

Erskineville and Alexandria Traffic and Transport Study Summary Report

City of Sydney

20 February 2023



Gold Coast

Suite 26, 58 Riverwalk Avenue
Robina QLD 4226
P: (07) 5562 5377

Brisbane

Level 2, 428 Upper Edward Street
Spring Hill QLD 4000
P: (07) 3831 4442

Sydney

Studio 203, 3 Gladstone Street
Newtown NSW 2042
P: (02) 9557 6202

W: www.bitziosconsulting.com.au

E: admin@bitziosconsulting.com.au

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1. INTRODUCTION

Study Area

The Study area is shown in Figure 1.1.



Figure 1.1: Study Area

Objectives

The objectives that informed the Traffic and Transport Study are:

- Maximise accessibility, safety and amenity for walking and cycling, including to/from bus stops
- Limit through traffic on local streets and particularly those streets used for filtering between Mitchell Road and Euston Road-McEvoy Street
- Encourage through traffic to use state roads instead of local roads
- Minimise turn bans and/or closures for other alternatives to restrain through traffic
- Minimise consequential traffic impacts from any proposed traffic management measures.

Background

The WestConnex (M8) St Peters Interchange opened in mid-2020 and resulted in a change in traffic patterns in Alexandria-Erskineville. At its meeting of 29 March 2021, the Council of the City of Sydney (Council) resolved to undertake an area wide transport study for the suburbs of Erskineville and Alexandria. The Study builds on the 2018 Alexandria LATM study prepared by Bitzios Consulting to forecast, assess and mitigate impacts of WestConnex. The works recommended in that study have mostly been implemented to date.

Residents and councillors raised a number of items that the Study had to address, including:

- TfNSW's proposal for a 'No Right Turn' from Mitchell Road into Sydney Park Road
- Deferring the one-way road closure of Railway Parade to northbound traffic between Swanson Street and Sydney Road
- Exploring additional traffic calming measures to slow down vehicles and deter trucks from entering Maddox Street
- Investigating options to improve pedestrian safety at the intersection of Maddox Street and Mitchell Road.

Key inputs into the study include:

- Traffic counts that were collected in May 2021
- A traffic model, that was created during the 2018 Alexandria LATM study
- Works that will be implemented by mid-2023, as shown in Figure 1.2, including reinstatement of two-way traffic in Railway Parade.



Figure 1.2: Base Assumptions: Committed or Recently Constructed Works

2. RECOMMENDED WORKS PACKAGE

The study recommends that Council pursues a package of works as shown in Figure 2.1. Together, the works incorporated into the package aim to:

- Improve walking and cycling safety and connectivity in the study area, encouraging more walking and cycling, and adding value to nearby footpaths, shared paths and cycleways facilities already (or soon to be) constructed by Council
- Reduce motor vehicle speeds and volumes on local roads by discouraging through-traffic using local roads, especially in off-peak periods.
- Maintain vehicle access for local residents and businesses in the study area.



Figure 2.1: Recommended Works Package

A network traffic model was used to assess the recommended works package compared to a 'Do Nothing' case. This assessment found:

- On the entire study area road network that was assessed, results in a negligible change in peak period delays to traffic in the morning and afternoon peak periods
- On local roads:
 - Reduces the volume of non-local traffic, including trucks, in periods outside of commuter traffic peaks
 - Reduces the speed of all traffic in peak periods, and reduce delays and improve safety for walking and cycling

Overall, the recommended works package provides significant local benefits to walking, cycling, public transport and street amenity and without any meaningful changes to peak period traffic congestion on local roads (controlled by City of Sydney) or major roads (controlled by NSW Government).

The study also recommends that where speed limits in the study area are greater than 40 km/h they be investigated for a reduction to 40 km/h.

3. CURRENT SITUATION

A detailed analysis of the existing traffic and transport conditions within the study area was completed and it found:

- **Traffic volumes and patterns:**
 - As part of the WestConnex project, TfNSW introduced traffic signals at the Euston Road / Sydney Park Road intersection. These works removed the ability to turn right from Euston Road into Sydney Park Road. Some of this traffic now makes this connection via roads within Alexandria
 - Traffic surveys reveal that just over half of the traffic in the study area in peak periods is locally generated. Local traffic does not necessarily refer to traffic from the same street and means traffic to/from the suburbs of Alexandria and Erskineville.
- **Public transport:**
 - The study area is well serviced by public transport, with frequent bus services and stops along key roads such as McEvoy Street–Euston Road and along Mitchell Road; as well as two train stations within 850m of the study area
 - Bus stops on Botany Road, Fountain Street and McEvoy Street show the highest movements, aligned with the location of key routes in the study area and most likely due to residential unit densities on Lawrence Street and Lawrence Lane
- **Walking and cycling:**
 - There are two existing zebra crossings on Mitchell Road at Harley Street and at Maddox Street which require traffic to stop when pedestrians use them
 - Cycling on the recently opened, separated off-road cycleway along Railway Parade is increasing steadily
 - There is a mix of on-road cycling lanes and off-road shared paths throughout the study area and Council is planning to introduce more cycling lanes and shared paths on Ashmore Street and on Harley Street.
- **Traffic and transport safety:**
 - In the five-year period ending December 2019, a total of 186 crashes were reported within the study area. This represents a little over 37 crashes per year. One (1) was a fatality, 140 crashes resulted in injury and 45 crashes involved property damage only. The 186 crashes involved 18 pedestrians and 26 cyclists. The yearly crash statistics show a downward trend with a sharp decline in 2019
 - Vehicle collisions with people walking are scattered across the study area but with a relatively high concentration on the section of McEvoy Street between Botany Road and Foundation Street
 - A safety review of the section of Mitchell Road between Harley Street and Maddox Street identified a number of instances where people walking and cycling are placed at risk of being hit by vehicles due to a wide roadway, sightlines obscured by parked vehicles and car doors opening into cyclists. Examples are shown in Figure 3.1.



Figure 3.1: Safety Issues Due to the Road Environment (Mitchell Road, Harley to Maddox)

4. OPTIONS AND EVALUATION PROCESS

Options

In addition to the *committed or recently constructed works* identified in Figure 1.2, Council identified fifteen (15) additional *proposed options* to evaluate, as presented in Figure 4.1. Further details of the *proposed options* are provided in Sections 5 and 6. The study grouped options into two scenarios and used a traffic model to inform an assessment of the impacts of each scenario on overall traffic flows:

- **Scenario A:** All *committed or recently constructed works* (as per Figure 1.2) plus *proposed options* that (mostly) use traffic management to discourage through traffic using residential streets. “Traffic management” includes traffic calming, some turn bans and traffic signals on local (Council) roads
- **Scenario B:** All *committed works or recently constructed works* (as per Figure 1.2) plus *proposed options* that (mostly) use traffic restrictions to discourage through traffic using residential streets. “Traffic restrictions” include street closures and turn bans.

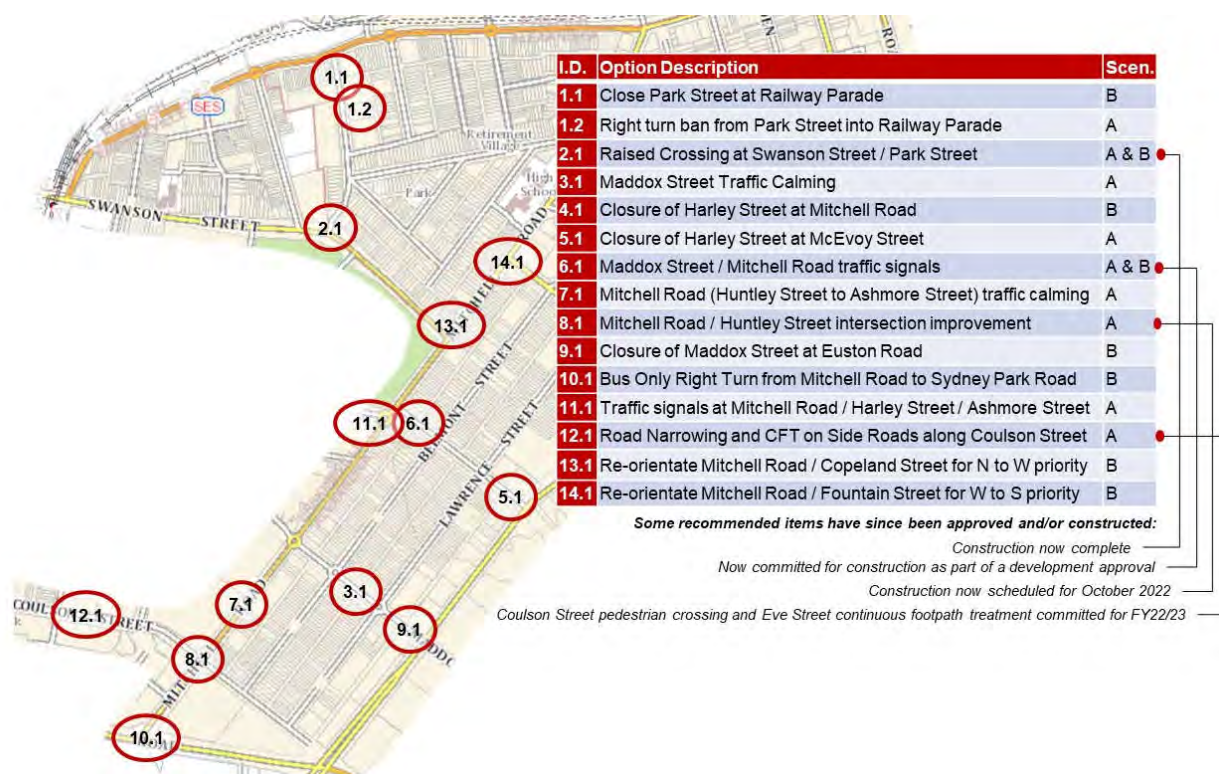


Figure 4.1: Options evaluated in each Scenario

Key Principles for Evaluating Scenarios and Options

The study evaluated scenarios and options using traffic modelling outputs and the following principles:

- Maintain vehicle access to / from destinations in the study area
- Tolerate through traffic during weekday peak periods to avoid impacting local and state road networks but actively deter through traffic outside weekday peak periods.
- Ensure traffic speeds on all streets in the study area are managed to 40km/h or less (depending on the situation)
- Recognise that local road closures and turn bans can have consequential impacts on other local roads and on local residents and should be minimised where the impacts outweigh the benefits
- Prioritise safety for people walking and cycling over traffic speeds and street parking where conflicts exist
- Consider that diversion of traffic onto major roads could result in increases in traffic congestion on the broader road network (state and local).

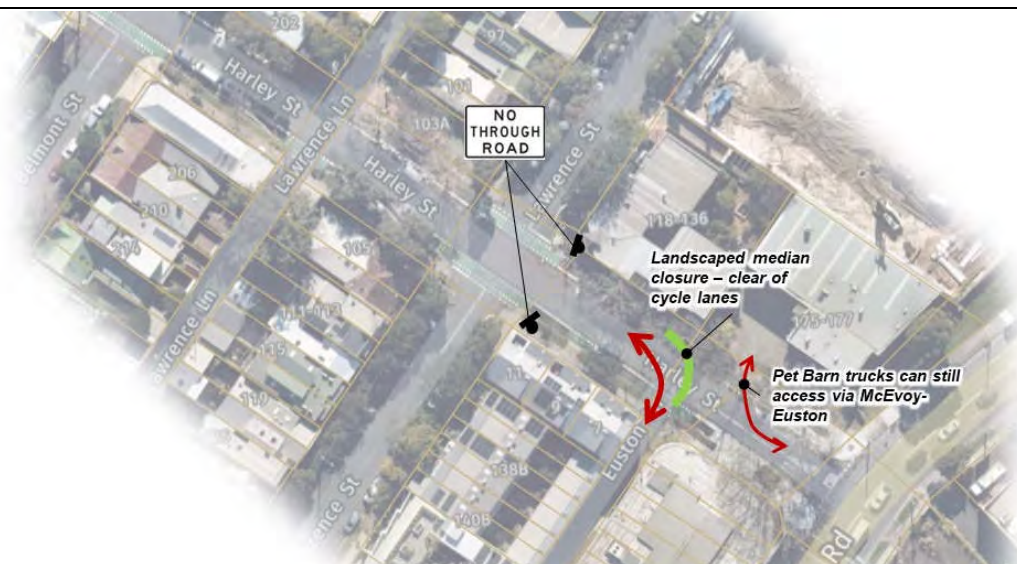
5. OPTIONS TO INCLUDE IN THE WORKS PACKAGE

This section describes the options that the study recommends for inclusion in the works package, their reasons for inclusion, their impacts and benefits and further considerations in their design.

Harley Street

| | |
|-------------------------------|---|
| Recommendation: | Close Harley Street west of McEvoy Street (I.D. 5.1) |
| Reasoning: | Restricts through traffic from Harley Street which is a residential street. It is already left in/out at McEvoy Street. There are plenty of other routes available to replace the left turn into Harley Street from McEvoy Street and the right turn out of Harley Street into McEvoy Street. |
| Impacts and benefits: | In the AM peak, this recommendation would result in minor increases in traffic along Mitchell Road and along Fountain Street (approx. 8% or 49 veh/hr). It will result in small reductions in traffic along Euston Road (vehicles diverted to Mitchell Road) and in Harley Street |
| Design considerations: | Potentially close it just east of Euston Lane to still allow trucks to access the Pet Barn loading area via Euston Road – McEvoy Street. |

Concept layout
(indicative):



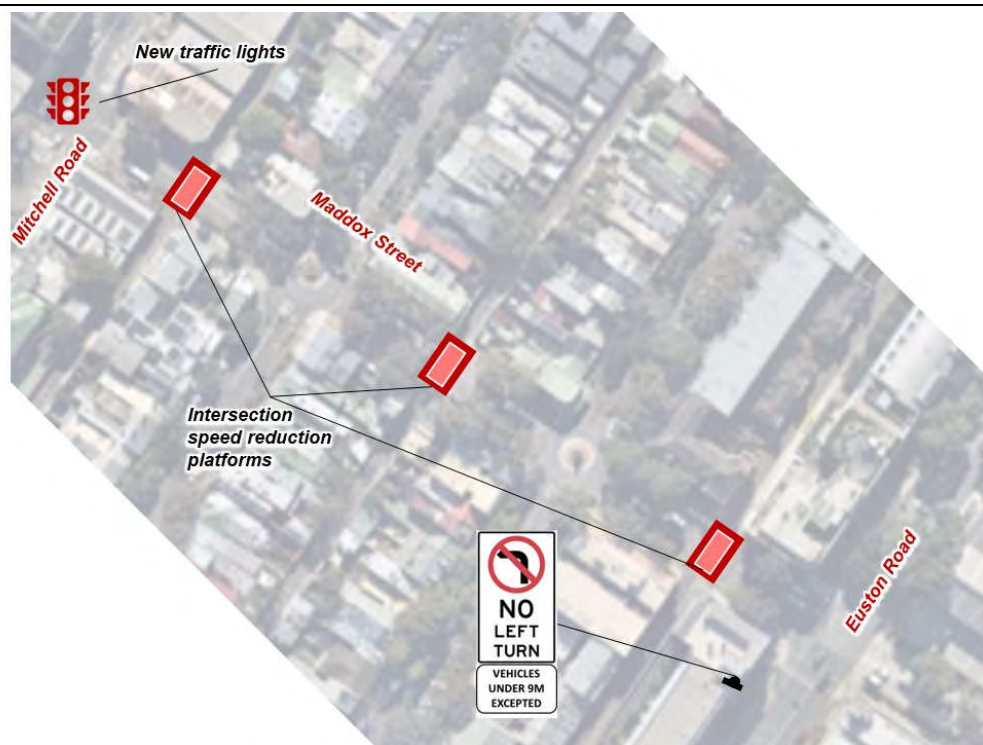
Mitchell/Harley/Ashmore and Mitchell/Maddox

| | |
|-------------------------------|---|
| Recommendation: | Signalise the intersections of and Mitchell/Maddox and Mitchell/Harley/Ashmore (I.D. 6.1 and 11.1) |
| Reasoning: | This recommendation supports the key principle of prioritising the safety of people walking and cycling. In peak periods, the proposed traffic signals would better balance vehicle queue lengths compared to the existing roundabouts and give different road users and movements 'a fair go' at these intersections. In off peak periods, the signals would 'disrupt' the ease of through traffic movements and discourage them from using Mitchell Road where a reasonable alternative is available for the trip. The signals would also create platoons of vehicles which will provide more gaps between them for people to cross Mitchell road either side of the traffic signals. |
| Impacts and benefits: | In the AM peak, this recommendation would result in an approximately 2.5 minute saving in northbound vehicle travel times on Mitchell Road and reduce bus travel times and improve the reliability of buses using Mitchell Road. In the PM peak, the traffic signals will have a minimal change to southbound vehicle travel times as queues are not as long as in the AM peak northbound. |
| Design considerations: | The signalisation of Mitchell/Harley/Ashmore is expected to be constructed by 2026 as part of a local development |


Maddox Street

| | |
|------------------------|---|
| Recommendation: | Introduce traffic calming into Maddox Street (<i>but don't close it at Euston</i>) (I.D. 3.1) and introduce a no left turn from Euston Road into Maddox Street (new) |
| Reasoning: | Maddox Street is an important route for people to drive between Euston Road and McEvoy Street to access residences and businesses, particularly in peak periods. The local network needs Maddox Street open with the recommended closure of Harley Street (Item 5.1) otherwise there won't be enough traffic routes for local traffic to enter and exit the local area. The signalisation of Mitchell / Maddox also discourages through traffic to an level which means that Maddox Street does not have to be closed. The proposed traffic calming measures will reduce vehicle speeds and deter 'rat-running', particularly by heavy vehicles and especially during peak periods. |
| Impacts and benefits: | In the PM peak, modelling indicates that this recommendation would reduce traffic on Maddox Street by approximately 20% or 122 veh/hr. It would have minimal influence on traffic flows along Fountain Street (the nearest parallel route) and would result in a minor increase in traffic along Mitchell Road. It will add a negligible amount of traffic on Euston Road - McEvoy Street in peak periods. |
| Design considerations: | Traffic flows are already interrupted by two roundabouts on Maddox Street between Mitchell Road and Euston Road. There is an existing speed platform just east of the Maddox/Mitchell intersection which would have to be removed with the signalisation of this intersection. Introducing raised intersection platforms at the intersections of Maddox Street with Euston Lane, with Lawrence Lane and with Belmont Lane would help establish a speed environment closer to 20kph-30kph compared to the current 40kph (approx.) and act to further deter through traffic, particularly trucks. |
| Other considerations: | To further reduce truck movements, a 'No Left Turn' sign or a 'No left turn – vehicles under 9m excepted' sign could be introduced for the currently-permitted left turn from Euston Road into Maddox Street. This would essentially force these movements to use the alternative route via Sydney Park Road – Mitchell Road to access the local area and the businesses along Mitchell Road. |


Concept layout
(indicative)



Mitchell Road

| | |
|------------------------|--|
| Recommendation: | Introduce traffic calming into Mitchell Road between Huntley Street and Ashmore Street (I.D. 7.1) |
| Reasoning: | Mitchell Road will continue to play an important role in supporting local access to residential areas and businesses either side of it, as well as providing a minor relief route function in peak periods. The proposed traffic calming will reinforce its residential character, will result in reduced traffic speeds, will discourage off peak traffic from using it for through movements (as faster routes exist) and will improve walking and cycling conditions along and across it. |
| Impacts and benefits: | Depending on the configuration of the design of the calming devices, this may result in localised losses of on-street parking. Reduced speeds will however provide benefits to cyclists, pedestrians, side street traffic and residents along Mitchell Road, as well as further discourage through traffic, particularly outside of peak periods. |
| Design considerations: | A design for this item has not yet been prepared. The design should aim to reduce average traffic speeds along this section to below 30kph and where possible, provide marked cycling lanes. Given that Mitchell Road is a bus route, speed reduction platforms are more likely than chicanes or similar lateral path-change treatments due to the inability for buses to pass through these types of calming measures. |
| Typical cross-section: |  |

Coulson Street

| | |
|---|---|
| Recommendation: | Introduce a continuous footpath treatment and road narrowing along Coulson Street between Mitchell Road and Eve Street (I.D. 12.1) |
| Reasoning: | Coulson Street has evolved into primarily a residential street but still carries reasonably high volumes of non-local traffic, including trucks. The management of vehicle speeds along and turning into / out of Coulson Street will improve conditions for pedestrians and cyclists whilst discouraging the use of this street by through traffic. |
| Impacts and benefits: | Raised footpath treatments crossing Hadfield Street and Eve Street will improve pedestrian safety and convenience at these locations and reduce the speed of turns into and out of these side streets. Road narrowing through physical measures or line-marking will also reinforce a slower speed environment and better delineate traffic-able areas. |
| Design considerations: | The design for this item is being progressed in parts with the Eve Street 'Continuous Footpath Treatment' and pedestrian crossing to be constructed by mid-2023. |
| Example of growing traffic versus pedestrian conflicts: |  |

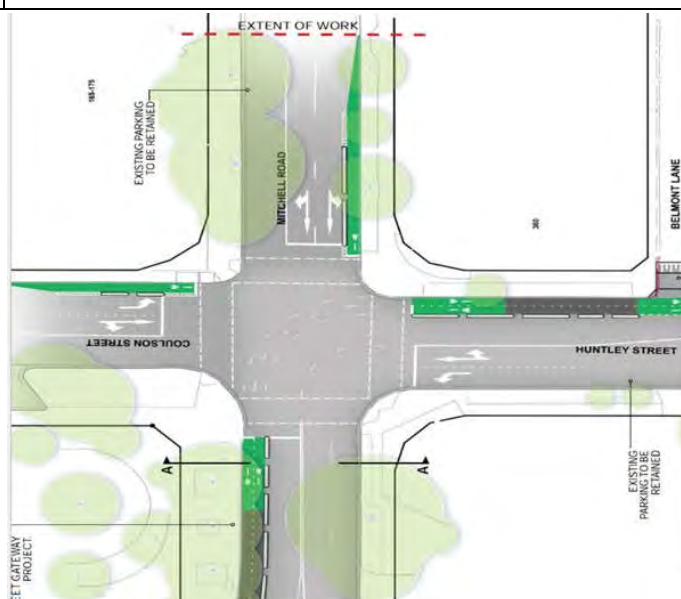
Park Street

| | |
|------------------------|---|
| Recommendation: | Introduce a right turn ban from Park Street into Railway Parade (<i>i.e. not a full closure</i>) as Railway Parade is returned to two-way operations (I.D. 1.2) |
| Reasoning: | <p>The right turn ban restricts the through traffic using Park Street to 'bypass' the Swanson Street / Railway Parade intersection. Local residents can still head east from Park Street via a left turn at Swanson Street. Full closure of Park Street is unnecessary and undesirable for two key reasons:</p> <ul style="list-style-type: none"> ▪ All 'rat-running' routes using the right turn out, left turn in or left turn out movement would take much longer via Park Street than via Swanson Street and/or Railway Parade. ▪ It could force local residents heading towards Newtown to turn right from Park Road into Swanson Street. Heavy westbound traffic on Swanson Street in peak periods means there are sometimes long delays to find a gap to turn right in to.. |
| Impacts and benefits: | Restricts through traffic for the most likely 'rat running' movement without significantly impacting local residents' access. |
| Design considerations: | A design for this item has not yet been prepared. The design would need to resolve how to physically restrict right turns out but still allow right turns into Park Street. A curved / triangular central island to direct all turns out of Park Street to the left may be an option. |

Mitchell Road / Huntley Street

| | |
|------------------------|---|
| Recommendation: | Upgrade Mitchell Road / Huntley Street / Coulson Street to the Council-proposed configuration (I.D. 8.1) |
| Reasoning: | The proposed configuration introduces dedicated cycle lanes at the intersection to improve safety for people riding and contributes to a continuous cycleway between of the Huntley Street and Sydney Park Road (proposed) cycleways. |
| Impacts and benefits: | This item reduces the Mitchell Road approach from the south from two lanes (now) to one lane to allow for the introduction of cycling lanes and to reduce pedestrian crossing distances. Traffic modelling of the proposal shows that this would have no impacts on traffic queues because the only vehicles that use this approach come from either the left turn or the right turn pocket from Sydney Park Road at its intersection with Mitchell Road. |
| Design considerations: | Council has prepared a design for this upgrade, and construction of it is programmed to commence in October 2022. |

Design concept:



6. OPTIONS NOT INCLUDED IN THE WORKS PACKAGE

This section describes the options that the study does not recommend for inclusion in the works package and why.

Bus Only Right Turn: Mitchell Road into Sydney Park Road

| | |
|-----------------------|---|
| Recommendation: | Do not restrict the right turn from Mitchell Road into Sydney Park Road to buses only (I.D. 10.1) |
| Reasoning: | <p>TfNSW banned the right turn from Euston Road (southbound) into Sydney Park Road (westbound) as part of its changes to their intersection. This has attracted drivers moving south through the study area to rat-run via Mitchell Road and turn right at its intersection with Sydney Park Road. Banning this traffic movement (but allowing buses only) would divert some of this through traffic from Mitchell Road but it would also:</p> <ul style="list-style-type: none"> ▪ Divert some of this through traffic into other local roads like Coulson Street, Ashmore Street and Copeland Street, which is undesirable ▪ Force some of this through traffic to stay on Euston Road to turn right further south at Campbell Road ▪ Force some local traffic that currently uses Mitchell Road to turn right into Sydney Park Road to instead turn left out of Mitchell Road and then right into Euston Road to take a more circuitous route to turn right further south, say at Campbell Street. <p>Traffic modelling indicated that this recommendation would cause significant delays to vehicles using the road network, particularly at the Euston Road /Sydney Park Road intersection which, according to a local area model would not have sufficient capacity in peak periods to serve the extra movements through it. The modelling indicates that the traffic impacts of this proposal significantly outweigh its benefits and it should only be reconsidered if TfNSW provides a right turn from Euston Road into Sydney Park Road in the future.</p> |
| Impacts and benefits: | <p>In the afternoon peak, the proposal reduces traffic on Mitchell Road by 30%-40% and southbound traffic on Euston Road increases by over 100 veh/hr (or +11%) and the right turn movement from Sydney Park Road to Euston Road increases by 170 veh/hr (or 41%). The changes creates queues on the Sydney Park Road approach to Euston Road which spill back into Mitchell Road as far as Huntley Street, also affecting bus travel times.</p> |

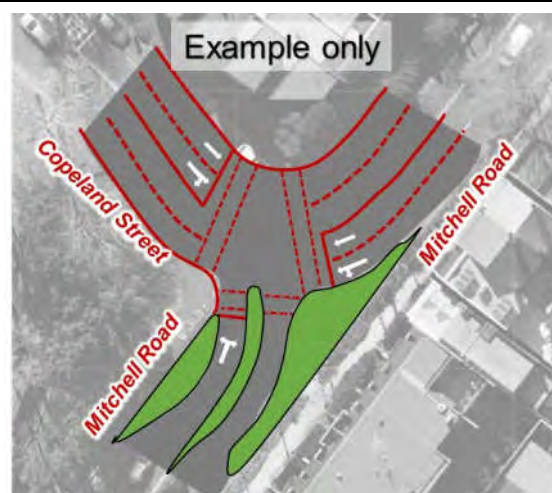
Typical queuing impacts of the proposal:



Mitchell / Copeland and Mitchell / Fountain

| | |
|------------------------|--|
| Recommendation: | <u>Do not</u> re-orientate the intersections of Mitchell Road / Copeland Street or Mitchell Road / Fountain Street (I.D. 13.1 and 14.1) |
| Reasoning: | <p>The 're-orientation' of these intersections involves works to make the movements between Copeland Street and Fountain Street appear to drivers to be the main through movement path at each intersection. An example of the proposal at Mitchell / Copeland is show below.</p> <p>Mitchell Road to the south of Copeland Street and to the north of Fountain Street would be the 'minor' legs of these T intersections under this scheme with the aim of interrupting through traffic movements along Mitchell Road from north of Fountain Street to south of Copeland Street and hence making this a less desirable movement.</p> <p>However, the re-orientation works required at these intersections (essentially to 'twist' them 90 degrees) would require property resumptions which would create significant local impacts and be at a significant capital cost that would outweigh the benefits.</p> |

Example of intersection 're-orientation'.



Mitchell at McEvoy

| | |
|------------------------|--|
| Recommendation: | <u>Do not</u> close Harley Street at Mitchell Road |
| Reasoning: | <p>Harley Street has been recommended to be closed at McEvoy Street instead of at Mitchell Road and there is no benefit in closing Harley Street at both ends.</p> <p>Closing Harley Street at Mitchell instead of at McEvoy would allow more traffic into Harley from McEvoy-Euston and would divide the local area into those streets that are accessible east of Mitchell and those that are accessible west of Mitchell. Both of these outcomes are worse for the street amenity and traffic accessibility of local residents.</p> |

Preferred location to close Harley Street





Erskineville and Alexandria Traffic and Transport Study

City of Sydney

21 September 2022



Gold Coast

Suite 26, 58 Riverwalk Avenue
Robina QLD 4226
P: (07) 5562 5377

Brisbane

Level 2, 428 Upper Edward Street
Spring Hill QLD 4000
P: (07) 3831 4442

Sydney

Studio 203, 3 Gladstone Street
Newtown NSW 2042
P: (02) 9557 6202

W: www.bitziosconsulting.com.au

E: admin@bitziosconsulting.com.au

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EXECUTIVE SUMMARY

Scope and Purpose of this Document

The Council of the City of Sydney (Council) has commissioned Bitzios Consulting to build on its 2017 work and assess future traffic and transport management needs in a widened study area that now extends into part of Erskineville, as shown in **Figure ES1**. Since the recommendations in the 2017 study, Council has constructed a number of traffic management, pedestrian and cycling improvements within the study area with more to come by mid-2023. These works are shown in **Figure ES2**.



Figure ES1: Study Area



Figure ES2: Recently Constructed or Committed-to-be-Constructed Works

Summary of the Key Outcomes of the Assessment of the Year 2019 Network and Services

This study has undertaken a detailed analysis of the Year 2021 traffic and transport conditions within the study area with key findings including:

- As part of the WestConnex project, TfNSW introduced traffic signals at the Euston Road / Sydney Park Road intersection. These works removed the ability to turn right from Euston Road into Sydney Park Road. Some of this traffic now makes this connection via roads within Alexandria
- Most of the roads, with the exception of Euston Road-McEvoy Street, are one traffic lane in each direction
- The study area includes frequent bus services and multiple stop locations along McEvoy Street-Euston Road and Mitchell Road, as well as two train stations within 850m of the study area
- There are two existing zebra crossings on Mitchell Road at Harley Street and at Maddox Street which require traffic to stop when pedestrians use them
- There is a mix of on-road cycling lanes and off-road shared paths throughout the study area and Council is planning to introduce more cycling lanes and shared paths on Ashmore Street and on Harley Street

To understand current travel patterns, extensive traffic surveys including intersection turning counts, travel time surveys and Origin-to-Destination (OD) surveys were undertaken. The data was analysed to establish the current travel patterns. Key highlights include:

- A comparison of hourly traffic flow data on Mitchell Road shows that the 2021 data is not 'COVID-affected' and is a reasonable source to update the traffic models for the study area
- Traffic flows between 8am and 9am represent the AM peak while the flows between 5pm and 6pm represent the PM peak
- The OD data suggests that in the two peak hours, excluding Euston Road-McEvoy Street, that just over half of the traffic in the study area is generated by the study area meaning that the other half is through traffic
- Bus stops on Botany Road, Fountain Street and McEvoy Street show the highest passenger movements, aligned with the location of key routes in the study area and likely due to residential unit densities on Lawrence Street and Lawrence Lane
- Cycling demands on the recently opened, separated off-road cycleway along Railway Parade have shown an upward trend
- In the five-year period ending December 2019, a total of 186 crashes were reported within the study area. This represents a little over 37 crashes per year. One (1) was a fatality, 140 crashes resulted in injury and 45 crashes involved property damage only. The 186 crashes involved 18 pedestrians and 26 cyclists. The yearly crash statistics show a downward trend with a sharp decline in 2019
- Vehicle collisions with people walking are scattered across the study area but with a relatively high concentration on the section of McEvoy Street between Botany Road and Foundation Street
- A safety review of the section of Mitchell Road between Harley Street and Maddox Street identified a number of instances where people walking and cycling are placed at risk of being hit by vehicles due to a wide roadway, sightlines obscured by parked vehicles and car doors opening into cyclists.

Summary of the Process to Develop, Assess and Recommend Options

Bitzios Consulting, in consultation with Council representatives, developed a set of transport strategy objectives for the study area. They were:

- Maximise accessibility, safety and amenity for walking and cycling, including to/from bus stops
- Limit through traffic on local streets and particularly those streets used for filtering between Mitchell Road and Euston Road-McEvoy Street
- Encourage through traffic to use state roads instead of local roads
- Minimise turn bans and/or closures for other alternatives to restrain through traffic
- Minimise consequential traffic impacts from any proposed traffic management measures.

Once the objectives were agreed, and from what was revealed through the review of 2019 conditions, a number of new local improvement options were devised with input from Council (some of which was from resident input). The improvement options were then grouped into two scenarios so that they could be evaluated as integrated works packages. The options development, evaluation, selection and finalisation process is summarised in **Figure ES3**.

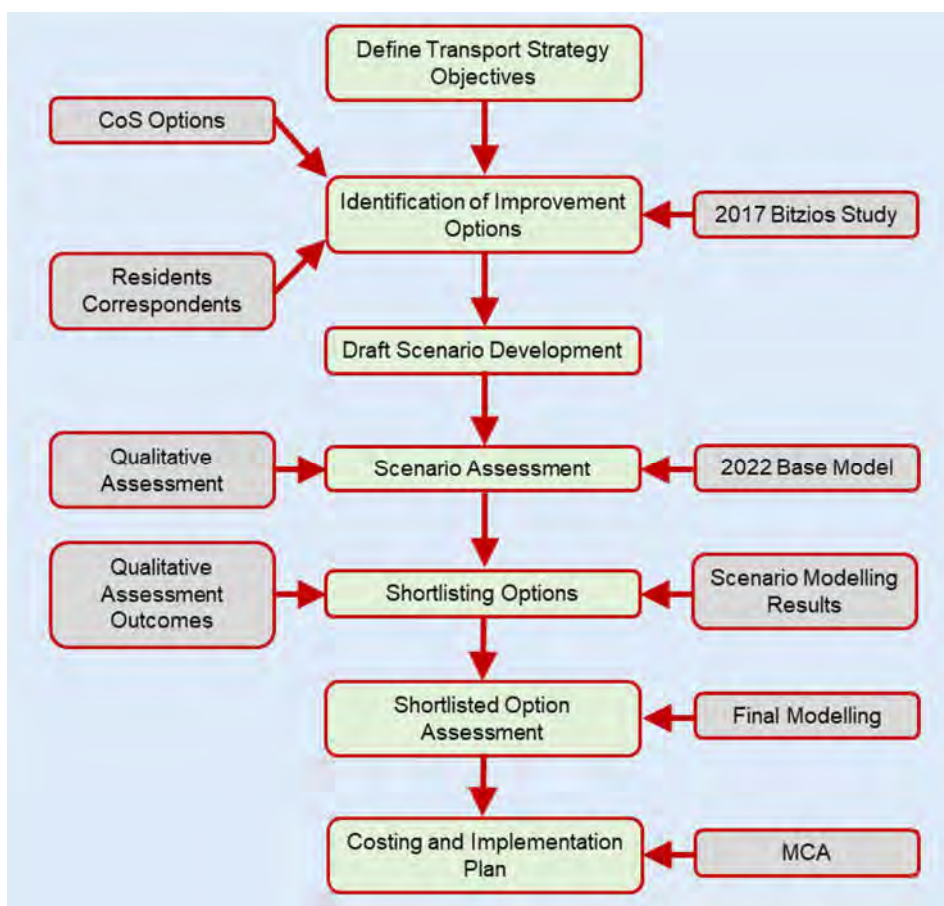


Figure ES3: Process to Develop, Assess and Recommend Options

Traffic models were created to assess the scenarios, as follows:

- **2021 Base Model:** From traffic survey data to replicate 2021 AM/PM peak hour traffic conditions
- **2022 Base Model:** Same as the 2021 Base Model but includes all of the measures estimated by Council to be constructed by mid-2022.

Options and Scenarios

The options were grouped into the following three types:

- **10 x Committed Works:** Improvement proposals that weren't constructed in 2021 but were likely to be implemented by mid-2023 (as per **Figure ES2**). Each committed works item was identified with a one-digit unique number preceded by a 'C' (e.g. C1, C2 and C3)
- **15 x Transport Management Options:** Improvement proposals this study had identified for assessment. For each option, a two-digit unique identifier was used (e.g. 1.1, 1.2 and 2.1)
- **8 x Road Space Reallocation Options:** Improvement proposals that are likely to have no impact on traffic. Each general option is identified by capital letters (e.g. A, B and C).

The 15 x Transport Management Options are listed in **Table ES1**. It would have taken a long time to model each option individually. Also, some options needed to be modelled together anyway because they influence other options in the study area. Accordingly, in consultation with Council, Bitzios Consulting grouped the long list of options into *Scenarios* for traffic modelling and evaluation purposes and this grouping is shown in **Table ES1**. The scenarios were:

- **Scenario A:** All *committed or recently constructed works* (as per **Figure ES2**) plus *proposed options* that (mostly) use traffic management to discourage through traffic using residential streets. "Traffic management" includes traffic calming, some turn bans and traffic signals on local (Council) roads
- **Scenario B:** All *committed works or recently constructed works* (as per **Figure ES2**) plus *proposed options* that (mostly) use traffic restrictions to discourage through traffic using residential streets. "Traffic restrictions" include street closures and turn bans.

Table ES1: Proposed Options Grouped into Scenarios

| Option I.D. | Option description | Scenario A | Scenario B |
|-------------|--|------------|------------|
| 1.1 | Close Park Street at Railway Parade | | Yes |
| 1.2 | Right turn ban from Park Street into Railway Parade | Yes | |
| 2.1 | Raised Ped / Cycle Crossing (Swanson Street / Park Street) | Yes | Yes |
| 3.1 | Maddox Street Traffic Calming | Yes | |
| 4.1 | Closure of Harley Street at Mitchell Road | | Yes |
| 5.1 | Closure of Harley Street at McEvoy Street | Yes | |
| 6.1 | Maddox Street / Mitchell Road traffic signals | Yes | Yes |
| 7.1 | Mitchell Road (Huntley Street to Ashmore Street) traffic calming | Yes | |
| 8.1 | Mitchell Road / Huntley Street intersection improvement | Yes | |
| 9.1 | Closure of Maddox Street at Euston Road | | Yes |
| 10.1 | Bus Only Right Turn from Mitchell Road to Sydney Park Road | | Yes |
| 11.1 | Traffic signals at Mitchell Road / Harley Street / Ashmore Street | Yes | |
| 12.1 | Road Narrowing and CFT on Side Roads along Coulson Street | Yes | |
| 13.1 | Re-orientate Mitchell Road / Copeland Street for N to W priority (single lanes to / from Mitchell) | | Yes |
| 14.1 | Re-orientate Mitchell Road / Fountain Street priority (single lanes to / from Mitchell) | | Yes |

Figure ES3 shows the option locations and identifies their source and if they could be assessed using the traffic model or not. For example, footpath widenings and additional signs and line markings have a minimal effect on traffic flow and are not modelled.

Summary of Key Outcomes of the Assessment of **Scenario A** Compared to the Base Case

| Option I.D. | Option inclusions in Scenario A |
|-------------|---|
| 1.2 | Right turn ban from Park Street into Railway Parade |
| 2.1 | Raised Ped / Cycle Crossing (Swanson Street / Park Street) |
| 3.1 | Maddox Street Traffic Calming |
| 5.1 | Closure of Harley Street at McEvoy Street |
| 6.1 | Maddox Street / Mitchell Road traffic signals |
| 7.1 | Mitchell Road (Huntley Street to Ashmore Street) traffic calming measures |
| 8.1 | Mitchell Road / Huntley Street intersection improvement |
| 11.1 | Traffic signals at Mitchell Road / Harley Street / Ashmore Street |
| 12.1 | Road Narrowing and CFT on Side Roads along Coulson Street |

Network Modelling Outputs: Key Network Statistics

- Average delay and Vehicle Hours Travelled (VHT) are similar
- AM Peak: Scenario A measures would not impact the travel times.
- PM Peak: Scenario A would increase network travel times by 7%.

Network Modelling Outputs: Vehicle Travel Times

- The AM peak northbound travel time on Mitchell Road would reduce by over 2.5 minutes
- The AM peak southbound travel time on Mitchell Road would increase by over one minute
- The AM and PM peak northbound travel times on Euston Road / McEvoy Street would increase by 1.5 minutes.

Network Modelling Outputs: Traffic Volume Changes

- Traffic flows on Park Street would reduce by 59% or 160 veh/hr (AM peak) and 70% or 214 veh/hr (PM peak) due to the Park Street right turn out ban
- AM peak traffic on Fountain Street would increase by 8% or 49 veh/hr due to traffic diverted from the Harley Street closure
- AM peak traffic on Euston Road will reduce by 7% or 181 veh/hr due to the cumulative effects of the options in this scenario
- Traffic on Swanson Street will reduce by 15% or 143 veh/hr (AM Peak) and 28% or 278 veh/hr (PM peak) due to reduced eastbound traffic as a result of the Railway Parade two-way operation.

Network Modelling Outputs: Maintaining Local Vehicle Access While Reducing Through Traffic

- The option for a right turn ban from Park Street into Railway Parade will reduce Park Street traffic by over 70% with minimal local vehicle accessibility impacts
- The option for traffic calming in Maddox Street will reduce its PM peak traffic by 20%
- The closure of Harley Street at McEvoy Street will reduce Harley Street traffic by 70% while maintaining local accessibility via Maddox Street, Fountain Street and Mitchell Road. Due to the combined benefits of the other improvement options in this scenario, the traffic displaced from the closure will not worsen traffic congestion elsewhere.

Network Modelling Outputs: Outcomes for Other Road Users

- Reduced traffic on Park Street, Maddox Street and Harley Street will improve walking and cycling comfort and safety on these streets
- The two controlled crossings on Mitchell Road and the raised crossing on Swanson Street will improve pedestrian and cyclist safety for crossing at these locations
- Reduced traffic speeds along Mitchell Road will improve the safety and comfort for cycling
- Reduced delays at the intersection of Mitchell Road with Maddox Street and with Harley Street will reduce bus travel times and improve bus travel time reliability.

Options to Take Forward

All nine improvement options included in Scenario A are recommended for implementation. A description of each option and their contributions to traffic and transport performance are summarised in **Table ES2**.

Summary of Key Outcomes of the Assessment of **Scenario B** Compared to the Base Case

| Option I.D. | Option description |
|-------------|--|
| 1.1 | Close Park Street at Railway Parade |
| 2.1 | Raised Ped / Cycle Crossing (Swanson Street / Park Street) |
| 4.1 | Closure of Harley Street at Mitchell Road |
| 6.1 | Maddox Street / Mitchell Road traffic signals |
| 9.1 | Closure of Maddox Street at Euston Road |
| 10.1 | Bus Only Right Turn from Mitchell Road to Sydney Park Road |
| 13.1 | Re-orientate Mitchell Road / Copeland Street for N to W priority (single lanes to / from Mitchell) |
| 14.1 | Re-orientate Mitchell Road / Fountain Street priority (single lanes to/from Mitchell) |

Network Modelling Outputs: Key Network Statistics

- Average delay across the study area would increase on average by 38% or 35 seconds (AM peak) and 71% or 51 seconds (PM peak) due to extra congestion.

Network Modelling Outputs: Vehicle Travel Times

- The southbound travel time on Mitchell Road will increase by 10 minutes in the AM peak and 9 minutes in the PM peak due to excessive congestion at the southern end of Mitchell Road stemming from the Euston Road / Sydney Park Road traffic signals which are heavily congested by the changes
- The AM peak and the PM peak travel times along the Euston Road / McEvoy Street route will increase substantially due to increased congestion resulting from extra traffic diverted from Mitchell Road
- The re-orientation of Mitchell Road's intersections with Copeland Street and with Fountain Street (Options 13.1 and 14.1) introduces substantial delays to Mitchell Road in the PM peak. The re-routing caused by these changes adversely impacts the Sydney Park Road / Euston Road / Huntley Street intersection.

Network Modelling Outputs: Traffic Volume Changes

- Changing the right turn from Mitchell Road into Sydney Park Road to buses only will increase southbound traffic on Euston Road by 11% or 100 veh/hr (PM Peak). The right turn movement from Sydney Park Road into Euston Road will increase by 41% or 170 veh/hr (PM Peak) and the right turn movement from Botany Road (north) to McEvoy Street will increase by 10% or 50 veh/hr (PM Peak)
- The closure of Maddox Street at Euston Road will reduce its traffic by 54% or 327 veh/hr (AM peak) and 61% or 404 veh/hr (PM peak)
- The closure of Harley Street at Mitchell Road will reduce its traffic by 60% or 106 veh/hr (AM peak) and 74% or 232 veh/hr (PM peak).

Network Modelling Outputs: Maintaining Local Vehicle Access While Reducing Through Traffic

- The full closure of Park Street at Railway Parade will limit access for its residents to be via the Copeland Street intersection only, with much longer travel times, particularly to travel west
- The closure of both Maddox Street at Euston Road and Harley Street at Mitchell Road do not substantially reduce local traffic access because a number of other streets are available.

Network Modelling Outputs: Outcomes for Other Road Users

- Reduced traffic on Park Street, Maddox Street and Harley Street will improve pedestrian comfort and safety
- The controlled crossings at Maddox Street and at Mitchell Road and raised crossing on Swanson Street will improve pedestrian and cyclist safety
- Much longer delays along Mitchell Road will impact bus travel times and reduce bus travel time reliability.

Options to Take Forward

The eight options considered as part of Scenario B and their evaluation outcomes are summarised in **Table ES2**. Options 2.1 and 6.1 have been recommended for implementation. The restriction of right turns from Mitchell Road to Sydney Park Road to bus only is the dominant influence on the modelled performance of the local network in Scenario B. Without upgrades to the Sydney Park Road / Euston Road intersection, the modelling outputs suggest that its impacts into the local network are substantial. This option is not recommended to proceed.

Summary of the Options Evaluation Recommendations

Table ES2 summarises the evaluation of each option item within each Scenario

Table ES2: Individual Options - Evaluation Summary

| ID | Location | Option | Proceed? | Why/ Why Not? |
|------------------|--|--|----------|--|
| 1.1 | Park Street / Railway Parade | Close Park Street at Railway Parade | No | Reduces traffic flows on Park Street significantly but significantly impacts resident access, particularly to travel west. Rat running in Park Street is a northbound issue - there is no logical travel pattern to rat run southbound for. |
| 1.2 | Park Street / Railway Parade | Right turn ban from Park Street into Railway Parade | Yes | Reduces traffic flows on Park Street significantly by 70% or 214 veh/hr in the PM peak. No noticeable impacts of the traffic diverted elsewhere. |
| 2.1 | Swanson Street / Park Street | Raised Ped/ Cycle Crossing (Swanson Street / Park Street) | Yes | Improves active transport safety with practically no impacts on traffic. |
| 3.1 ¹ | Maddox Street | Maddox Street Traffic Calming Scheme | Yes | Reduces PM peak traffic flows by 20% or 122 veh/hr, improving walking and cycling conditions and street amenity. Most of diverted traffic shifts to Euston Road-McEvoy Street. |
| 4.1 | Mitchell Road /Harley Street | Closure of Harley Street at Mitchell Road | No | Reduces traffic on Harley Street and improves the safety of walking and cycling along this street but reduces traffic access by locals. Closure at McEvoy Street is preferred because it maintains traffic access from Mitchell Road, a lower order (local) road. |
| 5.1 | McEvoy Street / Harley Street | Closure of Harley Street at McEvoy Street | Yes | Reduces traffic on Harley Street by 70%. With no through traffic, walking and cycling safety and street amenity are improved. Does not generate excessive traffic diversion impacts elsewhere. |
| 6.1 | Maddox Street / Mitchell Street | Maddox Street / Mitchell Road traffic signals | Yes | Better 'equalises' delays and queues currently experienced at the roundabout and reduces overall delays and queues too. Pedestrians and cyclists have a safer signalised crossing. Supports passive traffic calming on Mitchell Road by how the signal times are set to discourage through traffic. |
| 7.1 | Mitchell Road | Mitchell Road (Huntley Street to Ashmore Street) traffic calming measures | Yes | Reduces traffic speeds making it safer for parking manoeuvres, for cyclists and for pedestrians cross mid-block. Supports the broader intent of reducing through traffic usage of Mitchell Road. |
| 8.1 | Mitchell Road / Huntley Street | Mitchell Road / Huntley Street intersection narrowing | Yes | No significant impacts on intersection capacity. Improves pedestrian and cyclist safety by reducing the length of crossing conflict with vehicles. |
| 9.1 ¹ | Euston Road / Maddox Street | Closure of Maddox Street at Euston Road | No | Substantially reduces traffic on Maddox Street (60%) but the displaced traffic significantly impacts the wider road network, particularly if Item 5.1 is implemented. |
| 10.1 | Sydney Park Road / Mitchell Road | Right Turn from Mitchell Road to Sydney Park Road as Bus Only | No | Reduces traffic on Mitchell Road by 30%-40% in peak hours but diverts and focusses this traffic on the Euston Road / Sydney Park Road intersection, pushing it to its capacity and propagating a queue back up Sydney Park Road and then well into Mitchell Road. Should only be contemplated if a right turn is provided by TfNSW from Euston Road into Sydney Park Road. |
| 11.1 | Mitchell Rd / Harley Street / Ashmore St | Traffic signals at Mitchell Rd / Harley Street / Ashmore St | Yes | Reduces intersection delays and queues at this complex set of staggered intersections. Clarifies movement priorities too. Signal-controlled pedestrian/cyclist crossing facilities improves safety for these users. Supports the broader intent of reducing through traffic usage of Mitchell Road. |
| 12.1 | Coulson Street | Road Narrowing and Continuous Footpath Treatment at side road intersections along Coulson Street | Yes | Reduces traffic speeds and improves walking and cycling safety without any significant consequential impacts. |
| 13.1 | Mitchell Road / Copeland Street | Re-orientate Mitchell Road / Copeland Street for N to W priority | No | Mitchell Road still attracts a large volume of turn movements and too large an intersection would be required to make this work without very long queues. |
| 14.1 | Mitchell Road / Fountain Street | Re-orientate Mitchell Road / Fountain Street priority | No | Mitchell Road still attracts a large volume of turn movements and too large an intersection would be required to make this work without very long queues. |

¹ Following the scenario evaluation, and in consultation with Council, added to Item 3.1 was the banning the left turn from Euston Road into Maddox Street. Traffic making this left turn movement can instead be made diverted via Sydney Park Road and Mitchell Road to reach the same destinations.

