purpose and can be used for option evaluation. The methodology and parameters adopted for the base model are aligned to the TfNSW Traffic Modelling Guidelines (Modelling Guidelines).

This report outlines the steps undertaken in the development of the Base model, data analysis, network coding and results of model calibration and validation. This document does not include discussion of the various option packages that will be tested from the base model. A separate option modelling report will subsequently be provided to outline the various options, corresponding results, and analysis.

1.2 Project Background

Transport for NSW is investigating the upgrade of 7.5-kilometre stretch of Henry Lawson Drive between M5 Motorway, Milperra, Lansdowne and Hume Highway. The route corridor of Henry Lawson Drive serves as a major north-south link for movement of freight and general traffic. The land use in the vicinity of the corridor includes a mix of residential, industrial and retail land use as well as airport facilities. The upgrade would help in ensuring that the road corridor can meet growing traffic demand, with residential, commercial, and industrial development expected to increase in the coming years.

The upgrade would be carried out in four stages (Stages 1A, 1B, 2 and 3).

The Stage 1A upgrade of Henry Lawson Drive would provide more capacity for vehicles travelling through the intersection of Henry Lawson Drive, Milperra Road and Newbridge Road. It would improve efficiency along the corridor and safety for motorists and pedestrians.

This project, Stage 1B involves upgrade of Henry Lawson Drive along a 1.8-kilometre section between Keys Parade and the approach to the M5 Motorway. The upgrade of key intersections and widening of Henry Lawson Drive would improve traffic capacity, decrease travel time, and enhance and driver safety.

1.2.1 Objectives

The main objectives in developing the microsimulation model are as follows:

- Develop a base case microsimulation model in accordance with the TfNSW Traffic Modelling Guidelines Version 1.0[1] to ensure that it is fit-for-purpose to test future year option scenarios.
- Develop future year flows based on STFM outputs.
- Assess the proposed options along Henry Lawson Drive
- Identify short comings of each option and provide potential remediations to minimise congestion in the study area.

The project study area covers Henry Lawson Drive between Hume Highway and M5 Motorway as shown in Figure 1-1 below.

[1] The latest version of the guidelines - Version 1.0, released in February 2013 have been utilised for this project.

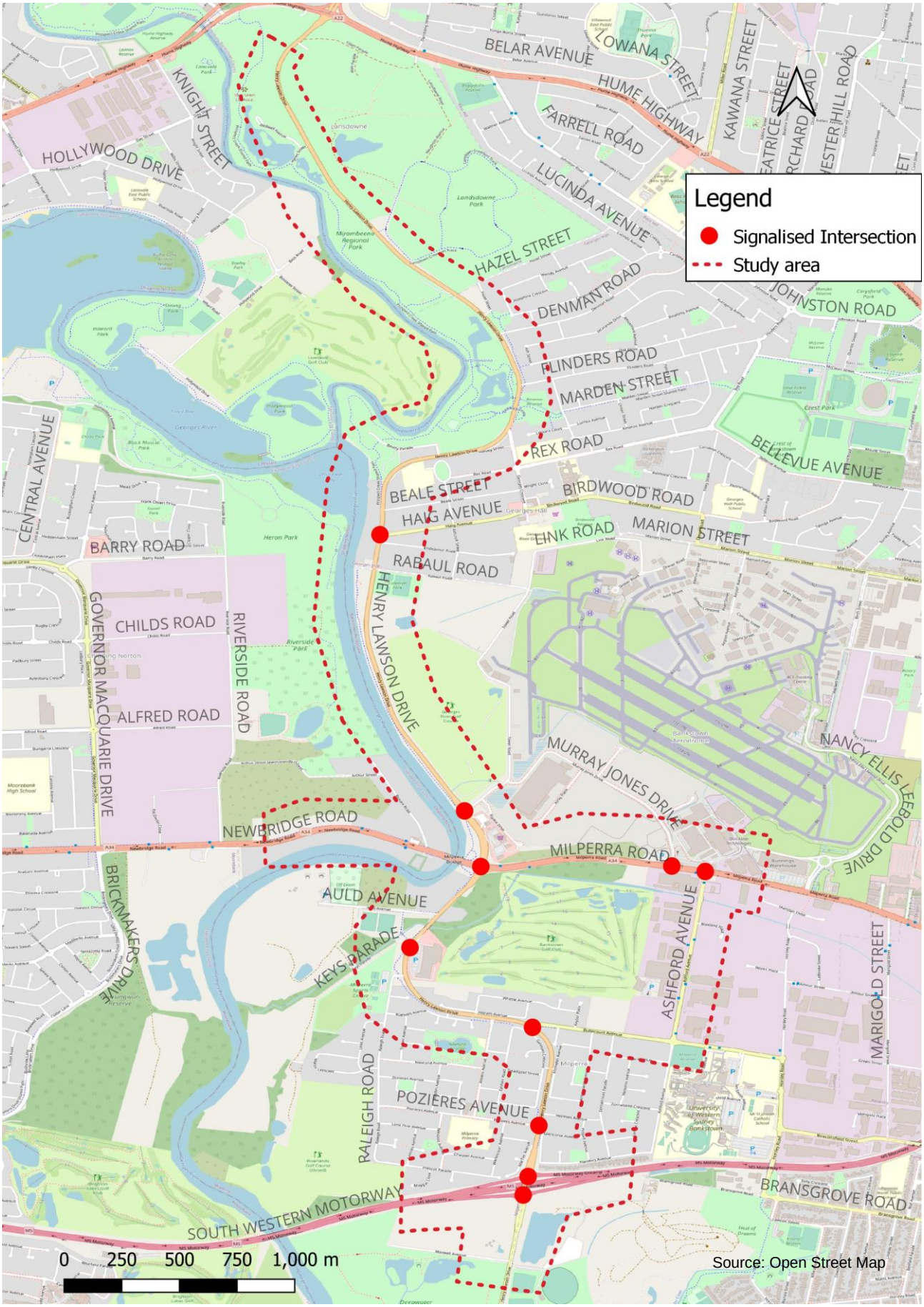


Figure 1-1: Henry Lawson Drive Stage 1B model study area

2 Model Form

The development of the model has been undertaken using the Aimsun software suite. Aimsun is an integrated modelling tool which is often used for large scale and complex networks. Aimsun allows different model tiers to be developed in a single model file, resulting in improved route choice network assignment. The geometry configuration function in Aimsun also allows users to code and manage different model options in a single model file.

As part of concept design for Henry Lawson Drive Stage 1A, a microsimulation traffic model was developed using Aimsun Next Version 20.0.3. For Stage 1B, the existing Aimsun model was extended to include the section of Henry Lawson Drive between Keys Parade and South-Western Motorway (M-5). Further, it is suggested that the same version be used for future option testing.

2.1 Methodology

The key steps in the modelling process include the following:

- Network development and refinement that involved extension of existing model for Henry Lawson Drive Stage 1A to include Stage 1B study area network.
- Traffic demand estimation
- Model calibration and validation.

Data inputs used for the base model and their sources are discussed at length in Chapter 3. Figure 2-1 illustrates the general modelling methodology adopted in building the base model.

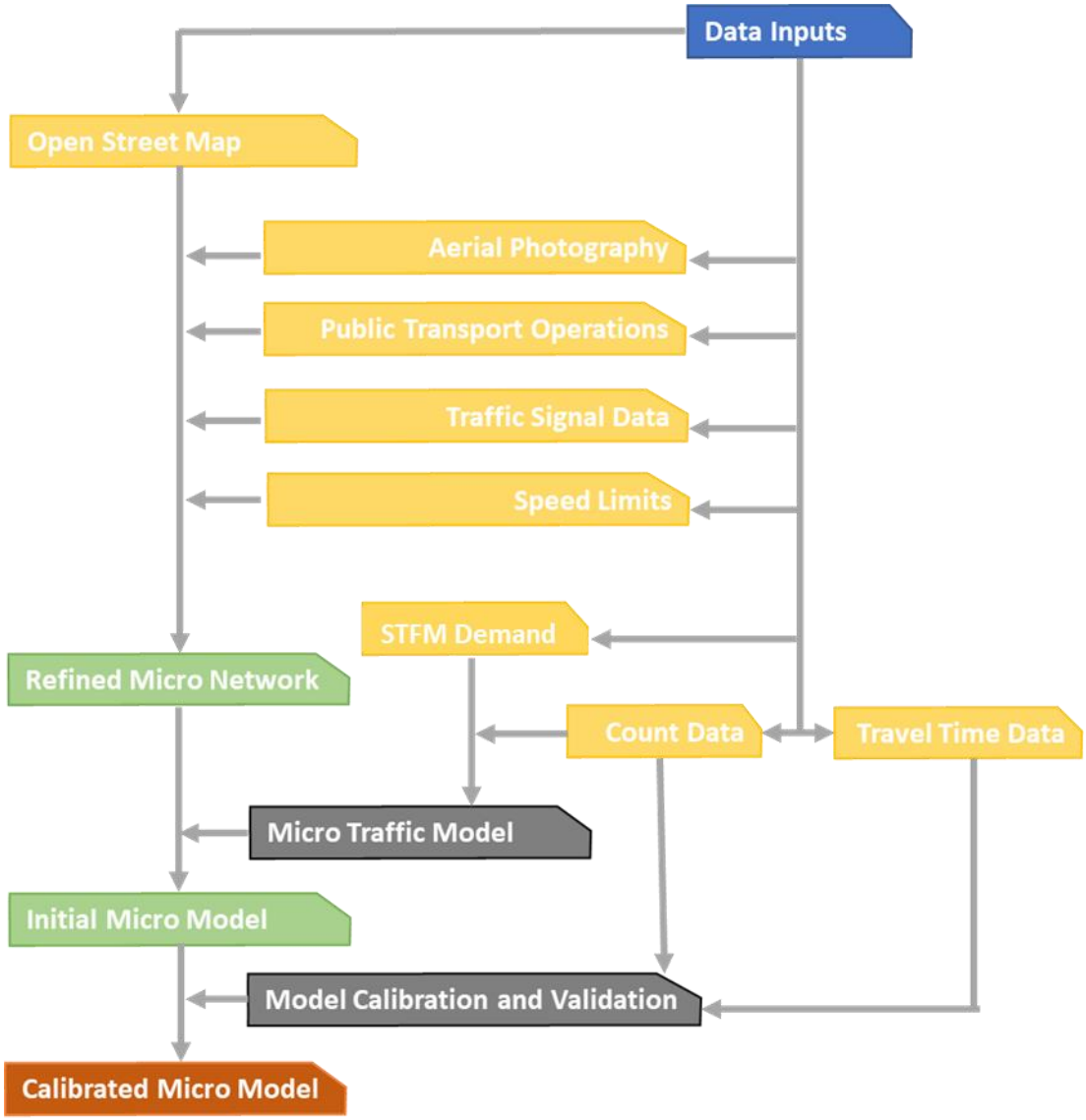


Figure 2-1: Methodology Overview

2.2 Model Network

The modelled base network includes the following mainline extents:

- Henry Lawson Drive southbound between south of Hume Highway and south of M5 motorway off-ramp.
- Henry Lawson Drive northbound between south of M5 Motorway on-ramp and south of Hume Highway.

Figure 2-2 shows the Aimsun base model network, which aligns with the study area in Figure 1-1.

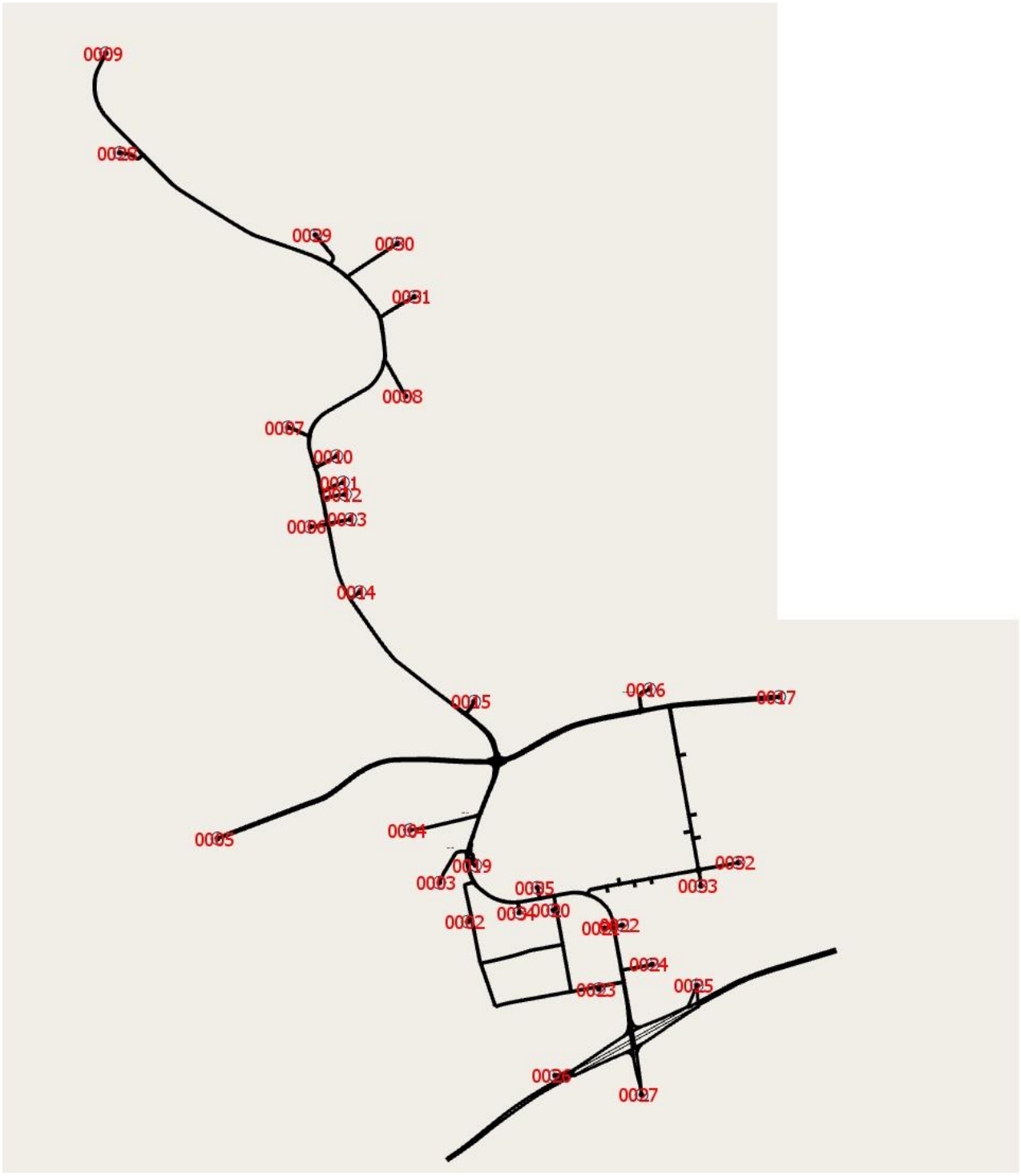


Figure 2-2: Modelled network HLD1B (Aimsun network snapshot with Zone centroid ID's)

2.2.1 Extension of HLD-1A model to include HLD-1B

The key steps in the extension of HLD-1A model (initial model) to include HLD-1B project area are the following:

- Import Open Street Map background to initial model.
- Extend the model to include HLD-1B project area network as shown in Figure 2-3.
- All intersections were coded as per the existing type of intersection control such as priority or signalised. The type of intersection control at each intersection in the project area is shown in Table 2-1.
- Public transport and school bus services were also observed in the study area. The road network infrastructure for bus services beyond Henry Lawson Drive corridor is included in the model and is reserved for use by public transport only. This is to account for the impact of bus services within the study area.

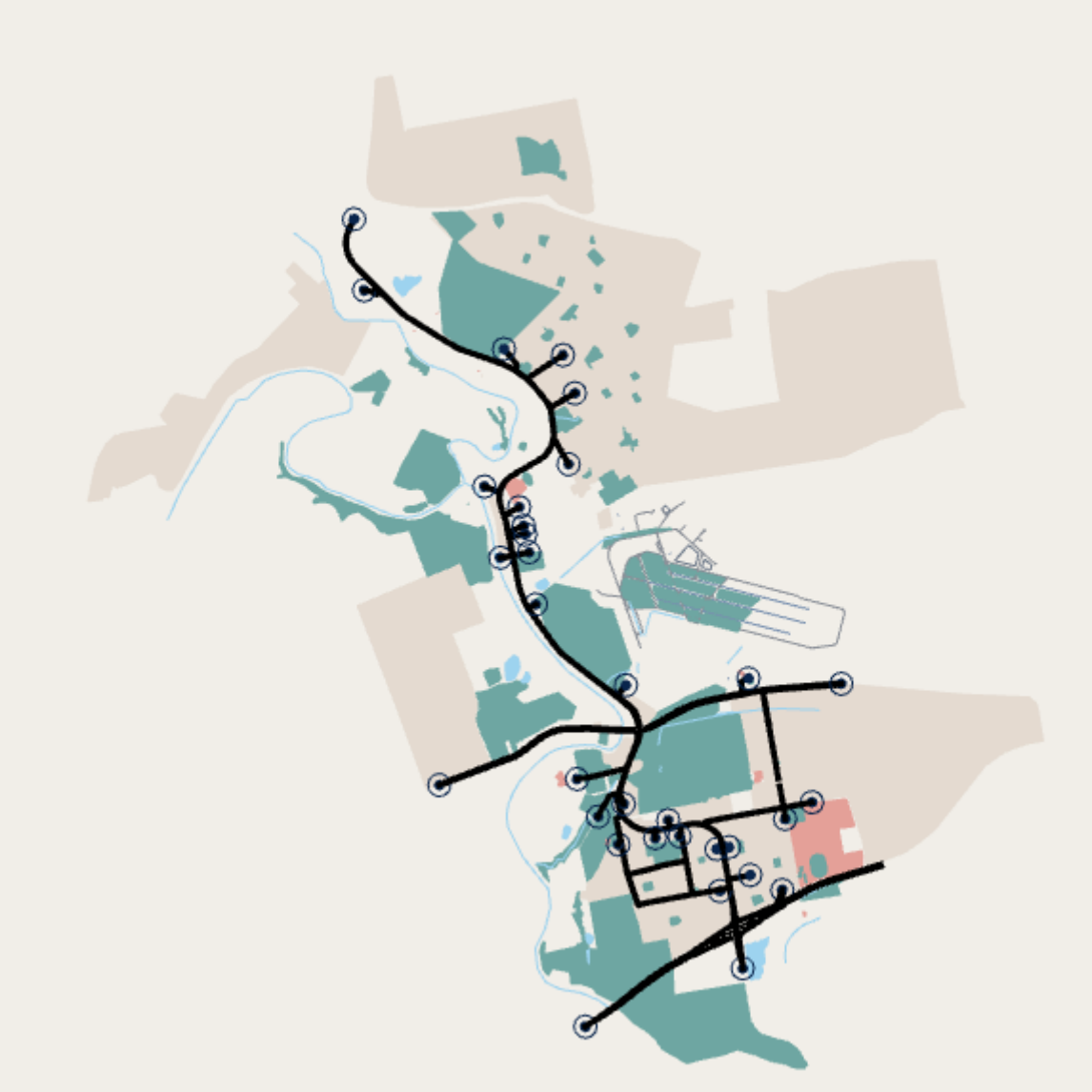


Figure 2-3: Overview of model with open street map background.

Table 2-1: Intersections included in the Base model.

#	Location	Type
1	Henry Lawson Drive & South-Western Motorway	Signalised
2	Henry Lawson Drive & Pozieres Avenue	Signalised
3	Henry Lawson Drive & Hermies Avenue	Priority
4	Henry Lawson Drive & Ganmain Avenue /Fromelles Avenue	Priority
5	Henry Lawson Drive & Bullecourt Avenue	Signalised
6	Bullecourt Avenue & Ashford Avenue	Roundabout
7	Henry Lawson Drive & Amiens Avenue	Priority
8	Henry Lawson Drive & Whittle Avenue	Priority
9	Henry Lawson Drive & Ruthven Avenue	Priority
10	Henry Lawson Drive & Raleigh Road	Signalised
11	Henry Lawson Drive & Keys Parade	Signalised
12	Henry Lawson Drive & Auld Avenue	Priority
13	Henry Lawson Drive & Newbridge Road & Milperra Road	Signalised
14	Milperra Road & Murray Jones Drive	Signalised
15	Milperra Road & Ashford Avenue	Signalised
16	Henry Lawson Drive & Tower Road	Signalised
17	Henry Lawson Drive & Georges River Golf Course	Priority
18	Henry Lawson Drive & Rabaul Road	Priority
19	Henry Lawson Drive & Endevour Road	Priority
20	Henry Lawson Drive & Haig Avenue	Signalised
21	Henry Lawson Drive & Beale Street	Priority
22	Henry Lawson Drive & HLD Reserve Road	Priority
23	Henry Lawson Drive & Georges Crescent	Priority
24	Henry Lawson Drive & Flinders Road	Priority
25	Henry Lawson Drive & Denman Road	Priority
26	Henry Lawson Drive & Hazel Street	Priority
27	Henry Lawson Drive & Hynes Street	Priority

2.3 Model Date and Time Periods

For AM and PM modelling, the traffic surveys were undertaken at various locations in the study area on 23rd March 2022 (Wednesday) and from 28th February 2018 to 5th March 2018. The traffic survey data is collected with a 15-minute interval and their collection locations are presented in Table 3-2.

In the case weekend model, TfNSW provided SCATS detector count data for 26th March 2022 (Saturday), 27th March 2022 (Sunday), 02nd April 2022 (Saturday) and 03rd April 2022 (Sunday), and also traffic survey data for 20th February 2021 (Saturday).

2.3.1 Weekday Peak

An analysis was undertaken to identify the most suitable Weekday AM and PM peak period. The key steps in identifying the peak hour include following:

- Total hourly traffic counts for all surveyed intersections based on 2022 and 2018 traffic survey data was calculated with hours staggered at 15 minutes for AM period (06:00 AM to 10:00 AM) and PM period (03:00 PM to 07:00PM). The staggered hour in both AM and PM period with maximum traffic was identified as peak hour as presented in Figure 2-4.

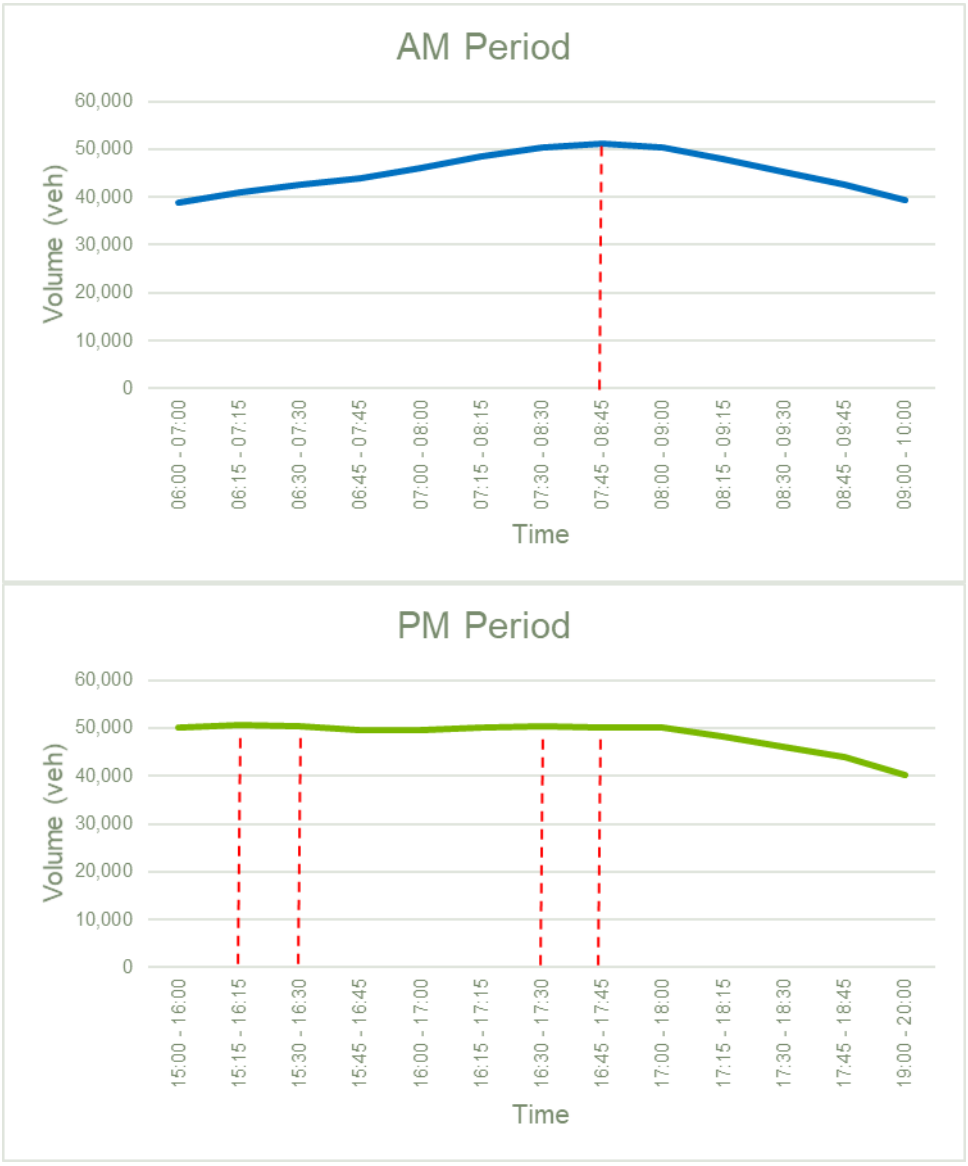


Figure 2-4: Total hourly traffic count during AM and PM peak period staggered at 15-minute interval

- AM peak hour was clearly identified as 07:45 AM to 08:45 AM.
- For PM period, peak traffic was observed for 03:15 PM to 05:45 PM, requiring further analysis to identify clear peak PM period.
- Google's typical traffic volume viewer was used to study typical traffic condition prevailing on Henry Lawson Drive from 02:45 PM to 06:15 PM at 15-minute interval on a representative weekday (Wednesday). The google images for typical traffic on Henry Lawson Drive corridor were collated and compared. This is presented in **Appendix A**. The study of typical traffic suggests that congestion on Henry Lawson Drive peaks between 03:30 PM to 04:30 PM. Considering the peak traffic volume and typical Google traffic, peak hour during PM is identified as 03:30 PM to 04:30 PM.

Based on analysis, the peak traffic time periods were determined as follows:

- Weekday Morning (AM) period: 06:45 – 09:45 AM
  - Warm up: 06:45 – 07:45 AM
  - Peak Hour 1: 07:45 – 08:45 AM
  - Peak Hour 2: 08:45 – 09:45 AM
- Weekday Afternoon (PM) period: 02:30 – 05:30 PM
  - Warm up: 02:30 – 03:30 PM
  - Peak Hour 1: 03:30 – 04:30 PM
  - Peak Hour 2: 04:30 – 05:30 PM

2.3.2 Weekend Peak

An analysis was undertaken to identify the most suitable Weekend peak period. The key steps in identifying the peak hour include following:

- The average of hourly traffic counts of five surveyed midblock counts in 2022 for two weekends was calculated. The staggered hour with maximum traffic was identified as peak hour as presented in Figure 2-5.

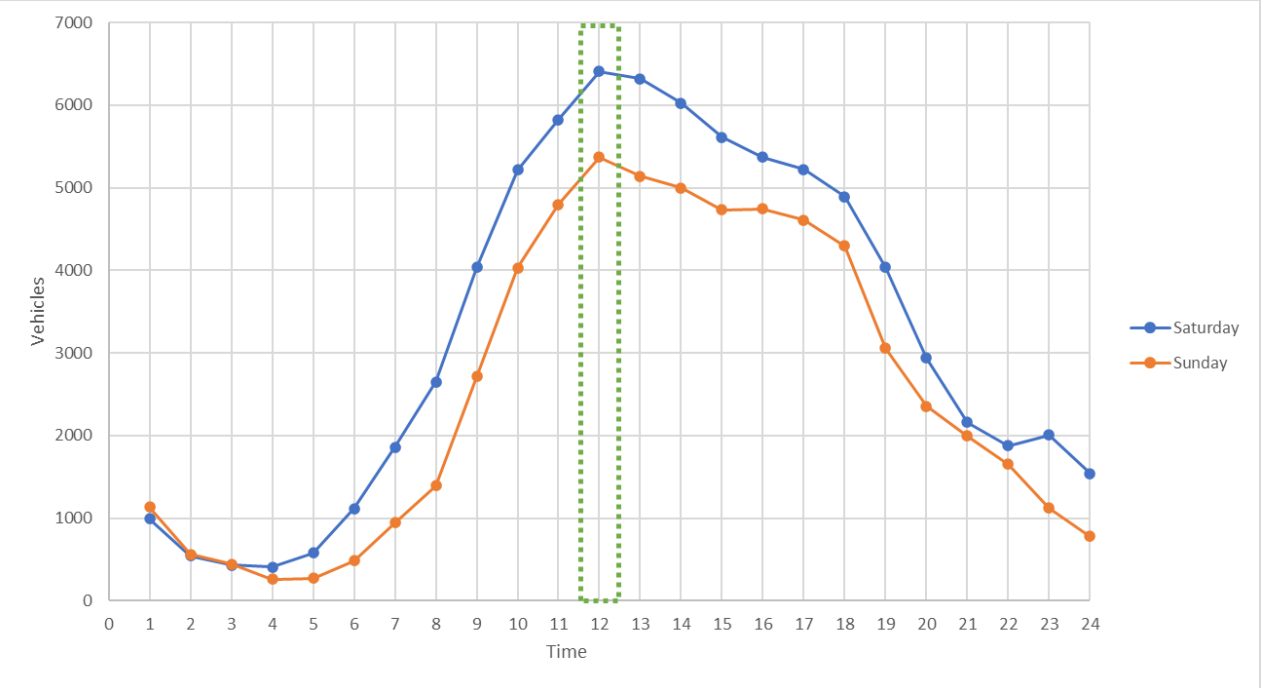


Figure 2-5: Average hourly traffic count during weekend period

- Weekend peak hour was identified as 11:30 AM to 12:30 PM on Saturdays.

Based on analysis, the peak traffic time periods were determined as follows:

- Weekend peak period: 10:30 AM – 01:30 PM
  - Warm up: 010:30 AM – 11:30 AM
  - Peak Hour 1: 11:30 AM – 12:30 PM
  - Peak Hour 2: 12:30 – 01:30 PM

2.4 Assumptions and Limitations

The model has been specifically developed to achieve the objectives of this project. Following enlists some of the modelling assumptions and limitations:

- Calibration has been undertaken for 2022 traffic conditions.
- For AM and PM model, the traffic count data has been sourced from Matrix surveys undertaken during 2022 for Stage 1B and 2018 for Stage 1A portion. The traffic counts used for model calibration are therefore a mix of both 2022 and 2018 traffic data. It has however been verified that the collected dates are representative of typical day traffic conditions. The flow differences have also been checked and balanced through the network.
- For weekend model, the traffic count data has been sourced from TfNSW's SCATS detector data collected in 2022 and traffic survey data collected by Matrix in 2021. The heavy vehicle percentages (HV%) for weekend peak period calculated from 2022 midblock count survey was comparable to the AM peak period. Therefore, HV% from AM peak period was assumed in this model.
- The Travel Time data has been sourced from HERE data and was collected in 2018 with 15-minute intervals.
- It has been assumed that the available traffic data are true representation of existing conditions.
- Any upstream or downstream congestion outside the model study area has not been considered.

3 Data Input

Table 3-1 presents a summary of various data types used for the study, their sources, and application in the model.

Table 3-1: Road Network Datasets

Data type	Source	Application
Base model	TfNSW/ Aurecon – Base model for HLD Stage 1A	Base model from Stage 1A extended to include Stage 1B study area.
Aerial imagery	Open Street Maps, 2019 Nearmap Imagery	Model network coding, geometry verification
Road Classification, Speed Limit Data	Desktop review	Model network coding
Traffic Survey Counts	TfNSW provided survey data (Matrix) for 19 intersections and five midblock locations	Traffic survey counts is used for the purpose of model calibration.
SCATS traffic count and Signal Data	TfNSW – Count data for eight intersections and signal data (phase splits / times and cycle times (IDM))	Signal coding and model development
Travel Time Survey Data	HERE data provided by TfNSW.	Used for the purpose of model validation
Public transport operations	Bus stops, route information data and timetable data were obtained from TfNSW	Coding of bus routes in the base model
Zoning and Traffic demands	TfNSW Model	Zoning and prior traffic demands from provided model have been retained.
Strategic Travel Model	TfNSW Model	Future demand projection

3.1 Traffic Count Data

Intersection survey counts along with midblock counts and SCATS data formed the inputs to model calibration.

A summary of the traffic survey data available for weekdays along with the collection date is presented in Table 3-2.

Table 3-2: Traffic survey count data summary for weekday

#	Intersection	Type	Collection Date	Vehicle Types
1	Henry Lawson Drive/ Flinders Road	Priority	28-02-2018	Light and Heavy Vehicles
2	Henry Lawson Drive/ Keys Parade	Signalised	23-03-2022	Light and Heavy Vehicles
3	Henry Lawson Drive/ Newbridge Road/ Milperra Road	Signalised	10-04-2018	Light and Heavy Vehicles
4	Henry Lawson Drive/ Tower Road	Signalised	23-02-2021	Light and Heavy Vehicles
5	Henry Lawson Drive/ Haig Avenue	Signalised	28-02-2018	Light and Heavy Vehicles
6	Henry Lawson Drive/ Rabaul Road	Priority	19-11-2019	Light and Heavy Vehicles
7	Henry Lawson Drive/ Auld Avenue	Priority	23-02-2021	Light and Heavy Vehicles

#	Intersection	Type	Collection Date	Vehicle Types
8	Milperra Road/ Murray Jones Drive	Signalised	10-04-2018	Light and Heavy Vehicles
9	Milperra Road/ Ashford Avenue	Signalised	23-03-2022	Light and Heavy Vehicles
10	Henry Lawson Drive/ Raleigh Road	Priority	23-03-2022	Light and Heavy Vehicles
11	Henry Lawson Drive/ Ruthven Avenue	Priority	23-03-2022	Light and Heavy Vehicles
12	Henry Lawson Drive/ Whittle Avenue	Priority	23-03-2022	Light and Heavy Vehicles
13	Henry Lawson Drive/ Amiens Avenue	Priority	23-03-2022	Light and Heavy Vehicles
14	Henry Lawson Drive/ Bullecourt Avenue	Signalised	23-03-2022	Light and Heavy Vehicles
15	Henry Lawson Drive/ Ganmain Crescent/ Fromelles Avenue	Priority	23-03-2022	Light and Heavy Vehicles
16	Henry Lawson Drive/ Hermies Avenue	Priority	23-03-2022	Light and Heavy Vehicles
17	Henry Lawson Drive/ Pozieres Avenue	Signalised	23-03-2022	Light and Heavy Vehicles
18	Henry Lawson Drive/ South Western Motorway – M5	Signalised	28-02-2018	Light and Heavy Vehicles

The traffic count data for light and heavy vehicles in AM peak period (7:45 AM to 9:45 AM) and PM peak period (3:30 PM to 5:30 PM) was used for calibration of the Base Model.

A summary of the SCATS detector count data and traffic survey data available for weekends along with the collection date is presented in Table 3-3.

Table 3-3: Available intersection count data for weekend

#	Intersection	Type	Collection Date
1	Henry Lawson Drive/ Keys Parade	Signalised	26-03-2022
2	Henry Lawson Drive/ Auld Avenue	Priority	23-02-2021
3	Henry Lawson Drive/ Newbridge Road/ Milperra Road	Signalised	20-02-2021
4	Henry Lawson Drive/ Tower Road	Signalised	20-02-2021
5	Henry Lawson Drive/ Bullecourt Avenue	Signalised	26-03-2022
6	Henry Lawson Drive/ Pozieres Avenue	Signalised	26-03-2022

The traffic count data in the weekend peak period from11:30 AM to 12:30 PM was used for calibration of the Base Model.

3.2 Traffic Signals

The signalised intersections in the study area are listed as follows and are visually presented in red colour on Figure 1-1 showing the study area and key model intersections:

- Henry Lawson Drive/ Pozieres Avenue
- Henry Lawson Drive/ Bullecourt Avenue
- Henry Lawson Drive/ Keys Parade
- Henry Lawson Drive/ Newbridge Road / Milperra Road
- Henry Lawson Drive/ Tower Road
- Henry Lawson Drive/ Haig Avenue
- Milperra Road/ Murray Jones Drive
- Milperra Road/ Ashford Avenue

All signalised intersections above operate using SCATS and SCATS traffic signal data within the project area was sourced from TfNSW. The SCATS diagrams and phasing information was used to code intersections within the model.

The Aimsun model was developed with a 60-minute fixed time signal plans and phasing (e.g., 7.45 AM - 8.45 AM). The signal timing and phasing data was based on the SCATS IDM data provided by TfNSW. Note that as part of the calibration process, slight adjustments were made to some of the signal phases to replicate existing traffic conditions. These adjustments have been duly noted.

3.3 Travel Time Survey Data

The travel time data for one week from 27/02/2018 to 05/03/2018, was collected from HERE database[2] along Henry Lawson Drive from Flinders Road to South-Western Motorway - M5 in both directions. The data used for travel time validation was extracted for the following time periods:

- Weekday AM Peak: 07:45 AM to 09:45 AM
- Weekday PM Peak: 03:30 PM to 05:30 PM
- Weekend Peak: 11:30 AM to 01:30 PM

[2] HERE travel-time estimates are primarily derived from Global Positioning System (GPS) data obtained from in-vehicle navigation devices.

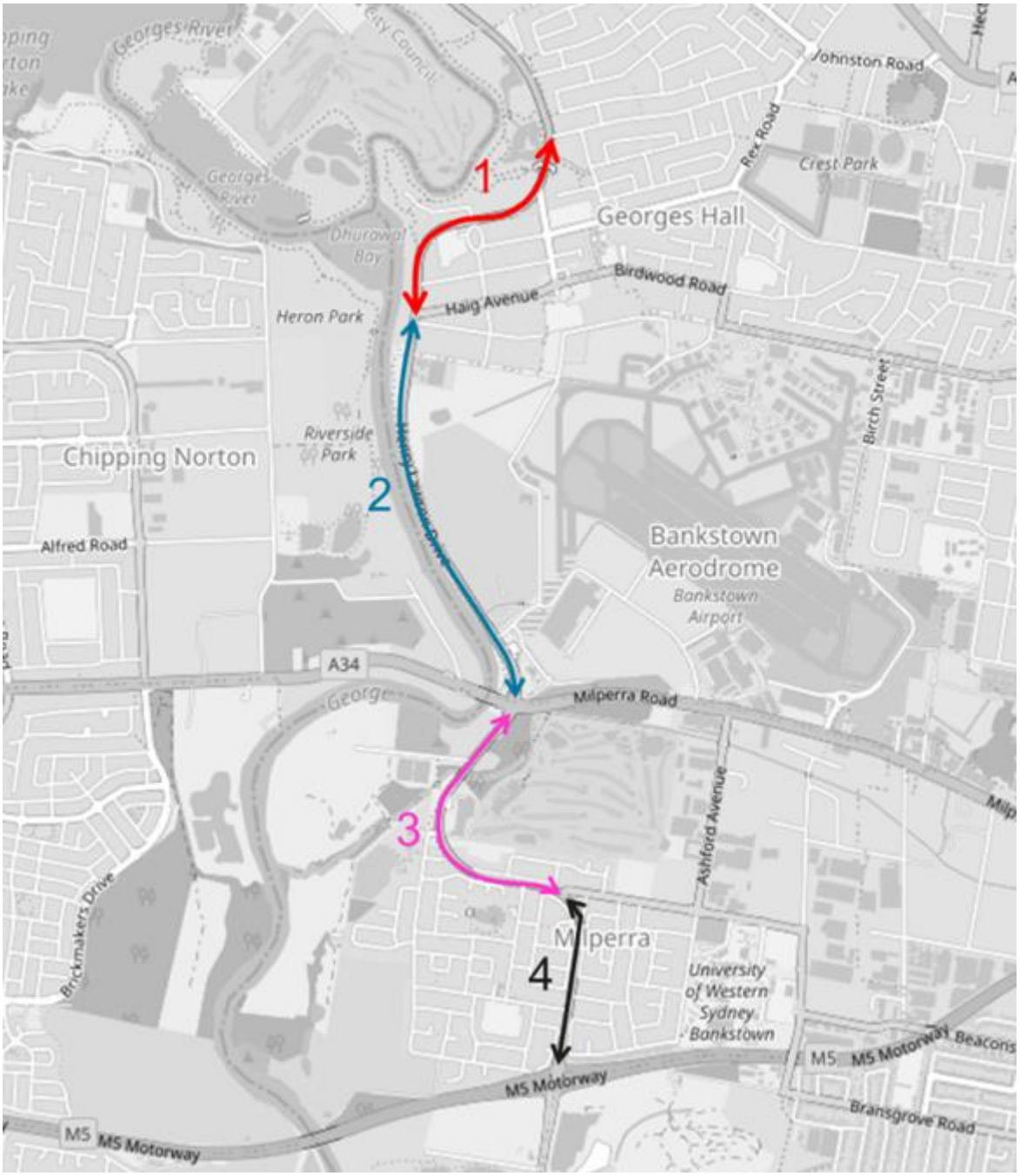


Figure 3-1: Travel Time Route and Sub-sections

The travel time data has been collected for four sub-route sections as shown in Figure 3-1 and listed as follows:

1. Henry Lawson Drive between Flinders Road and Haig Avenue
2. Henry Lawson Drive between Haig Avenue and Milperra Road
3. Henry Lawson Drive between Milperra Road and Bullecourt Avenue
4. Henry Lawson Drive between Bullecourt Avenue and M5

4 Traffic Demand

4.1 Demand Estimation

Figure 4-1 describes the traffic demand estimation methodology. The matrix from the originally calibrated model has been used as the initial/prior matrix for demand estimation. Where the internal road network was removed, the zones were added together to retain the original trip distribution patterns. The internal trips between the zones that have been detached from the network have also been removed.

The demand profiling has been based on the originally profiled demand from the previous modelling exercise. This captured both the 15 -minute profiling and the heavy vehicle classification.

The profiled demand was manually adjusted where necessary to meet calibration and validation targets and ensure consistency between the observed and modelled traffic volumes.

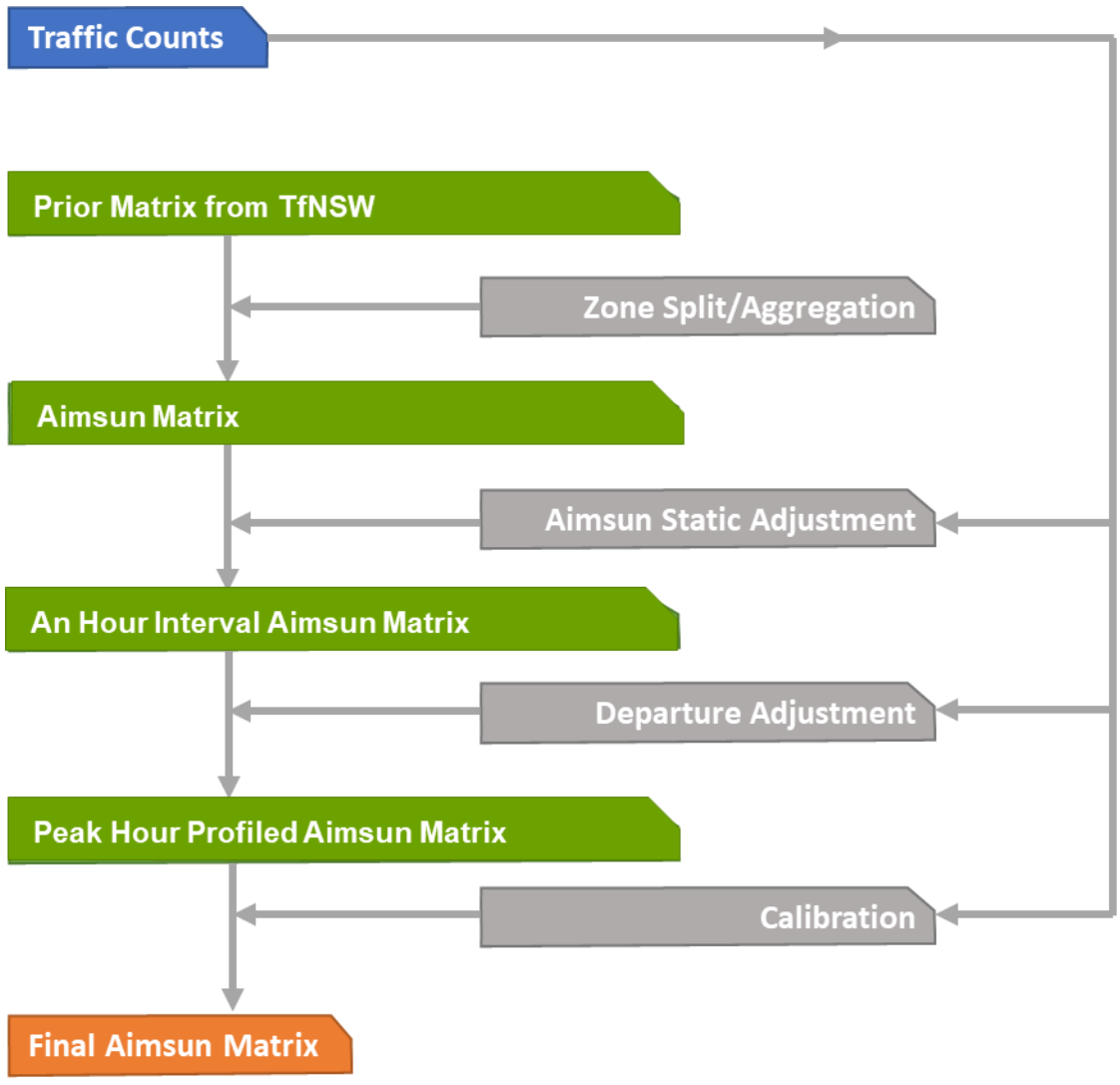


Figure 4-1: Traffic demand estimation methodology

4.2 Trip Balancing

The traffic survey data was analysed and used to develop traffic volume diagrams for every one-hour of the AM, PM and weekend peak periods. As the traffic data available are from different collection dates, discrepancies were identified between the in/out traffic flows at some locations. Therefore, the counts were carefully balanced to reflect a typical day in a week.

4.3 Zone Structure

There were 34 zones in the original Vissim base model of Henry Lawson Drive Stage 1B received from TfNSW. It is noted that few zones from Vissim model were aggregated and new zones were also added in the latest Aimsun model. The modified network resulted in 33 zones and the zone system for the model is aligned with the STFM model zones.

For Aimsun modelling of Stage 1B, the existing Aimsun model from Stage 1A was extended to include the section of Henry Lawson Drive between Keys Parade and South-Western Motorway (M-5). As a result, zone numbers used in Stage 1A was retained and additional centroids were given new zone numbers.

4.4 Heavy Vehicle Proportion

The proportion of heavy vehicles within the network were estimated from the observed data as the trip balancing process outlined in Section 4.2.

HV Breakdown:

- 07:45 – 08:45 AM: 11.33%
- 08:45 – 09:45 AM: 15.01%
- 15:30 – 16:30 PM: 9.23%
- 16:30 – 17:30 PM: 7.45%
- 11:30 AM – 12:30 PM: 11.33%
- 12:30 PM – 01:30 PM: 15.01%

4.5 Demand Profiles

One-hour demands generated through departure adjustment procedure was then further manually profiled into 15-minute intervals. This was achieved by application of a factor to the one-hour matrices to generate a smooth profile. This led to the preparation of 15-minute demand matrices for AM, PM and weekend peak periods.

The heavy vehicle demand matrices were developed by applying a global factor as discussed in Section 4.4.

The modelled traffic demand profiles are as shown in Figure 4-2, Figure 4-3 and Figure 4-4 for AM, PM and weekend peak periods respectively.

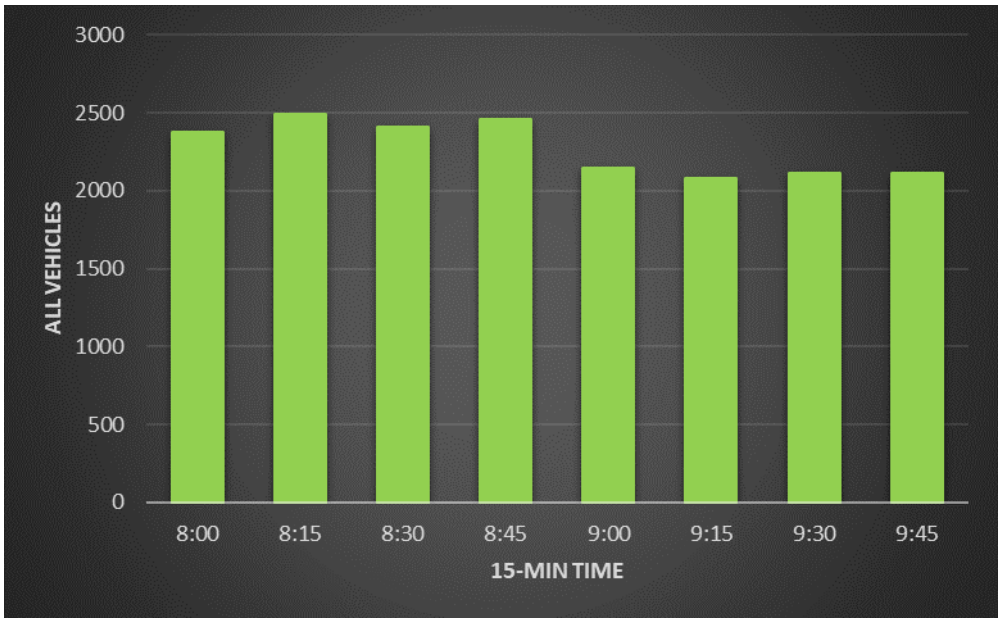


Figure 4-2: Modelled AM Peak Traffic Demand Profiles from 07:45 to 09:45

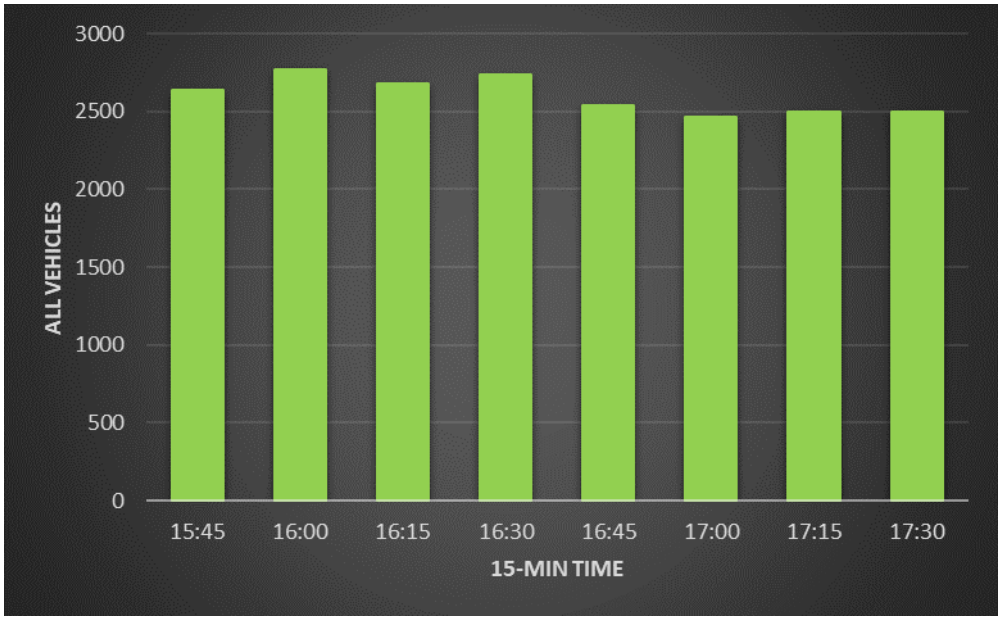


Figure 4-3: Modelled PM Peak Traffic Demand Profiles from 15:30 to 17:30

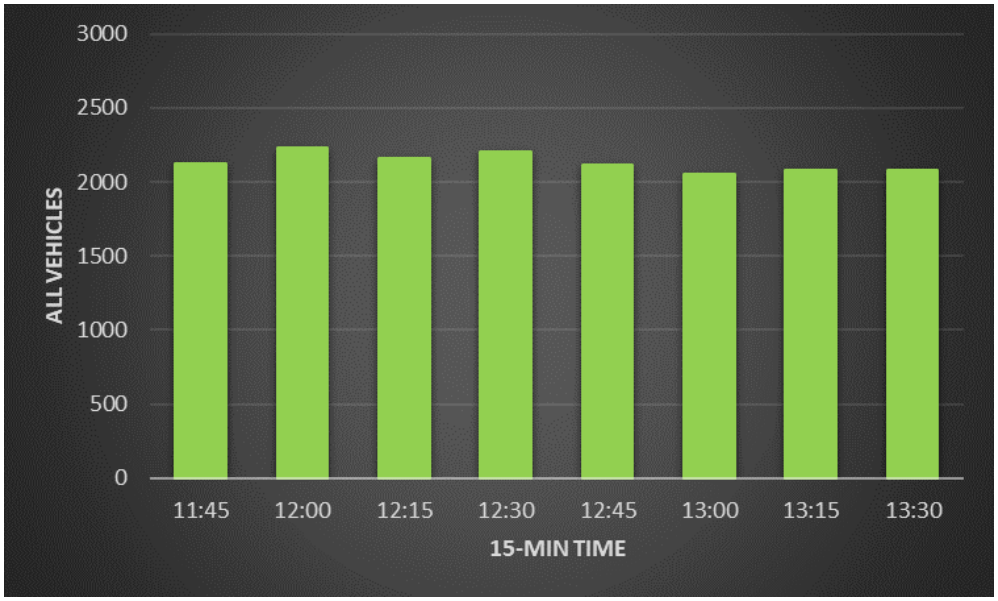


Figure 4-4: Modelled Weekend Peak Traffic Demand Profiles from 11:30 to 13:30

5 Traffic Assignment

5.1 Path Assignment

Within Aimsun, the initial static assignment route choice was calculated using cost equations by taking into consideration section capacity and section travel times. The path assignment from the microsimulation experiment was then based on the set of initial paths generated as part of the static experiment. Figure 5-1 below summarises this path assignment process.

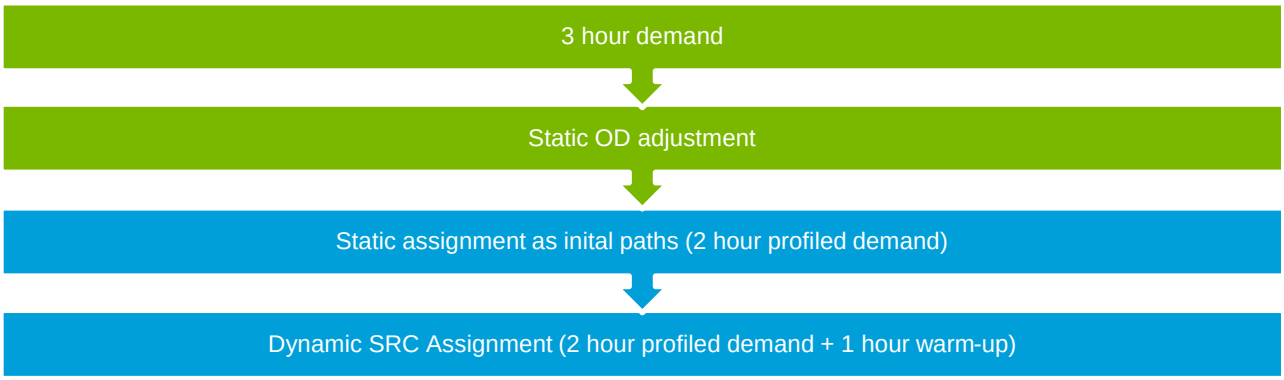


Figure 5-1: Path assignment process

5.2 Static OD Adjustment

The Frank-Wolfe assignment algorithm has been used to run the Static OD adjustment scenario. The matrix and trip length distribution elasticities values of 1 each were used for the assignment. The OD adjustment process adjusts the matrices to match the observed data input into the model as a Real Data Set (RDS) file. This resulted in adjusted hourly OD matrices for each of the vehicle classes.

5.3 Static Assignment

The static macroscopic experiment adopted the Frank-Wolfe assignment model for static equilibrium assignment, with the stopping criteria set at a relative gap (RGap) value of 0.1% and/ or a maximum of 100 iterations.

5.4 Dynamic Route Choice Parameters

The route choice parameters were adopted from Stage 1A model and were refined as part of the model calibration process. Few traffic management strategies were also used during calibration to reflect the traffic flow patterns. The key with route choice values is to achieve a robust model that can also adjust to changes in the network or demands. The route choice model settings are summarised in Table 5-1.

Table 5-1: Route choice model settings

Parameter	Value
Behaviour: Two Lane Car Following Model	Enabled
Number of vehicles	4
Max. speed difference	50 km/hr
Max. distance	100 m
Max. speed difference on ramp	70 km/hr
Speed difference setting	Relative
Queue entry speed	1 m/s
Queue exit speed	4 m/s
Micro Reaction Times	
Simulation Step	0.8 s
Reaction time at Stop	1.20 s
Reaction time at Traffic Light	1.6 s
Arrivals	
Global Arrivals	Exponential
Dynamic Traffic Assignment	

Parameter	Value
Cycle	0:15:00
Number of Intervals	3
Attractiveness Weighting	3
User Defined Cost Weight	1
Use of O/D Routes and Path Assignment Results	
Vehicles following O/D Routes	100%
Vehicles following Path Assignment Results	100%
Route Choice Model	
Route Choice Model	Proportional
Enroute	Disabled
Initial K-SPs	1
Max Number to Keep	3
Max Number of Paths	3
Parameters	
Alpha	1

In model, two prominent route choices for traffic originating and destined to centroid 32 and 33 exists. The following option routes:

Route 1: via Henry Lawson Drive/ Bullecourt Avenue intersection.

Route 2: via Milperra Road/ Ashford Avenue intersection then on to Henry Lawson Drive.

During calibration, traffic management strategies such as forced turn were used to distribute origin-destination based traffic on route 1 and route 2. The traffic management strategies applied in base model are summarised in Table 5-2.

Table 5-2: Traffic management strategies adopted.

Traffic management strategy	O-D Pair	Route 1	Route 2
AM Period			
Forced Turn	5 – 32	20%	80%
Forced Turn	32 – 9	100%	0%
Forced Turn	23 – 5	20%	80%
Forced Turn	32 – 9	100%	0%
PM Period			
Forced Turn	5 – 32	35%	65%
Forced Turn	5 – 33	35%	65%
Forced Turn	32 – 9	100%	0%
Forced Turn	32 – 11	100%	0%
Forced turn	32 – 15	100%	0%
Forced Turn	32 – 31	100%	0%
Forced Turn	32 – 5	35%	65%
Forced Turn	33 – 5	35%	65%
Forced Turn	9 – 32	90%	10%
Forced Turn	11 – 32	100%	0%
Forced Turn	15 – 32	100%	0%
Forced Turn	31 – 32	100%	0%
Weekend Period			

Traffic management strategy	O-D Pair	Route 1	Route 2
Forced Turn	5 – 32	20%	80%
Forced Turn	32 – 9	100%	0%
Forced Turn	23 – 5	20%	80%
Forced Turn	32 – 9	100%	0%

6 Base Model Calibration and Validation

The process of model calibration and validation is a highly iterative process which involves network verification and fine-adjustment of both appropriate model parameters and the origin-destination matrices. The aim of this process is to improve the ability of the model to reproduce observed vehicle / driver behaviour and the match between modelled and observed traffic movements.

Given the range of model parameters affecting vehicle / driver behaviour and iterative nature of calibration and validation, the process was carefully planned and managed

The model calibration and validation results are discussed in the following sections.

6.1 Model Stability

As recommended in the Modelling Guidelines, the microsimulation model results have been based on the average of five replications runs with different random seed values. These random seed values recommended in Modelling guidelines and adopted are 560, 28, 7771, 86524 and 2849 for all assessed peak periods.

The overall network statistics in terms of Vehicle Hours Travelled (VHT), Vehicle Kilometres Travelled (VKT), Average Delay, and Number of Vehicles (NV) for the modelled peak hours have been reported in the following sections. These statistics are generally considered representative of the model variability. Additionally, Coefficient of variance (CoV) has been calculated for the different statistics. CoV is a measure of variation between model runs and informs on the stability of each of the performance measures. Typically, a CoV within 5% is considered to have a good level of correlation between model runs and indicates that the model is stable.

6.1.1 AM Model Stability Results

Table 6-1 summarises the statistics based on five replications and provides the CoV for the AM peak. CoV results are shown to be than 5% which indicates that a good level of model stability has been achieved. Stability plots for VHT and VKT are also presented in Figure 6-1 and Figure 6-2 to graphically show the variability.

Table 6-1: Model Stability during AM Peak

Scenario	Seed	VHT	%Diff from Average	VKT	%Diff from Average	Number of Vehicle Outside (NV)	%Diff from Average
AM Replication 1	560	3,182	4%	78,767	0%	19,613	0%
AM Replication 2	28	3,099	1%	79,157	0%	19,787	1%
AM Replication 3	7771	3,069	0%	77,601	-2%	19,403	-1%
AM Replication 4	86524	2,872	-6%	79,978	1%	19,887	1%
AM Replication 5	2849	3,057	0%	79,065	0%	19,729	0%
AM Average	Avenue	3,056		78,914		19,684	
AM Std Dev	STD DEV	113		860		186	
AM Min	MIN	2,872		77,601		19,403	
AM Max	MAX	3,182		79,978		19,887	
AM Range	RANGE	309		2377		484	
AM CoV	CoV	4%		1%		1%	

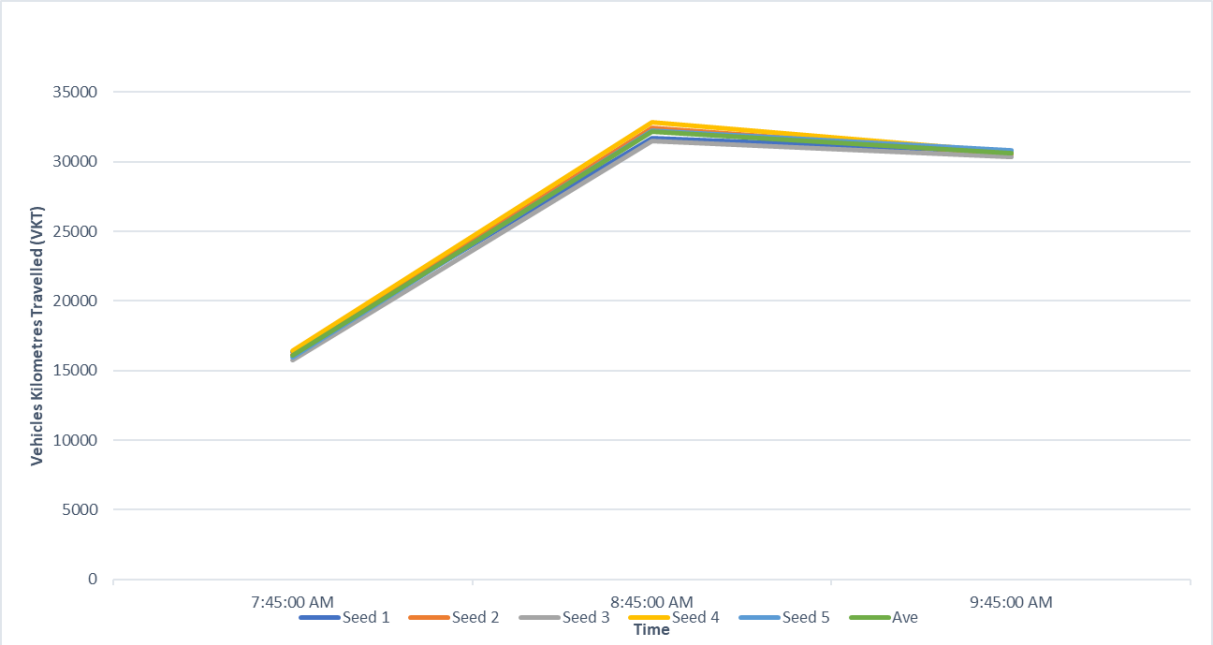


Figure 6-1: VKT (Vehicle Kilometre Travelled) across five seed runs during AM peak

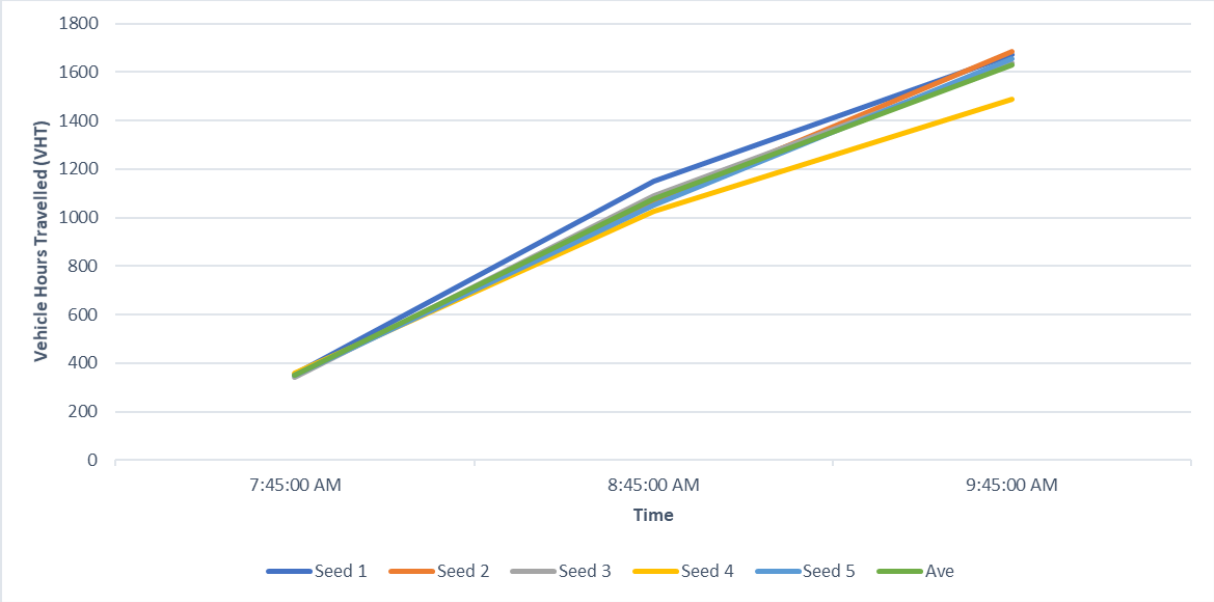


Figure 6-2: VHT (Vehicle Hour Travelled) across 5 seed runs during AM peak

6.1.2 PM Model Stability Results

Table 6-2 summarises the statistics based on five replications and provides the CoV for the PM peak. Stability plots for VHT and VKT are also presented in Figure 6-3 and Figure 6-4 to graphically show the variability.

