

# WESTFIELD PENRITH SHOPPING CENTRE

## Planning Proposal Submission Consideration of Traffic and Transport Matters

Prepared for:  
Scentre Group

SLR Ref: 620.30315-R01  
Version No: -v5.0  
August 2022



## PREPARED BY

SLR Consulting Australia Pty Ltd  
ABN 29 001 584 612  
Level 16, 175 Eagle Street  
Brisbane QLD 4000 Australia  
(PO Box 26 Spring Hill QLD 4004)  
T: +61 7 3858 4800  
E: brisbane@slrconsulting.com www.slrconsulting.com

## BASIS OF REPORT

This report has been prepared by SLR Consulting Australia Pty Ltd (SLR) with all reasonable skill, care and diligence, and taking account of the timescale and resources allocated to it by agreement with Scentre Group (the Client). Information reported herein is based on the interpretation of data collected, which has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of the Client. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

SLR disclaims any responsibility to the Client and others in respect of any matters outside the agreed scope of the work.

## DOCUMENT CONTROL

| Reference          | Date           | Prepared                         | Checked                         | Authorised |
|--------------------|----------------|----------------------------------|---------------------------------|------------|
| 620.30315-R01-v5.0 | 24 August 2022 | Charlie Seventekin<br>Kris Stone | Kris Stone   Charlie Seventekin | Kris Stone |
| 620.30315-R01-v4.0 | 10 June 2022   | Charlie Seventekin<br>Kris Stone | Kris Stone   Charlie Seventekin | Kris Stone |
| 620.30315-R01-v3.0 | 3 June 2022    | Charlie Seventekin<br>Kris Stone | Kris Stone   Charlie Seventekin | Kris Stone |

## CONTENTS

|          |                                                   |           |
|----------|---------------------------------------------------|-----------|
| <b>1</b> | <b>INTRODUCTION .....</b>                         | <b>5</b>  |
| 1.1      | Overview .....                                    | 5         |
| 1.2      | Pre-Lodgement Meeting Record.....                 | 5         |
| 1.3      | Assumptions and Limitations.....                  | 6         |
| 1.4      | RFI Responses .....                               | 6         |
| <b>2</b> | <b>EXISTING CONDITIONS.....</b>                   | <b>8</b>  |
| 2.1      | Subject Site .....                                | 8         |
| 2.2      | Surrounding Movement Networks .....               | 10        |
| 2.2.1    | Road Network.....                                 | 10        |
| 2.2.2    | Active Transport Network .....                    | 10        |
| 2.2.3    | Public Transport .....                            | 10        |
| <b>3</b> | <b>PROPOSED DEVELOPMENT .....</b>                 | <b>12</b> |
| 3.1      | Development Overview .....                        | 12        |
| 3.2      | Potential Future Riley Street Opportunities ..... | 13        |
| 3.3      | Vehicle Access.....                               | 15        |
| 3.3.1    | General Purpose Traffic.....                      | 15        |
| 3.3.2    | Servicing Traffic .....                           | 15        |
| 3.4      | Active Travel .....                               | 16        |
| 3.5      | Public Transport.....                             | 16        |
| 3.6      | Car Parking.....                                  | 17        |
| 3.6.1    | Existing and Future Parking Supply .....          | 17        |
| 3.6.2    | Statutory DCP Parking Requirement .....           | 17        |
| 3.6.3    | Dynamic Parking Assessment .....                  | 18        |
| <b>4</b> | <b>TRAFFIC ASSESSMENT.....</b>                    | <b>19</b> |
| <b>5</b> | <b>SUMMARY AND CONCLUSIONS.....</b>               | <b>20</b> |

## CONTENTS

### DOCUMENT REFERENCES

#### TABLES

|          |                                                          |    |
|----------|----------------------------------------------------------|----|
| Table 1  | RFI's and Report References .....                        | 6  |
| Table 2  | Key Roads .....                                          | 10 |
| Table 3  | Bus Services.....                                        | 10 |
| Table 4  | Penrith Station Train Services .....                     | 11 |
| Table 5  | Proposed Planning Redevelopment Land Use and Yield ..... | 12 |
| Table 6  | Proposed Planning Redevelopment Land Use and Yield ..... | 15 |
| Table 7  | Proposed Planning Redevelopment Land Use and Yield ..... | 16 |
| Table 8  | Proposed Planning Redevelopment Land Use and Yield ..... | 16 |
| Table 9  | DCP Stipulated Parking Assessment.....                   | 17 |
| Table 10 | DCP Stipulated Parking Assessment.....                   | 17 |
| Table 11 | Temporal Variations in Component Parking Demand .....    | 18 |
| Table 12 | Dynamic Parking Assessment (Saturday) .....              | 18 |
| Table 13 | Proposed Planning Redevelopment Land Use and Yield ..... | 20 |

#### FIGURES

|          |                                                  |    |
|----------|--------------------------------------------------|----|
| Figure 1 | Site Location: Local Context .....               | 8  |
| Figure 2 | Site Location: Greater Penrith CBD Context ..... | 9  |
| Figure 3 | Site Context: Public Transport.....              | 11 |
| Figure 4 | Planning Proposal Redevelopment Overview .....   | 12 |
| Figure 5 | Riley Street Traffic Demand (2019 Survey) .....  | 14 |

#### APPENDICES

|            |                                                 |
|------------|-------------------------------------------------|
| Appendix A | Council RFI – February 2022                     |
| Appendix B | Planning Proposal Development Yield Schedule    |
| Appendix C | AIMSUN Modelling Report – May 2022 (Bitzios)    |
| Appendix D | Road Network Analysis Summary – June 2022 (SLR) |



# 1 Introduction

## 1.1 Overview

SLR Consulting Australia Pty Ltd (SLR) has been commissioned by Scentre Group Pty Ltd (Scentre Group) to undertake a traffic and transport assessment of the proposed Westfield Penrith redevelopment Planning Proposal.

This report documents the technical consideration and analysis findings for the key traffic and transport aspects of the Planning Proposal including the development and evaluation of an AIMSUN microsimulation model. The modelling was developed to inform an assessment of the surrounding road network performance and possible external impacts that may be attributable to the proposed redevelopment. The assessment also considers the following traffic and transport matters:

- Vehicular site access;
- Car parking;
- Public transport;
- Active transport facilities;
- Development servicing;
- Riley Street form and function.

This traffic assessment (R01 - version 3.0 dated 26 May 2022) supersedes the earlier version 1.0 (14 May 2021) and version 2.1 (19 November 2021) that were submitted in association with the Planning Proposal application.

The amended assessment has been prepared in response to a Penrith City Council (Council) Request for Information. The assessment has been expanded to address the traffic and transport related Council RFI items. Section 1.4 reproduced the RFI items and also includes references to the response material incorporated herein.

## 1.2 Pre-Lodgement Meeting Record

As a part of initial discussions between the wider project team and Penrith City Council (Council), a pre-lodgement meeting was held virtually on 21 October 2020 to discuss, at a high level, the design intent of the planning proposal submission and identified any key issues that should be addressed as a part of future technical assessments. Council officers noted the Planning Proposal should consider the following:

- Parking considerations for the proposed uses;
- Changes to access arrangement (pedestrian and vehicle networks);
- Consideration of surrounding public transport connections;
- Hotel vehicle management strategy;
- Riley Street proposal;
- Provision for taxi and bus areas on Riley Street;
- Potential intensifications of existing loading dock on Jane Street; and
- Assessment of traffic impacts using Council's Penrith City Centre AIMSUN model.

## 1.3 Assumptions and Limitations

This report assumes that the base AIMSUN modelling files received from Council have been prepared in accordance with industry best-practice and that they are accurate, reliable, and fit-for-purpose.

## 1.4 RFI Responses

Table 1 summarises the traffic and transport related Information Request (IR) items raised by Council in their correspondence dated 14 February 2022 regarding the Planning Proposal. This RFI expands upon the items noted in the first RFI that were responded to in November 2021.

A copy of the latest Council IR is attached at **Appendix A**.

**Table 1 RFI's and Report References**

| Council IR Item / Action Required           |                                                                                                                                                                                                                                                                                                                                                                                     | SLR Response to RFI Reference                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b><u>Riley Street</u></b>                  |                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                    |
| Street Character                            | <p><i>Please update the Planning Proposal and Section 3.2 of the Traffic Study to remove reference to shared zone as originally proposed and reflect the design principles and standards for Riley Street Council provided in the RFI.</i></p> <p><i>Please do not amend the design of Riley Street and other urban domain upgrades until further discussions with Council.</i></p> | <p>The Shared Zone content previously reported has been removed on the basis of Council's RFI position.</p> <p>It is understood that the form and traffic arrangements of Riley Street will be discussed and resolved subsequent to the Planning Proposal being approved.</p> <p>The form of Reilly Street is not critical to the traffic modelling results summarised herein.</p> |
| <b><u>Traffic and Access</u></b>            |                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                    |
| AIMSUN background traffic growth assumption | <p><i>As instructed in the original RFI, the annual growth rate must be amended to 2%. The Planning Proposal is unable to progress until this rate is amended.</i></p>                                                                                                                                                                                                              | <p>The AIMSUN traffic models prepared by Bitzios Consulting have been revised and now adopt the Council specified 2% linear growth rate.</p> <p><b>Appendix C</b></p>                                                                                                                                                                                                              |
| AIMSUN and SIDRA operational results        | <p><i>As instructed in the original RFI, the annual growth rate must be amended to 2%. The Planning Proposal is unable to progress until this rate is amended.</i></p>                                                                                                                                                                                                              | <p>The AIMSUN and SIDRA operational assessment has been revised by Bitzios Consulting and SLR Consulting on the basis of the revised 2% annual growth assumption.</p> <p><b>Appendix C (AIMSUN)</b><br/><b>Appendix D, (SIDRA)</b></p>                                                                                                                                             |
| Loading Dock 4 access                       | <p><i>No further action is required.</i></p>                                                                                                                                                                                                                                                                                                                                        | <p>Noted. It is understood that this item has been resolved.</p>                                                                                                                                                                                                                                                                                                                   |
| Traffic generation period                   | <p><i>Change the anticipated trip generation to peak hour volumes (1-hour periods) in Section 5 of Appendix C</i></p>                                                                                                                                                                                                                                                               | <p>It's unclear what this comment is referring to as all traffic generation values are reported in one-hour periods throughout the Bitzios and SLR reports.</p> <p><b>Appendix C, Table 4.2 and 4.3 (Bitzios)</b><br/><b>Appendix D, Table 1, Table 2, Table 4 and Table 5</b></p>                                                                                                 |

| Council IR Item / Action Required          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | SLR Response to RFI Reference                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AIMSUN and SIDRA intersection arrangements | <p>Section 3.1.3 of Appendix D indicates that traffic signal timing and phasing information for the recently upgraded intersections (i.e. Castlereagh Road / Jane Street and Mulgoa Road / Great Western Highway / High Street) have been assumed only due to lack of information. TCS plans and SCATS signal timing data should now be available for these two intersections since construction has now been completed.</p> <p>In addition, the assumed intersection layouts presented in Figure 2 of Appendix D do not accurately represent the recently constructed layout of the two intersections. The following inconsistencies have been identified:</p> | <p>The AIMSUN and SIDRA models have been revised in line with the recently constructed intersection layouts, and phasing information received from TfNSW.</p> <ul style="list-style-type: none"> <li>• Mulgoa Rd/Great Western Hwy/High St</li> <li>• Castlereagh St/Jane St</li> <li>• Parker St/Derby St.</li> </ul> <p><b>Appendix C, Section 2.1 (Bitzios)</b><br/><b>Appendix D (SLR)</b></p>                                                                                                                                                                                                                                              |
| Yield Clarification                        | <p>Please clarify the proposed development yield, whether it is in gross floor area (GFA) or (GLA).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>The previously reported yield values for commercial (office) were GFA and retail GLFA; however, some were mistakenly labelled as the GLFA and GFA.</p> <p>These errors have been corrected and the updated modelling and reporting also includes some minor yield variations that have occurred since the original analysis.</p> <p><b>Throughout this TIA and Appendix C and D.</b></p>                                                                                                                                                                                                                                                     |
| Development traffic generation rate        | <p>Please use the trip generation rates identified.</p> <ul style="list-style-type: none"> <li>• AM peak: 1.6vph per 100m<sup>2</sup> GFA</li> <li>• PM peak: 1.2vph per 100m<sup>2</sup> GFA.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <p>The Council recommended generation rates have not been adopted and are not considered directly relevant, primarily on the basis of the underlying data collection and analysis methods used by NSW RTA in summarising the 1.6 and 1.2vph/100sq.m GFA rates.</p> <p>The previously reported 1.0vph/100sq.m GFA rate has been increased with reference to the NSW RTA dataset. The following rates have been adopted with comprehensive justification documented herein.</p> <ul style="list-style-type: none"> <li>• AM peak: 1.3vph/100sq.m GFA</li> <li>• PM peak: 1.1vph/100sq.m GFA.</li> </ul> <p><b>Appendix D, Section 3.1.6.1</b></p> |

## 2 Existing Conditions

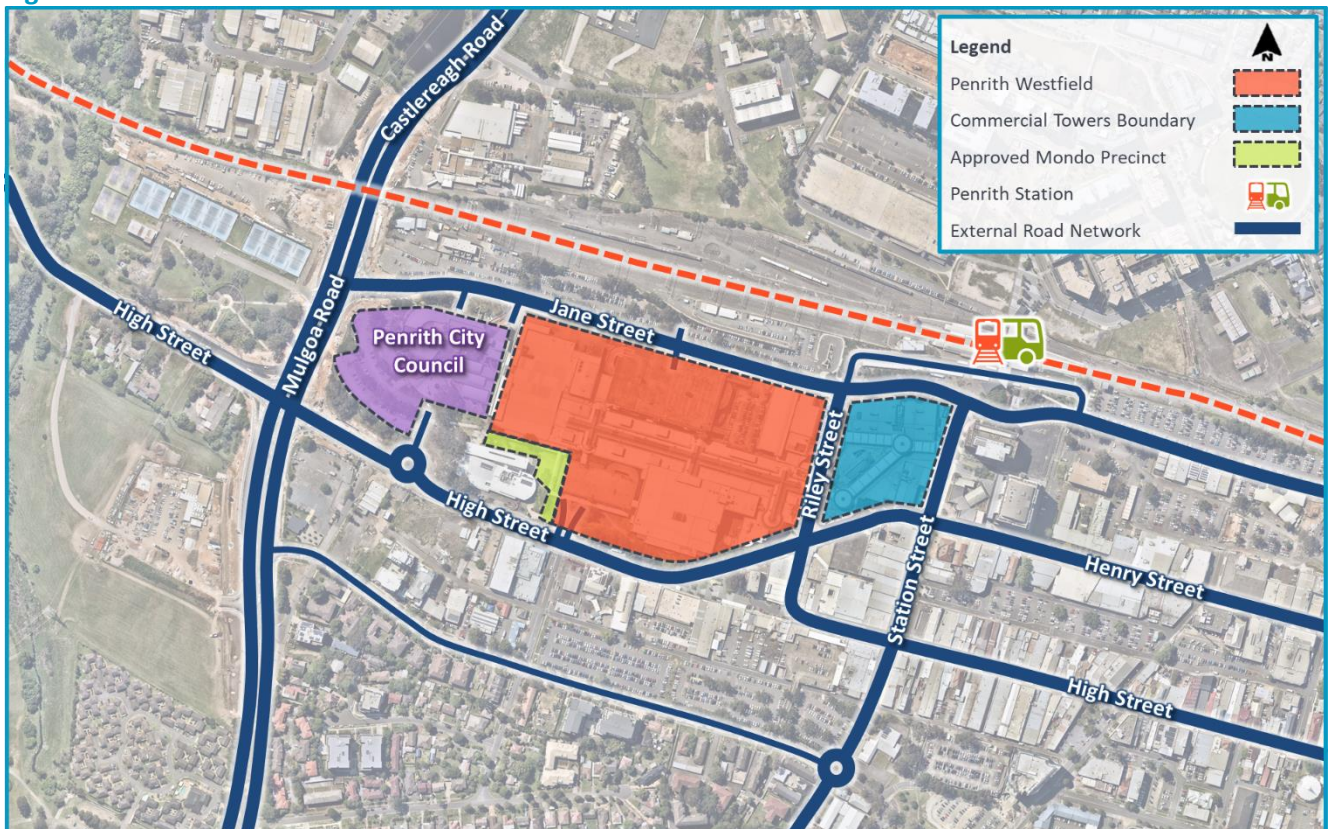
### 2.1 Subject Site

Penrith Westfield is a regional shopping centre that currently comprises approximately 90,000m<sup>2</sup> GLA. The centre incorporates a variety of major tenants including a Myer department store, Target, Big W, Aldi, Woolworths, HOYTES Cinemas, JB Hi-Fi, and Rebel Sport. Penrith Westfield also incorporates numerous specialty store offerings and kiosks and provides a car parking supply of 3,558 spaces.

For completeness, this assessment considers the yield, parking and potential road network performance inclusive of the recently approved Mondo Precinct which has not yet been developed. Following completion of the approved Mondo redevelopment, the centre parking supply will be comprised of 3,536 spaces.

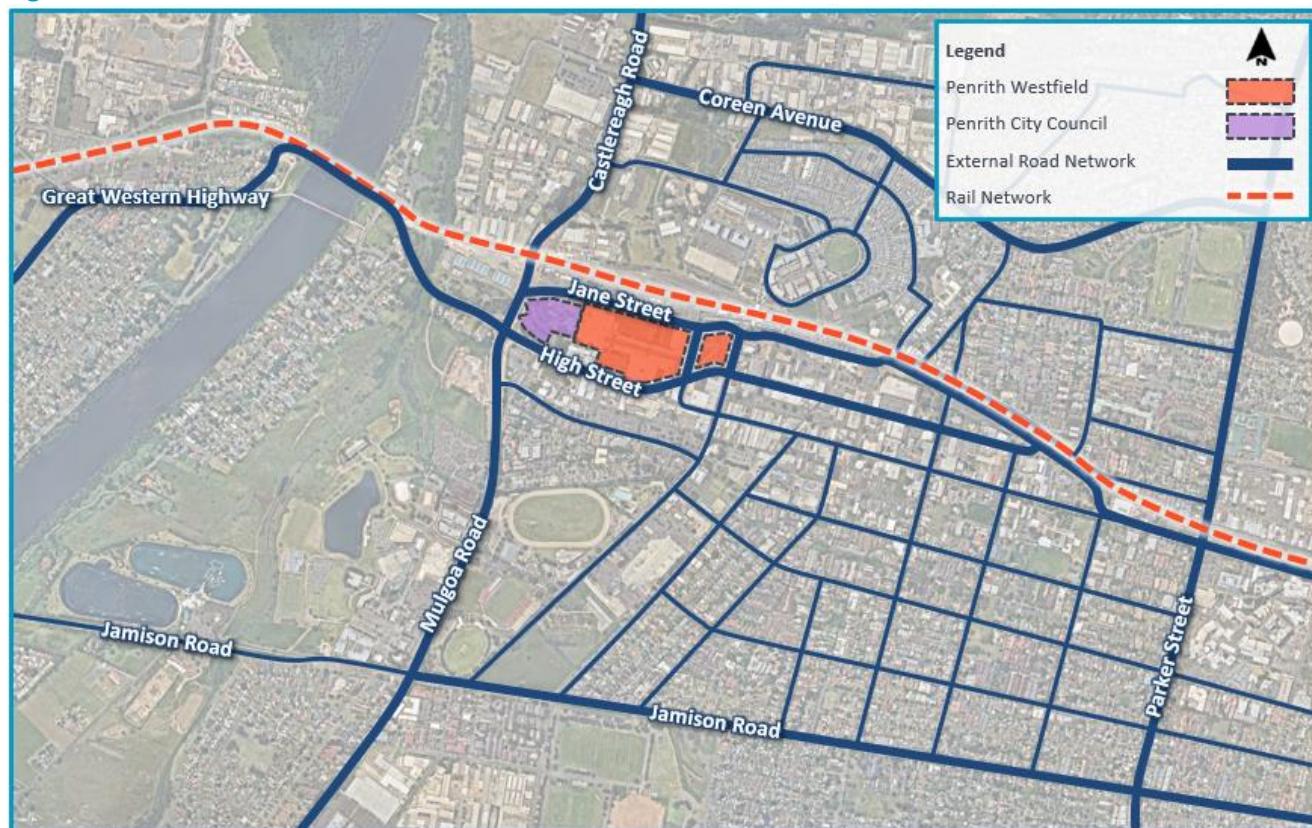
The location of the proposed redevelopment with respect to the overall Penrith Westfield site and the surrounding road network are illustrated in **Figure 1** and **Figure 2**.

**Figure 1 Site Location: Local Context**





**Figure 2 Site Location: Greater Penrith CBD Context**



## 2.2 Surrounding Movement Networks

### 2.2.1 Road Network

The typical characteristics of the key roads surrounding the subject site are provided in **Table 2**.

**Table 2 Key Roads**

| Road Name      | Authority | Classification | Existing Form                                                                                                            | Posted Speed      |
|----------------|-----------|----------------|--------------------------------------------------------------------------------------------------------------------------|-------------------|
| Mulgoa Road    | TfNSW     | State Road     | Currently undergoing major upgrade from two lane to three lane, divided, bidirectional traffic flow, no kerbside parking | 60km/hr           |
| Jane Street    | TfNSW     | State Road     | Two lane, undivided along site frontage, bidirectional traffic flow, no kerbside parking                                 | 50km/hr           |
| High Street    | Council   | Local Road     | Two lane, undivided, bidirectional traffic flow, no kerbside parking along site frontage                                 | Typically 50km/hr |
| Riley Street   | Council   | Local Road     | Single lane, directional traffic flow, some 5min kerbside parking, loading bays, bus stop and taxi bay                   | 40km/hr           |
| Station Street | Council   | Local Road     | Two lane, undivided, bidirectional traffic flow, no kerbside parking along site frontage                                 | 40–50km/hr        |

### 2.2.2 Active Transport Network

An indicator of the level of pedestrian amenity surrounding a site can be derived using Walk Score ([walkscore.com.au](http://walkscore.com.au)), an online calculator which assesses a location's walkability, cycle and transit (public transport) accessibility based on how easily it is to reach every day services and convinces without relying on a car.

The online tool indicates that 585 High Street (Penrith Westfield) has a walk score of 72 out of 100, otherwise defined as “very walkable” and suggesting that “most errands can be accomplished on foot”. The roads fronting the subject site (Mulgoa Road, Jane Street, High Street, Riley Street and Station Street) all have pedestrian footpaths on both side and provide direct pedestrian access through the CBD and the development site. Mulgoa Road, Jane Street and High Street all also have shared paths along the site's frontage.

### 2.2.3 Public Transport

Walk Score also provides a public transport score which indicates a site's accessibility to public transport. The online tool reports that 585 High Street (Penrith Westfield) has a transit score of 68 out of 100, otherwise defined as “good transit and suggesting that there are “many nearby public transport options.”

A summary of the bus services accessible to the development is provided in **Table 3**. It should be noted that there are approximately 45 bus services (including 2 coach services) depart from Penrith Station. In order to keep this report concise, only those which also depart from Riley Street Bus Stop have been included.

**Table 3 Bus Services**

| Bus Stop     | Walk Distance | Bus Services | Peak Service Frequency |
|--------------|---------------|--------------|------------------------|
| Riley Street | 0m            | 688          | 30mins – 60mins        |
|              |               | 689          |                        |
|              |               | 691          |                        |

| Bus Stop        | Walk Distance | Bus Services | Peak Service Frequency |
|-----------------|---------------|--------------|------------------------|
|                 |               | 690P         | School Route           |
|                 |               | 8102         |                        |
|                 |               | 8122         |                        |
|                 |               | 8534         |                        |
| Penrith Station | 300m          | 688          | 30mins – 60mins        |
|                 |               | 689          |                        |
|                 |               | 691          |                        |
|                 |               | 690P         |                        |

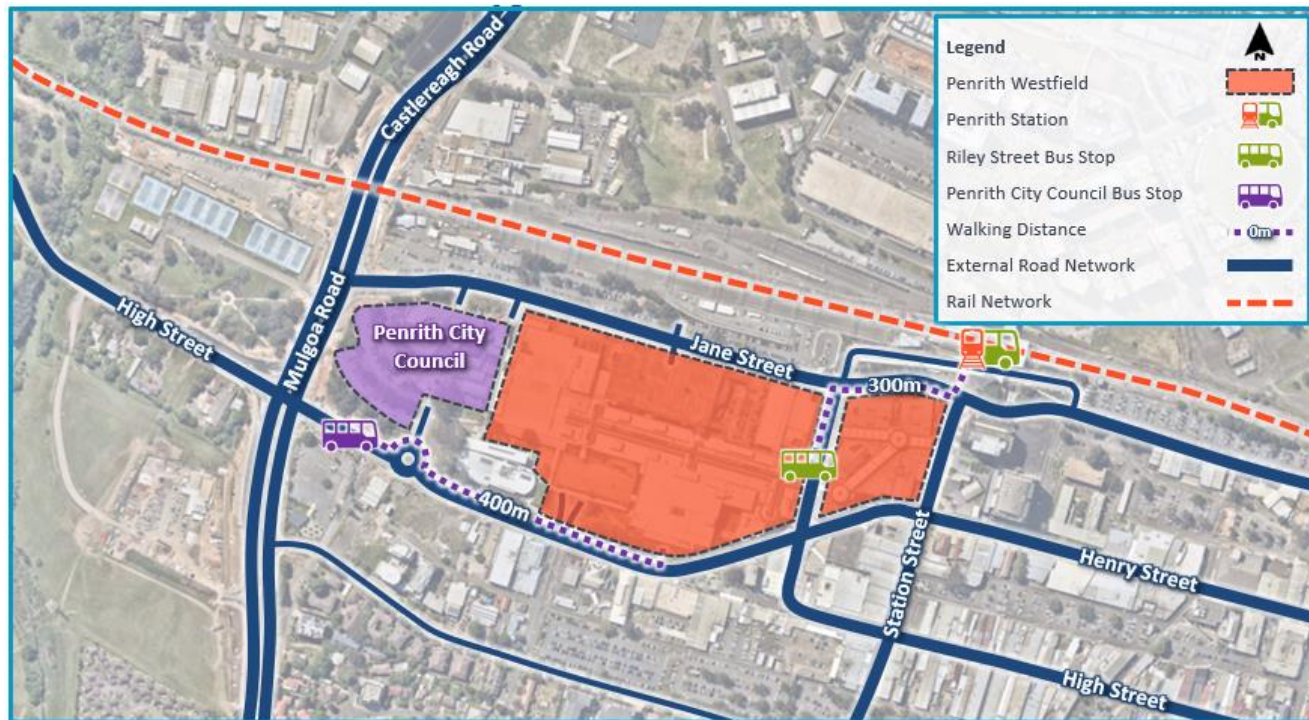
A summary off the train services accessible to the development via Penrith Train Station (5mins by foot to the north) is provided in **Table 4**.

**Table 4 Penrith Station Train Services**

| Train Service                       | Peak Service Frequency |
|-------------------------------------|------------------------|
| T1 (Emu Plains or Richmond to City) | 15mins                 |
| BMT (Blue Mountains Line)           | 15mins                 |

**Figure 3** presents the subject site within the context of surrounding existing public transport.

**Figure 3 Site Context: Public Transport**





## 3 Proposed Development

### 3.1 Development Overview

The Westfield Penrith Planning Proposal redevelopment is comprised of two medium-high-rise buildings constructed over the existing double-storey retail structure bound by Riley Street, High Street, Station St and Jane St. The additional levels are comprised of the following elements:

- Additional retail tenancies;
- Additional commercial tenancies; and
- A new hotel.

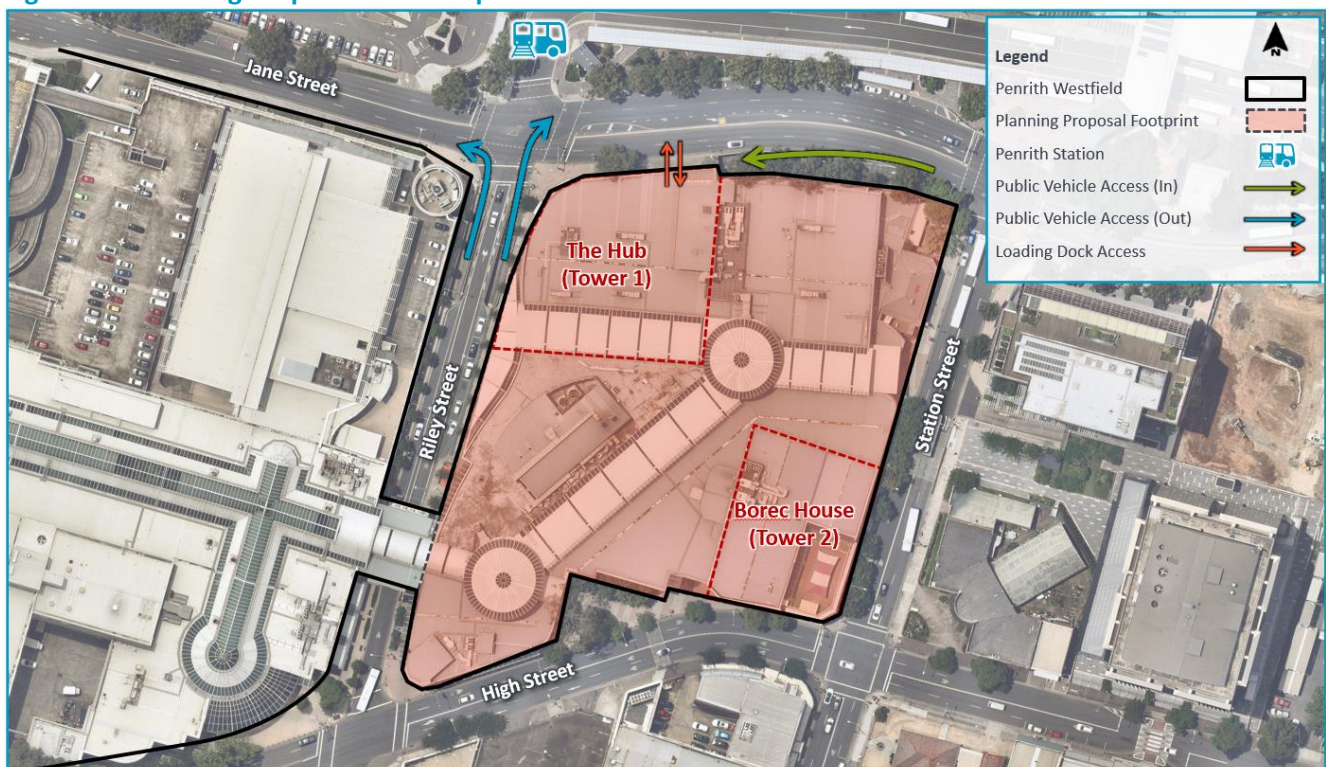
**Table 5** and **Figure 3** summarises the proposed incremental development location and yield for each of the component land uses that form part of the Proposal.

**Table 5 Proposed Planning Redevelopment Land Use and Yield**

| Planning Proposal Development Land Use | Net Yield Change (m <sup>2</sup> ) |                           |                                 |
|----------------------------------------|------------------------------------|---------------------------|---------------------------------|
|                                        | Borec House (Tower 1)              | The Hub (Tower 2)         | Total                           |
| Retail                                 | +1,500m <sup>2</sup> GLFA          |                           | <b>+1,500m<sup>2</sup> GLFA</b> |
| Commercial                             | +10,950m <sup>2</sup> GFA          | +10,870m <sup>2</sup> GFA | <b>+21,820m<sup>2</sup> GFA</b> |
| Hotel                                  | -                                  | +152 Rooms                | <b>+152 Rooms</b>               |

*Yields and room numbers are indicative only and are subject to change following further detailed design as the planning proposal and subsequent applications progress.*

**Figure 4 Planning Proposal Redevelopment Overview**





### 3.2 Potential Future Riley Street Opportunities

It is Scentre Groups vision for Riley Street to be an activated, connected pedestrianised plaza that continues to support the role and function of Penrith CBD, whilst also delivering green community space for meeting and dwelling. Regardless of the approach, a suitable technical outcome is considered likely and the benefits very likely to outweigh any negative impacts. Technical consultation with TfNSW and Council is recommended to resolve which approach should be progressed.

The reconfiguration of Riley Street to incorporate improved pedestrian priority and place making principles was explored as part of the Planning Proposal.

Council officers have outlined the following design principles and standards that they believe should be applicable:

- Maintain a road carriageway with a bitumen surface for the trafficable portion to distinguish between vehicular movements and pedestrians.
- A speed limit of 40km/h is to be maintained however there is a view to reducing this to 30km/h in the future in line with TfNSW directions.
- Maintain bus services, taxi services, and emergency services parking.
- Maintain on-street parking wherever practical – consolidation, review of lengths of zones can be considered.
- The proposed porte-cochere and/or valet facility is required to be undertaken within the private land, not within public (council owned/managed) land.
- The existing on-street public parking spaces along Riley Street are a community facility and not allocated to a private landowner (Westfield Penrith Shopping Centre).
- Pedestrian elements and public domain embellishments that improve the amenity and place function of Riley Street can be built.

It is noted that the future of Riley Street is subject to ongoing investigations and discussions with Council which may result in further refinement and revision of the above key principles and standards; the objective being to deliver a positive outcome for Council, the community and the Proponent. These standards are noted by Council as a basis for discussions around the configuration of Riley Street and the other public domain upgrades and improvements that may be incorporated into a VPA.

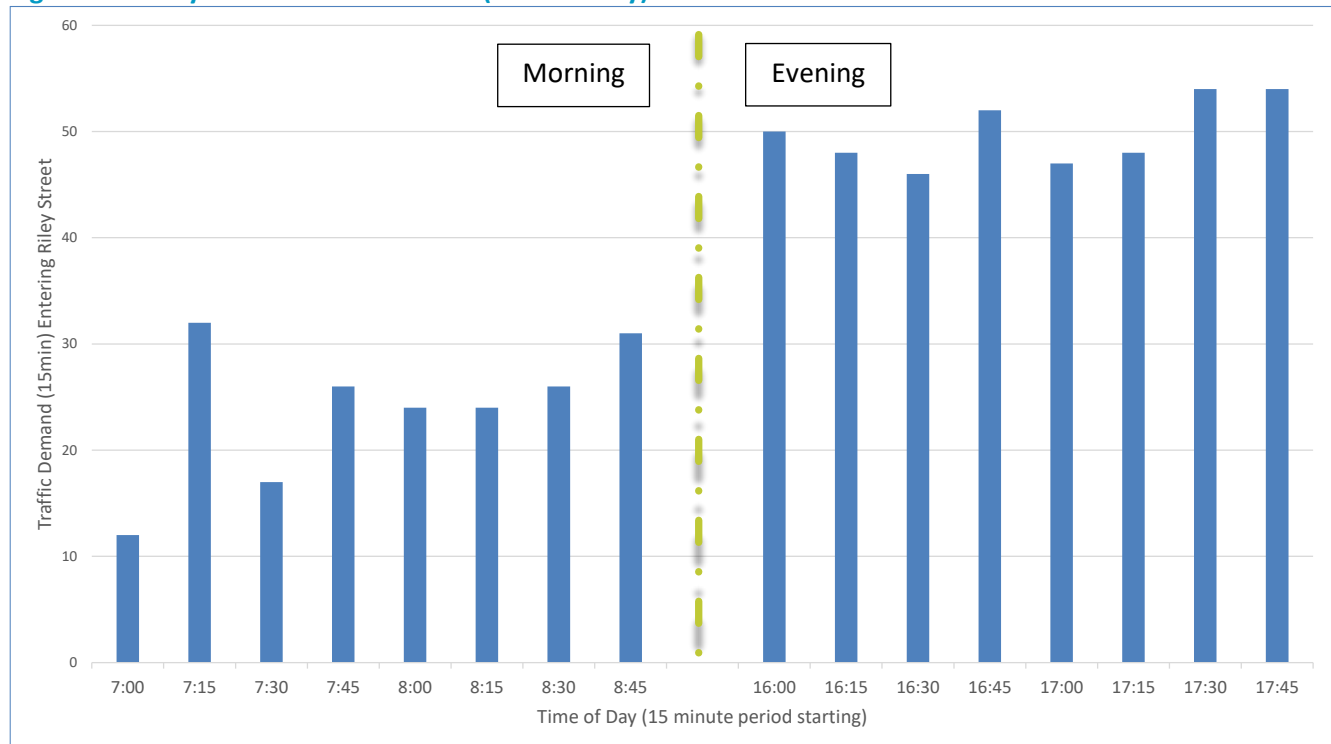
It is agreed that the reduced speed limit is reasonable as a practicable initial phase design change that should be implemented regardless of the Planning Proposal being approved. SLR is however of the opinion that some reprioritisation of the existing Riley Street kerbside parking allocation is justified in response to a) the actual needs of buses, b) the need to improve pedestrian priority, and c) the desirable provision of public 'on-road' car parking that is sign-posted for short duration passenger pick-up/set-down.

Whilst it isn't a core requirement for the success and/or viability of the traffic modelling outcomes, the prioritisation of pedestrians in what is already a low speed, low traffic demand, high pedestrian demand locale is considered to have significant merit.

Based on the October 2020 pre-lodgement meeting, it is understood that the principle of reducing vehicular traffic travelling through Riley Street was supported in principle, subject to detailed design and resolution of public transport services that currently utilise this road segment.

**Figure 5** summarises the results of traffic surveys undertaken by Council in 2019 that observed traffic movements entering Riley Street from High Street.

**Figure 5 Riley Street Traffic Demand (2019 Survey)**



The **Figure 5** data illustrates the following maximum hourly traffic flows:

- 105vph in the morning peak hour (8:00-9:00am);
- 203vph in the evening peak hour (5:00-6:00pm).

These demands are sufficiently low that improved pedestrian priority could be accommodated without significant impact to network traffic capacity and would be consistent with industry guidance. Furthermore, it is likely that some proportion of these existing traffic movements would divert via other routes following the implementation of further reduced posted speed limits.

As presented later herein, there are a number of bus services that currently have scheduled stops in Riley Street (Stop ID 2750235). These services are relatively infrequent (~40 per day) and all but the school services also stop at the nearby Penrith Train Station.

There are a number of options that could be explored regarding buses if Riley Street was reconfigured to a more pedestrian orientated arrangement, including:

1. Retention of bus services in Riley Street;
2. Relocation of bus services and stops to another location, i.e. consolidation of stops that already service the Penrith Train Station.

Plans prepared by Scott Carver (7.0 Public Domain – Proposed Amenity Opportunities) indicate modifications to the existing parking and set-down provisions along Riley Street. The existing and future proposed kerbside parking and set-down situation are compared at **Table 6**.

**Table 6 Proposed Planning Redevelopment Land Use and Yield**

| Parking and/or Set-down Facility                               | Existing Situation   | Proposed Situation   |
|----------------------------------------------------------------|----------------------|----------------------|
| Short-term (5 minute), public-use car parking                  | 5 spaces             | ~36m (6 spaces)      |
| Bus zone                                                       | ~30m kerbside length | ~36m facility length |
| Emergency Services, Disabled set-down, and Australia Post zone | ~23m kerbside length |                      |

The modifications as drawn would slightly improve the available parking and set-down supply; however, the concept accordingly provides increased public (non-motorised) space that should improve pedestrian safety and amenity.

The exact design arrangement will be refined based on discussion with Council as part of future development applications.

### 3.3 Vehicle Access

The Planning Proposal does not propose any changes to the location and form of existing Penrith Westfield vehicular site accesses. The redevelopment would be accommodated via the existing vehicular access located on High Street, Jane Street and Riley Street (exit only).

#### 3.3.1 General Purpose Traffic

Site visitors and patrons may continue to access/egress the site as they do at present. Motorists accessing the basement parking supply underneath the Planning Proposal area may do so from any site access, but are more likely to utilise the most proximate Jane Street access and Riley Street egress.

A passenger pick-up/set-down facility for hotel guests should be explored as the Proposal is progressed. Such a facility would enable a more legible arrival experience for users unfamiliar with the site and would additionally reduce the number of vehicles unnecessarily accessing the basement carpark for check-in and check-out. The facility could be located in Riley Street subject to the resolution of the urban and road design discussed in Section 3.2.

#### 3.3.2 Servicing Traffic

On-site development servicing for the existing Westfield Penrith is proposed to be improved in association with the Planning Proposal. Plans of development indicate that servicing of the redevelopment component will be facilitated via:

- An upgraded service area and loading dock accessible at ground level via Jane Street (current Loading Dock 4). Preliminary swept path assessments indicate this facility could accommodate 4-5 large (MRV and HRV) design vehicles concurrently; and
- A new service area within the redevelopment basement suitable for smaller vehicles.

On-street servicing for appropriately sized vehicles in Riley Street should be explored as the Proposal is progressed. Such a facility may also accommodate passenger pick-up and set-down movements made by taxis and ride-share (Section 3.2 and 3.3.1).

Whilst the Planning Proposal hasn't investigated operational aspects, it would be reasonable that any future development application or subsequent conditions would investigate or require a site loading and refuse collection management plan to reduce and avoid impacts on the surrounding build-form and transport network.

### 3.4 Active Travel

The Planning Proposal presents a significant opportunity to improve and support sustainable travel choice behaviours and assist in delivering the key strategic transport goals and objectives outlined in the *Future Transport Strategy 2056*, Transport for NSW, March 2018.

The Council DCP specifies that development "should comply with the suggested bicycle parking provision rates for different land use types in the document 'Planning Guidelines for Walking and Cycling', NSW Government, 2004. **Table 7** summarises the NSW Government rates and also outlines an estimate of the potential on-site bicycle parking supply based on SLR estimated staffing.

**Table 7 Proposed Planning Redevelopment Land Use and Yield**

| Planning Proposal Development Land Use | Net Yield Change          | Assumed Employees   | NSW Government Bicycle Parking Rate (Staff) | Indicative On-site (Staff) Bicycle Parking Supply |
|----------------------------------------|---------------------------|---------------------|---------------------------------------------|---------------------------------------------------|
| Retail                                 | 1,500 m <sup>2</sup> GLFA | 100 <sup>(1)</sup>  | 3-5% of staff                               | 3-5 spaces                                        |
| Commercial                             | 21,820 m <sup>2</sup> GFA | 1039 <sup>(2)</sup> | 3-5% of staff                               | 31-52 spaces                                      |
| Hotel                                  | +161 Rooms                | -                   | 3-5% of rooms                               | 5-8 spaces                                        |

(1) Retail employees estimated using a rate of 1 staff per 15sq.m

(2) Office employees estimated using a rate of 1 staff per 21sq.m.

**Table 8** reproduces the Planning Guidelines recommended provisions for end-of-trip facilities for the two largest staff populations.

**Table 8 Proposed Planning Redevelopment Land Use and Yield**

| Staff   | Lockers                | Showers                 | Change Rooms            |
|---------|------------------------|-------------------------|-------------------------|
| 150-299 | 1 per 3 bicycle spaces | 6 (3 male and 3 female) | 2 (1 male and 1 female) |
| 300-500 | 1 per 3 bicycle spaces | 8 (4 male and 4 female) | 2 (1 male and 1 female) |

The Planning Guidelines also states that "additional shower facilities will be required at a rate of 1 female and 1 male shower for every 250 staff". It is interpreted that the "additional" refers to situations where there are more than 500 staff.

Appropriate bicycle parking and end-of-trip facilities should be confirmed and desirably provided in accordance with AS2890.3 within the development at the development application stage.

### 3.5 Public Transport

The proposed development would increase retail and employment densities close to existing public transport services. The proposed development will therefore be readily accessible by public transport as indicated In Section 2.2.3. Ongoing consultation with Council and other stakeholders is recommended to resolve how buses and bus stops could be accommodated in Riley Street in the future.



## 3.6 Car Parking

### 3.6.1 Existing and Future Parking Supply

At this stage of the Planning Proposal, detailed design of the redeveloped basement car parking has not been completed. The redevelopment parking supply is estimated as being in the order of 3,486 spaces following the anticipated loss of 50 spaces beyond the post-Mondo redevelopment scheme to accommodate various structural additions (i.e. new lifts, hotel loading, etc).

**Table 9 DCP Stipulated Parking Assessment**

| Scenario                                                | Car Parking Supply         |
|---------------------------------------------------------|----------------------------|
| Existing Centre                                         | 3,558 spaces               |
| Existing Centre + Mondo                                 | 3,536 spaces               |
| Existing Centre + Mondo + Planning Proposal Development | ~ 3,486 spaces (estimated) |

### 3.6.2 Statutory DCP Parking Requirement

The Council DCP *Transport Access and Parking* specifies an acceptable rate of parking provision for a variety of land uses and areas. The DCP does not include any graduated (reducing) parking rates which respond to the non-linear parking demand nature of very large shopping centres. **Table 10** summarises the acceptable solution parking supply that is derived in accordance with the DCP rates.

**Table 10 DCP Stipulated Parking Assessment**

| Scenario                                                | Land Use   | Yield                        | DCP Car Parking Rate                                | DCP Car Parking Supply Acceptable Solution |
|---------------------------------------------------------|------------|------------------------------|-----------------------------------------------------|--------------------------------------------|
| Existing Centre                                         | Retail     | 90,787                       | 1 space per 30m2 GFA                                | 3,026 spaces                               |
| Existing Centre + Mondo                                 | Retail     | 91,901                       | 1 space per 30m2 GFA                                | 3,063 spaces                               |
| Existing Centre + Mondo + Planning Proposal Development | Retail     | 93,401sq.m GLFA              | 1 space per 30m <sup>2</sup> GFA                    | 3,113 spaces                               |
|                                                         | Commercial | 21,820sq.m GFA               | 1 space per 166.6 m <sup>2</sup> GFA <sup>(1)</sup> | 131 spaces                                 |
|                                                         | Hotel      | 152 Rooms                    | 1 space per room                                    | 160 spaces                                 |
|                                                         |            | ~5 Managers <sup>(2)</sup>   | 1 space per manager                                 |                                            |
|                                                         |            | ~20 Employees <sup>(2)</sup> | 1 space per 6 employees                             |                                            |
|                                                         | TOTAL      |                              |                                                     | 3,404 spaces                               |

(1) The on-site component of the Office car parking total based on the DCP maximum 60%, beyond which financial contributions are sought for external (off-site) provision

(2) Hotel Manager and Employee Numbers are estimates only and are subject to change.

The post-redevelopment 3,404 parking space acceptable solution would result in an approximate 80 space surplus based on the anticipated post-redevelopment 3,486 space supply.

### 3.6.3 Dynamic Parking Assessment

A dynamic parking demand assessment considers how parking demands associated with each component land use would differ across the day and week, rather than simplistically assuming that the peak demand for each land use and/or tenancy directly coincided or overlapped.

In the case of the redevelopment, a dynamic parking approach would consider the following (**Table 11**) with respect to the temporal effects of the combined redevelopment.

**Table 11 Temporal Variations in Component Parking Demand**

| Planning Proposal Development Land Use | Low Demand Scenario   | High Demand Scenario                               |
|----------------------------------------|-----------------------|----------------------------------------------------|
| Office                                 | Weekends (all day)    | Weekdays (8am to 5pm)                              |
| Retail                                 | Weekdays (9am-3pm).   | Weekdays (3pm to 7pm) and<br>Weekends (9am to 2pm) |
| Hotel                                  | All days (9am to 5pm) | All days (5pm and 9am)                             |

**Table 12** summarises the outcomes of a simple dynamic parking assessment that was undertaken to inform an consideration of the Planning Proposal.

**Table 12 Dynamic Parking Assessment (Saturday)**

| Scenario                                                | Land Use   | Yield           | DCP Car Parking Rate                      | Temporal Proportion of Peak DCP Demand | Parking Requirement (Demand) |
|---------------------------------------------------------|------------|-----------------|-------------------------------------------|----------------------------------------|------------------------------|
| Existing Centre + Mondo + Planning Proposal Development | Retail     | 93,401sq.m GLFA | 1 space per 30m <sup>2</sup> GFA          | 100%                                   | 3,113 spaces                 |
|                                                         | Commercial | 21,820sq.m GFA  | <b>1 space per 166.6m<sup>2</sup> GFA</b> | <b>25%</b>                             | <b>33 spaces</b>             |
|                                                         | Hotel      | 152 Rooms       | 1 space per room                          | 100%                                   | 160 spaces                   |
|                                                         |            | ~5 Managers     | 1 space per manager                       |                                        |                              |
|                                                         |            | ~20 Employees   | 1 space per 6 employees                   |                                        |                              |
|                                                         | TOTAL      |                 |                                           |                                        |                              |

With consideration of the reduced temporal demand for office parking occurring on the weekend (assumed 25%), the dynamic parking demand of 3,306 spaces is approximately 180 spaces less than the anticipated post-redevelopment 3,486 space supply.

Accordingly, the post-redevelopment parking supply is considered appropriate with respect to accommodating peak demands. The scheme does not propose any significant new car parking which should also support public and active travel mode share.

## 4 Traffic Assessment

The traffic assessment was comprised of AIMSUN and SIDRA Intersection modelling completed by Bitzios and SLR respectively.

The Bitzios AIMSUN modelling is documented in *Westfield Penrith Expansion – Modelling Assessment Report* (19 May 2022), included at **Appendix C**. This modelling supersedes earlier assessments and incorporates an increased 2% linear background traffic growth rate at the direction of Council officers.

The SLR assessment material including key traffic analysis processes, inputs, assumptions, SIDRA findings and development impact conclusions are documented the *Road Network Assessment Summary* (3 June 2022) memorandum included at **Appendix D**. This modelling supersedes earlier assessments and is informed by the revised Bitzios AIMSUN model outputs.

In summary, the SLR network assessment concludes the following:

- Council's calibrated base AIMSUN model has been adopted;
- A 2036 design horizon has been evaluated using the AIMSUN model at the request of Council officers;
- No future road capacity upgrades are included in the model, although it is understood that Council's own future year modelling has been progressed but is not yet available for release or use;
- The following Planning Proposal uses and yields were assessed:
  - +21,820sq.m GFA commercial (office);
  - +1,500sq.m GLFA retail;
  - +152 room motel (short-term accommodation).
- Four evaluation methods were employed with reference to the AIMSUN and SIDRA modelling. The various evaluations conclude that the development will introduce some incremental traffic delays and impacts on the network; however, they are of a type and scale that is consistent with one years' background traffic growth.
  - The proposed development will increase traffic movements in the modelled area by 1.3-1.9%;
  - The development will increase travel times on particular road sections on certain routes. The AIMSUN modelling adopts fixed cycle and phasing timing for the Base and With Development scenarios so some optimisation of the network timings inclusive of the development traffic would be needed to mitigate these increases;
  - The development does increase critical intersection Degree of Saturation, however, it does not bring about the peak hour capacity failure of any of the modelled intersections;
  - The network-wide intersection delay impact to Base traffic as a result of development is 2.5% at the 2018 design year and reduces to 0.5% at the 2036 (AM) design horizon.
- At the appropriate point in time, likely as part of a future development application, the Bitzios and SLR traffic assessments should be reviewed to quantify such possible capacity upgrades. The determination of possible improvements and the magnitude of the development impact or contribution can only be understood pending resolution of Council's own planning and finalisation of their own future year AIMSUN modelling.

## 5 Summary and Conclusions

SLR has been engaged by Scentre Group to prepare a traffic assessment and statement in association with the Planning Proposal for the proposed redevelopment of Westfield Booragoon. Based on the technical investigations and analysis documented herein, the following is concluded:

- The proposed redevelopment site has a vehicular frontage to Jane Street (Great Western Highway), Riley Street, High Street and Station Street.
- The following incremental land uses and yields were adopted as part of the traffic assessment.

**Table 13 Proposed Planning Redevelopment Land Use and Yield**

| Planning Proposal Development Land Use | Net Yield Change (m <sup>2</sup> ) |                           |                                 |
|----------------------------------------|------------------------------------|---------------------------|---------------------------------|
|                                        | Borec House (Tower 1)              | The Hub (Tower 2)         | Total                           |
| Retail                                 | +1,500m <sup>2</sup> GLFA          |                           | <b>+1,500m<sup>2</sup> GLFA</b> |
| Commercial                             | +10,950m <sup>2</sup> GFA          | +10,870m <sup>2</sup> GFA | <b>+21,820m<sup>2</sup> GFA</b> |
| Hotel                                  | -                                  | +152 Rooms                | <b>+152 Rooms</b>               |

- The proposed redevelopment would increase retail, accommodation and employment densities close to very good public transport services and would support the NSW Government and Council sustainable travel objectives to reduce private car travel and encourage public transport use.
- The vehicular access arrangements to the broader Westfield Penrith site will remain unchanged. Vehicular access to the proposed redevelopment site may be achieved via the broader site through existing basements or via the more direct Jane Street access and Riley Street egress.
- Development servicing arrangement for the broader Westfield Penrith Site will be generally consistent with the existing situation although the servicing area and loading dock accessed via Jane Street (Loading Dock 4) is proposed to be redeveloped and upgraded in tandem with a new facility located within the basement underneath the proposed towers suitable for smaller vehicles and couriers etc.
- The proposed redevelopment car parking supply exceeds that specified by the Council DCP and is considered sufficiently high to accommodate peak temporal demands but not too high that it irresponsibly promotes private car use.
- The traffic assessment was prepared using Council's base calibrated AIMSUN model.
- A 2036 design horizon has been evaluated using the AIMSUN model at the request of Council officers
- No future road capacity upgrades are included in the model, although it is understood that Council's own future year modelling has been progressed but is not yet available for release or use;
- The AIMSUN and SIDRA analysis indicates that:
  - The development impact is relatively minor when considered in the context of the broader modelled area and is comparable to approximately one years' background growth.
  - The development does not bring about the failure of any intersections, although it does impact the critical Degrees of Saturation and will increase queueing and delays.

- The following should be considered and resolved as part of any future development application or conditions of approval:
  - The modelling should be progressed further pending receipt of Council's 2036 models which are necessary in order to establish the future network performance inclusive of planned/committed external capacity enhancements. This analysis would likely occur as part of any future development application and should determine specific development related capacity upgrades if/as warranted.
  - Resolution of the on-site and basement trafficable design including access, circulation and development servicing.
  - Resolution of the Riley Street arrangements including increased pedestrian priority and possibly relocated bus stop facilities.
  - The reasonableness of the actual post-redevelopment car and bicycle parking supply.
  - Preparation of a Green Travel Plan or similar.



# APPENDIX A

## INFORMATION REQUEST

Prepared by Penrith City Council (14 February 2022)



Our reference: InfoStore  
Contact: Brendan Murton  
Telephone: 4732 7960

14 February 2022

Mr Simon Gunasekara  
URBIS  
Angel Place, Level 8, 123 Pitt Street  
Sydney, NSW 2000

[Sent by email: [sgunasekara@urbis.com.au](mailto:sgunasekara@urbis.com.au)]

Dear Mr Gunasekara,

**Planning Proposal for land at 569-595 High Street, Penrith (Westfield Penrith) – Council response to amended proposal.**

I refer to Council's Request for Information (RFI) sent 9 August 2021 and your response received by Council on 24 November 2021, relating to the above Planning Proposal.

Our RFI outlined three key issues regarding the proposed Floor Space Ratio (FSR) and Height of Building (HoB) controls of the proposed towers, and Riley Street character, and additional issues relating to public domain and landscaping, traffic and access, and environmentally sustainable design.

Council has undertaken a review of the responses and amended Planning Proposal provided in your submission. A summary is provided below, and detailed responses are provided in Attachment 1 – Response Table.

Key Issues

Some amendments are proposed by Council to the key controls of FSR and HoB to ensure a better planning outcome and provide the design competition and assessment of any future Development Applications (DA) related to the Planning Proposal sufficient scope to ensure the buildings achieve design excellence. In addition, the design principles and standards for Riley Street provided in the RFI must be reflected in the proposal.

Additional Issues

The Traffic Study must adopt the 2% growth rate advised in the RFI for the proposal to progress to the next stage. There are also further comments on the Traffic Study that require attention. Issues regarding the design and upgrades of the public domain and landscaping surrounding the proposed towers require further attention and can be worked through with Council in future discussions.



If the amendments to FSR, HoB, Riley Street and the Traffic Study are incorporated into the Planning Proposal, we are of the view that the proposal is worthy of in principle support. This would allow discussions of the proposed urban domain upgrades, Riley Street character and any associated Voluntary Planning Agreement (VPA) to be progressed.