Summary of Works Recommended for Council to Implement

The recommended works package is summarised in **Figure ES4**. Together, the works incorporated into the package aim to:

- Improve walking and cycling safety and connectivity in the study area, encouraging more walking and cycling, and adding value to nearby footpaths, shared paths and cycleways facilities already (or soon to be) constructed by Council
- Reduce motor vehicle speeds and volumes on local roads by discouraging through-traffic using local roads, especially in off-peak periods.
- Maintain vehicle access for local residents and businesses in the study area.

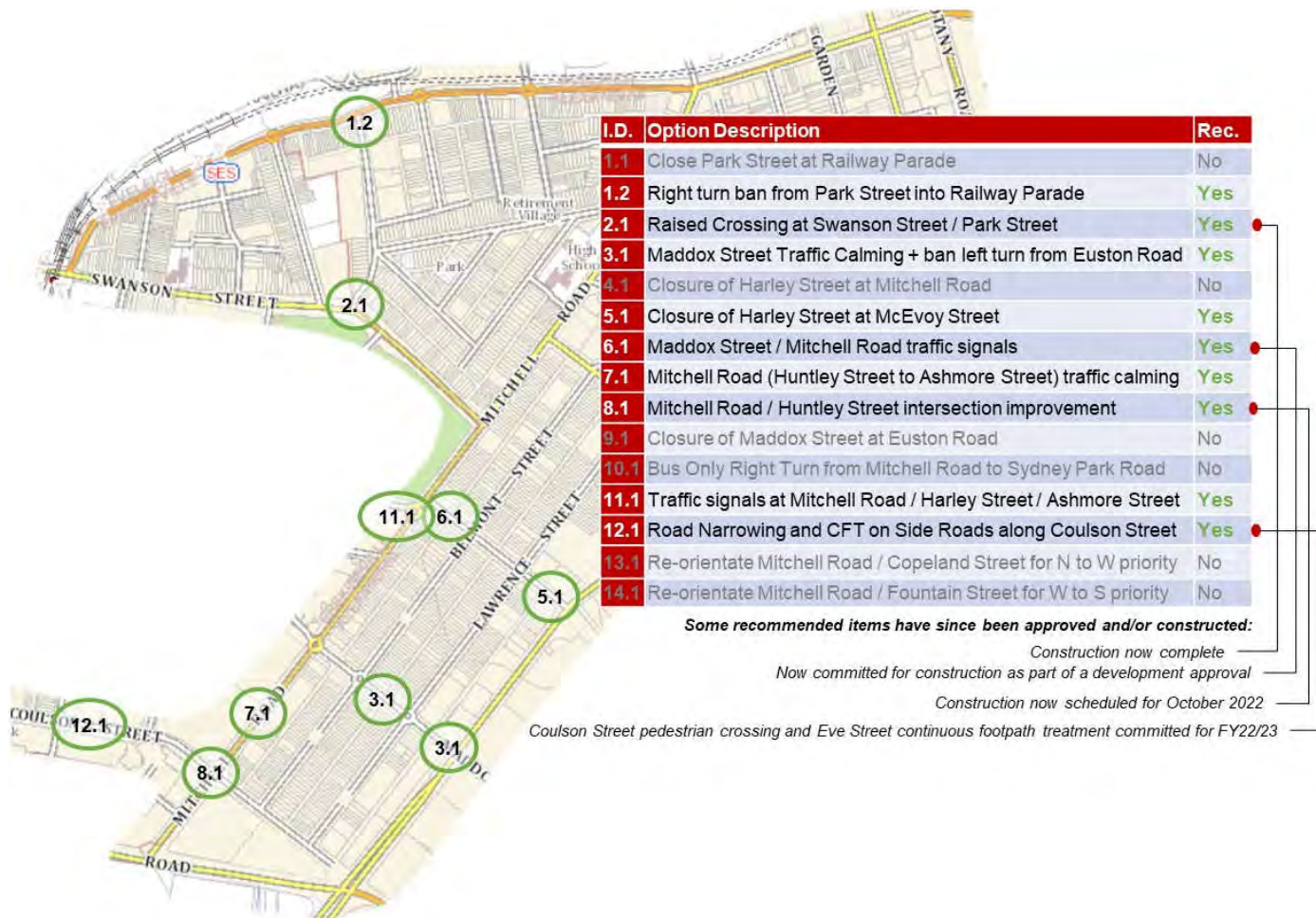


Figure ES4: Recommended Works Package

Overall, the recommended works package provides significant local benefits to walking, cycling, public transport and street amenity and without any meaningful changes to peak period traffic congestion on local roads (controlled by City of Sydney) or major roads (controlled by NSW Government).

The recommended projects are listed in priority order and with indicate construction costs in **Table ES3**.

Table ES3: Recommended Projects and Costs (in Priority Order)

| ID | Works Item | Indicative Construction Cost (2021 dollars) |
|--|---|---|
| 5.1 | Closure of Harley Street at McEvoy Street | \$39,900 |
| 11.1 | Traffic signals at Mitchell Road / Harley Street / Ashmore Street ⁴ | \$369,700 |
| 3.1 | Maddox Street Traffic Calming and left turn ban from Euston Road | \$78,600 |
| 7.1 | Mitchell Road (Huntley Street to Ashmore Street) traffic calming measures | \$126,100 |
| 6.1 | Maddox Street / Mitchell Road traffic signals ³ | - |
| 12.1 | Road narrowing and CFT on side roads intersecting Coulson Street ⁵ | \$108,600 |
| 1.2 | Right turn ban from Park Street into Railway Parade ¹ | \$15,900 |
| 2.1 | Raised pedestrian / cyclist crossing at Swanson Street / Park Street ² | - |
| 8.1 | Mitchell Road / Huntley Street intersection improvement ⁴ | - |
| Total Indicative Cost to Council: | | \$738,800 |

¹ Low-Cost item for a specific residential catchment. May be suitable for early implementation

² Construction now complete

³ Committed for construction by 2026 as part of a nearby development approval

⁴ Construction scheduled for October 2022

⁵ Coulson Street pedestrian crossing and Eve Street continuous footpath treatment committed for FY22/23

Recommendations for Minor Works items and further investigations are listed in **Table ES4**.

Table ES4: Recommended Minor Works and Further Investigations (not in priority order)

| ID | Road Space Reallocation Options |
|-----|---|
| [A] | Initiate a program of identifying excessively wide intersections in the study area and design and implement treatments to address these issues progressively as funding allows |
| [B] | Undertake concept design, including community consultation activities to develop a scheme to reduce the trafficable footprint of the Renwick / Dadley and Lyne / Dadley intersections, as funding permits |
| [C] | Initiate a 'signs and lines' review of Mitchell Road between Fountain Street and Anderson Street, including into its side roads in this section such as Brown Street, Buckland Street and Buckland Lane |
| [D] | Undertake concept design and develop a scheme to introduce footpath continuation across Belmont Street north of Fountain Street, as funding permits |
| [E] | Include the N-S cycleway crossing of Harley Street just east of Mitchell Road as part of the project to close Harley Street, should this be approved |
| [F] | Consider installing Bicycle Awareness Zone (BAZ) pavement markers on Mitchell Road south of Ashmore Street |
| [G] | In the short term and before the intersection is signalised (as per item 6.1), implement a pedestrian refuge island in Maddox Street near Mitchell Road |
| [H] | Widen the footpath on both sides of Copeland Street between Fox Avenue and Clara Street |

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1. INTRODUCTION

1.1 Background

In 2017, Bitzios Consulting was commissioned by the council of the City of Sydney (Council) to undertake traffic modelling and option assessments for Local Area Traffic Management (LATM) proposals within Alexandria. This work forecast the potential impacts of the (then) WestConnex St Peters Interchange proposal and assessed 11 traffic management measures to mitigate expected traffic re-routing impacts. The measures that were assessed included: street closures, road narrowing, pedestrian refuge islands and new traffic signals.

The measures were combined into five traffic management 'network options' as follows:

- **Option 1:** the closure of Harley Street to through traffic
- **Option 2:** the closure of Maddox Street to through traffic
- **Option 3:** the combination of Options 1 and 2
- **Option 4:** the closure of Loveridge Street and Brennan Street to through traffic
- **Option 5:** combination of Options 3 and 4.

The assessment identified that Option 5 would provide the best outcomes for reducing traffic volumes on local streets. Option 5 included the closure of Maddox Street, Harley Street, Loveridge Street and Brennan Street. Since the study was completed, Council has closed both Loveridge Street and Brennan Street just north of their intersections with McEvoy Street. Council did not progress with the closures of Maddox Street and Harley Street.

Since 2017, Council has been investigating and implementing new and improved cycleways, active transport crossing facilities and traffic management measures in parts of Alexandria and Erskineville. As part of these ongoing investigations, Council has commissioned Bitzios Consulting to build on its 2017 work and assess a variety of traffic and transport management proposals in a widened study area that extends into part of Erskineville. Figure 1.1 shows the study area boundary from the 2017 study and its extension for this study.

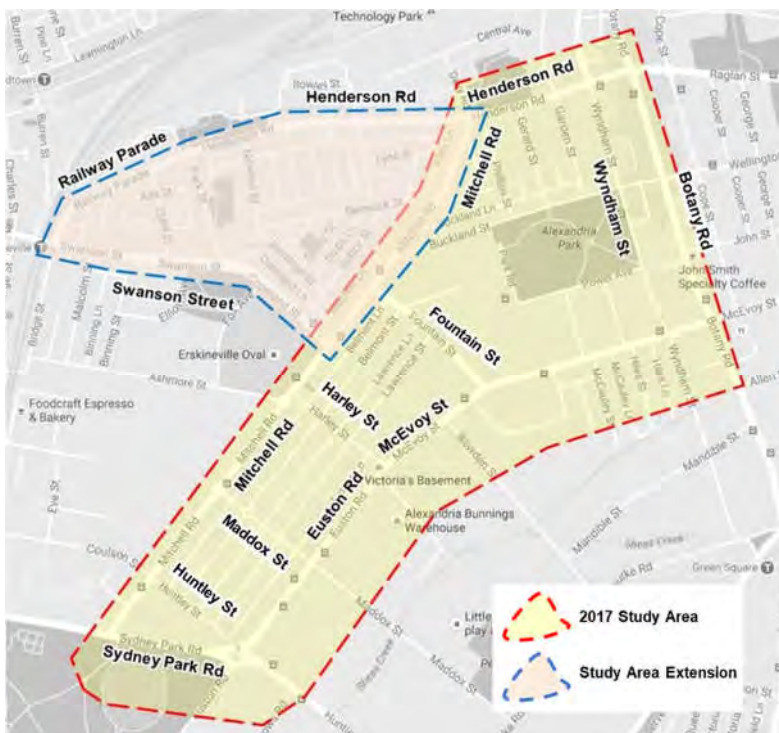


Figure 1.1: Study Area

1.2 Study Process

The study has included four stages, as follows:

- **Stage 1:** Involving the collection of travel pattern, traffic volume, travel time, public transport usage and active transport usage data and assessment of existing traffic and transport issues. The VISSIM traffic microsimulation model created in 2017, was extended, calibrated and validated as part of Stage 1
- **Stage 2:** Developing a 2022 base case traffic model, reflecting all of the recent works completed in the study area, and those proposed for completion before mid-2023. The objectives for this traffic and transport strategy were agreed in Stage 2 as the basis for criteria for option evaluation
- **Stage 3:** Creating a long list of treatment measures (or options), evaluating the long list and organising the shortlisted measures into two integrated network 'scenarios'. These scenarios were then modelled, evaluated and workshopped with Council, with a combination of the selected measures forming a draft preferred scenario which was optimised
- **Stage 4:** Costing and ranking/prioritising the measures within the draft preferred scenario to inform the recommended works program.

The M4-M5 link is expected to open in 2023 and this may introduce a number of traffic volume and traffic pattern changes around the St Peters Interchange. These changes have not been explicitly considered in the modelling and options assessment for this study.

2. CURRENT SITUATION

2.1 Existing Network and Services

A review of the existing (2021) traffic and transport conditions within the study area has been completed. The outcomes described in this section of the report are:

- *As part of the WestConnex project, TfNSW introduced traffic signals at the Euston Road / Sydney Park Road intersection. The intersection works included removal of the right turn movement from Euston Road to Sydney Park Road. This right turn removal has diverted traffic from Euston Road - McEvoy Street onto local streets, including onto Mitchell Road*
- *Most of the roads in the study area, with the exception of Euston Road - McEvoy Street, are one traffic lane in each direction*
- *The study area is well serviced by public transport, with frequent bus services and stop locations along Euston Road - McEvoy Street and along Mitchell Road*
- *The zebra crossings on Mitchell Road at Harley Street and at Maddox Street are heavily used in peak periods*
- *There is a mix of on-road and off-road cycling facilities throughout the study area and Council is planning to introduce more facilities on Ashmore Street, Harley Street and Railway Parade.*

2.1.1 Roads and Streets

Euston Road-McEvoy Street is the primary north-south road through the study area and Sydney Park Road is the primary east-west connection. There are limited alternative and direct east-west routes, and non-local traffic regularly uses routes such as McEvoy Street-Fountain Street-Mitchell Road-Swanson Street, Railway Parade, Ashmore Street, Maddox Street and Harley Street to 'filter' east-west through the Alexandria-Erskineville area.

As part of the WestConnex project, TfNSW upgraded the roundabout intersection of Euston Road and Sydney Park Road to a signalised intersection. As part of the upgrade, TfNSW removed the right turn from Euston Road into Sydney Park Road. This right turn removal aimed to increase north-south capacity at this intersection. Removal of this turn has had a two-fold effect, namely:

- Increasing the volume of 'through traffic' filtering through local streets in Alexandria-Erskineville for east-west movements
- Increasing the volume of right turns from Mitchell Road into Sydney Park Road, meaning an increase in traffic on Mitchell Road generally.

Key roads and intersections in the study area are shown in Figure 2.1. Most roads, with the exception of the Euston Road-McEvoy Street, which is a State-controlled road, are one traffic lane in each direction, with residential property frontages and local street environments which are poorly suited to increasing through traffic movements.



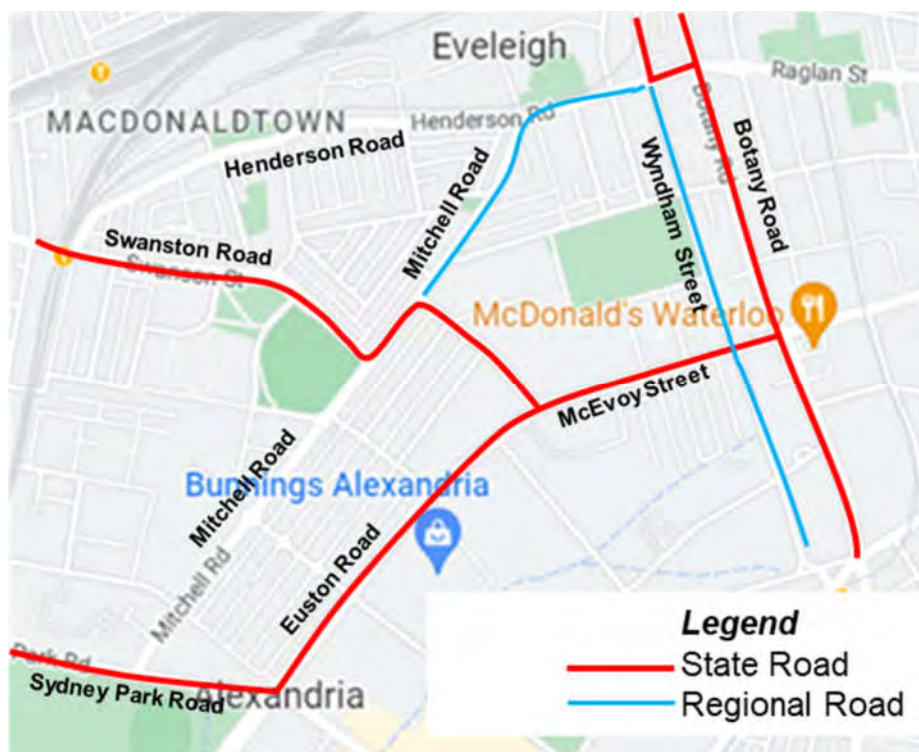
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2.1.2 Road Hierarchy

The road network within the study area contains a mix of local, regional and state roads. Some of the local and regional roads are used as connections between the eastern suburbs and the inner western suburbs of Sydney, for access to and from the Princes Highway, by visitors to Sydney Park and by workers and residents of the study area. The classification of the roads within the study area are:

- State Roads:
 - Euston Road
 - Fountain Street
 - McEvoy Street
 - Mitchell Road (between Fountain Street and Copeland Street)
 - Henderson Road (between Wyndham Street and Botany Road)
 - Sydney Park Road
- Regional Local Government Roads:
 - Mitchell Road (between Fountain Street and Henderson Road)
 - Henderson Road (between Mitchell Road and Wyndham Street)
 - Wyndham Street.
- Local Roads:
 - all other streets.

The study area's road hierarchy is shown in Figure 2.2.



Note:
Roads not shown in blue or red are local roads
Sydney Park Road is being re-classified as a Local Road

Figure 2.2: Road Hierarchy

2.1.3 Public Transport

The study area is well serviced by public transport. The nearest train stations to the study area are Erskineville Station located at the western boundary of the study area and Green Square Station located approximately 500m east of the study area.

Erskineville Station services the T3 Bankstown Line (Liverpool or Lidcombe to City via Bankstown) with a 5 to 10 minute frequency during morning and afternoon peak periods. Green Square Station services the T8 Airport & South Line (Macarthur to City via Airport) with a 5 to 10 minute frequency during morning and afternoon peak periods. The train routes and station locations are shown in Figure 2.3. The train frequencies are summarised in Table 2.1 and Table 2.2.

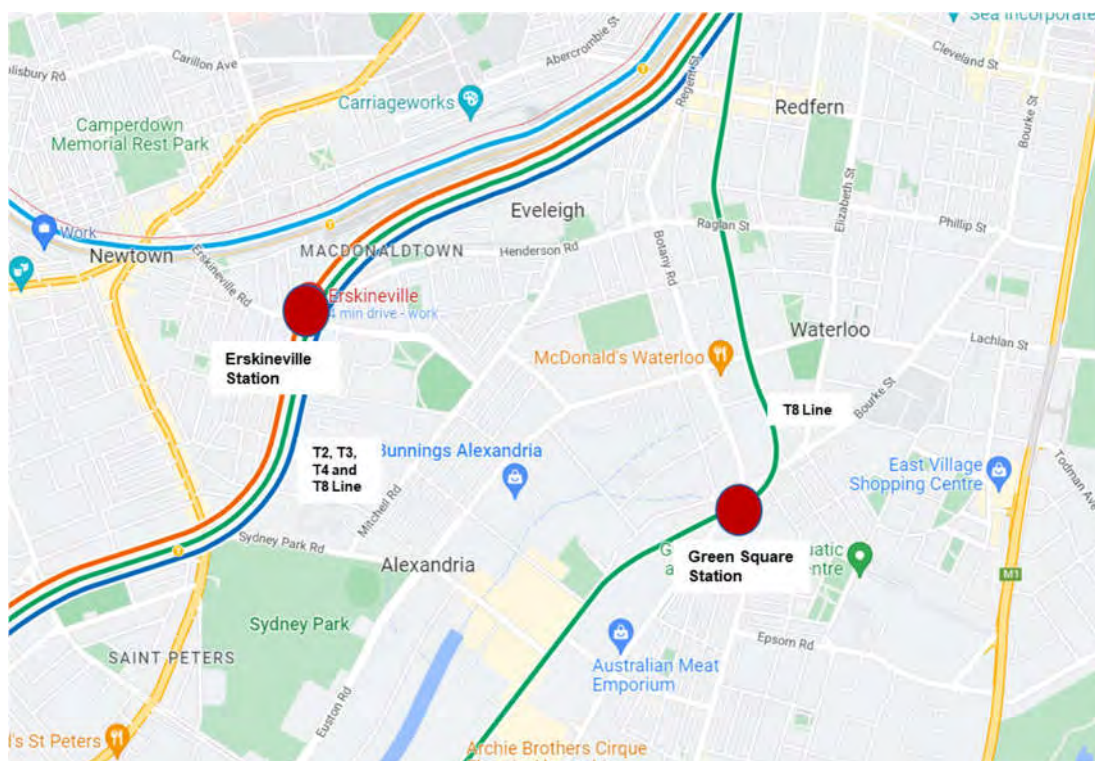


Figure 2.3: Train Routes

Table 2.1: Train Frequency - Weekday

| Time Periods | Time Periods | Frequency (minutes) | |
|--------------|--------------|---------------------------|---------------------------|
| | | T3 (Erskineville Station) | T8 (Green Square Station) |
| Morning | 6am – 10am | 5 to 10 | 5 to 10 |
| Daytime | 10am – 3pm | 5 to 10 | 5 to 10 |
| Afternoon | 3pm – 7pm | 5 to 10 | 5 to 10 |
| Night | 7pm – 10pm | 5 to 15 | 5 to 10 |

Table 2.2: Train Frequency - Weekend

| Time Periods | Time Periods | Frequency (minutes) | |
|--------------|--------------|---------------------------|---------------------------|
| | | T3 (Erskineville Station) | T8 (Green Square Station) |
| Morning | 6am – 10am | 15 | 5 to 10 |
| Daytime | 10am – 3pm | 15 | 5 to 10 |
| Afternoon | 3pm – 7pm | 15 | 5 to 10 |
| Night | 7pm – 10pm | 15 | 5 to 10 |

A number of bus routes pass through the study area, most of which are destined for Regent Street enroute to the Sydney CBD, as shown in Figure 2.4. There is a good coverage of bus stops in the study area with most stops located along Mitchell Road, Swanson Street and Fountain Street.

The weekday and weekend bus frequencies are summarised in Table 2.3 and Table 2.4. Route 370 (Coogee to Leichhardt) which passes through the study area and services McEvoy Street, Fountain Street and part of Mitchell Road is the most frequent service within the study area. It runs in 10-minute frequency during the morning and afternoon peak periods. Most other bus services operate at a 30-minute frequency.

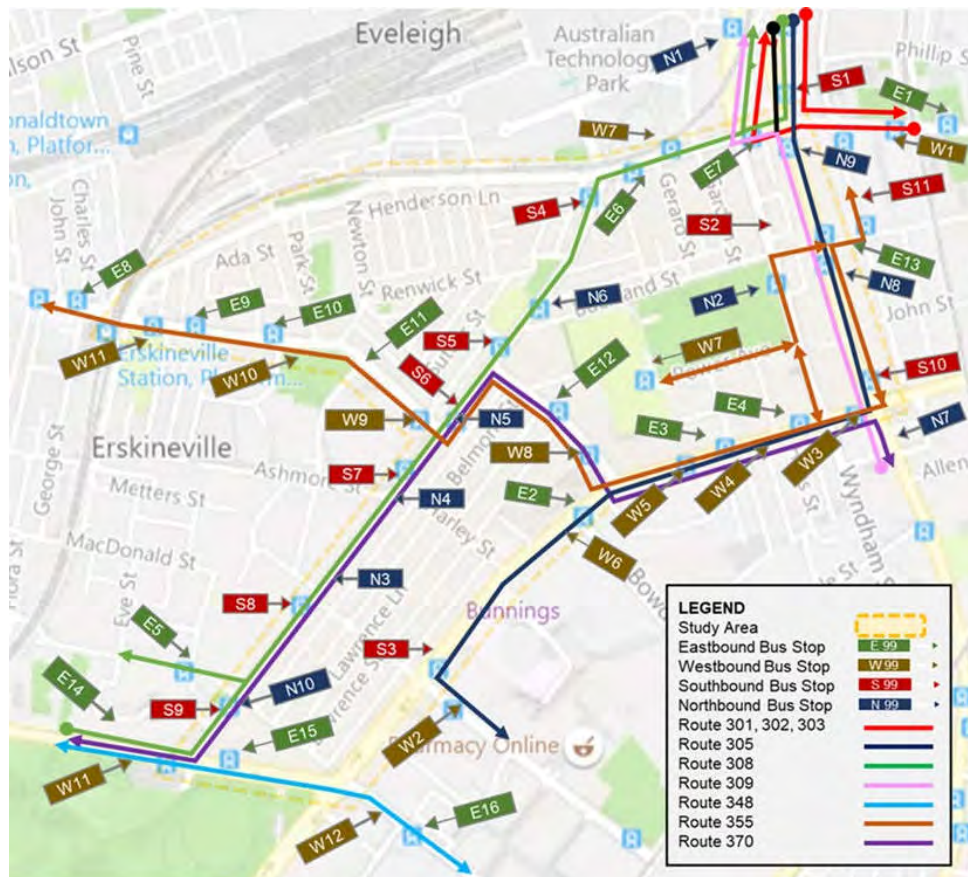


Figure 2.4: Bus Routes

Table 2.3: Bus Frequency - Weekday

| Time Periods | Hours | Frequency (minutes) by Service Number | | | | | | | | |
|--------------|------------|---------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| | | 301 | 302 | 303 | 305 | 308 | 309 | 348 | 355 | 370 |
| Morning | 6am – 10am | 30 | 60 | 30 | 30 | 30 | 10 | 20 | 30 | 10 |
| Daytime | 10am – 3pm | 30 | 60 | 60 | n/a | 30 | 10 | 30 | 30 | 15 |
| Afternoon | 3pm – 7pm | 15 | n/a | 15 | 30 | 15 | 10 | 15 | 30 | 10 |
| Night | 7pm – 10pm | 30 | n/a | 30 | n/a | 30 | 15 | 20 | n/a | 25 |

Table 2.4: Bus Frequency - Weekend

| Time Periods | Hours | Frequency (minutes) by Service Number | | | | | | | | |
|--------------|------------|---------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| | | 301 | 302 | 303 | 305 | 308 | 309 | 348 | 355 | 370 |
| Morning | 6am – 10am | 60 | 60 | 30 | n/a | 30 | 10 | 20 | 30 | 10 |
| Daytime | 10am – 3pm | 30 | 60 | 60 | n/a | 30 | 10 | 30 | 30 | 15 |
| Afternoon | 3pm – 7pm | 30 | 60 | 30 | n/a | 30 | 12 | 30 | 30 | 15 |
| Night | 7pm – 10pm | 30 | n/a | 30 | n/a | 60 | 15 | 30 | n/a | 30 |

2.1.4 Walking

Site visits have identified a high level of pedestrian activity at the following locations:

- Along and across **McEvoy Street** with retail, businesses and restaurants located on both sides of the road
- **Swanson Street** especially near Park Street with pedestrians crossing between Harry Noble Reserve and the residential properties to the north
- **Mitchell Road** between Harley Street and Maddox Street with business and restaurants located on the eastern side. The zebra crossings, one on each side of this section of Mitchell Road, are frequently used by pedestrians
- **Fountain Street** with this area used mostly by students accessing the school precinct to the north.

Pedestrian crossings are provided at all approaches to all signalised intersections within the study area, with the exception of the Fountain Street and Copeland Street 'T' intersections where pedestrian crossings are provided only on one side of Mitchell Road. A number of zebra crossings are located on Mitchell Road, with the ones located near Harley Street and Maddox Road heavily used. The key locations where pedestrian traffic interact with traffic movements and otherwise high pedestrian activity areas are shown in Figure 2.5.

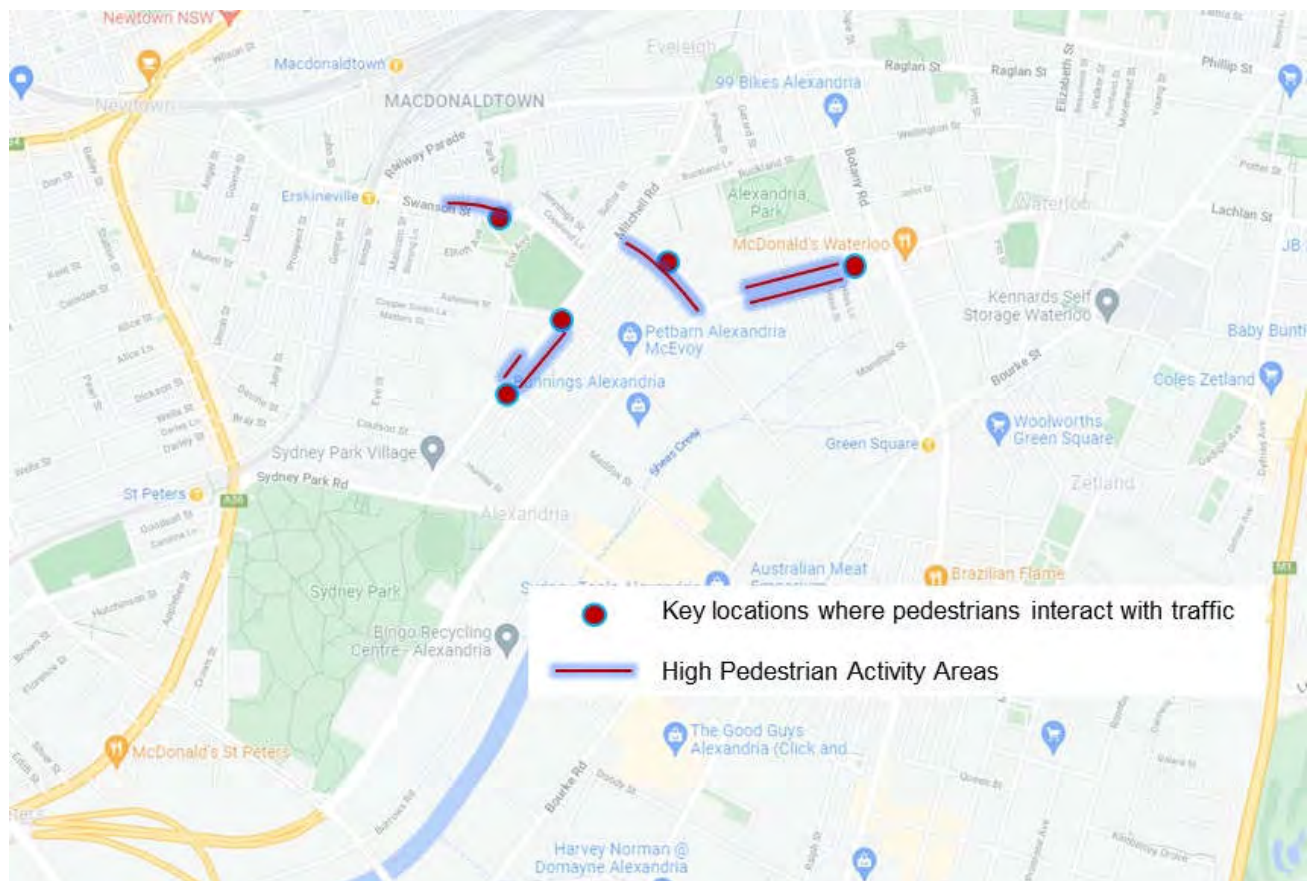
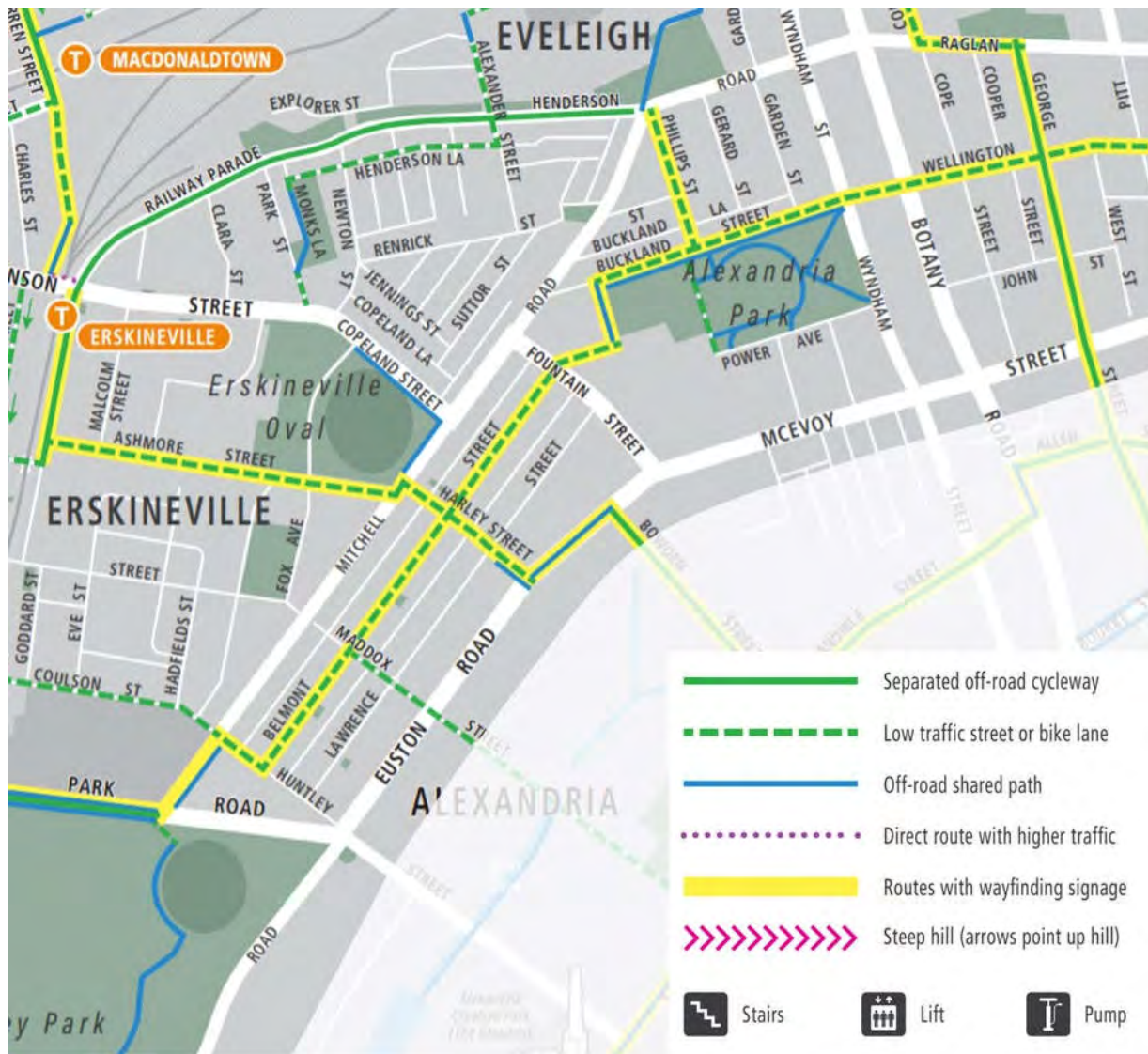


Figure 2.5: High Pedestrian and Traffic Interactions and High Pedestrian Activity Areas

2.1.5 Cycling

As shown in Figure 2.6, as at June 2021, there was a mix of on-road and off road cycling facilities throughout the study area. Council was, at that time, constructing additional cycleway in the study area such as along Railway Parade. Council has also advanced the planning of a number of cycleways and shared paths, including the Ashmore Street / Harley Street separated cycleway as shown in Appendix A.



Source: City of Sydney Cycling Map (3 June 2021)

Figure 2.6: Cycling Routes

2.2 Current Travel Patterns

Intersection turning volume counts, travel time surveys and Origin-to-Destination (OD) surveys were undertaken as part of this study. This data has been analysed and supplemented by site visit observations to understand the current (2021) travel patterns. The key findings were:

- *A comparison of hourly traffic flow data on Mitchell Road suggests that the 2021 survey data is not 'COVID-affected' and is a reasonable source to update the traffic models*
- *The AM peak for traffic movements is 8am to 9am and the PM peak is 5pm to 6pm*
- *The Origin-Destination (OD) data analysis shows that of the of traffic entering or leaving the study area:*
 - *In the AM Peak: 59% either starts or finishes its trip within the study area*
 - *In the PM Peak: 62% either starts or finishes its trip within the study area*
 - *This means that in peak periods about 40% of traffic in the study area (excluding Euston Road-McEvoy Street traffic) is traffic passing through it*
- *Bus stops on Botany Road, Fountain Street and McEvoy Street show the highest usage I the study area aligned with the location of bus routes and near medium density residential densities on Lawrence Street and Lawrence Lane*
- *Cycling demands on the recently opened separated off-road cycleway along Railway Parade have been steadily rising*
- *In the five-year period ending December 2019, a total of 186 crashes were reported within the study area. This represents a little over 37 crashes per year. One (1) was a fatality, 140 crashes resulted in injury and 45 crashes involved property damage only. The 186 crashes involved 18 pedestrians and 26 cyclists. The yearly crash statistics show a downward trend with a sharp decline in 2019*
- *Vehicle collisions with people walking are scattered across the study area but with a relatively high concentration on the section of McEvoy Street between Botany Road and Foundation Street*
- *A safety review of the section of Mitchell Road between Harley Street and Maddox Street identified a number of instances where people walking and cycling are placed at risk of being hit by vehicles due to a wide roadway, sightlines obscured by parked vehicles and car doors opening into cyclists.*

2.2.1 Traffic Surveys

The traffic surveys conducted in April/May 2021 for input into the study included:

- **Intersection Turning Counts:** At 35 intersections (for matrix estimation / model calibration)
- **Travel Time Data:** Along 4 x routes (for model validation)
- **Tube Counts:** At eight locations (primarily used to determine traffic profiles)
- **Origin-to-Destination Surveys:** At 12 locations (for traffic demands development).

In addition, SCATS data was collated for 19 signalised intersections for signal coding / replication in the traffic model. The intersection count locations are shown in Figure 2.7 and the travel time data routes are shown in Figure 2.8.



Figure 2.7: Intersection Count Locations

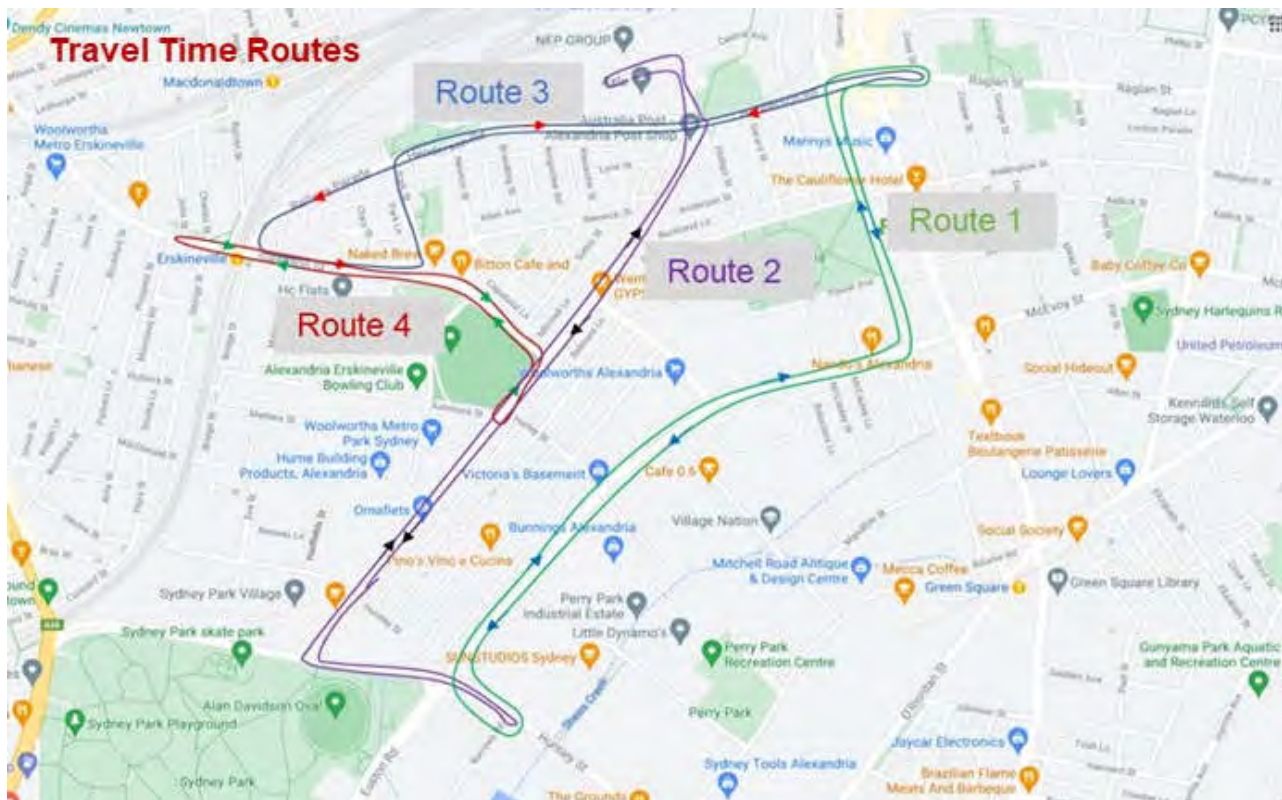


Figure 2.8: Travel Time Routes

Intersection turning volume counts (via camera) were conducted at 35 intersections on the following days and times:

- AM peak: Thursday 29 April 2021, 7:30am-9:30am
- PM peak: Thursday 29 April 2021, 4:30pm-6:30pm
- Weekend Peak: Saturday, 1 May 2021, 10:30am - 12:30pm.

The counts were classified into light vehicles, rigid heavy vehicles, articulated heavy vehicles, cyclists and pedestrians, and recorded in 15-minute intervals.

Road tube-based traffic data was made available by Council. The tube count data was collected between 6 May 2021 and 27 May 2021 at the following locations:

- Park Street, Erskineville - Outside Property 37
- Henderson Road, Alexandria - Outside Property 106-108
- Henderson Road, Alexandria - Outside Property 234
- Mitchell Road, Alexandria - Outside Property 138
- Swanson Street, Erskineville - Outside Property 38
- Maddox Street, Alexandria - Outside Property 296
- Maddox Street, Alexandria - Outside Property 299
- Railway Parade, Erskineville - Outside Property 93.

The tube count locations are shown in Figure 2.9.

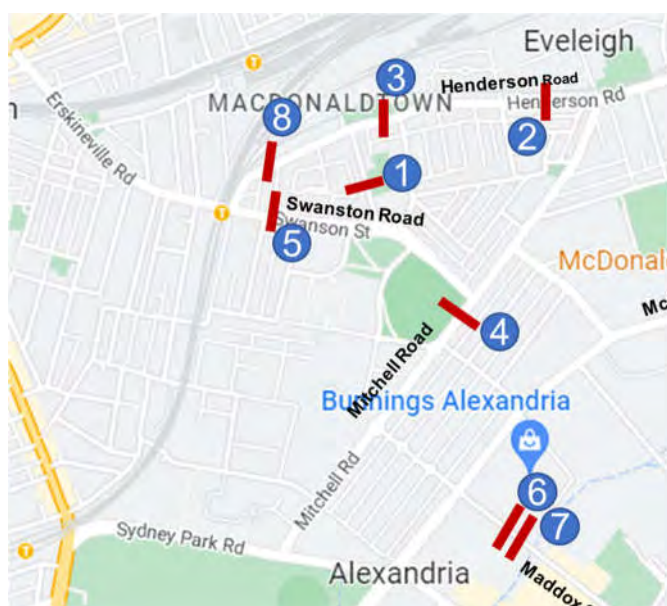


Figure 2.9: Tube Count Locations

The Origin-to-Destination (OD) survey was undertaken at 12 locations for:

- AM peak: Thursday 29 April 2021, 8:00am-9:00am
- PM peak: Thursday 29 April 2021, 5:00pm-6:00pm
- Weekend Peak: Saturday 1 May 2021, 11:00am - 12:00pm.

OD data was used to understand the travel movement patterns within the study area. The data demonstrates the magnitude of through traffic with both their origins and destinations outside the study area and those movements that are locally generated (traffic having their origins or destinations or both within the study area).

2.2.2 Daily Profiles, Peak Periods and COVID19 Influences

The tube count data was compiled and assessed to:

- Determine the study area peak hours (AM, PM) and if the weekend peak was relevant to the assessment
- Understand the potential COVID 19 influences on year 2021 traffic in the study area by comparing it to pre-COVID levels in 2019.

Figure 2.10 identifies the weekday traffic flow profile for Mitchell Road and confirms that the weekday one-hour peak occurs between 8:00am-9:00am and 5:00pm-6:00pm. The weekend (Saturday) peak data was also reviewed. Whilst Saturday traffic models were created, traffic within them is far less than in the weekday peak periods and it was identified that the weekend peak does not present a design case for option evaluation. For this reason, Saturday data is not presented in this report.

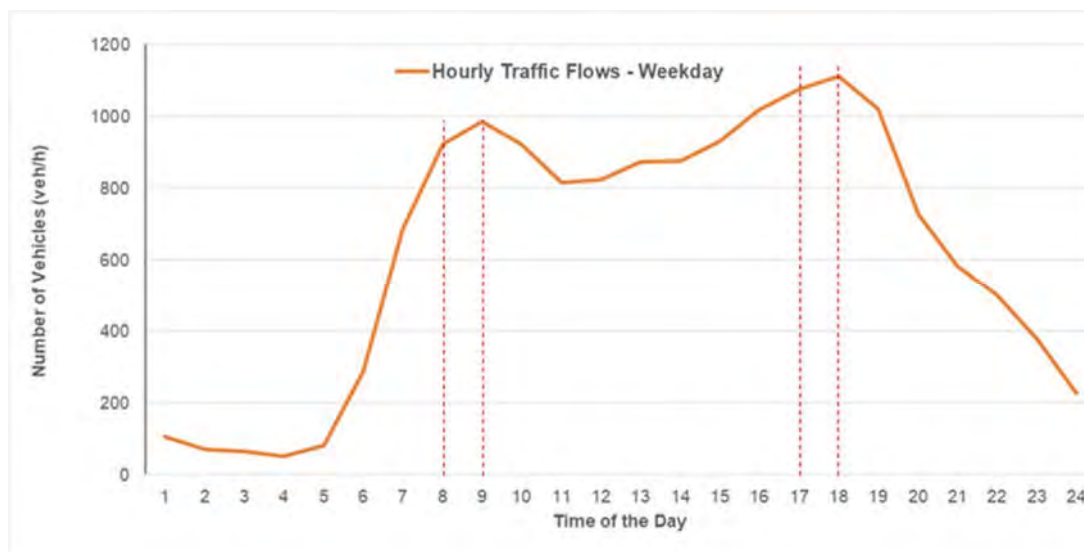


Figure 2.10: Traffic Flow Profile, Mitchell Road between Harley Road and Henderson Road

Figure 2.11 compares 2021 and 2019 data for Mitchell Road between Harley Road and Henderson Road. This figure shows a minor increase in the AM peak between 2019 and 2021 and a minor decrease in the PM peak. Overall, however, the differences are marginal in the context of usual day-to-day variations in traffic. The 2021 data was not 'COVID-affected' and was a reasonable source to update the traffic models for the study area.