Table 6-2: Model Stability during PM Peak

Scenario	Seed	VHT	%Diff from Average	VKT	%Diff from Average	Number of Vehicle Outside (NV)	%Diff from Average
PM Replication 1	560	3,496	6%	85,330	-1%	22,399	-1%
PM Replication 2	28	3,646	11%	96,350	12%	24,498	8%
PM Replication 3	7771	3,363	2%	85,933	0%	22,752	0%
PM Replication 4	86524	2,993	-9%	85,953	0%	22,571	0%
PM Replication 5	2849	3,232	-2%	86,945	1%	22,834	1%
PM Average	Avenue	3,289		86,101		22,658	
PM Std Dev	STD DEV	250		4647		848	
PM Min	MIN	2,993		85,330		22,399	
PM Max	MAX	3,646		96,350		24,498	
PM Range	RANGE	653		11020		2099	
PM CoV	CoV	8%		5%		4%	

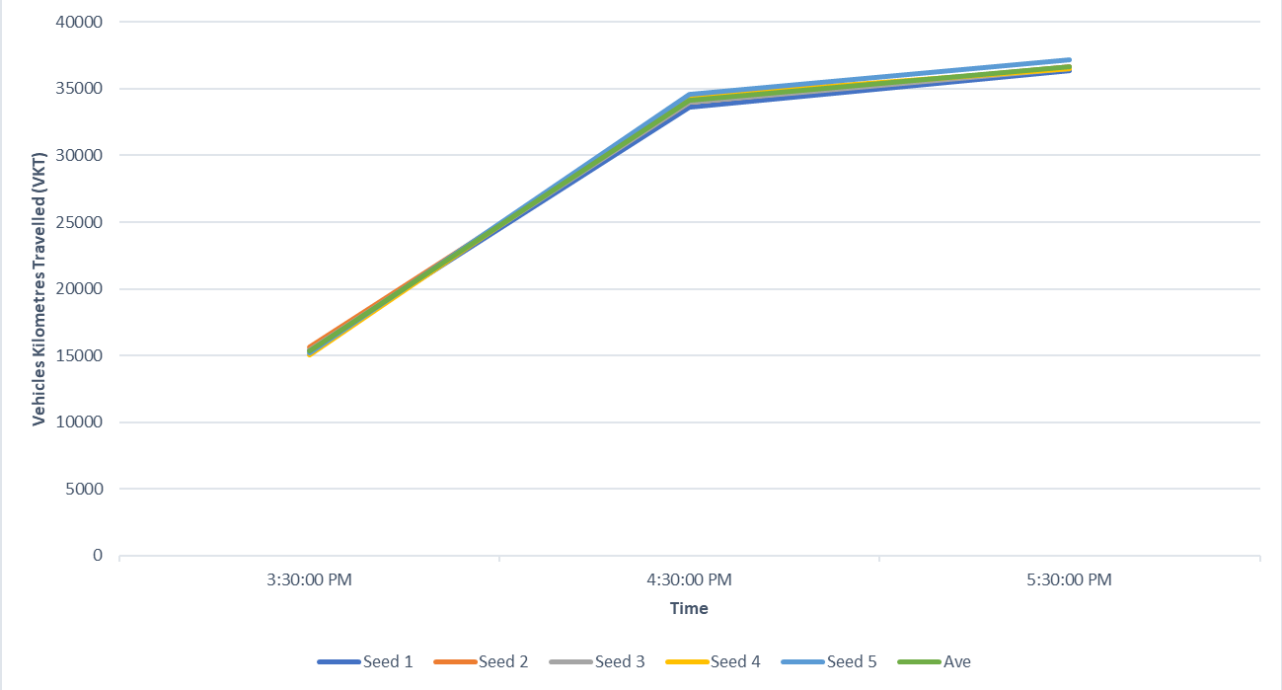


Figure 6-3: VKT (Vehicle Kilometre Travelled) across five seed runs during PM peak

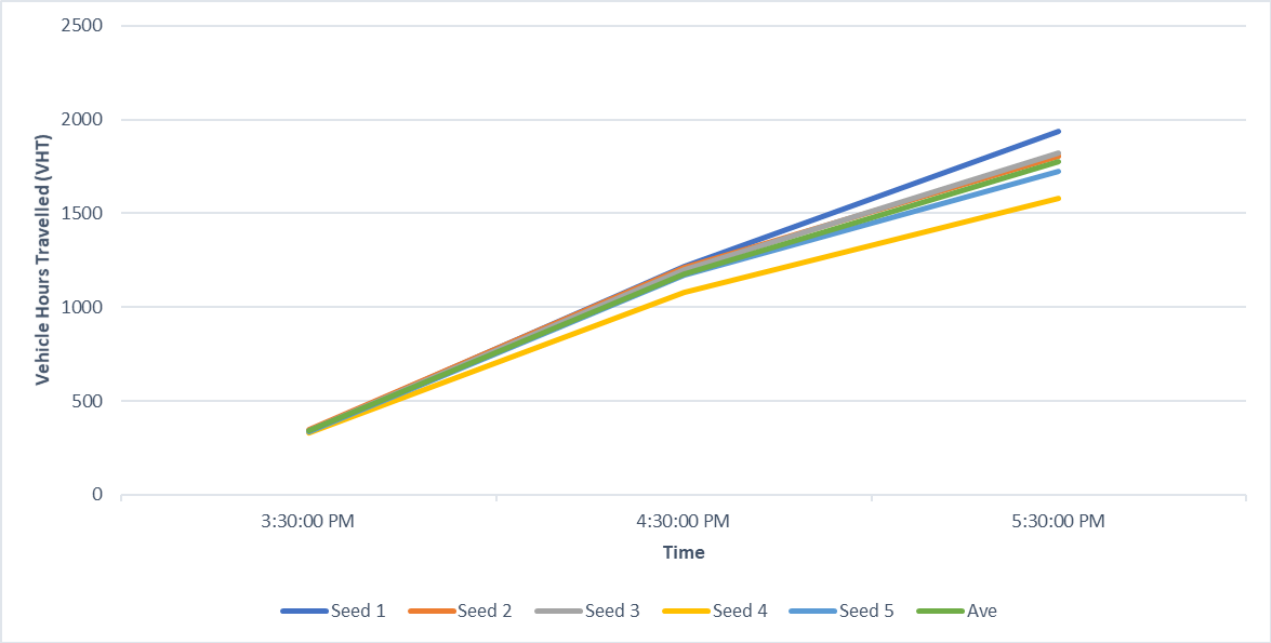


Figure 6-4: VHT (Vehicle Hour Travelled) across 5 seed runs during PM peak

6.1.3 Weekend Model Stability Results

Table 6-3 summarises the statistics based on five replications and provides the CoV for the weekend peak. The stability plots for VHT and VKT are also presented in Figure 6-5 and Figure 6-6 to graphically show the variability.

Table 6-3: Model Stability during Weekend Peak

Scenario	Seed	VHT	%Diff from Average	VKT	%Diff from Average	Number of Vehicle Outside (NV)	%Diff from Average
Replication 1	560	1,943	-1%	79,373	1%	20,021	0%
Replication 2	28	1,937	-1%	79,331	1%	20,056	0%
Replication 3	7771	2,019	3%	79,314	1%	20,119	1%
Replication 4	86524	1,939	-1%	78,618	0%	19,886	0%
Replication 5	2849	1,961	0%	77,738	-1%	19,747	-1%
WK Average	Ave	1,960		78,875		19,966	
WK Std Dev	STD DEV	35		708		149	
WK Min	MIN	1,937		77,738		19,747	
WK Max	MAX	2,019		79,373		20,119	
WK Range	RANGE	83		1635		372	
WK CoV	CoV	2%		1%		1%	

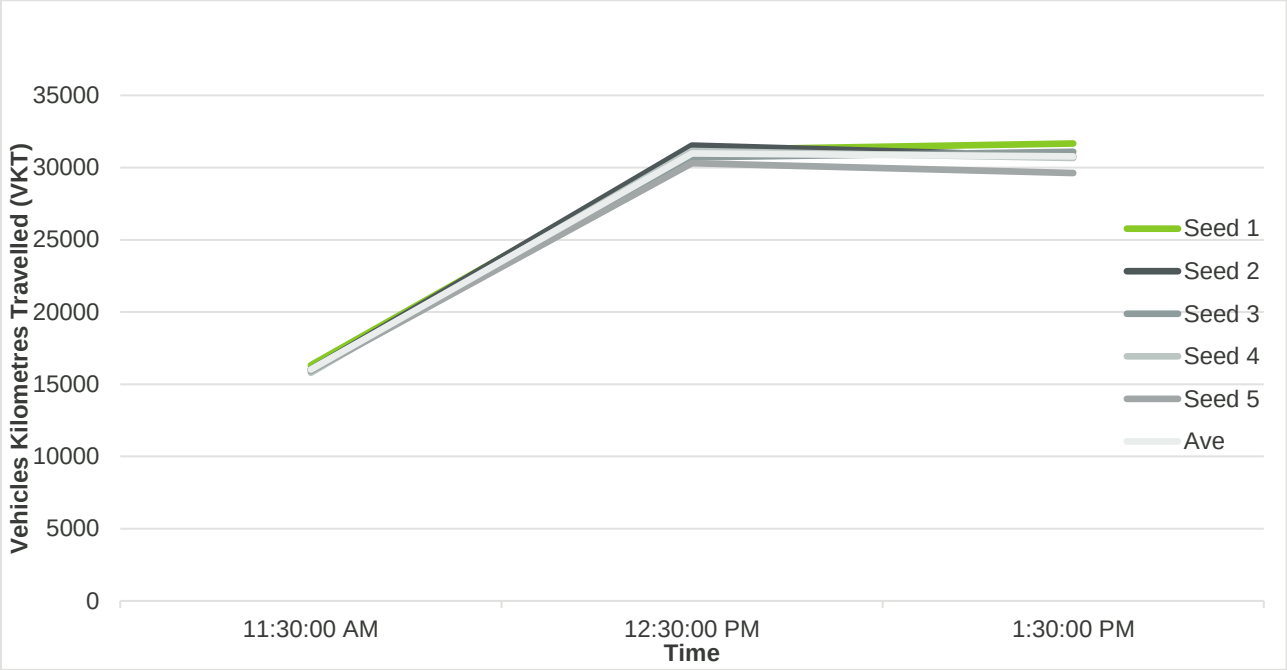


Figure 6-5: VKT (Vehicle Kilometre Travelled) across five seed runs during weekend peak

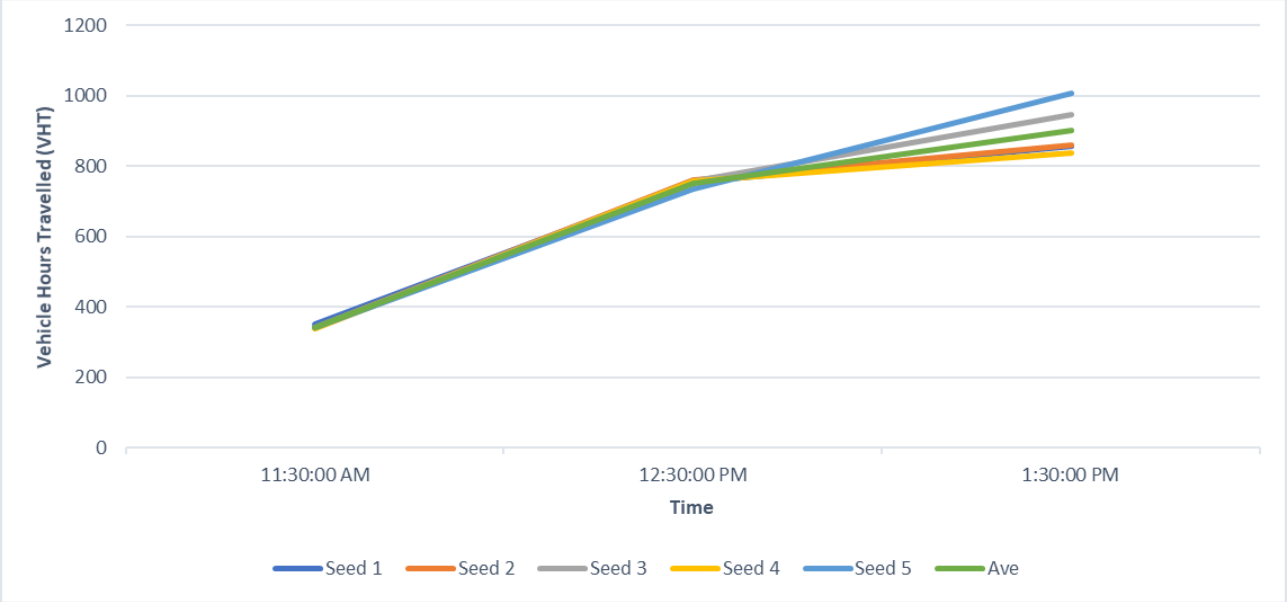


Figure 6-6: VHT (Vehicle Hour Travelled) across 5 seed runs during weekend peak

6.2 Model Calibration Criteria

The calibration criteria presented below are based on the Traffic Modelling Guidelines (Roads and Maritime Services, 2013):

- GEH < 5 minimum 85% of observations to be within these tolerance limits and 100% of observations to be within GEH<10 tolerance limits
- Turn or link flows with GEH > 10 require explanation
- Plots of observed vs modelled hourly flows for all observations and to include lines showing GEH = 5 tolerance limits
- R2 value to be included with plots and to be >0.9
- Slope equation to be included with plots

The GEH statistic is used in the calibration of the traffic models to compare the differences between modelled and observed traffic flows. The GEH statistic is defined as:

$$GEH = \sqrt{\frac{(V_{Observed} - V_{Modelled})^2}{0.5 * (V_{Observed} + V_{Modelled})}}$$

6.3 Traffic Count Calibration

This section summarises the comparisons between observed and modelled traffic counts during the peak hour periods. The information presents the microsimulation results achieved from comparing observed and modelled count data for each of the individual turns. A more detailed outline of the calibration results can be found in **Appendix B**.

6.3.1 AM Model Traffic Count Calibration Results

Table 6-4 and Table 6-5 summarise model calibration results for the weekday during AM peak hours (7:45-8:45 AM and 8:45-9:45 AM) for both light and heavy vehicles. Figure 6-7 to Figure 6-10 show the scatter plots between modelled and observed hourly flows for the above AM peak model periods, respectively.

- During 07:45-08:45 AM and 08:45-09:45 AM, 100 per cent of turn flows have GEH value of less than 10 for both light and heavy vehicles (GEH <10).
- 95.06% (154 of 162) of all movements during 07:45-08:45 AM and 97.53% (158 of 162) of all movements during 08:45-09:45 AM for light vehicles have GEH value of less than 5 (GEH<5).
- 92.59% (150 of 162) of all movements during 07:45-08:45 AM and 93.21% (151 of 162) of all movements during 08:45-09:45 AM for heavy vehicles have GEH value of less than 5 (GEH<5).
- These results are reinforced with a high R^2 value 0.994 and 0.993 for light vehicles and 0.937 and 0.942 for heavy vehicles, which demonstrates that a high level of calibration was achieved for the weekday AM peak period (07:45-08:45 AM and 08:45-09:45 AM).

Table 6-4 AM turn calibration statistic results for light vehicles

Network Wide Calibration Criteria	7:45-8:45 AM	8:45-9:45 AM	Calibration
85% of observations must have GEH < 5	154 (95.06%)	158 (97.53%)	✔
100% of observation must have GEH < 10	162 (100%)	162 (100%)	✔
Total observations	162	162	

Table 6-5 AM turn calibration statistic results for heavy vehicles

Network Wide Calibration Criteria	7:00-8:00 AM	8:00-9:00 AM	Calibration
85% of observations must have GEH < 5	150 (92.59%)	151 (93.21%)	✔
100% of observation must have GEH < 10	162 (100%)	162 (100%)	✔
Total observations	162	162	

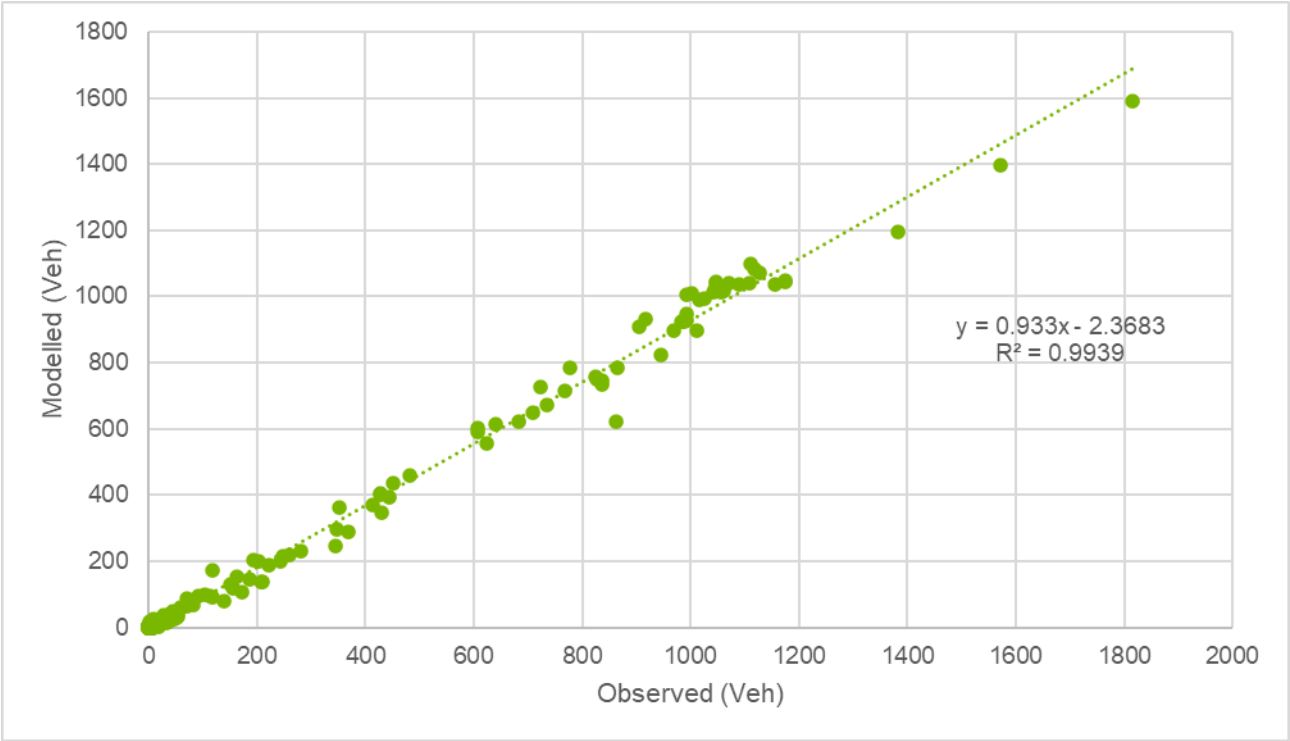


Figure 6-7: 7:45-8:45 AM regression plots for light vehicles

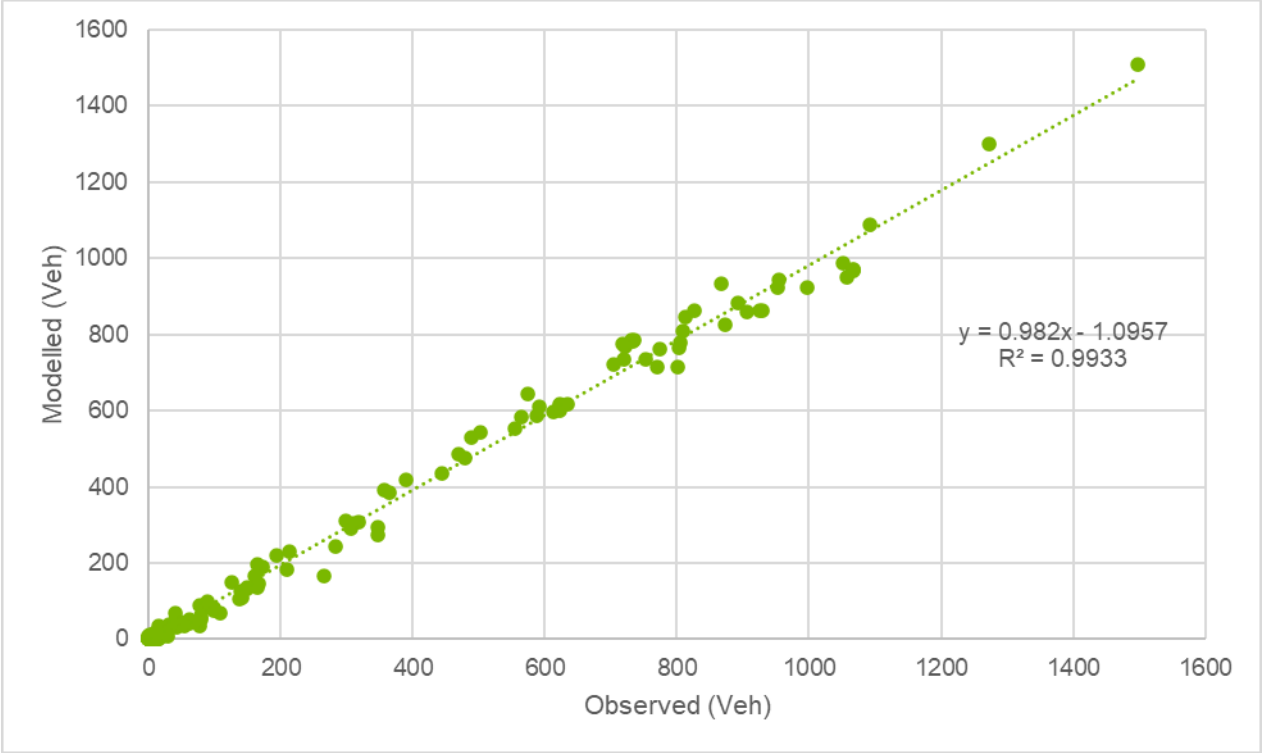


Figure 6-8: 8:45-9:45 AM regression plots for light vehicles

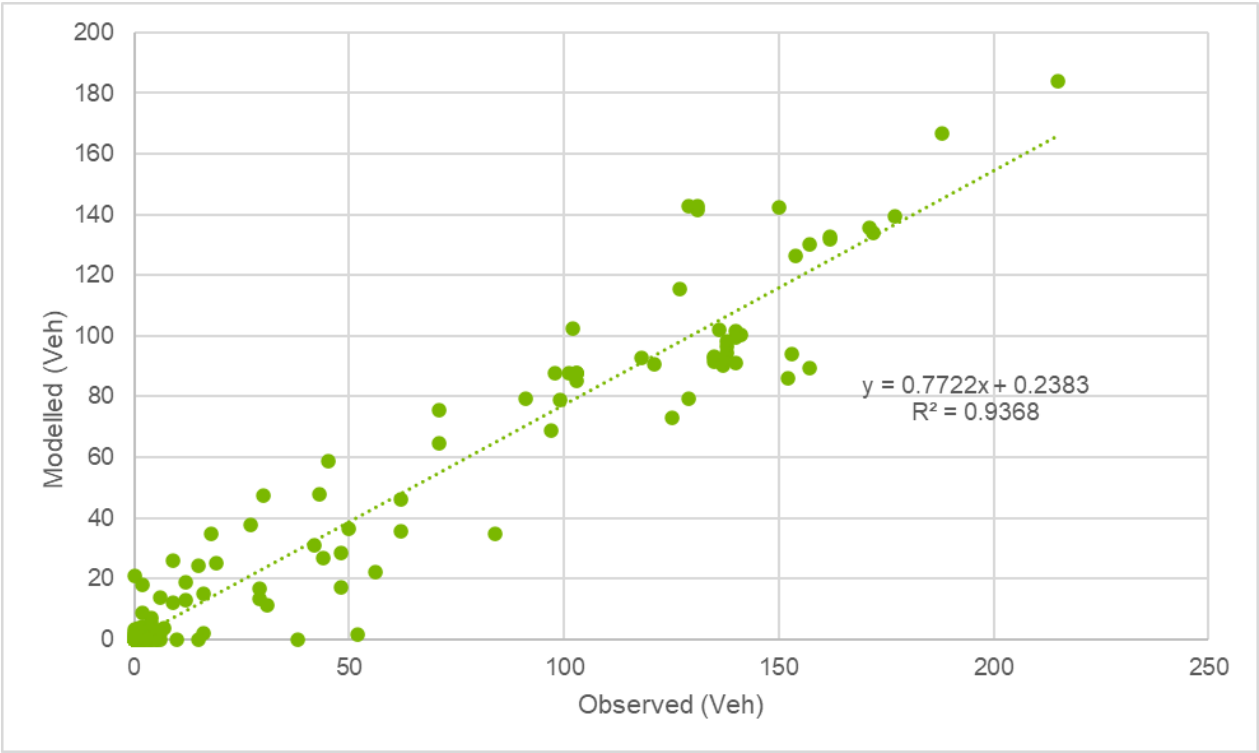


Figure 6-9: 7:45-8:45 AM regression plots for heavy vehicles

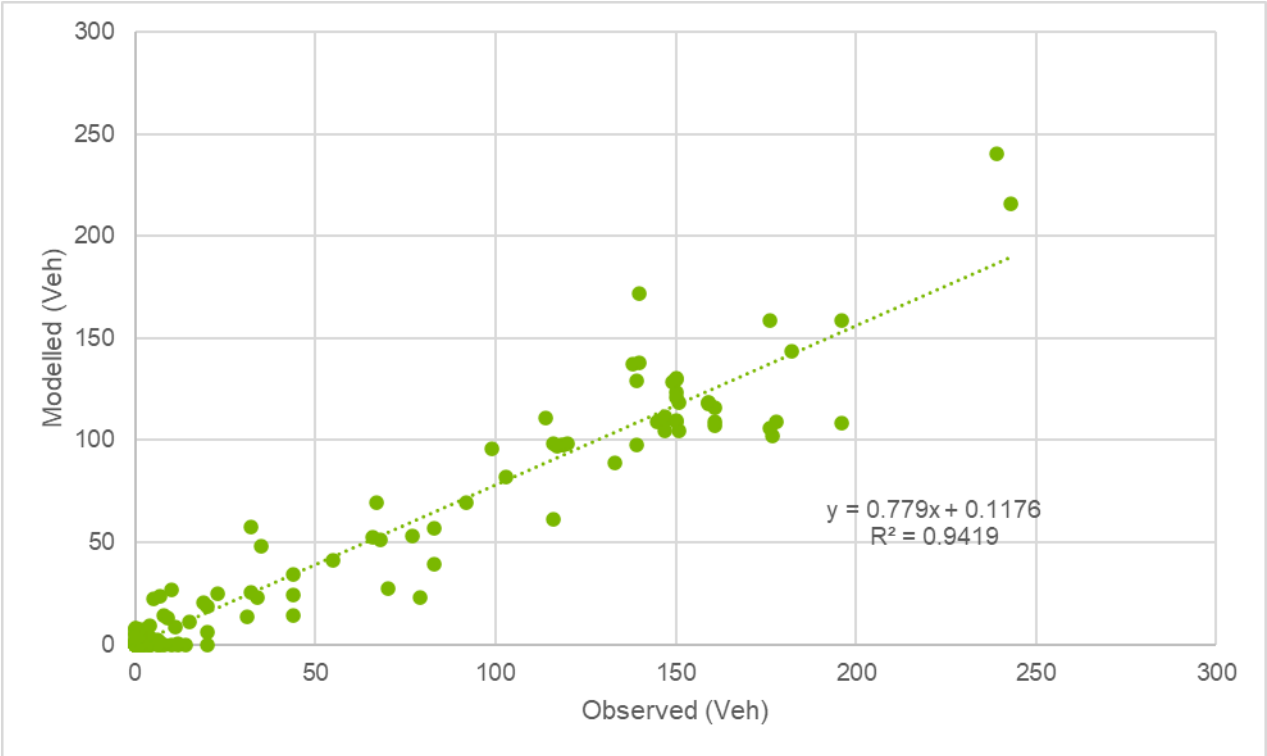


Figure 6-10: 8:45-9:45 AM regression plots for heavy vehicles

6.3.2 PM Model Traffic Count Calibration Results

Table 6-6 and Table 6-7 summarise model calibration results for the weekday during PM peak hours (03:30-04:30 PM and 04:30-05:30 PM) for both light and heavy vehicles. Figure 6-11 to Figure 6-14 show the scatter plots between modelled and observed hourly flows for the above PM peak model periods, respectively.

- During 03:30-04:30 PM and 04:30-05:30 PM, 100 per cent of turn flows have GEH value of less than 10 for both light and heavy vehicles (GEH <10).
- 98.15% (159 of 162) of all movements during PM peak for light vehicles have GEH value of less than 5 (GEH<5).
- 96.91% (157 of 162) of all movements during 03:30-04:30 PM and 97.53% (158 of 162) of all movements during 04:30-005:30 PM for heavy vehicles have GEH value of less than 5 (GEH<5).
- These results are reinforced with a high R^2 value 0.993 and 0.991 for light vehicles and 0.943 and 0.931 for heavy vehicles, which demonstrates that a high level of calibration was achieved for the weekday PM peak period (3:30-4:30 PM and 4:30-5:30 PM).

Table 6-6 PM turn calibration statistic results for light vehicles

Network Wide Calibration Criteria	3:30-4:30 PM	4:30-5:30 PM	Calibration
85% of observations must have GEH < 5	159 (98.15%)	159 (98.15%)	✔
100% of observation must have GEH < 10	162 (100%)	162 (100%)	✔
Total observations	162	162	

Table 6-7 PM turn calibration statistic results for heavy vehicles

Network Wide Calibration Criteria	3:30-4:30 PM	4:30-5:30 PM	Calibration
85% of observations must have GEH < 5	157 (96.91%)	158 (97.53%)	✔
100% of observation must have GEH < 10	162 (100%)	162 (100%)	✔
Total observations	162	162	

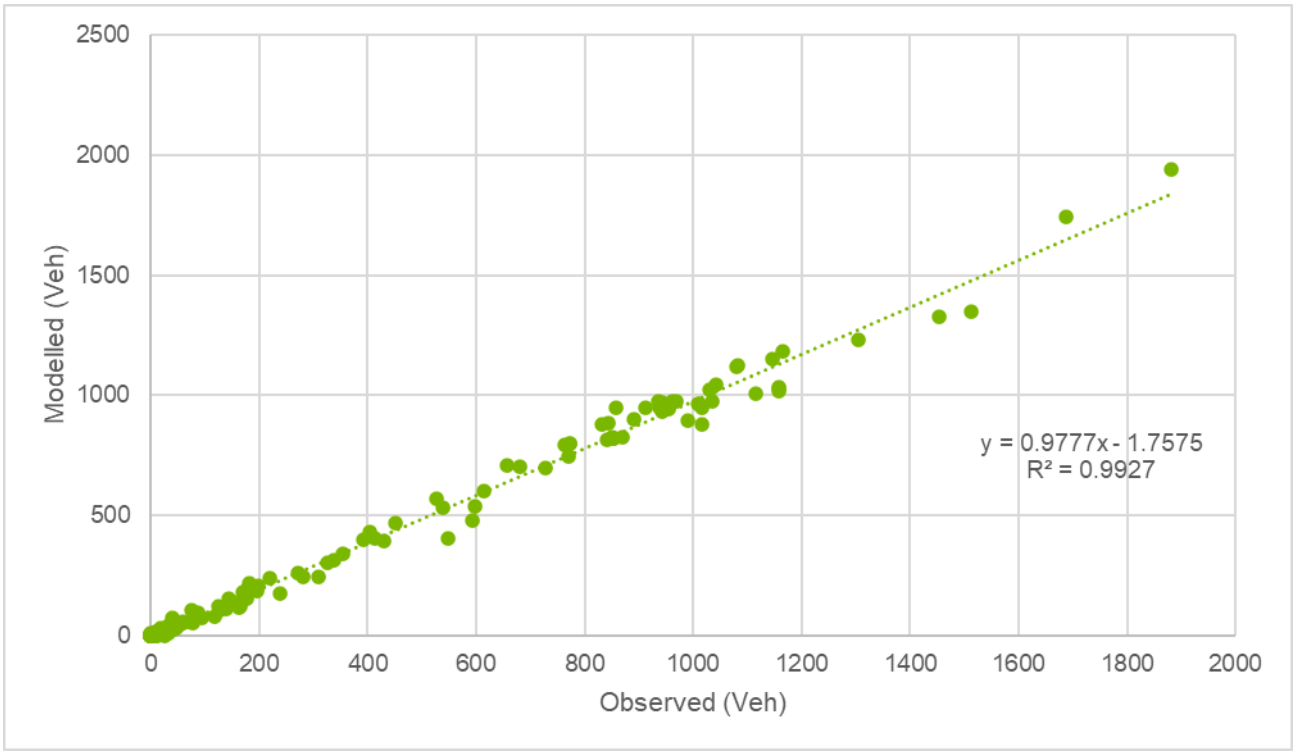


Figure 6-11: 3:30-4:30 PM regression plots for light vehicles

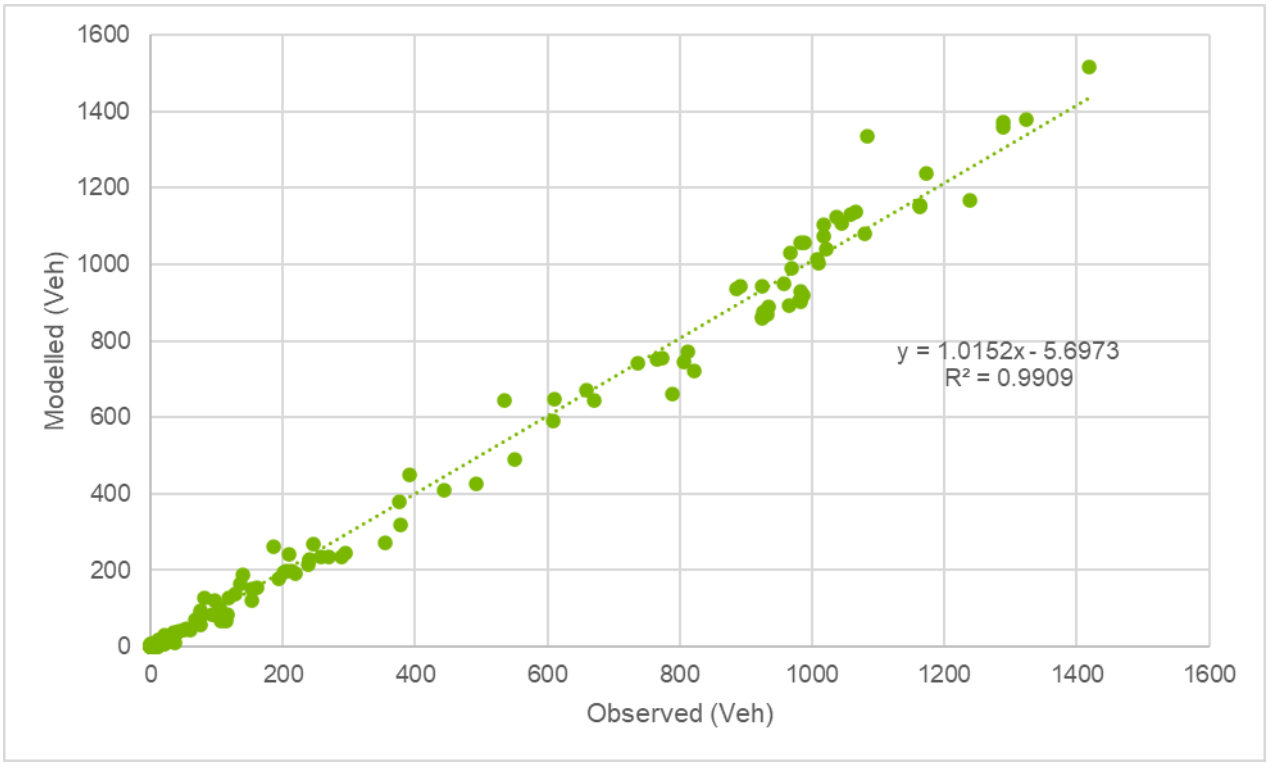


Figure 6-12 : 4:30-5:30 PM regression plots for light vehicles

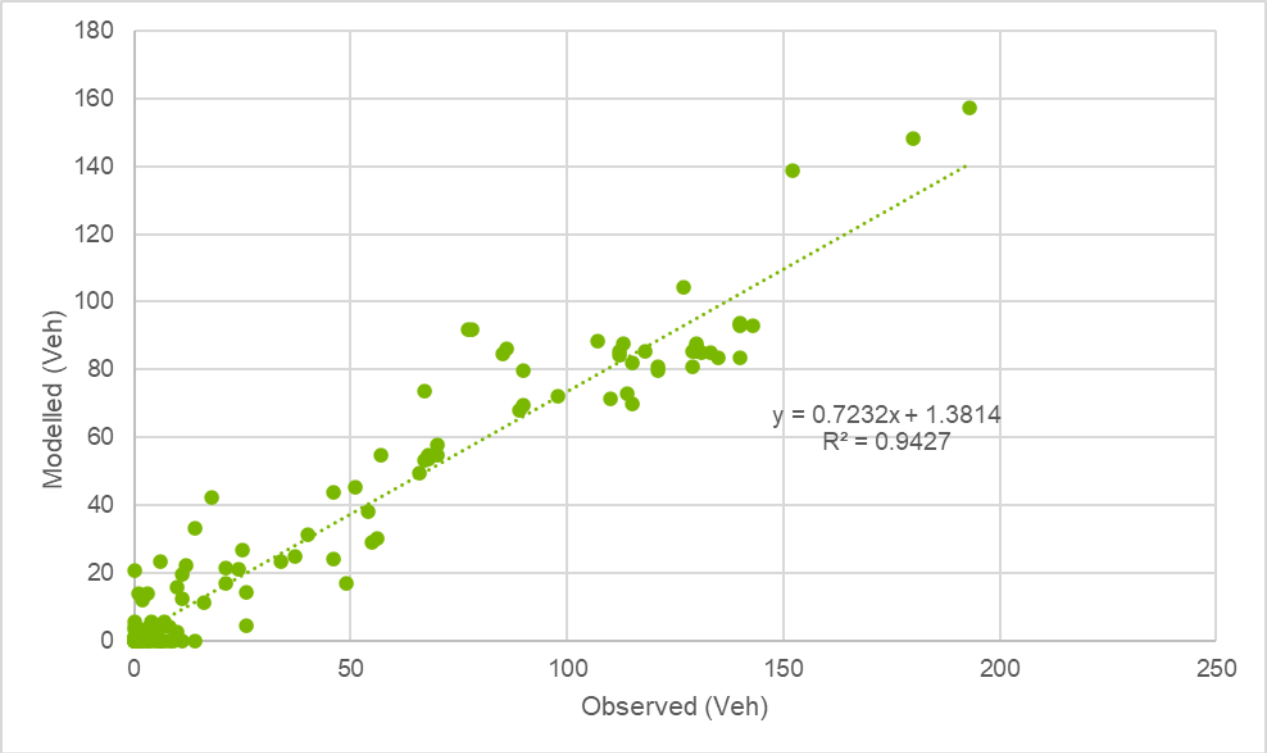


Figure 6-13: 3:30-4:30 PM regression plots for heavy vehicles

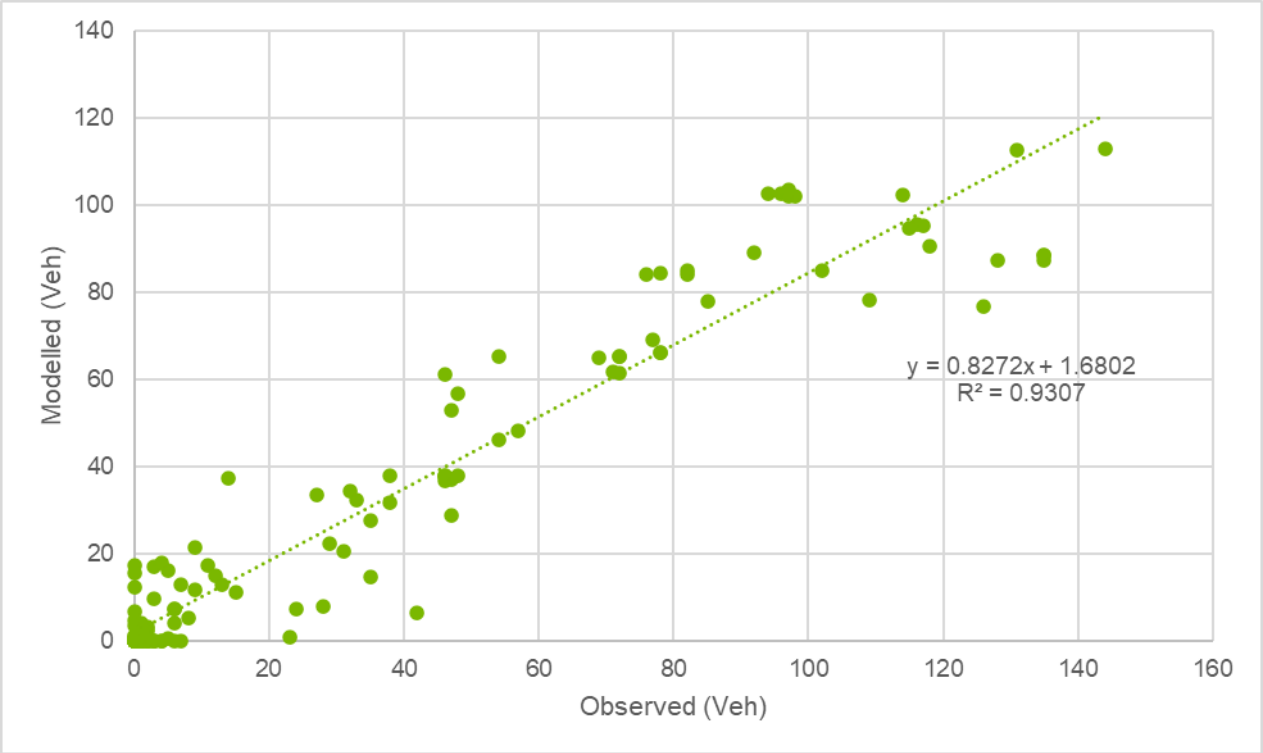


Figure 6-14: 4:30-5:30 PM regression plots for heavy vehicles

6.3.3 Weekend Model Traffic Count Calibration Results

Table 6-8 and Table 6-9 summarise model calibration results for the weekend peak hours (11:30 AM - 12:30 PM and 12:30 PM - 01:30 PM) for both light and heavy vehicles. Figure 6-15 to Figure 6-18 show the scatter plots between modelled and observed hourly flows for the above weekend peak model periods, respectively.

- During 11:30 AM - 12:30 PM and 12:30 PM - 01:30 PM, 100 per cent of turn flows have GEH value of less than 10 for both light and heavy vehicles (GEH <10).
- For light vehicles, 100% of all movements during 11:30 AM - 12:30 PM and 12:30 PM - 01:30 PM have GEH value of less than 5 (GEH<5).
- In case of heavy vehicles, 93.21% (151 of 162) of all movements during 11:30 AM - 12:30 PM and 95.68% (155 of 162) of all movements during 12:30 PM - 01:30 PM have GEH value of less than 5 (GEH<5).
- These results are reinforced with a R^2 value 0.997 and 0.997 for light vehicles and 0.869 and 0.892 for heavy vehicles, which demonstrates that a good level of calibration was achieved for the weekend peak period (11:30 AM - 12:30 PM and 12:30 PM - 01:30 PM).

Table 6-8: Weekend turn calibration statistic results for light vehicles

Network Wide Calibration Criteria	11:30 AM - 12:30 PM	12:30 PM - 01:30 PM	Calibration
85% of observations must have GEH < 5	162 (100%)	162 (100%)	✔
100% of observation must have GEH < 10	162 (100%)	162 (100%)	✔
Total observations	162	162	

Table 6-9: Weekend turn calibration statistic results for heavy vehicles

Network Wide Calibration Criteria	11:30 AM - 12:30 PM	12:30 PM - 01:30 PM	Calibration
85% of observations must have GEH < 5	151 (93.21%)	155 (95.68%)	✔
100% of observation must have GEH < 10	162 (100%)	162 (100%)	✔
Total observations	162	162	

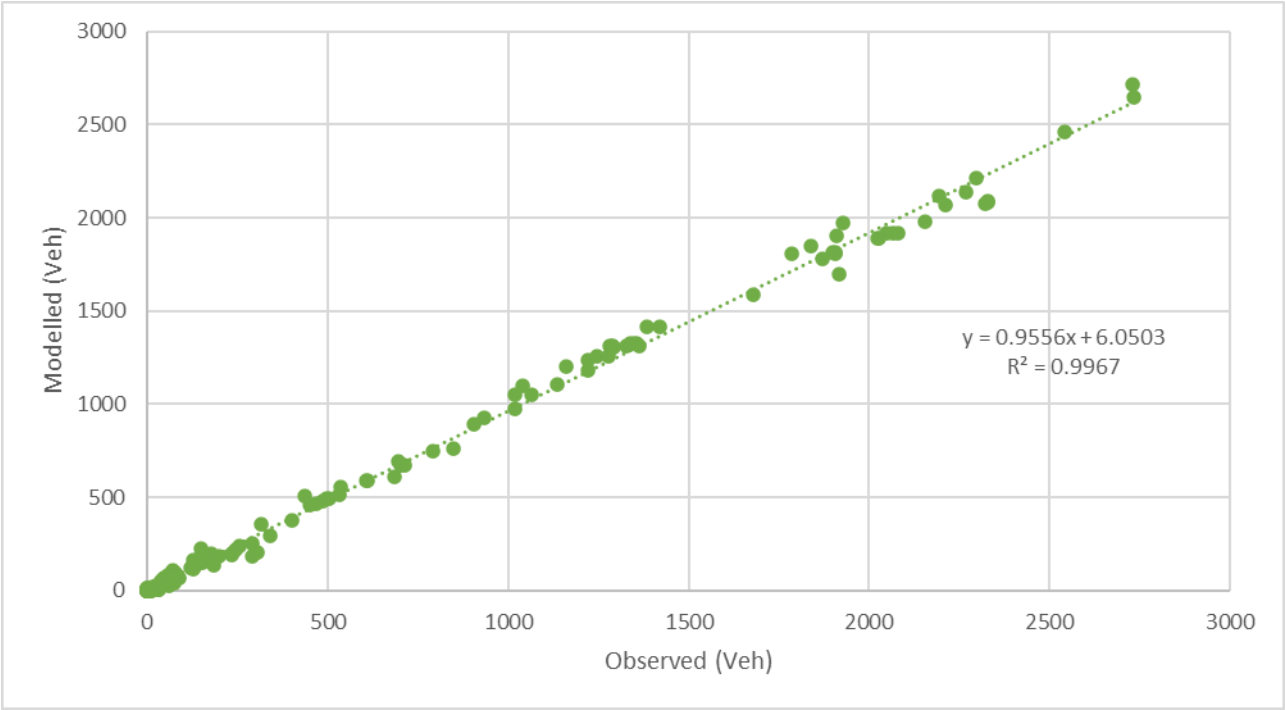


Figure 6-15: 11:30 AM - 12:30 PM regression plots for light vehicles

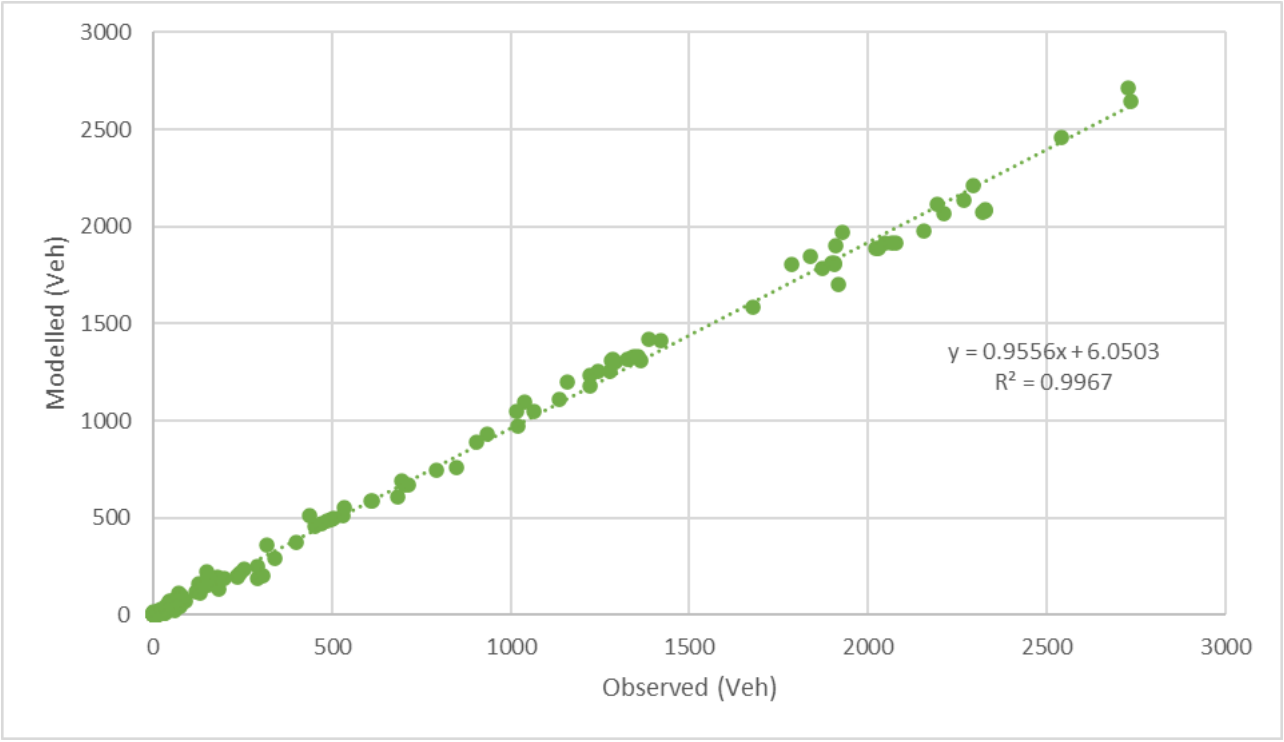


Figure 6-16: 12:30 PM - 01:30 PM regression plots for light vehicles

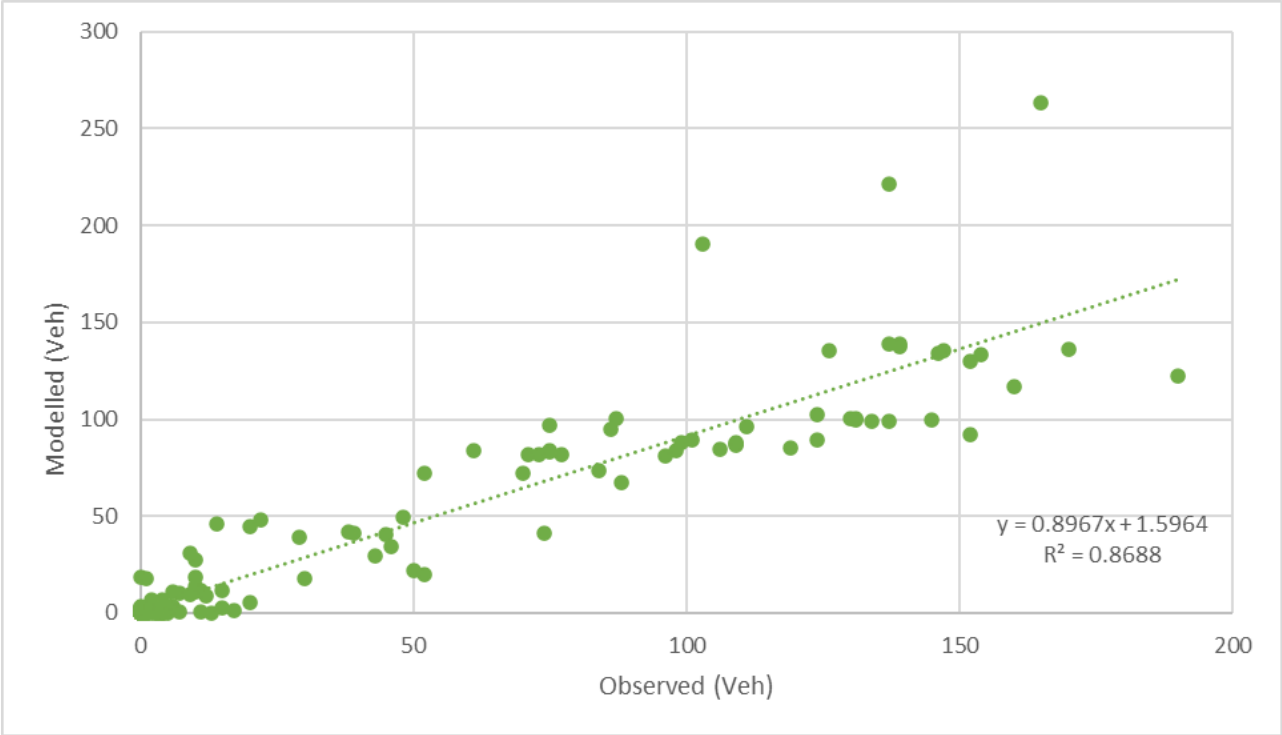


Figure 6-17: 11:30 AM - 12:30 PM regression plots for heavy vehicles

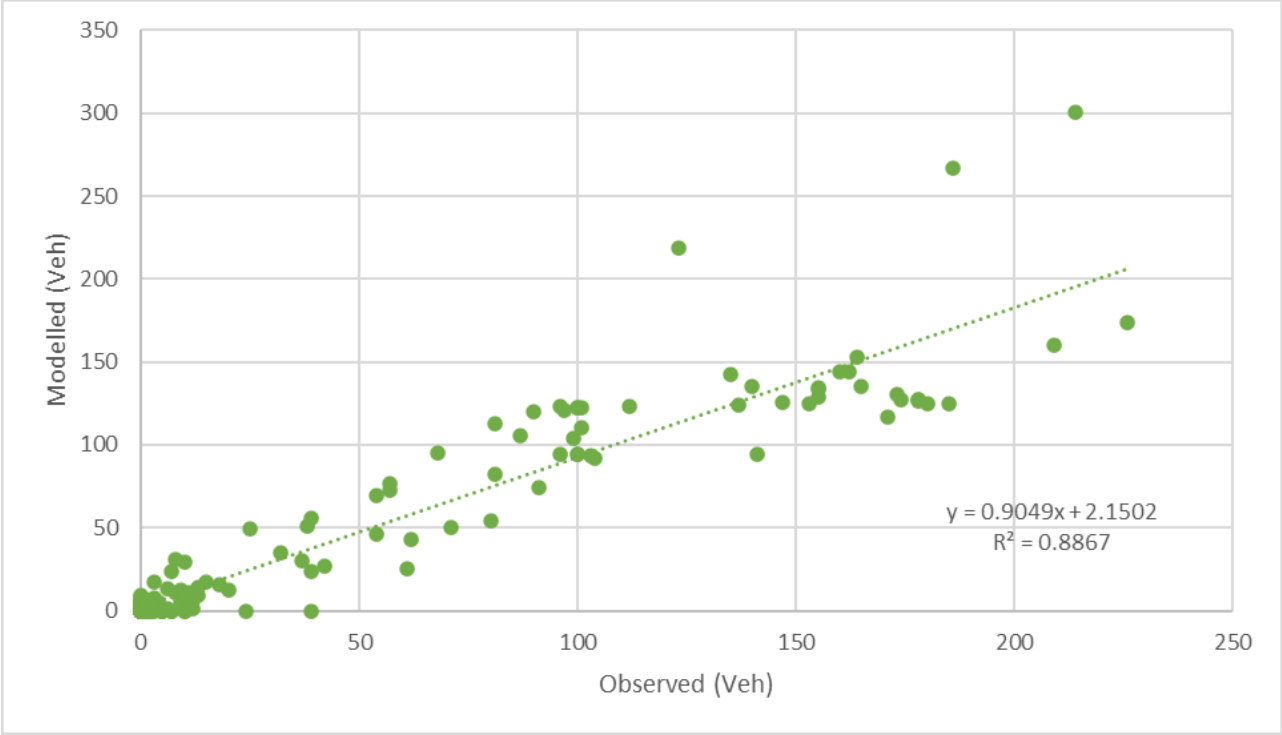


Figure 6-18: 12:30 PM - 01:30 PM regression plots for heavy vehicles

6.4 Model Validation

Model validation involves the comparison of observed and modelled traffic behaviour for datasets that are independent to the datasets used for the model calibration. Model validation is necessary to ensure that a model accurately represents an existing traffic situation and can be used with confidence to test alternatives.

6.4.1 Model Validation Criteria

Based on the Traffic Modelling Guidelines (Roads and Maritime, 2013), the average modelled journey time to be within 15 per cent or one minute (whichever is greater) of average observed journey time for full length of the route.

6.4.2 Network Parameter Modifications

As part of the travel time validation process, the following network parameters were modified from the TfNSW previously developed model and few network parameters were adopted for extension portion:

- During AM period
  - The acceleration factor from Bullecourt Avenue to Keys Parade Northbound has been increased by 2 times, acceleration factor for south approach and east-bound approach to HLD/Bullecourt Avenue intersection has been increased by 3 and acceleration factor from HLD/ M-5 intersection to Fromelles Avenue has been increased by 1.5.
  - For Flinders Road to Milperra Road the acceleration factor has been increased by 2 times, however for the portion between north approach of Beale Street to Endeavour Road the acceleration factor has been increased by 3 times. Similarly, the acceleration factor for (2 lane section) North approach to tower Road has been increased by 3 times.
  - The acceleration factor for South bound from Milperra to M-5 has been increased by 2 times except for the two-lane section between Milperra Road to Auld Avenue and Keys Parade to Raleigh Road.
- During PM period
  - In Northbound, the acceleration factor from Pozieres Avenue to Milperra has been increased by 2 times except for the portion between Keys Parade to Auld Avenue. For south approach and East bound approach of Bullecourt/HLD intersection, the acceleration factor has been increased by 3 times.
  - In South bound, the acceleration factor from Flinders Road to Milperra has been reduced by 0.5 times except for the portion between Haig Avenue to Georges golf course and Tower Road south bound approach for which acceleration factor has been reduced by 0.2 times.
  - The acceleration factor for East bound and West bound approach for HLD/ Milperra intersection has been increased by 3 times. The acceleration factor for the reaming portion of West bound section on Newbridge Road and Milperra road has been increased by 2 times.
- During Weekend period
  - The acceleration factor for northbound and southbound between M5 and Flinders Road has been increased by 5 times.
  - For Milperra Road, an acceleration factor of 5 was used for both eastbound and westbound.
  - Based on midblock survey conducted by Matrix in 2022, the section between M-5 and Bullecourt Avenue had an 85th percentile speed of approximately 70 km/ h. Therefore, attribute override was created to reflect the 85th percentile speed for that section in the model for weekend.

The parameter changes on the AM, PM and weekend peak scenarios were added as Attribute Overrides.

6.4.3 Validation Results for AM Model

The modelled travel times along Henry Lawson Drive have been validated against HERE travel time data for two hours, 07:45-08:45 AM and 08:45-09:45 AM. It should be noted that traffic count data used for calibration purposes is from 2018 and 2022; however, travel time data used during the validation process was collected in 2018. These differences in data collection year may result in discrepancies between the surveyed data, which might impact modelled results.

Figure 6-19 to Figure 6-22 and Table 6-10 present travel time results for the morning peak. Overall, the modelled and HERE travel time data show a good correlation and fit within the 15% range or one minute for northbound section except for southbound section which has travel time difference of 1:33 minutes during 07:45 – 08:45 AM and travel time difference of 1:50 minutes during 08:45 to 09:45 AM. Based on the fact that calibration and validation data were obtained for different dates and that the total travel time difference is within two minutes for the entire corridor, it can be considered that modelled travel times are a good representation of what was observed on site.

Table 6-10: Travel Time Validation Northbound and Southbound during AM Peak

Travel Route	Direction	Time	Observed (mm:ss)	Modelled (mm:ss)	Abs Diff (mm:ss)	Rel Diff %	Result
M5-Flinders Road	Northbound	07:45-08:45 AM	08:26	08:20	00:06	1%	PASS
M5-Flinders Road	Northbound	08:45-09:45 AM	10:43	09:56	00:47	7%	PASS
Flinders Road-M5	Southbound	07:45-08:45 AM	07:37	09:11	01:33	20%	FAIL
Flinders Road-M5	Southbound	08:45-09:45 AM	07:03	08:53	01:50	26%	FAIL
Travel Time Criteria and measure		Criteria	Observed Total		Modelled Achieved	Achieved	Result
±15% or one minute (whichever is greater) of average of full length of routes		≥95% of cases	2		2	100%*	PASS

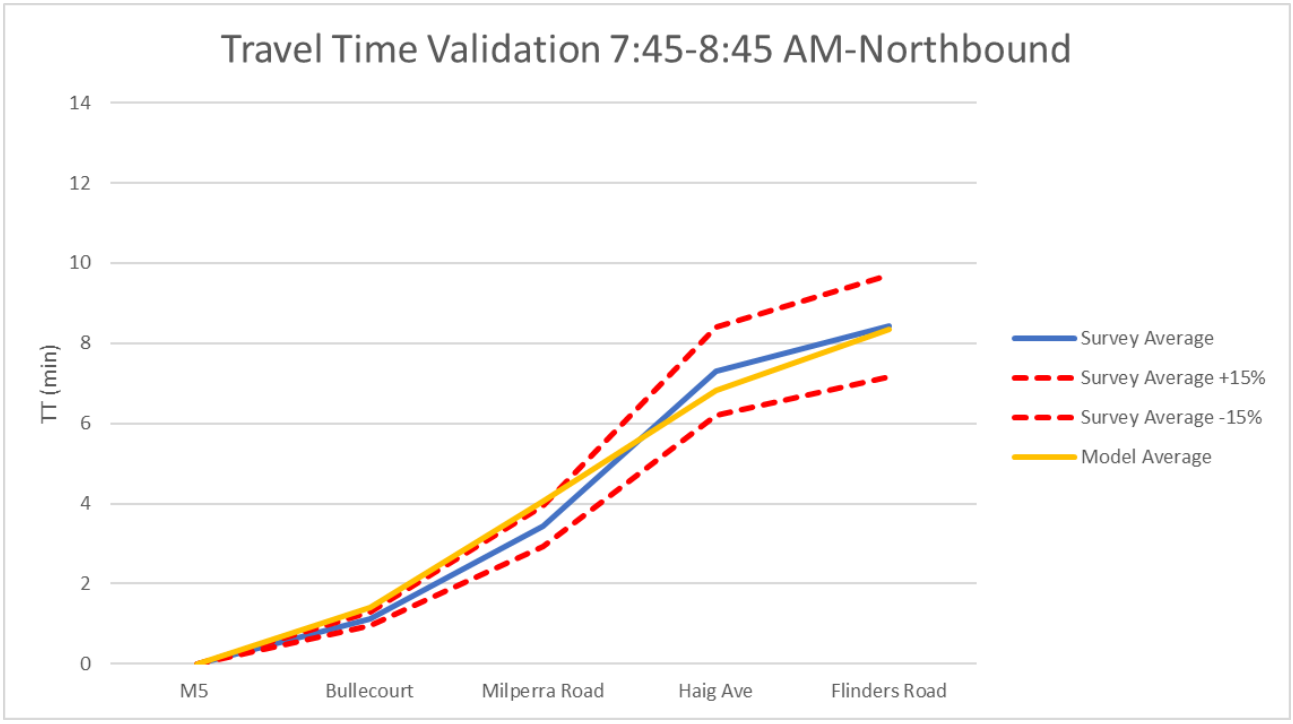


Figure 6-19: Travel time validation northbound 7:45-8:45 AM

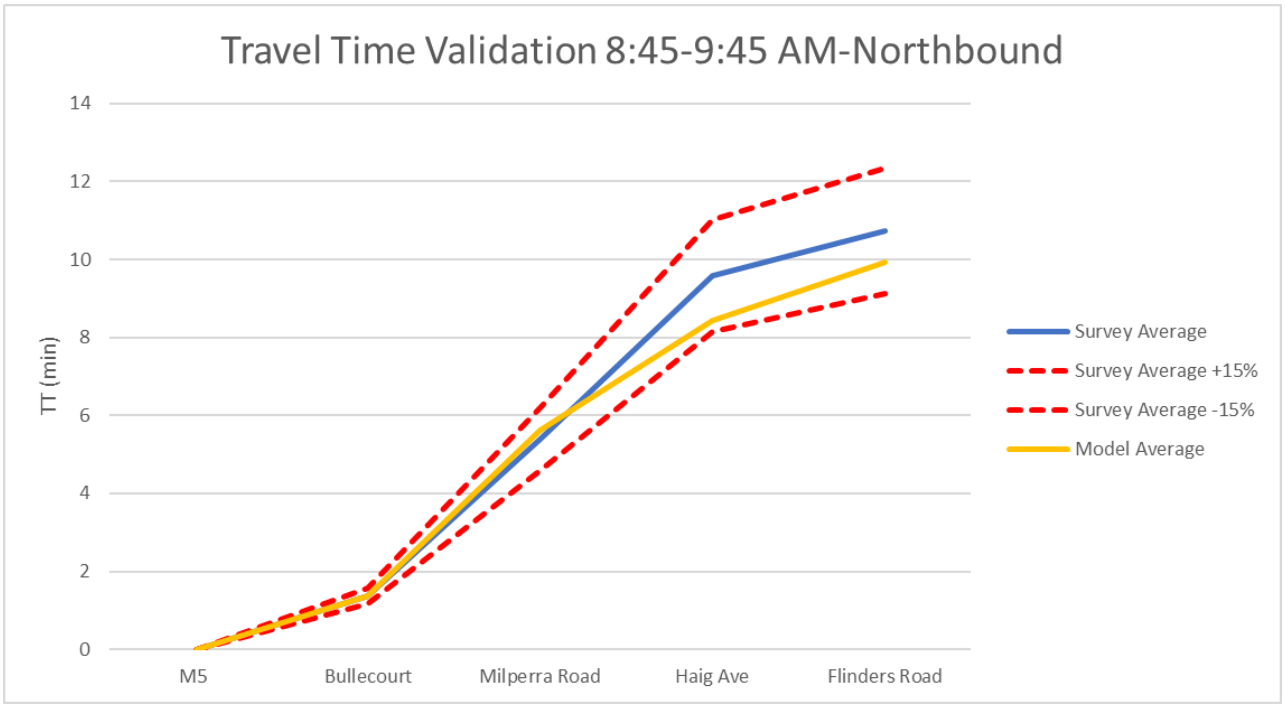


Figure 6-20 Travel time validation northbound 8:45-9:45 AM

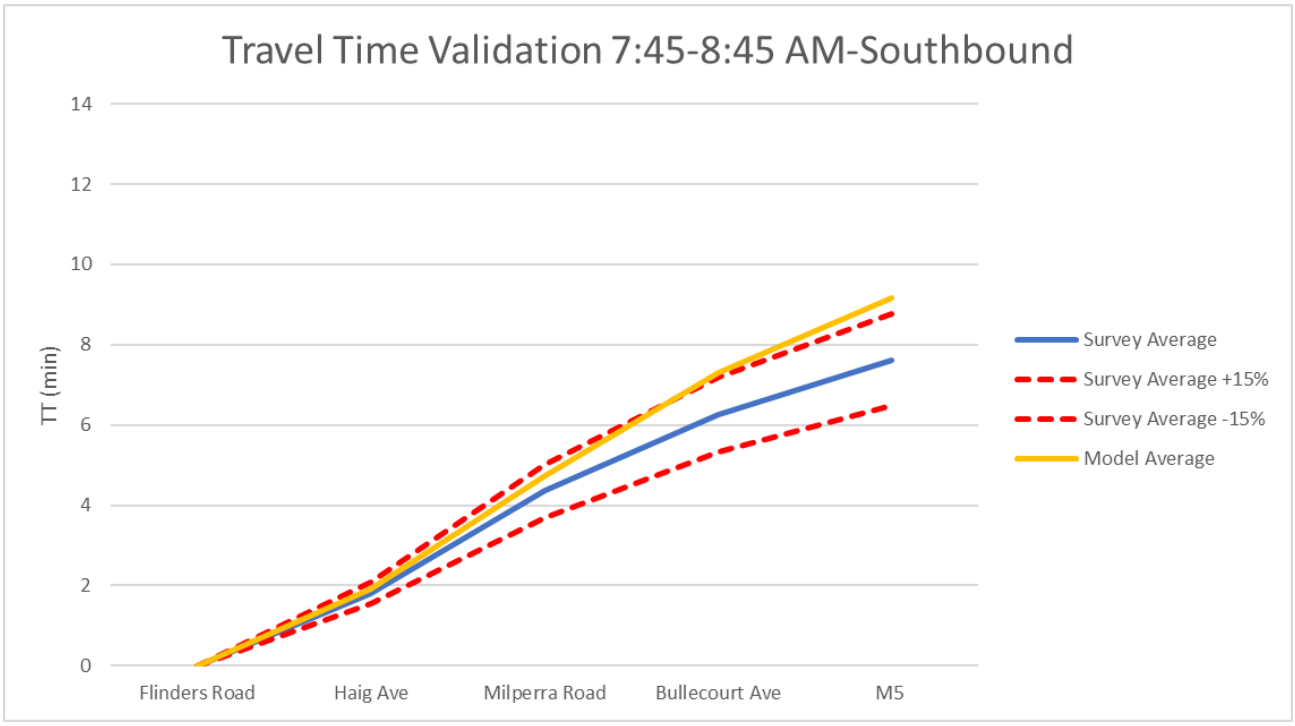


Figure 6-21: Travel time validation southbound 7:45-8:45 AM

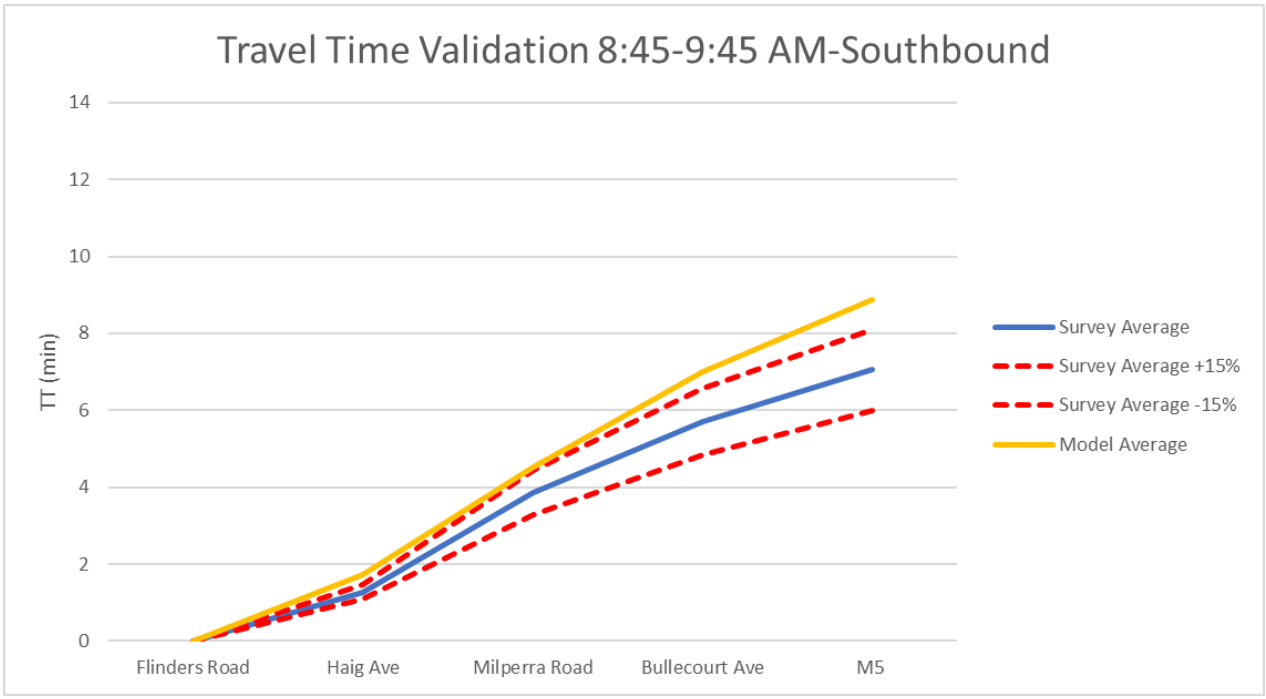


Figure 6-22: Travel time validation southbound 8:45-9:45 AM

6.4.4 Validation Results for PM Model

The modelled travel times along Henry Lawson Drive have been validated against HERE travel time data for two hours, 03:30-04:30 PM and 04:30-05:30 PM. It should be noted that traffic count data used for calibration purposes is from 2018 and 2022; however, travel time data used during the validation process was collected in 2018. These differences in data collection year may result in discrepancies between the surveyed data, which might impact modelled results.