Should you have any questions regarding this response, please contact Brendan Murton on 4732 7960 or [Brendan.Murton@penrith.city](mailto:Brendan.Murton@penrith.city)

Yours sincerely

Brendan Murton  
**Senior Planner**

## Attachment 1 – Response Table

| Council IFR Item                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Proponent Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | PCC Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| KEY ISSUES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <u>Floor Space Ratio</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <ul style="list-style-type: none"> <li>- The Planning Proposal seeks to amend the Penrith LEP 2010 to increase the maximum floor space ratio (FSR) across the whole site, rather than in the specific locations of the proposed towers.</li> <li>- Given the broad nature of the proposed FSR increase, and the deemed unused capacity under current FSR controls, it is unclear how additional floor space will be allocated across the site through future development.</li> <li>- To ensure certainty over future development outcomes, it is considered more suitable for any additional FSR sought through this Planning Proposal to be connected to the envelope of the proposed towers and aligned with the proposed height of buildings.</li> <li>- The proposal should be adjusted to include the following:<br/><i>Towers</i> <ul style="list-style-type: none"> <li>o Proposed FSR amendment for each tower site.</li> <li>o Demonstrated relationship in the Planning Proposal and Design Report between the proposed FSR, heights and envelope for each tower, and compliance with DCP controls.</li> </ul> <i>Site</i> <ul style="list-style-type: none"> <li>o Outline existing FSR and unused capacity under current controls across the site given current consented floorspace (Note – please refer to Clause 4.5 of the Penrith LEP when calculating FSR).</li> <li>o Indicative floor space quantum for the development phases in the masterplan section of the Design Report (page 37), to outline how FSR will be allocated and managed across the site in the future, under current plans, including this Planning Proposal</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>- A revised Planning Proposal has been prepared by Urbis and includes amendments to the proposal with respect to floorspace uplift. A site-specific clause is now proposed to provide Council with greater clarity and certainty with respect to the proposed floor space uplift.</li> <li>- The current FSR across the site is 1.5:1. It is proposed to include site specific provisions for additional GFA above the current FSR control for specific portions of the site only which align with the location of the proposed height increases.</li> <li>- The proposal includes minor departures from the PDCP. These relate to the maximum floor plate size maximum building depth, distance to source of daylight / daylight access, and boundary setbacks.</li> <li>- Further, it is noted that any future detailed design will be subject to a design competition at which point these elements will need to be reviewed and refined regardless.</li> <li>- This Planning Proposal seeks to insert a new site-specific clause in the PLEP 2010 which permits additional floor space (in square metres) above the existing FSR control (1.5:1) at two specific portions only, being the Hub and Borec House areas. This is shown in the updated Proposed FSR maps.</li> <li>- The Urban Design Report demonstrates a total GFA of 23,553sqm for The Hub portion and 13,389sqm for the Borec House portion can be accommodated. Accordingly, the new site-specific clause to be inserted in the PLEP permit an additional 24,000sqm for The Hub ("Block A") and 14,000sqm for Borec House ("Block B"). The additional GFA figures are rounded numbers for clarity whilst also enabling minor degrees of flexibility for the future design competition and development application stages envisaged by the Planning Proposal.</li> <li>- This approach ensures the additional floor space permitted sits separately to the existing maximum FSR on the site and does not compromise the existing control in any way. This provides greater certainty for Council as to where additional floor space will be concentrated. It also supports future specific outcomes for both The Hub and Borec House areas so that there is no ambiguity as to what is achievable on each portion of the site in the future.</li> </ul> | <ul style="list-style-type: none"> <li>- The intent in which the proposed clause has been drafted is welcome and aligns with the primary objective stated in Council's RFI. However, on review of the clause, Council's view is that the proposed clause could restrict the design competition and DA process from achieving a high-quality design outcome.</li> <li>- The proposed clause presents a maximum gross floor area calculated through a range of design outcomes which are not compliant with the Penrith DCP 2014. It is not possible for these variations to be suitably assessed in a concept design in a Planning Proposal for inclusion in such a clause.</li> <li>- The design competition and DA provide better processes and assessment criteria for the floor space and tower form to be assessed holistically and with the appropriate level of finalised details.</li> <li>- An alternative approach is proposed that Council consider achieves a better planning outcome: <ul style="list-style-type: none"> <li>o Existing site retains FSR of 1.5:1</li> <li>o The two proposed tower sites / footprints are mapped on the FSR map with no maximum FSR. An indicative FSR map is included as Attachment 2.</li> </ul> </li> <li>- This would result in the scale, density and built form of the towers to be controlled by tower footprints on FSR map, with the application of HoB controls for tower sites, Clause 8.2 Sun access, Penrith DCP controls, and the design excellence process.</li> </ul> <p><b><u>Action Required</u></b></p> <p><b>Please amend the Planning Proposal to reflect the revised FSR control.</b></p> |
| <u>Height</u>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <ul style="list-style-type: none"> <li>- There is an inconsistency between proposed height of building controls and concept design detailed in the Design Report (see table below). This makes the suitability of the proposed height and any associated impacts difficult to assess.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <ul style="list-style-type: none"> <li>- The maximum building heights sought under this Planning Proposal have been adjusted to align closer with the maximum heights of the concept design. Accordingly, 85m is sought for The Hub site, and 45m for the Borec House site.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>- While the proposed heights greatly reduce the difference between the concept scheme and the proposed HoB from those in the original proposal, the additional height is not supported.</li> <li>- In the event of additional flexibility being needed, then the design excellence clause in PLEP 2010 allows approval of a building that is</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

| Council IFR Item                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Proponent Response                                                  | PCC Response                                                        |                                  |                    |        |                         |                |        |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------|---------------------------------------------------------------------|----------------------------------|--------------------|--------|-------------------------|----------------|--------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>- Please clarify and justify proposed height of building. Adjustments to the proposal need to be made accordingly, including updating perspectives, elevations, massing, and shadow diagrams.</p> <table border="1"> <thead> <tr> <th></th><th><b>Concept scheme max. heights<br/>(calculated from elevations)</b></th><th><b>Proposed HoB / Difference</b></th></tr> </thead> <tbody> <tr> <td><b>Borec House</b></td><td>42.15m</td><td>56m / Proposed HoB +14m</td></tr> <tr> <td><b>The Hub</b></td><td>78.85m</td><td>99m / Proposed HoB +20m</td></tr> </tbody> </table> |                                                                     | <b>Concept scheme max. heights<br/>(calculated from elevations)</b> | <b>Proposed HoB / Difference</b> | <b>Borec House</b> | 42.15m | 56m / Proposed HoB +14m | <b>The Hub</b> | 78.85m | 99m / Proposed HoB +20m | <p>- The Urban Design Report outlines a maximum building height for the concept design of RL 69.7 (42.15m) for Borec House and RL 106.1 (78.23m) for The Hub. The Planning Proposal proposes rounded figures of 45m and 85m, slightly above the concept design heights which incorporate a degree of flexibility to enable architectural expression (roof features) and additional capacity to accommodate rooftop plant, lift overruns etc.</p> <p>- Scott Carver undertook an analysis of the Hub site to confirm the height requirements based on alternative development scenarios, this is included within the amended Design Report.</p> <p>- The Urban Design Report and Planning Proposal (including amended Maps) have been updated in response to Council's comments.</p> | <p>up to 10% greater than the maximum identified on the height of buildings map (Clause 8.4, subclause 5) and Clause 4.6 provides a degree of flexibility to certain development standards for future DAs.</p> <p>- These mechanisms offer more suitable assessment processes and criteria for any flexibility to the HoB control to be assessed against the holistic design and with the appropriate level of finalised details and supporting information.</p> <p><b><u>Action Required</u></b></p> <p><b>Please amend the Planning Proposal so that the HoB map reflects the height of the concept scheme, including any necessary services and lift overruns.</b></p> |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Concept scheme max. heights<br/>(calculated from elevations)</b> | <b>Proposed HoB / Difference</b>                                    |                                  |                    |        |                         |                |        |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Borec House</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 42.15m                                                              | 56m / Proposed HoB +14m                                             |                                  |                    |        |                         |                |        |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>The Hub</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 78.85m                                                              | 99m / Proposed HoB +20m                                             |                                  |                    |        |                         |                |        |                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

#### **Riley Street – Street Character**

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>- Riley Street forms part of the City Centre gateways that facilitate south to north vehicle movement from Jane Street (Great Western Highway) into and out of the City Centre. The buses perform an important role in moving people around the Penrith City Centre with a critical bus service operating within Riley Street. Taxis and commercial vehicles also compete for the limited street space. Use of street space needs to be prioritised and allocated for public transport, general traffic, taxis, and service vehicles to manage congestion so that the city centre functions effectively and supports the city centre's economy.</p> <p>- A formal shared zone is not supported. Riley Street plays an important role in the movement of a range of vehicles in and out of the City Centre and requires elevated approvals via TfNSW and may not be supported (Council does not approve shared zones). However, pedestrian elements and public domain embellishments that improve the place function and amenity of Riley Street can be built into the proposal.</p> <p>- <i>The design of Riley Street needs to be reviewed based on the following key principles and standards:</i></p> <ul style="list-style-type: none"> <li>o <i>Maintain a road carriageway with a bitumen surface for the trafficable portion to distinguish between vehicular movements and pedestrians.</i></li> <li>o <i>A speed limit of 40km/h is to be maintained however there is a view to reducing this to 30km/h in the future in line with TfNSW directions.</i></li> <li>o <i>Maintain bus services, taxi services, and emergency services parking.</i></li> <li>o <i>Maintain on-street parking wherever practical – consolidation, review of lengths of zones can be considered.</i></li> <li>o <i>The proposed porte-cochere and/or valet facility is required to be undertaken within the private land, not within public (council owned/managed) land.</i></li> <li>o <i>The existing on-street public parking spaces along Riley Street are a community facility and not allocated to a private landowner (Westfield Penrith Shopping Centre).</i></li> <li>o <i>Pedestrian elements and public domain embellishments that improve the amenity and place function of Riley Street can be built</i></li> </ul> | <p>- Attached at Appendix B, SLR have undertaken further analysis of the best use of Riley Street noting the competing of vehicles and pedestrians.</p> <p>- The reconfiguration of Riley Street to incorporate improved pedestrian priority principles has been explored as part of the Planning Proposal. Whilst it isn't a core requirement for the success and/or viability of the traffic and transport outcomes, the prioritisation of pedestrians in what is already a low speed, low traffic demand, high pedestrian demand locale is considered to have significant merit.</p> <p>- These demands are sufficiently low that a Shared Zone could be accommodated without significant impact to network traffic capacity and would be consistent with industry guidance. Furthermore, it is likely that some proportion of these existing traffic movements would divert via other routes following the implementation of a Shared Zone arrangement.</p> <p>- The proponent would like to continue to explore this improved urban design outcome with Council via the formal VPA process or as agreed.</p> <p>- As noted, the shared zone is not considered a crucial element of the planning proposal, rather an improved urban design outcome which will go further to improving the legibility and urban design of the Penrith CBD. The proponent intends to continue working with Council regarding the incorporation of the shared zone into the VPA for the overall benefit of the Penrith CBD.</p> | <p>- The response does not address or reflect the key principles and standards outlined in Council's RFI (italicised in the first column of this row).</p> <p>- Further work and discussions are needed to evolve the design of Riley Street to align with the design principles and standards provided in the RFI.</p> <p>- The next phase of the project will use Council's design principles and standards as a basis for discussions around the configuration of the Riley Street and the other public domain upgrades and improvements around the proposed towers, that may be incorporated into a VPA.</p> <p><b><u>Action Required</u></b></p> <p><b>Please update the Planning Proposal and Section 3.2 of the Traffic Study to remove reference to shared zone as originally proposed and reflect the design principles and standards for Riley Street Council provided in the RFI.</b></p> <p><b>Please do not amend the design of Riley Street and other urban domain upgrades until further discussions with Council.</b></p> |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|



| Council IFR Item                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Proponent Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | PCC Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><i>into the proposal, whilst maintaining the key movement elements outlined above.</i></p> <ul style="list-style-type: none"> <li>○ A transport consultant should identify where Riley St sits on the Movement and Place framework when it is fully developed and comment on supportable infrastructure to that end.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| ADDITIONAL ISSUES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b><u>Tower Form and Urban Design</u></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <ul style="list-style-type: none"> <li>- Additional contextual analysis of the height capability under the LEP for surrounding sites and nearby key sites should be undertaken. This analysis would need to consider height transitions between proposed towers on the subject site. It must be demonstrated that the additional height sought, in this location, is contextually suitable and integrated into broader planning intentions for the Penrith City Centre.</li> <li>- Further consideration should be given to the design of the proposed towers that responds to planning controls and direction for the Penrith City Centre. <ul style="list-style-type: none"> <li>○ The proposed tower form and envelopes, material selection and detailing, and accessibility of the proposed buildings should demonstrate consistency with controls in Section E11 – PART A Penrith City Centre, of the Penrith DCP 2014. Where departures are proposed, justification is required.</li> <li>○ Any changes to building envelope or height will need to demonstrate compliance with Clause 8.2 Sun Access of the Penrith LEP 2010, which protects open space from overshadowing.</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>- Additional contextual analysis has been prepared within the updated Architectural Design Report.</li> <li>- The tower designs are conceptual only. Both towers will be subject to design excellence processes and detailed DA's.</li> <li>- Further, it is noted that the Design Report already acknowledges Clause 8.2 and incorporates these considerations into the design. The shadow analysis provided within the Design Report has been updated to ensure this is clear.</li> </ul>                                                                                                                                            | <ul style="list-style-type: none"> <li>- The context analysis provided sufficiently meets the requirements. The Planning Proposal could be updated to include key elements of the analysis under Part 3 – Section 3: Urban Design and Built form.</li> <li>- The updated shadow diagrams and design responses adherence to Clause 8.2 Sun access is noted.</li> </ul> <p><b><u>Action Required</u></b></p> <p><b>Please update the Planning Proposal to include key elements of the contextual height analysis.</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b><u>Site-Specific DCP</u></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <ul style="list-style-type: none"> <li>- The Planning Proposal refers to a site-specific DCP to be developed post Gateway Determination.</li> <li>- Duplication of DCP controls for the Penrith City Centre is undesirable. Therefore, in conjunction with the other points regarding adherence to DCP controls, please outline which controls are considered to be missing from the Penrith DCP 2014 that would be required in a sitespecific DCP.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <ul style="list-style-type: none"> <li>- A site specific DCP is not sought as part of this Planning Proposal. Rather, the proposal is considered to provide supportable alternate outcomes to a small number of current DCP controls which will be further developed as part of a future detailed development application.</li> <li>- A detailed assessment of the proposal has been prepared and is provided at Appendix E. It is noted that the proposal is currently a reference design and further assessment against the applicable planning controls will be undertaken as part of future design excellence processes and detailed development applications.</li> </ul> | <ul style="list-style-type: none"> <li>- The removal of the proposed site specific DCP is noted.</li> <li>- The DCP assessment provides sufficient detail at this stage of the proposal. It should be noted that the advancement of the Planning Proposal based on the current concept scheme, which includes a number of DCP variations, does not amount to Council endorsement or support of these variations.</li> <li>- Council's proposed amendments to the FSR control are consistent with this position as it ensures DCP variations are not included in the proposed floor space clause. This ensures clarity on Council's position, or deemed position, on these DCP variations in the concept scheme at this stage of the Planning Proposal.</li> <li>- As stated in the RFI response, and reiterated throughout this letter, the Planning Proposal and concept scheme is not the suitable location to assess and finalise detailed design considerations as the towers will be subject to a design competition and DA which provide better processes and criteria for assessment.</li> </ul> <p><b><u>Action Required</u></b></p> <p><b>No change to the proposal is required.</b></p> |

| Council IFR Item                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Proponent Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | PCC Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b><u>Public Domain and Landscaping</u></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <ul style="list-style-type: none"> <li>- The area is the 'gateway' to Penrith on arrival by rail, and given this status, needs to be a focus for the highest quality developments and public domain. The interface of the shopping centre with the city and the 'street life' activity along High, Henry and Station Streets needs to be strengthened.</li> <li>o Further work is required to detail the relationship of the proposal, including proposed improvements, to the surrounding public domain. - A public domain precinct plan should be provided that outlines:</li> <li>o Place-specific design principles, including demonstration of how they will be realised in the proposal.</li> <li>o Pedestrian circulation, legibility, and access to key points, including Penrith Train Station and City Park.</li> <li>o Integration of the public domain and active frontages, including awnings, outdoor dining, wayfinding, and public art.</li> <li>o Landscaping and street trees.</li> </ul> | <ul style="list-style-type: none"> <li>- The proposal for Riley Street seeks to increase the available public domain and deliver a public centric outcome in the heart of the Penrith CBD. Modifications to Riley Street will achieve a pedestrian friendly environment that provides a place for people to meet and congregate within a truly mixed use precinct both during the day and at night.</li> <li>- Public domain improvements have been made proposed along High, Henry and Station Streets. While specific elements of the public domain are still the subject of a VPA, the proposed building footprints seek to 'give back' to the streetscape through appropriate setbacks. Coupled with ground floor retail, the proposal will strengthen the 'street life' through activation once operational.</li> <li>- The updated architectural design report included at Appendix B includes a revised public domain design.</li> <li>- The design seeks to strengthen the pedestrian connectivity and create a focal core area through improved surface finishes, outdoor seating and passive recreation spaces, defined entries and public art. Further, improved ground floor activation will result in activation and a sense of place. The development of the Public Domain outcomes will be subject to ongoing discussions with Council.</li> </ul> | <ul style="list-style-type: none"> <li>- The additional justification and the updated public domain design are noted and form an initial basis of discussion. However, further discussions and associated amendments will be required to ensure the final plans represent an agreed position.</li> <li>- As outlined in the RFI and further expanded on in correspondence sent 1 November 2021 providing infrastructure contributions advice (italicized below), a sufficiently detailed concept public domain plan will need to be prepared. <ul style="list-style-type: none"> <li>o <i>As a first step, we would require that new concept plans for the proposed public domain upgrades are to be prepared and are to identify the public domain works proposed. These are not required to be at the standard of detailed engineering plans, but just concepts presenting the key information such as setbacks, sizes, locations, works proposed etc. The plans will then form the basis of considering the most appropriate option to pursue to secure delivery of these works, and would be attached to the offer provided to Council.</i></li> </ul> </li> </ul> <p><b><u>Action Required</u></b></p> <p><b>Please note the comments above but do not amend the design of urban domain upgrades and landscaping until further discussions with Council.</b></p> |
| <b><u>Environmentally Sustainable Design</u></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <ul style="list-style-type: none"> <li>- Additional detail is required in the Planning Proposal and Design Report that provide indicative details of how the proposal plans to meet the sustainability ambitions and vision proposed.</li> <li>- Clause 7.4 Sustainable Development of the Penrith LEP 2010 and controls in the Penrith DCP 2014 should be considered and referenced.</li> <li>- Specifically, initiatives and strategies to mitigate the proposals' contribution to the urban heat island effect should be considered and Council's Cooling the City Strategy referenced along with the Penrith DCP 2014.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                       | <ul style="list-style-type: none"> <li>- LCI have been engaged to prepare a Green Star Pathway Report, attached at Appendix C. The report notes that a new version of Green Star Buildings v1 was released in October 2020, and a transition period is currently in place.</li> <li>- The current PDCP 2014 requires no less than 4 stars to be compliant. It is not yet known how the DCP will read once updated. As such, the proposal has demonstrated an ability to achieve 4 stars. Opportunities exist, particularly for Borec House, for the target to be higher once the proposal progresses to a detailed design.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <ul style="list-style-type: none"> <li>- The Green Star Pathway report sufficiently meets the requirements at this stage of the Planning Proposal.</li> <li>- Guidance will be provided at the design competition and DA stage regarding the Green Star Rating.</li> </ul> <p><b><u>Action Required</u></b></p> <p><b>No change to the proposal is required.</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b><u>Traffic and Access</u></b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <ul style="list-style-type: none"> <li>- The Section 4.2.3 and the Table 11 indicates that an annual growth of 1.7% for the period 2018 and 2036. It also states that 'this should be confirmed at such time that Council's 2036 model is completed and available for review. Analysis indicates that the growth in PM is similar, however growth in AM is higher in the PCC model which is due to different future land use and growth assumptions. Please clarify whether the 2036 STEM model is based on LU19 growth matrix'.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p><i>Appendix D.</i></p> <ul style="list-style-type: none"> <li>- Bitzios have confirmed that the 2036 STEM model is based on the LU19 growth matrix.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p>Noted the following items from Appendix D;</p> <ol style="list-style-type: none"> <li>1. Page 4 - "...Officers instead advised that a 2036 model demand matrix should be developed using a 2% (linear) per annum growth factor applied to the 2018 matrix"</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

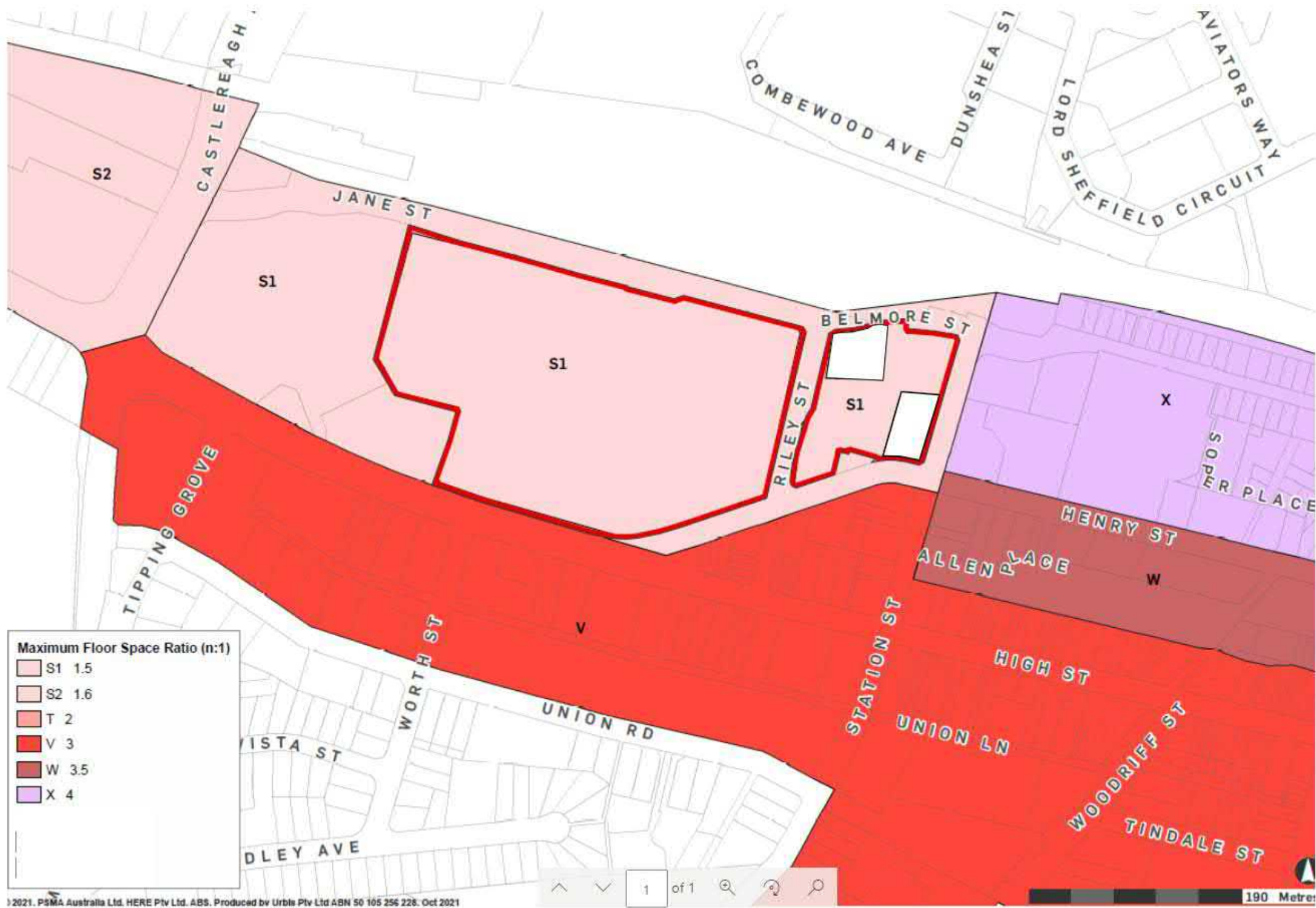
| Council IFR Item                                                                                                                                                                                                                                                 | Proponent Response                                                                                                                                                                                                                                                                                                                                                                  | PCC Response                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                     | <p>2. Page 5 – “..Strategic Traffic Forecasting Model (STFM), the 2% growth rate is not justified, and its application would overestimate the volume of traffic in the 2036 model’.</p> <p>- Proposed annual growth is based upon STFM is not supported. In accordance to the Council pre- lodgement advice the 2% growth rate should be applied. The growth rate of 2% has been applied to all developments within the Penrith City Centre. This growth assessment is based on Council’s Penrith Core Centre Transport Management Study and Plan (attached an extract the section 5.2) for Future traffic growth of 2% is required by Council.</p> <p><b><u>Action Required</u></b></p> <p><b>As instructed in the original RFI, the annual growth rate must be amended to 2%. The Planning Proposal is unable to progress until this rate is amended.</b></p> |
| <p>- High Street/ Evan Street, Henry Street/ Evan and Lemongrove Road/ Coreen Avenue intersections are shown as operating at LOS ‘B’ during the PM peak period. These intersections were operating at LOS F during the PM peak period. Needs to be reviewed.</p> | <p><i>Appendix D.</i></p> <p>- Noted. The AIMSUN Level of Service results have been superseded by those derived by SLR using SIDRA Intersection.</p>                                                                                                                                                                                                                                | <p>- Until the 2% growth rate is applied, Council is unable to support the SIDRA model.</p> <p><b><u>Action Required</u></b></p> <p><b>As instructed in the original RFI, the annual growth rate must be amended to 2%. The Planning Proposal is unable to progress until this rate is amended.</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <p>- Problems of truck access to Loading Dock 4</p> <p>- Prepare pedestrian impact analysis of movement between Penrith Train Station and Westfield/Hub Tower 1 and Jane Street/ Riley Street.</p>                                                               | <p>- Outlined plans to actively manage the issues, including an update to the Loading Dock Management Plan</p> <p>- A pedestrian assessment has been prepared by SLR and concludes that any incremental increase in pedestrian movement could be readily accommodated in the verges and signalised crossings with accompanying built form solutions typical of CBD environments</p> | <p>- Noted</p> <p>- Noted</p> <p><b><u>Action Required</u></b></p> <p><b>No further action is required.</b></p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

| Council IFR Item                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Proponent Response | PCC Response      |           |            |                   |                                      |                            |              |                                    |             |                          |                               |             |           |                        |                   |             |                                |                    |              |                         |               |                    |   |             |                   |                         |               |              |                        |     |     |                        |             |             |                       |     |     |                        |     |     |                                      |      |      |                               |      |      |                        |               |               |                        |               |              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-------------------|-----------|------------|-------------------|--------------------------------------|----------------------------|--------------|------------------------------------|-------------|--------------------------|-------------------------------|-------------|-----------|------------------------|-------------------|-------------|--------------------------------|--------------------|--------------|-------------------------|---------------|--------------------|---|-------------|-------------------|-------------------------|---------------|--------------|------------------------|-----|-----|------------------------|-------------|-------------|-----------------------|-----|-----|------------------------|-----|-----|--------------------------------------|------|------|-------------------------------|------|------|------------------------|---------------|---------------|------------------------|---------------|--------------|
| <b><u>Traffic and Access</u> - Additional comments on the Traffic Study that require response</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                    |                   |           |            |                   |                                      |                            |              |                                    |             |                          |                               |             |           |                        |                   |             |                                |                    |              |                         |               |                    |   |             |                   |                         |               |              |                        |     |     |                        |             |             |                       |     |     |                        |     |     |                                      |      |      |                               |      |      |                        |               |               |                        |               |              |
| <div><div>- The anticipated additional trip generation presented in Section 5 of Appendix C should be in terms of peak hour volumes (i.e. one hour period) to be consistent with typical traffic reports, rather than 4-hour peak periods.</div><div><b>Action Required</b><br/><b>Change the anticipated trip generation to peak hour volumes (1-hour periods) in Section 5 of Appendix C.</b></div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                    |                   |           |            |                   |                                      |                            |              |                                    |             |                          |                               |             |           |                        |                   |             |                                |                    |              |                         |               |                    |   |             |                   |                         |               |              |                        |     |     |                        |             |             |                       |     |     |                        |     |     |                                      |      |      |                               |      |      |                        |               |               |                        |               |              |
| <div><div>- Section 3.1.3 of Appendix D indicates that traffic signal timing and phasing information for the recently upgraded intersections (i.e. Castlereagh Road / Jane Street and Mulgoa Road / Great Western Highway / High Street) have been assumed only due to lack of information. TCS plans and SCATS signal timing data should now be available for these two intersections since construction has now been completed.</div><div>- In addition, the assumed intersection layouts presented in Figure 2 of Appendix D do not accurately represent the recently constructed layout of the two intersections. The following inconsistencies have been identified:</div><div>1. Castlereagh Road / Jane Street<table><tr><th></th><th>SIDRA</th><th>Post Construction</th></tr><tr><td>North approach kerbside through lane</td><td>210m short lane</td><td>Full length</td></tr><tr><td>North approach median through lane</td><td>Full length</td><td>210m short lane</td></tr><tr><td>North departure kerbside lane</td><td>175m</td><td>145m</td></tr><tr><td>East approach LT lanes</td><td>With 15m bus lane</td><td>No bus lane</td></tr><tr><td>East approach RT kerbside lane</td><td>60m</td><td>50m</td></tr><tr><td>South approach RT lanes</td><td>110m and 100m</td><td>90m and 80m</td></tr></table></div><div>2. Mulgoa Road / Great Western Highway / High Street<table><tr><th></th><th>SIDRA</th><th>Post Construction</th></tr><tr><td>North approach RT lanes</td><td>110m and 100m</td><td>100m and 90m</td></tr><tr><td>North approach LT lane</td><td>60m</td><td>50m</td></tr><tr><td>East approach RT lanes</td><td>75m and 50m</td><td>55m and 45m</td></tr><tr><td>East approach LT lane</td><td>20m</td><td>35m</td></tr><tr><td>South approach RT lane</td><td>75m</td><td>90m</td></tr><tr><td>South approach kerbside through lane</td><td>250m</td><td>175m</td></tr><tr><td>South departure kerbside lane</td><td>298m</td><td>210m</td></tr><tr><td>West approach RT lanes</td><td>140m and 140m</td><td>130m and 115m</td></tr><tr><td>West approach LT lanes</td><td>135m and 115m</td><td>100m and 90m</td></tr></table></div></div> |                    |                   |           | SIDRA      | Post Construction | North approach kerbside through lane | 210m short lane            | Full length  | North approach median through lane | Full length | 210m short lane          | North departure kerbside lane | 175m        | 145m      | East approach LT lanes | With 15m bus lane | No bus lane | East approach RT kerbside lane | 60m                | 50m          | South approach RT lanes | 110m and 100m | 90m and 80m        |   | SIDRA       | Post Construction | North approach RT lanes | 110m and 100m | 100m and 90m | North approach LT lane | 60m | 50m | East approach RT lanes | 75m and 50m | 55m and 45m | East approach LT lane | 20m | 35m | South approach RT lane | 75m | 90m | South approach kerbside through lane | 250m | 175m | South departure kerbside lane | 298m | 210m | West approach RT lanes | 140m and 140m | 130m and 115m | West approach LT lanes | 135m and 115m | 100m and 90m |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | SIDRA              | Post Construction |           |            |                   |                                      |                            |              |                                    |             |                          |                               |             |           |                        |                   |             |                                |                    |              |                         |               |                    |   |             |                   |                         |               |              |                        |     |     |                        |             |             |                       |     |     |                        |     |     |                                      |      |      |                               |      |      |                        |               |               |                        |               |              |
| North approach kerbside through lane                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 210m short lane    | Full length       |           |            |                   |                                      |                            |              |                                    |             |                          |                               |             |           |                        |                   |             |                                |                    |              |                         |               |                    |   |             |                   |                         |               |              |                        |     |     |                        |             |             |                       |     |     |                        |     |     |                                      |      |      |                               |      |      |                        |               |               |                        |               |              |
| North approach median through lane                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Full length        | 210m short lane   |           |            |                   |                                      |                            |              |                                    |             |                          |                               |             |           |                        |                   |             |                                |                    |              |                         |               |                    |   |             |                   |                         |               |              |                        |     |     |                        |             |             |                       |     |     |                        |     |     |                                      |      |      |                               |      |      |                        |               |               |                        |               |              |
| North departure kerbside lane                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 175m               | 145m              |           |            |                   |                                      |                            |              |                                    |             |                          |                               |             |           |                        |                   |             |                                |                    |              |                         |               |                    |   |             |                   |                         |               |              |                        |     |     |                        |             |             |                       |     |     |                        |     |     |                                      |      |      |                               |      |      |                        |               |               |                        |               |              |
| East approach LT lanes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | With 15m bus lane  | No bus lane       |           |            |                   |                                      |                            |              |                                    |             |                          |                               |             |           |                        |                   |             |                                |                    |              |                         |               |                    |   |             |                   |                         |               |              |                        |     |     |                        |             |             |                       |     |     |                        |     |     |                                      |      |      |                               |      |      |                        |               |               |                        |               |              |
| East approach RT kerbside lane                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 60m                | 50m               |           |            |                   |                                      |                            |              |                                    |             |                          |                               |             |           |                        |                   |             |                                |                    |              |                         |               |                    |   |             |                   |                         |               |              |                        |     |     |                        |             |             |                       |     |     |                        |     |     |                                      |      |      |                               |      |      |                        |               |               |                        |               |              |
| South approach RT lanes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 110m and 100m      | 90m and 80m       |           |            |                   |                                      |                            |              |                                    |             |                          |                               |             |           |                        |                   |             |                                |                    |              |                         |               |                    |   |             |                   |                         |               |              |                        |     |     |                        |             |             |                       |     |     |                        |     |     |                                      |      |      |                               |      |      |                        |               |               |                        |               |              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | SIDRA              | Post Construction |           |            |                   |                                      |                            |              |                                    |             |                          |                               |             |           |                        |                   |             |                                |                    |              |                         |               |                    |   |             |                   |                         |               |              |                        |     |     |                        |             |             |                       |     |     |                        |     |     |                                      |      |      |                               |      |      |                        |               |               |                        |               |              |
| North approach RT lanes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 110m and 100m      | 100m and 90m      |           |            |                   |                                      |                            |              |                                    |             |                          |                               |             |           |                        |                   |             |                                |                    |              |                         |               |                    |   |             |                   |                         |               |              |                        |     |     |                        |             |             |                       |     |     |                        |     |     |                                      |      |      |                               |      |      |                        |               |               |                        |               |              |
| North approach LT lane                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 60m                | 50m               |           |            |                   |                                      |                            |              |                                    |             |                          |                               |             |           |                        |                   |             |                                |                    |              |                         |               |                    |   |             |                   |                         |               |              |                        |     |     |                        |             |             |                       |     |     |                        |     |     |                                      |      |      |                               |      |      |                        |               |               |                        |               |              |
| East approach RT lanes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 75m and 50m        | 55m and 45m       |           |            |                   |                                      |                            |              |                                    |             |                          |                               |             |           |                        |                   |             |                                |                    |              |                         |               |                    |   |             |                   |                         |               |              |                        |     |     |                        |             |             |                       |     |     |                        |     |     |                                      |      |      |                               |      |      |                        |               |               |                        |               |              |
| East approach LT lane                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 20m                | 35m               |           |            |                   |                                      |                            |              |                                    |             |                          |                               |             |           |                        |                   |             |                                |                    |              |                         |               |                    |   |             |                   |                         |               |              |                        |     |     |                        |             |             |                       |     |     |                        |     |     |                                      |      |      |                               |      |      |                        |               |               |                        |               |              |
| South approach RT lane                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 75m                | 90m               |           |            |                   |                                      |                            |              |                                    |             |                          |                               |             |           |                        |                   |             |                                |                    |              |                         |               |                    |   |             |                   |                         |               |              |                        |     |     |                        |             |             |                       |     |     |                        |     |     |                                      |      |      |                               |      |      |                        |               |               |                        |               |              |
| South approach kerbside through lane                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 250m               | 175m              |           |            |                   |                                      |                            |              |                                    |             |                          |                               |             |           |                        |                   |             |                                |                    |              |                         |               |                    |   |             |                   |                         |               |              |                        |     |     |                        |             |             |                       |     |     |                        |     |     |                                      |      |      |                               |      |      |                        |               |               |                        |               |              |
| South departure kerbside lane                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 298m               | 210m              |           |            |                   |                                      |                            |              |                                    |             |                          |                               |             |           |                        |                   |             |                                |                    |              |                         |               |                    |   |             |                   |                         |               |              |                        |     |     |                        |             |             |                       |     |     |                        |     |     |                                      |      |      |                               |      |      |                        |               |               |                        |               |              |
| West approach RT lanes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 140m and 140m      | 130m and 115m     |           |            |                   |                                      |                            |              |                                    |             |                          |                               |             |           |                        |                   |             |                                |                    |              |                         |               |                    |   |             |                   |                         |               |              |                        |     |     |                        |             |             |                       |     |     |                        |     |     |                                      |      |      |                               |      |      |                        |               |               |                        |               |              |
| West approach LT lanes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 135m and 115m      | 100m and 90m      |           |            |                   |                                      |                            |              |                                    |             |                          |                               |             |           |                        |                   |             |                                |                    |              |                         |               |                    |   |             |                   |                         |               |              |                        |     |     |                        |             |             |                       |     |     |                        |     |     |                                      |      |      |                               |      |      |                        |               |               |                        |               |              |
| <div><div><b>Action Required</b><br/><b>Please clarify the proposed development yield, whether it is in gross floor area (GFA) or (GLA).</b></div><div>A comparison of the proposed additional development yield is summarised below:<table><tr><th></th><th>Commercial</th><th>Retail</th><th>Hotel</th></tr><tr><td>Main report Table 5, 7, 13</td><td>20,000m² GFA</td><td>1,500m² GFA</td><td>161 rooms</td></tr><tr><td>Main report Table 10, 12</td><td>20,000m² GLA</td><td>1,500m² GLA</td><td>161 rooms</td></tr><tr><td>Appendix D Table 2</td><td>20,000m² GLA</td><td>1,500m² GLA</td><td>161 rooms</td></tr><tr><td>Appendix D Table 3</td><td>20,000m² GFA</td><td>-</td><td>-</td></tr><tr><td>Appendix D Table 5</td><td>-</td><td>1,500m² GLA</td><td>-</td></tr></table></div></div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                    |                   |           | Commercial | Retail            | Hotel                                | Main report Table 5, 7, 13 | 20,000m² GFA | 1,500m² GFA                        | 161 rooms   | Main report Table 10, 12 | 20,000m² GLA                  | 1,500m² GLA | 161 rooms | Appendix D Table 2     | 20,000m² GLA      | 1,500m² GLA | 161 rooms                      | Appendix D Table 3 | 20,000m² GFA | -                       | -             | Appendix D Table 5 | - | 1,500m² GLA | -                 |                         |               |              |                        |     |     |                        |             |             |                       |     |     |                        |     |     |                                      |      |      |                               |      |      |                        |               |               |                        |               |              |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Commercial         | Retail            | Hotel     |            |                   |                                      |                            |              |                                    |             |                          |                               |             |           |                        |                   |             |                                |                    |              |                         |               |                    |   |             |                   |                         |               |              |                        |     |     |                        |             |             |                       |     |     |                        |     |     |                                      |      |      |                               |      |      |                        |               |               |                        |               |              |
| Main report Table 5, 7, 13                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 20,000m² GFA       | 1,500m² GFA       | 161 rooms |            |                   |                                      |                            |              |                                    |             |                          |                               |             |           |                        |                   |             |                                |                    |              |                         |               |                    |   |             |                   |                         |               |              |                        |     |     |                        |             |             |                       |     |     |                        |     |     |                                      |      |      |                               |      |      |                        |               |               |                        |               |              |
| Main report Table 10, 12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 20,000m² GLA       | 1,500m² GLA       | 161 rooms |            |                   |                                      |                            |              |                                    |             |                          |                               |             |           |                        |                   |             |                                |                    |              |                         |               |                    |   |             |                   |                         |               |              |                        |     |     |                        |             |             |                       |     |     |                        |     |     |                                      |      |      |                               |      |      |                        |               |               |                        |               |              |
| Appendix D Table 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 20,000m² GLA       | 1,500m² GLA       | 161 rooms |            |                   |                                      |                            |              |                                    |             |                          |                               |             |           |                        |                   |             |                                |                    |              |                         |               |                    |   |             |                   |                         |               |              |                        |     |     |                        |             |             |                       |     |     |                        |     |     |                                      |      |      |                               |      |      |                        |               |               |                        |               |              |
| Appendix D Table 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 20,000m² GFA       | -                 | -         |            |                   |                                      |                            |              |                                    |             |                          |                               |             |           |                        |                   |             |                                |                    |              |                         |               |                    |   |             |                   |                         |               |              |                        |     |     |                        |             |             |                       |     |     |                        |     |     |                                      |      |      |                               |      |      |                        |               |               |                        |               |              |
| Appendix D Table 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | -                  | 1,500m² GLA       | -         |            |                   |                                      |                            |              |                                    |             |                          |                               |             |           |                        |                   |             |                                |                    |              |                         |               |                    |   |             |                   |                         |               |              |                        |     |     |                        |             |             |                       |     |     |                        |     |     |                                      |      |      |                               |      |      |                        |               |               |                        |               |              |

| Council IFR Item                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Proponent Response | PCC Response |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|--------------|
| <div><div><div><div><div><div></div><div>-</div></div><div>Section 3.1.6.1 of Appendix D indicates that the trip generation rate of 1vph per 100m2 GFA used in estimating commercial trips is based on five selected sites from TfNSW ‘Trip Generation and Parking Generation Surveys (Office Blocks) Analysis Report’.</div></div><div><div><div></div><div>-</div></div><div>An analysis of the trip generation report suggests that 9 out of 10 surveyed sites are located within walking distance of a railway station, which is comparable in nature with the proposed development. As such, the following average trip generation rates presented in TfNSW trip generation report and ‘Guide to Traffic Generating Developments – updated traffic surveys’ (TD-13 04a) should be used:</div></div><div><div><div></div><div>o</div></div><div>AM peak: 1.6vph per 100m2 GFA</div></div><div><div><div></div><div>o</div></div><div>PM peak: 1.2vph per 100m2 GFA</div></div></div></div><div><div><div></div><div><b>Action Required</b></div></div><div>Please use the trip generation rates identified above.</div></div></div> |                    |              |



Attachment 2 – Floor Space Ratio Map (indicative)



# **APPENDIX B**

## **PLANNING PROPOSAL PLANS AND DEVELOPMENT YIELD SCHEDULE**

Prepared by Scott Carver

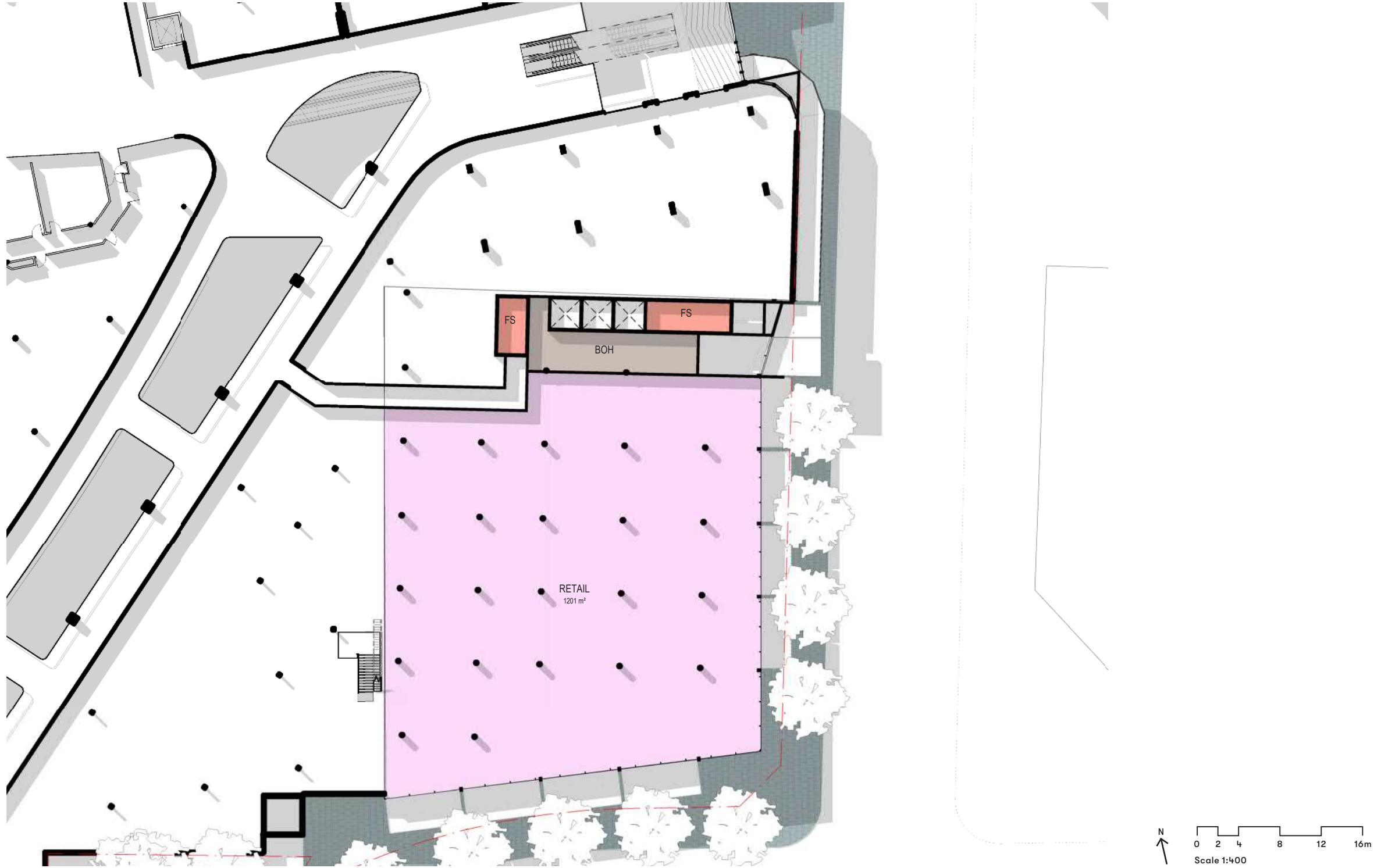
F&B and Retail

LEVEL 1



Retail

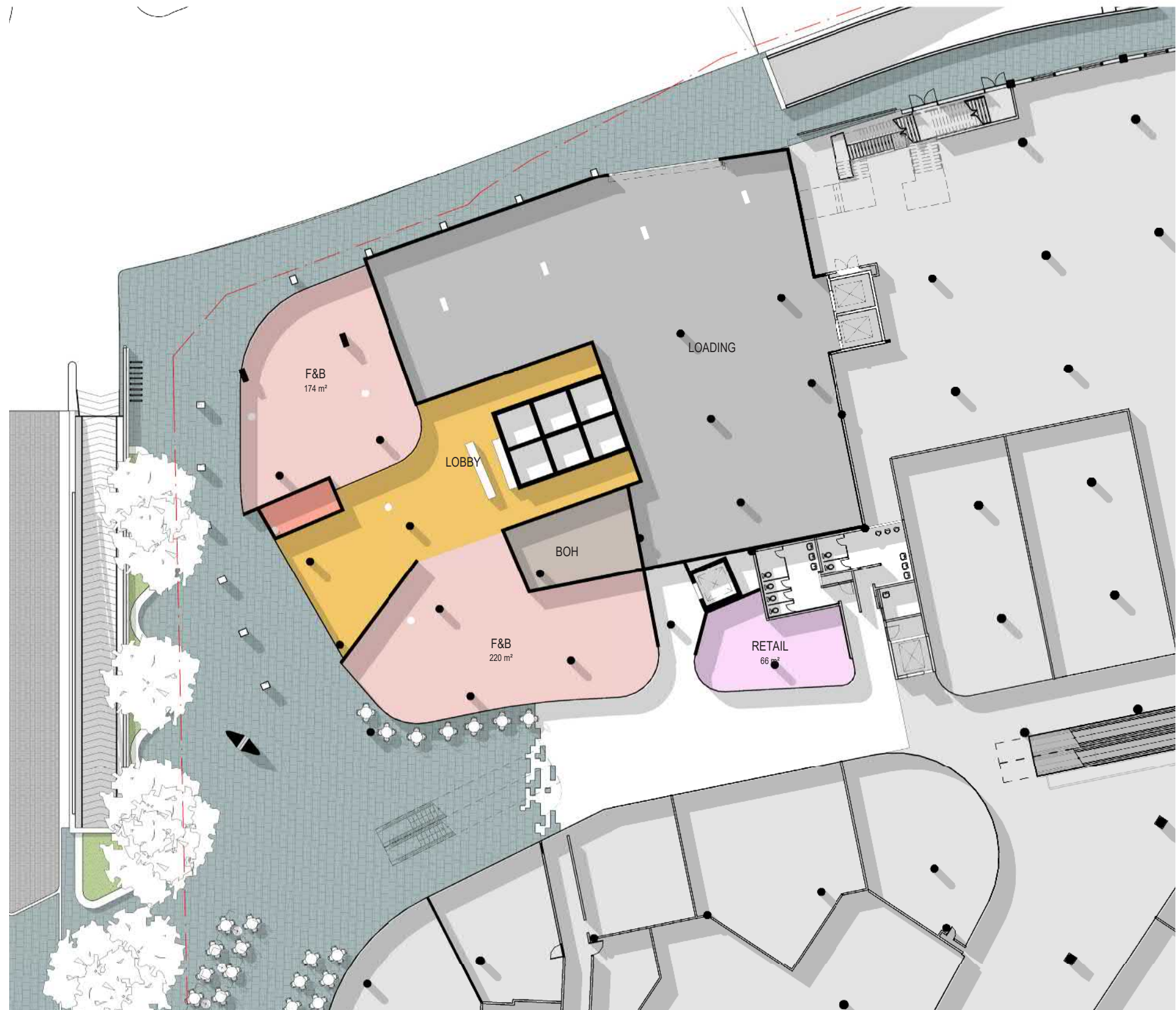
LEVEL 2





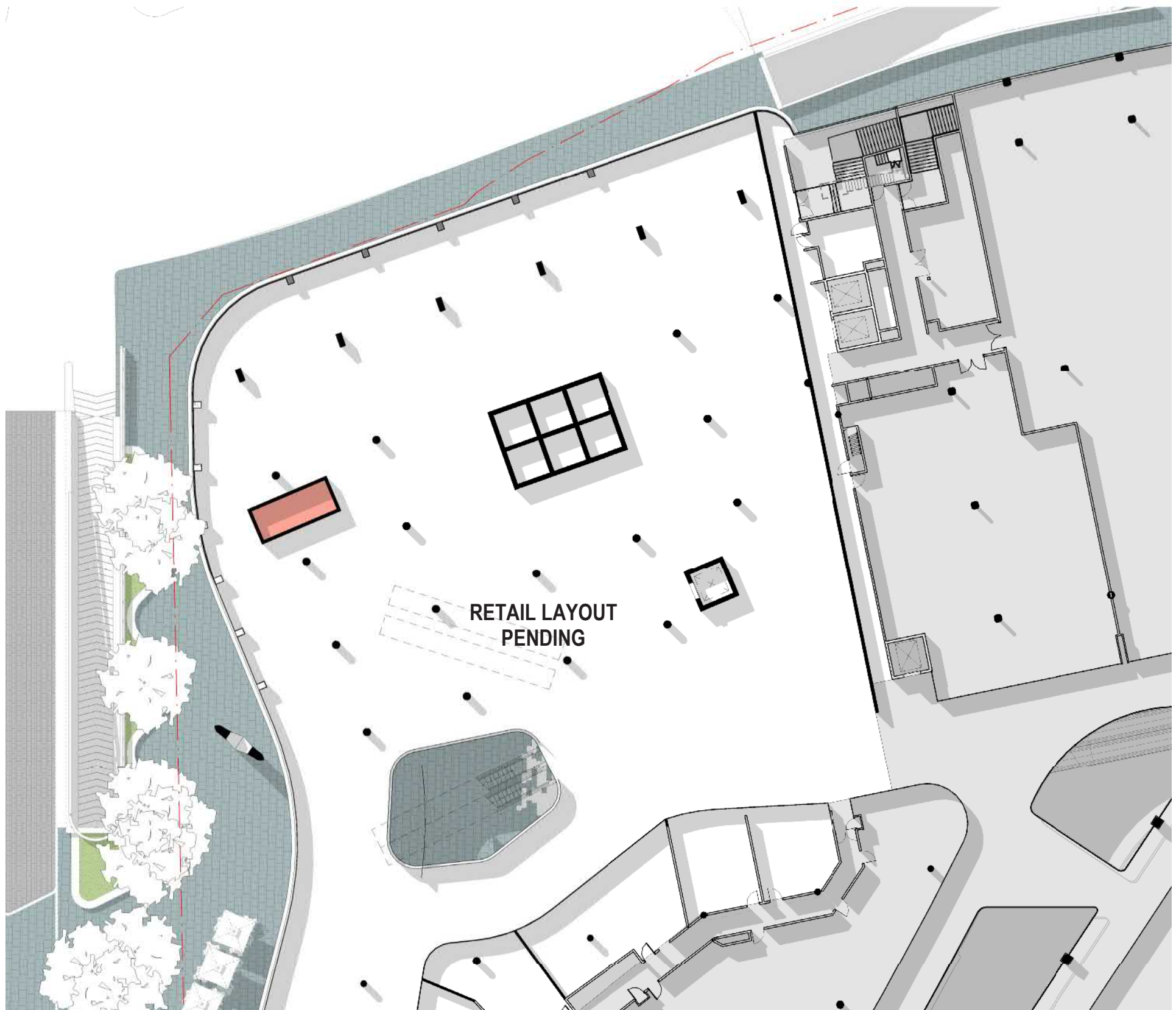
Hotel Lobby & Ground Activation

LEVEL 1



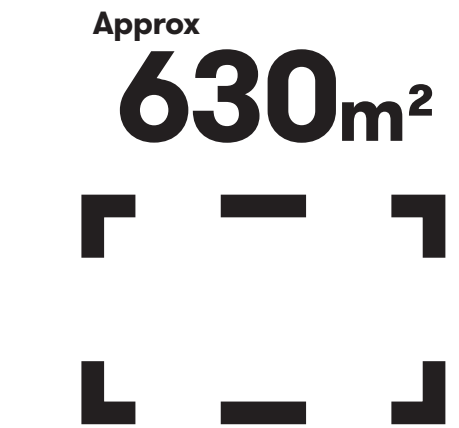
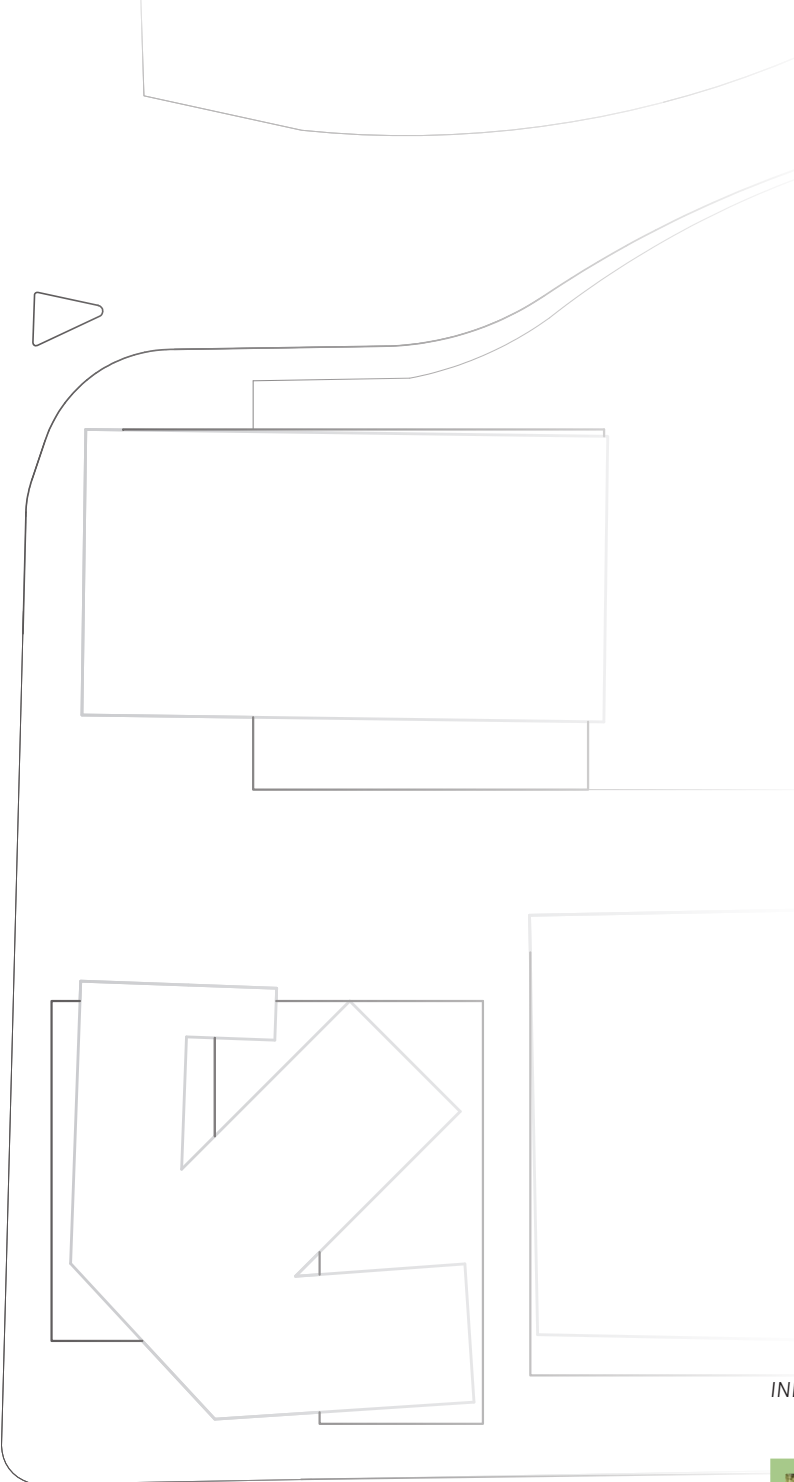
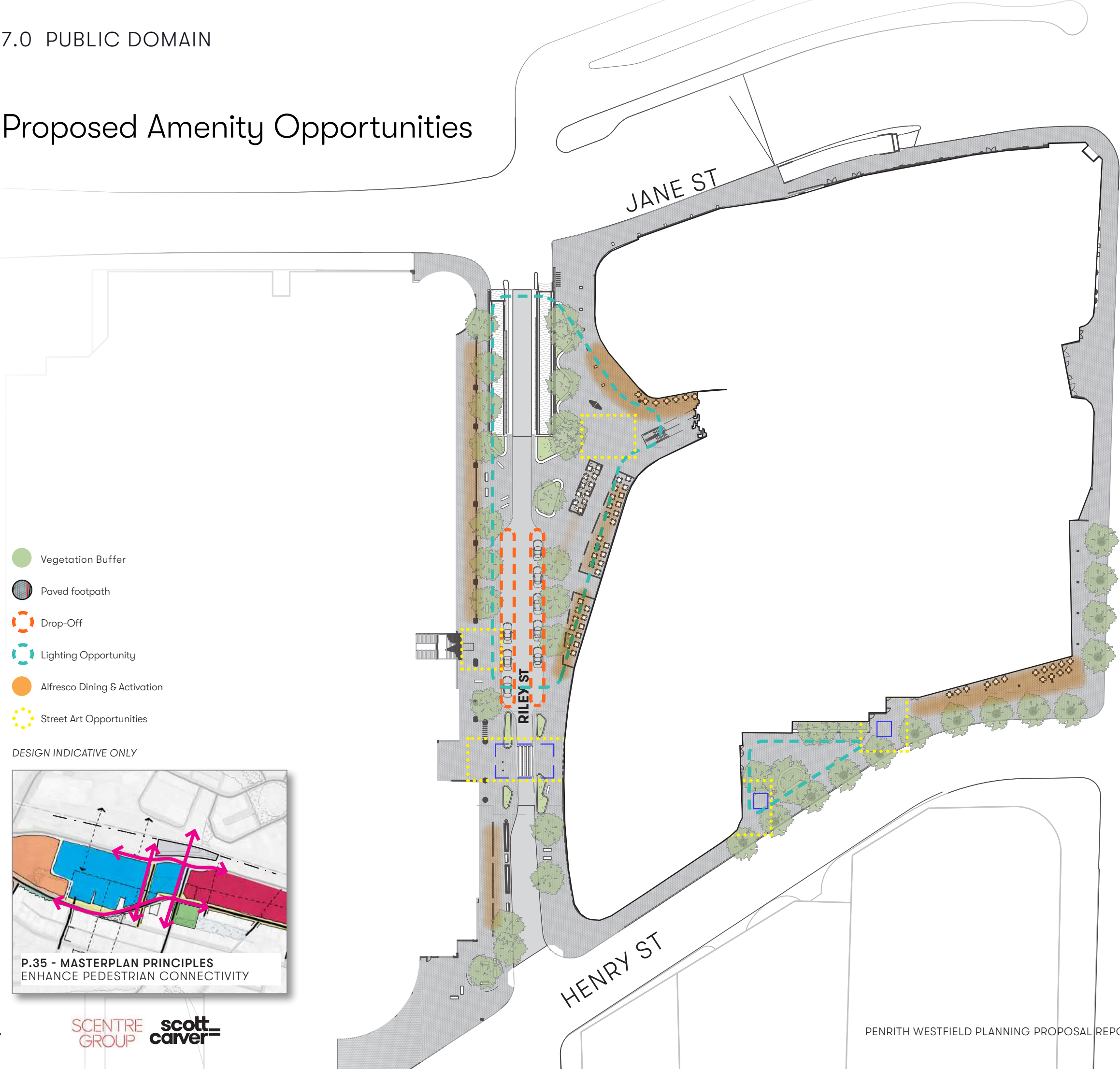
F&B Foodcourt Terrace

LEVEL 2

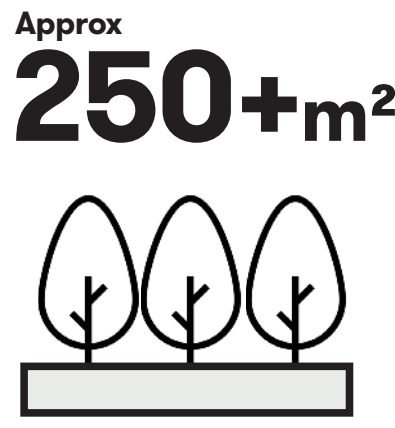




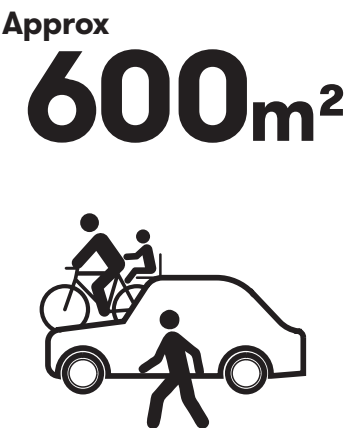
Proposed Amenity Opportunities



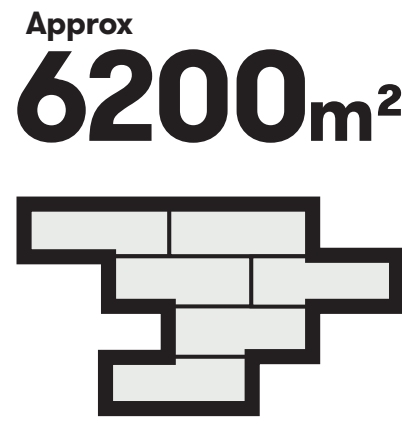
Additional public space given back



New and improved planter beds and landscaped area



Paved pedestrian priority shared zone



New paved sidewalk

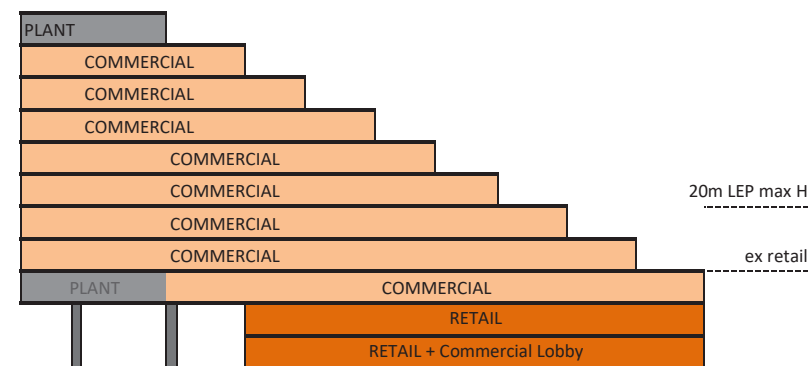




## Overall Development Strategy

**BOREC HOUSE | HIGH LEVEL YIELD SCHEDULE**  
SCOTT CARVER

| LEVEL        | FLOOR 2<br>FLOOR | REL. LEVEL (RL) | HEIGHT<br>(M) |
|--------------|------------------|-----------------|---------------|
| Top of Plant |                  | 74.20           | 46.65         |
| Level Roof   | 4.5              | 69.70           | 42.15         |
| Level 10     | 3.8              | 65.90           | 38.35         |
| Level 9      | 3.8              | 62.10           | 34.55         |
| Level 8      | 3.8              | 58.30           | 30.75         |
| Level 7      | 3.8              | 54.50           | 26.95         |
| Level 6      | 3.8              | 50.70           | 23.15         |
| Level 5      | 3.8              | 46.90           | 19.35         |
| Level 4      | 3.8              | 43.10           | 15.55         |
| Level 3      | 5.2              | 37.90           | 10.35         |
| Level 2      | 5.15             | 32.75           | 5.20          |
| Level 1 (GF) | 5.2              | 27.55           | 0.00          |



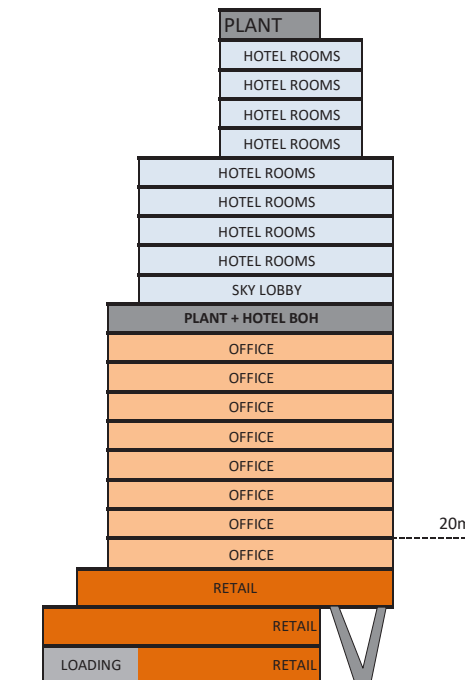
**16.03.2022**

|            |   |      |      | RETAIL |       |       | COMMERCIAL            |        |       |      |
|------------|---|------|------|--------|-------|-------|-----------------------|--------|-------|------|
|            |   |      |      | GBA    | GFA   | NLA   | GBA                   | GFA    | NLA   | Eff. |
|            |   |      |      | (m²)   | (m²)  | (m²)  | (m²)                  | (m²)   | (m²)  | %    |
|            |   |      |      | 2,853  | 2,440 | 1,201 | 13,297                | 10,949 | 9,751 | 89   |
|            |   |      |      |        |       |       |                       |        |       |      |
|            |   |      |      |        |       |       |                       |        |       |      |
|            |   |      |      |        |       |       |                       |        |       |      |
|            |   |      |      |        |       |       | 400                   |        |       |      |
| Commercial | 8 |      |      |        |       |       | 979                   | 798    | 710   | 89   |
| Commercial | 7 |      |      |        |       |       | 1219                  | 965    | 818   | 85   |
| Commercial | 6 |      |      |        |       |       | 1407                  | 1266   | 1119  | 88   |
| Commercial | 5 |      |      |        |       |       | 1626                  | 1381   | 1230  | 89   |
| Commercial | 4 |      |      |        |       |       | 1691                  | 1545   | 1395  | 90   |
| Commercial | 3 |      |      |        |       |       | 1830                  | 1674   | 1521  | 91   |
| Commercial | 2 |      |      |        |       |       | 2065                  | 1831   | 1611  | 88   |
| Commercial | 1 |      |      |        |       |       | 2080                  | 1489   | 1347  | 90   |
| Retail     | 2 | 1507 | 1292 | 1201   |       |       |                       |        |       |      |
| Retail     | 1 | 1346 | 1148 | 1071   |       |       |                       |        |       |      |
|            |   |      |      |        |       |       | Incl. in retail count |        |       |      |

**THE HUB | HIGH LEVEL YIELD SCHEDULE**  
SCOTT CARVER

**16.03.2022**

| LEVEL            | FLOOR 2 | REL. LEVEL | HEIGHT |
|------------------|---------|------------|--------|
|                  | FLOOR   | (RL)       | (M)    |
| Top of Plant     |         | 111.25     | 84.00  |
| Level Roof       | 5.15    | 106.10     | 78.85  |
| Level 21         | 3.1     | 103.00     | 75.75  |
| Level 20         | 3.1     | 99.90      | 72.65  |
| Level 19         | 3.1     | 96.80      | 69.55  |
| Level 18         | 3.1     | 93.70      | 66.45  |
| Level 17         | 3.1     | 90.60      | 63.35  |
| Level 16         | 3.1     | 87.50      | 60.25  |
| Level 15         | 3.1     | 84.40      | 57.15  |
| Level 14         | 3.1     | 81.30      | 54.05  |
| Level 13         | 3.3     | 78.00      | 50.75  |
| Level 12 (PLANT) | 4.8     | 73.20      | 45.95  |
| Level 11         | 3.8     | 69.40      | 42.15  |
| Level 10         | 3.8     | 65.60      | 38.35  |
| Level 9          | 3.8     | 61.80      | 34.55  |
| Level 8          | 3.8     | 58.00      | 30.75  |
| Level 7          | 3.8     | 54.20      | 26.95  |
| Level 6          | 3.8     | 50.40      | 23.15  |
| Level 5          | 3.8     | 46.60      | 19.35  |
| Level 4          | 3.8     | 42.80      | 15.55  |
| Level 3          | 5.2     | 37.60      | 10.35  |
| Level 2          | 5.15    | 32.45      | 5.20   |
| Level 1 (GF)     | 5.2     | 27.25      | 0.00   |