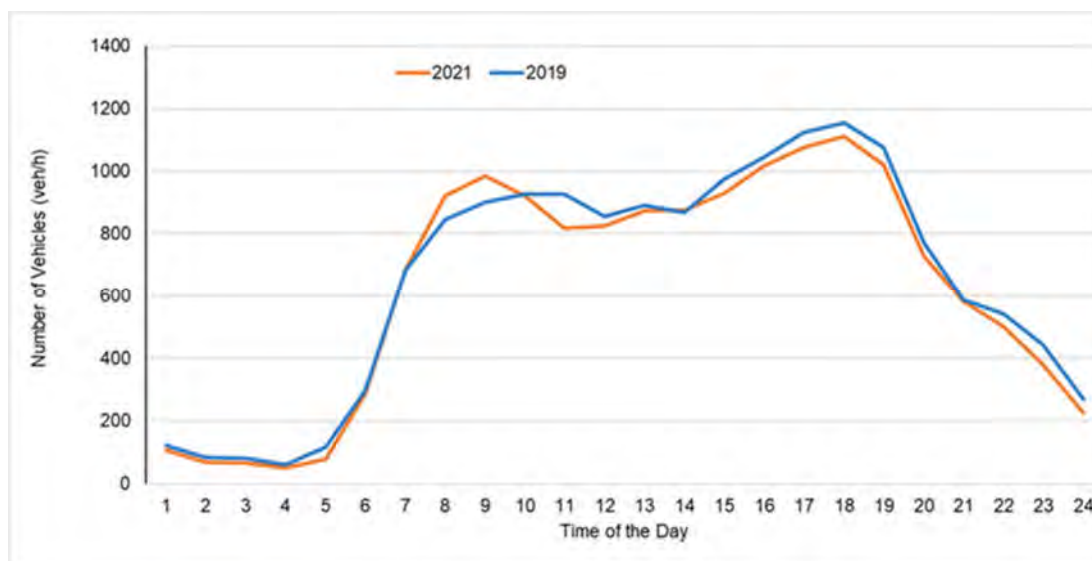


Figure 2.11: Comparison of Traffic Volumes Before and During COVID19 Pandemic

2.2.3 Peak Period Traffic Movement Patterns (OD)

Figure 2.12 shows the locations used for the OD survey. Table 2.5 highlights some of the key ‘through’ movements in the study area in the peaks as:

- Botany Road southbound (AM and PM)
- Euston Road - McEvoy Street (inbound – AM, outbound - PM)
- Sydney Park Road to Huntley Street (eastbound – AM, westbound-PM)

Table 2.5: Origin Destination Movements

| Peak Period | Origin (OD Zone) | Destination (OD Zone) | OD Survey |
|-------------|---------------------------|---------------------------|-----------|
| AM 1 Hr | Euston Road (9) | McEvoy Street (3) | 268 |
| | McEvoy Street (3) | Euston Road (9) | 120 |
| | Sydney Park Road (10) | McEvoy Street (3) | 85 |
| | McEvoy Street (3) | Sydney Park Road (10) | 14 |
| | Erskineville Station (11) | Henderson Road North (12) | 45 |
| | Henderson Road North (12) | Erskineville Station (11) | 5 |
| | Botany Road North (1) | Botany Road South (4) | 669 |
| | Botany Road North (1) | Wyndham Street (5) | 155 |
| | Botany Road North (1) | McEvoy Street (3) | 73 |
| | Sydney Park Road (10) | Huntley Street (8) | 299 |
| | Huntley Street (8) | Sydney Park Road (10) | 174 |
| PM 1 Hr | Euston Road (9) | McEvoy Street (3) | 135 |
| | McEvoy Street (3) | Euston Road (9) | 189 |
| | Sydney Park Road (10) | McEvoy Street (3) | 86 |
| | McEvoy Street (3) | Sydney Park Road (10) | 19 |
| | Erskineville Station (11) | Henderson Road North (12) | 12 |
| | Henderson Road North (12) | Erskineville Station (11) | 27 |
| | Botany Road North (1) | Botany Road South (4) | 649 |
| | Botany Road North (1) | Wyndham Street (5) | 103 |
| | Botany Road North (1) | McEvoy Street (3) | 67 |
| | Sydney Park Road (10) | Huntley Street (8) | 157 |
| | Huntley Street (8) | Sydney Park Road (10) | 541 |

OD Zone refers to the corresponding VISSIM Model Zone

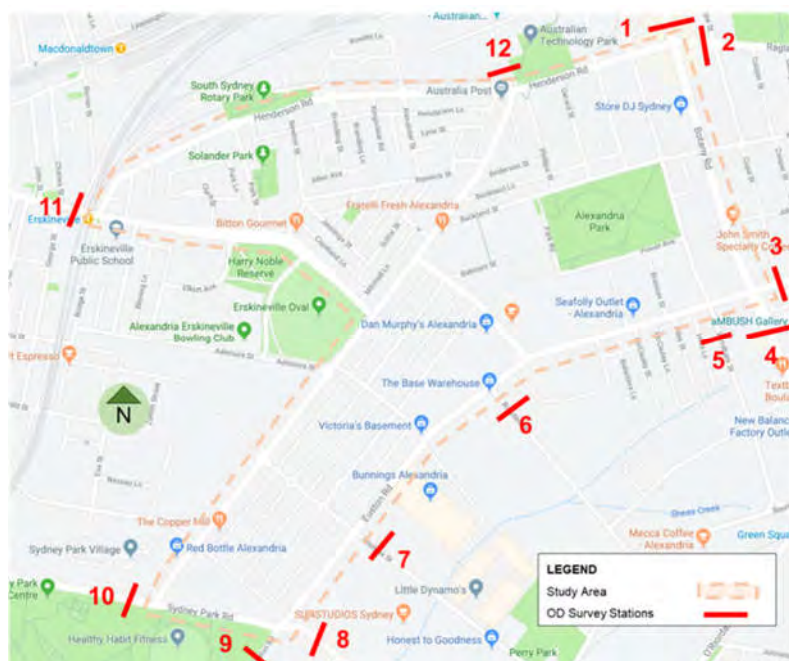


Figure 2.12: Origin – Destination Survey Station Locations

2.2.4 Peak Period Traffic Flows

Peak period traffic flows on roads within the study area are presented in Table 2.6.

Table 2.6: Key Street Peak Hour Traffic Counts

| Location | AM (1 hr) | | PM (1 hr) | | AADT |
|--|-----------|-------|-----------|-------|--------|
| | WB/NB | EB/SB | WB/NB | EB/SB | |
| Euston Road | 1,224 | 519 | 646 | 1,075 | 17,320 |
| McEvoy Street | 780 | 777 | 1,075 | 730 | 16,810 |
| Henderson Road | 609 | 836 | 801 | 697 | 14,715 |
| Mitchell Road (north of Fountain Street) | 805 | 365 | 624 | 661 | 12,275 |
| Sydney Park Road | 354 | 763 | 833 | 465 | 12,075 |
| Swanson Street | 458 | 609 | 472 | 511 | 10,250 |
| Copeland Street | 344 | 473 | 408 | 392 | 8,085 |
| Wyndham Street (south of Power Avenue) | 623 | 123 | 621 | 230 | 7,985 |
| Fountain Street | 378 | 251 | 395 | 284 | 6,540 |
| Mitchell Road (south of Copeland Street) | 740 | 542 | 650 | 778 | 13,550 |
| Maddox Street | 259 | 321 | 234 | 205 | 5,095 |
| Harley Street | 221 | 47 | 128 | 45 | 2,205 |
| Railway Parade | 149 | 0 | 239 | 0 | 1940 |

'State' road or 'Regional' local government road

The key observations include:

- The road sections that are part of State or Regional road network carry relatively high traffic volumes compared to local roads. The exception is the Mitchell Road south of Copeland Street which carries in excess of 13,500 veh/day
- The 'left in' and 'left out' only movements at Euston Road / Harley Street and the banned right turn-in movement from Mitchell Road into Harley Street, along with traffic calming measures, have contributed to (relatively) lower traffic flows on Harley Street and a higher westbound flow than eastbound flow in both peaks
- The volumes on Maddox Street are at the upper end of what is usually desirable for residential street amenity on local streets; which is typically 5,000 veh/day
- Traffic flows on Fountain Street are likely to have increased since its upgrade was completed after the date of the surveys
- Sydney Park Road currently carries very high traffic volumes considering that it is proposed to be re-designated as a local road.

2.2.5 Impact of WestConnex

The available traffic data was analysed to understand the impacts of the opening of WestConnex in the study area. The 2016 pre-WestConnex traffic survey data was compared with the 2021 post-WestConnex traffic data at (see Table 2.7):

- Euston Road just to the north of its intersection with Sydney Park Road
- A combination of traffic flows on Maddox Street, Harley Street and Fountain Street.

The analysis shows that traffic on Euston Road has increased by over 17% post-WestConnex. Although not able to be substantiated by data, this is likely to be due to the proximity of the WestConnex St Peters Interchange and its use by traffic travelling to/from Sydney City suburbs of Redfern, Surry Hills and Waterloo use Euston Road via WestConnex.

The data shows an increase in post-WestConnex traffic on key residential streets of about 10%.

Table 2.7: Pre and Post WestConnex Traffic Flows

| Locations | AADT | | Difference | |
|--|--------|--------|------------|-----|
| | 2016 | 2021 | Abs | % |
| Euston Road | 17,320 | 20,335 | 3,015 | 17% |
| Maddox Street, Harley Street and Fountain Street | 12,625 | 13,840 | 1,215 | 10% |

2.2.6 Public Transport Usage

The boarding and alighting profiles at the six busiest six stops in the study area, excluding Mitchell Road stops (see Figure 2.14), are presented in Figure 2.13. The data used to create the figures is from Opal card records for August 2019.

Stops on Botany Road, Fountain Street and McEvoy Street show the highest activity aligned with the location of high frequency routes in the study area and aligned with residential unit densities on Lawrence Street and Lawrence Lane.



Figure 2.13: Selected Bus Stop Daily Boardings plus Alighting

Boarding and alighting data for key stops along Mitchell Road are presented in Figure 2.14.

Stops in the southern part of Mitchell Road where there is higher density residential development have more bus stop usage than further north. In general, weekend bus usage is minimal.

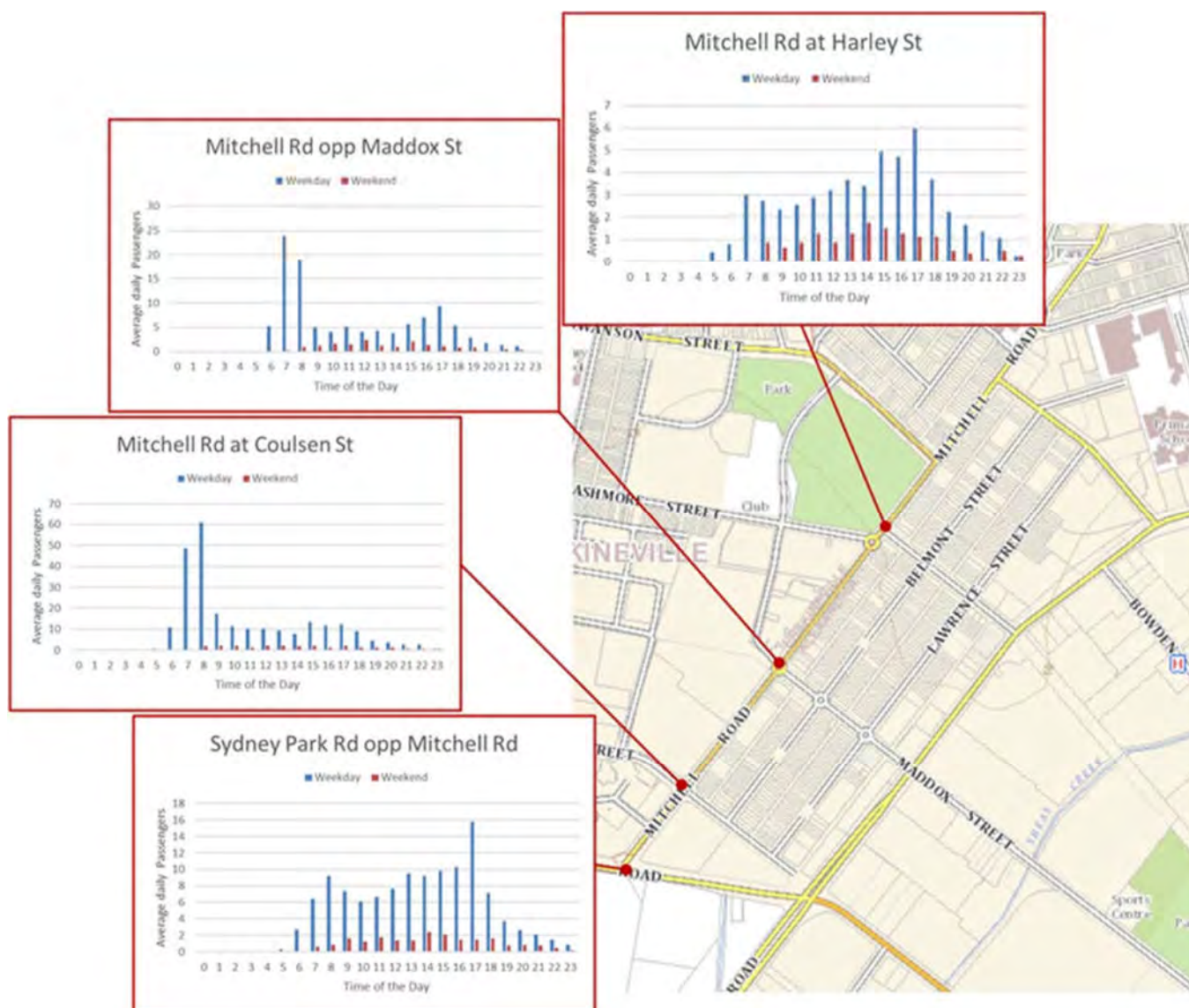
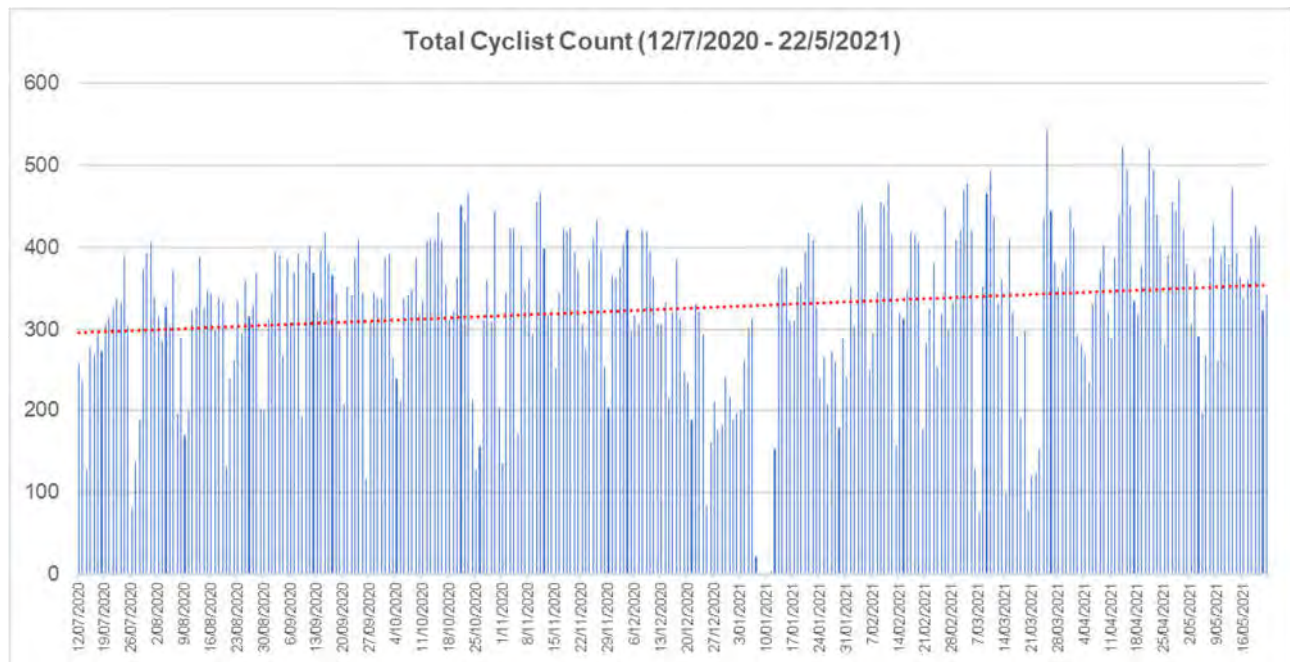


Figure 2.14: Mitchell Road Stops - Boardings and Alighting

2.2.7 Cycling

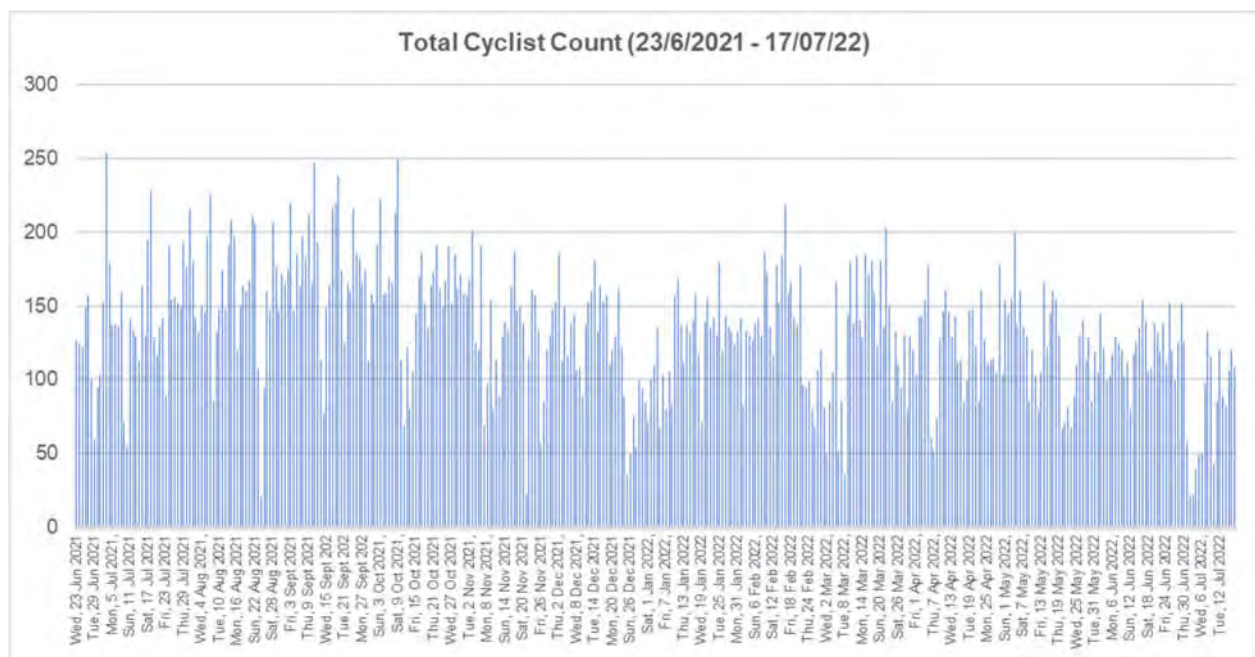
There is limited reliable cyclist count data in the study area. Railway Parade data provided by Council for between July 2020 and June 2021, as presented in Figure 2.15, shows a clear upward trend in cycling demand in this corridor (15% increase in 12 months), which is expected to be reflective of the general cycling growth trend in the study area.



Source: City of Sydney

Figure 2.15: Railway Parade Daily Cyclist Count and Trend

TfNSW data for the usage of the Sydney Park Road cycleway between June 2021 and July 2022 shows an average of 134 bike trips per day. Noting that the cycleway was not yet connected at either end when the data was captured.



Source: TfNSW

Figure 2.16: Railway Parade Daily Cyclist Count and Trend

2.3 Crash Data Analysis and Safety Review

Five-years of crash data for the study area was analysed to identify any crash trends and crash clusters. A safety assessment was also completed for the section of Mitchell Road between Ashmore Street and Maddox Street. The key outcomes as presented in this section of the report include that:

- In the five-year period assessed, a total of 186 crashes were recorded within the study area. This represents a little over 37 crashes per year
- The yearly crash rate shows a downward trend with a sharp decline in 2019
- 16 of the crashes involved at least one pedestrian (19% of the total crashes recorded) with a relatively high concentration of pedestrian crashes on the section of McEvoy Street between Botany Road and Foundation Street
- McEvoy Street and Euston Road show the highest concentration of injury crashes in the study area which is expected as they are the highest volume roads in the study area
- Pedestrians and cyclists are at risk of being impacted by vehicles at the Harley Street and Maddox Street intersections with Mitchell Road and along Mitchell Road due to a wide roadway, sightlines obscured by parked vehicles and car doors opening into cyclists

2.3.1 Crash Data Analysis

Five-year crash data ending December 2019 for the study area was provided by Council. In the five-year period, a total of 186 crashes were recorded within the study area. The number of crashes per year and the severity of crashes are shown in Figure 2.17 and Table 2.8. The data shows:

- A downwards trend in the number of crashes
- Only one fatal crash was recorded, and it occurred in 2016.

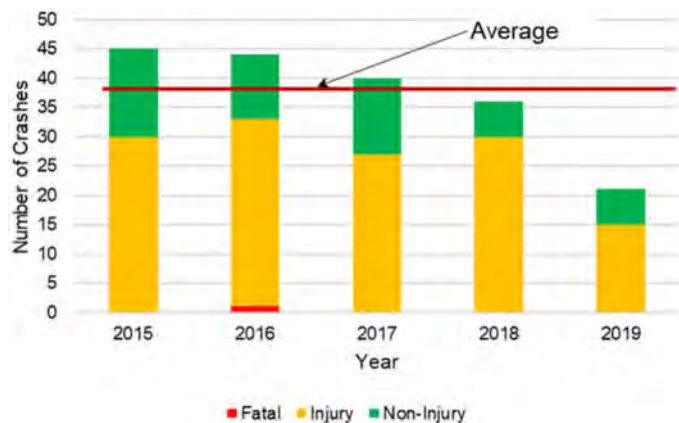


Figure 2.17: Crashes by Year

Table 2.8: Crash Severity by Year

| Year | Crash Severity | | | Total |
|------|----------------|--------|------------|-------|
| | Fatal | Injury | Non-Injury | |
| 2015 | 0 | 30 | 15 | 45 |
| 2016 | 1 | 32 | 11 | 44 |
| 2017 | 0 | 27 | 13 | 40 |
| 2018 | 0 | 30 | 6 | 36 |
| 2019 | 0 | 15 | 6 | 21 |

The 186 recorded crashes were classified into Road User Movement (RUM) codes in Table 2.9 and in Figure 2.18.

Table 2.9: Crash Data Classified into RUM Codes

| Crash Type | RUM Code | No. of Crashes | Percentage of Total |
|---|----------|----------------|---------------------|
| Crashes involving pedestrians | 00 - 09 | 16 | 9% |
| Crashes involving vehicles from adjacent directions | 10 - 19 | 35 | 19% |
| Crashes involving vehicles from opposing directions | 20 - 29 | 26 | 14% |
| Crashes involving vehicles from the same direction | 30 - 39 | 63 | 34% |
| Crashes involving manoeuvring vehicles | 40 - 49 | 6 | 3% |
| Crashes involving vehicles overtaking | 50 - 59 | 1 | 1% |
| Crashes involving vehicles on path – vehicles hitting parked vehicles or objects on the roadway (e.g. animals, temporary objects) | 60 - 69 | 9 | 5% |
| Crashes involving vehicles leaving the roadway on a straight length of road | 70 - 79 | 22 | 12% |
| Crashes involving vehicles leaving the roadway on a curve | 80 - 89 | 8 | 4% |
| Crashes involving vehicle passengers and miscellaneous crashes | 90 - 99 | 0 | 0% |
| Total | | 186 | 100% |

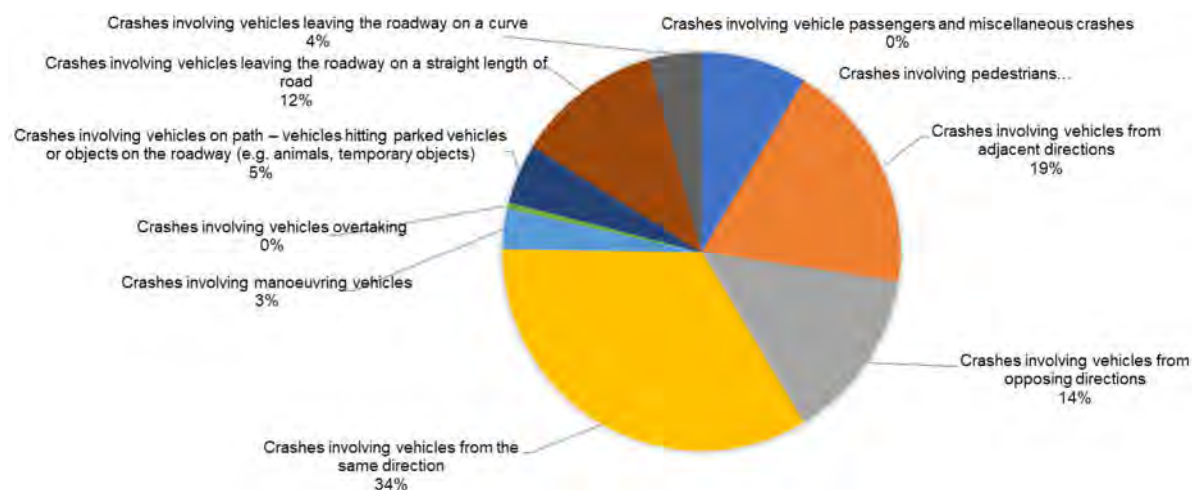


Figure 2.18: Crash Data Classified into RUM Codes

A total of 166 cars were involved in the 186 recorded crashes. The involvement of other road users is summarised in Table 2.10 and in Figure 2.19.

Table 2.10: Road Users Involved in Crashes

| Road Users involved | No. of Crashes |
|---------------------|----------------|
| Cars | 166 |
| Trucks | 51 |
| Motorcycles | 41 |
| Bicycles | 26 |
| Pedestrians | 18 |
| Buses | 4 |
| Emergency Vehicles | 2 |

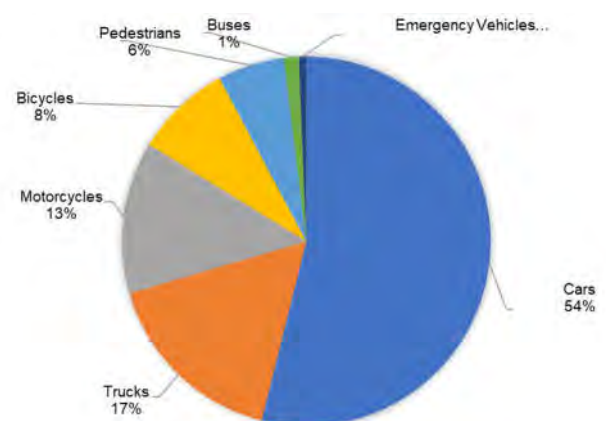


Figure 2.19: Road Users Involvement in Crashes

Of the 186 crashes recorded, the predominant crashes within the study area were crashes including vehicles from:

- The same direction: 34%
- Opposing directions: 14%
- From a right angled movement, such as at T intersection: 19%
- Other movements: 33%.

Of the 186 crashes, one resulted in a fatality, 140 resulted in injuries and the remaining 45 were damage only crashes.

2.3.2 Crash Locations

Crash locations by crash type are shown in Figure 2.20. The figure includes Road Use Movement (RUM) code for each crash. Generally, crashes involving at least one pedestrian are scattered across the study area but with relatively high concentration on the section of McEvoy Street between Botany Road and Fountain Street. With businesses located on both sides of this section of McEvoy Street, large numbers of pedestrians crossing in this area have been observed compared to other parts of the study area.

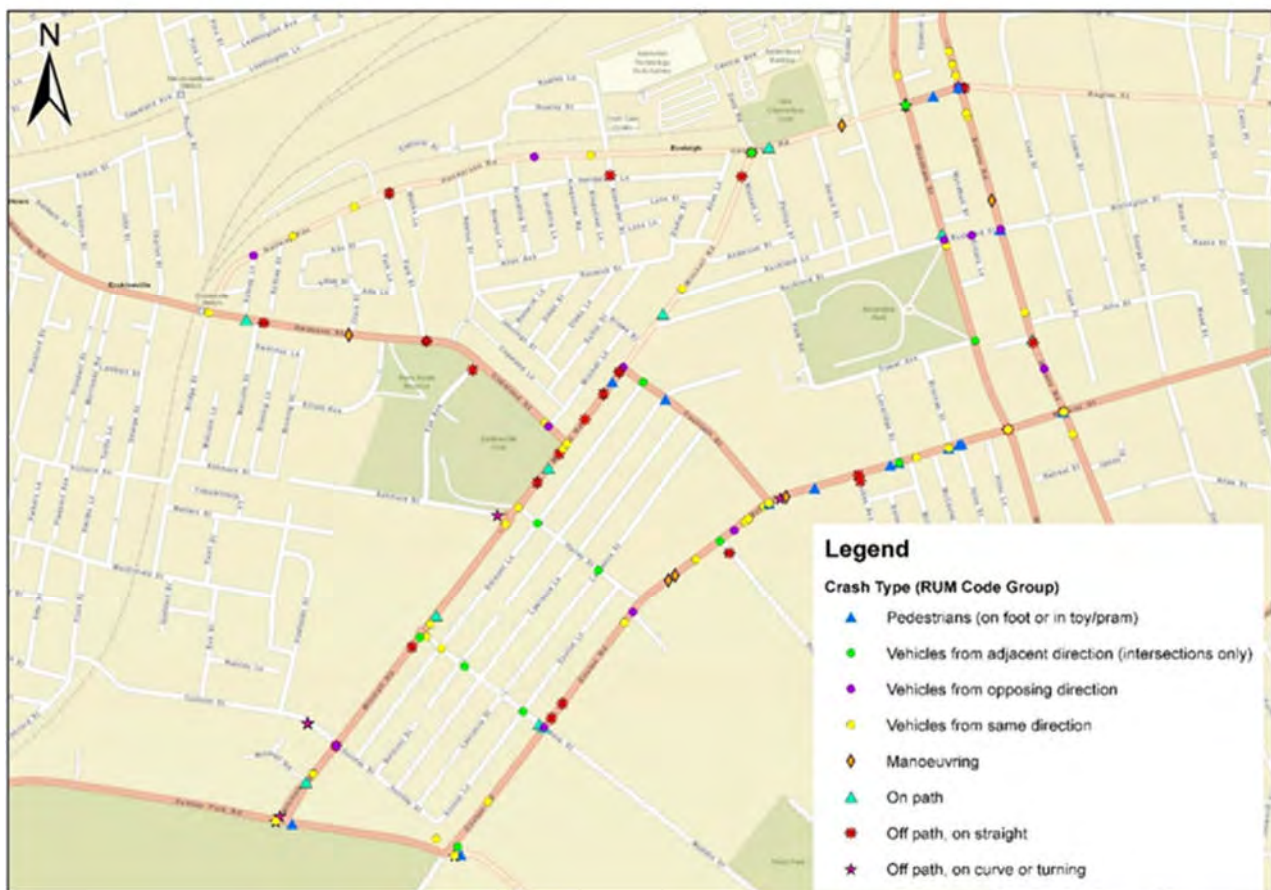


Figure 2.20: Crash Location by Crash Type

Crash locations by crash severity are shown in Figure 2.21.

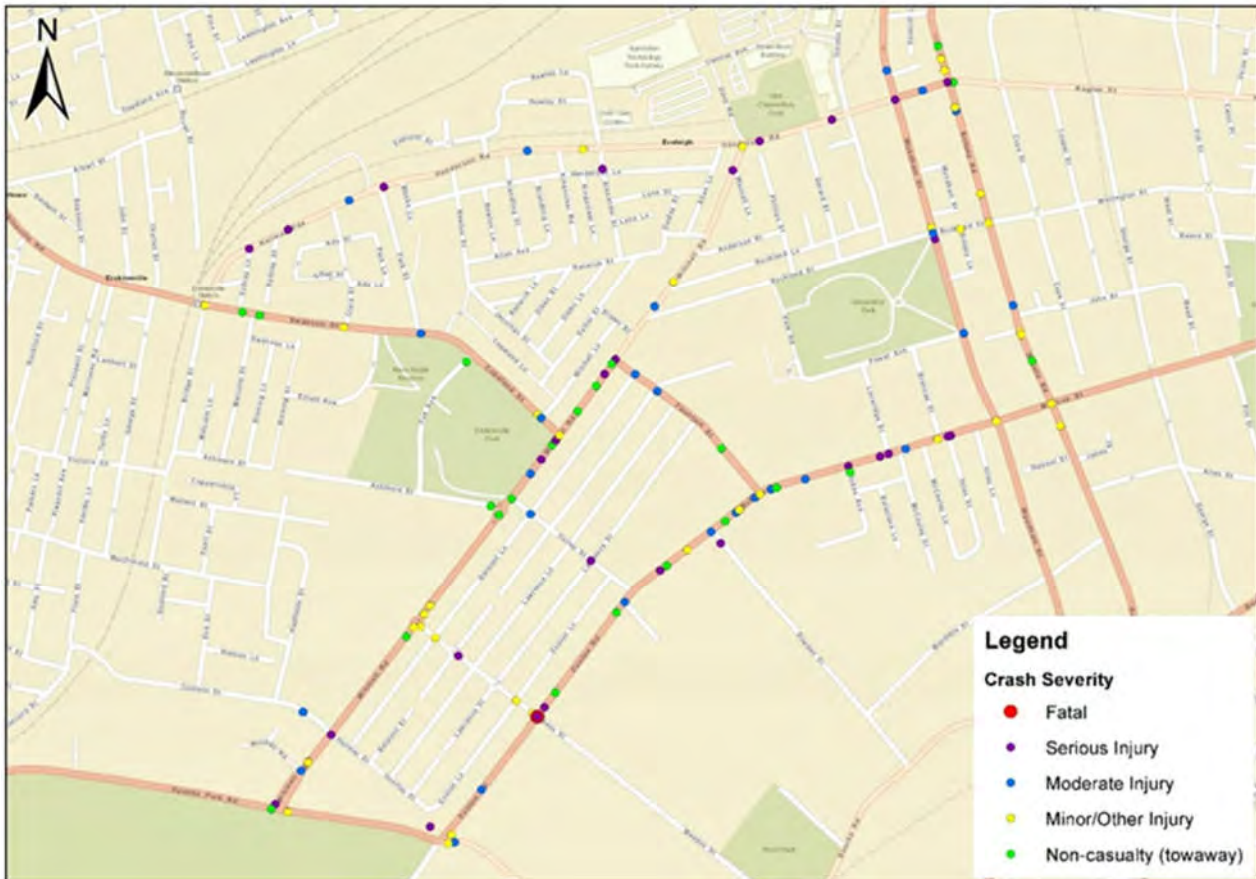


Figure 2.21: Crash Location by Crash Severity

2.3.3 Mitchell Road (Harley to Maddox) Safety Review

A safety review of Mitchell Road (Harley Street - Maddox Street) was an early investigation item in the study. The investigation included a site visit, crash data analysis and a short technical note documenting the outcomes. The study extents are shown in Figure 2.22 with key findings including:

- Crash data analysis:
 - A total of 8 crashes were identified in the 5-year period ending September 2020 on the 240m section of Mitchell Road between Maddox Street and Harley Street
 - Four of the crashes resulted in minor injuries
 - Cyclists were involved in one crash.
- Site observations:
 - There is a lack of roadside features that alert drivers to the presence of cyclists
 - There is a high risk of cyclists being hit by opening car doors given narrow parking and traffic lane widths
 - Sight lines and short decision-making distances highlight a collision risk between pedestrians and cyclists at the zebra crossing near Harley Road
 - Pedestrians crossing Harley Street and Maddox Street are exposed to turning traffic from Mitchell Road which occur close to their intersections.

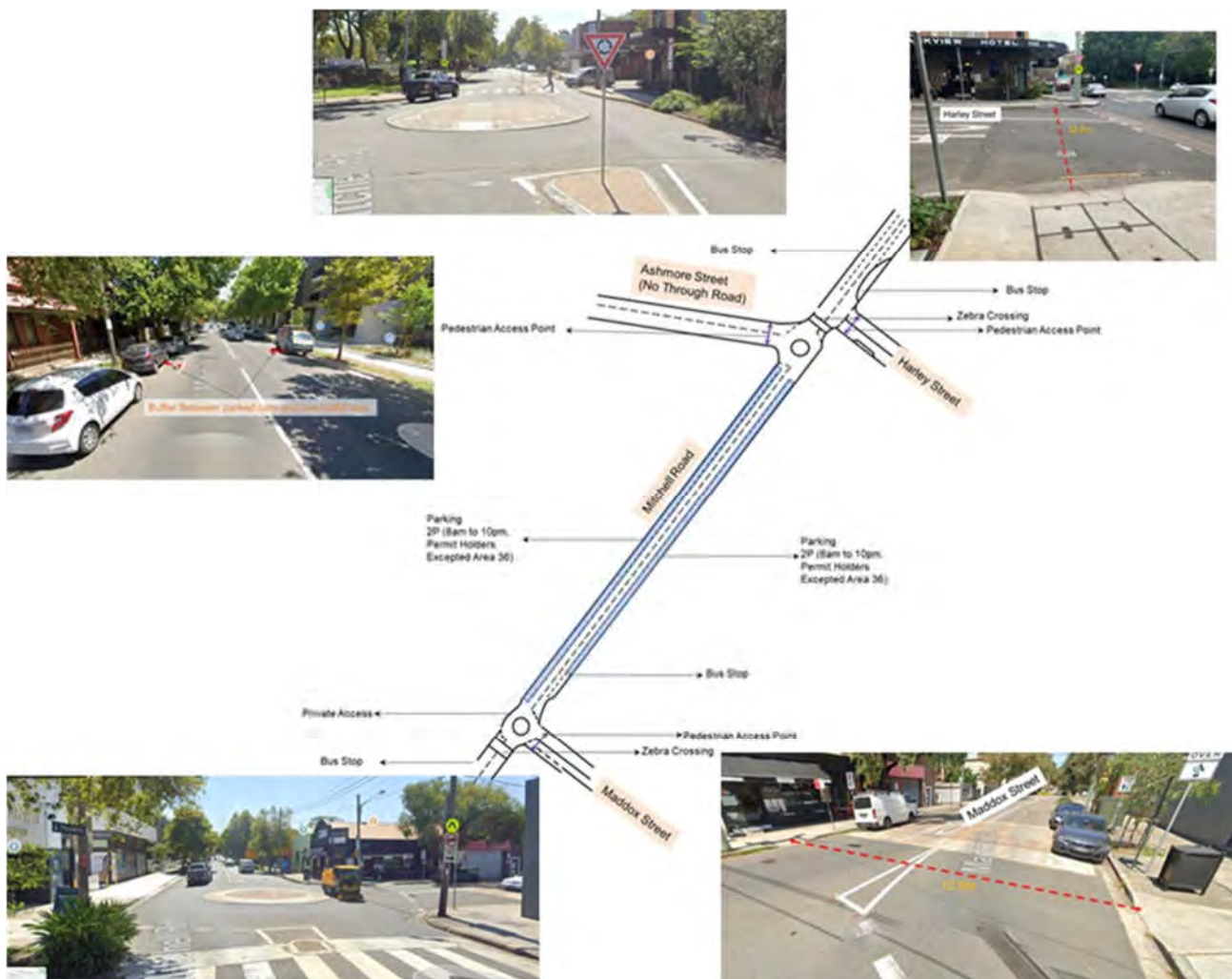


Figure 2.22: Mitchell Road Safety Review Findings

Further details regarding the safety review outcomes are provided in the Bitzios Consulting document: *P4411.001T Mitchell Road Safety Assessment Summary*.

3. TRAFFIC MODEL DEVELOPMENT

3.1 Overview

As part of the project the following base models were developed:

- **2021 Base Model:** Reflecting 2021 traffic conditions
- **2022 Base Model:** The 2021 base model but with all road upgrade measures identified by Council to be completed by mid-2023 added.

Bitzios Consulting used the recent traffic survey data, including intersection turning count data, OD data, travel time data and traffic signal data, to prepare a 2021 base model for the study area. The 2021 base model represents the AM, PM and weekend peak traffic conditions. Council identified the works for implementation by mid-2023 within the study area that was added to create the 2022 Base Model.

3.2 2021 Base Traffic Model

Key details regarding the 2021 base traffic model are:

- *The VISSIM software was used to create traffic microsimulation models*
- *The models include all key roads and streets within the study area*
- *The models include 50 traffic zones which are locations where vehicles enter or leave the study area road network*
- *The model represents the following time periods:*
 - *Weekday AM Peak: 7.30am – 9.30am*
 - *Weekday PM Peak: 4.30pm – 6.30pm*
 - *Weekend Peak: 10.30am – 12.30am.*
- *The model is calibrated and validated to 2021.*

Bitzios Consulting established the 2021 Base Model from the model created in 2017. The model was extended, updated, calibrated and validated to the Transport for New South Wales (TfNSW) Microsimulation Modelling Guidelines. Council appointed an independent consultant to review the 2021 base model. The reviewer accepted the model as being fit for purpose for testing options in the study area. The details of the model calibration and validation are included in the Bitzios Consulting report titled: *P4411.002R VISSIM Model Calibration Validation Report*.

The 'links' in the model network and the location of its traffic zones are presented in Figure 3.1.



Figure 3.1: Vissim Base Model Zones and Links

3.3 Recent / Imminent Network Changes and the 2022 Base Model

A number of works have been identified by Council for implementation within the study area by mid-2023 as shown in Figure 3.2.



Figure 3.2: Committed Works in the Study Area between 2021 and mid-2023

The McEvoy Street / Harley Street intersection upgrade was completed in late 2021 and was not included in the 2021 base model. It has been included in the 2022 base model.

Not all of the above measures influence the traffic modelling. The measures that do have an effect on traffic delays (such as signals, traffic calming and directional changes) have been incorporated into the 2022 base model, used as a reference case from which to compare alternative upgrade scenarios with the additional works options within them.

These measures are identified as '*committed projects*' in the following chapter.

3.4 Existing and Emerging Congestion Issues

Locations which have been identified through site investigations as current source points for peak period congestion-related issues and which have then been replicated in the traffic modelling, are presented in Figure 3.3.

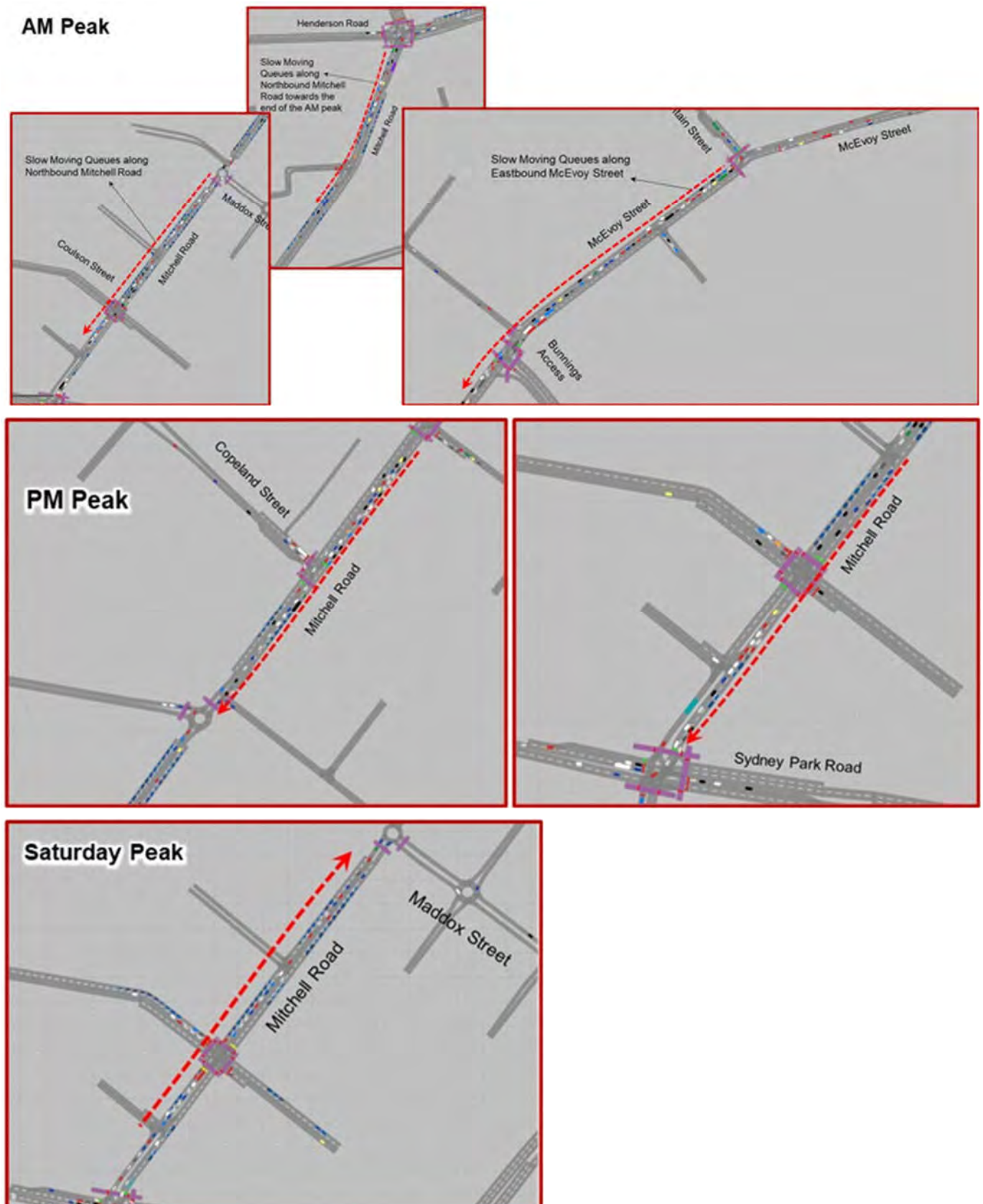


Figure 3.3: 2021 Congestion Source Locations

Between 2021 and 2022, and with the committed works shown in Figure 3.2 included in the microsimulation model, the following effects of those measures were noticed:

- Increases in westbound flows in the AM peak and eastbound flows in the PM peak in Maddox Street, Harley Street and Fountain Street. This was because the upgrade at McEvoy/Fountain reduced contra-peak directional travel times on McEvoy Street, making it a slightly more attractive route than Mitchell Road to / from the north compared to before the upgrade
- Reductions (generally) in peak direction traffic in Maddox Street, Harley Street and Fountain Street with the schemes proposed along Mitchell Road acting to marginally deter through traffic usage of the streets.

The volume changes between 2021 and 2022 associated with the above points, and an example of the associated travel time changes in Euston Road-McEvoy Street northbound in the PM peak that influenced the changes, are shown in Figure 3.4.

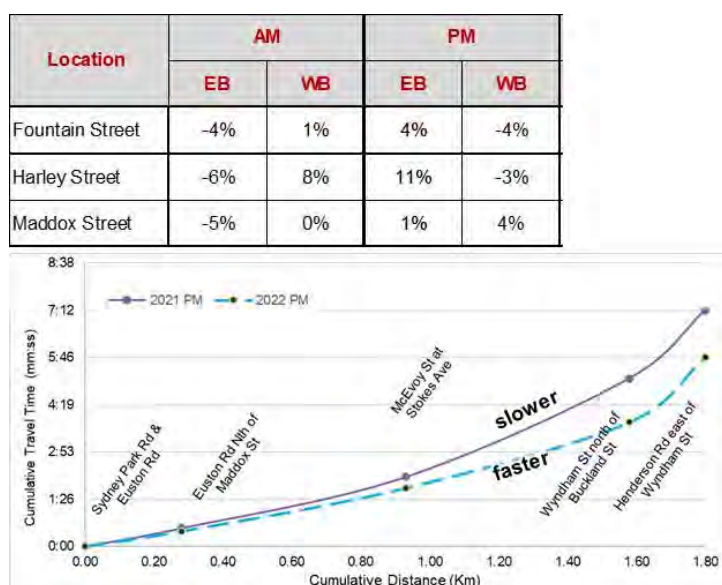


Figure 3.4: 2022 Network Key Traffic Volume and Travel Time Changes

The upgrade of the McEvoy Street / Fountain Street signalised intersection to provide a dedicated right turn pocket from north to west was a key change between the 2021 and 2022 models and resulted in this pinch point being 'released' (northbound, AM peak). The consequence of this though was the release of more vehicles northwards and the creation of a consequential pinch point at the Wyndham Street intersection with McEvoy Street, as shown in Figure 3.5.



Figure 3.5: 2021 V 2022 AM Peak Northbound Pinch Point Changes along McEvoy Street

4. PROCESS TO DEVELOP, ASSESS AND RECOMMEND INTERVENTIONS

4.1 Overview

Bitzios Consulting, in consultation with Council representatives, developed a set of transport strategy objectives for the study area. This was followed by the identification of a number of improvement options. The improvement options were then grouped into scenarios for testing in the traffic model. The study objectives also informed the creation of a Multi-Criteria Assessment (MCA) framework to assess the improvement proposals. The process is shown in Figure 4.1.

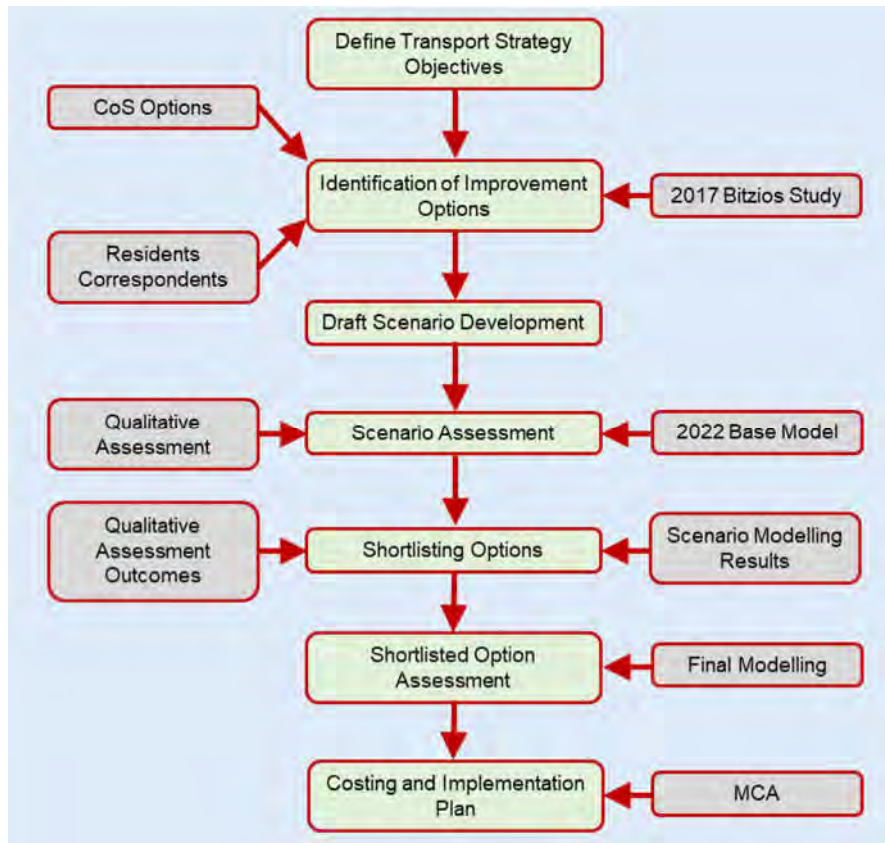


Figure 4.1: Process to Develop, Assess and Recommend Options

4.2 Transport Strategy Objectives

The objectives that informed the Traffic and Transport Study are:

- Maximise accessibility, safety and amenity for walking and cycling, including to/from bus stops
- Limit through traffic on local streets and particularly those streets used for filtering between Mitchell Road and Euston Road-McEvoy Street
- Encourage through traffic to use state roads instead of local roads
- Minimise turn bans and/or closures for other alternatives to restrain through traffic

Minimise consequential traffic impacts from any proposed traffic management measures. The MCA framework was based on the above objectives and then used to score and rank the preferred options for implementation staging recommendation purposes (see Section 7.3).

4.3 Options Definition and Categorisation

The key terms used to define the difference sources and types of options are:

- **New Options:** Improvement proposals this study has identified for assessment. For each option, a two-digit unique number is allocated (e.g. 1.1, 1.2 and 2.1). These options are expected to have impacts on traffic flows and are included in the traffic model for assessment
- **Committed Works:** Improvement proposals that are to be implemented by mid-2023. For each committed works item, a one-digit unique number is allocated, preceded by a 'C' (e.g. Comm1', C2 and C3). These items are included in traffic model for all scenarios
- **General Options:** Improvement proposals that are likely to have no impact on traffic flows and traffic performance, such as off road shared path improvements. These options are not included for assessment in the traffic models. Rather a qualitative assessment was undertaken for each option. Each general option is identified by a capital letter (e.g. A, B and C).
- **Scenarios:** The options have been grouped into one or more scenarios.