Figure 6-23 to Figure 6-26 and Table 6-11 present travel time results for the evening peak. Overall, the modelled and HERE travel time data show a good correlation and fit within the 15% range or one minute for all analysed sections, satisfying the validation criteria.

Table 6-11: Travel Time Validation Northbound and Southbound during PM Peak

Travel Route	Direction	Time	Observed (mm:ss)	Modelled (mm:ss)	Abs Diff (mm:ss)	Rel Diff %	Result
M5-Flinders Road	Northbound	03:30-04:30 PM	09:30	08:17	01:13	13%	PASS
M5-Flinders Road	Northbound	04:30-05:30 PM	07:57	08:50	00:52	-11%	PASS
Flinders Road-M5	Southbound	03:30-04:30 PM	11:15	10:23	-00:52	8%	PASS
Flinders Road-M5	Southbound	04:30-05:30 PM	10:42	11:27	-00:45	-7%	PASS
Travel Time Criteria and measure		Criteria	Observed Total		Modelled Achieved	Achieved	Result
±15% or one minute (whichever is greater) of average of full length of routes		≥95% of cases	2		2	100%*	PASS

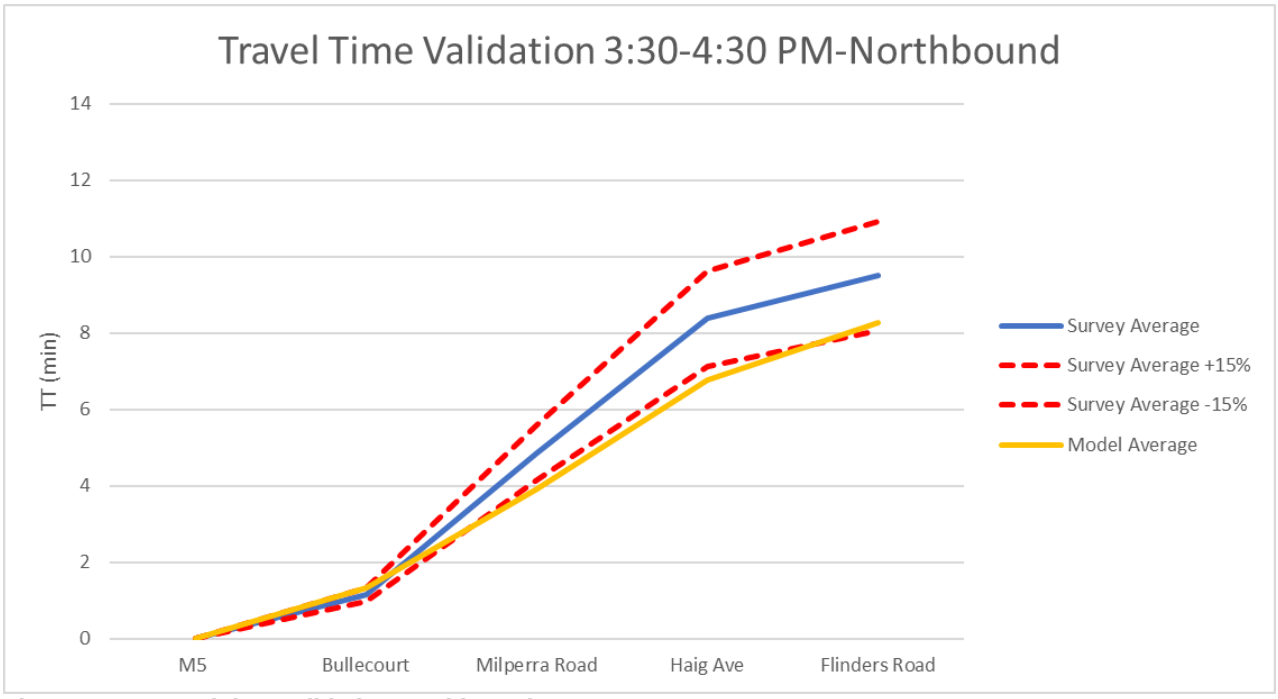


Figure 6-23: Travel time validation northbound 3:30-4:30 PM

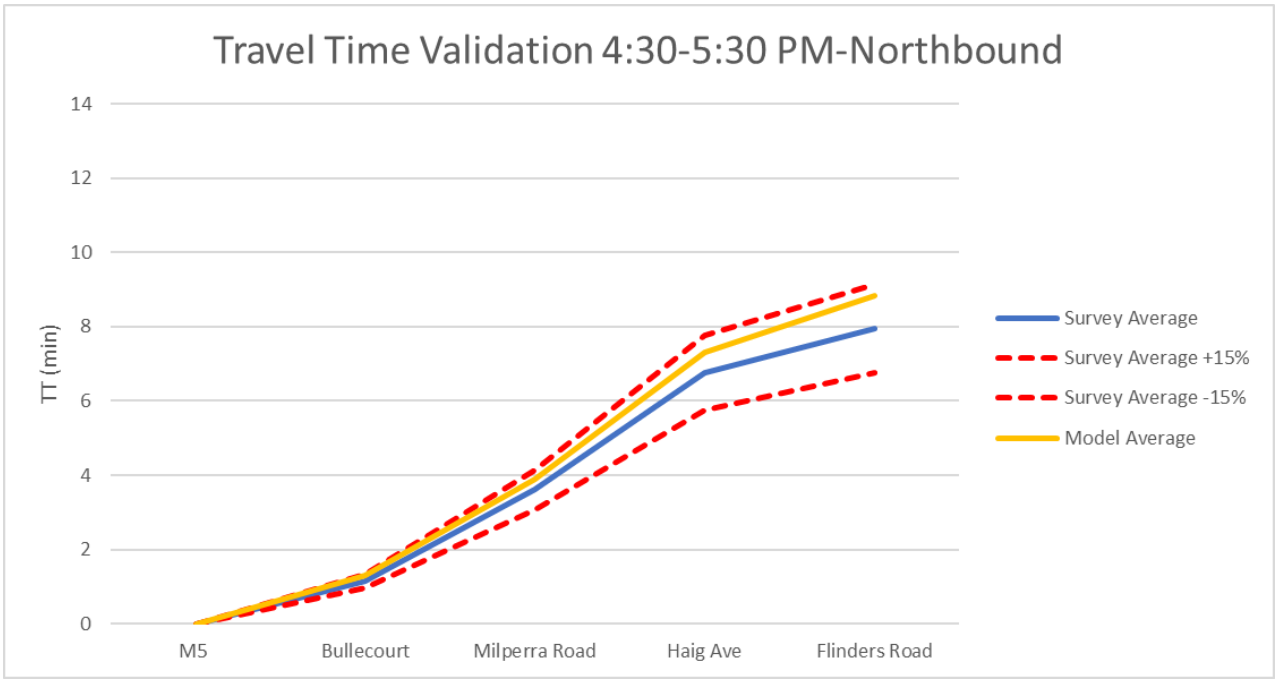


Figure 6-24: Travel time validation northbound 4:30-5:30 PM

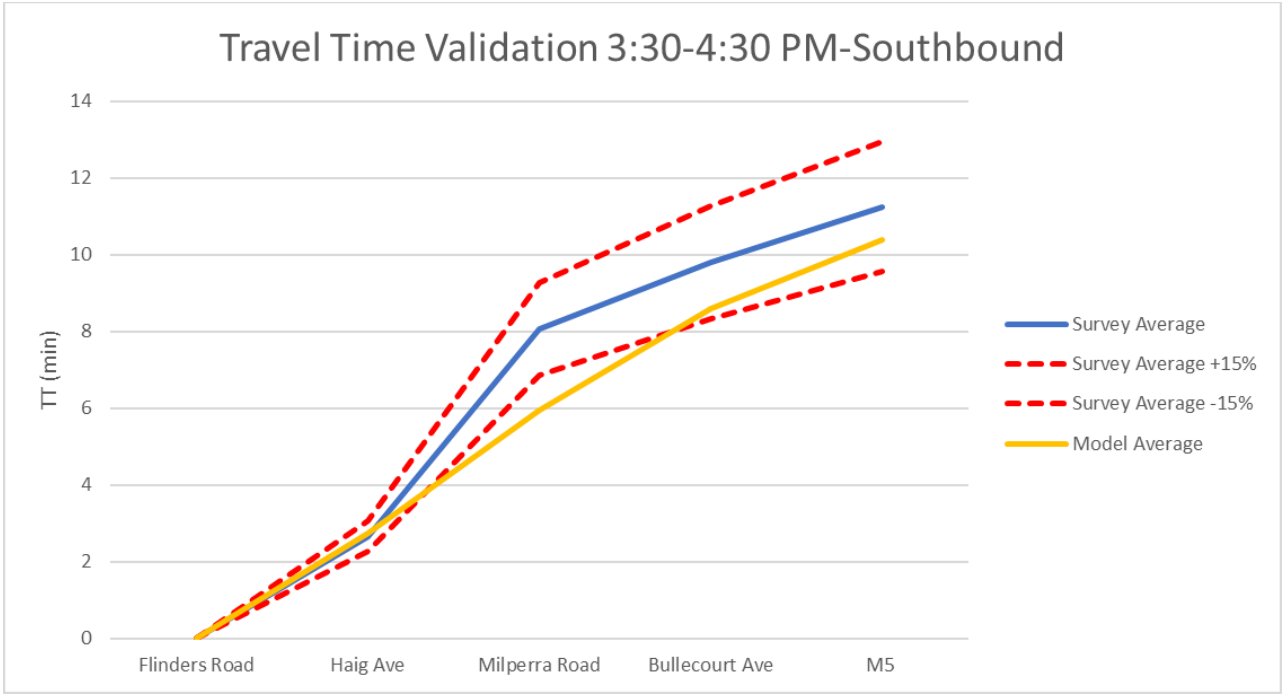


Figure 6-25: Travel time validation southbound 3:30-4:30 PM

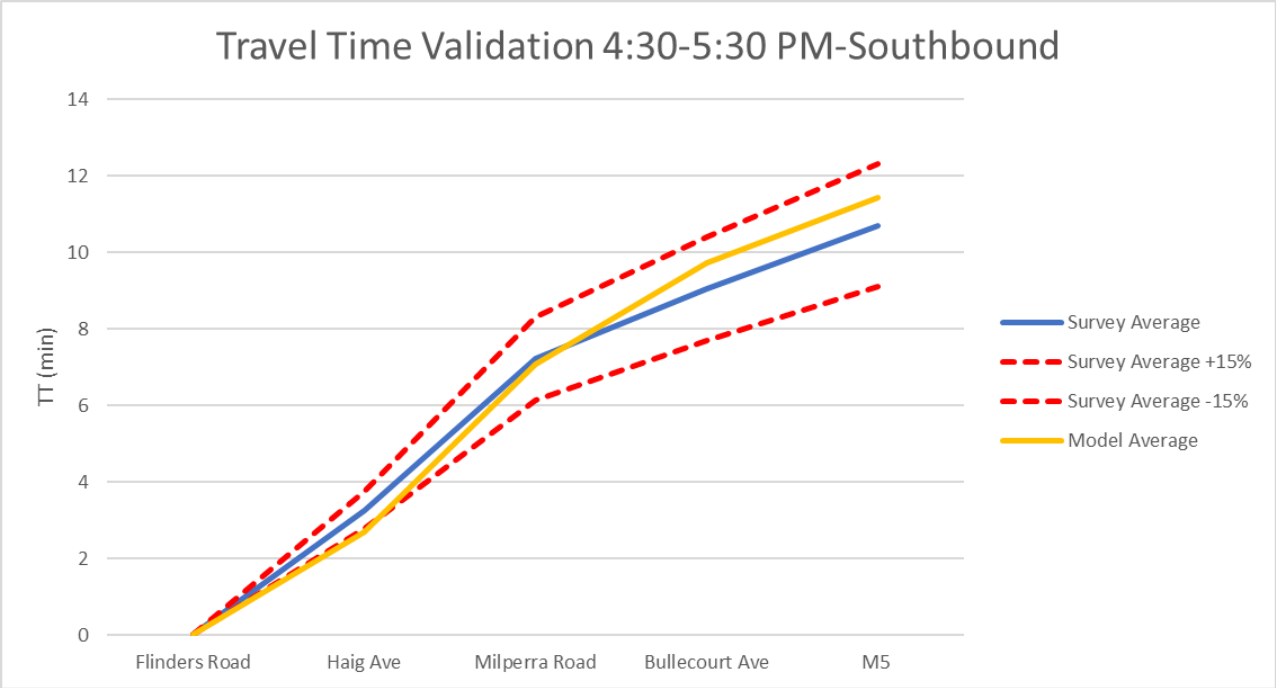


Figure 6-26: Travel time validation southbound 4:30-5:30 PM

6.4.5 Validation Results for Weekend Model

The Modelled travel times along Henry Lawson Drive have been validated against HERE travel time data for two hours, 11:30 AM - 12:30 PM and 12:30 PM - 01:30 PM. It should be noted that traffic count data used for calibration purposes is from 2021 and 2022; however, travel time data used during the validation process was collected in 2018. These differences in data collection year may result in discrepancies between the surveyed data, which might impact modelled results.

Figure 6-27 to Figure 6-30 and Table 6-12 present travel time results for the morning peak. Overall, the modelled and HERE travel time data show a correlation, however, not within the 15% range or one minute for the northbound and southbound sections. For the northbound, there is a travel time difference of 01:40 minutes during 11:30 AM - 12:30 PM and travel time difference of 1:15 minutes during 12:30 PM - 01:30 PM. In the case of southbound, there is a travel time difference of 01:34 minutes during 11:30 AM - 12:30 PM and travel time difference of 2:18 minutes during 12:30 PM - 01:30 PM.

Since the calibration and validation data were obtained for different dates and that the total travel time difference is within two minutes for the entire corridor, it can be considered that modelled travel times are a good representation of what was observed on site.

Table 6-12: Travel Time Validation Northbound and Southbound during AM Peak

Travel Route	Direction	Time	Observed (mm:ss)	Modelled (mm:ss)	Abs Diff (mm:ss)	Rel Diff %	Result
M5-Flinders Road	Northbound	11:30 AM-12:30 PM	06:10	07:50	01:40	27%	FAIL
M5-Flinders Road	Northbound	12:30 PM-01:30 PM	06:47	08:01	01:15	18%	FAIL
Flinders Road-M5	Southbound	11:30 AM-12:30 PM	07:01	08:35	01:34	22%	FAIL
Flinders Road-M5	Southbound	12:30 PM-01:30 PM	06:18	08:36	02:18	36%	PASS

Travel Time Criteria and measure	Criteria	Observed Total	Modelled Achieved	Achieved	Result
±15% or one minute (whichever is greater) of average of full length of routes	≥95% of cases	2	0	0%	FAIL

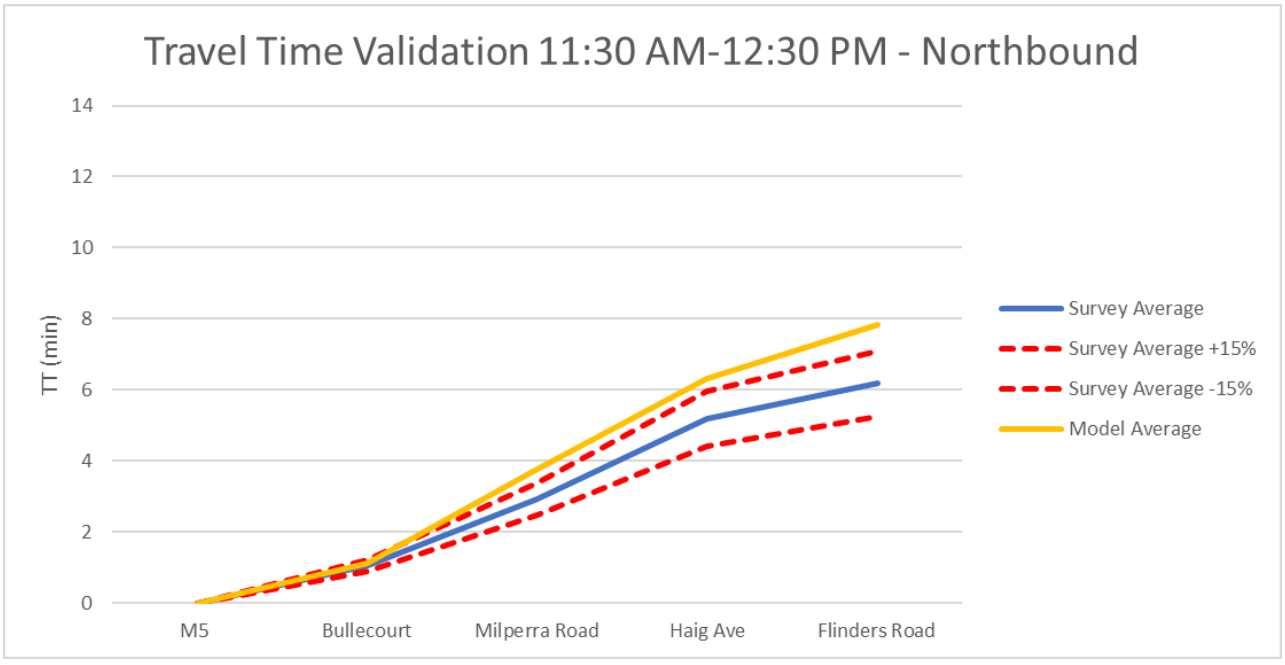


Figure 6-27: Travel time validation northbound 11:30 AM-12:30 PM

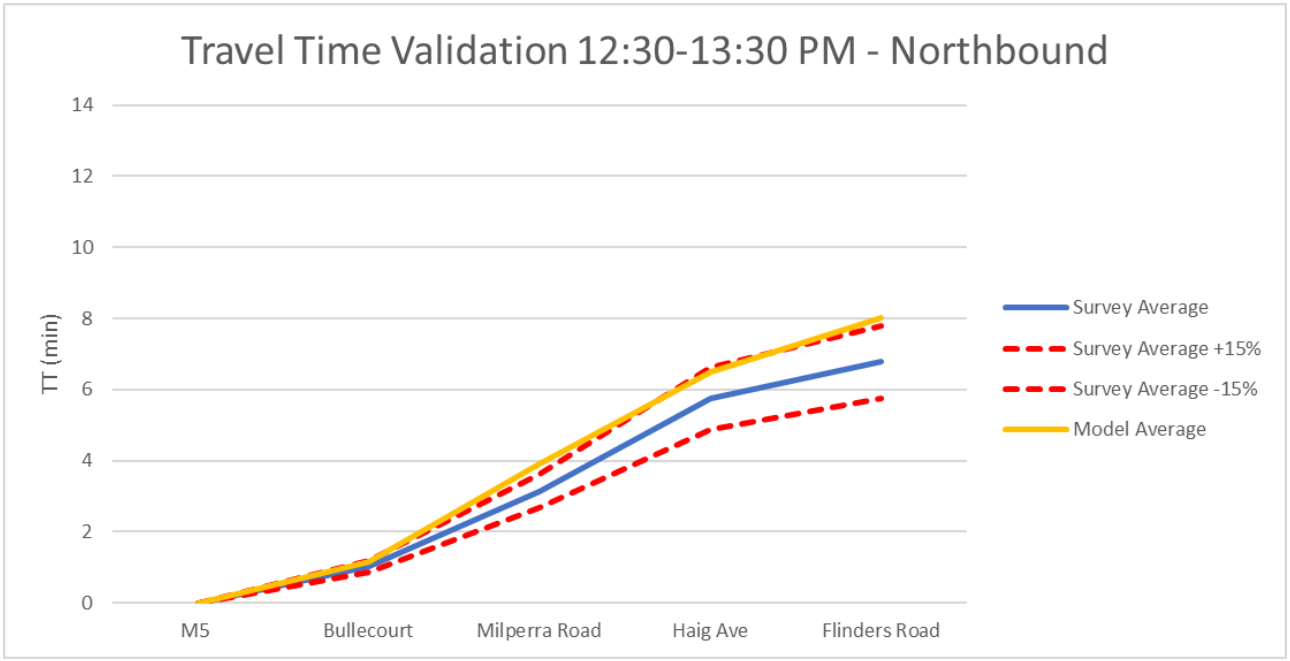


Figure 6-28 Travel time validation northbound 12:30 PM - 01:30 PM

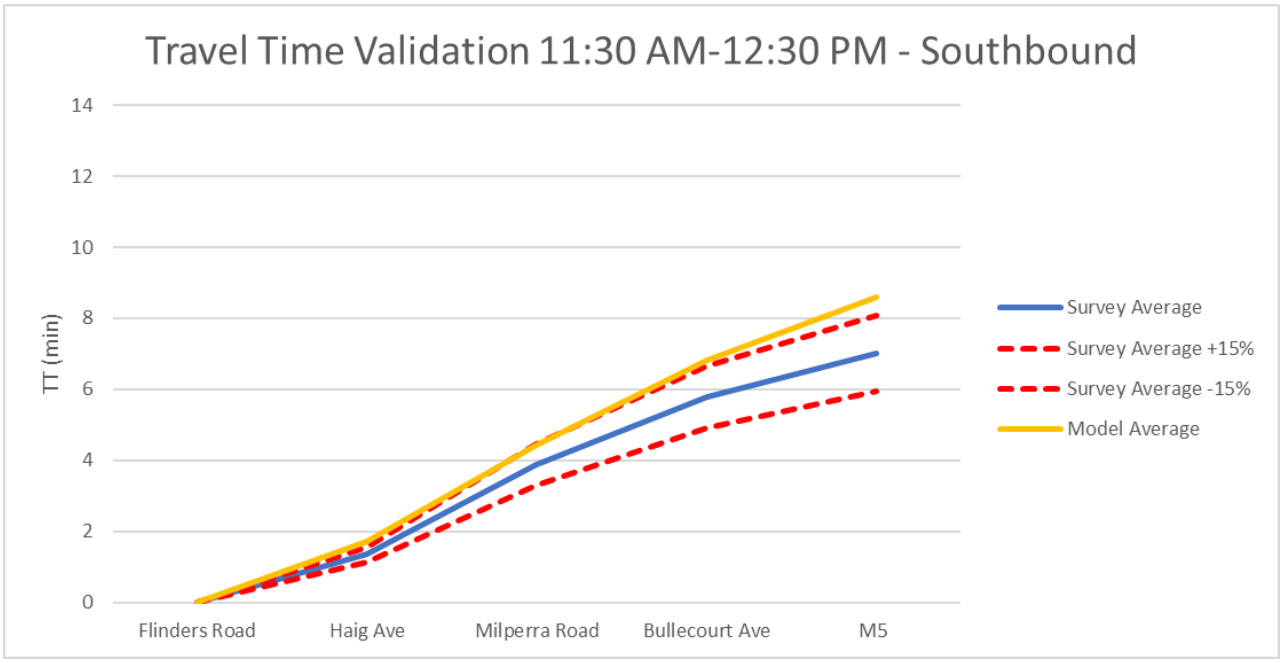


Figure 6-29: Travel time validation southbound 11:30 AM-12:30 PM

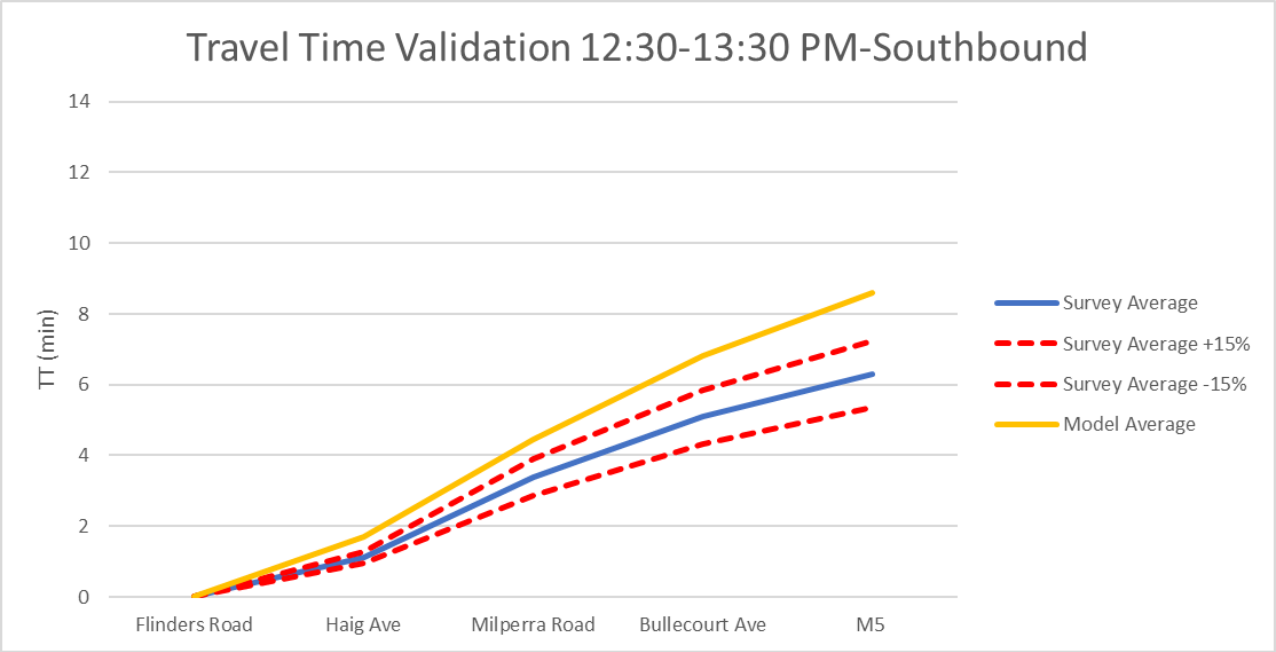


Figure 6-30: Travel time validation southbound 12:30 PM - 01:30 PM

6.5 Intersection Level of Service

This section provides simulated Level of Services (LOS) across the modelled time periods at 15 key intersections in the modelled area. Detailed results are presented in **Appendix C**.

The key indicator of intersection performance level of service (LOS) is delay, where results are ranked on a scale from A to F as shown in Table 6-13 (Traffic Modelling Guidelines, 2013). As intersections become more congested, the delay increases, reducing the intersection LOS towards F. It should be noted that LOS F starts when the average delay reaches 70sec/veh and does not register as anything worse than LOS F even though the delay may increase to two or three times this value. For traffic signals, the average movement delay and level of service over all movements is considered.

Table 6-13 Level of service criteria in accordance with RMS Traffic Modelling Guidelines

Level of service	Average delay per vehicle (s)	Traffic Signal, Roundabouts	Give way and stop signs
A	<14	Good operation	Good operation
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity, at signals, incidents will cause excessive delays	At capacity, requires other control mode
F	>70	Unsatisfactory and requires additional capacity	Unsatisfactory and requires additional capacity

6.5.1 AM Model Intersection Level of Service

The LOS has been analysed during 07:45-08:45 AM and 08:45-09:45 AM respectively, at 15 key intersections. Table 6-14 presents a LOS summary of these 15 key intersections during the weekday AM Peak period, whilst a detailed output is presented in **Appendix C.**

Table 6-14 AM Peak Intersection Level of Service Summary

ID	Intersection	07:45 - 08:45 AM			08:45 - 09:45 AM		
		Intersection			Intersection		
		Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
1	HLD/ Haig Avenue	2,404	33	C	2,142	34	C
2	HLD / Tower Road	2,833	26	B	2,601	55	D
3	HLD / Milperra Road	5,771	228	F	5,556	591	F
4	HLD/ Auld Avenue	2,101	6	A	1,975	6	A
5	HLD / Keys Parade	1,995	12	A	1,992	16	B
6	HLD/ Raleigh Road	1,985	5	A	1,742	5	A
7	HLD/ Ruthven Avenue	1,867	3	A	1,655	3	A
8	HLD/ Whittle Avenue	1,880	3	A	1,647	3	A
9	HLD/ Amiens Avenue	1,919	4	A	1,694	3	A
10	HLD/ Bullecourt Avenue	2,298	25	B	2,030	25	B
11	HLD/ Fromelles Avenue	2,018	8	A	1,726	7	A
12	HL / Hermies Avenue	2,043	4	A	1,757	3	A
13	HLD/ Pozieres Avenue	2,279	17	B	2,004	17	B
14	Murray Jones Drive/ Milperra Road	2,976	4	A	2,883	19	B
15	Ashford Avenue / Milperra Road	3,382	35	C	3,282	52	D

- Henry Lawson Drive / Keys Parade/ Flower power:
  - In the first AM peak hour from 07:45 AM to 08:45 AM, the intersection operates at LOS A with an intersection delay of 12 seconds, and in the second peak hour from 08:45 AM to 09:45 AM, the intersection operates at LOS B with an intersection delay of 16 seconds indicating a good level of service.
  - The demand on Henry Lawson Drive northbound and southbound is high. Figure 6-31 presents the typical intersection operation at Henry Lawson Drive / Keys Parade/Flower power intersection.

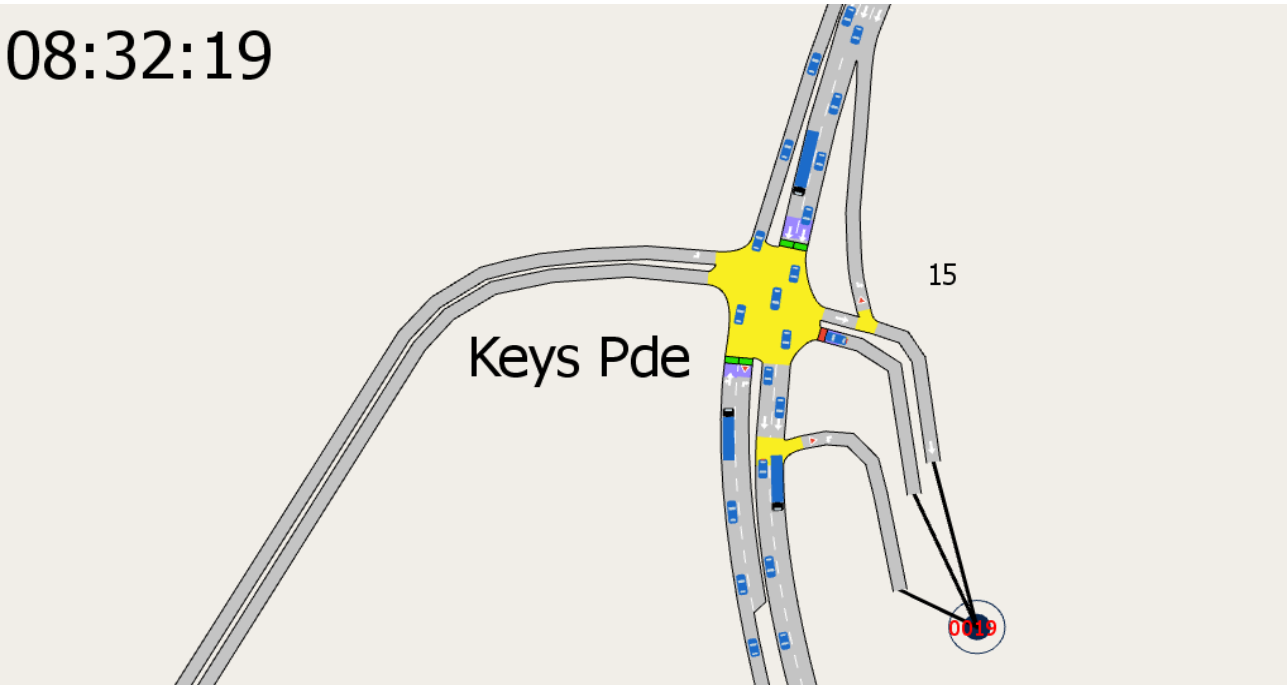


Figure 6-31 : Henry Lawson Drive / Keys Parade / Flower power Weekday AM peak operation screenshot.

- HLD / Bullecourt Avenue:
  - During the AM peak period from 7:45 AM to 9:45 AM, the intersection operates at LOS B with intersection delay of 25 seconds in both peak hours, indicating good level of performance. The traffic demand on northbound, southbound, and eastbound (turning into Bullecourt Avenue) is high which creates a small and short-lasting queue at each approach of the intersection. The model suggests that the queues on all approaches mostly get dissipated during green time for that approach. The users going northbound to Henry Lawson Drive from Bullecourt Avenue in the east approach face the most delay. The existing delay on Bullecourt Avenue is 68 seconds.
  - The Figure 6-32 presents Henry Lawson Drive/ Bullecourt Avenue intersection operation during AM peak in comparison to google typical traffic volume view during AM peak on weekday. Upon comparison, it is seen that the short queues at intersection approaches were captured.

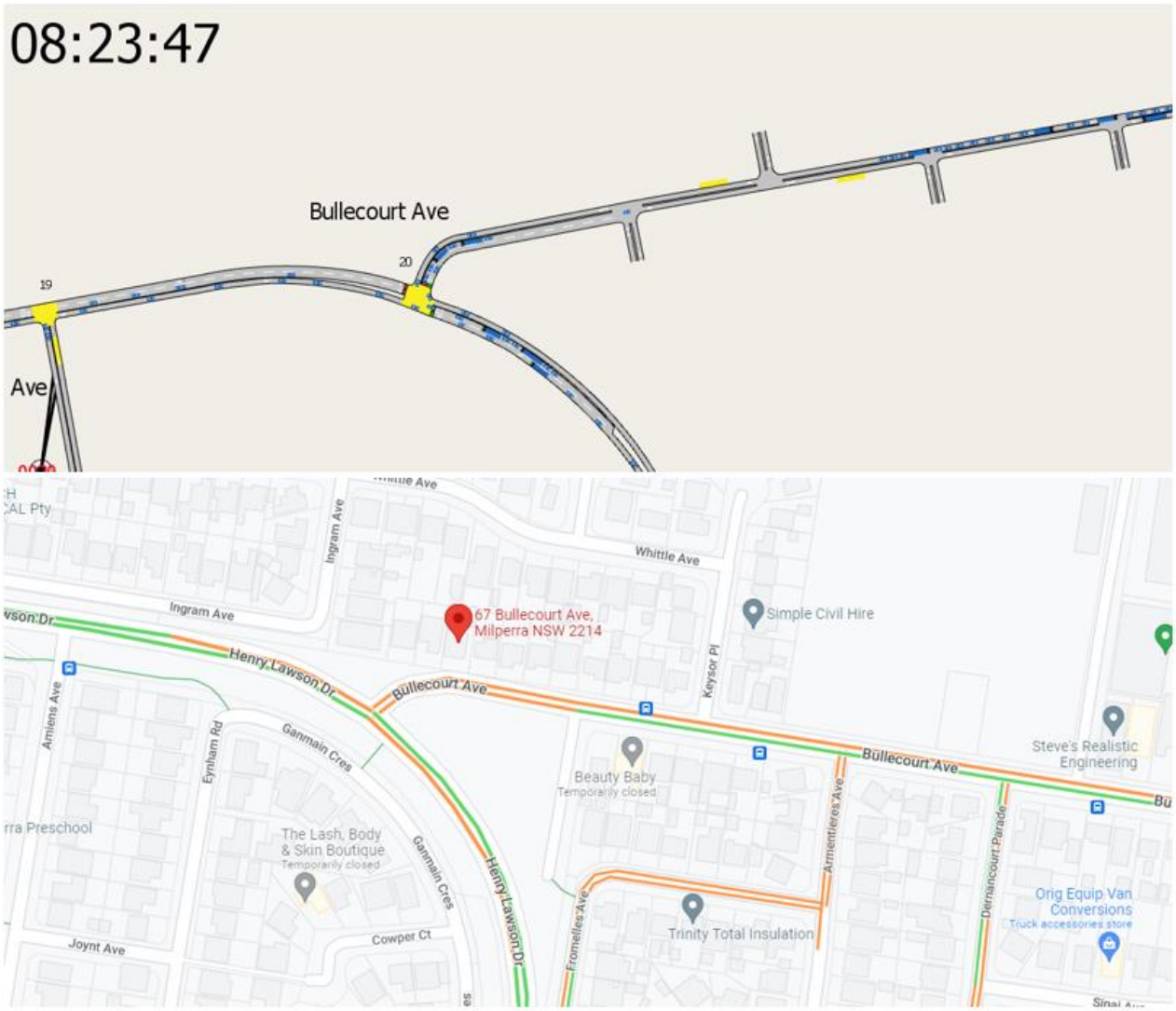
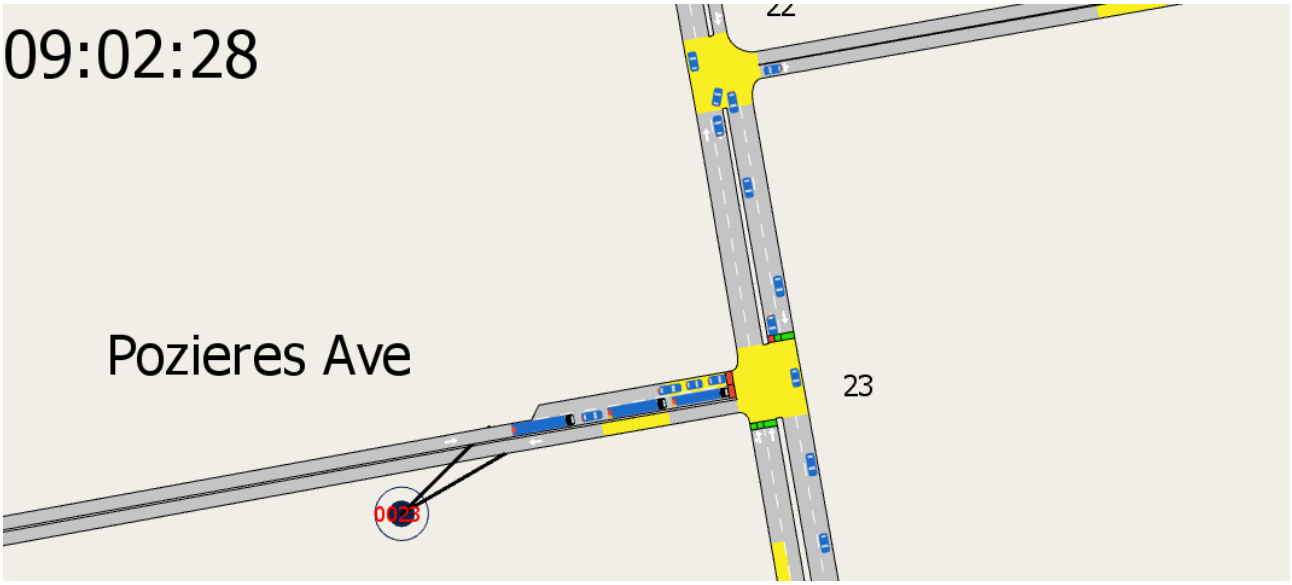


Figure 6-32 : Henry Lawson Drive/ Bullecourt Ave Weekday AM Peak Intersection operation screenshot

- HLD / Pozieres Avenue:
  - During AM peak period, the intersection operates at LOS B with intersection delay of 17 seconds in both hours. The model suggests the users turning from Pozieres Avenue into Henry Lawson Drive may face some delay. The delay for users from Pozieres Avenue is 68 seconds.



6.5.2 PM Model Intersection Level of Service

The LOS has been analysed during 3:30-4:30 PM and 4:30-5:30 PM respectively, at 15 key intersections. Table 6-15 presents a LOS summary of these 15 key intersections during the weekday PM Peak period while a detailed output is presented in **Appendix C**.

Table 6-15: PM Peak Intersection Level of Service Summary

ID	Intersection	3:30 - 4:30 PM			4:30 - 5:30 PM		
		Intersection			Intersection		
		Volume	Delay	LOS	Volume	Delay	LOS
1	HLD/ Haig Avenue	2,408	55	D	2,476	57	E
2	HLD / Tower Road	2,976	35	C	3,135	37	C
3	HLD / Milperra Road	6,545	237	F	6,871	469	F
4	HLD/ Auld Avenue	2,221	7	A	2,363	8	A
5	HLD / Keys Parade	2,209	14	A	2,358	17	B
6	HLD/ Raleigh Road	2,033	5	A	2,052	5	A
7	HLD/ Ruthven Avenue	1,939	3	A	1,930	3	A
8	HLD/ Whittle Avenue	1,959	3	A	1,943	3	A
9	HLD/ Amiens Avenue	2,015	3	A	1,989	3	A
10	HLD/ Bullecourt Avenue	2,355	45	D	2,342	38	C
11	HLD/ Fromelles Avenue	1,972	6	A	1,982	5	A
12	HL / Hermies Avenue	2,109	5	A	2,087	4	A
13	HLD/ Pozieres Avenue	2,272	12	A	2,253	11	A
14	Murray Jones Drive/ Milperra Road	3,578	6	A	3,342	16	B
15	Ashford Avenue / Milperra Road	4,019	18	B	3,698	20	B

- HLD / Keys Parade/Flower power:
  - During the PM peak period from 03:30 PM to 4:30 PM, the intersection operates at LOS A with an intersection delay of 14 seconds and in the second peak hour from 04:30 PM to 05:30 PM, the intersection operates at LOS B with an intersection delay of 17 seconds indicating a good level of service.
  - During PM, the demand for traffic turning from Henry Lawson Drive into Flower Power Access and demand for traffic turning from Flower Power Access into Henry Lawson Drive is higher. Also, the demand on Henry Lawson Drive northbound and southbound is high. The delay for Flower Power Access in the east approach from 03:30 PM to 4:30 PM is 44 seconds and for 04:30 PM to 05:30 PM is 43 seconds. Figure 6-33 presents the intersection operation at Henry Lawson Drive/ Keys Parade/ Flower power intersection.

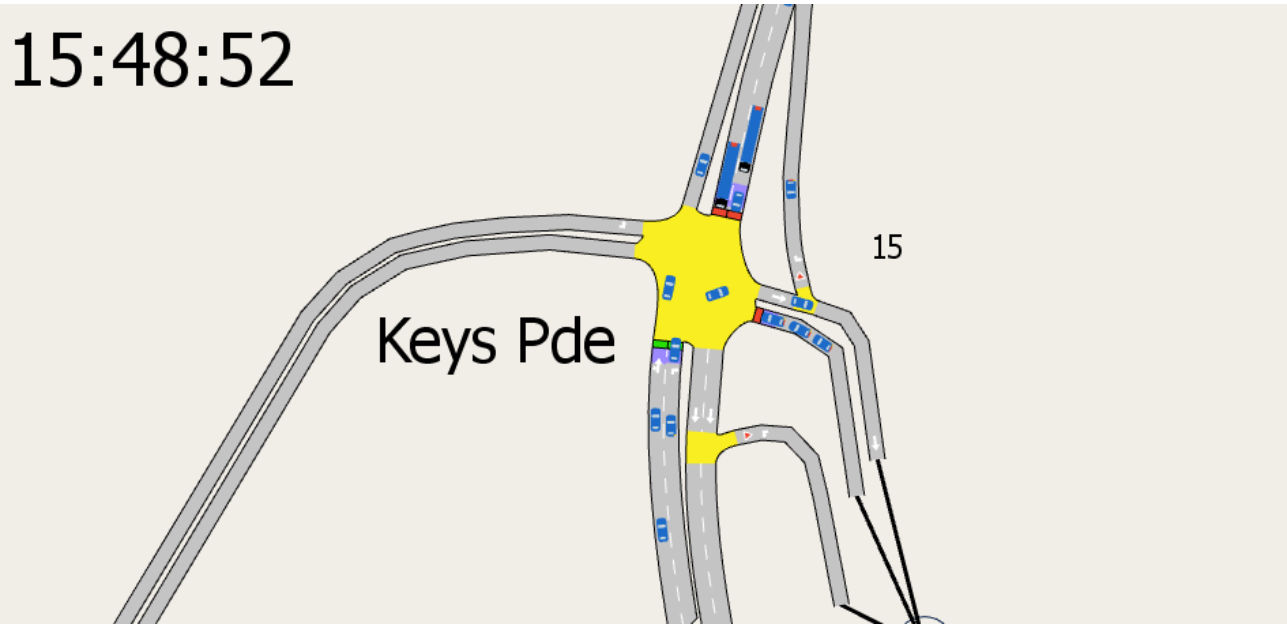


Figure 6-33: Henry Lawson Drive / Keys Parade/Flower power Weekday PM peak operation screenshot.

- HLD / Bullecourt Avenue:
  - During the first PM peak hour from 03:30 PM to 04:30 PM, the intersection operates at LOS D with an intersection delay of 45 seconds and in the second peak hour from 04:30 PM to 05:30 PM, the intersection operates at an improved LOS C with an intersection delay of 38 seconds.
  - In the PM peak period, the demand from Bullecourt Avenue turning into Henry Lawson Drive increases considerably resulting in congestion on the approach. The average delay on Bullecourt Avenue east approach from 03:30 PM to 04:30 PM is 112 seconds and from 04:30 PM to 05:30 PM is 92 seconds. The high delay on Bullecourt Avenue approach leads to comparatively higher overall intersection delay and hence an overall LOS D. The Figure 6-34 presents the operation of Henry Lawson Drive/ Bullecourt Avenue intersection in PM peak in comparison to google typical traffic view during PM peak on a typical weekday. Upon comparison of images, it is seen that the increased length of queues at Bullecourt Avenue approach were captured.

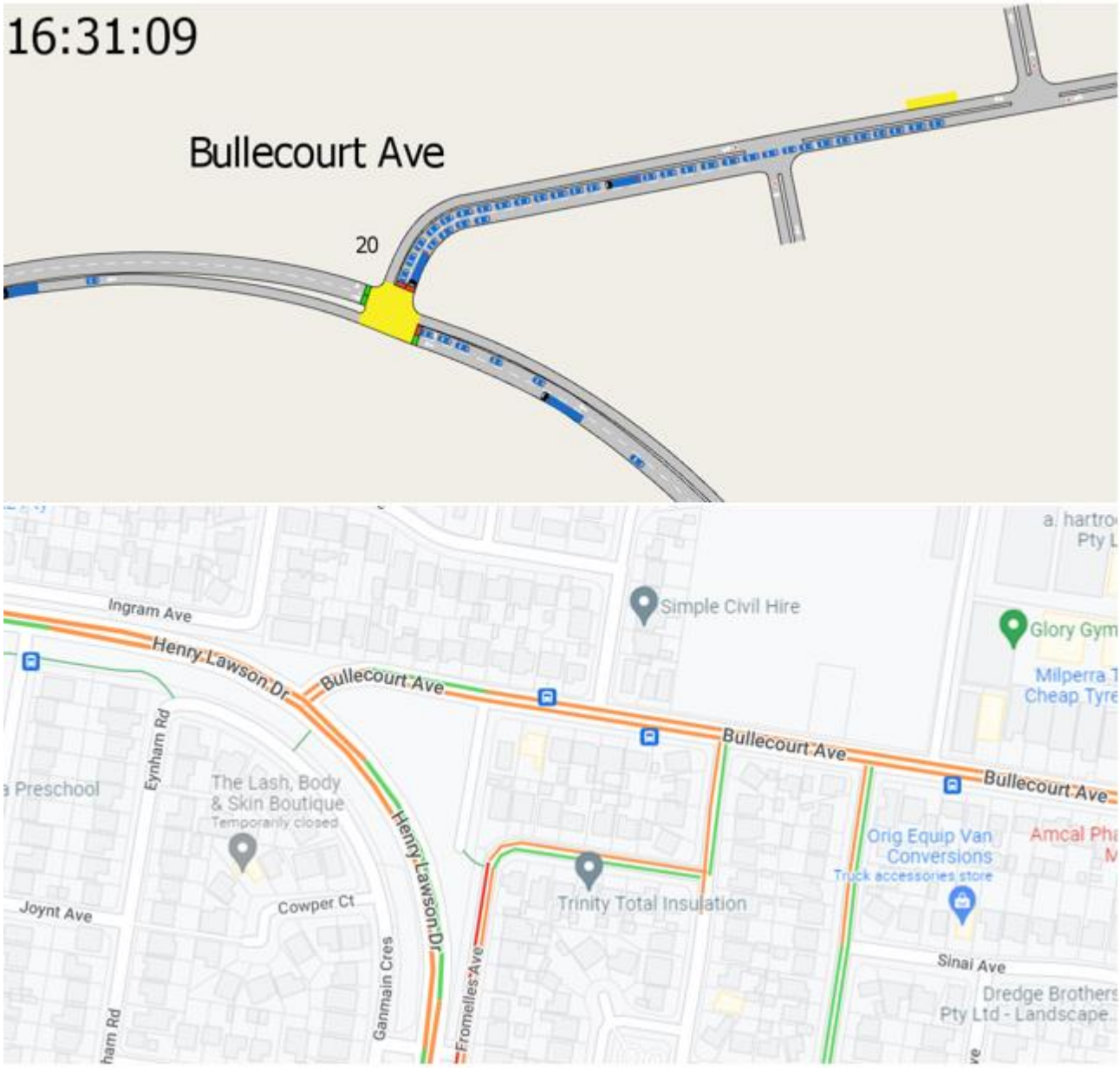


Figure 6-34: Henry Lawson Drive/ Bullecourt Ave Weekday PM Peak Intersection operation screenshot

- HLD / Pozieres Avenue:
  - During the PM peak period from 03:30 PM to 05:30 PM, the intersection operates at LOS A indicating a good level of performance. The model suggests the users turning from Pozieres Avenue into Henry Lawson Drive may face some delay. The delay for vehicles from Pozieres Avenue is 51 seconds.

6.5.3 Weekend Model Intersection Level of Service

The LOS has been analysed during 11:30 AM - 12:30 PM and 12:30 PM - 01:30 PM respectively, at 15 key intersections. Table 6-16 presents a LOS summary of these 15 key intersections during the weekend peak period, whilst a detailed output is presented in **Appendix C.**

Table 6-16: Weekend Peak Intersection Level of Service Summary

ID	Intersection	11:30 AM - 12:30 PM			12:30 PM - 01:30 PM		
		Intersection			Intersection		
		Volume	Delay (s)	LOS	Volume	Delay (s)	LOS
1	HLD/ Haig Avenue	2,339	32	C	2,407	34	C
2	HLD / Tower Road	2,779	22	B	2,880	25	B
3	HLD / Milperra Road	5,964	55	D	5,858	102	F
4	HLD/ Auld Avenue	2,250	6	A	1,997	5	A
5	HLD / Keys Parade	2,303	17	B	2,075	17	B
6	HLD/ Raleigh Road	1,706	3	A	1,532	3	A
7	HLD/ Ruthven Avenue	1,589	3	A	1,445	2	A
8	HLD/ Whittle Avenue	1,585	3	A	1,441	3	A
9	HLD/ Amiens Avenue	1,613	3	A	1,468	2	A
10	HLD/ Bullecourt Avenue	1,792	24	B	1,601	23	B
11	HLD/ Fromelles Avenue	1,673	5	A	1,625	5	A
12	HL / Hermies Avenue	1,931	4	A	1,785	4	A
13	HLD/ Pozieres Avenue	2,111	13	A	1,949	12	A
14	Murray Jones Drive/ Milperra Road	3,179	3	A	3,128	4	A
15	Ashford Avenue / Milperra Road	3,482	23	B	3,449	52	D

- Henry Lawson Drive / Keys Parade / Flower power:
  - In the first weekend peak hour from 11:30 AM - 12:30 PM, the intersection operates at LOS B with an intersection delay of 17 seconds, and in the second peak hour from 12:30 PM - 01:30 PM, the intersection operates at LOS B with an intersection delay of 17 seconds indicating a good level of service.
- HLD / Bullecourt Avenue:
  - During the weekend peak period from 11:30 AM - 01:30 PM, the intersection operates at LOS B in both peak hours, indicating a good level of performance. The traffic going northbound, southbound, and eastbound (turning into Bullecourt Avenue) creates a small and short-lasting queue at each approach of the intersection. The model suggests that the queues on all approaches mostly get dissipated during green time for that approach. The users going northbound to Henry Lawson Drive from Bullecourt Avenue in the east approach face the most delay. The existing delay on Bullecourt Avenue (east approach is) is 61 seconds.
- HLD / Pozieres Avenue:
  - During weekend peak period, the intersection operates at LOS A in both hours. The model suggests the users turning from Pozieres Avenue into Henry Lawson Drive may face some delay. The delay for users from Pozieres Avenue is 59 seconds.

7 Summary and Conclusions

Aurecon was engaged by TfNSW to develop a microsimulation corridor model of Henry Lawson Drive upgrade - Stage 1 B area. This model is intended to be used to analyse potential future road network upgrade options being investigated for the area to relieve congestion and improve capacity. The model has been developed in Aimsun and calibrated to 2022 traffic conditions.

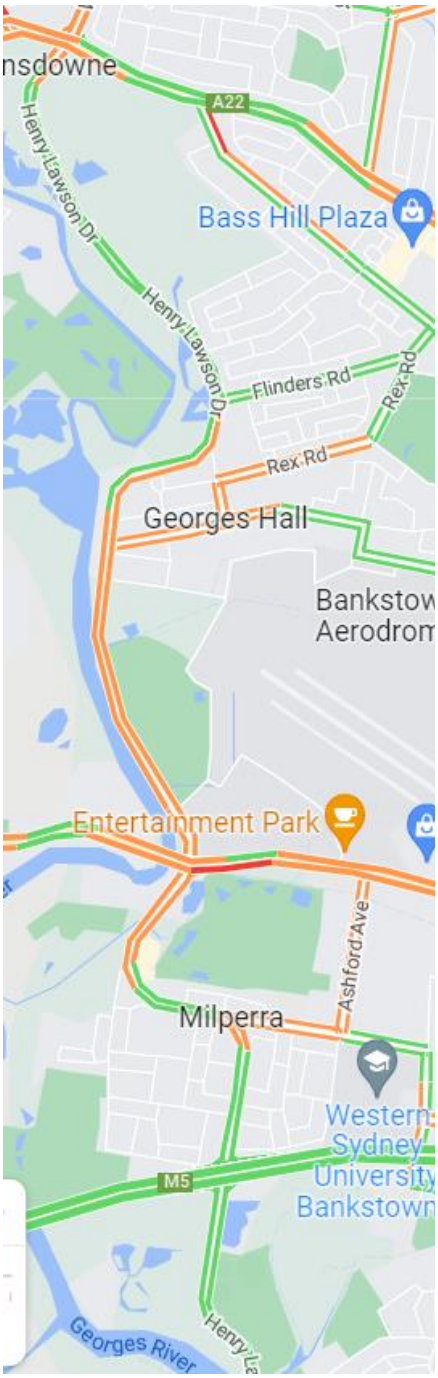
This report has been prepared to document the Base Model calibration and validation outcomes during AM, PM and weekend peak periods. The Base Model calibration and validation results along with observation of the model runs indicate that the model shows a good representation of the 2022 traffic conditions.

In summary, the Base Model adheres to all the criteria mandated by the Traffic Modelling Guidelines (Roads and Maritime, 2013) for calibration and validation, except during the weekend peak period where validation criteria were not satisfied. However, since the calibration and validation data were obtained for different years and that the total travel time difference is within two minutes for the entire corridor, it can be considered that modelled travel times are a good representation of what was observed on site.

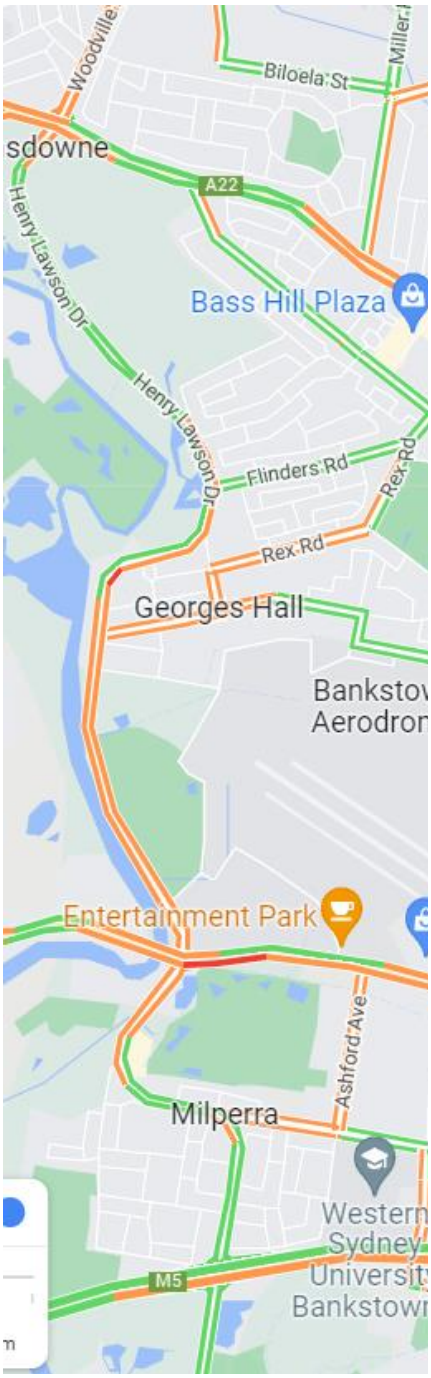
The model stability is consistent across all chosen 5 seed runs.

Overall, the model is representative of the existing traffic conditions within the study area and is therefore considered fit for purpose to be used as the basis for option analysis.

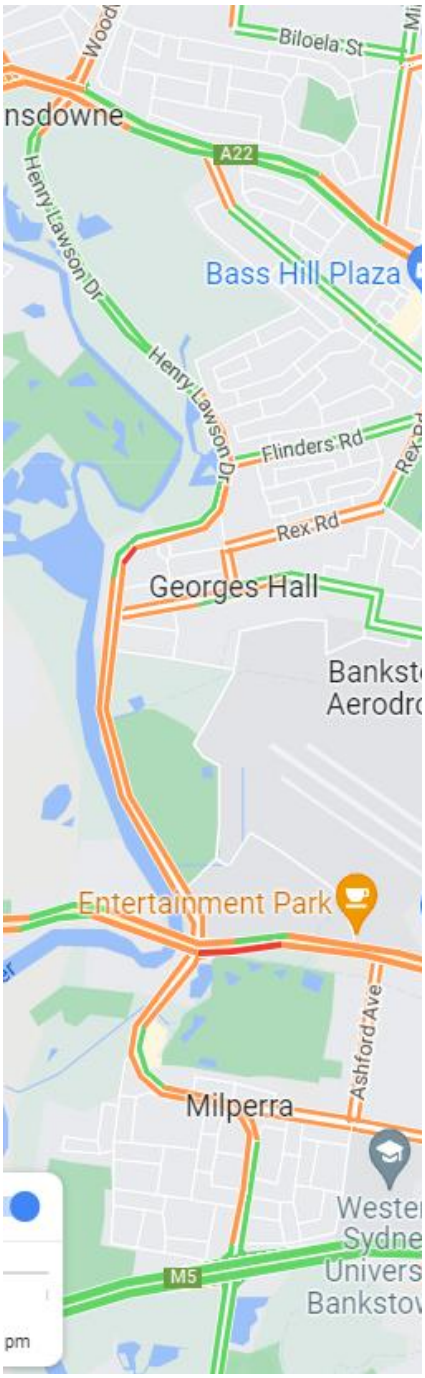
Appendix A: Typical Traffic volume on HLD - Weekday PM period.