NOTE: AREA  
UNDER TOWER  
FOOTPRINT  
ONLY

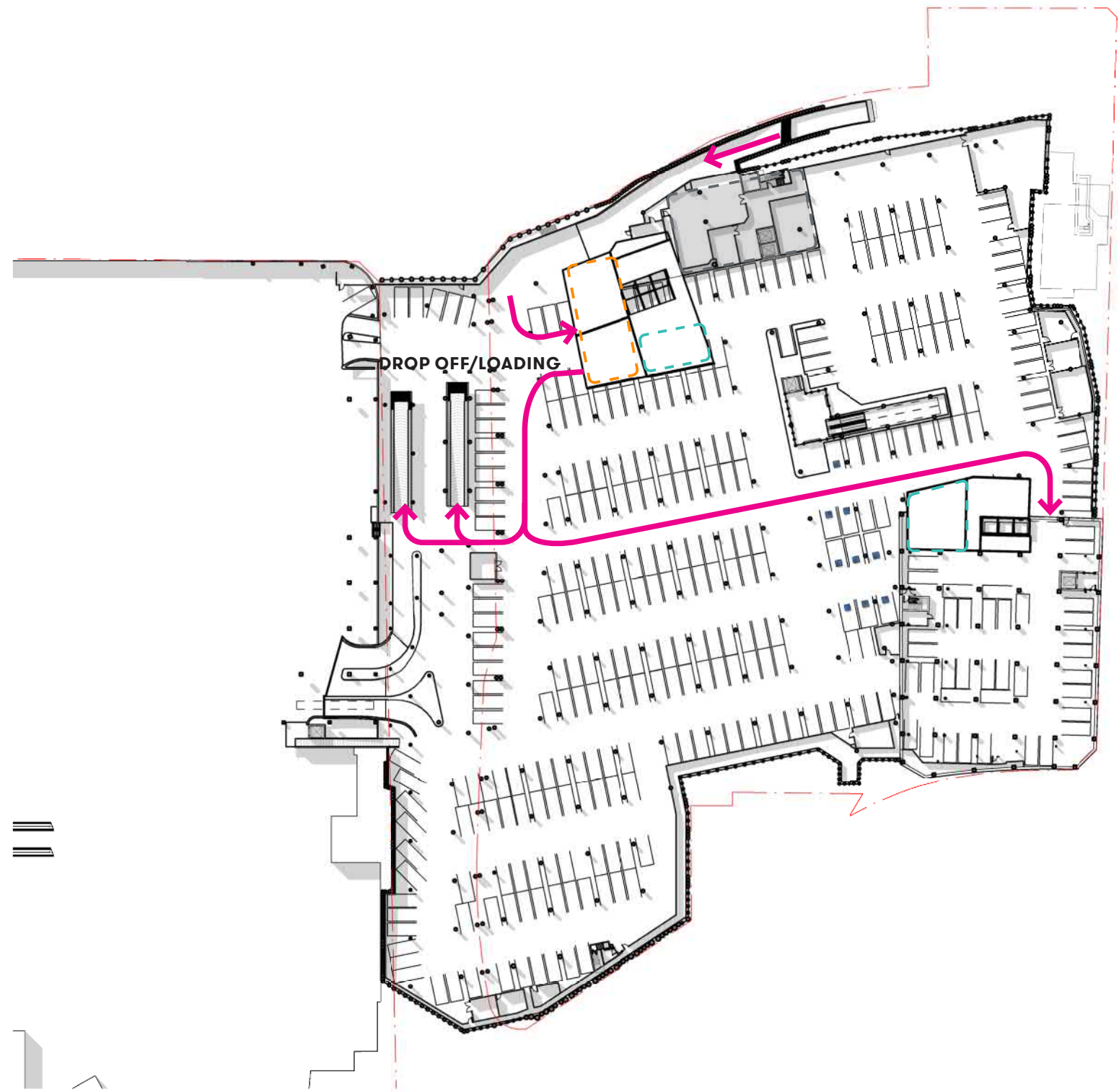
|             |   | RETAIL            |                   |                   | COMMERCIAL                 |                   |                   |      | HOTEL                      |                   |       |       |      |          |                       |
|-------------|---|-------------------|-------------------|-------------------|----------------------------|-------------------|-------------------|------|----------------------------|-------------------|-------|-------|------|----------|-----------------------|
|             |   | GBA               | GFA               | NLA               | GBA                        | GFA               | NLA               | Eff. | GBA                        | GFA               | ROOMS |       |      | KEY AREA |                       |
|             |   | (m <sup>2</sup> ) | (m <sup>2</sup> ) | (m <sup>2</sup> ) | (m <sup>2</sup> )          | (m <sup>2</sup> ) | (m <sup>2</sup> ) | %    | (m <sup>2</sup> )          | (m <sup>2</sup> ) | ST    | JR    | PR   | TOTAL    | (m <sup>2</sup> )/KEY |
|             |   | 5,689             | 4,661             | PENDING           | 13,827                     | 10,878            | 10,000            | 92%  | 9,289                      | 8,014             | 117   | 28    | 7    | 152      | 61.11                 |
|             |   |                   |                   |                   |                            |                   |                   |      |                            |                   | 77.0% | 18.4% | 4.6% | 100.0%   |                       |
|             |   |                   |                   |                   |                            |                   |                   |      |                            | 310               |       |       |      |          |                       |
| Hotel Rooms | 8 |                   |                   |                   |                            |                   |                   |      |                            | 682               | 623   | 13    | 2    | 1        | 16                    |
| Hotel Rooms | 7 |                   |                   |                   |                            |                   |                   |      |                            | 682               | 623   | 13    | 2    | 1        | 16                    |
| Hotel Rooms | 6 |                   |                   |                   |                            |                   |                   |      |                            | 682               | 623   | 13    | 2    | 1        | 16                    |
| Hotel Rooms | 5 |                   |                   |                   |                            |                   |                   |      |                            | 1159              | 736   | 10    | 2    |          | 12                    |
| Hotel Rooms | 4 |                   |                   |                   |                            |                   |                   |      |                            | 1159              | 1106  | 17    | 5    | 1        | 23                    |
| Hotel Rooms | 3 |                   |                   |                   |                            |                   |                   |      |                            | 1159              | 1106  | 17    | 5    | 1        | 23                    |
| Hotel Rooms | 2 |                   |                   |                   |                            |                   |                   |      |                            | 1159              | 1106  | 17    | 5    | 1        | 23                    |
| Hotel Rooms | 1 |                   |                   |                   |                            |                   |                   |      |                            | 1159              | 1106  | 17    | 5    | 1        | 23                    |
| Lobby       |   |                   |                   |                   |                            |                   |                   |      |                            | 1448              | 985   |       |      |          |                       |
| Plant       |   |                   |                   |                   | 1521                       | 0                 | 0                 | 0%   |                            |                   |       |       |      |          |                       |
| Commercial  | 8 |                   |                   |                   | 1519                       | 1381              | 1272              | 92%  |                            |                   |       |       |      |          |                       |
| Commercial  | 7 |                   |                   |                   | 1519                       | 1381              | 1272              | 92%  |                            |                   |       |       |      |          |                       |
| Commercial  | 6 |                   |                   |                   | 1519                       | 1381              | 1272              | 92%  |                            |                   |       |       |      |          |                       |
| Commercial  | 5 |                   |                   |                   | 1519                       | 1381              | 1272              | 92%  |                            |                   |       |       |      |          |                       |
| Commercial  | 4 |                   |                   |                   | 1519                       | 1381              | 1272              | 92%  |                            |                   |       |       |      |          |                       |
| Commercial  | 3 |                   |                   |                   | 1519                       | 1381              | 1272              | 92%  |                            |                   |       |       |      |          |                       |
| Commercial  | 2 |                   |                   |                   | 1519                       | 1381              | 1272              | 92%  |                            |                   |       |       |      |          |                       |
| Commercial  | 1 |                   |                   |                   | 1673                       | 1211              | 1096              | 91%  |                            |                   |       |       |      |          |                       |
| Retail      | 3 | 1852              | 1750              | PENDING           |                            |                   |                   |      |                            |                   |       |       |      |          |                       |
| Retail      | 2 | 2295              | 2120              | PENDING           |                            |                   |                   |      |                            |                   |       |       |      |          |                       |
| Retail      | 1 | 1542              | 791               | PENDING           | Lobby incl in retail count |                   |                   |      | Lobby incl in retail count |                   |       |       |      |          |                       |

**Borec HOUSE GFA TOTAL: 13,389m<sup>2</sup>**

**THE Hub GFA TOTAL: 23,553m<sup>2</sup>**

**GFA TOTAL: 36,942m<sup>2</sup>**

# A.1 BASEMENT VEHICLE MOVEMENTS



- VEHICLE MOVEMENT
- HOTEL BASEMENT SERVICES
- PLANT AREA
- END OF TRIP FACILITIES

# APPENDIX C

## AIMSUN MODELLING REPORT

Prepared by Bitzios Consulting (19 May 2022)

# Westfield Penrith Expansion

## Modelling Assessment Report

SLR

19 May 2022





**Gold Coast**

Suite 26, 58 Riverwalk Avenue  
Robina QLD 4226

P: (07) 5562 5377

**W:** [www.bitziosconsulting.com.au](http://www.bitziosconsulting.com.au)

**Brisbane**

Level 2, 428 Upper Edward Street  
Spring Hill QLD 4000

P: (07) 3831 4442

**E:** [admin@bitziosconsulting.com.au](mailto:admin@bitziosconsulting.com.au)

**Sydney**

Studio 203, 3 Gladstone  
Street  
Newtown NSW 2042

P: (02) 9557 6202

*Copyright in the information and data in this document is the property of Bitzios Consulting. This document and its information and data is for the use of the authorised recipient and this document may not be used, copied or reproduced in whole or in part for any purpose other than for which it was supplied by Bitzios Consulting. Bitzios Consulting makes no representation, undertakes no duty and accepts no responsibility to any third party who may use or rely upon this document or its information and data.*

**Document Issue History**

| Report File Name                           | Prepared   | Reviewed | Issued  | Date       | Issued to                |
|--------------------------------------------|------------|----------|---------|------------|--------------------------|
| P5045.001R Westfield Penrith Expansion TIA | H.Mohammad | A.Ahmed  | A.Ahmed | 20/04/2021 | bmpark@slrconsulting.com |
| P5045.002R Westfield Penrith Expansion TIA | H.Mohammad | A.Ahmed  | A.Ahmed | 11/05/2021 | bmpark@slrconsulting.com |
| P5045.003R Westfield Penrith Expansion TIA | T.Islam    | A.Ahmed  | A.Ahmed | 19/05/2022 | kstone@slrconsulting.com |

# CONTENTS

|                                                   | Page      |
|---------------------------------------------------|-----------|
| <b>1. INTRODUCTION</b>                            | <b>1</b>  |
| 1.1 Background                                    | 1         |
| 1.2 Scope of Work                                 | 1         |
| <b>2. PENRITH CBD AIMSUN MODEL</b>                | <b>2</b>  |
| 2.1 The Base Model Upgrade                        | 2         |
| 2.1.1 Mulgoa Road / High Street Intersection      | 3         |
| 2.1.2 Jane Street / Castlereagh Road Intersection | 3         |
| 2.1.3 Parker Street / Derby Street Intersection   | 4         |
| 2.1.4 Signal Phase and Phase Times                | 4         |
| <b>3. THE PROPOSED DEVELOPMENT</b>                | <b>6</b>  |
| <b>4. AIMSUN MODELLING ASSESSMENT</b>             | <b>7</b>  |
| 4.1 Overview                                      | 7         |
| 4.2 Assessment Scenario                           | 7         |
| 4.3 Future Traffic Volumes                        | 7         |
| 4.3.1 Background Traffic Growths                  | 7         |
| 4.4 Assessment Criteria                           | 8         |
| 4.5 Intersection Performance                      | 9         |
| 4.6 Travel Time                                   | 10        |
| 4.7 2019 Assessment Outcomes                      | 11        |
| 4.7.1 Intersection Performance                    | 11        |
| 4.7.2 Travel Time                                 | 12        |
| 4.8 2036 Assessment Outcomes                      | 12        |
| 4.8.1 Intersection Performance                    | 13        |
| 4.8.2 Travel Time                                 | 14        |
| <b>5. CONCLUSIONS</b>                             | <b>15</b> |

## Tables

|            |                                                                 |
|------------|-----------------------------------------------------------------|
| Table 4.1: | Scenario Assessed                                               |
| Table 4.2: | The Development Traffic as A Proportion of Total Traffic - 2018 |
| Table 4.3: | The Development Traffic as A Proportion of Total Traffic - 2036 |
| Table 4.4: | Level of Service Criteria                                       |
| Table 4.5: | Comparison of Intersection Performance – 2019 AM and PM Peak    |
| Table 4.6: | Comparison of Travel Time– 2018 AM and PM Peak                  |
| Table 4.7: | Comparison of Intersection Performance – 2036 AM Peak           |
| Table 4.8: | Comparison of Travel Time– 2018 AM Peak                         |

## Figures

|             |                                                       |
|-------------|-------------------------------------------------------|
| Figure 1.1: | Site Location                                         |
| Figure 2.1: | Penrith CBD Aimsun Model                              |
| Figure 2.2: | Mulgoa Road / High Street Intersection Upgrade        |
| Figure 2.3: | Jane Street / Castlereagh Street Intersection Upgrade |
| Figure 2.4: | Parker Street / Derby Street Intersection Upgrade     |
| Figure 4.1: | Assessment Intersections                              |
| Figure 4.2: | Travel Time Routes                                    |

Figure 4.3: Travel Time Comparison, Route 2 Eastbound

## Appendices

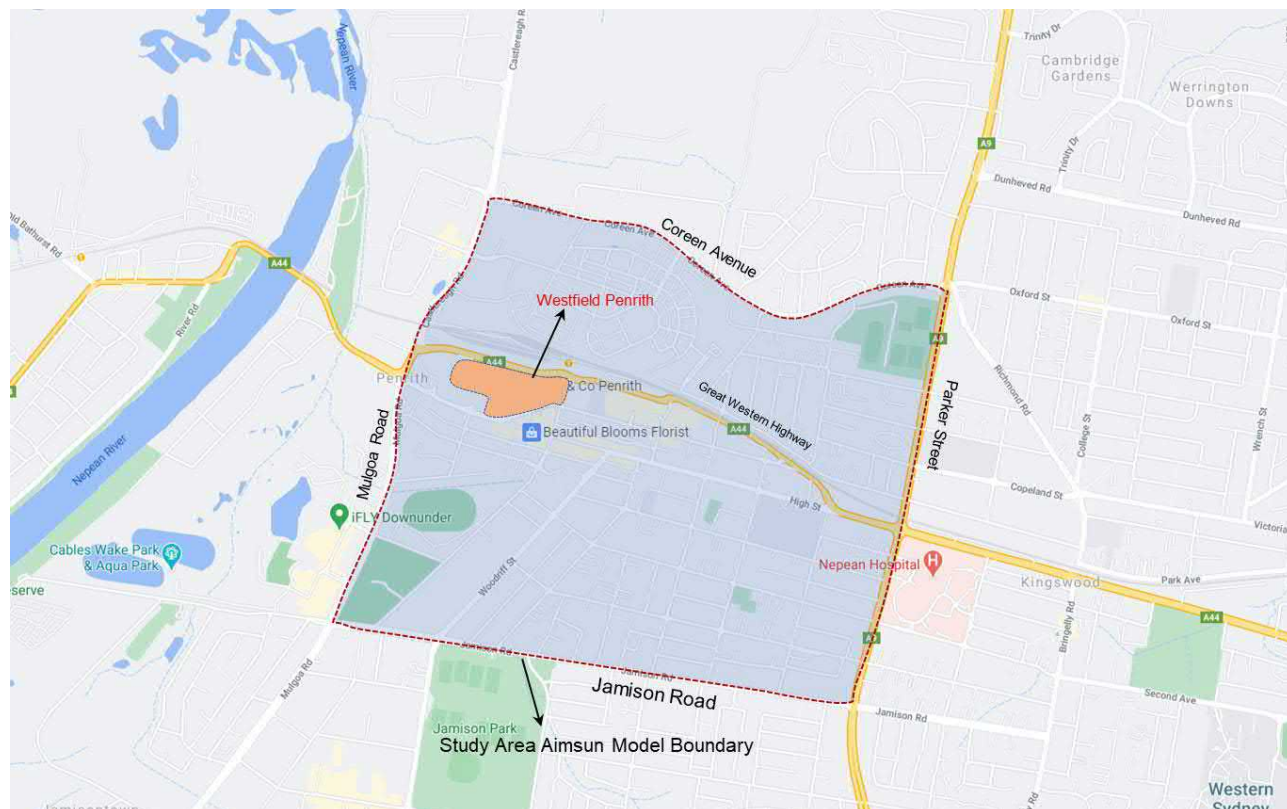
Appendix A: 2018 Aimsun Assessment Results

Appendix B: 2036 Aimsun Assessment Results

# 1. INTRODUCTION

## 1.1 Background

It is understood that SLR Consulting Australia Pty Ltd is assisting Scentre Group to prepare a Planning Proposal for the proposed expansion of the existing Westfield shopping centre in Penrith. The proposed expansion will include new hotel / office / retail uses. The location of the subject site is shown in Figure 1.1.



**Figure 1.1: Site Location**

Bitzios Consulting has been commissioned by SLR to undertake a traffic modelling exercise to assess the traffic impact of the proposed developed area on the surrounding road network. The existing condition 2018 Penrith Central Business District (CBD) Aimsun model provided by Council was used to undertake the traffic assessment.

## 1.2 Scope of Work

The scope of this traffic impact assessment included the following tasks:

- A preliminary assessment of the existing road network performance
- Calculate the full development traffic generation and trip distribution for the proposed development
- Aimsun base case and future case (with development) modelling to identify any impacts of the proposed development and identify potential upgrade requirements within the wider road network.



## 2. PENRITH CBD AIMSUN MODEL

An existing condition 2018 microsimulation model of the Penrith CBD has been developed in Aimsun. The extent of the existing Aimsun model is shown in Figure 2.1. The model area is bounded by Coreen Avenue in the north, Parker Street in the east, Jamison Road in the south and Mulgoa Road in the west. The model includes all key roads and car park accesses within the study area.



**Figure 2.1: Penrith CBD Aimsun Model**

The existing condition Aimsun model was used to assess the impact of the proposed development.

### 2.1 The Base Model Upgrade

The 2019 Base Aimsun Model was updated to incorporate a number of network upgrades that have been carried out on a section of Mulgoa Road / Castlereagh Road corridor. The key upgrades are:

- Mulgoa Road / High Street intersection
- Mulgoa Road / Jane Street intersection.

In addition to the above, the Parker Street / Darby Street intersection has been upgraded to include additional traffic lanes on the eastern and western approaches.

### 2.1.1 Mulgoa Road / High Street Intersection

The key upgrades are as follows:

- Addition through traffic lanes in the northern and southern approaches
- High angle free flow left turn lane with signalised pedestrian crossing in the northern and eastern approaches
- Addition right turn pocket lanes in the western and eastern approaches as shown in Figure 2.2.



**Figure 2.2: Mulgoa Road / High Street Intersection Upgrade**

### 2.1.2 Jane Street / Castlereagh Road Intersection

The key upgrades are as follows:

- Addition through traffic lanes in the northern and southern approaches
- High angle free flow left turn lane with signalised pedestrian crossing in the northern approach as shown in Figure 2.3.



**Figure 2.3: Jane Street / Castlereagh Street Intersection Upgrade**



### 2.1.3 Parker Street / Derby Street Intersection

The key upgrades are as follows:

- Exclusive right and left turn pocket lanes on the eastern and western approaches as shown in Figure 2.4.



**Figure 2.4: Parker Street / Derby Street Intersection Upgrade**

### 2.1.4 Signal Phase and Phase Times

SCATS signal history data was collated from TfNSW for all the three intersections. The following section summarises the SCATS signal history data.

#### 2.1.4.1 Mulgoa Road / High Street

TfNSW double diamond overlap signal phasing strategy was adopted for this intersection with the following phasing:

- **Phase A** services the through and left turning movements from Mulgoa Road
- **Phase D** services the right turn movements from High Street and left turn movements from Mulgoa Road
- **Phase E** services the through and left turn movements from High Street
- **Phase G** services the right turn movements from Mulgoa Road and left turn movements from High Street

The SCATS average cycle time of 115 seconds and 130 seconds were adopted for the AM and PM peak Aimsun model. Aimsun actuated signal phasing was adopted.

#### 2.1.4.2 Jane Street / Castlereagh Road

A three-phase signal strategy was adopted for this intersection:

- **Phase A** services the through and left turning movements on Castlereagh Road
- **Phase C** services all movements on the Jane Street approach
- **Phase D** services the northbound through movement on Castlereagh Road and the northbound to eastbound right turn movements as well as the westbound to southbound left turn movement on Jane Street

The interrogation of the '.LX' file shows that the High Street and Jane Street intersections are linked with the High Street intersection operates as main intersection and Jane Street intersection as a slave intersection. These intersections share the same cycle time. The AM and PM peak offsets between the intersections were calculated from the '.LX' file. Generally, the average phase times calculated from the SCATS history data was adopted in Aimsun.

#### 2.1.4.3 Parker Street / Derby Street Intersection

TfNSW double diamond overlap signal phasing strategy was adopted for this intersection with the following phasing:

- **Phase A** services the through and left turning movements from Parker Street
- **Phase D** services the right turn movements from Derby Street and left turn movements from Parker Street
- **Phase E** services the through and left turn movements from Derby Street
- **Phase G** services the right turn movements from Parker Street and left turn movements from Derby Street

The SCATS average cycle time of 135 seconds and 140 seconds were adopted for the AM and PM peak Aimsun models. Generally, the average phase times calculated from the SCATS history data was adopted in Aimsun. Aimsun actuated signal phasing was adopted.



### 3. THE PROPOSED DEVELOPMENT

The Proposed development includes following expansion of the existing Westfield Penrith shopping centre:

- New hotel / office / retail uses
- No new vehicle site access

For details on the proposed development including trip generation and distribution refer to *Consideration of Traffic and Transport Matters* prepared by SLR Consulting.

## 4. AIMSUN MODELLING ASSESSMENT

### 4.1 Overview

Penrith City Council Aimsun model was used to determine the impact of the proposed development. The assessment was undertaken for traffic demands reflecting the base case year 2019 and future assessment year of 2036 for the following peak periods:

- AM Peak: 7am to 9am
- PM Peak: 4pm to 6pm

This section summarises the development of the base 2019 and future year 2036 Aimsun models. This section also includes a summary of Aimsun assessment results.

### 4.2 Assessment Scenario

Two scenario models were developed for the 2019 and 2036 traffic conditions respectively as summarised in Table 4.1.

**Table 4.1: Scenario Assessed**

| Scenarios                                                                           | Description                                                                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2019 Base <b>plus</b> Development                                                   | <ul style="list-style-type: none"><li>▪ The 2019 intersections configuration <b>plus</b> upgrades to two intersection on the Mulgoa Road / Castlereagh Road corridor</li><li>▪ Existing 2019 traffic</li><li>▪ Development traffic</li></ul>                                       |
| <ul style="list-style-type: none"><li>▪ 2036 Base <b>plus</b> Development</li></ul> | <ul style="list-style-type: none"><li>▪ The 2019 intersections configuration <b>plus</b> upgrades to two intersection on the Mulgoa Road / Castlereagh Road corridor</li><li>▪ Existing 2019 traffic <b>plus</b> background traffic growth</li><li>▪ Development Traffic</li></ul> |

### 4.3 Future Traffic Volumes

As part of this exercise, the existing transport network performance was assessed for the 2019 traffic conditions. In addition, future network performance was assessed for the 2036 traffic conditions. Future year traffic volumes have been calculated for the following two components:

- Background Traffic Growth
- Development Traffic Growth

#### 4.3.1 Background Traffic Growths

The Background traffic growth has the following two sub-components:

- External Traffic Growth: Trips those travel through the study area but have origin and destinations outside the study area
- Internal Traffic Growth: Trips that have origin and destination within the study area.

The growths in internal traffic volumes are dependent on the future land use within the study area. It was understood that Penrith City Council was in the process of finalising a draft land use plan for the study area. Therefore, no details were available. For the purpose of this study it was assumed that traffic within the study area would grow at a linear rate of 2%/ year i.e. between 2018 and 2036 the overall traffic within the study area will increase by 36%.

For the purpose of this assessment, the 2036 external traffic growths were estimated based on Sydney Strategic Travel Model (STM). The 2018 and 2036 cordon matrices for the study area were obtained from Transport for NSW. The growths between the external origin and destination pairs were calculated based on the difference between the 2018 and 2036 matrices. The analysis suggested that between 2018 and 2036 the external traffic grow at 1.7% per annum. As per Council suggestion, the annual growth rate was adjusted to 2% per annum.

The estimation of the development traffic is summarised in the SLR reporting. For the purpose of this assessment the full development was assumed in both the 2019 and 2036 assessment scenarios. The development traffic volumes as a proportion of the total traffic are compared in Table 4.2 and Table 4.3. The proportions of development traffic in the 2036 total traffic are 1.3% to 1.9% in the AM and PM peak periods.

**Table 4.2: The Development Traffic as A Proportion of Total Traffic - 2018**

| Scenarios                | 2019 Traffic Volumes |        |        |           |         |        |        |           |
|--------------------------|----------------------|--------|--------|-----------|---------|--------|--------|-----------|
|                          | Warm Up              | 7-8am  | 8-9am  | Cool Down | Warm Up | 4-5pm  | 5-6pm  | Cool Down |
| Base Traffic             | 6,865                | 13,735 | 18,082 | 13,589    | 15,686  | 20,915 | 21,240 | 15,930    |
| Development Traffic      | 177                  | 354    | 370    | 278       | 196     | 392    | 389    | 292       |
| Total                    | 7,042                | 14,089 | 18,452 | 13,867    | 15,882  | 21,307 | 21,629 | 16,222    |
| % of Development Traffic | 2.5%                 | 2.5%   | 2.0%   | 2.0%      | 1.2%    | 1.8%   | 1.8%   | 1.8%      |

**Table 4.3: The Development Traffic as A Proportion of Total Traffic - 2036**

| Scenarios                | 2036 Traffic Volumes |        |        |           |         |        |        |           |
|--------------------------|----------------------|--------|--------|-----------|---------|--------|--------|-----------|
|                          | Warm Up              | 7-8am  | 8-9am  | Cool Down | Warm Up | 4-5pm  | 5-6pm  | Cool Down |
| Base Traffic             | 9,336                | 18,680 | 24,592 | 18,481    | 21,333  | 28,444 | 28,886 | 21,665    |
| Development Traffic      | 177                  | 354    | 370    | 278       | 196     | 392    | 389    | 292       |
| Total                    | 9,513                | 19,034 | 24,962 | 18,759    | 21,529  | 28,836 | 29,275 | 21,957    |
| % of Development Traffic | 1.9%                 | 1.9%   | 1.5%   | 1.5%      | 0.9%    | 1.4%   | 1.3%   | 1.3%      |

## 4.4 Assessment Criteria

The following assessment criteria was used to assess the performance of 2018 and 2036 road network:

- Intersection Performance
- Travel Time

## 4.5 Intersection Performance

The Level of Service (LoS) for a total of 17 key intersections was assessed based on average delay in accordance with the TfNSW criteria as shown in Table 4.4.

**Table 4.4: Level of Service Criteria**

| Level of Service | Average Delay per Vehicle (seconds) | Description                                    |
|------------------|-------------------------------------|------------------------------------------------|
| A                | ≤14                                 | Good Operation                                 |
| B                | 15 to 28                            | Good with acceptable delay with spare capacity |
| C                | 29 to 42                            | Satisfactory                                   |
| D                | 43 to 56                            | Operating near capacity                        |
| E                | 57 to 70                            | At Capacity                                    |
| F                | >70                                 | Unsatisfactory                                 |

Source: Transport for NSW Guide to Traffic Generating Developments (2002) Table 4.2

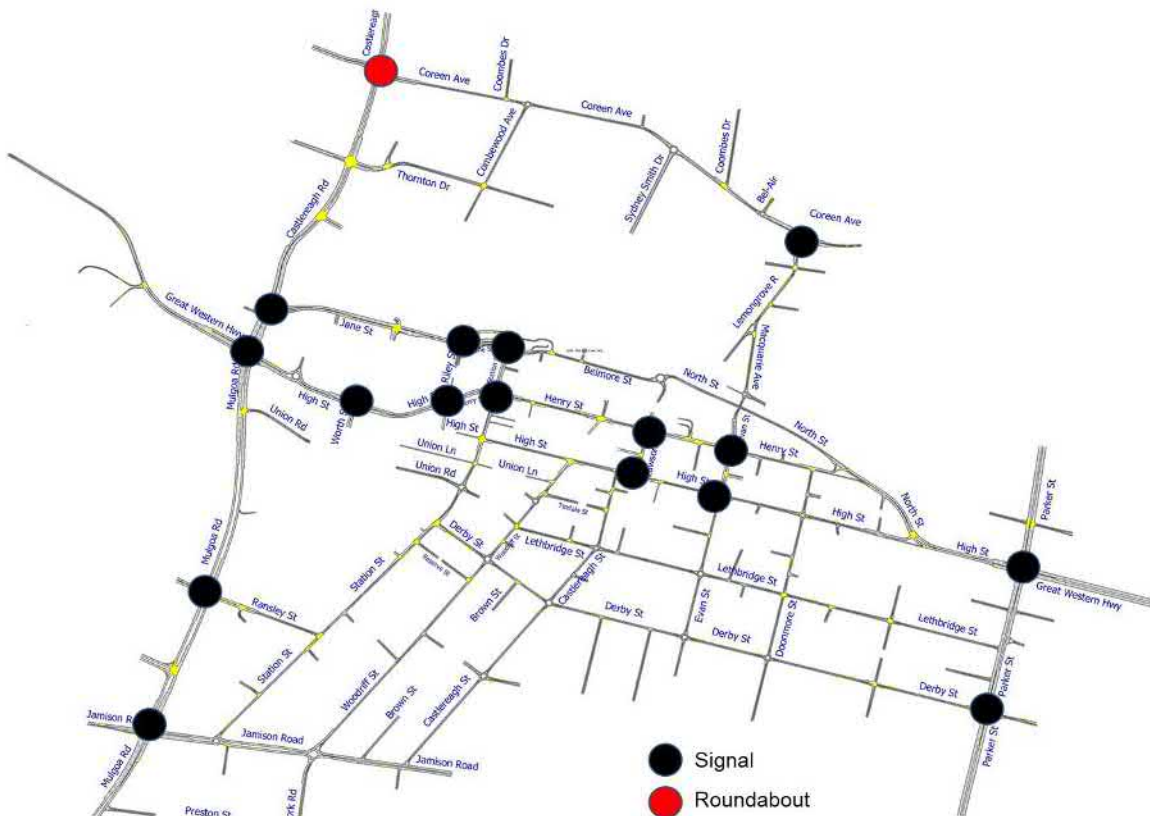
16 of these 17 intersections are signalised. For the signalised intersections, the average delays for all movements are used. For roundabouts, priority controlled or stop controlled intersections, the critical criteria for assessment is the movement with the highest delay.

The following 17 key intersections were assessed:

- Castlereagh Road / Coreen Avenue (**Roundabout**)
- Coreen Avenue / Lemongrove Road (Signal)
- Castlereagh Rd / Jane Street (Signal)
- Jane Street / Riley Street / Train Station Access (Signal)
- Jane Street/Station Street (Signal)
- Mulgoa Rd / Great Western Highway (Signal)
- Worth Street / High Street (Signal)
- Riley Street / Henry Street / High Street (Signal)
- Station Street / Henry Street (Signal)
- Lawson Street / Henry Street (Signal)
- Evan Street / Henry Street (Signal)
- Lawson Street / High Street (Signal)
- Evan Street / High Street (Signal)
- Parker Street / Great Western Highway (Signal)
- Mulgoa Rd / Ransley Street (Signal)
- Parker Street / Derby Street (Signal)
- Mulgoa Road / Jamison Road (Signal)

The locations of these intersections are shown in Figure 4.1 .

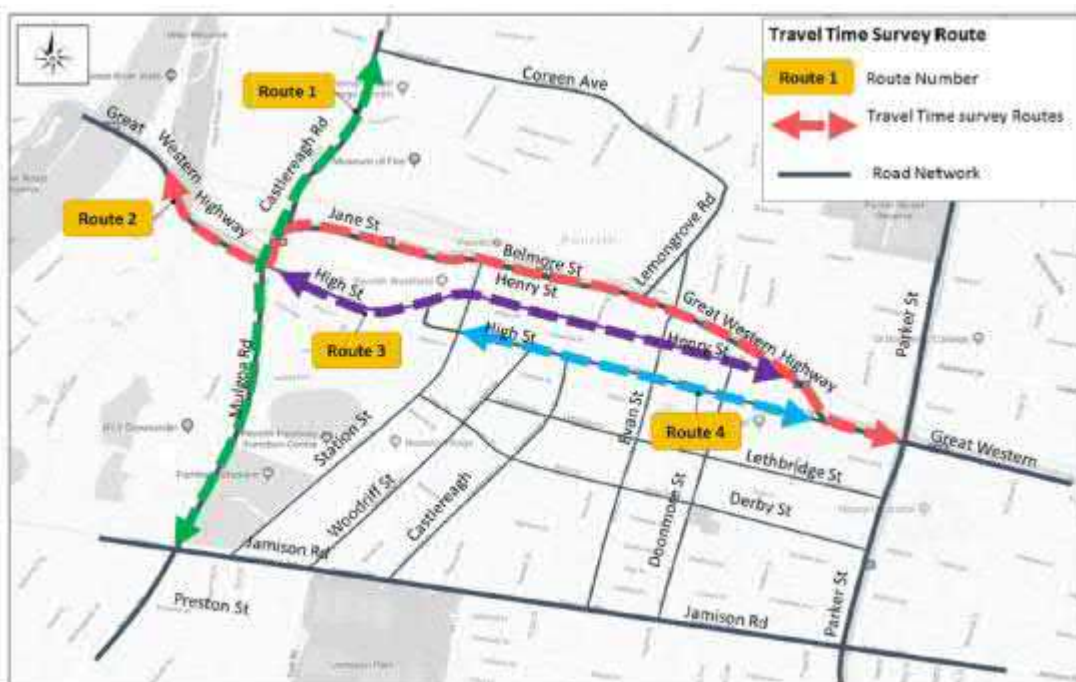




**Figure 4.1: Assessment Intersections**

## 4.6 Travel Time

The average travel time along Mulgoa Road / Castlereagh Road, Jane Street / Great Western Highway, Henry Street / High Street and High Street were assessed to understand the changes in congestion along these routes. The routes are shown in Figure 4.2.



**Figure 4.2: Travel Time Routes**

## 4.7 2019 Assessment Outcomes

The Aimsun model results are included in **Appendix A**.

### 4.7.1 Intersection Performance

The AM, PM peak delays and LoS for the 2019 Base and With Development scenarios are compared in Table 4.5. The intersections will provide LoS A-D with and without the development. The introduction of the development will have no negative impacts on the performance of these intersections.

The key observations include:

- No significant changes in overall intersection delays are predicted for the intersections.

**Table 4.5: Comparison of Intersection Performance – 2019 AM and PM Peak**

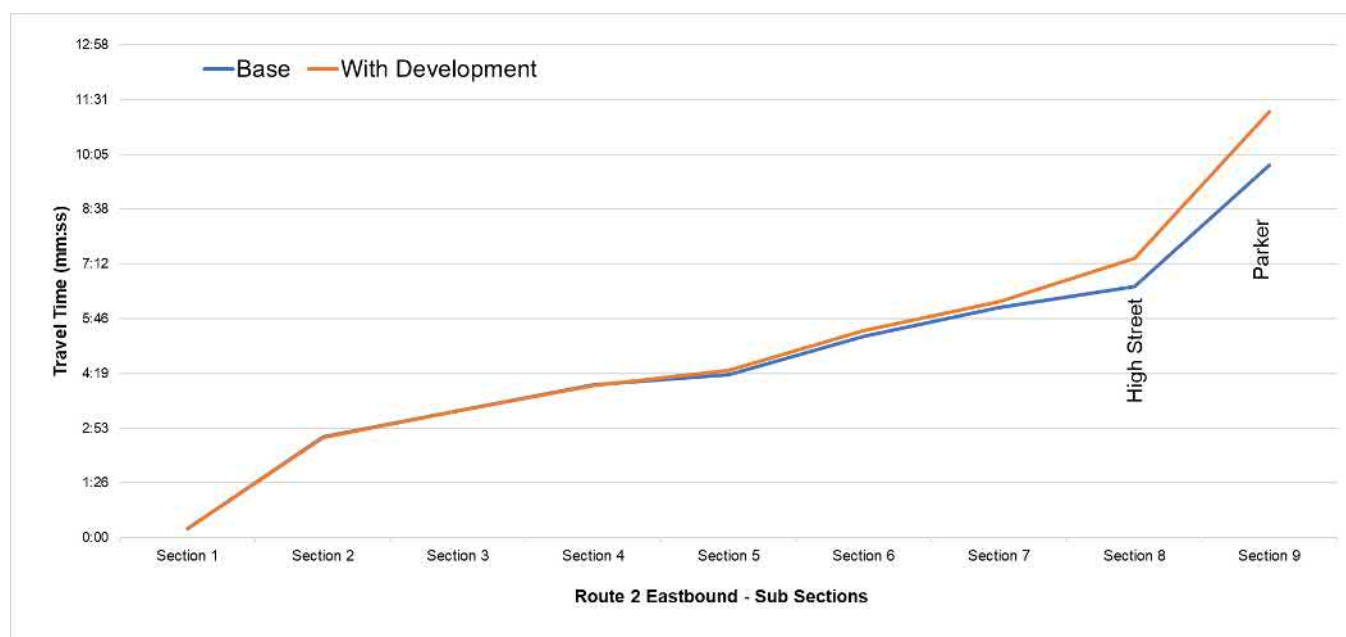
| Intersections                                     | AM Peak   |           |           |           | PM Peak   |           |           |           |
|---------------------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                                                   | 0700-0800 |           | 0800-0900 |           | 1600-1700 |           | 1700-1800 |           |
|                                                   | 2019 Base | 2019 Dev  | 2019 Base | 2019 Dev  | 2019 Base | 2019 Dev  | 2019 Base | 2019 Dev  |
| Castlereagh Rd / Coreen Ave                       | A<br>(14) | A<br>(13) | B<br>(14) | B<br>(16) | B<br>(17) | B<br>(18) | B<br>(20) | B<br>(20) |
| Coreen Ave / Lemongrove Rd                        | A<br>(11) | A<br>(11) | A<br>(11) | A<br>(13) | B<br>(26) | B<br>(26) | B<br>(23) | B<br>(23) |
| Castlereagh Rd / Jane Street                      | B<br>(16) | B<br>(16) | A<br>(13) | A<br>(14) | B<br>(19) | B<br>(20) | B<br>(18) | B<br>(19) |
| Jane Street / Riley Street / Train Station Access | B<br>(24) | B<br>(23) | B<br>(24) | B<br>(24) | B<br>(24) | B<br>(25) | B<br>(25) | B<br>(26) |
| Jane Street/Station Street                        | A<br>(9)  | A<br>(10) | A<br>(11) | A<br>(13) | A<br>(13) | B<br>(16) | A<br>(14) | B<br>(17) |
| Mulgoa Rd / Great Western Highway                 | B<br>(28) | C<br>(29) | C<br>(43) | D<br>(44) | C<br>(30) | C<br>(31) | C<br>(34) | C<br>(36) |
| Worth Street / High Street                        | B<br>(22) | B<br>(21) | B<br>(23) | B<br>(22) | B<br>(26) | B<br>(26) | B<br>(25) | B<br>(25) |
| Riley Street / Henry Street / High Street         | A<br>(9)  | A<br>(10) | A<br>(13) | A<br>(14) | A<br>(15) | A<br>(15) | B<br>(16) | B<br>(16) |
| Station Street / Henry Street                     | A<br>(12) | A<br>(12) | B<br>(16) | B<br>(18) | B<br>(17) | B<br>(18) | B<br>(18) | B<br>(19) |
| Lawson Street / Henry Street                      | A<br>(11) | A<br>(11) | B<br>(15) | A<br>(15) | B<br>(28) | B<br>(26) | C<br>(30) | C<br>(29) |
| Evan Street / Henry Street                        | A<br>(13) | A<br>(13) | B<br>(19) | B<br>(20) | B<br>(26) | B<br>(26) | B<br>(27) | B<br>(27) |
| Lawson Street / High Street                       | A<br>(10) | A<br>(9)  | A<br>(13) | A<br>(13) | B<br>(25) | B<br>(24) | B<br>(25) | B<br>(26) |
| Evan Street / High Street                         | A<br>(9)  | A<br>(9)  | B<br>(15) | B<br>(15) | B<br>(19) | B<br>(20) | B<br>(20) | B<br>(20) |
| Parker Street / Great Western Highway             | B<br>(17) | B<br>(17) | B<br>(17) | B<br>(17) | B<br>(20) | B<br>(20) | B<br>(19) | B<br>(19) |
| Mulgoa Rd / Ransley Street                        | B<br>(19) | B<br>(19) | B<br>(16) | B<br>(16) | B<br>(29) | B<br>(29) | C<br>(32) | C<br>(33) |
| Parker Street / Derby Street                      | C<br>(34) | C<br>(34) | D<br>(49) | D<br>(50) | C<br>(41) | D<br>(44) | D<br>(45) | D<br>(49) |
| Mulgoa Road / Jamison Road                        | C<br>(35) | C<br>(35) | D<br>(46) | D<br>(48) | C<br>(31) | C<br>(31) | C<br>(32) | C<br>(33) |

## 4.7.2 Travel Time

The 2019 AM and PM peak travel times with the without the development are compared in Table 4.6. With the proposed development, the PM peak eastbound travel time along Route 2 Jane Street / Great Western Highway will increase by over one minute. This is attributed to additional delays at the High Street and Parker Street intersections as shown in Figure 4.3. However, the increase is localised and not considered to be significant.

**Table 4.6: Comparison of Travel Time– 2018 AM and PM Peak**

| Travel Time Routes                                   | AM Peak (mm:ss) |          |           |          | PM Peak (mm:ss) |          |           |          |
|------------------------------------------------------|-----------------|----------|-----------|----------|-----------------|----------|-----------|----------|
|                                                      | 0700-0800       |          | 0800-0900 |          | 1600-1700       |          | 1700-1800 |          |
|                                                      | Base 2019       | 2019 Dev | Base 2019 | 2019 Dev | Base 2019       | 2019 Dev | Base 2019 | 2019 Dev |
| TT1 - Castlereagh Road / Mulgoa Road, Northbound     | 3:18            | 03:21    | 3:39      | 03:41    | 04:04           | 04:04    | 04:11     | 04:10    |
| TT1 - Castlereagh Road / Mulgoa Road, Southbound     | 3:46            | 03:49    | 3:53      | 03:58    | 04:14           | 04:16    | 04:41     | 04:47    |
| TT2 - Jane Street / Great Western Highway, Eastbound | 6:58            | 07:00    | 7:23      | 07:26    | 09:48           | 11:12    | 08:25     | 09:09    |
| TT2 - Jane Street / Great Western Highway, Westbound | 5:29            | 05:31    | 5:50      | 05:48    | 06:49           | 06:54    | 07:00     | 07:13    |
| TT3 - Henry Street / High Street , Eastbound         | 3:46            | 03:48    | 4:18      | 04:20    | 04:52           | 04:56    | 04:53     | 05:12    |
| TT3 - Henry Street / High Street , Westbound         | 4:03            | 04:03    | 4:25      | 04:26    | 05:53           | 05:47    | 06:35     | 07:20    |
| TT4 - High Street, Eastbound                         | 2:25            | 02:26    | 2:46      | 02:47    | 03:22           | 03:58    | 03:07     | 03:18    |
| TT4 - High Street, Westbound                         | 1:49            | 01:49    | 2:15      | 02:15    | 02:17           | 02:18    | 02:15     | 02:18    |



**Figure 4.3: Travel Time Comparison, Route 2 Eastbound**

## 4.8 2036 Assessment Outcomes

As mentioned in the earlier section, the 2036 PM peak model results are unstable as the current PM peak network does not have capacity to service the future traffic demands. Therefore, only the 2036 AM peak results are discussed in the following section. The Aimsun model results are included in Appendix B.

### 4.8.1 Intersection Performance

The AM peak delays and LoS for the 2036 Base and With Development scenarios are compared in Table 4.7. The intersections will provide LoS A-D with and without the development except for the Parker Street / Derby Street and Mulgoa Road / Jamison Road intersections. These intersections would provide LoS F in the 2036 Base scenario with a slight non-significant increase in the with development scenario. The delays at Parker Street / Derby Street intersection are attributed to queue pushback from the congestion at the Great Western Highway / High Street intersection.

**Table 4.7: Comparison of Intersection Performance – 2036 AM Peak**

| Intersections                                     | AM Peak   |           |           |           |            |            |
|---------------------------------------------------|-----------|-----------|-----------|-----------|------------|------------|
|                                                   | 0700-0800 |           |           | 0800-0900 |            |            |
|                                                   | 2019 Base | 2036 Base | 2036 Dev  | 2019 Base | 2036 Base  | 2036 Dev   |
| Castlereagh Rd / Coreen Ave                       | A<br>(14) | B<br>(23) | B<br>(23) | B<br>(14) | D<br>(51)  | D<br>(48)  |
| Coreen Ave / Lemongrove Rd                        | A<br>(11) | A<br>(14) | B<br>(16) | A<br>(11) | B<br>(27)  | B<br>(27)  |
| Castlereagh Rd / Jane Street                      | B<br>(16) | A<br>(14) | A<br>(15) | A<br>(13) | A<br>(15)  | A<br>(14)  |
| Jane Street / Riley Street / Train Station Access | B<br>(24) | B<br>(22) | B<br>(22) | B<br>(24) | B<br>(23)  | B<br>(22)  |
| Jane Street/Station Street                        | A<br>(9)  | A<br>(10) | A<br>(10) | A<br>(11) | A<br>(12)  | A<br>(12)  |
| Mulgoa Rd / Great Western Highway                 | B<br>(28) | B<br>(29) | C<br>(29) | C<br>(43) | C<br>(39)  | C<br>(38)  |
| Worth Street / High Street                        | B<br>(22) | B<br>(26) | B<br>(24) | B<br>(23) | B<br>(28)  | B<br>(27)  |
| Riley Street / Henry Street / High Street         | A<br>(9)  | A<br>(9)  | A<br>(10) | A<br>(13) | A<br>(15)  | B<br>(16)  |
| Station Street / Henry Street                     | A<br>(12) | A<br>(10) | A<br>(10) | B<br>(16) | A<br>(12)  | A<br>(11)  |
| Lawson Street / Henry Street                      | A<br>(11) | A<br>(13) | A<br>(12) | B<br>(15) | B<br>(18)  | B<br>(18)  |
| Evan Street / Henry Street                        | A<br>(13) | B<br>(15) | B<br>(15) | B<br>(19) | B<br>(27)  | B<br>(28)  |
| Lawson Street / High Street                       | A<br>(10) | A<br>(11) | A<br>(11) | A<br>(13) | A<br>(13)  | A<br>(14)  |
| Evan Street / High Street                         | A<br>(9)  | A<br>(10) | A<br>(10) | B<br>(15) | A<br>(15)  | A<br>(15)  |
| Parker Street / Great Western Highway             | B<br>(17) | B<br>(16) | B<br>(16) | B<br>(17) | B<br>(17)  | B<br>(17)  |
| Mulgoa Rd / Ransley Street                        | B<br>(19) | B<br>(23) | B<br>(28) | B<br>(16) | B<br>(21)  | B<br>(22)  |
| Parker Street / Derby Street                      | C<br>(34) | C<br>(42) | C<br>(41) | D<br>(49) | F<br>(111) | F<br>(109) |
| Mulgoa Road / Jamison Road                        | C<br>(35) | C<br>(40) | C<br>(40) | D<br>(46) | F<br>(76)  | F<br>(81)  |



## 4.8.2 Travel Time

The 2036 AM peak travel times with the without the development are compared in Table 4.8. With the proposed development, the 2036 AM peak travel time will not be impacted.

**Table 4.8: Comparison of Travel Time– 2018 AM Peak**

| Travel Time Routes                                   | AM Peak   |           |          |           |           |          |
|------------------------------------------------------|-----------|-----------|----------|-----------|-----------|----------|
|                                                      | 0700-0800 |           |          | 0800-0900 |           |          |
|                                                      | Base 2018 | 2036 Base | 2036 Dev | Base 2018 | 2036 Base | 2036 Dev |
| TT1 - Castlereagh Road / Mulgoa Road, Northbound     | 3:18      | 4:00      | 04:14    | 3:39      | 6:17      | 06:00    |
| TT1 - Castlereagh Road / Mulgoa Road, Southbound     | 3:46      | 4:00      | 04:02    | 3:53      | 4:12      | 04:16    |
| TT2 - Jane Street / Great Western Highway, Eastbound | 6:58      | 7:02      | 07:01    | 7:23      | 7:21      | 07:23    |
| TT2 - Jane Street / Great Western Highway, Westbound | 5:29      | 5:46      | 05:48    | 5:50      | 6:12      | 06:11    |
| TT3 - Henry Street / High Street , Eastbound         | 3:46      | 3:48      | 03:47    | 4:18      | 4:36      | 04:42    |
| TT3 - Henry Street / High Street , Westbound         | 4:03      | 4:04      | 04:09    | 4:25      | 4:49      | 04:48    |
| TT4 - High Street, Eastbound                         | 2:25      | 2:25      | 02:23    | 2:46      | 2:52      | 02:54    |
| TT4 - High Street, Westbound                         | 1:49      | 1:49      | 01:48    | 2:15      | 2:13      | 02:12    |

## 5. CONCLUSIONS

The key findings from the modelling assessment are as follows:

- The proposed development will generate an additional 1,179 and 1,269 vehicles during the 4-hour AM and PM peak periods. Generally, the development traffic is not significant in the context of the existing and traffic volumes as it make up 2% of the total traffic
- The additional traffic is not expected to have any significant impacts on the performance of the key intersections within the study area. In general, the operational performance of key intersections would be similar in the 2018 / 2036 base case and with development case
- Generally, the AM and PM peak travel times on the key routes are expected to be similar in the 2018 and 2036 scenarios. The only exception is the PM peak route 2 travel time in the eastbound direction. The eastbound travel time is expected to be over one minute slower in the with development scenario. This is attributed to delays at the High Street and Parker Street intersections.

## Appendix A: Model Results 2019



# P5045 Westfield Penrith Expansion TIA

Aimsun Intersection Performance for Base 2019

AM 0800-0900

| ID  | Intersection                                                 | From                        | To                        | Turn | Modelled | Delay (s) | LoS | Queue Avg (number of Vehicle) | Queue Max (m) |
|-----|--------------------------------------------------------------|-----------------------------|---------------------------|------|----------|-----------|-----|-------------------------------|---------------|
| 001 | Castlereagh Rd<br>Coreen Ave<br>Castlereagh Rd<br>Coreen Ave | Castlereagh Rd (N)          | Coreen Ave (W)            | R    | 74       | 5         | A   | 2                             | 27            |
|     |                                                              |                             | Castlereagh Rd (S)        | T    | 992      | 4         | A   | 2                             | 27            |
|     |                                                              |                             | Castlereagh Rd (E)        | L    | 374      | 4         | A   | 1                             | 30            |
|     |                                                              |                             | Castlereagh Rd (N)        | R    | 196      | 13        | A   | 2                             | 15            |
|     |                                                              | Castlereagh Rd (E)          | Coreen Ave (W)            | T    | 75       | 10        | A   | 2                             | 15            |
|     |                                                              |                             | Castlereagh Rd (S)        | L    | 160      | 5         | A   | 1                             | 22            |
|     |                                                              |                             | Castlereagh Rd (E)        | R    | 291      | 11        | A   | 3                             | 53            |
|     |                                                              |                             | Castlereagh Rd (N)        | T    | 778      | 6         | A   | 3                             | 53            |
|     |                                                              | Castlereagh Rd (S)          | Coreen Ave (W)            | L    | 44       | 5         | A   | 0                             | 17            |
|     |                                                              |                             | Castlereagh Rd (S)        | R    | 14       | 12        | A   | 1                             | 8             |
|     |                                                              |                             | Castlereagh Rd (E)        | T    | 78       | 10        | A   | 1                             | 8             |
|     |                                                              |                             | Castlereagh Rd (N)        | L    | 57       | 5         | A   | 0                             | 11            |
|     |                                                              | All                         |                           |      | 1,872    | 13        | A   | 3                             | 53            |
|     |                                                              | Coreen Ave<br>Lemongrove Rd | Coreen Ave (E)            | T    | 413      | 14        | A   | 4                             | 18            |
|     |                                                              |                             | Lemongrove Rd (S)         | L    | 208      | 1         | A   | 0                             | 16            |
|     |                                                              |                             | Coreen Ave (E)            | R    | 157      | 21        | B   | 5                             | 30            |
|     |                                                              |                             | Coreen Ave (W)            | L    | 114      | 10        | A   | 2                             | 29            |
| 002 | Coreen Ave<br>Lemongrove Rd                                  | Coreen Ave (W)              | Lemongrove Rd (S)         | R    | 140      | 21        | B   | 4                             | 30            |
|     |                                                              |                             | Coreen Ave (E)            | T    | 302      | 6         | A   | 1                             | 13            |
|     |                                                              | All                         |                           |      | 1,335    | 11        | A   | 5                             | 30            |
|     |                                                              | Castlereagh Rd              | Castlereagh Rd (N)        | T    | 1,049    | 5         | A   | 2                             | 12            |
|     |                                                              |                             | Jane Street (E)           | L    | 271      | 2         | A   | 0                             | 20            |
|     |                                                              |                             | Castlereagh Rd (N)        | R    | 128      | 58        | E   | 4                             | 20            |
|     |                                                              |                             | Castlereagh Rd (S)        | L    | 63       | 36        | C   | 2                             | 14            |
|     |                                                              | Castlereagh Rd (S)          | Jane Street (E)           | R    | 250      | 30        | C   | 6                             | 19            |
|     |                                                              |                             | Castlereagh Rd (N)        | T    | 16       | 0         | A   | 0                             | 0             |
|     |                                                              | All                         |                           |      | 1,778    | 13        | A   | 6                             | 20            |
|     |                                                              | Train Station Access        | Jane Street (W)           | R    | 6        | 50        | D   | 1                             | 10            |
|     |                                                              |                             | Riley Street (S)          | T    | 0        | 0         | A   | 0                             | 0             |
|     |                                                              |                             | Jane Street (E)           | L    | 35       | 37        | C   | 3                             | 20            |
|     |                                                              |                             | Train Station Access (N)  | R    | 0        | 0         | A   | 0                             | 0             |
| 003 | Jane Street                                                  | Jane Street (E)             | Jane Street (W)           | T    | 235      | 15        | B   | 3                             | 21            |
|     |                                                              |                             | Riley Street (S)          | L    | 0        | 0         | A   | 0                             | 0             |
|     |                                                              |                             | Jane Street (E)           | R    | 45       | 21        | B   | 1                             | 13            |
|     |                                                              |                             | Train Station Access (N)  | T    | 0        | 0         | A   | 0                             | 0             |
|     |                                                              | Riley Street (S)            | Jane Street (W)           | L    | 15       | 19        | B   | 0                             | 6             |
|     |                                                              |                             | Riley Street (S)          | R    | 0        | 0         | A   | 0                             | 0             |
|     |                                                              |                             | Jane Street (E)           | T    | 420      | 30        | C   | 9                             | 52            |
|     |                                                              |                             | Train Station Access (N)  | L    | 0        | 0         | A   | 0                             | 0             |
|     |                                                              | All                         |                           |      | 756      | 25        | B   | 9                             | 52            |
|     |                                                              | Jane Street                 | Jane Street (E)           | T    | 122      | 13        | A   | 1                             | 13            |
|     |                                                              |                             | Station Street (S)        | L    | 189      | 1         | A   | 0                             | 16            |
|     |                                                              |                             | Jane Street (E)           | R    | 75       | 20        | B   | 2                             | 24            |
|     |                                                              |                             | Jane Street (W)           | L    | 127      | 12        | A   | 2                             | 25            |
| 004 | Station Street                                               | Station Street (S)          | Station Street (S)        | R    | 189      | 9         | A   | 2                             | 23            |
|     |                                                              |                             | Station Street (S)        | T    | 310      | 5         | A   | 1                             | 11            |
|     |                                                              | All                         |                           |      | 1,013    | 8         | A   | 2                             | 25            |
|     |                                                              | Castlereagh Rd              | Great Western Highway (W) | R    | 340      | 58        | E   | 16                            | 50            |
|     |                                                              |                             | Mulgoa Rd (S)             | T    | 686      | 21        | B   | 7                             | 46            |
|     |                                                              |                             | High Street (E)           | L    | 65       | 20        | B   | 2                             | 24            |
|     |                                                              |                             | Castlereagh Rd (N)        | R    | 71       | 62        | E   | 4                             | 14            |
|     |                                                              | High Street (E)             | Great Western Highway (W) | T    | 187      | 51        | D   | 5                             | 13            |
|     |                                                              |                             | Mulgoa Rd (S)             | L    | 85       | 3         | A   | 0                             | 14            |
|     |                                                              |                             | High Street (E)           | R    | 43       | 56        | D   | 4                             | 18            |
|     |                                                              |                             | Castlereagh Rd (N)        | T    | 778      | 13        | A   | 5                             | 18            |
| 005 | Great Western Highway                                        | Great Western Highway (W)   | Great Western Highway (W) | L    | 122      | 14        | A   | 3                             | 24            |
|     |                                                              |                             | Mulgoa Rd (S)             | R    | 141      | 70        | F   | 8                             | 28            |
|     |                                                              |                             | High Street (E)           | T    | 380      | 55        | D   | 11                            | 40            |
|     |                                                              |                             | Castlereagh Rd (N)        | L    | 679      | 36        | C   | 18                            | 75            |
|     |                                                              | All                         |                           |      | 3,577    | 33        | C   | 18                            | 75            |
|     |                                                              | Worth Street                | High Street (W)           | R    | 3        | 1,490     | F   | 2                             | 7             |
|     |                                                              |                             | Worth Street (S)          | T    | 1        | 13        | A   | 0                             | 1             |
|     |                                                              |                             | High Street (E)           | L    | 17       | 2         | A   | 0                             | 6             |
|     |                                                              |                             | Worth Street (N)          | R    | 8        | 25        | B   | 0                             | 11            |
| 006 | High Street                                                  | High Street (E)             | High Street (W)           | T    | 214      | 15        | A   | 2                             | 23            |
|     |                                                              |                             | Worth Street (S)          | L    | 38       | 16        | B   | 1                             | 14            |
|     |                                                              |                             | High Street (E)           | R    | 28       | 26        | B   | 1                             | 16            |
|     |                                                              |                             | Worth Street (N)          | T    | 28       | 27        | B   | 1                             | 4             |
|     |                                                              | Worth Street (S)            | High Street (W)           | L    | 98       | 21        | B   | 3                             | 24            |
|     |                                                              |                             | Worth Street (S)          | R    | 74       | 35        | C   | 4                             | 24            |
|     |                                                              |                             | High Street (E)           | T    | 284      | 17        | B   | 4                             | 27            |
|     |                                                              |                             | Worth Street (N)          | L    | 21       | 1         | A   | 0                             | 4             |
|     |                                                              | All                         |                           |      | 813      | 24        | B   | 4                             | 27            |
|     |                                                              | Riley Street                | High Street (W)           | R    | 0        | 0         | A   | 0                             | 0             |
|     |                                                              |                             | High Street (S)           | T    | 0        | 0         | A   | 0                             | 0             |
|     |                                                              |                             | Henry Street (E)          | L    | 0        | 0         | A   | 0                             | 0             |
|     |                                                              |                             | Riley Street (N)          | R    | 30       | 6         | A   | 0                             | 11            |
| 007 | Henry Street                                                 | Henry Street (E)            | High Street (W)           | T    | 256      | 3         | A   | 0                             | 15            |
|     |                                                              |                             | High Street (S)           | L    | 0        | 0         | A   | 0                             | 0             |
|     |                                                              |                             | Henry Street (E)          | R    | 9        | 25        | B   | 0                             | 10            |
|     |                                                              |                             | Riley Street (N)          | T    | 29       | 22        | B   | 1                             | 7             |
|     |                                                              | High Street (S)             | High Street (W)           | L    | 4        | 23        | B   | 0                             | 6             |
|     |                                                              |                             | High Street (S)           | R    | 0        | 0         | A   | 0                             | 0             |
|     |                                                              |                             | Henry Street (E)          | T    | 299      | 12        | A   | 3                             | 43            |
|     |                                                              |                             | Riley Street (N)          | L    | 30       | 11        | A   | 0                             | 11            |
|     |                                                              | All                         |                           |      | 656      | 9         | A   | 3                             | 43            |