For the new options, Council identified a number of traffic and transport measures that it has been considering based on its own investigations and community input. There were also options in the Bitzios Consulting 2017 work that have not been implemented yet or committed to be implemented yet. Also, new options were identified during this study through assessment of the recently-collected data and site visit findings.

All of the options (collectively) are shown in Figure 4.2, along with their type/source, including which ones can and cannot be assessed using the traffic model. A number of upgrade options have had concept drawings prepared for them by Council and the ones that have are in **Appendix A**.

4.4 Scenario Development

Modelling each of the options individually and then cumulatively would have required dozens of model runs and was deemed to be excessive. Also, many of options works items interact with each other and it is important to understand how they operate as a network to achieve the study objectives. In consultation with Council, Bitzios Consulting grouped the options into two scenarios for traffic modelling and evaluation purposes. The study grouped options into two scenarios, as follows:

- **Scenario A:** All recently constructed works or committed (by mid-2023) works plus new options that use traffic management to discourage through traffic using residential streets. "Traffic management" includes traffic calming, some turn bans and traffic signals on local (Council) roads
- **Scenario B:** All recently constructed works or committed (by mid-2023) works plus new options that (mostly) use restrict through traffic using residential streets. "Traffic restrictions" include street closures and turn bans.

In addition to the above themes, some options in specific parts of the network were included in one scenario and not the other to understand the localised impacts and benefits of one option over another in these areas.

The allocation of localised options into scenarios for traffic modelling purposes are shown in Table 4.1 along with the recently constructed or committed (by mid-2023) measures which are included in both scenarios.

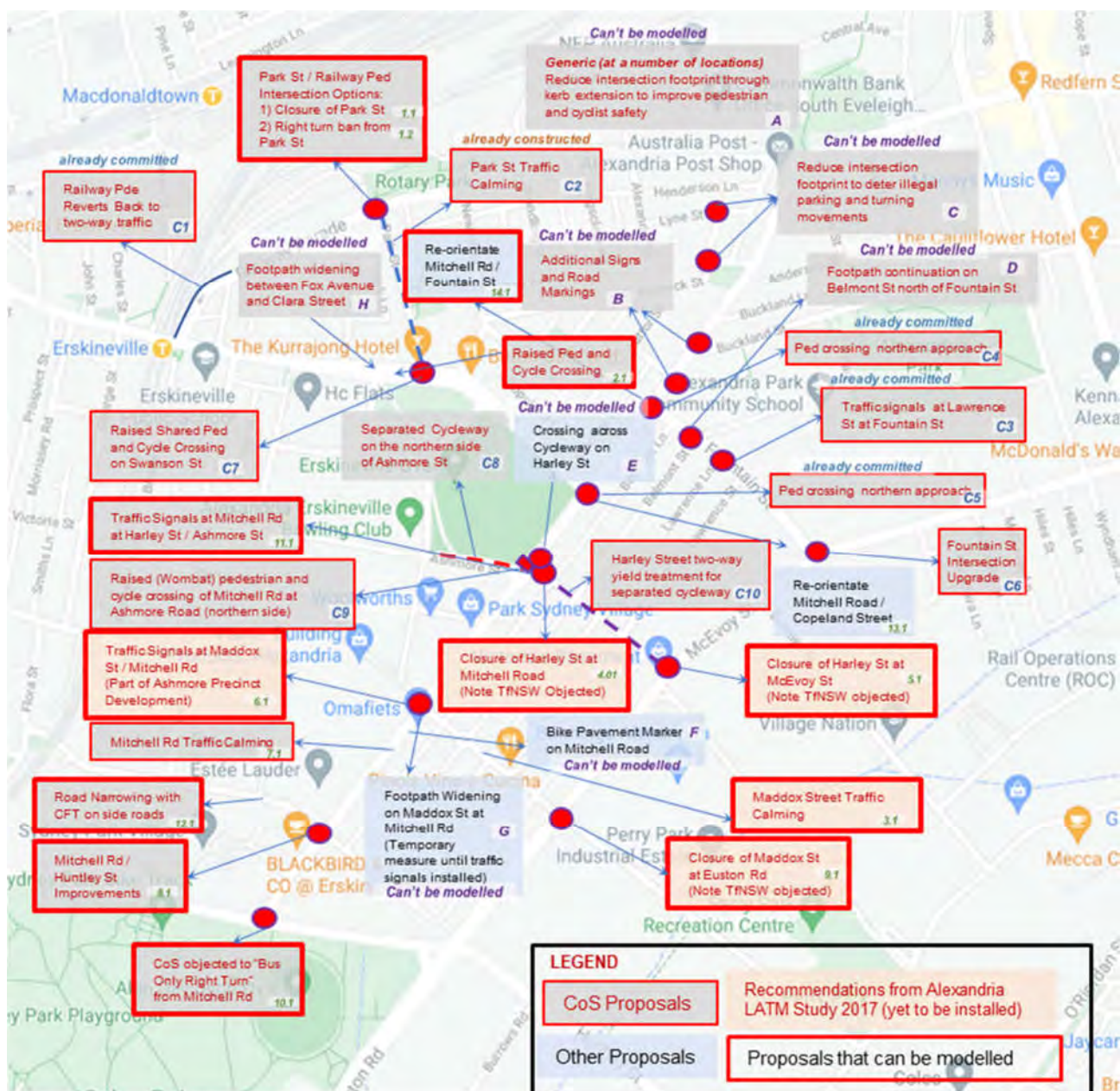


Figure 4.2: Options and Their Categorisation

Table 4.1: Scenario Inclusions

| I.D. | Option Description | Scenario A | Scenario B |
|------|---|-------------------------|------------|
| 1.1 | Close Park Street at Railway Parade | | Yes |
| 1.2 | Right turn ban from Park Street into Railway Parade | Yes | |
| 2.1 | Raised Ped / Cycle Crossing (Swanson Street / Park Street) | Yes | Yes |
| 3.1 | Maddox Street Traffic Calming | Yes | |
| 4.1 | Closure of Harley Street at Mitchell Road | | Yes |
| 5.1 | Closure of Harley Street at McEvoy Street | Yes | |
| 6.1 | Maddox Street / Mitchell Road traffic signals | Yes | Yes |
| 7.1 | Mitchell Road (Huntley Street to Ashmore Street) traffic calming | Yes | |
| 8.1 | Mitchell Road / Huntley Street intersection improvement | Yes | |
| 9.1 | Closure of Maddox Street at Euston Road | | Yes |
| 10.1 | Bus Only Right Turn from Mitchell Road to Sydney Park Road | | Yes |
| 11.1 | Traffic signals at Mitchell Road / Harley Street / Ashmore Street | Yes | |
| 12.1 | Road Narrowing and CFT on Side Roads along Coulson Street | Yes | |
| 13.1 | Re-orientate Mitchell Road / Copeland Street for N to W priority (single lanes to / from Mitchell) | | Yes |
| 14.1 | Re-orientate Mitchell Road / Fountain Street priority (single lanes to / from Mitchell) | | Yes |
| C 1 | Railway Parade Two Way | Yes | Yes |
| C 2 | Park Street Traffic Calming | Yes | Yes |
| C 3 | Traffic signals at Lawrence Street / Fountain Street | Yes | Yes |
| C 4 | Ped crossing at Mitchell Road / Fountain Street | Yes | Yes |
| C 5 | Ped crossing at Mitchell Road / Copeland Street | Yes | Yes |
| C 6 | Fountain Street / McEvoy Street Intersection Upgrade | Yes | Yes |
| C 7 | Raised shared ped / cycle crossing of Park Street at Swanson Street | Yes | Yes |
| C 8 | Separated cycleway on the northern side of Ashmore Street with raised ped crossing east of Fox Avenue | Yes | Yes |
| C 9 | Raised (wombat) ped / cycle crossing of Mitchell Road at Ashmore Street (northern side) | Yes | Yes |
| C | Harley Street two-way yield treatment for separated cycleway | Yes | Yes |
| [A] | General - reduce intersection footprints | Not able to be modelled | |
| [B] | Additional signs and lines (Mitchell, Buckland-Brown) | Not able to be modelled | |
| [C] | Footprint reductions (Renwick / Dudley, Lyne / Dudley) | Not able to be modelled | |
| [D] | Footprint continuation on Belmont Street north of Fountain Street | Not able to be modelled | |
| [E] | N-S cycleway crossing at Mitchell Road / Harley Street | Not able to be modelled | |
| [F] | Cycle markings (Mitchell Road, south of Ashmore) | Not able to be modelled | |
| [G] | Footpath widening (Maddox Street at Mitchell Road, temporary) | Not able to be modelled | |
| [H] | Footpath Widening Copeland Street (Fox Avenue to Clara Street) | Not able to be modelled | |

Comm: Committed projects assumed to be in place in 2022

[X]: Projects that are not yet committed but do not influence traffic congestion or route choice and hence have not been modelled. These options have been evaluated qualitatively instead.

4.5 Options Evaluation Metrics

Scenario A and **Scenario B** were run in the models and overall network statistics/performance results were extracted to understand the cumulative network impacts and benefits of each scenario. The evaluation used travel time comparisons to understand the route-specific impacts and benefits of each scenario and to provide some insights into the performance of individual options within each scenario.

This was followed by evaluation of more detailed intersection delay and Level of Service (LoS) outputs along with queue visualisation outputs. This allowed, in most locations, the determination of the benefits and impacts of individual options to be identified within each scenario.

4.6 Options Unrelated to Traffic Congestion

The option items presented in Table 4.1 that are unrelated to traffic congestion, cannot be modelled and have therefore been assessed qualitatively are:

- [A] General - reduce intersection footprints
- [B] Additional signs and lines (Mitchell, Buckland-Brown)
- [C] Footprint reductions (Renwick / Dadley, Lyne / Dadley)
- [D] Footprint continuation Belmont Street
- [E] N-S cycleway crossing at Mitchell Road / Harley Street
- [F] Cycle markings (Mitchell Road, south of Ashmore)
- [G] Footpath widening (Maddox at Mitchell Road, temporary)
- [H] Footpath Widening Copeland Street (Fox Avenue to Clara Street).

The outcomes of the qualitative assessment are as follows.

A: General: Reduce intersection footprints

Council should initiate a program of identifying excessively wide intersections in the study area and design and implement treatments to address these issues progressively as funding allows.

Council identified the need to reduce intersection footprints generally throughout the study area, primarily through kerb extensions. There are a number of very wide un-marked intersections in the study area which makes it very difficult for turning vehicles to judge appropriate give-way hold positions, turning paths and right of way. Also, wide intersection and long crossing distances make it much more difficult for pedestrians, and particularly slower younger or mobility impaired pedestrians, to identify appropriate gaps in traffic.

B: Additional Signs and Lines

Council should initiate a 'signs and lines review' of Mitchell Road between Fountain Street and Anderson Street including into the side roads in this section such as Brown Street, Buckland Street and Buckland Lane.

In some places along Mitchell Road between Fountain Street and Anderson Street there are obscured road signs and worn-out line marking. These issues are also evident on some of the side roads in this section such as Brown Street, Buckland Street and Buckland Lane. Improving signs and line-markings in these areas will reduce driver confusion regarding traffic and parking restrictions, road closures and one-way operations.

C: Footprint reductions at Renwick / Dadley and Lyne / Dadley

Council should undertake concept design including community consultation activities to develop a scheme to reduce the trafficable footprint of the Renwick/Dadley and Lyne/Dadley intersections, as funding permits.

As specific examples of the issues raised in Item [A] above, the wide intersections of Renwick/Dadley and Lyne/Dadley have received complaints from nearby residents, such as:

“Corner of Dadley St and Lyne St. Dangerous u turn or cut through activity by cars, trucks all hours of day and night. Given the inability to turn right after Swanson Street with the closure of Anderson, this corner’s openness in an area of narrow streets has now become a u turn bay for cars/in particular large trucks to get back south on Mitchell. There is a day care adjacent to this corner and many children, families and dogs in this area who are at risk. There is also constant double parking by utility trucks who are not servicing the houses but are just resting there vehicles because of the openness of the street. The cut through activity starts ramping up from 5.30am with cars every few minutes”.

Site observations have revealed that the wide, unmarked footprint at the intersection of Lyne Street / Dadley Street generates the following issues:

- Allows “U” turns to be undertaken in an uncontrolled (and often unexpected) way
- Makes double-parking seem to be less of a contentious issue for drivers as there is still plenty of passing room
- Compromises pedestrian and cyclist safety with long crossing distances and vehicle-conflict exposure times
- Makes it difficult for drivers to comprehend propping locations and turning paths.



D: Footpath continuation Belmont Street north of Fountain Street

Council should design and implement this measure to improve active transport safety.

The proposed Continuous Footpath Treatment (CFT) on Belmont Street north of Fountain Street will reduce vehicle speeds turning in and out of Belmont Street thereby improving active transport safety.

E: N-S cycleway crossing at Mitchell / Harley

Council should include the N-S cycleway crossing of Harley Street just east of Mitchell Road as part of the project to close Harley Street, should this be approved.

This crossing proposal is aligned with the option to close Harley Street at Mitchell Road. It is logical for these works to be completed at the same time.

F: Cycle markings (Mitchell Road, south of Ashmore)

Council should consider installing Bicycle Awareness Zone (BAZ) pavement markers on Mitchell Road south of Ashmore Street.

One of the key issues identified in the Mitchell Road safety review presented in this report is that cyclists travel in mixed traffic, close to parked cars, because of lane width limitations. On both sides of Mitchell Road, the 'buffer' between parked cars and passing traffic is only about 800mm to 900mm wide. Cyclists are at risk of being hit by opening car doors if they cycle in this zone as vehicles pass them. Also, there is a general absence of warnings to motorists of the presence of cyclists on Mitchell Road.

G: Footpath Widening (pedestrian refuge), Maddox Street at Mitchell Road (temporary)

Council should implement a pedestrian refuge island in Maddox Street approaching Mitchell Road in the short term.

One of the key issues identified in the Mitchell Road safety review presented in this report is that the pedestrian crossing distance across Maddox Street is about 12.8m. Pedestrians are exposed to turning and approaching traffic for a long period of time because of this crossing length and because of the proximity of this intersection to other turning movements, there is a heightened risk of vehicle-pedestrian collisions. A refuge island within Maddox Street would reduce this risk by splitting the crossing task into two discrete and much shorter 'stages'.



The options evaluation presented in later sections of this report identifies a commitment to signalise the Mitchell / Maddox intersection. The signals are expected to be introduced by 2026 and would include pedestrian crossings on all approaches. The refuge island should be implemented as an interim measure in any case.

H: Footpath widening on Copeland Street between Fox Avenue and Clara Street

Council should widen the footpath on both sides of Copeland Street between Fox Avenue and Clara Street.

There is significant visually-observed pedestrian demand along both sides of Copeland Street between Fox Avenue and Clara Street due the activity generated by existing businesses along the northern side of Copeland Street and also the parkland on its southern side. This level of demand warrants consideration for widening of the footpath in this location.

5. NETWORK SCENARIO A – OUTCOMES OF THE MODELLING ASSESSMENT

| I.D. | Option inclusions in Scenario A |
|------|---|
| 1.2 | Right turn ban from Park Street into Railway Parade |
| 2.1 | Raised Ped / Cycle Crossing (Swanson Street / Park Street) |
| 3.1 | Maddox Street Traffic Calming |
| 5.1 | Closure of Harley Street at McEvoy Street |
| 6.1 | Maddox Street / Mitchell Road traffic signals |
| 7.1 | Mitchell Road (Huntley Street to Ashmore Street) traffic calming measures |
| 8.1 | Mitchell Road / Huntley Street intersection improvement |
| 11.1 | Traffic signals at Mitchell Road / Harley Street / Ashmore Street |
| 12.1 | Road Narrowing and CFT on Side Roads along Coulson Street |

Network Modelling Outputs: Key Network Statistics

- Average delay and Vehicle Hours Travelled (VHT) are similar
- AM Peak: Scenario A measures would not impact the travel times.
- PM Peak, Scenario A would increase network travel times by 7%.

Network Modelling Outputs: Vehicle Travel Times

- The AM peak northbound travel time on Mitchell Road would reduce by over 2.5 minutes
- The AM peak southbound travel time on Mitchell Road would increase by over one minute
- The AM and PM peak northbound travel times on Euston Road / McEvoy Street would increase by 1.5 minutes.

Network Modelling Outputs: Traffic Volume Changes

- Traffic flows on Park Street would reduce by 59% or 160 veh/hr (AM peak) and 70% or 214 veh/hr (PM peak) due to the Park Street right turn out ban
- AM peak traffic on Fountain Street would increase by 8% or 49 veh/hr due to traffic diverted from the Harley Street closure
- AM peak traffic on Euston Road will reduce by 7% or 181 veh/hr due to the cumulative effects of the options in this scenario
- Traffic on Swanson Street will reduce by 15% or 143 veh/hr (AM Peak) and 28% or 278 veh/hr (PM peak) due to reduced eastbound traffic as a result of the Railway Parade two-way operation
- No noticeable changes to traffic on Mitchell Road.

Network Modelling Outputs: Maintaining Local Vehicle Access While Reducing Through Traffic

- The option for a right turn ban from Park Street into Railway Parade will reduce Park Street traffic by over 70% with minimal local vehicle accessibility impacts
- The option for traffic calming in Maddox Street will reduce its PM peak traffic by 20%
- The closure of Harley Street at McEvoy Street will reduce Harley Street traffic by 70% while maintaining local accessibility via Maddox Street, Fountain Street and Mitchell Road. Due to the combined benefits of the other improvement options in this scenario, the traffic displaced from the closure will not worsen traffic congestion elsewhere.

Network Modelling Outputs: Outcomes for Other Road Users

- Reduced traffic on Park Street, Maddox Street and Harley Street will improve walking and cycling amenity and safety on these streets
- The two controlled crossings on Mitchell Road and the raised crossing on Swanson Street will improve pedestrian and cyclist safety for crossing at these locations
- Reduced traffic speeds along Mitchell Road will improve cycling safety and amenity
- Reduced delays at the intersection of Mitchell Road / Maddox Street and Mitchell Road / Harley Street will reduce bus travel times and improve bus travel time reliability.

Options to Take Forward

All nine improvement options included in Scenario A are recommended for implementation.

5.1 Modelling Results

The Scenario A improvement options were added to the 2022 base traffic model and the model was run. The full results are included in **Appendix B** and summaries follow.

5.1.1 Network Statistics

Table 5.1 and Table 5.2 present the AM peak and PM peak network statistics for Scenario A compared to Base Case conditions.

Table 5.1: Scenario A, AM Peak, Network Statistics

| Parameters | Base Case 2021 | Base Case 2022 | Scenario A |
|------------------------------------|----------------|----------------|------------|
| Average Delay (s) | 96 | 93 | 89 |
| Average Network Speed (km/h) | 17.6 | 17.8 | 17.8 |
| Vehicle Kilometres Travelled (VKT) | 23,228 | 23,241 | 23,196 |
| Vehicle Hours Travelled (VHT) | 1,371 | 1,355 | 1,338 |
| Stops (Per Vehicle) | 3.1 | 3.0 | 2.6 |
| Completed Trips | 26,186 | 26,541 | 27,246 |
| Incomplete Trips | 309 | 349 | 314 |
| Unreleased Vehicles | - | 2 | - |
| Total Trips | 26,495 | 26,892 | 27,560 |

Table 5.2: Scenario A, PM Peak, Network Statistics

| Parameters | Base Case 2021 | Base Case 2022 | Scenario A |
|------------------------------------|----------------|----------------|------------|
| Average Delay (s) | 70 | 71 | 77 |
| Average Network Speed (km/h) | 20.9 | 20.9 | 19.6 |
| Vehicle Kilometres Travelled (VKT) | 23,329 | 23,301 | 23,341 |
| Vehicle Hours Travelled (VHT) | 1,124 | 1,125 | 1,203 |
| Stops (Per Vehicle) | 2.4 | 2.4 | 2.4 |
| Completed Trips | 25,826 | 25,813 | 25,454 |
| Incomplete Trips | 311 | 307 | 324 |
| Unreleased Vehicles | - | - | 0 |
| Total Trips | 26,137 | 26,120 | 27,778 |

Comparing the 2021 and 2022 Base Cases to Scenario A identifies:

- Average delay and VHT is similar
- The Scenario A traffic management measures including a 40km/h zone on Mitchell Street, the Park Street closure at Railway Parade and the Harley Street closure at McEvoy Street would not impact the AM peak network travel times. However, in the PM Peak, Scenario A would increase network travel times, expressed as VHT, by 7%. This level of change is minimal.

5.1.2 Travel Times

The Scenario A AM and PM peak travel times are compared with the 2022 Base Case travel times in Table 5.3 and Table 5.4 for the following four routes:

- Route 1: Mitchell Road Corridor
- Route 2: Euston Road / McEvoy Street and Wyndham Street Corridor
- Route 3: Henderson Road Corridor
- Route 4: Swanson Street / Copeland Street Corridor.



Figure 5.1: Travel Time Results Routes

Table 5.3: Scenario A, AM Peak, Travel Time

| Routes | Direction | Base 2021 | Base 2022 | Scenario A |
|---|------------|-----------|-----------|------------|
| Route 1 – Mitchell Road | Northbound | 7:10 | 8:14 | 5:44 |
| | Southbound | 4:25 | 4:37 | 6:03 |
| Route 2 – Euston Road / McEvoy / Wyndham Street | Northbound | 10:35 | 8:21 | 9:49 |
| | Southbound | 5:58 | 5:51 | 7:06 |
| Route 3 – Henderson Road | Northbound | 5:56 | 6:02 | 5:18 |
| | Southbound | 4:03 | 4:00 | 4:14 |
| Route 4 – Swanson Street / Copeland Street | Northbound | 2:37 | 2:35 | 1:46 |
| | Southbound | 1:15 | 1:15 | 1:18 |

Table 5.4: Scenario A, PM Peak, Travel Time

| Routes | Direction | Base Year 2021 | Base Year 2022 | Scenario A |
|---|------------|----------------|----------------|------------|
| Route 1 – Mitchell Road | Northbound | 5:08 | 5:03 | 5:38 |
| | Southbound | 6:08 | 7:03 | 7:14 |
| Route 2 – Euston Road / McEvoy / Wyndham Street | Northbound | 5:54 | 5:46 | 6:35 |
| | Southbound | 5:28 | 5:27 | 4:43 |
| Route 3 – Henderson Road | Northbound | 5:56 | 3:45 | 2:54 |
| | Southbound | 4:03 | 4:17 | 4:01 |
| Route 4 – Swanson Street / Copeland Street | Northbound | 3:16 | 2:12 | 1:52 |
| | Southbound | 1:59 | 2:06 | 3:07 |

The key influences of Scenario A relative to the Base Case include:

- The northbound AM peak travel time on Mitchell Road (Route 1) would reduce by over 2.5 minutes primarily due to improved intersection performance at the Maddox Street and Harley Street intersection due to the traffic signals in this scenario
- The Route 1 AM peak southbound travel time would increase by over one minute. This is due to the introduction of the 40km/h zone on Mitchell Road
- The AM and PM peak northbound travel times on Euston Road / McEvoy Street (Route 2) would increase substantially by 1.5 minutes. This is due to delays at the Fountain Street intersection as a result of increased traffic diverted from the proposed Harley Street closure under this scenario.

5.1.3 Traffic Volumes

The changes in traffic volumes at key locations within the study area during the AM and PM peak periods are shown in Figure 5.2 and Figure 5.3. The key observations include:

- Traffic volumes on Park Street will reduce by 59% (AM peak) and 70% (PM peak) or 160 to 214 veh/hr as a result of the proposed **right turn ban** into and out of Park Street at its intersection with Railway Parade
- The AM peak traffic volumes on Fountain Street will increase by 8% (or 49 veh/hr). This is due to diverted traffic from the **Harley Street closure**
- The AM peak traffic volumes on Euston Road are predicted to reduce by 7% (or 181 veh/hr). This is due to a reduction of northbound volumes. The proposed **closure of Harley Street** will divert a proportion of northbound traffic from Euston Road (south), currently using Harley Street from Euston Road to Mitchell Road
- Traffic volumes on Swanson Street will reduce by 15% (AM Peak) and 28% (PM peak) or 143 to 278 veh/hr. This is due to a reduction of eastbound traffic as a result of the **Railway Parade two-way operation**. Traffic currently using Swanson Street will be diverted to Railway Parade
- The closure of Harley Street will reduce the through traffic volume to zero.

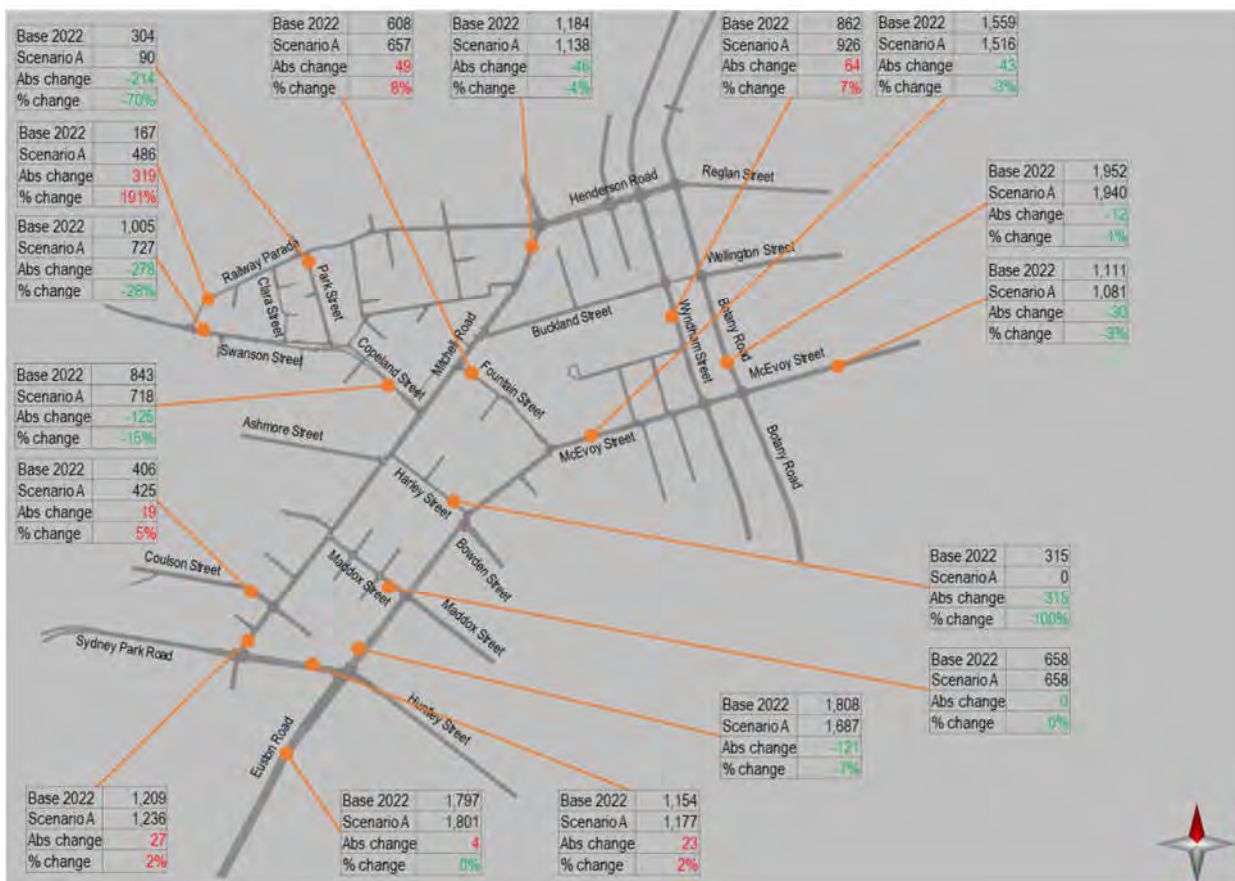


Figure 5.2: Changes in Traffic Volumes – AM Peak, Scenario A



Figure 5.3: Changes in Traffic Volumes – PM Peak, Scenario A

5.2 Pinch Points, Local Access and Through Traffic

The introduction of traffic signals at the Mitchell Road intersections with Maddox Street and Ashmore Street will help in reducing maximum traffic delays at these two locations by providing all approaches to the intersection 'a fair go'. The heavily 'tidal' flow at the existing roundabouts means that long delays can occur on some approaches and not others at times.

The closure of Harley Street at McEvoy Street will increase traffic flows on Mitchell Road and Fountain Street. However, this will not contribute to increased delays to traffic at these locations.

The proposed Harley Street closure will also reduce the number of available access routes for residents and local businesses with the Mitchell Road / Harley Street intersection becoming the primary access point. Some residents may also use Maddox Street and access Harley Street via the existing laneways including the Euston Lane and Lawrence Lane.

Traffic flows on Harley Street are already low compared to other east-west streets between Mitchell Road and Euston Road – McEvoy Street. The complete removal of through traffic would further improve the residential amenity of Harley Street.

5.3 Public Transport Considerations

The introduction of traffic signals at the Mitchell Road intersections with Maddox Street and with Ashmore Street will reduce AM peak northbound travel times on Mitchell Road by over 2.5 minutes. This will improve bus travel times and travel time reliability.

5.4 Walking Considerations

The introduction of a raised shared pedestrian and cycle crossing on Swanson Street near Park Street will reduce traffic speeds on Swanson Street, thereby improving pedestrian safety.

Traffic calming in Maddox Street will reduce vehicle speeds on Maddox Street making this street safer and more pleasant for walking along and crossing.

The introduction of traffic signals at the Mitchell Road intersections with Maddox Street and with Ashmore Street will provide controlled crossing facilities for pedestrians. This will improve pedestrian and cyclist safety at these two locations.

The proposed Coulson Road narrowing will reduce traffic speeds, thereby improving pedestrian conditions. The provision of a Continuous Footpath Treatment (CFT) will reduce the risk and severity of vehicle-pedestrian collisions.

5.5 Cycling Considerations

The proposed traffic calming on Mitchell Road between Harley Street and Ashmore Street will improve cyclist safety. The speed reduction would also be likely to reduce the likelihood and consequence of crashes in this area.

The introduction of a raised shared pedestrian and cycle crossing on Swanson Street near Park Street will reduce traffic speeds on Swanson Street, thereby improving its safety for cycling.

Traffic calming in Maddox Street will reduce vehicle speeds on Maddox Street making this street safer and more pleasant for cycling.

The traffic signals at the Mitchell Road intersections with Maddox Street and with Ashmore Street will provide controlled crossing facilities for cyclists. This is likely to improve cyclists' safety at these two locations.

The improvements at the Mitchell Road / Huntley Street intersection and particularly the provision of a segregated cycleway along the eastern side of Mitchell Road will improve cyclists safety.

The proposed Coulson Road narrowing will help reduce traffic speeds, thereby improving cyclists transport conditions.

5.6 Option Specific Findings

In general, Scenario A improves traffic performance within the study area. Relatively minor increases in traffic flows on Fountain Street and on Mitchell Road as a result of the Harley Street closure at McEvoy Street will be offset by local network traffic volume reduction, most notably on Harley Street, plus a range of active transport benefits associated with slower moving traffic through the area. Specific impacts and benefits of Scenario A are detailed below.

5.6.1 Park Street Right Turn Ban (1.2)

The right turn closure in and out of Park Street at its intersection with Railway Parade will substantially reduce through traffic on Park Street. Traffic flows on Park Street will be reduced by 59% to 70% (or 160 to 214 veh/hr).

5.6.2 Traffic Signals at Mitchell / Maddox (6.1) and Mitchell / Ashmore (11.1)

The existing roundabout intersections at Mitchell / Maddox and Mitchell / Ashmore operate at or near capacity in peak periods, resulting in long queues of slow-moving traffic in both the northbound and southbound directions along Mitchell Road.

The proposed introduction of traffic signals will improve the operation of both intersections and more equitably balance queues and delays, whilst better catering for walking and cycling movements. There is a reduction in travel time along the Mitchell Road corridor under this scenario.

5.6.3 Other Measures (12.1, 7.1 and 3.1)

The following measures will improve the safety and convenience of walking and cycling:

- Road narrowing and CFT at Coulson Street by reducing traffic speeds
- Traffic calming at Mitchell Road and Maddox Street by reducing traffic speeds
- Mitchell Road / Hartley Street intersection improvements via a separated cycleway east of Mitchell Road.

5.7 Options to Take Forward

A total of nine improvement options were considered as part of Scenario A. A short description of each option and their contribution to traffic performance and active transport safety are summarised in Table 5.5.

All nine improvement options will contribute to improved traffic performance and active transport safety / convenience. The closure of Harley Street at McEvoy Street will limit the access options to local residents and businesses. However, the closure will eliminate through traffic, resulting in a 70% reduction of Harley Street traffic. Importantly, due to various other network improvement measures, the displaced traffic from the closure will not contribute to a decline in network performance elsewhere. All nine improvement options have been recommended.

Table 5.5: Scenario A - Assessment Outcomes Summary

| Item | Improvements | Impacts | Recommended? |
|-------------|---|---|---------------------|
| 1.2 | Right turn bans at the Park Street / Railway Parade intersection | Reduces traffic flows on Park Street significantly (over 70%). Increases traffic on Henderson Road but this will have no impacts on travel time | Yes |
| 2.1 | Raised Ped / Cycle Crossing (Swanson Street / Park Street) | Improves active transport safety. The measure does not have any measurable impacts on traffic | Yes |
| 3.1 | Maddox Street Traffic Calming | Reduces PM traffic flows by 20% (or 122 veh/hr) | Yes |
| 5.1 | Closure of Harley Street at McEvoy Street | Reduces traffic flows on Harley Street by 70%. Improves active transport safety and accessibility. | Yes |
| 6.1 | Maddox Street / Mitchell Road Street traffic signals | Reduces intersection delays and queues. The provision of controlled crossing facilities will also improve active transport safety | Yes |
| 7.1 | Mitchell Road (Huntley Street to Ashmore Street) traffic calming measures | Reduces traffic speeds but with limited impacts on travel time. Improves cyclist safety | Yes |
| 8.1 | Mitchell Road / Huntley Street intersection improvement | No significant impacts on intersection capacity. Improves active transport safety by reducing crossing widths | Yes |
| 11.1 | Traffic signals at Mitchell Road / Harley Street / Ashmore Street | Reduces intersection delays and queues. The provision of controlled crossing facilities will also improve active transport safety | Yes |
| 12.1 | Road narrowing and CFT on side roads along Coulson Street | Reduces traffic speeds and would improve active transport safety | Yes |

6. NETWORK SCENARIO B - OUTCOMES OF THE MODELLING ASSESSMENT

| I.D. | Option description |
|------|--|
| 1.1 | Close Park Street at Railway Parade |
| 2.1 | Raised Ped / Cycle Crossing (Swanson Street / Park Street) |
| 4.1 | Closure of Harley Street at Mitchell Road |
| 6.1 | Maddox Street / Mitchell Road traffic signals |
| 9.1 | Closure of Maddox Street at Euston Road |
| 10.1 | Bus Only Right Turn from Mitchell Road to Sydney Park Road |
| 13.1 | Re-orientate Mitchell Road / Copeland Street for N to W priority (single lanes to / from Mitchell) |
| 14.1 | Re-orientate Mitchell Road / Fountain Street priority (single lanes to / from Mitchell) |

Network Modelling Outputs: Key Network Statistics

- Average delay across the study area would increase on average by 38% or 35 seconds (AM peak) and 71% or 51 seconds (PM peak) due to extra congestion

Network Modelling Outputs: Vehicle Travel Times

- The southbound travel time on Mitchell Road will increase by 10 minutes in the AM peak and 9 minutes in the PM peak due to congestion at the southern end of Mitchell Road stemming from the Euston Road / Sydney Park Road traffic signals which are heavily congested by the changes
- The AM peak and the PM peak travel times along the Euston Road / McEvoy Street route will increase substantially due to increased congestion resulting from extra traffic diverted from Mitchell Road
- The re-orientation of Mitchell Road's intersections with Copeland Street and with Fountain Street (Options 13.1 and 14.1) introduces substantial delays to Mitchell Road in the PM peak. The re-routing caused by these changes adversely impact the Sydney Park Road / Euston Road / Huntley Street intersection.

Network Modelling Outputs: Traffic Volume Changes

- Changing the right turn from Mitchell Road into Sydney Park Road to buses only will increase southbound traffic on Euston Road by 11% or 100 veh/hr (PM Peak). The right turn movement from Sydney Park Road into Euston Road will increase by 41% or 170 veh/hr (PM Peak) and the right turn movement from Botany Road (north) to McEvoy Street will increase by 10% or 50 veh/hr (PM Peak)
- The closure of Maddox Street at Euston Road will reduce its traffic by 54% or 327 veh/hr (AM peak) and 61% or 404 veh/hr (PM peak)
- The closure of Harley Street at Mitchell Road will reduce its traffic by 60% or 106 veh/hr (AM peak) and 74% or 232 veh/hr (PM peak).

Network Modelling Outputs: Maintaining Local Vehicle Access While Reducing Through Traffic

- The full closure of Park Street at Railway Parade will limit access for its residents to be via the Copeland Street intersection only with much longer travel times, particularly to travel west
- The closure of both Maddox Street at Euston Road and Harley Street at Mitchell Road do not substantially reduce local traffic access because a number of other streets are available.

Network Modelling Outputs: Outcomes for Other Road Users

- Reduce traffic on Park Street, Maddox Street and Harley Street will improve pedestrian comfort and safety
- The controlled crossings at Maddox Street and Mitchell Road and raised crossing on Swanson Street will improve pedestrian and cyclist safety
- Much longer delays along Mitchell Road will impact bus travel times and reduce bus travel time reliability.

Options to Take Forward

Of the eight options considered as part of Scenario B, Options 2.1 and 6.1 have been recommended for implementation.

The restriction of right turns from Mitchell Road to Sydney Park Road to bus only is the dominant influence on the performance of the local network in Scenario B. Without upgrades to the Sydney Park Road / Euston Road intersection, its impacts into the local traffic network are substantial. This option is not recommended to proceed.

6.1 Alternative Route Assumptions Needed for Option 10.1

Option 10.1 which is the proposed 'bus only right turn lane' from Mitchell Road to Sydney Park Road will displace traffic to alternative routes. Some parts of these routes are outside of the boundary of the traffic model.

For the purpose of this assessment, the following three alternative routes have been identified and assumed in the Scenario B modelling:

- **Route A:** Botany Road / McEvoy Street / Euston Road
- **Route B:** Section of Mitchell Road / Fountain Street / Euston Road
- **Route C:** Mitchell Road / Sydney Park Road.

These routes are shown in Figure 6.1.

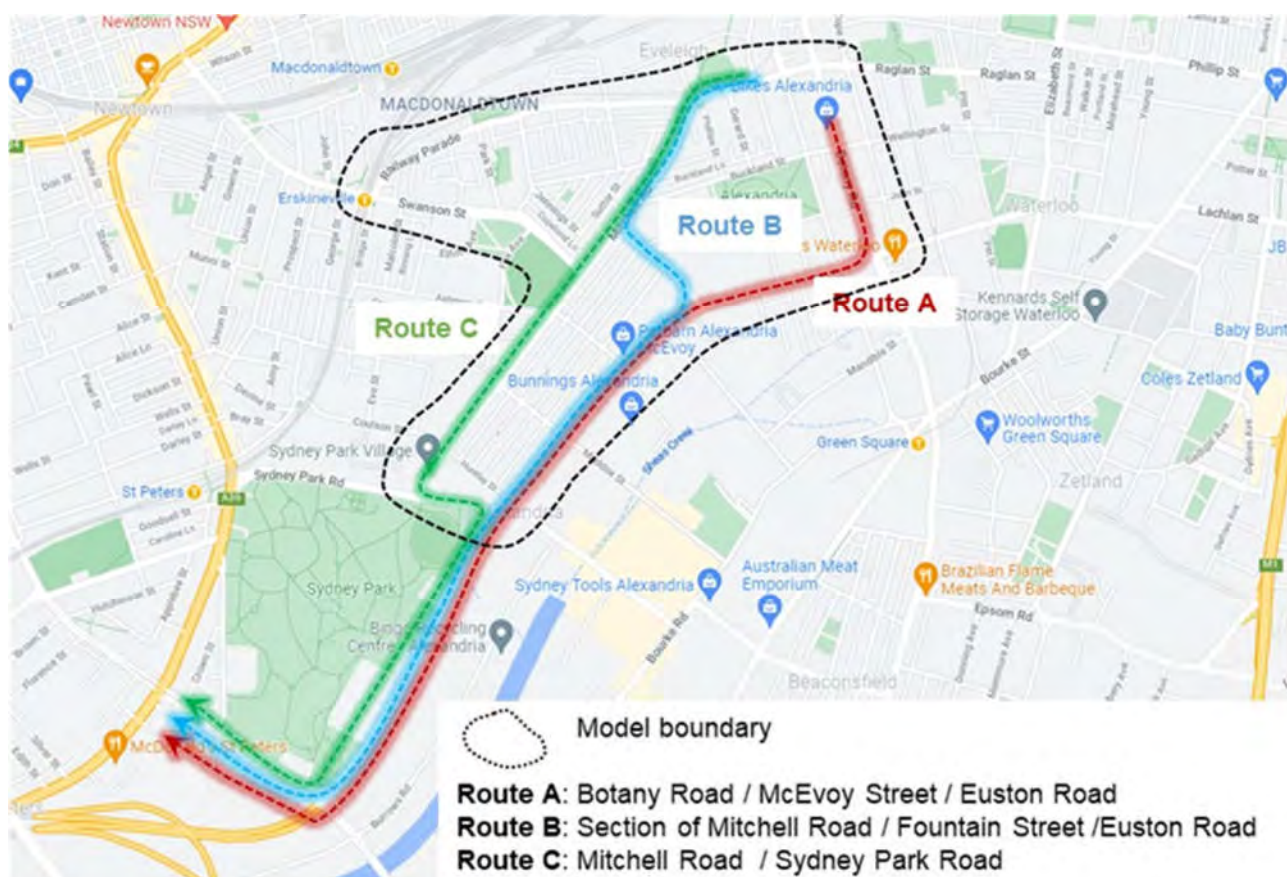


Figure 6.1: Alternative Local Routes with the Closure of the Right Turn from Mitchell Road

In addition to the above three routes, if right turns from Mitchell Road into Sydney Park Road were banned for general traffic, drivers have the option to choose the following routes:

- **The Swanson Street - Erskineville Road route:** However, known congestion in the Erskineville - Newtown areas would limit this demand
- **The Coulson Street route:** However, congestion at the Concord Street / King Street intersection would limit this demand.

The three Routes (A, B and C) were assumed in the modelling to be the only routes that diverted traffic due to Option 10.1 would take.

6.2 Modelling Results

The Scenario B improvement options were added to the 2022 base traffic model and this model was run. Full modelling results are included in **Appendix C** and a summary is provided below.

6.2.1 Network Statistics

Table 6.1 and Table 6.2 present the AM peak and PM peak network statistics for Scenario B compared to the Base Case.

Table 6.1: Scenario B, AM Peak, Network Statistics

| Parameters | Base Case 2021 | Base Case 2022 | Scenario B |
|------------------------------------|----------------|----------------|------------|
| Average Delay (s) | 96 | 93 | 128 |
| Average Network Speed (km/h) | 17.6 | 17.8 | 15.0 |
| Vehicle Kilometres Travelled (VKT) | 23,228 | 23,241 | 23,661 |
| Vehicle Hours Travelled (VHT) | 1,371 | 1,355 | 1,744 |
| Stops (Per Vehicle) | 3.1 | 3.0 | 4.0 |
| Completed Trips | 26,186 | 26,541 | 26,608 |
| Incomplete Trips | 309 | 349 | 1,256 |
| Unreleased Vehicles | - | 2 | 182 |
| Total Trips | 26,495 | 26,892 | 28,046 |

Table 6.2: Scenario B, PM Peak, Network Statistics

| Parameters | Base Case 2021 | Base Case 2022 | Scenario B |
|------------------------------------|----------------|----------------|------------|
| Average Delay (s) | 70 | 71 | 122 |
| Average Network Speed (km/h) | 20.9 | 20.9 | 16.0 |
| Vehicle Kilometres Travelled (VKT) | 23,329 | 23,301 | 24,045 |
| Vehicle Hours Travelled (VHT) | 1,124 | 1,125 | 1,637 |
| Stops (Per Vehicle) | 2.4 | 2.4 | 4.0 |
| Completed Trips | 25,826 | 25,813 | 25,821 |
| Incomplete Trips | 311 | 307 | 436 |
| Unreleased Vehicles | - | - | 0 |
| Total Trips | 26,137 | 26,120 | 26,257 |

Key findings include:

- The average delay across the network would increase substantially due to increased congestion within the network: 35 seconds (or +38%) in the AM peak and 51 seconds (or +71%) in the PM peak
- Vehicle Hours Travelled (VHT) would increase between 29% (AM peak) and 46% (PM peak) when compared with Base Case in 2022.

6.2.2 Travel Times

The AM peak and PM peak travel times are compared in Table 6.3 and Table 6.4. The key observations include:

- The southbound travel time on Mitchell Road will increase substantially; about ten minutes in the AM peak and nine minutes in the PM peak. This is due to congestion at the southern end of Mitchell Road with traffic queued to turn left to then turn right from Sydney Park Road into Euston Road

- Travel times along the Euston Road / McEvoy Street route will increase substantially in the both the AM and PM peaks. This is due to increased congestion resulting from diverted traffic from Mitchell Road due to the 'bus only right turn' at the Mitchell Road / Sydney Park Road intersection.

Table 6.3: Scenario B, AM Peak, Travel Times

| Routes | Direction | Base 2021 | Base 2022 | Scenario A |
|---|------------|-----------|-----------|------------|
| Route 1 – Mitchell Road | Northbound | 7:10 | 8:14 | 7:18 |
| | Southbound | 4:25 | 4:37 | 14:26 |
| Route 2 – Euston Road / McEvoy / Wyndham Street | Northbound | 10:35 | 8:21 | 10:55 |
| | Southbound | 5:58 | 5:51 | 9:20 |
| Route 3 – Henderson Road | Northbound | 5:56 | 6:02 | 5:07 |
| | Southbound | 4:03 | 4:00 | 3:28 |
| Route 4 – Swanson Street / Copeland Street | Northbound | 2:37 | 2:35 | 1:56 |

Table 6.4: Scenario B, PM Peak, Travel Times

| Routes | Direction | Base 2021 | Base 2022 | Scenario A |
|---|------------|-----------|-----------|------------|
| Route 1 – Mitchell Road | Northbound | 5:08 | 5:03 | 6:08 |
| | Southbound | 6:08 | 7:03 | 16:15 |
| Route 2 – Euston Road / McEvoy / Wyndham Street | Northbound | 5:54 | 5:46 | 6:39 |
| | Southbound | 5:28 | 5:27 | 7:45 |
| Route 3 – Henderson Road | Northbound | 5:56 | 3:45 | 2:26 |
| | Southbound | 4:03 | 4:17 | 5:34 |
| Route 4 – Swanson Street / Copeland Street | Northbound | 3:16 | 2:12 | 1:37 |

6.2.3 Traffic Volumes

The changes in traffic volumes at various key locations within the study area during the AM and PM peak periods are shown in Figure 6.2 and Figure 6.3. The key observations include:

- The proposed **closure of Park Street** at Railway Parade means Park Street will only be used for access to local residents
- As in Scenario A, the opening of **Railway Parade to two-way operation** will reduce traffic volumes on Swanson Street by 23% (AM peak) and 24% (PM peak), or 217 and 237 veh/hr
- The **Bus Only Right Turn** will increase the PM peak southbound traffic on Euston Road by over 100 veh/hr (or +11%). The right turn ban will also increase eastbound traffic on Sydney Park Road between Mitchell Road and Euston Road. In the PM peak, the right turn movement from Sydney Park Road to Euston Road will increase by 170 veh/hr (or 41%), resulting in long queues on this approach
- The PM peak right turn movement from Botany Road (north) to McEvoy Street will increase by 50 veh/hr (or 10%) resulting in long queues on the Botany Road approach
- The closure of Maddox Street at Euston Road will reduce traffic volumes by 54% (AM peak) and 61% (PM peak), or 327 and 404 veh/hr which is substantial, but comes with a consequence of significantly impacting the ease to which local residents can leave the local area
- The closure of Harley Street at Mitchell Road will reduce traffic volumes by 60% (AM peak) and 74% (PM peak) or 106 and 232 veh/hr.



Figure 6.2: Changes in Traffic Volumes - AM Peak, Scenario B



Figure 6.3: Changes in Traffic Volumes - PM Peak, Scenario B

6.3 Pinch Points, Local Access and Through Traffic

6.3.1 Pinch Points

The increased right turn flows from Sydney Park Road to Euston Road are shown in the modelling to result in long queues on the Sydney Park Road approach. The queues will extend back along Mitchell Road up to Maddox Street resulting in long delays to the southbound traffic and consequently affecting side street exits from Coulson Street, as shown in Figure 6.4.