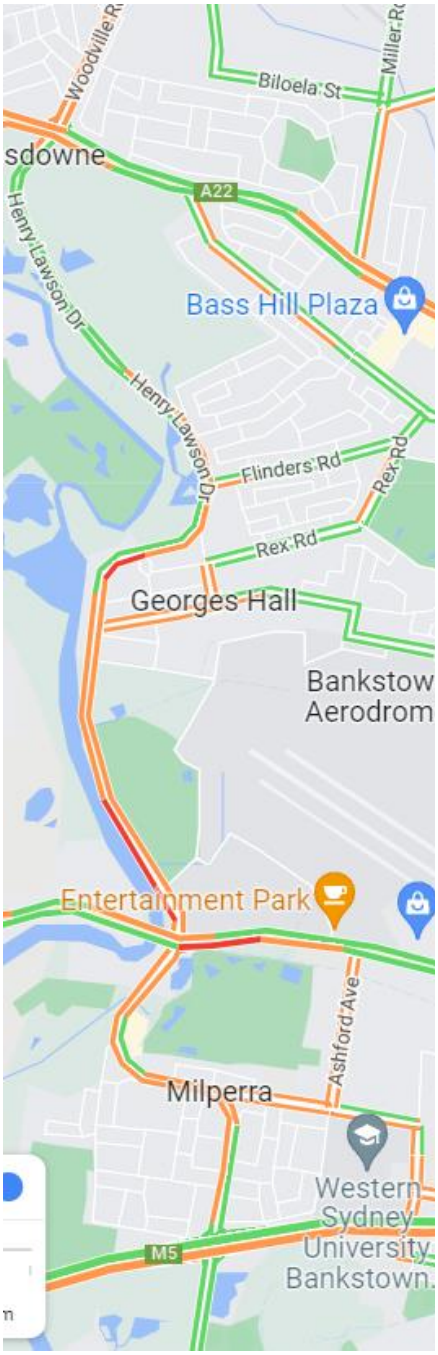
2:45 AM



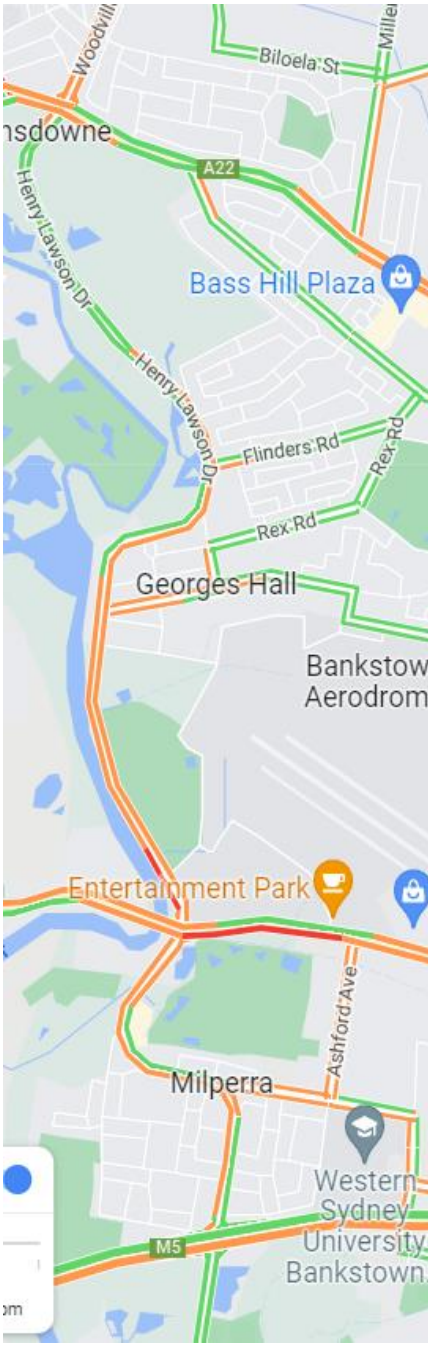
3:00 PM



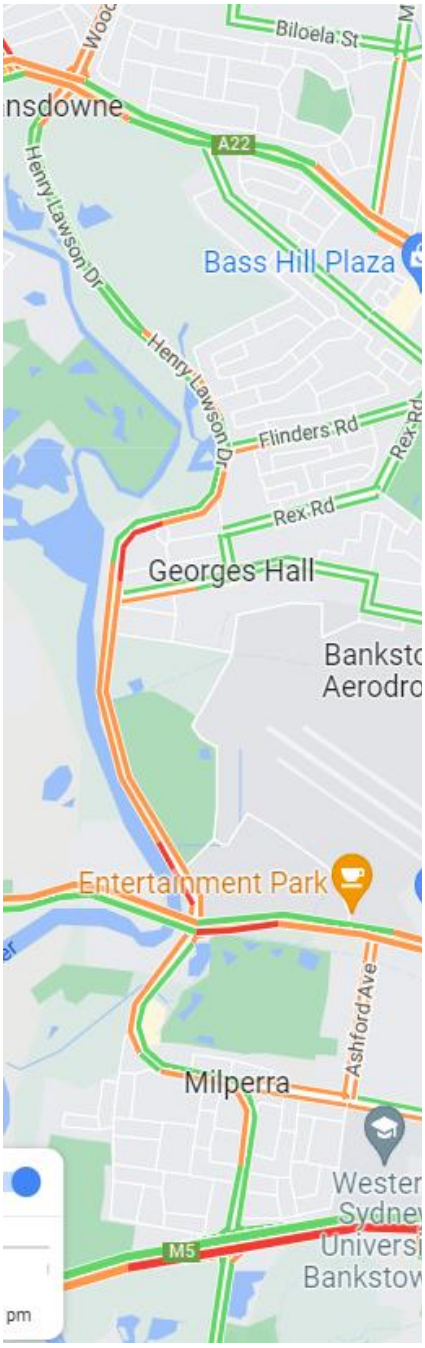
3:15 PM



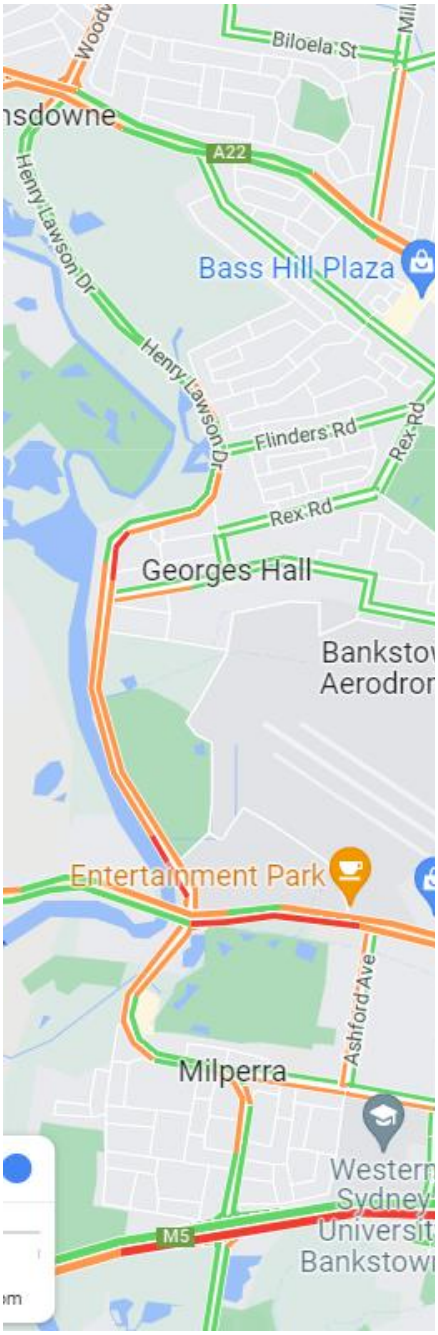
3:30 PM



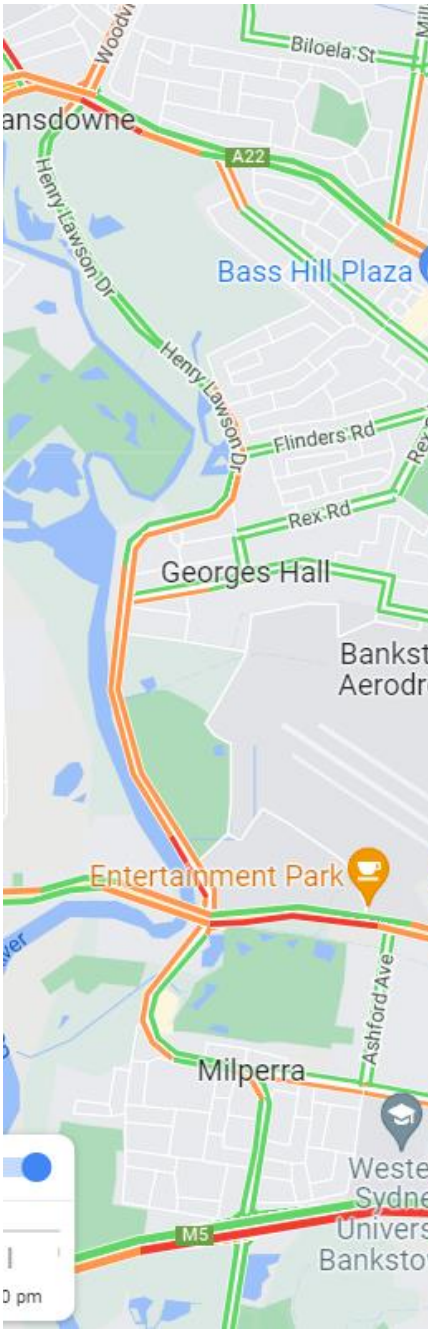
3:45 PM



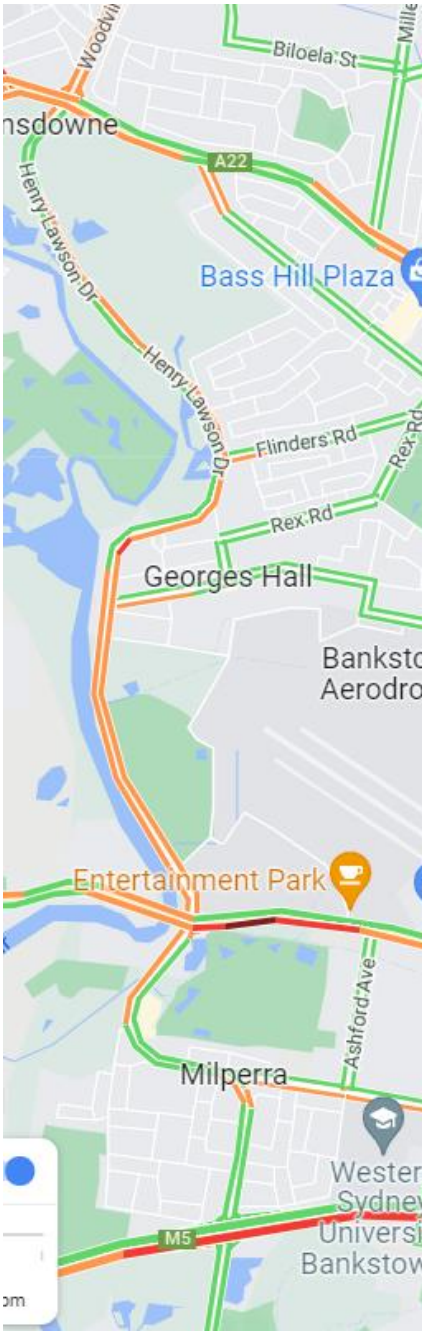
4:00 PM



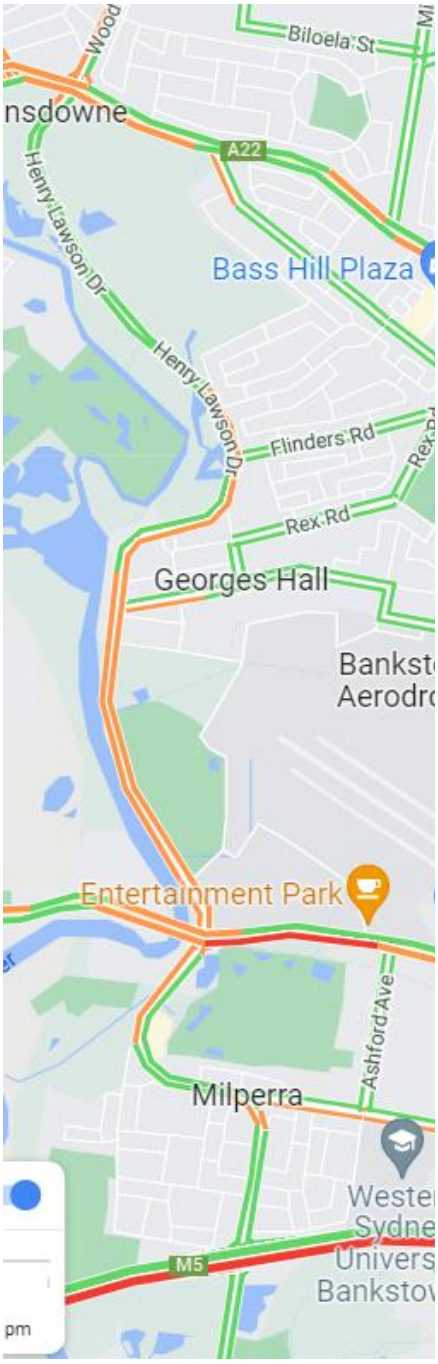
4:15 PM



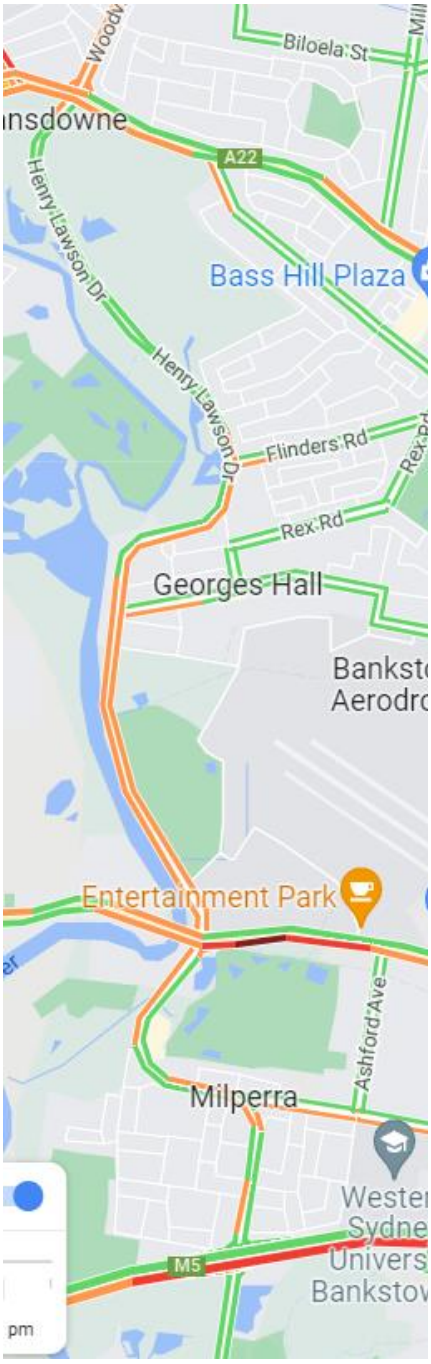
4:30 PM



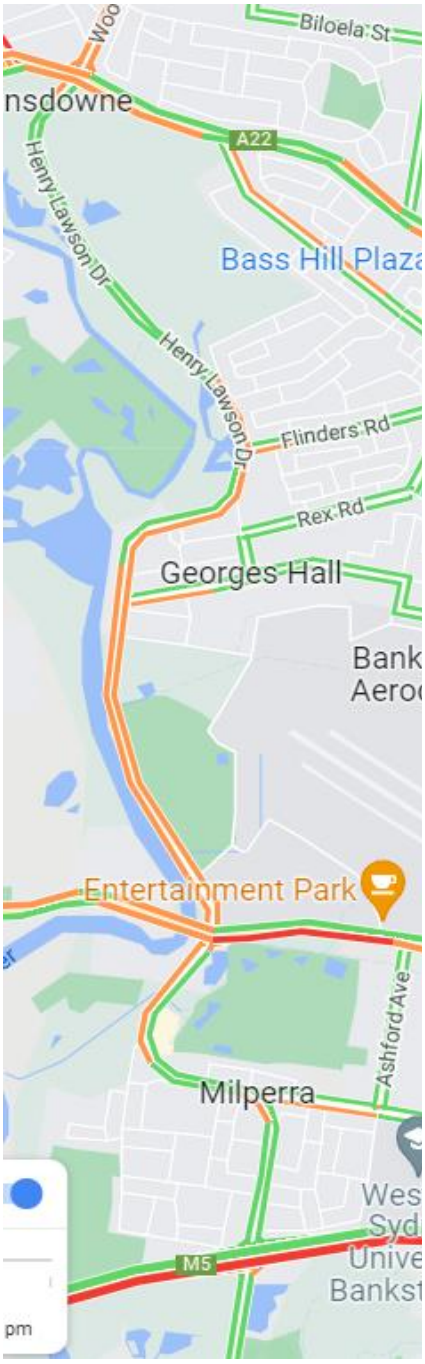
4:45 PM



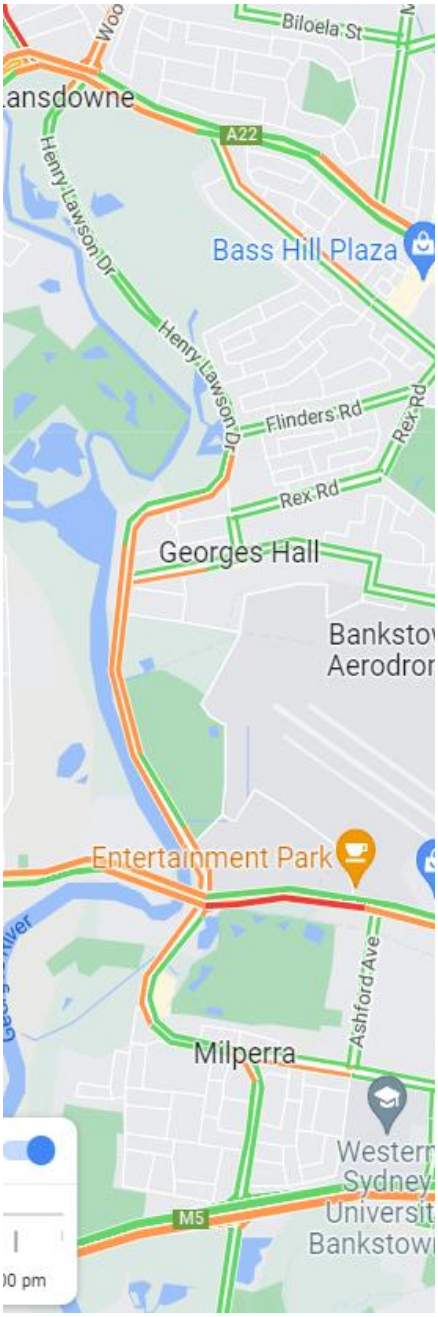
5:00 PM



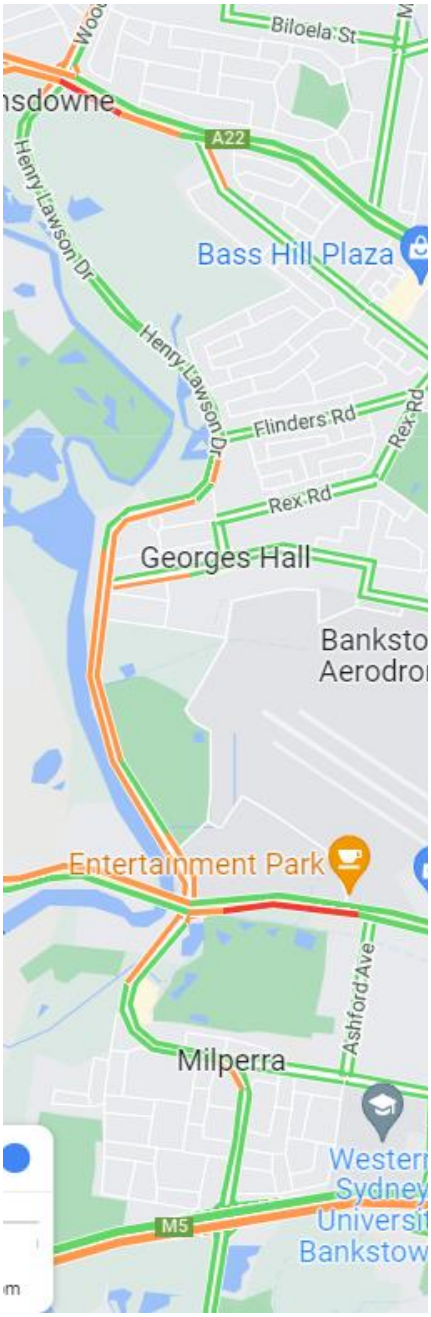
5:15 PM



5:30 PM



5:45 PM



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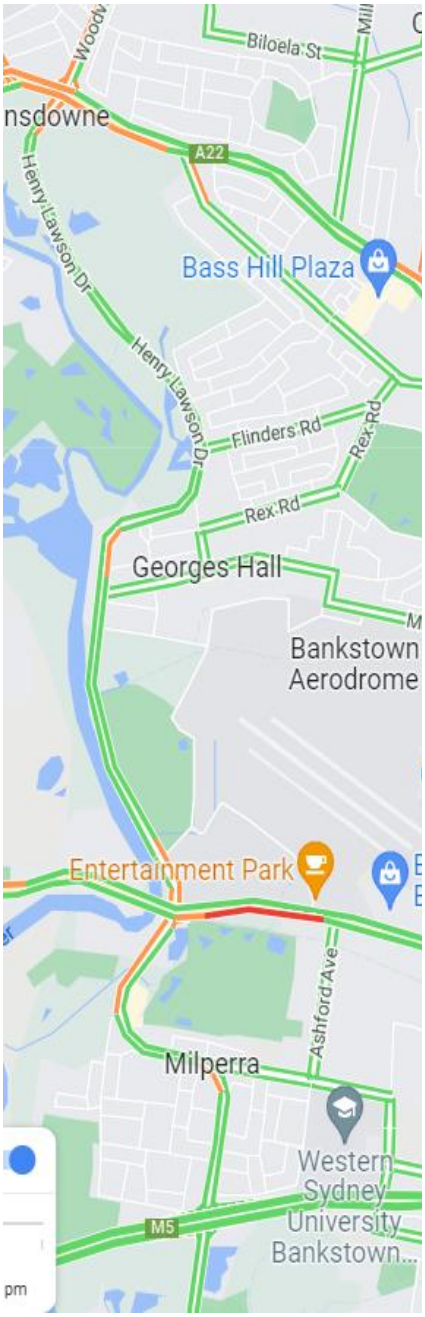

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Appendix B: Model Calibration results.

AM Model
Time period: 7:45-8:45 AM
Vehicle Type: Light Vehicles

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Flinders Road / HLD	Henry Lawson Dr NORTH	L	3058	14	10.2	-3.8	-27.14	1.0924
Flinders Road / HLD	Henry Lawson Dr NORTH	T	5407	1111	1096.8	-14.2	-1.278	0.42739
Flinders Road / HLD	Finders Road EAST	L	2525	156	118.2	-37.8	-24.23	3.2283
Flinders Road / HLD	Finders Road EAST	R	2526	10	9	-1	-10	0.32444
Flinders Road / HLD	Henry Lawson Dr SOUTH	T	2675	982	924.6	-57.4	-5.845	1.8591
Flinders Road / HLD	Henry Lawson Dr SOUTH	R	2676	173	108.2	-64.8	-37.46	5.4649
Haig Avenue / HLD	Henry Lawson Dr NORTH	L	2721	11	11.4	0.4	3.636	0.11952
Haig Avenue / HLD	Henry Lawson Dr NORTH	T	2720	906	907.8	1.8	0.1987	0.059771
Haig Avenue / HLD	Haig Avenue EAST	L	2625	103	99.8	-3.2	-3.107	0.31778
Haig Avenue / HLD	Haig Avenue EAST	R	2626	163	154.6	-8.4	-5.153	0.66658
Haig Avenue / HLD	Henry Lawson Dr SOUTH	T	5854	1012	897	-115	-11.36	3.7223
Haig Avenue / HLD	Henry Lawson Dr SOUTH	R	5855	119	89.4	-29.6	-24.87	2.8997
Rabaul Road / HLD	Henry Lawson Dr NORTH	L	2780	8	3	-5	-62.5	2.132
Rabaul Road / HLD	Henry Lawson Dr NORTH	T	2779	992	1005.2	13.2	1.331	0.41771
Rabaul Road / HLD	Henry Lawson Dr NORTH	R	2781	2	0	-2	-100	2
Rabaul Road / HLD	Rabaul Road EAST	R	4357	55	44	-11	-20	1.5635
Rabaul Road / HLD	Rabaul Road EAST	T	4358	0	0	0	0	0
Rabaul Road / HLD	Rabaul Road EAST	L	4359	1	0	-1	-100	1.4142
Rabaul Road / HLD	Henry Lawson Dr SOUTH	L	5012	4	0.6	-3.4	-85	2.2419
Rabaul Road / HLD	Henry Lawson Dr SOUTH	T	5010	1016	989.2	-26.8	-2.638	0.84639
Rabaul Road / HLD	Henry Lawson Dr SOUTH	R	5011	28	36.2	8.2	29.29	1.4473
Rabaul Road / HLD	Rabaul Road WEST	L	4298	3	0.6	-2.4	-80	1.7889
Rabaul Road / HLD	Rabaul Road WEST	T	4299	0	0	0	0	0
Rabaul Road / HLD	Rabaul Road WEST	R	4300	0	0	0	0	0
HLD / Tower Road	Henry Lawson Dr NORTH	L	1437	8	5.4	-2.6	-32.5	1.0045
HLD / Tower Road	Henry Lawson Dr NORTH	T	5444	1048	1040.2	-7.8	-0.7443	0.24139
HLD / Tower Road	Tower Road EAST	L	5445	208	138.2	-69.8	-33.56	5.3053
HLD / Tower Road	Tower Road EAST	R	2768	3	11.2	8.2	273.3	3.0774
HLD / Tower Road	Henry Lawson Dr SOUTH	T	5443	1042	1012.2	-29.8	-2.86	0.92984
HLD / Tower Road	Henry Lawson Dr SOUTH	R	5446	443	393	-50	-11.29	2.4456

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	L	5468	427	405.8	-21.2	-4.965	1.0389
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	T	2765	482	460.6	-21.4	-4.44	0.98575
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	R	5434	347	296.6	-50.4	-14.52	2.8096
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	L	5461	38	18	-20	-52.63	3.7796
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	T	1845	862	623.8	-238.2	-27.63	8.7393
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	R	5709	193	202.6	9.6	4.974	0.68259
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	L	5457	452	436.8	-15.2	-3.363	0.72104
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	T	1587	608	592.2	-15.8	-2.599	0.64498
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	R	1588	20	21.2	1.2	6	0.26439
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	L	5454	684	621	-63	-9.211	2.4663
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	T	2185	1382	1196.2	-185.8	-13.44	5.1749
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	R	5433	431	348.8	-82.2	-19.07	4.1629
Auld Avenue / HLD	Henry Lawson Dr NORTH	T	1499	946	822.6	-123.4	-13.04	4.1497
Auld Avenue / HLD	Henry Lawson Dr NORTH	R	1500	5	4	-1	-20	0.4714
Auld Avenue / HLD	Henry Lawson Dr SOUTH	L	4922	1	1.8	0.8	80	0.67612
Auld Avenue / HLD	Henry Lawson Dr SOUTH	T	4921	1070	1041.6	-28.4	-2.654	0.87403
Auld Avenue / HLD	Auld Avenue WEST	L	4198	10	26	16	160	3.7712
Auld Avenue / HLD	Auld Avenue WEST	R	4199	7	11.6	4.6	65.71	1.5084
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	L	5512	55	49.2	-5.8	-10.55	0.80354
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	T	5518	864	782.8	-81.2	-9.398	2.8298
HLD / Keys Parade/Flower power	Flower power EAST	L	5505	7	0	-7	-100	3.7417
HLD / Keys Parade/Flower power	Flower Power EAST	R	5507	45	48.8	3.8	8.444	0.55488
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	R	5850	0	2.2	2.2	INF	2.0976
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	T	5506	1026	993	-33	-3.216	1.0386
HLD / Keys Parade/Flower power	Keys Parade WEST	R	5508	33	14.8	-18.2	-55.15	3.7228
HLD / Keys Parade/Flower power	Keys Parade WEST	L	5847	0	2.8	2.8	INF	2.3664
Raleigh Road / HLD	Henry Lawson Dr NORTH	T	3159	825	756.4	-68.6	-8.315	2.4396

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Raleigh Road / HLD	Henry Lawson Dr NORTH	R	3160	46	24.8	-21.2	-46.09	3.5632
Raleigh Road / HLD	Henry Lawson Dr SOUTH	L	3139	3	0	-3	-100	2.4495
Raleigh Road / HLD	Henry Lawson Dr SOUTH	T	5421	988	923.4	-64.6	-6.538	2.0896
Raleigh Road / HLD	Raleigh Road WEST	L	5422	71	85.6	14.6	20.56	1.65
Raleigh Road / HLD	Raleigh Road WEST	R	3132	3	2	-1	-33.33	0.63246
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	T	20959	828	751	-77	-9.3	2.7404
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	R	20960	0	0	0	0	0
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	L	20958	3	0	-3	-100	2.4495
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	T	20957	991	926.6	-64.4	-6.498	2.0798
HLD / Ruthven Avenue	Ruthven Avenue WEST	L	20962	0	0	0	0	0
HLD / Ruthven Avenue	Ruthven Avenue WEST	R	20961	8	0	-8	-100	4
HLD / Whittle Avenue	Henry Lawson Dr NORTH	L	20976	0	0	0	0	0
HLD / Whittle Avenue	Henry Lawson Dr NORTH	T	20977	836	747.2	-88.8	-10.62	3.1562
HLD / Whittle Avenue	Whittle Avenue EAST	L	20979	22	14.6	-7.4	-33.64	1.7298
HLD / Whittle Avenue	Whittle Avenue EAST	R	20978	2	0	-2	-100	2
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	T	20980	992	927.8	-64.2	-6.472	2.0722
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	R	20981	6	0	-6	-100	3.4641
HLD / Amiens Avenue	Henry Lawson Dr NORTH	T	20995	836	736	-100	-11.96	3.5669
HLD / Amiens Avenue	Henry Lawson Dr NORTH	R	20996	22	23.6	1.6	7.273	0.33508
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	L	20998	19	22.8	3.8	20	0.83121
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	T	20997	970	895.2	-74.8	-7.711	2.4494
HLD / Amiens Avenue	Amiens Avenue WEST	L	20999	28	32	4	14.29	0.7303
HLD / Amiens Avenue	Amiens Avenue WEST	R	21000	8	10	2	25	0.66667
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	L	21049	221	189.2	-31.8	-14.39	2.2205
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	T	21050	623	557.4	-65.6	-10.53	2.7003
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	L	21045	93	97	4	4.301	0.41039
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	R	21046	211	138.6	-72.4	-34.31	5.4761
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	T	21048	778	783	5	0.6427	0.17897
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	R	21047	369	290	-79	-21.41	4.3521
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	L	21288	0	0.4	0.4	INF	0.89443
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	T	21287	709	650.8	-58.2	-8.209	2.232
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	R	21289	7	3.4	-3.6	-51.43	1.5787
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	R	21284	26	17.2	-8.8	-33.85	1.8935
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	T	21286	1	7.8	6.8	680	3.2418

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	L	21285	0	0.6	0.6	INF	1.0954
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	L	21295	6	6.6	0.6	10	0.23905
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	T	21294	1108	1041.2	-66.8	-6.029	2.0378
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	R	21293	20	19.8	-0.2	-1	0.044834
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	L	21292	39	41.6	2.6	6.667	0.40956
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	T	21291	2	8.2	6.2	310	2.7454
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	R	21290	9	14.6	5.6	62.22	1.6302
HLD / Hermies Avenue	Henry Lawson Dr NORTH	L	21323	8	8	0	0	0
HLD / Hermies Avenue	Henry Lawson Dr NORTH	T	21322	736	674	-62	-8.424	2.3351
HLD / Hermies Avenue	Hermies Avenue EAST	L	21324	83	68.8	-14.2	-17.11	1.6299
HLD / Hermies Avenue	Hermies Avenue EAST	R	21325	7	0	-7	-100	3.7417
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	T	21320	1127	1071.6	-55.4	-4.916	1.6709
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	R	21321	3	8.4	5.4	180	2.2618
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	T	21341	768	713.8	-54.2	-7.057	1.9912
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	R	21342	51	27.4	-23.6	-46.27	3.7694
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	L	21340	77	74.8	-2.2	-2.857	0.25252
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	T	21339	1060	1018.8	-41.2	-3.887	1.2779
HLD / Pozieres Avenue	Pozieres Avenue WEST	L	21344	70	62.4	-7.6	-10.86	0.93408
HLD / Pozieres Avenue	Pozieres Avenue WEST	R	21343	186	146.8	-39.2	-21.08	3.0389
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	T	21712	640	614.2	-25.8	-4.031	1.0303
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	R	21711	249	215.6	-33.4	-13.41	2.1914
HLD / Swestern Motorway 2	Swestern Motorway EAST	R	21445	28	22.4	-5.6	-20	1.1155
HLD / Swestern Motorway 2	Swestern Motorway EAST	T	21708	1	0	-1	-100	1.4142
HLD / Swestern Motorway 2	Swestern Motorway EAST	L	21709	351	360.8	9.8	2.792	0.51947
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	L	21452	260	217.8	-42.2	-16.23	2.7303
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	T	21707	427	399.4	-27.6	-6.464	1.3578
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	L	21385	346	246.4	-99.6	-28.79	5.7872
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	T	21699	608	603.4	-4.6	-0.7566	0.18691
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	T	21704	724	725.2	1.2	0.1657	0.044579
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	R	21703	54	33	-21	-38.89	3.184
HLD / Swestern Motorway 1	Swestern Motorway WEST	L	21398	413	370.8	-42.2	-10.22	2.1317
HLD / Swestern Motorway 1	Swestern Motorway WEST	T	21700	0	0	0	0	0

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Swestern Motorway 1	Swestern Motorway WEST	R	21701	281	230.4	-50.6	-18.01	3.1644
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	L	4117	0	7	7	INF	3.7417
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	R	4118	4	3.2	-0.8	-20	0.42164
Murray Jones Dr / Milperra Road	Milperra Road EAST	T	5439	1089	1037.2	-51.8	-4.757	1.5887
Murray Jones Dr / Milperra Road	Milperra Road EAST	R	5440	18	3.6	-14.4	-80	4.3818
Murray Jones Dr / Milperra Road	Milperra Road WEST	L	1973	14	7.6	-6.4	-45.71	1.9475
Murray Jones Dr / Milperra Road	Milperra Road WEST	T	1972	1815	1592.4	-222.6	-12.26	5.393
Ashford Avenue / Milperra Road	Milperra Road EAST	L	3685	118	173.4	55.4	46.95	4.5897
Ashford Avenue / Milperra Road	Milperra Road EAST	T	3684	993	949.2	-43.8	-4.411	1.4055
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	L	3768	114	94.2	-19.8	-17.37	1.9406
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	R	3767	203	199.8	-3.2	-1.576	0.22549
Ashford Avenue / Milperra Road	Milperra Road WEST	T	5441	1571	1398.4	-172.6	-10.99	4.4794
Ashford Avenue / Milperra Road	Milperra Road WEST	R	5442	244	199.6	-44.4	-18.2	2.9813
Georges Ces / HLD	Henry Lawson Dr NORTH	L	3084	150	128.2	-21.8	-14.53	1.8484
Georges Ces / HLD	Henry Lawson Dr NORTH	T	5741	1117	1082.2	-34.8	-3.115	1.0495
Georges Ces / HLD	Georges Cres EAST	L	5742	0	0.8	0.8	INF	1.2649
Georges Ces / HLD	Henry Lawson Dr SOUTH	T	4787	1155	1035.4	-119.6	-10.35	3.614
Georges Ces / HLD	Henry Lawson Dr SOUTH	R	4788	0	0	0	0	0
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	T	5181	1057	1013.8	-43.2	-4.087	1.3425
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	R	5739	60	59.2	-0.8	-1.333	0.10363
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	L	5408	0	4	4	INF	2.8284
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	T	4856	1175	1043.4	-131.6	-11.2	3.9514
HLD Reserve Road / HLD	HLD Reserve Road WEST	L	4506	0	0.4	0.4	INF	0.89443
HLD Reserve Road / HLD	HLD Reserve Road WEST	R	4507	0	1.6	1.6	INF	1.7889
Beale Street / HLD	Henry Lawson Dr NORTH	L	4730	140	79.2	-60.8	-43.43	5.8076
Beale Street / HLD	Henry Lawson Dr NORTH	T	4729	917	931	14	1.527	0.46057
Beale Street / HLD	Beale Street EAST	L	4816	0	0.8	0.8	INF	1.2649
Beale Street / HLD	Beale Street EAST	R	4817	0	0.2	0.2	INF	0.63246
Beale Street / HLD	Henry Lawson Dr SOUTH	T	2711	1175	1048.8	-126.2	-10.74	3.7847
Beale Street / HLD	Henry Lawson Dr SOUTH	R	2712	0	0.4	0.4	INF	0.89443
Endevour Road / HLD	Henry Lawson Dr NORTH	L	2770	7	0	-7	-100	3.7417
Endevour Road / HLD	Henry Lawson Dr NORTH	T	5410	1002	1007.6	5.6	0.5589	0.17666
Endevour Road / HLD	Endevour Road EAST	L	5409	0	0.4	0.4	INF	0.89443

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Golf course Road / HLD	Henry Lawson Dr NORTH	L	4905	0	2	2	INF	2
Golf course Road / HLD	Henry Lawson Dr NORTH	T	4904	1047	1042.8	-4.2	-0.4011	0.12993
Golf course Road / HLD	Golf course Road EAST	L	4272	8	15.6	7.6	95	2.2124
Golf course Road / HLD	Golf course Road EAST	R	4273	3	17.2	14.2	473.3	4.4681
Golf course Road / HLD	Henry Lawson Dr SOUTH	T	1693	1045	1019.6	-25.4	-2.431	0.79055
Golf course Road / HLD	Henry Lawson Dr SOUTH	R	1694	0	4.4	4.4	INF	2.9665

AM Model
Time period: 8:45-9:45 AM
Vehicle Type: Light Vehicles

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Flinders Road / HLD	Henry Lawson Dr NORTH	L	3058	9	11.4	2.4	26.67	0.75
Flinders Road / HLD	Henry Lawson Dr NORTH	T	5407	753	733.6	-19.4	-2.576	0.71
Flinders Road / HLD	Finders Road EAST	L	2525	99	73.8	-25.2	-25.45	2.71
Flinders Road / HLD	Finders Road EAST	R	2526	12	8.2	-3.8	-31.67	1.20
Flinders Road / HLD	Henry Lawson Dr SOUTH	T	2675	929	864	-65	-6.997	2.17
Flinders Road / HLD	Henry Lawson Dr SOUTH	R	2676	138	107.2	-30.8	-22.32	2.78
Haig Avenue / HLD	Henry Lawson Dr NORTH	L	2721	15	17	2	13.33	0.50
Haig Avenue / HLD	Henry Lawson Dr NORTH	T	2720	704	722.4	18.4	2.614	0.69
Haig Avenue / HLD	Haig Avenue EAST	L	2625	80	57.2	-22.8	-28.5	2.75
Haig Avenue / HLD	Haig Avenue EAST	R	2626	142	108.6	-33.4	-23.52	2.98
Haig Avenue / HLD	Henry Lawson Dr SOUTH	T	5854	925	863	-62	-6.703	2.07
Haig Avenue / HLD	Henry Lawson Dr SOUTH	R	5855	78	87.6	9.6	12.31	1.06
Rabaul Road / HLD	Henry Lawson Dr NORTH	L	2780	6	1.6	-4.4	-73.33	2.26
Rabaul Road / HLD	Henry Lawson Dr NORTH	T	2779	872	824.4	-47.6	-5.459	1.63
Rabaul Road / HLD	Henry Lawson Dr NORTH	R	2781	1	0	-1	-100	1.41
Rabaul Road / HLD	Rabaul Road EAST	R	4357	34	31.2	-2.8	-8.235	0.49
Rabaul Road / HLD	Rabaul Road EAST	T	4358	-	0	0	0	0.00
Rabaul Road / HLD	Rabaul Road EAST	L	4359	-	0	0	0	0.00
Rabaul Road / HLD	Henry Lawson Dr SOUTH	L	5012	3	1.2	-1.8	-60	1.24
Rabaul Road / HLD	Henry Lawson Dr SOUTH	T	5010	1,057	949.8	-107.2	-10.14	3.38
Rabaul Road / HLD	Henry Lawson Dr SOUTH	R	5011	16	36	20	125	3.92
Rabaul Road / HLD	Rabaul Road WEST	L	4298	2	0.8	-1.2	-60	1.01
Rabaul Road / HLD	Rabaul Road WEST	T	4299	-	0	0	0	0.00
Rabaul Road / HLD	Rabaul Road WEST	R	4300	-	0	0	0	0.00
HLD / Tower Road	Henry Lawson Dr NORTH	L	1437	13	7.4	-5.6	-43.08	1.75
HLD / Tower Road	Henry Lawson Dr NORTH	T	5444	892	883.8	-8.2	-0.9193	0.28
HLD / Tower Road	Tower Road EAST	L	5445	210	183	-27	-12.86	1.93
HLD / Tower Road	Tower Road EAST	R	2768	9	8	-1	-11.11	0.34
HLD / Tower Road	Henry Lawson Dr SOUTH	T	5443	952	921.8	-30.2	-3.172	0.99
HLD / Tower Road	Henry Lawson Dr SOUTH	R	5446	306	292	-14	-4.575	0.81
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	L	5468	389	417.4	28.4	7.301	1.41
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	T	2765	365	384.8	19.8	5.425	1.02

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	R	5434	348	274.4	-73.6	-21.15	4.17
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	L	5461	62	41.6	-20.4	-32.9	2.83
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	T	1845	802	713	-89	-11.1	3.23
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	R	5709	266	167.2	-98.8	-37.14	6.71
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	L	5457	357	392.8	35.8	10.03	1.85
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	T	1587	489	529.6	40.6	8.303	1.80
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	R	1588	22	6.6	-15.4	-70	4.07
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	L	5454	503	543.8	40.8	8.111	1.78
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	T	2185	1,093	1087	-6	-0.5489	0.18
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	R	5433	347	293.8	-53.2	-15.33	2.97
Auld Avenue / HLD	Henry Lawson Dr NORTH	T	1499	770	713.8	-56.2	-7.299	2.06
Auld Avenue / HLD	Henry Lawson Dr NORTH	R	1500	4	4	0	0	0.00
Auld Avenue / HLD	Henry Lawson Dr SOUTH	L	4922	10	7.6	-2.4	-24	0.81
Auld Avenue / HLD	Henry Lawson Dr SOUTH	T	4921	868	934.4	66.4	7.65	2.21
Auld Avenue / HLD	Auld Avenue WEST	L	4198	8	11	3	37.5	0.97
Auld Avenue / HLD	Auld Avenue WEST	R	4199	7	16	9	128.6	2.65
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	L	5512	164	135.4	-28.6	-17.44	2.34
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	T	5518	613	596.4	-16.6	-2.708	0.68
HLD / Keys Parade/Flower power	Flower power EAST	L	5505	40	44.4	4.4	11	0.68
HLD / Keys Parade/Flower power	Flower Power EAST	R	5507	161	167.8	6.8	4.224	0.53
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	L	5850	-	7	7	INF	3.74
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	T	5506	717	776.6	59.6	8.312	2.18
HLD / Keys Parade/Flower power	Keys Parade WEST	R	5508	61	50.6	-10.4	-17.05	1.39
HLD / Keys Parade/Flower power	Keys Parade WEST	L	5847	-	1.8	1.8	INF	1.90
Raleigh Road / HLD	Henry Lawson Dr NORTH	T	3159	623	612.8	-10.2	-1.637	0.41
Raleigh Road / HLD	Henry Lawson Dr NORTH	R	3160	30	28.4	-1.6	-5.333	0.30
Raleigh Road / HLD	Henry Lawson Dr SOUTH	R	3139	10	3	-7	-70	2.75
Raleigh Road / HLD	Henry Lawson Dr SOUTH	T	5421	735	785.8	50.8	6.912	1.84
Raleigh Road / HLD	Raleigh Road WEST	L	5422	43	47.4	4.4	10.23	0.65
Raleigh Road / HLD	Raleigh Road WEST	R	3132	2	1.2	-0.8	-40	0.63
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	T	20959	622	615.8	-6.2	-0.9968	0.25
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	R	20960	3	0	-3	-100	2.45
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	L	20958	5	0	-5	-100	3.16
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	T	20957	731	784.8	53.8	7.36	1.95

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Ruthven Avenue	Ruthven Avenue WEST	L	20962	14	3	-11	-78.57	3.77
HLD / Ruthven Avenue	Ruthven Avenue WEST	R	20961	16	2.4	-13.6	-85	4.48
HLD / Whittle Avenue	Henry Lawson Dr NORTH	L	20976	4	2.4	-1.6	-40	0.89
HLD / Whittle Avenue	Henry Lawson Dr NORTH	T	20977	634	616	-18	-2.839	0.72
HLD / Whittle Avenue	Whittle Avenue EAST	L	20979	4	0	-4	-100	2.83
HLD / Whittle Avenue	Whittle Avenue EAST	R	20978	3	0	-3	-100	2.45
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	T	20980	733	783.4	50.4	6.876	1.83
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	R	20981	4	0	-4	-100	2.83
HLD / Amiens Avenue	Henry Lawson Dr NORTH	T	20995	622	600.8	-21.2	-3.408	0.86
HLD / Amiens Avenue	Henry Lawson Dr NORTH	R	20996	16	16.6	0.6	3.75	0.15
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	L	20998	19	21.4	2.4	12.63	0.53
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	T	20997	722	770.2	48.2	6.676	1.76
HLD / Amiens Avenue	Amiens Avenue WEST	L	20999	15	15	0	0	0.00
HLD / Amiens Avenue	Amiens Avenue WEST	R	21000	7	10.2	3.2	45.71	1.09
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	L	21049	149	132.8	-16.2	-10.87	1.36
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	T	21050	480	475.6	-4.4	-0.9167	0.20
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	L	21045	94	82.2	-11.8	-12.55	1.26
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	R	21046	166	146.6	-19.4	-11.69	1.55
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	T	21048	575	644	69	12	2.79
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	R	21047	284	245.2	-38.8	-13.66	2.39
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	L	21288	4	0.6	-3.4	-85	2.24
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	T	21287	555	553.2	-1.8	-0.3243	0.08
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	R	21289	15	2.6	-12.4	-82.67	4.18
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	R	21284	15	18.4	3.4	22.67	0.83
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	T	21286	-	7.8	7.8	INF	3.95
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	L	21285	1	0.6	-0.4	-40	0.45
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	L	21295	4	4.4	0.4	10	0.20
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	T	21294	813	844.4	31.4	3.862	1.09
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	R	21293	23	15.2	-7.8	-33.91	1.78
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	L	21292	31	37.6	6.6	21.29	1.13
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	T	21291	3	8.4	5.4	180	2.26
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	R	21290	2	10	8	400	3.27
HLD / Hermies Avenue	Henry Lawson Dr NORTH	L	21323	8	1	-7	-87.5	3.30
HLD / Hermies Avenue	Henry Lawson Dr NORTH	T	21322	564	582	18	3.191	0.75

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Hermies Avenue	Hermies Avenue EAST	L	21324	41	50	9	21.95	1.33
HLD / Hermies Avenue	Hermies Avenue EAST	R	21325	14	0	-14	-100	5.29
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	T	21320	826	862.8	36.8	4.455	1.27
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	R	21321	22	17	-5	-22.73	1.13
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	T	21341	592	611	19	3.209	0.77
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	R	21342	13	22	9	69.23	2.15
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	L	21340	98	83.2	-14.8	-15.1	1.55
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	T	21339	808	810.4	2.4	0.297	0.08
HLD / Pozieres Avenue	Pozieres Avenue WEST	L	21344	40	68.8	28.8	72	3.90
HLD / Pozieres Avenue	Pozieres Avenue WEST	R	21343	90	100.2	10.2	11.33	1.05
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	T	21712	445	435	-10	-2.247	0.48
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	R	21711	173	188.6	15.6	9.017	1.16
HLD / Swestern Motorway 2	Swestern Motorway EAST	R	21445	18	24.2	6.2	34.44	1.35
HLD / Swestern Motorway 2	Swestern Motorway EAST	T	21708	-	0	0	0	0.00
HLD / Swestern Motorway 2	Swestern Motorway EAST	L	21709	311	303.4	-7.6	-2.444	0.43
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	L	21452	140	124.6	-15.4	-11	1.34
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	T	21707	298	311.2	13.2	4.43	0.76
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	L	21385	213	228.8	15.8	7.418	1.06
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	T	21699	469	487	18	3.838	0.82
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	T	21704	588	586.2	-1.8	-0.3061	0.07
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	R	21703	21	29.8	8.8	41.9	1.75
HLD / Swestern Motorway 1	Swestern Motorway WEST	L	21398	318	306.4	-11.6	-3.648	0.66
HLD / Swestern Motorway 1	Swestern Motorway WEST	T	21700	-	0	0	0	0.00
HLD / Swestern Motorway 1	Swestern Motorway WEST	R	21701	149	134.4	-14.6	-9.799	1.23
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	L	4117	5	6	1	20	0.43
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	R	4118	78	36.2	-41.8	-53.59	5.53
Murray Jones Dr / Milperra Road	Milperra Road EAST	T	5439	1,052	987	-65	-6.179	2.04
Murray Jones Dr / Milperra Road	Milperra Road EAST	R	5440	10	4.8	-5.2	-52	1.91
Murray Jones Dr / Milperra Road	Milperra Road WEST	L	1973	7	9.4	2.4	34.29	0.84
Murray Jones Dr / Milperra Road	Milperra Road WEST	T	1972	1,497	1509	12	0.8016	0.31
Ashford Avenue / Milperra Road	Milperra Road EAST	L	3685	126	150.2	24.2	19.21	2.06
Ashford Avenue / Milperra Road	Milperra Road EAST	T	3684	954	942.6	-11.4	-1.195	0.37
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	L	3768	108	68.2	-39.8	-36.85	4.24
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	R	3767	164	197.4	33.4	20.37	2.48

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Ashford Avenue / Milperra Road	Milperra Road WEST	T	5441	1,273	1299.2	26.2	2.058	0.73
Ashford Avenue / Milperra Road	Milperra Road WEST	R	5442	193	218.4	25.4	13.16	1.77
Georges Ces / HLD	Henry Lawson Dr NORTH	L	3084	49	46.6	-2.4	-4.898	0.35
Georges Ces / HLD	Henry Lawson Dr NORTH	T	5741	803	763.8	-39.2	-4.882	1.40
Georges Ces / HLD	Georges Cres EAST	L	5742	-	0.2	0.2	INF	0.63
Georges Ces / HLD	Henry Lawson Dr SOUTH	T	4787	1,067	967.2	-99.8	-9.353	3.13
Georges Ces / HLD	Henry Lawson Dr SOUTH	R	4788	-	0	0	0	0.00
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	T	5181	774	763	-11	-1.421	0.40
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	R	5739	29	7.4	-21.6	-74.48	5.06
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	L	5408	-	0.8	0.8	INF	1.26
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	T	4856	1,067	970	-97	-9.091	3.04
HLD Reserve Road / HLD	HLD Reserve Road WEST	L	4506	-	0.4	0.4	INF	0.89
HLD Reserve Road / HLD	HLD Reserve Road WEST	R	4507	-	1	1	INF	1.41
Beale Street / HLD	Henry Lawson Dr NORTH	L	4730	55	34.8	-20.2	-36.73	3.01
Beale Street / HLD	Henry Lawson Dr NORTH	T	4729	719	733.2	14.2	1.975	0.53
Beale Street / HLD	Beale Street EAST	L	4816	-	1.4	1.4	INF	1.67
Beale Street / HLD	Beale Street EAST	R	4817	-	0.2	0.2	INF	0.63
Beale Street / HLD	Henry Lawson Dr SOUTH	T	2711	1,067	969.6	-97.4	-9.128	3.05
Beale Street / HLD	Henry Lawson Dr SOUTH	R	2712	-	0.2	0.2	INF	0.63
Endevour Road / HLD	Henry Lawson Dr NORTH	L	2770	-	0.4	0.4	INF	0.89
Endevour Road / HLD	Henry Lawson Dr NORTH	T	5410	806	779.2	-26.8	-3.325	0.95
Endevour Road / HLD	Endevour Road EAST	L	5409	73	46.6	-26.4	-36.16	3.41
Golf course Road / HLD	Henry Lawson Dr NORTH	L	4905	-	0.4	0.4	INF	0.89
Golf course Road / HLD	Henry Lawson Dr NORTH	T	4904	906	857.8	-48.2	-5.32	1.62
Golf course Road / HLD	Golf course Road EAST	L	4272	42	31	-11	-26.19	1.82
Golf course Road / HLD	Golf course Road EAST	R	4273	79	50.6	-28.4	-35.95	3.53
Golf course Road / HLD	Henry Lawson Dr SOUTH	T	1693	997	924.2	-72.8	-7.302	2.35
Golf course Road / HLD	Henry Lawson Dr SOUTH	R	1694	-	1.6	1.6	INF	1.79

AM Model
Time period: 7:45-8:45 AM
Vehicle Type: Heavy Vehicles

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Flinders Road / HLD	Henry Lawson Dr NORTH	L	3058	-	0	0	0	0.00
Flinders Road / HLD	Henry Lawson Dr NORTH	T	5407	171	135.8	-35.2	-20.58	2.84
Flinders Road / HLD	Finders Road EAST	L	2525	1	0	-1	-100	1.41
Flinders Road / HLD	Finders Road EAST	R	2526	-	0	0	0	0.00
Flinders Road / HLD	Henry Lawson Dr SOUTH	T	2675	137	90.4	-46.6	-34.01	4.37
Flinders Road / HLD	Henry Lawson Dr SOUTH	R	2676	3	0	-3	-100	2.45
Haig Avenue / HLD	Henry Lawson Dr NORTH	L	2721	5	0.8	-4.2	-84	2.47
Haig Avenue / HLD	Henry Lawson Dr NORTH	T	2720	157	130	-27	-17.2	2.25
Haig Avenue / HLD	Haig Avenue EAST	L	2625	12	12.8	0.8	6.667	0.23
Haig Avenue / HLD	Haig Avenue EAST	R	2626	6	13.8	7.8	130	2.48
Haig Avenue / HLD	Henry Lawson Dr SOUTH	T	5854	129	79.2	-49.8	-38.6	4.88
Haig Avenue / HLD	Henry Lawson Dr SOUTH	R	5855	9	12	3	33.33	0.93
Rabaul Road / HLD	Henry Lawson Dr NORTH	L	2780	1	0	-1	-100	1.41
Rabaul Road / HLD	Henry Lawson Dr NORTH	T	2779	129	142.8	13.8	10.7	1.18
Rabaul Road / HLD	Henry Lawson Dr NORTH	R	2781	1	0	-1	-100	1.41
Rabaul Road / HLD	Rabaul Road EAST	R	4357	2	0	-2	-100	2.00
Rabaul Road / HLD	Rabaul Road EAST	T	4358	-	0	0	0	0.00
Rabaul Road / HLD	Rabaul Road EAST	L	4359	-	0	0	0	0.00
Rabaul Road / HLD	Henry Lawson Dr SOUTH	L	5012	-	0	0	0	0.00
Rabaul Road / HLD	Henry Lawson Dr SOUTH	T	5010	137	91.4	-45.6	-33.28	4.27
Rabaul Road / HLD	Henry Lawson Dr SOUTH	R	5011	-	0	0	0	0.00
Rabaul Road / HLD	Rabaul Road WEST	L	4298	1	0	-1	-100	1.41
Rabaul Road / HLD	Rabaul Road WEST	T	4299	-	0	0	0	0.00
Rabaul Road / HLD	Rabaul Road WEST	R	4300	-	0	0	0	0.00
HLD / Tower Road	Henry Lawson Dr NORTH	L	1437	5	0	-5	-100	3.16
HLD / Tower Road	Henry Lawson Dr NORTH	T	5444	177	139.6	-37.4	-21.13	2.97
HLD / Tower Road	Tower Road EAST	L	5445	-	0	0	0	0.00
HLD / Tower Road	Tower Road EAST	R	2768	3	0	-3	-100	2.45
HLD / Tower Road	Henry Lawson Dr SOUTH	T	5443	118	92.6	-25.4	-21.53	2.48
HLD / Tower Road	Henry Lawson Dr SOUTH	R	5446	6	0	-6	-100	3.46
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	L	5468	62	46.2	-15.8	-25.48	2.15

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	T	2765	71	64.8	-6.2	-8.732	0.75
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	R	5434	44	26.8	-17.2	-39.09	2.89
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	L	5461	4	0.2	-3.8	-95	2.62
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	T	1845	99	79	-20	-20.2	2.12
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	R	5709	56	22.2	-33.8	-60.36	5.41
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	L	5457	43	48	5	11.63	0.74
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	T	1587	50	36.4	-13.6	-27.2	2.07
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	R	1588	5	1.4	-3.6	-72	2.01
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	L	5454	18	34.8	16.8	93.33	3.27
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	T	2185	150	142.4	-7.6	-5.067	0.63
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	R	5433	27	37.6	10.6	39.26	1.87
Auld Avenue / HLD	Henry Lawson Dr NORTH	T	1499	102	102.6	0.6	0.5882	0.06
Auld Avenue / HLD	Henry Lawson Dr NORTH	R	1500	-	0	0	0	0.00
Auld Avenue / HLD	Henry Lawson Dr SOUTH	L	4922	5	0	-5	-100	3.16
Auld Avenue / HLD	Henry Lawson Dr SOUTH	T	4921	98	87.6	-10.4	-10.61	1.08
Auld Avenue / HLD	Auld Avenue WEST	L	4198	-	0	0	0	0.00
Auld Avenue / HLD	Auld Avenue WEST	R	4199	-	0	0	0	0.00
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	L	5512	-	0	0	0	0.00
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	T	5518	136	102	-34	-25	3.12
HLD / Keys Parade/Flower power	Flower power EAST	L	5505	4	0	-4	-100	2.83
HLD / Keys Parade/Flower power	Flower Power EAST	R	5507	-	0	0	0	0
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	R	5850	-	0	0	0	0
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	T	5506	103	87.6	-15.4	-14.95	1.5775
HLD / Keys Parade/Flower power	Keys Parade WEST	R	5508	2	0	-2	-100	2
HLD / Keys Parade/Flower power	Keys Parade WEST	L	5847	-	0	0	0	0
Raleigh Road / HLD	Henry Lawson Dr NORTH	T	3159	140	101.8	-38.2	-27.29	3.4742
Raleigh Road / HLD	Henry Lawson Dr NORTH	R	3160	-	0	0	0	0

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Raleigh Road / HLD	Henry Lawson Dr SOUTH	L	3139	2	0	-2	-100	2
Raleigh Road / HLD	Henry Lawson Dr SOUTH	T	5421	101	87.6	-13.4	-13.27	1.3799
Raleigh Road / HLD	Raleigh Road WEST	L	5422	4	0	-4	-100	2.8284
Raleigh Road / HLD	Raleigh Road WEST	R	3132	1	0	-1	-100	1.4142
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	T	20959	141	100.4	-40.6	-28.79	3.6955
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	R	20960	-	0	0	0	0
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	L	20958	-	0	0	0	0
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	T	20957	103	87.6	-15.4	-14.95	1.5775
HLD / Ruthven Avenue	Ruthven Avenue WEST	L	20962	-	0	0	0	0
HLD / Ruthven Avenue	Ruthven Avenue WEST	R	20961	-	0	0	0	0
HLD / Whittle Avenue	Henry Lawson Dr NORTH	L	20976	1	0	-1	-100	1.4142
HLD / Whittle Avenue	Henry Lawson Dr NORTH	T	20977	140	99.4	-40.6	-29	3.7109
HLD / Whittle Avenue	Whittle Avenue EAST	L	20979	-	1.4	1.4	INF	1.6733
HLD / Whittle Avenue	Whittle Avenue EAST	R	20978	-	0	0	0	0
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	T	20980	103	87.6	-15.4	-14.95	1.5775
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	R	20981	-	0	0	0	0
HLD / Amiens Avenue	Henry Lawson Dr NORTH	T	20995	138	96.4	-41.6	-30.14	3.8426
HLD / Amiens Avenue	Henry Lawson Dr NORTH	R	20996	2	4	2	100	1.1547
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	L	20998	6	2	-4	-66.67	2
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	T	20997	103	85.4	-17.6	-17.09	1.8134
HLD / Amiens Avenue	Amiens Avenue WEST	L	20999	-	2.6	2.6	INF	2.2804
HLD / Amiens Avenue	Amiens Avenue WEST	R	21000	2	1	-1	-50	0.8165
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	L	21049	15	24.4	9.4	62.67	2.1178
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	T	21050	125	73	-52	-41.6	5.2262
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	L	21045	29	13.2	-15.8	-54.48	3.4397
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	R	21046	12	18.8	6.8	56.67	1.7328
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	T	21048	97	68.6	-28.4	-29.28	3.1211
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	R	21047	48	28.6	-19.4	-40.42	3.1347
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	L	21288	-	0	0	0	0
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	T	21287	152	86	-66	-43.42	6.0502
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	R	21289	2	0	-2	-100	2
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	R	21284	4	3	-1	-25	0.53452

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	T	21286	-	0.2	0.2	INF	0.63246
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	L	21285	-	0	0	0	0
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	L	21295	2	0.4	-1.6	-80	1.4606
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	T	21294	138	94.4	-43.6	-31.59	4.0447
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	R	21293	-	3.4	3.4	INF	2.6077
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	L	21292	7	3.6	-3.4	-48.57	1.4769
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	T	21291	-	0.4	0.4	INF	0.89443
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	R	21290	1	1.4	0.4	40	0.36515
HLD / Hermies Avenue	Henry Lawson Dr NORTH	L	21323	-	1	1	INF	1.4142
HLD / Hermies Avenue	Henry Lawson Dr NORTH	T	21322	157	89.2	-67.8	-43.18	6.1108
HLD / Hermies Avenue	Hermies Avenue EAST	L	21324	2	8.8	6.8	340	2.9263
HLD / Hermies Avenue	Hermies Avenue EAST	R	21325	2	0	-2	-100	2
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	T	21320	138	98.4	-39.6	-28.7	3.6424
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	R	21321	1	0.2	-0.8	-80	1.0328
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	T	21341	153	94	-59	-38.56	5.3091
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	R	21342	6	3	-3	-50	1.4142
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	L	21340	4	5.4	1.4	35	0.64577
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	T	21339	135	91.4	-43.6	-32.3	4.0979
HLD / Pozieres Avenue	Pozieres Avenue WEST	L	21344	4	7.2	3.2	80	1.3522
HLD / Pozieres Avenue	Pozieres Avenue WEST	R	21343	2	17.8	15.8	790	5.0216
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	T	21712	45	58.8	13.8	30.67	1.9156
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	R	21711	42	30.8	-11.2	-26.67	1.8564
HLD / Swestern Motorway 2	Swestern Motorway EAST	R	21445	2	3.2	1.2	60	0.74421
HLD / Swestern Motorway 2	Swestern Motorway EAST	T	21708	-	0	0	0	0
HLD / Swestern Motorway 2	Swestern Motorway EAST	L	21709	62	35.8	-26.2	-42.26	3.7467
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	L	21452	9	25.8	16.8	186.7	4.0275
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	T	21707	30	47.2	17.2	57.33	2.7684
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	L	21385	84	34.6	-49.4	-58.81	6.415
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	T	21699	71	75.4	4.4	6.197	0.51428
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	T	21704	91	79.2	-11.8	-12.97	1.2791
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	R	21703	1	3.6	2.6	260	1.7144

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Swestern Motorway 1	Swestern Motorway WEST	L	21398	48	17.2	-30.8	-64.17	5.3944
HLD / Swestern Motorway 1	Swestern Motorway WEST	T	21700	-	0	0	0	0
HLD / Swestern Motorway 1	Swestern Motorway WEST	R	21701	16	14.8	-1.2	-7.5	0.30579
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	L	4117	2	0.8	-1.2	-60	1.0142
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	R	4118	5	0.4	-4.6	-92	2.7995
Murray Jones Dr / Milperra Road	Milperra Road EAST	T	5439	154	126.2	-27.8	-18.05	2.3487
Murray Jones Dr / Milperra Road	Milperra Road EAST	R	5440	4	0.8	-3.2	-80	2.0656
Murray Jones Dr / Milperra Road	Milperra Road WEST	L	1973	2	1.2	-0.8	-40	0.63246
Murray Jones Dr / Milperra Road	Milperra Road WEST	T	1972	215	184.2	-30.8	-14.33	2.1801
Ashford Avenue / Milperra Road	Milperra Road EAST	L	3685	19	25.2	6.2	32.63	1.3189
Ashford Avenue / Milperra Road	Milperra Road EAST	T	3684	127	115.6	-11.4	-8.976	1.0351
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	L	3768	31	11.4	-19.6	-63.23	4.2568
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	R	3767	-	21	21	INF	6.4807
Ashford Avenue / Milperra Road	Milperra Road WEST	T	5441	188	166.8	-21.2	-11.28	1.5917
Ashford Avenue / Milperra Road	Milperra Road WEST	R	5442	29	16.6	-12.4	-42.76	2.5969
Georges Ces / HLD	Henry Lawson Dr NORTH	L	3084	-	0	0	0	0
Georges Ces / HLD	Henry Lawson Dr NORTH	T	5741	172	134	-38	-22.09	3.0721
Georges Ces / HLD	Georges Cres EAST	L	5742	-	0	0	0	0
Georges Ces / HLD	Henry Lawson Dr SOUTH	T	4787	140	91	-49	-35	4.5594
Georges Ces / HLD	Henry Lawson Dr SOUTH	R	4788	15	0	-15	-100	5.4772
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	T	5181	162	132.6	-29.4	-18.15	2.4224
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	R	5739	10	0	-10	-100	4.4721
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	L	5408	-	0	0	0	0
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	T	4856	135	92.8	-42.2	-31.26	3.9541
HLD Reserve Road / HLD	HLD Reserve Road WEST	L	4506	-	0	0	0	0
HLD Reserve Road / HLD	HLD Reserve Road WEST	R	4507	-	0	0	0	0
Beale Street / HLD	Henry Lawson Dr NORTH	L	4730	-	0	0	0	0
Beale Street / HLD	Henry Lawson Dr NORTH	T	4729	162	131.8	-30.2	-18.64	2.4917
Beale Street / HLD	Beale Street EAST	L	4816	-	0	0	0	0
Beale Street / HLD	Beale Street EAST	R	4817	-	0	0	0	0
Beale Street / HLD	Henry Lawson Dr SOUTH	T	2711	135	93	-42	-31.11	3.9337
Beale Street / HLD	Henry Lawson Dr SOUTH	R	2712	-	0	0	0	0
Endevour Road / HLD	Henry Lawson Dr NORTH	L	2770	38	0	-38	-100	8.7178
Endevour Road / HLD	Henry Lawson Dr NORTH	T	5410	131	142.8	11.8	9.008	1.0085

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Endevour Road / HLD	Endevour Road EAST	L	5409	-	0	0	0	0
Golf course Road / HLD	Henry Lawson Dr NORTH	L	4905	-	0	0	0	0
Golf course Road / HLD	Henry Lawson Dr NORTH	T	4904	131	141.6	10.6	8.092	0.90794
Golf course Road / HLD	Golf course Road EAST	L	4272	52	1.6	-50.4	-96.92	9.7356
Golf course Road / HLD	Golf course Road EAST	R	4273	16	1.8	-14.2	-88.75	4.7599
Golf course Road / HLD	Henry Lawson Dr SOUTH	T	1693	121	90.6	-30.4	-25.12	2.9555
Golf course Road / HLD	Henry Lawson Dr SOUTH	R	1694	-	1.4	1.4	INF	1.6733

AM Model
Time period: 8:45-9:45 AM
Vehicle Type: Heavy Vehicles

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Flinders Road / HLD	Henry Lawson Dr NORTH	L	3058	0	0.0	0.0	0.0	0.00
Flinders Road / HLD	Henry Lawson Dr NORTH	T	5407	149	128.6	-20.4	-13.7	1.73
Flinders Road / HLD	Finders Road EAST	L	2525	7	0.0	-7.0	-100.0	3.74
Flinders Road / HLD	Finders Road EAST	R	2526	1	0.0	-1.0	-100.0	1.41
Flinders Road / HLD	Henry Lawson Dr SOUTH	T	2675	151	118.6	-32.4	-21.5	2.79
Flinders Road / HLD	Henry Lawson Dr SOUTH	R	2676	8	0.0	-8.0	-100.0	4.00
Haig Avenue / HLD	Henry Lawson Dr NORTH	L	2721	0	2.4	2.4	INF	2.19
Haig Avenue / HLD	Henry Lawson Dr NORTH	T	2720	150	120.8	-29.2	-19.5	2.51
Haig Avenue / HLD	Haig Avenue EAST	L	2625	11	8.4	-2.6	-23.6	0.83
Haig Avenue / HLD	Haig Avenue EAST	R	2626	8	14.0	6.0	75.0	1.81
Haig Avenue / HLD	Henry Lawson Dr SOUTH	T	5854	151	104.4	-46.6	-30.9	4.12
Haig Avenue / HLD	Henry Lawson Dr SOUTH	R	5855	15	10.8	-4.2	-28.0	1.17
Rabaul Road / HLD	Henry Lawson Dr NORTH	L	2780	1	0.0	-1.0	-100.0	1.41
Rabaul Road / HLD	Henry Lawson Dr NORTH	T	2779	138	137.0	-1.0	-0.7	0.09
Rabaul Road / HLD	Henry Lawson Dr NORTH	R	2781	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road EAST	R	4357	2	0.0	-2.0	-100.0	2.00
Rabaul Road / HLD	Rabaul Road EAST	T	4358	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road EAST	L	4359	1	0.0	-1.0	-100.0	1.41
Rabaul Road / HLD	Henry Lawson Dr SOUTH	L	5012	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Henry Lawson Dr SOUTH	T	5010	161	115.8	-45.2	-28.1	3.84
Rabaul Road / HLD	Henry Lawson Dr SOUTH	R	5011	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road WEST	L	4298	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road WEST	T	4299	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road WEST	R	4300	0	0.0	0.0	0.0	0.00
HLD / Tower Road	Henry Lawson Dr NORTH	L	1437	1	0.0	-1.0	-100.0	1.41
HLD / Tower Road	Henry Lawson Dr NORTH	T	5444	182	143.6	-38.4	-21.1	3.01
HLD / Tower Road	Tower Road EAST	L	5445	10	0.0	-10.0	-100.0	4.47
HLD / Tower Road	Tower Road EAST	R	2768	1	0.0	-1.0	-100.0	1.41
HLD / Tower Road	Henry Lawson Dr SOUTH	T	5443	196	108.6	-87.4	-44.6	7.08
HLD / Tower Road	Henry Lawson Dr SOUTH	R	5446	12	0.0	-12.0	-100.0	4.90
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	L	5468	92	69.4	-22.6	-24.6	2.52
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	T	2765	66	52.6	-13.4	-20.3	1.74
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	R	5434	34	23.2	-10.8	-31.8	2.02
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	L	5461	12	0.2	-11.8	-98.3	4.78
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	T	1845	114	111.2	-2.8	-2.5	0.26
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	R	5709	70	27.4	-42.6	-60.9	6.10
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	L	5457	77	53.4	-23.6	-30.7	2.92
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	T	1587	55	41.4	-13.6	-24.7	1.96

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	R	1588	7	1.0	-6.0	-85.7	3.00
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	L	5454	83	39.2	-43.8	-52.8	5.60
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	T	2185	140	171.6	31.6	22.6	2.53
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	R	5433	83	56.8	-26.2	-31.6	3.13
Auld Avenue / HLD	Henry Lawson Dr NORTH	T	1499	161	108.8	-52.2	-32.4	4.49
Auld Avenue / HLD	Henry Lawson Dr NORTH	R	1500	0	0.0	0.0	0.0	0.00
Auld Avenue / HLD	Henry Lawson Dr SOUTH	L	4922	0	0.0	0.0	0.0	0.00
Auld Avenue / HLD	Henry Lawson Dr SOUTH	T	4921	139	97.4	-41.6	-29.9	3.83
Auld Avenue / HLD	Auld Avenue WEST	L	4198	1	0.0	-1.0	-100.0	1.41
Auld Avenue / HLD	Auld Avenue WEST	R	4199	0	0.0	0.0	0.0	0.00
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	L	5512	14	0.0	-14.0	-100.0	5.29
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	T	5518	147	109.4	-37.6	-25.6	3.32
HLD / Keys Parade/Flower power	Flower power EAST	L	5505	3	0.0	-3.0	-100.0	2.45
HLD / Keys Parade/Flower power	Flower Power EAST	R	5507	20	0.0	-20.0	-100.0	6.32
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	R	5850	0	0.0	0.0	0.0	0.00
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	T	5506	119	97.4	-21.6	-18.2	2.08
HLD / Keys Parade/Flower power	Keys Parade WEST	R	5508	1	0.0	-1.0	-100.0	1.41
HLD / Keys Parade/Flower power	Keys Parade WEST	L	5847	0	0.0	0.0	0.0	0.00
Raleigh Road / HLD	Henry Lawson Dr NORTH	T	3159	146	109.6	-36.4	-24.9	3.22
Raleigh Road / HLD	Henry Lawson Dr NORTH	R	3160	4	0.0	-4.0	-100.0	2.83
Raleigh Road / HLD	Henry Lawson Dr SOUTH	L	3139	0	0.0	0.0	0.0	0.00
Raleigh Road / HLD	Henry Lawson Dr SOUTH	T	5421	118	97.4	-20.6	-17.5	1.99
Raleigh Road / HLD	Raleigh Road WEST	L	5422	2	0.0	-2.0	-100.0	2.00
Raleigh Road / HLD	Raleigh Road WEST	R	3132	0	0.0	0.0	0.0	0.00
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	T	20959	146	109.4	-36.6	-25.1	3.24
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	R	20960	0	0.0	0.0	0.0	0.00
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	L	20958	4	0.0	-4.0	-100.0	2.83
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	T	20957	116	98.4	-17.6	-15.2	1.70
HLD / Ruthven Avenue	Ruthven Avenue WEST	L	20962	2	0.0	-2.0	-100.0	2.00
HLD / Ruthven Avenue	Ruthven Avenue WEST	R	20961	4	0.0	-4.0	-100.0	2.83
HLD / Whittle Avenue	Henry Lawson Dr NORTH	L	20976	0	0.0	0.0	0.0	0.00
HLD / Whittle Avenue	Henry Lawson Dr NORTH	T	20977	150	109.6	-40.4	-26.9	3.55
HLD / Whittle Avenue	Whittle Avenue EAST	L	20979	2	0.0	-2.0	-100.0	2.00

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Whittle Avenue	Whittle Avenue EAST	R	20978	0	0.0	0.0	0.0	0.00
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	T	20980	120	98.4	-21.6	-18.0	2.07
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	R	20981	0	0.0	0.0	0.0	0.00
HLD / Amiens Avenue	Henry Lawson Dr NORTH	T	20995	150	109.2	-40.8	-27.2	3.58
HLD / Amiens Avenue	Henry Lawson Dr NORTH	R	20996	2	0.8	-1.2	-60.0	1.01
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	L	20998	6	2.2	-3.8	-63.3	1.88
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	T	20997	117	97.0	-20.0	-17.1	1.93
HLD / Amiens Avenue	Amiens Avenue WEST	L	20999	3	1.2	-1.8	-60.0	1.24
HLD / Amiens Avenue	Amiens Avenue WEST	R	21000	2	1.0	-1.0	-50.0	0.82
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	L	21049	19	20.6	1.6	8.4	0.36
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	T	21050	133	88.6	-44.4	-33.4	4.22
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	L	21045	44	14.2	-29.8	-67.7	5.52
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	R	21046	20	18.4	-1.6	-8.0	0.37
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	T	21048	103	82.2	-20.8	-20.2	2.16
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	R	21047	44	34.2	-9.8	-22.3	1.57
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	L	21288	0	0.0	0.0	0.0	0.00
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	T	21287	177	101.8	-75.2	-42.5	6.37
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	R	21289	0	0.2	0.2	INF	0.63
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	R	21284	0	3.6	3.6	INF	2.68
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	T	21286	0	1.2	1.2	INF	1.55
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	L	21285	1	0.0	-1.0	-100.0	1.41
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	L	21295	1	0.8	-0.2	-20.0	0.21
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	T	21294	145	109.2	-35.8	-24.7	3.18
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	R	21293	1	2.0	1.0	100.0	0.82
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	L	21292	1	7.0	6.0	600.0	3.00
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	T	21291	0	1.4	1.4	INF	1.67
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	R	21290	0	0.8	0.8	INF	1.26
HLD / Hermies Avenue	Henry Lawson Dr NORTH	L	21323	1	0.6	-0.4	-40.0	0.45
HLD / Hermies Avenue	Henry Lawson Dr NORTH	T	21322	176	105.8	-70.2	-39.9	5.91
HLD / Hermies Avenue	Hermies Avenue EAST	L	21324	2	7.4	5.4	270.0	2.49