| ID  | Intersection                                          | From                      | To                        | Turn | Modelled | Delay (s) | LoS | Queue Avg<br>(number of<br>Vehicle) | Queue<br>Max (m) |
|-----|-------------------------------------------------------|---------------------------|---------------------------|------|----------|-----------|-----|-------------------------------------|------------------|
| 009 | Station Street<br>Henry Street                        | Station Street (N)        | Henry Street (W)          | R    | 87       | 22        | B   | 5                                   | 29               |
|     |                                                       |                           | Station Street (S)        | T    | 142      | 19        | B   | 2                                   | 22               |
|     |                                                       |                           | Henry Street (E)          | L    | 86       | 18        | B   | 2                                   | 28               |
|     |                                                       | Henry Street (E)          | Station Street (N)        | R    | 63       | 16        | B   | 2                                   | 19               |
|     |                                                       |                           | Henry Street (W)          | T    | 145      | 13        | A   | 1                                   | 18               |
|     |                                                       |                           | Station Street (S)        | L    | 49       | 13        | A   | 1                                   | 18               |
|     |                                                       | Station Street (S)        | Henry Street (E)          | R    | 56       | 11        | A   | 1                                   | 19               |
|     |                                                       |                           | Station Street (N)        | T    | 97       | 12        | A   | 1                                   | 10               |
|     |                                                       |                           | Henry Street (W)          | L    | 56       | 13        | A   | 1                                   | 16               |
|     |                                                       | Henry Street (W)          | Station Street (S)        | R    | 79       | 7         | A   | 1                                   | 22               |
|     |                                                       |                           | Henry Street (E)          | T    | 184      | 4         | A   | 0                                   | 15               |
|     |                                                       |                           | Station Street (N)        | L    | 46       | 3         | A   | 0                                   | 10               |
|     |                                                       | All                       |                           |      | 1,090    | 13        | A   | 5                                   | 29               |
| 010 | Lawson Street<br>Henry Street                         | Lawson Street (N)         | Henry Street (W)          | R    | 12       | 35        | C   | 1                                   | 8                |
|     |                                                       |                           | Lawson Street (S)         | T    | 3        | 25        | B   | 0                                   | 4                |
|     |                                                       |                           | Henry Street (E)          | L    | 4        | 21        | B   | 0                                   | 6                |
|     |                                                       | Henry Street (E)          | Lawson Street (N)         | R    | 98       | 11        | A   | 1                                   | 18               |
|     |                                                       |                           | Henry Street (W)          | T    | 221      | 11        | A   | 2                                   | 19               |
|     |                                                       |                           | Lawson Street (S)         | L    | 32       | 12        | A   | 1                                   | 13               |
|     |                                                       | Lawson Street (S)         | Henry Street (E)          | R    | 18       | 34        | C   | 1                                   | 11               |
|     |                                                       |                           | Lawson Street (N)         | T    | 36       | 28        | B   | 2                                   | 19               |
|     |                                                       |                           | Henry Street (W)          | L    | 13       | 19        | B   | 0                                   | 8                |
|     |                                                       | Henry Street (W)          | Lawson Street (S)         | R    | 19       | 34        | C   | 1                                   | 13               |
|     |                                                       |                           | Henry Street (E)          | T    | 231      | 3         | A   | 0                                   | 11               |
|     |                                                       |                           | Lawson Street (N)         | L    | 9        | 7         | A   | 0                                   | 6                |
|     |                                                       | All                       |                           |      | 696      | 11        | A   | 2                                   | 19               |
| 011 | Evan Street<br>Henry Street                           | Evan Street (N)           | Henry Street (W)          | R    | 153      | 11        | A   | 2                                   | 26               |
|     |                                                       |                           | Evan Street (S)           | T    | 261      | 8         | A   | 3                                   | 26               |
|     |                                                       |                           | Henry Street (E)          | L    | 87       | 6         | A   | 1                                   | 17               |
|     |                                                       | Henry Street (E)          | Evan Street (N)           | R    | 98       | 20        | B   | 3                                   | 28               |
|     |                                                       |                           | Henry Street (W)          | T    | 177      | 14        | A   | 2                                   | 17               |
|     |                                                       |                           | Evan Street (S)           | L    | 27       | 14        | A   | 1                                   | 12               |
|     |                                                       | Evan Street (S)           | Henry Street (E)          | R    | 35       | 28        | B   | 2                                   | 18               |
|     |                                                       |                           | Evan Street (N)           | T    | 229      | 16        | B   | 3                                   | 18               |
|     |                                                       |                           | Henry Street (W)          | L    | 66       | 18        | B   | 2                                   | 20               |
|     |                                                       | Henry Street (W)          | Evan Street (S)           | R    | 0        | 0         | A   | 0                                   | 0                |
|     |                                                       |                           | Henry Street (E)          | T    | 128      | 15        | B   | 1                                   | 18               |
|     |                                                       |                           | Evan Street (N)           | L    | 107      | 11        | A   | 3                                   | 28               |
|     |                                                       | All                       |                           |      | 1,369    | 13        | A   | 3                                   | 28               |
| 012 | Lawson Street<br>High Street                          | Lawson Street (N)         | High Street (W)           | R    | 22       | 37        | C   | 1                                   | 18               |
|     |                                                       |                           | High Street (E)           | L    | 13       | 28        | B   | 1                                   | 11               |
|     |                                                       | High Street (E)           | Lawson Street (N)         | R    | 52       | 44        | D   | 4                                   | 23               |
|     |                                                       |                           | High Street (W)           | T    | 270      | 3         | A   | 1                                   | 28               |
|     |                                                       | High Street (W)           | High Street (E)           | T    | 130      | 8         | A   | 2                                   | 29               |
|     |                                                       |                           | Lawson Street (N)         | L    | 108      | 4         | A   | 2                                   | 17               |
|     |                                                       | All                       |                           |      | 595      | 10        | A   | 4                                   | 29               |
| 013 | Evan Street<br>High Street                            | Evan Street (N)           | High Street (W)           | R    | 76       | 13        | A   | 1                                   | 22               |
|     |                                                       |                           | Evan Street (S)           | T    | 184      | 9         | A   | 1                                   | 17               |
|     |                                                       |                           | High Street (E)           | L    | 39       | 11        | A   | 1                                   | 14               |
|     |                                                       | High Street (E)           | Evan Street (N)           | R    | 87       | 12        | A   | 1                                   | 22               |
|     |                                                       |                           | High Street (W)           | T    | 145      | 8         | A   | 1                                   | 13               |
|     |                                                       |                           | Evan Street (S)           | L    | 31       | 10        | A   | 0                                   | 13               |
|     |                                                       | Evan Street (S)           | High Street (E)           | R    | 24       | 10        | A   | 0                                   | 10               |
|     |                                                       |                           | Evan Street (N)           | T    | 168      | 8         | A   | 1                                   | 11               |
|     |                                                       |                           | High Street (W)           | L    | 18       | 10        | A   | 0                                   | 7                |
|     |                                                       | High Street (W)           | Evan Street (S)           | R    | 17       | 11        | A   | 0                                   | 8                |
|     |                                                       |                           | High Street (E)           | T    | 98       | 8         | A   | 0                                   | 11               |
|     |                                                       |                           | Evan Street (N)           | L    | 85       | 9         | A   | 1                                   | 16               |
|     |                                                       | All                       |                           |      | 971      | 9         | A   | 1                                   | 22               |
| 014 | Parker Street<br>Great Western Highway<br>High Street | Parker Street (N)         | High Street (W)           | R    | 191      | 33        | C   | 10                                  | 18               |
|     |                                                       |                           | Parker Street (S)         | T    | 664      | 22        | B   | 11                                  | 18               |
|     |                                                       |                           | Great Western Highway (E) | L    | 736      | 1         | A   | 0                                   | 0                |
|     |                                                       | Great Western Highway (E) | Parker Street (N)         | R    | 366      | 9         | A   | 4                                   | 11               |
|     |                                                       |                           | High Street (W)           | T    | 463      | 18        | B   | 3                                   | 8                |
|     |                                                       |                           | Parker Street (S)         | L    | 136      | 1         | A   | 0                                   | 0                |
|     |                                                       | Parker Street (S)         | Great Western Highway (E) | R    | 163      | 33        | C   | 8                                   | 18               |
|     |                                                       |                           | Parker Street (N)         | T    | 658      | 24        | B   | 11                                  | 18               |
|     |                                                       |                           | High Street (W)           | L    | 235      | 2         | A   | 0                                   | 20               |
|     |                                                       | High Street (W)           | Parker Street (S)         | R    | 83       | 62        | E   | 8                                   | 48               |
|     |                                                       |                           | Great Western Highway (E) | T    | 296      | 52        | D   | 12                                  | 43               |
|     |                                                       |                           | Parker Street (N)         | L    | 150      | 1         | A   | 0                                   | 0                |
|     |                                                       | All                       |                           |      | 4,141    | 18        | B   | 12                                  | 48               |
| 015 | Mulgoa Rd<br>Ransley Street                           | Mulgoa Rd (N)             | Ransley Street (W)        | R    | 18       | 56        | D   | 3                                   | 16               |
|     |                                                       |                           | Mulgoa Rd (S)             | T    | 717      | 27        | B   | 14                                  | 91               |
|     |                                                       |                           | Ransley Street (E)        | L    | 62       | 26        | B   | 2                                   | 23               |
|     |                                                       | Ransley Street (E)        | Mulgoa Rd (N)             | R    | 80       | 28        | B   | 4                                   | 36               |
|     |                                                       |                           | Ransley Street (W)        | T    | 18       | 22        | B   | 0                                   | 6                |
|     |                                                       |                           | Mulgoa Rd (S)             | L    | 9        | 19        | B   | 0                                   | 8                |
|     |                                                       | Mulgoa Rd (S)             | Ransley Street (E)        | R    | 19       | 80        | F   | 2                                   | 13               |
|     |                                                       |                           | Mulgoa Rd (N)             | T    | 999      | 11        | A   | 7                                   | 61               |
|     |                                                       |                           | Ransley Street (W)        | L    | 13       | 28        | B   | 1                                   | 10               |
|     |                                                       | Ransley Street (W)        | Mulgoa Rd (S)             | R    | 7        | 25        | B   | 0                                   | 8                |
|     |                                                       |                           | Ransley Street (E)        | T    | 14       | 23        | B   | 0                                   | 5                |
|     |                                                       |                           | Mulgoa Rd (N)             | L    | 25       | 27        | B   | 1                                   | 17               |
|     |                                                       | All                       |                           |      | 1,983    | 20        | B   | 14                                  | 91               |

| ID  | Intersection                  | From              | To                | Turn              | Modelled | Delay (s) | LoS | Queue Avg<br>(number of<br>Vehicle) | Queue<br>Max (m) |
|-----|-------------------------------|-------------------|-------------------|-------------------|----------|-----------|-----|-------------------------------------|------------------|
| 016 | Parker Street<br>Derby Street | Parker Street (N) | Derby Street (W)  | R                 | 89       | 51        | D   | 7                                   | 38               |
|     |                               |                   | Parker Street (S) | T                 | 629      | 11        | A   | 3                                   | 22               |
|     |                               | Derby Street (E)  | Derby Street (E)  | L                 | 86       | 18        | B   | 2                                   | 22               |
|     |                               |                   | Parker Street (N) | R                 | 113      | 49        | D   | 9                                   | 40               |
|     |                               | Derby Street (W)  | T                 | 51                | 44       | D         | 2   | 11                                  |                  |
|     |                               | Parker Street (S) | Parker Street (S) | L                 | 40       | 30        | C   | 2                                   | 11               |
|     |                               |                   | Derby Street (E)  | R                 | 122      | 55        | D   | 12                                  | 36               |
|     |                               | Derby Street (W)  | Parker Street (N) | T                 | 1,029    | 18        | B   | 9                                   | 48               |
|     |                               |                   | Derby Street (W)  | L                 | 37       | 20        | B   | 1                                   | 14               |
|     |                               |                   | Parker Street (S) | R                 | 55       | 49        | D   | 4                                   | 26               |
|     |                               |                   | Derby Street (E)  | T                 | 29       | 45        | D   | 1                                   | 8                |
|     |                               |                   |                   | Parker Street (N) | L        | 18        | 23  | B                                   | 1                |
|     |                               | All               |                   |                   | 2,298    | 23        | B   | 12                                  | 48               |
| 017 | Mulgoa Road<br>Jamison Road   | Mulgoa Road (N)   | Jamison Road (W)  | R                 | 25       | 28        | B   | 1                                   | 19               |
|     |                               |                   | Mulgoa Road (S)   | T                 | 644      | 40        | C   | 13                                  | 74               |
|     |                               | Jamison Road (E)  | Jamison Road (E)  | L                 | 104      | 38        | C   | 11                                  | 50               |
|     |                               |                   | Mulgoa Road (N)   | R                 | 155      | 45        | D   | 5                                   | 25               |
|     |                               | Mulgoa Road (S)   | Jamison Road (W)  | T                 | 26       | 42        | C   | 2                                   | 14               |
|     |                               |                   | Mulgoa Road (S)   | L                 | 171      | 29        | C   | 7                                   | 42               |
|     |                               | Jamison Road (W)  | Jamison Road (E)  | R                 | 297      | 51        | D   | 14                                  | 44               |
|     |                               |                   | Mulgoa Road (N)   | T                 | 861      | 24        | B   | 10                                  | 59               |
|     |                               | Jamison Road (W)  | Jamison Road (W)  | L                 | 17       | 21        | B   | 1                                   | 6                |
|     |                               |                   | Mulgoa Road (S)   | R                 | 45       | 46        | D   | 3                                   | 12               |
|     |                               |                   | Jamison Road (E)  | T                 | 28       | 34        | C   | 1                                   | 8                |
|     |                               |                   |                   | Mulgoa Road (N)   | L        | 19        | 30  | C                                   | 1                |
|     |                               | All               |                   |                   | 2,391    | 35        | C   | 14                                  | 74               |

SUPERSEDED - SEE SLR 3 JUNE MEMORANDUM ATTACHMENT 1

# P5045 Westfield Penrith Expansion TIA

Aimsun Intersection Performance for Base 2019

AM 0900-1000

| ID  | Intersection                                                        | From                      | To                        | Turn | Modelled | Delay (s) | LoS | Queue Avg (number of Vehicle) | Queue Max (m) |
|-----|---------------------------------------------------------------------|---------------------------|---------------------------|------|----------|-----------|-----|-------------------------------|---------------|
| 001 | Castlereagh Rd<br>Coreen Ave<br>Castlereagh Rd<br>Coreen Ave        | Castlereagh Rd (N)        | Coreen Ave (W)            | R    | 69       | 6         | A   | 3                             | 44            |
|     |                                                                     |                           | Castlereagh Rd (S)        | T    | 1,347    | 5         | A   | 3                             | 44            |
|     |                                                                     |                           | Castlereagh Rd (E)        | L    | 160      | 5         | A   | 1                             | 22            |
|     |                                                                     |                           | Castlereagh Rd (N)        | R    | 108      | 15        | B   | 2                             | 15            |
|     |                                                                     | Castlereagh Rd (E)        | Coreen Ave (W)            | T    | 114      | 13        | A   | 2                             | 15            |
|     |                                                                     |                           | Castlereagh Rd (S)        | L    | 187      | 8         | A   | 2                             | 26            |
|     |                                                                     |                           | Castlereagh Rd (E)        | R    | 262      | 11        | A   | 4                             | 67            |
|     |                                                                     |                           | Castlereagh Rd (N)        | T    | 1,060    | 8         | A   | 4                             | 67            |
|     |                                                                     | Castlereagh Rd (S)        | Coreen Ave (W)            | L    | 46       | 7         | A   | 0                             | 14            |
|     |                                                                     |                           | Castlereagh Rd (S)        | R    | 19       | 12        | A   | 1                             | 9             |
|     |                                                                     |                           | Castlereagh Rd (E)        | T    | 71       | 11        | A   | 1                             | 9             |
|     |                                                                     |                           | Castlereagh Rd (N)        | L    | 40       | 8         | A   | 1                             | 10            |
|     |                                                                     | Coreen Ave (W)            | Castlereagh Rd (S)        | L    | 1,985    | 15        | B   | 4                             | 67            |
| 002 | Coreen Ave<br>Lemongrove Rd                                         | Coreen Ave (E)            | Coreen Ave (W)            | T    | 339      | 18        | B   | 5                             | 18            |
|     |                                                                     |                           | Lemongrove Rd (S)         | L    | 448      | 3         | A   | 2                             | 29            |
|     |                                                                     | Lemongrove Rd (S)         | Coreen Ave (E)            | R    | 192      | 22        | B   | 6                             | 38            |
|     |                                                                     |                           | Coreen Ave (W)            | L    | 132      | 9         | A   | 2                             | 28            |
|     |                                                                     | Coreen Ave (W)            | Lemongrove Rd (S)         | R    | 314      | 23        | B   | 10                            | 56            |
|     |                                                                     |                           | Coreen Ave (E)            | T    | 306      | 9         | A   | 2                             | 18            |
|     |                                                                     | All                       |                           |      | 1,731    | 13        | A   | 10                            | 56            |
| 003 | Castlereagh Rd<br>Jane Street                                       | Castlereagh Rd (N)        | Castlereagh Rd (S)        | T    | 1,281    | 4         | A   | 3                             | 12            |
|     |                                                                     |                           | Jane Street (E)           | L    | 540      | 2         | A   | 1                             | 23            |
|     |                                                                     | Jane Street (E)           | Castlereagh Rd (N)        | R    | 149      | 59        | E   | 5                             | 22            |
|     |                                                                     |                           | Castlereagh Rd (S)        | L    | 65       | 39        | C   | 2                             | 16            |
|     |                                                                     | Castlereagh Rd (S)        | Jane Street (E)           | R    | 318      | 29        | C   | 7                             | 18            |
|     |                                                                     |                           | Castlereagh Rd (N)        | T    | 167      | 0         | A   | 0                             | 7             |
|     |                                                                     | All                       |                           |      | 2,520    | 11        | A   | 7                             | 23            |
| 004 | Train Station Access<br>Jane Street<br>Riley Street                 | Train Station Access (N)  | Jane Street (W)           | R    | 3        | 40        | C   | 0                             | 6             |
|     |                                                                     |                           | Riley Street (S)          | T    | 0        | 0         | A   | 0                             | 0             |
|     |                                                                     |                           | Jane Street (E)           | L    | 29       | 39        | C   | 3                             | 18            |
|     |                                                                     | Jane Street (E)           | Train Station Access (N)  | R    | 0        | 0         | A   | 0                             | 0             |
|     |                                                                     |                           | Jane Street (W)           | T    | 390      | 15        | A   | 4                             | 29            |
|     |                                                                     |                           | Riley Street (S)          | L    | 0        | 0         | A   | 0                             | 0             |
|     |                                                                     | Riley Street (S)          | Jane Street (E)           | R    | 70       | 24        | B   | 1                             | 17            |
|     |                                                                     |                           | Train Station Access (N)  | T    | 0        | 0         | A   | 0                             | 0             |
|     |                                                                     |                           | Jane Street (W)           | L    | 17       | 25        | B   | 0                             | 4             |
|     |                                                                     | Jane Street (W)           | Riley Street (S)          | R    | 0        | 0         | A   | 0                             | 0             |
|     |                                                                     |                           | Jane Street (E)           | T    | 645      | 32        | C   | 15                            | 70            |
|     |                                                                     |                           | Train Station Access (N)  | L    | 0        | 0         | A   | 0                             | 0             |
|     |                                                                     | All                       |                           |      | 1,154    | 26        | B   | 15                            | 70            |
| 005 | Jane Street<br>Station Street                                       | Jane Street (E)           | Jane Street (W)           | T    | 234      | 14        | A   | 2                             | 23            |
|     |                                                                     |                           | Station Street (S)        | L    | 203      | 2         | A   | 0                             | 20            |
|     |                                                                     | Station Street (S)        | Jane Street (E)           | R    | 81       | 24        | B   | 3                             | 22            |
|     |                                                                     |                           | Jane Street (W)           | L    | 168      | 16        | B   | 4                             | 35            |
|     |                                                                     | Jane Street (W)           | Station Street (S)        | R    | 369      | 15        | A   | 7                             | 41            |
|     |                                                                     |                           | Jane Street (E)           | T    | 371      | 5         | A   | 1                             | 11            |
|     |                                                                     | All                       |                           |      | 1,426    | 11        | A   | 7                             | 41            |
| 006 | Castlereagh Rd<br>High Street<br>Mulgoa Rd<br>Great Western Highway | Castlereagh Rd (N)        | Great Western Highway (W) | R    | 453      | 63        | E   | 22                            | 70            |
|     |                                                                     |                           | Mulgoa Rd (S)             | T    | 787      | 28        | B   | 11                            | 48            |
|     |                                                                     |                           | High Street (E)           | L    | 113      | 29        | C   | 6                             | 29            |
|     |                                                                     | High Street (E)           | Castlereagh Rd (N)        | R    | 117      | 58        | E   | 5                             | 16            |
|     |                                                                     |                           | Great Western Highway (W) | T    | 255      | 42        | C   | 6                             | 14            |
|     |                                                                     |                           | Mulgoa Rd (S)             | L    | 80       | 3         | A   | 0                             | 13            |
|     |                                                                     | Mulgoa Rd (S)             | High Street (E)           | R    | 70       | 54        | D   | 6                             | 18            |
|     |                                                                     |                           | Castlereagh Rd (N)        | T    | 840      | 13        | A   | 5                             | 18            |
|     |                                                                     |                           | Great Western Highway (W) | L    | 164      | 15        | B   | 4                             | 23            |
|     |                                                                     | Great Western Highway (W) | Mulgoa Rd (S)             | R    | 215      | 61        | E   | 10                            | 31            |
|     |                                                                     |                           | High Street (E)           | T    | 554      | 57        | D   | 16                            | 48            |
|     |                                                                     |                           | Castlereagh Rd (N)        | L    | 836      | 32        | C   | 20                            | 77            |
|     |                                                                     | All                       |                           |      | 4,484    | 36        | C   | 22                            | 77            |
| 007 | Worth Street<br>High Street                                         | Worth Street (N)          | High Street (W)           | R    | 12       | 133       | F   | 2                             | 6             |
|     |                                                                     |                           | Worth Street (S)          | T    | 1        | 17        | B   | 0                             | 1             |
|     |                                                                     |                           | High Street (E)           | L    | 16       | 1         | A   | 0                             | 6             |
|     |                                                                     | High Street (E)           | Worth Street (N)          | R    | 45       | 40        | C   | 3                             | 17            |
|     |                                                                     |                           | High Street (W)           | T    | 288      | 14        | A   | 3                             | 30            |
|     |                                                                     |                           | Worth Street (S)          | L    | 41       | 14        | A   | 1                             | 18            |
|     |                                                                     | Worth Street (S)          | High Street (E)           | R    | 23       | 28        | B   | 1                             | 14            |
|     |                                                                     |                           | Worth Street (N)          | T    | 102      | 26        | B   | 2                             | 8             |
|     |                                                                     |                           | High Street (W)           | L    | 126      | 24        | B   | 5                             | 29            |
|     |                                                                     | High Street (W)           | Worth Street (S)          | R    | 153      | 60        | E   | 12                            | 30            |
|     |                                                                     |                           | High Street (E)           | T    | 416      | 15        | B   | 4                             | 28            |
|     |                                                                     |                           | Worth Street (N)          | L    | 95       | 1         | A   | 0                             | 8             |
|     |                                                                     | All                       |                           |      | 1,320    | 23        | B   | 12                            | 30            |
| 008 | Riley Street<br>Henry Street<br>High Street<br>High Street          | Riley Street (N)          | High Street (W)           | R    | 0        | 0         | A   | 0                             | 0             |
|     |                                                                     |                           | High Street (S)           | T    | 0        | 0         | A   | 0                             | 0             |
|     |                                                                     |                           | Henry Street (E)          | L    | 0        | 0         | A   | 0                             | 0             |
|     |                                                                     | Henry Street (E)          | Riley Street (N)          | R    | 39       | 11        | A   | 1                             | 12            |
|     |                                                                     |                           | High Street (W)           | T    | 377      | 6         | A   | 1                             | 23            |
|     |                                                                     |                           | High Street (S)           | L    | 0        | 0         | A   | 0                             | 0             |
|     |                                                                     | High Street (S)           | Henry Street (E)          | R    | 10       | 22        | B   | 0                             | 7             |
|     |                                                                     |                           | Riley Street (N)          | T    | 36       | 19        | B   | 1                             | 6             |
|     |                                                                     |                           | High Street (W)           | L    | 3        | 19        | B   | 0                             | 6             |
|     |                                                                     | High Street (W)           | High Street (S)           | R    | 0        | 0         | A   | 0                             | 0             |
|     |                                                                     |                           | Henry Street (E)          | T    | 421      | 18        | B   | 6                             | 52            |
|     |                                                                     |                           | Riley Street (N)          | L    | 33       | 17        | B   | 1                             | 13            |
|     |                                                                     | All                       |                           |      | 918      | 13        | A   | 6                             | 52            |

| ID  | Intersection                                          | From                                                                                         | To                        | Turn | Modelled | Delay (s) | LoS | Queue Avg<br>(number of<br>Vehicle) | Queue<br>Max (m) |
|-----|-------------------------------------------------------|----------------------------------------------------------------------------------------------|---------------------------|------|----------|-----------|-----|-------------------------------------|------------------|
| 009 | Station Street<br>Henry Street                        | Station Street (N)<br><br>Henry Street (E)<br><br>Station Street (S)<br><br>Henry Street (W) | Henry Street (W)          | R    | 94       | 32        | C   | 9                                   | 37               |
|     |                                                       |                                                                                              | Station Street (S)        | T    | 273      | 24        | B   | 5                                   | 31               |
|     |                                                       |                                                                                              | Henry Street (E)          | L    | 122      | 22        | B   | 4                                   | 35               |
|     |                                                       |                                                                                              | Station Street (N)        | R    | 80       | 20        | B   | 2                                   | 24               |
|     |                                                       |                                                                                              | Henry Street (W)          | T    | 265      | 15        | A   | 3                                   | 22               |
|     |                                                       |                                                                                              | Station Street (S)        | L    | 77       | 11        | A   | 1                                   | 17               |
|     |                                                       |                                                                                              | Henry Street (E)          | R    | 80       | 69        | E   | 9                                   | 48               |
|     |                                                       |                                                                                              | Station Street (N)        | T    | 118      | 41        | C   | 4                                   | 23               |
|     |                                                       |                                                                                              | Henry Street (W)          | L    | 57       | 32        | C   | 3                                   | 28               |
|     |                                                       |                                                                                              | Station Street (S)        | R    | 89       | 4         | A   | 0                                   | 20               |
|     |                                                       |                                                                                              | Henry Street (E)          | T    | 285      | 1         | A   | 0                                   | 5                |
|     |                                                       |                                                                                              | Station Street (N)        | L    | 49       | 2         | A   | 0                                   | 6                |
|     | All                                                   |                                                                                              |                           |      | 1,589    | 20        | B   | 9                                   | 48               |
| 010 | Lawson Street<br>Henry Street                         | Lawson Street (N)<br><br>Henry Street (E)<br><br>Lawson Street (S)<br><br>Henry Street (W)   | Henry Street (W)          | R    | 17       | 36        | C   | 1                                   | 10               |
|     |                                                       |                                                                                              | Lawson Street (S)         | T    | 65       | 28        | B   | 1                                   | 7                |
|     |                                                       |                                                                                              | Henry Street (E)          | L    | 4        | 25        | B   | 0                                   | 5                |
|     |                                                       |                                                                                              | Lawson Street (N)         | R    | 89       | 17        | B   | 2                                   | 19               |
|     |                                                       |                                                                                              | Henry Street (W)          | T    | 338      | 13        | A   | 3                                   | 26               |
|     |                                                       |                                                                                              | Lawson Street (S)         | L    | 90       | 14        | A   | 2                                   | 17               |
|     |                                                       |                                                                                              | Henry Street (E)          | R    | 39       | 37        | C   | 2                                   | 19               |
|     |                                                       |                                                                                              | Lawson Street (N)         | T    | 15       | 35        | C   | 1                                   | 14               |
|     |                                                       |                                                                                              | Henry Street (W)          | L    | 32       | 20        | B   | 1                                   | 13               |
|     |                                                       |                                                                                              | Lawson Street (S)         | R    | 38       | 46        | D   | 3                                   | 14               |
|     |                                                       |                                                                                              | Henry Street (E)          | T    | 334      | 6         | A   | 1                                   | 19               |
|     |                                                       |                                                                                              | Lawson Street (N)         | L    | 8        | 6         | A   | 0                                   | 4                |
|     | All                                                   |                                                                                              |                           |      | 1,069    | 15        | B   | 3                                   | 26               |
| 011 | Evan Street<br>Henry Street                           | Evan Street (N)<br><br>Henry Street (E)<br><br>Evan Street (S)<br><br>Henry Street (W)       | Henry Street (W)          | R    | 320      | 18        | B   | 8                                   | 54               |
|     |                                                       |                                                                                              | Evan Street (S)           | T    | 476      | 10        | A   | 6                                   | 49               |
|     |                                                       |                                                                                              | Henry Street (E)          | L    | 190      | 10        | A   | 3                                   | 25               |
|     |                                                       |                                                                                              | Evan Street (N)           | R    | 94       | 36        | C   | 5                                   | 30               |
|     |                                                       |                                                                                              | Henry Street (W)          | T    | 258      | 24        | B   | 5                                   | 26               |
|     |                                                       |                                                                                              | Evan Street (S)           | L    | 51       | 25        | B   | 2                                   | 22               |
|     |                                                       |                                                                                              | Henry Street (E)          | R    | 37       | 42        | C   | 2                                   | 19               |
|     |                                                       |                                                                                              | Evan Street (N)           | T    | 307      | 23        | B   | 5                                   | 25               |
|     |                                                       |                                                                                              | Henry Street (W)          | L    | 109      | 23        | B   | 4                                   | 25               |
|     |                                                       |                                                                                              | Evan Street (S)           | R    | 0        | 0         | A   | 0                                   | 0                |
|     |                                                       |                                                                                              | Henry Street (E)          | T    | 251      | 24        | B   | 4                                   | 27               |
|     |                                                       |                                                                                              | Evan Street (N)           | L    | 150      | 16        | B   | 5                                   | 40               |
|     | All                                                   |                                                                                              |                           |      | 2,242    | 19        | B   | 8                                   | 54               |
| 012 | Lawson Street<br>High Street                          | Lawson Street (N)                                                                            | High Street (W)           | R    | 40       | 38        | C   | 2                                   | 19               |
|     |                                                       |                                                                                              | High Street (E)           | L    | 25       | 23        | B   | 1                                   | 13               |
|     |                                                       | High Street (E)                                                                              | Lawson Street (N)         | R    | 103      | 37        | C   | 6                                   | 34               |
|     |                                                       |                                                                                              | High Street (W)           | T    | 468      | 7         | A   | 4                                   | 56               |
|     |                                                       | High Street (W)                                                                              | High Street (E)           | T    | 229      | 13        | A   | 4                                   | 41               |
|     |                                                       |                                                                                              | Lawson Street (N)         | L    | 118      | 9         | A   | 3                                   | 25               |
|     | All                                                   |                                                                                              |                           |      | 983      | 13        | A   | 6                                   | 56               |
| 013 | Evan Street<br>High Street                            | Evan Street (N)                                                                              | High Street (W)           | R    | 130      | 17        | B   | 6                                   | 35               |
|     |                                                       |                                                                                              | Evan Street (S)           | T    | 345      | 11        | A   | 3                                   | 26               |
|     |                                                       | High Street (E)                                                                              | High Street (E)           | L    | 63       | 13        | A   | 1                                   | 14               |
|     |                                                       |                                                                                              | Evan Street (N)           | R    | 113      | 25        | B   | 4                                   | 32               |
|     |                                                       |                                                                                              | High Street (W)           | T    | 271      | 19        | B   | 4                                   | 30               |
|     |                                                       | Evan Street (S)                                                                              | Evan Street (S)           | L    | 75       | 20        | B   | 2                                   | 18               |
|     |                                                       |                                                                                              | High Street (E)           | R    | 44       | 15        | B   | 1                                   | 13               |
|     |                                                       |                                                                                              | Evan Street (N)           | T    | 264      | 10        | A   | 2                                   | 17               |
|     |                                                       | High Street (W)                                                                              | High Street (W)           | L    | 62       | 11        | A   | 1                                   | 13               |
|     |                                                       |                                                                                              | Evan Street (S)           | R    | 48       | 25        | B   | 2                                   | 16               |
|     |                                                       |                                                                                              | High Street (E)           | T    | 167      | 15        | A   | 2                                   | 18               |
|     |                                                       |                                                                                              | Evan Street (N)           | L    | 93       | 16        | B   | 2                                   | 25               |
|     | All                                                   |                                                                                              |                           |      | 1,672    | 15        | B   | 6                                   | 35               |
| 014 | Parker Street<br>Great Western Highway<br>High Street | Parker Street (N)                                                                            | High Street (W)           | R    | 291      | 25        | B   | 11                                  | 18               |
|     |                                                       |                                                                                              | Parker Street (S)         | T    | 835      | 19        | B   | 13                                  | 18               |
|     |                                                       |                                                                                              | Great Western Highway (E) | L    | 806      | 1         | A   | 0                                   | 0                |
|     |                                                       | Great Western Highway (E)                                                                    | Parker Street (N)         | R    | 382      | 9         | A   | 4                                   | 11               |
|     |                                                       |                                                                                              | High Street (W)           | T    | 776      | 12        | A   | 4                                   | 8                |
|     |                                                       |                                                                                              | Parker Street (S)         | L    | 149      | 1         | A   | 0                                   | 0                |
|     |                                                       | Parker Street (S)                                                                            | Great Western Highway (E) | R    | 135      | 40        | C   | 8                                   | 19               |
|     |                                                       |                                                                                              | Parker Street (N)         | T    | 705      | 19        | B   | 10                                  | 18               |
|     |                                                       |                                                                                              | High Street (W)           | L    | 273      | 5         | A   | 2                                   | 24               |
|     |                                                       | High Street (W)                                                                              | Parker Street (S)         | R    | 117      | 61        | E   | 11                                  | 44               |
|     |                                                       |                                                                                              | Great Western Highway (E) | T    | 409      | 52        | D   | 16                                  | 45               |
|     |                                                       |                                                                                              | Parker Street (N)         | L    | 218      | 1         | A   | 0                                   | 0                |
| All |                                                       |                                                                                              |                           |      | 5,096    | 17        | B   | 16                                  | 45               |
| 015 | Mulgoa Rd<br>Ransley Street                           | Mulgoa Rd (N)                                                                                | Ransley Street (W)        | R    | 27       | 60        | E   | 4                                   | 20               |
|     |                                                       |                                                                                              | Mulgoa Rd (S)             | T    | 724      | 23        | B   | 12                                  | 89               |
|     |                                                       |                                                                                              | Ransley Street (E)        | L    | 118      | 23        | B   | 4                                   | 46               |
|     |                                                       | Ransley Street (E)                                                                           | Mulgoa Rd (N)             | R    | 88       | 39        | C   | 5                                   | 30               |
|     |                                                       |                                                                                              | Ransley Street (W)        | T    | 25       | 46        | D   | 1                                   | 7                |
|     |                                                       |                                                                                              | Mulgoa Rd (S)             | L    | 13       | 37        | C   | 1                                   | 11               |
|     |                                                       | Mulgoa Rd (S)                                                                                | Ransley Street (E)        | R    | 38       | 93        | F   | 6                                   | 25               |
|     |                                                       |                                                                                              | Mulgoa Rd (N)             | T    | 1,124    | 5         | A   | 3                                   | 35               |
|     |                                                       |                                                                                              | Ransley Street (W)        | L    | 21       | 11        | A   | 0                                   | 10               |
|     |                                                       | Ransley Street (W)                                                                           | Mulgoa Rd (S)             | R    | 4        | 32        | C   | 0                                   | 8                |
|     |                                                       |                                                                                              | Ransley Street (E)        | T    | 37       | 31        | C   | 1                                   | 8                |
|     |                                                       |                                                                                              | Mulgoa Rd (N)             | L    | 26       | 35        | C   | 1                                   | 17               |
| All |                                                       |                                                                                              |                           |      | 2,245    | 17        | B   | 12                                  | 89               |



| ID  | Intersection                  | From              | To                | Turn | Modelled | Delay (s) | LoS | Queue Avg<br>(number of<br>Vehicle) | Queue<br>Max (m) |
|-----|-------------------------------|-------------------|-------------------|------|----------|-----------|-----|-------------------------------------|------------------|
| 016 | Parker Street<br>Derby Street | Parker Street (N) | Derby Street (W)  | R    | 171      | 58        | E   | 16                                  | 60               |
|     |                               |                   | Parker Street (S) | T    | 720      | 19        | B   | 6                                   | 56               |
|     |                               |                   | Derby Street (E)  | L    | 146      | 23        | B   | 5                                   | 44               |
|     |                               | Derby Street (E)  | Parker Street (N) | R    | 145      | 76        | F   | 17                                  | 65               |
|     |                               |                   | Derby Street (W)  | T    | 78       | 60        | E   | 4                                   | 18               |
|     |                               |                   | Parker Street (S) | L    | 48       | 45        | D   | 3                                   | 16               |
|     |                               | Parker Street (S) | Derby Street (E)  | R    | 190      | 53        | D   | 21                                  | 49               |
|     |                               |                   | Parker Street (N) | T    | 1,084    | 19        | B   | 10                                  | 49               |
|     |                               |                   | Derby Street (W)  | L    | 44       | 19        | B   | 2                                   | 17               |
|     |                               | Derby Street (W)  | Parker Street (S) | R    | 71       | 52        | D   | 6                                   | 31               |
|     |                               |                   | Derby Street (E)  | T    | 113      | 39        | C   | 4                                   | 16               |
|     |                               |                   | Parker Street (N) | L    | 33       | 20        | B   | 1                                   | 14               |
|     |                               | All               |                   |      | 2,843    | 30        | C   | 21                                  | 65               |
| 017 | Mulgoa Road<br>Jamison Road   | Mulgoa Road (N)   | Jamison Road (W)  | R    | 26       | 43        | C   | 2                                   | 19               |
|     |                               |                   | Mulgoa Road (S)   | T    | 652      | 55        | D   | 18                                  | 69               |
|     |                               |                   | Jamison Road (E)  | L    | 156      | 40        | C   | 17                                  | 59               |
|     |                               | Jamison Road (E)  | Mulgoa Road (N)   | R    | 224      | 54        | D   | 10                                  | 34               |
|     |                               |                   | Jamison Road (W)  | T    | 24       | 44        | D   | 2                                   | 18               |
|     |                               |                   | Mulgoa Road (S)   | L    | 234      | 33        | C   | 11                                  | 53               |
|     |                               | Mulgoa Road (S)   | Jamison Road (E)  | R    | 508      | 71        | F   | 32                                  | 87               |
|     |                               |                   | Mulgoa Road (N)   | T    | 936      | 30        | C   | 14                                  | 61               |
|     |                               |                   | Jamison Road (W)  | L    | 15       | 35        | C   | 1                                   | 6                |
|     |                               | Jamison Road (W)  | Mulgoa Road (S)   | R    | 36       | 53        | D   | 3                                   | 12               |
|     |                               |                   | Jamison Road (E)  | T    | 106      | 46        | D   | 4                                   | 19               |
|     |                               |                   | Mulgoa Road (N)   | L    | 38       | 27        | B   | 2                                   | 19               |
|     |                               | All               |                   |      | 2,956    | 46        | D   | 32                                  | 87               |

SUPERSEDED - SEE SLR 3 JUNE MEMORANDUM ATTACHMENT 1

# P5045 Westfield Penrith Expansion TIA

Aimsun Intersection Performance for Base 2019

PM 1600-1700

| ID  | Intersection                                                        | From                     | To                        | Turn | Modelled | Delay (s) | LoS | Queue Avg<br>(number of<br>Vehicle) | Queue<br>Max (m) |
|-----|---------------------------------------------------------------------|--------------------------|---------------------------|------|----------|-----------|-----|-------------------------------------|------------------|
| 001 | Castlereagh Rd<br>Coreen Ave<br>Castlereagh Rd<br>Coreen Ave        | Castlereagh Rd (N)       | Coreen Ave (W)            | R    | 75       | 6         | A   | 2                                   | 27               |
|     |                                                                     |                          | Castlereagh Rd (S)        | T    | 998      | 4         | A   | 2                                   | 27               |
|     |                                                                     |                          | Castlereagh Rd (E)        | L    | 246      | 4         | A   | 1                                   | 18               |
|     |                                                                     |                          | Castlereagh Rd (N)        | R    | 258      | 16        | B   | 3                                   | 19               |
|     |                                                                     | Castlereagh Rd (E)       | Coreen Ave (W)            | T    | 54       | 13        | A   | 3                                   | 19               |
|     |                                                                     |                          | Castlereagh Rd (S)        | L    | 327      | 8         | A   | 3                                   | 35               |
|     |                                                                     |                          | Castlereagh Rd (E)        | R    | 311      | 16        | B   | 5                                   | 67               |
|     |                                                                     |                          | Castlereagh Rd (N)        | T    | 1,078    | 10        | A   | 5                                   | 67               |
|     |                                                                     | Castlereagh Rd (S)       | Coreen Ave (W)            | L    | 50       | 5         | A   | 0                                   | 8                |
|     |                                                                     |                          | Castlereagh Rd (S)        | R    | 21       | 15        | B   | 1                                   | 8                |
|     |                                                                     |                          | Castlereagh Rd (E)        | T    | 84       | 13        | A   | 1                                   | 8                |
|     |                                                                     |                          | Castlereagh Rd (N)        | L    | 72       | 8         | A   | 1                                   | 12               |
|     | All                                                                 |                          |                           |      | 1,958    | 16        | B   | 5                                   | 67               |
| 002 | Coreen Ave<br>Lemongrove Rd                                         | Coreen Ave (E)           | Coreen Ave (W)            | T    | 359      | 20        | B   | 5                                   | 18               |
|     |                                                                     |                          | Lemongrove Rd (S)         | L    | 258      | 3         | A   | 1                                   | 23               |
|     |                                                                     | Lemongrove Rd (S)        | Coreen Ave (E)            | R    | 360      | 31        | C   | 18                                  | 64               |
|     |                                                                     |                          | Coreen Ave (W)            | L    | 333      | 18        | B   | 8                                   | 55               |
|     |                                                                     | Coreen Ave (W)           | Lemongrove Rd (S)         | R    | 322      | 46        | D   | 19                                  | 64               |
|     |                                                                     |                          | Coreen Ave (E)            | T    | 591      | 32        | C   | 11                                  | 45               |
|     | All                                                                 |                          |                           |      | 2,224    | 26        | B   | 19                                  | 64               |
| 003 | Castlereagh Rd<br>Jane Street                                       | Castlereagh Rd (N)       | Castlereagh Rd (S)        | T    | 1,326    | 4         | A   | 2                                   | 12               |
|     |                                                                     |                          | Jane Street (E)           | L    | 330      | 1         | A   | 0                                   | 13               |
|     |                                                                     | Jane Street (E)          | Castlereagh Rd (N)        | R    | 302      | 62        | E   | 10                                  | 32               |
|     |                                                                     |                          | Castlereagh Rd (S)        | L    | 371      | 43        | C   | 13                                  | 43               |
|     |                                                                     | Castlereagh Rd (S)       | Jane Street (E)           | R    | 160      | 36        | C   | 4                                   | 18               |
|     |                                                                     |                          | Castlereagh Rd (N)        | T    | 202      | 1         | A   | 0                                   | 23               |
|     | All                                                                 |                          |                           |      | 2,692    | 17        | B   | 13                                  | 43               |
| 004 | Train Station Access<br>Jane Street<br>Riley Street                 | Train Station Access (N) | Jane Street (W)           | R    | 1        | 29        | B   | 0                                   | 6                |
|     |                                                                     |                          | Riley Street (S)          | T    | 0        | 0         | A   | 0                                   | 0                |
|     |                                                                     |                          | Jane Street (E)           | L    | 33       | 42        | C   | 4                                   | 20               |
|     |                                                                     |                          | Train Station Access (N)  | R    | 0        | 0         | A   | 0                                   | 0                |
|     |                                                                     | Jane Street (E)          | Jane Street (W)           | T    | 505      | 16        | B   | 6                                   | 38               |
|     |                                                                     |                          | Riley Street (S)          | L    | 0        | 0         | A   | 0                                   | 0                |
|     |                                                                     |                          | Jane Street (E)           | R    | 323      | 28        | B   | 2                                   | 23               |
|     |                                                                     |                          | Train Station Access (N)  | T    | 0        | 0         | A   | 0                                   | 0                |
|     |                                                                     | Riley Street (S)         | Jane Street (W)           | L    | 97       | 26        | B   | 1                                   | 14               |
|     |                                                                     |                          | Riley Street (S)          | R    | 0        | 0         | A   | 0                                   | 0                |
|     |                                                                     |                          | Jane Street (E)           | T    | 487      | 27        | B   | 9                                   | 36               |
|     |                                                                     |                          | Train Station Access (N)  | L    | 0        | 0         | A   | 0                                   | 0                |
|     | All                                                                 |                          |                           |      | 1,446    | 24        | B   | 9                                   | 38               |
| 005 | Jane Street<br>Station Street                                       | Jane Street (E)          | Jane Street (W)           | T    | 541      | 16        | B   | 6                                   | 34               |
|     |                                                                     |                          | Station Street (S)        | L    | 239      | 2         | A   | 0                                   | 19               |
|     |                                                                     | Station Street (S)       | Jane Street (E)           | R    | 155      | 28        | B   | 7                                   | 38               |
|     |                                                                     |                          | Jane Street (W)           | L    | 92       | 20        | B   | 3                                   | 30               |
|     |                                                                     | Jane Street (W)          | Station Street (S)        | R    | 229      | 22        | B   | 8                                   | 64               |
|     |                                                                     |                          | Jane Street (E)           | T    | 611      | 8         | A   | 2                                   | 25               |
|     | All                                                                 |                          |                           |      | 1,868    | 13        | A   | 8                                   | 64               |
| 006 | Castlereagh Rd<br>High Street<br>Mulgoa Rd<br>Great Western Highway | Castlereagh Rd (N)       | Great Western Highway (W) | R    | 664      | 62        | E   | 33                                  | 93               |
|     |                                                                     |                          | Mulgoa Rd (S)             | T    | 906      | 27        | B   | 12                                  | 57               |
|     |                                                                     |                          | High Street (E)           | L    | 101      | 28        | B   | 4                                   | 30               |
|     |                                                                     |                          | Castlereagh Rd (N)        | R    | 165      | 65        | E   | 8                                   | 21               |
|     |                                                                     | High Street (E)          | Great Western Highway (W) | T    | 641      | 24        | B   | 7                                   | 14               |
|     |                                                                     |                          | Mulgoa Rd (S)             | L    | 92       | 3         | A   | 0                                   | 13               |
|     |                                                                     |                          | High Street (E)           | R    | 76       | 55        | D   | 7                                   | 19               |
|     |                                                                     |                          | Castlereagh Rd (N)        | T    | 664      | 20        | B   | 7                                   | 18               |
|     |                                                                     | Mulgoa Rd (S)            | Great Western Highway (W) | L    | 279      | 18        | B   | 7                                   | 24               |
|     |                                                                     |                          | Mulgoa Rd (S)             | R    | 222      | 66        | E   | 11                                  | 33               |
|     |                                                                     |                          | High Street (E)           | T    | 290      | 43        | D   | 6                                   | 22               |
|     |                                                                     |                          | Castlereagh Rd (N)        | L    | 481      | 22        | B   | 8                                   | 38               |
|     | All                                                                 |                          |                           |      | 4,580    | 34        | C   | 33                                  | 93               |
| 007 | Worth Street<br>High Street                                         | Worth Street (N)         | High Street (W)           | R    | 300      | 18        | B   | 5                                   | 12               |
|     |                                                                     |                          | Worth Street (S)          | T    | 232      | 10        | A   | 1                                   | 5                |
|     |                                                                     |                          | High Street (E)           | L    | 140      | 1         | A   | 0                                   | 8                |
|     |                                                                     |                          | Worth Street (N)          | R    | 104      | 74        | F   | 14                                  | 49               |
|     |                                                                     | High Street (E)          | High Street (W)           | T    | 432      | 33        | C   | 11                                  | 44               |
|     |                                                                     |                          | Worth Street (S)          | L    | 86       | 34        | C   | 4                                   | 22               |
|     |                                                                     |                          | High Street (E)           | R    | 136      | 37        | C   | 8                                   | 41               |
|     |                                                                     |                          | Worth Street (N)          | T    | 273      | 32        | C   | 7                                   | 23               |
|     |                                                                     | Worth Street (S)         | High Street (W)           | L    | 134      | 26        | B   | 5                                   | 30               |
|     |                                                                     |                          | Worth Street (S)          | R    | 62       | 53        | D   | 5                                   | 25               |
|     |                                                                     |                          | High Street (E)           | T    | 157      | 36        | C   | 4                                   | 25               |
|     |                                                                     |                          | Worth Street (N)          | L    | 249      | 3         | A   | 1                                   | 30               |
|     | All                                                                 |                          |                           |      | 2,304    | 26        | B   | 14                                  | 49               |
| 008 | Riley Street<br>Henry Street<br>High Street<br>High Street          | Riley Street (N)         | High Street (W)           | R    | 0        | 0         | A   | 0                                   | 0                |
|     |                                                                     |                          | High Street (S)           | T    | 0        | 0         | A   | 0                                   | 0                |
|     |                                                                     |                          | Henry Street (E)          | L    | 0        | 0         | A   | 0                                   | 0                |
|     |                                                                     |                          | Riley Street (N)          | R    | 62       | 16        | B   | 1                                   | 14               |
|     |                                                                     | Henry Street (E)         | High Street (W)           | T    | 552      | 10        | A   | 4                                   | 37               |
|     |                                                                     |                          | High Street (S)           | L    | 0        | 0         | A   | 0                                   | 0                |
|     |                                                                     |                          | Henry Street (E)          | R    | 72       | 18        | B   | 2                                   | 17               |
|     |                                                                     |                          | Riley Street (N)          | T    | 61       | 15        | B   | 1                                   | 11               |
|     |                                                                     | High Street (S)          | High Street (W)           | L    | 72       | 16        | B   | 2                                   | 13               |
|     |                                                                     |                          | High Street (S)           | R    | 0        | 0         | A   | 0                                   | 0                |
|     |                                                                     |                          | Henry Street (E)          | T    | 373      | 19        | B   | 5                                   | 35               |
|     |                                                                     |                          | Riley Street (N)          | L    | 57       | 19        | B   | 2                                   | 20               |
|     | All                                                                 |                          |                           |      | 1,250    | 15        | A   | 5                                   | 37               |

| ID  | Intersection                                          | From                      | To                        | Turn               | Modelled | Delay (s) | LoS | Queue Avg<br>(number of<br>Vehicle) | Queue<br>Max (m) |    |
|-----|-------------------------------------------------------|---------------------------|---------------------------|--------------------|----------|-----------|-----|-------------------------------------|------------------|----|
| 009 | Station Street<br>Henry Street                        | Station Street (N)        | Henry Street (W)          | R                  | 123      | 25        | B   | 8                                   | 35               |    |
|     |                                                       |                           | Station Street (S)        | T                  | 242      | 23        | B   | 4                                   | 24               |    |
|     |                                                       |                           | Henry Street (E)          | L                  | 64       | 22        | B   | 2                                   | 24               |    |
|     |                                                       |                           | Station Street (N)        | R                  | 58       | 20        | B   | 2                                   | 19               |    |
|     |                                                       |                           | Henry Street (W)          | T                  | 454      | 12        | A   | 4                                   | 34               |    |
|     |                                                       |                           | Station Street (S)        | L                  | 77       | 14        | A   | 2                                   | 20               |    |
|     |                                                       | Station Street (S)        | Henry Street (E)          | R                  | 58       | 36        | C   | 3                                   | 29               |    |
|     |                                                       |                           | Station Street (N)        | T                  | 90       | 24        | B   | 2                                   | 14               |    |
|     |                                                       |                           | Henry Street (W)          | Henry Street (W)   | L        | 36        | 18  | B                                   | 1                | 17 |
|     |                                                       |                           |                           | Station Street (S) | R        | 70        | 23  | B                                   | 2                | 23 |
|     |                                                       |                           |                           | Henry Street (E)   | T        | 266       | 11  | A                                   | 2                | 26 |
|     |                                                       |                           |                           | Station Street (N) | L        | 103       | 11  | A                                   | 2                | 25 |
|     | All                                                   |                           |                           |                    | 1,640    | 17        | B   | 8                                   | 35               |    |
| 010 | Lawson Street<br>Henry Street                         | Lawson Street (N)         |                           | Henry Street (W)   | R        | 28        | 34  | C                                   | 1                | 12 |
|     |                                                       |                           | Lawson Street (S)         | T                  | 166      | 26        | B   | 3                                   | 17               |    |
|     |                                                       |                           | Henry Street (E)          | L                  | 103      | 28        | B   | 4                                   | 20               |    |
|     |                                                       | Henry Street (E)          | Lawson Street (N)         | R                  | 93       | 32        | C   | 4                                   | 24               |    |
|     |                                                       |                           | Henry Street (W)          | T                  | 385      | 23        | B   | 7                                   | 34               |    |
|     |                                                       |                           | Lawson Street (S)         | L                  | 171      | 30        | C   | 7                                   | 48               |    |
|     |                                                       | Lawson Street (S)         | Henry Street (E)          | R                  | 108      | 69        | E   | 12                                  | 47               |    |
|     |                                                       |                           | Lawson Street (N)         | T                  | 48       | 64        | E   | 5                                   | 23               |    |
|     |                                                       |                           | Henry Street (W)          | L                  | 94       | 22        | B   | 3                                   | 28               |    |
|     |                                                       | Henry Street (W)          | Lawson Street (S)         | R                  | 31       | 30        | C   | 1                                   | 17               |    |
|     |                                                       |                           | Henry Street (E)          | T                  | 361      | 12        | A   | 3                                   | 26               |    |
|     |                                                       |                           | Lawson Street (N)         | L                  | 8        | 18        | B   | 0                                   | 7                |    |
|     | All                                                   |                           |                           | 1,597              | 27       | B         | 12  | 48                                  |                  |    |
| 011 | Evan Street<br>Henry Street                           | Evan Street (N)           | Henry Street (W)          | R                  | 279      | 22        | B   | 9                                   | 52               |    |
|     |                                                       |                           | Evan Street (S)           | T                  | 513      | 14        | A   | 10                                  | 64               |    |
|     |                                                       |                           | Henry Street (E)          | L                  | 94       | 15        | B   | 2                                   | 22               |    |
|     |                                                       | Henry Street (E)          | Evan Street (N)           | R                  | 113      | 81        | F   | 12                                  | 46               |    |
|     |                                                       |                           | Henry Street (W)          | T                  | 228      | 37        | C   | 6                                   | 28               |    |
|     |                                                       |                           | Evan Street (S)           | L                  | 29       | 38        | C   | 2                                   | 13               |    |
|     |                                                       | Evan Street (S)           | Henry Street (E)          | R                  | 15       | 43        | D   | 1                                   | 11               |    |
|     |                                                       |                           | Evan Street (N)           | T                  | 404      | 27        | B   | 8                                   | 40               |    |
|     |                                                       |                           | Henry Street (W)          | L                  | 51       | 26        | B   | 2                                   | 19               |    |
|     |                                                       | Henry Street (W)          | Evan Street (S)           | R                  | 0        | 0         | A   | 0                                   | 0                |    |
|     |                                                       |                           | Henry Street (E)          | T                  | 309      | 26        | B   | 6                                   | 30               |    |
|     |                                                       |                           | Evan Street (N)           | L                  | 334      | 22        | B   | 12                                  | 61               |    |
|     | All                                                   |                           |                           | 2,368              | 26       | B         | 12  | 64                                  |                  |    |
| 012 | Lawson Street<br>High Street                          | Lawson Street (N)         | High Street (W)           | R                  | 175      | 73        | F   | 21                                  | 49               |    |
|     |                                                       |                           | High Street (E)           | L                  | 84       | 46        | D   | 6                                   | 34               |    |
|     |                                                       | High Street (E)           | Lawson Street (N)         | R                  | 179      | 43        | D   | 12                                  | 46               |    |
|     |                                                       |                           | High Street (W)           | T                  | 402      | 5         | A   | 2                                   | 54               |    |
|     |                                                       | High Street (W)           | High Street (E)           | T                  | 256      | 16        | B   | 6                                   | 36               |    |
|     |                                                       |                           | Lawson Street (N)         | L                  | 221      | 13        | A   | 6                                   | 41               |    |
|     | All                                                   |                           |                           | 1,317              | 25       | B         | 21  | 54                                  |                  |    |
| 013 | Evan Street<br>High Street                            | Evan Street (N)           | High Street (W)           | R                  | 75       | 20        | B   | 2                                   | 20               |    |
|     |                                                       |                           | Evan Street (S)           | T                  | 430      | 14        | A   | 4                                   | 40               |    |
|     |                                                       |                           | High Street (E)           | L                  | 10       | 12        | A   | 0                                   | 10               |    |
|     |                                                       | High Street (E)           | Evan Street (N)           | R                  | 63       | 33        | C   | 3                                   | 28               |    |
|     |                                                       |                           | High Street (W)           | T                  | 285      | 26        | B   | 5                                   | 37               |    |
|     |                                                       |                           | Evan Street (S)           | L                  | 72       | 26        | B   | 3                                   | 28               |    |
|     |                                                       | Evan Street (S)           | High Street (E)           | R                  | 48       | 18        | B   | 1                                   | 6                |    |
|     |                                                       |                           | Evan Street (N)           | T                  | 435      | 13        | A   | 4                                   | 31               |    |
|     |                                                       |                           | High Street (W)           | L                  | 42       | 14        | A   | 1                                   | 11               |    |
|     |                                                       | High Street (W)           | Evan Street (S)           | R                  | 81       | 40        | C   | 5                                   | 32               |    |
|     |                                                       |                           | High Street (E)           | T                  | 241      | 27        | B   | 5                                   | 28               |    |
|     |                                                       |                           | Evan Street (N)           | L                  | 94       | 28        | B   | 4                                   | 29               |    |
|     | All                                                   |                           |                           | 1,877              | 20       | B         | 5   | 40                                  |                  |    |
| 014 | Parker Street<br>Great Western Highway<br>High Street | Parker Street (N)         | High Street (W)           | R                  | 246      | 27        | B   | 10                                  | 18               |    |
|     |                                                       |                           | Parker Street (S)         | T                  | 826      | 20        | B   | 13                                  | 18               |    |
|     |                                                       |                           | Great Western Highway (E) | L                  | 526      | 1         | A   | 0                                   | 0                |    |
|     |                                                       | Great Western Highway (E) | Parker Street (N)         | R                  | 453      | 7         | A   | 4                                   | 10               |    |
|     |                                                       |                           | High Street (W)           | T                  | 928      | 12        | A   | 4                                   | 8                |    |
|     |                                                       |                           | Parker Street (S)         | L                  | 159      | 1         | A   | 0                                   | 0                |    |
|     |                                                       | Parker Street (S)         | Great Western Highway (E) | R                  | 106      | 40        | C   | 6                                   | 18               |    |
|     |                                                       |                           | Parker Street (N)         | T                  | 776      | 19        | B   | 10                                  | 18               |    |
|     |                                                       |                           | High Street (W)           | L                  | 195      | 6         | A   | 2                                   | 24               |    |
|     |                                                       | High Street (W)           | Parker Street (S)         | R                  | 126      | 63        | E   | 13                                  | 46               |    |
|     |                                                       |                           | Great Western Highway (E) | T                  | 512      | 75        | F   | 30                                  | 47               |    |
|     |                                                       |                           | Parker Street (N)         | L                  | 450      | 1         | A   | 0                                   | 0                |    |
|     | All                                                   |                           |                           | 5,303              | 20       | B         | 30  | 47                                  |                  |    |
| 015 | Mulgoa Rd<br>Ransley Street                           | Mulgoa Rd (N)             | Ransley Street (W)        | R                  | 38       | 58        | E   | 3                                   | 18               |    |
|     |                                                       |                           | Mulgoa Rd (S)             | T                  | 1,113    | 30        | C   | 24                                  | 145              |    |
|     |                                                       |                           | Ransley Street (E)        | L                  | 84       | 33        | C   | 5                                   | 34               |    |
|     |                                                       | Ransley Street (E)        | Mulgoa Rd (N)             | R                  | 161      | 49        | D   | 13                                  | 61               |    |
|     |                                                       |                           | Ransley Street (W)        | T                  | 77       | 41        | C   | 2                                   | 12               |    |
|     |                                                       |                           | Mulgoa Rd (S)             | L                  | 61       | 33        | C   | 3                                   | 19               |    |
|     |                                                       | Mulgoa Rd (S)             | Ransley Street (E)        | R                  | 42       | 66        | E   | 4                                   | 17               |    |
|     |                                                       |                           | Mulgoa Rd (N)             | T                  | 892      | 32        | C   | 21                                  | 83               |    |
|     |                                                       |                           | Ransley Street (W)        | L                  | 19       | 33        | C   | 1                                   | 8                |    |
|     |                                                       | Ransley Street (W)        | Mulgoa Rd (S)             | R                  | 21       | 45        | D   | 2                                   | 14               |    |
|     |                                                       |                           | Ransley Street (E)        | T                  | 10       | 35        | C   | 0                                   | 5                |    |
|     |                                                       |                           | Mulgoa Rd (N)             | L                  | 59       | 27        | B   | 3                                   | 20               |    |
|     | All                                                   |                           |                           | 2,577              | 33       | C         | 24  | 145                                 |                  |    |

| ID  | Intersection                  | From              | To                | Turn              | Modelled | Delay (s) | LoS | Queue Avg<br>(number of<br>Vehicle) | Queue<br>Max (m) |
|-----|-------------------------------|-------------------|-------------------|-------------------|----------|-----------|-----|-------------------------------------|------------------|
| 016 | Parker Street<br>Derby Street | Parker Street (N) | Derby Street (W)  | R                 | 168      | 71        | F   | 26                                  | 70               |
|     |                               |                   | Parker Street (S) | T                 | 1,050    | 38        | C   | 19                                  | 78               |
|     |                               | Derby Street (E)  | Derby Street (E)  | L                 | 84       | 46        | D   | 6                                   | 32               |
|     |                               |                   | Parker Street (N) | R                 | 67       | 92        | F   | 10                                  | 42               |
|     |                               |                   | Derby Street (W)  | T                 | 182      | 58        | E   | 8                                   | 38               |
|     |                               | Parker Street (S) | Parker Street (S) | L                 | 102      | 45        | D   | 7                                   | 35               |
|     |                               |                   | Derby Street (E)  | R                 | 77       | 53        | D   | 8                                   | 25               |
|     |                               |                   | Parker Street (N) | T                 | 888      | 20        | B   | 9                                   | 42               |
|     |                               | Derby Street (W)  | Derby Street (W)  | L                 | 38       | 24        | B   | 1                                   | 14               |
|     |                               |                   | Parker Street (S) | R                 | 69       | 70        | E   | 8                                   | 32               |
|     |                               |                   | Derby Street (E)  | T                 | 173      | 53        | D   | 8                                   | 27               |
|     |                               |                   |                   | Parker Street (N) | L        | 135       | 31  | C                                   | 6                |
|     |                               | All               |                   |                   | 3,034    | 39        | C   | 26                                  | 78               |
| 017 | Mulgoa Road<br>Jamison Road   | Mulgoa Road (N)   | Jamison Road (W)  | R                 | 125      | 53        | D   | 11                                  | 42               |
|     |                               |                   | Mulgoa Road (S)   | T                 | 989      | 14        | A   | 7                                   | 61               |
|     |                               | Jamison Road (E)  | Jamison Road (E)  | L                 | 241      | 11        | A   | 3                                   | 36               |
|     |                               |                   | Mulgoa Road (N)   | R                 | 165      | 56        | D   | 7                                   | 27               |
|     |                               |                   | Jamison Road (W)  | T                 | 172      | 58        | E   | 15                                  | 48               |
|     |                               | Mulgoa Road (S)   | Mulgoa Road (S)   | L                 | 418      | 39        | C   | 27                                  | 88               |
|     |                               |                   | Jamison Road (E)  | R                 | 301      | 54        | D   | 14                                  | 41               |
|     |                               |                   | Mulgoa Road (N)   | T                 | 801      | 26        | B   | 11                                  | 64               |
|     |                               | Jamison Road (W)  | Jamison Road (W)  | L                 | 18       | 23        | B   | 1                                   | 7                |
|     |                               |                   | Mulgoa Road (S)   | R                 | 26       | 59        | E   | 2                                   | 6                |
|     |                               |                   | Jamison Road (E)  | T                 | 24       | 52        | D   | 1                                   | 8                |
|     |                               |                   |                   | Mulgoa Road (N)   | L        | 22        | 34  | C                                   | 1                |
|     |                               | All               |                   |                   | 3,303    | 30        | C   | 27                                  | 88               |