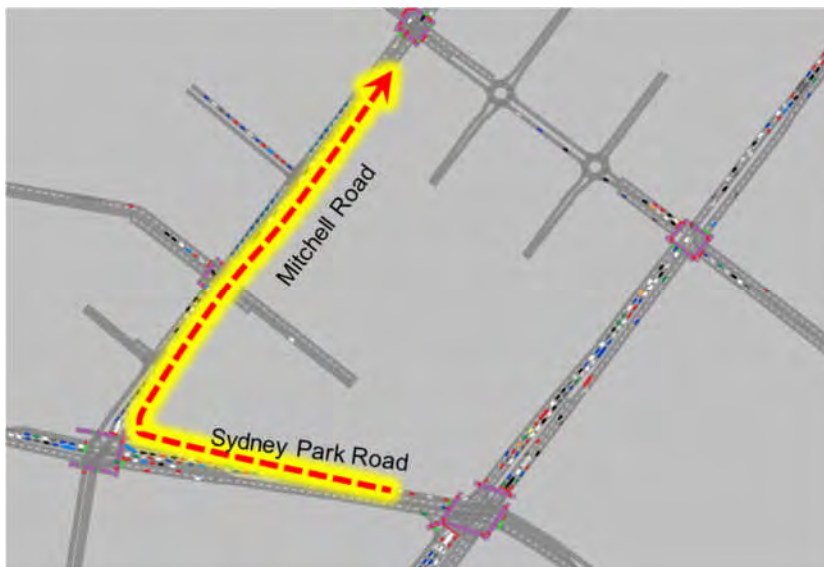


Figure 6.4: Queues of Right Turn Traffic along Mitchell Road – PM Peak, Scenario B

Delays and queues on Euston Road due to queues-back from Fountain Street from the traffic model are shown in Figure 6.5. The left turn volume into Fountain Street would increase substantially (200-300 veh/hr) due to the closure of Maddox Street at Euston Road and Harley Street at Mitchell Road.



Figure 6.5: Queues on Euston Road, Scenario B

Delays and queues to Botany Road southbound traffic due to the increased right turn flows from Botany Road to McEvoy Street as identified in the traffic model are shown in Figure 6.6.

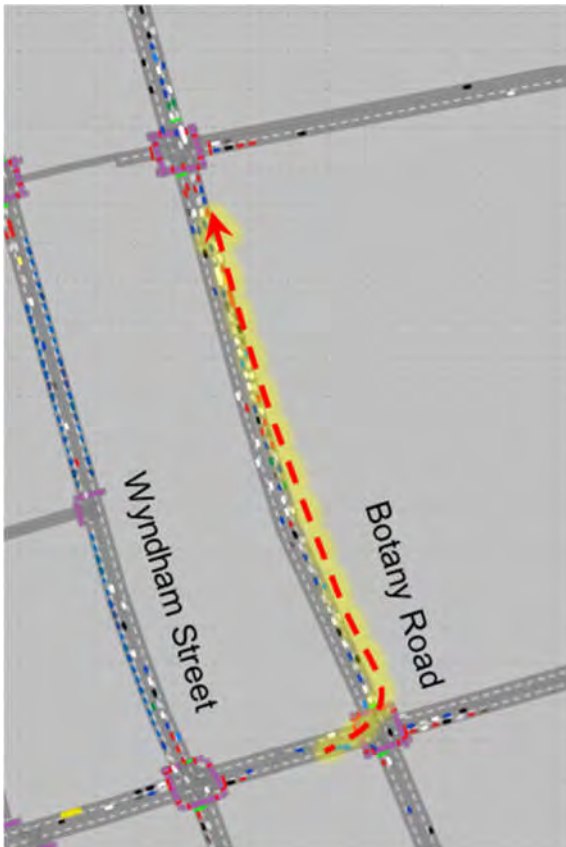


Figure 6.6: Queues on Botany Road, Scenario B

Additional right turn traffic is shown in the modelling to result in long queues in Fountain Street as shown in Figure 6.7.



Figure 6.7: Queues on Fountain Road, Scenario B

6.4 Public Transport and Active Transport

The introduction of a raised shared pedestrian and cycle crossing on Swanson Street near Park Street will reduce traffic speeds on Swanson Street, thereby improving walking and cycling convenience and safety.

The options to re-orientate the Mitchell Road intersections with Copeland Street and with Fountain Street will reduce the pedestrian crossing distances, resulting in shorter crossing times.

The reduction in traffic flows on Maddox Street, Harley Street and Park Street as a result of closures will reduce pedestrian-vehicle and cyclist-vehicle conflicts.

The modelling shows that the traffic signals at Mitchell Road / Maddox Street will reduce congestion (compared to the roundabout there now) and improve travel times for northbound traffic on Mitchell Road during the AM peak which will also reduce northbound bus travel times. However, the proposed 'bus only right turn' at Mitchell Road will substantially increase southbound travel times on Mitchell Road. Long queues on this approach will also increase southbound bus travel times and block access to the bus only right turn.

6.5 Option-Specific Findings

6.5.1 Park Street Closure (1.1)

The closure of Park Street at Railway Parade will result in:

- Increased traffic flows on Railway Parade between Swanson Street and Park Street by 200 to 300 veh/hr (PM Peak)
- No significant impacts on travel time along the Railway Parade / Henderson Road corridor
- Railway Parade intersections with Swanson Street and Henderson Road / Mitchell Road operating well within their capacity with delays remaining similar to the Base Case.

6.5.2 Mitchell Road to Sydney Park Road Bus Only Right Turn (10.1)

The traffic route diversions due to the Mitchell Road to Sydney Park Road right turn closure would:

- **Botany Road / McEvoy Street:** Increase Botany Road to McEvoy Street right turn vehicles by 50 to 70 veh/hr, substantially increasing delays
- **McEvoy Street / Wyndham Street:** Increase southbound volumes on McEvoy Street
- **Euston Road / Sydney Park Road:** Increase southbound traffic on Euston Road by 15%-26% (100 to 150 veh/hr)
- **Euston Road / Sydney Park Road:** Substantially increase the right turn from Sydney Park Road to Euston Road by 200% in the AM peak and 400% in the PM peak (or 100-170 veh/hr)
- **Fountain Street:** Increase the right turn from Fountain Street by 20-50% (or 40-60 veh/hr)
- **Mitchell Road:** Reduce southbound traffic 30%-40% (or 130-290 veh/hr).

6.6 Options to Take Forward

A total of eight improvement options were considered as part of Scenario B. A short description of each option and their contribution to traffic performance and active transport safety are summarised in Table 6.5. The key outcomes include:

- Two of the eight options will contribute to improved traffic performance and active transport safety: Item 2.1, Raised Pedestrian and Cycle Crossing at Swanson Street near Park Street and Item 6.1, Maddox Street / Mitchell Road Traffic Signals. These options were also included in the Scenario A assessment
- The proposed closure of Park Street at Railway Parade will significantly reduce Park Street traffic flows. However, this will limit access options for local residents to be via the Copeland Street intersection only and introduce much longer re-routing distances, particularly for local traffic heading west. The proposed right turn ban to and from Park Street which was included in Scenario A assessment is preferred over its complete closure
- The proposed closure of Maddox Street will significantly reduce traffic flows in this street. However, the displaced traffic would contribute significantly to congestion and delays in the wider road network. The Bitzios Consulting 2017 assessment identified similar traffic impacts stating that *"the two-way traffic movement on Fountain Street would increase by over 600 vehicles/ hour, a 90% increase"*. Additionally, 600 vehicles could not enter into the study area from Euston Road and these vehicles are likely to queue back to the St Peters interchange. *Although the closure of Maddox Street was recommended in the 2017 study along with the closure of Harley Street, the objectives of that study were far more heavily weighted towards removing peak period through traffic off local streets without over-emphasising the cumulative impacts of multiple closures on state roads. The report did however document the state road impacts should Maddox Street and Harley Street both be closed. TfNSW subsequently opposed the closure of both Maddox Street and Harley Street. Taking a more balanced and more pragmatic approach in this study, only one of these streets has been recommended to be closed, and the preferred street is Harley Street. For Maddox Street, traffic calming measures have been proposed instead with the objective of managing the speed and types of through traffic in Maddox Street in peak periods and discourage it in off peak periods.*
- The Bus Only Right Turn from Mitchell Road to Sydney Park Road will substantially alter traffic flows in the wider area network. The displaced traffic will substantially increase congestion and delays on Botany Road, Euston Road / McEvoy Street southbound, Mitchell Road and the section of Sydney Park Road between Mitchell Road and Euston Road. Whilst it achieves its purpose of a reduction in traffic on Mitchell Road, it puts additional pressure on other local east-west routes for traffic to travel westwards. Also, the queues that propagate back up Mitchell Road from Sydney Park Road block other accesses, to the detriment of local accessibility. This option is not recommended
- The objective of the proposed re-orientation of the Mitchell Road intersections with Copeland Street and Fountain Street was to deter traffic from the Mitchell Road corridor south of Copeland Street by reducing through traffic capacity and promoting the dog-leg movement between Fountain Street and Copeland Street. However, the proposed Bus Only Right Turn at Mitchell Road, which is included in Scenario B, substantially reduced through traffic from the Mitchell Road corridor anyway
- A supplementary model scenario (Scenario C) revealed that under the Scenario A network, the two intersection orientations would operate with significant congestion primarily because there would still be reasonably high traffic demand to / from Mitchell Road. The intersection footprint requirements to address queuing and congestion impacts with these revised orientations would be prohibitive in terms of costs and impacts. These options are not being recommended.

Table 6.5: Scenario B Assessment Outcomes Summary

| Item | Improvements | Impacts | Recommended? |
|------|--|--|--------------|
| 1.1 | Close Park Street at Railway Parade | Reduces traffic flows on Park Street significantly. Increases traffic on Henderson Road but this will have no impacts on the travel time. Limits resident access. The alternative proposal of 'Right Turn Ban' is preferred. | No |
| 2.1 | Raised Ped/ Cycle Crossing on Swanson Street near Park Street | Improves active transport safety. The measure does not have any measurable impacts on traffic. | Yes |
| 4.1 | Closure of Harley Street at Mitchell Road | Reduces traffic flows on Harley Street and improves active transport safety and accessibility but reduces vehicular accessibility. Closure at McEvoy Street is preferred. | No |
| 6.1 | Maddox Street / Mitchell Road traffic signals | Reduces intersection delays and queues. The provision of controlled crossing facilities will also improve active transport safety. | Yes |
| 9.1 | Closure of Maddox Street at Euston Road | Substantially reduces traffic flows on Maddox Street (60%). However, the displaced traffic would impact the wider road network. The alternative of traffic calming measures is preferred. | No |
| 10.1 | Bus Only Right Turn from Mitchell Road to Sydney Park Road (Council objected) | Substantially reduces traffic flows on Mitchell Road (30-40%). However, the displaced traffic would significantly impact the wider road network. Traffic flows at Euston Road / SPR would increase by 5-7% pushing this vulnerable intersection to operate close to capacity during the PM peak (LoS E). Congestion on McEvoy Street and Mitchell Road would increase substantially. | No |
| 13.1 | Re-orientate Mitchell Road / Copeland Street for N to W priority (single lanes to / from Mitchell) | Benefits active transport users as the crossing widths are expected to reduce. Intersection upgrade footprint requirements are excessive. Should TfNSW provide further upgrades to increase PM peak southbound capacity on Euston Road at Sydney Park Road, then the opportunities to re-orientate Mitchell Road / Copeland Street and Mitchell Road / Fountain Street could be re-investigated. | No |
| 14.1 | Re-orientate Mitchell Road / Fountain Street priority (single lanes to / from Mitchell) | Benefits active transport users as the crossing widths are expected to reduce. Intersection upgrade footprint requirements are excessive. Should TfNSW provide further upgrades to increase PM peak southbound capacity on Euston Road at Sydney Park Road, then the opportunities to re-orientate Mitchell Road / Copeland Street and Mitchell Road / Fountain Street could be re-investigated. | No |

Following consultation with Council on the draft options for recommendation, and the exclusion of the closure of Maddox Street from those recommendations, a further measure to deter through traffic, and particularly trucks, was proposed as an addition to Item 3.1 in Scenario A. The left turn from Euston Road into Maddox Street has been proposed to be closed and these movements from the south would be re-directed via Sydney Park Road and Mitchell Road which is a route with sufficient capacity to accommodate this traffic without excessive congestion.

7. OPTIONS PRIORITISATION

7.1 Options for Implementation

From the Scenario A and Scenario B modelling, the new options recommended are:

- **Option 1.2:** Right turn ban from Park Street into Railway Parade
- **Option 2.1:** Raised Ped / Cycle Crossing (Swanson Street / Park Street)
- **Option 3.1:** Maddox Street Traffic Calming (plus left turn ban from McEvoy into Maddox)
- **Option 5.1:** Closure of Harley Street at McEvoy Street
- **Option 6.1:** Maddox Street / Mitchell Road traffic signals
- **Option 7.1:** Mitchell Road (Huntley Street to Ashmore Street) traffic calming measures
- **Option 8.1:** Mitchell Road / Huntley Street intersection improvement
- **Option 11.1:** Traffic signals at Mitchell Road / Harley Street / Ashmore Street
- **Option 12.1:** Road Narrowing and CFT on side roads along Coulson Street.

7.2 Indicative Cost Estimates

'High-level' Cost estimates have been prepared for the traffic-upgrades items listed in Table 7.1. The Cost estimates were based on the following key assumptions:

- The unit rates were based on a number of sources and generally based on our experience of working in similar projects in and around Sydney
- The final estimated Cost was adjusted for inflation using Consumer Price Index (CPI) data
- A 30% allowance was made for 'Contingency and Design'.

Table 7.1 provides the item-based Cost estimates.

Table 7.1: High Level Cost Estimates (2021 dollars)

| Item | Improvements | Implementation Cost |
|--------------|---|---------------------|
| 1.2 | Right turn bans at the Park Street / Railway Parade intersection ¹ | \$15,900 |
| 2.1 | Raised Ped / Cycle Crossing (Swanson Street / Park Street) ² | - |
| 3.1 | Maddox Street Traffic Calming and left turn ban from Euston Road | \$78,600 |
| 5.1 | Closure of Harley Street at McEvoy Street | \$39,900 |
| 6.1 | Maddox Street / Mitchell Road traffic signals ³ | - |
| 7.1 | Mitchell Road (Huntley Street to Ashmore Street) traffic calming measures | \$126,100 |
| 8.1 | Mitchell Road / Huntley Street intersection improvement ⁴ | - |
| 11.1 | Traffic signals at Mitchell Road / Harley Street / Ashmore Street | \$369,700 |
| 12.1 | Road Narrowing and CFT on Side Roads along Coulson Street ⁵ | \$108,600 |
| Total | | \$738,800 |

¹ Low-Cost item for a specific residential catchment. May be suitable for early implementation

² Construction now complete

³ Committed for construction by 2026 as part of a nearby development approval

⁴ Construction scheduled for October 2022

⁵ Coulson Street pedestrian crossing and Eve Street continuous footpath treatment committed for FY22/23

No cost estimates have been prepared for the projects that are not associated with traffic-influencing improvements (i.e. not modelled) because those projects are mostly either minor works / maintenance items or require separate scoping studies to detail the extent of works, such as the intersection footprint narrowing recommendations.

7.3 Staging and Trigger Considerations

An MCA was undertaken by assigning a score for each of the key criteria established for each of the six transport strategy objectives as discussed in Section 4.1. The detailed score sheets for the nine improvement options is included in **Appendix D**. The summary is provided in Table 7.2 with key findings as follows:

- The proposed traffic signals at Mitchell / Ashmore and Mitchell / Maddox Street rank as one and two respectively, providing benefits across many criteria
- The closure of Harley Street at McEvoy Street and Maddox Street traffic calming also rank highly as these will improve safety and accessibility for active transport users.

Table 7.2: MCA Results (excluding Cost)

| I.D. | Improvements | MCA Score (/5) | Rank |
|------|---|----------------|------|
| 1.2 | Right turn bans at the Park Street / Railway Parade intersection | 2.35 | 7 |
| 2.1 | Raised Ped / Cycle Crossing (Swanson Street / Park Street) | 2.3 | 8 |
| 3.1 | Maddox Street Traffic Calming and left turn ban from Euston Road | 3.15 | 4 |
| 5.1 | Closure of Harley Street at McEvoy Street | 3.5 | 3 |
| 6.1 | Maddox Street / Mitchell Road traffic signals | 3.95 | 2 |
| 7.1 | Mitchell Road (Huntley Street to Ashmore Street) traffic calming measures | 3.05 | 5 |
| 8.1 | Mitchell Road / Huntley Street intersection improvement | 2.15 | 9 |
| 11.1 | Traffic signals at Mitchell Road / Harley Street / Ashmore Street | 4.05 | 1 |
| 12.1 | Road Narrowing and CFT on Side Roads along Coulson Street | 3 | 6 |

Following the initial ranking, construction costs were included and given a weighting of 20% versus the 'benefits' (i.e. as per the MCA above) weighting of 80%. At the options analysis phase, it is common to have a much lower weighting on construction cost compared to benefits given the uncertainties in the cost estimates and given that the primary purpose of the assessment is to create a relative ranking of projects to further investigate and develop more detailed funding cases for. That is, funding should be considered less of a limiting factor in this stage of planning. The overall score and ranking (including construction Cost) is presented in Table 7.3.

Table 7.3: Overall Ranking (Including Construction Cost)

| I.D | Traffic Upgrade Item | Benefits (/5) | Costs (/5) | Overall (/5) | Rank |
|------|---|---------------|------------|--------------|------|
| 5.1 | Closure of Harley Street at McEvoy Street | 3.50 | 4.73 | 3.75 | 1 |
| 11.1 | Traffic signals at Mitchell Road / Harley Street / Ashmore Street | 4.05 | 1.04 | 3.45 | 2 |
| 3.1 | Maddox Street Traffic Calming | 3.15 | 4.47 | 3.41 | 3 |
| 7.1 | Mitchell Road (Huntley Street to Ashmore Street) traffic calming measures | 3.05 | 3.77 | 3.19 | 4 |
| 6.1 | Maddox Street / Mitchell Road traffic signals | 3.95 | 0.00 | 3.16 | 5 |
| 12.1 | Road Narrowing and CFT on Side Roads along Coulson Street | 3.00 | 3.40 | 3.08 | 6 |
| 1.2 | Right turn ban from Park Street into Railway Parade ¹ | 2.35 | 5.00 | 2.88 | 7 |
| 2.1 | Raised Ped / Cycle Crossing (Swanson Street / Park Street) | 2.30 | 4.31 | 2.70 | 8 |
| 8.1 | Mitchell Road / Huntley Street intersection improvement | 2.15 | 4.09 | 2.54 | 9 |

¹ Low-Cost item for a specific residential catchment. May be suitable for early implementation

8. CONCLUSIONS AND RECOMMENDATIONS

8.1 Key Conclusions

The opening of the WestConnex St Peters Interchange, and the road and intersection changes constructed in association with the interchange, has seen changes in traffic patterns in Alexandria – Erskineville. Council projects in the area in recent years and those proposed to be completed by mid-2023 will improve walking and cycling conditions into the future.

The origin-destination data collected for this study revealed that, excluding through traffic on Euston Road – McEvoy Street, that approximately 60% of AM and PM peak period traffic entering or leaving the study area has an origin or a destination within the area. Also, traffic movements that both start and end within the study area were not able to be captured in the survey. This means that more restrictive measures to remove traffic from the study area, like street closures, will also affect local trips and create long re-routing distances are likely when entering and leaving the area. Much of this locally generated, re-routed traffic will also be on local streets in the study area, introducing other impacts.

More ‘passive’ measures such as traffic signals, traffic management schemes, reduced road widths, more pedestrian/cyclist priority locations and some turn prohibitions, aim to deter rather than remove through traffic whilst providing a slower speed environment to the benefit of walking and cycling safety. These measures, as included in Scenario A, provided network benefits while reducing traffic volumes in residential streets.

Indicative cost estimates have been prepared and of the recommended projects and an MCA-based ranking process completed to generate a prioritised list of projects, as listed in the following section.

8.2 Recommendations

Figure 8.1 shows the projects recommended for Council to implement and the projects are listed in priority order in Table 8.1:

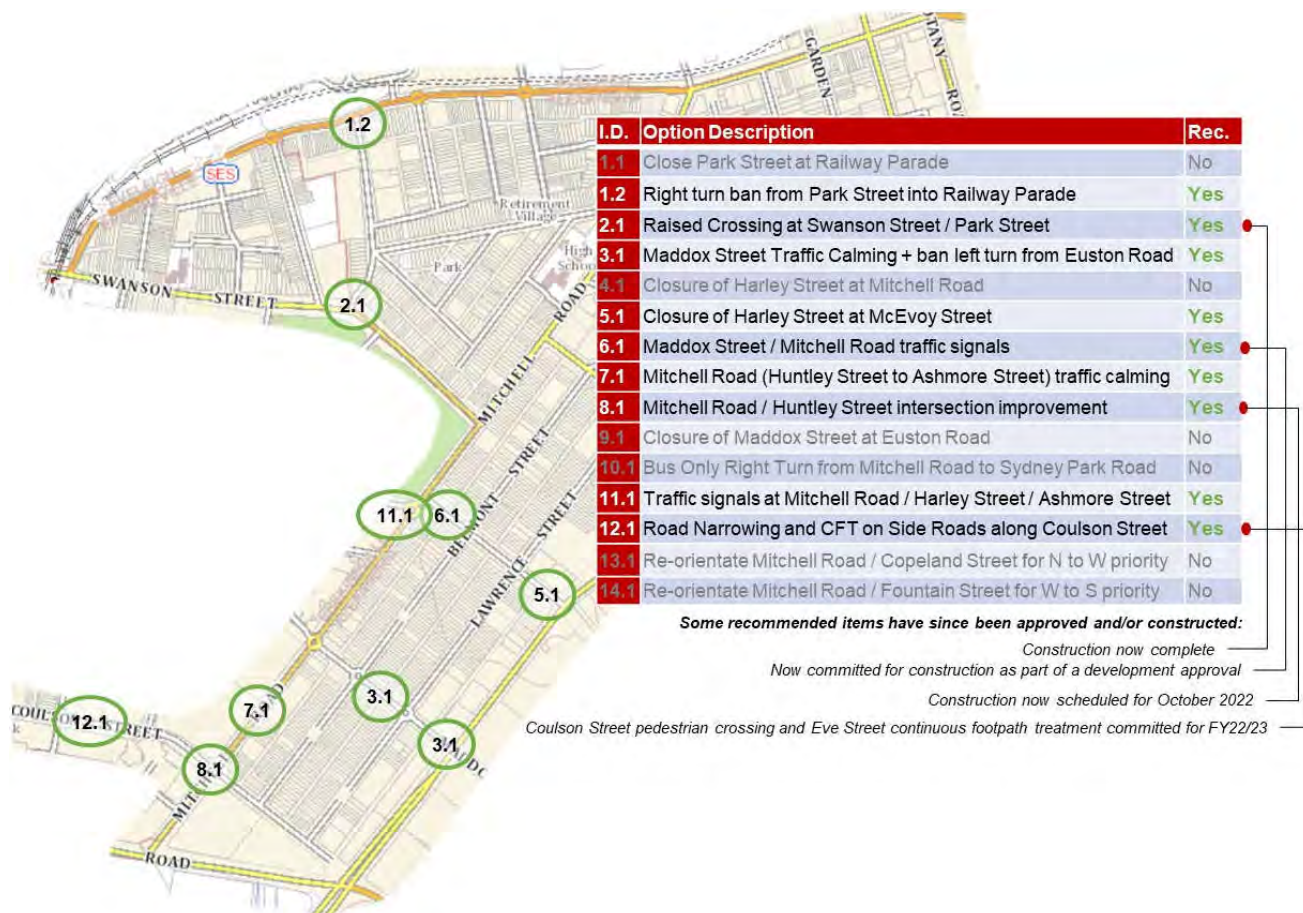


Figure 8.1: Recommended Works Package

Table 8.1: Recommended Projects and Costs in Priority Order

| ID | Works Item | Indicative Construction Cost (2021 dollars) |
|-----------------------------------|---|---|
| 5.1 | Closure of Harley Street at McEvoy Street | \$39,900 |
| 11.1 | Traffic signals at Mitchell Road / Harley Street / Ashmore Street ⁴ | \$369,700 |
| 3.1 | Maddox Street Traffic Calming and left turn ban from Euston Road | \$78,600 |
| 7.1 | Mitchell Road (Huntley Street to Ashmore Street) traffic calming measures | \$126,100 |
| 6.1 | Maddox Street / Mitchell Road traffic signals ³ | - |
| 12.1 | Road narrowing and CFT on side roads intersecting Coulson Street ⁵ | \$108,600 |
| 1.2 | Right turn ban from Park Street into Railway Parade ¹ | \$15,900 |
| 2.1 | Raised pedestrian / cyclist crossing at Swanson Street / Park Street ² | - |
| 8.1 | Mitchell Road / Huntley Street intersection improvement ⁴ | - |
| Total Indicative Cost to Council: | | \$738,800 |

¹ Low-Cost item for a specific residential catchment. May be suitable for early implementation

² Construction now complete

³ Committed for construction by 2026 as part of a nearby development approval

⁴ Construction scheduled for October 2022

⁵ Coulson Street pedestrian crossing and Eve Street continuous footpath treatment committed for FY22/23

Recommendations for Minor Works items and further investigations are listed in Table 8.2.

Table 8.2: Recommended Minor Works and Further Investigations (not in priority order)

| Road Space Reallocation Options | ID |
|---|-----------|
| Initiate a program of identifying excessively wide intersections in the study area and design and implement treatments to address these issues progressively as funding allows | [A] |
| Undertake concept design, including community consultation activities to develop a scheme to reduce the trafficable footprint of the Renwick / Dadley and Lyne / Dadley intersections, as funding permits | [B] |
| Initiate a 'signs and lines' review of Mitchell Road between Fountain Street and Anderson Street, including into its side roads in this section such as Brown Street, Buckland Street and Buckland Lane | [C] |
| Undertake concept design and develop a scheme to introduce footpath continuation across Belmont Street north of Fountain Street, as funding permits | [D] |
| Include the N-S cycleway crossing of Harley Street just east of Mitchell Road as part of the project to close Harley Street, should this be approved | [E] |
| Consider installing Bicycle Awareness Zone (BAZ) pavement markers on Mitchell Road south of Ashmore Street | [F] |
| In the short term and before the intersection is signalised (pas per item 6.1), implement a pedestrian refuge island in Maddox Street near Mitchell Road | [G] |
| Widen the footpath on both sides of Copeland Street between Fox Avenue and Clara Street | [H] |

8.3 Further Work and Monitoring Program

Council should undertake design development through to implementation for the recommended projects, as funding permits.

With the opening of the M4-M5 Link in 2023, it is inevitable that there will be some further changes in traffic patterns in the study area. A regular traffic monitoring program would be beneficial in the study area to assess the benefits of the recommendations as they are implemented and then to determine the need to investigate any unforeseen issues once the M4-M5 link is opened.

Appendix A: Option Concepts



| | |
|----------------------------|---|
| Option ID: | 4.01 |
| Option description: | Closure of Harley Street at Mitchell Road |
| Source: | CoS |

No Through Road Harley Street at Mitchell Road Medium Priority – Proposed (Option 1)



| | |
|----------------------------|---|
| Option ID: | 5.01 |
| Option description: | Closure of Harley Street at McEvoy Street |
| Source: | CoS |

No Through Road Harley Street at McEvoy Street Medium Priority – Proposed (Option 1)



| | |
|----------------------------|--|
| Option ID: | 13.01 |
| Option description: | Re-orientate Mitchell Road / Copeland Street |
| Source: | Bitzios Consulting |

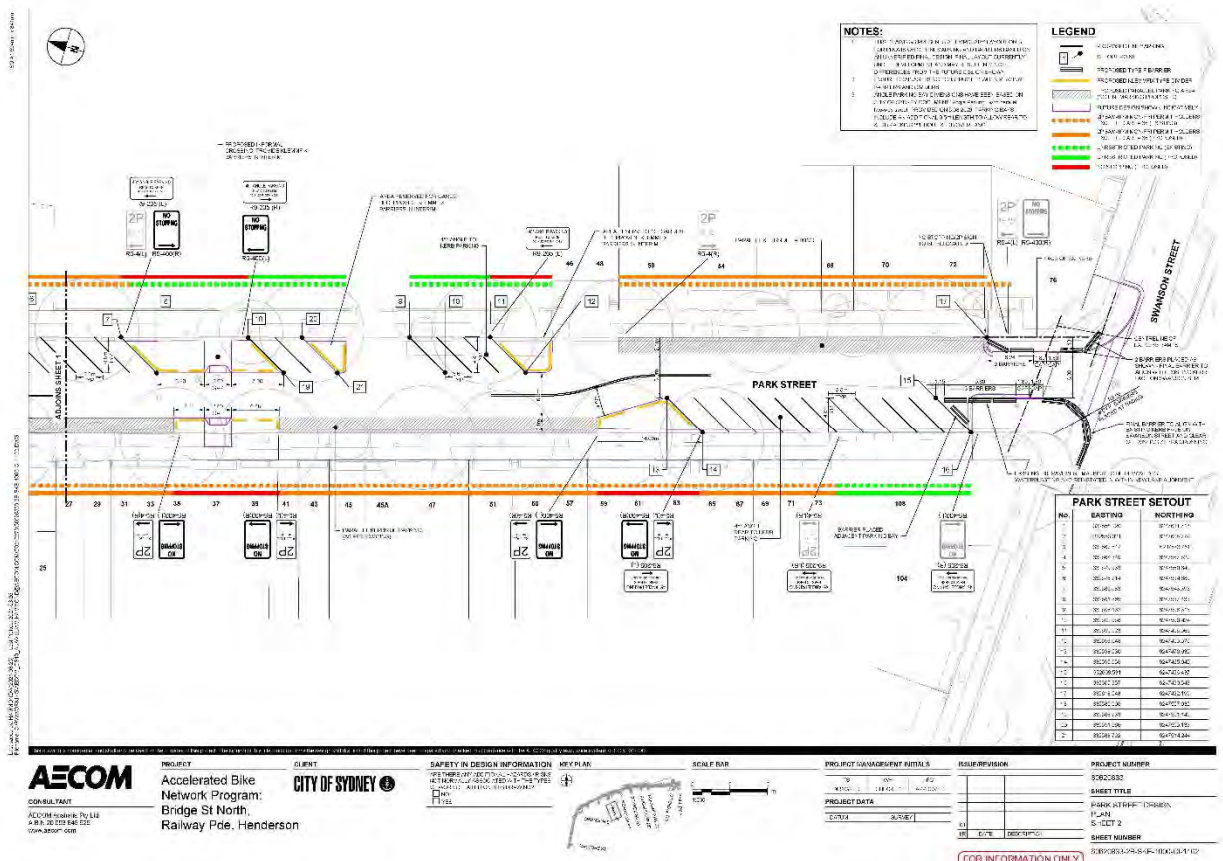
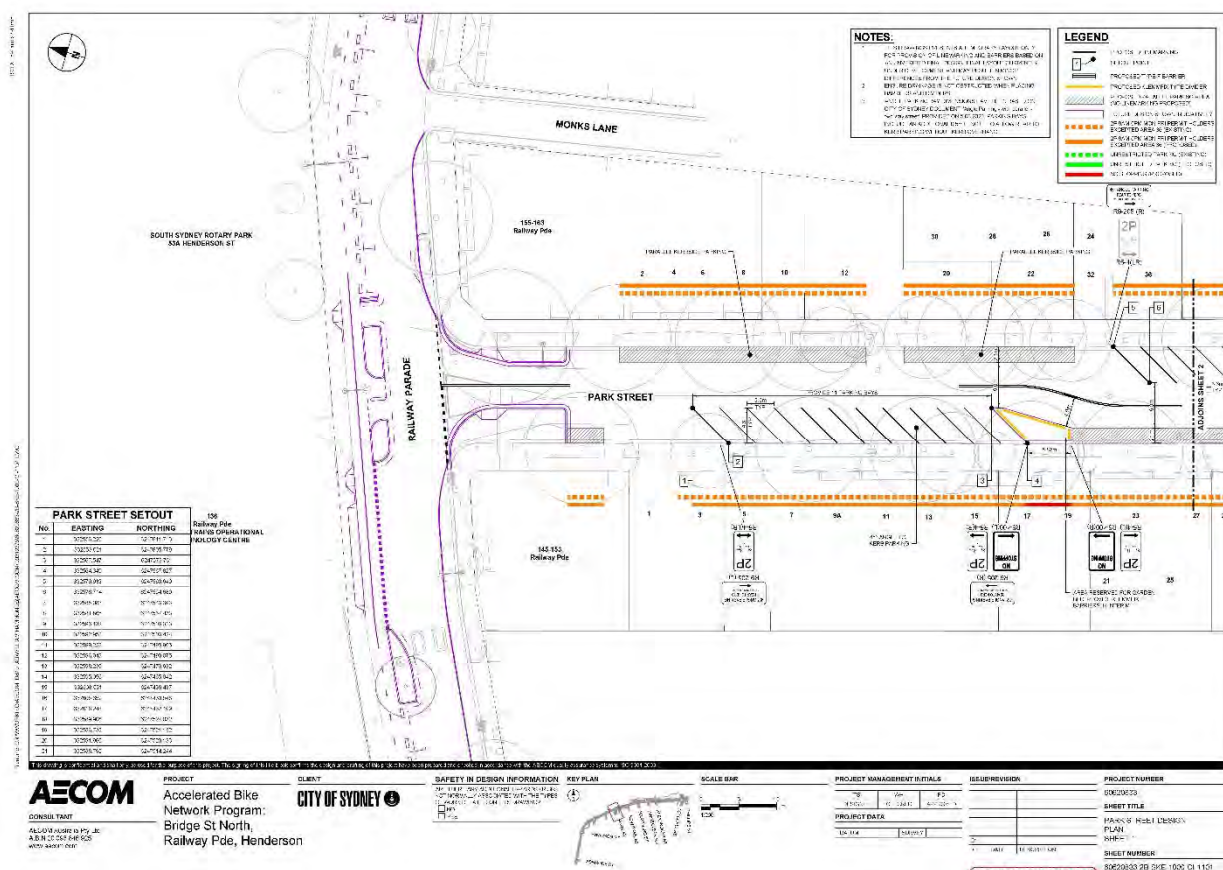


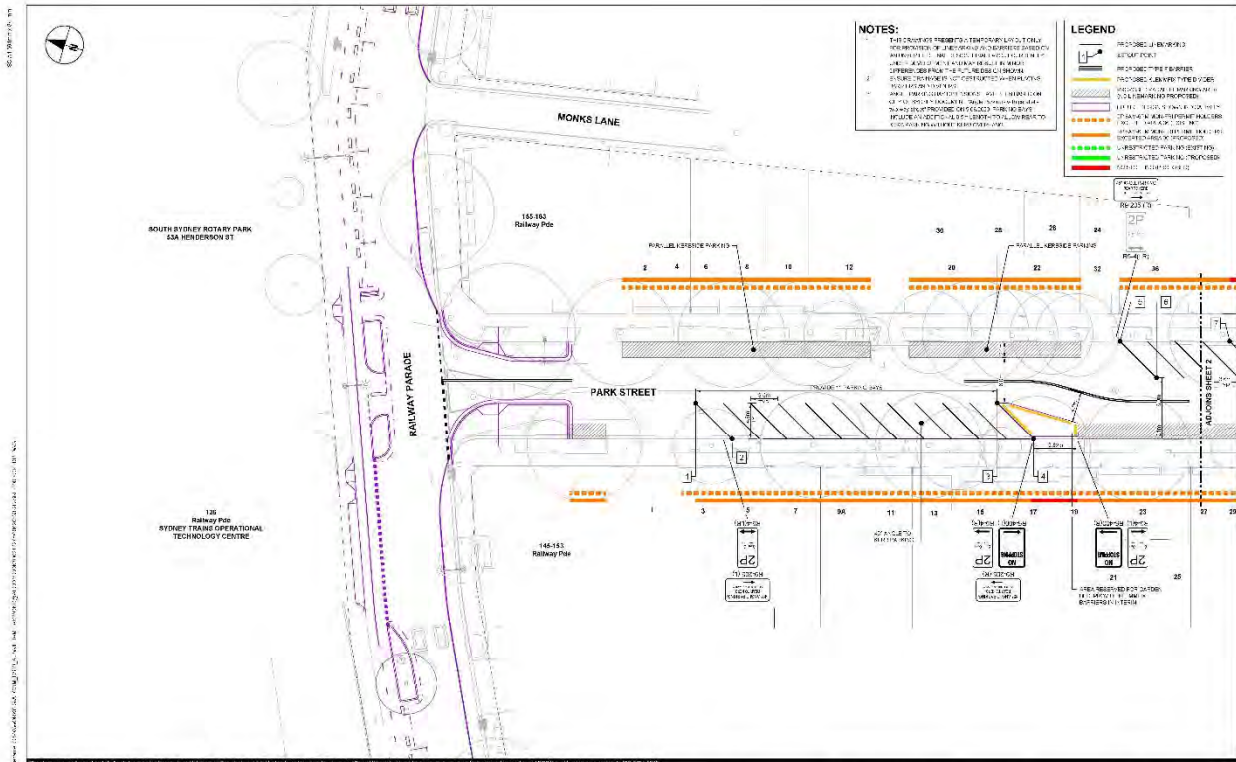
| | |
|----------------------------|---|
| Option ID: | Comm 1 |
| Option description: | Railway Street two -way (with cycleway) |
| Source: | CoS |

Improving Bridge Street, Railway Parade and Henderson Road Railway Parade



| | |
|----------------------------|-----------------------------|
| Option ID: | Comm 2 |
| Option description: | Park Street Traffic Calming |
| Source: | CoS |





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KEY PLAN

SCALE BAR

PROJECT MANAGEMENT INITIALS

ISSUE/REVISION

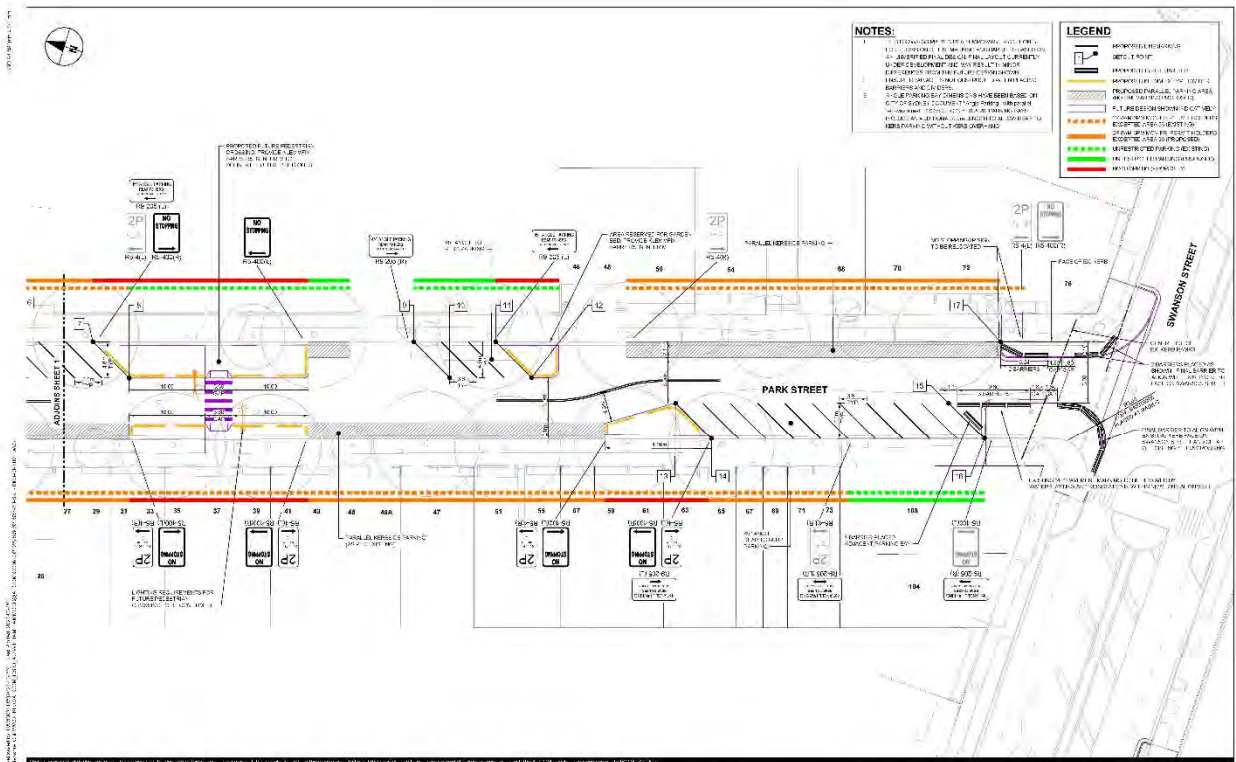
PROJECT NUMBER

SHEET TITLE

PLAN (SHEET 1)

SHEET NUMBER

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CITY OF SYDNEY

SAFETY IN DESIGN INFORMATION
KEY PLAN

SCALE BAR

PROJECT MANAGEMENT INITIALS

ISSUE/REVISION

PROJECT NUMBER

SHEET TITLE

PLAN (SHEET 2)

SHEET NUMBER

FOR INFORMATION ONLY

| | |
|----------------------------|---|
| Option ID: | Comm 8, Comm 9, Comm 10 |
| Option description: | Ashmore Road – Harley Street separated cycleway |
| Source: | CoS |

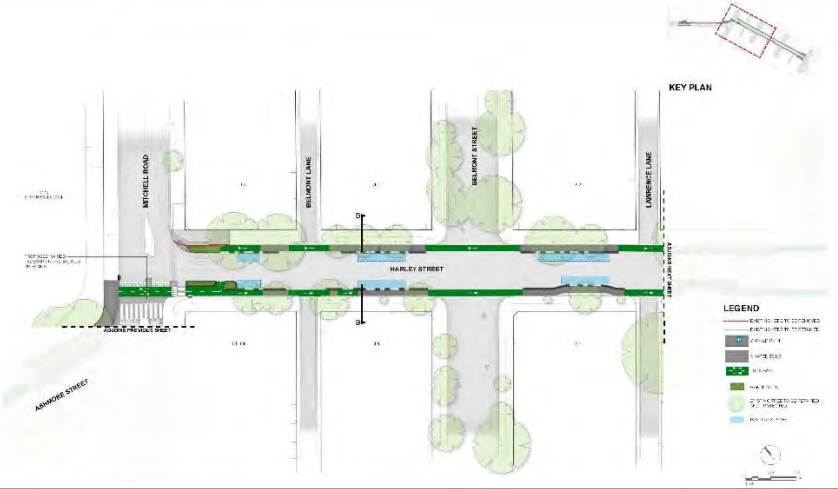
Improving Ashmore Street and Harley Street

Ashmore Street



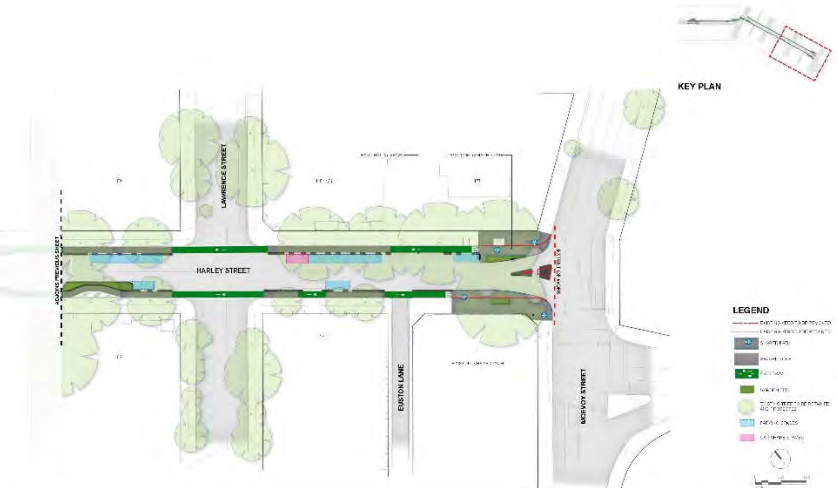
Improving Ashmore Street and Harley Street