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Hermies Avenue	Hermies Avenue EAST	R	21325	0	0.0	0.0	0.0	0.00
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	T	21320	147	111.8	-35.2	-24.0	3.09
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	R	21321	4	1.6	-2.4	-60.0	1.43
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	T	21341	178	108.8	-69.2	-38.9	5.78
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	R	21342	0	5.4	5.4	INF	3.29
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	L	21340	31	13.8	-17.2	-55.5	3.63
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	T	21339	147	104.4	-42.6	-29.0	3.80
HLD / Pozieres Avenue	Pozieres Avenue WEST	L	21344	4	9.0	5.0	125.0	1.96
HLD / Pozieres Avenue	Pozieres Avenue WEST	R	21343	5	22.4	17.4	348.0	4.70
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	T	21712	32	57.8	25.8	80.6	3.85
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	R	21711	44	24.2	-19.8	-45.0	3.39
HLD / Swestern Motorway 2	Swestern Motorway EAST	R	21445	1	4.4	3.4	340.0	2.07
HLD / Swestern Motorway 2	Swestern Motorway EAST	T	21708	0	0.0	0.0	0.0	0.00
HLD / Swestern Motorway 2	Swestern Motorway EAST	L	21709	68	51.0	-17.0	-25.0	2.20
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	L	21452	7	23.6	16.6	237.1	4.24
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	T	21707	35	48.4	13.4	38.3	2.08
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	L	21385	116	61.2	-54.8	-47.2	5.82
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	T	21699	67	69.4	2.4	3.6	0.29
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	T	21704	99	95.8	-3.2	-3.2	0.32
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	R	21703	4	3.6	-0.4	-10.0	0.21
HLD / Swestern Motorway 1	Swestern Motorway WEST	L	21398	79	22.8	-56.2	-71.1	7.88
HLD / Swestern Motorway 1	Swestern Motorway WEST	T	21700	0	0.0	0.0	0.0	0.00
HLD / Swestern Motorway 1	Swestern Motorway WEST	R	21701	9	13.0	4.0	44.4	1.21
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	L	4117	0	0.4	0.4	INF	0.89
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	R	4118	0	5.6	5.6	INF	3.35
Murray Jones Dr / Milperra Road	Milperra Road EAST	T	5439	196	158.8	-37.2	-19.0	2.79
Murray Jones Dr / Milperra Road	Milperra Road EAST	R	5440	0	0.6	0.6	INF	1.10
Murray Jones Dr / Milperra Road	Milperra Road WEST	L	1973	0	1.6	1.6	INF	1.79
Murray Jones Dr / Milperra Road	Milperra Road WEST	T	1972	239	240.0	1.0	0.4	0.06
Ashford Avenue / Milperra Road	Milperra Road EAST	L	3685	23	24.8	1.8	7.8	0.37
Ashford Avenue / Milperra Road	Milperra Road EAST	T	3684	176	158.6	-17.4	-9.9	1.35
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	L	3768	20	5.8	-14.2	-71.0	3.95
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	R	3767	10	27.0	17.0	170.0	3.95
Ashford Avenue / Milperra Road	Milperra Road WEST	T	5441	243	215.8	-27.2	-11.2	1.80

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Ashford Avenue / Milperra Road	Milperra Road WEST	R	5442	32	25.4	-6.6	-20.6	1.23
Georges Ces / HLD	Henry Lawson Dr NORTH	L	3084	6	0.0	-6.0	-100.0	3.46
Georges Ces / HLD	Henry Lawson Dr NORTH	T	5741	150	130.2	-19.8	-13.2	1.67
Georges Ces / HLD	Georges Cres EAST	L	5742	0	0.0	0.0	0.0	0.00
Georges Ces / HLD	Henry Lawson Dr SOUTH	T	4787	159	118.0	-41.0	-25.8	3.48
Georges Ces / HLD	Henry Lawson Dr SOUTH	R	4788	0	0.0	0.0	0.0	0.00
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	T	5181	150	129.6	-20.4	-13.6	1.73
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	R	5739	0	0.0	0.0	0.0	0.00
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	L	5408	0	0.0	0.0	0.0	0.00
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	T	4856	159	118.4	-40.6	-25.5	3.45
HLD Reserve Road / HLD	HLD Reserve Road WEST	L	4506	0	0.0	0.0	0.0	0.00
HLD Reserve Road / HLD	HLD Reserve Road WEST	R	4507	0	0.0	0.0	0.0	0.00
Beale Street / HLD	Henry Lawson Dr NORTH	L	4730	0	7.0	7.0	INF	3.74
Beale Street / HLD	Henry Lawson Dr NORTH	T	4729	150	123.4	-26.6	-17.7	2.28
Beale Street / HLD	Beale Street EAST	L	4816	0	0.0	0.0	0.0	0.00
Beale Street / HLD	Beale Street EAST	R	4817	0	0.2	0.2	INF	0.63
Beale Street / HLD	Henry Lawson Dr SOUTH	T	2711	159	118.4	-40.6	-25.5	3.45
Beale Street / HLD	Henry Lawson Dr SOUTH	R	2712	0	0.0	0.0	0.0	0.00
Endevour Road / HLD	Henry Lawson Dr NORTH	L	2770	0	0.0	0.0	0.0	0.00
Endevour Road / HLD	Henry Lawson Dr NORTH	T	5410	139	129.2	-9.8	-7.1	0.85
Endevour Road / HLD	Endevour Road EAST	L	5409	0	7.8	7.8	INF	3.95
Golf course Road / HLD	Henry Lawson Dr NORTH	L	4905	0	0.2	0.2	INF	0.63
Golf course Road / HLD	Henry Lawson Dr NORTH	T	4904	140	138.0	-2.0	-1.4	0.17
Golf course Road / HLD	Golf course Road EAST	L	4272	0	4.6	4.6	INF	3.03
Golf course Road / HLD	Golf course Road EAST	R	4273	0	7.8	7.8	INF	3.95
Golf course Road / HLD	Henry Lawson Dr SOUTH	T	1693	161	107.2	-53.8	-33.4	4.65
Golf course Road / HLD	Henry Lawson Dr SOUTH	R	1694	0	0.0	0.0	0.0	0.00

PM Model
Time period: 3:30-4:30 PM
Vehicle Type: Light Vehicles

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Flinders Road / HLD	Henry Lawson Dr NORTH	L	3058	21	26.6	5.6	26.7	1.15
Flinders Road / HLD	Henry Lawson Dr NORTH	T	5407	857	951.2	94.2	11.0	3.13
Flinders Road / HLD	Finders Road EAST	L	2525	153	141.0	-12.0	-7.8	0.99
Flinders Road / HLD	Finders Road EAST	R	2526	18	19.8	1.8	10.0	0.41
Flinders Road / HLD	Henry Lawson Dr SOUTH	T	2675	991	893.2	-97.8	-9.9	3.19
Flinders Road / HLD	Henry Lawson Dr SOUTH	R	2676	165	122.8	-42.2	-25.6	3.52
Haig Avenue / HLD	Henry Lawson Dr NORTH	L	2721	12	6.8	-5.2	-43.3	1.70
Haig Avenue / HLD	Henry Lawson Dr NORTH	T	2720	832	880.2	48.2	5.8	1.65
Haig Avenue / HLD	Haig Avenue EAST	L	2625	219	242.8	23.8	10.9	1.57
Haig Avenue / HLD	Haig Avenue EAST	R	2626	144	153.0	9.0	6.3	0.74
Haig Avenue / HLD	Henry Lawson Dr SOUTH	T	5854	1015	881.0	-134.0	-13.2	4.35
Haig Avenue / HLD	Henry Lawson Dr SOUTH	R	5855	119	82.8	-36.2	-30.4	3.60
Rabaul Road / HLD	Henry Lawson Dr NORTH	L	2780	2	4.6	2.6	130.0	1.43
Rabaul Road / HLD	Henry Lawson Dr NORTH	T	2779	1079	1117.8	38.8	3.6	1.17
Rabaul Road / HLD	Henry Lawson Dr NORTH	R	2781	2	0.0	-2.0	-100.0	2.00
Rabaul Road / HLD	Rabaul Road EAST	R	4357	126	123.4	-2.6	-2.1	0.23
Rabaul Road / HLD	Rabaul Road EAST	T	4358	1	0.0	-1.0	-100.0	1.41
Rabaul Road / HLD	Rabaul Road EAST	L	4359	5	1.6	-3.4	-68.0	1.87
Rabaul Road / HLD	Henry Lawson Dr SOUTH	L	5012	1	3.4	2.4	240.0	1.62
Rabaul Road / HLD	Henry Lawson Dr SOUTH	T	5010	1011	965.8	-45.2	-4.5	1.44
Rabaul Road / HLD	Henry Lawson Dr SOUTH	R	5011	23	9.8	-13.2	-57.4	3.26
Rabaul Road / HLD	Rabaul Road WEST	L	4298	6	4.0	-2.0	-33.3	0.89
Rabaul Road / HLD	Rabaul Road WEST	T	4299	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road WEST	R	4300	0	0.0	0.0	0.0	0.00
HLD / Tower Road	Henry Lawson Dr NORTH	L	1437	19	19.2	0.2	1.1	0.05
HLD / Tower Road	Henry Lawson Dr NORTH	T	5444	1146	1151.0	5.0	0.4	0.15
HLD / Tower Road	Tower Road EAST	L	5445	391	400.6	9.6	2.5	0.48
HLD / Tower Road	Tower Road EAST	R	2768	25	23.6	-1.4	-5.6	0.28
HLD / Tower Road	Henry Lawson Dr SOUTH	T	5443	1010	962.4	-47.6	-4.7	1.52
HLD / Tower Road	Henry Lawson Dr SOUTH	R	5446	310	246.2	-63.8	-20.6	3.83
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	L	5468	414	403.0	-11.0	-2.7	0.54
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	T	2765	526	572.4	46.4	8.8	1.98
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	R	5434	597	537.4	-59.6	-10.0	2.50
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	L	5461	52	51.0	-1.0	-1.9	0.14
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	T	1845	1513	1348.4	-164.6	-10.9	4.35
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	R	5709	325	306.8	-18.2	-5.6	1.02
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	L	5457	614	601.4	-12.6	-2.1	0.51
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	T	1587	403	431.8	28.8	7.1	1.41
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	R	1588	26	1.2	-24.8	-95.4	6.72
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	L	5454	592	481.8	-110.2	-18.6	4.76

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	T	2185	1015	948.8	-66.2	-6.5	2.11
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	R	5433	547	405.8	-141.2	-25.8	6.47
Auld Avenue / HLD	Henry Lawson Dr NORTH	T	1499	1115	1006.4	-108.6	-9.7	3.33
Auld Avenue / HLD	Henry Lawson Dr NORTH	R	1500	10	17.0	7.0	70.0	1.91
Auld Avenue / HLD	Henry Lawson Dr SOUTH	L	4922	6	3.0	-3.0	-50.0	1.41
Auld Avenue / HLD	Henry Lawson Dr SOUTH	T	4921	1043	1046.8	3.8	0.4	0.12
Auld Avenue / HLD	Auld Avenue WEST	L	4198	11	9.4	-1.6	-14.6	0.50
Auld Avenue / HLD	Auld Avenue WEST	R	4199	6	0.0	-6.0	-100.0	3.46
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	L	5512	239	177.0	-62.0	-25.9	4.30
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	T	5518	869	829.0	-40.0	-4.6	1.37
HLD / Keys Parade/Flower power	Flower power EAST	L	5505	59	52.0	-7.0	-11.9	0.94
HLD / Keys Parade/Flower power	Flower Power EAST	R	5507	87	81.6	-5.4	-6.2	0.59
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	R	5850	0	0.8	0.8	INF	1.26
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	T	5506	944	971.4	27.4	2.9	0.89
HLD / Keys Parade/Flower power	Keys Parade WEST	R	5508	38	29.8	-8.2	-21.6	1.41
HLD / Keys Parade/Flower power	Keys Parade WEST	L	5847	0	1.0	1.0	INF	1.41
Raleigh Road / HLD	Henry Lawson Dr NORTH	T	3159	851	826.8	-24.2	-2.8	0.84
Raleigh Road / HLD	Henry Lawson Dr NORTH	R	3160	77	51.4	-25.6	-33.3	3.20
Raleigh Road / HLD	Henry Lawson Dr SOUTH	L	3139	12	11.2	-0.8	-6.7	0.23
Raleigh Road / HLD	Henry Lawson Dr SOUTH	T	5421	942	931.8	-10.2	-1.1	0.33
Raleigh Road / HLD	Raleigh Road WEST	L	5422	40	72.8	32.8	82.0	4.37
Raleigh Road / HLD	Raleigh Road WEST	R	3132	4	0.0	-4.0	-100.0	2.83
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	T	20959	854	820.8	-33.2	-3.9	1.15
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	R	20960	1	0.0	-1.0	-100.0	1.41
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	L	20958	19	31.8	12.8	67.4	2.54
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	T	20957	954	945.6	-8.4	-0.9	0.27
HLD / Ruthven Avenue	Ruthven Avenue WEST	L	20962	0	0.0	0.0	0.0	0.00
HLD / Ruthven Avenue	Ruthven Avenue WEST	R	20961	10	0.0	-10.0	-100.0	4.47
HLD / Whittle Avenue	Henry Lawson Dr NORTH	L	20976	11	0.0	-11.0	-100.0	4.69
HLD / Whittle Avenue	Henry Lawson Dr NORTH	T	20977	853	820.2	-32.8	-3.8	1.13
HLD / Whittle Avenue	Whittle Avenue EAST	L	20979	4	9.6	5.6	140.0	2.15
HLD / Whittle Avenue	Whittle Avenue EAST	R	20978	5	0.0	-5.0	-100.0	3.16
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	T	20980	968	978.2	10.2	1.1	0.33
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	R	20981	8	7.2	-0.8	-10.0	0.29
HLD / Amiens Avenue	Henry Lawson Dr NORTH	T	20995	842	816.8	-25.2	-3.0	0.88
HLD / Amiens Avenue	Henry Lawson Dr NORTH	R	20996	15	11.8	-3.2	-21.3	0.87
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	L	20998	34	44.4	10.4	30.6	1.66
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	T	20997	962	974.0	12.0	1.2	0.39
HLD / Amiens Avenue	Amiens Avenue WEST	L	20999	14	13.0	-1.0	-7.1	0.27
HLD / Amiens Avenue	Amiens Avenue WEST	R	21000	14	4.8	-9.2	-65.7	3.00
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	L	21049	129	119.8	-9.2	-7.1	0.82
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	T	21050	727	697.0	-30.0	-4.1	1.12
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	L	21045	182	216.8	34.8	19.1	2.46
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	R	21046	338	314.2	-23.8	-7.0	1.32
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	T	21048	658	708.0	50.0	7.6	1.91

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	R	21047	127	107.8	-19.2	-15.1	1.77
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	L	21288	4	4.6	0.6	15.0	0.29
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	T	21287	890	902.0	12.0	1.3	0.40
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	R	21289	15	6.8	-8.2	-54.7	2.48
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	R	21284	59	57.0	-2.0	-3.4	0.26
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	T	21286	2	1.4	-0.6	-30.0	0.46
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	L	21285	0	1.2	1.2	INF	1.55
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	L	21295	8	6.6	-1.4	-17.5	0.52
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	T	21294	763	796.4	33.4	4.4	1.20
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	R	21293	6	1.4	-4.6	-76.7	2.39
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	L	21292	22	23.4	1.4	6.4	0.29
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	T	21291	2	3.2	1.2	60.0	0.74
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	R	21290	4	4.8	0.8	20.0	0.38
HLD / Hermies Avenue	Henry Lawson Dr NORTH	L	21323	15	12.4	-2.6	-17.3	0.70
HLD / Hermies Avenue	Henry Lawson Dr NORTH	T	21322	938	947.2	9.2	1.0	0.30
HLD / Hermies Avenue	Hermies Avenue EAST	L	21324	139	113.6	-25.4	-18.3	2.26
HLD / Hermies Avenue	Hermies Avenue EAST	R	21325	5	5.4	0.4	8.0	0.18
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	T	21320	772	799.4	27.4	3.5	0.98
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	R	21321	53	46.8	-6.2	-11.7	0.88
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	T	21341	1031	1024.8	-6.2	-0.6	0.19
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	R	21342	46	33.8	-12.2	-26.5	1.93
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	L	21340	87	94.8	7.8	9.0	0.82
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	T	21339	772	797.4	25.4	3.3	0.91
HLD / Pozieres Avenue	Pozieres Avenue WEST	L	21344	53	51.2	-1.8	-3.4	0.25
HLD / Pozieres Avenue	Pozieres Avenue WEST	R	21343	94	73.2	-20.8	-22.1	2.27
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	T	21712	539	531.4	-7.6	-1.4	0.33
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	R	21711	429	393.0	-36.0	-8.4	1.78
HLD / Swestern Motorway 2	Swestern Motorway EAST	R	21445	34	13.0	-21.0	-61.8	4.33
HLD / Swestern Motorway 2	Swestern Motorway EAST	T	21708	3	1.2	-1.8	-60.0	1.24
HLD / Swestern Motorway 2	Swestern Motorway EAST	L	21709	271	259.8	-11.2	-4.1	0.69
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	L	21452	169	179.8	10.8	6.4	0.82
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	T	21707	451	467.4	16.4	3.6	0.77
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	L	21385	354	339.8	-14.2	-4.0	0.76
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	T	21699	771	745.6	-25.4	-3.3	0.92
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	T	21704	680	701.4	21.4	3.1	0.81
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	R	21703	42	25.2	-16.8	-40.0	2.90
HLD / Swestern Motorway 1	Swestern Motorway WEST	L	21398	179	196.8	17.8	9.9	1.30
HLD / Swestern Motorway 1	Swestern Motorway WEST	T	21700	0	0.4	0.4	INF	0.89
HLD / Swestern Motorway 1	Swestern Motorway WEST	R	21701	197	187.2	-9.8	-5.0	0.71
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	L	4117	13	21.6	8.6	66.2	2.07
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	R	4118	9	9.6	0.6	6.7	0.20
Murray Jones Dr / Milperra Road	Milperra Road EAST	T	5439	1881	1942.4	61.4	3.3	1.40

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Murray Jones Dr / Milperra Road	Milperra Road EAST	R	5440	6	0.0	-6.0	-100.0	3.46
Murray Jones Dr / Milperra Road	Milperra Road WEST	L	1973	1	0.0	-1.0	-100.0	1.41
Murray Jones Dr / Milperra Road	Milperra Road WEST	T	1972	1454	1329.0	-125.0	-8.6	3.35
Ashford Avenue / Milperra Road	Milperra Road EAST	L	3685	280	244.4	-35.6	-12.7	2.20
Ashford Avenue / Milperra Road	Milperra Road EAST	T	3684	1688	1743.4	55.4	3.3	1.34
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	L	3768	199	209.8	10.8	5.4	0.76
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	R	3767	177	156.4	-20.6	-11.6	1.60
Ashford Avenue / Milperra Road	Milperra Road WEST	T	5441	1304	1233.8	-70.2	-5.4	1.97
Ashford Avenue / Milperra Road	Milperra Road WEST	R	5442	163	117.4	-45.6	-28.0	3.85
Georges Ces / HLD	Henry Lawson Dr NORTH	L	3084	75	109.8	34.8	46.4	3.62
Georges Ces / HLD	Henry Lawson Dr NORTH	T	5741	935	978.0	43.0	4.6	1.39
Georges Ces / HLD	Georges Cres EAST	L	5742	0	2.8	2.8	INF	2.37
Georges Ces / HLD	Henry Lawson Dr SOUTH	T	4787	1159	1018.6	-140.4	-12.1	4.25
Georges Ces / HLD	Henry Lawson Dr SOUTH	R	4788	0	0.0	0.0	0.0	0.00
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	T	5181	912	949.4	37.4	4.1	1.23
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	R	5739	23	20.4	-2.6	-11.3	0.56
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	L	5408	0	3.8	3.8	INF	2.76
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	T	4856	1159	1027.0	-132.0	-11.4	3.99
HLD Reserve Road / HLD	HLD Reserve Road WEST	L	4506	0	1.8	1.8	INF	1.90
HLD Reserve Road / HLD	HLD Reserve Road WEST	R	4507	0	5.0	5.0	INF	3.16
Beale Street / HLD	Henry Lawson Dr NORTH	L	4730	68	58.6	-9.4	-13.8	1.18
Beale Street / HLD	Henry Lawson Dr NORTH	T	4729	844	886.4	42.4	5.0	1.44
Beale Street / HLD	Beale Street EAST	L	4816	0	13.4	13.4	INF	5.18
Beale Street / HLD	Beale Street EAST	R	4817	0	0.0	0.0	0.0	0.00
Beale Street / HLD	Henry Lawson Dr SOUTH	T	2711	1159	1032.0	-127.0	-11.0	3.84
Beale Street / HLD	Henry Lawson Dr SOUTH	R	2712	0	1.2	1.2	INF	1.55
Endevour Road / HLD	Henry Lawson Dr NORTH	L	2770	0	0.6	0.6	INF	1.10
Endevour Road / HLD	Henry Lawson Dr NORTH	T	5410	1083	1122.4	39.4	3.6	1.19
Endevour Road / HLD	Endevour Road EAST	L	5409	0	0.8	0.8	INF	1.26
Golf course Road / HLD	Henry Lawson Dr NORTH	L	4905	40	47.0	7.0	17.5	1.06
Golf course Road / HLD	Henry Lawson Dr NORTH	T	4904	1165	1181.0	16.0	1.4	0.47
Golf course Road / HLD	Golf course Road EAST	L	4272	0	0.0	0.0	0.0	0.00
Golf course Road / HLD	Golf course Road EAST	R	4273	0	0.0	0.0	0.0	0.00
Golf course Road / HLD	Henry Lawson Dr SOUTH	T	1693	1035	977.8	-57.2	-5.5	1.80
Golf course Road / HLD	Henry Lawson Dr SOUTH	R	1694	0	0.0	0.0	0.0	0.00

PM Model
Time period: 4:30-5:30 PM
Vehicle Type: Light Vehicles

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Flinders Road / HLD	Henry Lawson Dr NORTH	L	3058	33	29.2	-3.8	-11.5	0.68
Flinders Road / HLD	Henry Lawson Dr NORTH	T	5407	924	944.0	20.0	2.2	0.65
Flinders Road / HLD	Finders Road EAST	L	2525	140	189.4	49.4	35.3	3.85
Flinders Road / HLD	Finders Road EAST	R	2526	17	18.4	1.4	8.2	0.33
Flinders Road / HLD	Henry Lawson Dr SOUTH	T	2675	958	949.4	-8.6	-0.9	0.28
Flinders Road / HLD	Henry Lawson Dr SOUTH	R	2676	205	197.6	-7.4	-3.6	0.52
Haig Avenue / HLD	Henry Lawson Dr NORTH	L	2721	6	8.6	2.6	43.3	0.96
Haig Avenue / HLD	Henry Lawson Dr NORTH	T	2720	886	935.2	49.2	5.6	1.63
Haig Avenue / HLD	Haig Avenue EAST	L	2625	96	122.0	26.0	27.1	2.49
Haig Avenue / HLD	Haig Avenue EAST	R	2626	153	152.0	-1.0	-0.7	0.08
Haig Avenue / HLD	Henry Lawson Dr SOUTH	T	5854	1010	1003.4	-6.6	-0.7	0.21
Haig Avenue / HLD	Henry Lawson Dr SOUTH	R	5855	104	99.6	-4.4	-4.2	0.44
Rabaul Road / HLD	Henry Lawson Dr NORTH	L	2780	2	3.0	1.0	50.0	0.63
Rabaul Road / HLD	Henry Lawson Dr NORTH	T	2779	1172	1238.4	66.4	5.7	1.91
Rabaul Road / HLD	Henry Lawson Dr NORTH	R	2781	10	8.8	-1.2	-12.0	0.39
Rabaul Road / HLD	Rabaul Road EAST	R	4357	153	122.6	-30.4	-19.9	2.59
Rabaul Road / HLD	Rabaul Road EAST	T	4358	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road EAST	L	4359	9	0.6	-8.4	-93.3	3.83
Rabaul Road / HLD	Henry Lawson Dr SOUTH	L	5012	1	5.8	4.8	480.0	2.60
Rabaul Road / HLD	Henry Lawson Dr SOUTH	T	5010	1044	1107.4	63.4	6.1	1.93
Rabaul Road / HLD	Henry Lawson Dr SOUTH	R	5011	21	7.8	-13.2	-62.9	3.48
Rabaul Road / HLD	Rabaul Road WEST	L	4298	6	3.6	-2.4	-40.0	1.10
Rabaul Road / HLD	Rabaul Road WEST	T	4299	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road WEST	R	4300	0	0.0	0.0	0.0	0.00
HLD / Tower Road	Henry Lawson Dr NORTH	L	1437	19	23.2	4.2	22.1	0.91
HLD / Tower Road	Henry Lawson Dr NORTH	T	5444	1018	1102.2	84.2	8.3	2.59
HLD / Tower Road	Tower Road EAST	L	5445	550	490.0	-60.0	-10.9	2.63
HLD / Tower Road	Tower Road EAST	R	2768	24	24.2	0.2	0.8	0.04
HLD / Tower Road	Henry Lawson Dr SOUTH	T	5443	1058	1129.0	71.0	6.7	2.15
HLD / Tower Road	Henry Lawson Dr SOUTH	R	5446	238	216.4	-21.6	-9.1	1.43
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	L	5468	246	270.2	24.2	9.8	1.51
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	T	2765	534	643.4	109.4	20.5	4.51
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	R	5434	788	661.2	-126.8	-16.1	4.71
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	L	5461	115	68.6	-46.4	-40.4	4.84
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	T	1845	1083	1334.0	251.0	23.2	7.22
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	R	5709	295	244.6	-50.4	-17.1	3.07
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	L	5457	821	720.0	-101.0	-12.3	3.64
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	T	1587	391	449.4	58.4	14.9	2.85
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	R	1588	26	14.8	-11.2	-43.1	2.48
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	L	5454	610	649.0	39.0	6.4	1.55
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	T	2185	1018	1075.0	57.0	5.6	1.76

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	R	5433	378	319.8	-58.2	-15.4	3.12
Auld Avenue / HLD	Henry Lawson Dr NORTH	T	1499	1008	1013.6	5.6	0.6	0.18
Auld Avenue / HLD	Henry Lawson Dr NORTH	R	1500	19	18.4	-0.6	-3.2	0.14
Auld Avenue / HLD	Henry Lawson Dr SOUTH	L	4922	2	2.8	0.8	40.0	0.52
Auld Avenue / HLD	Henry Lawson Dr SOUTH	T	4921	1238	1166.6	-71.4	-5.8	2.06
Auld Avenue / HLD	Auld Avenue WEST	L	4198	12	18.2	6.2	51.7	1.60
Auld Avenue / HLD	Auld Avenue WEST	R	4199	6	4.0	-2.0	-33.3	0.89
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	L	5512	81	127.0	46.0	56.8	4.51
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	T	5518	933	890.6	-42.4	-4.5	1.40
HLD / Keys Parade/Flower power	Flower power EAST	L	5505	68	71.2	3.2	4.7	0.38
HLD / Keys Parade/Flower power	Flower Power EAST	R	5507	257	236.8	-20.2	-7.9	1.29
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	R	5850	0	0.2	0.2	INF	0.63
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	T	5506	983	930.6	-52.4	-5.3	1.69
HLD / Keys Parade/Flower power	Keys Parade WEST	R	5508	37	11.0	-26.0	-70.3	5.31
HLD / Keys Parade/Flower power	Keys Parade WEST	L	5847	0	2.2	2.2	INF	2.10
Raleigh Road / HLD	Henry Lawson Dr NORTH	T	3159	926	874.6	-51.4	-5.6	1.71
Raleigh Road / HLD	Henry Lawson Dr NORTH	R	3160	75	86.6	11.6	15.5	1.29
Raleigh Road / HLD	Henry Lawson Dr SOUTH	L	3139	17	9.8	-7.2	-42.4	1.97
Raleigh Road / HLD	Henry Lawson Dr SOUTH	T	5421	965	891.6	-73.4	-7.6	2.41
Raleigh Road / HLD	Raleigh Road WEST	L	5422	55	48.6	-6.4	-11.6	0.89
Raleigh Road / HLD	Raleigh Road WEST	R	3132	8	0.0	-8.0	-100.0	4.00
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	T	20959	932	868.4	-63.6	-6.8	2.12
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	R	20960	2	1.8	-0.2	-10.0	0.15
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	L	20958	14	14.2	0.2	1.4	0.05
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	T	20957	982	904.0	-78.0	-7.9	2.54
HLD / Ruthven Avenue	Ruthven Avenue WEST	L	20962	0	0.0	0.0	0.0	0.00
HLD / Ruthven Avenue	Ruthven Avenue WEST	R	20961	0	0.0	0.0	0.0	0.00
HLD / Whittle Avenue	Henry Lawson Dr NORTH	L	20976	8	6.8	-1.2	-15.0	0.44
HLD / Whittle Avenue	Henry Lawson Dr NORTH	T	20977	924	860.4	-63.6	-6.9	2.13
HLD / Whittle Avenue	Whittle Avenue EAST	L	20979	16	10.2	-5.8	-36.3	1.60
HLD / Whittle Avenue	Whittle Avenue EAST	R	20978	0	0.0	0.0	0.0	0.00
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	T	20980	987	918.0	-69.0	-7.0	2.24
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	R	20981	10	8.4	-1.6	-16.0	0.53
HLD / Amiens Avenue	Henry Lawson Dr NORTH	T	20995	925	862.0	-63.0	-6.8	2.11
HLD / Amiens Avenue	Henry Lawson Dr NORTH	R	20996	15	9.8	-5.2	-34.7	1.48
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	L	20998	34	36.6	2.6	7.6	0.44
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	T	20997	980	904.8	-75.2	-7.7	2.45
HLD / Amiens Avenue	Amiens Avenue WEST	L	20999	17	21.2	4.2	24.7	0.96
HLD / Amiens Avenue	Amiens Avenue WEST	R	21000	0	5.6	5.6	INF	3.35
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	L	21049	118	127.2	9.2	7.8	0.83
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	T	21050	807	744.6	-62.4	-7.7	2.24
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	L	21045	186	263.0	77.0	41.4	5.14
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	R	21046	355	270.4	-84.6	-23.8	4.78
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	T	21048	659	671.6	12.6	1.9	0.49
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	R	21047	92	84.4	-7.6	-8.3	0.81
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	L	21288	5	5.2	0.2	4.0	0.09
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	T	21287	968	990.0	22.0	2.3	0.70

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	R	21289	20	12.4	-7.6	-38.0	1.89
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	R	21284	60	45.6	-14.4	-24.0	1.98
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	T	21286	1	1.0	0.0	0.0	0.00
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	L	21285	3	7.6	4.6	153.3	2.00
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	L	21295	20	7.6	-12.4	-62.0	3.34
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	T	21294	737	741.4	4.4	0.6	0.16
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	R	21293	11	1.4	-9.6	-87.3	3.86
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	L	21292	11	6.4	-4.6	-41.8	1.56
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	T	21291	7	0.0	-7.0	-100.0	3.74
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	R	21290	3	3.4	0.4	13.3	0.22
HLD / Hermies Avenue	Henry Lawson Dr NORTH	L	21323	10	2.2	-7.8	-78.0	3.16
HLD / Hermies Avenue	Henry Lawson Dr NORTH	T	21322	1021	1039.8	18.8	1.8	0.59
HLD / Hermies Avenue	Hermies Avenue EAST	L	21324	100	81.2	-18.8	-18.8	1.98
HLD / Hermies Avenue	Hermies Avenue EAST	R	21325	3	0.2	-2.8	-93.3	2.21
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	T	21320	765	751.6	-13.4	-1.8	0.49
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	R	21321	50	43.0	-7.0	-14.0	1.03
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	T	21341	1079	1080.2	1.2	0.1	0.04
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	R	21342	42	40.8	-1.2	-2.9	0.19
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	L	21340	116	84.0	-32.0	-27.6	3.20
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	T	21339	774	755.2	-18.8	-2.4	0.68
HLD / Pozieres Avenue	Pozieres Avenue WEST	L	21344	41	37.4	-3.6	-8.8	0.57
HLD / Pozieres Avenue	Pozieres Avenue WEST	R	21343	107	68.2	-38.8	-36.3	4.15
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	T	21712	608	591.8	-16.2	-2.7	0.66
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	R	21711	443	408.2	-34.8	-7.9	1.69
HLD / Swestern Motorway 2	Swestern Motorway EAST	R	21445	12	17.6	5.6	46.7	1.46
HLD / Swestern Motorway 2	Swestern Motorway EAST	T	21708	2	3.0	1.0	50.0	0.63
HLD / Swestern Motorway 2	Swestern Motorway EAST	L	21709	209	242.2	33.2	15.9	2.21
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	L	21452	213	196.8	-16.2	-7.6	1.13
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	T	21707	492	427.4	-64.6	-13.1	3.01
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	L	21385	375	381.0	6.0	1.6	0.31
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	T	21699	811	771.8	-39.2	-4.8	1.39
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	T	21704	671	642.6	-28.4	-4.2	1.11
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	R	21703	30	26.4	-3.6	-12.0	0.68
HLD / Swestern Motorway 1	Swestern Motorway WEST	L	21398	219	192.6	-26.4	-12.1	1.84
HLD / Swestern Motorway 1	Swestern Motorway WEST	T	21700	0	0.0	0.0	0.0	0.00
HLD / Swestern Motorway 1	Swestern Motorway WEST	R	21701	240	228.0	-12.0	-5.0	0.78
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	L	4117	194	177.0	-17.0	-8.8	1.25
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	R	4118	75	57.2	-17.8	-23.7	2.19
Murray Jones Dr / Milperra Road	Milperra Road EAST	T	5439	1418	1516.2	98.2	6.9	2.56
Murray Jones Dr / Milperra Road	Milperra Road EAST	R	5440	3	0.0	-3.0	-100.0	2.45
Murray Jones Dr / Milperra Road	Milperra Road WEST	L	1973	1	0.8	-0.2	-20.0	0.21
Murray Jones Dr / Milperra Road	Milperra Road WEST	T	1972	1289	1359.4	70.4	5.5	1.93
Ashford Avenue / Milperra Road	Milperra Road EAST	L	3685	270	234.8	-35.2	-13.0	2.22
Ashford Avenue / Milperra Road	Milperra Road EAST	T	3684	1288	1370.4	82.4	6.4	2.26

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	L	3768	127	136.4	9.4	7.4	0.82
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	R	3767	135	166.0	31.0	23.0	2.53
Ashford Avenue / Milperra Road	Milperra Road WEST	T	5441	1323	1378.2	55.2	4.2	1.50
Ashford Avenue / Milperra Road	Milperra Road WEST	R	5442	160	155.0	-5.0	-3.1	0.40
Georges Ces / HLD	Henry Lawson Dr NORTH	L	3084	75	77.6	2.6	3.5	0.30
Georges Ces / HLD	Henry Lawson Dr NORTH	T	5741	989	1057.2	68.2	6.9	2.13
Georges Ces / HLD	Georges Cres EAST	L	5742	0	5.8	5.8	INF	3.41
Georges Ces / HLD	Henry Lawson Dr SOUTH	T	4787	1163	1151.4	-11.6	-1.0	0.34
Georges Ces / HLD	Henry Lawson Dr SOUTH	R	4788	0	0.0	0.0	0.0	0.00
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	T	5181	967	1030.6	63.6	6.6	2.01
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	R	5739	22	29.6	7.6	34.6	1.50
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	L	5408	0	0.8	0.8	INF	1.26
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	T	4856	1163	1153.0	-10.0	-0.9	0.29
HLD Reserve Road / HLD	HLD Reserve Road WEST	L	4506	0	0.4	0.4	INF	0.89
HLD Reserve Road / HLD	HLD Reserve Road WEST	R	4507	0	0.8	0.8	INF	1.26
Beale Street / HLD	Henry Lawson Dr NORTH	L	4730	75	94.6	19.6	26.1	2.13
Beale Street / HLD	Henry Lawson Dr NORTH	T	4729	892	941.6	49.6	5.6	1.64
Beale Street / HLD	Beale Street EAST	L	4816	0	0.2	0.2	INF	0.63
Beale Street / HLD	Beale Street EAST	R	4817	0	0.0	0.0	0.0	0.00
Beale Street / HLD	Henry Lawson Dr SOUTH	T	2711	1163	1153.6	-9.4	-0.8	0.28
Beale Street / HLD	Henry Lawson Dr SOUTH	R	2712	0	2.2	2.2	INF	2.10
Endevour Road / HLD	Henry Lawson Dr NORTH	L	2770	0	0.0	0.0	0.0	0.00
Endevour Road / HLD	Henry Lawson Dr NORTH	T	5410	982	1056.8	74.8	7.6	2.34
Endevour Road / HLD	Endevour Road EAST	L	5409	202	195.2	-6.8	-3.4	0.48
Golf course Road / HLD	Henry Lawson Dr NORTH	L	4905	288	235.6	-52.4	-18.2	3.24
Golf course Road / HLD	Henry Lawson Dr NORTH	T	4904	1037	1124.0	87.0	8.4	2.65
Golf course Road / HLD	Golf course Road EAST	L	4272	0	0.0	0.0	0.0	0.00
Golf course Road / HLD	Golf course Road EAST	R	4273	0	0.0	0.0	0.0	0.00
Golf course Road / HLD	Henry Lawson Dr SOUTH	T	1693	1066	1137.0	71.0	6.7	2.14
Golf course Road / HLD	Henry Lawson Dr SOUTH	R	1694	16	15.0	-1.0	-6.3	0.25

PM Model
Time period: 3:30-4:30 PM
Vehicle Type: Heavy Vehicles

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Flinders Road / HLD	Henry Lawson Dr NORTH	L	3058	0	0.0	0.0	0.0	0.00
Flinders Road / HLD	Henry Lawson Dr NORTH	T	5407	115	81.8	-33.2	-28.9	3.35
Flinders Road / HLD	Finders Road EAST	L	2525	6	0.0	-6.0	-100.0	3.46
Flinders Road / HLD	Finders Road EAST	R	2526	0	0.0	0.0	0.0	0.00
Flinders Road / HLD	Henry Lawson Dr SOUTH	T	2675	143	93.0	-50.0	-35.0	4.60
Flinders Road / HLD	Henry Lawson Dr SOUTH	R	2676	0	0.0	0.0	0.0	0.00
Haig Avenue / HLD	Henry Lawson Dr NORTH	L	2721	4	0.4	-3.6	-90.0	2.43
Haig Avenue / HLD	Henry Lawson Dr NORTH	T	2720	110	71.4	-38.6	-35.1	4.05
Haig Avenue / HLD	Haig Avenue EAST	L	2625	0	20.8	20.8	INF	6.45
Haig Avenue / HLD	Haig Avenue EAST	R	2626	11	12.4	1.4	12.7	0.41
Haig Avenue / HLD	Henry Lawson Dr SOUTH	T	5854	129	80.8	-48.2	-37.4	4.71
Haig Avenue / HLD	Henry Lawson Dr SOUTH	R	5855	8	4.0	-4.0	-50.0	1.63
Rabaul Road / HLD	Henry Lawson Dr NORTH	L	2780	1	0.0	-1.0	-100.0	1.41
Rabaul Road / HLD	Henry Lawson Dr NORTH	T	2779	77	92.0	15.0	19.5	1.63
Rabaul Road / HLD	Henry Lawson Dr NORTH	R	2781	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road EAST	R	4357	9	0.0	-9.0	-100.0	4.24
Rabaul Road / HLD	Rabaul Road EAST	T	4358	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road EAST	L	4359	1	0.0	-1.0	-100.0	1.41
Rabaul Road / HLD	Henry Lawson Dr SOUTH	L	5012	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Henry Lawson Dr SOUTH	T	5010	112	85.2	-26.8	-23.9	2.70
Rabaul Road / HLD	Henry Lawson Dr SOUTH	R	5011	6	0.0	-6.0	-100.0	3.46
Rabaul Road / HLD	Rabaul Road WEST	L	4298	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road WEST	T	4299	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road WEST	R	4300	0	0.0	0.0	0.0	0.00
HLD / Tower Road	Henry Lawson Dr NORTH	L	1437	1	0.0	-1.0	-100.0	1.41
HLD / Tower Road	Henry Lawson Dr NORTH	T	5444	85	84.8	-0.2	-0.2	0.02
HLD / Tower Road	Tower Road EAST	L	5445	14	0.0	-14.0	-100.0	5.29
HLD / Tower Road	Tower Road EAST	R	2768	5	0.0	-5.0	-100.0	3.16
HLD / Tower Road	Henry Lawson Dr SOUTH	T	5443	113	87.6	-25.4	-22.5	2.54
HLD / Tower Road	Henry Lawson Dr SOUTH	R	5446	4	0.0	-4.0	-100.0	2.83
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	L	5468	34	23.2	-10.8	-31.8	2.02
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	T	2765	40	31.4	-8.6	-21.5	1.44
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	R	5434	25	26.8	1.8	7.2	0.35
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	L	5461	11	0.0	-11.0	-100.0	4.69
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	T	1845	67	73.8	6.8	10.2	0.81
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	R	5709	49	16.8	-32.2	-65.7	5.61
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	L	5457	51	45.2	-5.8	-11.4	0.84
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	T	1587	54	38.2	-15.8	-29.3	2.33
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	R	1588	7	0.0	-7.0	-100.0	3.74
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	L	5454	14	33.0	19.0	135.7	3.92
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	T	2185	152	138.6	-13.4	-8.8	1.11

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	R	5433	6	23.4	17.4	290.0	4.54
Auld Avenue / HLD	Henry Lawson Dr NORTH	T	1499	57	54.8	-2.2	-3.9	0.29
Auld Avenue / HLD	Henry Lawson Dr NORTH	R	1500	0	0.0	0.0	0.0	0.00
Auld Avenue / HLD	Henry Lawson Dr SOUTH	L	4922	0	0.0	0.0	0.0	0.00
Auld Avenue / HLD	Henry Lawson Dr SOUTH	T	4921	112	84.4	-27.6	-24.6	2.79
Auld Avenue / HLD	Auld Avenue WEST	L	4198	0	0.0	0.0	0.0	0.00
Auld Avenue / HLD	Auld Avenue WEST	R	4199	0	0.0	0.0	0.0	0.00
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	L	5512	0	0.0	0.0	0.0	0.00
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	T	5518	70	54.6	-15.4	-22.0	1.95
HLD / Keys Parade/Flower power	Flower power EAST	L	5505	6	0.0	-6.0	-100.0	3.46
HLD / Keys Parade/Flower power	Flower Power EAST	R	5507	0	0.0	0.0	0.0	0.00
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	R	5850	0	0.0	0.0	0.0	0.00
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	T	5506	130	85.4	-44.6	-34.3	4.30
HLD / Keys Parade/Flower power	Keys Parade WEST	R	5508	3	0.0	-3.0	-100.0	2.45
HLD / Keys Parade/Flower power	Keys Parade WEST	L	5847	0	0.0	0.0	0.0	0.00
Raleigh Road / HLD	Henry Lawson Dr NORTH	T	3159	68	54.6	-13.4	-19.7	1.71
Raleigh Road / HLD	Henry Lawson Dr NORTH	R	3160	8	0.0	-8.0	-100.0	4.00
Raleigh Road / HLD	Henry Lawson Dr SOUTH	L	3139	1	0.0	-1.0	-100.0	1.41
Raleigh Road / HLD	Henry Lawson Dr SOUTH	T	5421	131	85.0	-46.0	-35.1	4.43
Raleigh Road / HLD	Raleigh Road WEST	L	5422	2	0.0	-2.0	-100.0	2.00
Raleigh Road / HLD	Raleigh Road WEST	R	3132	0	0.0	0.0	0.0	0.00
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	T	20959	68	53.6	-14.4	-21.2	1.85
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	R	20960	0	0.0	0.0	0.0	0.00
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	L	20958	1	2.4	1.4	140.0	1.07
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	T	20957	129	85.4	-43.6	-33.8	4.21
HLD / Ruthven Avenue	Ruthven Avenue WEST	L	20962	3	0.0	-3.0	-100.0	2.45
HLD / Ruthven Avenue	Ruthven Avenue WEST	R	20961	0	0.0	0.0	0.0	0.00
HLD / Whittle Avenue	Henry Lawson Dr NORTH	L	20976	1	0.0	-1.0	-100.0	1.41
HLD / Whittle Avenue	Henry Lawson Dr NORTH	T	20977	67	53.4	-13.6	-20.3	1.75
HLD / Whittle Avenue	Whittle Avenue EAST	L	20979	1	1.2	0.2	20.0	0.19
HLD / Whittle Avenue	Whittle Avenue EAST	R	20978	0	0.0	0.0	0.0	0.00
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	T	20980	130	87.8	-42.2	-32.5	4.04
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	R	20981	0	0.4	0.4	INF	0.89
HLD / Amiens Avenue	Henry Lawson Dr NORTH	T	20995	68	54.4	-13.6	-20.0	1.74
HLD / Amiens Avenue	Henry Lawson Dr NORTH	R	20996	0	0.4	0.4	INF	0.89
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	L	20998	6	4.0	-2.0	-33.3	0.89
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	T	20997	130	86.8	-43.2	-33.2	4.15
HLD / Amiens Avenue	Amiens Avenue WEST	L	20999	0	1.2	1.2	INF	1.55
HLD / Amiens Avenue	Amiens Avenue WEST	R	21000	2	0.6	-1.4	-70.0	1.23
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	L	21049	4	5.6	1.6	40.0	0.73
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	T	21050	66	49.4	-16.6	-25.2	2.19
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	L	21045	24	21.2	-2.8	-11.7	0.59
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	R	21046	21	21.4	0.4	1.9	0.09
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	T	21048	115	69.8	-45.2	-39.3	4.70
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	R	21047	26	14.4	-11.6	-44.6	2.58
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	L	21288	1	1.2	0.2	20.0	0.19
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	T	21287	89	68.0	-21.0	-23.6	2.37

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	R	21289	0	0.8	0.8	INF	1.26
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	R	21284	0	4.2	4.2	INF	2.90
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	T	21286	0	0.4	0.4	INF	0.89
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	L	21285	6	0.4	-5.6	-93.3	3.13
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	L	21295	5	0.6	-4.4	-88.0	2.63
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	T	21294	135	83.4	-51.6	-38.2	4.94
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	R	21293	0	0.2	0.2	INF	0.63
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	L	21292	0	1.0	1.0	INF	1.41
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	T	21291	0	0.2	0.2	INF	0.63
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	R	21290	1	0.4	-0.6	-60.0	0.72
HLD / Hermies Avenue	Henry Lawson Dr NORTH	L	21323	0	3.2	3.2	INF	2.53
HLD / Hermies Avenue	Henry Lawson Dr NORTH	T	21322	90	69.4	-20.6	-22.9	2.31
HLD / Hermies Avenue	Hermies Avenue EAST	L	21324	1	14.0	13.0	1300.0	4.75
HLD / Hermies Avenue	Hermies Avenue EAST	R	21325	0	0.8	0.8	INF	1.26
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	T	21320	140	83.6	-56.4	-40.3	5.33
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	R	21321	3	3.8	0.8	26.7	0.43
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	T	21341	90	79.6	-10.4	-11.6	1.13
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	R	21342	1	3.4	2.4	240.0	1.62
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	L	21340	2	11.8	9.8	490.0	3.73
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	T	21339	133	85.0	-48.0	-36.1	4.60
HLD / Pozieres Avenue	Pozieres Avenue WEST	L	21344	10	2.4	-7.6	-76.0	3.05
HLD / Pozieres Avenue	Pozieres Avenue WEST	R	21343	26	4.6	-21.4	-82.3	5.47
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	T	21712	18	42.2	24.2	134.4	4.41
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	R	21711	55	29.0	-26.0	-47.3	4.01
HLD / Swestern Motorway 2	Swestern Motorway EAST	R	21445	1	1.8	0.8	80.0	0.68
HLD / Swestern Motorway 2	Swestern Motorway EAST	T	21708	0	0.2	0.2	INF	0.63
HLD / Swestern Motorway 2	Swestern Motorway EAST	L	21709	56	30.2	-25.8	-46.1	3.93
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	L	21452	11	19.4	8.4	76.4	2.15
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	T	21707	46	43.8	-2.2	-4.8	0.33
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	L	21385	46	24.2	-21.8	-47.4	3.68
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	T	21699	70	57.8	-12.2	-17.4	1.53
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	T	21704	98	72.0	-26.0	-26.5	2.82
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	R	21703	4	1.8	-2.2	-55.0	1.29
HLD / Swestern Motorway 1	Swestern Motorway WEST	L	21398	37	25.0	-12.0	-32.4	2.16
HLD / Swestern Motorway 1	Swestern Motorway WEST	T	21700	0	0.4	0.4	INF	0.89
HLD / Swestern Motorway 1	Swestern Motorway WEST	R	21701	3	14.0	11.0	366.7	3.77
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	L	4117	3	2.4	-0.6	-20.0	0.37
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	R	4118	0	0.8	0.8	INF	1.26
Murray Jones Dr / Milperra Road	Milperra Road EAST	T	5439	127	104.2	-22.8	-18.0	2.12
Murray Jones Dr / Milperra Road	Milperra Road EAST	R	5440	1	0.0	-1.0	-100.0	1.41
Murray Jones Dr / Milperra Road	Milperra Road WEST	L	1973	0	0.0	0.0	0.0	0.00
Murray Jones Dr / Milperra Road	Milperra Road WEST	T	1972	193	157.4	-35.6	-18.5	2.69
Ashford Avenue / Milperra Road	Milperra Road EAST	L	3685	12	22.2	10.2	85.0	2.47
Ashford Avenue / Milperra Road	Milperra Road EAST	T	3684	107	88.4	-18.6	-17.4	1.88

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	L	3768	21	16.8	-4.2	-20.0	0.97
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	R	3767	10	15.8	5.8	58.0	1.61
Ashford Avenue / Milperra Road	Milperra Road WEST	T	5441	180	148.0	-32.0	-17.8	2.50
Ashford Avenue / Milperra Road	Milperra Road WEST	R	5442	16	11.4	-4.6	-28.8	1.24
Georges Ces / HLD	Henry Lawson Dr NORTH	L	3084	0	0.0	0.0	0.0	0.00
Georges Ces / HLD	Henry Lawson Dr NORTH	T	5741	121	81.0	-40.0	-33.1	3.98
Georges Ces / HLD	Georges Cres EAST	L	5742	0	0.0	0.0	0.0	0.00
Georges Ces / HLD	Henry Lawson Dr SOUTH	T	4787	140	93.6	-46.4	-33.1	4.29
Georges Ces / HLD	Henry Lawson Dr SOUTH	R	4788	0	0.0	0.0	0.0	0.00
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	T	5181	121	79.8	-41.2	-34.1	4.11
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	R	5739	0	0.0	0.0	0.0	0.00
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	L	5408	0	0.0	0.0	0.0	0.00
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	T	4856	140	93.4	-46.6	-33.3	4.31
HLD Reserve Road / HLD	HLD Reserve Road WEST	L	4506	0	0.0	0.0	0.0	0.00
HLD Reserve Road / HLD	HLD Reserve Road WEST	R	4507	0	0.0	0.0	0.0	0.00
Beale Street / HLD	Henry Lawson Dr NORTH	L	4730	7	5.6	-1.4	-20.0	0.56
Beale Street / HLD	Henry Lawson Dr NORTH	T	4729	114	73.0	-41.0	-36.0	4.24
Beale Street / HLD	Beale Street EAST	L	4816	0	0.2	0.2	INF	0.63
Beale Street / HLD	Beale Street EAST	R	4817	0	1.0	1.0	INF	1.41
Beale Street / HLD	Henry Lawson Dr SOUTH	T	2711	140	92.8	-47.2	-33.7	4.37
Beale Street / HLD	Henry Lawson Dr SOUTH	R	2712	0	0.2	0.2	INF	0.63
Endevour Road / HLD	Henry Lawson Dr NORTH	L	2770	0	0.0	0.0	0.0	0.00
Endevour Road / HLD	Henry Lawson Dr NORTH	T	5410	78	92.0	14.0	18.0	1.52
Endevour Road / HLD	Endevour Road EAST	L	5409	0	0.0	0.0	0.0	0.00
Golf course Road / HLD	Henry Lawson Dr NORTH	L	4905	0	5.4	5.4	INF	3.29
Golf course Road / HLD	Henry Lawson Dr NORTH	T	4904	86	86.0	0.0	0.0	0.00
Golf course Road / HLD	Golf course Road EAST	L	4272	0	0.0	0.0	0.0	0.00
Golf course Road / HLD	Golf course Road EAST	R	4273	0	0.0	0.0	0.0	0.00
Golf course Road / HLD	Henry Lawson Dr SOUTH	T	1693	118	85.2	-32.8	-27.8	3.25
Golf course Road / HLD	Henry Lawson Dr SOUTH	R	1694	0	0.0	0.0	0.0	0.00

PM Model
Time period: 4:30-5:30 PM
Vehicle Type: Heavy Vehicles

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Flinders Road / HLD	Henry Lawson Dr NORTH	L	3058	3	0.0	-3.0	-100.0	2.45
Flinders Road / HLD	Henry Lawson Dr NORTH	T	5407	69	65.0	-4.0	-5.8	0.49
Flinders Road / HLD	Finders Road EAST	L	2525	3	0.0	-3.0	-100.0	2.45
Flinders Road / HLD	Finders Road EAST	R	2526	0	0.0	0.0	0.0	0.00
Flinders Road / HLD	Henry Lawson Dr SOUTH	T	2675	128	87.4	-40.6	-31.7	3.91
Flinders Road / HLD	Henry Lawson Dr SOUTH	R	2676	7	0.0	-7.0	-100.0	3.74
Haig Avenue / HLD	Henry Lawson Dr NORTH	L	2721	1	0.2	-0.8	-80.0	1.03
Haig Avenue / HLD	Henry Lawson Dr NORTH	T	2720	71	61.6	-9.4	-13.2	1.15
Haig Avenue / HLD	Haig Avenue EAST	L	2625	6	7.4	1.4	23.3	0.54
Haig Avenue / HLD	Haig Avenue EAST	R	2626	9	11.8	2.8	31.1	0.87
Haig Avenue / HLD	Henry Lawson Dr SOUTH	T	5854	126	76.8	-49.2	-39.1	4.89
Haig Avenue / HLD	Henry Lawson Dr SOUTH	R	5855	6	7.2	1.2	20.0	0.47
Rabaul Road / HLD	Henry Lawson Dr NORTH	L	2780	1	0.0	-1.0	-100.0	1.41
Rabaul Road / HLD	Henry Lawson Dr NORTH	T	2779	76	84.2	8.2	10.8	0.92
Rabaul Road / HLD	Henry Lawson Dr NORTH	R	2781	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road EAST	R	4357	2	0.0	-2.0	-100.0	2.00
Rabaul Road / HLD	Rabaul Road EAST	T	4358	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road EAST	L	4359	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Henry Lawson Dr SOUTH	L	5012	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Henry Lawson Dr SOUTH	T	5010	82	84.0	2.0	2.4	0.22
Rabaul Road / HLD	Henry Lawson Dr SOUTH	R	5011	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road WEST	L	4298	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road WEST	T	4299	0	0.0	0.0	0.0	0.00
Rabaul Road / HLD	Rabaul Road WEST	R	4300	0	0.0	0.0	0.0	0.00
HLD / Tower Road	Henry Lawson Dr NORTH	L	1437	0	0.0	0.0	0.0	0.00
HLD / Tower Road	Henry Lawson Dr NORTH	T	5444	78	66.2	-11.8	-15.1	1.39
HLD / Tower Road	Tower Road EAST	L	5445	6	0.0	-6.0	-100.0	3.46
HLD / Tower Road	Tower Road EAST	R	2768	3	0.0	-3.0	-100.0	2.45
HLD / Tower Road	Henry Lawson Dr SOUTH	T	5443	102	85.0	-17.0	-16.7	1.76
HLD / Tower Road	Henry Lawson Dr SOUTH	R	5446	4	0.0	-4.0	-100.0	2.83
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	L	5468	28	8.0	-20.0	-71.4	4.71
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	T	2765	29	22.2	-6.8	-23.5	1.34
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr NORTH	R	5434	27	33.6	6.6	24.4	1.20
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	L	5461	5	0.6	-4.4	-88.0	2.63
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	T	1845	78	84.4	6.4	8.2	0.71
Henry Lawson Dr / Newbridge Road / Milperra Road	Milperra Road EAST	R	5709	35	14.6	-20.4	-58.3	4.10
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	L	5457	54	65.2	11.2	20.7	1.45
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	T	1587	38	38.0	0.0	0.0	0.00
Henry Lawson Dr / Newbridge Road / Milperra Road	Henry Lawson Dr SOUTH	R	1588	2	0.0	-2.0	-100.0	2.00
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	L	5454	33	32.2	-0.8	-2.4	0.14
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	T	2185	114	102.4	-11.6	-10.2	1.12

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Henry Lawson Dr / Newbridge Road / Milperra Road	Newbridge Road WEST	R	5433	12	15.0	3.0	25.0	0.82
Auld Avenue / HLD	Henry Lawson Dr NORTH	T	1499	46	37.6	-8.4	-18.3	1.30
Auld Avenue / HLD	Henry Lawson Dr NORTH	R	1500	0	0.0	0.0	0.0	0.00
Auld Avenue / HLD	Henry Lawson Dr SOUTH	L	4922	4	0.0	-4.0	-100.0	2.83
Auld Avenue / HLD	Henry Lawson Dr SOUTH	T	4921	94	102.6	8.6	9.1	0.87
Auld Avenue / HLD	Auld Avenue WEST	L	4198	1	0.0	-1.0	-100.0	1.41
Auld Avenue / HLD	Auld Avenue WEST	R	4199	0	0.0	0.0	0.0	0.00
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	L	5512	0	0.0	0.0	0.0	0.00
HLD / Keys Parade/Flower power	Henry Lawson Dr NORTH	T	5518	46	37.8	-8.2	-17.8	1.27
HLD / Keys Parade/Flower power	Flower power EAST	L	5505	0	0.0	0.0	0.0	0.00
HLD / Keys Parade/Flower power	Flower Power EAST	R	5507	0	0.0	0.0	0.0	0.00
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	R	5850	0	0.0	0.0	0.0	0.00
HLD / Keys Parade/Flower power	Henry Lawson Dr SOUTH	T	5506	98	102.0	4.0	4.1	0.40
HLD / Keys Parade/Flower power	Keys Parade WEST	R	5508	0	0.0	0.0	0.0	0.00
HLD / Keys Parade/Flower power	Keys Parade WEST	L	5847	0	0.0	0.0	0.0	0.00
Raleigh Road / HLD	Henry Lawson Dr NORTH	T	3159	46	37.8	-8.2	-17.8	1.27
Raleigh Road / HLD	Henry Lawson Dr NORTH	R	3160	0	0.0	0.0	0.0	0.00
Raleigh Road / HLD	Henry Lawson Dr SOUTH	L	3139	1	0.0	-1.0	-100.0	1.41
Raleigh Road / HLD	Henry Lawson Dr SOUTH	T	5421	96	102.6	6.6	6.9	0.66
Raleigh Road / HLD	Raleigh Road WEST	L	5422	2	0.0	-2.0	-100.0	2.00
Raleigh Road / HLD	Raleigh Road WEST	R	3132	2	0.0	-2.0	-100.0	2.00
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	T	20959	48	37.8	-10.2	-21.3	1.56
HLD / Ruthven Avenue	Henry Lawson Dr NORTH	R	20960	0	0.2	0.2	INF	0.63
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	L	20958	0	0.4	0.4	INF	0.89
HLD / Ruthven Avenue	Henry Lawson Dr SOUTH	T	20957	97	102.6	5.6	5.8	0.56
HLD / Ruthven Avenue	Ruthven Avenue WEST	L	20962	0	0.0	0.0	0.0	0.00
HLD / Ruthven Avenue	Ruthven Avenue WEST	R	20961	0	0.0	0.0	0.0	0.00
HLD / Whittle Avenue	Henry Lawson Dr NORTH	L	20976	1	0.4	-0.6	-60.0	0.72
HLD / Whittle Avenue	Henry Lawson Dr NORTH	T	20977	47	37.0	-10.0	-21.3	1.54
HLD / Whittle Avenue	Whittle Avenue EAST	L	20979	1	0.0	-1.0	-100.0	1.41
HLD / Whittle Avenue	Whittle Avenue EAST	R	20978	0	0.0	0.0	0.0	0.00
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	T	20980	97	103.4	6.4	6.6	0.64
HLD / Whittle Avenue	Henry Lawson Dr SOUTH	R	20981	0	0.0	0.0	0.0	0.00
HLD / Amiens Avenue	Henry Lawson Dr NORTH	T	20995	46	36.8	-9.2	-20.0	1.43
HLD / Amiens Avenue	Henry Lawson Dr NORTH	R	20996	2	0.2	-1.8	-90.0	1.72
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	L	20998	6	4.0	-2.0	-33.3	0.89
HLD / Amiens Avenue	Henry Lawson Dr SOUTH	T	20997	97	102.0	5.0	5.2	0.50
HLD / Amiens Avenue	Amiens Avenue WEST	L	20999	0	1.0	1.0	INF	1.41
HLD / Amiens Avenue	Amiens Avenue WEST	R	21000	0	0.4	0.4	INF	0.89
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	L	21049	8	5.2	-2.8	-35.0	1.09
HLD / Bullecourt Avenue	Henry Lawson Dr NORTH	T	21050	38	31.6	-6.4	-16.8	1.08
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	L	21045	9	21.4	12.4	137.8	3.18
HLD / Bullecourt Avenue	Bullecourt Avenue EAST	R	21046	11	17.2	6.2	56.4	1.65
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	T	21048	92	89.0	-3.0	-3.3	0.32
HLD / Bullecourt Avenue	Henry Lawson Dr SOUTH	R	21047	24	7.4	-16.6	-69.2	4.19
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	L	21288	0	0.2	0.2	INF	0.63
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	T	21287	47	52.8	5.8	12.3	0.82

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr NORTH	R	21289	0	0.2	0.2	INF	0.63
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	R	21284	1	4.0	3.0	300.0	1.90
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	T	21286	0	0.2	0.2	INF	0.63
HLD / Ganmain Cres / Fromelles Avenue	Fromelles Avenue EAST	L	21285	0	0.2	0.2	INF	0.63
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	L	21295	1	0.4	-0.6	-60.0	0.72
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	T	21294	115	94.8	-20.2	-17.6	1.97
HLD / Ganmain Cres / Fromelles Avenue	Henry Lawson Dr SOUTH	R	21293	0	0.0	0.0	0.0	0.00
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	L	21292	1	0.8	-0.2	-20.0	0.21
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	T	21291	1	0.0	-1.0	-100.0	1.41
HLD / Ganmain Cres / Fromelles Avenue	Ganmain Cres WEST	R	21290	0	0.0	0.0	0.0	0.00
HLD / Hermies Avenue	Henry Lawson Dr NORTH	L	21323	0	0.0	0.0	0.0	0.00
HLD / Hermies Avenue	Henry Lawson Dr NORTH	T	21322	48	56.8	8.8	18.3	1.22
HLD / Hermies Avenue	Hermies Avenue EAST	L	21324	0	6.6	6.6	INF	3.63
HLD / Hermies Avenue	Hermies Avenue EAST	R	21325	0	0.0	0.0	0.0	0.00
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	T	21320	116	95.4	-20.6	-17.8	2.00
HLD / Hermies Avenue	Henry Lawson Dr SOUTH	R	21321	2	3.0	1.0	50.0	0.63
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	T	21341	46	61.2	15.2	33.0	2.08
HLD / Pozieres Avenue	Henry Lawson Dr NORTH	R	21342	2	2.2	0.2	10.0	0.14
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	L	21340	3	9.6	6.6	220.0	2.63
HLD / Pozieres Avenue	Henry Lawson Dr SOUTH	T	21339	117	95.2	-21.8	-18.6	2.12
HLD / Pozieres Avenue	Pozieres Avenue WEST	L	21344	1	3.2	2.2	220.0	1.52
HLD / Pozieres Avenue	Pozieres Avenue WEST	R	21343	42	6.4	-35.6	-84.8	7.24
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	T	21712	14	37.4	23.4	167.1	4.62
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	R	21711	47	28.6	-18.4	-39.2	2.99
HLD / Swestern Motorway 2	Swestern Motorway EAST	R	21445	0	1.0	1.0	INF	1.41
HLD / Swestern Motorway 2	Swestern Motorway EAST	T	21708	0	0.0	0.0	0.0	0.00
HLD / Swestern Motorway 2	Swestern Motorway EAST	L	21709	54	46.2	-7.8	-14.4	1.10
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	L	21452	5	16.2	11.2	224.0	3.44
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	T	21707	32	34.2	2.2	6.9	0.38
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	L	21385	31	20.6	-10.4	-33.6	2.05
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	T	21699	57	48.2	-8.8	-15.4	1.21
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	T	21704	85	77.8	-7.2	-8.5	0.80
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	R	21703	1	2.0	1.0	100.0	0.82
HLD / Swestern Motorway 1	Swestern Motorway WEST	L	21398	35	27.6	-7.4	-21.1	1.32
HLD / Swestern Motorway 1	Swestern Motorway WEST	T	21700	1	0.0	-1.0	-100.0	1.41
HLD / Swestern Motorway 1	Swestern Motorway WEST	R	21701	4	17.8	13.8	345.0	4.18
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	L	4117	0	12.2	12.2	INF	4.94
Murray Jones Dr / Milperra Road	Murray Jones Dr NORTH	R	4118	0	3.4	3.4	INF	2.61
Murray Jones Dr / Milperra Road	Milperra Road EAST	T	5439	118	90.4	-27.6	-23.4	2.70
Murray Jones Dr / Milperra Road	Milperra Road EAST	R	5440	0	0.0	0.0	0.0	0.00
Murray Jones Dr / Milperra Road	Milperra Road WEST	L	1973	0	0.0	0.0	0.0	0.00
Murray Jones Dr / Milperra Road	Milperra Road WEST	T	1972	144	113.0	-31.0	-21.5	2.73
Ashford Avenue / Milperra Road	Milperra Road EAST	L	3685	3	17.0	14.0	466.7	4.43
Ashford Avenue / Milperra Road	Milperra Road EAST	T	3684	109	78.2	-30.8	-28.3	3.18

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	L	3768	15	11.0	-4.0	-26.7	1.11
Ashford Avenue / Milperra Road	Ashford Avenue SOUTH	R	3767	7	13.0	6.0	85.7	1.90
Ashford Avenue / Milperra Road	Milperra Road WEST	T	5441	131	112.6	-18.4	-14.1	1.67
Ashford Avenue / Milperra Road	Milperra Road WEST	R	5442	13	12.8	-0.2	-1.5	0.06
Georges Ces / HLD	Henry Lawson Dr NORTH	L	3084	0	0.0	0.0	0.0	0.00
Georges Ces / HLD	Henry Lawson Dr NORTH	T	5741	72	65.2	-6.8	-9.4	0.82
Georges Ces / HLD	Georges Cres EAST	L	5742	0	0.0	0.0	0.0	0.00
Georges Ces / HLD	Henry Lawson Dr SOUTH	T	4787	135	87.4	-47.6	-35.3	4.51
Georges Ces / HLD	Henry Lawson Dr SOUTH	R	4788	0	0.0	0.0	0.0	0.00
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	T	5181	72	65.2	-6.8	-9.4	0.82
HLD Reserve Road / HLD	Henry Lawson Dr NORTH	R	5739	0	0.0	0.0	0.0	0.00
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	L	5408	0	0.0	0.0	0.0	0.00
HLD Reserve Road / HLD	Henry Lawson Dr SOUTH	T	4856	135	88.4	-46.6	-34.5	4.41
HLD Reserve Road / HLD	HLD Reserve Road WEST	L	4506	0	0.0	0.0	0.0	0.00
HLD Reserve Road / HLD	HLD Reserve Road WEST	R	4507	0	0.0	0.0	0.0	0.00
Beale Street / HLD	Henry Lawson Dr NORTH	L	4730	0	4.6	4.6	INF	3.03
Beale Street / HLD	Henry Lawson Dr NORTH	T	4729	72	61.4	-10.6	-14.7	1.30
Beale Street / HLD	Beale Street EAST	L	4816	0	0.0	0.0	0.0	0.00
Beale Street / HLD	Beale Street EAST	R	4817	0	0.0	0.0	0.0	0.00
Beale Street / HLD	Henry Lawson Dr SOUTH	T	2711	135	88.4	-46.6	-34.5	4.41
Beale Street / HLD	Henry Lawson Dr SOUTH	R	2712	0	0.0	0.0	0.0	0.00
Endevour Road / HLD	Henry Lawson Dr NORTH	L	2770	0	0.0	0.0	0.0	0.00
Endevour Road / HLD	Henry Lawson Dr NORTH	T	5410	77	69.2	-7.8	-10.1	0.91
Endevour Road / HLD	Endevour Road EAST	L	5409	0	15.6	15.6	INF	5.59
Golf course Road / HLD	Henry Lawson Dr NORTH	L	4905	0	17.2	17.2	INF	5.87
Golf course Road / HLD	Henry Lawson Dr NORTH	T	4904	78	66.2	-11.8	-15.1	1.39
Golf course Road / HLD	Golf course Road EAST	L	4272	0	0.0	0.0	0.0	0.00
Golf course Road / HLD	Golf course Road EAST	R	4273	0	0.0	0.0	0.0	0.00
Golf course Road / HLD	Henry Lawson Dr SOUTH	T	1693	82	85.0	3.0	3.7	0.33
Golf course Road / HLD	Henry Lawson Dr SOUTH	R	1694	23	0.8	-22.2	-96.5	6.44