SUPERSEDED - SEE SLR 3 JUNE MEMORANDUM ATTACHMENT 1

# P5045 Westfield Penrith Expansion TIA

Aimsun Intersection Performance for Base 2019

PM 1700-1800

| ID  | Intersection                                                        | From                     | To                        | Turn | Modelled | Delay (s) | LoS | Queue Avg (number of Vehicle) | Queue Max (m) |
|-----|---------------------------------------------------------------------|--------------------------|---------------------------|------|----------|-----------|-----|-------------------------------|---------------|
| 001 | Castlereagh Rd<br>Coreen Ave<br>Castlereagh Rd<br>Coreen Ave        | Castlereagh Rd (N)       | Coreen Ave (W)            | R    | 76       | 6         | A   | 2                             | 44            |
|     |                                                                     |                          | Castlereagh Rd (S)        | T    | 997      | 5         | A   | 2                             | 44            |
|     |                                                                     |                          | Castlereagh Rd (E)        | L    | 174      | 4         | A   | 0                             | 17            |
|     |                                                                     |                          | Castlereagh Rd (N)        | R    | 273      | 16        | B   | 3                             | 18            |
|     |                                                                     | Castlereagh Rd (E)       | Coreen Ave (W)            | T    | 38       | 12        | A   | 3                             | 18            |
|     |                                                                     |                          | Castlereagh Rd (S)        | L    | 345      | 8         | A   | 3                             | 35            |
|     |                                                                     |                          | Castlereagh Rd (E)        | R    | 313      | 14        | A   | 5                             | 54            |
|     |                                                                     |                          | Castlereagh Rd (N)        | T    | 1,175    | 9         | A   | 5                             | 54            |
|     |                                                                     | Castlereagh Rd (S)       | Coreen Ave (W)            | L    | 53       | 5         | A   | 0                             | 11            |
|     |                                                                     |                          | Castlereagh Rd (S)        | R    | 23       | 21        | B   | 1                             | 12            |
|     |                                                                     |                          | Castlereagh Rd (E)        | T    | 84       | 16        | B   | 1                             | 12            |
|     |                                                                     |                          | Castlereagh Rd (N)        | L    | 72       | 9         | A   | 1                             | 12            |
|     |                                                                     | Coreen Ave (W)           | Castlereagh Rd (S)        | L    | 1,903    | 21        | B   | 5                             | 54            |
| 002 | Coreen Ave<br>Lemongrove Rd                                         | Coreen Ave (E)           | Coreen Ave (W)            | T    | 356      | 20        | B   | 5                             | 18            |
|     |                                                                     |                          | Lemongrove Rd (S)         | L    | 257      | 2         | A   | 1                             | 18            |
|     |                                                                     | Lemongrove Rd (S)        | Coreen Ave (E)            | R    | 396      | 37        | C   | 22                            | 66            |
|     |                                                                     |                          | Coreen Ave (W)            | L    | 307      | 26        | B   | 11                            | 60            |
|     |                                                                     | Coreen Ave (W)           | Lemongrove Rd (S)         | R    | 274      | 33        | C   | 12                            | 61            |
|     |                                                                     |                          | Coreen Ave (E)            | T    | 622      | 20        | B   | 7                             | 45            |
|     |                                                                     | All                      |                           |      | 2,213    | 23        | B   | 22                            | 66            |
| 003 | Castlereagh Rd<br>Jane Street                                       | Castlereagh Rd (N)       | Castlereagh Rd (S)        | T    | 1,376    | 5         | A   | 3                             | 12            |
|     |                                                                     |                          | Jane Street (E)           | L    | 341      | 1         | A   | 0                             | 14            |
|     |                                                                     | Jane Street (E)          | Castlereagh Rd (N)        | R    | 311      | 57        | E   | 9                             | 32            |
|     |                                                                     |                          | Castlereagh Rd (S)        | L    | 383      | 45        | D   | 13                            | 43            |
|     |                                                                     | Castlereagh Rd (S)       | Jane Street (E)           | R    | 119      | 46        | D   | 4                             | 19            |
|     |                                                                     |                          | Castlereagh Rd (N)        | T    | 202      | 2         | A   | 0                             | 18            |
|     |                                                                     | All                      |                           |      | 2,733    | 17        | B   | 13                            | 43            |
| 004 | Train Station Access<br>Jane Street<br>Riley Street                 | Train Station Access (N) | Jane Street (W)           | R    | 2        | 66        | E   | 0                             | 6             |
|     |                                                                     |                          | Riley Street (S)          | T    | 0        | 0         | A   | 0                             | 0             |
|     |                                                                     |                          | Jane Street (E)           | L    | 33       | 49        | D   | 4                             | 18            |
|     |                                                                     | Jane Street (E)          | Train Station Access (N)  | R    | 0        | 0         | A   | 0                             | 0             |
|     |                                                                     |                          | Jane Street (W)           | T    | 499      | 17        | B   | 7                             | 32            |
|     |                                                                     |                          | Riley Street (S)          | L    | 0        | 0         | A   | 0                             | 0             |
|     |                                                                     | Riley Street (S)         | Jane Street (E)           | R    | 319      | 26        | B   | 3                             | 34            |
|     |                                                                     |                          | Train Station Access (N)  | T    | 0        | 0         | A   | 0                             | 0             |
|     |                                                                     |                          | Jane Street (W)           | L    | 98       | 22        | B   | 1                             | 14            |
|     |                                                                     | Jane Street (W)          | Riley Street (S)          | R    | 0        | 0         | A   | 0                             | 0             |
|     |                                                                     |                          | Jane Street (E)           | T    | 417      | 32        | C   | 10                            | 35            |
|     |                                                                     |                          | Train Station Access (N)  | L    | 0        | 0         | A   | 0                             | 0             |
|     |                                                                     | All                      |                           |      | 1,369    | 25        | B   | 10                            | 35            |
| 005 | Jane Street<br>Station Street                                       | Jane Street (E)          | Jane Street (W)           | T    | 526      | 16        | B   | 7                             | 33            |
|     |                                                                     |                          | Station Street (S)        | L    | 206      | 2         | A   | 0                             | 17            |
|     |                                                                     | Station Street (S)       | Jane Street (E)           | R    | 133      | 29        | C   | 6                             | 35            |
|     |                                                                     |                          | Jane Street (W)           | L    | 95       | 20        | B   | 3                             | 26            |
|     |                                                                     | Jane Street (W)          | Station Street (S)        | R    | 160      | 22        | B   | 7                             | 49            |
|     |                                                                     |                          | Jane Street (E)           | T    | 612      | 11        | A   | 4                             | 31            |
|     |                                                                     | All                      |                           |      | 1,732    | 14        | A   | 7                             | 49            |
| 006 | Castlereagh Rd<br>High Street<br>Mulgoa Rd<br>Great Western Highway | Castlereagh Rd (N)       | Great Western Highway (W) | R    | 730      | 66        | E   | 36                            | 93            |
|     |                                                                     |                          | Mulgoa Rd (S)             | T    | 950      | 23        | B   | 11                            | 58            |
|     |                                                                     |                          | High Street (E)           | L    | 100      | 25        | B   | 4                             | 25            |
|     |                                                                     |                          | Castlereagh Rd (N)        | R    | 159      | 70        | F   | 8                             | 17            |
|     |                                                                     | High Street (E)          | Great Western Highway (W) | T    | 703      | 23        | B   | 8                             | 14            |
|     |                                                                     |                          | Mulgoa Rd (S)             | L    | 110      | 2         | A   | 0                             | 17            |
|     |                                                                     |                          | High Street (E)           | R    | 74       | 68        | E   | 8                             | 20            |
|     |                                                                     |                          | Castlereagh Rd (N)        | T    | 681      | 17        | B   | 6                             | 18            |
|     |                                                                     | Mulgoa Rd (S)            | Great Western Highway (W) | L    | 303      | 15        | B   | 7                             | 24            |
|     |                                                                     |                          | Mulgoa Rd (S)             | R    | 222      | 69        | E   | 12                            | 37            |
|     |                                                                     |                          | High Street (E)           | T    | 278      | 45        | D   | 7                             | 22            |
|     |                                                                     |                          | Castlereagh Rd (N)        | L    | 519      | 22        | B   | 9                             | 43            |
|     |                                                                     | All                      |                           |      | 4,829    | 33        | C   | 36                            | 93            |
| 007 | Worth Street<br>High Street                                         | Worth Street (N)         | High Street (W)           | R    | 276      | 19        | B   | 5                             | 12            |
|     |                                                                     |                          | Worth Street (S)          | T    | 230      | 10        | A   | 1                             | 6             |
|     |                                                                     |                          | High Street (E)           | L    | 144      | 1         | A   | 0                             | 7             |
|     |                                                                     | High Street (E)          | Worth Street (N)          | R    | 106      | 83        | F   | 16                            | 59            |
|     |                                                                     |                          | High Street (W)           | T    | 423      | 30        | C   | 10                            | 39            |
|     |                                                                     |                          | Worth Street (S)          | L    | 96       | 33        | C   | 4                             | 26            |
|     |                                                                     | Worth Street (S)         | High Street (E)           | R    | 97       | 37        | C   | 6                             | 30            |
|     |                                                                     |                          | Worth Street (N)          | T    | 268      | 32        | C   | 7                             | 21            |
|     |                                                                     |                          | High Street (W)           | L    | 280      | 27        | B   | 12                            | 46            |
|     |                                                                     | High Street (W)          | Worth Street (S)          | R    | 56       | 55        | D   | 5                             | 25            |
|     |                                                                     |                          | High Street (E)           | T    | 166      | 32        | C   | 4                             | 22            |
|     |                                                                     |                          | Worth Street (N)          | L    | 256      | 2         | A   | 0                             | 29            |
|     |                                                                     | All                      |                           |      | 2,399    | 25        | B   | 16                            | 59            |
| 008 | Riley Street<br>Henry Street<br>High Street<br>High Street          | Riley Street (N)         | High Street (W)           | R    | 0        | 0         | A   | 0                             | 0             |
|     |                                                                     |                          | High Street (S)           | T    | 0        | 0         | A   | 0                             | 0             |
|     |                                                                     |                          | Henry Street (E)          | L    | 0        | 0         | A   | 0                             | 0             |
|     |                                                                     | Henry Street (E)         | Riley Street (N)          | R    | 61       | 15        | B   | 1                             | 14            |
|     |                                                                     |                          | High Street (W)           | T    | 548      | 10        | A   | 4                             | 35            |
|     |                                                                     |                          | High Street (S)           | L    | 0        | 0         | A   | 0                             | 0             |
|     |                                                                     | High Street (S)          | Henry Street (E)          | R    | 68       | 17        | B   | 2                             | 19            |
|     |                                                                     |                          | Riley Street (N)          | T    | 62       | 17        | B   | 2                             | 12            |
|     |                                                                     |                          | High Street (W)           | L    | 72       | 17        | B   | 2                             | 14            |
|     |                                                                     | High Street (W)          | High Street (S)           | R    | 0        | 0         | A   | 0                             | 0             |
|     |                                                                     |                          | Henry Street (E)          | T    | 352      | 19        | B   | 5                             | 31            |
|     |                                                                     |                          | Riley Street (N)          | L    | 59       | 22        | B   | 2                             | 20            |
|     |                                                                     | All                      |                           |      | 1,223    | 15        | A   | 5                             | 35            |



| ID  | Intersection                                          | From                      | To                        | Turn               | Modelled | Delay (s) | LoS | Queue Avg<br>(number of<br>Vehicle) | Queue<br>Max (m) |    |
|-----|-------------------------------------------------------|---------------------------|---------------------------|--------------------|----------|-----------|-----|-------------------------------------|------------------|----|
| 009 | Station Street<br>Henry Street                        | Station Street (N)        | Henry Street (W)          | R                  | 129      | 26        | B   | 9                                   | 40               |    |
|     |                                                       |                           | Station Street (S)        | T                  | 253      | 21        | B   | 4                                   | 22               |    |
|     |                                                       |                           | Henry Street (E)          | L                  | 72       | 19        | B   | 2                                   | 23               |    |
|     |                                                       |                           | Station Street (N)        | R                  | 62       | 23        | B   | 2                                   | 22               |    |
|     |                                                       |                           | Henry Street (W)          | T                  | 442      | 12        | A   | 4                                   | 32               |    |
|     |                                                       |                           | Station Street (S)        | L                  | 78       | 18        | B   | 2                                   | 20               |    |
|     |                                                       | Station Street (S)        | Henry Street (E)          | R                  | 63       | 35        | C   | 3                                   | 28               |    |
|     |                                                       |                           | Station Street (N)        | T                  | 100      | 26        | B   | 2                                   | 17               |    |
|     |                                                       |                           | Henry Street (W)          | Henry Street (W)   | L        | 39        | 19  | B                                   | 1                | 16 |
|     |                                                       |                           |                           | Station Street (S) | R        | 75        | 24  | B                                   | 3                | 24 |
|     |                                                       |                           |                           | Henry Street (E)   | T        | 282       | 12  | A                                   | 2                | 26 |
|     |                                                       |                           |                           | Station Street (N) | L        | 63        | 12  | A                                   | 1                | 20 |
|     | All                                                   |                           |                           | 1,659              | 18       | B         | 9   | 40                                  |                  |    |
| 010 | Lawson Street<br>Henry Street                         | Lawson Street (N)         | Henry Street (W)          | R                  | 26       | 45        | D   | 2                                   | 14               |    |
|     |                                                       |                           | Lawson Street (S)         | T                  | 155      | 37        | C   | 4                                   | 21               |    |
|     |                                                       |                           | Henry Street (E)          | L                  | 116      | 33        | C   | 6                                   | 28               |    |
|     |                                                       | Henry Street (E)          | Lawson Street (N)         | R                  | 95       | 35        | C   | 5                                   | 32               |    |
|     |                                                       |                           | Henry Street (W)          | T                  | 374      | 30        | C   | 8                                   | 47               |    |
|     |                                                       |                           | Lawson Street (S)         | L                  | 150      | 61        | E   | 14                                  | 71               |    |
|     |                                                       | Lawson Street (S)         | Henry Street (E)          | R                  | 100      | 58        | E   | 12                                  | 41               |    |
|     |                                                       |                           | Lawson Street (N)         | T                  | 47       | 54        | D   | 4                                   | 22               |    |
|     |                                                       |                           | Henry Street (W)          | L                  | 92       | 16        | B   | 2                                   | 28               |    |
|     |                                                       | Henry Street (W)          | Lawson Street (S)         | R                  | 29       | 43        | D   | 2                                   | 18               |    |
|     |                                                       |                           | Henry Street (E)          | T                  | 389      | 14        | A   | 4                                   | 30               |    |
|     |                                                       |                           | Lawson Street (N)         | L                  | 11       | 20        | B   | 0                                   | 10               |    |
|     | All                                                   |                           |                           | 1,585              | 32       | C         | 14  | 71                                  |                  |    |
| 011 | Evan Street<br>Henry Street                           | Evan Street (N)           | Henry Street (W)          | R                  | 274      | 26        | B   | 11                                  | 60               |    |
|     |                                                       |                           | Evan Street (S)           | T                  | 470      | 14        | A   | 9                                   | 62               |    |
|     |                                                       |                           | Henry Street (E)          | L                  | 97       | 15        | A   | 2                                   | 24               |    |
|     |                                                       | Henry Street (E)          | Evan Street (N)           | R                  | 89       | 70        | E   | 10                                  | 41               |    |
|     |                                                       |                           | Henry Street (W)          | T                  | 209      | 29        | B   | 4                                   | 28               |    |
|     |                                                       |                           | Evan Street (S)           | L                  | 25       | 33        | C   | 1                                   | 10               |    |
|     |                                                       | Evan Street (S)           | Henry Street (E)          | R                  | 16       | 46        | D   | 1                                   | 14               |    |
|     |                                                       |                           | Evan Street (N)           | T                  | 441      | 28        | B   | 9                                   | 45               |    |
|     |                                                       |                           | Henry Street (W)          | L                  | 95       | 30        | C   | 6                                   | 30               |    |
|     |                                                       | Henry Street (W)          | Evan Street (S)           | R                  | 0        | 0         | A   | 0                                   | 0                |    |
|     |                                                       |                           | Henry Street (E)          | T                  | 326      | 27        | B   | 7                                   | 37               |    |
|     |                                                       |                           | Evan Street (N)           | L                  | 360      | 24        | B   | 14                                  | 67               |    |
|     | All                                                   |                           |                           | 2,402              | 26       | B         | 14  | 67                                  |                  |    |
| 012 | Lawson Street<br>High Street                          | Lawson Street (N)         | High Street (W)           | R                  | 174      | 88        | F   | 24                                  | 52               |    |
|     |                                                       |                           | High Street (E)           | L                  | 80       | 57        | E   | 8                                   | 36               |    |
|     |                                                       | High Street (E)           | Lawson Street (N)         | R                  | 189      | 36        | C   | 11                                  | 47               |    |
|     |                                                       |                           | High Street (W)           | T                  | 421      | 5         | A   | 3                                   | 62               |    |
|     |                                                       | High Street (W)           | High Street (E)           | T                  | 228      | 13        | A   | 4                                   | 36               |    |
|     |                                                       |                           | Lawson Street (N)         | L                  | 221      | 10        | A   | 8                                   | 38               |    |
|     | All                                                   |                           |                           | 1,313              | 26       | B         | 24  | 62                                  |                  |    |
| 013 | Evan Street<br>High Street                            | Evan Street (N)           | High Street (W)           | R                  | 82       | 21        | B   | 3                                   | 26               |    |
|     |                                                       |                           | Evan Street (S)           | T                  | 387      | 13        | A   | 4                                   | 33               |    |
|     |                                                       |                           | High Street (E)           | L                  | 10       | 16        | B   | 0                                   | 8                |    |
|     |                                                       | High Street (E)           | Evan Street (N)           | R                  | 82       | 31        | C   | 4                                   | 31               |    |
|     |                                                       |                           | High Street (W)           | T                  | 309      | 25        | B   | 5                                   | 37               |    |
|     |                                                       |                           | Evan Street (S)           | L                  | 78       | 26        | B   | 3                                   | 30               |    |
|     |                                                       | Evan Street (S)           | High Street (E)           | R                  | 48       | 19        | B   | 1                                   | 8                |    |
|     |                                                       |                           | Evan Street (N)           | T                  | 471      | 13        | A   | 4                                   | 31               |    |
|     |                                                       |                           | High Street (W)           | L                  | 44       | 13        | A   | 1                                   | 8                |    |
|     |                                                       | High Street (W)           | Evan Street (S)           | R                  | 79       | 40        | C   | 5                                   | 29               |    |
|     |                                                       |                           | High Street (E)           | T                  | 213      | 26        | B   | 4                                   | 26               |    |
|     |                                                       |                           | Evan Street (N)           | L                  | 97       | 27        | B   | 4                                   | 31               |    |
|     | All                                                   |                           |                           | 1,898              | 20       | B         | 5   | 37                                  |                  |    |
| 014 | Parker Street<br>Great Western Highway<br>High Street | Parker Street (N)         | High Street (W)           | R                  | 249      | 28        | B   | 11                                  | 18               |    |
|     |                                                       |                           | Parker Street (S)         | T                  | 763      | 21        | B   | 12                                  | 18               |    |
|     |                                                       |                           | Great Western Highway (E) | L                  | 528      | 1         | A   | 0                                   | 0                |    |
|     |                                                       | Great Western Highway (E) | Parker Street (N)         | R                  | 442      | 8         | A   | 4                                   | 10               |    |
|     |                                                       |                           | High Street (W)           | T                  | 927      | 11        | A   | 4                                   | 8                |    |
|     |                                                       |                           | Parker Street (S)         | L                  | 158      | 1         | A   | 0                                   | 0                |    |
|     |                                                       | Parker Street (S)         | Great Western Highway (E) | R                  | 112      | 47        | D   | 8                                   | 18               |    |
|     |                                                       |                           | Parker Street (N)         | T                  | 709      | 24        | B   | 12                                  | 18               |    |
|     |                                                       |                           | High Street (W)           | L                  | 181      | 5         | A   | 1                                   | 24               |    |
|     |                                                       | High Street (W)           | Parker Street (S)         | R                  | 146      | 62        | E   | 14                                  | 50               |    |
|     |                                                       |                           | Great Western Highway (E) | T                  | 548      | 56        | D   | 23                                  | 47               |    |
|     |                                                       |                           | Parker Street (N)         | L                  | 459      | 1         | A   | 0                                   | 0                |    |
|     | All                                                   |                           |                           | 5,221              | 19       | B         | 23  | 50                                  |                  |    |
| 015 | Mulgoa Rd<br>Ransley Street                           | Mulgoa Rd (N)             | Ransley Street (W)        | R                  | 35       | 61        | E   | 3                                   | 23               |    |
|     |                                                       |                           | Mulgoa Rd (S)             | T                  | 1,226    | 24        | B   | 21                                  | 145              |    |
|     |                                                       |                           | Ransley Street (E)        | L                  | 99       | 27        | B   | 6                                   | 35               |    |
|     |                                                       | Ransley Street (E)        | Mulgoa Rd (N)             | R                  | 179      | 47        | D   | 13                                  | 65               |    |
|     |                                                       |                           | Ransley Street (W)        | T                  | 81       | 39        | C   | 2                                   | 13               |    |
|     |                                                       |                           | Mulgoa Rd (S)             | L                  | 62       | 31        | C   | 3                                   | 20               |    |
|     |                                                       | Mulgoa Rd (S)             | Ransley Street (E)        | R                  | 38       | 71        | F   | 4                                   | 18               |    |
|     |                                                       |                           | Mulgoa Rd (N)             | T                  | 955      | 31        | C   | 22                                  | 99               |    |
|     |                                                       |                           | Ransley Street (W)        | L                  | 18       | 34        | C   | 1                                   | 7                |    |
|     |                                                       | Ransley Street (W)        | Mulgoa Rd (S)             | R                  | 24       | 46        | D   | 2                                   | 16               |    |
|     |                                                       |                           | Ransley Street (E)        | T                  | 13       | 33        | C   | 0                                   | 8                |    |
|     |                                                       |                           | Mulgoa Rd (N)             | L                  | 58       | 32        | C   | 3                                   | 22               |    |
|     | All                                                   |                           |                           | 2,789              | 30       | C         | 22  | 145                                 |                  |    |

| ID  | Intersection                  | From              | To                | Turn | Modelled | Delay (s) | LoS | Queue Avg<br>(number of<br>Vehicle) | Queue<br>Max (m) |
|-----|-------------------------------|-------------------|-------------------|------|----------|-----------|-----|-------------------------------------|------------------|
| 016 | Parker Street<br>Derby Street | Parker Street (N) | Derby Street (W)  | R    | 167      | 55        | D   | 24                                  | 60               |
|     |                               |                   | Parker Street (S) | T    | 974      | 24        | B   | 10                                  | 69               |
|     |                               |                   | Derby Street (E)  | L    | 85       | 26        | B   | 4                                   | 30               |
|     |                               | Derby Street (E)  | Parker Street (N) | R    | 58       | 171       | F   | 16                                  | 43               |
|     |                               |                   | Derby Street (W)  | T    | 205      | 93        | F   | 15                                  | 46               |
|     |                               |                   | Parker Street (S) | L    | 107      | 83        | F   | 14                                  | 46               |
|     |                               | Parker Street (S) | Derby Street (E)  | R    | 79       | 48        | D   | 9                                   | 28               |
|     |                               |                   | Parker Street (N) | T    | 878      | 20        | B   | 8                                   | 40               |
|     |                               |                   | Derby Street (W)  | L    | 37       | 22        | B   | 1                                   | 12               |
|     |                               | Derby Street (W)  | Parker Street (S) | R    | 69       | 99        | F   | 11                                  | 47               |
|     |                               |                   | Derby Street (E)  | T    | 228      | 56        | D   | 10                                  | 42               |
|     |                               |                   | Parker Street (N) | L    | 109      | 53        | D   | 9                                   | 60               |
|     |                               | All               |                   |      | 2,995    | 40        | C   | 24                                  | 69               |
| 017 | Mulgoa Road<br>Jamison Road   | Mulgoa Road (N)   | Jamison Road (W)  | R    | 126      | 55        | D   | 12                                  | 41               |
|     |                               |                   | Mulgoa Road (S)   | T    | 1,066    | 16        | B   | 8                                   | 67               |
|     |                               |                   | Jamison Road (E)  | L    | 253      | 13        | A   | 4                                   | 48               |
|     |                               | Jamison Road (E)  | Mulgoa Road (N)   | R    | 154      | 52        | D   | 6                                   | 23               |
|     |                               |                   | Jamison Road (W)  | T    | 172      | 55        | D   | 15                                  | 52               |
|     |                               |                   | Mulgoa Road (S)   | L    | 418      | 38        | C   | 27                                  | 90               |
|     |                               | Mulgoa Road (S)   | Jamison Road (E)  | R    | 301      | 55        | D   | 15                                  | 39               |
|     |                               |                   | Mulgoa Road (N)   | T    | 810      | 28        | B   | 11                                  | 52               |
|     |                               |                   | Jamison Road (W)  | L    | 19       | 25        | B   | 2                                   | 10               |
|     |                               | Jamison Road (W)  | Mulgoa Road (S)   | R    | 25       | 50        | D   | 2                                   | 6                |
|     |                               |                   | Jamison Road (E)  | T    | 75       | 47        | D   | 3                                   | 16               |
|     |                               |                   | Mulgoa Road (N)   | L    | 91       | 35        | C   | 5                                   | 28               |
|     |                               | All               |                   |      | 3,511    | 31        | C   | 27                                  | 90               |

SUPERSEDED - SEE SLR 3 JUNE MEMORANDUM ATTACHMENT 1

## Appendix B: Model Results 2036



## P5045 Westfield Penrith Expansion TIA

### Aimsun Intersection Performance for Base 2036

**AM 0700-0800**

| ID  | Intersection          | From                      | To                        | Turn | Modelled | Delay (s) | LoS | Queue Avg<br>(number of<br>Vehicle) | Queue<br>Max (m) |
|-----|-----------------------|---------------------------|---------------------------|------|----------|-----------|-----|-------------------------------------|------------------|
| 001 | Castlereagh Rd        | Castlereagh Rd (N)        | Coreen Ave (W)            | R    | 96       | 22        | B   | 15                                  | 96               |
|     | Coreen Ave            |                           | Castlereagh Rd (S)        | T    | 1,360    | 19        | B   | 15                                  | 96               |
|     | Castlereagh Rd        |                           | Castlereagh Rd (E)        | L    | 524      | 17        | B   | 8                                   | 74               |
|     | Coreen Ave            | Castlereagh Rd (E)        | Castlereagh Rd (N)        | R    | 187      | 23        | B   | 4                                   | 22               |
|     |                       |                           | Coreen Ave (W)            | T    | 103      | 17        | B   | 4                                   | 22               |
|     |                       |                           | Castlereagh Rd (S)        | L    | 227      | 11        | A   | 3                                   | 39               |
|     |                       | Castlereagh Rd (S)        | Castlereagh Rd (E)        | R    | 447      | 18        | B   | 8                                   | 74               |
|     |                       |                           | Castlereagh Rd (N)        | T    | 1,098    | 11        | A   | 8                                   | 74               |
|     |                       |                           | Coreen Ave (W)            | L    | 62       | 9         | A   | 0                                   | 20               |
|     |                       | Coreen Ave (W)            | Castlereagh Rd (S)        | R    | 17       | 16        | B   | 1                                   | 12               |
|     |                       |                           | Castlereagh Rd (E)        | T    | 106      | 14        | A   | 1                                   | 12               |
|     |                       |                           | Castlereagh Rd (N)        | L    | 71       | 9         | A   | 1                                   | 12               |
|     |                       |                           | All                       |      |          | 4,297     | 23  | B                                   | 15               |
| 002 | Coreen Ave            | Coreen Ave (E)            | Coreen Ave (W)            | T    | 513      | 14        | A   | 5                                   | 18               |
|     | Lemongrove Rd         |                           | Lemongrove Rd (S)         | L    | 328      | 2         | A   | 1                                   | 26               |
|     |                       | Lemongrove Rd (S)         | Coreen Ave (E)            | R    | 165      | 19        | B   | 5                                   | 33               |
|     |                       |                           | Coreen Ave (W)            | L    | 191      | 11        | A   | 3                                   | 36               |
|     |                       | Coreen Ave (W)            | Lemongrove Rd (S)         | R    | 289      | 29        | C   | 12                                  | 60               |
|     |                       |                           | Coreen Ave (E)            | T    | 366      | 13        | A   | 3                                   | 23               |
|     |                       | All                       |                           |      | 1,853    | 14        | A   | 12                                  | 60               |
| 003 | Castlereagh Rd        | Castlereagh Rd (N)        | Castlereagh Rd (S)        | T    | 1,364    | 5         | A   | 3                                   | 12               |
|     | Jane Street           |                           | Jane Street (E)           | L    | 352      | 2         | A   | 0                                   | 21               |
|     |                       | Jane Street (E)           | Castlereagh Rd (N)        | R    | 136      | 52        | D   | 4                                   | 18               |
|     |                       |                           | Castlereagh Rd (S)        | L    | 122      | 33        | C   | 3                                   | 21               |
|     |                       | Castlereagh Rd (S)        | Jane Street (E)           | R    | 256      | 55        | D   | 11                                  | 20               |
|     |                       |                           | Castlereagh Rd (N)        | T    | 49       | 0         | A   | 0                                   | 0                |
|     |                       | All                       |                           |      | 2,278    | 14        | A   | 11                                  | 21               |
| 004 | Train Station Access  | Train Station Access (N)  | Jane Street (W)           | R    | 6        | 54        | D   | 1                                   | 9                |
|     | Jane Street           |                           | Riley Street (S)          | T    | 0        | 0         | A   | 0                                   | 0                |
|     | Riley Street          |                           | Jane Street (E)           | L    | 35       | 38        | C   | 3                                   | 20               |
|     |                       | Jane Street (E)           | Train Station Access (N)  | R    | 0        | 0         | A   | 0                                   | 0                |
|     |                       |                           | Jane Street (W)           | T    | 345      | 10        | A   | 2                                   | 23               |
|     |                       |                           | Riley Street (S)          | L    | 0        | 0         | A   | 0                                   | 0                |
|     |                       | Riley Street (S)          | Jane Street (E)           | R    | 64       | 23        | B   | 0                                   | 11               |
|     |                       |                           | Train Station Access (N)  | T    | 0        | 0         | A   | 0                                   | 0                |
|     |                       |                           | Jane Street (W)           | L    | 14       | 17        | B   | 0                                   | 6                |
|     |                       | Jane Street (W)           | Riley Street (S)          | R    | 0        | 0         | A   | 0                                   | 0                |
|     |                       |                           | Jane Street (E)           | T    | 446      | 30        | C   | 10                                  | 55               |
|     |                       |                           | Train Station Access (N)  | L    | 0        | 0         | A   | 0                                   | 0                |
|     |                       |                           | All                       |      |          | 909       | 22  | B                                   | 10               |
| 005 | Jane Street           | Jane Street (E)           | Jane Street (W)           | T    | 264      | 16        | B   | 3                                   | 26               |
|     | Station Street        |                           | Station Street (S)        | L    | 177      | 1         | A   | 0                                   | 15               |
|     |                       | Station Street (S)        | Jane Street (E)           | R    | 94       | 19        | B   | 3                                   | 24               |
|     |                       |                           | Jane Street (W)           | L    | 98       | 11        | A   | 2                                   | 20               |
|     |                       | Jane Street (W)           | Station Street (S)        | R    | 173      | 13        | A   | 3                                   | 27               |
|     |                       |                           | Jane Street (E)           | T    | 372      | 5         | A   | 1                                   | 15               |
|     |                       | All                       |                           |      | 1,176    | 10        | A   | 3                                   | 27               |
| 006 | Castlereagh Rd        | Castlereagh Rd (N)        | Great Western Highway (W) | R    | 502      | 51        | D   | 20                                  | 57               |
|     | High Street           |                           | Mulgoa Rd (S)             | T    | 890      | 17        | B   | 7                                   | 48               |
|     | Mulgoa Rd             |                           | High Street (E)           | L    | 92       | 22        | B   | 3                                   | 29               |
|     | Great Western Highway | High Street (E)           | Castlereagh Rd (N)        | R    | 66       | 47        | D   | 2                                   | 12               |
|     |                       |                           | Great Western Highway (W) | T    | 169      | 41        | C   | 4                                   | 20               |
|     |                       |                           | Mulgoa Rd (S)             | L    | 40       | 5         | A   | 0                                   | 12               |
|     |                       | Mulgoa Rd (S)             | High Street (E)           | R    | 56       | 50        | D   | 4                                   | 20               |
|     |                       |                           | Castlereagh Rd (N)        | T    | 1,087    | 15        | A   | 8                                   | 19               |
|     |                       |                           | Great Western Highway (W) | L    | 156      | 13        | A   | 3                                   | 21               |
|     |                       | Great Western Highway (W) | Mulgoa Rd (S)             | R    | 270      | 56        | D   | 12                                  | 38               |
|     |                       |                           | High Street (E)           | T    | 452      | 47        | D   | 16                                  | 61               |
|     |                       |                           | Castlereagh Rd (N)        | L    | 851      | 28        | B   | 17                                  | 72               |
|     |                       |                           | All                       |      |          | 4,628     | 29  | B                                   | 20               |
| 007 | Worth Street          | Worth Street (N)          | High Street (W)           | R    | 6        | 1,111     | F   | 2                                   | 8                |
|     | High Street           |                           | Worth Street (S)          | T    | 0        | 36        | C   | 0                                   | 1                |
|     |                       |                           | High Street (E)           | L    | 21       | 2         | A   | 0                                   | 9                |
|     |                       | High Street (E)           | Worth Street (N)          | R    | 20       | 34        | C   | 1                                   | 12               |
|     |                       |                           | High Street (W)           | T    | 193      | 14        | A   | 2                                   | 24               |
|     |                       |                           | Worth Street (S)          | L    | 50       | 17        | B   | 1                                   | 17               |
|     |                       | Worth Street (S)          | High Street (E)           | R    | 35       | 27        | B   | 1                                   | 20               |
|     |                       |                           | Worth Street (N)          | T    | 50       | 28        | B   | 1                                   | 7                |
|     |                       |                           | High Street (W)           | L    | 102      | 22        | B   | 3                                   | 26               |
|     |                       | High Street (W)           | Worth Street (S)          | R    | 107      | 41        | C   | 7                                   | 26               |
|     |                       |                           | High Street (E)           | T    | 380      | 14        | A   | 4                                   | 27               |
|     |                       |                           | Worth Street (N)          | L    | 39       | 0         | A   | 0                                   | 3                |
|     |                       |                           | All                       |      |          | 1,002     | 26  | B                                   | 7                |
| 008 | Riley Street          | Riley Street (N)          | High Street (W)           | R    | 0        | 0         | A   | 0                                   | 0                |
|     | Henry Street          |                           | High Street (S)           | T    | 0        | 0         | A   | 0                                   | 0                |
|     | High Street           |                           | Henry Street (E)          | L    | 0        | 0         | A   | 0                                   | 0                |
|     | High Street           | Henry Street (E)          | Riley Street (N)          | R    | 42       | 6         | A   | 0                                   | 15               |
|     |                       |                           | High Street (W)           | T    | 259      | 3         | A   | 0                                   | 14               |
|     |                       |                           | High Street (S)           | L    | 0        | 0         | A   | 0                                   | 0                |
|     |                       | High Street (S)           | Henry Street (E)          | R    | 12       | 25        | B   | 0                                   | 9                |
|     |                       |                           | Riley Street (N)          | T    | 40       | 21        | B   | 1                                   | 12               |
|     |                       |                           | High Street (W)           | L    | 5        | 22        | B   | 0                                   | 6                |
|     |                       | High Street (W)           | High Street (S)           | R    | 0        | 0         | A   | 0                                   | 0                |

| ID  | Intersection                                          | From                      | To                        | Turn | Modelled | Delay (s) | LoS | Queue Avg<br>(number of<br>Vehicle) | Queue<br>Max (m) |
|-----|-------------------------------------------------------|---------------------------|---------------------------|------|----------|-----------|-----|-------------------------------------|------------------|
|     |                                                       |                           | Henry Street (E)          | T    | 389      | 11        | A   | 3                                   | 46               |
|     |                                                       |                           | Riley Street (N)          | L    | 38       | 11        | A   | 1                                   | 14               |
|     |                                                       | All                       |                           |      | 783      | 9         | A   | 3                                   | 46               |
| 009 | Station Street<br>Henry Street                        | Station Street (N)        | Henry Street (W)          | R    | 40       | 21        | B   | 1                                   | 17               |
|     |                                                       |                           | Station Street (S)        | T    | 114      | 16        | B   | 1                                   | 14               |
|     |                                                       |                           | Henry Street (E)          | L    | 107      | 17        | B   | 3                                   | 29               |
|     |                                                       | Henry Street (E)          | Station Street (N)        | R    | 57       | 19        | B   | 2                                   | 21               |
|     |                                                       |                           | Henry Street (W)          | T    | 213      | 13        | A   | 2                                   | 23               |
|     |                                                       |                           | Station Street (S)        | L    | 61       | 12        | A   | 1                                   | 20               |
|     |                                                       | Station Street (S)        | Henry Street (E)          | R    | 55       | 6         | A   | 0                                   | 21               |
|     |                                                       |                           | Station Street (N)        | T    | 84       | 7         | A   | 0                                   | 6                |
|     |                                                       |                           | Henry Street (W)          | L    | 50       | 8         | A   | 1                                   | 14               |
|     |                                                       | Henry Street (W)          | Station Street (S)        | R    | 80       | 8         | A   | 1                                   | 23               |
|     |                                                       |                           | Henry Street (E)          | T    | 269      | 4         | A   | 1                                   | 19               |
|     |                                                       |                           | Station Street (N)        | L    | 53       | 5         | A   | 0                                   | 12               |
|     |                                                       | All                       |                           |      | 1,181    | 10        | A   | 3                                   | 29               |
| 010 | Lawson Street<br>Henry Street                         | Lawson Street (N)         | Henry Street (W)          | R    | 15       | 33        | C   | 1                                   | 9                |
|     |                                                       |                           | Lawson Street (S)         | T    | 4        | 31        | C   | 0                                   | 4                |
|     |                                                       |                           | Henry Street (E)          | L    | 6        | 20        | B   | 0                                   | 6                |
|     |                                                       | Henry Street (E)          | Lawson Street (N)         | R    | 144      | 14        | A   | 3                                   | 29               |
|     |                                                       |                           | Henry Street (W)          | T    | 292      | 12        | A   | 3                                   | 29               |
|     |                                                       |                           | Lawson Street (S)         | L    | 67       | 12        | A   | 1                                   | 18               |
|     |                                                       | Lawson Street (S)         | Henry Street (E)          | R    | 36       | 30        | C   | 2                                   | 18               |
|     |                                                       |                           | Lawson Street (N)         | T    | 36       | 29        | C   | 2                                   | 14               |
|     |                                                       |                           | Henry Street (W)          | L    | 18       | 15        | A   | 0                                   | 9                |
|     |                                                       | Henry Street (W)          | Lawson Street (S)         | R    | 36       | 40        | C   | 2                                   | 23               |
|     |                                                       |                           | Henry Street (E)          | T    | 301      | 5         | A   | 1                                   | 18               |
|     |                                                       |                           | Lawson Street (N)         | L    | 6        | 9         | A   | 0                                   | 6                |
|     |                                                       | All                       |                           |      | 958      | 13        | A   | 3                                   | 29               |
| 011 | Evan Street<br>Henry Street                           | Evan Street (N)           | Henry Street (W)          | R    | 264      | 16        | B   | 6                                   | 41               |
|     |                                                       |                           | Evan Street (S)           | T    | 419      | 9         | A   | 5                                   | 42               |
|     |                                                       |                           | Henry Street (E)          | L    | 127      | 8         | A   | 1                                   | 20               |
|     |                                                       | Henry Street (E)          | Evan Street (N)           | R    | 139      | 29        | B   | 6                                   | 35               |
|     |                                                       |                           | Henry Street (W)          | T    | 258      | 16        | B   | 3                                   | 22               |
|     |                                                       |                           | Evan Street (S)           | L    | 17       | 19        | B   | 0                                   | 9                |
|     |                                                       | Evan Street (S)           | Henry Street (E)          | R    | 13       | 38        | C   | 1                                   | 12               |
|     |                                                       |                           | Evan Street (N)           | T    | 328      | 18        | B   | 4                                   | 26               |
|     |                                                       |                           | Henry Street (W)          | L    | 53       | 21        | B   | 2                                   | 20               |
|     |                                                       | Henry Street (W)          | Evan Street (S)           | R    | 0        | 0         | A   | 0                                   | 0                |
|     |                                                       |                           | Henry Street (E)          | T    | 150      | 14        | A   | 2                                   | 20               |
|     |                                                       |                           | Evan Street (N)           | L    | 137      | 11        | A   | 2                                   | 32               |
|     |                                                       | All                       |                           |      | 1,904    | 15        | B   | 6                                   | 42               |
| 012 | Lawson Street<br>High Street                          | Lawson Street (N)         | High Street (W)           | R    | 33       | 41        | C   | 2                                   | 23               |
|     |                                                       |                           | High Street (E)           | L    | 27       | 29        | C   | 1                                   | 21               |
|     |                                                       | High Street (E)           | Lawson Street (N)         | R    | 56       | 44        | D   | 4                                   | 24               |
|     |                                                       |                           | High Street (W)           | T    | 282      | 3         | A   | 1                                   | 38               |
|     |                                                       | High Street (W)           | High Street (E)           | T    | 113      | 8         | A   | 1                                   | 24               |
|     |                                                       |                           | Lawson Street (N)         | L    | 164      | 5         | A   | 1                                   | 26               |
|     |                                                       | All                       |                           |      | 674      | 11        | A   | 4                                   | 38               |
| 013 | Evan Street<br>High Street                            | Evan Street (N)           | High Street (W)           | R    | 53       | 16        | B   | 1                                   | 18               |
|     |                                                       |                           | Evan Street (S)           | T    | 354      | 10        | A   | 2                                   | 26               |
|     |                                                       |                           | High Street (E)           | L    | 28       | 11        | A   | 0                                   | 11               |
|     |                                                       | High Street (E)           | Evan Street (N)           | R    | 37       | 12        | A   | 1                                   | 14               |
|     |                                                       |                           | High Street (W)           | T    | 151      | 8         | A   | 1                                   | 15               |
|     |                                                       |                           | Evan Street (S)           | L    | 56       | 10        | A   | 1                                   | 14               |
|     |                                                       | Evan Street (S)           | High Street (E)           | R    | 25       | 14        | A   | 0                                   | 14               |
|     |                                                       |                           | Evan Street (N)           | T    | 291      | 8         | A   | 2                                   | 15               |
|     |                                                       |                           | High Street (W)           | L    | 43       | 9         | A   | 0                                   | 11               |
|     |                                                       | High Street (W)           | Evan Street (S)           | R    | 30       | 16        | B   | 1                                   | 15               |
|     |                                                       |                           | High Street (E)           | T    | 105      | 7         | A   | 0                                   | 11               |
|     |                                                       |                           | Evan Street (N)           | L    | 68       | 9         | A   | 1                                   | 15               |
|     |                                                       | All                       |                           |      | 1,242    | 10        | A   | 2                                   | 26               |
| 014 | Parker Street<br>Great Western Highway<br>High Street | Parker Street (N)         | High Street (W)           | R    | 227      | 29        | B   | 10                                  | 20               |
|     |                                                       |                           | Parker Street (S)         | T    | 841      | 19        | B   | 12                                  | 18               |
|     |                                                       |                           | Great Western Highway (E) | L    | 839      | 1         | A   | 0                                   | 0                |
|     |                                                       | Great Western Highway (E) | Parker Street (N)         | R    | 452      | 8         | A   | 4                                   | 12               |
|     |                                                       |                           | High Street (W)           | T    | 717      | 13        | A   | 4                                   | 8                |
|     |                                                       |                           | Parker Street (S)         | L    | 127      | 1         | A   | 0                                   | 0                |
|     |                                                       | Parker Street (S)         | Great Western Highway (E) | R    | 134      | 37        | C   | 7                                   | 18               |
|     |                                                       |                           | Parker Street (N)         | T    | 783      | 18        | B   | 9                                   | 18               |
|     |                                                       |                           | High Street (W)           | L    | 294      | 4         | A   | 1                                   | 24               |
|     |                                                       | High Street (W)           | Parker Street (S)         | R    | 98       | 60        | E   | 10                                  | 45               |
|     |                                                       |                           | Great Western Highway (E) | T    | 365      | 51        | D   | 15                                  | 45               |
|     |                                                       |                           | Parker Street (N)         | L    | 156      | 1         | A   | 0                                   | 0                |
|     |                                                       | All                       |                           |      | 5,032    | 16        | B   | 15                                  | 45               |
| 015 | Mulgoa Rd<br>Ransley Street                           | Mulgoa Rd (N)             | Ransley Street (W)        | R    | 23       | 60        | E   | 2                                   | 15               |
|     |                                                       |                           | Mulgoa Rd (S)             | T    | 905      | 27        | B   | 17                                  | 113              |
|     |                                                       |                           | Ransley Street (E)        | L    | 85       | 27        | B   | 3                                   | 27               |
|     |                                                       | Ransley Street (E)        | Mulgoa Rd (N)             | R    | 97       | 30        | C   | 5                                   | 41               |
|     |                                                       |                           | Ransley Street (W)        | T    | 28       | 25        | B   | 1                                   | 6                |
|     |                                                       |                           | Mulgoa Rd (S)             | L    | 10       | 18        | B   | 0                                   | 6                |
|     |                                                       | Mulgoa Rd (S)             | Ransley Street (E)        | R    | 38       | 82        | F   | 5                                   | 23               |
|     |                                                       |                           | Mulgoa Rd (N)             | T    | 1,382    | 17        | B   | 14                                  | 93               |
|     |                                                       |                           | Ransley Street (W)        | L    | 28       | 29        | B   | 1                                   | 18               |
|     |                                                       | Ransley Street (W)        | Mulgoa Rd (S)             | R    | 8        | 21        | B   | 0                                   | 6                |
|     |                                                       |                           | Ransley Street (E)        | T    | 30       | 16        | B   | 0                                   | 8                |
|     |                                                       |                           | Mulgoa Rd (N)             | L    | 28       | 25        | B   | 1                                   | 20               |



| ID  | Intersection                  | From              | To                | Turn | Modelled | Delay (s) | LoS | Queue Avg<br>(number of<br>Vehicle) | Queue<br>Max (m) |
|-----|-------------------------------|-------------------|-------------------|------|----------|-----------|-----|-------------------------------------|------------------|
|     |                               | All               |                   |      | 2,662    | 23        | B   | 17                                  | 113              |
| 016 | Parker Street<br>Derby Street | Parker Street (N) | Derby Street (W)  | R    | 101      | 65        | E   | 16                                  | 47               |
|     |                               |                   | Parker Street (S) | T    | 809      | 25        | B   | 9                                   | 69               |
|     |                               |                   | Derby Street (E)  | L    | 76       | 27        | B   | 3                                   | 32               |
|     |                               | Derby Street (E)  | Parker Street (N) | R    | 72       | 64        | E   | 7                                   | 33               |
|     |                               |                   | Derby Street (W)  | T    | 145      | 52        | D   | 12                                  | 44               |
|     |                               |                   | Parker Street (S) | L    | 40       | 54        | D   | 3                                   | 15               |
|     |                               | Parker Street (S) | Derby Street (E)  | R    | 114      | 81        | F   | 16                                  | 57               |
|     |                               |                   | Parker Street (N) | T    | 1,271    | 45        | D   | 28                                  | 153              |
|     |                               |                   | Derby Street (W)  | L    | 112      | 43        | D   | 7                                   | 38               |
|     |                               | Derby Street (W)  | Parker Street (S) | R    | 47       | 68        | E   | 5                                   | 27               |
|     |                               |                   | Derby Street (E)  | T    | 32       | 51        | D   | 3                                   | 18               |
|     |                               |                   | Parker Street (N) | L    | 38       | 47        | D   | 3                                   | 23               |
|     |                               | All               |                   |      | 2,855    | 42        | C   | 28                                  | 153              |
| 017 | Mulgoa Road<br>Jamison Road   | Mulgoa Road (N)   | Jamison Road (W)  | R    | 27       | 32        | C   | 1                                   | 15               |
|     |                               |                   | Mulgoa Road (S)   | T    | 810      | 42        | C   | 17                                  | 100              |
|     |                               |                   | Jamison Road (E)  | L    | 133      | 38        | C   | 10                                  | 62               |
|     |                               | Jamison Road (E)  | Mulgoa Road (N)   | R    | 223      | 46        | D   | 8                                   | 36               |
|     |                               |                   | Jamison Road (W)  | T    | 24       | 36        | C   | 1                                   | 14               |
|     |                               |                   | Mulgoa Road (S)   | L    | 201      | 30        | C   | 9                                   | 51               |
|     |                               | Mulgoa Road (S)   | Jamison Road (E)  | R    | 417      | 79        | F   | 27                                  | 80               |
|     |                               |                   | Mulgoa Road (N)   | T    | 1,211    | 26        | B   | 15                                  | 93               |
|     |                               |                   | Jamison Road (W)  | L    | 17       | 26        | B   | 1                                   | 6                |
|     |                               | Jamison Road (W)  | Mulgoa Road (S)   | R    | 45       | 46        | D   | 3                                   | 12               |
|     |                               |                   | Jamison Road (E)  | T    | 43       | 40        | C   | 1                                   | 11               |
|     |                               |                   | Mulgoa Road (N)   | L    | 23       | 29        | C   | 1                                   | 15               |
|     |                               | All               |                   |      | 3,172    | 40        | C   | 27                                  | 100              |

P5045 Westfield Penrith Expansion TIA

Aimsun Intersection Performance for Base 2036  
AM 0800-0900

| ID  | Intersection                                                        | From                      | To                        | Turn | Modelled | Delay (s) | LoS | Queue Avg<br>(number of<br>Vehicle) | Queue<br>Max (m) |
|-----|---------------------------------------------------------------------|---------------------------|---------------------------|------|----------|-----------|-----|-------------------------------------|------------------|
| 001 | Castlereagh Rd<br>Coreen Ave<br>Castlereagh Rd<br>Coreen Ave        | Castlereagh Rd (N)        | Coreen Ave (W)            | R    | 91       | 51        | D   | 40                                  | 125              |
|     |                                                                     |                           | Castlereagh Rd (S)        | T    | 1,618    | 47        | D   | 40                                  | 125              |
|     |                                                                     |                           | Castlereagh Rd (E)        | L    | 372      | 39        | C   | 14                                  | 63               |
|     |                                                                     |                           | Castlereagh Rd (N)        | R    | 172      | 31        | C   | 6                                   | 26               |
|     |                                                                     | Castlereagh Rd (E)        | Coreen Ave (W)            | T    | 136      | 23        | B   | 6                                   | 26               |
|     |                                                                     |                           | Castlereagh Rd (S)        | L    | 216      | 19        | B   | 6                                   | 53               |
|     |                                                                     |                           | Castlereagh Rd (E)        | R    | 415      | 23        | B   | 13                                  | 108              |
|     |                                                                     |                           | Castlereagh Rd (N)        | T    | 1,497    | 17        | B   | 13                                  | 108              |
|     |                                                                     |                           | Coreen Ave (W)            | L    | 71       | 13        | A   | 1                                   | 18               |
|     |                                                                     | Castlereagh Rd (S)        | Castlereagh Rd (S)        | R    | 27       | 28        | B   | 2                                   | 17               |
|     |                                                                     |                           | Castlereagh Rd (E)        | T    | 106      | 20        | B   | 2                                   | 17               |
|     |                                                                     |                           | Castlereagh Rd (N)        | L    | 59       | 12        | A   | 1                                   | 14               |
|     |                                                                     |                           | Coreen Ave (W)            | L    | 59       | 12        | A   | 1                                   | 14               |
|     |                                                                     | All                       |                           |      | 4,779    | 51        | D   | 40                                  | 125              |
| 002 | Coreen Ave<br>Lemongrove Rd                                         | Coreen Ave (E)            | Coreen Ave (W)            | T    | 470      | 19        | B   | 7                                   | 18               |
|     |                                                                     |                           | Lemongrove Rd (S)         | L    | 600      | 4         | A   | 3                                   | 30               |
|     |                                                                     | Lemongrove Rd (S)         | Coreen Ave (E)            | R    | 220      | 23        | B   | 7                                   | 45               |
|     |                                                                     |                           | Coreen Ave (W)            | L    | 250      | 12        | A   | 4                                   | 54               |
|     |                                                                     | Coreen Ave (W)            | Lemongrove Rd (S)         | R    | 422      | 62        | E   | 29                                  | 90               |
|     |                                                                     |                           | Coreen Ave (E)            | T    | 371      | 46        | D   | 9                                   | 31               |
|     |                                                                     |                           | Coreen Ave (E)            | T    | 371      | 46        | D   | 9                                   | 31               |
|     |                                                                     | All                       |                           |      | 2,333    | 27        | B   | 29                                  | 90               |
| 003 | Castlereagh Rd<br>Jane Street                                       | Castlereagh Rd (N)        | Castlereagh Rd (S)        | T    | 1,549    | 4         | A   | 3                                   | 12               |
|     |                                                                     |                           | Jane Street (E)           | L    | 518      | 2         | A   | 1                                   | 23               |
|     |                                                                     | Jane Street (E)           | Castlereagh Rd (N)        | R    | 163      | 91        | F   | 8                                   | 28               |
|     |                                                                     |                           | Castlereagh Rd (S)        | L    | 172      | 35        | C   | 5                                   | 27               |
|     |                                                                     | Castlereagh Rd (S)        | Jane Street (E)           | R    | 363      | 43        | D   | 12                                  | 20               |
|     |                                                                     |                           | Castlereagh Rd (N)        | T    | 195      | 0         | A   | 0                                   | 6                |
|     |                                                                     |                           | Castlereagh Rd (N)        | T    | 195      | 0         | A   | 0                                   | 6                |
|     |                                                                     | All                       |                           |      | 2,960    | 15        | A   | 12                                  | 28               |
| 004 | Train Station Access<br>Jane Street<br>Riley Street                 | Train Station Access (N)  | Jane Street (W)           | R    | 3        | 43        | D   | 0                                   | 6                |
|     |                                                                     |                           | Riley Street (S)          | T    | 0        | 0         | A   | 0                                   | 0                |
|     |                                                                     |                           | Jane Street (E)           | L    | 29       | 38        | C   | 3                                   | 18               |
|     |                                                                     | Jane Street (E)           | Train Station Access (N)  | R    | 0        | 0         | A   | 0                                   | 0                |
|     |                                                                     |                           | Jane Street (W)           | T    | 555      | 13        | A   | 5                                   | 29               |
|     |                                                                     |                           | Riley Street (S)          | L    | 0        | 0         | A   | 0                                   | 0                |
|     |                                                                     | Riley Street (S)          | Jane Street (E)           | R    | 96       | 25        | B   | 1                                   | 17               |
|     |                                                                     |                           | Train Station Access (N)  | T    | 0        | 0         | A   | 0                                   | 0                |
|     |                                                                     |                           | Jane Street (W)           | L    | 15       | 24        | B   | 0                                   | 6                |
|     |                                                                     | Jane Street (W)           | Riley Street (S)          | R    | 0        | 0         | A   | 0                                   | 0                |
|     |                                                                     |                           | Jane Street (E)           | T    | 624      | 30        | C   | 14                                  | 61               |
|     |                                                                     |                           | Train Station Access (N)  | L    | 0        | 0         | A   | 0                                   | 0                |
|     |                                                                     |                           | Train Station Access (N)  | L    | 0        | 0         | A   | 0                                   | 0                |
|     |                                                                     | All                       |                           |      | 1,321    | 23        | B   | 14                                  | 61               |
| 005 | Jane Street<br>Station Street                                       | Jane Street (E)           | Jane Street (W)           | T    | 419      | 14        | A   | 5                                   | 32               |
|     |                                                                     |                           | Station Street (S)        | L    | 209      | 2         | A   | 0                                   | 23               |
|     |                                                                     | Station Street (S)        | Jane Street (E)           | R    | 94       | 26        | B   | 4                                   | 27               |
|     |                                                                     |                           | Jane Street (W)           | L    | 152      | 17        | B   | 4                                   | 35               |
|     |                                                                     | Jane Street (W)           | Station Street (S)        | R    | 267      | 19        | B   | 7                                   | 57               |
|     |                                                                     |                           | Jane Street (E)           | T    | 477      | 6         | A   | 1                                   | 15               |
|     |                                                                     |                           | Jane Street (E)           | T    | 477      | 6         | A   | 1                                   | 15               |
|     |                                                                     | All                       |                           |      | 1,618    | 12        | A   | 7                                   | 57               |
| 006 | Castlereagh Rd<br>High Street<br>Mulgoa Rd<br>Great Western Highway | Castlereagh Rd (N)        | Great Western Highway (W) | R    | 583      | 59        | E   | 27                                  | 76               |
|     |                                                                     |                           | Mulgoa Rd (S)             | T    | 960      | 22        | B   | 10                                  | 59               |
|     |                                                                     |                           | High Street (E)           | L    | 166      | 31        | C   | 9                                   | 57               |
|     |                                                                     | High Street (E)           | Castlereagh Rd (N)        | R    | 133      | 57        | D   | 6                                   | 21               |
|     |                                                                     |                           | Great Western Highway (W) | T    | 237      | 43        | D   | 5                                   | 22               |
|     |                                                                     |                           | Mulgoa Rd (S)             | L    | 55       | 5         | A   | 0                                   | 12               |
|     |                                                                     | Mulgoa Rd (S)             | High Street (E)           | R    | 108      | 40        | C   | 6                                   | 20               |
|     |                                                                     |                           | Castlereagh Rd (N)        | T    | 1,175    | 18        | B   | 11                                  | 21               |
|     |                                                                     |                           | Great Western Highway (W) | L    | 202      | 17        | B   | 5                                   | 24               |
|     |                                                                     | Great Western Highway (W) | Mulgoa Rd (S)             | R    | 374      | 67        | E   | 19                                  | 54               |
|     |                                                                     |                           | High Street (E)           | T    | 686      | 83        | F   | 44                                  | 115              |
|     |                                                                     |                           | Castlereagh Rd (N)        | L    | 1,105    | 34        | C   | 27                                  | 98               |
|     |                                                                     |                           | Castlereagh Rd (N)        | L    | 1,105    | 34        | C   | 27                                  | 98               |
|     |                                                                     | All                       |                           |      | 5,782    | 39        | C   | 44                                  | 115              |
| 007 | Worth Street<br>High Street                                         | Worth Street (N)          | High Street (W)           | R    | 15       | 124       | F   | 2                                   | 8                |
|     |                                                                     |                           | Worth Street (S)          | T    | 0        | 52        | D   | 0                                   | 1                |
|     |                                                                     |                           | High Street (E)           | L    | 20       | 3         | A   | 0                                   | 8                |
|     |                                                                     | High Street (E)           | Worth Street (N)          | R    | 58       | 41        | C   | 4                                   | 20               |
|     |                                                                     |                           | High Street (W)           | T    | 265      | 16        | B   | 3                                   | 23               |
|     |                                                                     |                           | Worth Street (S)          | L    | 80       | 16        | B   | 2                                   | 27               |
|     |                                                                     | Worth Street (S)          | High Street (E)           | R    | 31       | 32        | C   | 1                                   | 18               |
|     |                                                                     |                           | Worth Street (N)          | T    | 132      | 28        | B   | 3                                   | 13               |
|     |                                                                     |                           | High Street (W)           | L    | 130      | 24        | B   | 5                                   | 32               |
|     |                                                                     | High Street (W)           | Worth Street (S)          | R    | 170      | 97        | F   | 12                                  | 35               |
|     |                                                                     |                           | High Street (E)           | T    | 571      | 17        | B   | 5                                   | 25               |
|     |                                                                     |                           | Worth Street (N)          | L    | 116      | 1         | A   | 0                                   | 9                |
|     |                                                                     |                           | Worth Street (N)          | L    | 116      | 1         | A   | 0                                   | 9                |
|     |                                                                     | All                       |                           |      | 1,586    | 28        | B   | 12                                  | 35               |
| 008 | Riley Street<br>Henry Street<br>High Street<br>High Street          | Riley Street (N)          | High Street (W)           | R    | 0        | 0         | A   | 0                                   | 0                |
|     |                                                                     |                           | High Street (S)           | T    | 0        | 0         | A   | 0                                   | 0                |
|     |                                                                     |                           | Henry Street (E)          | L    | 0        | 0         | A   | 0                                   | 0                |
|     |                                                                     | Henry Street (E)          | Riley Street (N)          | R    | 59       | 12        | A   | 1                                   | 20               |
|     |                                                                     |                           | High Street (W)           | T    | 402      | 6         | A   | 2                                   | 22               |
|     |                                                                     |                           | High Street (S)           | L    | 0        | 0         | A   | 0                                   | 0                |
|     |                                                                     | High Street (S)           | Henry Street (E)          | R    | 13       | 20        | B   | 0                                   | 8                |
|     |                                                                     |                           | Riley Street (N)          | T    | 50       | 22        | B   | 2                                   | 12               |
|     |                                                                     |                           | High Street (W)           | L    | 3        | 21        | B   | 0                                   | 6                |
|     |                                                                     | High Street (W)           | High Street (S)           | R    | 0        | 0         | A   | 0                                   | 0                |
|     |                                                                     |                           | High Street (S)           | R    | 0        | 0         | A   | 0                                   | 0                |
|     |                                                                     |                           | High Street (S)           | R    | 0        | 0         | A   | 0                                   | 0                |
|     |                                                                     |                           | High Street (S)           | R    | 0        | 0         | A   | 0                                   | 0                |
|     |                                                                     | All                       |                           |      | 0        | 0         | A   | 0                                   | 0                |