Harley Street

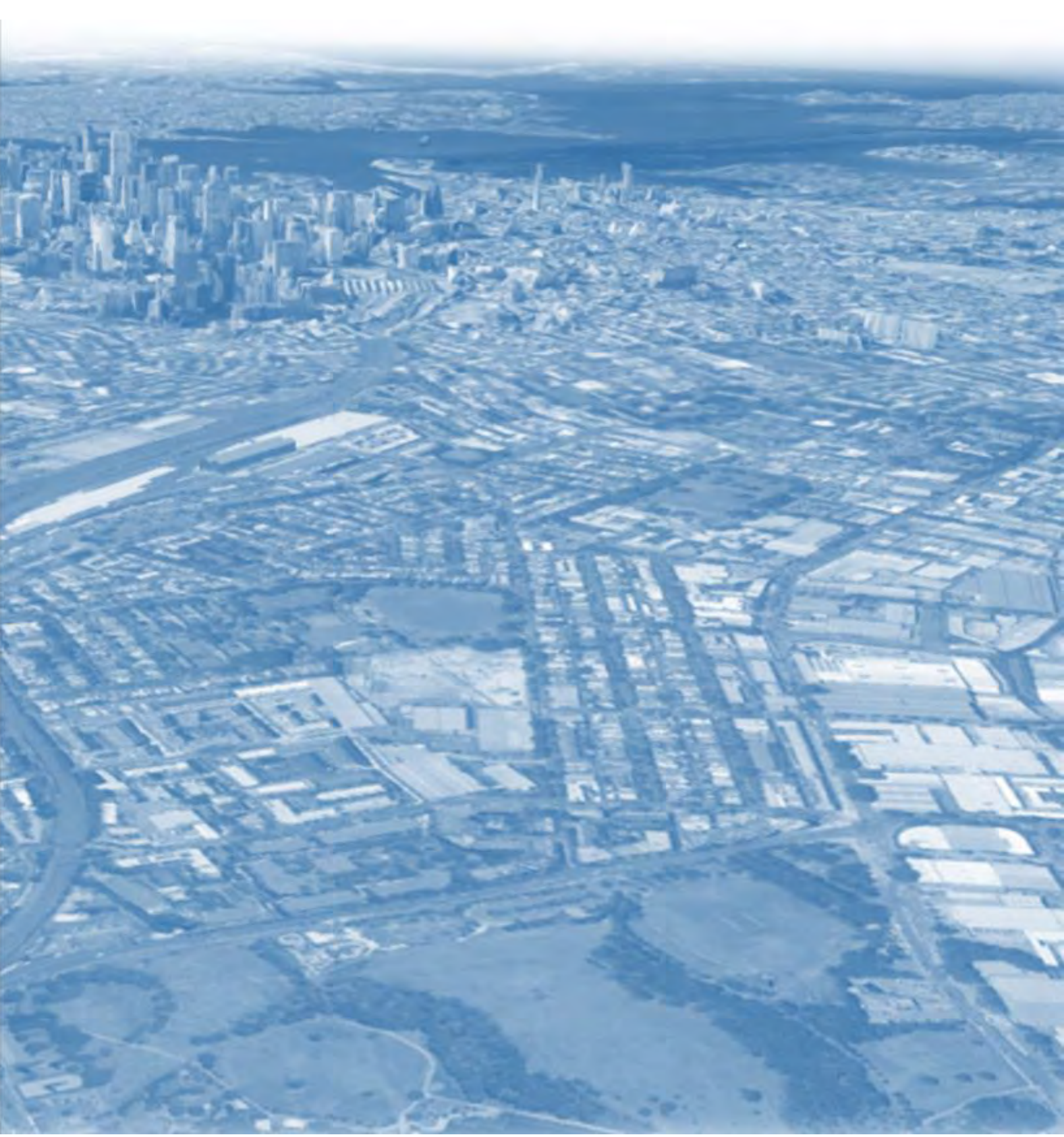


Improving Ashmore Street and Harley Street

Harley Street



Appendix B: Scenario A Modelling Results



P4411 Henderson Road Alexandria Traffic Study

VISSIM Data Analysis - Node Scenario A -AM

AM Peak 0800-0900

| ID | Intersection | From | To | Turn | Surveyed | Modelled | Delay (s) | LoS | Queue (m) |
|------|---|-------------------------|-------------------------|------|----------|----------|-----------|-----|-----------|
| | Sydney Park Road Mitchell Road | Mitchelle Road (N) | Sydney Park Road (W) | R | 243 | 277 | 27.4 | B | 149.1 |
| | | | Sydney Park Carpark (S) | T | 25 | 11 | 50.6 | D | 149.1 |
| | | | Sydney Park Road (E) | L | 160 | 206 | 40.7 | C | 149.1 |
| | | Sydney Park Road (E) | Mitchelle Road (N) | R | 104 | 121 | 91.5 | F | 67.5 |
| | | | Sydney Park Road (W) | T | 226 | 218 | 14.8 | A | 44.8 |
| | | | Sydney Park Carpark (S) | L | 24 | 40 | 14.0 | A | 44.8 |
| | | Sydney Park Carpark (S) | Sydney Park Road (E) | R | 20 | 11 | 53.9 | D | 29.3 |
| | | | Mitchelle Road (N) | T | 9 | 26 | 44.2 | D | 29.3 |
| | | | Sydney Park Road (W) | L | 16 | 9 | 48.9 | D | 29.3 |
| | | Sydney Park Road (W) | Sydney Park Road (E) | T | 575 | 595 | 26.9 | B | 103.7 |
| | | | Mitchelle Road (N) | L | 474 | 500 | 16.4 | B | 177.4 |
| 1015 | | All | | | 1876 | 2,074 | 29.0 | B | 177.4 |
| | Mitchell Road Huntley Street Coulson Street | Mitchelle Road (N) | Coulson Street (W) | R | 79 | 111 | 47.2 | D | 172.1 |
| | | | Mitchelle Road (S) | T | 313 | 364 | 23.1 | B | 172.1 |
| | | | Huntley Street (E) | L | 12 | 6 | 17.1 | B | 172.1 |
| | | Huntley Street (E) | Mitchelle Road (N) | R | 13 | 9 | 31.2 | C | 27.4 |
| | | | Coulson Street (W) | T | 20 | 22 | 22.8 | B | 22.0 |
| | | | Mitchelle Road (S) | L | 20 | 27 | 31.3 | C | 29.1 |
| | | Mitchelle Road (S) | Huntley Street (E) | R | 28 | 28 | 32.4 | C | 137.1 |
| | | | Mitchelle Road (N) | T | 490 | 598 | 22.5 | B | 136.9 |
| | | | Coulson Street (W) | L | 76 | 55 | 9.1 | A | 136.9 |
| | | Coulson Street (W) | Mitchelle Road (S) | R | 89 | 106 | 36.7 | C | 45.4 |
| | | | Huntley Street (E) | T | 38 | 39 | 32.0 | C | 45.4 |
| | | | Mitchelle Road (N) | L | 100 | 92 | 29.0 | C | 45.4 |
| 1016 | | All | | | 1278 | 1,456 | 26.1 | B | 172.1 |
| | Mitchell Road Maddox Street | Mitchell Road (N) | Mitchell Road (S) | T | 376 | 429 | 8.7 | A | 31.9 |
| | | | Maddox Street (E) | L | 185 | 234 | 9.3 | A | 32.0 |
| | | Maddox Street (E) | Mitchell Road (N) | R | 217 | 266 | 44.0 | D | 148.9 |
| | | | Mitchell Road (S) | L | 42 | 85 | 44.8 | D | 148.8 |
| | | Mitchell Road (S) | Maddox Street (E) | R | 73 | 81 | 43.5 | D | 170.3 |
| | | | Mitchell Road (N) | T | 484 | 615 | 21.1 | B | 170.3 |
| 1017 | | All | | | 1377 | 1,710 | 22.2 | B | 170.3 |
| | Mitchell Road Ashmore Street | Mitchelle Road (N) | Ashmore Street (W) | R | 74 | 81 | 14.3 | A | 30.4 |
| | | | Mitchelle Road (S) | T | 493 | 589 | 2.1 | A | 30.4 |
| | | Mitchelle Road (S) | Mitchelle Road (N) | T | 575 | 767 | 12.6 | A | 183.7 |
| | | | Ashmore Street (W) | L | 126 | 102 | 16.8 | B | 183.7 |
| | | Ashmore Street (W) | Mitchelle Road (S) | R | 71 | 78 | 40.6 | C | 36.1 |
| | | | Mitchelle Road (N) | L | 23 | 35 | 36.9 | C | 36.1 |
| 1018 | | All | | | 1362 | 1,652 | 11.0 | A | 183.7 |
| | Harley Street Mitchell Road | Mitchell Road (N) | Mitchell Road (S) | T | 473 | 627 | 7.7 | A | 66.9 |
| | | | Harley Street (E) | L | 56 | 49 | 4.6 | A | 81.1 |
| | | Harley Street (E) | Mitchell Road (N) | R | 127 | 0 | 0.0 | A | 6.1 |
| | | | Mitchell Road (S) | L | 94 | 45 | 11.9 | A | 6.1 |
| | | Mitchell Road (S) | Mitchell Road (N) | T | 597 | 801 | 0.2 | A | 19.4 |
| | | | | | | | | | |
| 1019 | | All | | | 1347 | 1,522 | 11.9 | A | 81.1 |
| | Mitchell Road Copeland Street | Mitchell Road (N) | Copeland Street (W) | R | 189 | 174 | 38.0 | C | 66.1 |
| | | | Mitchell Road (S) | T | 326 | 480 | 9.5 | A | 66.1 |
| | | Mitchell Road (S) | Mitchell Road (N) | T | 585 | 662 | 7.8 | A | 75.8 |
| | | | Copeland Street (W) | L | 155 | 136 | 8.8 | A | 75.8 |
| | | Copeland Street (W) | Mitchell Road (S) | R | 216 | 197 | 12.0 | A | 37.0 |
| | | | Mitchell Road (N) | L | 257 | 211 | 8.0 | A | 37.0 |
| 1001 | | All | | | 1728 | 1,859 | 11.6 | A | 75.8 |
| | Mitchell Road Fountain Street | Mitchell Road (N) | Mitchell Road (S) | T | 305 | 345 | 17.0 | B | 58.8 |
| | | | Fountain Street (E) | L | 60 | 52 | 14.2 | A | 59.2 |
| | | Fountain Street (E) | Mitchell Road (N) | R | 168 | 98 | 67.1 | E | 192.1 |
| | | | Mitchell Road (S) | L | 210 | 315 | 43.0 | D | 192.1 |
| | | Mitchell Road (S) | Fountain Street (E) | R | 197 | 192 | 17.5 | B | 66.5 |
| | | | Mitchell Road (N) | T | 637 | 672 | 2.5 | A | 66.7 |
| 1020 | | All | | | 1577 | 1,674 | 19.0 | B | 192.1 |
| | Mitchell Road Buckland Street | Mitchell Road (N) | Mitchell Road (S) | T | 298 | 285 | 11.8 | A | 54.6 |
| | | | Buckland Street (E) | L | 42 | 136 | 13.7 | A | 54.6 |
| | | Buckland Street (E) | Mitchell Road (S) | L | 51 | 112 | 202.7 | F | 106.9 |
| | | | Mitchell Road (N) | T | 798 | 789 | 4.5 | A | 37.3 |
| 1002 | | All | | | 1189 | 1,323 | 24.0 | B | 106.9 |
| | Mitchell Road Ranwick Street | Mitchell Road (N) | Ranwick Street (W) | R | 19 | 32 | 8.1 | A | 35.2 |
| | | | Mitchell Road (S) | T | 321 | 400 | 0.6 | A | 24.0 |
| | | Mitchell Road (S) | Mitchell Road (N) | T | 690 | 678 | 2.1 | A | 40.8 |
| | | | Ranwick Street (W) | L | 44 | 106 | 1.4 | A | 48.4 |
| | | Ranwick Street (W) | Mitchell Road (S) | R | 21 | 26 | 5.7 | A | 12.0 |
| | | | Mitchell Road (N) | L | 35 | 44 | 7.7 | A | 12.0 |
| 1003 | | All | | | 1130 | 1,287 | 8.1 | A | 48.4 |

| ID | Intersection | From | To | Turn | Surveyed | Modelled | Delay (s) | LoS | Queue (m) |
|------|--|---------------------|---------------------|------|----------|----------|-----------|-----|-----------|
| | Mitchell Road Henderson Road Davy Road | Davy Road (N) | Henderson Road (W) | R | 14 | 20 | 39.3 | C | 23.0 |
| | | | Mitchelle Road (S) | T | 27 | 35 | 42.4 | C | 23.0 |
| | | | Henderson Road (E) | L | 44 | 42 | 23.7 | B | 23.0 |
| | | Henderson Road (E) | Davy Road (N) | R | 155 | 124 | 81.1 | F | 80.1 |
| | | | Henderson Road (W) | T | 190 | 252 | 47.8 | D | 104.4 |
| | | | Mitchelle Road (S) | L | 264 | 321 | 27.5 | B | 104.4 |
| | | Mitchelle Road (S) | Henderson Road (E) | R | 609 | 556 | 40.2 | C | 159.9 |
| | | | Davy Road (N) | T | 94 | 132 | 38.7 | C | 159.9 |
| | | | Henderson Road (W) | L | 17 | 17 | 24.8 | B | 159.9 |
| | | Henderson Road (W) | Mitchelle Road (S) | R | 40 | 77 | 49.2 | D | 114.2 |
| | | | Henderson Road (E) | T | 183 | 239 | 58.7 | E | 114.2 |
| | | | Davy Road (N) | L | 42 | 30 | 48.3 | D | 114.2 |
| 1004 | | All | | | 1679 | 1,845 | 44.1 | D | 159.9 |
| | Henderson Road Gerard Street | Henderson Road (E) | Henderson Road (W) | T | 583 | 687 | 3.3 | A | 40.8 |
| | | | Gerard Street (S) | L | 36 | 42 | 2.7 | A | 48.0 |
| | | Gerard Street (S) | Henderson Road (W) | L | 33 | 32 | 7.9 | A | 7.5 |
| | | | Henderson Road (E) | T | 835 | 831 | 16.7 | B | 96.2 |
| 1021 | | All | | | 1,487 | 1,592 | 16.7 | B | 96.2 |
| | Henderson Road Garden Street | Garden Street (N) | Henderson Road (W) | R | 61 | 73 | 51.7 | D | 39.5 |
| | | | Henderson Road (E) | L | 41 | 35 | 53.7 | D | 39.5 |
| | | Henderson Road (E) | Garden Street (N) | R | 159 | 109 | 62.6 | E | 90.0 |
| | | | Henderson Road (W) | T | 541 | 637 | 20.0 | B | 88.9 |
| | | | Garden Street (S) | L | 14 | 17 | 22.9 | B | 88.9 |
| | | | Henderson Road (W) | L | 19 | 20 | 66.4 | E | 20.5 |
| | | Garden Street (S) | Henderson Road (E) | T | 688 | 617 | 54.5 | D | 82.6 |
| | | | Garden Street (N) | L | 149 | 199 | 8.5 | A | 82.6 |
| 1022 | | All | | | 1672 | 1,706 | 36.5 | C | 90.0 |
| | Henderson Road Wyndham Street | Henderson Road (E) | Wyndham Street (N) | R | 707 | 784 | 16.7 | B | 88.1 |
| | | | Henderson Road (W) | T | 700 | 701 | 8.8 | A | 88.1 |
| | | Wyndham Street (S) | Wyndham Street (S) | L | 151 | 162 | 8.3 | A | 88.1 |
| | | | Henderson Road (E) | R | 3 | 43 | 43.9 | D | 236.7 |
| | | | Wyndham Street (N) | T | 435 | 426 | 45.2 | D | 236.7 |
| | | | Henderson Road (W) | L | 19 | 62 | 64.0 | E | 236.7 |
| | | Henderson Road (W) | Henderson Road (E) | T | 248 | 168 | 61.2 | E | 90.5 |
| | | | Wyndham Street (N) | L | 492 | 460 | 75.0 | F | 90.8 |
| 1023 | | All | | | 2755 | 2,806 | 32.3 | C | 236.7 |
| | Henderson Road Botany Road Raglan St | Botany Road (N) | Henderson Road (W) | R | 606 | 670 | 49.3 | D | 118.6 |
| | | | Botany Road (S) | T | 1,085 | 1,008 | 7.6 | A | 118.6 |
| | | Raglan St (E) | Raglan St (E) | L | 62 | 66 | 11.9 | A | 125.7 |
| | | | Henderson Road (W) | T | 236 | 233 | 49.7 | D | 87.1 |
| | | | Botany Road (S) | L | 10 | 21 | 57.7 | E | 92.2 |
| | | | Henderson Road (W) | L | 710 | 754 | 79.1 | F | 214.0 |
| | | Botany Road (S) | Botany Road (S) | R | 44 | 18 | 53.8 | D | 33.0 |
| | | | Raglan St (E) | T | 205 | 192 | 34.2 | C | 33.0 |
| 1024 | | All | | | 2958 | 2,962 | 41.0 | C | 214.0 |
| | Botany Road McEvoy Street | Botany Road (N) | McEvoy Street (W) | R | 339 | 323 | 83.4 | F | 229.7 |
| | | | Botany Road (S) | T | 772 | 741 | 32.5 | C | 229.7 |
| | | McEvoy Street (E) | McEvoy Street (E) | L | 97 | 117 | 22.4 | B | 229.7 |
| | | | McEvoy Street (W) | T | 455 | 431 | 167.1 | F | 386.2 |
| | | | Botany Road (S) | L | 11 | 11 | 177.6 | F | 386.6 |
| | | | Botany Road (N) | T | 701 | 738 | 26.2 | B | 123.9 |
| | | Botany Road (S) | McEvoy Street (W) | L | 149 | 151 | 29.4 | C | 123.9 |
| | | | Botany Road (S) | R | 85 | 91 | 121.0 | F | 109.7 |
| | | McEvoy Street (W) | McEvoy Street (E) | T | 571 | 522 | 59.7 | E | 109.7 |
| | | | Botany Road (N) | L | 63 | 21 | 54.2 | D | 109.7 |
| 1025 | | All | | | 3243 | 3,147 | 61.9 | E | 386.6 |
| | Wyndham Street Buckland Street | Wyndham Street (N) | Buckland Street (W) | R | 7 | 22 | 29.4 | C | 45.2 |
| | | | Wyndham Street (S) | T | 134 | 139 | 9.2 | A | 45.1 |
| | | | Buckland Street (E) | L | 8 | 0 | 0.0 | A | 45.3 |
| | | Wyndham Street (S) | Buckland Street (E) | R | 61 | 86 | 21.7 | B | 166.4 |
| | | | Wyndham Street (N) | T | 438 | 486 | 27.8 | B | 166.4 |
| | | | Buckland Street (W) | L | 72 | 123 | 36.2 | C | 166.4 |
| | | Buckland Street (W) | Wyndham Street (S) | R | 51 | 92 | 30.9 | C | 80.5 |
| | | | Buckland Street (E) | T | 51 | 69 | 32.5 | C | 80.5 |
| | | | Wyndham Street (N) | L | 26 | 55 | 44.2 | D | 80.5 |
| 1026 | | All | | | 848 | 1,072 | 27.3 | B | 166.4 |
| | Wyndham Street Power Avenue | Wyndham Street (N) | Power Avenue (W) | R | 60 | 52 | 17.0 | B | 80.6 |
| | | | Wyndham Street (S) | T | 123 | 176 | 1.9 | A | 74.1 |
| | | Wyndham Street (S) | Wyndham Street (N) | T | 487 | 631 | 2.5 | A | 113.4 |
| | | | Power Avenue (W) | L | 136 | 94 | -0.2 | A | 116.3 |
| | | Power Avenue (W) | Wyndham Street (S) | R | 86 | 74 | 92.7 | F | 142.3 |
| | | | Wyndham Street (N) | L | 76 | 71 | 90.2 | F | 142.3 |
| 1027 | | All | | | 968 | 1,098 | 92.7 | F | 142.3 |

| ID | Intersection | From | To | Turn | Surveyed | Modelled | Delay (s) | LoS | Queue (m) |
|------|---------------------------------|----------------------|----------------------|------|----------|----------|-----------|-----|-----------|
| | Wyndham Street McEvoy Street | Wyndham Street (N) | McEvoy Street (W) | R | 27 | 66 | 159.9 | F | 134.1 |
| | | | Wyndham Street (S) | T | 129 | 91 | 77.0 | F | 134.0 |
| | | | McEvoy Street (E) | L | 59 | 69 | 156.9 | F | 133.9 |
| | | McEvoy Street (E) | Wyndham Street (N) | R | 134 | 203 | 37.1 | C | 106.4 |
| | | | McEvoy Street (W) | T | 686 | 536 | 26.0 | B | 106.4 |
| | | | Wyndham Street (S) | L | 138 | 158 | 33.7 | C | 106.4 |
| | | Wyndham Street (S) | McEvoy Street (E) | R | 37 | 37 | 196.5 | F | 297.6 |
| | | | Wyndham Street (N) | T | 317 | 304 | 39.7 | C | 297.6 |
| | | | McEvoy Street (W) | L | 67 | 56 | 34.2 | C | 298.1 |
| | | McEvoy Street (W) | McEvoy Street (E) | T | 631 | 530 | 61.3 | E | 92.5 |
| | | | Wyndham Street (N) | L | 146 | 222 | 61.0 | E | 92.5 |
| 1028 | | All | | | 2371 | 2,271 | 54.0 | D | 298.1 |
| | McEvoy Street | McEvoy Street (E) | McEvoy Street (W) | T | 740 | 633 | 0.5 | A | 34.4 |
| | Brennan Street | | Hiles Street (S) | L | 33 | 25 | 2.3 | A | 39.2 |
| | Hiles Street | Hiles Street (S) | McEvoy Street (E) | R | 11 | 12 | 49.4 | D | 12.1 |
| | | | McEvoy Street (W) | L | 29 | 33 | 3.2 | A | 12.1 |
| | | McEvoy Street (W) | Hiles Street (S) | R | 21 | 40 | 49.5 | D | 107.4 |
| | | | McEvoy Street (E) | T | 786 | 756 | 50.2 | D | 107.4 |
| 1029 | | All | | | 1620 | 1,499 | 50.2 | D | 107.4 |
| | McEvoy Street | McEvoy Street (E) | McEvoy Street (W) | T | 729 | 621 | 0.2 | A | 4.3 |
| | Loveridge Street | | McCauley Street (S) | L | 37 | 41 | 0.9 | A | 4.3 |
| | McCauley Street | McCauley Street (S) | McEvoy Street (E) | R | 22 | 24 | 31.9 | C | 11.8 |
| | | | McEvoy Street (W) | L | 16 | 19 | 2.5 | A | 11.8 |
| | | McEvoy Street (W) | McCauley Street (S) | R | 16 | 40 | 61.5 | E | 224.4 |
| | | | McEvoy Street (E) | T | 799 | 796 | 52.1 | D | 224.4 |
| 1030 | | All | | | 1619 | 1,540 | 61.5 | E | 224.4 |
| | McEvoy Street | Fountain Street (NW) | McEvoy Street (S) | R | 98 | 125 | 81.9 | F | 133.5 |
| | Fountain Street | | McEvoy Street (E) | L | 153 | 175 | 64.1 | E | 133.5 |
| | | McEvoy Street (E) | Fountain Street (NW) | R | 205 | 189 | 52.3 | D | 82.3 |
| | | | McEvoy Street (S) | T | 538 | 448 | 7.3 | A | 78.7 |
| | | McEvoy Street (S) | McEvoy Street (E) | T | 671 | 704 | 42.2 | C | 223.4 |
| | | | Fountain Street (NW) | L | 118 | 231 | 44.8 | D | 223.7 |
| 1031 | | All | | | 1783 | 1,871 | 39.8 | C | 223.7 |
| | McEvoy Street | McEvoy Street (N) | Euston Road (S) | T | 600 | 473 | 15.3 | B | 63.9 |
| | Harley Street | McEvoy Street (S) | McEvoy Street (N) | T | 836 | 1,024 | 0.6 | A | 26.0 |
| | | | Harley Street (W) | L | 226 | 0 | 0.0 | A | 29.0 |
| | | Harley Street (W) | McEvoy Street (N) | L | 46 | 0 | 0.0 | A | 0.0 |
| 1032 | | All | | | 1708 | 1,497 | 15.3 | B | 63.9 |
| | Euston Road | Euston Road (N) | Euston Road (S) | T | 446 | 404 | 0.5 | A | 12.2 |
| | Bunnings Access | | Bunnings Access (E) | L | 156 | 69 | 2.7 | A | 12.6 |
| | | Bunnings Access (E) | Euston Road (N) | R | 126 | 144 | 43.1 | D | 66.2 |
| | | | Euston Road (S) | L | 72 | 62 | 1.5 | A | 9.4 |
| | | Euston Road (S) | Bunnings Access (E) | R | 144 | 168 | 18.2 | B | 117.2 |
| | | | Euston Road (N) | T | 942 | 882 | 11.2 | A | 117.2 |
| 1035 | | All | | | 1886 | 1,729 | 11.4 | A | 117.2 |
| | Euston Road | Euston Road (N) | Euston Road (S) | T | 437 | 373 | 6.3 | A | 39.9 |
| | Maddox Street | | Maddox Street (E) | L | 80 | 85 | 5.5 | A | 39.9 |
| | | Maddox Street (E) | Euston Road (N) | R | 52 | 53 | 59.5 | E | 48.1 |
| | | | Maddox Street (W) | T | 117 | 128 | 31.8 | C | 48.0 |
| | | | Euston Road (S) | L | 24 | 34 | 37.8 | C | 48.5 |
| | | Euston Road (S) | Euston Road (N) | T | 1055 | 937 | 10.4 | A | 100.1 |
| | | | Maddox Street (W) | L | 192 | 235 | 10.0 | A | 100.1 |
| | | Maddox Street (W) | Euston Road (S) | R | 72 | 108 | 43.3 | D | 49.3 |
| | | | Maddox Street (E) | T | 192 | 114 | 27.8 | B | 49.3 |
| | | | Euston Road (N) | L | 57 | 73 | 25.4 | B | 49.3 |
| 1033 | | All | | | 2278 | 2,141 | 15.5 | B | 100.1 |
| | Euston Road | Euston Road (N) | Sydney Park Road (W) | R | 0 | 0 | 0.0 | A | 87.9 |
| | Sudney Park Road | | Euston Road (S) | T | 388 | 370 | 39.4 | C | 87.9 |
| | Huntley Street | | Huntley Street (E) | L | 131 | 142 | 50.0 | D | 88.0 |
| | | Huntley Street (E) | Euston Road (N) | R | 56 | 105 | 48.8 | D | 55.1 |
| | | | Sydney Park Road (W) | T | 248 | 240 | 33.2 | C | 55.7 |
| | | | Euston Road (S) | L | 100 | 87 | 19.4 | B | 55.9 |
| | | Euston Road (S) | Huntley Street (E) | R | 274 | 267 | 58.2 | E | 97.8 |
| | | | Euston Road (N) | T | 934 | 808 | 25.8 | B | 97.8 |
| | | | Sydney Park Road (W) | L | 106 | 144 | 7.9 | A | 93.7 |
| | | Sydney Park Road (W) | Euston Road (S) | R | 98 | 125 | 50.8 | D | 160.5 |
| | | | Huntley Street (E) | T | 431 | 406 | 42.7 | C | 160.5 |
| | | | Euston Road (N) | L | 234 | 262 | 68.6 | E | 160.8 |
| 1034 | | All | | | 3000 | 2,955 | 39.1 | C | 160.8 |

| ID | Intersection | From | To | Turn | Surveyed | Modelled | Delay (s) | LoS | Queue (m) |
|------|---|--|--|----------------------------|-------------------------------------|--------------------------------------|--|----------------------------|--|
| | Henderson Road Alexander Street | Alexander Street (N) Henderson Road (E) Alexander Street (S) Henderson Road (W) | Henderson Road (E) Henderson Road (W) Alexander Street (S) Henderson Road (W) Henderson Road (E) Alexander Street (N) | L T L L T L | 30 199 16 18 233 31 | 31 249 39 7 324 37 | 2.7 5.1 5.0 2.1 1.5 1.4 | A A A A A A | 8.4 51.0 51.0 0.0 24.6 24.6 |
| 1005 | | All | | | 527 | 687 | 5.1 | A | 51.0 |
| 1006 | Henderson Road Brandling Street | Henderson Road (E) Brandling Street (S) Henderson Road (W) | Henderson Road (W) Brandling Street (S) Henderson Road (E) Henderson Road (W) Brandling Street (S) Henderson Road (E) | T L R L R T | 187 14 6 9 5 251 | 245 11 5 7 5 356 | 1.8 1.6 7.2 2.0 1.0 0.3 | A A A A A A | 28.3 28.3 2.2 2.2 6.1 6.1 |
| 1006 | | All | | | 472 | 629 | 7.2 | A | 28.3 |
| | Henderson Road Progress Road | Progress Road (N) Henderson Road (E) Henderson Road (W) | Henderson Road (W) Henderson Road (E) Progress Road (N) Henderson Road (W) Henderson Road (E) Progress Road (N) | R L R T T L | 24 41 33 155 211 24 | 10 51 27 224 310 18 | 4.0 2.2 1.8 0.2 0.4 1.2 | A A A A A A | 3.5 3.5 26.2 21.0 0.0 6.1 |
| 1007 | | All | | | 488 | 639 | 4.0 | A | 26.2 |
| 1008 | Henderson Road Newton Street | Henderson Road (E) Newton Street (S) Henderson Road (W) | Henderson Road (W) Newton Street (S) Henderson Road (E) Henderson Road (W) Newton Street (S) Henderson Road (E) | T L R L R T | 162 17 14 15 8 225 | 222 12 57 28 3 270 | 0.0 0.4 3.3 2.1 3.7 0.2 | A A A A A A | 0.0 0.0 9.0 9.0 9.6 2.8 |
| 1008 | | All | | | 441 | 592 | 3.7 | A | 9.6 |
| | Henderson Road Railway Parade Park Street | Henderson Road (E) Park Street (S) Railway Parade (W) | Railway Parade (W) Park Street (S) Henderson Road (E) Railway Parade (W) Park Street (S) Henderson Road (E) | T L R L R T | 160 17 209 42 13 24 | 209 41 0 23 26 273 | 1.1 0.9 0.0 1.6 2.7 1.3 | A A A A A A | 11.8 11.8 3.4 3.4 40.7 43.0 |
| 1009 | | All | | | 465 | 572 | 2.7 | A | 43.0 |
| | Railway Parade Clara Street | Railway Parade (E) Clara Street (S) Railway Parade (W) | Railway Parade (W) Clara Street (S) Railway Parade (E) Railway Parade (W) Clara Street (S) Railway Parade (E) | T L R L R T | 169 15 2 1 0 17 | 174 15 12 0 36 283 | 0.4 0.9 3.8 0.0 1.5 0.7 | A A A A A A | 0.9 5.6 3.9 3.9 22.7 12.0 |
| 1010 | | All | | | 204 | 520 | 3.8 | A | 22.7 |
| | Railway Parade Swanson Street | Railway Parade (N) Swanson Street (E) Swanson Street (W) | Swanson Street (W) Swanson Street (E) Railway Parade (N) Swanson Street (W) Swanson Street (E) Railway Parade (N) | R L R T T L | 118 31 0 458 578 0 | 149 21 18 449 257 294 | 58.9 61.6 14.7 16.1 13.1 17.0 | E E A B A B | 84.5 84.5 68.2 68.1 89.1 89.0 |
| 1011 | | All | | | 1185 | 1,188 | 21.8 | B | 89.1 |
| | Swanson Street Clara Street | Clara Street (N) Swanson Street (E) Swanson Street (W) | Swanson Street (W) Swanson Street (E) Swanson Street (W) Swanson Street (E) | R L T T | 5 11 468 666 | 35 7 444 345 | 6.8 2.6 0.8 2.7 | A A A A | 8.4 8.4 3.5 0.0 |
| 1012 | | All | | | 1150 | 831 | 6.8 | A | 8.4 |
| | Swanson Street Park Street | Park Street (N) Swanson Street (E) Swanson Street (W) | Swanson Street (W) Swanson Street (E) Park Street (N) Swanson Street (W) Swanson Street (E) Park Street (N) | R L R T T L | 10 30 61 434 494 200 | 31 42 24 391 353 0 | 9.6 3.6 3.8 2.3 3.0 0.0 | A A A A A A | 14.3 14.6 9.2 42.8 51.3 51.3 |
| 1013 | | All | | | 1229 | 840 | 9.6 | A | 51.3 |
| | Copeland Street Newton Street | Newton Street (N) Copeland Street (E) Copeland Street (W) | Copeland Street (E) Copeland Street (W) Copeland Street (E) | L T T | 27 508 525 | 22 415 394 | 7.2 0.3 0.3 | A A A | 8.1 0.0 0.0 |
| 1014 | | All | | | 1060 | 831 | 7.2 | A | 8.1 |

P4411 Henderson Road Alexandria Traffic Study

VISSIM Data Analysis - Node Scenario A -PM

PM Peak 1700-1800

| ID | Intersection | From | To | Turn | Surveyed | Modelled | Delay (s) | LoS | Queue (m) |
|------|---|-------------------------|-------------------------|------|----------|----------|-----------|-----|-----------|
| | Sydney Park Road Mitchell Road | Mitchelle Road (N) | Sydney Park Road (W) | R | 556 | 525 | 21.1 | B | 155.0 |
| | | | Sydney Park Carpark (S) | T | 38 | 56 | 22.8 | B | 155.0 |
| | | | Sydney Park Road (E) | L | 104 | 136 | 25.9 | B | 155.0 |
| | | Sydney Park Road (E) | Mitchelle Road (N) | R | 183 | 251 | 98.6 | F | 188.9 |
| | | | Sydney Park Road (W) | T | 633 | 600 | 12.4 | A | 83.2 |
| | | | Sydney Park Carpark (S) | L | 24 | 22 | 26.7 | B | 83.2 |
| | | Sydney Park Carpark (S) | Sydney Park Road (E) | R | 23 | 21 | 72.3 | F | 58.0 |
| | | | Mitchelle Road (N) | T | 28 | 32 | 78.2 | F | 58.0 |
| | | | Sydney Park Road (W) | L | 27 | 28 | 77.5 | F | 58.0 |
| | | Sydney Park Road (W) | Sydney Park Road (E) | T | 339 | 369 | 43.4 | D | 59.2 |
| | | | Mitchelle Road (N) | L | 454 | 410 | 20.6 | B | 166.6 |
| 1015 | | All | | | 2409 | 2,551 | 33.0 | C | 188.9 |
| | Mitchell Road Huntley Street Coulson Street | Mitchelle Road (N) | Coulson Street (W) | R | 131 | 112 | 48.8 | D | 241.4 |
| | | | Mitchelle Road (S) | T | 642 | 641 | 26.4 | B | 241.4 |
| | | | Huntley Street (E) | L | 22 | 10 | 28.0 | B | 241.4 |
| | | Huntley Street (E) | Mitchelle Road (N) | R | 8 | 10 | 39.7 | C | 24.8 |
| | | | Coulson Street (W) | T | 34 | 33 | 35.2 | C | 24.7 |
| | | | Mitchelle Road (S) | L | 26 | 25 | 40.8 | C | 24.7 |
| | | Mitchelle Road (S) | Huntley Street (E) | R | 14 | 29 | 25.0 | B | 133.8 |
| | | | Mitchelle Road (N) | T | 476 | 522 | 12.2 | A | 133.0 |
| | | | Coulson Street (W) | L | 140 | 137 | 11.8 | A | 135.9 |
| | | Coulson Street (W) | Mitchelle Road (S) | R | 86 | 94 | 49.2 | D | 42.7 |
| | | | Huntley Street (E) | T | 17 | 18 | 46.8 | D | 42.7 |
| | | | Mitchelle Road (N) | L | 105 | 96 | 41.2 | C | 42.7 |
| 1016 | | All | | | 1701 | 1,727 | 25.1 | B | 241.4 |
| | Mitchell Road Maddox Street | Mitchell Road (N) | Mitchell Road (S) | T | 711 | 753 | 12.7 | A | 30.6 |
| | | | Maddox Street (E) | L | 124 | 135 | 2.9 | A | 30.7 |
| | | Maddox Street (E) | Mitchell Road (N) | R | 159 | 114 | 68.8 | E | 93.4 |
| | | | Mitchell Road (S) | L | 75 | 59 | 93.4 | F | 93.4 |
| | | Mitchell Road (S) | Maddox Street (E) | R | 63 | 64 | 30.7 | C | 51.0 |
| | | | Mitchell Road (N) | T | 525 | 558 | 8.1 | A | 51.0 |
| 1017 | | All | | | 1657 | 1,683 | 17.7 | B | 93.4 |
| | Mitchell Road Ashmore Street | Mitchelle Road (N) | Ashmore Street (W) | R | 47 | 49 | 5.9 | A | 30.4 |
| | | | Mitchelle Road (S) | T | 744 | 835 | 4.9 | A | 30.4 |
| | | Mitchelle Road (S) | Mitchelle Road (N) | T | 562 | 546 | 22.6 | B | 193.0 |
| | | | Ashmore Street (W) | L | 109 | 115 | 24.4 | B | 193.0 |
| | | Ashmore Street (W) | Mitchelle Road (S) | R | 82 | NA | NA | A | NA |
| | | | Mitchelle Road (N) | L | 27 | NA | NA | A | NA |
| 1018 | | All | | | 1571 | 1,652 | 24.4 | B | 193.0 |
| | Harley Street Mitchell Road | Mitchell Road (N) | Mitchell Road (S) | T | 719 | 852 | 24.6 | B | 144.8 |
| | | | Harley Street (E) | L | 53 | 42 | 20.0 | B | 159.8 |
| | | Harley Street (E) | Mitchell Road (N) | R | 56 | 0 | 0.0 | A | 4.2 |
| | | | Mitchell Road (S) | L | 72 | 35 | 22.1 | B | 4.2 |
| | | Mitchell Road (S) | Mitchell Road (N) | T | 589 | 579 | 0.2 | A | 18.2 |
| 1019 | | All | | | 1489 | 1,508 | 24.6 | B | 159.8 |
| | Mitchell Road Copeland Street | Mitchell Road (N) | Copeland Street (W) | R | 228 | 269 | 34.0 | C | 136.0 |
| | | | Mitchell Road (S) | T | 606 | 735 | 26.7 | B | 136.0 |
| | | Mitchell Road (S) | Mitchell Road (N) | T | 470 | 410 | 13.0 | A | 99.7 |
| | | | Copeland Street (W) | L | 180 | 164 | 15.0 | B | 99.7 |
| | | Copeland Street (W) | Mitchell Road (S) | R | 172 | 177 | 14.5 | A | 34.5 |
| | | | Mitchell Road (N) | L | 220 | 221 | 5.4 | A | 34.5 |
| 1001 | | All | | | 1876 | 1,977 | 20.4 | B | 136.0 |
| | Mitchell Road Fountain Street | Mitchell Road (N) | Mitchell Road (S) | T | 555 | 672 | 10.9 | A | 63.3 |
| | | | Fountain Street (E) | L | 106 | 99 | 6.8 | A | 63.7 |
| | | Fountain Street (E) | Mitchell Road (N) | R | 116 | 64 | 82.0 | F | 252.5 |
| | | | Mitchell Road (S) | L | 279 | 355 | 56.3 | D | 252.5 |
| | | Mitchell Road (S) | Fountain Street (E) | R | 187 | 179 | 19.7 | B | 50.1 |
| | | | Mitchell Road (N) | T | 508 | 451 | 2.2 | A | 50.3 |
| 1020 | | All | | | 1751 | 1,819 | 20.7 | B | 252.5 |
| | Mitchell Road Buckland Street | Mitchell Road (N) | Mitchell Road (S) | T | 611 | 749 | 11.2 | A | 79.3 |
| | | | Buckland Street (E) | L | 33 | 126 | 7.8 | A | 85.5 |
| | | Buckland Street (E) | Mitchell Road (S) | L | 44 | 25 | 51.0 | D | 17.5 |
| | | | Mitchell Road (N) | T | 621 | 521 | 3.1 | A | 31.2 |
| 1002 | | All | | | 1309 | 1,421 | 8.6 | A | 85.5 |
| | Mitchell Road Ranwick Street | Mitchell Road (N) | Ranwick Street (W) | R | 15 | 29 | 4.4 | A | 24.8 |
| | | | Mitchell Road (S) | T | 629 | 845 | 0.5 | A | 14.8 |
| | | Mitchell Road (S) | Mitchell Road (N) | T | 535 | 491 | 0.2 | A | 0.0 |
| | | | Ranwick Street (W) | L | 33 | 30 | 0.7 | A | 4.9 |
| | | Ranwick Street (W) | Mitchell Road (S) | R | 13 | 35 | 10.8 | A | 10.8 |
| | | | Mitchell Road (N) | L | 32 | 10 | 4.3 | A | 10.8 |
| 1003 | | All | | | 1257 | 1,441 | 10.8 | A | 24.8 |

| ID | Intersection | From | To | Turn | Surveyed | Modelled | Delay (s) | LoS | Queue (m) |
|------|--|---------------------|---------------------|--------------------|----------|----------|-----------|-------|-----------|
| | Mitchell Road Henderson Road Davy Road | Davy Road (N) | Henderson Road (W) | R | 29 | 24 | 38.6 | C | 61.0 |
| | | | Mitchelle Road (S) | T | 103 | 129 | 45.5 | D | 61.0 |
| | | | Henderson Road (E) | L | 65 | 65 | 26.9 | B | 61.0 |
| | | Henderson Road (E) | Davy Road (N) | R | 59 | 55 | 46.0 | D | 27.5 |
| | | | Henderson Road (W) | T | 239 | 208 | 45.4 | D | 103.4 |
| | | | Mitchelle Road (S) | L | 503 | 655 | 30.7 | C | 103.4 |
| | | Mitchelle Road (S) | Henderson Road (E) | R | 496 | 443 | 32.4 | C | 108.3 |
| | | | Davy Road (N) | T | 48 | 55 | 35.0 | C | 108.3 |
| | | | Henderson Road (W) | L | 17 | 3 | 29.7 | C | 108.3 |
| | | Henderson Road (W) | Mitchelle Road (S) | R | 32 | 93 | 57.5 | E | 52.3 |
| | | | Henderson Road (E) | T | 118 | 105 | 36.2 | C | 52.3 |
| | | | Davy Road (N) | L | 10 | 12 | 34.4 | C | 52.3 |
| | | 1004 | | All | | 1719 | 1,846 | 36.0 | C |
| | Henderson Road Gerard Street | Henderson Road (E) | Henderson Road (W) | T | 788 | 903 | 4.4 | A | 77.4 |
| | | | Gerard Street (S) | L | 24 | 30 | 4.2 | A | 84.6 |
| | | Gerard Street (S) | Henderson Road (W) | L | 21 | 22 | 23.6 | B | 8.9 |
| | | | Henderson Road (W) | Henderson Road (E) | T | 689 | 610 | 0.8 | A |
| 1021 | | All | | 1,522 | 1,565 | 23.6 | B | 84.6 | |
| | Henderson Road Garden Street | Garden Street (N) | Henderson Road (W) | R | 64 | 78 | 55.1 | D | 37.0 |
| | | | Henderson Road (E) | L | 56 | 35 | 46.0 | D | 37.0 |
| | | Henderson Road (E) | Garden Street (N) | R | 65 | 101 | 19.5 | B | 37.3 |
| | | | Henderson Road (W) | T | 755 | 852 | 12.8 | A | 84.3 |
| | | | Garden Street (S) | L | 13 | 24 | 17.3 | B | 84.3 |
| | | Garden Street (S) | Henderson Road (W) | L | 7 | 7 | 70.3 | F | 8.9 |
| | | | Henderson Road (W) | Henderson Road (E) | T | 582 | 478 | 10.1 | A |
| | | | Garden Street (N) | L | 105 | 124 | 2.8 | A | 75.2 |
| | | 1022 | | All | | 1647 | 1,699 | 14.6 | A |
| | Henderson Road Wyndham Street | Henderson Road (E) | Wyndham Street (N) | R | 618 | 603 | 15.2 | B | 95.0 |
| | | | Henderson Road (W) | T | 800 | 889 | 7.9 | A | 95.0 |
| | | Wyndham Street (S) | Wyndham Street (S) | L | 187 | 92 | 8.9 | A | 94.8 |
| | | | Henderson Road (E) | R | 5 | 16 | 35.9 | C | 235.1 |
| | | | Wyndham Street (N) | T | 503 | 560 | 37.3 | C | 235.1 |
| | | Henderson Road (W) | Henderson Road (W) | L | 18 | 95 | 47.1 | D | 235.1 |
| | | | Henderson Road (E) | T | 271 | 163 | 42.4 | C | 76.5 |
| | | | Wyndham Street (N) | L | 367 | 341 | 64.9 | E | 76.8 |
| 1023 | | All | | 2769 | 2,759 | 26.1 | B | 235.1 | |
| | Henderson Road Botany Road Raglan St | Botany Road (N) | Henderson Road (W) | R | 716 | 677 | 50.0 | D | 122.2 |
| | | | Botany Road (S) | T | 1,107 | 1,158 | 9.6 | A | 122.2 |
| | | Raglan St (E) | Raglan St (E) | L | 56 | 69 | 14.0 | A | 129.3 |
| | | | Henderson Road (W) | T | 293 | 273 | 48.2 | D | 91.1 |
| | | | Botany Road (S) | L | 18 | 17 | 56.2 | D | 91.4 |
| | | Botany Road (S) | Henderson Road (W) | L | 593 | 642 | 69.9 | E | 126.1 |
| | | | Henderson Road (W) | Botany Road (S) | R | 53 | 0 | 0.0 | A |
| | | | Raglan St (E) | T | 231 | 179 | 18.5 | B | 22.5 |
| 1024 | | All | | 3067 | 3,015 | 35.9 | C | 129.3 | |
| | Botany Road McEvoy Street | Botany Road (N) | McEvoy Street (W) | R | 350 | 402 | 62.5 | E | 222.2 |
| | | | Botany Road (S) | T | 873 | 759 | 15.6 | B | 222.2 |
| | | McEvoy Street (E) | McEvoy Street (E) | L | 90 | 92 | 14.5 | A | 222.2 |
| | | | McEvoy Street (W) | T | 644 | 572 | 52.6 | D | 110.6 |
| | | | Botany Road (S) | L | 18 | 22 | 60.3 | E | 110.9 |
| | | Botany Road (S) | Botany Road (N) | T | 587 | 585 | 25.9 | B | 99.8 |
| | | | McEvoy Street (W) | L | 116 | 120 | 28.6 | B | 99.8 |
| | | McEvoy Street (W) | Botany Road (S) | R | 93 | 102 | 54.6 | D | 106.3 |
| | | | McEvoy Street (E) | T | 519 | 404 | 28.6 | B | 106.3 |
| | | | Botany Road (N) | L | 59 | 125 | 17.8 | B | 106.3 |
| 1025 | | All | | 3349 | 3,183 | 33.8 | C | 222.2 | |
| | Wyndham Street Buckland Street | Wyndham Street (N) | Buckland Street (W) | R | 11 | 0 | 0.0 | A | 21.5 |
| | | | Wyndham Street (S) | T | 159 | 92 | 10.9 | A | 21.4 |
| | | | Buckland Street (E) | L | 22 | 0 | 0.0 | A | 21.5 |
| | | Wyndham Street (S) | Buckland Street (E) | R | 69 | 28 | 28.6 | B | 169.8 |
| | | | Wyndham Street (N) | T | 480 | 676 | 35.0 | C | 169.8 |
| | | | Buckland Street (W) | L | 55 | 11 | 52.7 | D | 169.8 |
| | | Buckland Street (W) | Wyndham Street (S) | R | 52 | 69 | 22.7 | B | 49.7 |
| | | | Buckland Street (E) | T | 33 | 60 | 16.0 | B | 49.5 |
| | | | Wyndham Street (N) | L | 21 | 22 | 32.5 | C | 49.5 |
| | | 1026 | | All | | 902 | 958 | 30.6 | C |
| | Wyndham Street Power Avenue | Wyndham Street (N) | Power Avenue (W) | R | 48 | 44 | 4.2 | A | 17.3 |
| | | | Wyndham Street (S) | T | 163 | 114 | 0.3 | A | 17.3 |
| | | Wyndham Street (S) | Wyndham Street (N) | T | 556 | 637 | 5.7 | A | 89.3 |
| | | | Power Avenue (W) | L | 65 | 26 | 5.3 | A | 94.0 |
| | | Power Avenue (W) | Wyndham Street (S) | R | 47 | 27 | 24.2 | B | 38.8 |
| | | | Wyndham Street (N) | L | 69 | 88 | 25.6 | B | 38.8 |
| | | 1027 | | All | | 948 | 938 | 25.6 | B |

| ID | Intersection | From | To | Turn | Surveyed | Modelled | Delay (s) | LoS | Queue (m) |
|------|--|----------------------|----------------------|------|----------|----------|-----------|-----|-----------|
| | Wyndham Street McEvoy Street | Wyndham Street (N) | McEvoy Street (W) | R | 41 | 18 | 63.9 | E | 31.2 |
| | | | Wyndham Street (S) | T | 141 | 85 | 26.3 | B | 31.3 |
| | | McEvoy Street (E) | McEvoy Street (E) | L | 48 | 39 | 33.7 | C | 31.2 |
| | | | Wyndham Street (N) | R | 70 | 88 | 16.6 | B | 57.4 |
| | | Wyndham Street (S) | McEvoy Street (W) | T | 944 | 900 | 5.3 | A | 57.4 |
| | | | Wyndham Street (S) | L | 89 | 105 | 11.1 | A | 57.7 |
| | | | McEvoy Street (E) | R | 33 | 42 | 61.7 | E | 135.5 |
| | | | Wyndham Street (N) | T | 424 | 402 | 49.2 | D | 135.5 |
| | | | McEvoy Street (W) | L | 90 | 55 | 47.4 | D | 135.9 |
| | | McEvoy Street (W) | McEvoy Street (E) | T | 603 | 553 | 25.8 | B | 87.0 |
| | | | Wyndham Street (N) | L | 127 | 174 | 27.6 | B | 87.0 |
| 1028 | | All | | | 2610 | 2,461 | 22.8 | B | 135.9 |
| | McEvoy Street Brennan Street Hiles Street | McEvoy Street (E) | McEvoy Street (W) | T | 1,068 | 948 | 0.4 | A | 39.1 |
| | | | Hiles Street (S) | L | 14 | 25 | 2.1 | A | 43.9 |
| | | Hiles Street (S) | McEvoy Street (E) | R | 15 | 16 | 13.5 | A | 10.5 |
| | | | McEvoy Street (W) | L | 25 | 24 | 4.0 | A | 10.5 |
| | | McEvoy Street (W) | McEvoy Street (S) | R | 8 | 23 | 8.3 | A | 42.5 |
| | | | McEvoy Street (E) | T | 724 | 709 | 3.1 | A | 42.5 |
| 1029 | | All | | | 1854 | 1,745 | 13.5 | A | 43.9 |
| | McEvoy Street Loveridge Street McCauley Street | McEvoy Street (E) | McEvoy Street (W) | T | 1,068 | 948 | 0.3 | A | 0.0 |
| | | | McCauley Street (S) | L | 18 | 24 | 0.7 | A | 0.0 |
| | | McCauley Street (S) | McEvoy Street (E) | R | 16 | 6 | 4.6 | A | 11.0 |
| | | | McEvoy Street (W) | L | 33 | 42 | 4.5 | A | 11.0 |
| | | McEvoy Street (W) | McCauley Street (S) | R | 16 | 9 | 4.4 | A | 57.2 |
| | | | McEvoy Street (E) | T | 718 | 731 | 1.1 | A | 57.2 |
| 1030 | | All | | | 1869 | 1,761 | 4.6 | A | 57.2 |
| | McEvoy Street Fountain Street | Fountain Street (NW) | McEvoy Street (S) | R | 113 | 187 | 92.0 | F | 183.3 |
| | | | McEvoy Street (E) | L | 171 | 113 | 88.4 | F | 183.3 |
| | | McEvoy Street (E) | Fountain Street (NW) | R | 296 | 246 | 51.0 | D | 109.9 |
| | | | McEvoy Street (S) | T | 820 | 741 | 9.5 | A | 123.9 |
| | | McEvoy Street (S) | McEvoy Street (E) | T | 542 | 639 | 29.7 | C | 121.4 |
| | | | Fountain Street (NW) | L | 133 | 199 | 30.4 | C | 121.4 |
| 1031 | | All | | | 2075 | 2,124 | 33.7 | C | 183.3 |
| | McEvoy Street Harley Street | McEvoy Street (N) | Euston Road (S) | T | 972 | 981 | 3.7 | A | 57.7 |
| | | | McEvoy Street (S) | T | 623 | 806 | 0.1 | A | 20.5 |
| | | Harley Street (W) | Harley Street (W) | L | 117 | 0 | 0.0 | A | 24.3 |
| | | | McEvoy Street (N) | L | 41 | 0 | 0.0 | A | 0.0 |
| 1032 | | All | | | 1753 | 1,787 | 3.7 | A | 57.7 |
| | Euston Road Bunnings Access | Euston Road (N) | Euston Road (S) | T | 937 | 897 | 0.3 | A | 10.3 |
| | | | Bunnings Access (E) | L | 84 | 83 | 0.6 | A | 10.8 |
| | | Bunnings Access (E) | Euston Road (N) | R | 142 | 143 | 42.1 | C | 56.6 |
| | | | Euston Road (S) | L | 95 | 93 | 4.6 | A | 11.7 |
| | | Euston Road (S) | Bunnings Access (E) | R | 67 | 74 | 18.8 | B | 57.0 |
| | | | Euston Road (N) | T | 616 | 663 | 4.7 | A | 57.0 |
| 1035 | | All | | | 1941 | 1,954 | 5.8 | A | 57.0 |
| | Euston Road Maddox Street | Euston Road (N) | Euston Road (S) | T | 957 | 916 | 3.3 | A | 48.5 |
| | | | Maddox Street (E) | L | 45 | 73 | 5.1 | A | 48.5 |
| | | Maddox Street (E) | Euston Road (N) | R | 79 | 94 | 68.5 | E | 66.8 |
| | | | Maddox Street (W) | T | 212 | 192 | 34.1 | C | 66.7 |
| | | Euston Road (S) | Euston Road (S) | L | 45 | 46 | 34.6 | C | 67.1 |
| | | | Euston Road (N) | T | 569 | 569 | 7.7 | A | 60.6 |
| | | | Maddox Street (W) | L | 66 | 43 | 10.0 | A | 60.6 |
| | | | Euston Road (S) | R | 56 | 74 | 40.2 | C | 46.1 |
| | | Maddox Street (W) | Maddox Street (E) | T | 111 | 104 | 32.3 | C | 46.1 |
| | | | Euston Road (N) | L | 38 | 76 | 29.9 | C | 46.1 |
| 1033 | | All | | | 2178 | 2,187 | 14.4 | A | 67.1 |
| | Euston Road Sydney Park Road Huntley Street | Euston Road (N) | Sydney Park Road (W) | R | 0 | 0 | 0.0 | A | 113.0 |
| | | | Euston Road (S) | T | 994 | 930 | 37.0 | C | 113.0 |
| | | Huntley Street (E) | Huntley Street (E) | L | 81 | 92 | 35.6 | C | 113.2 |
| | | | Euston Road (N) | R | 58 | 56 | 53.1 | D | 36.3 |
| | | | Sydney Park Road (W) | T | 709 | 737 | 45.3 | D | 336.8 |
| | | | Euston Road (S) | L | 145 | 111 | 40.7 | C | 337.1 |
| | | Euston Road (S) | Huntley Street (E) | R | 96 | 82 | 49.6 | D | 43.1 |
| | | | Euston Road (N) | T | 408 | 349 | 19.7 | B | 43.1 |
| | | | Sydney Park Road (W) | L | 124 | 159 | 4.8 | A | 39.0 |
| | | | Euston Road (S) | R | 53 | 87 | 52.9 | D | 123.3 |
| | | Sydney Park Road (W) | Huntley Street (E) | T | 232 | 224 | 56.8 | D | 123.3 |
| | | | Euston Road (N) | L | 180 | 207 | 96.9 | F | 126.8 |
| 1034 | | All | | | 3080 | 3,034 | 42.1 | C | 337.1 |

| ID | Intersection | From | To | Turn | Surveyed | Modelled | Delay (s) | LoS | Queue (m) |
|------|---|----------------------|----------------------|------|----------|----------|-----------|-----|-----------|
| | Henderson Road Alexander Street | Alexander Street (N) | Henderson Road (E) | L | 30 | 31 | 1.7 | A | 6.1 |
| | | Henderson Road (E) | Henderson Road (W) | T | 254 | 232 | 3.9 | A | 27.9 |
| | | Alexander Street (S) | Alexander Street (S) | L | 11 | 2 | 1.9 | A | 27.9 |
| | | Henderson Road (W) | Henderson Road (W) | L | 9 | 8 | 1.6 | A | 1.2 |
| | | Henderson Road (W) | Henderson Road (E) | T | 131 | 180 | 1.1 | A | 12.1 |
| | | Henderson Road (W) | Alexander Street (N) | L | 6 | 9 | 1.1 | A | 12.1 |
| 1005 | | All | | | 441 | 462 | 3.9 | A | 27.9 |
| 1006 | Henderson Road Brandling Street | Henderson Road (E) | Henderson Road (W) | T | 251 | 235 | 1.7 | A | 1.6 |
| | | Brandling Street (S) | Brandling Street (S) | L | 3 | 5 | 1.3 | A | 1.6 |
| | | Brandling Street (S) | Henderson Road (E) | R | 7 | 1 | 3.5 | A | 0.0 |
| | | Henderson Road (W) | Henderson Road (W) | L | 3 | 12 | 1.9 | A | 0.0 |
| | | Henderson Road (W) | Brandling Street (S) | R | 6 | 2 | 0.6 | A | 1.1 |
| | | Henderson Road (W) | Henderson Road (E) | T | 115 | 190 | 0.2 | A | 23.7 |
| 1006 | | All | | | 385 | 445 | 3.5 | A | 23.7 |
| | Henderson Road Progress Road | Progress Road (N) | Henderson Road (W) | R | 25 | 32 | 2.9 | A | 5.9 |
| | | Henderson Road (E) | Henderson Road (E) | L | 21 | 24 | 1.5 | A | 5.9 |
| | | Henderson Road (E) | Progress Road (N) | R | 23 | 55 | 1.3 | A | 28.9 |
| | | Henderson Road (W) | Henderson Road (W) | T | 232 | 192 | 0.4 | A | 19.7 |
| | | Henderson Road (W) | Henderson Road (E) | T | 99 | 168 | 0.3 | A | 0.0 |
| | | Henderson Road (W) | Progress Road (N) | L | 20 | 1 | 1.3 | A | 1.3 |
| 1007 | | All | | | 420 | 472 | 2.9 | A | 28.9 |
| 1008 | Henderson Road Newton Street | Henderson Road (E) | Henderson Road (W) | T | 249 | 210 | 0.0 | A | 0.0 |
| | | Newton Street (S) | Newton Street (S) | L | 6 | 13 | 0.4 | A | 0.0 |
| | | Newton Street (S) | Henderson Road (E) | R | 4 | 12 | 2.2 | A | 6.3 |
| | | Henderson Road (W) | Henderson Road (W) | L | 14 | 12 | 1.5 | A | 6.3 |
| | | Henderson Road (W) | Newton Street (S) | R | 21 | 18 | 1.6 | A | 10.4 |
| | | Henderson Road (W) | Henderson Road (E) | T | 115 | 158 | 0.2 | A | 1.9 |
| 1008 | | All | | | 409 | 423 | 2.2 | A | 10.4 |
| | Henderson Road Railway Parade Park Street | Henderson Road (E) | Railway Parade (W) | T | 228 | 190 | 0.3 | A | 1.0 |
| | | Park Street (S) | Park Street (S) | L | 34 | 32 | 0.7 | A | 1.0 |
| | | Park Street (S) | Henderson Road (E) | R | 122 | 0 | 0.0 | A | 7.3 |
| | | Railway Parade (W) | Railway Parade (W) | L | 46 | 49 | 1.5 | A | 7.3 |
| | | Railway Parade (W) | Park Street (S) | R | 6 | 31 | 3.1 | A | 23.3 |
| | | Railway Parade (W) | Henderson Road (E) | T | 16 | 176 | 1.0 | A | 22.9 |
| 1009 | | All | | | 452 | 478 | 3.1 | A | 23.3 |
| | Railway Parade Clara Street | Railway Parade (E) | Railway Parade (W) | T | 244 | 198 | 0.4 | A | 1.2 |
| | | Clara Street (S) | Clara Street (S) | L | 34 | 25 | 1.2 | A | 8.5 |
| | | Clara Street (S) | Railway Parade (E) | R | 1 | 9 | 1.9 | A | 0.0 |
| | | Railway Parade (W) | Railway Parade (W) | L | 1 | 0 | 0.0 | A | 0.0 |
| | | Railway Parade (W) | Clara Street (S) | R | 0 | 23 | 1.5 | A | 20.1 |
| | | Railway Parade (W) | Railway Parade (E) | T | 9 | 153 | 0.6 | A | 5.8 |
| 1010 | | All | | | 289 | 408 | 1.9 | A | 20.1 |
| | Railway Parade Swanson Street | Railway Parade (N) | Swanson Street (W) | R | 212 | 165 | 53.2 | D | 75.1 |
| | | Swanson Street (E) | Swanson Street (E) | L | 27 | 12 | 51.4 | D | 75.1 |
| | | Swanson Street (E) | Railway Parade (N) | R | 0 | 13 | 37.8 | C | 87.5 |
| | | Swanson Street (W) | Swanson Street (W) | T | 472 | 489 | 47.4 | D | 87.4 |
| | | Swanson Street (W) | Swanson Street (E) | T | 484 | 316 | 16.4 | B | 79.2 |
| | | Swanson Street (W) | Railway Parade (N) | L | 0 | 159 | 22.4 | B | 79.2 |
| 1011 | | All | | | 1195 | 1,154 | 36.3 | C | 87.5 |
| | Swanson Street Clara Street | Clara Street (N) | Swanson Street (W) | R | 8 | 21 | 114.3 | F | 13.8 |
| | | Swanson Street (E) | Swanson Street (E) | L | 9 | 9 | 41.7 | C | 13.8 |
| | | Swanson Street (E) | Swanson Street (W) | T | 518 | 520 | 19.2 | B | 66.3 |
| | | Swanson Street (W) | Swanson Street (E) | T | 510 | 353 | 1.4 | A | 0.0 |
| 1012 | | All | | | 1045 | 902 | 114.3 | F | 66.3 |
| | Swanson Street Park Street | Park Street (N) | Swanson Street (W) | R | 17 | 7 | 19.2 | B | 15.4 |
| | | Swanson Street (E) | Swanson Street (E) | L | 26 | 55 | 4.4 | A | 15.6 |
| | | Swanson Street (E) | Park Street (N) | R | 42 | 54 | 3.4 | A | 13.5 |
| | | Swanson Street (W) | Swanson Street (W) | T | 458 | 474 | 4.4 | A | 63.1 |
| | | Swanson Street (W) | Swanson Street (E) | T | 405 | 362 | 3.1 | A | 45.0 |
| | | Swanson Street (W) | Park Street (N) | L | 123 | 0 | 0.0 | A | 45.0 |
| 1013 | | All | | | 1071 | 953 | 19.2 | B | 63.1 |
| | Copeland Street Newton Street | Newton Street (N) | Copeland Street (E) | L | 28 | 30 | 15.4 | B | 4.7 |
| | | Copeland Street (E) | Copeland Street (W) | T | 501 | 528 | 0.8 | A | 13.4 |
| | | Copeland Street (W) | Copeland Street (E) | T | 430 | 416 | 0.7 | A | 0.0 |
| 1014 | | All | | | 959 | 974 | 15.4 | B | 13.4 |