Weekend Model
Time period: 11:30 AM - 12:30 PM
Vehicle Type: Light Vehicles

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Flinders Rd / HLD	Henry Lawson Dr NORTH	L	3058	23	27.2	4.2	18.26	0.59279
Flinders Rd / HLD	Henry Lawson Dr NORTH	T	5407	1679	1584.8	-94.2	-5.61	1.6489
Flinders Rd / HLD	Finders Rd EAST	L	2525	255	236.6	-18.4	-7.216	0.82987
Flinders Rd / HLD	Finders Rd EAST	R	2526	22	15	-7	-31.82	1.1508
Flinders Rd / HLD	Henry Lawson Dr SOUTH	T	2675	2028	1889.8	-138.2	-6.815	2.2079
Flinders Rd / HLD	Henry Lawson Dr SOUTH	R	2676	291	185.4	-105.6	-36.29	4.8381
Haig Ave / HLD	Henry Lawson Dr NORTH	L	2721	29	25.8	-3.2	-11.03	0.43227
Haig Ave / HLD	Henry Lawson Dr NORTH	T	2720	1872	1782.4	-89.6	-4.786	1.4822
Haig Ave / HLD	Haig Ave EAST	L	2625	183	136	-47	-25.68	2.6315
Haig Ave / HLD	Haig Ave EAST	R	2626	305	203.6	-101.4	-33.25	4.4962
Haig Ave / HLD	Henry Lawson Dr SOUTH	T	5854	2023	1887	-136	-6.723	2.175
Haig Ave / HLD	Henry Lawson Dr SOUTH	R	5855	199	185	-14	-7.035	0.71443
Rabaul Rd / HLD	Henry Lawson Dr NORTH	L	2780	14	4	-10	-71.43	2.357
Rabaul Rd / HLD	Henry Lawson Dr NORTH	T	2779	2066	1917.6	-148.4	-7.183	2.3512
Rabaul Rd / HLD	Henry Lawson Dr NORTH	R	2781	4	0	-4	-100	2
Rabaul Rd / HLD	Rabaul Rd EAST	R	4357	89	69.2	-19.8	-22.25	1.5742
Rabaul Rd / HLD	Rabaul Rd EAST	T	4358	0	0	0	0	0
Rabaul Rd / HLD	Rabaul Rd EAST	L	4359	2	0	-2	-100	1.4142
Rabaul Rd / HLD	Henry Lawson Dr SOUTH	L	5012	7	3.6	-3.4	-48.57	1.0443
Rabaul Rd / HLD	Henry Lawson Dr SOUTH	T	5010	2213	2069.4	-143.6	-6.489	2.1944
Rabaul Rd / HLD	Henry Lawson Dr SOUTH	R	5011	44	69	25	56.82	2.3518
Rabaul Rd / HLD	Rabaul Rd WEST	L	4298	5	2	-3	-60	1.1339
Rabaul Rd / HLD	Rabaul Rd WEST	T	4299	0	0	0	0	0
Rabaul Rd / HLD	Rabaul Rd WEST	R	4300	0	0	0	0	0
HLD / Tower Rd	Henry Lawson Dr NORTH	L	1437	67	56.8	-10.2	-15.22	0.91673
HLD / Tower Rd	Henry Lawson Dr NORTH	T	5444	2048	1915	-133	-6.494	2.1127
HLD / Tower Rd	Tower Rd EAST	L	5445	452	458.4	6.4	1.416	0.21211
HLD / Tower Rd	Tower Rd EAST	R	2768	73	41.4	-31.6	-43.29	2.9544
HLD / Tower Rd	Henry Lawson Dr SOUTH	T	5443	2195	2115.6	-79.4	-3.617	1.2093
HLD / Tower Rd	Henry Lawson Dr SOUTH	R	5446	535	555.8	20.8	3.888	0.62978
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr NORTH	L	5468	712	669.8	-42.2	-5.927	1.1352
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr NORTH	T	2765	935	930	-5	-0.5348	0.11578
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr NORTH	R	5434	849	762.4	-86.6	-10.2	2.1573
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Milperra Rd EAST	L	5461	178	197.4	19.4	10.9	1.0013
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Milperra Rd EAST	T	1845	1918	1700.4	-217.6	-11.35	3.6174
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Milperra Rd EAST	R	5709	685	609.6	-75.4	-11.01	2.0956
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr SOUTH	L	5457	791	746.2	-44.8	-5.664	1.1426
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr SOUTH	T	1587	1039	1099.8	60.8	5.852	1.3147
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr SOUTH	R	1588	151	151.2	0.2	0.1325	0.011505
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Newbridge Rd WEST	L	5454	1019	974.4	-44.6	-4.377	0.99894
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Newbridge Rd WEST	T	2185	1910	1900.2	-9.8	-0.5131	0.15876
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Newbridge Rd WEST	R	5433	695	690	-5	-0.7194	0.13435
Auld Ave / HLD	Henry Lawson Dr NORTH	T	1499	1785	1804.6	19.6	1.098	0.32714
Auld Ave / HLD	Henry Lawson Dr NORTH	R	1500	32	7	-25	-78.13	4.0032
Auld Ave / HLD	Henry Lawson Dr SOUTH	L	4922	31	8	-23	-74.19	3.6829
Auld Ave / HLD	Henry Lawson Dr SOUTH	T	4921	1929	1972	43	2.229	0.68846
Auld Ave / HLD	Auld Ave WEST	L	4198	38	37.2	-0.8	-2.105	0.092253
Auld Ave / HLD	Auld Ave WEST	R	4199	28	27.2	-0.8	-2.857	0.10768

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Keys Pde/Flower power	Henry Lawson Dr NORTH	L	5512	612	587.8	-24.2	-3.954	0.69865
HLD / Keys Pde/Flower power	Henry Lawson Dr NORTH	T	5518	1220	1233.4	13.4	1.098	0.27053
HLD / Keys Pde/Flower power	Flower power EAST	L	5505	148	181.6	33.6	22.7	1.8507
HLD / Keys Pde/Flower power	Flower Power EAST	R	5507	703	673.2	-29.8	-4.239	0.8033
HLD / Keys Pde/Flower power	Henry Lawson Dr SOUTH	R	5850	0	9.6	9.6	INF	3.0984
HLD / Keys Pde/Flower power	Henry Lawson Dr SOUTH	T	5506	1291	1305.4	14.4	1.115	0.2826
HLD / Keys Pde/Flower power	Keys Pde WEST	R	5508	120	119	-1	-0.8333	0.064685
HLD / Keys Pde/Flower power	Keys Pde WEST	L	5847	0	1.4	1.4	INF	1.1832
Raleigh Rd / HLD	Henry Lawson Dr NORTH	T	3159	1287	1314.2	27.2	2.113	0.53331
Raleigh Rd / HLD	Henry Lawson Dr NORTH	R	3160	79	97.2	18.2	23.04	1.3711
Raleigh Rd / HLD	Henry Lawson Dr SOUTH	L	3139	12	3.8	-8.2	-68.33	2.0629
Raleigh Rd / HLD	Henry Lawson Dr SOUTH	T	5421	1337	1325.6	-11.4	-0.8527	0.22093
Raleigh Rd / HLD	Raleigh Rd WEST	L	5422	70	109	39	55.71	2.915
Raleigh Rd / HLD	Raleigh Rd WEST	R	3132	5	0.4	-4.6	-92	1.9795
HLD / Ruthven Ave	Henry Lawson Dr NORTH	T	20959	1287	1312.2	25.2	1.958	0.49429
HLD / Ruthven Ave	Henry Lawson Dr NORTH	R	20960	1	0	-1	-100	1
HLD / Ruthven Ave	Henry Lawson Dr SOUTH	L	20958	11	0	-11	-100	3.3166
HLD / Ruthven Ave	Henry Lawson Dr SOUTH	T	20957	1347	1327.2	-19.8	-1.47	0.38288
HLD / Ruthven Ave	Ruthven Ave WEST	L	20962	0	3.6	3.6	INF	1.8974
HLD / Ruthven Ave	Ruthven Ave WEST	R	20961	0	2.8	2.8	INF	1.6733
HLD / Whittle Ave	Henry Lawson Dr NORTH	L	20976	5	2.8	-2.2	-44	0.78773
HLD / Whittle Ave	Henry Lawson Dr NORTH	T	20977	1282	1310.2	28.2	2.2	0.55388
HLD / Whittle Ave	Whittle Ave EAST	L	20979	0	0.4	0.4	INF	0.63246
HLD / Whittle Ave	Whittle Ave EAST	R	20978	0	0	0	0	0
HLD / Whittle Ave	Henry Lawson Dr SOUTH	T	20980	1356	1327.4	-28.6	-2.109	0.55211
HLD / Whittle Ave	Henry Lawson Dr SOUTH	R	20981	10	0	-10	-100	3.1623
HLD / Amiens Ave	Henry Lawson Dr NORTH	T	20995	1246	1257.6	11.6	0.931	0.23183
HLD / Amiens Ave	Henry Lawson Dr NORTH	R	20996	38	52.4	14.4	37.89	1.5145
HLD / Amiens Ave	Henry Lawson Dr SOUTH	L	20998	35	28.8	-6.2	-17.71	0.77621
HLD / Amiens Ave	Henry Lawson Dr SOUTH	T	20997	1363	1313	-50	-3.668	0.96656
HLD / Amiens Ave	Amiens Ave WEST	L	20999	0	15	15	INF	3.873
HLD / Amiens Ave	Amiens Ave WEST	R	21000	0	7.4	7.4	INF	2.7203
HLD / Bullecourt Ave	Henry Lawson Dr NORTH	L	21049	243	216	-27	-11.11	1.2603
HLD / Bullecourt Ave	Henry Lawson Dr NORTH	T	21050	1018	1047.6	29.6	2.908	0.65128
HLD / Bullecourt Ave	Bullecourt Ave EAST	L	21045	163	168.4	5.4	3.313	0.29663
HLD / Bullecourt Ave	Bullecourt Ave EAST	R	21046	339	292.4	-46.6	-13.75	1.8545
HLD / Bullecourt Ave	Henry Lawson Dr SOUTH	T	21048	1064	1049.8	-14.2	-1.335	0.30886
HLD / Bullecourt Ave	Henry Lawson Dr SOUTH	R	21047	138	143.8	5.8	4.203	0.34551
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr NORTH	L	21288	4	0.6	-3.4	-85	1.5853
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr NORTH	T	21287	1159	1202.8	43.8	3.779	0.90127
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr NORTH	R	21289	19	11	-8	-42.11	1.4606
HLD / Ganmain Cres / Fromelles Ave	Fromelles Ave EAST	R	21284	234	192.4	-41.6	-17.78	2.0146
HLD / Ganmain Cres / Fromelles Ave	Fromelles Ave EAST	T	21286	0	11.2	11.2	INF	3.3466
HLD / Ganmain Cres / Fromelles Ave	Fromelles Ave EAST	L	21285	4	0.6	-3.4	-85	1.5853
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr SOUTH	L	21295	76	90.8	14.8	19.47	1.1459
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr SOUTH	T	21294	1135	1107	-28	-2.467	0.59134
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr SOUTH	R	21293	129	114.6	-14.4	-11.16	0.92262
HLD / Ganmain Cres / Fromelles Ave	Ganmain Cres WEST	L	21292	65	86.2	21.2	32.62	1.7241
HLD / Ganmain Cres / Fromelles Ave	Ganmain Cres WEST	T	21291	5	12.4	7.4	148	1.774
HLD / Ganmain Cres / Fromelles Ave	Ganmain Cres WEST	R	21290	59	25	-34	-57.63	3.7097
HLD / Hermies Ave	Henry Lawson Dr NORTH	L	21323	11	7.2	-3.8	-34.55	0.89073

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Hermies Ave	Henry Lawson Dr NORTH	T	21322	1419	1414.2	-4.8	-0.3383	0.090178
HLD / Hermies Ave	Hermies Ave EAST	L	21324	531	512.6	-18.4	-3.465	0.56957
HLD / Hermies Ave	Hermies Ave EAST	R	21325	2	0	-2	-100	1.4142
HLD / Hermies Ave	Henry Lawson Dr SOUTH	T	21320	1327	1314.2	-12.8	-0.9646	0.24906
HLD / Hermies Ave	Henry Lawson Dr SOUTH	R	21321	14	20.6	6.6	47.14	1.122
HLD / Pozieres Ave	Henry Lawson Dr NORTH	T	21341	1838	1850	12	0.6529	0.1976
HLD / Pozieres Ave	Henry Lawson Dr NORTH	R	21342	58	77.8	19.8	34.14	1.6991
HLD / Pozieres Ave	Henry Lawson Dr SOUTH	L	21340	132	130.6	-1.4	-1.061	0.086393
HLD / Pozieres Ave	Henry Lawson Dr SOUTH	T	21339	1278	1254.6	-23.4	-1.831	0.46498
HLD / Pozieres Ave	Pozieres Ave WEST	L	21344	65	80.2	15.2	23.38	1.2614
HLD / Pozieres Ave	Pozieres Ave WEST	R	21343	128	161	33	25.78	1.9412
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	T	21712	1220	1182.4	-37.6	-3.082	0.76712
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	R	21711	486	481	-5	-1.029	0.16079
HLD / Swestern Motorway 2	Swestern Motorway EAST	R	21445	46	46.6	0.6	1.304	0.062351
HLD / Swestern Motorway 2	Swestern Motorway EAST	T	21708	1	0	-1	-100	1
HLD / Swestern Motorway 2	Swestern Motorway EAST	L	21709	469	467.8	-1.2	-0.2559	0.039206
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	L	21452	400	375	-25	-6.25	0.89803
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	T	21707	496	493	-3	-0.6048	0.095394
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	L	21385	607	590.4	-16.6	-2.735	0.47972
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	T	21699	1386	1418.2	32.2	2.323	0.60807
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	T	21704	905	891.2	-13.8	-1.525	0.32561
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	R	21703	49	69	20	40.82	1.8411
HLD / Swestern Motorway 1	Swestern Motorway WEST	L	21398	504	495.4	-8.6	-1.706	0.27204
HLD / Swestern Motorway 1	Swestern Motorway WEST	T	21700	0	0	0	0	0
HLD / Swestern Motorway 1	Swestern Motorway WEST	R	21701	291	249.8	-41.2	-14.16	1.7717
Murray Jones Dr / Milperra Rd	Murray Jones Dr NORTH	L	4117	7	10.8	3.8	54.29	0.90069
Murray Jones Dr / Milperra Rd	Murray Jones Dr NORTH	R	4118	9	2	-7	-77.78	2.1106
Murray Jones Dr / Milperra Rd	Milperra Rd EAST	T	5439	2735	2646.2	-88.8	-3.247	1.2105
Murray Jones Dr / Milperra Rd	Milperra Rd EAST	R	5440	29	10.6	-18.4	-63.45	2.924
Murray Jones Dr / Milperra Rd	Milperra Rd WEST	L	1973	21	21.6	0.6	2.857	0.091928
Murray Jones Dr / Milperra Rd	Milperra Rd WEST	T	1972	2730	2716.6	-13.4	-0.4908	0.18157
Ashford Ave / Milperra Rd	Milperra Rd EAST	L	3685	149	222.8	73.8	49.53	3.8274
Ashford Ave / Milperra Rd	Milperra Rd EAST	T	3684	2541	2460.2	-80.8	-3.18	1.1425
Ashford Ave / Milperra Rd	Ashford Ave SOUTH	L	3768	235	199.4	-35.6	-15.15	1.7081
Ashford Ave / Milperra Rd	Ashford Ave SOUTH	R	3767	316	357.8	41.8	13.23	1.6103
Ashford Ave / Milperra Rd	Milperra Rd WEST	T	5441	2295	2210	-85	-3.704	1.2664
Ashford Ave / Milperra Rd	Milperra Rd WEST	R	5442	438	510.4	72.4	16.53	2.3509
Georges Ces / HLD	Henry Lawson Dr NORTH	L	3084	0	6	6	INF	2.4495
Georges Ces / HLD	Henry Lawson Dr NORTH	T	5741	1906	1813.6	-92.4	-4.848	1.515
Georges Ces / HLD	Georges Cres EAST	L	5742	0	2.2	2.2	INF	1.4832
Georges Ces / HLD	Henry Lawson Dr SOUTH	T	4787	2322	2077.4	-244.6	-10.53	3.6877
Georges Ces / HLD	Henry Lawson Dr SOUTH	R	4788	0	0.2	0.2	INF	0.44721
HLD Reserve Rd / HLD	Henry Lawson Dr NORTH	T	5181	1907	1808.8	-98.2	-5.149	1.611
HLD Reserve Rd / HLD	Henry Lawson Dr NORTH	R	5739	0	0.4	0.4	INF	0.63246
HLD Reserve Rd / HLD	Henry Lawson Dr SOUTH	L	5408	0	6	6	INF	2.4495
HLD Reserve Rd / HLD	Henry Lawson Dr SOUTH	T	4856	2328	2080.8	-247.2	-10.62	3.723
HLD Reserve Rd / HLD	HLD Reserve Rd WEST	L	4506	0	0.6	0.6	INF	0.7746
HLD Reserve Rd / HLD	HLD Reserve Rd WEST	R	4507	0	2.8	2.8	INF	1.6733
Beale St / HLD	Henry Lawson Dr NORTH	L	4730	0	0	0	0	0
Beale St / HLD	Henry Lawson Dr NORTH	T	4729	1899	1811.2	-87.8	-4.623	1.4414
Beale St / HLD	Beale St EAST	L	4816	0	0.8	0.8	INF	0.89443

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Beale St / HLD	Beale St EAST	R	4817	0	0	0	0	0
Beale St / HLD	Henry Lawson Dr SOUTH	T	2711	2328	2088.2	-239.8	-10.3	3.6085
Beale St / HLD	Henry Lawson Dr SOUTH	R	2712	0	0.2	0.2	INF	0.44721
Endevour Rd / HLD	Henry Lawson Dr NORTH	L	2770	0	0	0	0	0
Endevour Rd / HLD	Henry Lawson Dr NORTH	T	5410	2079	1918.4	-160.6	-7.725	2.5401
Endevour Rd / HLD	Endevour Rd EAST	L	5409	0	3.2	3.2	INF	1.7889
Golf course Rd / HLD	Henry Lawson Dr NORTH	L	4905	0	2	2	INF	1.4142
Golf course Rd / HLD	Henry Lawson Dr NORTH	T	4904	2155	1981	-174	-8.074	2.7056
Golf course Rd / HLD	Golf course Rd EAST	L	4272	0	5	5	INF	2.2361
Golf course Rd / HLD	Golf course Rd EAST	R	4273	0	9.8	9.8	INF	3.1305
Golf course Rd / HLD	Henry Lawson Dr SOUTH	T	1693	2267	2136.2	-130.8	-5.77	1.9712
Golf course Rd / HLD	Henry Lawson Dr SOUTH	R	1694	0	7.2	7.2	INF	2.6833

Weekend Model
Time period: 12:30 PM - 01:30 PM
Vehicle Type: Light Vehicles

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Flinders Rd / HLD	Henry Lawson Dr NORTH	L	3058	23	27.2	4.2	18.26	0.59
Flinders Rd / HLD	Henry Lawson Dr NORTH	T	5407	1,679	1584.8	-94.2	-5.61	1.65
Flinders Rd / HLD	Finders Rd EAST	L	2525	255	236.6	-18.4	-7.216	0.83
Flinders Rd / HLD	Finders Rd EAST	R	2526	22	15	-7	-31.82	1.15
Flinders Rd / HLD	Henry Lawson Dr SOUTH	T	2675	2,028	1889.8	-138.2	-6.815	2.21
Flinders Rd / HLD	Henry Lawson Dr SOUTH	R	2676	291	185.4	-105.6	-36.29	4.84
Haig Ave / HLD	Henry Lawson Dr NORTH	L	2721	29	25.8	-3.2	-11.03	0.43
Haig Ave / HLD	Henry Lawson Dr NORTH	T	2720	1,872	1782.4	-89.6	-4.786	1.48
Haig Ave / HLD	Haig Ave EAST	L	2625	183	136	-47	-25.68	2.63
Haig Ave / HLD	Haig Ave EAST	R	2626	305	203.6	-101.4	-33.25	4.50
Haig Ave / HLD	Henry Lawson Dr SOUTH	T	5854	2,023	1887	-136	-6.723	2.18
Haig Ave / HLD	Henry Lawson Dr SOUTH	R	5855	199	185	-14	-7.035	0.71
Rabaul Rd / HLD	Henry Lawson Dr NORTH	L	2780	14	4	-10	-71.43	2.36
Rabaul Rd / HLD	Henry Lawson Dr NORTH	T	2779	2,066	1917.6	-148.4	-7.183	2.35
Rabaul Rd / HLD	Henry Lawson Dr NORTH	R	2781	4	0	-4	-100	2.00
Rabaul Rd / HLD	Rabaul Rd EAST	R	4357	89	69.2	-19.8	-22.25	1.57
Rabaul Rd / HLD	Rabaul Rd EAST	T	4358	-	0	0	0	0.00
Rabaul Rd / HLD	Rabaul Rd EAST	L	4359	2	0	-2	-100	1.41
Rabaul Rd / HLD	Henry Lawson Dr SOUTH	L	5012	7	3.6	-3.4	-48.57	1.04
Rabaul Rd / HLD	Henry Lawson Dr SOUTH	T	5010	2,213	2069.4	-143.6	-6.489	2.19
Rabaul Rd / HLD	Henry Lawson Dr SOUTH	R	5011	44	69	25	56.82	2.35
Rabaul Rd / HLD	Rabaul Rd WEST	L	4298	5	2	-3	-60	1.13
Rabaul Rd / HLD	Rabaul Rd WEST	T	4299	-	0	0	0	0.00
Rabaul Rd / HLD	Rabaul Rd WEST	R	4300	-	0	0	0	0.00
HLD / Tower Rd	Henry Lawson Dr NORTH	L	1437	67	56.8	-10.2	-15.22	0.92
HLD / Tower Rd	Henry Lawson Dr NORTH	T	5444	2,048	1915	-133	-6.494	2.11
HLD / Tower Rd	Tower Rd EAST	L	5445	452	458.4	6.4	1.416	0.21
HLD / Tower Rd	Tower Rd EAST	R	2768	73	41.4	-31.6	-43.29	2.95
HLD / Tower Rd	Henry Lawson Dr SOUTH	T	5443	2,195	2115.6	-79.4	-3.617	1.21
HLD / Tower Rd	Henry Lawson Dr SOUTH	R	5446	535	555.8	20.8	3.888	0.63
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr NORTH	L	5468	712	669.8	-42.2	-5.927	1.14
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr NORTH	T	2765	935	930	-5	-0.5348	0.12
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr NORTH	R	5434	849	762.4	-86.6	-10.2	2.16
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Milperra Rd EAST	L	5461	178	197.4	19.4	10.9	1.00
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Milperra Rd EAST	T	1845	1,918	1700.4	-217.6	-11.35	3.62
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Milperra Rd EAST	R	5709	685	609.6	-75.4	-11.01	2.10
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr SOUTH	L	5457	791	746.2	-44.8	-5.664	1.14
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr SOUTH	T	1587	1,039	1099.8	60.8	5.852	1.31
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr SOUTH	R	1588	151	151.2	0.2	0.1325	0.01
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Newbridge Rd WEST	L	5454	1,019	974.4	-44.6	-4.377	1.00
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Newbridge Rd WEST	T	2185	1,910	1900.2	-9.8	-0.5131	0.16
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Newbridge Rd WEST	R	5433	695	690	-5	-0.7194	0.13
Auld Ave / HLD	Henry Lawson Dr NORTH	T	1499	1,785	1804.6	19.6	1.098	0.33
Auld Ave / HLD	Henry Lawson Dr NORTH	R	1500	32	7	-25	-78.13	4.00
Auld Ave / HLD	Henry Lawson Dr SOUTH	L	4922	31	8	-23	-74.19	3.68
Auld Ave / HLD	Henry Lawson Dr SOUTH	T	4921	1,929	1972	43	2.229	0.69
Auld Ave / HLD	Auld Ave WEST	L	4198	38	37.2	-0.8	-2.105	0.09
Auld Ave / HLD	Auld Ave WEST	R	4199	28	27.2	-0.8	-2.857	0.11

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Keys Pde/Flower power	Henry Lawson Dr NORTH	L	5512	612	587.8	-24.2	-3.954	0.70
HLD / Keys Pde/Flower power	Henry Lawson Dr NORTH	T	5518	1,220	1233.4	13.4	1.098	0.27
HLD / Keys Pde/Flower power	Flower power EAST	L	5505	148	181.6	33.6	22.7	1.85
HLD / Keys Pde/Flower power	Flower Power EAST	R	5507	703	673.2	-29.8	-4.239	0.80
HLD / Keys Pde/Flower power	Henry Lawson Dr SOUTH	R	5850	-	9.6	9.6	INF	3.10
HLD / Keys Pde/Flower power	Henry Lawson Dr SOUTH	T	5506	1,291	1305.4	14.4	1.115	0.28
HLD / Keys Pde/Flower power	Keys Pde WEST	R	5508	120	119	-1	-0.8333	0.06
HLD / Keys Pde/Flower power	Keys Pde WEST	L	5847	-	1.4	1.4	INF	1.18
Raleigh Rd / HLD	Henry Lawson Dr NORTH	T	3159	1,287	1314.2	27.2	2.113	0.53
Raleigh Rd / HLD	Henry Lawson Dr NORTH	R	3160	79	97.2	18.2	23.04	1.37
Raleigh Rd / HLD	Henry Lawson Dr SOUTH	L	3139	12	3.8	-8.2	-68.33	2.06
Raleigh Rd / HLD	Henry Lawson Dr SOUTH	T	5421	1,337	1325.6	-11.4	-0.8527	0.22
Raleigh Rd / HLD	Raleigh Rd WEST	L	5422	70	109	39	55.71	2.92
Raleigh Rd / HLD	Raleigh Rd WEST	R	3132	5	0.4	-4.6	-92	1.98
HLD / Ruthven Ave	Henry Lawson Dr NORTH	T	20959	1,287	1312.2	25.2	1.958	0.49
HLD / Ruthven Ave	Henry Lawson Dr NORTH	R	20960	1	0	-1	-100	1.00
HLD / Ruthven Ave	Henry Lawson Dr SOUTH	L	20958	11	0	-11	-100	3.32
HLD / Ruthven Ave	Henry Lawson Dr SOUTH	T	20957	1,347	1327.2	-19.8	-1.47	0.38
HLD / Ruthven Ave	Ruthven Ave WEST	L	20962	-	3.6	3.6	INF	1.90
HLD / Ruthven Ave	Ruthven Ave WEST	R	20961	-	2.8	2.8	INF	1.67
HLD / Whittle Ave	Henry Lawson Dr NORTH	L	20976	5	2.8	-2.2	-44	0.79
HLD / Whittle Ave	Henry Lawson Dr NORTH	T	20977	1,282	1310.2	28.2	2.2	0.55
HLD / Whittle Ave	Whittle Ave EAST	L	20979	-	0.4	0.4	INF	0.63
HLD / Whittle Ave	Whittle Ave EAST	R	20978	-	0	0	0	0.00
HLD / Whittle Ave	Henry Lawson Dr SOUTH	T	20980	1,356	1327.4	-28.6	-2.109	0.55
HLD / Whittle Ave	Henry Lawson Dr SOUTH	R	20981	10	0	-10	-100	3.16
HLD / Amiens Ave	Henry Lawson Dr NORTH	T	20995	1,246	1257.6	11.6	0.931	0.23
HLD / Amiens Ave	Henry Lawson Dr NORTH	R	20996	38	52.4	14.4	37.89	1.51
HLD / Amiens Ave	Henry Lawson Dr SOUTH	L	20998	35	28.8	-6.2	-17.71	0.78
HLD / Amiens Ave	Henry Lawson Dr SOUTH	T	20997	1,363	1313	-50	-3.668	0.97
HLD / Amiens Ave	Amiens Ave WEST	L	20999	-	15	15	INF	3.87
HLD / Amiens Ave	Amiens Ave WEST	R	21000	-	7.4	7.4	INF	2.72
HLD / Bullecourt Ave	Henry Lawson Dr NORTH	L	21049	243	216	-27	-11.11	1.26
HLD / Bullecourt Ave	Henry Lawson Dr NORTH	T	21050	1,018	1047.6	29.6	2.908	0.65
HLD / Bullecourt Ave	Bullecourt Ave EAST	L	21045	163	168.4	5.4	3.313	0.30
HLD / Bullecourt Ave	Bullecourt Ave EAST	R	21046	339	292.4	-46.6	-13.75	1.85
HLD / Bullecourt Ave	Henry Lawson Dr SOUTH	T	21048	1,064	1049.8	-14.2	-1.335	0.31
HLD / Bullecourt Ave	Henry Lawson Dr SOUTH	R	21047	138	143.8	5.8	4.203	0.35
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr NORTH	L	21288	4	0.6	-3.4	-85	1.59
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr NORTH	T	21287	1,159	1202.8	43.8	3.779	0.90
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr NORTH	R	21289	19	11	-8	-42.11	1.46
HLD / Ganmain Cres / Fromelles Ave	Fromelles Ave EAST	R	21284	234	192.4	-41.6	-17.78	2.01
HLD / Ganmain Cres / Fromelles Ave	Fromelles Ave EAST	T	21286	-	11.2	11.2	INF	3.35
HLD / Ganmain Cres / Fromelles Ave	Fromelles Ave EAST	L	21285	4	0.6	-3.4	-85	1.59
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr SOUTH	L	21295	76	90.8	14.8	19.47	1.15
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr SOUTH	T	21294	1,135	1107	-28	-2.467	0.59
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr SOUTH	R	21293	129	114.6	-14.4	-11.16	0.92
HLD / Ganmain Cres / Fromelles Ave	Ganmain Cres WEST	L	21292	65	86.2	21.2	32.62	1.72
HLD / Ganmain Cres / Fromelles Ave	Ganmain Cres WEST	T	21291	5	12.4	7.4	148	1.77
HLD / Ganmain Cres / Fromelles Ave	Ganmain Cres WEST	R	21290	59	25	-34	-57.63	3.71
HLD / Hermies Ave	Henry Lawson Dr NORTH	L	21323	11	7.2	-3.8	-34.55	0.89

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Hermies Ave	Henry Lawson Dr NORTH	T	21322	1,419	1414.2	-4.8	-0.3383	0.09
HLD / Hermies Ave	Hermies Ave EAST	L	21324	531	512.6	-18.4	-3.465	0.57
HLD / Hermies Ave	Hermies Ave EAST	R	21325	2	0	-2	-100	1.41
HLD / Hermies Ave	Henry Lawson Dr SOUTH	T	21320	1,327	1314.2	-12.8	-0.9646	0.25
HLD / Hermies Ave	Henry Lawson Dr SOUTH	R	21321	14	20.6	6.6	47.14	1.12
HLD / Pozieres Ave	Henry Lawson Dr NORTH	T	21341	1,838	1850	12	0.6529	0.20
HLD / Pozieres Ave	Henry Lawson Dr NORTH	R	21342	58	77.8	19.8	34.14	1.70
HLD / Pozieres Ave	Henry Lawson Dr SOUTH	L	21340	132	130.6	-1.4	-1.061	0.09
HLD / Pozieres Ave	Henry Lawson Dr SOUTH	T	21339	1,278	1254.6	-23.4	-1.831	0.46
HLD / Pozieres Ave	Pozieres Ave WEST	L	21344	65	80.2	15.2	23.38	1.26
HLD / Pozieres Ave	Pozieres Ave WEST	R	21343	128	161	33	25.78	1.94
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	T	21712	1,220	1182.4	-37.6	-3.082	0.77
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	R	21711	486	481	-5	-1.029	0.16
HLD / Swestern Motorway 2	Swestern Motorway EAST	R	21445	46	46.6	0.6	1.304	0.06
HLD / Swestern Motorway 2	Swestern Motorway EAST	T	21708	1	0	-1	-100	1.00
HLD / Swestern Motorway 2	Swestern Motorway EAST	L	21709	469	467.8	-1.2	-0.2559	0.04
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	L	21452	400	375	-25	-6.25	0.90
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	T	21707	496	493	-3	-0.6048	0.10
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	L	21385	607	590.4	-16.6	-2.735	0.48
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	T	21699	1,386	1418.2	32.2	2.323	0.61
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	T	21704	905	891.2	-13.8	-1.525	0.33
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	R	21703	49	69	20	40.82	1.84
HLD / Swestern Motorway 1	Swestern Motorway WEST	L	21398	504	495.4	-8.6	-1.706	0.27
HLD / Swestern Motorway 1	Swestern Motorway WEST	T	21700	-	0	0	0	0.00
HLD / Swestern Motorway 1	Swestern Motorway WEST	R	21701	291	249.8	-41.2	-14.16	1.77
Murray Jones Dr / Milperra Rd	Murray Jones Dr NORTH	L	4117	7	10.8	3.8	54.29	0.90
Murray Jones Dr / Milperra Rd	Murray Jones Dr NORTH	R	4118	9	2	-7	-77.78	2.11
Murray Jones Dr / Milperra Rd	Milperra Rd EAST	T	5439	2,735	2646.2	-88.8	-3.247	1.21
Murray Jones Dr / Milperra Rd	Milperra Rd EAST	R	5440	29	10.6	-18.4	-63.45	2.92
Murray Jones Dr / Milperra Rd	Milperra Rd WEST	L	1973	21	21.6	0.6	2.857	0.09
Murray Jones Dr / Milperra Rd	Milperra Rd WEST	T	1972	2,730	2716.6	-13.4	-0.4908	0.18
Ashford Ave / Milperra Rd	Milperra Rd EAST	L	3685	149	222.8	73.8	49.53	3.83
Ashford Ave / Milperra Rd	Milperra Rd EAST	T	3684	2,541	2460.2	-80.8	-3.18	1.14
Ashford Ave / Milperra Rd	Ashford Ave SOUTH	L	3768	235	199.4	-35.6	-15.15	1.71
Ashford Ave / Milperra Rd	Ashford Ave SOUTH	R	3767	316	357.8	41.8	13.23	1.61
Ashford Ave / Milperra Rd	Milperra Rd WEST	T	5441	2,295	2210	-85	-3.704	1.27
Ashford Ave / Milperra Rd	Milperra Rd WEST	R	5442	438	510.4	72.4	16.53	2.35
Georges Ces / HLD	Henry Lawson Dr NORTH	L	3084	-	6	6	INF	2.45
Georges Ces / HLD	Henry Lawson Dr NORTH	T	5741	1,906	1813.6	-92.4	-4.848	1.52
Georges Ces / HLD	Georges Cres EAST	L	5742	-	2.2	2.2	INF	1.48
Georges Ces / HLD	Henry Lawson Dr SOUTH	T	4787	2,322	2077.4	-244.6	-10.53	3.69
Georges Ces / HLD	Henry Lawson Dr SOUTH	R	4788	-	0.2	0.2	INF	0.45
HLD Reserve Rd / HLD	Henry Lawson Dr NORTH	T	5181	1,907	1808.8	-98.2	-5.149	1.61
HLD Reserve Rd / HLD	Henry Lawson Dr NORTH	R	5739	-	0.4	0.4	INF	0.63
HLD Reserve Rd / HLD	Henry Lawson Dr SOUTH	L	5408	-	6	6	INF	2.45
HLD Reserve Rd / HLD	Henry Lawson Dr SOUTH	T	4856	2,328	2080.8	-247.2	-10.62	3.72
HLD Reserve Rd / HLD	HLD Reserve Rd WEST	L	4506	-	0.6	0.6	INF	0.77
HLD Reserve Rd / HLD	HLD Reserve Rd WEST	R	4507	-	2.8	2.8	INF	1.67
Beale St / HLD	Henry Lawson Dr NORTH	L	4730	-	0	0	0	0.00
Beale St / HLD	Henry Lawson Dr NORTH	T	4729	1,899	1811.2	-87.8	-4.623	1.44
Beale St / HLD	Beale St EAST	L	4816	-	0.8	0.8	INF	0.89

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Beale St / HLD	Beale St EAST	R	4817	-	0	0	0	0.00
Beale St / HLD	Henry Lawson Dr SOUTH	T	2711	2,328	2088.2	-239.8	-10.3	3.61
Beale St / HLD	Henry Lawson Dr SOUTH	R	2712	-	0.2	0.2	INF	0.45
Endevour Rd / HLD	Henry Lawson Dr NORTH	L	2770	-	0	0	0	0.00
Endevour Rd / HLD	Henry Lawson Dr NORTH	T	5410	2,079	1918.4	-160.6	-7.725	2.54
Endevour Rd / HLD	Endevour Rd EAST	L	5409	-	3.2	3.2	INF	1.79
Golf course Rd / HLD	Henry Lawson Dr NORTH	L	4905	-	2	2	INF	1.41
Golf course Rd / HLD	Henry Lawson Dr NORTH	T	4904	2,155	1981	-174	-8.074	2.71
Golf course Rd / HLD	Golf course Rd EAST	L	4272	-	5	5	INF	2.24
Golf course Rd / HLD	Golf course Rd EAST	R	4273	-	9.8	9.8	INF	3.13
Golf course Rd / HLD	Henry Lawson Dr SOUTH	T	1693	2,267	2136.2	-130.8	-5.77	1.97
Golf course Rd / HLD	Henry Lawson Dr SOUTH	R	1694	-	7.2	7.2	INF	2.68

Weekend Model
Time period: 11:30 AM - 12:30 PM
Vehicle Type: Heavy Vehicles

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Flinders Rd / HLD	Henry Lawson Dr NORTH	L	3058	-	0	0	0	0.00
Flinders Rd / HLD	Henry Lawson Dr NORTH	T	5407	126	135.6	9.6	7.619	0.84
Flinders Rd / HLD	Finders Rd EAST	L	2525	1	0	-1	-100	1.41
Flinders Rd / HLD	Finders Rd EAST	R	2526	-	0	0	0	0.00
Flinders Rd / HLD	Henry Lawson Dr SOUTH	T	2675	134	99.2	-34.8	-25.97	3.22
Flinders Rd / HLD	Henry Lawson Dr SOUTH	R	2676	3	0	-3	-100	2.45
Haig Ave / HLD	Henry Lawson Dr NORTH	L	2721	2	2.6	0.6	30	0.40
Haig Ave / HLD	Henry Lawson Dr NORTH	T	2720	152	130	-22	-14.47	1.85
Haig Ave / HLD	Haig Ave EAST	L	2625	12	8.6	-3.4	-28.33	1.06
Haig Ave / HLD	Haig Ave EAST	R	2626	6	11	5	83.33	1.72
Haig Ave / HLD	Henry Lawson Dr SOUTH	T	5854	124	89.6	-34.4	-27.74	3.33
Haig Ave / HLD	Henry Lawson Dr SOUTH	R	5855	9	9.4	0.4	4.444	0.13
Rabaul Rd / HLD	Henry Lawson Dr NORTH	L	2780	1	0	-1	-100	1.41
Rabaul Rd / HLD	Henry Lawson Dr NORTH	T	2779	137	138.8	1.8	1.314	0.15
Rabaul Rd / HLD	Henry Lawson Dr NORTH	R	2781	-	0	0	0	0.00
Rabaul Rd / HLD	Rabaul Rd EAST	R	4357	2	0	-2	-100	2.00
Rabaul Rd / HLD	Rabaul Rd EAST	T	4358	-	0	0	0	0.00
Rabaul Rd / HLD	Rabaul Rd EAST	L	4359	-	0	0	0	0.00
Rabaul Rd / HLD	Henry Lawson Dr SOUTH	L	5012	-	0	0	0	0.00
Rabaul Rd / HLD	Henry Lawson Dr SOUTH	T	5010	145	100	-45	-31.03	4.07
Rabaul Rd / HLD	Henry Lawson Dr SOUTH	R	5011	-	0	0	0	0.00
Rabaul Rd / HLD	Rabaul Rd WEST	L	4298	1	0	-1	-100	1.41
Rabaul Rd / HLD	Rabaul Rd WEST	T	4299	-	0	0	0	0.00
Rabaul Rd / HLD	Rabaul Rd WEST	R	4300	-	0	0	0	0.00
HLD / Tower Rd	Henry Lawson Dr NORTH	L	1437	4	0	-4	-100	2.83
HLD / Tower Rd	Henry Lawson Dr NORTH	T	5444	170	136	-34	-20	2.75
HLD / Tower Rd	Tower Rd EAST	L	5445	-	0	0	0	0.00
HLD / Tower Rd	Tower Rd EAST	R	2768	5	0	-5	-100	3.16
HLD / Tower Rd	Henry Lawson Dr SOUTH	T	5443	124	102.4	-21.6	-17.42	2.03
HLD / Tower Rd	Henry Lawson Dr SOUTH	R	5446	4	0	-4	-100	2.83
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr NORTH	L	5468	52	72.2	20.2	38.85	2.56
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr NORTH	T	2765	74	41.2	-32.8	-44.32	4.32

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr NORTH	R	5434	52	20.2	-31.8	-61.15	5.29
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Milperra Rd EAST	L	5461	11	0.6	-10.4	-94.55	4.32
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Milperra Rd EAST	T	1845	111	96.4	-14.6	-13.15	1.43
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Milperra Rd EAST	R	5709	50	21.8	-28.2	-56.4	4.71
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr SOUTH	L	5457	39	41.4	2.4	6.154	0.38
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr SOUTH	T	1587	46	34.6	-11.4	-24.78	1.80
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr SOUTH	R	1588	15	3	-12	-80	4.00
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Newbridge Rd WEST	L	5454	14	46	32	228.6	5.84
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Newbridge Rd WEST	T	2185	103	190.8	87.8	85.24	7.24
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Newbridge Rd WEST	R	5433	22	48	26	118.2	4.39
Auld Ave / HLD	Henry Lawson Dr NORTH	T	1499	101	89.6	-11.4	-11.29	1.17
Auld Ave / HLD	Henry Lawson Dr NORTH	R	1500	-	0	0	0	0.00
Auld Ave / HLD	Henry Lawson Dr SOUTH	L	4922	3	0	-3	-100	2.45
Auld Ave / HLD	Henry Lawson Dr SOUTH	T	4921	96	81.4	-14.6	-15.21	1.55
Auld Ave / HLD	Auld Ave WEST	L	4198	-	0	0	0	0.00
Auld Ave / HLD	Auld Ave WEST	R	4199	-	0	0	0	0.00
HLD / Keys Pde/Flower power	Henry Lawson Dr NORTH	L	5512	-	0	0	0	0.00
HLD / Keys Pde/Flower power	Henry Lawson Dr NORTH	T	5518	99	88.2	-10.8	-10.91	1.12
HLD / Keys Pde/Flower power	Flower power EAST	L	5505	13	0	-13	-100	5.10
HLD / Keys Pde/Flower power	Flower Power EAST	R	5507	-	0	0	0	0
HLD / Keys Pde/Flower power	Henry Lawson Dr SOUTH	R	5850	-	0	0	0	0
HLD / Keys Pde/Flower power	Henry Lawson Dr SOUTH	T	5506	71	82	11	15.49	1.2577
HLD / Keys Pde/Flower power	Keys Pde WEST	R	5508	4	0	-4	-100	2.8284
HLD / Keys Pde/Flower power	Keys Pde WEST	L	5847	-	0	0	0	0
Raleigh Rd / HLD	Henry Lawson Dr NORTH	T	3159	109	87.8	-21.2	-19.45	2.1372
Raleigh Rd / HLD	Henry Lawson Dr NORTH	R	3160	-	0	0	0	0
Raleigh Rd / HLD	Henry Lawson Dr SOUTH	L	3139	-	0	0	0	0
Raleigh Rd / HLD	Henry Lawson Dr SOUTH	T	5421	73	82	9	12.33	1.0223
Raleigh Rd / HLD	Raleigh Rd WEST	L	5422	3	0	-3	-100	2.4495
Raleigh Rd / HLD	Raleigh Rd WEST	R	3132	1	0	-1	-100	1.4142
HLD / Ruthven Ave	Henry Lawson Dr NORTH	T	20959	109	87.2	-21.8	-20	2.201
HLD / Ruthven Ave	Henry Lawson Dr NORTH	R	20960	-	0	0	0	0
HLD / Ruthven Ave	Henry Lawson Dr SOUTH	L	20958	-	0	0	0	0
HLD / Ruthven Ave	Henry Lawson Dr SOUTH	T	20957	75	83	8	10.67	0.90007

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Ruthven Ave	Ruthven Ave WEST	L	20962	-	0	0	0	0
HLD / Ruthven Ave	Ruthven Ave WEST	R	20961	-	0	0	0	0
HLD / Whittle Ave	Henry Lawson Dr NORTH	L	20976	-	0	0	0	0
HLD / Whittle Ave	Henry Lawson Dr NORTH	T	20977	109	86.6	-22.4	-20.55	2.2651
HLD / Whittle Ave	Whittle Ave EAST	L	20979	-	1.8	1.8	INF	1.8974
HLD / Whittle Ave	Whittle Ave EAST	R	20978	-	0	0	0	0
HLD / Whittle Ave	Henry Lawson Dr SOUTH	T	20980	75	84	9	12	1.0094
HLD / Whittle Ave	Henry Lawson Dr SOUTH	R	20981	-	0	0	0	0
HLD / Amiens Ave	Henry Lawson Dr NORTH	T	20995	106	84.4	-21.6	-20.38	2.2138
HLD / Amiens Ave	Henry Lawson Dr NORTH	R	20996	2	3.6	1.6	80	0.95618
HLD / Amiens Ave	Henry Lawson Dr SOUTH	L	20998	3	4.4	1.4	46.67	0.72783
HLD / Amiens Ave	Henry Lawson Dr SOUTH	T	20997	77	81.6	4.6	5.974	0.51656
HLD / Amiens Ave	Amiens Ave WEST	L	20999	-	2.6	2.6	INF	2.2804
HLD / Amiens Ave	Amiens Ave WEST	R	21000	-	0.6	0.6	INF	1.0954
HLD / Bullecourt Ave	Henry Lawson Dr NORTH	L	21049	10	11	1	10	0.30861
HLD / Bullecourt Ave	Henry Lawson Dr NORTH	T	21050	84	73.4	-10.6	-12.62	1.1949
HLD / Bullecourt Ave	Bullecourt Ave EAST	L	21045	15	11.4	-3.6	-24	0.99087
HLD / Bullecourt Ave	Bullecourt Ave EAST	R	21046	10	13.6	3.6	36	1.048
HLD / Bullecourt Ave	Henry Lawson Dr SOUTH	T	21048	70	72.2	2.2	3.143	0.26091
HLD / Bullecourt Ave	Henry Lawson Dr SOUTH	R	21047	10	27.6	17.6	176	4.0591
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr NORTH	L	21288	-	0.4	0.4	INF	0.89443
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr NORTH	T	21287	98	84	-14	-14.29	1.4676
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr NORTH	R	21289	1	0	-1	-100	1.4142
HLD / Ganmain Cres / Fromelles Ave	Fromelles Ave EAST	R	21284	17	1.2	-15.8	-92.94	5.2376
HLD / Ganmain Cres / Fromelles Ave	Fromelles Ave EAST	T	21286	-	1.4	1.4	INF	1.6733
HLD / Ganmain Cres / Fromelles Ave	Fromelles Ave EAST	L	21285	-	0	0	0	0
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr SOUTH	L	21295	7	0.4	-6.6	-94.29	3.4312
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr SOUTH	T	21294	75	96.6	21.6	28.8	2.3319
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr SOUTH	R	21293	-	3.4	3.4	INF	2.6077
HLD / Ganmain Cres / Fromelles Ave	Ganmain Cres WEST	L	21292	6	3.4	-2.6	-43.33	1.1993
HLD / Ganmain Cres / Fromelles Ave	Ganmain Cres WEST	T	21291	-	2.4	2.4	INF	2.1909
HLD / Ganmain Cres / Fromelles Ave	Ganmain Cres WEST	R	21290	3	0.4	-2.6	-86.67	1.9941
HLD / Hermies Ave	Henry Lawson Dr NORTH	L	21323	-	0.6	0.6	INF	1.0954
HLD / Hermies Ave	Henry Lawson Dr NORTH	T	21322	119	85.2	-33.8	-28.4	3.3451

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Hermies Ave	Hermies Ave EAST	L	21324	7	10	3	42.86	1.029
HLD / Hermies Ave	Hermies Ave EAST	R	21325	-	0	0	0	0
HLD / Hermies Ave	Henry Lawson Dr SOUTH	T	21320	87	100.6	13.6	15.63	1.4042
HLD / Hermies Ave	Henry Lawson Dr SOUTH	R	21321	1	0.8	-0.2	-20	0.21082
HLD / Pozieres Ave	Henry Lawson Dr NORTH	T	21341	152	92.4	-59.6	-39.21	5.3915
HLD / Pozieres Ave	Henry Lawson Dr NORTH	R	21342	5	2.4	-2.6	-52	1.3517
HLD / Pozieres Ave	Henry Lawson Dr SOUTH	L	21340	4	7	3	75	1.2792
HLD / Pozieres Ave	Henry Lawson Dr SOUTH	T	21339	86	94.8	8.8	10.23	0.92555
HLD / Pozieres Ave	Pozieres Ave WEST	L	21344	2	6.8	4.8	240	2.2883
HLD / Pozieres Ave	Pozieres Ave WEST	R	21343	1	17.6	16.6	1660	5.4434
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	T	21712	48	49.6	1.6	3.333	0.22904
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	R	21711	43	29.2	-13.8	-32.09	2.2968
HLD / Swestern Motorway 2	Swestern Motorway EAST	R	21445	2	1.8	-0.2	-10	0.1451
HLD / Swestern Motorway 2	Swestern Motorway EAST	T	21708	-	0	0	0	0
HLD / Swestern Motorway 2	Swestern Motorway EAST	L	21709	38	41.8	3.8	10	0.60159
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	L	21452	9	30.6	21.6	240	4.8542
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	T	21707	20	45	25	125	4.3853
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	L	21385	45	40.6	-4.4	-9.778	0.67256
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	T	21699	88	67.2	-20.8	-23.64	2.3612
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	T	21704	61	84	23	37.7	2.7012
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	R	21703	-	2.8	2.8	INF	2.3664
HLD / Swestern Motorway 1	Swestern Motorway WEST	L	21398	30	17.6	-12.4	-41.33	2.5418
HLD / Swestern Motorway 1	Swestern Motorway WEST	T	21700	-	0	0	0	0
HLD / Swestern Motorway 1	Swestern Motorway WEST	R	21701	11	11.6	0.6	5.455	0.17849
Murray Jones Dr / Milperra Rd	Murray Jones Dr NORTH	L	4117	-	0.2	0.2	INF	0.63246
Murray Jones Dr / Milperra Rd	Murray Jones Dr NORTH	R	4118	1	0.6	-0.4	-40	0.44721
Murray Jones Dr / Milperra Rd	Milperra Rd EAST	T	5439	190	122.2	-67.8	-35.68	5.4266
Murray Jones Dr / Milperra Rd	Milperra Rd EAST	R	5440	3	0.4	-2.6	-86.67	1.9941
Murray Jones Dr / Milperra Rd	Milperra Rd WEST	L	1973	2	1.2	-0.8	-40	0.63246
Murray Jones Dr / Milperra Rd	Milperra Rd WEST	T	1972	165	263.2	98.2	59.52	6.7112
Ashford Ave / Milperra Rd	Milperra Rd EAST	L	3685	10	18.6	8.6	86	2.2742
Ashford Ave / Milperra Rd	Milperra Rd EAST	T	3684	160	117	-43	-26.88	3.6538
Ashford Ave / Milperra Rd	Ashford Ave SOUTH	L	3768	20	5.6	-14.4	-72	4.0249
Ashford Ave / Milperra Rd	Ashford Ave SOUTH	R	3767	-	18.6	18.6	INF	6.0992

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Ashford Ave / Milperra Rd	Milperra Rd WEST	T	5441	137	221.6	84.6	61.75	6.318
Ashford Ave / Milperra Rd	Milperra Rd WEST	R	5442	29	39.4	10.4	35.86	1.7784
Georges Ces / HLD	Henry Lawson Dr NORTH	L	3084	-	0	0	0	0
Georges Ces / HLD	Henry Lawson Dr NORTH	T	5741	147	135.2	-11.8	-8.027	0.99339
Georges Ces / HLD	Georges Cres EAST	L	5742	-	0	0	0	0
Georges Ces / HLD	Henry Lawson Dr SOUTH	T	4787	137	99.2	-37.8	-27.59	3.4783
Georges Ces / HLD	Henry Lawson Dr SOUTH	R	4788	-	0	0	0	0
HLD Reserve Rd / HLD	Henry Lawson Dr NORTH	T	5181	146	134	-12	-8.219	1.0142
HLD Reserve Rd / HLD	Henry Lawson Dr NORTH	R	5739	-	0	0	0	0
HLD Reserve Rd / HLD	Henry Lawson Dr SOUTH	L	5408	-	0	0	0	0
HLD Reserve Rd / HLD	Henry Lawson Dr SOUTH	T	4856	131	100	-31	-23.66	2.8845
HLD Reserve Rd / HLD	HLD Reserve Rd WEST	L	4506	-	0	0	0	0
HLD Reserve Rd / HLD	HLD Reserve Rd WEST	R	4507	-	0	0	0	0
Beale St / HLD	Henry Lawson Dr NORTH	L	4730	-	0	0	0	0
Beale St / HLD	Henry Lawson Dr NORTH	T	4729	154	133.2	-20.8	-13.51	1.7357
Beale St / HLD	Beale St EAST	L	4816	-	0	0	0	0
Beale St / HLD	Beale St EAST	R	4817	-	0	0	0	0
Beale St / HLD	Henry Lawson Dr SOUTH	T	2711	131	100.2	-30.8	-23.51	2.8647
Beale St / HLD	Henry Lawson Dr SOUTH	R	2712	-	0.2	0.2	INF	0.63246
Endevour Rd / HLD	Henry Lawson Dr NORTH	L	2770	-	0	0	0	0
Endevour Rd / HLD	Henry Lawson Dr NORTH	T	5410	139	138.6	-0.4	-0.2878	0.033952
Endevour Rd / HLD	Endevour Rd EAST	L	5409	-	0.2	0.2	INF	0.63246
Golf course Rd / HLD	Henry Lawson Dr NORTH	L	4905	-	0	0	0	0
Golf course Rd / HLD	Henry Lawson Dr NORTH	T	4904	139	137.2	-1.8	-1.295	0.15317
Golf course Rd / HLD	Golf course Rd EAST	L	4272	-	2	2	INF	2
Golf course Rd / HLD	Golf course Rd EAST	R	4273	-	0.6	0.6	INF	1.0954
Golf course Rd / HLD	Henry Lawson Dr SOUTH	T	1693	130	100.2	-29.8	-22.92	2.7777
Golf course Rd / HLD	Henry Lawson Dr SOUTH	R	1694	-	0.2	0.2	INF	0.63246

Weekend Model
Time period: 12:30 PM - 01:30 PM
Vehicle Type: Heavy Vehicles

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Flinders Rd / HLD	Henry Lawson Dr NORTH	L	3058	0	0.0	0.0	0.0	0.00
Flinders Rd / HLD	Henry Lawson Dr NORTH	T	5407	140	135.4	-4.6	-3.3	0.39
Flinders Rd / HLD	Finders Rd EAST	L	2525	7	0.0	-7.0	-100.0	3.74
Flinders Rd / HLD	Finders Rd EAST	R	2526	1	0.0	-1.0	-100.0	1.41
Flinders Rd / HLD	Henry Lawson Dr SOUTH	T	2675	174	127.2	-46.8	-26.9	3.81
Flinders Rd / HLD	Henry Lawson Dr SOUTH	R	2676	7	0.0	-7.0	-100.0	3.74
Haig Ave / HLD	Henry Lawson Dr NORTH	L	2721	0	4.2	4.2	INF	2.90
Haig Ave / HLD	Henry Lawson Dr NORTH	T	2720	153	124.8	-28.2	-18.4	2.39
Haig Ave / HLD	Haig Ave EAST	L	2625	11	10.8	-0.2	-1.8	0.06
Haig Ave / HLD	Haig Ave EAST	R	2626	8	10.8	2.8	35.0	0.91
Haig Ave / HLD	Henry Lawson Dr SOUTH	T	5854	171	116.8	-54.2	-31.7	4.52
Haig Ave / HLD	Henry Lawson Dr SOUTH	R	5855	13	13.8	0.8	6.2	0.22
Rabaul Rd / HLD	Henry Lawson Dr NORTH	L	2780	1	0.0	-1.0	-100.0	1.41
Rabaul Rd / HLD	Henry Lawson Dr NORTH	T	2779	160	143.8	-16.2	-10.1	1.31
Rabaul Rd / HLD	Henry Lawson Dr NORTH	R	2781	0	0.0	0.0	0.0	0.00
Rabaul Rd / HLD	Rabaul Rd EAST	R	4357	2	0.0	-2.0	-100.0	2.00
Rabaul Rd / HLD	Rabaul Rd EAST	T	4358	0	0.0	0.0	0.0	0.00
Rabaul Rd / HLD	Rabaul Rd EAST	L	4359	0	0.0	0.0	0.0	0.00
Rabaul Rd / HLD	Henry Lawson Dr SOUTH	L	5012	0	0.0	0.0	0.0	0.00
Rabaul Rd / HLD	Henry Lawson Dr SOUTH	T	5010	173	130.4	-42.6	-24.6	3.46
Rabaul Rd / HLD	Henry Lawson Dr SOUTH	R	5011	0	0.0	0.0	0.0	0.00
Rabaul Rd / HLD	Rabaul Rd WEST	L	4298	0	0.0	0.0	0.0	0.00
Rabaul Rd / HLD	Rabaul Rd WEST	T	4299	0	0.0	0.0	0.0	0.00
Rabaul Rd / HLD	Rabaul Rd WEST	R	4300	0	0.0	0.0	0.0	0.00
HLD / Tower Rd	Henry Lawson Dr NORTH	L	1437	3	0.0	-3.0	-100.0	2.45
HLD / Tower Rd	Henry Lawson Dr NORTH	T	5444	164	152.8	-11.2	-6.8	0.89
HLD / Tower Rd	Tower Rd EAST	L	5445	10	0.0	-10.0	-100.0	4.47
HLD / Tower Rd	Tower Rd EAST	R	2768	5	0.0	-5.0	-100.0	3.16
HLD / Tower Rd	Henry Lawson Dr SOUTH	T	5443	180	124.8	-55.2	-30.7	4.47
HLD / Tower Rd	Henry Lawson Dr SOUTH	R	5446	10	0.0	-10.0	-100.0	4.47
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr NORTH	L	5468	57	77.0	20.0	35.1	2.44
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr NORTH	T	2765	71	50.4	-20.6	-29.0	2.64
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr NORTH	R	5434	42	27.0	-15.0	-35.7	2.55
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Milperra Rd EAST	L	5461	12	1.2	-10.8	-90.0	4.20
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Milperra Rd EAST	T	1845	135	142.4	7.4	5.5	0.63

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Milperra Rd EAST	R	5709	61	25.2	-35.8	-58.7	5.45
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr SOUTH	L	5457	62	43.0	-19.0	-30.7	2.62
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr SOUTH	T	1587	54	46.0	-8.0	-14.8	1.13
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Henry Lawson Dr SOUTH	R	1588	9	5.2	-3.8	-42.2	1.43
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Newbridge Rd WEST	L	5454	80	54.0	-26.0	-32.5	3.18
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Newbridge Rd WEST	T	2185	123	219.0	96.0	78.1	7.34
Henry Lawson Dr / Newbridge Rd / Milperra Rd	Newbridge Rd WEST	R	5433	57	73.0	16.0	28.1	1.98
Auld Ave / HLD	Henry Lawson Dr NORTH	T	1499	137	124.4	-12.6	-9.2	1.10
Auld Ave / HLD	Henry Lawson Dr NORTH	R	1500	0	0.0	0.0	0.0	0.00
Auld Ave / HLD	Henry Lawson Dr SOUTH	L	4922	0	0.0	0.0	0.0	0.00
Auld Ave / HLD	Henry Lawson Dr SOUTH	T	4921	141	94.2	-46.8	-33.2	4.32
Auld Ave / HLD	Auld Ave WEST	L	4198	2	0.0	-2.0	-100.0	2.00
Auld Ave / HLD	Auld Ave WEST	R	4199	0	0.0	0.0	0.0	0.00
HLD / Keys Pde/Flower power	Henry Lawson Dr NORTH	L	5512	24	0.0	-24.0	-100.0	6.93
HLD / Keys Pde/Flower power	Henry Lawson Dr NORTH	T	5518	96	123.4	27.4	28.5	2.62
HLD / Keys Pde/Flower power	Flower power EAST	L	5505	5	0.0	-5.0	-100.0	3.16
HLD / Keys Pde/Flower power	Flower Power EAST	R	5507	39	0.0	-39.0	-100.0	8.83
HLD / Keys Pde/Flower power	Henry Lawson Dr SOUTH	R	5850	0	0.0	0.0	0.0	0.00
HLD / Keys Pde/Flower power	Henry Lawson Dr SOUTH	T	5506	96	94.0	-2.0	-2.1	0.21
HLD / Keys Pde/Flower power	Keys Pde WEST	R	5508	1	0.0	-1.0	-100.0	1.41
HLD / Keys Pde/Flower power	Keys Pde WEST	L	5847	0	0.0	0.0	0.0	0.00
Raleigh Rd / HLD	Henry Lawson Dr NORTH	T	3159	101	122.8	21.8	21.6	2.06
Raleigh Rd / HLD	Henry Lawson Dr NORTH	R	3160	5	0.0	-5.0	-100.0	3.16
Raleigh Rd / HLD	Henry Lawson Dr SOUTH	L	3139	0	0.0	0.0	0.0	0.00
Raleigh Rd / HLD	Henry Lawson Dr SOUTH	T	5421	100	94.0	-6.0	-6.0	0.61
Raleigh Rd / HLD	Raleigh Rd WEST	L	5422	1	0.0	-1.0	-100.0	1.41
Raleigh Rd / HLD	Raleigh Rd WEST	R	3132	0	0.0	0.0	0.0	0.00
HLD / Ruthven Ave	Henry Lawson Dr NORTH	T	20959	100	122.6	22.6	22.6	2.14
HLD / Ruthven Ave	Henry Lawson Dr NORTH	R	20960	0	0.0	0.0	0.0	0.00
HLD / Ruthven Ave	Henry Lawson Dr SOUTH	L	20958	1	0.0	-1.0	-100.0	1.41
HLD / Ruthven Ave	Henry Lawson Dr SOUTH	T	20957	100	94.2	-5.8	-5.8	0.59
HLD / Ruthven Ave	Ruthven Ave WEST	L	20962	0	0.0	0.0	0.0	0.00
HLD / Ruthven Ave	Ruthven Ave WEST	R	20961	0	0.0	0.0	0.0	0.00
HLD / Whittle Ave	Henry Lawson Dr NORTH	L	20976	0	0.0	0.0	0.0	0.00
HLD / Whittle Ave	Henry Lawson Dr NORTH	T	20977	100	122.8	22.8	22.8	2.16
HLD / Whittle Ave	Whittle Ave EAST	L	20979	0	0.0	0.0	0.0	0.00
HLD / Whittle Ave	Whittle Ave EAST	R	20978	0	0.0	0.0	0.0	0.00
HLD / Whittle Ave	Henry Lawson Dr SOUTH	T	20980	103	93.4	-9.6	-9.3	0.97

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Whittle Ave	Henry Lawson Dr SOUTH	R	20981	0	0.0	0.0	0.0	0.00
HLD / Amiens Ave	Henry Lawson Dr NORTH	T	20995	97	120.8	23.8	24.5	2.28
HLD / Amiens Ave	Henry Lawson Dr NORTH	R	20996	2	2.4	0.4	20.0	0.27
HLD / Amiens Ave	Henry Lawson Dr SOUTH	L	20998	3	2.8	-0.2	-6.7	0.12
HLD / Amiens Ave	Henry Lawson Dr SOUTH	T	20997	104	92.0	-12.0	-11.5	1.21
HLD / Amiens Ave	Amiens Ave WEST	L	20999	0	1.2	1.2	INF	1.55
HLD / Amiens Ave	Amiens Ave WEST	R	21000	0	1.0	1.0	INF	1.41
HLD / Bullecourt Ave	Henry Lawson Dr NORTH	L	21049	13	9.0	-4.0	-30.8	1.21
HLD / Bullecourt Ave	Henry Lawson Dr NORTH	T	21050	81	112.4	31.4	38.8	3.19
HLD / Bullecourt Ave	Bullecourt Ave EAST	L	21045	11	7.6	-3.4	-30.9	1.11
HLD / Bullecourt Ave	Bullecourt Ave EAST	R	21046	20	12.6	-7.4	-37.0	1.83
HLD / Bullecourt Ave	Henry Lawson Dr SOUTH	T	21048	81	82.6	1.6	2.0	0.18
HLD / Bullecourt Ave	Henry Lawson Dr SOUTH	R	21047	10	29.4	19.4	194.0	4.37
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr NORTH	L	21288	0	0.0	0.0	0.0	0.00
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr NORTH	T	21287	90	120.2	30.2	33.6	2.95
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr NORTH	R	21289	0	0.2	0.2	INF	0.63
HLD / Ganmain Cres / Fromelles Ave	Fromelles Ave EAST	R	21284	0	2.6	2.6	INF	2.28
HLD / Ganmain Cres / Fromelles Ave	Fromelles Ave EAST	T	21286	0	0.6	0.6	INF	1.10
HLD / Ganmain Cres / Fromelles Ave	Fromelles Ave EAST	L	21285	0	0.0	0.0	0.0	0.00
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr SOUTH	L	21295	6	1.2	-4.8	-80.0	2.53
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr SOUTH	T	21294	87	105.4	18.4	21.2	1.88
HLD / Ganmain Cres / Fromelles Ave	Henry Lawson Dr SOUTH	R	21293	3	3.6	0.6	20.0	0.33
HLD / Ganmain Cres / Fromelles Ave	Ganmain Cres WEST	L	21292	1	6.6	5.6	560.0	2.87
HLD / Ganmain Cres / Fromelles Ave	Ganmain Cres WEST	T	21291	0	1.0	1.0	INF	1.41
HLD / Ganmain Cres / Fromelles Ave	Ganmain Cres WEST	R	21290	0	0.8	0.8	INF	1.26
HLD / Hermies Ave	Henry Lawson Dr NORTH	L	21323	0	0.2	0.2	INF	0.63
HLD / Hermies Ave	Henry Lawson Dr NORTH	T	21322	112	123.6	11.6	10.4	1.07
HLD / Hermies Ave	Hermies Ave EAST	L	21324	12	6.2	-5.8	-48.3	1.92
HLD / Hermies Ave	Hermies Ave EAST	R	21325	0	0.0	0.0	0.0	0.00
HLD / Hermies Ave	Henry Lawson Dr SOUTH	T	21320	101	110.4	9.4	9.3	0.91
HLD / Hermies Ave	Henry Lawson Dr SOUTH	R	21321	2	2.0	0.0	0.0	0.00
HLD / Pozieres Ave	Henry Lawson Dr NORTH	T	21341	147	125.8	-21.2	-14.4	1.82
HLD / Pozieres Ave	Henry Lawson Dr NORTH	R	21342	0	4.2	4.2	INF	2.90
HLD / Pozieres Ave	Henry Lawson Dr SOUTH	L	21340	9	12.6	3.6	40.0	1.10
HLD / Pozieres Ave	Henry Lawson Dr SOUTH	T	21339	99	104.2	5.2	5.3	0.52
HLD / Pozieres Ave	Pozieres Ave WEST	L	21344	3	8.0	5.0	166.7	2.13
HLD / Pozieres Ave	Pozieres Ave WEST	R	21343	3	17.2	14.2	473.3	4.47