| ID  | Intersection                                          | From                      | To                        | Turn | Modelled | Delay (s) | LoS | Queue Avg<br>(number of<br>Vehicle) | Queue<br>Max (m) |
|-----|-------------------------------------------------------|---------------------------|---------------------------|------|----------|-----------|-----|-------------------------------------|------------------|
|     |                                                       |                           | Henry Street (E)          | T    | 582      | 19        | B   | 8                                   | 57               |
|     |                                                       |                           | Riley Street (N)          | L    | 46       | 21        | B   | 1                                   | 15               |
|     |                                                       | All                       |                           |      | 1,153    | 15        | A   | 8                                   | 57               |
| 009 | Station Street<br>Henry Street                        | Station Street (N)        | Henry Street (W)          | R    | 62       | 26        | B   | 4                                   | 26               |
|     |                                                       |                           | Station Street (S)        | T    | 145      | 20        | B   | 2                                   | 19               |
|     |                                                       |                           | Henry Street (E)          | L    | 165      | 21        | B   | 5                                   | 41               |
|     |                                                       | Henry Street (E)          | Station Street (N)        | R    | 60       | 22        | B   | 2                                   | 20               |
|     |                                                       |                           | Henry Street (W)          | T    | 336      | 16        | B   | 4                                   | 31               |
|     |                                                       |                           | Station Street (S)        | L    | 82       | 13        | A   | 2                                   | 21               |
|     |                                                       | Station Street (S)        | Henry Street (E)          | R    | 64       | 13        | A   | 1                                   | 26               |
|     |                                                       |                           | Station Street (N)        | T    | 93       | 12        | A   | 1                                   | 12               |
|     |                                                       |                           | Henry Street (W)          | L    | 64       | 12        | A   | 1                                   | 17               |
|     |                                                       | Henry Street (W)          | Station Street (S)        | R    | 86       | 5         | A   | 1                                   | 18               |
|     |                                                       |                           | Henry Street (E)          | T    | 408      | 1         | A   | 0                                   | 10               |
|     |                                                       |                           | Station Street (N)        | L    | 92       | 2         | A   | 0                                   | 6                |
|     |                                                       | All                       |                           |      | 1,656    | 12        | A   | 5                                   | 41               |
| 010 | Lawson Street<br>Henry Street                         | Lawson Street (N)         | Henry Street (W)          | R    | 22       | 33        | C   | 1                                   | 14               |
|     |                                                       |                           | Lawson Street (S)         | T    | 66       | 30        | C   | 2                                   | 8                |
|     |                                                       |                           | Henry Street (E)          | L    | 12       | 28        | B   | 0                                   | 11               |
|     |                                                       | Henry Street (E)          | Lawson Street (N)         | R    | 144      | 22        | B   | 5                                   | 33               |
|     |                                                       |                           | Henry Street (W)          | T    | 406      | 15        | A   | 4                                   | 31               |
|     |                                                       |                           | Lawson Street (S)         | L    | 138      | 14        | A   | 3                                   | 23               |
|     |                                                       | Lawson Street (S)         | Henry Street (E)          | R    | 64       | 46        | D   | 5                                   | 29               |
|     |                                                       |                           | Lawson Street (N)         | T    | 13       | 44        | D   | 1                                   | 12               |
|     |                                                       |                           | Henry Street (W)          | L    | 41       | 18        | B   | 1                                   | 17               |
|     |                                                       | Henry Street (W)          | Lawson Street (S)         | R    | 68       | 50        | D   | 5                                   | 23               |
|     |                                                       |                           | Henry Street (E)          | T    | 443      | 9         | A   | 3                                   | 23               |
|     |                                                       |                           | Lawson Street (N)         | L    | 7        | 13        | A   | 0                                   | 6                |
|     |                                                       | All                       |                           |      | 1,422    | 18        | B   | 5                                   | 33               |
| 011 | Evan Street<br>Henry Street                           | Evan Street (N)           | Henry Street (W)          | R    | 412      | 38        | C   | 23                                  | 90               |
|     |                                                       |                           | Evan Street (S)           | T    | 676      | 15        | B   | 13                                  | 74               |
|     |                                                       |                           | Henry Street (E)          | L    | 187      | 16        | B   | 4                                   | 30               |
|     |                                                       | Henry Street (E)          | Evan Street (N)           | R    | 128      | 56        | D   | 11                                  | 45               |
|     |                                                       |                           | Henry Street (W)          | T    | 334      | 32        | C   | 8                                   | 36               |
|     |                                                       |                           | Evan Street (S)           | L    | 30       | 33        | C   | 1                                   | 17               |
|     |                                                       | Evan Street (S)           | Henry Street (E)          | R    | 15       | 89        | F   | 2                                   | 17               |
|     |                                                       |                           | Evan Street (N)           | T    | 461      | 31        | C   | 11                                  | 47               |
|     |                                                       |                           | Henry Street (W)          | L    | 98       | 32        | C   | 5                                   | 30               |
|     |                                                       | Henry Street (W)          | Evan Street (S)           | R    | 0        | 0         | A   | 0                                   | 0                |
|     |                                                       |                           | Henry Street (E)          | T    | 260      | 23        | B   | 5                                   | 26               |
|     |                                                       |                           | Evan Street (N)           | L    | 215      | 17        | B   | 8                                   | 53               |
|     |                                                       | All                       |                           |      | 2,815    | 27        | B   | 23                                  | 90               |
| 012 | Lawson Street<br>High Street                          | Lawson Street (N)         | High Street (W)           | R    | 54       | 42        | C   | 4                                   | 26               |
|     |                                                       |                           | High Street (E)           | L    | 52       | 23        | B   | 2                                   | 18               |
|     |                                                       | High Street (E)           | Lawson Street (N)         | R    | 104      | 36        | C   | 6                                   | 30               |
|     |                                                       |                           | High Street (W)           | T    | 459      | 6         | A   | 4                                   | 56               |
|     |                                                       | High Street (W)           | High Street (E)           | T    | 199      | 12        | A   | 4                                   | 36               |
|     |                                                       |                           | Lawson Street (N)         | L    | 190      | 8         | A   | 3                                   | 30               |
|     |                                                       | All                       |                           |      | 1,058    | 13        | A   | 6                                   | 56               |
| 013 | Evan Street<br>High Street                            | Evan Street (N)           | High Street (W)           | R    | 75       | 20        | B   | 2                                   | 21               |
|     |                                                       |                           | Evan Street (S)           | T    | 579      | 13        | A   | 5                                   | 39               |
|     |                                                       |                           | High Street (E)           | L    | 51       | 13        | A   | 1                                   | 14               |
|     |                                                       | High Street (E)           | Evan Street (N)           | R    | 52       | 21        | B   | 2                                   | 18               |
|     |                                                       |                           | High Street (W)           | T    | 281      | 16        | B   | 3                                   | 28               |
|     |                                                       |                           | Evan Street (S)           | L    | 113      | 18        | B   | 3                                   | 23               |
|     |                                                       | Evan Street (S)           | High Street (E)           | R    | 44       | 20        | B   | 1                                   | 15               |
|     |                                                       |                           | Evan Street (N)           | T    | 459      | 11        | A   | 4                                   | 26               |
|     |                                                       |                           | High Street (W)           | L    | 92       | 12        | A   | 2                                   | 18               |
|     |                                                       | High Street (W)           | Evan Street (S)           | R    | 52       | 30        | C   | 2                                   | 24               |
|     |                                                       |                           | High Street (E)           | T    | 189      | 15        | B   | 2                                   | 20               |
|     |                                                       |                           | Evan Street (N)           | L    | 72       | 16        | B   | 2                                   | 20               |
|     |                                                       | All                       |                           |      | 2,059    | 15        | A   | 5                                   | 39               |
| 014 | Parker Street<br>Great Western Highway<br>High Street | Parker Street (N)         | High Street (W)           | R    | 244      | 24        | B   | 9                                   | 20               |
|     |                                                       |                           | Parker Street (S)         | T    | 848      | 20        | B   | 13                                  | 18               |
|     |                                                       |                           | Great Western Highway (E) | L    | 731      | 1         | A   | 0                                   | 0                |
|     |                                                       | Great Western Highway (E) | Parker Street (N)         | R    | 453      | 9         | A   | 4                                   | 12               |
|     |                                                       |                           | High Street (W)           | T    | 1,118    | 10        | A   | 4                                   | 9                |
|     |                                                       |                           | Parker Street (S)         | L    | 131      | 1         | A   | 0                                   | 0                |
|     |                                                       | Parker Street (S)         | Great Western Highway (E) | R    | 85       | 49        | D   | 6                                   | 18               |
|     |                                                       |                           | Parker Street (N)         | T    | 851      | 19        | B   | 11                                  | 18               |
|     |                                                       |                           | High Street (W)           | L    | 314      | 7         | A   | 3                                   | 24               |
|     |                                                       | High Street (W)           | Parker Street (S)         | R    | 137      | 66        | E   | 15                                  | 53               |
|     |                                                       |                           | Great Western Highway (E) | T    | 506      | 51        | D   | 20                                  | 48               |
|     |                                                       |                           | Parker Street (N)         | L    | 370      | 1         | A   | 0                                   | 0                |
|     |                                                       | All                       |                           |      | 5,787    | 17        | B   | 20                                  | 53               |
| 015 | Mulgoa Rd<br>Ransley Street                           | Mulgoa Rd (N)             | Ransley Street (W)        | R    | 35       | 66        | E   | 4                                   | 23               |
|     |                                                       |                           | Mulgoa Rd (S)             | T    | 932      | 25        | B   | 16                                  | 107              |
|     |                                                       |                           | Ransley Street (E)        | L    | 178      | 28        | B   | 8                                   | 59               |
|     |                                                       | Ransley Street (E)        | Mulgoa Rd (N)             | R    | 101      | 41        | C   | 6                                   | 41               |
|     |                                                       |                           | Ransley Street (W)        | T    | 37       | 35        | C   | 1                                   | 8                |
|     |                                                       |                           | Mulgoa Rd (S)             | L    | 14       | 29        | C   | 1                                   | 14               |
|     |                                                       | Mulgoa Rd (S)             | Ransley Street (E)        | R    | 78       | 133       | F   | 20                                  | 65               |
|     |                                                       |                           | Mulgoa Rd (N)             | T    | 1,606    | 11        | A   | 10                                  | 84               |
|     |                                                       |                           | Ransley Street (W)        | L    | 76       | 12        | A   | 2                                   | 20               |
|     |                                                       | Ransley Street (W)        | Mulgoa Rd (S)             | R    | 8        | 31        | C   | 0                                   | 12               |
|     |                                                       |                           | Ransley Street (E)        | T    | 99       | 23        | B   | 2                                   | 21               |
|     |                                                       |                           | Mulgoa Rd (N)             | L    | 27       | 37        | C   | 2                                   | 17               |

| ID  | Intersection                  | From              | To                | Turn | Modelled | Delay (s) | LoS | Queue Avg<br>(number of<br>Vehicle) | Queue<br>Max (m) |
|-----|-------------------------------|-------------------|-------------------|------|----------|-----------|-----|-------------------------------------|------------------|
|     |                               | All               |                   |      | 3,191    | 21        | B   | 20                                  | 107              |
| 016 | Parker Street<br>Derby Street | Parker Street (N) | Derby Street (W)  | R    | 176      | 125       | F   | 43                                  | 101              |
|     |                               |                   | Parker Street (S) | T    | 822      | 25        | B   | 9                                   | 64               |
|     |                               |                   | Derby Street (E)  | L    | 107      | 27        | B   | 4                                   | 42               |
|     |                               | Derby Street (E)  | Parker Street (N) | R    | 47       | 330       | F   | 31                                  | 71               |
|     |                               |                   | Derby Street (W)  | T    | 223      | 102       | F   | 37                                  | 101              |
|     |                               |                   | Parker Street (S) | L    | 43       | 93        | F   | 7                                   | 23               |
|     |                               | Parker Street (S) | Derby Street (E)  | R    | 176      | 228       | F   | 33                                  | 96               |
|     |                               |                   | Parker Street (N) | T    | 1,270    | 150       | F   | 65                                  | 147              |
|     |                               |                   | Derby Street (W)  | L    | 346      | 122       | F   | 50                                  | 155              |
|     |                               | Derby Street (W)  | Parker Street (S) | R    | 60       | 75        | F   | 8                                   | 42               |
|     |                               |                   | Derby Street (E)  | T    | 106      | 69        | E   | 14                                  | 75               |
|     |                               |                   | Parker Street (N) | L    | 53       | 144       | F   | 13                                  | 65               |
|     |                               | All               |                   |      | 3,428    | 111       | F   | 65                                  | 155              |
| 017 | Mulgoa Road<br>Jamison Road   | Mulgoa Road (N)   | Jamison Road (W)  | R    | 31       | 39        | C   | 2                                   | 18               |
|     |                               |                   | Mulgoa Road (S)   | T    | 831      | 57        | E   | 24                                  | 102              |
|     |                               |                   | Jamison Road (E)  | L    | 192      | 44        | D   | 21                                  | 68               |
|     |                               | Jamison Road (E)  | Mulgoa Road (N)   | R    | 272      | 57        | D   | 12                                  | 45               |
|     |                               |                   | Jamison Road (W)  | T    | 21       | 50        | D   | 2                                   | 11               |
|     |                               |                   | Mulgoa Road (S)   | L    | 258      | 33        | C   | 12                                  | 66               |
|     |                               | Mulgoa Road (S)   | Jamison Road (E)  | R    | 547      | 238       | F   | 80                                  | 167              |
|     |                               |                   | Mulgoa Road (N)   | T    | 1,470    | 47        | D   | 31                                  | 118              |
|     |                               |                   | Jamison Road (W)  | L    | 14       | 46        | D   | 1                                   | 6                |
|     |                               | Jamison Road (W)  | Mulgoa Road (S)   | R    | 36       | 53        | D   | 3                                   | 12               |
|     |                               |                   | Jamison Road (E)  | T    | 130      | 46        | D   | 5                                   | 20               |
|     |                               |                   | Mulgoa Road (N)   | L    | 38       | 32        | C   | 2                                   | 18               |
|     |                               | All               |                   |      | 3,838    | 76        | F   | 80                                  | 167              |

SUPERSEDED - SEE SLR 3 JUNE MEMORANDUM ATTACHMENT 1

# APPENDIX D

## ROAD NETWORK SIDRA ANALYSIS SUMMARY

Prepared by SLR Consulting (3 June 2022)



|                 |                                                                                                                          |             |                                                        |
|-----------------|--------------------------------------------------------------------------------------------------------------------------|-------------|--------------------------------------------------------|
| <b>To:</b>      | Jamie Gordon                                                                                                             | <b>At:</b>  | Scentre Group                                          |
| <b>From:</b>    | Kris Stone                                                                                                               | <b>At:</b>  | SLR Consulting Australia Pty Ltd                       |
| <b>Date:</b>    | 3 June 2022                                                                                                              | <b>Ref:</b> | 620.30315-M02-v2.0-Road Network Analysis-20220603.docx |
| <b>Subject:</b> | Westfield Penrith Planning Proposal<br>Consideration of Traffic and Transport Matters<br>Road Network Assessment Summary |             |                                                        |

## CONFIDENTIALITY

*This document is confidential and may contain legally privileged information. If you are not a named or authorised recipient you must not read, copy, distribute or act in reliance on it. If you have received this document in error, please telephone our operator immediately and return the document by mail.*

## 1 Introduction

This memorandum should be read in conjunction with the *Westfield Penrith Planning Proposal – Consideration of Traffic and Transport Matters* (26 May 2022). Reference is made herein to the AIMSUN modelling documentation prepared by Bitzios Consulting *Westfield Penrith Expansion – Modelling Assessment Report* (19 May 2022).

The assessment findings documented herein have been prepared in response to the Council Request for Information dated 14 February 2022, and supersede those results reported previously by SLR throughout 2021.

## 2 Purpose

The purpose of this memorandum is to summarise the key processes, assumptions, inputs, evaluation methods and findings relevant to the assessment of road network operations and the subject development impact.

It is intended that these findings will inform the relevant authorities' consideration of the Planning Proposal as it pertains to traffic and transport matters.

## 3 Traffic Assessment

### 3.1 AIMSUN Model Development

The following sections summarise the key modelling processes, assumptions, inputs, and evaluation methods that have been adopted relevant to the assessed road network.

The AIMSUN model was prepared by Bitzios Consulting in partnership with SLR. The model inputs, processes, assumptions, and findings are documented in the report *Westfield Penrith Expansion – Modelling Assessment Report*, dated 19 May 2022 (**Appendix C**).

### 3.1.1 Model Scope

The geographic scope of the modelled 'study area' is illustrated in **Figure 1**.

**Figure 1** Modelled Study Area



Source: Penrith Westfield Development - Aimsun Assessment Summary (Bitzios, May 2022)

### 3.1.2 Model Scenarios

In order to accurately assess the impact of the incremental peak hour traffic movements attributable to the Proposal, the following peak periods were assessed in order to capture the hour before the primary AM peak hour and hour after the primary PM peak hour. As such, the following peak periods have been assessed:

- AM 1: 7AM to 8AM;
- AM 2: 8AM to 9AM;
- PM 1: 4PM to 5PM;
- PM 2: 5PM to 6PM.

The following scenarios were modelled using AIMSUN for all the aforementioned peak hour periods:

- **2018 Base** | to quantify existing network operation;
- **2018 Base + Development** | to establish development traffic impacts on the operation of the existing network;
- **2036 Base** | to establish future year network performance in absence of the proposed development;
- **2036 Base + Development** | to identify network deficiencies and project impacts at the nominated design horizon.

### 3.1.3 Base Road Network

The Council provided AIMSUN road network was updated so that it included the following major upgrades that have been constructed subsequent to Council's preparation of the calibrated Base model:

1. Mulgoa Road / Great Western Highway / High Street;
2. Castlereagh Road / Jane Street;
3. Parker Street / Derby Street.

Intersection arrangements including phasing details were sourced for these three locations from TfNSW. The amended layouts adopted in the AIMSUN models are described in **Appendix C** (Section 2.1). These upgrades form part of the network that is assessed for all Base and Base + Development scenarios.

### 3.1.4 Base Traffic Demand

#### 3.1.4.1 2018 Calibrated Base

The Base 2018 traffic demand was adopted without change from that which forms part of the Council provided modelling. The AIMSUN intersection movement outputs prepared by Bitzios for this scenario are included at **Attachment 1** which was reported by Bitzios as their Appendix A.

#### 3.1.4.2 2036 Base Traffic Demand

During the October 2020 pre-lodgement meeting, Council officers confirmed that there was a 2036 model in development; however, it wasn't available for distribution. Officers instead advised that a 2036 model demand matrix should be developed using a 2% (linear) per annum growth factor applied to the 2018 matrix.

The 2036 demand matrices were prepared by Bitzios in line with this Council directed growth rate. Section 4.3.1 of the Bitzios modelling report included at **Appendix C** describes this process in detail and also summarises the modelled traffic movements for each of the one-hour assessment periods at the 2018 and 2036 time horizons.

The AIMSUN intersection movement outputs prepared by Bitzios for this scenario are included at **Attachment 1** which was reported by Bitzios as their Appendix A.

### 3.1.5 With Development Road Network

No changes to the Base road network were adopted for the With Development scenario. Intersection capacity upgrades have not been evaluated at this time given Council's future planning has not yet been confirmed and/or modelled. It is recommended that upgrade options potentially attributable to the development should only be determined when this planning is resolved and that this analysis could occur as part of a future development application.

### 3.1.6 With Development Traffic Demand

**Table 1** summarises the incremental traffic demands that are anticipated to be generated by the subject redevelopment during the peak periods.

**Table 1 Incremental Traffic Generation Increase Summary | Planning Proposal Overview**

| Land Use                   | Yield                     | 7-8AM          | 8-9AM          | 4-5PM          | 5-6PM          |
|----------------------------|---------------------------|----------------|----------------|----------------|----------------|
| Commercial                 | +21,820m <sup>2</sup> GFA | 283vph         | 283vph         | 240vph         | 240vph         |
| Retail (Mondo)             | +1,114m <sup>2</sup> GLFA | 10vph          | 26vph          | 91vph          | 89vph          |
| Retail (Commercial Towers) | +1,500m <sup>2</sup> GLFA |                |                |                |                |
| Motel                      | +152 Rooms                | 61vph          | 61vph          | 61vph          | 61vph          |
| <b>TOTAL</b>               |                           | <b>+354vph</b> | <b>+370vph</b> | <b>+392vph</b> | <b>+390vph</b> |

The incremental traffic generation summarised in **Table 1** aligns with that reported by Bitzios in the Tables 4.2 and 4.3 of the modelling report (Appendix C).

The following sections of this report provide additional detail regarding the method used to estimate the demand and network distribution for the component uses.

The AIMSUN intersection movement outputs prepared by Bitzios for the 2018 and 2036 With Development scenarios are included at **Attachment 1** which was reported by Bitzios as their Appendix A.

#### 3.1.6.1 Commercial (Office)

##### Traffic Demand

The traffic demand for the office development component was forecast based on traffic generation survey results reported in *Trip Generation and Parking Generation Surveys (Office Blocks) Analysis Report* prepared by GTA consultants on behalf of the RTA (now TfNSW).

Council officers have indicated a preference to adopt the following headline rates summarised in the RTA advice:

- AM peak hour = 1.6 per 100m<sup>2</sup> GFA;
- PM peak hour = 1.2 per 100m<sup>2</sup> GFA.

The revised AIMSUN and SIDRA assessment instead adopt the following rates:

- AM peak hour = 1.3 per 100m<sup>2</sup> GFA;
- PM peak hour = 1.1 per 100m<sup>2</sup> GFA.

The justification for these assumptions is documented in the following sections.

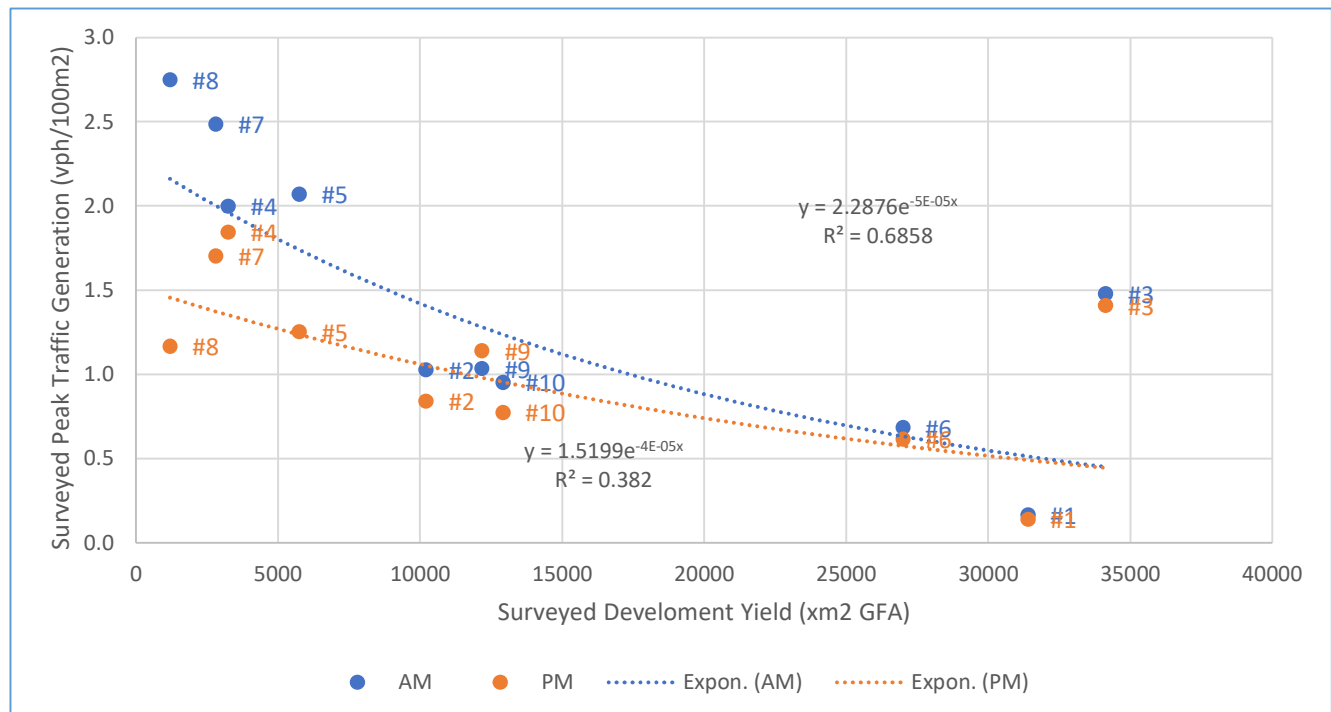
The underlying survey dataset was reviewed to evaluate its applicability with respect to the subject site and proposed scale of development. The following conclusions are made:

- The RMS documented rates are the simple arithmetic average of the maximum site peak hour periods for the ten surveyed sites and the actual results are 1.55 and 1.15vph/100m<sup>2</sup> GFA.

- The average obscures significant variability introduced by a number of 'outlier' sites that are inconsistent with a dataset intended to represent well-located office development with low-moderate provision for parking. Examples of these outliers include:
  - Inconsistent peak hours**
    - Site 4 (Hurstville) and 7 (Liverpool) are based on an AM peak period of 9:45-10:45 whereas the dataset average is 8:15-9:15.
    - Sites 4 (Hurstville), 5 (Macquarie Park), and 7 (Liverpool) are based on a PM peak 3:30-4:30 whereas the average is 4:30-5:00.
  - Accessibility score** | Site 3 (Olympic Park) has an accessibility score of 0.4 whereas the dataset average is 0.82.
  - Parking provision** | Sites 3 (Olympic Park), 4 (Hurstville), 5 (Macquarie Park), and 8 (Norwest) have parking provision rates in the range of 1 space per 15-43m<sup>2</sup> whereas the dataset average rate is 1 space per 79m<sup>2</sup>.
  - Development yield** | Sites 4 (Hurstville), 5 (Macquarie Park), 7 (Liverpool), and 8 (Norwest) have an average yield of 3,250 m<sup>2</sup> whereas the dataset average is 14,100m<sup>2</sup>

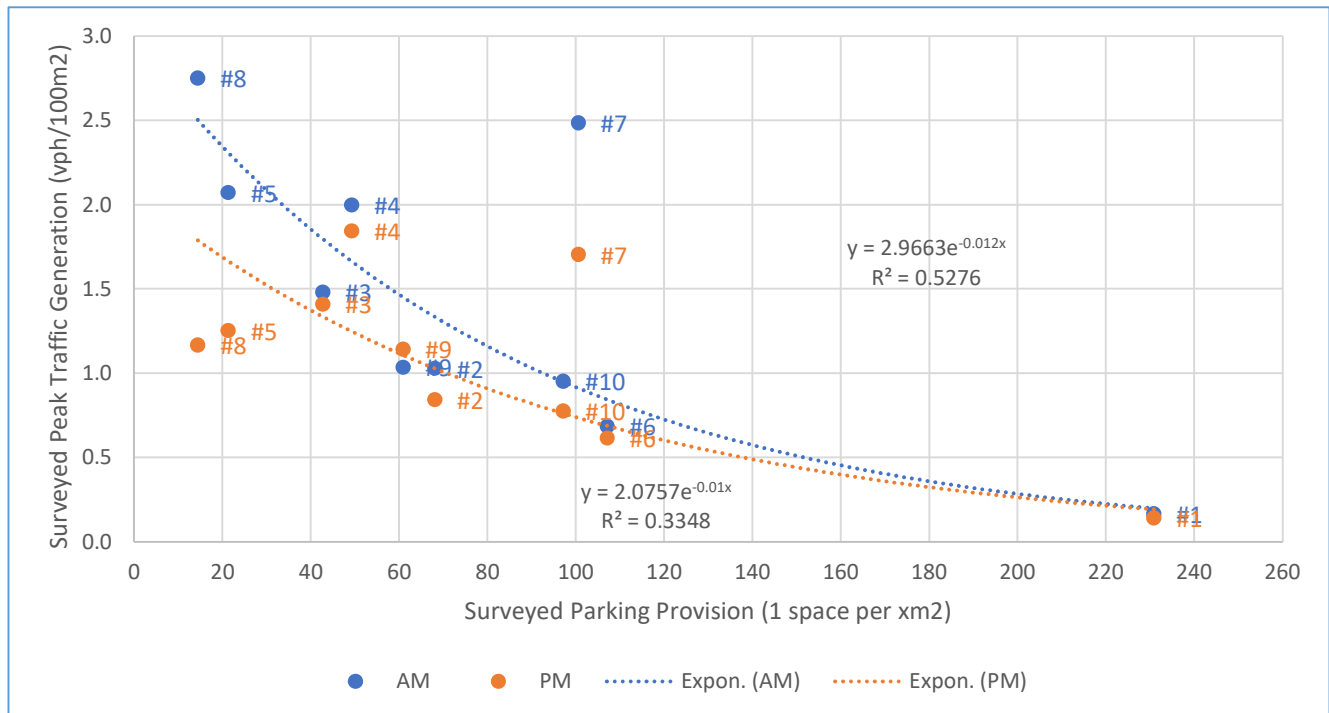
On the basis of the above, one reasonable approach would be to correct the peak periods for the two most significant outlier Sites 4 (AM) and 5 (PM) so that the one-hour periods align with the surveyed adjacent road peak. This corrected dataset is graphically illustrated at **Figure 2** and **Figure 3** where the x-axis represents the surveyed site yield and the surveyed parking provision rates respectively.

**Figure 2 RMS Office Traffic Generation Survey (Corrected Peak Hours) - Yield**





**Figure 3 RMS Office Traffic Generation Survey (Corrected Peak Hours) – Parking Provision**



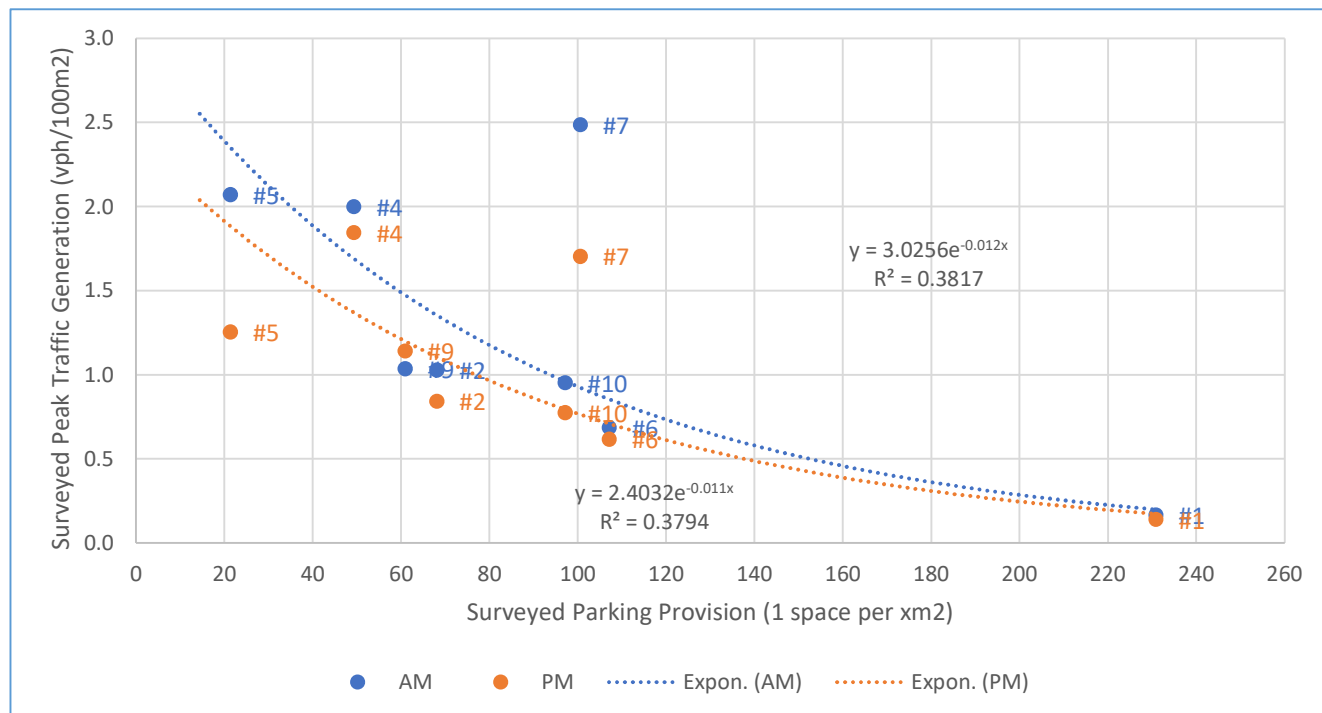
The simple arithmetic averages for this traffic generation dataset are:

- AM peak hour = 1.46 per 100m<sup>2</sup> GFA;
- PM peak hour = 1.09 per 100m<sup>2</sup> GFA.

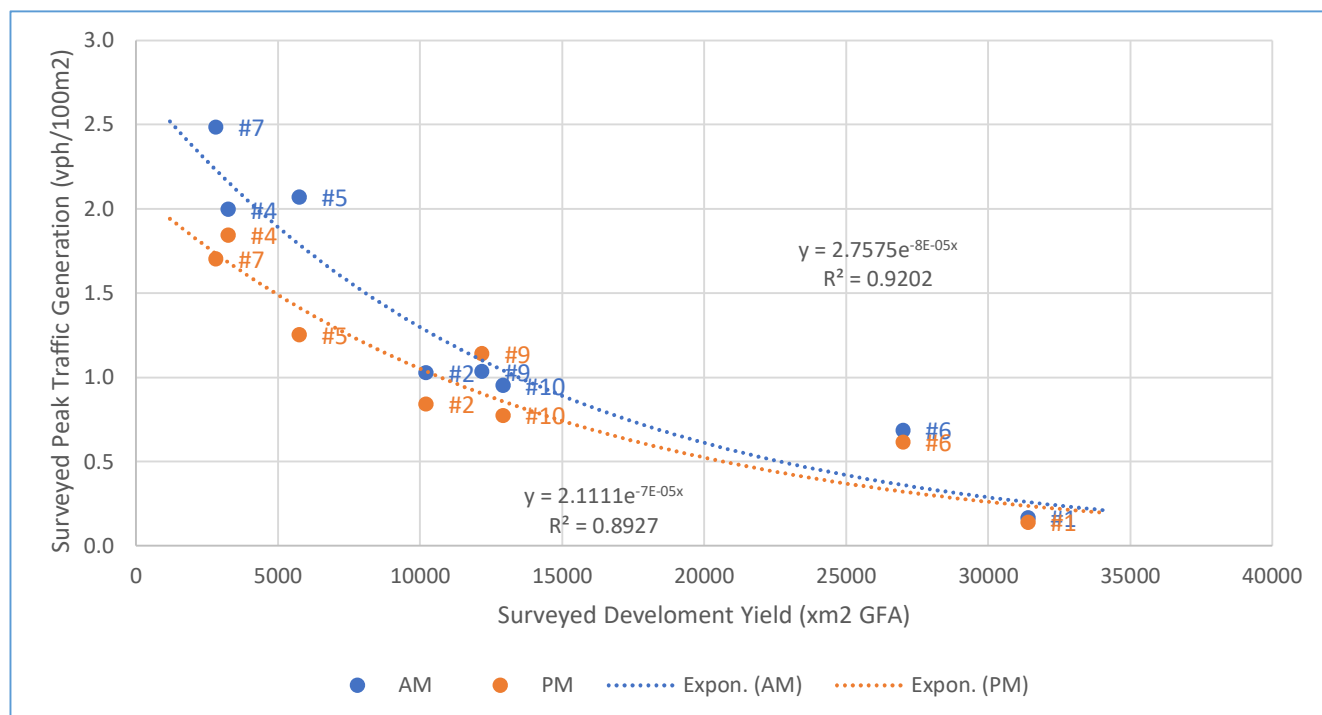
Another reasonable, but more intensive approach would be to remove the two most significant outliers being Site 3 (0.4 accessibility score) and Site 8 (accessibility score = 0.6 and parking provision rate = 1 space per 15m<sup>2</sup>). This process is not intent on removing data to improve the fit with the **Figure 2** and **Figure 3** regression curves, but instead does not include them given their gross inconsistency with the other surveyed sites, and the proposed Penrith CBD development.

This secondary corrected dataset is graphically illustrated at **Figure 4** and **Figure 5**.

**Figure 4 RMS Office Traffic Generation Survey (Corrected Peak Hours and Outliers) - Yield**



**Figure 5 RMS Office Traffic Generation Survey (Corrected Peak Hours and Outliers) – Parking Provision**



The simple arithmetic average of this dataset would be:

- AM peak hour = 1.3 per 100m<sup>2</sup> GFA;
- PM peak hour = 1.04 per 100m<sup>2</sup> GFA.

Finally, regardless of the adoption of any of the **Figure 2-5** traffic generation regression curves, it is clear that traffic generation rate for a development like that proposed (yield >21,000m<sup>2</sup> GFA and parking rate <1 space per 166m<sup>2</sup> GFA) is relatively low. Even after consideration of taxis, rideshare and other passenger drop-off movements, it is unlikely that that traffic generation rate will significantly exceed 1.0vph per 100m<sup>2</sup> GFA.

**Table 2** summarises the resultant office traffic generation that has been assumed on the basis of the 1.3 and 1.1vph per 100m<sup>2</sup> GFA rates.

**Table 2 Incremental Traffic Generation Increase | Office**

| Land Use   | Yield                    | Trip Generation Rate                                                          | Peak Hour Trips          |
|------------|--------------------------|-------------------------------------------------------------------------------|--------------------------|
| Commercial | 21,820m <sup>2</sup> GFA | AM: 1.3vph per 100m <sup>2</sup> GFA<br>PM: 1.1vph per 100 m <sup>2</sup> GFA | AM: 283vph<br>PM: 240vph |

### Traffic Origins and Destinations

The traffic distribution for the office component was determined via ABS Journey to Work data for the surrounding area. By reviewing the data at a SA3, SA2, and SA1 level, the journey to work data was used to estimate the total number of people working in the Penrith SA2 area. This analysis was then refined further to estimate the number of people working in Penrith SA2 and living in the various SA3, SA2, and SA1 zones, . i.e. Wollondilly SA3 is far enough from the Penrith CBD to not warrant going into the SA2 or SA1 level, but it is important to get the SA1 level detail for within the Penrith SA2 given that this is the subject model area.

The journey to work analysis outputs were used to develop the proportions of trips to the various model zones/centroids. Where two or more SAs origins/destinations are located outside the model boundary and accessed via the same route, they were combined as travelling to a single zone/centroid.

**Table 3** summarises the entry/exit traffic split proportions that were adopted for the proposed office use.

**Table 3 Incremental Office Traffic Entry/Exit Directionality**

| Site Access                | AM Peak (7-9AM) |     | PM Peak (4-6PM) |     |
|----------------------------|-----------------|-----|-----------------|-----|
|                            | IN              | OUT | IN              | OUT |
| Riley Street (Egress Only) | 0%              | 20% | 0%              | 70% |
| Jane Street (Ingress Only) | 80%             | 0%  | 30%             | 0%  |
| <b>TOTAL</b>               | <b>100%</b>     |     | <b>100%</b>     |     |

### 3.1.6.2 Retail

#### Traffic Demand

The incremental traffic demand attributable to the retail component of the Planning Proposal redevelopment was estimated with consideration of a series of traffic engineering assumptions, including:

- Evaluation of existing traffic demand and generation rate;
- Determination of incremental traffic demand; and
- Evaluation of external traffic distribution.

These assumptions and procedural steps are summarised in the following sections of this report.

The traffic generation attributed to the existing Westfield Penrith site was derived from the calibrated 2018 model. The existing situation traffic generation was adopted for the proposed incremental retail yield increase. This approach is expected to yield a conservative estimate of the incremental traffic demands as it does not make any account for the generation decay curve that is typical of large-scale shopping centres.

It is noted that since the calibrated 2018 model already contains the existing situation (Base) traffic, only the incremental traffic associated with the retail yield increase is added to the With Development models. **Table 4** summarises the existing, incremental, and total future retail traffic demands.

**Table 4 Incremental Traffic Generation Increase | Retail**

| Scenario                                   | Yield           | AM Peak   |           |           |                    | PM Peak   |                      |           |           |
|--------------------------------------------|-----------------|-----------|-----------|-----------|--------------------|-----------|----------------------|-----------|-----------|
|                                            |                 | 7-8AM     |           | 8-9AM     |                    | 4-5PM     |                      | 5-6PM     |           |
|                                            |                 | Trip Rate | Trips     | Trip Rate | Trips              | Trip Rate | Trips                | Trip Rate | Trips     |
| Existing Centre                            | 90,787sq.m GLFA | 0.38      | 348       | 1.00      | 909 <sup>(1)</sup> | 3.50      | 3,174 <sup>(1)</sup> | 3.39      | 3,074     |
| Existing Centre + Mondo                    | 1,114           | 0.38      | 4         | 1.00      | 11                 | 3.50      | 39                   | 3.39      | 38        |
| Existing Centre + Mondo + Office Component | 1,500           |           | 6         |           | 15                 |           | 52                   |           | 51        |
| <b>Total Increase</b>                      | <b>2,614</b>    |           | <b>10</b> |           | <b>26</b>          |           | <b>91</b>            |           | <b>89</b> |

(1) 2018 AISMUN volumes

### Traffic Origins and Destinations

The traffic distribution for the retail component was derived from the calibrated 2018 AISMUN model. This assumption is considered reasonable given the consistency of site access and proposed retail use.

#### 3.1.6.3 Motel (Short-stay Accommodation)

### Traffic Demand

Given a lack of any specific traffic generation rates for the motel land use in either the *RTA Guide to Traffic Generating Developments* (2002) or the 2013 RMS update, the former motel rate of 0.4vph per room was adopted.

The traffic demand adopted for the motel component is summarised in **Table 5**.

**Table 5 Incremental Traffic Generation Increase | Motel**

| Land Use | Yield     | Trip Rate          | Peak Hour Trips |
|----------|-----------|--------------------|-----------------|
| Motel    | 152 rooms | 0.4 trips per room | 61vph           |

### Traffic Origins and Destinations

The **Table 6** traffic distribution for the motel component was estimated based on the anticipated guest and staff origins/destinations.

**Table 6 Incremental Motel Traffic Distribution**

| Zone                                                                                                                             | Distribution |
|----------------------------------------------------------------------------------------------------------------------------------|--------------|
| North (northern residential and suburbs)                                                                                         | 20%          |
| East (eastern residential and suburbs)                                                                                           | 25%          |
| South (Western Sydney Airport, most of the eastern demand from Sydney via Western Highway, and southern residential and suburbs) | 45%          |
| West (western residential and suburbs, Blue Mountains)                                                                           | 10%          |
| <b>TOTAL</b>                                                                                                                     | <b>100%</b>  |

It was assumed that all motel trips would enter the model via the major connection points (i.e. Mulgoa Road (north and south), Western Highway, and Great Western Highway). **Table 7** presents the motel traffic directionality adopted for each of the relevant site accesses.

**Table 7 Incremental Motel Traffic Entry/Exit Directionality**

| Site Access                | AM Peak (7-9AM) |     | PM Peak (4-6PM) |     |
|----------------------------|-----------------|-----|-----------------|-----|
|                            | IN              | OUT | IN              | OUT |
| Riley Street (Egress Only) | 0%              | 80% | 0%              | 30% |
| Jane Street (Ingress Only) | 20%             | 0%  | 70%             | 0%  |
| <b>TOTAL</b>               | <b>100%</b>     |     | <b>100%</b>     |     |

## 3.2 SIDRA Model Development

### 3.2.1 Model Scope

Of the 18 intersections summarised below and illustrated overleaf in **Figure 6**, 17 are signalised.

1. Castlereagh Rd / Coreen Ave;
2. Coreen Ave / Lemongrove Rd;
3. Castlereagh Rd / Jane Street;
4. Jane Street / Riley Street / Train Station Access;
5. Jane Street/Station Street;
6. Mulgoa Rd / Great Western Highway;
7. Worth Street / High Street;
8. Riley Street / Henry Street / High Street;
9. Station Street / Henry Street;
10. Lawson Street / Henry Street;
11. Evan Street / Henry Street;
12. Lawson Street / High Street;
13. Evan Street / High Street;
14. Parker Street / Great Western Highway;
15. Mulgoa Rd / Ransley Street;
16. Parker Street / Derby Street;
17. Mulgoa Road / Jamison Road.
18. Union Road / Worth Street.



**Figure 6 Assessed Intersections with Modelled Study Area**



### 3.2.2 Model Scenarios

The same model scenarios outlined earlier herein were also adopted for the SIDRA analysis.

### 3.2.3 Base Road Network

The assessed road network was determined from a comprehensive review of Nearmap aerial imagery and information received from TfNSW. The intersection formations illustrated later herein represent the current arrangements at the time that this report was prepared.

### 3.2.4 Traffic Demands

The assessed Base and With Development traffic volumes were adopted directly from the AIMSUN model as provided by Bitzios with the exception of the following three locations:

- I4 | Jane Street/Riley Street/Train Station Access;
- I8 | Riley Street/Henry Street/High Street;
- I18 | Union Road/Worth Street.

The Base demands at these three locations were sourced directly from traffic surveys undertaken on behalf of Council in 2018. This approach was adopted at I4 and I8 as the surveyed demands better reflect the existing situation compared to Council's model. Reference to surveys for location I18 was necessary as this intersection is not included in the Council developed AIMSUN model.

Like the base year, the 2036 Base and With Development demands were sourced directly from the AIMSUN model except for locations I4, I8 and I18. The future Base traffic demands at these three locations were derived by applying the average growth observed from the AIMSUN model for adjacent intersections. The With Development traffic at locations I4 and I8 were derived by applying the same numerical increase observed in the AIMSUN model between the Base and With Development scenarios.

In the case of location I18, With Development traffic demands were derived by assessing the volume increases observed in the AIMSUN model on the southern leg of location I7. This volume derivation indicated that minimal traffic changes were observed at I18 (~20vph through the intersection in 2018 PM 1). Such a minor increase in With Development traffic will not result in material intersection impacts, and accordingly, only the Base scenario has been assessed for location I18.

Pedestrian volumes at these three intersections have also been input based on the most recent surveys for each of the peak period. All other pedestrian demands have been assessed with the SIDRA default.

### 3.2.5 SIDRA Inputs

Default input parameters were utilised wherever possible as part of the assessment conducted herein in accordance with the GTIA with the exception of those specified within **Table 8**, where it was deemed that the adopted parameters would be more representative of existing and/or future traffic conditions.

**Table 8 Adopted SIDRA Parameters**

| Parameter               | Default Value | Adopted Value   | Justification                                                                                                                                                                                                                                                                                              |
|-------------------------|---------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Level of Service method | Delay (SIDRA) | Delay (RTA NSW) | The RMS (previously RTA) method provides an indication of delay to drivers travelling through the intersection.                                                                                                                                                                                            |
| Bunching                | 0%            | Varies          | Bunching has been added to a number of intersection approaches to account for the impact of adjacent signalised intersections on traffic flow. This value varies depending on the separation between traffic signals and has been adopted from those specified within Table 5.2.1 of the SIDRA User Guide. |

The maximum DOS thresholds identified by *Austrroads Guide to Traffic Management Part 12: Integrated Transport Assessments for Developments* (AGTM12-20) for each intersection type are reproduced in **Table 9**.

**Table 9 Degree of Saturation Thresholds**

| Intersection Type                 | DOS Threshold              |
|-----------------------------------|----------------------------|
| Signalised Intersection           | Less than or equal to 0.90 |
| Roundabouts                       | Less than or equal to 0.85 |
| Priority Controlled Intersections | Less than or equal to 0.80 |

DOS values exceeding those presented in **Table 9** indicate that an intersection is nearing its practical capacity and upgrade works may be required. Above these threshold values, users of the intersection are likely to experience rapidly increasing delays and queuing.

The Level of Service (LoS) for a total of 18 key intersections was assessed based on the modelled average delay in accordance with the TfNSW criteria as shown in **Table 10**.

**Table 10 TfNSW Level of Service Criteria**

| Level of Service | Average Delay per Vehicle (seconds) | Description                                    |
|------------------|-------------------------------------|------------------------------------------------|
| A                | ≤14                                 | Good Operation                                 |
| B                | 15 to 28                            | Good with acceptable delay with spare capacity |
| C                | 29 to 42                            | Satisfactory                                   |
| D                | 43 to 56                            | Operating near capacity                        |
| E                | 57 to 70                            | At Capacity                                    |
| F                | >70                                 | Unsatisfactory                                 |

### 3.3 Assessment Findings

#### 3.3.1 AIMSUN Model Stability

Comprehensive reporting regarding the AIMSUN modelling is included in the appended Bitzios report. The key findings can be summarised as:

- The 2036 scenarios (AM and PM) includes approximately ~36% more traffic compared to the calibrated 2018 Base scenarios
- The 2036 PM scenario includes traffic movements that are ~30% higher than the AM period
- A review of the 2036 model performance indicates that without any road network improvements beyond the 2018 Base, the study area experiences frequent gridlocks in the Base PM scenario. Accordingly, the 2036 PM model is not sufficiently stable enough to draw robust conclusions from.

It is SLR's view that the 2036 PM road network operations and development impact cannot be accurately modelled until such time that Council's future road network planning can be incorporated. It is understood from follow-up queries in August 2021 that Council's future year modelling has been progressed but is still not available for release and/or use.

#### 3.3.2 Model Evaluation of Further Analysis

Four methods were adopted to evaluate the road network performance and the impact that could be attributed to the subject development. Methods 1 and 2 are direct findings of the AIMSUN modelling whilst Methods 3 and 4 are SIDRA Intersection analyses that are informed by the AIMSUN modelled traffic movements for each of the various scenarios:

## AIMSUN

1. Comparison of modelled network traffic volumes and quantify any increase attributable to the development;
2. Comparison of modelled network travel times and quantify any increase attributable to the development.

## SIDRA Intersection

3. Comparison of intersection capacity performance to determine any impact attributable to the development;
4. Comparison of network-wide intersection delays to determine any impact attributable to the development.

### 3.3.2.1 Method 1 | AIMSUN Modelled Traffic Movements

Comprehensive discussion regarding modelled traffic volumes is included in the Bitzios reporting (**Appendix C**).

Most simply, the traffic volumes summarised in **Table 11** indicate that the incremental development traffic modelled on the network equates to 1.3-1.9% of the Base plus Development demand projected at the 2036 design horizon.

**Table 11 Planning Proposal Modelled Development Traffic Increase**

| Scenario                          | 2018      |           |           |           | 2036      |           |           |           |
|-----------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|                                   | AM        |           | PM        |           | AM        |           | PM        |           |
|                                   | 0700-0800 | 0800-0900 | 1600-1700 | 1700-1800 | 0700-0800 | 0800-0900 | 1600-1700 | 1700-1800 |
| Base                              | 13,735vph | 18,082vph | 20,915vph | 21,240vph | 18,680vph | 24,592vph | 28,444vph | 28,886vph |
| PP Dev                            | 354vph    | 370vph    | 392vph    | 389vph    | 354vph    | 370vph    | 392vph    | 389vph    |
| Base + PP Dev                     | 14,089vph | 18,452vph | 21,307vph | 21,629vph | 19,034vph | 24,962vph | 28,836vph | 29,275vph |
| PP Dev % of Base + PP Dev Traffic | 2.5%      | 2.0%      | 1.8%      | 1.8%      | 1.9%      | 1.5%      | 1.4%      | 1.3%      |

Source: Penrith Westfield Development - Aimsun Assessment Summary (Bitzios, May 2022)

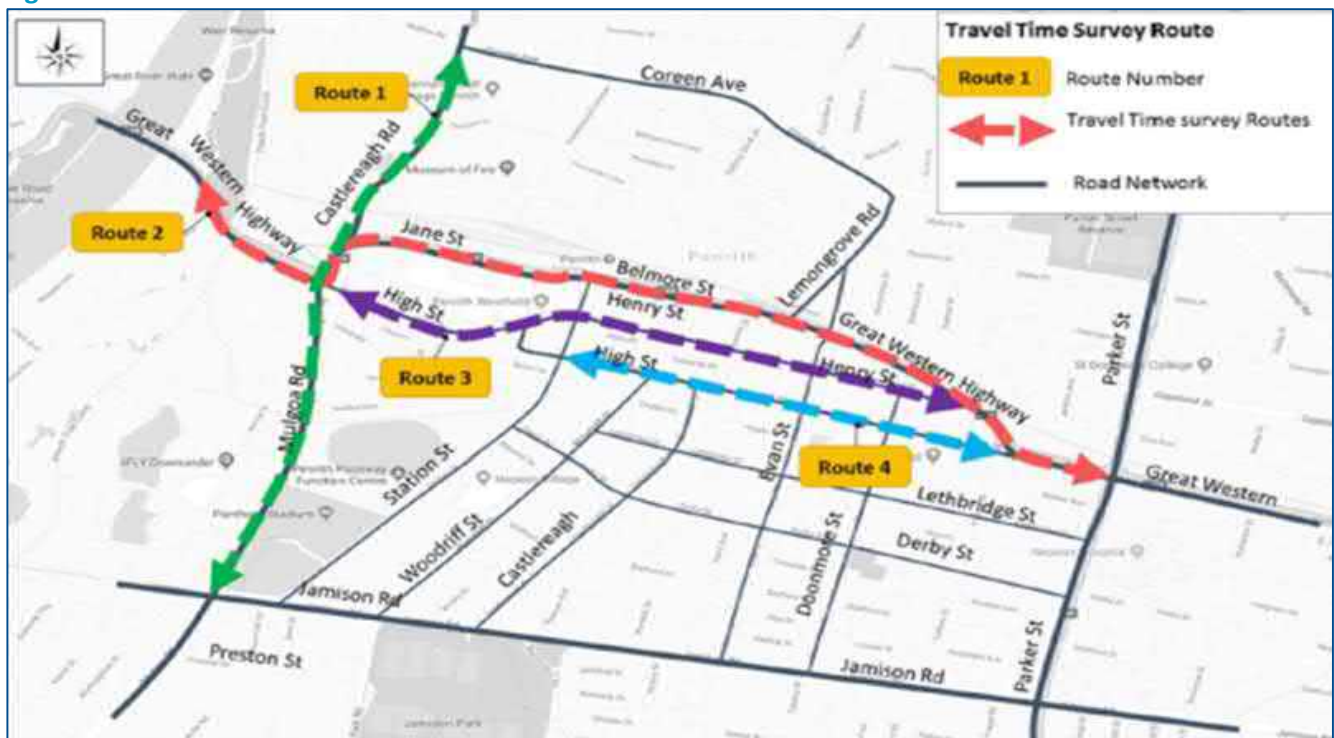
Whilst this is a network-wide result that doesn't consider isolated locations where changes may be greater, such a small proportional increase over the broader modelled area is useful in establishing the relatively small scale of development traffic increases, and by extension, the scale of possible development impacts.

### 3.3.2.2 Method 2 | AIMSUN Modelled Travel Time

Comprehensive discussion regarding travel times is included in the Bitzios reporting (**Appendix C**).

The average travel time along various permutations of Mulgoa Road / Castlereagh Road, Jane Street / Great Western Highway, Henry Street / High Street and High Street routes was assessed to quantify impacts that may be attributed to the development. The travel time evaluation routes are illustrated overleaf in **Figure 7**.

**Figure 7 Travel Time Evaluation Routes**



Source: Penrith Westfield Development - Aimsun Assessment Summary (Bitzios, March 2021)

The 2018 travel time results for the Base and With Development scenarios are summarised in **Table 12**.

**Table 12 Travel Time Performance Summary | 2018 Base and With Development**

| Route |            |                                | AM        |          |           |          | PM        |          |           |          |
|-------|------------|--------------------------------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|
|       |            |                                | 0700-0800 |          | 0800-0900 |          | 1600-1700 |          | 1700-1800 |          |
|       |            |                                | Base      | With Dev | Base      | With Dev | Base      | With Dev | Base      | With Dev |
| TT1   | Northbound | Castlereagh Road / Mulgoa Road | 3:18      | 3:21     | 3:39      | 3:41     | 4:04      | 4:04     | 4:11      | 4:10     |
|       | Southbound |                                | 3:46      | 3:49     | 3:53      | 3:58     | 4:14      | 4:16     | 4:41      | 4:47     |
| TT2   | Eastbound  | Jane Street / Mulgoa Road      | 6:58      | 7:00     | 7:23      | 7:26     | 9:48      | 11:12    | 8:25      | 9:09     |
|       | Westbound  |                                | 5:29      | 5:31     | 5:50      | 5:48     | 6:49      | 6:54     | 7:00      | 7:13     |
| TT3   | Eastbound  | Henry Street / High Street     | 3:46      | 3:45     | 4:18      | 4:20     | 4:52      | 4:56     | 4:53      | 5:12     |
|       | Westbound  |                                | 4:03      | 4:03     | 4:25      | 4:26     | 5:53      | 5:47     | 6:35      | 7:20     |
| TT4   | Eastbound  | High Street                    | 2:25      | 2:26     | 2:46      | 2:47     | 3:22      | 3:58     | 3:07      | 3:18     |
|       | Westbound  |                                | 1:49      | 1:49     | 2:15      | 2:15     | 2:17      | 2:18     | 2:15      | 2:18     |

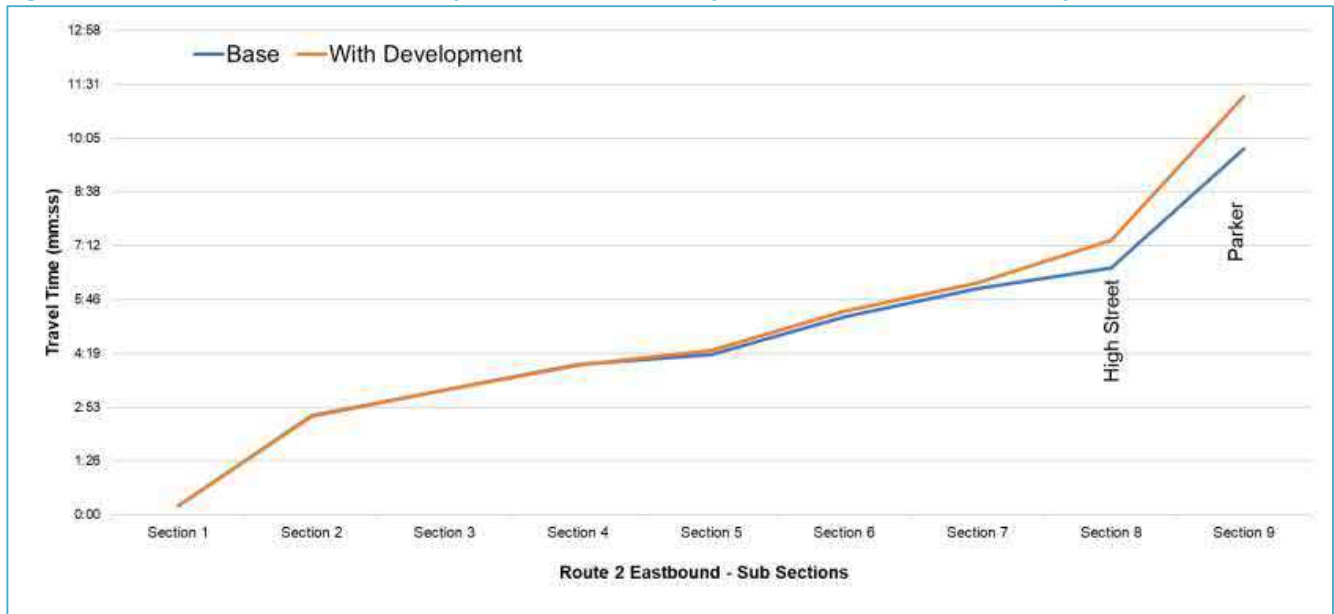
Source: Penrith Westfield Development - Aimsun Assessment Summary (Bitzios, May 2022)

The **Table 12** results indicate that the proposed redevelopment will generally not introduce significant increases in travel time along the evaluated routes.

The one exception being Route 2 (Jane Street / Great Western Highway) where in the PM peak period, the travel time in the eastbound direction is indicated to increase by approximately one minute. This increase is attributed to additional delays at (and between) the High Street and Parker Street intersections as illustrated in **Figure 8**.



**Figure 8 Travel Time Performance | Route 2 Eastbound | 2018 Base and With Development**



Source: Penrith Westfield Development - Aimsun Assessment Summary (Bitzios, May 2022)

This finding should be explored further as the Planning Proposal progresses, particularly at the 2036 modelled time horizon at such time that Council's modelling of the future planned/committed road network is available.

As mentioned in the earlier herein, the 2036 PM model results are not considered to be sufficiently stable enough from which to draw robust conclusions. Similar to the intersection delay findings, the travel time results are not reported for the 2036 PM scenario.

**Table 13 Travel Time Performance Summary | 2036 Base and With Development (AM Only)**

| Route |            |                                | AM        |          |           |          |
|-------|------------|--------------------------------|-----------|----------|-----------|----------|
|       |            |                                | 0700-0800 |          | 0800-0900 |          |
|       |            |                                | Base      | With Dev | Base      | With Dev |
| TT1   | Northbound | Castlereagh Road / Mulgoa Road | 4:00      | 4:14     | 6:17      | 6:00     |
|       | Southbound |                                | 4:00      | 4:02     | 4:12      | 4:16     |
| TT2   | Eastbound  | Jane Street / Mulgoa Road      | 7:2       | 7:01     | 7:21      | 7:23     |
|       | Westbound  |                                | 56:       | 5:48     | 6:12      | 6:11     |
| TT3   | Eastbound  | Henry Street / High Street     | 3:48      | 3:47     | 4:36      | 4:42     |
|       | Westbound  |                                | 4:04      | 4:09     | 4:49      | 4:48     |
| TT4   | Eastbound  | High Street                    | 2:25      | 2:23     | 2:52      | 2:54     |
|       | Westbound  |                                | 1:49      | 1:48     | 2:13      | 2:12     |

Source: Penrith Westfield Development - Aimsun Assessment Summary (Bitzios, March 2021)

The **Table 13** results indicate that the proposed redevelopment will not introduce significant increases in travel time along the evaluated routes.

### 3.3.2.3 Method 3 | SIDRA Intersection Performance

#### 2018 AM Base and With Development Intersection Capacity Analysis

**Table 14** summarises the 2018 AM SIDRA analysis results for all assessed intersections. Detailed electronic SIDRA files will be provided for review.