P4411 Henderson Road Alexandria Traffic Study

VISSIM Data Analysis

Network Performance of AM Peak Scenario A

| | |
|-------------------------------|--------|
| Average Delay (s) | 103 |
| Average Network Speed (km/hr) | 17.3 |
| VKT | 15,563 |
| VHT | 911 |
| Stops (per vehicle) | 3.06 |
| Completed Trips | 15,773 |
| Incompleted Trips | 314 |
| Unreleased Vehicles | - |
| Total Trips | 16,087 |

P4411 Henderson Road Alexandria Traffic Study

VISSIM Data Analysis

Network Performance of PM Peak Scenario A

| | |
|-------------------------------|--------|
| Average Delay (s) | 90 |
| Average Network Speed (km/hr) | 19.1 |
| VKT | 15,868 |
| VHT | 835 |
| Stops (per vehicle) | 2.88 |
| Completed Trips | 15,658 |
| Incompleted Trips | 324 |
| Unreleased Vehicles | - |
| Total Trips | 15,982 |

P4411 Henderson Road Alexandria Traffic Study

Travel Time Data Analysis

Rote 1: Mitchell Road

AM Peak (0800 - 0900)

Northbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario A |
|----------------------------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Sydney Park Rd west of Euston Rd | | 0.00 | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Mitchell Rd north of Maddox St | Route 1 NB-1 | 0.65 | 0.65 | 3:44 | 3:49 | 4:35 | 3:08 |
| Mitchell Rd at Anderson St | Route 1 NB-2 | 0.75 | 1.40 | 6:51 | 6:15 | 6:57 | 4:45 |
| Mitchell Rd at Henderson St | Route 1 NB-3 | 0.19 | 1.59 | 8:19 | 7:10 | 8:14 | 5:44 |

Southbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario A |
|----------------------------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Mitchell Rd at Henderson St | | 0.00 | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Mitchell Rd at Anderson St | Route 1 SB-1 | 0.19 | 0.19 | 0:19 | 0:14 | 0:14 | 0:14 |
| Mitchell Rd north of Maddox St | Route 1 SB-2 | 0.75 | 0.94 | 1:59 | 2:08 | 2:13 | 2:14 |
| Sydney Park Rd west of Euston Rd | Route 1 SB-3 | 0.65 | 1.59 | 3:31 | 4:25 | 4:37 | 6:03 |

P4411 Henderson Road Alexandria Traffic Study

Travel Time Data Analysis

Rote 2: McEvoy Street

AM Peak (0800 - 0900)

Northbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario A |
|---------------------------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Sydney Park Rd & Euston Rd | | 0.00 | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Euston Rd Nth of Maddox St | Route 2 NB-1 | 0.28 | 0.28 | 0:34 | 1:04 | 0:31 | 0:30 |
| McEvoy St at Stokes Ave | Route 2 NB-2 | 0.65 | 0.93 | 4:21 | 4:58 | 2:24 | 2:59 |
| Wyndham St north of Buckland St | Route 2 NB-3 | 0.65 | 1.58 | 8:13 | 8:19 | 6:21 | 7:32 |
| Henderson Rd east of Wyndham St | Route 2 NB-4 | 0.22 | 1.80 | 9:54 | 10:35 | 8:21 | 9:49 |

Southbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario A |
|---------------------------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Henderson Rd east of Wyndham St | | 0.00 | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Wyndham St north of Buckland St | Route 2 SB-1 | 0.22 | 0.22 | 0:29 | 0:31 | 0:28 | 0:27 |
| McEvoy St at Stokes Ave | Route 2 SB-2 | 0.65 | 0.87 | 2:34 | 2:59 | 3:06 | 4:30 |
| Euston Rd Nth of Maddox St | Route 2 SB-3 | 0.65 | 1.52 | 3:35 | 4:23 | 4:24 | 5:48 |
| Sydney Park Rd & Euston Rd | Route 2 SB-4 | 0.28 | 1.80 | 4:54 | 5:58 | 5:51 | 7:06 |

P4411 Henderson Road Alexandria Traffic Study

Travel Time Data Analysis

Rote 3: Railway Pde and Henderson Road

AM Peak (0800 - 0900)

Eastbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario A |
|------------------------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Railway Pde at Swanson St | | 0.00 | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Park St at Swanson St | Route 3 EB-1 | 0.35 | 0.35 | 0:52 | 0:46 | 0:49 | 0:42 |
| Park St at Railway Pde | Route 3 EB-2 | 0.25 | 0.60 | 1:36 | 1:08 | 1:11 | 1:04 |
| Henderson Rd at Alexander St | Route 3 EB-3 | 0.40 | 1.00 | 2:23 | 1:47 | 1:50 | 1:42 |
| Henderson Rd at Mitchell St | Route 3 EB-4 | 0.24 | 1.24 | 4:05 | 2:55 | 3:20 | 3:02 |
| Henderson Rd at Wyndham St | Route 3 EB-5 | 0.27 | 1.51 | 5:19 | 5:56 | 6:02 | 5:18 |

Westbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario A |
|------------------------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Henderson Rd at Wyndham St | | | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Henderson Rd at Mitchell St | Route 3 WB-1 | 0.27 | 0.27 | 1:10 | 1:23 | 1:18 | 1:31 |
| Henderson Rd at Alexander St | Route 3 WB-2 | 0.24 | 0.51 | 1:42 | 1:50 | 1:44 | 1:58 |
| Railway Pde at Park St | Route 3 WB-3 | 0.40 | 0.91 | 2:33 | 2:27 | 2:21 | 2:36 |
| Railway Pde at Swanson St | Route 3 WB-4 | 0.35 | 1.26 | 4:11 | 4:03 | 4:00 | 4:14 |

P4411 Henderson Road Alexandria Traffic Study

Travel Time Data Analysis

Rote 4: Swanson Street

AM Peak (0800 - 0900)

Eastbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario A |
|-------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Railway St | | 0.00 | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Park St | Route 4 EB-1 | 0.35 | 0.35 | 0:54 | 0:46 | 0:49 | 0:42 |
| Mitchell Rd | Route 4 EB-2 | 0.30 | 0.65 | 2:36 | 2:37 | 2:35 | 1:46 |

Westbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario A |
|-------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Mitchell Rd | | | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Park St | Route 4 WB-1 | 0.30 | 0.30 | 0:31 | 0:23 | 0:23 | 0:23 |
| Railway Pde | Route 4 WB-2 | 0.35 | 0.65 | 1:34 | 1:15 | 1:15 | 1:18 |

P4411 Henderson Road Alexandria Traffic Study

Travel Time Data Analysis

Rote 1: Mitchell Road

PM Peak (1700 - 1800)

Northbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario A |
|----------------------------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Sydney Park Rd west of Euston Rd | | 0.00 | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Mitchell Rd north of Maddox St | Route 1 NB-1 | 0.65 | 0.65 | 2:13 | 2:39 | 2:29 | 3:00 |
| Mitchell Rd at Anderson St | Route 1 NB-2 | 0.75 | 1.40 | 4:58 | 4:26 | 4:15 | 4:50 |
| Mitchell Rd at Henderson St | Route 1 NB-3 | 0.19 | 1.59 | 5:47 | 5:08 | 5:03 | 5:38 |

Southbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario A |
|----------------------------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Mitchell Rd at Henderson St | | 0.00 | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Mitchell Rd at Anderson St | Route 1 SB-1 | 0.19 | 0.19 | 0:19 | 0:14 | 0:18 | 0:14 |
| Mitchell Rd north of Maddox St | Route 1 SB-2 | 0.75 | 0.94 | 2:24 | 3:30 | 4:15 | 3:12 |
| Sydney Park Rd west of Euston Rd | Route 1 SB-3 | 0.65 | 1.59 | 4:35 | 6:08 | 7:03 | 7:14 |

P4411 Henderson Road Alexandria Traffic Study

Travel Time Data Analysis

Rote 2: McEvoy Street

PM Peak (1700 - 1800)

Northbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario A |
|---------------------------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Sydney Park Rd & Euston Rd | | 0.00 | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Euston Rd Nth of Maddox St | Route 2 NB-1 | 0.28 | 0.28 | 0:34 | 0:27 | 0:27 | 0:27 |
| McEvoy St at Stokes Ave | Route 2 NB-2 | 0.65 | 0.93 | 2:07 | 2:06 | 1:46 | 1:48 |
| Wyndham St north of Buckland St | Route 2 NB-3 | 0.65 | 1.58 | 5:07 | 4:01 | 3:47 | 4:33 |
| Henderson Rd east of Wyndham St | Route 2 NB-4 | 0.22 | 1.80 | 7:12 | 5:54 | 5:46 | 6:35 |

Southbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario A |
|---------------------------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Henderson Rd east of Wyndham St | | 0.00 | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Wyndham St north of Buckland St | Route 2 SB-1 | 0.22 | 0.22 | 0:27 | 0:27 | 0:29 | 0:27 |
| McEvoy St at Stokes Ave | Route 2 SB-2 | 0.65 | 0.87 | 2:51 | 3:14 | 3:21 | 2:38 |
| Euston Rd Nth of Maddox St | Route 2 SB-3 | 0.65 | 1.52 | 4:25 | 4:28 | 4:25 | 3:43 |
| Sydney Park Rd & Euston Rd | Route 2 SB-4 | 0.28 | 1.80 | 5:03 | 5:28 | 5:27 | 4:43 |

P4411 Henderson Road Alexandria Traffic Study

Travel Time Data Analysis

Rote 3: Railway Pde and Henderson Road

PM Peak (1700 - 1800)

Eastbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario A |
|------------------------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Railway Pde at Swanson St | | 0.00 | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Park St at Swanson St | Route 3 EB-1 | 0.35 | 0.35 | 0:52 | 0:45 | 0:48 | 0:45 |
| Park St at Railway Pde | Route 3 EB-2 | 0.25 | 0.60 | 1:26 | 1:07 | 1:09 | 1:06 |
| Henderson Rd at Alexander St | Route 3 EB-3 | 0.40 | 1.00 | 2:10 | 1:46 | 1:48 | 1:06 |
| Henderson Rd at Mitchell St | Route 3 EB-4 | 0.24 | 1.24 | 2:41 | 2:50 | 2:49 | 2:03 |
| Henderson Rd at Wyndham St | Route 3 EB-5 | 0.27 | 1.51 | 3:56 | 4:00 | 3:45 | 2:54 |

Westbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario A |
|------------------------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Henderson Rd at Wyndham St | | | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Henderson Rd at Mitchell St | Route 3 WB-1 | 0.27 | 0.27 | 0:52 | 1:21 | 1:22 | 1:26 |
| Henderson Rd at Alexander St | Route 3 WB-2 | 0.24 | 0.51 | 1:23 | 1:48 | 1:48 | 1:52 |
| Railway Pde at Park St | Route 3 WB-3 | 0.40 | 0.91 | 2:15 | 2:26 | 2:26 | 2:30 |
| Railway Pde at Swanson St | Route 3 WB-4 | 0.35 | 1.26 | 4:24 | 4:42 | 4:17 | 4:01 |

P4411 Henderson Road Alexandria Traffic Study

Travel Time Data Analysis

Rote 4: Swanson Street

PM Peak (1700 - 1800)

Eastbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario A |
|-------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Railway St | | 0.00 | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Park St | Route 4 EB-1 | 0.35 | 0.35 | 0:43 | 0:45 | 0:48 | 0:45 |
| Mitchell Rd | Route 4 EB-2 | 0.30 | 0.65 | 2:54 | 3:16 | 2:12 | 1:52 |

Westbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario A |
|-------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Mitchell Rd | | | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Park St | Route 4 WB-1 | 0.30 | 0.30 | 0:31 | 0:23 | 0:23 | 0:25 |
| Railway Pde | Route 4 WB-2 | 0.35 | 0.65 | 2:06 | 1:59 | 2:06 | 3:07 |

Appendix C: Scenario B Modelling Results



P4411 Henderson Road Alexandria Traffic Study

VISSIM Data Analysis - Node Scenario B -AM

AM Peak 0800-0900

| ID | Intersection | From | To | Turn | Surveyed | Modelled | Delay (s) | LoS | Queue (m) |
|------|---|-------------------------|-------------------------|------|----------|----------|-----------|-----|-----------|
| | Sydney Park Road Mitchell Road | Mitchelle Road (N) | Sydney Park Road (W) | R | 243 | 4 | 55.0 | D | 155.5 |
| | | | Sydney Park Carpark (S) | T | 25 | 10 | 50.6 | D | 155.5 |
| | | | Sydney Park Road (E) | L | 160 | 306 | 58.9 | E | 155.5 |
| | | Sydney Park Road (E) | Mitchelle Road (N) | R | 104 | 87 | 56.1 | D | 81.4 |
| | | | Sydney Park Road (W) | T | 226 | 220 | 15.0 | A | 63.9 |
| | | | Sydney Park Carpark (S) | L | 24 | 40 | 15.9 | B | 63.9 |
| | | Sydney Park Carpark (S) | Sydney Park Road (E) | R | 20 | 24 | 43.8 | D | 19.5 |
| | | | Mitchelle Road (N) | T | 9 | 13 | 40.7 | C | 19.5 |
| | | | Sydney Park Road (W) | L | 16 | 10 | 37.8 | C | 19.5 |
| | | Sydney Park Road (W) | Sydney Park Road (E) | T | 575 | 693 | 32.1 | C | 508.9 |
| | | | Mitchelle Road (N) | L | 474 | 375 | 12.9 | A | 56.4 |
| 1015 | | All | | | 1876 | 1,844 | 31.8 | C | 508.9 |
| | Mitchell Road Huntley Street Coulson Street | Mitchelle Road (N) | Coulson Street (W) | R | 79 | 90 | 62.5 | E | 231.9 |
| | | | Mitchelle Road (S) | T | 313 | 186 | 69.6 | E | 231.9 |
| | | | Huntley Street (E) | L | 12 | 6 | 63.0 | E | 231.9 |
| | | Huntley Street (E) | Mitchelle Road (N) | R | 13 | 9 | 15.2 | B | 23.0 |
| | | | Coulson Street (W) | T | 20 | 21 | 17.8 | B | 17.7 |
| | | | Mitchelle Road (S) | L | 20 | 26 | 53.5 | D | 24.7 |
| | | Mitchelle Road (S) | Huntley Street (E) | R | 28 | 29 | 23.3 | B | 44.8 |
| | | | Mitchelle Road (N) | T | 490 | 431 | 15.1 | B | 44.2 |
| | | | Coulson Street (W) | L | 76 | 44 | 0.2 | A | 50.9 |
| | | Coulson Street (W) | Mitchelle Road (S) | R | 89 | 118 | 71.9 | F | 62.0 |
| | | | Huntley Street (E) | T | 38 | 37 | 24.6 | B | 62.0 |
| | | | Mitchelle Road (N) | L | 100 | 80 | 29.7 | C | 62.0 |
| 1016 | | All | | | 1278 | 1,077 | 37.0 | C | 231.9 |
| | Mitchell Road Maddox Street | Mitchell Road (N) | Mitchell Road (S) | T | 376 | 273 | 7.8 | A | 30.7 |
| | | | Maddox Street (E) | L | 185 | 158 | 8.2 | A | 30.7 |
| | | Maddox Street (E) | Mitchell Road (N) | R | 217 | 70 | 34.7 | C | 57.1 |
| | | | Mitchell Road (S) | L | 42 | 66 | 33.5 | C | 57.2 |
| | | Mitchell Road (S) | Maddox Street (E) | R | 73 | 46 | 21.2 | B | 88.8 |
| | | | Mitchell Road (N) | T | 484 | 471 | 7.6 | A | 88.8 |
| 1017 | | All | | | 1377 | 1,084 | 11.6 | A | 88.8 |
| | Mitchell Road Ashmore Street | Mitchelle Road (N) | Ashmore Street (W) | R | 74 | 109 | 3.7 | A | 21.3 |
| | | | Mitchelle Road (S) | T | 493 | 400 | 1.7 | A | 21.3 |
| | | Mitchelle Road (S) | Mitchelle Road (N) | T | 575 | 476 | 15.4 | B | 210.0 |
| | | | Ashmore Street (W) | L | 126 | 59 | 8.6 | A | 210.0 |
| | | Ashmore Street (W) | Mitchelle Road (S) | R | 71 | 36 | 101.3 | F | 111.7 |
| | | | Mitchelle Road (N) | L | 23 | 80 | 98.9 | F | 111.7 |
| 1018 | | All | | | 1362 | 1,160 | 17.7 | B | 210.0 |
| | Harley Street Mitchell Road | Mitchell Road (N) | Mitchell Road (S) | T | 473 | 509 | 8.6 | A | 95.7 |
| | | | Harley Street (E) | L | 56 | 0 | 0.0 | A | 94.8 |
| | | Harley Street (E) | Mitchell Road (N) | R | 127 | 0 | 0.0 | A | 0.0 |
| | | | Mitchell Road (S) | L | 94 | 0 | 0.0 | A | 0.0 |
| | | Mitchell Road (S) | Mitchell Road (N) | T | 597 | 556 | 3.0 | A | 93.2 |
| 1019 | | All | | | 1347 | 1,065 | 8.6 | A | 95.7 |
| | Mitchell Road Copeland Street | Mitchell Road (N) | Copeland Street (W) | R | 189 | 266 | 21.3 | B | 98.9 |
| | | | Mitchell Road (S) | T | 326 | 301 | 27.2 | B | 98.9 |
| | | Mitchell Road (S) | Mitchell Road (N) | T | 585 | 452 | 22.9 | B | 140.3 |
| | | | Copeland Street (W) | L | 155 | 100 | 19.2 | B | 140.6 |
| | | Copeland Street (W) | Mitchell Road (S) | R | 216 | 210 | 9.7 | A | 33.4 |
| | | | Mitchell Road (N) | L | 257 | 153 | 7.6 | A | 33.3 |
| 1001 | | All | | | 1728 | 1,482 | 19.8 | B | 140.6 |
| | Mitchell Road Fountain Street | Mitchell Road (N) | Mitchell Road (S) | T | 305 | 247 | 50.7 | D | 67.8 |
| | | | Fountain Street (E) | L | 60 | 42 | 37.1 | C | 68.2 |
| | | Fountain Street (E) | Mitchell Road (N) | R | 168 | 242 | 52.3 | D | 245.3 |
| | | | Mitchell Road (S) | L | 210 | 332 | 34.5 | C | 245.3 |
| | | Mitchell Road (S) | Fountain Street (E) | R | 197 | 199 | 31.4 | C | 102.6 |
| | | | Mitchell Road (N) | T | 637 | 401 | 35.1 | C | 102.8 |
| 1020 | | All | | | 1577 | 1,463 | 40.0 | C | 245.3 |
| | Mitchell Road Buckland Street | Mitchell Road (N) | Mitchell Road (S) | T | 298 | 222 | 85.3 | F | 107.9 |
| | | | Buckland Street (E) | L | 42 | 151 | 15.0 | A | 107.9 |
| | | Buckland Street (E) | Mitchell Road (S) | L | 51 | 78 | 146.5 | F | 68.5 |
| | | Mitchell Road (S) | Mitchell Road (N) | T | 798 | 664 | 1.7 | A | 31.5 |
| 1002 | | All | | | 1189 | 1,115 | 30.2 | C | 107.9 |
| | Mitchell Road Ranwick Street | Mitchell Road (N) | Ranwick Street (W) | R | 19 | 34 | 5.9 | A | 17.6 |
| | | | Mitchell Road (S) | T | 321 | 349 | 0.4 | A | 5.6 |
| | | Mitchell Road (S) | Mitchell Road (N) | T | 690 | 571 | 0.5 | A | 0.0 |
| | | | Ranwick Street (W) | L | 44 | 93 | 0.9 | A | 14.8 |
| | | Ranwick Street (W) | Mitchell Road (S) | R | 21 | 28 | 4.4 | A | 12.3 |
| | | | Mitchell Road (N) | L | 35 | 53 | 6.7 | A | 12.3 |
| 1003 | | All | | | 1130 | 1,128 | 6.7 | A | 17.6 |

| ID | Intersection | From | To | Turn | Surveyed | Modelled | Delay (s) | LoS | Queue (m) |
|------|--|---------------------|---------------------|------|----------|----------|-----------|-----|-----------|
| | Mitchell Road Henderson Road Davy Road | Davy Road (N) | Henderson Road (W) | R | 14 | 17 | 35.0 | C | 25.3 |
| | | | Mitchelle Road (S) | T | 27 | 35 | 42.8 | C | 25.3 |
| | | | Henderson Road (E) | L | 44 | 44 | 25.1 | B | 25.3 |
| | | Henderson Road (E) | Davy Road (N) | R | 155 | 126 | 83.8 | F | 58.3 |
| | | | Henderson Road (W) | T | 190 | 174 | 21.2 | B | 77.8 |
| | | | Mitchelle Road (S) | L | 264 | 256 | 17.6 | B | 77.8 |
| | | Mitchelle Road (S) | Henderson Road (E) | R | 609 | 478 | 35.5 | C | 120.3 |
| | | | Davy Road (N) | T | 94 | 121 | 33.9 | C | 120.3 |
| | | | Henderson Road (W) | L | 17 | 23 | 31.1 | C | 120.3 |
| | | Henderson Road (W) | Mitchelle Road (S) | R | 40 | 92 | 50.4 | D | 118.2 |
| | | | Henderson Road (E) | T | 183 | 258 | 53.7 | D | 118.2 |
| | | | Davy Road (N) | L | 42 | 37 | 39.5 | C | 118.2 |
| 1004 | | All | | | 1679 | 1,661 | 38.3 | C | 120.3 |
| | Henderson Road Gerard Street | Henderson Road (E) | Henderson Road (W) | T | 583 | 530 | 0.8 | A | 10.2 |
| | | | Gerard Street (S) | L | 36 | 40 | 1.1 | A | 17.4 |
| | | Gerard Street (S) | Henderson Road (W) | L | 33 | 32 | 2.1 | A | 5.2 |
| | | | Henderson Road (E) | T | 835 | 773 | 6.7 | A | 55.8 |
| 1021 | | All | | | 1,487 | 1,375 | 6.7 | A | 55.8 |
| | Henderson Road Garden Street | Garden Street (N) | Henderson Road (W) | R | 61 | 62 | 50.8 | D | 45.4 |
| | | | Henderson Road (E) | L | 41 | 41 | 62.0 | E | 45.4 |
| | | Henderson Road (E) | Garden Street (N) | R | 159 | 123 | 41.8 | C | 85.0 |
| | | | Henderson Road (W) | T | 541 | 490 | 20.1 | B | 88.9 |
| | | | Garden Street (S) | L | 14 | 17 | 29.5 | C | 88.9 |
| | | Garden Street (S) | Henderson Road (W) | L | 19 | 18 | 47.6 | D | 20.1 |
| | | | Henderson Road (E) | T | 688 | 583 | 33.7 | C | 84.8 |
| | | Henderson Road (W) | Garden Street (N) | L | 149 | 174 | 6.7 | A | 84.8 |
| 1022 | | All | | | 1672 | 1,508 | 28.4 | B | 88.9 |
| | Henderson Road Wyndham Street | Henderson Road (E) | Wyndham Street (N) | R | 707 | 801 | 16.7 | B | 85.4 |
| | | | Henderson Road (W) | T | 700 | 579 | 5.7 | A | 85.4 |
| | | Wyndham Street (S) | Wyndham Street (S) | L | 151 | 216 | 8.0 | A | 85.4 |
| | | | Henderson Road (E) | R | 3 | 50 | 62.5 | E | 239.5 |
| | | | Wyndham Street (N) | T | 435 | 413 | 47.0 | D | 239.5 |
| | | | Henderson Road (W) | L | 19 | 54 | 43.1 | D | 239.5 |
| | | Henderson Road (W) | Henderson Road (E) | T | 248 | 196 | 51.8 | D | 88.6 |
| | | | Wyndham Street (N) | L | 492 | 410 | 71.2 | F | 88.9 |
| 1023 | | All | | | 2755 | 2,719 | 30.4 | C | 239.5 |
| | Henderson Road Botany Road Raglan St | Botany Road (N) | Henderson Road (W) | R | 606 | 632 | 48.7 | D | 126.5 |
| | | | Botany Road (S) | T | 1,085 | 1,054 | 7.5 | A | 126.5 |
| | | Raglan St (E) | Raglan St (E) | L | 62 | 70 | 13.1 | A | 133.6 |
| | | | Henderson Road (W) | T | 236 | 217 | 51.4 | D | 71.0 |
| | | | Botany Road (S) | L | 10 | 30 | 59.5 | E | 76.1 |
| | | Botany Road (S) | Henderson Road (W) | L | 710 | 759 | 94.0 | F | 222.4 |
| | | | Botany Road (S) | R | 44 | 56 | 103.3 | F | 61.4 |
| | | Henderson Road (W) | Raglan St (E) | T | 205 | 187 | 29.8 | C | 61.4 |
| 1024 | | All | | | 2958 | 3,005 | 45.0 | D | 222.4 |
| | Botany Road McEvoy Street | Botany Road (N) | McEvoy Street (W) | R | 339 | 382 | 105.2 | F | 320.2 |
| | | | Botany Road (S) | T | 772 | 730 | 28.4 | B | 320.2 |
| | | McEvoy Street (E) | McEvoy Street (E) | L | 97 | 115 | 27.1 | B | 320.2 |
| | | | McEvoy Street (W) | T | 455 | 403 | 201.8 | F | 460.7 |
| | | | Botany Road (S) | L | 11 | 10 | 198.5 | F | 461.1 |
| | | Botany Road (S) | Botany Road (N) | T | 701 | 741 | 28.8 | B | 125.5 |
| | | | McEvoy Street (W) | L | 149 | 143 | 32.6 | C | 125.5 |
| | | McEvoy Street (W) | Botany Road (S) | R | 85 | 79 | 77.6 | F | 106.9 |
| | | | McEvoy Street (E) | T | 571 | 479 | 59.0 | E | 106.9 |
| | | | Botany Road (N) | L | 63 | 52 | 60.6 | E | 106.9 |
| 1025 | | All | | | 3243 | 3,134 | 67.3 | E | 461.1 |
| | Wyndham Street Buckland Street | Wyndham Street (N) | Buckland Street (W) | R | 7 | 8 | 37.6 | C | 42.7 |
| | | | Wyndham Street (S) | T | 134 | 207 | 26.6 | B | 42.6 |
| | | | Buckland Street (E) | L | 8 | 0 | 0.0 | A | 42.8 |
| | | Wyndham Street (S) | Buckland Street (E) | R | 61 | 84 | 40.8 | C | 176.3 |
| | | | Wyndham Street (N) | T | 438 | 495 | 29.9 | C | 176.3 |
| | | | Buckland Street (W) | L | 72 | 96 | 33.5 | C | 176.3 |
| | | Buckland Street (W) | Wyndham Street (S) | R | 51 | 88 | 99.7 | F | 291.3 |
| | | | Buckland Street (E) | T | 51 | 57 | 114.1 | F | 291.3 |
| | | | Wyndham Street (N) | L | 26 | 35 | 94.7 | F | 291.3 |
| | | All | | | 848 | 1,070 | 42.9 | C | 291.3 |
| | Wyndham Street Power Avenue | Wyndham Street (N) | Power Avenue (W) | R | 60 | 44 | 20.6 | B | 194.7 |
| | | | Wyndham Street (S) | T | 123 | 226 | 10.7 | A | 188.3 |
| | | Wyndham Street (S) | Wyndham Street (N) | T | 487 | 663 | 4.4 | A | 162.8 |
| | | | Power Avenue (W) | L | 136 | 89 | -0.3 | A | 165.7 |
| | | Power Avenue (W) | Wyndham Street (S) | R | 86 | 45 | 188.9 | F | 204.1 |
| | | | Wyndham Street (N) | L | 76 | 42 | 138.4 | F | 204.1 |
| 1027 | | All | | | 968 | 1,109 | 188.9 | F | 204.1 |

| ID | Intersection | From | To | Turn | Surveyed | Modelled | Delay (s) | LoS | Queue (m) |
|------|--|----------------------|----------------------|------|----------|----------|-----------|-----|-----------|
| | Wyndham Street McEvoy Street | Wyndham Street (N) | McEvoy Street (W) | R | 27 | 101 | 275.7 | F | 161.0 |
| | | | Wyndham Street (S) | T | 129 | 100 | 36.5 | C | 160.9 |
| | | | McEvoy Street (E) | L | 59 | 54 | 48.0 | D | 160.8 |
| | | McEvoy Street (E) | Wyndham Street (N) | R | 134 | 175 | 38.2 | C | 106.0 |
| | | | McEvoy Street (W) | T | 686 | 615 | 24.8 | B | 106.0 |
| | | | Wyndham Street (S) | L | 138 | 126 | 31.2 | C | 106.0 |
| | | Wyndham Street (S) | McEvoy Street (E) | R | 37 | 40 | 148.2 | F | 226.6 |
| | | | Wyndham Street (N) | T | 317 | 335 | 41.2 | C | 226.6 |
| | | | McEvoy Street (W) | L | 67 | 64 | 40.7 | C | 227.1 |
| | | McEvoy Street (W) | McEvoy Street (E) | T | 631 | 523 | 46.2 | D | 92.6 |
| | | | Wyndham Street (N) | L | 146 | 260 | 63.9 | E | 92.6 |
| 1028 | | All | | | 2371 | 2,393 | 51.4 | D | 227.1 |
| | McEvoy Street Brennan Street Hiles Street | McEvoy Street (E) | McEvoy Street (W) | T | 740 | 755 | 0.5 | A | 33.7 |
| | | | Hiles Street (S) | L | 33 | 22 | 1.7 | A | 38.4 |
| | | Hiles Street (S) | McEvoy Street (E) | R | 11 | 9 | 10.2 | A | 11.5 |
| | | | McEvoy Street (W) | L | 29 | 33 | 3.5 | A | 11.5 |
| | | McEvoy Street (W) | Hiles Street (S) | R | 21 | 38 | 11.5 | A | 104.6 |
| | | | McEvoy Street (E) | T | 786 | 791 | 24.3 | B | 104.6 |
| 1029 | | All | | | 1620 | 1,648 | 24.3 | B | 104.6 |
| | McEvoy Street Loveridge Street McCauley Street | McEvoy Street (E) | McEvoy Street (W) | T | 729 | 742 | 0.2 | A | 7.9 |
| | | | McCauley Street (S) | L | 37 | 41 | 1.0 | A | 7.9 |
| | | McCauley Street (S) | McEvoy Street (E) | R | 22 | 23 | 12.7 | A | 12.2 |
| | | | McEvoy Street (W) | L | 16 | 18 | 4.1 | A | 12.2 |
| | | McEvoy Street (W) | McCauley Street (S) | R | 16 | 40 | 10.1 | A | 102.5 |
| | | | McEvoy Street (E) | T | 799 | 828 | 7.2 | A | 102.5 |
| 1030 | | All | | | 1619 | 1,692 | 12.7 | A | 102.5 |
| | McEvoy Street Fountain Street | Fountain Street (NW) | McEvoy Street (S) | R | 98 | 179 | 128.7 | F | 288.9 |
| | | | McEvoy Street (E) | L | 153 | 75 | 81.1 | F | 288.9 |
| | | McEvoy Street (E) | Fountain Street (NW) | R | 205 | 162 | 46.5 | D | 70.9 |
| | | | McEvoy Street (S) | T | 538 | 596 | 7.0 | A | 80.0 |
| | | McEvoy Street (S) | McEvoy Street (E) | T | 671 | 812 | 43.9 | D | 272.7 |
| | | | Fountain Street (NW) | L | 118 | 422 | 48.6 | D | 273.0 |
| 1031 | | All | | | 1783 | 2,246 | 43.2 | D | 288.9 |
| | McEvoy Street Harley Street | McEvoy Street (N) | Euston Road (S) | T | 600 | 707 | 17.2 | B | 81.2 |
| | | | McEvoy Street (S) | T | 836 | 1,268 | 3.0 | A | 34.9 |
| | | Harley Street (W) | Harley Street (W) | L | 226 | 34 | -1.1 | A | 38.6 |
| | | | McEvoy Street (N) | L | 46 | 49 | 43.3 | D | 21.0 |
| 1032 | | All | | | 1708 | 2,058 | 43.3 | D | 81.2 |
| | Euston Road Bunnings Access | Euston Road (N) | Euston Road (S) | T | 446 | 650 | 0.4 | A | 12.2 |
| | | | Bunnings Access (E) | L | 156 | 56 | 3.2 | A | 12.7 |
| | | Bunnings Access (E) | Euston Road (N) | R | 126 | 122 | 43.8 | D | 67.2 |
| | | | Euston Road (S) | L | 72 | 83 | 1.9 | A | 6.2 |
| | | Euston Road (S) | Bunnings Access (E) | R | 144 | 154 | 51.1 | D | 246.1 |
| | | | Euston Road (N) | T | 942 | 1,180 | 36.5 | C | 246.1 |
| 1035 | | All | | | 1886 | 2,245 | 25.3 | B | 246.1 |
| | Euston Road Maddox Street | Euston Road (N) | Euston Road (S) | T | 437 | 562 | 6.5 | A | 61.1 |
| | | | Maddox Street (E) | L | 80 | 170 | 5.7 | A | 61.1 |
| | | Maddox Street (E) | Euston Road (N) | R | 52 | 168 | 136.5 | F | 122.8 |
| | | | Maddox Street (W) | T | 117 | 0 | 0.0 | A | 122.6 |
| | | Euston Road (S) | Euston Road (S) | L | 24 | 41 | 43.0 | C | 123.1 |
| | | | Euston Road (N) | T | 1055 | 1,069 | 36.1 | C | 252.3 |
| | | Maddox Street (W) | Maddox Street (W) | L | 192 | 109 | 14.6 | A | 252.3 |
| | | | Euston Road (S) | R | 72 | 0 | 0.0 | A | 33.1 |
| | | Euston Road (N) | Maddox Street (E) | T | 192 | 0 | 0.0 | A | 33.1 |
| | | | Euston Road (N) | L | 57 | 145 | 36.9 | C | 33.1 |
| 1033 | | All | | | 2278 | 2,264 | 33.1 | C | 252.3 |
| | Euston Road Sudney Park Road Huntley Street | Euston Road (N) | Sydney Park Road (W) | R | 0 | 0 | 0.0 | A | 95.2 |
| | | | Euston Road (S) | T | 388 | 480 | 39.9 | C | 95.2 |
| | | | Huntley Street (E) | L | 131 | 111 | 54.2 | D | 95.4 |
| | | Huntley Street (E) | Euston Road (N) | R | 56 | 110 | 41.4 | C | 54.8 |
| | | | Sydney Park Road (W) | T | 248 | 237 | 33.6 | C | 57.3 |
| | | | Euston Road (S) | L | 100 | 84 | 20.1 | B | 57.5 |
| | | Euston Road (S) | Huntley Street (E) | R | 274 | 266 | 54.0 | D | 200.1 |
| | | | Euston Road (N) | T | 934 | 777 | 39.3 | C | 200.1 |
| | | | Sydney Park Road (W) | L | 106 | 125 | 5.7 | A | 196.1 |
| | | Sydney Park Road (W) | Euston Road (S) | R | 98 | 217 | 93.0 | F | 261.6 |
| | | | Huntley Street (E) | T | 431 | 401 | 57.6 | E | 261.6 |
| | | | Euston Road (N) | L | 234 | 344 | 107.8 | F | 261.5 |
| 1034 | | All | | | 3000 | 3,152 | 52.4 | D | 261.6 |

| ID | Intersection | From | To | Turn | Surveyed | Modelled | Delay (s) | LoS | Queue (m) |
|------|---|--|--|----------------------------|-------------------------------------|-------------------------------------|--|----------------------------|--|
| | Henderson Road Alexander Street | Alexander Street (N) Henderson Road (E) Alexander Street (S) Henderson Road (W) | Henderson Road (E) Henderson Road (W) Alexander Street (S) Henderson Road (W) Henderson Road (E) Alexander Street (N) | L T L L T L | 30 199 16 18 233 31 | 28 177 38 6 367 32 | 3.1 3.0 4.2 4.7 1.5 2.1 | A A A A A A | 5.2 24.6 24.6 0.0 30.8 30.8 |
| 1005 | | All | | | 527 | 648 | 4.7 | A | 30.8 |
| 1006 | Henderson Road Brandling Street | Henderson Road (E) Brandling Street (S) Henderson Road (W) | Henderson Road (W) Brandling Street (S) Henderson Road (E) Henderson Road (W) Brandling Street (S) Henderson Road (E) | T L R L R T | 187 14 6 9 5 251 | 166 16 7 5 0 393 | 1.6 1.2 5.1 1.9 0.0 0.3 | A A A A A A | 36.0 36.0 5.6 5.6 5.0 5.0 |
| 1006 | | All | | | 472 | 587 | 5.1 | A | 36.0 |
| | Henderson Road Progress Road | Progress Road (N) Henderson Road (E) Henderson Road (W) | Henderson Road (W) Henderson Road (E) Progress Road (N) Henderson Road (W) Henderson Road (E) Progress Road (N) | R L R T T L | 24 41 33 155 211 24 | 11 48 32 139 345 12 | 4.6 2.3 1.5 0.1 0.4 0.8 | A A A A A A | 6.0 6.0 12.2 0.0 0.0 6.0 |
| 1007 | | All | | | 488 | 587 | 4.6 | A | 12.2 |
| 1008 | Henderson Road Newton Street | Henderson Road (E) Newton Street (S) Henderson Road (W) | Henderson Road (W) Newton Street (S) Henderson Road (E) Henderson Road (W) Newton Street (S) Henderson Road (E) | T L R L R T | 162 17 14 15 8 225 | 136 13 38 31 0 319 | 0.0 0.5 2.4 1.8 0.0 0.1 | A A A A A A | 0.0 0.0 7.3 7.3 0.0 0.0 |
| 1008 | | All | | | 441 | 537 | 2.4 | A | 7.3 |
| | Henderson Road Railway Parade Park Street | Henderson Road (E) Park Street (S) Railway Parade (W) | Railway Parade (W) Park Street (S) Henderson Road (E) Railway Parade (W) Park Street (S) Henderson Road (E) | T L R L R T | 160 17 209 42 13 24 | 164 0 0 0 0 319 | 1.6 0.0 0.0 0.0 0.0 1.1 | A A A A A A | 0.0 0.0 0.0 0.0 28.3 43.5 |
| 1009 | | All | | | 465 | 483 | 1.6 | A | 43.5 |
| | Railway Parade Clara Street | Railway Parade (E) Clara Street (S) Railway Parade (W) | Railway Parade (W) Clara Street (S) Railway Parade (E) Railway Parade (W) Clara Street (S) Railway Parade (E) | T L R L R T | 169 15 2 1 0 17 | 116 13 12 0 40 309 | 0.4 1.0 4.7 0.0 1.1 0.6 | A A A A A A | 0.0 5.3 8.1 8.1 24.4 9.8 |
| 1010 | | All | | | 204 | 490 | 4.7 | A | 24.4 |
| | Railway Parade Swanson Street | Railway Parade (N) Swanson Street (E) Swanson Street (W) | Swanson Street (W) Swanson Street (E) Railway Parade (N) Swanson Street (W) Swanson Street (E) Railway Parade (N) | R L R T T L | 118 31 0 458 578 0 | 86 34 42 490 244 305 | 41.5 36.9 15.9 16.2 14.4 15.5 | C C B B A B | 40.6 40.6 61.7 61.6 79.6 79.5 |
| 1011 | | All | | | 1185 | 1,201 | 18.0 | B | 79.6 |
| | Swanson Street Clara Street | Clara Street (N) Swanson Street (E) Swanson Street (W) | Swanson Street (W) Swanson Street (E) Swanson Street (W) Swanson Street (E) | R L T T | 5 11 468 666 | 35 8 494 331 | 7.5 1.8 0.9 2.9 | A A A A | 6.3 6.3 0.0 0.0 |
| 1012 | | All | | | 1150 | 868 | 7.5 | A | 6.3 |
| | Swanson Street Park Street | Park Street (N) Swanson Street (E) Swanson Street (W) | Swanson Street (W) Swanson Street (E) Park Street (N) Swanson Street (W) Swanson Street (E) Park Street (N) | R L R T T L | 10 30 61 434 494 200 | 1 5 2 470 341 0 | 7.8 2.1 3.4 2.9 3.1 0.0 | A A A A A A | 6.5 6.3 5.5 76.0 55.9 55.9 |
| 1013 | | All | | | 1229 | 819 | 7.8 | A | 76.0 |
| | Copeland Street Newton Street | Newton Street (N) Copeland Street (E) Copeland Street (W) | Copeland Street (E) Copeland Street (W) Copeland Street (E) | L T T | 27 508 525 | 19 474 345 | 11.1 0.4 0.3 | A A A | 12.0 9.0 0.0 |
| 1014 | | All | | | 1060 | 838 | 11.1 | A | 12.0 |