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	T	21712	39	56.2	17.2	44.1	2.49
HLD / Swestern Motorway 2	Henry Lawson Dr NORTH	R	21711	37	30.4	-6.6	-17.8	1.14
HLD / Swestern Motorway 2	Swestern Motorway EAST	R	21445	1	3.8	2.8	280.0	1.81
HLD / Swestern Motorway 2	Swestern Motorway EAST	T	21708	0	0.0	0.0	0.0	0.00
HLD / Swestern Motorway 2	Swestern Motorway EAST	L	21709	38	51.2	13.2	34.7	1.98
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	L	21452	7	23.8	16.8	240.0	4.28
HLD / Swestern Motorway 2	Henry Lawson Dr SOUTH	T	21707	25	49.0	24.0	96.0	3.95
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	L	21385	54	69.8	15.8	29.3	2.01
HLD / Swestern Motorway 1	Henry Lawson Dr NORTH	T	21699	91	74.0	-17.0	-18.7	1.87
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	T	21704	68	95.2	27.2	40.0	3.01
HLD / Swestern Motorway 1	Henry Lawson Dr SOUTH	R	21703	4	5.0	1.0	25.0	0.47
HLD / Swestern Motorway 1	Swestern Motorway WEST	L	21398	39	23.4	-15.6	-40.0	2.79
HLD / Swestern Motorway 1	Swestern Motorway WEST	T	21700	0	0.0	0.0	0.0	0.00
HLD / Swestern Motorway 1	Swestern Motorway WEST	R	21701	6	13.6	7.6	126.7	2.43
Murray Jones Dr / Milperra Rd	Murray Jones Dr NORTH	L	4117	0	1.8	1.8	INF	1.90
Murray Jones Dr / Milperra Rd	Murray Jones Dr NORTH	R	4118	0	9.0	9.0	INF	4.24
Murray Jones Dr / Milperra Rd	Milperra Rd EAST	T	5439	226	174.0	-52.0	-23.0	3.68
Murray Jones Dr / Milperra Rd	Milperra Rd EAST	R	5440	0	0.4	0.4	INF	0.89
Murray Jones Dr / Milperra Rd	Milperra Rd WEST	L	1973	0	1.2	1.2	INF	1.55
Murray Jones Dr / Milperra Rd	Milperra Rd WEST	T	1972	214	300.8	86.8	40.6	5.41
Ashford Ave / Milperra Rd	Milperra Rd EAST	L	3685	15	17.6	2.6	17.3	0.64
Ashford Ave / Milperra Rd	Milperra Rd EAST	T	3684	209	160.2	-48.8	-23.4	3.59
Ashford Ave / Milperra Rd	Ashford Ave SOUTH	L	3768	18	15.4	-2.6	-14.4	0.64
Ashford Ave / Milperra Rd	Ashford Ave SOUTH	R	3767	8	30.6	22.6	282.5	5.14
Ashford Ave / Milperra Rd	Milperra Rd WEST	T	5441	186	267.2	81.2	43.7	5.39
Ashford Ave / Milperra Rd	Milperra Rd WEST	R	5442	32	35.0	3.0	9.4	0.52
Georges Ces / HLD	Henry Lawson Dr NORTH	L	3084	0	0.0	0.0	0.0	0.00
Georges Ces / HLD	Henry Lawson Dr NORTH	T	5741	155	134.4	-20.6	-13.3	1.71
Georges Ces / HLD	Georges Cres EAST	L	5742	0	0.0	0.0	0.0	0.00
Georges Ces / HLD	Henry Lawson Dr SOUTH	T	4787	178	127.6	-50.4	-28.3	4.08
Georges Ces / HLD	Henry Lawson Dr SOUTH	R	4788	0	0.0	0.0	0.0	0.00
HLD Reserve Rd / HLD	Henry Lawson Dr NORTH	T	5181	155	134.0	-21.0	-13.6	1.75
HLD Reserve Rd / HLD	Henry Lawson Dr NORTH	R	5739	0	0.0	0.0	0.0	0.00
HLD Reserve Rd / HLD	Henry Lawson Dr SOUTH	L	5408	0	0.0	0.0	0.0	0.00
HLD Reserve Rd / HLD	Henry Lawson Dr SOUTH	T	4856	178	127.0	-51.0	-28.7	4.13
HLD Reserve Rd / HLD	HLD Reserve Rd WEST	L	4506	0	0.0	0.0	0.0	0.00
HLD Reserve Rd / HLD	HLD Reserve Rd WEST	R	4507	0	0.0	0.0	0.0	0.00

Intersection	Approach	Turn	Object ID	Observed	Modelled	Absolute Difference	Relative Difference	GEH
Beale St / HLD	Henry Lawson Dr NORTH	L	4730	0	5.4	5.4	INF	3.29
Beale St / HLD	Henry Lawson Dr NORTH	T	4729	155	129.2	-25.8	-16.7	2.16
Beale St / HLD	Beale St EAST	L	4816	0	0.0	0.0	0.0	0.00
Beale St / HLD	Beale St EAST	R	4817	0	0.0	0.0	0.0	0.00
Beale St / HLD	Henry Lawson Dr SOUTH	T	2711	178	126.8	-51.2	-28.8	4.15
Beale St / HLD	Henry Lawson Dr SOUTH	R	2712	0	0.6	0.6	INF	1.10
Endevour Rd / HLD	Henry Lawson Dr NORTH	L	2770	0	0.0	0.0	0.0	0.00
Endevour Rd / HLD	Henry Lawson Dr NORTH	T	5410	165	135.6	-29.4	-17.8	2.40
Endevour Rd / HLD	Endevour Rd EAST	L	5409	0	8.2	8.2	INF	4.05
Golf course Rd / HLD	Henry Lawson Dr NORTH	L	4905	0	0.0	0.0	0.0	0.00
Golf course Rd / HLD	Henry Lawson Dr NORTH	T	4904	162	144.4	-17.6	-10.9	1.42
Golf course Rd / HLD	Golf course Rd EAST	L	4272	0	6.8	6.8	INF	3.69
Golf course Rd / HLD	Golf course Rd EAST	R	4273	0	5.2	5.2	INF	3.22
Golf course Rd / HLD	Henry Lawson Dr SOUTH	T	1693	185	124.6	-60.4	-32.7	4.85
Golf course Rd / HLD	Henry Lawson Dr SOUTH	R	1694	0	0.0	0.0	0.0	0.00

Appendix C: LOS Results

AM Model
Time Period: 7:45-8:45 AM
Year: 2022

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	Haig Avenue / HLD	N	L	12	24	1,046	36	C	2,404	33	C
		N	T	1,034	36						
		E	L	113	46	281	58	E			
		E	R	168	66						
		S	T	976	19	1,077	22	B			
		S	R	101	50						
2	HLD / Tower Road	N	L	5	27	1,185	28	B	2,833	26	B
		N	T	1,180	28						
		E	L	138	33	149	35	C			
		E	R	11	62						
		S	T	1,106	8	1,499	23	B			
		S	R	393	65						
3	Henry Lawson Dr / Newbridge Road / Milperra Road	N	L	452	6	1,300	28	B	5,771	228	F
		N	T	525	38						
		N	R	323	44						
		E	L	18	162	946	316	F			
		E	T	703	380						
		E	R	225	128						
		S	L	486	12	1,139	36	C			
		S	T	630	54						
		S	R	23	78						
		W	L	656	348	2,386	392	F			
		W	T	1,343	441						
		W	R	387	296						
4	Auld Avenue / HLD	N	T	926	8	930	8	A	2,101	6	A
		N	R	4	13						
		S	L	2	6	1,133	2	A			
		S	T	1,131	2						
		W	L	26	24	38	31	C			
		W	R	12	46						
5	HLD / Keys Parade/Flower power	N	L	49	5	935	13	A	1,995	12	A

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		N	T	886	13						
		E	L	-	-1	49	64	E			
		E	R	49	64						
		S	R	15	20	1,011	7	A			
		S	T	996	7						
		W	R	#N/A		#N/A		#N/A			
		W	L	#N/A							
6	Raleigh Road / HLD	N	T	859	6	884	7	A	1,985	5	A
		N	R	25	25						
		S	L	-	-1	1,012	3	A			
		S	T	1,012	3						
		W	L	87	2	89	3	A			
		W	R	2	25						
7	HLD / Ruthven Avenue	N	T	852	3	852	3	A	1,867	3	A
		N	R	-	-1						
		S	L	-	-1	1,015	2	A			
		S	T	1,015	2						
		W	L	-	-1	-		#N/A			
		W	R	-	-1						
8	HLD / Whittle Avenue	N	L	-	-1	848	5	A	1,880	3	A
		N	T	848	5						
		E	L	16	16	16	16	B			
		E	R	-	-1						
		S	T	1,016	1	1,016	1	A			
		S	R	-	-1						
9	HLD / Amiens Avenue	N	T	833	4	861	4	A	1,919	4	A
		N	R	28	6						
		S	L	30	7	1,012	2	A			
		S	T	982	2						
		W	L	35	14	46	16	B			
		W	R	11	21						
10	HLD / Bullecourt Avenue	N	L	214	9	845	22	B	2,298	25	B
		N	T	631	27						
		E	L	114	28	274	53	D			
		E	R	160	71						

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		S	T	855	7	1,179	19	B			
		S	R	324	50						
11	HLD / Ganmain Cres / Fromelles Avenue	N	L	-	3	745	3	A	2,018	8	A
		N	T	742	3						
		N	R	3	2						
		E	R	1	2	29	8	A			
		E	T	8	1						
		E	L	20	11						
		S	L	7	16	1,174	10	A			
		S	T	1,144	10						
		S	R	23	14						
		W	L	45	23	70	21	B			
		W	T	9	8						
		W	R	16	24						
12	HLD / Hermies Avenue	N	L	9	4	778	3	A	2,043	4	A
		N	T	769	3						
		E	L	78	10	78	10	A			
		E	R	-	-1						
		S	T	1,178	3	1,187	3	A			
		S	R	9	3						
13	HLD / Pozieres Avenue	N	T	813	3	843	5	A	2,279	17	B
		N	R	30	56						
		S	L	81	10	1,196	13	A			
		S	T	1,115	14						
		W	L	73	59	240	68	E			
		W	R	167	72						
14	Murray Jones Dr / Newbridge Road	N	L	8	83	12	84	F	2,976	4	A
		N	R	4	88						
		E	T	1,169	1	1,173	2	A			
		E	R	4	27						
		W	L	9	13	1,791	5	A			
		W	T	1,782	5						
15	Ashford Avenue / Newbridge Road	E	L	199	15	1,264	13	A	3,382	35	C
		E	T	1,065	12						
		S	L	111	144	332	270	F			

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		S	R	221	333						
		W	T	1,565	3	1,786	7	A			
		W	R	221	35						

AM Model
Time Period: 8:45-9:45 AM
Year: 2022

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	Haig Avenue / HLD	N	L	15	22	849	28	B	2,142	34	C
		N	T	834	28						
		E	L	77	123	193	163	F			
		E	R	116	190						
		S	T	999	14	1,100	16	B			
		S	R	101	30						
2	HLD / Tower Road	N	L	5	15	1,039	23	B	2,601	55	D
		N	T	1,034	23						
		E	L	183	43	188	44	D			
		E	R	5	64						
		S	T	1,078	16	1,374	81	F			
		S	R	296	315						
3	Henry Lawson Dr / Newbridge Road / Milperra Road	N	L	477	11	1,237	40	C	5,556	591	F
		N	T	468	62						
		N	R	292	53						
		E	L	46	993	1,117	1035	F			
		E	T	844	1160						
		E	R	227	579						
		S	L	457	32	1,096	106	F			
		S	T	630	160						
		S	R	9	85						
		W	L	547	777	2,106	929	F			
		W	T	1,209	1041						
		W	R	350	781						
4	Auld Avenue / HLD	N	T	854	7	860	7	A	1,975	6	A
		N	R	6	11						
		S	L	5	6	1,088	3	A			
		S	T	1,083	3						
		W	L	8	15	27	31	C			
		W	R	19	37						
5	HLD / Keys Parade/Flower power	N	L	138	5	874	14	A	1,992	16	B
		N	T	736	15						
		E	L	32	4	208	45	D			

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		E	R	176	52						
		S	L	59	23	910	11	A			
		S	T	851	10						
		W	R	#N/A		#N/A		#N/A			
		W	L	#N/A							
6	Raleigh Road / HLD	N	T	730	6	770	7	A	1,742	5	A
		N	R	40	19						
		S	L	3	3	918	2	A			
		S	T	915	2						
		W	L	54	2	54	2	A			
		W	R	-	-1						
7	HLD / Ruthven Avenue	N	T	729	3	729	3	A	1,655	3	A
		N	R	-	-1						
		S	R	-	-1	921	2	A			
		S	T	921	2						
		W	L	3	37	5	45	D			
		W	R	2	58						
8	HLD / Whittle Avenue	N	L	-	-1	728	5	A	1,647	3	A
		N	T	728	5						
		E	L	-	-1	-		#N/A			
		E	R	-	-1						
		S	T	919	1	919	1	A			
		S	R	-	-1						
9	HLD / Amiens Avenue	N	T	715	3	731	3	A	1,694	3	A
		N	R	16	5						
		S	L	35	6	938	2	A			
		S	T	903	2						
		W	L	18	11	25	12	A			
		W	R	7	12						
10	HLD / Bullecourt Avenue	N	L	169	7	717	20	B	2,030	25	B
		N	T	548	24						
		E	L	103	30	291	68	E			
		E	R	188	89						
		S	T	750	5	1,022	14	A			
		S	R	272	40						

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
11	HLD / Ganmain Cres / Fromelles Avenue	N	L	-	-1	651	3	A	1,726	7	A
		N	T	648	3						
		N	R	3	2						
		E	R	-	-1	19	13	A			
		E	T	4	0						
		E	L	15	17						
		S	L	6	10	990	8	A			
		S	T	964	8						
		S	R	20	10						
		W	L	49	16	66	15	B			
		W	T	5	1						
		W	R	12	19						
12	HLD / Hermies Avenue	N	L	2	5	677	2	A	1,757	3	A
		N	T	675	2						
		E	L	67	6	67	6	A			
		E	R	-	-1						
		S	T	989	3	1,013	3	A			
		S	R	24	5						
13	HLD / Pozieres Avenue	N	T	714	3	745	5	A	2,004	17	B
		N	R	31	48						
		S	L	108	16	1,046	16	B			
		S	T	938	16						
		W	L	74	52	213	64	E			
		W	R	139	70						
14	Murray Jones Dr / Newbridge Road	N	L	7	90	43	131	F	2,883	19	B
		N	R	36	139						
		E	T	1,125	32	1,134	32	C			
		E	R	9	38						
		W	L	8	8	1,706	7	A			
		W	T	1,698	7						
15	Ashford Avenue / Newbridge Road	E	L	186	18	1,265	15	B	3,282	52	D
		E	T	1,079	14						
		S	L	83	267	316	439	F			
		S	R	233	500						
		W	T	1,458	3	1,701	8	A			

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		W	R	243	34						

PM Model
Time Period: 3:30-4:30 AM
Year: 2022

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	Haig Avenue / HLD	N	L	7	59	936	85	F	2,408	55	D
		N	T	929	85						
		E	L	264	70	429	72	F			
		E	R	165	74						
		S	T	956	16	1,043	19	B			
		S	R	87	60						
2	HLD / Tower Road	N	L	19	36	1,255	38	C	2,976	35	C
		N	T	1,236	38						
		E	L	401	38	425	39	C			
		E	R	24	54						
		S	T	1,050	14	1,296	29	C			
		S	R	246	94						
3	Henry Lawson Dr / Newbridge Road / Milperra Road	N	L	426	6	1,594	40	C	6,545	237	F
		N	T	604	44						
		N	R	564	62						
		E	L	51	154	1,797	249	F			
		E	T	1,422	287						
		E	R	324	100						
		S	L	647	33	1,118	40	C			
		S	T	470	49						
		S	R	1	96						
		W	L	515	327	2,036	486	F			
		W	T	1,092	421						
		W	R	429	845						
4	Auld Avenue / HLD	N	T	1,061	11	1,078	11	A	2,221	7	A
		N	R	17	12						
		S	L	3	5	1,134	2	A			
		S	T	1,131	2						
		W	L	9	12	9	12	A			
		W	R	-	-1						
5	HLD / Keys Parade/Flower power	N	L	177	6	1,061	12	A	2,209	14	A
		N	T	884	14						

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		E	L	52	6	134	44	D			
		E	R	82	68						
		S	R	30	103	1,014	11	A			
		S	T	984	8						
		W	R	#N/A		#N/A		#N/A			
		W	L	#N/A							
6	Raleigh Road / HLD	N	T	881	5	932	6	A	2,033	5	A
		N	R	51	20						
		S	L	11	4	1,028	3	A			
		S	T	1,017	3						
		W	L	73	2	73	2	A			
		W	R	-	-1						
7	HLD / Ruthven Avenue	N	T	874	3	874	3	A	1,939	3	A
		N	R	-	-1						
		S	L	34	5	1,065	2	A			
		S	T	1,031	2						
		W	L	-	-1	-		#N/A			
		W	R	-	-1						
8	HLD / Whittle Avenue	N	L	-	-1	874	4	A	1,959	3	A
		N	T	874	4						
		E	L	11	17	11	17	B			
		E	R	-	-1						
		S	T	1,066	1	1,074	1	A			
		S	R	8	3						
9	HLD / Amiens Avenue	N	T	871	2	883	2	A	2,015	3	A
		N	R	12	4						
		S	L	52	6	1,113	3	A			
		S	T	1,061	2						
		W	L	14	13	19	18	B			
		W	R	5	31						
10	HLD / Bullecourt Avenue	N	L	125	4	871	27	B	2,355	45	D
		N	T	746	30						
		E	L	240	79	578	112	F			
		E	R	338	136						
		S	T	780	9	906	18	B			

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		S	R	126	74						
11	HLD / Ganmain Cres / Fromelles Avenue	N	L	6	6	986	3	A	1,972	6	A
		N	T	972	3						
		N	R	8	4						
		E	R	2	22	65	12	A			
		E	T	2	9						
		E	L	61	11						
		S	L	7	8	889	7	A			
		S	T	880	7						
		S	R	2	7						
		W	L	24	12	32	13	A			
		W	T	3	1						
		W	R	5	24						
12	HLD / Hermies Avenue	N	L	16	5	1,035	3	A	2,109	5	A
		N	T	1,019	3						
		E	L	128	15	134	16	B			
		E	R	6	27						
		S	T	889	3	940	4	A			
		S	R	51	17						
13	HLD / Pozieres Avenue	N	T	1,106	4	1,143	6	A	2,272	12	A
		N	R	37	67						
		S	L	107	16	993	12	A			
		S	T	886	11						
		W	L	56	38	136	49	D			
		W	R	80	57						
14	Murray Jones Dr / Newbridge Road	N	L	24	67	34	66	E	3,578	6	A
		N	R	10	63						
		E	T	2,053	4	2,053	4	A			
		E	R	-	-1						
		W	L	-	-1	1,491	5	A			
		W	T	1,491	5						
15	Ashford Avenue / Newbridge Road	E	L	267	21	2,099	17	B	4,019	18	B
		E	T	1,832	16						
		S	L	233	51	405	68	E			
		S	R	172	91						

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		W	T	1,382	3	1,515	6	A			
		W	R	133	42						

PM Model
Time Period: 4:30-5:30 AM
Year: 2022

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	Haig Avenue / HLD	N	L	9	66	1,000	82	F	2,476	57	E
		N	T	991	82						
		E	L	129	59	293	64	E			
		E	R	164	68						
		S	T	1,076	28	1,183	32	C			
		S	R	107	79						
2	HLD / Tower Road	N	L	23	27	1,191	31	C	3,135	37	C
		N	T	1,168	31						
		E	L	490	89	514	88	F			
		E	R	24	56						
		S	T	1,214	13	1,430	23	B			
		S	R	216	80						
3	Henry Lawson Dr / Newbridge Road / Milperra Road	N	L	278	5	1,639	108	F	6,871	469	F
		N	T	666	42						
		N	R	695	212						
		E	L	69	362	1,746	455	F			
		E	T	1,418	498						
		E	R	259	241						
		S	L	785	41	1,287	43	D			
		S	T	487	45						
		S	R	15	73						
		W	L	681	739	2,199	999	F			
		W	T	1,183	764						
		W	R	335	2355						
4	Auld Avenue / HLD	N	T	1,051	13	1,069	13	A	2,363	8	A
		N	R	18	15						
		S	L	3	6	1,272	2	A			
		S	T	1,269	2						
		W	L	18	43	22	63	E			
		W	R	4	154						
5	HLD / Keys Parade/Flower power	N	L	127	6	1,055	14	A	2,358	17	B
		N	T	928	15						
		E	L	71	6	308	43	D			

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		E	R	237	54						
		S	R	11	91	995	12	A			
		S	T	984	11						
		W	R	#N/A		#N/A		#N/A			
		W	L	#N/A							
6	Raleigh Road / HLD	N	T	912	5	999	7	A	2,052	5	A
		N	R	87	21						
		S	L	10	4	1,004	3	A			
		S	T	994	3						
		W	L	49	2	49	2	A			
		W	R	-	-1						
7	HLD / Ruthven Avenue	N	T	906	3	908	3	A	1,930	3	A
		N	R	2	9						
		S	L	15	5	1,022	2	A			
		S	T	1,007	2						
		W	L	-	-1	-		#N/A			
		W	R	-	-1						
8	HLD / Whittle Avenue	N	L	7	6	904	5	A	1,943	3	A
		N	T	897	5						
		E	L	10	12	10	12	A			
		E	R	-	-1						
		S	T	1,021	1	1,029	1	A			
		S	R	8	4						
9	HLD / Amiens Avenue	N	T	899	2	909	2	A	1,989	3	A
		N	R	10	3						
		S	L	45	6	1,052	3	A			
		S	T	1,007	3						
		W	L	22	13	28	15	B			
		W	R	6	23						
10	HLD / Bullecourt Avenue	N	L	132	4	908	23	B	2,342	38	C
		N	T	776	27						
		E	L	285	71	575	92	F			
		E	R	290	112						
		S	T	763	10	859	15	B			
		S	R	96	53						

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
11	HLD / Ganmain Cres / Fromelles Avenue	N	L	5	6	1,062	3	A	1,982	5	A
		N	T	1,044	3						
		N	R	13	4						
		E	R	8	21	59	15	B			
		E	T	1	0						
		E	L	50	15						
		S	L	8	8	851	5	A			
		S	T	842	5						
		S	R	1	13						
		W	L	7	11	10	15	B			
		W	T	-	-1						
		W	R	3	22						
12	HLD / Hermies Avenue	N	L	2	4	1,100	3	A	2,087	4	A
		N	T	1,098	3						
		E	L	88	16	88	16	B			
		E	R	-	48						
		S	T	853	2	899	2	A			
		S	R	46	5						
13	HLD / Pozieres Avenue	N	T	1,142	4	1,185	7	A	2,253	11	A
		N	R	43	75						
		S	L	94	13	948	11	A			
		S	T	854	11						
		W	L	43	43	120	51	D			
		W	R	77	55						
14	Murray Jones Dr / Newbridge Road	N	L	189	83	250	95	F	3,342	16	B
		N	R	61	134						
		E	T	1,613	12	1,613	12	A			
		E	R	-	-1						
		W	L	1	11	1,479	6	A			
		W	T	1,478	6						
15	Ashford Avenue / Newbridge Road	E	L	252	23	1,701	20	B	3,698	20	B
		E	T	1,449	19						
		S	L	153	51	332	77	F			
		S	R	179	99						
		W	T	1,491	3	1,665	9	A			

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		W	R	174	58						

Weekend Model
Time period: 11:30 AM - 12:30 PM
Year: 2022

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	Flinders Rd / HLD	N	L	14	5	926	3	A	2,193	5	A
		N	T	912	3						
		E	L	136	12	144	13	A			
		E	R	8	32						
		S	T	1,026	3	1,123	3	A			
		S	R	97	11						
2	Haig Ave / HLD	N	L	14	17	1,027	24	B	2,339	32	C
		N	T	1,013	24						
		E	L	80	131	212	167	F			
		E	R	132	188						
		S	T	998	11	1,100	13	A			
		S	R	102	33						
3	Rabaul Rd / HLD	N	L	2	3	1,098	2	A	2,277	5	A
		N	T	1,096	2						
		N	R	-	-1						
		E	R	-	-1	35	26	B			
		E	T	-	-1						
		E	L	35	26						
		S	L	2	7	1,143	5	A			
		S	T	1,105	5						
		S	R	36	20						
		W	L	1	3	1	3	A			
		W	T	-	-1						
		W	R	-	-1						
4	HLD / Tower Rd	N	L	24	23	1,116	21	B	2,779	22	B
		N	T	1,092	21						
		E	L	213	42	221	43	D			
		E	R	8	63						
		S	T	1,146	5	1,442	18	B			
		S	R	296	69						
5	Henry Lawson Dr / Newbridge Rd / Milperra Rd	N	L	410	3	1,289	36	C	5,964	55	D
		N	T	531	44						
		N	R	348	63						
		E	L	106	8	1,399	60	E			
		E	T	954	42						
		E	R	339	127						
		S	L	468	15	1,181	40	C			
		S	T	613	56						
		S	R	100	59						
		W	L	499	41	2,095	70	E			
		W	T	1,204	80						
		W	R	392	75						
6	Auld Ave / HLD	N	T	1,023	7	1,026	7	A	2,250	6	A
		N	R	3	13						
		S	L	4	5	1,188	2	A			
		S	T	1,184	2						

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		W	L	21	29	36	51	D			
		W	R	15	80						
7	HLD / Keys Pde/Flower power	N	L	323	5	1,032	9	A	2,303	17	B
		N	T	709	10						
		E	L	99	3	446	55	D			
		E	R	347	70						
		S	R	51	16	825	7	A			
		S	T	774	6						
		W	R	#N/A		#N/A		#N/A			
		W	L	#N/A							
8	Raleigh Rd / HLD	N	T	756	3	804	4	A	1,706	3	A
		N	R	48	9						
		S	L	2	3	833	2	A			
		S	T	831	2						
		W	L	69	2	69	2	A			
		W	R	-	51						
9	HLD / Ruthven Ave	N	T	753	3	753	3	A	1,589	3	A
		N	R	-	-1						
		S	L	-	-1	833	2	A			
		S	T	833	2						
		W	L	2	7	3	7	A			
		W	R	1	8						
10	HLD / Whittle Ave	N	L	-	-1	748	4	A	1,585	3	A
		N	T	748	4						
		E	L	2	19	2	19	B			
		E	R	-	-1						
		S	T	835	1	835	1	A			
		S	R	-	-1						
11	HLD / Amiens Ave	N	T	719	2	748	3	A	1,613	3	A
		N	R	29	6						
		S	L	23	5	850	2	A			
		S	T	827	2						
		W	L	10	10	15	10	A			
		W	R	5	12						
12	HLD / Bullecourt Ave	N	L	143	7	721	22	B	1,792	24	B
		N	T	578	25						
		E	L	106	29	302	59	E			
		E	R	196	76						
		S	T	656	6	769	12	A			
		S	R	113	47						
13	HLD / Ganmain Cres / Fromelles Ave	N	L	1	6	683	3	A	1,673	5	A
		N	T	680	3						
		N	R	2	4						
		E	R	-	-1	103	9	A			
		E	T	7	3						
		E	L	96	10						
		S	L	33	6	821	4	A			
		S	T	724	4						
		S	R	64	5						

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		W	L	46	6	66	7	A			
		W	T	9	3						
		W	R	11	17						
14	HLD / Hermies Ave	N	L	5	5	789	2	A	1,931	4	A
		N	T	784	2						
		E	L	309	14	309	14	A			
		E	R	-	-1						
		S	T	823	1	833	1	A			
		S	R	10	4						
15	HLD / Pozieres Ave	N	T	1,039	4	1,091	7	A	2,111	13	A
		N	R	52	69						
		S	L	73	13	841	12	A			
		S	T	768	11						
		W	L	67	43	179	56	D			
		W	R	112	64						
16	HLD / Swestern Motorway 2	N	T	712	3	990	29	C	1,867	29	C
		N	R	278	95						
		E	R	308	50	335	47	D			
		E	T	-	-1						
		E	L	27	4						
		S	L	251	3	542	18	B			
		S	T	291	31						
17	HLD / Swestern Motorway 1	N	L	301	2	1,144	26	B	2,177	20	B
		N	T	843	35						
		S	T	559	3	597	6	A			
		S	R	38	41						
		W	L	283	4	436	19	B			
		W	T	-	-1						
		W	R	153	46						
18	Murray Jones Dr / Newbridge Rd	N	L	5	70	6	74	F	3,179	3	A
		N	R	1	96						
		E	T	1,442	1	1,448	1	A			
		E	R	6	24						
		W	L	11	12	1,725	4	A			
		W	T	1,714	4						
19	Ashford Ave / Newbridge Rd	E	L	117	16	1,481	14	A	3,482	23	B
		E	T	1,364	14						
		S	L	84	73	291	135	F			
		S	R	207	161						
		W	T	1,403	2	1,710	11	A			
		W	R	307	53						
20	Georges Ces / HLD	N	L	6	2	1,048	3	A	2,172	5	A
		N	T	1,042	3						
		E	L	2	15	2	15	B			
		S	T	1,122	6	1,122	6	A			
		S	R	-	2						
21	HLD Reserve Rd / HLD	N	T	1,038	7	1,038	7	A	2,165	5	A
		N	R	-	9						
		S	L	4	4	1,126	3	A			

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		S	T	1,122	3						
		W	L	-	2	1	63	E			
		W	R	1	63						
22	Beale St / HLD	N	L	-	-1	1,032	11	A	2,160	7	A
		N	T	1,032	11						
		E	L	-	-1	-		#N/A			
		E	R	-	-1						
		S	T	1,128	2	1,128	2	A			
		S	R	-	20						
23	Endevour Rd / HLD	N	L	-	-1	1,016	10	A	1,019	11	A
		N	T	1,016	10						
		E	L	3	15	3	15	B			
24	Golf course Rd / HLD	N	L	1	5	1,125	5	A	2,280	7	A
		N	T	1,124	5						
		E	L	5	29	14	52	D			
		E	R	9	65						
		S	T	1,137	7	1,141	7	A			
		S	R	4	7						

Weekend Model
Time period: 12:30 PM - 01:30 PM
Year: 2022

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	Flinders Rd / HLD	N	L	13	4	956	3	A	2,242	5	A
		N	T	943	3						
		E	L	100	14	107	16	B			
		E	R	7	54						
		S	T	1,090	3	1,179	4	A			
		S	R	89	13						
2	Haig Ave / HLD	N	L	18	20	1,037	22	B	2,407	34	C
		N	T	1,019	22						
		E	L	76	177	169	248	F			
		E	R	93	306						
		S	T	1,094	11	1,201	13	A			
		S	R	107	31						
3	Rabaul Rd / HLD	N	L	2	3	1,106	2	A	2,371	5	A
		N	T	1,104	2						
		N	R	-	-1						
		E	R	-	-1	34	24	B			
		E	T	-	-1						
		E	L	34	24						
		S	L	2	10	1,230	6	A			
		S	T	1,195	6						
		S	R	33	14						
		W	L	1	17	1	17	B			
		W	T	-	-1						
		W	R	-	-1						
4	HLD / Tower Rd	N	L	33	21	1,144	23	B	2,880	25	B
		N	T	1,111	23						
		E	L	245	44	279	46	D			
		E	R	34	60						
		S	T	1,197	6	1,457	22	B			
		S	R	260	92						
5	Henry Lawson Dr / Newbridge Rd / Milperra Rd	N	L	409	3	1,361	37	C	5,858	102	F
		N	T	490	46						
		N	R	462	58						
		E	L	94	10	1,396	184	F			
		E	T	985	78						
		E	R	317	564						
		S	L	363	14	989	46	D			
		S	T	567	63						
		S	R	59	74						
		W	L	575	72	2,112	114	F			
		W	T	1,118	125						
		W	R	419	143						
6	Auld Ave / HLD	N	T	996	6	1,000	6	A	1,997	5	A
		N	R	4	7						
		S	L	4	4	968	2	A			
		S	T	964	2						

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		W	L	16	14	29	27	B			
		W	R	13	42						
7	HLD / Keys Pde/Flower power	N	L	264	5	1,000	9	A	2,075	17	B
		N	T	736	11						
		E	L	83	4	409	49	D			
		E	R	326	60						
		S	R	68	12	666	6	A			
		S	T	598	6						
		W	R	#N/A		#N/A		#N/A			
		W	L	#N/A							
8	Raleigh Rd / HLD	N	T	769	3	819	3	A	1,532	3	A
		N	R	50	8						
		S	R	2	3	673	2	A			
		S	T	671	2						
		W	L	40	2	40	2	A			
		W	R	-	1						
9	HLD / Ruthven Ave	N	T	769	2	769	2	A	1,445	2	A
		N	R	-	-1						
		S	L	-	-1	672	1	A			
		S	T	672	1						
		W	L	2	13	4	9	A			
		W	R	2	6						
10	HLD / Whittle Ave	N	L	-	-1	771	3	A	1,441	3	A
		N	T	771	3						
		E	L	-	10	-		#N/A			
		E	R	-	-1						
		S	T	670	1	670	1	A			
		S	R	-	-1						
11	HLD / Amiens Ave	N	T	744	2	774	2	A	1,468	2	A
		N	R	30	4						
		S	L	21	5	681	2	A			
		S	T	660	1						
		W	L	9	6	13	8	A			
		W	R	4	12						
12	HLD / Bullecourt Ave	N	L	93	7	748	23	B	1,601	23	B
		N	T	655	25						
		E	L	81	27	208	61	E			
		E	R	127	83						
		S	T	553	5	645	10	A			
		S	R	92	41						
13	HLD / Ganmain Cres / Fromelles Ave	N	L	-	4	736	3	A	1,625	5	A
		N	T	727	3						
		N	R	9	4						
		E	R	1	5	107	10	A			
		E	T	6	5						
		E	L	100	11						
		S	L	59	6	710	5	A			
		S	T	593	4						
		S	R	58	5						

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		W	L	50	7	72	9	A			
		W	T	7	1						
		W	R	15	18						
14	HLD / Hermies Ave	N	L	3	5	842	3	A	1,785	4	A
		N	T	839	3						
		E	L	220	14	220	14	A			
		E	R	-	-1						
		S	T	710	1	723	1	A			
		S	R	13	2						
15	HLD / Pozieres Ave	N	T	1,029	3	1,061	5	A	1,949	12	A
		N	R	32	51						
		S	L	78	14	768	13	A			
		S	T	690	13						
		W	L	32	44	120	59	E			
		W	R	88	65						
16	HLD / Swestern Motorway 2	N	T	580	3	842	32	C	1,599	31	C
		N	R	262	97						
		E	R	253	49	279	44	D			
		E	T	-	-1						
		E	L	26	3						
		S	L	178	3	478	20	B			
		S	T	300	30						
17	HLD / Swestern Motorway 1	N	L	400	2	1,120	24	B	2,048	19	B
		N	T	720	37						
		S	T	515	3	553	5	A			
		S	R	38	42						
		W	L	253	4	375	19	B			
		W	T	-	-1						
		W	R	122	52						
18	Murray Jones Dr / Newbridge Rd	N	L	8	74	18	73	F	3,128	4	A
		N	R	10	73						
		E	T	1,512	2	1,518	2	A			
		E	R	6	24						
		W	L	13	13	1,592	3	A			
		W	T	1,579	3						
19	Ashford Ave / Newbridge Rd	E	L	142	18	1,516	14	A	3,449	52	D
		E	T	1,374	14						
		S	L	148	280	348	393	F			
		S	R	200	478						
		W	T	1,296	2	1,585	11	A			
		W	R	289	53						
20	Georges Ces / HLD	N	L	-	-1	1,041	3	A	2,223	6	A
		N	T	1,041	3						
		E	L	-	-1	-		#N/A			
		S	T	1,182	7	1,182	7	A			
		S	R	-	-1						
21	HLD Reserve Rd / HLD	N	T	1,039	7	1,039	7	A	2,227	5	A
		N	R	-	-1						
		S	L	2	4	1,187	3	A			

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
		S	T	1,185	3						
		W	L	-	2	1	35	C			
		W	R	1	35						
22	Beale St / HLD	N	L	5	16	1,044	10	A	2,234	6	A
		N	T	1,039	10						
		E	L	1	2	1	2	A			
		E	R	-	-1						
		S	T	1,188	2	1,189	2	A			
		S	R	1	27						
23	Endevour Rd / HLD	N	L	-	-1	1,021	9	A	1,030	10	A
		N	T	1,021	9						
		E	L	9	14	9	14	A			
24	Golf course Rd / HLD	N	L	1	6	1,139	5	A	2,381	7	A
		N	T	1,138	5						
		E	L	9	33	15	56	D			
		E	R	6	92						
		S	T	1,224	7	1,227	7	A			
		S	R	3	8						

Document prepared by

Aurecon Australasia Pty Ltd
ABN 54 005 139 873
Level 5, 116 Military Road
Neutral Bay NSW 2089
PO Box 538
Neutral Bay NSW 2089
Australia

T +61 2 9465 5599
F +61 2 9465 5598
E sydney@aurecongroup.com
W aurecongroup.com

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Appendix-B: Option Modelling – Detailed Intersection Level of Service Results

AM Model Do Minimum
Time Period: 7:45-8:45 AM
Year: 2031

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	HLD / Haig Ave	N	L	20	122	1,158	148	F	2,816	101	F
		N	T	1138	148						
		E	L	127	96	342	111	F			
		E	R	215	119						
		S	T	1198	54	1,316	57	E			
		S	R	118	92						
2	HLD / Rabaul Rd	N	L	2	2	1,268	1	A	2,640	21	B
		N	T	1,266	1						
		N	R	-	-1						
		E	R	-	-1	39	28	B			
		E	T	-	-1						
		E	L	39	28						
		S	L	2	43	1,332	39	C			
		S	T	1,330	39						
		S	R	-	-1						
		W	L	1	36	1	36	C			
		W	T	-	-1						
		W	R	-	-1						
3	HLD / Tower Rd	N	L	8	18	1,287	22	B	3,298	30	C
		N	T	1,279	23						
		E	L	132	1	197	22	B			
		E	R	65	63						
		S	T	1,343	8	1,814	35	C			
		S	R	471	114						
4	HLD/ Milperra Rd	N	L	452	14	1,246	41	C	7,154	223	F
		N	T	497	38						
		N	R	297	88						
		E	L	58	199	1,544	287	F			
		E	T	1,143	282						
		E	R	343	320						
		S	L	438	16	1,161	56	D			
		S	T	635	83						
		S	R	88	58						
		W	L	853	331	3,203	323	F			
		W	T	1,873	339						
		W	R	477	245						
5	HLD / Keys Pde/Flower power	N	L	68	5	1,058	9	A	2,333	31	C
		N	R	3	71						
		N	T	987	9						
		E	L	15	1	42	34	C			
		E	T	-	-1						
		E	R	27	53						
		S	R	20	71	1,128	47	D			
		S	L	1	10						
		S	T	1,107	47						
		W	R	59	52	105	56	D			
		W	T	-	-1						
		W	L	46	62						
6	HLD / Bullecourt Ave	N	L	205	14	994	30	C	2,546	31	C
		N	T	789	35						
		E	L	133	34	195	57	E			
		E	R	62	107						
		S	T	1,013	14	1,357	26	B			
		S	R	344	61						
7	HLD / Pozieres Ave	N	T	991	4	1,025	5	A	2,707	18	B
		N	R	34	45						
		S	L	102	12	1,413	13	A			
		S	T	1,311	13						
		W	L	87	71	269	84	F			
		W	R	182	90						
8	Milperra Rd / Murray Jones Dr	N	L	12	80	17	82	F	4,184	43	D
		N	R	5	85						
		E	T	1,800	2	1,808	2	A			
		E	R	8	29						
		W	L	11	23	2,359	73	F			
		W	T	2,348	73						
9	Milperra Rd / Ashford Ave	E	L	214	43	1,724	37	C	4,622	47	D
		E	T	1,510	36						
		S	L	310	82	567	118	F			
		S	R	257	161						
		W	T	2,039	17	2,331	38	C			
		W	R	292	178						

AM Model Option Scenario
Time Period: 7:45-8:45 AM
Year: 2031

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	HLD/ Haig Ave	N	L	18	114	1,192	131	F	2,832	100	F
		N	T	1173.8	132						
		E	L	121.2	111	317	126	F			
		E	R	196	136						
		S	T	1203.8	61	1,323	65	E			
		S	R	119	103						
2	HLD/ Rabaul Rd	N	L	4	2	1,295	1	A	2,684	25	B
		N	T	1,291	1						
		N	R	-	-1						
		E	R	-	-1	44	27	B			
		E	T	-	-1						
		E	L	44	27						
		S	L	2	42	1,341	47	D			
		S	T	1,339	47						
		S	R	-	-1						
		W	L	1	23	4	23	B			
		W	T	1	23						
		W	R	1	23						
3	HLD / Tower Rd	N	L	6	18	1,324	24	B	3,329	37	C
		N	T	1,319	24						
		E	L	141	13	208	28	B			
		E	R	68	59						
		S	T	1,334	12	1,796	47	D			
		S	R	462	146						
4	HLD / Milperra Rd	N	L	540	22	1,421	54	D	7,446	198	F
		N	T	574	50						
		N	R	308	118						
		E	L	65	144	1,555	229	F			
		E	T	1,147	226						
		E	R	343	255						
		S	L	489	10	1,273	48	D			
		S	T	656	74						
		S	R	129	55						
		W	L	835	327	3,197	306	F			
		W	T	1,888	316						
		W	R	474	234						
5	HLD / Keys Pde/Flower power	N	L	72	14	1,114	35	C	2,461	33	C
		N	R	39	78						
		N	T	1,003	35						
		E	L	12	8	44	39	C			
		E	T	12	51						
		E	R	20	52						
		S	R	20	35	1,169	27	B			
		S	L	128	15						
		S	T	1,021	29						
		W	R	75	54	134	56	D			
		W	T	-	-1						
		W	L	59	60						
6	HLD / Bullecourt Ave	N	L	250	19	1,081	25	B	2,807	19	B
		N	T	831	27						
		E	L	163	6	274	26	B			
		E	R	111	54						
		S	T	1,084	4	1,453	13	A			
		S	R	369	39						
7	HLD / Pozieres Ave	N	T	1,025	2	1,052	3	A	2,728	18	B
		N	R	27	40						
		S	L	96	7	1,397	12	A			
		S	T	1,300	12						
		W	L	98	87	279	97	F			
		W	R	181	102						
8	Murray Jones Dr / Milperra Rd	N	L	9	72	15	68	E	4,259	14	A
		N	R	6	61						
		E	T	1,751	2	1,758	2	A			
		E	R	7	43						
		W	L	13	10	2,486	21	B			
		W	T	2,473	21						
9	Ashford Ave / Milperra Rd	E	L	212	25	1,718	21	B	4,669	30	C
		E	T	1,506	20						
		S	L	258	51	487	83	F			
		S	R	229	119						
		W	T	2,142	11	2,464	26	B			
		W	R	321	125						

AM Model Do Minimum
Time Period: 8:45-9:45 AM
Year: 2031

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	HLD / Haig Ave	N	L	30	115	1,316	125	F	2,935	100	F
		N	T	1,286	125						
		E	L	74	163	197	213	F			
		E	R	123	243						
		S	T	1,281	57	1,422	61	E			
		S	R	141	101						
2	HLD / Rabaul Rd	N	L	5	3	1,457	1	A	2,904	23	B
		N	T	1,452	1						
		N	R	-	-1						
		E	R	-	-1	30	29	C			
		E	T	-	-1						
		E	L	30	29						
		S	L	2	39	1,416	44	D			
		S	T	1,414	44						
		S	R	-	-1						
		W	L	1	19	1	19	B			
		W	T	-	-1						
		W	R	-	-1						
3	HLD / Tower Rd	N	L	13	37	1,439	41	C	3,400	39	C
		N	T	1,426	41						
		E	L	175	2	235	19	B			
		E	R	60	70						
		S	T	1,299	27	1,726	38	C			
		S	R	427	73						
4	HLD/ Milperra Rd	N	L	459	38	1,409	57	E	6,809	355	F
		N	T	633	46						
		N	R	317	106						
		E	L	86	362	1,788	409	F			
		E	T	1,324	438						
		E	R	378	319						
		S	L	445	14	1,177	52	D			
		S	T	646	76						
		S	R	86	64						
		W	L	689	602	2,435	634	F			
		W	T	1,352	661						
		W	R	394	596						
5	HLD / Keys Pde/Flower power	N	L	186	6	1,140	11	A	2,509	33	C
		N	R	6	76						
		N	T	948	11						
		E	L	96	1	199	28	B			
		E	T	-	-1						
		E	R	103	54						
		S	R	65	66	1,077	54	D			
		S	L	1	26						
		S	T	1,011	53						
		W	R	51	58	93	56	D			
		W	T	-	-1						
		W	L	42	53						
6	HLD / Bullecourt Ave	N	L	310	17	1,051	29	C	2,467	46	D
		N	T	741	34						
		E	L	84	70	230	168	F			
		E	R	146	224						
		S	T	883	21	1,186	36	C			
		S	R	303	79						
7	HLD / Pozieres Ave	N	T	888	3	916	5	A	2,376	32	C
		N	R	28	51						
		S	L	120	44	1,230	40	C			
		S	T	1,110	40						
		W	L	90	80	230	93	F			
		W	R	140	101						
8	Milperra Rd / Murray Jones Dr	N	L	10	86	77	112	F	3,620	159	F
		N	R	67	116						
		E	T	1,593	4	1,600	4	A			
		E	R	7	35						
		W	L	12	119	1,943	288	F			
		W	T	1,931	289						
9	Milperra Rd / Ashford Ave	E	L	192	101	1,593	80	F	3,973	80	F
		E	T	1,401	78						
		S	L	190	126	443	206	F			
		S	R	253	266						
		W	T	1,684	22	1,937	49	D			
		W	R	253	235						

AM Option Scenario
Time Period: 8:45-9:45 AM
Year: 2031

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	HLD/ Haig Ave	N	L	32	80	1,299	94	F	2,978	81	F
		N	T	1,267	95						
		E	L	71	159	198	214	F			
		E	R	126	245						
		S	T	1,342	46	1,481	50	D			
		S	R	139	86						
2	HLD/ Rabaul Rd	N	L	6	2	1,462	1	A	2,972	19	B
		N	T	1,456	1						
		N	R	-	-1						
		E	R	-	-1	29	34	C			
		E	T	-	-1						
		E	L	29	34						
		S	L	3	28	1,481	35	C			
		S	T	1,478	35						
		S	R	-	-1						
		W	L	-	-1	-		#N/A			
		W	T	-	-1						
		W	R	-	-1						
3	HLD / Tower Rd	N	L	9	40	1,516	45	D	3,598	43	D
		N	T	1,507	45						
		E	L	188	20	252	34	C			
		E	R	64	73						
		S	T	1,335	20	1,831	42	C			
		S	R	496	102						
4	HLD / Milperra Rd	N	L	618	30	1,686	71	F	7,834	321	F
		N	T	710	58						
		N	R	358	168						
		E	L	180	241	1,982	297	F			
		E	T	1,405	331						
		E	R	397	203						
		S	L	471	31	1,186	133	F			
		S	T	606	224						
		S	R	109	67						
		W	L	809	560	2,980	552	F			
		W	T	1,673	527						
		W	R	497	621						
5	HLD / Keys Pde/Flower power	N	L	199	15	1,387	34	C	2,870	36	C
		N	R	43	73						
		N	T	1,144	35						
		E	L	68	7	210	39	C			
		E	T	61	51						
		E	R	81	56						
		S	R	65	41	1,128	32	C			
		S	L	132	13						
		S	T	931	34						
		W	R	102	83	145	78	F			
		W	T	-	-1						
		W	L	44	67						
6	HLD / Bullecourt Ave	N	L	396	66	1,319	39	C	2,810	45	D
		N	T	923	28						
		E	L	97	6	308	43	D			
		E	R	212	60						
		S	T	931	5	1,183	50	D			
		S	R	252	219						
7	HLD / Pozieres Ave	N	T	1,008	2	1,037	3	A	2,460	16	B
		N	R	29	35						
		S	L	121	7	1,196	13	A			
		S	T	1,075	14						
		W	L	86	79	227	86	F			
		W	R	141	90						
8	Murray Jones Dr / Milperra Rd	N	L	8	62	79	164	F	4,279	68	E
		N	R	71	175						
		E	T	1,839	2	1,846	2	A			
		E	R	7	26						
		W	L	17	73	2,354	115	F			
		W	T	2,337	115						
9	Ashford Ave / Milperra Rd	E	L	120	153	1,783	46	D	4,549	43	D
		E	T	1,662	38						
		S	L	186	49	418	91	F			
		S	R	231	124						
		W	T	2,148	15	2,348	31	C			
		W	R	200	204						

PM Model Do Minimum
Time Period: 15:30-16:30 PM
Year: 2031

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	HLD / Haig Ave	N	L	6	406	684	445	F	2,422	184	F
		N	T	678	445						
		E	L	231	120	385	111	F			
		E	R	154	98						
		S	T	1252	68	1,353	73	F			
		S	R	101	126						
2	HLD / Rabaul Rd	N	L	2	179	894	105	F	2,398	78	F
		N	T	892	105						
		N	R	-	-1						
		E	R	1	135	128	156	F			
		E	T	-	-1						
		E	L	127	156						
		S	L	5	57	1,372	53	D			
		S	T	1,367	53						
		S	R	-	-1						
		W	L	4	17	4	17	B			
		W	T	-	-1						
		W	R	-	-1						
3	HLD / Tower Rd	N	L	14	14	958	24	B	2,962	22	B
		N	T	944	24						
		E	L	256	1	484	30	C			
		E	R	228	62						
		S	T	1,235	6	1,520	17	B			
		S	R	285	65						
4	HLD/ Milperra Rd	N	L	307	16	921	81	F	6,882	333	F
		N	T	296	84						
		N	R	318	142						
		E	L	129	404	1,886	421	F			
		E	T	1,371	469						
		E	R	386	255						
		S	L	706	42	1,185	46	D			
		S	T	430	51						
		S	R	49	68						
		W	L	715	412	2,890	473	F			
		W	T	1,501	396						
		W	R	674	711						
5	HLD / Keys Pde/Flower power	N	L	273	5	1,110	9	A	2,412	29	C
		N	R	2	77						
		N	T	835	10						
		E	L	71	1	140	26	B			
		E	T	-	-1						
		E	R	69	53						
		S	R	25	105	1,140	48	D			
		S	L	1	36						
		S	T	1,114	47						
		W	R	10	53	22	58	E			
		W	T	-	-1						
		W	L	12	62						
6	HLD / Bullecourt Ave	N	L	119	6	820	18	B	2,354	41	C
		N	T	701	20						
		E	L	180	71	424	101	F			
		E	R	244	123						
		S	T	973	24	1,110	35	C			
		S	R	137	112						
7	HLD / Pozieres Ave	N	T	1,026	4	1,062	6	A	2,464	19	B
		N	R	36	64						
		S	L	114	32	1,257	24	B			
		S	T	1,143	24						
		W	L	60	45	145	53	D			
		W	R	85	58						
8	Milperra Rd / Murray Jones Dr	N	L	23	62	32	90	F	4,242	16	B
		N	R	9	161						
		E	T	2,234	22	2,234	22	B			
		E	R	-	-1						
		W	L	1	10	1,976	7	A			
		W	T	1,975	7						
9	Milperra Rd / Ashford Ave	E	L	168	178	2,061	170	F	4,571	114	F
		E	T	1,893	169						
		S	L	363	223	517	211	F			
		S	R	154	183						
		W	T	1,770	21	1,993	30	C			
		W	R	223	109						

PM Model Option Scenario
Time Period: 15:30-16:30 PM
Year: 2031

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	HLD/ Haig Ave	N	L	6	427	715	418	F	2,515	161	F
		N	T	709	418						
		E	L	222	93	361	123	F			
		E	R	139	172						
		S	T	1326	40	1,439	42	C			
		S	R	113	66						
2	HLD/ Rabaul Rd	N	L	1	214	921	66	E	2,510	50	D
		N	T	920	66						
		N	R	-	-1						
		E	R	2	180	123	171	F			
		E	T	-	-1						
		E	L	121	171						
		S	L	6	34	1,451	29	C			
		S	T	1,445	29						
		S	R	-	-1						
		W	L	5	34	15	34	C			
		W	T	5	34						
		W	R	5	34						
3	HLD / Tower Rd	N	L	15	15	975	22	B	3,045	19	B
		N	T	960	22						
		E	L	255	7	479	33	C			
		E	R	224	62						
		S	T	1,280	4	1,591	12	A			
		S	R	311	44						
4	HLD / Milperra Rd	N	L	400	9	1,176	86	F	7,354	325	F
		N	T	371	66						
		N	R	405	180						
		E	L	111	459	1,865	478	F			
		E	T	1,380	533						
		E	R	374	279						
		S	L	835	29	1,378	58	E			
		S	T	487	106						
		S	R	56	64						
		W	L	743	408	2,935	449	F			
		W	T	1,502	356						
		W	R	690	694						
5	HLD / Keys Pde/Flower power	N	L	266	5	1,155	8	A	2,689	18	B
		N	R	76	72						
		N	T	813	3						
		E	L	56	3	133	36	C			
		E	T	12	56						
		E	R	65	60						
		S	R	34	95	1,330	21	B			
		S	L	22	26						
		S	T	1,274	19						
		W	R	32	76	71	76	F			
		W	T	-	-1						
		W	L	39	77						
6	HLD / Bullecourt Ave	N	L	208	6	907	12	A	2,748	19	B
		N	T	699	13						
		E	L	190	5	560	36	C			
		E	R	370	52						
		S	T	1,055	9	1,281	15	B			
		S	R	226	45						
7	HLD / Pozieres Ave	N	T	1,046	2	1,084	4	A	2,568	10	A
		N	R	38	51						
		S	L	132	8	1,340	10	A			
		S	T	1,208	10						
		W	L	62	43	144	48	D			
		W	R	82	53						
8	Murray Jones Dr / Milperra Rd	N	L	25	78	30	122	F	4,194	28	B
		N	R	5	343						
		E	T	2,210	46	2,210	46	D			
		E	R	-	-1						
		W	L	-	13	1,954	6	A			
		W	T	1,954	6						
9	Ashford Ave / Milperra Rd	E	L	195	231	2,120	231	F	4,581	151	F
		E	T	1,925	231						
		S	L	335	305	495	288	F			
		S	R	160	253						
		W	T	1,808	23	1,966	28	B			
		W	R	158	87						

PM Model Do Minimum
Time Period: 16:30-17:30 PM
Year: 2031

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	HLD / Haig Ave	N	L	4	955	447	1008	F	2,146	286	F
		N	T	443	1008						
		E	L	166	191	268	159	F			
		E	R	102	106						
		S	T	1,319	79	1,431	83	F			
		S	R	112	136						
2	HLD / Rabaul Rd	N	L	2	255	891	133	F	2,495	96	F
		N	T	889	133						
		N	R	-	-1						
		E	R	2	154	161	193	F			
		E	T	-	-1						
		E	L	159	193						
		S	L	6	61	1,440	61	E			
		S	T	1,434	61						
		S	R	-	-1						
		W	L	3	20	3	20	B			
		W	T	-	-1						
		W	R	-	-1						
3	HLD / Tower Rd	N	L	18	13	813	22	B	2,993	41	C
		N	T	795	22						
		E	L	448	2	644	30	C			
		E	R	196	93						
		S	T	1,283	51	1,536	55	D			
		S	R	253	71						
4	HLD/ Milperra Rd	N	L	235	17	803	91	F	7,039	475	F
		N	T	264	85						
		N	R	304	153						
		E	L	132	665	1,804	683	F			
		E	T	1,366	739						
		E	R	306	442						
		S	L	849	31	1,400	63	E			
		S	T	481	118						
		S	R	70	70						
		W	L	802	592	3,032	641	F			
		W	T	1,532	502						
		W	R	698	1004						
5	HLD / Keys Pde/Flower power	N	L	277	5	1,150	9	A	2,699	46	D
		N	R	1	80						
		N	T	872	11						
		E	L	112	1	304	37	C			
		E	T	-	-1						
		E	R	192	59						
		S	R	14	90	1,216	81	F			
		S	L	-	-1						
		S	T	1,202	81						
		W	R	13	50	29	53	D			
		W	T	-	-1						
		W	L	16	55						
6	HLD / Bullecourt Ave	N	L	184	6	910	17	B	2,455	78	F
		N	T	726	19						
		E	L	247	112	616	151	F			
		E	R	369	177						
		S	T	842	86	929	89	F			
		S	R	87	123						
7	HLD / Pozieres Ave	N	T	1,056	4	1,096	6	A	2,275	84	F
		N	R	40	66						
		S	L	99	166	1,048	168	F			
		S	T	949	168						
		W	L	40	50	131	59	E			
		W	R	91	64						
8	Milperra Rd / Murray Jones Dr	N	L	204	196	213	277	F	4,056	44	D
		N	R	9	2106						
		E	T	1,783	50	1,783	50	D			
		E	R	-	-1						
		W	L	3	11	2,060	13	A			
		W	T	2,057	13						
9	Milperra Rd / Ashford Ave	E	L	160	257	1,720	261	F	4,400	143	F
		E	T	1,560	261						
		S	L	234	323	425	270	F			
		S	R	191	205						
		W	T	2,019	18	2,255	29	C			
		W	R	236	116						

PM Model Option Scenario
Time Period: 16:30-17:30 PM
Year: 2031

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	HLD/ Haig Ave	N	L	2	1122	411	1074	F	2,274	244	F
		N	T	409	1074						
		E	L	189	141	307	149	F			
		E	R	118	163						
		S	T	1,434	40	1,556	43	D			
		S	R	122	70						
2	HLD/ Rabaul Rd	N	L	2	285	874	133	F	2,608	79	F
		N	T	872	132						
		N	R	-	-1						
		E	R	2	155	159	255	F			
		E	T	-	-1						
		E	L	157	257						
		S	L	6	29	1,566	30	C			
		S	T	1,560	30						
		S	R	-	-1						
		W	L	3	17	9	17	B			
		W	T	3	17						
		W	R	3	17						
3	HLD / Tower Rd	N	L	18	11	808	20	B	3,133	19	B
		N	T	790	21						
		E	L	432	7	639	29	C			
		E	R	207	75						
		S	T	1,411	5	1,686	13	A			
		S	R	275	51						
4	HLD / Milperra Rd	N	L	454	10	1,237	101	F	7,696	456	F
		N	T	328	63						
		N	R	455	219						
		E	L	91	707	1,783	707	F			
		E	T	1,378	774						
		E	R	314	412						
		S	L	920	41	1,548	128	F			
		S	T	516	300						
		S	R	112	59						
		W	L	856	596	3,128	614	F			
		W	T	1,558	457						
		W	R	714	977						
5	HLD / Keys Pde/Flower power	N	L	267	5	1,131	10	A	2,883	53	D
		N	R	86	72						
		N	T	778	4						
		E	L	115	3	299	38	C			
		E	T	13	54						
		E	R	171	60						
		S	R	12	103	1,385	89	F			
		S	L	28	135						
		S	T	1,345	88						
		W	R	38	65	68	69	E			
		W	T	-	-1						
		W	L	30	73						
6	HLD / Bullecourt Ave	N	L	276	6	942	10	A	2,890	22	B
		N	T	666	12						
		E	L	265	6	783	42	C			
		E	R	518	60						
		S	T	1,026	13	1,165	18	B			
		S	R	139	53						
7	HLD / Pozieres Ave	N	T	1,027	2	1,061	4	A	2,438	10	A
		N	R	34	63						
		S	L	119	7	1,240	9	A			
		S	T	1,121	10						
		W	L	47	51	137	56	D			
		W	R	90	58						
8	Murray Jones Dr / Milperra Rd	N	L	47	1057	49	1190	F	3,950	57	E
		N	R	2	4317						
		E	T	1,775	86	1,775	86	F			
		E	R	-	-1						
		W	L	2	8	2,126	6	A			
		W	T	2,124	6						
9	Ashford Ave / Milperra Rd	E	L	192	424	1,810	450	F	4,290	217	F
		E	T	1,618	454						
		S	L	167	257	299	202	F			
		S	R	132	133						
		W	T	2,017	20	2,181	25	B			
		W	R	164	82						

Weekend Model Do Minimum
Time Period: 11:30 AM - 12:30 PM
Year: 2031

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	HLD / Haig Ave	N	L	15	137	1,256	148	F	2,969	88	F
		N	T	1,241	148						
		E	L	125	84	332	98	F			
		E	R	207	106						
		S	T	1,250	27	1,381	31	C			
		S	R	131	70						
2	HLD / Rabaul Rd	N	L	2	2	1,369	1	A	2,806	8	A
		N	T	1,367	1						
		N	R	-	-1						
		E	R	-	-1	36	31	C			
		E	T	-	-1						
		E	L	36	31						
		S	L	4	17	1,400	14	A			
		S	T	1,396	14						
		S	R	-	-1						
		W	L	1	36	1	36	C			
		W	T	-	-1						
		W	R	-	-1						
3	HLD / Tower Rd	N	L	27	20	1,384	25	B	3,356	19	B
		N	T	1,357	25						
		E	L	198	1	231	10	A			
		E	R	33	63						
		S	T	1,397	4	1,741	15	B			
		S	R	344	57						
4	HLD/ Milperra Rd	N	L	303	15	1,328	40	C	7,144	70	E
		N	T	700	36						
		N	R	325	71						
		E	L	171	11	2,146	43	D			
		E	T	1,394	32						
		E	R	581	78						
		S	L	402	22	1,116	41	C			
		S	T	565	49						
		S	R	149	62						
		W	L	602	79	2,554	121	F			
		W	T	1,554	108						
		W	R	398	235						
5	HLD / Keys Pde/Flower power	N	L	399	5	1,289	6	A	2,762	19	B
		N	R	4	49						
		N	T	886	6						
		E	L	227	1	499	39	C			
		E	T	-	-1						
		E	R	272	71						
		S	R	65	38	881	20	B			
		S	L	1	15						
		S	T	815	19						
		W	R	50	52	93	53	D			
		W	T	-	-1						
		W	L	43	55						
6	HLD / Bullecourt Ave	N	L	330	9	1,054	29	C	2,175	25	B
		N	T	724	39						
		E	L	137	28	241	36	C			
		E	R	104	47						
		S	T	750	9	880	15	B			
		S	R	130	47						
7	HLD / Pozieres Ave	N	T	1,225	4	1,276	7	A	2,493	13	A
		N	R	51	64						
		S	L	103	10	1,011	10	A			
		S	T	908	10						
		W	L	74	52	206	63	E			
		W	R	132	70						
8	Milperra Rd / Murray Jones Dr	N	L	7	62	9	64	E	4,313	4	A
		N	R	2	71						
		E	T	2,162	1	2,172	1	A			
		E	R	10	32						
		W	L	13	11	2,132	6	A			
		W	T	2,119	6						
9	Milperra Rd / Ashford Ave	E	L	114	117	1,874	107	F	4,702	61	E
		E	T	1,760	106						
		S	L	422	47	708	68	E			
		S	R	286	99						
		W	T	1,755	7	2,120	16	B			
		W	R	365	61						

Weekend Model Option Scenario
Time Period: 11:30 AM - 12:30 PM
Year: 2031

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	HLD/ Haig Ave	N	L	16	156	1,247	158	F	2,957	93	F
		N	T	1,231	158						
		E	L	134	88	341	99	F			
		E	R	207	107						
		S	T	1,239	26	1,369	31	C			
		S	R	130	71						
2	HLD/ Rabaul Rd	N	L	3	2	1,372	1	A	2,789	8	A
		N	T	1,369	1						
		N	R	-	-1						
		E	R	-	-1	34	29	C			
		E	T	-	-1						
		E	L	34	29						
		S	L	1	19	1,380	14	A			
		S	T	1,379	14						
		S	R	-	-1						
		W	L	1	29	3	29	C			
		W	T	1	29						
		W	R	1	29						
3	HLD / Tower Rd	N	L	29	22	1,371	25	B	3,309	22	B
		N	T	1,342	25						
		E	L	190	15	225	22	B			
		E	R	35	61						
		S	T	1,369	9	1,713	18	B			
		S	R	344	57						
4	HLD / Milperra Rd	N	L	415	17	1,489	49	D	7,298	67	E
		N	T	748	52						
		N	R	326	87						
		E	L	151	14	2,123	45	D			
		E	T	1,452	42						
		E	R	520	62						
		S	L	395	23	1,100	44	D			
		S	T	616	57						
		S	R	89	49						
		W	L	588	76	2,586	104	F			
		W	T	1,604	106						
		W	R	394	137						
5	HLD / Keys Pde/Flower power	N	L	415	16	1,293	30	C	2,602	32	C
		N	R	55	88						
		N	T	823	33						
		E	L	161	5	461	54	D			
		E	T	-	-1						
		E	R	300	80						
		S	R	68	45	770	18	B			
		S	L	26	4						
		S	T	676	16						
		W	R	57	54	78	55	D			
		W	T	-	-1						
		W	L	21	58						
6	HLD / Bullecourt Ave	N	L	313	27	1,021	30	C	2,407	23	B
		N	T	708	31						
		E	L	268	6	389	22	B			
		E	R	121	57						
		S	T	719	5	997	16	B			
		S	R	278	45						
7	HLD / Pozieres Ave	N	T	1,226	3	1,279	5	A	2,445	12	A
		N	R	53	52						
		S	L	89	5	974	10	A			
		S	T	885	10						
		W	L	72	51	192	62	E			
		W	R	120	68						
8	Murray Jones Dr / Milperra Rd	N	L	8	74	10	70	E	4,233	6	A
		N	R	2	50						
		E	T	2,151	2	2,158	2	A			
		E	R	7	36						
		W	L	15	11	2,065	8	A			
		W	T	2,050	8						
9	Ashford Ave / Milperra Rd	E	L	165	31	2,011	25	B	4,694	31	C
		E	T	1,846	25						
		S	L	326	66	626	90	F			
		S	R	300	116						
		W	T	1,739	7	2,057	17	B			
		W	R	318	68						

Weekend Model Do Minimum
Time Period: 12:30 - 01:30 PM
Year: 2031

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	HLD / Haig Ave	N	L	21	126	1,458	135	F	3,272	87	F
		N	T	1,437	135						
		E	L	93	149	207	192	F			
		E	R	114	228						
		S	T	1,472	25	1,607	29	C			
		S	R	135	72						
2	HLD / Rabaul Rd	N	L	4	2	1,554	1	A	3,189	8	A
		N	T	1,550	1						
		N	R	-	-1						
		E	R	-	-1	32	40	C			
		E	T	-	-1						
		E	L	32	40						
		S	L	1	5	1,602	14	A			
		S	T	1,601	14						
		S	R	-	-1						
		W	L	1	22	1	22	B			
		W	T	-	-1						
		W	R	-	-1						
3	HLD / Tower Rd	N	L	46	24	1,579	27	B	3,625	21	B
		N	T	1,533	27						
		E	L	118	1	243	36	C			
		E	R	125	68						
		S	T	1,484	4	1,803	13	A			
		S	R	319	54						
4	HLD/ Milperra Rd	N	L	385	15	1,517	44	D	7,506	105	F
		N	T	765	41						
		N	R	367	80						
		E	L	205	23	2,290	82	F			
		E	T	1,467	67						
		E	R	618	140						
		S	L	357	23	961	46	D			
		S	T	500	61						
		S	R	104	57						
		W	L	688	88	2,738	177	F			
		W	T	1,538	129						
		W	R	512	438						
5	HLD / Keys Pde/Flower power	N	L	426	7	1,501	10	A	2,746	18	B
		N	R	5	76						
		N	T	1,070	10						
		E	L	183	1	380	33	C			
		E	T	-	-1						
		E	R	197	62						
		S	R	72	56	773	22	B			
		S	L	-	-1						
		S	T	701	19						
		W	R	52	54	92	57	E			
		W	T	-	-1						
		W	L	40	61						
6	HLD / Bullecourt Ave	N	L	300	10	1,196	29	C	2,173	25	B
		N	T	896	36						
		E	L	113	32	223	42	C			
		E	R	110	51						
		S	T	644	7	754	12	A			
		S	R	110	43						
7	HLD / Pozieres Ave	N	T	1,298	4	1,337	6	A	2,427	12	A
		N	R	39	51						
		S	L	103	13	950	13	A			
		S	T	847	13						
		W	L	40	52	140	64	E			
		W	R	100	68						
8	Milperra Rd / Murray Jones Dr	N	L	10	60	21	71	F	4,429	18	B
		N	R	11	80						
		E	T	2,328	2	2,336	2	A			
		E	R	8	28						
		W	L	16	10	2,072	34	C			
		W	T	2,056	35						
9	Milperra Rd / Ashford Ave	E	L	156	133	2,120	127	F	4,801	83	F
		E	T	1,964	127						
		S	L	371	62	627	94	F			
		S	R	256	140						
		W	T	1,706	12	2,054	34	C			
		W	R	348	140						

Weekend Option Scenario
Time Period: 12:30 - 01:30 PM
Year: 2031

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	HLD/ Haig Ave	N	L	24	121	1,423	138	F	3,271	90	F
		N	T	1,399	138						
		E	L	89	152	202	201	F			
		E	R	113	240						
		S	T	1,504	31	1,646	35	C			
		S	R	142	75						
2	HLD/ Rabaul Rd	N	L	5	2	1,497	1	A	3,178	12	A
		N	T	1,492	1						
		N	R	-	-1						
		E	R	-	-1	32	36	C			
		E	T	-	-1						
		E	L	32	36						
		S	L	1	16	1,649	20	B			
		S	T	1,648	20						
		S	R	-	-1						
		W	L	-	17	-		#N/A			
		W	T	-	17						
		W	R	-	17						
3	HLD / Tower Rd	N	L	42	27	1,484	31	C	3,601	25	B
		N	T	1,442	31						
		E	L	111	16	227	48	D			
		E	R	116	78						
		S	T	1,539	7	1,890	17	B			
		S	R	351	57						
4	HLD / Milperra Rd	N	L	396	19	1,562	58	E	7,398	83	F
		N	T	781	60						
		N	R	385	95						
		E	L	116	79	2,034	133	F			
		E	T	1,356	155						
		E	R	562	91						
		S	L	382	26	1,058	58	E			
		S	T	595	79						
		S	R	81	54						
		W	L	731	51	2,744	67	E			
		W	T	1,518	67						
		W	R	495	93						
5	HLD / Keys Pde/Flower power	N	L	411	16	1,389	28	B	2,582	33	C
		N	R	75	83						
		N	T	903	29						
		E	L	78	6	386	73	F			
		E	T	-	-1						
		E	R	308	89						
		S	R	79	51	736	19	B			
		S	L	21	5						
		S	T	636	15						
		W	R	68	55	71	54	D			
		W	T	-	-1						
		W	L	3	51						
6	HLD / Bullecourt Ave	N	L	203	22	1,065	28	B	2,335	23	B
		N	T	862	30						
		E	L	234	7	390	29	C			
		E	R	156	63						
		S	T	631	4	880	12	A			
		S	R	249	33						
7	HLD / Pozieres Ave	N	T	1,293	2	1,332	4	A	2,427	11	A
		N	R	39	49						
		S	L	100	6	946	12	A			
		S	T	846	12						
		W	L	43	53	149	63	E			
		W	R	106	67						
8	Murray Jones Dr / Milperra Rd	N	L	9	67	22	75	F	4,172	8	A
		N	R	13	80						
		E	T	2,136	2	2,145	2	A			
		E	R	9	31						
		W	L	16	9	2,005	12	A			
		W	T	1,989	12						
9	Ashford Ave / Milperra Rd	E	L	213	31	2,102	25	B	4,632	37	C
		E	T	1,889	25						
		S	L	251	80	533	126	F			
		S	R	282	168						
		W	T	1,670	10	1,997	24	B			
		W	R	327	95						