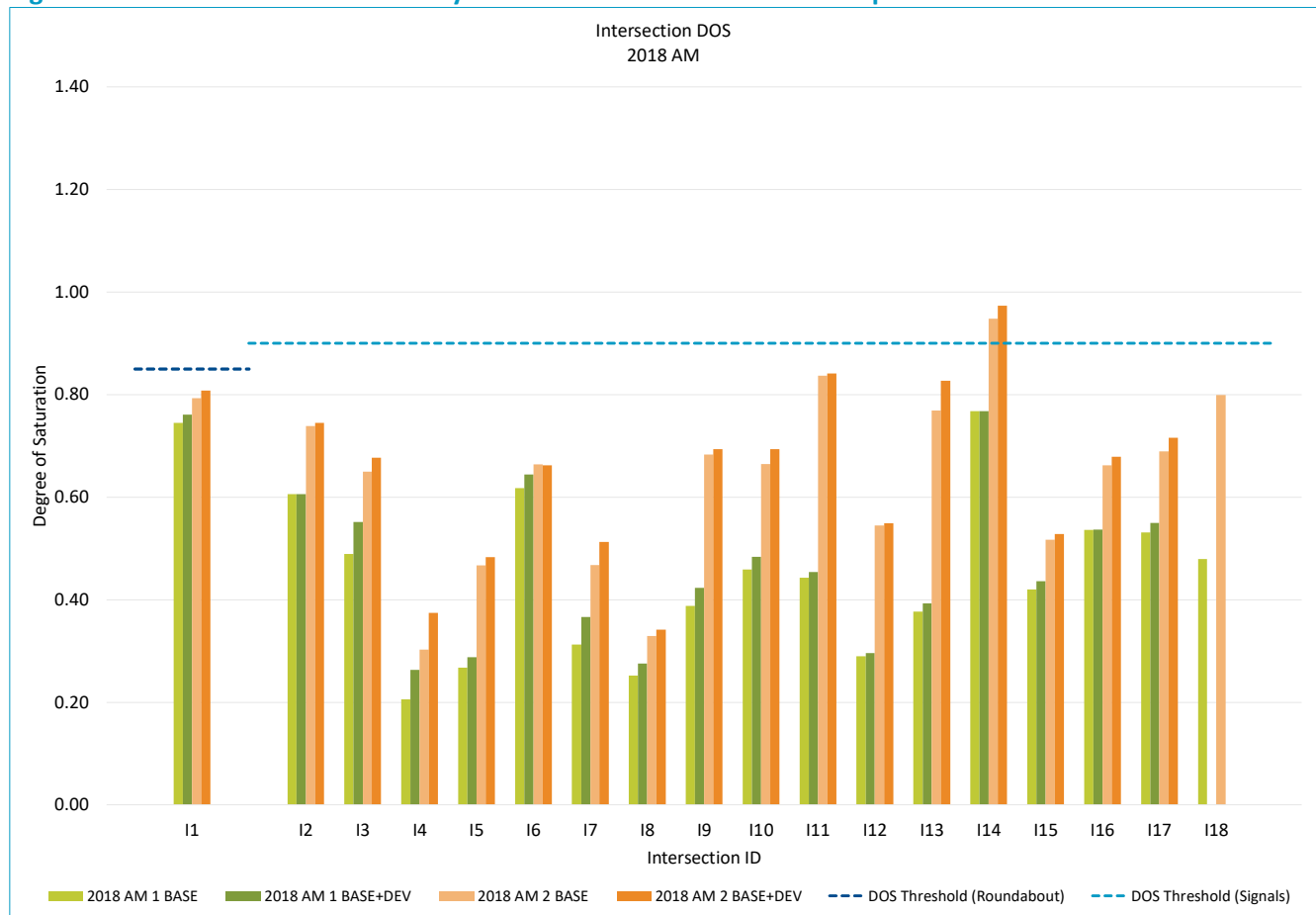
**Table 14 SIDRA Results Summary – 2018 AM – Network**

| ID                      | AM 1  |                     |                             | AM 2  |                     |                             |
|-------------------------|-------|---------------------|-----------------------------|-------|---------------------|-----------------------------|
|                         | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue |
| <b>Base</b>             |       |                     |                             |       |                     |                             |
| I1*                     | 0.745 | 14.6                | 61.6                        | 0.793 | 14.9                | 73.0                        |
| I2                      | 0.606 | 17.3                | 64.3                        | 0.739 | 18.1                | 80.6                        |
| I3                      | 0.489 | 14.0                | 118.3                       | 0.650 | 15.1                | 111.4                       |
| I4                      | 0.206 | 18.0                | 31.2                        | 0.303 | 14.3                | 50.3                        |
| I5                      | 0.268 | 16.0                | 31.1                        | 0.467 | 16.5                | 57.9                        |
| I6                      | 0.618 | 41.9                | 95.5                        | 0.664 | 44.5                | 133.7                       |
| I7                      | 0.313 | 24.9                | 40.4                        | 0.468 | 28.9                | 54.4                        |
| I8                      | 0.252 | 11.8                | 34.7                        | 0.329 | 11.8                | 44.8                        |
| I9                      | 0.388 | 17.7                | 49.0                        | 0.683 | 22.5                | 88.3                        |
| I10                     | 0.459 | 23.0                | 59.0                        | 0.665 | 24.9                | 93.7                        |
| I11                     | 0.443 | 17.8                | 57.3                        | 0.837 | 22.1                | 118.5                       |
| I12                     | 0.290 | 19.2                | 54.6                        | 0.545 | 21.0                | 108.1                       |
| I13                     | 0.377 | 14.8                | 36.6                        | 0.769 | 18.6                | 80.8                        |
| I14                     | 0.768 | 41.7                | 162.9                       | 0.948 | 53.1                | 252.6                       |
| I15                     | 0.420 | 15.9                | 114.3                       | 0.517 | 17.1                | 137.7                       |
| I16                     | 0.536 | 40.8                | 145.6                       | 0.662 | 44.1                | 174.2                       |
| I17                     | 0.531 | 42.5                | 134.5                       | 0.689 | 47.7                | 162.6                       |
| I18                     | 0.479 | 26.5                | 44.5                        | 0.799 | 31.2                | 82.7                        |
| <b>With Development</b> |       |                     |                             |       |                     |                             |
| I1*                     | 0.761 | 15.0                | 66.0                        | 0.808 | 15.4                | 78.0                        |
| I2                      | 0.606 | 17.3                | 64.1                        | 0.745 | 18.0                | 81.4                        |
| I3                      | 0.552 | 14.6                | 118.8                       | 0.677 | 15.8                | 115.2                       |
| I4                      | 0.263 | 23.3                | 37.0                        | 0.374 | 19.4                | 61.7                        |
| I5                      | 0.288 | 15.4                | 32.2                        | 0.483 | 16.1                | 61.0                        |
| I6                      | 0.644 | 41.7                | 99.0                        | 0.662 | 44.6                | 135.6                       |
| I7                      | 0.366 | 24.5                | 49.3                        | 0.513 | 27.8                | 61.2                        |
| I8                      | 0.276 | 11.0                | 39.6                        | 0.342 | 11.6                | 50.0                        |
| I9                      | 0.423 | 18.0                | 54.3                        | 0.694 | 22.8                | 91.1                        |
| I10                     | 0.484 | 23.0                | 63.0                        | 0.694 | 25.3                | 101.5                       |
| I11                     | 0.454 | 17.9                | 59.0                        | 0.841 | 22.2                | 119.9                       |
| I12                     | 0.296 | 18.9                | 55.4                        | 0.549 | 20.9                | 110.2                       |
| I13                     | 0.393 | 14.8                | 36.8                        | 0.827 | 20.1                | 85.4                        |
| I14                     | 0.768 | 41.8                | 162.9                       | 0.973 | 55.8                | 253.5                       |
| I15                     | 0.436 | 16.0                | 120.5                       | 0.528 | 17.2                | 144.0                       |
| I16                     | 0.537 | 40.4                | 146.8                       | 0.679 | 44.1                | 182.8                       |
| I17                     | 0.550 | 42.7                | 140.4                       | 0.716 | 48.2                | 171.1                       |

\*Critical Delay Reported

**Figure 9** graphically illustrates the DOS values summarised in **Table 14**.

**Figure 9 Intersection DOS Summary – 2018 AM Base and With Development**



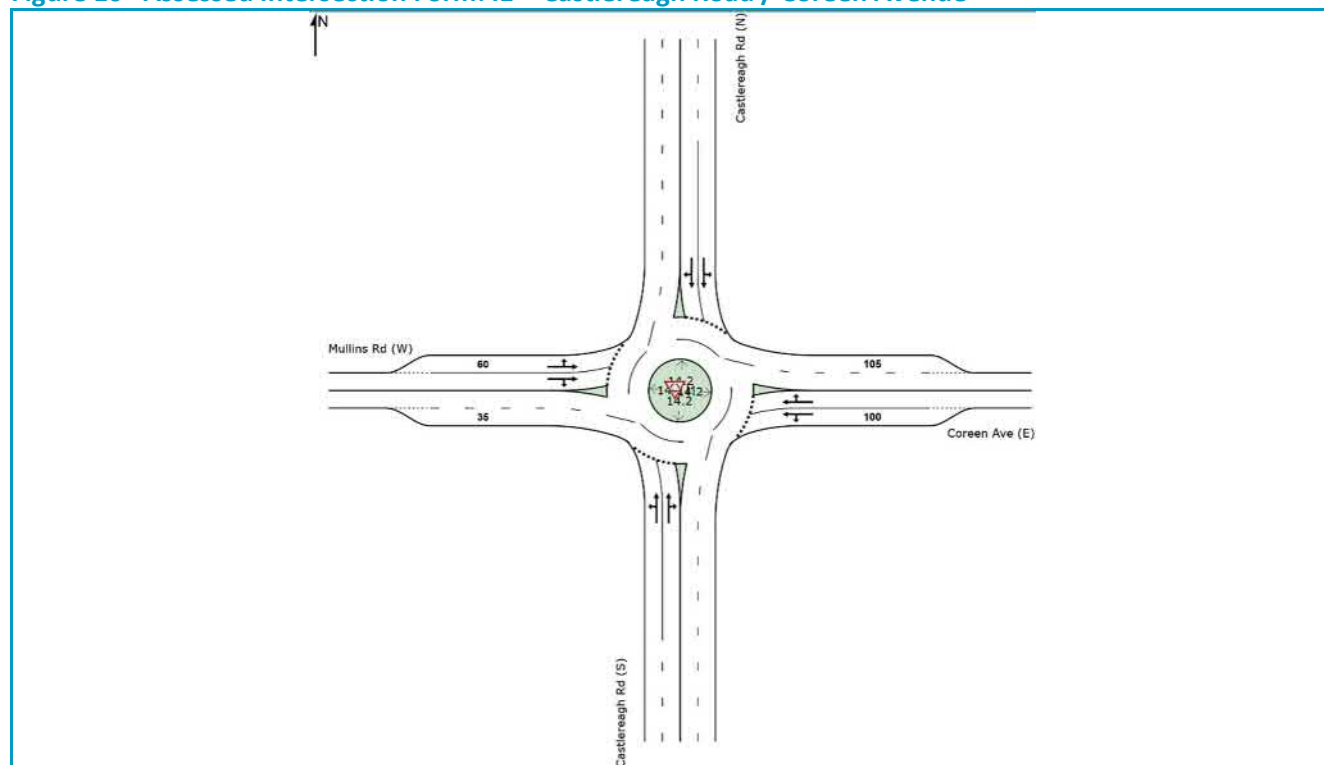
From **Table 14** and **Figure 9**, it can be concluded that the subject development does have a minor impact on individual intersection critical movements, but it does not bring about the failure of any intersection that is not already beyond capacity (i.e. I14).

SIDRA outputs for each intersection are summarised in the following sections.

## I1 – Castlereagh Road / Coreen Avenue

**Figure 10** presents the intersection form assessed using SIDRA with a summary of the SIDRA results by leg provided in **Table 15**.

**Figure 10 Assessed Intersection Form: I1 – Castlereagh Road / Coreen Avenue**



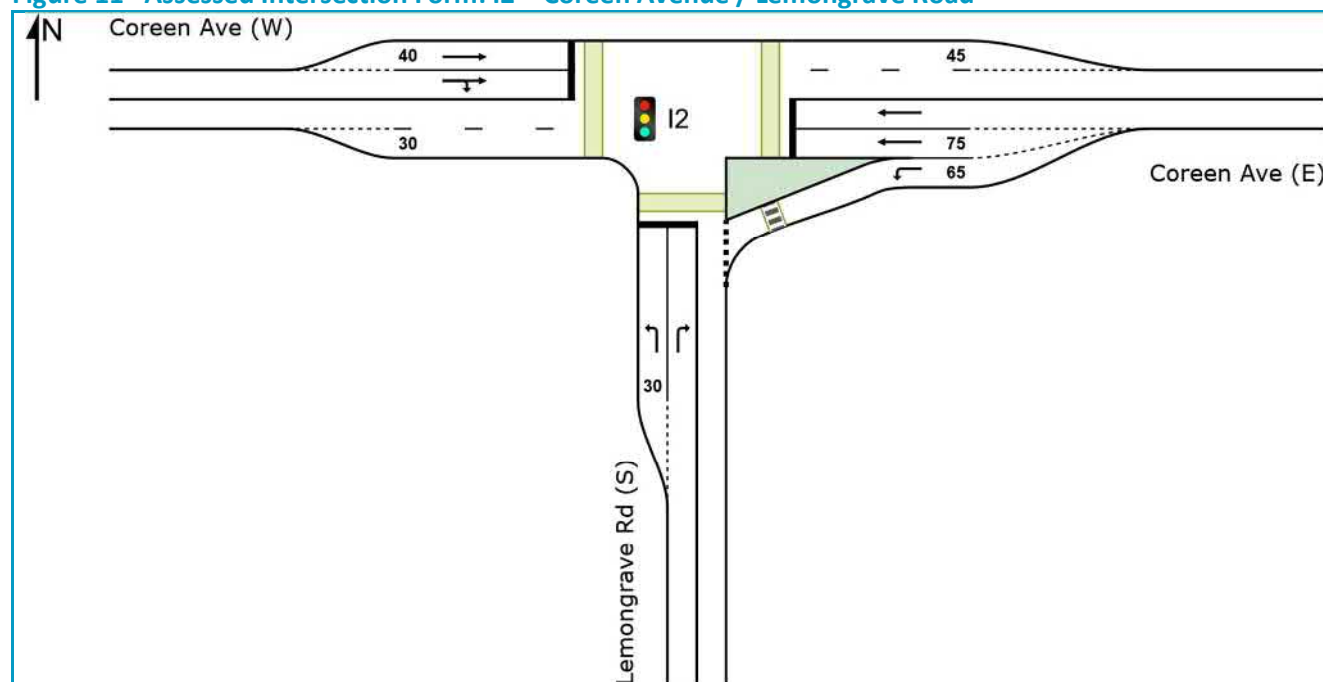
**Table 15 SIDRA Results Summary – I1 Castlereagh Road / Coreen Avenue**

| Intersection Leg        | AM 1  |                      |                     | AM 2  |                      |                     |
|-------------------------|-------|----------------------|---------------------|-------|----------------------|---------------------|
|                         | DOS   | Critical Delay (sec) | 95th %ile Queue (m) | DOS   | Critical Delay (sec) | 95th %ile Queue (m) |
| <b>Base</b>             |       |                      |                     |       |                      |                     |
| North                   | 0.745 | 14.6                 | 61.6                | 0.793 | 14.9                 | 73.0                |
| East                    | 0.429 | 13.1                 | 17.6                | 0.473 | 14.1                 | 17.4                |
| South                   | 0.570 | 11.4                 | 29.3                | 0.663 | 11.7                 | 42.0                |
| West                    | 0.141 | 11.0                 | 4.8                 | 0.148 | 11.3                 | 5.2                 |
| <b>With Development</b> |       |                      |                     |       |                      |                     |
| North                   | 0.761 | 15.0                 | 66.0                | 0.808 | 15.4                 | 78.0                |
| East                    | 0.442 | 13.4                 | 18.4                | 0.475 | 14.4                 | 17.9                |
| South                   | 0.578 | 11.5                 | 30.3                | 0.670 | 11.7                 | 43.2                |
| West                    | 0.143 | 11.0                 | 4.9                 | 0.149 | 11.3                 | 78.0                |

## I2 – Coreen Avenue / Lemongrave Road

**Figure 11** presents the intersection form assessed using SIDRA with a summary of the SIDRA results by leg provided in **Table 16**.

**Figure 11 Assessed Intersection Form: I2 – Coreen Avenue / Lemongrave Road**



**Table 16 SIDRA Results Summary – I2 – Coreen Avenue / Lemongrave Road**

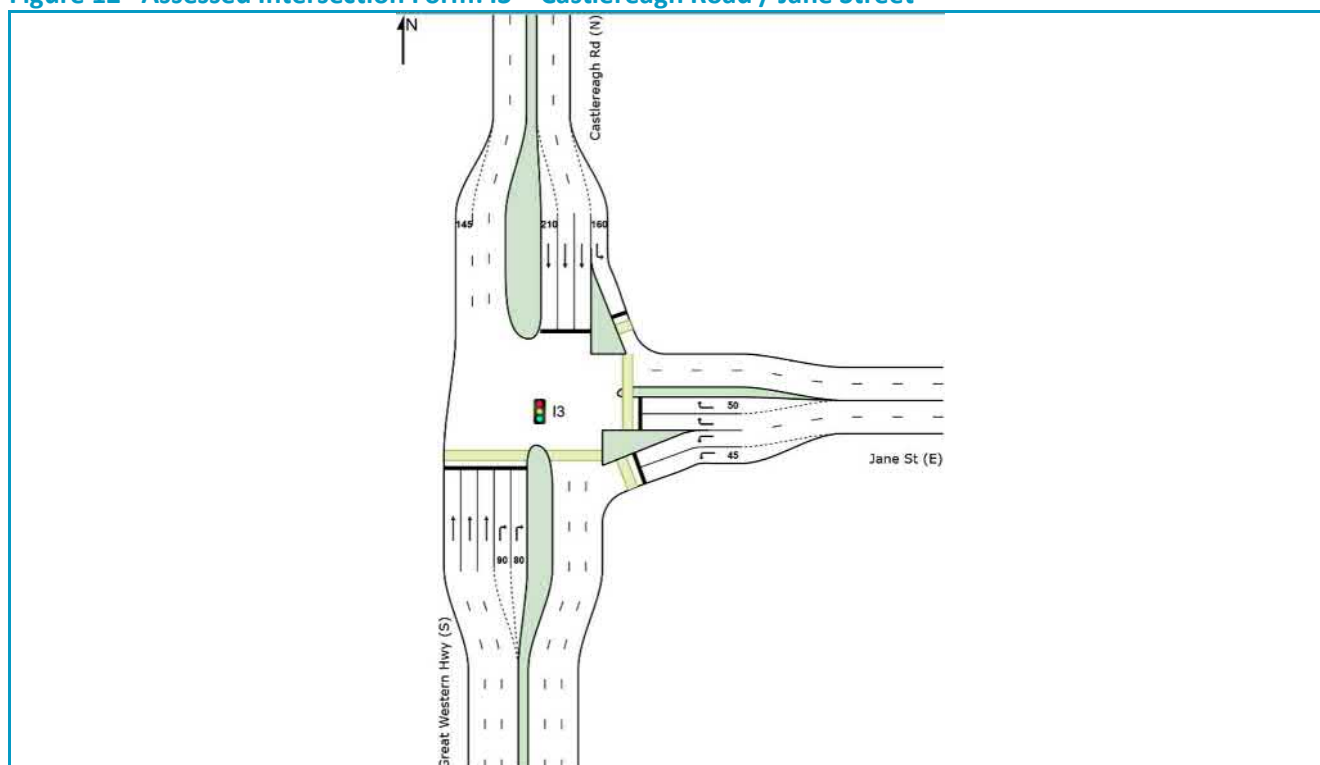
| Intersection Leg        | AM 1  |                     |                                 | AM 2  |                     |                                 |
|-------------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------------------|
|                         | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| <b>Base</b>             |       |                     |                                 |       |                     |                                 |
| East                    | 0.605 | 14.7                | 64.3                            | 0.704 | 15.2                | 61.5                            |
| South                   | 0.606 | 24.7                | 35.0                            | 0.729 | 25.1                | 44.6                            |
| West                    | 0.587 | 16.5                | 50.7                            | 0.739 | 18.1                | 80.6                            |
| <b>With Development</b> |       |                     |                                 |       |                     |                                 |
| East                    | 0.603 | 14.7                | 64.1                            | 0.696 | 15.1                | 60.4                            |
| South                   | 0.606 | 24.7                | 35.0                            | 0.729 | 25.0                | 44.6                            |
| West                    | 0.589 | 16.5                | 50.8                            | 0.745 | 18.2                | 81.4                            |



### I3 – Castlereagh Road / Jane Street

**Figure 12** presents the intersection form assessed using SIDRA with a summary of the SIDRA results by leg provided in **Table 17**.

**Figure 12 Assessed Intersection Form: I3 – Castlereagh Road / Jane Street**



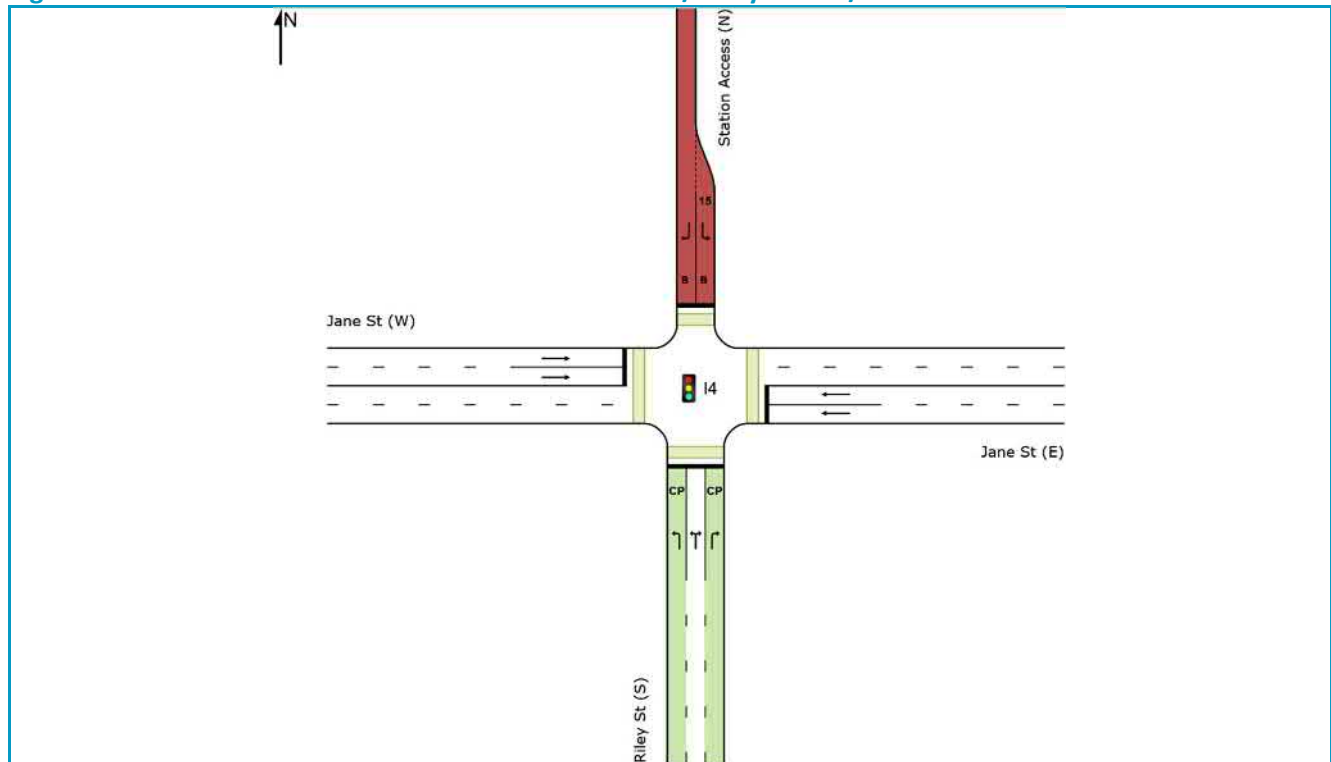
**Table 17 SIDRA Results Summary – I3 – Castlereagh Road / Jane Street**

| Intersection Leg        | AM 1  |                     |                     | AM 2  |                     |                     |
|-------------------------|-------|---------------------|---------------------|-------|---------------------|---------------------|
|                         | DOS   | Average Delay (sec) | 95th %ile Queue (m) | DOS   | Average Delay (sec) | 95th %ile Queue (m) |
| <b>Base</b>             |       |                     |                     |       |                     |                     |
| North                   | 0.321 | 11.1                | 70.2                | 0.458 | 14.0                | 111.4               |
| East                    | 0.489 | 53.8                | 28.3                | 0.405 | 57.2                | 36.9                |
| South                   | 0.478 | 11.2                | 118.3               | 0.650 | 10.4                | 52.0                |
| <b>With Development</b> |       |                     |                     |       |                     |                     |
| North                   | 0.330 | 11.2                | 72.6                | 0.458 | 14.1                | 115.2               |
| East                    | 0.552 | 52.1                | 32.2                | 0.441 | 55.1                | 40.5                |
| South                   | 0.467 | 11.1                | 118.8               | 0.677 | 10.8                | 54.7                |

#### I4 – Jane Street / Riley Street / Train Station Access

**Figure 13** presents the intersection form assessed using SIDRA with a summary of the SIDRA results by leg provided in **Table 18**.

**Figure 13 Assessed Intersection Form: I4 – Jane Street / Riley Street / Train Station Access**



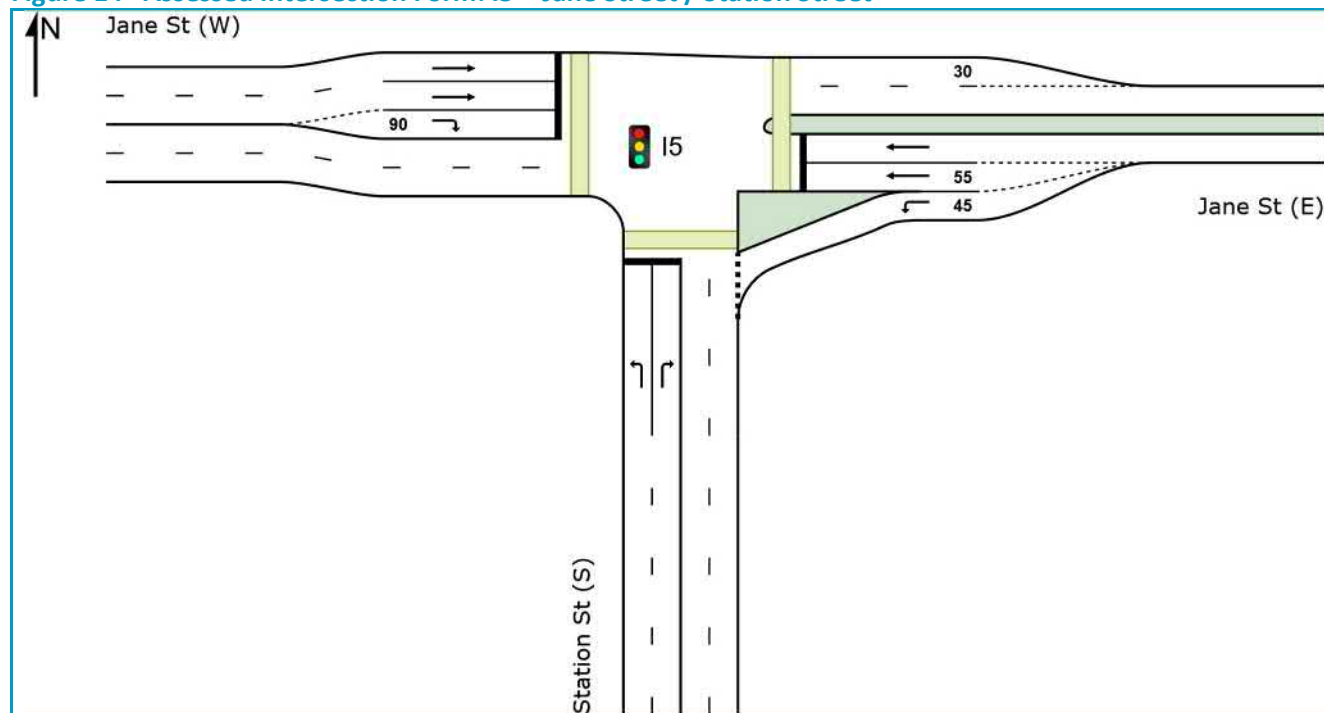
**Table 18 SIDRA Results Summary – I4 – Jane Street / Riley Street / Train Station Access**

| Intersection Leg        | AM 1  |                     |                     | AM 2  |                     |                     |
|-------------------------|-------|---------------------|---------------------|-------|---------------------|---------------------|
|                         | DOS   | Average Delay (sec) | 95th %ile Queue (m) | DOS   | Average Delay (sec) | 95th %ile Queue (m) |
| <b>Base</b>             |       |                     |                     |       |                     |                     |
| North                   | 0.206 | 38.7                | 18.2                | 0.299 | 46.1                | 16.8                |
| East                    | 0.143 | 14.2                | 21.5                | 0.204 | 10.7                | 32.2                |
| South                   | 0.195 | 37.3                | 15.2                | 0.303 | 39.0                | 22.9                |
| West                    | 0.202 | 14.7                | 31.2                | 0.301 | 11.4                | 50.3                |
| <b>With Development</b> |       |                     |                     |       |                     |                     |
| North                   | 0.263 | 42.3                | 19.2                | 0.342 | 47.7                | 17.2                |
| East                    | 0.188 | 20.5                | 26.2                | 0.250 | 15.7                | 39.4                |
| South                   | 0.262 | 27.5                | 32.6                | 0.374 | 31.6                | 43.1                |
| West                    | 0.258 | 21.1                | 37.0                | 0.367 | 16.7                | 61.7                |

### I5 – Jane Street / Station Street

**Figure 14** presents the intersection form assessed using SIDRA with a summary of the SIDRA results by leg provided in **Table 19**.

**Figure 14 Assessed Intersection Form: I5 – Jane Street / Station Street**



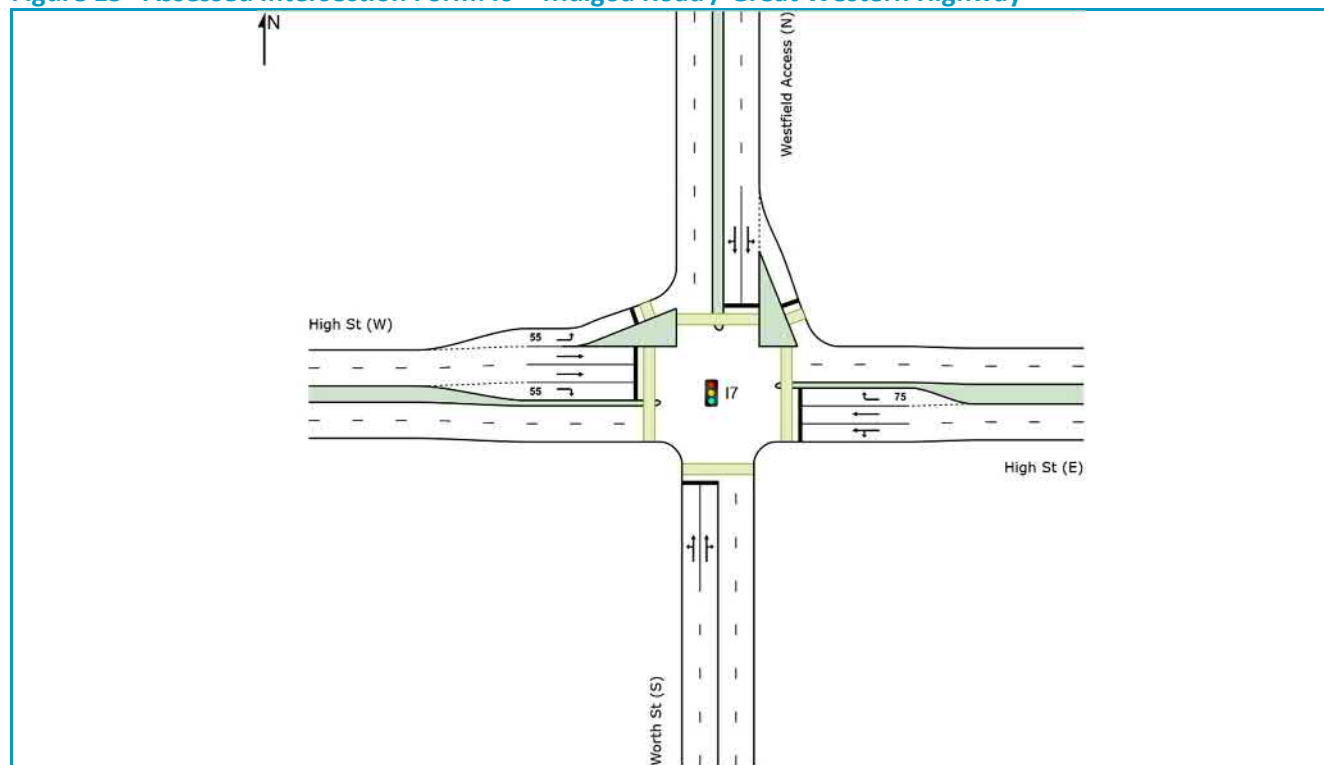
**Table 19 SIDRA Results Summary – I5 – Jane Street / Station Street**

| Intersection Leg        | AM 1  |                     |                     | AM 2  |                     |                     |
|-------------------------|-------|---------------------|---------------------|-------|---------------------|---------------------|
|                         | DOS   | Average Delay (sec) | 95th %ile Queue (m) | DOS   | Average Delay (sec) | 95th %ile Queue (m) |
| <b>Base</b>             |       |                     |                     |       |                     |                     |
| East                    | 0.268 | 18.4                | 18.5                | 0.441 | 23.1                | 36.2                |
| South                   | 0.268 | 19.7                | 30.4                | 0.467 | 22.4                | 34.3                |
| West                    | 0.223 | 12.1                | 31.1                | 0.383 | 9.8                 | 57.9                |
| <b>With Development</b> |       |                     |                     |       |                     |                     |
| East                    | 0.281 | 19.2                | 22.3                | 0.466 | 23.8                | 40.6                |
| South                   | 0.288 | 16.8                | 30.6                | 0.483 | 18.4                | 35.6                |
| West                    | 0.232 | 11.3                | 32.2                | 0.402 | 9.7                 | 61.0                |

## I6 – Mulgoa Road / Great Western Highway

**Figure 15** presents the intersection form assessed using SIDRA with a summary of the SIDRA results by leg provided in **Table 20**.

**Figure 15 Assessed Intersection Form: I6 – Mulgoa Road / Great Western Highway**



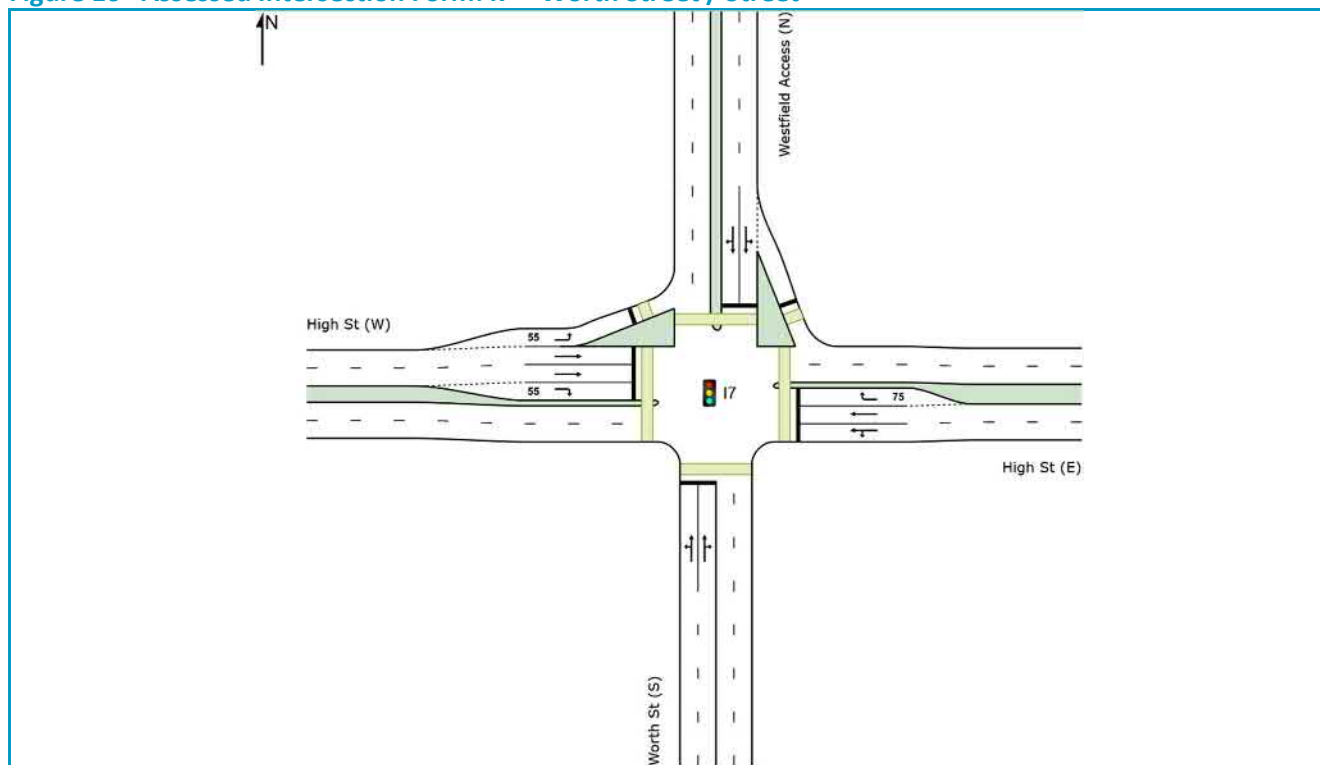
**Table 20 SIDRA Results Summary – I6 – Mulgoa Road / Great Western Highway**

| Intersection Leg        | AM 1  |                     |                     | AM 2  |                     |                     |
|-------------------------|-------|---------------------|---------------------|-------|---------------------|---------------------|
|                         | DOS   | Average Delay (sec) | 95th %ile Queue (m) | DOS   | Average Delay (sec) | 95th %ile Queue (m) |
| <b>Base</b>             |       |                     |                     |       |                     |                     |
| North                   | 0.618 | 47.2                | 95.5                | 0.654 | 42.0                | 113.0               |
| East                    | 0.288 | 44.1                | 34.1                | 0.312 | 48.8                | 52.5                |
| South                   | 0.488 | 34.4                | 93.5                | 0.587 | 45.2                | 120.2               |
| West                    | 0.618 | 42.5                | 92.1                | 0.664 | 44.9                | 133.7               |
| <b>With Development</b> |       |                     |                     |       |                     |                     |
| North                   | 0.634 | 45.8                | 99.0                | 0.661 | 42.4                | 114.3               |
| East                    | 0.288 | 44.1                | 34.1                | 0.314 | 48.8                | 52.7                |
| South                   | 0.488 | 35.0                | 93.5                | 0.587 | 45.6                | 120.2               |
| West                    | 0.644 | 42.7                | 91.7                | 0.662 | 44.8                | 135.6               |

## I7 – Worth Street / Street

**Figure 16** presents the intersection form assessed using SIDRA with a summary of the SIDRA results by leg provided in **Table 21**.

**Figure 16 Assessed Intersection Form: I7 – Worth Street / Street**



**Table 21 SIDRA Results Summary – I7 – Worth Street / Street**

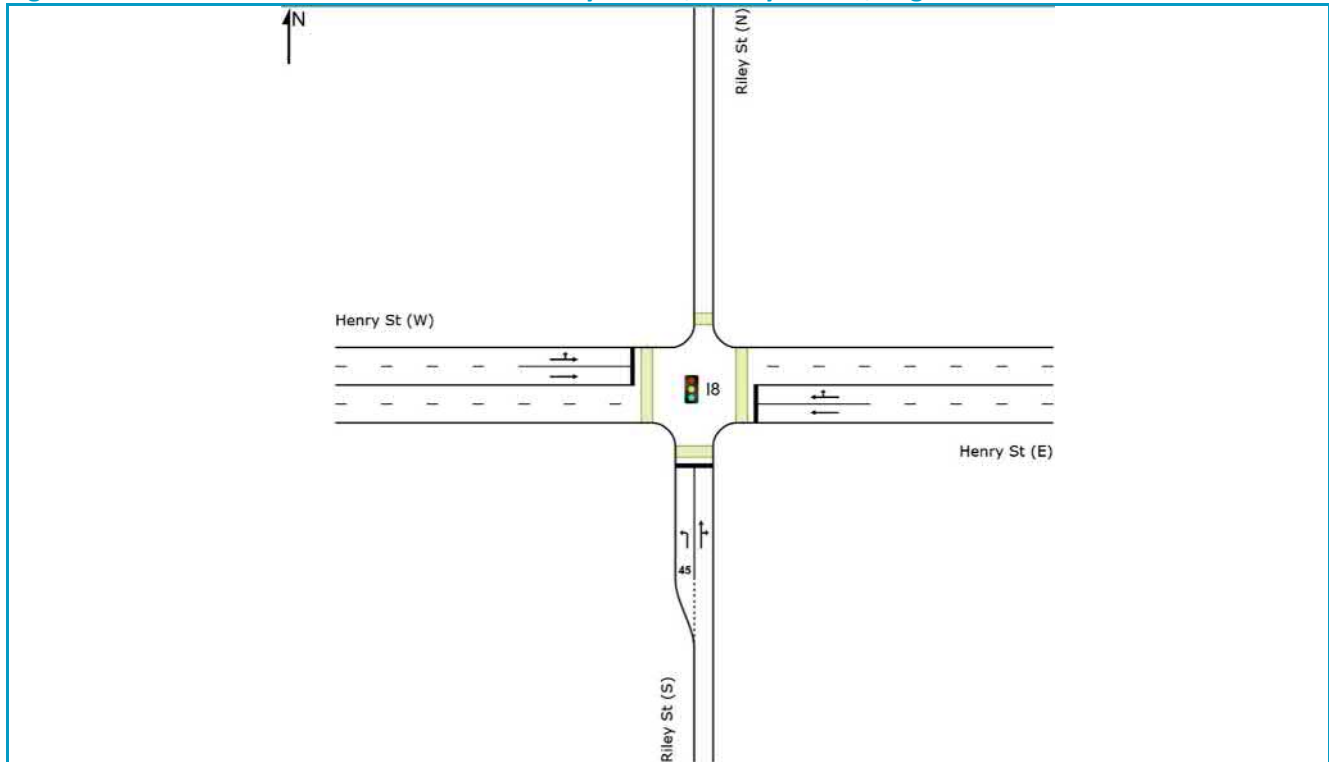
| Intersection Leg        | AM 1  |                     |                     | AM 2  |                     |                     |
|-------------------------|-------|---------------------|---------------------|-------|---------------------|---------------------|
|                         | DOS   | Average Delay (sec) | 95th %ile Queue (m) | DOS   | Average Delay (sec) | 95th %ile Queue (m) |
| <b>Base</b>             |       |                     |                     |       |                     |                     |
| North                   | 0.209 | 26.1                | 3.3                 | 0.056 | 28.0                | 3.2                 |
| East                    | 0.225 | 23.1                | 27.9                | 0.355 | 28.4                | 39.7                |
| South                   | 0.242 | 25.5                | 15.1                | 0.407 | 26.0                | 28.3                |
| West                    | 0.313 | 25.6                | 40.4                | 0.468 | 30.3                | 54.4                |
| <b>With Development</b> |       |                     |                     |       |                     |                     |
| North                   | 0.032 | 26.6                | 3.6                 | 0.056 | 28.6                | 3.4                 |
| East                    | 0.217 | 22.3                | 27.5                | 0.308 | 26.4                | 37.4                |
| South                   | 0.252 | 25.9                | 15.6                | 0.460 | 27.4                | 29.7                |
| West                    | 0.366 | 25.2                | 49.3                | 0.513 | 28.6                | 61.2                |



### I8 – Riley Street / Henry Street / High Street

**Figure 17** presents the intersection form assessed using SIDRA with a summary of the SIDRA results by leg provided in **Table 22**.

**Figure 17 Assessed Intersection Form: I8 – Riley Street / Henry Street / High Street**



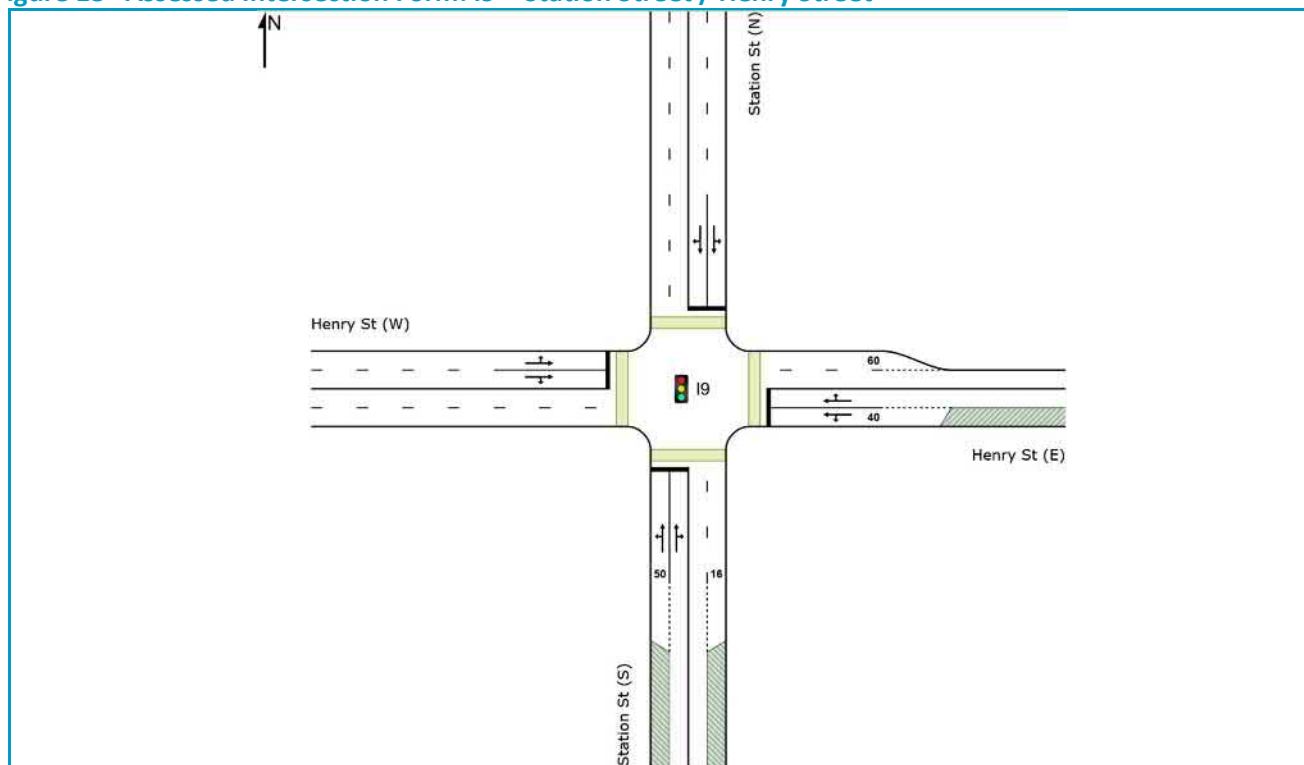
**Table 22 SIDRA Results Summary – I8 – Riley Street / Henry Street / High Street**

| Intersection Leg        | AM 1  |                     |                     | AM 2  |                     |                     |
|-------------------------|-------|---------------------|---------------------|-------|---------------------|---------------------|
|                         | DOS   | Average Delay (sec) | 95th %ile Queue (m) | DOS   | Average Delay (sec) | 95th %ile Queue (m) |
| <b>Base</b>             |       |                     |                     |       |                     |                     |
| East                    | 0.117 | 3.6                 | 12.3                | 0.160 | 3.3                 | 16.5                |
| South                   | 0.203 | 35.8                | 10.1                | 0.329 | 38.7                | 12.9                |
| West                    | 0.252 | 15.1                | 34.7                | 0.318 | 16.3                | 44.8                |
| <b>With Development</b> |       |                     |                     |       |                     |                     |
| East                    | 0.115 | 3.1                 | 11.4                | 0.168 | 3.8                 | 18.0                |
| South                   | 0.273 | 38.6                | 10.6                | 0.281 | 37.2                | 12.6                |
| West                    | 0.276 | 13.4                | 39.6                | 0.342 | 15.1                | 50.0                |

## I9 – Station Street / Henry Street

**Figure 18** presents the intersection form assessed using SIDRA with a summary of the SIDRA results by leg provided in **Table 23**.

**Figure 18 Assessed Intersection Form: I9 – Station Street / Henry Street**



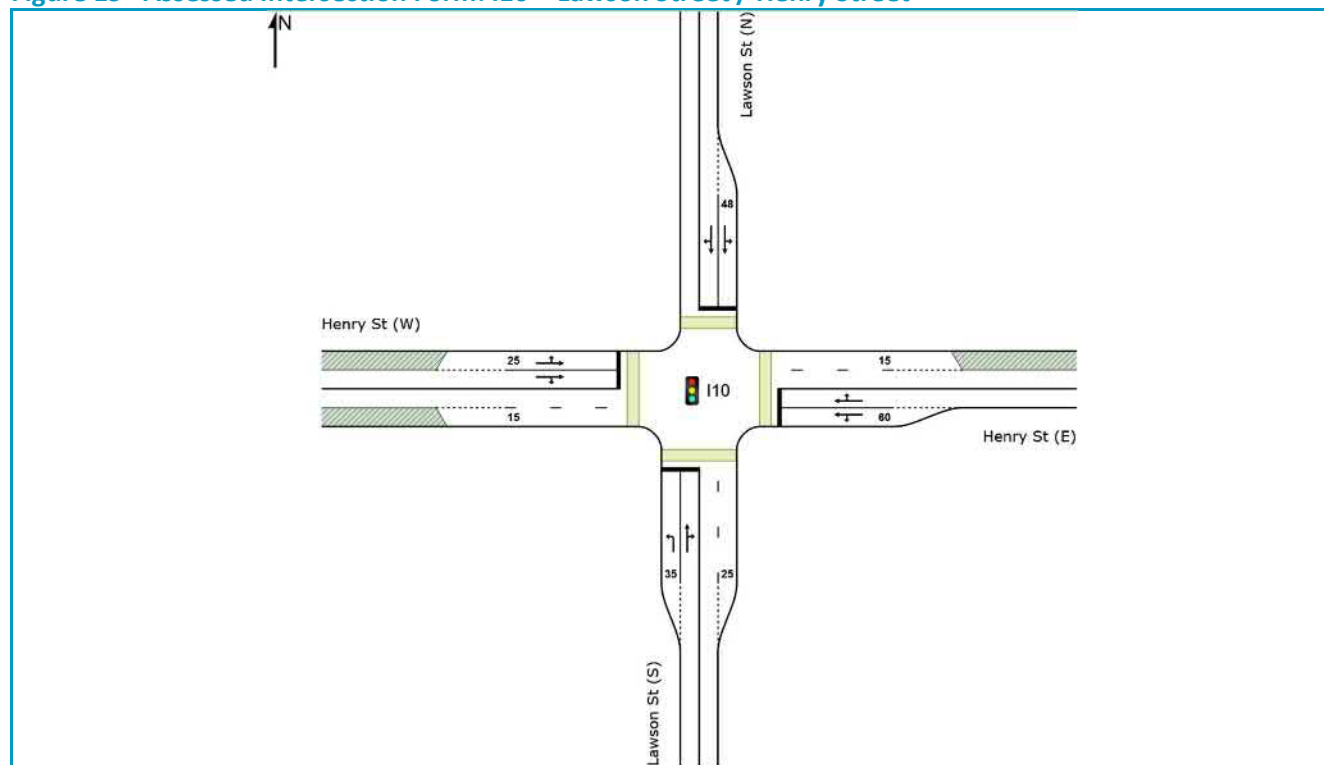
**Table 23 SIDRA Results Summary – I9 – Station Street / Henry Street**

| Intersection Leg        | AM 1  |                     |                     | AM 2  |                     |                     |
|-------------------------|-------|---------------------|---------------------|-------|---------------------|---------------------|
|                         | DOS   | Average Delay (sec) | 95th %ile Queue (m) | DOS   | Average Delay (sec) | 95th %ile Queue (m) |
| <b>Base</b>             |       |                     |                     |       |                     |                     |
| North                   | 0.388 | 20.4                | 45.1                | 0.683 | 25.0                | 88.3                |
| East                    | 0.196 | 15.6                | 25.9                | 0.398 | 19.1                | 59.8                |
| South                   | 0.181 | 18.9                | 21.9                | 0.271 | 22.1                | 34.3                |
| West                    | 0.386 | 16.4                | 49.0                | 0.667 | 23.2                | 64.6                |
| <b>With Development</b> |       |                     |                     |       |                     |                     |
| North                   | 0.423 | 21.4                | 47.5                | 0.688 | 24.7                | 91.1                |
| East                    | 0.214 | 15.4                | 28.8                | 0.412 | 19.4                | 60.9                |
| South                   | 0.226 | 19.6                | 27.8                | 0.293 | 20.7                | 39.0                |
| West                    | 0.413 | 16.4                | 54.3                | 0.694 | 25.0                | 87.4                |

### I10 – Lawson Street / Henry Street

**Figure 19** presents the intersection form assessed using SIDRA with a summary of the SIDRA results by leg provided in **Table 24**.

**Figure 19 Assessed Intersection Form: I10 – Lawson Street / Henry Street**



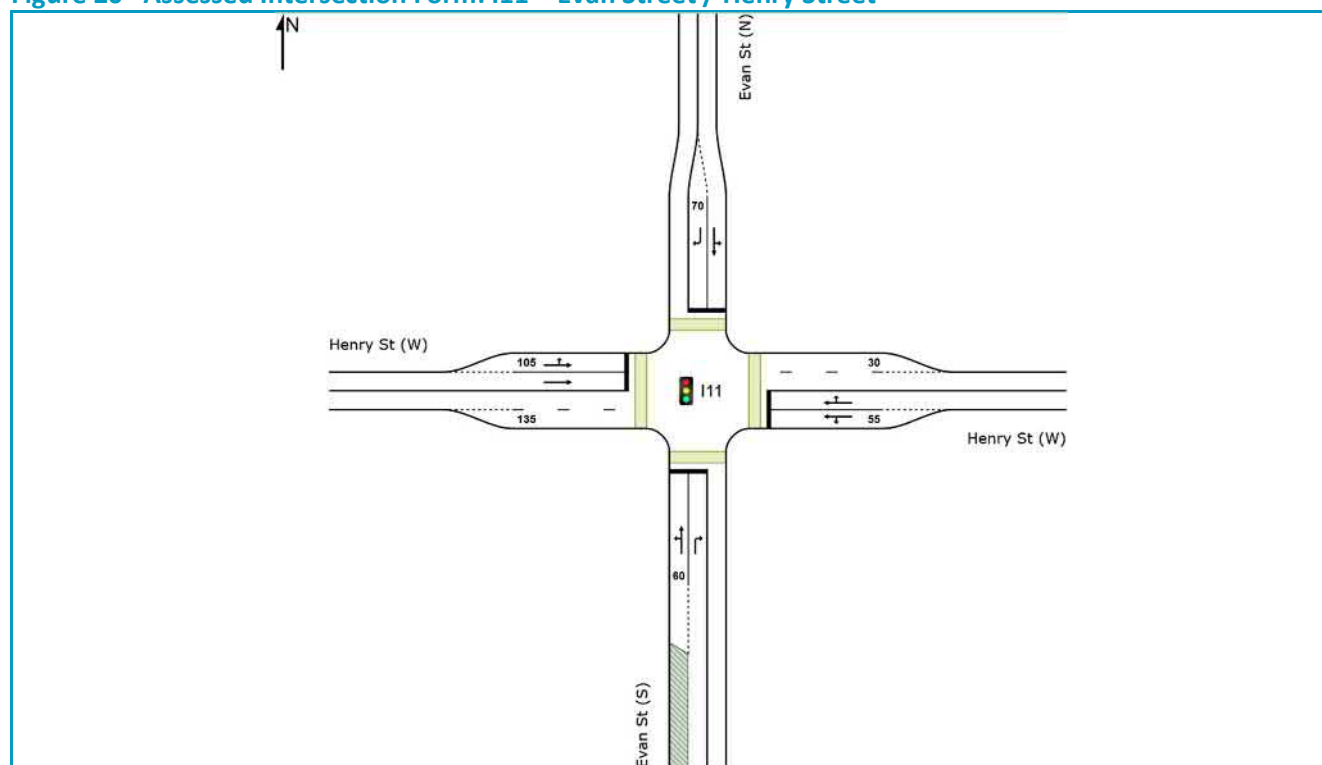
**Table 24 SIDRA Results Summary – I10 – Lawson Street / Henry Street**

| Intersection Leg        | AM 1  |                     |                     | AM 2  |                     |                     |
|-------------------------|-------|---------------------|---------------------|-------|---------------------|---------------------|
|                         | DOS   | Average Delay (sec) | 95th %ile Queue (m) | DOS   | Average Delay (sec) | 95th %ile Queue (m) |
| <b>Base</b>             |       |                     |                     |       |                     |                     |
| North                   | 0.114 | 37.5                | 3.8                 | 0.435 | 37.9                | 18.1                |
| East                    | 0.459 | 22.3                | 59.0                | 0.661 | 24.2                | 93.7                |
| South                   | 0.373 | 37.7                | 14.9                | 0.434 | 39.0                | 14.5                |
| West                    | 0.457 | 22.5                | 49.9                | 0.665 | 24.1                | 73.4                |
| <b>With Development</b> |       |                     |                     |       |                     |                     |
| North                   | 0.114 | 37.2                | 3.8                 | 0.436 | 35.0                | 16.1                |
| East                    | 0.484 | 20.0                | 63.0                | 0.694 | 22.1                | 101.5               |
| South                   | 0.373 | 36.2                | 14.9                | 0.451 | 39.4                | 15.1                |
| West                    | 0.482 | 22.6                | 52.5                | 0.683 | 24.4                | 76.0                |

## I11 – Evan Street / Henry Street

**Figure 20** presents the intersection form assessed using SIDRA with a summary of the SIDRA results by leg provided in **Table 25**.

**Figure 20 Assessed Intersection Form: I11 – Evan Street / Henry Street**



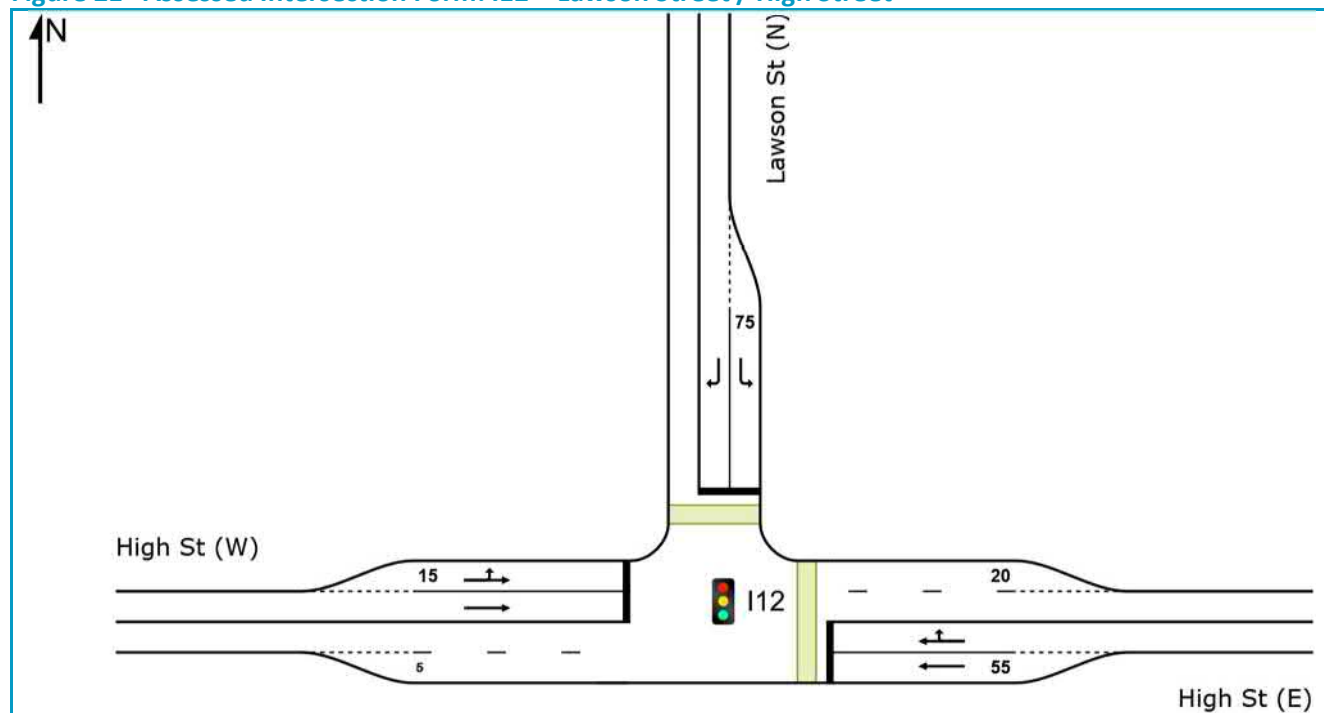
**Table 25 SIDRA Results Summary – I11 – Evan Street / Henry Street**

| Intersection Leg        | AM 1  |                     |                     | AM 2  |                     |                     |
|-------------------------|-------|---------------------|---------------------|-------|---------------------|---------------------|
|                         | DOS   | Average Delay (sec) | 95th %ile Queue (m) | DOS   | Average Delay (sec) | 95th %ile Queue (m) |
| <b>Base</b>             |       |                     |                     |       |                     |                     |
| North                   | 0.360 | 12.0                | 51.3                | 0.614 | 12.4                | 108.0               |
| East                    | 0.431 | 24.8                | 32.3                | 0.837 | 33.8                | 57.4                |
| South                   | 0.443 | 19.0                | 57.3                | 0.837 | 32.7                | 118.5               |
| West                    | 0.295 | 19.4                | 31.4                | 0.645 | 22.5                | 65.3                |
| <b>With Development</b> |       |                     |                     |       |                     |                     |
| North                   | 0.362 | 12.1                | 51.7                | 0.656 | 13.2                | 113.1               |
| East                    | 0.446 | 24.9                | 33.5                | 0.806 | 32.4                | 57.9                |
| South                   | 0.454 | 19.2                | 59.0                | 0.841 | 33.1                | 119.9               |
| West                    | 0.316 | 19.6                | 33.9                | 0.625 | 21.8                | 65.7                |

## I12 – Lawson Street / High Street

**Figure 21** presents the intersection form assessed using SIDRA with a summary of the SIDRA results by leg provided in **Table 26**.

**Figure 21 Assessed Intersection Form: I12 – Lawson Street / High Street**



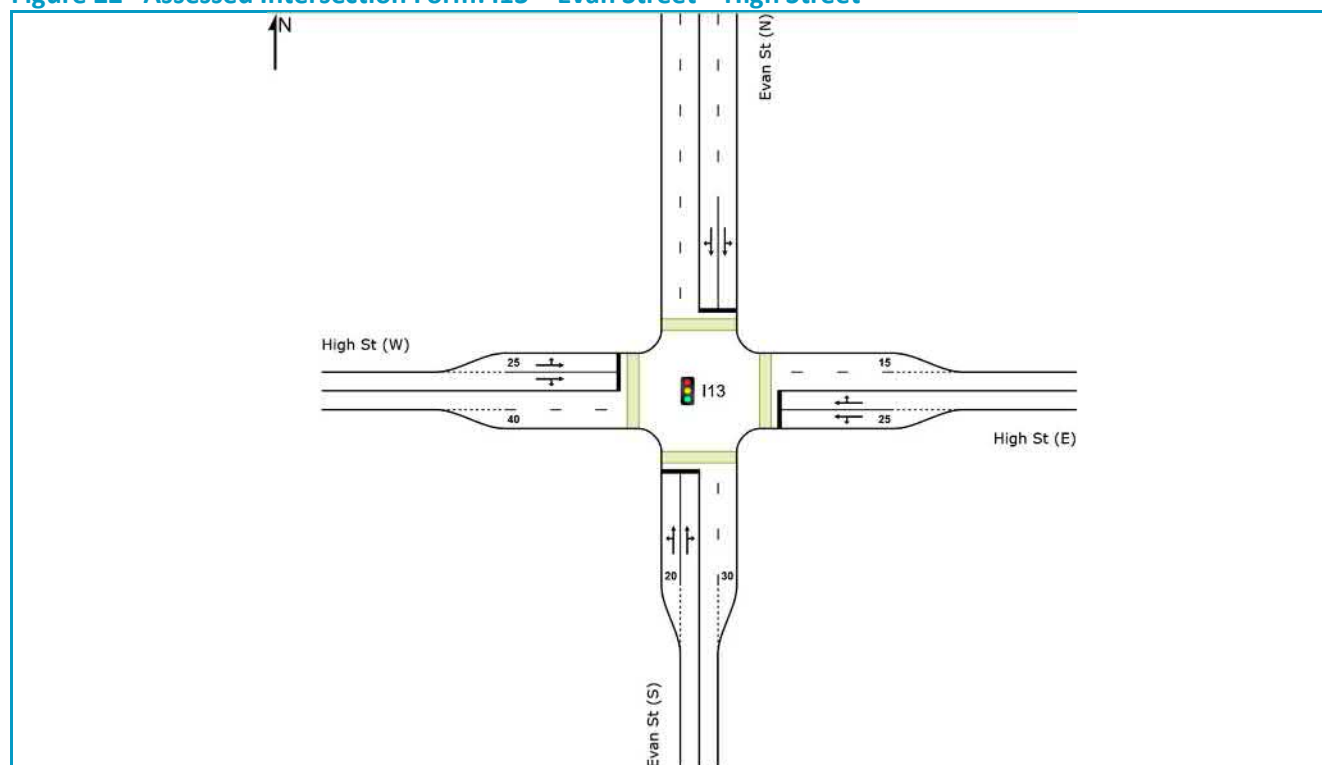
**Table 26 SIDRA Results Summary – I12 – Lawson Street / High Street**

| Intersection Leg        | AM 1  |                     |                     | AM 2  |                     |                     |
|-------------------------|-------|---------------------|---------------------|-------|---------------------|---------------------|
|                         | DOS   | Average Delay (sec) | 95th %ile Queue (m) | DOS   | Average Delay (sec) | 95th %ile Queue (m) |
| <b>Base</b>             |       |                     |                     |       |                     |                     |
| North                   | 0.133 | 37.8                | 8.0                 | 0.232 | 36.6                | 14.2                |
| East                    | 0.290 | 14.3                | 54.6                | 0.536 | 16.5                | 108.1               |
| West                    | 0.282 | 23.1                | 34.9                | 0.545 | 25.4                | 66.8                |
| <b>With Development</b> |       |                     |                     |       |                     |                     |
| North                   | 0.133 | 37.7                | 8.0                 | 0.232 | 36.6                | 14.2                |
| East                    | 0.293 | 13.5                | 55.4                | 0.548 | 16.5                | 110.2               |
| West                    | 0.296 | 23.8                | 35.7                | 0.549 | 25.3                | 66.8                |

### I13 – Evan Street – High Street

**Figure 22** presents the intersection form assessed using SIDRA with a summary of the SIDRA results by leg provided in **Table 27**.