P4411 Henderson Road Alexandria Traffic Study

VISSIM Data Analysis - Node Scenario B -PM

PM Peak 1700-1800

| ID | Intersection | From | To | Turn | Surveyed | Modelled | Accept | Delay (s) | LoS | Queue (m) |
|------|---|-------------------------|-------------------------|------|----------|----------|--------|-----------|-----|-----------|
| | Sydney Park Road Mitchell Road | Mitchelle Road (N) | Sydney Park Road (W) | R | 556 | 5 | N | 42.0 | C | 152.3 |
| | | | Sydney Park Carpark (S) | T | 38 | 48 | Y | 35.1 | C | 152.3 |
| | | | Sydney Park Road (E) | L | 104 | 368 | N | 35.4 | C | 152.3 |
| | | Sydney Park Road (E) | Mitchelle Road (N) | R | 183 | 227 | Y | 73.2 | F | 165.8 |
| | | | Sydney Park Road (W) | T | 633 | 600 | Y | 8.1 | A | 69.6 |
| | | | Sydney Park Carpark (S) | L | 24 | 21 | Y | 27.1 | B | 69.6 |
| | | Sydney Park Carpark (S) | Sydney Park Road (E) | R | 23 | 22 | Y | 69.5 | E | 53.7 |
| | | | Mitchelle Road (N) | T | 28 | 31 | Y | 68.8 | E | 53.7 |
| | | | Sydney Park Road (W) | L | 27 | 28 | Y | 70.9 | F | 53.7 |
| | | Sydney Park Road (W) | Sydney Park Road (E) | T | 339 | 279 | Y | 80.6 | F | 311.6 |
| | | | Sydney Park Road (N) | L | 454 | 484 | Y | 25.4 | B | 336.1 |
| | | | | | | | | | | |
| 1015 | | All | | | 2409 | 2,215 | | 37.2 | C | 336.1 |
| | Mitchell Road Huntley Street Coulson Street | Mitchelle Road (N) | Coulson Street (W) | R | 131 | 98 | Y | 33.4 | C | 191.0 |
| | | | Mitchelle Road (S) | T | 642 | 328 | N | 17.7 | B | 191.0 |
| | | | Huntley Street (E) | L | 22 | 10 | Y | 15.3 | B | 191.0 |
| | | Huntley Street (E) | Mitchelle Road (N) | R | 8 | 10 | Y | 44.4 | D | 24.7 |
| | | | Coulson Street (W) | T | 34 | 33 | Y | 35.8 | C | 24.7 |
| | | | Mitchelle Road (S) | L | 26 | 25 | Y | 43.5 | D | 24.7 |
| | | Mitchelle Road (S) | Huntley Street (E) | R | 14 | 28 | Y | 11.6 | A | 55.9 |
| | | | Mitchelle Road (N) | T | 476 | 566 | Y | 7.8 | A | 55.1 |
| | | | Coulson Street (W) | L | 140 | 109 | Y | 3.8 | A | 55.1 |
| | | Coulson Street (W) | Mitchelle Road (S) | R | 86 | 96 | Y | 57.6 | E | 47.5 |
| | | | Huntley Street (E) | T | 17 | 18 | Y | 39.8 | C | 47.5 |
| | | | Mitchelle Road (N) | L | 105 | 92 | Y | 41.2 | C | 47.5 |
| 1016 | | All | | | 1701 | 1,414 | | 19.2 | B | 191.0 |
| | Mitchell Road Maddox Street | Mitchell Road (N) | Mitchell Road (S) | T | 711 | 436 | N | 4.1 | A | 30.8 |
| | | | Maddox Street (E) | L | 124 | 158 | Y | 3.9 | A | 30.9 |
| | | Maddox Street (E) | Mitchell Road (N) | R | 159 | 65 | N | 47.7 | D | 30.3 |
| | | | Mitchell Road (S) | L | 75 | 36 | N | 36.9 | C | 30.3 |
| | | Mitchell Road (S) | Maddox Street (E) | R | 63 | 137 | N | 30.0 | C | 133.0 |
| | | | Mitchell Road (N) | T | 525 | 522 | Y | 15.1 | B | 133.0 |
| 1017 | | All | | | 1657 | 1,354 | | 13.9 | A | 133.0 |
| | Mitchell Road Ashmore Street | Mitchelle Road (N) | Ashmore Street (W) | R | 47 | 65 | Y | 6.3 | A | 21.3 |
| | | | Mitchelle Road (S) | T | 744 | 537 | N | 1.8 | A | 21.3 |
| | | Mitchelle Road (S) | Mitchelle Road (N) | T | 562 | 507 | Y | 11.6 | A | 155.4 |
| | | | Ashmore Street (W) | L | 109 | 63 | Y | 5.5 | A | 155.4 |
| | | Ashmore Street (W) | Mitchelle Road (S) | R | 82 | 65 | Y | 39.6 | C | 69.6 |
| | | | Mitchelle Road (N) | L | 27 | 34 | Y | 31.6 | C | 69.6 |
| 1018 | | All | | | 1571 | 1,271 | | 39.6 | C | 155.4 |
| | Harley Street Mitchell Road | Mitchell Road (N) | Mitchell Road (S) | T | 719 | 602 | Y | 10.8 | A | 129.4 |
| | | | Harley Street (E) | L | 53 | 0 | N | 0.0 | A | 128.5 |
| | | Harley Street (E) | Mitchell Road (N) | R | 56 | 0 | N | 0.0 | A | 0.0 |
| | | | Mitchell Road (S) | L | 72 | 0 | N | 0.0 | A | 0.0 |
| | | Mitchell Road (S) | Mitchell Road (N) | T | 589 | 540 | Y | 2.6 | A | 60.4 |
| | | | | | | | | | | |
| 1019 | | All | | | 1489 | 1,142 | | 10.8 | A | 129.4 |
| | Mitchell Road Copeland Street | Mitchell Road (N) | Copeland Street (W) | R | 228 | 212 | Y | 58.3 | E | 165.4 |
| | | | Mitchell Road (S) | T | 606 | 438 | N | 78.3 | F | 165.4 |
| | | Mitchell Road (S) | Mitchell Road (N) | T | 470 | NA | ##### | NA | A | NA |
| | | | Copeland Street (W) | L | 180 | NA | ##### | NA | A | NA |
| | | Copeland Street (W) | Mitchell Road (S) | R | 172 | 164 | Y | 11.9 | A | 34.5 |
| | | | Mitchell Road (N) | L | 220 | 142 | N | 8.6 | A | 34.6 |
| 1001 | | All | | | 1876 | 1,487 | | 41.2 | C | 165.4 |
| | Mitchell Road Fountain Street | Mitchell Road (N) | Mitchell Road (S) | T | 555 | 270 | N | 39.8 | C | 66.1 |
| | | | Fountain Street (E) | L | 106 | 129 | Y | 59.6 | E | 66.5 |
| | | Fountain Street (E) | Mitchell Road (N) | R | 116 | 103 | Y | 55.8 | D | 246.5 |
| | | | Mitchell Road (S) | L | 279 | 401 | N | 37.8 | C | 246.5 |
| | | Mitchell Road (S) | Fountain Street (E) | R | 187 | 189 | Y | 104.6 | F | 153.8 |
| | | | Mitchell Road (N) | T | 508 | 314 | N | 25.1 | B | 154.0 |
| 1020 | | All | | | 1751 | 1,405 | | 47.7 | D | 246.5 |
| | Mitchell Road Buckland Street | Mitchell Road (N) | Mitchell Road (S) | T | 611 | 392 | N | 84.4 | F | 169.7 |
| | | | Buckland Street (E) | L | 33 | 99 | N | 39.7 | C | 176.0 |
| | | Buckland Street (E) | Mitchell Road (S) | L | 44 | 17 | Y | 133.8 | F | 22.2 |
| | | | Mitchell Road (N) | T | 621 | 424 | N | 0.2 | A | 15.3 |
| 1002 | | All | | | 1309 | 932 | | 42.2 | C | 176.0 |
| | Mitchell Road Ranwick Street | Mitchell Road (N) | Ranwick Street (W) | R | 15 | 12 | Y | 66.3 | E | 183.8 |
| | | | Mitchell Road (S) | T | 629 | 465 | N | 104.2 | F | 171.9 |
| | | Mitchell Road (S) | Mitchell Road (N) | T | 535 | 387 | N | 0.1 | A | 0.0 |
| | | | Ranwick Street (W) | L | 33 | 38 | Y | 0.6 | A | 8.3 |
| | | Ranwick Street (W) | Mitchell Road (S) | R | 13 | 49 | N | 46.5 | D | 18.6 |
| | | | Mitchell Road (N) | L | 32 | 10 | Y | 5.6 | A | 18.6 |
| 1003 | | All | | | 1257 | 961 | | 104.2 | F | 183.8 |

| ID | Intersection | From | To | Turn | Surveyed | Modelled | Accept | Delay (s) | LoS | Queue (m) |
|------|--|---------------------|---------------------|------|----------|----------|--------|-----------|-----|-----------|
| | Mitchell Road Henderson Road Davy Road | Davy Road (N) | Henderson Road (W) | R | 29 | 30 | Y | 42.7 | C | 85.4 |
| | | | Mitchelle Road (S) | T | 103 | 121 | Y | 89.5 | F | 85.4 |
| | | | Henderson Road (E) | L | 65 | 65 | Y | 28.2 | B | 85.4 |
| | | Henderson Road (E) | Davy Road (N) | R | 59 | 50 | Y | 59.6 | E | 32.7 |
| | | | Henderson Road (W) | T | 239 | 237 | Y | 61.3 | E | 108.8 |
| | | | Mitchelle Road (S) | L | 503 | 272 | N | 106.7 | F | 108.8 |
| | | Mitchelle Road (S) | Henderson Road (E) | R | 496 | 344 | N | 30.3 | C | 71.7 |
| | | | Davy Road (N) | T | 48 | 49 | Y | 35.4 | C | 71.7 |
| | | | Henderson Road (W) | L | 17 | 4 | Y | 29.5 | C | 71.7 |
| | | Henderson Road (W) | Mitchelle Road (S) | R | 32 | 114 | N | 209.0 | F | 127.9 |
| | | | Henderson Road (E) | T | 118 | 132 | Y | 41.9 | C | 127.9 |
| | | | Davy Road (N) | L | 10 | 14 | Y | 39.6 | C | 127.9 |
| 1004 | | All | | | 1719 | 1,431 | | 71.7 | F | 127.9 |
| | Henderson Road Gerard Street | Henderson Road (E) | Henderson Road (W) | T | 788 | 584 | N | 43.9 | D | 99.0 |
| | | | Gerard Street (S) | L | 24 | 26 | Y | 41.7 | C | 106.2 |
| | | Gerard Street (S) | Henderson Road (W) | L | 21 | 10 | Y | 46.3 | D | 72.2 |
| | | | Henderson Road (E) | T | 689 | 540 | N | 0.6 | A | 1.5 |
| 1021 | | All | | | 1,522 | 1,160 | | 46.3 | D | 106.2 |
| | Henderson Road Garden Street | Garden Street (N) | Henderson Road (W) | R | 64 | 74 | Y | 71.1 | F | 44.1 |
| | | | Henderson Road (E) | L | 56 | 37 | Y | 46.5 | D | 44.1 |
| | | Henderson Road (E) | Garden Street (N) | R | 65 | 105 | Y | 14.1 | A | 39.5 |
| | | | Henderson Road (W) | T | 755 | 548 | N | 35.1 | C | 87.1 |
| | | | Garden Street (S) | L | 13 | 21 | Y | 51.7 | D | 87.1 |
| | | Garden Street (S) | Henderson Road (W) | L | 7 | 6 | Y | 84.4 | F | 8.9 |
| | | Henderson Road (W) | Henderson Road (E) | T | 582 | 429 | N | 7.0 | A | 62.4 |
| | | | Garden Street (N) | L | 105 | 108 | Y | 3.7 | A | 62.4 |
| 1022 | | All | | | 1647 | 1,328 | | 24.6 | B | 87.1 |
| | Henderson Road Wyndham Street | Henderson Road (E) | Wyndham Street (N) | R | 618 | 598 | Y | 15.1 | B | 98.7 |
| | | | Henderson Road (W) | T | 800 | 614 | N | 18.2 | B | 98.7 |
| | | | Wyndham Street (S) | L | 187 | 167 | Y | 17.8 | B | 98.6 |
| | | Wyndham Street (S) | Henderson Road (E) | R | 5 | 15 | Y | 40.1 | C | 232.4 |
| | | | Wyndham Street (N) | T | 503 | 577 | Y | 36.0 | C | 232.4 |
| | | | Henderson Road (W) | L | 18 | 75 | N | 53.2 | D | 232.4 |
| | | Henderson Road (W) | Henderson Road (E) | T | 271 | 163 | N | 38.8 | C | 76.6 |
| | | | Wyndham Street (N) | L | 367 | 299 | Y | 60.0 | E | 76.8 |
| 1023 | | All | | | 2769 | 2,508 | | 29.0 | C | 232.4 |
| | Henderson Road Botany Road Raglan St | Botany Road (N) | Henderson Road (W) | R | 716 | 506 | N | 65.1 | E | 483.4 |
| | | | Botany Road (S) | T | 1,107 | 1,177 | Y | 41.4 | C | 483.4 |
| | | Raglan St (E) | Raglan St (E) | L | 56 | 63 | Y | 38.1 | C | 490.4 |
| | | | Henderson Road (W) | T | 293 | 262 | Y | 53.7 | D | 117.8 |
| | | | Botany Road (S) | L | 18 | 23 | Y | 70.2 | F | 118.0 |
| | | Botany Road (S) | Henderson Road (W) | L | 593 | 628 | Y | 80.0 | F | 152.5 |
| | | Henderson Road (W) | Botany Road (S) | R | 53 | 2 | N | 43.5 | D | 20.9 |
| | | | Raglan St (E) | T | 231 | 176 | Y | 14.8 | A | 20.9 |
| 1024 | | All | | | 3067 | 2,838 | | 53.7 | D | 490.4 |
| | Botany Road McEvoy Street | Botany Road (N) | McEvoy Street (W) | R | 350 | 437 | Y | 96.6 | F | 325.8 |
| | | | Botany Road (S) | T | 873 | 682 | N | 29.7 | C | 325.8 |
| | | McEvoy Street (E) | McEvoy Street (E) | L | 90 | 80 | Y | 29.9 | C | 325.8 |
| | | | McEvoy Street (W) | T | 644 | 573 | Y | 51.6 | D | 109.6 |
| | | | Botany Road (S) | L | 18 | 22 | Y | 60.0 | E | 110.0 |
| | | Botany Road (S) | Botany Road (N) | T | 587 | 577 | Y | 26.8 | B | 103.1 |
| | | | McEvoy Street (W) | L | 116 | 126 | Y | 30.9 | C | 103.1 |
| | | McEvoy Street (W) | Botany Road (S) | R | 93 | 106 | Y | 60.2 | E | 104.9 |
| | | | McEvoy Street (E) | T | 519 | 380 | N | 30.2 | C | 104.9 |
| | | | Botany Road (N) | L | 59 | 120 | N | 20.0 | B | 104.9 |
| | | All | | | 3349 | 3,103 | | 43.6 | D | 325.8 |
| | | | | | | | | | | |
| | Wyndham Street Buckland Street | Wyndham Street (N) | Buckland Street (W) | R | 11 | 23 | Y | 29.6 | C | 38.6 |
| | | | Wyndham Street (S) | T | 159 | 143 | Y | 9.6 | A | 38.5 |
| | | | Buckland Street (E) | L | 22 | 0 | N | 0.0 | A | 38.6 |
| | | Wyndham Street (S) | Buckland Street (E) | R | 69 | 28 | N | 25.4 | B | 166.8 |
| | | | Wyndham Street (N) | T | 480 | 664 | N | 33.1 | C | 166.8 |
| | | | Buckland Street (W) | L | 55 | 11 | N | 49.2 | D | 166.8 |
| | | Buckland Street (W) | Wyndham Street (S) | R | 52 | 85 | Y | 24.4 | B | 52.8 |
| | | | Buckland Street (E) | T | 33 | 46 | Y | 22.4 | B | 52.7 |
| | | | Wyndham Street (N) | L | 21 | 26 | Y | 34.3 | C | 52.7 |
| | | | | | | | | | | |
| 1026 | | All | | | 902 | 1,026 | | 28.6 | B | 166.8 |
| | Wyndham Street Power Avenue | Wyndham Street (N) | Power Avenue (W) | R | 48 | 41 | Y | 4.4 | A | 23.1 |
| | | | Wyndham Street (S) | T | 163 | 186 | Y | 0.2 | A | 23.1 |
| | | Wyndham Street (S) | Wyndham Street (N) | T | 556 | 660 | Y | 2.7 | A | 67.8 |
| | | | Power Avenue (W) | L | 65 | 24 | N | 2.0 | A | 72.5 |
| | | Power Avenue (W) | Wyndham Street (S) | R | 47 | 65 | Y | 11.5 | A | 33.7 |
| | | | Wyndham Street (N) | L | 69 | 49 | Y | 15.3 | B | 33.7 |
| 1027 | | All | | | 948 | 1,025 | | 15.3 | B | 72.5 |

| ID | Intersection | From | To | Turn | Surveyed | Modelled | Accept | Delay (s) | LoS | Queue (m) |
|------|--|----------------------|----------------------|------|----------|----------|--------|-----------|-----|-----------|
| | Wyndham Street McEvoy Street | Wyndham Street (N) | McEvoy Street (W) | R | 41 | 68 | Y | 231.9 | F | 80.8 |
| | | | Wyndham Street (S) | T | 141 | 123 | Y | 32.2 | C | 80.9 |
| | | McEvoy Street (E) | McEvoy Street (E) | L | 48 | 59 | Y | 36.8 | C | 80.8 |
| | | | Wyndham Street (N) | R | 70 | 90 | Y | 15.9 | B | 68.3 |
| | | | McEvoy Street (W) | T | 944 | 994 | Y | 5.6 | A | 68.3 |
| | | Wyndham Street (S) | Wyndham Street (S) | L | 89 | 53 | Y | 12.1 | A | 68.6 |
| | | | McEvoy Street (E) | R | 33 | 37 | Y | 88.8 | F | 148.3 |
| | | | Wyndham Street (N) | T | 424 | 400 | Y | 60.7 | E | 148.3 |
| | | McEvoy Street (W) | McEvoy Street (W) | L | 90 | 62 | Y | 50.9 | D | 148.8 |
| | | | McEvoy Street (E) | T | 603 | 512 | Y | 25.8 | B | 87.4 |
| | | | Wyndham Street (N) | L | 127 | 195 | N | 29.4 | C | 87.4 |
| 1028 | | All | | | 2610 | 2,592 | | 30.6 | C | 148.8 |
| | McEvoy Street Brennan Street Hiles Street | McEvoy Street (E) | McEvoy Street (W) | T | 1,068 | 1,101 | Y | 0.5 | A | 52.4 |
| | | Hiles Street (S) | Hiles Street (S) | L | 14 | 21 | Y | 2.3 | A | 57.2 |
| | | | McEvoy Street (E) | R | 15 | 15 | Y | 13.1 | A | 7.2 |
| | | McEvoy Street (W) | McEvoy Street (W) | L | 25 | 25 | Y | 4.5 | A | 7.2 |
| | | | Hiles Street (S) | R | 8 | 22 | Y | 10.4 | A | 53.7 |
| 1029 | | All | McEvoy Street (E) | T | 724 | 690 | Y | 3.4 | A | 53.7 |
| | | | | | 1854 | 1,875 | | 13.1 | A | 57.2 |
| | McEvoy Street Loveridge Street McCauley Street | McEvoy Street (E) | McEvoy Street (W) | T | 1,068 | 1,107 | Y | 0.3 | A | 5.6 |
| | | McCauley Street (S) | McCauley Street (S) | L | 18 | 20 | Y | 0.9 | A | 5.6 |
| | | | McEvoy Street (E) | R | 16 | 4 | Y | 21.8 | B | 11.3 |
| | | McEvoy Street (W) | McEvoy Street (W) | L | 33 | 44 | Y | 5.7 | A | 11.3 |
| | | | McCauley Street (S) | R | 16 | 8 | Y | 8.8 | A | 41.3 |
| 1030 | | All | McEvoy Street (E) | T | 718 | 712 | Y | 0.9 | A | 41.3 |
| | | | | | 1869 | 1,894 | | 21.8 | B | 41.3 |
| | McEvoy Street Fountain Street | Fountain Street (NW) | McEvoy Street (S) | R | 113 | 244 | N | 161.3 | F | 327.7 |
| | | McEvoy Street (E) | McEvoy Street (E) | L | 171 | 62 | N | 144.2 | F | 327.7 |
| | | | Fountain Street (NW) | R | 296 | 217 | Y | 51.7 | D | 119.3 |
| | | McEvoy Street (S) | McEvoy Street (S) | T | 820 | 925 | Y | 10.4 | A | 147.2 |
| | | | McEvoy Street (E) | T | 542 | 665 | N | 39.5 | C | 182.1 |
| 1031 | | All | Fountain Street (NW) | L | 133 | 292 | N | 48.0 | D | 182.1 |
| | | | | | 2075 | 2,406 | | 45.5 | D | 327.7 |
| | McEvoy Street Harley Street | McEvoy Street (N) | Euston Road (S) | T | 972 | 1,239 | N | 4.8 | A | 127.2 |
| | | McEvoy Street (S) | McEvoy Street (N) | T | 623 | 912 | N | 0.2 | A | 23.1 |
| | | | Harley Street (W) | L | 117 | 37 | N | -1.1 | A | 26.9 |
| | | Harley Street (W) | McEvoy Street (N) | L | 41 | 35 | Y | 5.9 | A | 6.4 |
| 1032 | | All | | | 1753 | 2,223 | | 5.9 | A | 127.2 |
| | Euston Road Bunnings Access | Euston Road (N) | Euston Road (S) | T | 937 | 1,168 | N | 0.4 | A | 10.8 |
| | | Bunnings Access (E) | Bunnings Access (E) | L | 84 | 68 | Y | 0.7 | A | 11.3 |
| | | | Euston Road (N) | R | 142 | 143 | Y | 41.9 | C | 56.1 |
| | | Euston Road (S) | Euston Road (S) | L | 95 | 93 | Y | 7.7 | A | 14.6 |
| | | | Bunnings Access (E) | R | 67 | 77 | Y | 23.7 | B | 62.1 |
| 1035 | | All | Euston Road (N) | T | 616 | 807 | N | 4.5 | A | 62.1 |
| | | | | | 1941 | 2,357 | | 5.4 | A | 62.1 |
| | Euston Road Maddox Street | Euston Road (N) | Euston Road (S) | T | 957 | 1,118 | Y | 4.4 | A | 112.5 |
| | | Maddox Street (E) | Maddox Street (E) | L | 45 | 142 | N | 7.2 | A | 112.5 |
| | | | Euston Road (N) | R | 79 | 139 | N | 356.4 | F | 268.8 |
| | | Euston Road (S) | Maddox Street (W) | T | 212 | 0 | N | 0.0 | A | 268.7 |
| | | | Euston Road (S) | L | 45 | 51 | Y | 245.4 | F | 269.1 |
| | | Maddox Street (W) | Euston Road (N) | T | 569 | 500 | Y | 7.9 | A | 55.4 |
| | | | Maddox Street (W) | L | 66 | 35 | Y | 7.7 | A | 55.4 |
| | | Sydney Park Road (W) | Euston Road (S) | R | 56 | 0 | N | 0.0 | A | 76.2 |
| | | | Maddox Street (E) | T | 111 | 0 | N | 0.0 | A | 76.2 |
| 1033 | | All | Euston Road (N) | L | 38 | 249 | N | 43.8 | D | 76.2 |
| | | | | | 2178 | 2,233 | | 36.0 | C | 269.1 |
| | Euston Road Sydney Park Road Huntley Street | Euston Road (N) | Sydney Park Road (W) | R | 0 | 0 | Y | 0.0 | A | 136.8 |
| | | Huntley Street (E) | Euston Road (S) | T | 994 | 1,091 | Y | 39.9 | C | 136.8 |
| | | | Huntley Street (E) | L | 81 | 60 | Y | 36.6 | C | 137.0 |
| | | Euston Road (S) | Euston Road (N) | R | 58 | 62 | Y | 51.6 | D | 35.1 |
| | | | Sydney Park Road (W) | T | 709 | 730 | Y | 48.3 | D | 339.6 |
| | | Sydney Park Road (W) | Euston Road (S) | L | 145 | 111 | Y | 42.1 | C | 339.8 |
| | | | Huntley Street (E) | R | 96 | 82 | Y | 50.5 | D | 45.5 |
| | | Euston Road (S) | Euston Road (N) | T | 408 | 367 | Y | 20.4 | B | 45.5 |
| | | | Sydney Park Road (W) | L | 124 | 141 | Y | 4.6 | A | 41.4 |
| | | Huntley Street (E) | Euston Road (S) | R | 53 | 239 | N | 219.0 | F | 267.3 |
| | | | Huntley Street (E) | T | 232 | 208 | Y | 175.9 | F | 267.3 |
| | | | Euston Road (N) | L | 180 | 105 | N | 122.8 | F | 267.2 |
| 1034 | | All | | | 3080 | 3,197 | | 63.5 | E | 339.8 |

| ID | Intersection | From | To | Turn | Surveyed | Modelled | Accept | Delay (s) | LoS | Queue (m) |
|------|---|----------------------|----------------------|------|----------|----------|--------|-----------|-----|-----------|
| | Henderson Road Alexander Street | Alexander Street (N) | Henderson Road (E) | L | 30 | 31 | Y | 2.3 | A | 6.1 |
| | | Henderson Road (E) | Henderson Road (W) | T | 254 | 257 | Y | 5.1 | A | 48.7 |
| | | | Alexander Street (S) | L | 11 | 13 | Y | 6.6 | A | 48.7 |
| | | Alexander Street (S) | Henderson Road (W) | L | 9 | 8 | Y | 1.6 | A | 1.2 |
| | | Henderson Road (W) | Henderson Road (E) | T | 131 | 249 | N | 1.3 | A | 13.4 |
| 1005 | | | Alexander Street (N) | L | 6 | 8 | Y | 1.3 | A | 13.4 |
| | | All | | | 441 | 566 | | 6.6 | A | 48.7 |
| 1006 | Henderson Road Brandling Street | Henderson Road (E) | Henderson Road (W) | T | 251 | 260 | Y | 1.7 | A | 0.0 |
| | | | Brandling Street (S) | L | 3 | 5 | Y | 1.3 | A | 0.0 |
| | | Brandling Street (S) | Henderson Road (E) | R | 7 | 1 | Y | 3.3 | A | 1.1 |
| | | | Henderson Road (W) | L | 3 | 12 | Y | 2.2 | A | 1.1 |
| | | Henderson Road (W) | Brandling Street (S) | R | 6 | 2 | Y | 1.6 | A | 7.5 |
| | | | Henderson Road (E) | T | 115 | 259 | N | 0.2 | A | 23.4 |
| 1006 | | All | | | 385 | 538 | | 3.3 | A | 23.4 |
| | Henderson Road Progress Road | Progress Road (N) | Henderson Road (W) | R | 25 | 22 | Y | 3.8 | A | 6.2 |
| | | | Henderson Road (E) | L | 21 | 33 | Y | 1.6 | A | 6.2 |
| | | Henderson Road (E) | Progress Road (N) | R | 23 | 50 | Y | 1.4 | A | 29.3 |
| | | | Henderson Road (W) | T | 232 | 222 | Y | 0.4 | A | 20.9 |
| | | Henderson Road (W) | Henderson Road (E) | T | 99 | 228 | N | 0.3 | A | 0.0 |
| | | | Progress Road (N) | L | 20 | 1 | N | 0.6 | A | 0.0 |
| 1007 | | All | | | 420 | 556 | | 3.8 | A | 29.3 |
| 1008 | Henderson Road Newton Street | Henderson Road (E) | Henderson Road (W) | T | 249 | 218 | Y | 0.0 | A | 0.0 |
| | | | Newton Street (S) | L | 6 | 26 | Y | 0.4 | A | 0.0 |
| | | Newton Street (S) | Henderson Road (E) | R | 4 | 12 | Y | 2.6 | A | 6.5 |
| | | | Henderson Road (W) | L | 14 | 23 | Y | 1.8 | A | 6.5 |
| | | Henderson Road (W) | Newton Street (S) | R | 21 | 37 | Y | 2.1 | A | 16.9 |
| | | | Henderson Road (E) | T | 115 | 219 | N | 0.3 | A | 5.7 |
| 1008 | | All | | | 409 | 534 | | 2.6 | A | 16.9 |
| | Henderson Road Railway Parade Park Street | Henderson Road (E) | Railway Parade (W) | T | 228 | 240 | Y | 0.3 | A | 1.2 |
| | | | Park Street (S) | L | 34 | 0 | N | 0.0 | A | 1.2 |
| | | Park Street (S) | Henderson Road (E) | R | 122 | 0 | N | 0.0 | A | 0.0 |
| | | | Railway Parade (W) | L | 46 | 0 | N | 0.0 | A | 0.0 |
| | | Railway Parade (W) | Park Street (S) | R | 6 | 0 | Y | 0.0 | A | 20.4 |
| | | | Henderson Road (E) | T | 16 | 257 | N | 1.3 | A | 23.1 |
| 1009 | | All | | | 452 | 497 | | 1.3 | A | 23.1 |
| | Railway Parade Clara Street | Railway Parade (E) | Railway Parade (W) | T | 244 | 217 | Y | 0.4 | A | 0.0 |
| | | | Clara Street (S) | L | 34 | 11 | Y | 0.9 | A | 2.4 |
| | | Clara Street (S) | Railway Parade (E) | R | 1 | 5 | Y | 2.1 | A | 0.0 |
| | | | Railway Parade (W) | L | 1 | 0 | Y | 0.0 | A | 0.0 |
| | | Railway Parade (W) | Clara Street (S) | R | 0 | 36 | N | 1.5 | A | 30.6 |
| | | | Railway Parade (E) | T | 9 | 206 | N | 0.7 | A | 15.7 |
| 1010 | | All | | | 289 | 474 | | 2.1 | A | 30.6 |
| | Railway Parade Swanson Street | Railway Parade (N) | Swanson Street (W) | R | 212 | 192 | Y | 87.6 | F | 128.7 |
| | | | Swanson Street (E) | L | 27 | 24 | Y | 79.8 | F | 128.7 |
| | | Swanson Street (E) | Railway Parade (N) | R | 0 | 51 | N | 38.6 | C | 87.6 |
| | | | Swanson Street (W) | T | 472 | 452 | Y | 41.3 | C | 87.4 |
| | | Swanson Street (W) | Swanson Street (E) | T | 484 | 267 | N | 16.3 | B | 81.1 |
| | | | Railway Parade (N) | L | 0 | 208 | N | 24.0 | B | 81.1 |
| 1011 | | All | | | 1195 | 1,193 | | 40.9 | C | 128.7 |
| | Swanson Street Clara Street | Clara Street (N) | Swanson Street (W) | R | 8 | 22 | Y | 5.5 | A | 6.0 |
| | | | Swanson Street (E) | L | 9 | 12 | Y | 2.0 | A | 6.0 |
| | | Swanson Street (E) | Swanson Street (W) | T | 518 | 485 | Y | 1.6 | A | 12.3 |
| | | Swanson Street (W) | Swanson Street (E) | T | 510 | 300 | N | 1.5 | A | 0.0 |
| 1012 | | All | | | 1045 | 820 | | 5.5 | A | 12.3 |
| | Swanson Street Park Street | Park Street (N) | Swanson Street (W) | R | 17 | 0 | N | 0.0 | A | 4.7 |
| | | | Swanson Street (E) | L | 26 | 3 | N | 1.4 | A | 4.8 |
| | | Swanson Street (E) | Park Street (N) | R | 42 | 7 | N | 1.2 | A | 4.7 |
| | | | Swanson Street (W) | T | 458 | 446 | Y | 1.9 | A | 43.9 |
| | | Swanson Street (W) | Swanson Street (E) | T | 405 | 313 | Y | 2.1 | A | 34.6 |
| | | | Park Street (N) | L | 123 | 0 | N | 0.0 | A | 34.6 |
| 1013 | | All | | | 1071 | 768 | | 2.1 | A | 43.9 |
| | Copeland Street Newton Street | Newton Street (N) | Copeland Street (E) | L | 28 | 40 | Y | 27.4 | B | 5.6 |
| | | Copeland Street (E) | Copeland Street (W) | T | 501 | 453 | Y | 0.2 | A | 0.0 |
| | | Copeland Street (W) | Copeland Street (E) | T | 430 | 315 | N | 0.7 | A | 0.0 |
| 1014 | | All | | | 959 | 808 | | 27.4 | B | 5.6 |

P4411 Henderson Road Alexandria Traffic Study

VISSIM Data Analysis

Network Performance of AM Peak Scenario B

| | |
|-------------------------------|--------|
| Average Delay (s) | 137 |
| Average Network Speed (km/hr) | 14.7 |
| VKT | 15,410 |
| VHT | 1,110 |
| Stops (per vehicle) | 4.38 |
| Completed Trips | 15,062 |
| Incompleted Trips | 1,256 |
| Unreleased Vehicles | 182 |
| Total Trips | 16,500 |

P4411 Henderson Road Alexandria Traffic Study

VISSIM Data Analysis

Network Performance of PM Peak Scenario B

| | |
|-------------------------------|--------|
| Average Delay (s) | 122 |
| Average Network Speed (km/hr) | 15.7 |
| VKT | 24,045 |
| VHT | 1,637 |
| Stops (per vehicle) | 4.09 |
| Completed Trips | 25,821 |
| Incompleted Trips | 436 |
| Unreleased Vehicles | - |
| Total Trips | 26,257 |

P4411 Henderson Road Alexandria Traffic Study

Travel Time Data Analysis

Rote 1: Mitchell Road

AM Peak (0800 - 0900)

Northbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario B |
|----------------------------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Sydney Park Rd west of Euston Rd | | 0.00 | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Mitchell Rd north of Maddox St | Route 1 NB-1 | 0.65 | 0.65 | 3:44 | 3:49 | 4:35 | 2:27 |
| Mitchell Rd at Anderson St | Route 1 NB-2 | 0.75 | 1.40 | 6:51 | 6:15 | 6:57 | 6:25 |
| Mitchell Rd at Henderson St | Route 1 NB-3 | 0.19 | 1.59 | 8:19 | 7:10 | 8:14 | 7:18 |

Southbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario B |
|----------------------------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Mitchell Rd at Henderson St | | 0.00 | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Mitchell Rd at Anderson St | Route 1 SB-1 | 0.19 | 0.19 | 0:19 | 0:14 | 0:14 | 0:17 |
| Mitchell Rd north of Maddox St | Route 1 SB-2 | 0.75 | 0.94 | 1:59 | 2:08 | 2:13 | 6:05 |
| Sydney Park Rd west of Euston Rd | Route 1 SB-3 | 0.65 | 1.59 | 3:31 | 4:25 | 4:37 | 14:26 |

P4411 Henderson Road Alexandria Traffic Study

Travel Time Data Analysis

Rote 2: McEvoy Street

AM Peak (0800 - 0900)

Northbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario B |
|---------------------------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Sydney Park Rd & Euston Rd | | 0.00 | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Euston Rd Nth of Maddox St | Route 2 NB-1 | 0.28 | 0.28 | 0:34 | 1:04 | 0:31 | 1:29 |
| McEvoy St at Stokes Ave | Route 2 NB-2 | 0.65 | 0.93 | 4:21 | 4:58 | 2:24 | 4:41 |
| Wyndham St north of Buckland St | Route 2 NB-3 | 0.65 | 1.58 | 8:13 | 8:19 | 6:21 | 8:42 |
| Henderson Rd east of Wyndham St | Route 2 NB-4 | 0.22 | 1.80 | 9:54 | 10:35 | 8:21 | 10:55 |

Southbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario B |
|---------------------------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Henderson Rd east of Wyndham St | | 0.00 | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Wyndham St north of Buckland St | Route 2 SB-1 | 0.22 | 0.22 | 0:29 | 0:31 | 0:28 | 0:28 |
| McEvoy St at Stokes Ave | Route 2 SB-2 | 0.65 | 0.87 | 2:34 | 2:59 | 3:06 | 6:33 |
| Euston Rd Nth of Maddox St | Route 2 SB-3 | 0.65 | 1.52 | 3:35 | 4:23 | 4:24 | 7:59 |
| Sydney Park Rd & Euston Rd | Route 2 SB-4 | 0.28 | 1.80 | 4:54 | 5:58 | 5:51 | 9:20 |

P4411 Henderson Road Alexandria Traffic Study

Travel Time Data Analysis

Rote 3: Railway Pde and Henderson Road

AM Peak (0800 - 0900)

Eastbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario B |
|------------------------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Railway Pde at Swanson St | | 0.00 | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Park St at Swanson St | Route 3 EB-1 | 0.35 | 0.35 | 0:52 | 0:46 | 0:49 | 0:41 |
| Park St at Railway Pde | Route 3 EB-2 | 0.25 | 0.60 | 1:36 | 1:08 | 1:11 | 0:41 |
| Henderson Rd at Alexander St | Route 3 EB-3 | 0.40 | 1.00 | 2:23 | 1:47 | 1:50 | 1:20 |
| Henderson Rd at Mitchell St | Route 3 EB-4 | 0.24 | 1.24 | 4:05 | 2:55 | 3:20 | 2:51 |
| Henderson Rd at Wyndham St | Route 3 EB-5 | 0.27 | 1.51 | 5:19 | 5:56 | 6:02 | 5:07 |

Westbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario B |
|------------------------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Henderson Rd at Wyndham St | | | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Henderson Rd at Mitchell St | Route 3 WB-1 | 0.27 | 0.27 | 1:10 | 1:23 | 1:18 | 1:02 |
| Henderson Rd at Alexander St | Route 3 WB-2 | 0.24 | 0.51 | 1:42 | 1:50 | 1:44 | 1:26 |
| Railway Pde at Park St | Route 3 WB-3 | 0.40 | 0.91 | 2:33 | 2:27 | 2:21 | 2:04 |
| Railway Pde at Swanson St | Route 3 WB-4 | 0.35 | 1.26 | 4:11 | 4:03 | 4:00 | 3:28 |

P4411 Henderson Road Alexandria Traffic Study

Travel Time Data Analysis

Rote 4: Swanson Street

AM Peak (0800 - 0900)

Eastbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario B |
|-------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Railway St | | 0.00 | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Park St | Route 4 EB-1 | 0.35 | 0.35 | 0:54 | 0:46 | 0:49 | 0:41 |
| Mitchell Rd | Route 4 EB-2 | 0.30 | 0.65 | 2:36 | 2:37 | 2:35 | 1:56 |

Westbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario B |
|-------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Mitchell Rd | | | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Park St | Route 4 WB-1 | 0.30 | 0.30 | 0:31 | 0:23 | 0:23 | 0:23 |
| Railway Pde | Route 4 WB-2 | 0.35 | 0.65 | 1:34 | 1:15 | 1:15 | 1:17 |

P4411 Henderson Road Alexandria Traffic Study

Travel Time Data Analysis

Rote 1: Mitchell Road

PM Peak (1700 - 1800)

Northbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario B |
|----------------------------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Sydney Park Rd west of Euston Rd | | 0.00 | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Mitchell Rd north of Maddox St | Route 1 NB-1 | 0.65 | 0.65 | 2:13 | 2:39 | 2:29 | 2:31 |
| Mitchell Rd at Anderson St | Route 1 NB-2 | 0.75 | 1.40 | 4:58 | 4:26 | 4:15 | 5:20 |
| Mitchell Rd at Henderson St | Route 1 NB-3 | 0.19 | 1.59 | 5:47 | 5:08 | 5:03 | 6:08 |

Southbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario B |
|----------------------------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Mitchell Rd at Henderson St | | 0.00 | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Mitchell Rd at Anderson St | Route 1 SB-1 | 0.19 | 0.19 | 0:19 | 0:14 | 0:18 | 2:35 |
| Mitchell Rd north of Maddox St | Route 1 SB-2 | 0.75 | 0.94 | 2:24 | 3:30 | 4:15 | 9:07 |
| Sydney Park Rd west of Euston Rd | Route 1 SB-3 | 0.65 | 1.59 | 4:35 | 6:08 | 7:03 | 16:15 |

P4411 Henderson Road Alexandria Traffic Study

Travel Time Data Analysis

Rote 2: McEvoy Street

PM Peak (1700 - 1800)

Northbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario B |
|---------------------------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Sydney Park Rd & Euston Rd | | 0.00 | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Euston Rd Nth of Maddox St | Route 2 NB-1 | 0.28 | 0.28 | 0:34 | 0:27 | 0:27 | 0:27 |
| McEvoy St at Stokes Ave | Route 2 NB-2 | 0.65 | 0.93 | 2:07 | 2:06 | 1:46 | 2:00 |
| Wyndham St north of Buckland St | Route 2 NB-3 | 0.65 | 1.58 | 5:07 | 4:01 | 3:47 | 4:35 |
| Henderson Rd east of Wyndham St | Route 2 NB-4 | 0.22 | 1.80 | 7:12 | 5:54 | 5:46 | 6:39 |

Southbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario B |
|---------------------------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Henderson Rd east of Wyndham St | | 0.00 | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Wyndham St north of Buckland St | Route 2 SB-1 | 0.22 | 0.22 | 0:27 | 0:27 | 0:29 | 0:36 |
| McEvoy St at Stokes Ave | Route 2 SB-2 | 0.65 | 0.87 | 2:51 | 3:14 | 3:21 | 5:34 |
| Euston Rd Nth of Maddox St | Route 2 SB-3 | 0.65 | 1.52 | 4:25 | 4:28 | 4:25 | 6:42 |
| Sydney Park Rd & Euston Rd | Route 2 SB-4 | 0.28 | 1.80 | 5:03 | 5:28 | 5:27 | 7:45 |

P4411 Henderson Road Alexandria Traffic Study

Travel Time Data Analysis

Rote 3: Railway Pde and Henderson Road

PM Peak (1700 - 1800)

Eastbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario B |
|------------------------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Railway Pde at Swanson St | | 0.00 | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Park St at Swanson St | Route 3 EB-1 | 0.35 | 0.35 | 0:52 | 0:45 | 0:48 | 0:41 |
| Park St at Railway Pde | Route 3 EB-2 | 0.25 | 0.60 | 1:26 | 1:07 | 1:09 | 0:41 |
| Henderson Rd at Alexander St | Route 3 EB-3 | 0.40 | 1.00 | 2:10 | 1:46 | 1:48 | 0:41 |
| Henderson Rd at Mitchell St | Route 3 EB-4 | 0.24 | 1.24 | 2:41 | 2:50 | 2:49 | 1:44 |
| Henderson Rd at Wyndham St | Route 3 EB-5 | 0.27 | 1.51 | 3:56 | 4:00 | 3:45 | 2:26 |

Westbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario B |
|------------------------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Henderson Rd at Wyndham St | | | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Henderson Rd at Mitchell St | Route 3 WB-1 | 0.27 | 0.27 | 0:52 | 1:21 | 1:22 | 2:22 |
| Henderson Rd at Alexander St | Route 3 WB-2 | 0.24 | 0.51 | 1:23 | 1:48 | 1:48 | 2:49 |
| Railway Pde at Park St | Route 3 WB-3 | 0.40 | 0.91 | 2:15 | 2:26 | 2:26 | 3:27 |
| Railway Pde at Swanson St | Route 3 WB-4 | 0.35 | 1.26 | 4:24 | 4:42 | 4:17 | 5:34 |

P4411 Henderson Road Alexandria Traffic Study

Travel Time Data Analysis

Rote 4: Swanson Street

PM Peak (1700 - 1800)

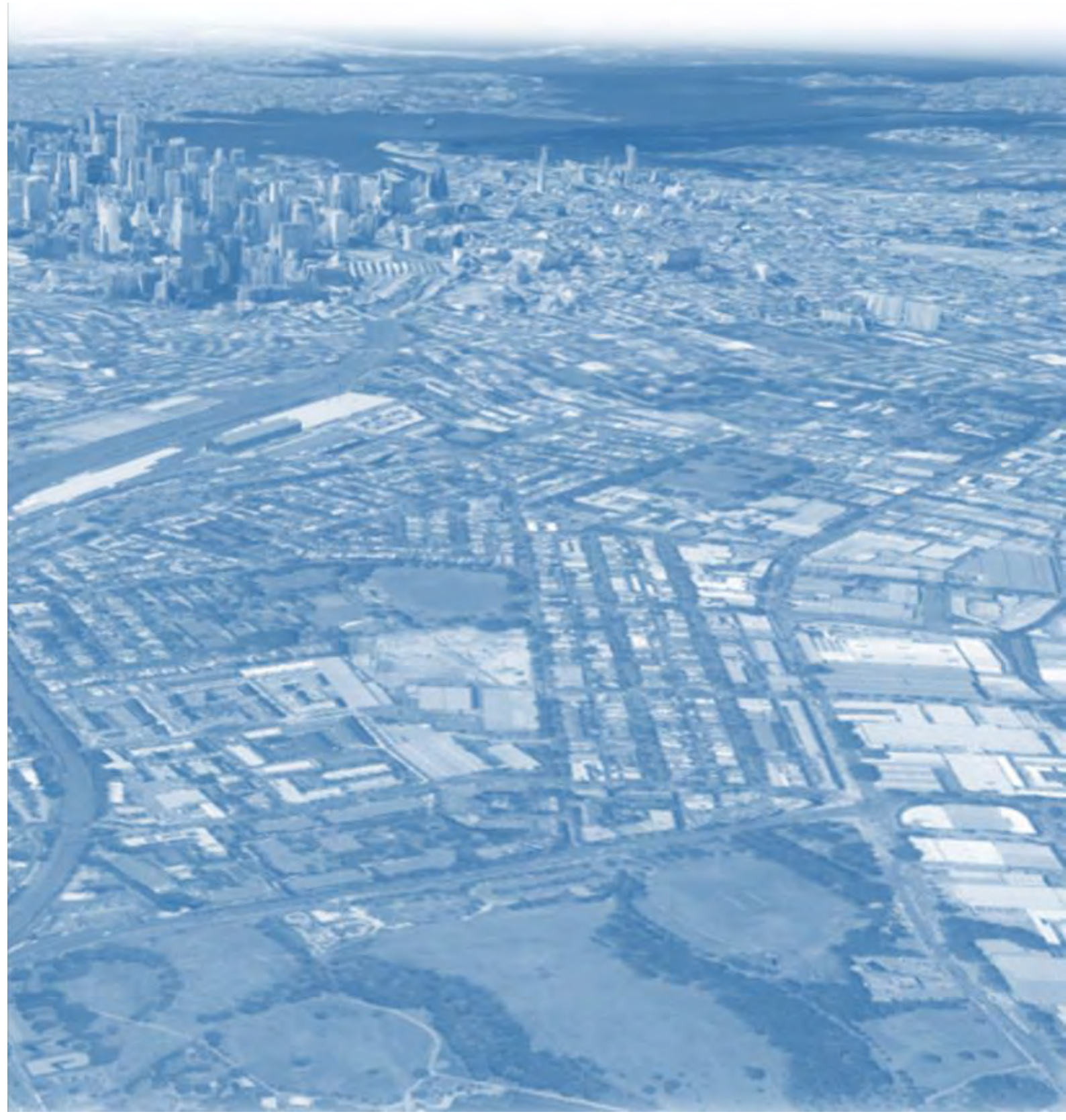
Eastbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario B |
|-------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Railway St | | 0.00 | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Park St | Route 4 EB-1 | 0.35 | 0.35 | 0:43 | 0:45 | 0:48 | 0:41 |
| Mitchell Rd | Route 4 EB-2 | 0.30 | 0.65 | 2:54 | 3:16 | 2:12 | 1:37 |

Westbound

| Sections | Vissim Section | Distance (km) | Cumulative Distance (km) | Observed | Base 2021 | Base 2022 | Scenario B |
|-------------|----------------|---------------|--------------------------|----------|-----------|-----------|------------|
| Mitchell Rd | | | 0.00 | 0:00 | 0:00 | 0:00 | 0:00 |
| Park St | Route 4 WB-1 | 0.30 | 0.30 | 0:31 | 0:23 | 0:23 | 0:22 |
| Railway Pde | Route 4 WB-2 | 0.35 | 0.65 | 2:06 | 1:59 | 2:06 | 2:04 |

Appendix D: MCA Outputs



Alexandria Traffic and Transport Study
Traffic and Transport Improvement Evaluation

| Criterion ID | | 1 | 2 | 3 | 4 | 5 | 6 | | |
|--------------|---|--|------------------------------------|--|---|--|---|-------|------|
| Criterion | | Maximise accessibility, safety and amenity for walking and cycling | Improve accessibility to bus stops | Limit through traffic on local streets and particularly those streets used for filtering between Mitchell Road and Euston Road-McEvoy Street | Encourage through traffic to use the State Roads instead of Local Roads | Minimise turn bans and/or closures when there are other alternatives available to achieve the other objectives | Minimise traffic congestion impacts from future traffic management measures | | |
| Weight | | 25% | 10% | 25% | 15% | 15% | 10% | SCORE | RANK |
| 1.02 | Right turn ban from Park Street into Railway Parade | 2 | 1 | 3 | 1 | 3 | 4 | 2.35 | 7 |
| 2.01 | Raised Ped/ Cycle Crossing (Swanson St / Park St) | 4 | 2 | 2 | 1 | 1 | 3 | 2.30 | 8 |
| 3.01 | Maddox Street Traffic Calming | 3 | 2 | 4 | 3 | 3 | 3 | 3.15 | 4 |
| 5.01 | Closure of Harley Street at McEvoy Street | 5 | 2 | 5 | 3 | 1 | 2 | 3.50 | 3 |
| 6.01 | Maddox Street / Mitchell Street traffic signals | 4 | 3 | 4 | 4 | 5 | 3 | 3.95 | 2 |
| 7.01 | Mitchell Road (Huntley Street to Ashmore Street) traffic calming measures | 3 | 1 | 3 | 2 | 5 | 4 | 3.05 | 5 |
| 8.01 | Mitchell Road / Huntley Street intersection improvement | 1 | 1 | 2 | 1 | 5 | 4 | 2.15 | 9 |
| 11.01 | Traffic signals at Mitchell Rd / Harley St / Ashmore St | 4 | 4 | 4 | 4 | 5 | 3 | 4.05 | 1 |
| 12.01 | Road Narrowing and CFT on Side Roads along Coulson Street | 3 | 3 | 4 | 3 | 2 | 2 | 3.00 | 6 |

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| ID | 1 | 2 | 3 | 4 | 5 | 6 | |
|---------------|--|--|--|---|--|--|---|
| Criterion | Maximise accessibility, safety and amenity for walking and cycling | Improve accessibility to bus stops | Limit through traffic on local streets and particularly those streets used for filtering between Mitchell Road and Euston Road-McEvoy Street | Encourage through traffic to use the State Roads instead of Local Roads | Minimise turn bans and/or closures when there are other alternatives available to achieve the other objectives | Minimise traffic congestion impacts from future traffic management measures | |
| Weight | 25% | 10% | 25% | 15% | 15% | 10% | |
| Scoring Guide | 5 | Protected, separated facility and/or removes through traffic | Direct link to bus stop, separated and/ or removed through traffic | Substantial reduction in 'rat run' traffic | Substantial shift in through traffic | No turn bans at all (that re-route local traffic) | Minor increases in road congestion expected |
| | 4 | Separated facility and reduces through traffic | Direct route to bus stop, not separated and/ or reduced through traffic | Noticeable reduction in 'rat run traffic' | Noticeable shift on through traffic | Minimal turn bans / closures that re-route some local traffic | Minimal increases in congestion expected |
| | 3 | Separated facility, and/ or reduces through traffic | Direct route to bus stop, and/ or reduced through traffic | Moderate reduction in 'rat run' traffic | Moderate shift in through traffic | Some turn bans / closures that re-route some local traffic | Moderate increases in congestion expected |
| | 2 | Partly separated with minimal traffic changes | Direct route to bus stop with minimal traffic changes | Slight reduction in 'rat run traffic' | Slight shift on through traffic | Noticeable number of turn bans and/or closure that re-route a large % of local traffic | Noticeable increases in congestion expected |
| | 1 | Minor line marking and /or signage only, minimal traffic changes | Missing link to a bus stop, or minor improvement | Minimal reduction in 'rat run traffic' | Minimal shift on through traffic | A number of turn bans and/or closure that re-route a large % of local traffic | Major increases in congestion expected |
| | 0 | No relevant works | No relevant works | No reduction in 'rat run' traffic | N/A or no shift on through traffic | - | - |