AM Model Do Minimum
Time Period: 7:45-8:45 AM
Year: 2041

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	HLD / Haig Ave	N	L	19	136	1,173	148	F	2,849	104	F
		N	T	1154	148						
		E	L	137	98	357	112	F			
		E	R	220	120						
		S	T	1207	59	1,319	62	E			
		S	R	112	100						
2	HLD / Rabaul Rd	N	L	3	2	1,295	1	A	2,672	22	B
		N	T	1,292	1						
		N	R	-	-1						
		E	R	-	-1	42	26	B			
		E	T	-	-1						
		E	L	42	26						
		S	L	1	55	1,335	42	C			
		S	T	1,334	42						
		S	R	-	-1						
		W	L	-	20	-		#N/A			
		W	T	-	-1						
		W	R	-	-1						
3	HLD / Tower Rd	N	L	10	21	1,328	24	B	3,311	25	B
		N	T	1,318	24						
		E	L	127	1	198	23	B			
		E	R	71	63						
		S	T	1,317	7	1,785	25	B			
		S	R	468	74						
4	HLD/ Milperra Rd	N	L	478	13	1,286	46	D	7,036	242	F
		N	T	492	35						
		N	R	316	114						
		E	L	63	158	1,580	216	F			
		E	T	1,159	243						
		E	R	358	141						
		S	L	451	17	1,100	58	E			
		S	T	625	66						
		S	R	24	621						
		W	L	815	409	3,070	403	F			
		W	T	1,819	423						
		W	R	436	306						
5	HLD / Keys Pde/Flower power	N	L	72	5	1,016	9	A	2,213	26	B
		N	R	2	80						
		N	T	942	9						
		E	L	15	1	38	32	C			
		E	T	-	-1						
		E	R	23	53						
		S	R	16	71	1,056	38	C			
		S	L	1	21						
		S	T	1,039	37						
		W	R	71	54	103	56	D			
		W	T	-	-1						
		W	L	32	60						
6	HLD / Bullecourt Ave	N	L	212	19	980	32	C	2,490	40	C
		N	T	768	36						
		E	L	144	29	242	51	D			
		E	R	98	83						
		S	T	903	24	1,268	43	D			
		S	R	365	88						
7	HLD / Pozieres Ave	N	T	998	3	1,024	5	A	2,618	35	C
		N	R	26	52						
		S	L	89	34	1,316	36	C			
		S	T	1,227	37						
		W	L	83	136	278	140	F			
		W	R	195	141						
8	Milperra Rd / Murray Jones Dr	N	L	13	82	17	84	F	4,074	29	C
		N	R	4	92						
		E	T	1,754	2	1,763	2	A			
		E	R	9	31						
		W	L	15	8	2,294	47	D			
		W	T	2,279	48						
9	Milperra Rd / Ashford Ave	E	L	203	80	1,690	71	F	4,568	73	F
		E	T	1,487	70						
		S	L	276	144	623	201	F			
		S	R	347	247						
		W	T	1,962	15	2,255	38	C			
		W	R	293	191						

AM Model Option Scenario
Time Period: 7:45-8:45 AM
Year: 2041

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	HLD / Haig Ave	N	L	18	133	1,123	141	F	2,692	103	F
		N	T	1105	141						
		E	L	129	113	344	120	F			
		E	R	215	124						
		S	T	1107	59	1,225	63	E			
		S	R	118	100						
2	HLD / Rabaul Rd	N	L	2	2	1,230	4	A	2,512	25	B
		N	T	1,228	4						
		N	R	-	-1						
		E	R	-	-1	39	35	C			
		E	T	-	-1						
		E	L	39	35						
		S	L	2	46	1,243	44	D			
		S	T	1,241	44						
		S	R	-	-1						
		W	L	-	22	-		#N/A			
		W	T	-	22						
		W	R	-	22						
3	HLD / Tower Rd	N	L	9	24	1,248	49	D	3,148	44	D
		N	T	1,239	49						
		E	L	127	30	204	49	D			
		E	R	77	81						
		S	T	1,242	21	1,696	39	C			
		S	R	454	89						
4	HLD / Milperra Rd	N	L	499	45	1,326	57	E	6,966	217	F
		N	T	537	60						
		N	R	290	71						
		E	L	27	56	1,501	122	F			
		E	T	1,148	136						
		E	R	326	77						
		S	L	484	42	1,104	144	F			
		S	T	586	231						
		S	R	34	115						
		W	L	815	362	3,035	358	F			
		W	T	1,657	338						
		W	R	563	413						
5	HLD / Keys Pde/Flower power	N	L	67	25	1,110	71	F	2,244	69	E
		N	R	38	299						
		N	T	1,005	65						
		E	L	-	-1	39	72	F			
		E	T	14	105						
		E	R	25	54						
		S	R	16	43	993	63	E			
		S	L	66	100						
		S	T	911	61						
		W	R	65	76	102	92	F			
		W	T	-	-1						
		W	L	37	119						
6	HLD / Bullecourt Ave	N	L	312	43	1,040	50	D	2,460	48	D
		N	T	728	53						
		E	L	152	5	383	37	C			
		E	R	231	58						
		S	T	767	6	1,037	49	D			
		S	R	270	169						
7	HLD / Pozieres Ave	N	T	910	2	937	3	A	2,235	25	B
		N	R	27	46						
		S	L	79	12	1,094	28	B			
		S	T	1,015	29						
		W	L	61	104	204	110	F			
		W	R	143	112						
8	Milperra Rd / Murray Jones Dr	N	L	10	141	14	120	F	3,700	28	B
		N	R	4	67						
		E	T	1,568	2	1,574	2	A			
		E	R	6	38						
		W	L	13	64	2,112	47	D			
		W	T	2,099	46						
9	Milperra Rd / Ashford Ave	E	L	195	29	1,692	22	B	4,133	31	C
		E	T	1,497	21						
		S	L	86	97	336	173	F			
		S	R	250	199						
		W	T	1,929	11	2,105	15	B			
		W	R	176	62						

AM Model Do Minimum
Time Period: 8:45-9:45 AM
Year: 2041

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	HLD / Haig Ave	N	L	32	131	1,341	141	F	2,941	97	F
		N	T	1,309	142						
		E	L	67	165	190	218	F			
		E	R	123	247						
		S	T	1,274	33	1,410	37	C			
		S	R	136	75						
2	HLD / Rabaul Rd	N	L	6	3	1,514	1	A	2,944	12	A
		N	T	1,508	1						
		N	R	-	-1						
		E	R	-	-1	28	35	C			
		E	T	-	-1						
		E	L	28	35						
		S	L	2	34	1,401	22	B			
		S	T	1,399	22						
		S	R	-	-1						
		W	L	1	18	1	18	B			
		W	T	-	-1						
		W	R	-	-1						
3	HLD / Tower Rd	N	L	9	46	1,519	45	D	3,470	33	C
		N	T	1,510	45						
		E	L	171	2	234	19	B			
		E	R	63	67						
		S	T	1,279	7	1,717	23	B			
		S	R	438	70						
4	HLD/ Milperra Rd	N	L	500	25	1,506	46	D	6,958	404	F
		N	T	678	37						
		N	R	328	98						
		E	L	77	552	1,556	577	F			
		E	T	1,155	637						
		E	R	324	366						
		S	L	493	15	1,309	73	F			
		S	T	700	107						
		S	R	116	107						
		W	L	681	649	2,587	675	F			
		W	T	1,506	719						
		W	R	400	557						
5	HLD / Keys Pde/Flower power	N	L	181	8	1,177	14	A	2,705	44	D
		N	R	9	84						
		N	T	987	15						
		E	L	101	1	217	29	C			
		E	T	-	-1						
		E	R	116	53						
		S	R	64	80	1,209	73	F			
		S	L	1	90						
		S	T	1,144	73						
		W	R	58	54	102	56	D			
		W	T	-	-1						
		W	L	44	60						
6	HLD / Bullecourt Ave	N	L	236	15	1,083	29	C	2,672	56	D
		N	T	847	33						
		E	L	81	91	262	216	F			
		E	R	181	272						
		S	T	1,020	33	1,327	45	D			
		S	R	307	85						
7	HLD / Pozieres Ave	N	T	996	4	1,026	6	A	2,633	53	D
		N	R	30	57						
		S	L	120	70	1,337	73	F			
		S	T	1,217	73						
		W	L	102	128	270	133	F			
		W	R	168	136						
8	Milperra Rd / Murray Jones Dr	N	L	9	78	41	162	F	3,895	172	F
		N	R	32	185						
		E	T	1,659	26	1,666	26	B			
		E	R	7	29						
		W	L	12	107	2,188	283	F			
		W	T	2,176	284						
9	Milperra Rd / Ashford Ave	E	L	189	169	1,664	160	F	4,349	117	F
		E	T	1,475	158						
		S	L	198	173	504	245	F			
		S	R	306	292						
		W	T	1,845	25	2,181	53	D			
		W	R	336	210						

AM Option Scenario
Time Period: 8:45-9:45 AM
Year: 2041

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	HLD / Haig Ave	N	L	26	140	1,141	167	F	2,608	114	F
		N	T	1,115	167						
		E	L	63	186	171	227	F			
		E	R	108	250						
		S	T	1,181	48	1,296	52	D			
		S	R	115	90						
2	HLD / Rabaul Rd	N	L	3	19	1,291	14	A	2,610	27	B
		N	T	1,288	14						
		N	R	-	-1						
		E	R	-	-1	26	222	F			
		E	T	-	-1						
		E	L	26	222						
		S	L	4	26	1,293	36	C			
		S	T	1,289	36						
		S	R	-	-1						
		W	L	-	64	-		#N/A			
		W	T	-	64						
		W	R	-	64						
3	HLD / Tower Rd	N	L	9	113	1,272	93	F	3,022	67	E
		N	T	1,263	92						
		E	L	155	39	233	54	D			
		E	R	78	84						
		S	T	1,129	42	1,517	48	D			
		S	R	388	64						
4	HLD / Milperra Rd	N	L	537	25	1,418	54	D	6,350	335	F
		N	T	592	57						
		N	R	289	104						
		E	L	47	286	1,534	304	F			
		E	T	1,142	350						
		E	R	345	155						
		S	L	392	23	877	75	F			
		S	T	454	121						
		S	R	31	56						
		W	L	693	621	2,521	600	F			
		W	T	1,371	523						
		W	R	457	798						
5	HLD / Keys Pde/Flower power	N	L	147	28	1,122	82	F	2,077	66	E
		N	R	45	125						
		N	T	930	88						
		E	L	63	11	221	44	D			
		E	T	9	52						
		E	R	149	58						
		S	R	44	59	624	33	C			
		S	L	36	21						
		S	T	544	32						
		W	R	82	134	110	123	F			
		W	T	-	0						
		W	L	28	91						
6	HLD / Bullecourt Ave	N	L	293	59	1,130	52	D	2,097	101	F
		N	T	837	50						
		E	L	107	6	330	48	D			
		E	R	223	69						
		S	T	378	9	637	213	F			
		S	R	259	511						
7	HLD / Pozieres Ave	N	T	940	2	973	3	A	1,690	120	F
		N	R	33	42						
		S	L	57	136	636	268	F			
		S	T	579	281						
		W	L	24	589	81	340	F			
		W	R	57	236						
8	Milperra Rd / Murray Jones Dr	N	L	8	69	67	113	F	3,626	16	B
		N	R	59	119						
		E	T	1,619	2	1,624	2	A			
		E	R	5	33						
		W	L	14	19	1,935	23	B			
		W	T	1,921	23						
9	Milperra Rd / Ashford Ave	E	L	186	25	1,699	22	B	3,991	44	D
		E	T	1,513	21						
		S	L	116	219	367	328	F			
		S	R	251	378						
		W	T	1,783	7	1,925	10	A			
		W	R	142	45						

PM Model Do Minimum
Time Period: 15:30-16:30 PM
Year: 2041

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	HLD / Haig Ave	N	L	5	462	699	438	F	2,358	182	F
		N	T	694	438						
		E	L	228	117	381	109	F			
		E	R	153	96						
		S	T	1169	58	1,278	63	E			
		S	R	109	117						
2	HLD / Rabaul Rd	N	L	3	159	912	100	F	2,338	72	F
		N	T	909	100						
		N	R	-	-1						
		E	R	1	67	123	167	F			
		E	T	-	-1						
		E	L	122	168						
		S	L	6	49	1,299	43	D			
		S	T	1,293	43						
		S	R	-	-1						
		W	L	4	16	4	16	B			
		W	T	-	-1						
		W	R	-	-1						
3	HLD / Tower Rd	N	L	12	15	967	23	B	2,793	28	B
		N	T	955	23						
		E	L	121	1	191	23	B			
		E	R	70	60						
		S	T	1,317	22	1,635	31	C			
		S	R	318	68						
4	HLD/ Milperra Rd	N	L	305	16	892	149	F	7,355	309	F
		N	T	303	79						
		N	R	284	366						
		E	L	152	247	2,118	291	F			
		E	T	1,526	327						
		E	R	440	180						
		S	L	755	33	1,257	52	D			
		S	T	443	82						
		S	R	59	77						
		W	L	783	426	3,088	471	F			
		W	T	1,589	374						
		W	R	716	732						
5	HLD / Keys Pde/Flower power	N	L	291	4	1,152	8	A	2,554	36	C
		N	R	-	38						
		N	T	861	9						
		E	L	61	1	139	30	C			
		E	T	-	-1						
		E	R	78	52						
		S	R	26	95	1,176	62	E			
		S	L	-	-1						
		S	T	1,150	61						
		W	R	40	51	87	54	D			
		W	T	-	-1						
		W	L	47	57						
6	HLD / Bullecourt Ave	N	L	135	5	878	17	B	2,444	39	C
		N	T	743	19						
		E	L	182	38	337	46	D			
		E	R	155	55						
		S	T	1,083	40	1,229	52	D			
		S	R	146	147						
7	HLD / Pozieres Ave	N	T	1,071	4	1,114	6	A	2,702	44	D
		N	R	43	64						
		S	L	139	67	1,383	71	F			
		S	T	1,244	71						
		W	L	82	50	205	58	E			
		W	R	123	63						
8	Milperra Rd / Murray Jones Dr	N	L	23	65	33	68	E	4,527	11	A
		N	R	10	76						
		E	T	2,451	11	2,451	11	A			
		E	R	-	-1						
		W	L	-	8	2,043	8	A			
		W	T	2,043	8						
9	Milperra Rd / Ashford Ave	E	L	183	132	2,237	119	F	4,883	82	F
		E	T	2,054	118						
		S	L	419	141	585	132	F			
		S	R	166	108						
		W	T	1,888	21	2,061	27	B			
		W	R	173	96						

PM Model Option Scenario
Time Period: 15:30-16:30 PM
Year: 2041

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	HLD / Haig Ave	N	L	7	406	722	409	F	2,409	161	F
		N	T	715	409						
		E	L	203	94	337	128	F			
		E	R	134	179						
		S	T	1,237	33	1,350	35	C			
		S	R	113	60						
2	HLD / Rabaul Rd	N	L	4	116	911	63	E	2,401	44	D
		N	T	907	62						
		N	R	-	-1						
		E	R	2	97	114	162	F			
		E	T	-	-1						
		E	L	112	163						
		S	L	6	32	1,370	22	B			
		S	T	1,364	22						
		S	R	-	-1						
		W	L	2	12	6	12	A			
		W	T	2	12						
		W	R	2	12						
3	HLD / Tower Rd	N	L	14	14	943	22	B	2,793	17	B
		N	T	929	22						
		E	L	118	6	192	26	B			
		E	R	74	58						
		S	T	1,330	4	1,658	13	A			
		S	R	328	48						
4	HLD / Milperra Rd	N	L	385	9	980	132	F	7,582	318	F
		N	T	321	76						
		N	R	274	371						
		E	L	134	303	2,110	335	F			
		E	T	1,535	378						
		E	R	441	197						
		S	L	869	35	1,392	87	F			
		S	T	454	189						
		S	R	69	69						
		W	L	777	441	3,100	468	F			
		W	T	1,610	371						
		W	R	713	718						
5	HLD / Keys Pde/Flower power	N	L	272	5	1,152	8	A	2,737	28	B
		N	R	78	70						
		N	T	802	3						
		E	L	50	4	136	38	C			
		E	T	13	59						
		E	R	73	57						
		S	R	32	92	1,322	38	C			
		S	L	20	59						
		S	T	1,270	36						
		W	R	72	71	127	90	F			
		W	T	-	-1						
		W	L	55	114						
6	HLD / Bullecourt Ave	N	L	167	8	931	15	B	2,812	19	B
		N	T	764	16						
		E	L	189	6	433	30	C			
		E	R	244	49						
		S	T	1,221	12	1,448	18	B			
		S	R	227	50						
7	HLD / Pozieres Ave	N	T	1,130	3	1,169	5	A	2,887	11	A
		N	R	39	49						
		S	L	155	8	1,516	10	A			
		S	T	1,361	10						
		W	L	85	47	202	57	E			
		W	R	117	64						
8	Milperra Rd / Murray Jones Dr	N	L	23	67	34	94	F	4,530	17	B
		N	R	11	150						
		E	T	2,440	24	2,440	24	B			
		E	R	-	-1						
		W	L	1	7	2,056	6	A			
		W	T	2,055	6						
9	Milperra Rd / Ashford Ave	E	L	215	82	2,289	75	F	4,901	62	E
		E	T	2,074	75						
		S	L	397	133	544	128	F			
		S	R	147	112						
		W	T	1,903	23	2,068	28	B			
		W	R	165	89						

PM Model Do Minimum
Time Period: 16:30-17:30 PM
Year: 2041

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	HLD / Haig Ave	N	L	3	962	462	997	F	2,155	285	F
		N	T	459	998						
		E	L	162	191	282	158	F			
		E	R	120	115						
		S	T	1,299	72	1,411	76	F			
		S	R	112	127						
2	HLD / Rabaul Rd	N	L	2	224	883	134	F	2,462	95	F
		N	T	881	134						
		N	R	-	-1						
		E	R	3	200	153	233	F			
		E	T	-	-1						
		E	L	150	234						
		S	L	7	58	1,422	55	D			
		S	T	1,415	55						
		S	R	-	-1						
		W	L	4	18	4	18	B			
		W	T	-	-1						
		W	R	-	-1						
3	HLD / Tower Rd	N	L	14	14	798	20	B	2,742	42	C
		N	T	784	20						
		E	L	231	1	299	14	A			
		E	R	68	58						
		S	T	1,380	53	1,645	56	D			
		S	R	265	73						
4	HLD/ Milperra Rd	N	L	242	14	805	242	F	7,431	454	F
		N	T	247	81						
		N	R	316	542						
		E	L	143	559	2,051	575	F			
		E	T	1,541	623						
		E	R	367	379						
		S	L	847	35	1,385	106	F			
		S	T	457	243						
		S	R	81	71						
		W	L	834	537	3,190	580	F			
		W	T	1,623	443						
		W	R	733	934						
5	HLD / Keys Pde/Flower power	N	L	272	4	1,134	8	A	2,720	43	D
		N	R	1	69						
		N	T	861	9						
		E	L	117	1	299	38	C			
		E	T	-	-1						
		E	R	182	63						
		S	R	12	106	1,188	75	F			
		S	L	-	61						
		S	T	1,176	75						
		W	R	49	52	99	55	D			
		W	T	-	-1						
		W	L	50	57						
6	HLD / Bullecourt Ave	N	L	196	6	922	15	B	2,436	61	E
		N	T	726	18						
		E	L	228	62	528	89	F			
		E	R	300	110						
		S	T	888	81	986	87	F			
		S	R	98	142						
7	HLD / Pozieres Ave	N	T	1,058	4	1,099	6	A	2,366	98	F
		N	R	41	71						
		S	L	113	187	1,081	193	F			
		S	T	968	194						
		W	L	62	77	186	76	F			
		W	R	124	75						
8	Milperra Rd / Murray Jones Dr	N	L	205	196	237	347	F	4,378	40	C
		N	R	32	1313						
		E	T	2,011	36	2,011	36	C			
		E	R	-	-1						
		W	L	2	10	2,130	8	A			
		W	T	2,128	8						
9	Milperra Rd / Ashford Ave	E	L	241	206	2,004	204	F	4,758	143	F
		E	T	1,763	204						
		S	L	247	545	421	490	F			
		S	R	174	411						
		W	T	2,114	19	2,333	27	B			
		W	R	219	97						

PM Model Option Scenario
Time Period: 16:30-17:30 PM
Year: 2041

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	HLD / Haig Ave	N	L	2	1,076	394	1177	F	2,181	254	F
		N	T	392	1,178						
		E	L	175	137	306	151	F			
		E	R	131	170						
		S	T	1,360	26	1,481	29	C			
		S	R	121	54						
2	HLD / Rabaul Rd	N	L	1	97	867	135	F	2,523	75	F
		N	T	866	135						
		N	R	-	-1						
		E	R	1	290	161	280	F			
		E	T	-	-1						
		E	L	160	280						
		S	L	6	18	1,489	17	B			
		S	T	1,483	17						
		S	R	-	-1						
		W	L	2	26	6	26	B			
		W	T	2	26						
		W	R	2	26						
3	HLD / Tower Rd	N	L	15	12	781	19	B	2,821	15	B
		N	T	766	19						
		E	L	228	5	305	19	B			
		E	R	77	60						
		S	T	1,446	4	1,735	12	A			
		S	R	289	53						
4	HLD / Milperra Rd	N	L	420	10	1,021	234	F	7,803	447	F
		N	T	267	78						
		N	R	334	642						
		E	L	138	568	2,055	575	F			
		E	T	1,534	634						
		E	R	383	341						
		S	L	897	48	1,424	159	F			
		S	T	462	387						
		S	R	65	63						
		W	L	885	509	3,303	556	F			
		W	T	1,674	419						
		W	R	744	919						
5	HLD / Keys Pde/Flower power	N	L	278	5	1,144	12	A	2,801	102	F
		N	R	111	85						
		N	T	755	3						
		E	L	139	3	321	39	C			
		E	T	13	68						
		E	R	169	66						
		S	R	11	140	1,205	206	F			
		S	L	21	317						
		S	T	1,173	204						
		W	R	75	63	131	81	F			
		W	T	-	-1						
		W	L	56	105						
6	HLD / Bullecourt Ave	N	L	274	7	985	12	A	2,770	28	B
		N	T	711	14						
		E	L	251	6	592	37	C			
		E	R	341	60						
		S	T	994	28	1,193	36	C			
		S	R	199	75						
7	HLD / Pozieres Ave	N	T	1,072	3	1,105	4	A	2,621	11	A
		N	R	33	55						
		S	L	138	7	1,337	8	A			
		S	T	1,199	8						
		W	L	57	58	179	66	E			
		W	R	122	70						
8	Milperra Rd / Murray Jones Dr	N	L	47	1043	58	1120	F	4,256	49	D
		N	R	11	1450						
		E	T	2,037	63	2,037	63	E			
		E	R	-	-1						
		W	L	2	8	2,161	6	A			
		W	T	2,159	6						
9	Milperra Rd / Ashford Ave	E	L	226	359	2,012	376	F	4,654	192	F
		E	T	1,786	378						
		S	L	257	205	430	172	F			
		S	R	173	122						
		W	T	2,066	24	2,212	28	B			
		W	R	146	88						

Weekend Model Do Minimum
Time Period: 11:30 AM - 12:30 PM
Year: 2041

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	HLD / Haig Ave	N	L	17	146	1,265	160	F	2,977	103	F
		N	T	1,248	160						
		E	L	142	75	385	83	F			
		E	R	243	88						
		S	T	1,196	46	1,327	53	D			
		S	R	131	111						
2	HLD / Rabaul Rd	N	L	5	2	1,392	1	A	2,772	15	B
		N	T	1,387	1						
		N	R	-	-1						
		E	R	-	-1	32	31	C			
		E	T	-	-1						
		E	L	32	31						
		S	L	3	30	1,347	28	B			
		S	T	1,344	28						
		S	R	-	-1						
		W	L	1	52	1	52	D			
		W	T	-	-1						
		W	R	-	-1						
3	HLD / Tower Rd	N	L	29	21	1,396	25	B	3,358	20	B
		N	T	1,367	25						
		E	L	184	1	218	11	A			
		E	R	34	61						
		S	T	1,381	5	1,744	16	B			
		S	R	363	57						
4	HLD/ Milperra Rd	N	L	283	15	1,332	42	C	7,345	71	F
		N	T	720	36						
		N	R	329	78						
		E	L	169	14	2,156	76	F			
		E	T	1,417	44						
		E	R	570	174						
		S	L	404	18	1,124	40	C			
		S	T	563	49						
		S	R	157	61						
		W	L	626	73	2,733	93	F			
		W	T	1,631	97						
		W	R	476	106						
5	HLD / Keys Pde/Flower power	N	L	432	5	1,382	6	A	2,851	18	B
		N	R	4	64						
		N	T	946	6						
		E	L	213	1	492	39	C			
		E	T	-	-1						
		E	R	279	69						
		S	R	71	36	880	21	B			
		S	L	-	2						
		S	T	809	19						
		W	R	51	56	97	58	E			
		W	T	-	-1						
		W	L	46	60						
6	HLD / Bullecourt Ave	N	L	315	8	1,076	29	C	2,205	24	B
		N	T	761	38						
		E	L	147	23	212	29	C			
		E	R	65	42						
		S	T	785	11	917	16	B			
		S	R	132	44						
7	HLD / Pozieres Ave	N	T	1,246	5	1,313	8	A	2,547	14	A
		N	R	67	60						
		S	L	99	11	1,034	11	A			
		S	T	935	11						
		W	L	71	48	200	59	E			
		W	R	129	64						
8	Milperra Rd / Murray Jones Dr	N	L	9	64	10	65	E	4,418	5	A
		N	R	1	67						
		E	T	2,219	1	2,227	1	A			
		E	R	8	37						
		W	L	19	14	2,181	7	A			
		W	T	2,162	7						
9	Milperra Rd / Ashford Ave	E	L	128	99	1,909	89	F	4,812	52	D
		E	T	1,781	88						
		S	L	454	43	739	61	E			
		S	R	285	90						
		W	T	1,811	7	2,164	16	B			
		W	R	353	65						

Weekend Model Option Scenario
Time Period: 11:30 AM - 12:30 PM
Year: 2041

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	HLD/ Haig Ave	N	L	21	139	1,268	152	F	3,034	89	F
		N	T	1,247	152						
		E	L	129	95	349	106	F			
		E	R	220	113						
		S	T	1,278	23	1,417	27	B			
		S	R	139	65						
2	HLD/ Rabaul Rd	N	L	4	2	1,382	1	A	2,853	7	A
		N	T	1,378	1						
		N	R	-	-1						
		E	R	-	-1	32	31	C			
		E	T	-	-1						
		E	L	32	31						
		S	L	3	19	1,436	11	A			
		S	T	1,433	11						
		S	R	-	-1						
		W	L	1	56	3	56	D			
		W	T	1	56						
		W	R	1	56						
3	HLD / Tower Rd	N	L	32	23	1,387	25	B	3,376	22	B
		N	T	1,355	25						
		E	L	188	14	224	23	B			
		E	R	36	66						
		S	T	1,419	8	1,765	18	B			
		S	R	346	59						
4	HLD / Milperra Rd	N	L	404	17	1,498	52	D	7,644	75	F
		N	T	766	53						
		N	R	328	92						
		E	L	173	26	2,215	94	F			
		E	T	1,467	73						
		E	R	575	167						
		S	L	405	15	1,177	41	C			
		S	T	576	55						
		S	R	196	54						
		W	L	622	71	2,754	85	F			
		W	T	1,674	93						
		W	R	458	74						
5	HLD / Keys Pde/Flower power	N	L	428	16	1,394	29	C	2,886	30	C
		N	R	62	86						
		N	T	904	32						
		E	L	231	6	506	42	C			
		E	T	3	43						
		E	R	272	72						
		S	R	68	46	881	18	B			
		S	L	71	5						
		S	T	742	17						
		W	R	58	57	105	57	E			
		W	T	-	-1						
		W	L	47	58						
6	HLD / Bullecourt Ave	N	L	392	21	1,171	27	B	2,554	21	B
		N	T	779	30						
		E	L	240	6	378	26	B			
		E	R	138	59						
		S	T	795	5	1,005	11	A			
		S	R	210	32						
7	HLD / Pozieres Ave	N	T	1,303	2	1,364	5	A	2,575	12	A
		N	R	61	56						
		S	L	96	5	1,003	10	A			
		S	T	907	11						
		W	L	74	55	208	66	E			
		W	R	134	72						
8	Murray Jones Dr / Milperra Rd	N	L	6	84	9	89	F	4,512	10	A
		N	R	3	98						
		E	T	2,287	2	2,293	2	A			
		E	R	6	24						
		W	L	17	10	2,210	17	B			
		W	T	2,193	17						
9	Ashford Ave / Milperra Rd	E	L	143	28	2,021	23	B	4,887	27	B
		E	T	1,878	22						
		S	L	427	49	674	60	E			
		S	R	247	79						
		W	T	1,858	9	2,192	21	B			
		W	R	334	87						

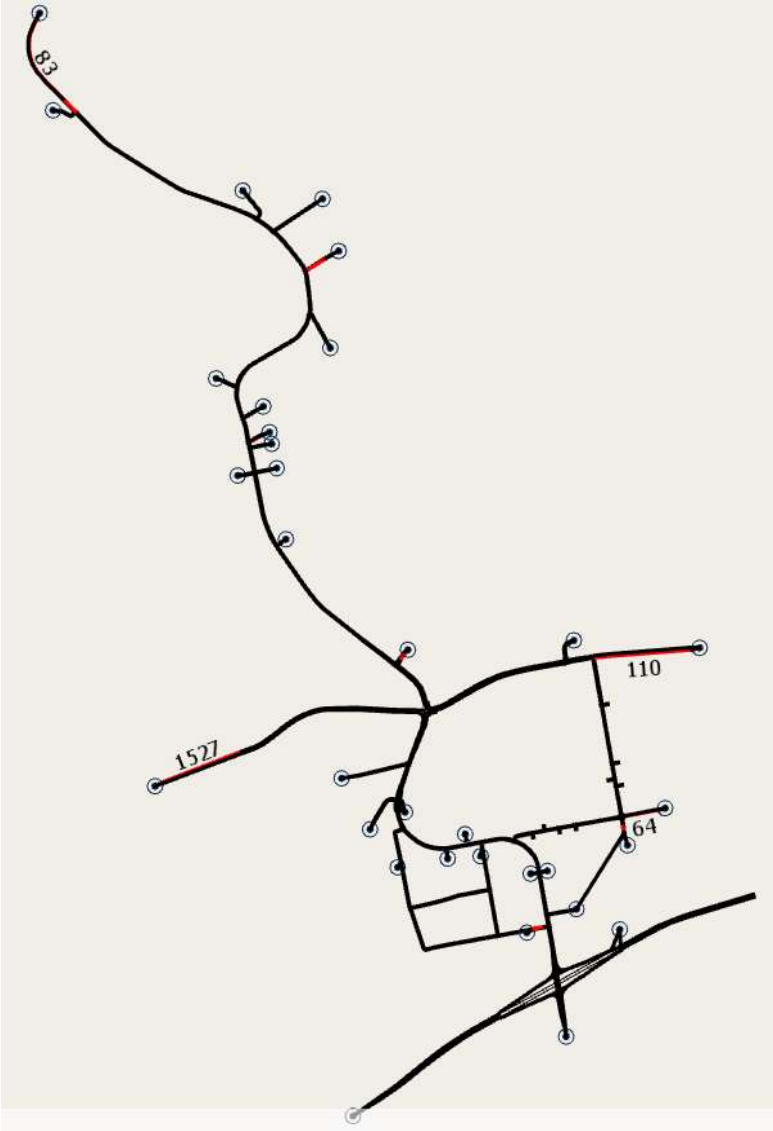
Weekend Model Do Minimum
Time Period: 12:30 - 01:30 PM
Year: 2041

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	HLD / Haig Ave	N	L	29	140	1,442	150	F	3,349	104	F
		N	T	1,413	150						
		E	L	133	119	291	136	F			
		E	R	158	150						
		S	T	1,476	52	1,616	57	E			
		S	R	140	113						
2	HLD / Rabaul Rd	N	L	3	2	1,571	1	A	3,217	19	B
		N	T	1,568	1						
		N	R	-	-1						
		E	R	-	-1	27	40	C			
		E	T	-	-1						
		E	L	27	40						
		S	L	3	42	1,617	36	C			
		S	T	1,614	36						
		S	R	-	-1						
		W	L	2	60	2	60	E			
		W	T	-	-1						
		W	R	-	-1						
3	HLD / Tower Rd	N	L	48	26	1,590	29	C	3,692	35	C
		N	T	1,542	29						
		E	L	107	1	235	51	D			
		E	R	128	92						
		S	T	1,509	31	1,867	37	C			
		S	R	358	59						
4	HLD/ Milperra Rd	N	L	391	14	1,543	44	D	7,563	92	F
		N	T	781	42						
		N	R	371	77						
		E	L	173	21	2,241	149	F			
		E	T	1,461	61						
		E	R	607	396						
		S	L	345	17	971	40	C			
		S	T	515	51						
		S	R	111	57						
		W	L	764	56	2,808	89	F			
		W	T	1,536	66						
		W	R	508	210						
5	HLD / Keys Pde/Flower power	N	L	430	6	1,479	8	A	2,768	19	B
		N	R	6	67						
		N	T	1,043	9						
		E	L	181	1	390	35	C			
		E	T	-	-1						
		E	R	209	64						
		S	R	99	61	805	25	B			
		S	L	1	21						
		S	T	705	20						
		W	R	53	56	94	59	E			
		W	T	-	-1						
		W	L	41	61						
6	HLD / Bullecourt Ave	N	L	287	8	1,174	33	C	2,199	27	B
		N	T	887	41						
		E	L	122	22	241	34	C			
		E	R	119	46						
		S	T	671	11	784	16	B			
		S	R	113	43						
7	HLD / Pozieres Ave	N	T	1,280	4	1,319	5	A	2,437	13	A
		N	R	39	46						
		S	L	106	13	966	13	A			
		S	T	860	13						
		W	L	47	57	152	67	E			
		W	R	105	71						
8	Milperra Rd / Murray Jones Dr	N	L	12	74	22	80	F	4,418	11	A
		N	R	10	86						
		E	T	2,280	3	2,287	3	A			
		E	R	7	31						
		W	L	13	11	2,109	18	B			
		W	T	2,096	18						
9	Milperra Rd / Ashford Ave	E	L	164	145	2,089	136	F	4,826	86	F
		E	T	1,925	135						
		S	L	365	81	634	112	F			
		S	R	269	154						
		W	T	1,755	10	2,103	28	B			
		W	R	348	117						

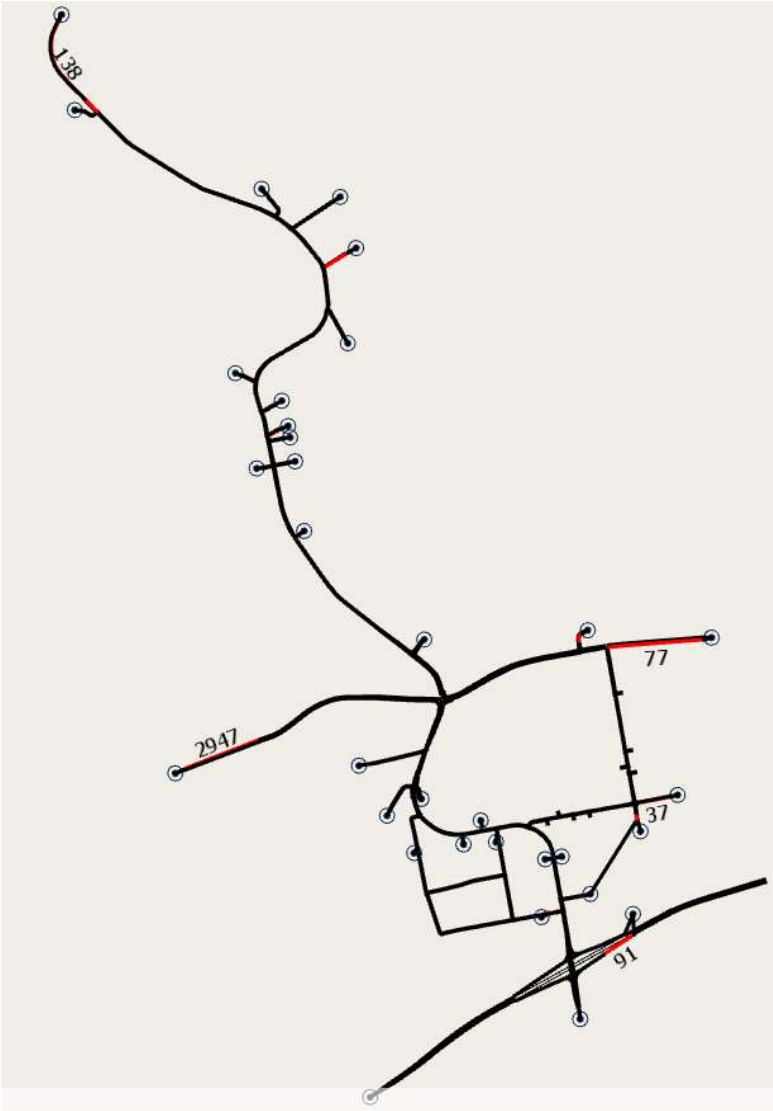
Weekend Option Scenario
Time Period: 12:30 - 01:30 PM
Year: 2041

ID	Intersection	Approach	Movement	Movement		Approach			Intersection		
				Volume	Delay	Volume	Delay	LOS	Volume	Delay	LOS
1	HLD/ Haig Ave	N	L	23	132	1,461	141	F	3,308	91	F
		N	T	1,438	141						
		E	L	92	153	206	199	F			
		E	R	114	236						
		S	T	1,494	27	1,641	32	C			
		S	R	147	76						
2	HLD/ Rabaul Rd	N	L	2	2	1,556	1	A	3,229	10	A
		N	T	1,554	1						
		N	R	-	-1						
		E	R	-	-1	27	39	C			
		E	T	-	-1						
		E	L	27	39						
		S	L	3	13	1,643	17	B			
		S	T	1,640	17						
		S	R	-	-1						
		W	L	1	93	3	93	F			
		W	T	1	93						
		W	R	1	93						
3	HLD / Tower Rd	N	L	43	43	1,575	44	D	3,713	30	C
		N	T	1,532	44						
		E	L	123	18	241	43	D			
		E	R	118	69						
		S	T	1,538	7	1,897	16	B			
		S	R	359	57						
4	HLD / Milperra Rd	N	L	424	21	1,650	58	E	7,711	98	F
		N	T	834	61						
		N	R	392	92						
		E	L	148	40	2,193	171	F			
		E	T	1,455	98						
		E	R	590	384						
		S	L	338	18	1,038	52	D			
		S	T	552	72						
		S	R	148	58						
		W	L	754	63	2,830	80	F			
		W	T	1,585	82						
		W	R	491	101						
5	HLD / Keys Pde/Flower power	N	L	424	17	1,474	28	B	2,861	29	C
		N	R	83	72						
		N	T	967	30						
		E	L	156	6	382	38	C			
		E	T	12	59						
		E	R	214	60						
		S	R	78	55	848	18	B			
		S	L	109	4						
		S	T	661	15						
		W	R	118	75	157	70	E			
		W	T	-	-1						
		W	L	39	56						
6	HLD / Bullecourt Ave	N	L	297	23	1,268	27	B	2,487	22	B
		N	T	971	28						
		E	L	178	6	341	34	C			
		E	R	163	65						
		S	T	736	4	878	9	A			
		S	R	142	34						
7	HLD / Pozieres Ave	N	T	1,366	2	1,402	4	A	2,497	10	A
		N	R	36	54						
		S	L	106	7	949	12	A			
		S	T	843	12						
		W	L	41	57	146	64	E			
		W	R	105	67						
8	Murray Jones Dr / Milperra Rd	N	L	8	63	21	76	F	4,407	24	B
		N	R	13	84						
		E	T	2,249	4	2,256	4	A			
		E	R	7	42						
		W	L	17	16	2,130	44	D			
		W	T	2,113	44						
9	Ashford Ave / Milperra Rd	E	L	188	29	2,103	25	B	4,789	32	C
		E	T	1,915	25						
		S	L	342	48	569	66	E			
		S	R	227	94						
		W	T	1,781	11	2,117	27	B			
		W	R	336	116						

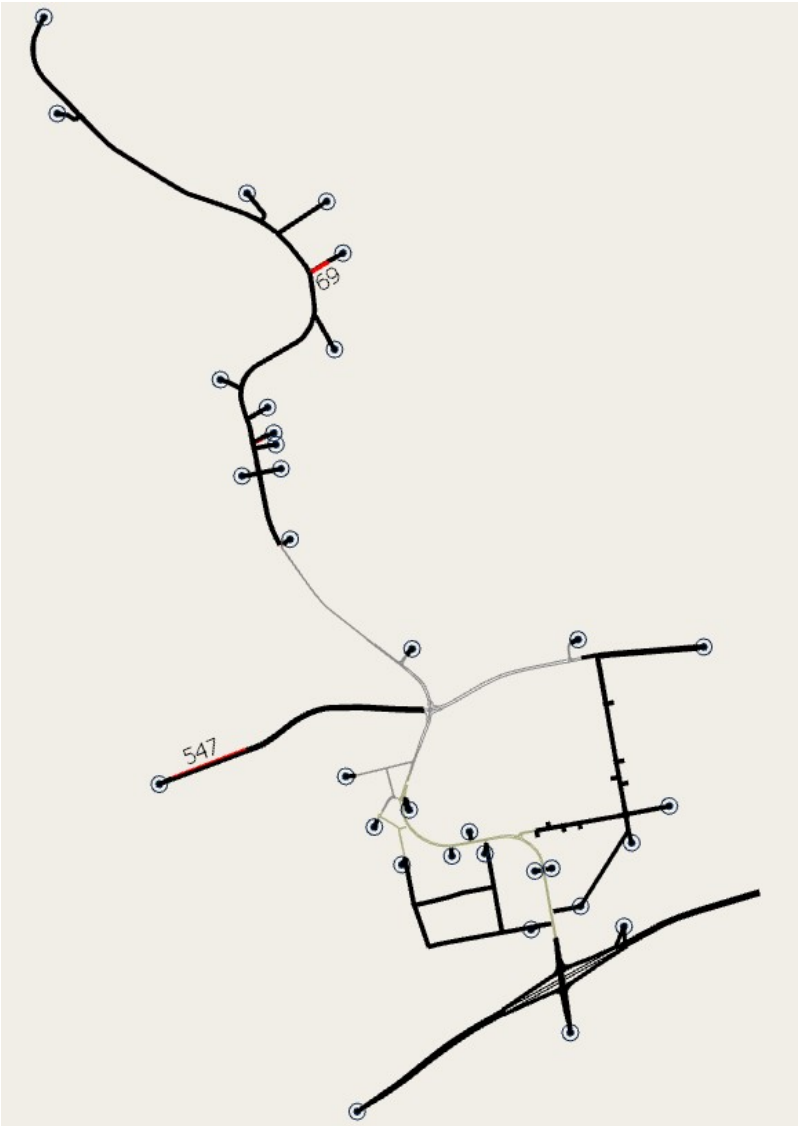
Appendix C: Option Modelling – Network Unreleased Demand



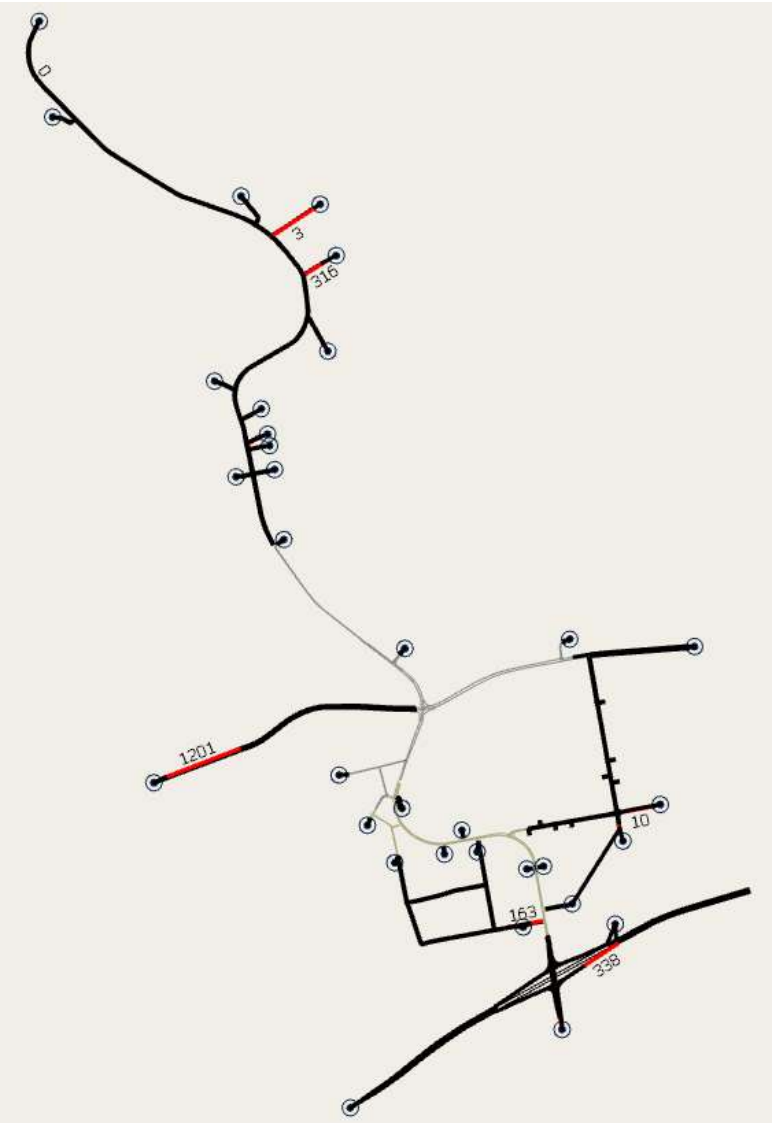
Do Minimum AM 2031



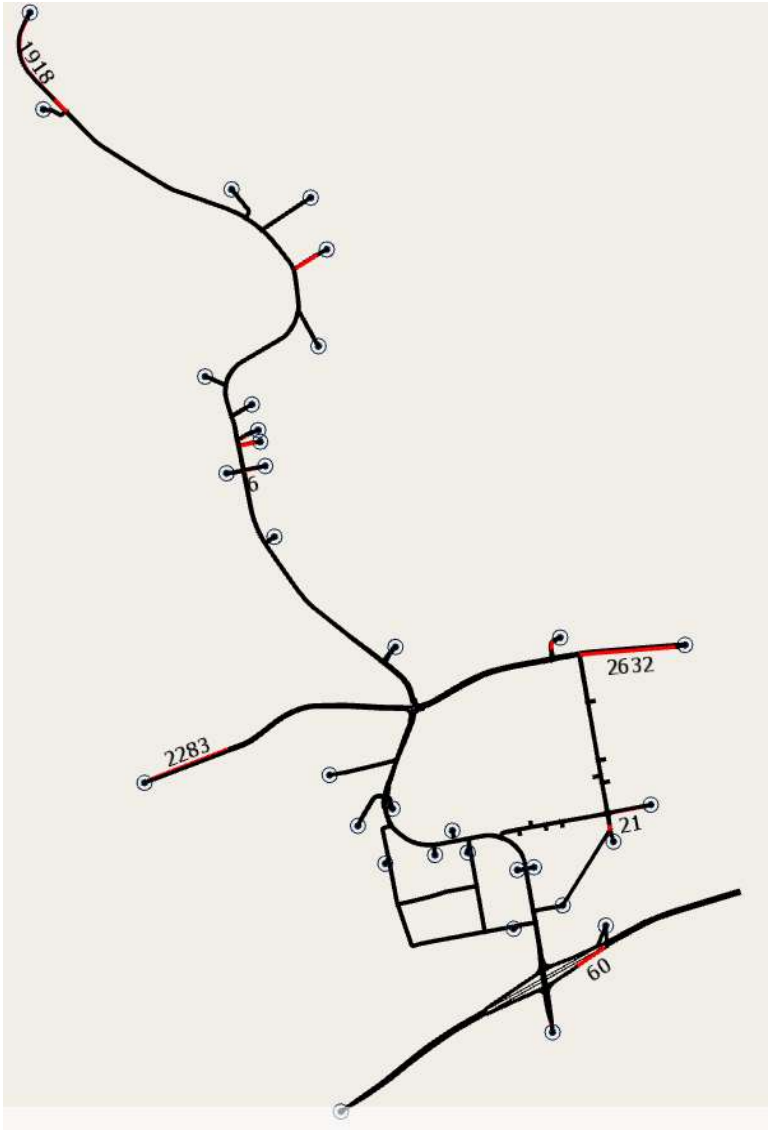
Do Minimum AM 2041



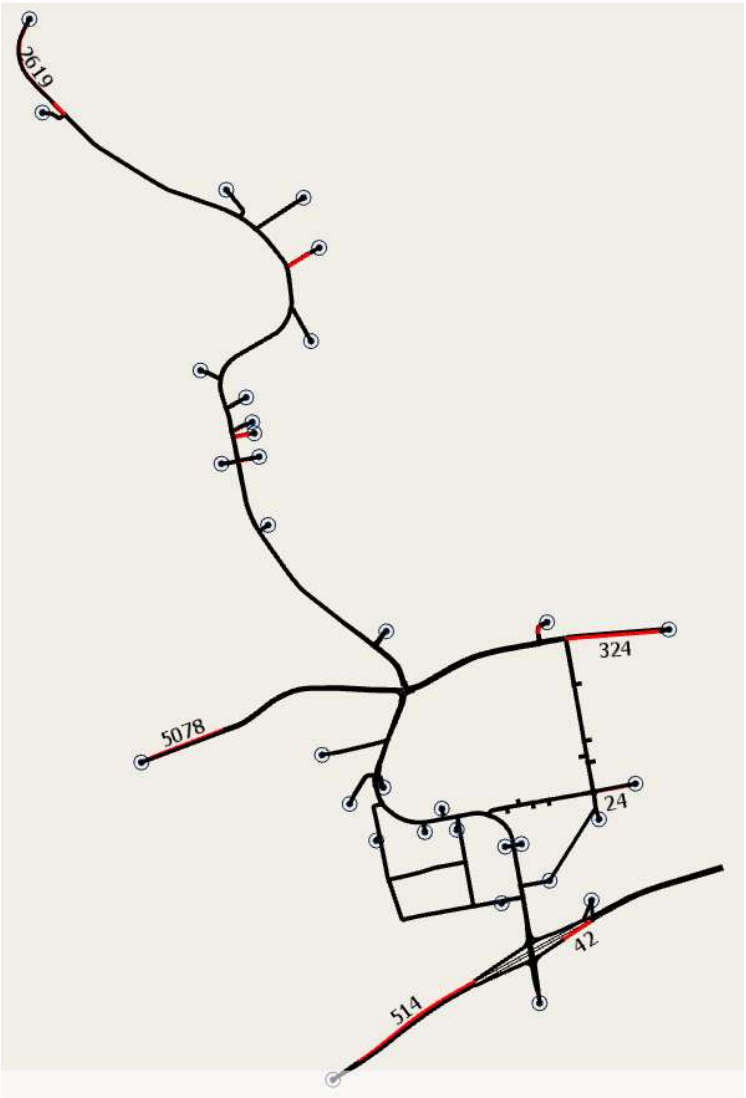
Option AM 2031



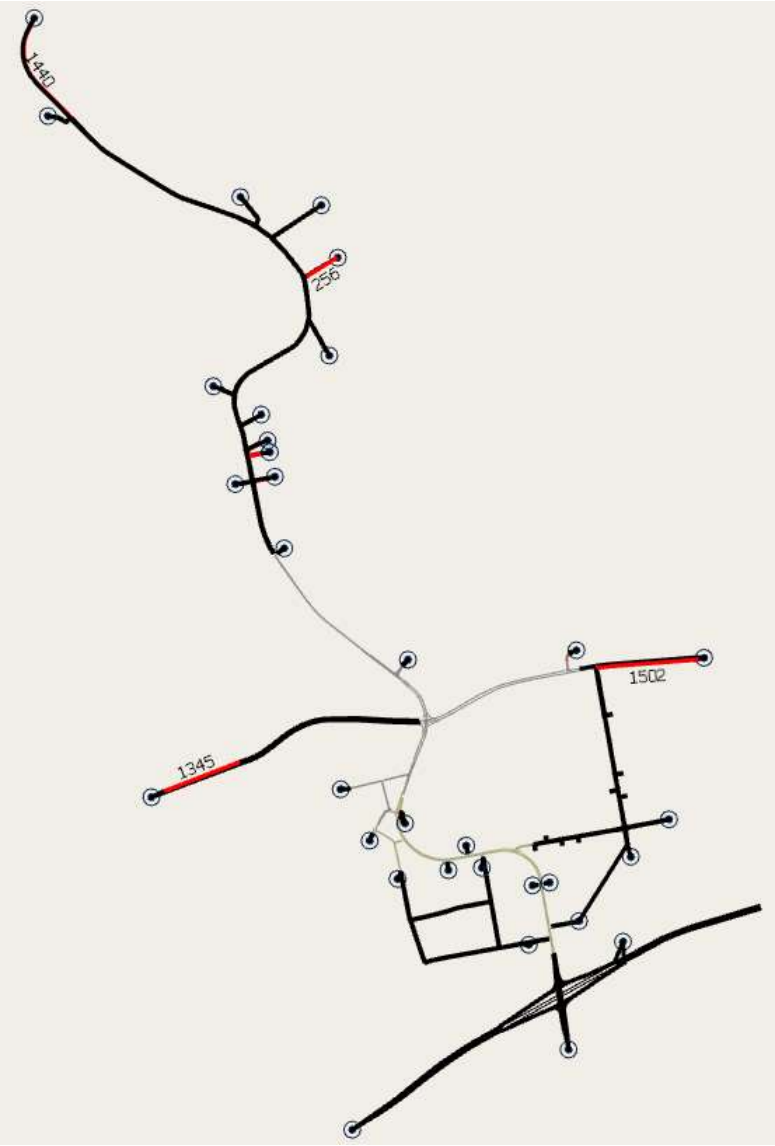
Option AM 2041



Do Minimum PM 2031



Do Minimum PM 2041



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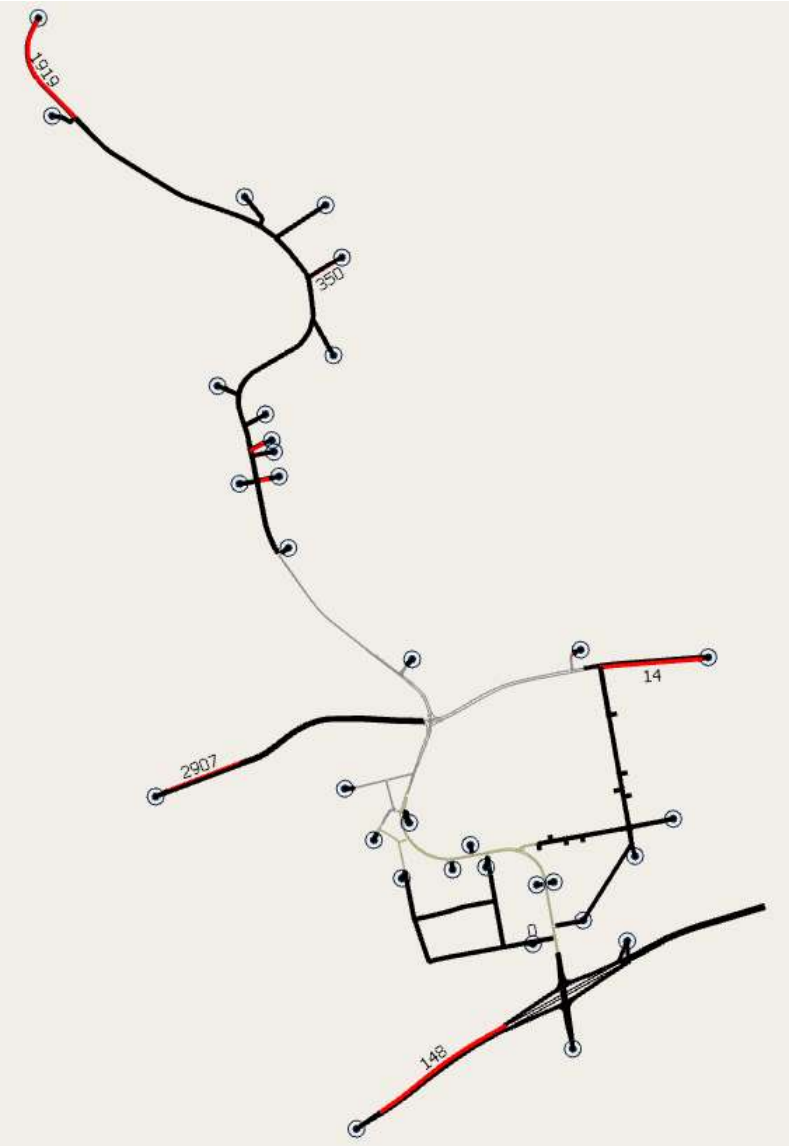

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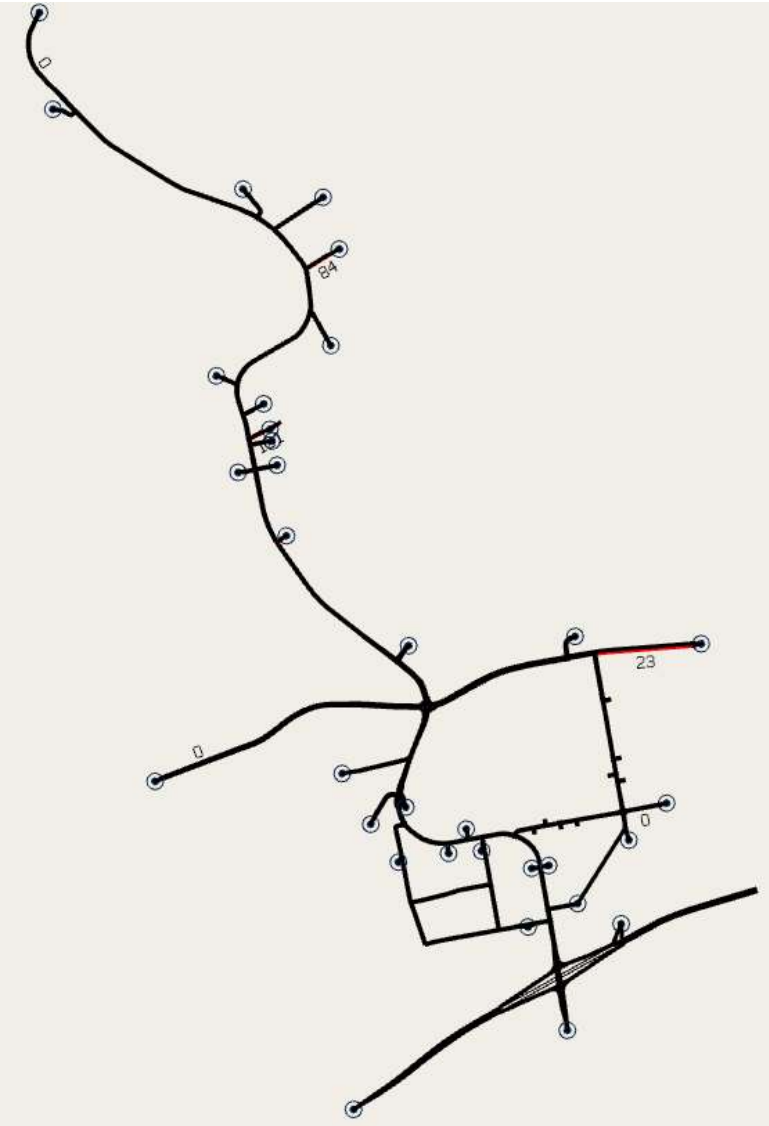

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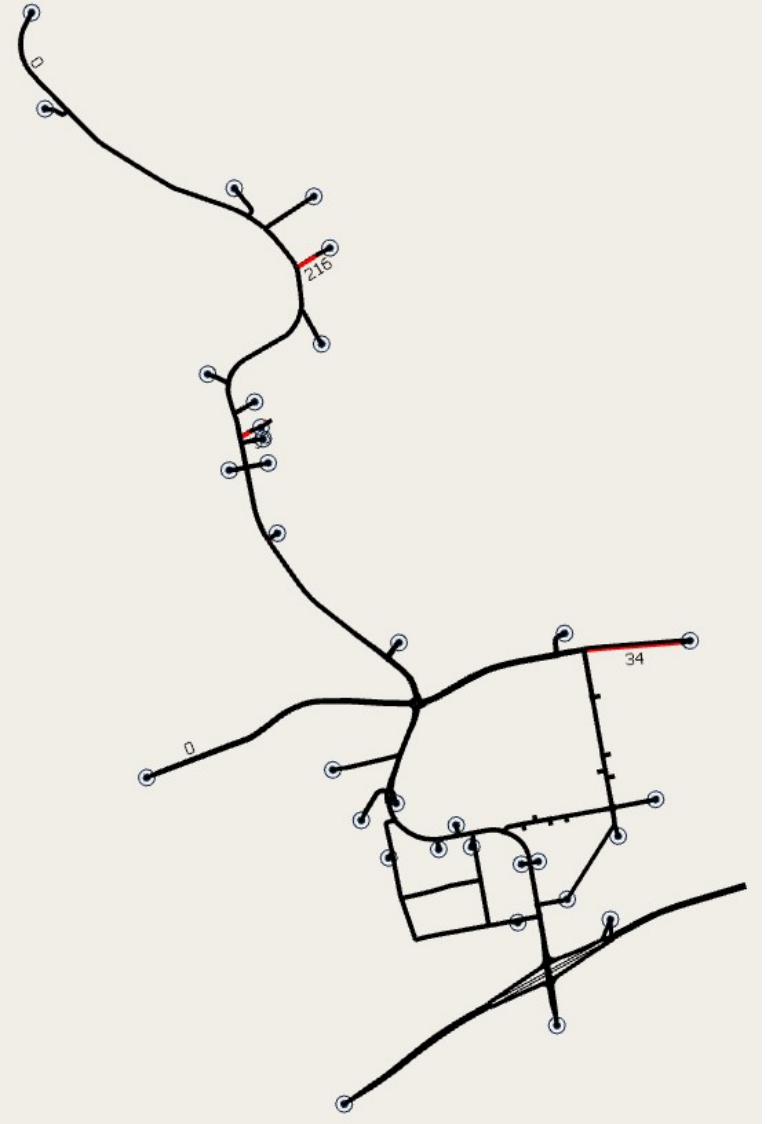

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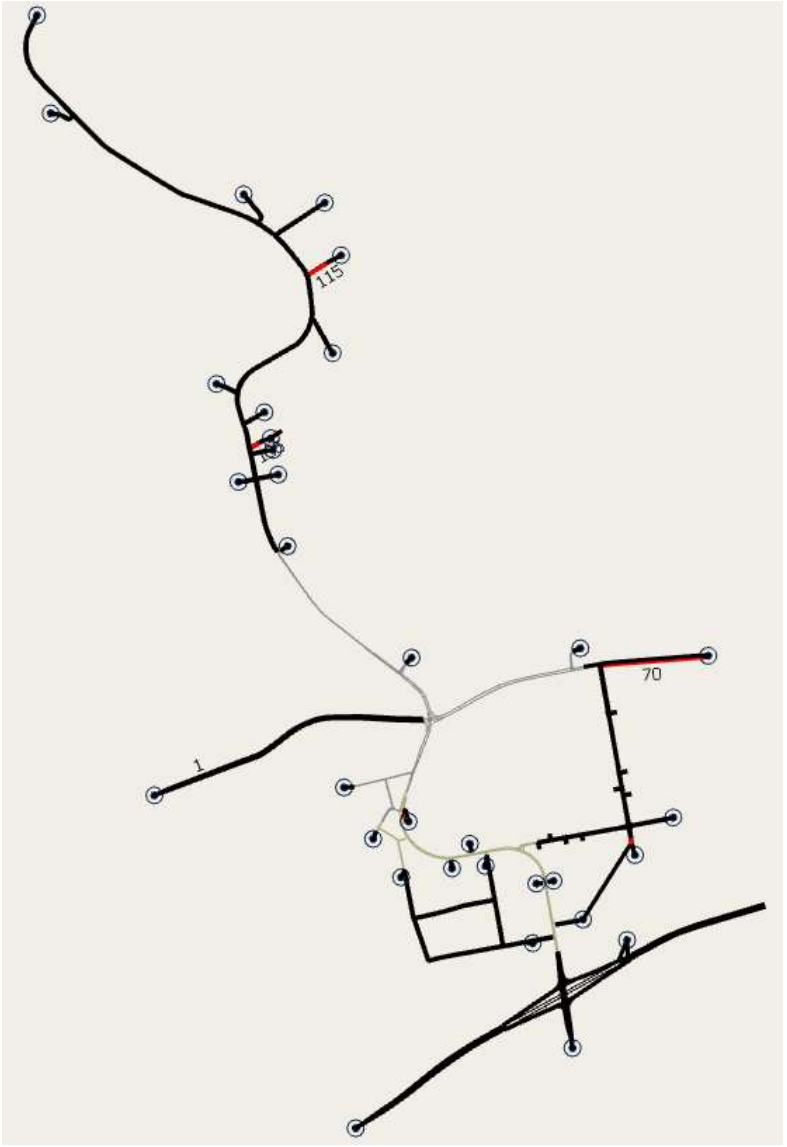
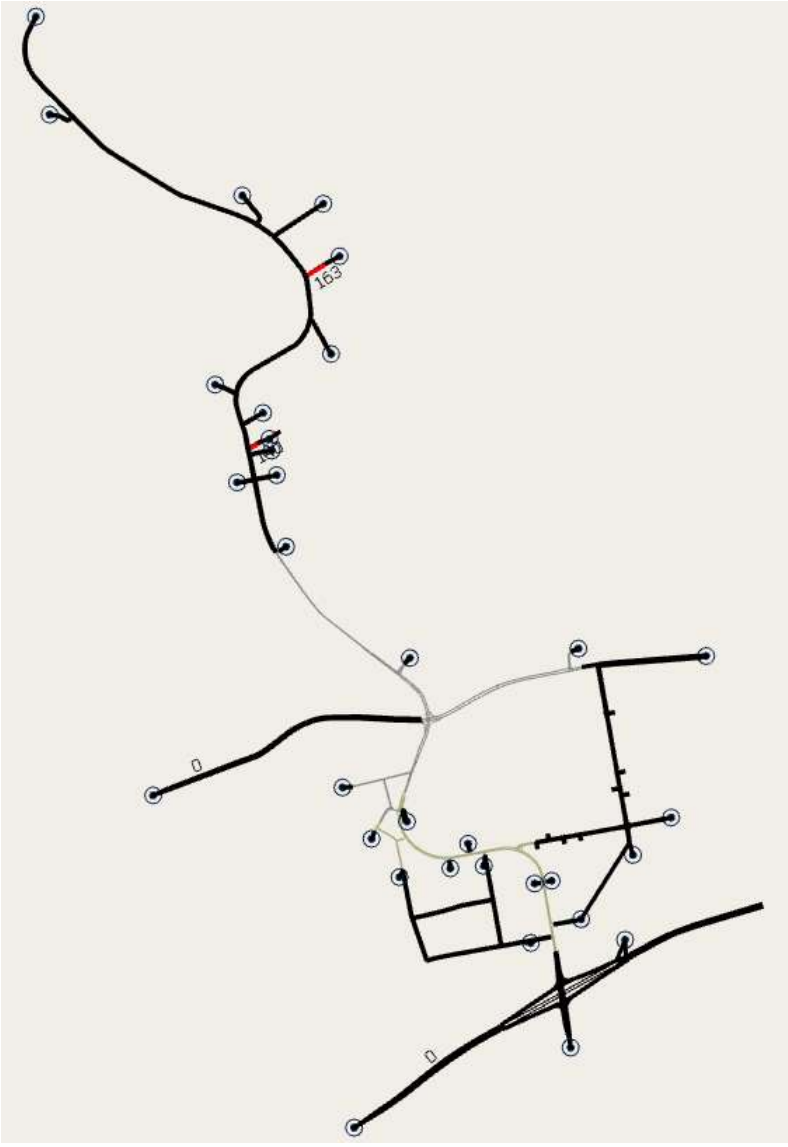


Option WK 2031



Option WK 2041

Document prepared by

Aurecon Australasia Pty Ltd
ABN 54 005 139 873
Level 11, 73 Miller Street
North Sydney 2060 Australia
PO Box 1319
North Sydney NSW 2059
Australia

T +61 2 9465 5599
F +61 2 9465 5598
E sydney@aurecongroup.com
W aurecongroup.com

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