**Figure 22 Assessed Intersection Form: I13 – Evan Street – High Street**



**Table 27 SIDRA Results Summary – I13 – Evan Street – High Street**

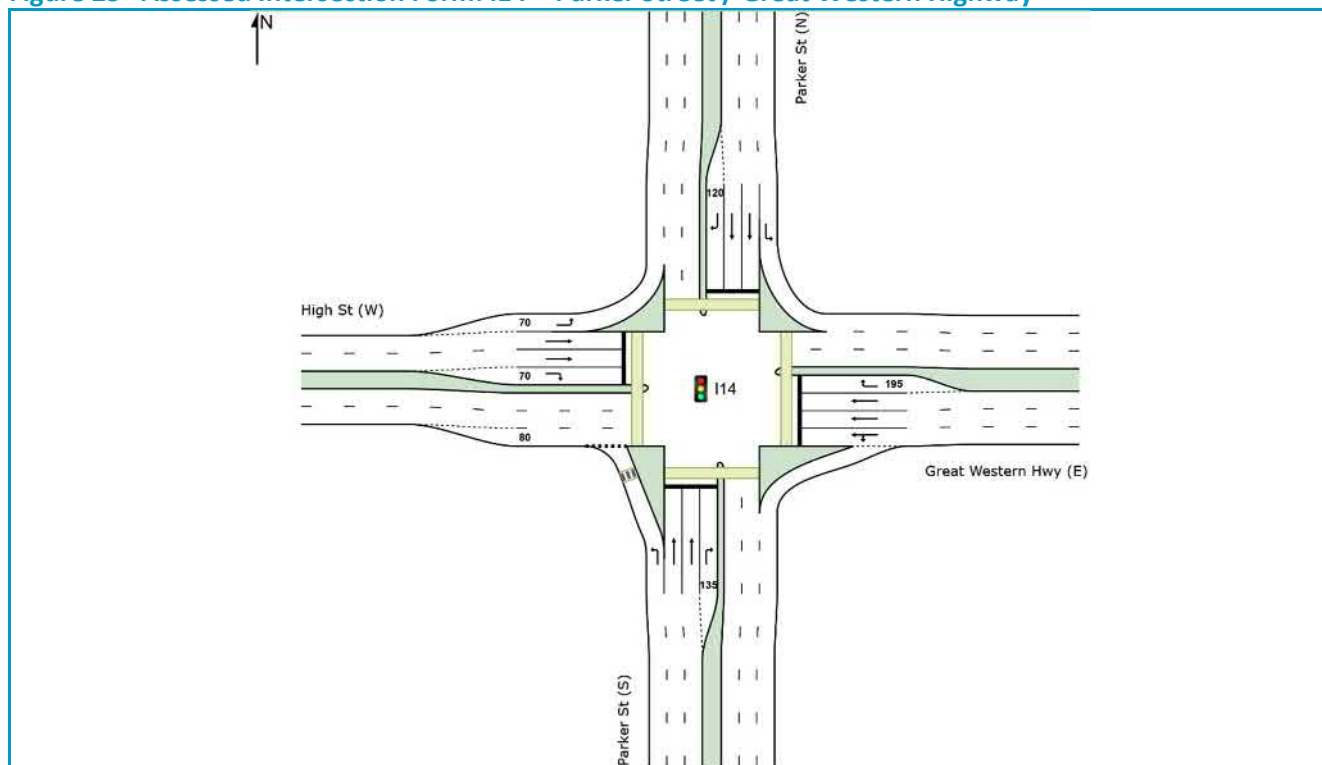
| Intersection Leg        | AM 1  |                     |                     | AM 2  |                     |                     |
|-------------------------|-------|---------------------|---------------------|-------|---------------------|---------------------|
|                         | DOS   | Average Delay (sec) | 95th %ile Queue (m) | DOS   | Average Delay (sec) | 95th %ile Queue (m) |
| <b>Base</b>             |       |                     |                     |       |                     |                     |
| North                   | 0.377 | 14.5                | 36.6                | 0.769 | 19.7                | 80.8                |
| East                    | 0.373 | 16.4                | 32.6                | 0.767 | 21.5                | 67.7                |
| South                   | 0.150 | 12.5                | 15.4                | 0.295 | 19.5                | 22.2                |
| West                    | 0.181 | 15.6                | 16.8                | 0.462 | 17.9                | 36.7                |
| <b>With Development</b> |       |                     |                     |       |                     |                     |
| North                   | 0.378 | 14.5                | 36.8                | 0.808 | 21.6                | 85.4                |
| East                    | 0.393 | 16.5                | 34.8                | 0.827 | 24.1                | 75.2                |
| South                   | 0.153 | 12.6                | 15.7                | 0.315 | 14.2                | 32.9                |
| West                    | 0.183 | 15.6                | 17.1                | 0.483 | 18.5                | 37.9                |



### I14 – Parker Street / Great Western Highway

**Figure 23** presents the intersection form assessed using SIDRA with a summary of the SIDRA results by leg provided in **Table 28**.

**Figure 23 Assessed Intersection Form: I14 – Parker Street / Great Western Highway**



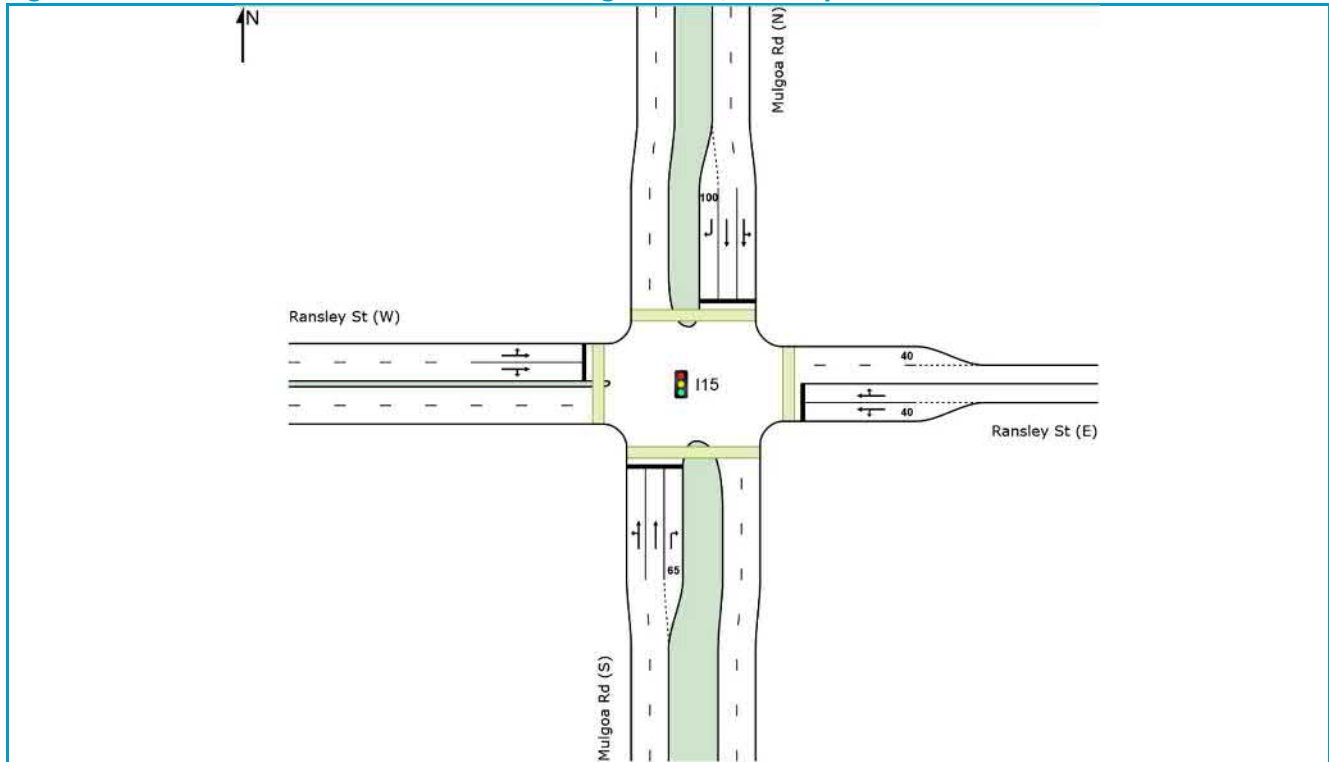
**Table 28 SIDRA Results Summary – I14 – Parker Street / Great Western Highway**

| Intersection Leg        | AM 1  |                     |                     | AM 2  |                     |                     |
|-------------------------|-------|---------------------|---------------------|-------|---------------------|---------------------|
|                         | DOS   | Average Delay (sec) | 95th %ile Queue (m) | DOS   | Average Delay (sec) | 95th %ile Queue (m) |
| <b>Base</b>             |       |                     |                     |       |                     |                     |
| North                   | 0.759 | 34.4                | 162.9               | 0.947 | 49.0                | 252.6               |
| East                    | 0.768 | 42.8                | 130.9               | 0.948 | 61.4                | 193.0               |
| South                   | 0.762 | 48.2                | 162.0               | 0.793 | 48.2                | 177.4               |
| West                    | 0.715 | 48.9                | 76.6                | 0.920 | 56.3                | 120.8               |
| <b>With Development</b> |       |                     |                     |       |                     |                     |
| North                   | 0.759 | 34.5                | 162.9               | 0.957 | 49.7                | 253.5               |
| East                    | 0.768 | 43.7                | 130.9               | 0.948 | 65.0                | 212.9               |
| South                   | 0.760 | 46.5                | 161.2               | 0.798 | 48.3                | 177.4               |
| West                    | 0.764 | 50.4                | 83.4                | 0.973 | 65.7                | 140.6               |

### I15 – Mulgoa Road / Ransley Street

**Figure 24** presents the intersection form assessed using SIDRA with a summary of the SIDRA results by leg provided in **Table 29**.

**Figure 24 Assessed Intersection Form: I15 – Mulgoa Road / Ransley Street**



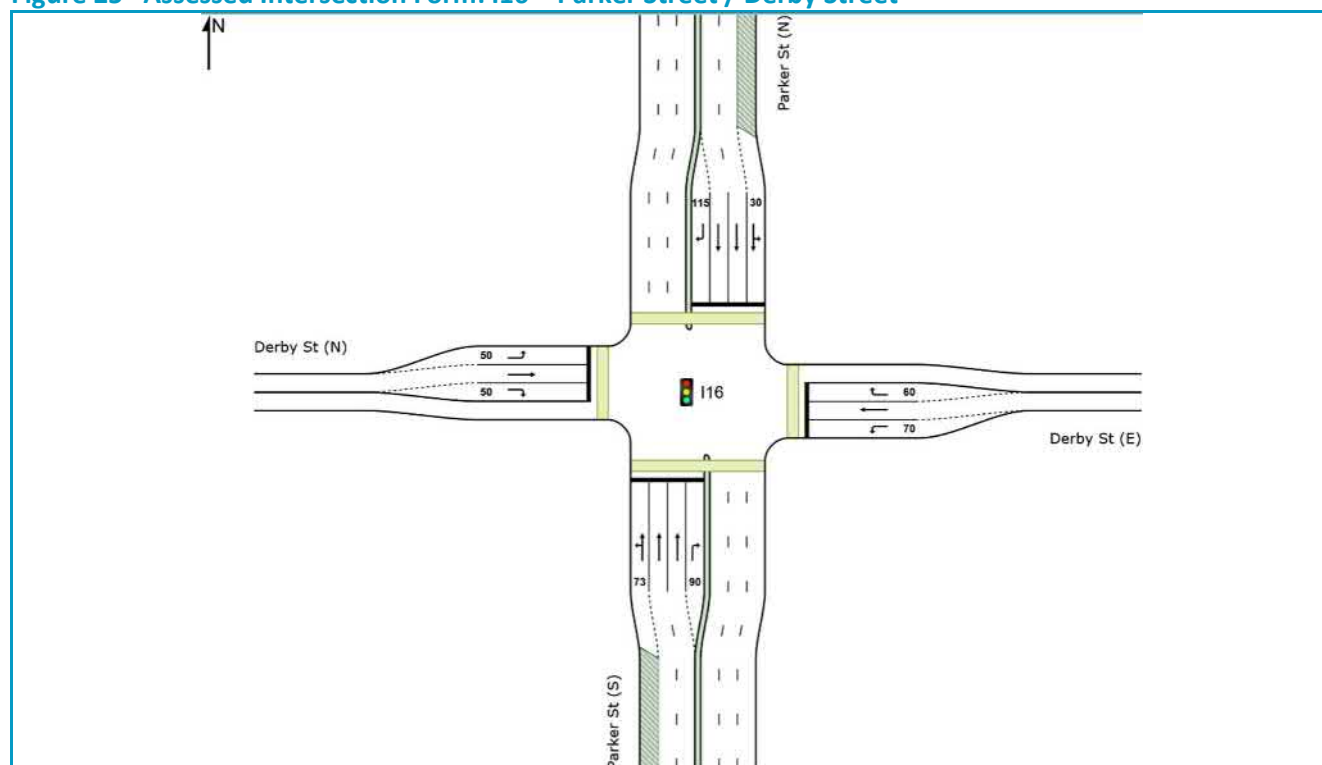
**Table 29 SIDRA Results Summary – I15 – Mulgoa Road / Ransley Street**

| Intersection Leg        | AM 1  |                     |                     | AM 2  |                     |                     |
|-------------------------|-------|---------------------|---------------------|-------|---------------------|---------------------|
|                         | DOS   | Average Delay (sec) | 95th %ile Queue (m) | DOS   | Average Delay (sec) | 95th %ile Queue (m) |
| <b>Base</b>             |       |                     |                     |       |                     |                     |
| North                   | 0.325 | 12.2                | 81.2                | 0.365 | 13.0                | 91.0                |
| East                    | 0.419 | 62.4                | 38.1                | 0.517 | 64.2                | 42.2                |
| South                   | 0.420 | 12.2                | 114.3               | 0.495 | 13.3                | 137.7               |
| West                    | 0.098 | 52.6                | 10.0                | 0.152 | 53.1                | 17.1                |
| <b>With Development</b> |       |                     |                     |       |                     |                     |
| North                   | 0.337 | 12.3                | 85.1                | 0.378 | 13.1                | 95.9                |
| East                    | 0.427 | 62.4                | 38.7                | 0.528 | 64.2                | 42.8                |
| South                   | 0.436 | 12.3                | 120.5               | 0.496 | 13.4                | 144.0               |
| West                    | 0.103 | 52.5                | 10.9                | 0.156 | 53.1                | 17.5                |

## I16 – Parker Street / Derby Street

**Figure 25** presents the intersection form assessed using SIDRA with a summary of the SIDRA results by leg provided in **Table 30**.

**Figure 25 Assessed Intersection Form: I16 – Parker Street / Derby Street**



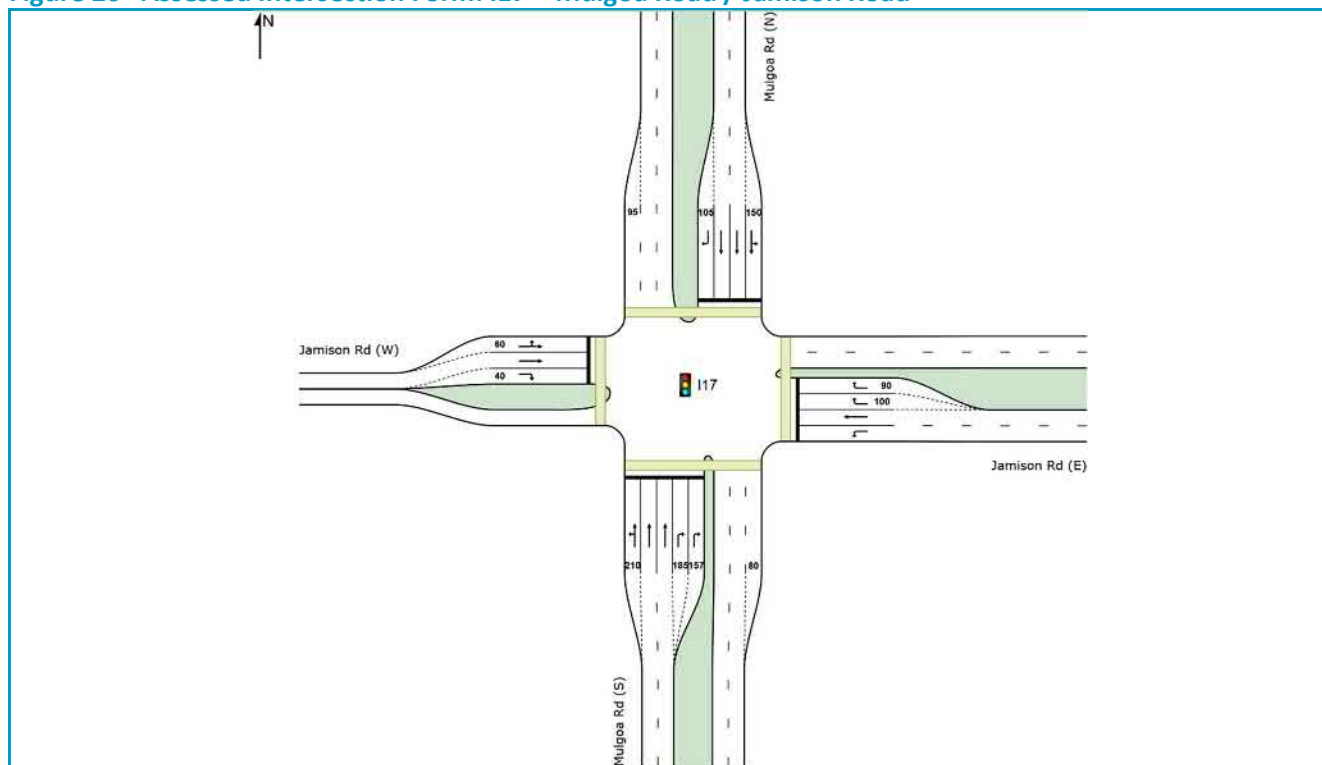
**Table 30 SIDRA Results Summary – I16 – Parker Street / Derby Street**

| Intersection Leg        | AM 1  |                     |                     | AM 2  |                     |                     |
|-------------------------|-------|---------------------|---------------------|-------|---------------------|---------------------|
|                         | DOS   | Average Delay (sec) | 95th %ile Queue (m) | DOS   | Average Delay (sec) | 95th %ile Queue (m) |
| <b>Base</b>             |       |                     |                     |       |                     |                     |
| North                   | 0.424 | 37.5                | 109.6               | 0.616 | 41.2                | 159.7               |
| East                    | 0.505 | 56.6                | 52.5                | 0.654 | 59.7                | 58.6                |
| South                   | 0.536 | 39.1                | 145.6               | 0.662 | 41.4                | 174.2               |
| West                    | 0.246 | 55.2                | 24.3                | 0.394 | 57.3                | 51.7                |
| <b>With Development</b> |       |                     |                     |       |                     |                     |
| North                   | 0.425 | 37.1                | 108.9               | 0.657 | 41.4                | 160.4               |
| East                    | 0.537 | 57.3                | 53.1                | 0.648 | 59.6                | 58.0                |
| South                   | 0.536 | 38.4                | 146.8               | 0.679 | 41.4                | 182.8               |
| West                    | 0.266 | 56.0                | 25.1                | 0.406 | 57.5                | 51.7                |

### I17 – Mulgoa Road / Jamison Road

**Figure 26** presents the intersection form assessed using SIDRA with a summary of the SIDRA results by leg provided in **Table 31**.

**Figure 26 Assessed Intersection Form: I17 – Mulgoa Road / Jamison Road**



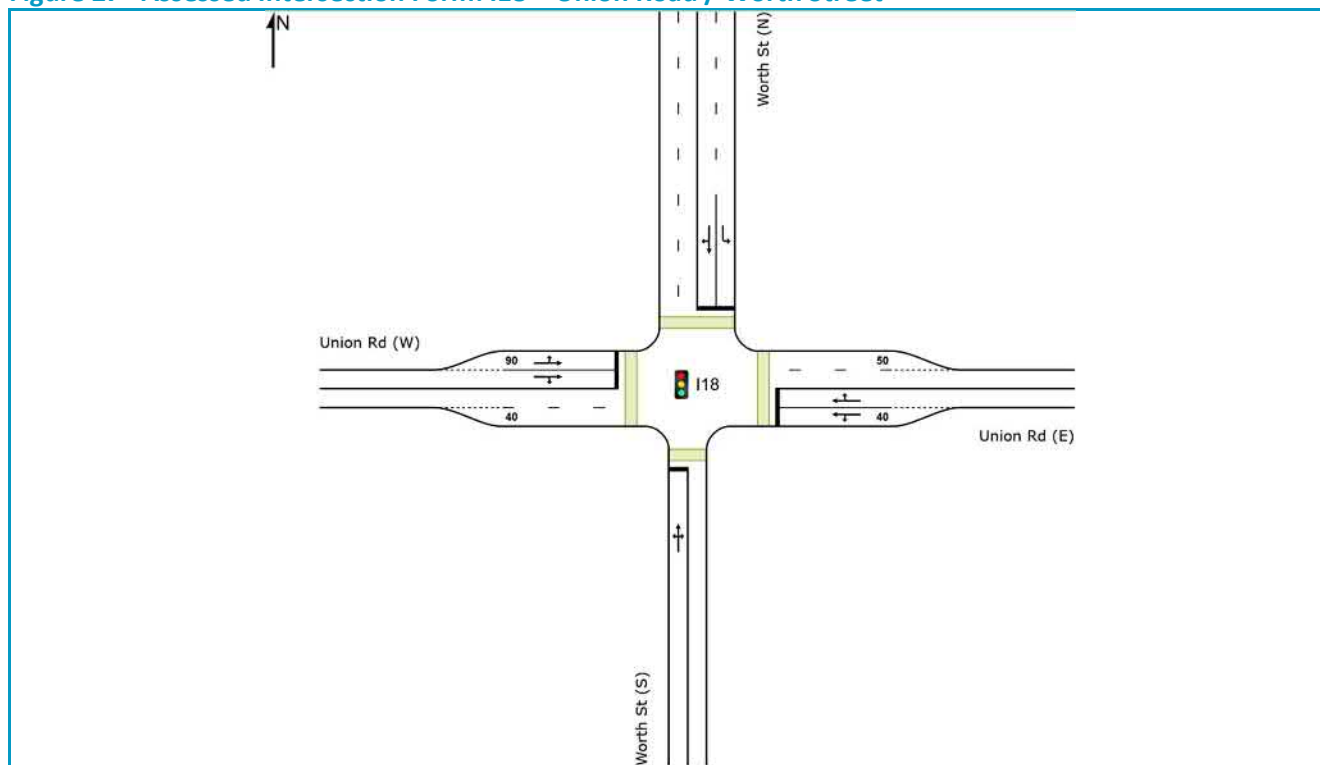
**Table 31 SIDRA Results Summary – I17 – Mulgoa Road / Jamison Road**

| Intersection Leg        | AM 1  |                     |                     | AM 2  |                     |                     |
|-------------------------|-------|---------------------|---------------------|-------|---------------------|---------------------|
|                         | DOS   | Average Delay (sec) | 95th %ile Queue (m) | DOS   | Average Delay (sec) | 95th %ile Queue (m) |
| <b>Base</b>             |       |                     |                     |       |                     |                     |
| North                   | 0.464 | 36.3                | 113.9               | 0.591 | 42.3                | 134.6               |
| East                    | 0.498 | 51.7                | 55.5                | 0.670 | 51.1                | 72.0                |
| South                   | 0.531 | 42.8                | 134.5               | 0.689 | 49.3                | 162.6               |
| West                    | 0.293 | 56.4                | 21.7                | 0.216 | 51.2                | 29.2                |
| <b>With Development</b> |       |                     |                     |       |                     |                     |
| North                   | 0.478 | 36.4                | 118.2               | 0.626 | 43.1                | 144.5               |
| East                    | 0.544 | 51.9                | 55.2                | 0.670 | 51.0                | 72.7                |
| South                   | 0.550 | 43.1                | 140.4               | 0.716 | 49.9                | 171.1               |
| West                    | 0.320 | 57.1                | 21.9                | 0.216 | 51.2                | 29.4                |

## I18 – Union Road / Worth Street

**Figure 27** presents the intersection form assessed using SIDRA with a summary of the SIDRA results by leg provided in **Table 32**.

**Figure 27 Assessed Intersection Form: I18 – Union Road / Worth Street**



**Table 32 SIDRA Results Summary – I18 – Union Road / Worth Street**

| Intersection Leg | AM 1  |                     |                                 | AM 2  |                     |                                 |
|------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------------------|
|                  | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| <b>Base</b>      |       |                     |                                 |       |                     |                                 |
| North            | 0.442 | 32.6                | 19.7                            | 0.786 | 35.8                | 44.5                            |
| East             | 0.430 | 32.2                | 19.3                            | 0.799 | 36.6                | 40.3                            |
| South            | 0.266 | 31.7                | 10.3                            | 0.273 | 32.0                | 10.6                            |
| West             | 0.479 | 21.5                | 44.5                            | 0.783 | 26.5                | 82.7                            |

## 2018 Base PM Base and With Development Intersection Capacity Analysis

**Table 33** summarises the 2018 PM SIDRA analysis results for all of the assessed intersections. Electronic SIDRA files will be provided for review as part of this response.

**Table 33 SIDRA Results Summary – 2018 PM – Network**

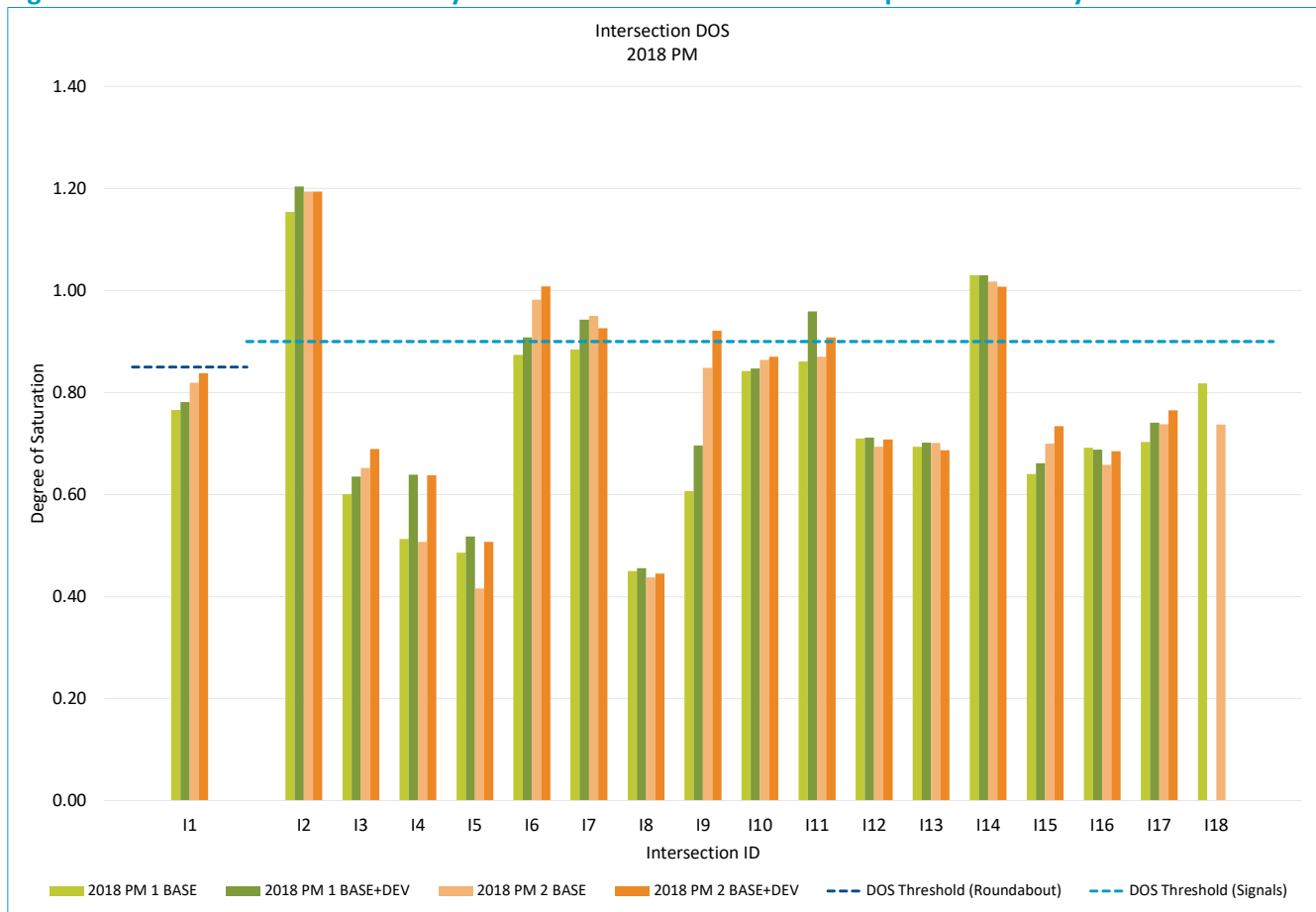
| ID                      | PM 1  |               |                       | PM 2  |               |                       |
|-------------------------|-------|---------------|-----------------------|-------|---------------|-----------------------|
|                         | DOS   | Average Delay | 95 <sup>th</sup> %ile | DOS   | Average Delay | 95 <sup>th</sup> %ile |
| <b>Base</b>             |       |               |                       |       |               |                       |
| I1*                     | 0.766 | 14.7          | 63.4                  | 0.781 | 15.0          | 67.3                  |
| I2                      | 1.172 | 101.6         | 427.4                 | 1.204 | 114.7         | 437.0                 |
| I3                      | 0.601 | 23.1          | 175.8                 | 0.652 | 22.3          | 189.6                 |
| I4                      | 0.513 | 26.9          | 85.3                  | 0.639 | 28.6          | 124.2                 |
| I5                      | 0.486 | 17.2          | 73.1                  | 0.518 | 17.1          | 82.8                  |
| I6                      | 0.874 | 51.0          | 180.8                 | 0.982 | 58.4          | 210.0                 |
| I7                      | 0.884 | 42.5          | 125.7                 | 0.943 | 45.2          | 151.4                 |
| I8                      | 0.450 | 17.4          | 50.3                  | 0.456 | 17.4          | 55.2                  |
| I9                      | 0.607 | 20.8          | 77.4                  | 0.696 | 21.9          | 82.4                  |
| I10                     | 0.842 | 28.9          | 131.0                 | 0.864 | 31.3          | 121.4                 |
| I11                     | 0.861 | 21.1          | 124.5                 | 1.009 | 22.7          | 107.5                 |
| I12                     | 0.710 | 25.6          | 121.2                 | 0.712 | 25.6          | 122.6                 |
| I13                     | 0.694 | 17.9          | 76.6                  | 0.702 | 17.8          | 78.8                  |
| I14                     | 1.030 | 73.3          | 301.0                 | 1.030 | 76.6          | 301.0                 |
| I15                     | 0.640 | 25.1          | 195.6                 | 0.661 | 25.2          | 208.3                 |
| I16                     | 0.692 | 39.4          | 198.3                 | 0.658 | 42.5          | 200.0                 |
| I17                     | 0.703 | 41.7          | 209.9                 | 0.741 | 42.3          | 229.4                 |
| I18                     | 0.818 | 32.3          | 72.7                  | 0.737 | 31.1          | 67.5                  |
| <b>With Development</b> |       |               |                       |       |               |                       |
| I1*                     | 0.781 | 15.0          | 67.3                  | 0.838 | 16.9          | 87.1                  |
| I2                      | 1.204 | 114.7         | 437.0                 | 1.194 | 117.0         | 409.3                 |
| I3                      | 0.635 | 24.0          | 185.4                 | 0.689 | 23.4          | 195.9                 |
| I4                      | 0.639 | 28.6          | 124.2                 | 0.638 | 28.2          | 124.2                 |
| I5                      | 0.518 | 17.1          | 82.8                  | 0.507 | 16.5          | 72.6                  |
| I6                      | 0.908 | 52.1          | 186.9                 | 1.008 | 64.6          | 239.4                 |
| I7                      | 0.943 | 45.2          | 151.4                 | 0.926 | 44.7          | 144.8                 |
| I8                      | 0.456 | 17.4          | 55.2                  | 0.445 | 17.4          | 53.0                  |
| I9                      | 0.696 | 21.9          | 82.4                  | 0.921 | 25.5          | 120.2                 |
| I10                     | 0.847 | 29.3          | 130.0                 | 0.870 | 30.8          | 136.0                 |
| I11                     | 0.959 | 21.2          | 108.6                 | 0.908 | 25.5          | 163.3                 |
| I12                     | 0.712 | 25.6          | 122.6                 | 0.708 | 25.3          | 127.6                 |
| I13                     | 0.702 | 17.8          | 78.8                  | 0.687 | 17.8          | 71.7                  |
| I14                     | 1.030 | 76.6          | 301.0                 | 1.007 | 67.4          | 266.3                 |
| I15                     | 0.661 | 25.2          | 208.3                 | 0.734 | 26.3          | 247.6                 |
| I16                     | 0.688 | 39.5          | 202.9                 | 0.685 | 43.4          | 202.0                 |
| I17                     | 0.741 | 42.3          | 229.4                 | 0.765 | 41.9          | 246.9                 |

\*Critical Delay Reported



**Figure 28** graphically illustrates the DOS values summarised in **Table 33**.

**Figure 28 Intersection DOS Summary - 2018 PM – Base and With Development Summary**



From **Table 33** and **Figure 28**, it can be concluded that the subject development does have a minor impact on individual intersection critical movements, but it does not significantly bring about the failure of any intersection that is not already beyond capacity (i.e. I2, I6, I7 and I14).

SIDRA outputs for each intersection are summarised in the following sections.

## I1 – Castlereagh Road / Coreen Avenue

**Table 34** summarises the SIDRA results by individual approach.

**Table 34 SIDRA Results Summary – I1 – Castlereagh Road / Coreen Avenue**

| Intersection Leg        | PM 1  |                      |                     | PM 2  |                      |                     |
|-------------------------|-------|----------------------|---------------------|-------|----------------------|---------------------|
|                         | DOS   | Critical Delay (sec) | 95th %ile Queue (m) | DOS   | Critical Delay (sec) | 95th %ile Queue (m) |
| <b>Base</b>             |       |                      |                     |       |                      |                     |
| North                   | 0.716 | 14.3                 | 53.9                | 0.683 | 13.7                 | 47.4                |
| East                    | 0.585 | 15.4                 | 25.5                | 0.577 | 15.1                 | 24.5                |
| South                   | 0.766 | 14.7                 | 63.4                | 0.819 | 16.2                 | 79.7                |
| West                    | 0.217 | 13.0                 | 8.2                 | 0.248 | 13.8                 | 9.6                 |
| <b>With Development</b> |       |                      |                     |       |                      |                     |
| North                   | 0.731 | 14.6                 | 56.9                | 0.708 | 14.4                 | 51.9                |
| East                    | 0.596 | 15.7                 | 26.1                | 0.590 | 15.4                 | 25.3                |
| South                   | 0.781 | 15.0                 | 67.3                | 0.838 | 16.9                 | 87.1                |
| West                    | 0.221 | 13.1                 | 8.4                 | 0.257 | 14.0                 | 10.0                |

## I2 – Coreen Avenue / Lemongrave Road

**Table 35** summarises the SIDRA results by individual approach.

**Table 35 SIDRA Results Summary – I2 – Coreen Avenue / Lemongrave Road**

| Intersection Leg        | PM 1  |                     |                     | PM 2  |                     |                     |
|-------------------------|-------|---------------------|---------------------|-------|---------------------|---------------------|
|                         | DOS   | Average Delay (sec) | 95th %ile Queue (m) | DOS   | Average Delay (sec) | 95th %ile Queue (m) |
| <b>Base</b>             |       |                     |                     |       |                     |                     |
| East                    | 1.073 | 59.7                | 153.3               | 1.194 | 105.8               | 225.9               |
| South                   | 1.172 | 107.5               | 270.8               | 1.153 | 107.0               | 285.9               |
| West                    | 1.170 | 125.7               | 427.4               | 1.190 | 138.9               | 454.5               |
| <b>With Development</b> |       |                     |                     |       |                     |                     |
| East                    | 1.204 | 109.7               | 233.7               | 1.194 | 105.4               | 225.9               |
| South                   | 1.169 | 106.6               | 268.2               | 1.194 | 125.8               | 313.9               |
| West                    | 1.163 | 123.9               | 437.0               | 1.151 | 118.0               | 409.3               |

### I3 – Castlereagh Road / Jane Street

**Table 36** summarises the SIDRA results by individual approach.

**Table 36 SIDRA Results Summary – I3 – Castlereagh Road / Jane Street**

| Intersection Leg        | PM 1  |                     |                     | PM 2  |                     |                     |
|-------------------------|-------|---------------------|---------------------|-------|---------------------|---------------------|
|                         | DOS   | Average Delay (sec) | 95th %ile Queue (m) | DOS   | Average Delay (sec) | 95th %ile Queue (m) |
| <b>Base</b>             |       |                     |                     |       |                     |                     |
| North                   | 0.601 | 18.9                | 175.8               | 0.652 | 18.3                | 189.6               |
| East                    | 0.535 | 48.7                | 74.9                | 0.558 | 51.0                | 79.0                |
| South                   | 0.472 | 15.3                | 133.8               | 0.358 | 13.4                | 140.0               |
| <b>With Development</b> |       |                     |                     |       |                     |                     |
| North                   | 0.635 | 18.9                | 185.4               | 0.689 | 18.5                | 195.9               |
| East                    | 0.618 | 50.5                | 12.2                | 0.674 | 53.2                | 96.8                |
| South                   | 0.472 | 15.0                | 132.7               | 0.351 | 13.1                | 140.4               |

### I4 – Jane Street / Riley Street / Train Station Access

**Table 37** summarises the SIDRA results by individual approach.

**Table 37 SIDRA Results Summary – I4 – Jane Street / Riley Street / Train Station Access**

| Intersection Leg        | PM 1  |                     |                     | PM 2  |                     |                     |
|-------------------------|-------|---------------------|---------------------|-------|---------------------|---------------------|
|                         | DOS   | Average Delay (sec) | 95th %ile Queue (m) | DOS   | Average Delay (sec) | 95th %ile Queue (m) |
| <b>Base</b>             |       |                     |                     |       |                     |                     |
| North                   | 0.454 | 49.8                | 20.2                | 0.454 | 49.7                | 20.2                |
| East                    | 0.513 | 28.7                | 68.0                | 0.493 | 27.8                | 67.1                |
| South                   | 0.497 | 21.2                | 85.3                | 0.507 | 21.9                | 86.4                |
| West                    | 0.490 | 28.5                | 64.5                | 0.398 | 26.9                | 52.4                |
| <b>With Development</b> |       |                     |                     |       |                     |                     |
| North                   | 0.454 | 49.8                | 20.2                | 0.454 | 49.7                | 20.2                |
| East                    | 0.639 | 33.0                | 75.6                | 0.638 | 33.0                | 75.4                |
| South                   | 0.633 | 20.1                | 124.2               | 0.634 | 20.1                | 124.2               |
| West                    | 0.602 | 32.7                | 70.5                | 0.507 | 31.8                | 57.9                |

### ***I5 – Jane Street / Station Street***

**Table 38** summarises the SIDRA results by individual approach.

**Table 38 SIDRA Results Summary – I5 – Jane Street / Station Street**

| Intersection Leg        | PM 1  |                     |                     | PM 2  |                     |                     |
|-------------------------|-------|---------------------|---------------------|-------|---------------------|---------------------|
|                         | DOS   | Average Delay (sec) | 95th %ile Queue (m) | DOS   | Average Delay (sec) | 95th %ile Queue (m) |
| <b>Base</b>             |       |                     |                     |       |                     |                     |
| East                    | 0.485 | 20.2                | 68.7                | 0.416 | 18.0                | 63.7                |
| South                   | 0.486 | 29.7                | 45.7                | 0.412 | 29.0                | 38.1                |
| West                    | 0.415 | 10.7                | 73.1                | 0.410 | 9.6                 | 71.8                |
| <b>With Development</b> |       |                     |                     |       |                     |                     |
| East                    | 0.509 | 20.3                | 75.7                | 0.481 | 20.1                | 72.6                |
| South                   | 0.518 | 27.4                | 46.5                | 0.507 | 27.0                | 40.2                |
| West                    | 0.457 | 10.6                | 82.8                | 0.384 | 9.4                 | 63.5                |

### ***I6 – Mulgoa Road / Great Western Highway***

**Table 39** summarises the SIDRA results by individual approach.

**Table 39 SIDRA Results Summary – I6 – Mulgoa Road / Great Western Highway**

| Intersection Leg        | PM 1  |                     |                                 | PM 2  |                     |                     |
|-------------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------|
|                         | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95th %ile Queue (m) |
| <b>Base</b>             |       |                     |                                 |       |                     |                     |
| North                   | 0.874 | 55.2                | 180.8                           | 0.982 | 67.3                | 187.7               |
| East                    | 0.865 | 22.4                | 160.8                           | 0.960 | 73.2                | 210.0               |
| South                   | 0.504 | 43.2                | 100.6                           | 0.527 | 43.4                | 105.9               |
| West                    | 0.620 | 44.8                | 70.9                            | 0.625 | 44.4                | 79.3                |
| <b>With Development</b> |       |                     |                                 |       |                     |                     |
| North                   | 0.872 | 55.2                | 186.9                           | 1.004 | 75.0                | 187.7               |
| East                    | 0.908 | 63.8                | 172.4                           | 1.008 | 89.3                | 239.4               |
| South                   | 0.503 | 43.3                | 100.4                           | 0.531 | 43.6                | 107.0               |
| West                    | 0.620 | 45.3                | 71.0                            | 0.625 | 44.7                | 80.5                |

## 17 – Worth Street / Street

**Table 40** summarises the SIDRA results by individual approach.

**Table 40 SIDRA Results Summary – 17 – Worth Street / Street**

| Intersection Leg        | PM 1  |                     |                                 | PM 2  |                     |                                 |
|-------------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------------------|
|                         | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| <b>Base</b>             |       |                     |                                 |       |                     |                                 |
| North                   | 0.874 | 45.5                | 125.7                           | 0.950 | 61.0                | 148.7                           |
| East                    | 0.855 | 43.1                | 84.1                            | 0.854 | 42.7                | 84.0                            |
| South                   | 0.796 | 37.7                | 83.0                            | 0.853 | 35.8                | 95.1                            |
| West                    | 0.884 | 43.0                | 86.7                            | 0.894 | 43.3                | 89.2                            |
| <b>With Development</b> |       |                     |                                 |       |                     |                                 |
| North                   | 0.943 | 58.6                | 151.4                           | 0.926 | 54.2                | 144.8                           |
| East                    | 0.814 | 40.3                | 82.5                            | 0.828 | 41.4                | 79.2                            |
| South                   | 0.808 | 38.6                | 85.2                            | 0.870 | 38.1                | 99.4                            |
| West                    | 0.857 | 40.5                | 87.2                            | 0.912 | 44.2                | 93.9                            |

## 18 – Riley Street / Henry Street / High Street

**Table 41** summarises the SIDRA results by individual approach.

**Table 41 SIDRA Results Summary – 18 – Riley Street / Henry Street / High Street**

| Intersection Leg        | PM 1  |                     |                                 | PM 2  |                     |                                 |
|-------------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------------------|
|                         | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| <b>Base</b>             |       |                     |                                 |       |                     |                                 |
| East                    | 0.270 | 6.5                 | 36.4                            | 0.266 | 6.5                 | 35.8                            |
| South                   | 0.450 | 33.5                | 34.4                            | 0.438 | 33.4                | 33.5                            |
| West                    | 0.428 | 24.7                | 50.3                            | 0.432 | 25.5                | 49.0                            |
| <b>With Development</b> |       |                     |                                 |       |                     |                                 |
| East                    | 0.278 | 6.6                 | 37.7                            | 0.266 | 6.5                 | 35.8                            |
| South                   | 0.456 | 33.5                | 34.9                            | 0.445 | 33.5                | 34.1                            |
| West                    | 0.451 | 24.1                | 55.2                            | 0.436 | 24.0                | 53.0                            |

## I9 – Station Street / Henry Street

**Table 42** summarises the SIDRA results by individual approach.

**Table 42 SIDRA Results Summary – I9 – Station Street / Henry Street**

| Intersection Leg        | PM 1  |                     |                     | PM 2  |                     |                     |
|-------------------------|-------|---------------------|---------------------|-------|---------------------|---------------------|
|                         | DOS   | Average Delay (sec) | 95th %ile Queue (m) | DOS   | Average Delay (sec) | 95th %ile Queue (m) |
| <b>Base</b>             |       |                     |                     |       |                     |                     |
| North                   | 0.586 | 21.2                | 77.4                | 0.718 | 26.8                | 95.2                |
| East                    | 0.465 | 20.1                | 70.1                | 0.673 | 21.9                | 92.0                |
| South                   | 0.169 | 18.7                | 21.4                | 0.207 | 20.8                | 26.0                |
| West                    | 0.607 | 22.2                | 67.6                | 0.848 | 26.9                | 59.1                |
| <b>With Development</b> |       |                     |                     |       |                     |                     |
| North                   | 0.648 | 22.3                | 82.4                | 0.827 | 30.6                | 120.2               |
| East                    | 0.527 | 20.6                | 75.3                | 0.638 | 19.2                | 92.1                |
| South                   | 0.197 | 18.8                | 25.2                | 0.258 | 22.7                | 31.6                |
| West                    | 0.696 | 24.4                | 77.9                | 0.921 | 28.9                | 64.1                |

## I10 – Lawson Street / Henry Street

**Table 43** summarises the SIDRA results by individual approach.

**Table 43 SIDRA Results Summary – I10 – Lawson Street / Henry Street**

| Intersection Leg        | PM 1  |                     |                     | PM 2  |                     |                     |
|-------------------------|-------|---------------------|---------------------|-------|---------------------|---------------------|
|                         | DOS   | Average Delay (sec) | 95th %ile Queue (m) | DOS   | Average Delay (sec) | 95th %ile Queue (m) |
| <b>Base</b>             |       |                     |                     |       |                     |                     |
| North                   | 0.568 | 23.6                | 45.3                | 0.590 | 31.9                | 43.5                |
| East                    | 0.842 | 30.0                | 131.0               | 0.808 | 28.2                | 121.4               |
| South                   | 0.797 | 30.7                | 46.9                | 0.864 | 40.5                | 45.8                |
| West                    | 0.787 | 29.8                | 74.9                | 0.815 | 30.1                | 82.7                |
| <b>With Development</b> |       |                     |                     |       |                     |                     |
| North                   | 0.573 | 23.7                | 45.8                | 0.595 | 24.0                | 44.9                |
| East                    | 0.827 | 28.4                | 130.0               | 0.868 | 32.7                | 136.0               |
| South                   | 0.816 | 31.7                | 48.5                | 0.819 | 31.0                | 45.4                |
| West                    | 0.847 | 33.2                | 81.0                | 0.870 | 32.6                | 98.2                |



### I11 – Evan Street / Henry Street

**Table 44** summarises the SIDRA results by individual approach.

**Table 44 SIDRA Results Summary – I11 – Evan Street / Henry Street**

| Intersection Leg        | PM 1  |                     |                                 | PM 2  |                     |                                 |
|-------------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------------------|
|                         | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| <b>Base</b>             |       |                     |                                 |       |                     |                                 |
| North                   | 0.604 | 12.3                | 93.8                            | 0.603 | 11.4                | 82.7                            |
| East                    | 0.812 | 30.1                | 55.5                            | 0.870 | 34.1                | 57.9                            |
| South                   | 0.861 | 32.1                | 124.5                           | 0.859 | 31.2                | 155.0                           |
| West                    | 0.695 | 20.0                | 72.3                            | 0.860 | 27.2                | 99.7                            |
| <b>With Development</b> |       |                     |                                 |       |                     |                                 |
| North                   | 0.564 | 11.0                | 79.0                            | 0.626 | 12.1                | 87.2                            |
| East                    | 0.959 | 36.3                | 61.7                            | 0.900 | 33.1                | 57.2                            |
| South                   | 0.795 | 26.7                | 108.6                           | 0.886 | 35.1                | 163.3                           |
| West                    | 0.790 | 21.2                | 79.0                            | 0.908 | 30.2                | 122.6                           |

### I12 – Lawson Street / High Street

**Table 45** summarises the SIDRA results by individual approach.

**Table 45 SIDRA Results Summary – I12 – Lawson Street / High Street**

| Intersection Leg        | PM 1  |                     |                                 | PM 2  |                     |                                 |
|-------------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------------------|
|                         | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| <b>Base</b>             |       |                     |                                 |       |                     |                                 |
| North                   | 0.672 | 38.2                | 63.7                            | 0.686 | 25.2                | 66.8                            |
| East                    | 0.706 | 21.7                | 121.2                           | 0.683 | 20.0                | 125.1                           |
| West                    | 0.710 | 23.5                | 75.5                            | 0.694 | 25.2                | 66.8                            |
| <b>With Development</b> |       |                     |                                 |       |                     |                                 |
| North                   | 0.675 | 38.2                | 64.2                            | 0.679 | 38.1                | 64.7                            |
| East                    | 0.712 | 21.9                | 122.6                           | 0.708 | 20.6                | 127.6                           |
| West                    | 0.706 | 23.4                | 74.3                            | 0.686 | 24.6                | 64.8                            |

### I13 – Evan Street – High Street

**Table 46** summarises the SIDRA results by individual approach.

**Table 46 SIDRA Results Summary – I13 – Evan Street – High Street**

| Intersection Leg        | PM 1  |                     |                                 | PM 2  |                     |                                 |
|-------------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------------------|
|                         | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| <b>Base</b>             |       |                     |                                 |       |                     |                                 |
| North                   | 0.694 | 17.8                | 76.6                            | 0.672 | 17.4                | 70.0                            |
| East                    | 0.600 | 18.5                | 55.8                            | 0.701 | 20.1                | 67.1                            |
| South                   | 0.484 | 15.2                | 45.9                            | 0.536 | 15.0                | 49.7                            |
| West                    | 0.687 | 20.9                | 64.8                            | 0.628 | 20.1                | 54.9                            |
| <b>With Development</b> |       |                     |                                 |       |                     |                                 |
| North                   | 0.702 | 18.0                | 78.8                            | 0.687 | 17.8                | 71.7                            |
| East                    | 0.569 | 17.8                | 54.2                            | 0.681 | 19.6                | 64.7                            |
| South                   | 0.484 | 15.2                | 45.8                            | 0.532 | 15.0                | 49.4                            |
| West                    | 0.673 | 20.7                | 63.2                            | 0.600 | 19.8                | 52.2                            |

### I14 – Parker Street / Great Western Highway

**Table 47** summarises the SIDRA results by individual approach.

**Table 47 SIDRA Results Summary – I14 – Parker Street / Great Western Highway**

| Intersection Leg        | PM 1  |                     |                                 | PM 2  |                     |                                 |
|-------------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------------------|
|                         | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| <b>Base</b>             |       |                     |                                 |       |                     |                                 |
| North                   | 1.004 | 76.5                | 301.0                           | 1.017 | 72.5                | 266.3                           |
| East                    | 1.030 | 83.6                | 291.0                           | 1.007 | 65.8                | 258.9                           |
| South                   | 0.918 | 63.4                | 223.1                           | 0.930 | 66.8                | 217.6                           |
| West                    | 1.012 | 63.8                | 199.2                           | 0.979 | 56.0                | 188.3                           |
| <b>With Development</b> |       |                     |                                 |       |                     |                                 |
| North                   | 1.013 | 77.1                | 301.0                           | 0.987 | 69.0                | 266.3                           |
| East                    | 1.030 | 90.3                | 293.0                           | 1.007 | 70.8                | 260.6                           |
| South                   | 0.924 | 64.4                | 227.3                           | 0.921 | 66.2                | 211.6                           |
| West                    | 1.023 | 66.2                | 206.8                           | 1.002 | 61.8                | 198.5                           |

### I15 – Mulgoa Road / Ransley Street

**Table 48** summarises the SIDRA results by individual approach.

**Table 48 SIDRA Results Summary – I15 – Mulgoa Road / Ransley Street**

| Intersection Leg        | PM 1  |                     |                                 | PM 2  |                     |                                 |
|-------------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------------------|
|                         | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| <b>Base</b>             |       |                     |                                 |       |                     |                                 |
| North                   | 0.598 | 20.9                | 195.6                           | 0.661 | 21.7                | 229.1                           |
| East                    | 0.640 | 54.2                | 77.2                            | 0.700 | 54.8                | 84.5                            |
| South                   | 0.534 | 19.1                | 127.9                           | 0.534 | 19.3                | 139.8                           |
| West                    | 0.126 | 45.6                | 20.9                            | 0.152 | 46.2                | 20.2                            |
| <b>With Development</b> |       |                     |                                 |       |                     |                                 |
| North                   | 0.623 | 21.2                | 208.3                           | 0.694 | 22.8                | 247.6                           |
| East                    | 0.661 | 54.1                | 80.6                            | 0.734 | 54.8                | 90.9                            |
| South                   | 0.547 | 19.2                | 129.9                           | 0.547 | 20.0                | 145.3                           |
| West                    | 0.122 | 45.4                | 21.3                            | 0.142 | 45.2                | 20.7                            |

### I16 – Parker Street / Derby Street

**Table 49** summarises the SIDRA results by individual approach.

**Table 49 SIDRA Results Summary – I16 – Parker Street / Derby Street**

| Intersection Leg        | PM 1  |                     |                                 | PM 2  |                     |                                 |
|-------------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------------------|
|                         | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| <b>Base</b>             |       |                     |                                 |       |                     |                                 |
| North                   | 0.692 | 37.2                | 198.3                           | 0.658 | 40.3                | 200.0                           |
| East                    | 0.639 | 53.6                | 86.6                            | 0.562 | 54.1                | 88.5                            |
| South                   | 0.401 | 32.6                | 108.7                           | 0.426 | 35.8                | 117.9                           |
| West                    | 0.537 | 53.4                | 81.6                            | 0.657 | 57.4                | 108.5                           |
| <b>With Development</b> |       |                     |                                 |       |                     |                                 |
| North                   | 0.688 | 37.2                | 202.9                           | 0.679 | 41.3                | 202.0                           |
| East                    | 0.684 | 54.0                | 84.5                            | 0.520 | 53.6                | 90.6                            |
| South                   | 0.404 | 32.6                | 109.7                           | 0.437 | 36.6                | 120.6                           |
| West                    | 0.573 | 53.2                | 81.0                            | 0.685 | 58.5                | 113.1                           |

### I17 – Mulgoa Road / Jamison Road

**Table 50** summarises the SIDRA results by individual approach.

**Table 50 SIDRA Results Summary – I17 – Mulgoa Road / Jamison Road**

| Intersection Leg | PM 1  |                     |                                 | PM 2  |                     |                                 |
|------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------------------|
|                  | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| North            | 0.690 | 35.9                | 209.9                           | 0.737 | 36.1                | 233.7                           |
| East             | 0.703 | 53.9                | 170.5                           | 0.661 | 54.0                | 169.3                           |
| South            | 0.692 | 40.1                | 111.6                           | 0.738 | 40.1                | 111.6                           |
| West             | 0.226 | 53.4                | 12.8                            | 0.217 | 46.8                | 34.1                            |
| With Development |       |                     |                                 |       |                     |                                 |
| North            | 0.741 | 37.0                | 229.4                           | 0.765 | 36.4                | 246.9                           |
| East             | 0.690 | 53.3                | 169.0                           | 0.738 | 54.2                | 171.6                           |
| South            | 0.712 | 41.1                | 115.3                           | 0.752 | 40.6                | 114.1                           |
| West             | 0.226 | 53.4                | 12.8                            | 0.244 | 46.6                | 34.0                            |

### I18 – Union Road / Worth Street

**Table 51** summarises the SIDRA results by individual approach.

**Table 51 SIDRA Results Summary – I18 – Union Road / Worth Street**

| Intersection Leg | PM 1  |                     |                                 | PM 2  |                     |                                 |
|------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------------------|
|                  | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| North            | 0.776 | 34.0                | 48.8                            | 0.695 | 32.2                | 45.8                            |
| East             | 0.746 | 28.9                | 72.7                            | 0.737 | 28.9                | 67.5                            |
| South            | 0.158 | 31.1                | 6.1                             | 0.307 | 32.2                | 12.0                            |
| West             | 0.818 | 35.4                | 37.6                            | 0.684 | 32.9                | 29.6                            |

## 2036 AM Base and With Development Intersection Capacity Analysis

**Table 52** summarises the 2036 AM SIDRA analysis results for all of the assessed intersections. Electronic SIDRA files will be provided for review as part of this response.

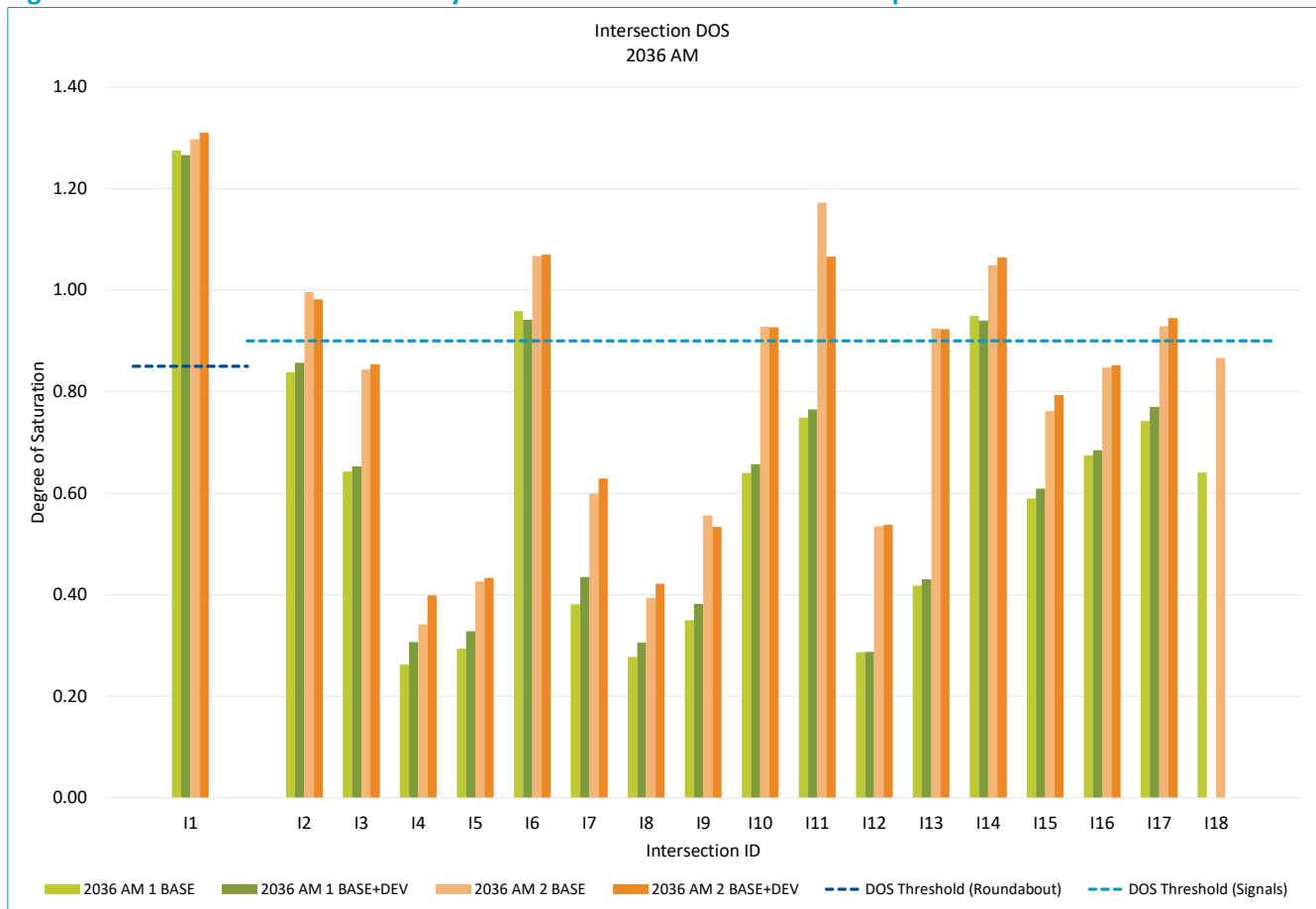
**Table 52 SIDRA Intersection Results Summary – 2036 AM – Network**

| ID                      | AM 1  |               |                       | AM 2  |               |                       |
|-------------------------|-------|---------------|-----------------------|-------|---------------|-----------------------|
|                         | DOS   | Average Delay | 95 <sup>th</sup> %ile | DOS   | Average Delay | 95 <sup>th</sup> %ile |
| <b>Base</b>             |       |               |                       |       |               |                       |
| I1*                     | 1.275 | 268.5         | 1090.7                | 1.197 | 285.7         | 1193.5                |
| I2                      | 0.838 | 20.3          | 98.0                  | 0.996 | 33.2          | 181.6                 |
| I3                      | 0.643 | 20.6          | 179.3                 | 0.844 | 19.2          | 212.8                 |
| I4                      | 0.263 | 16.5          | 40.0                  | 0.342 | 15.0          | 55.2                  |
| I5                      | 0.294 | 15.4          | 38.9                  | 0.426 | 15.6          | 54.9                  |
| I6                      | 0.959 | 64.1          | 266.4                 | 1.067 | 95.7          | 510.2                 |
| I7                      | 0.381 | 26.8          | 45.2                  | 0.599 | 29.5          | 75.3                  |
| I8                      | 0.278 | 12.5          | 38.6                  | 0.394 | 12.4          | 59.3                  |
| I9                      | 0.350 | 16.5          | 44.5                  | 0.556 | 19.2          | 78.1                  |
| I10                     | 0.640 | 24.0          | 91.9                  | 0.928 | 38.3          | 179.7                 |
| I11                     | 0.749 | 20.1          | 96.8                  | 1.172 | 63.3          | 341.8                 |
| I12                     | 0.287 | 19.5          | 54.6                  | 0.535 | 20.8          | 106.5                 |
| I13                     | 0.418 | 13.8          | 47.2                  | 0.924 | 25.1          | 140.1                 |
| I14                     | 0.949 | 52.6          | 259.4                 | 1.049 | 86.9          | 383.2                 |
| I15                     | 0.590 | 26.4          | 189.6                 | 0.762 | 21.2          | 279.4                 |
| I16                     | 0.675 | 35.2          | 187.6                 | 0.848 | 42.2          | 275.5                 |
| I17                     | 0.742 | 28.9          | 207.7                 | 0.929 | 55.9          | 326.7                 |
| I18                     | 0.641 | 27.5          | 63.5                  | 0.866 | 39.6          | 150.0                 |
| <b>With Development</b> |       |               |                       |       |               |                       |
| I1*                     | 1.266 | 260.3         | 1074.0                | 1.310 | 297.4         | 1255.7                |
| I2                      | 0.857 | 21.2          | 106.9                 | 0.982 | 31.0          | 168.2                 |
| I3                      | 0.653 | 20.6          | 185.6                 | 0.854 | 20.4          | 240.1                 |
| I4                      | 0.307 | 21.9          | 47.2                  | 0.399 | 19.9          | 63.9                  |
| I5                      | 0.328 | 15.5          | 41.1                  | 0.433 | 15.4          | 61.0                  |
| I6                      | 0.942 | 64.2          | 263.8                 | 1.07  | 90.4          | 469.7                 |
| I7                      | 0.435 | 26.7          | 57.1                  | 0.629 | 29.3          | 83.0                  |
| I8                      | 0.306 | 12.0          | 44.6                  | 0.422 | 12.4          | 65.2                  |
| I9                      | 0.382 | 16.4          | 49.6                  | 0.534 | 17.4          | 79.0                  |
| I10                     | 0.657 | 23.4          | 92.7                  | 0.927 | 36.4          | 188.9                 |
| I11                     | 0.765 | 20.5          | 104.4                 | 1.066 | 53.4          | 343.3                 |
| I12                     | 0.288 | 19.3          | 54.3                  | 0.538 | 20.9          | 107.8                 |
| I13                     | 0.431 | 13.9          | 48.5                  | 0.923 | 26.1          | 144.1                 |
| I14                     | 0.940 | 53.4          | 259.9                 | 1.064 | 93.1          | 432.4                 |
| I15                     | 0.609 | 17.1          | 200.5                 | 0.793 | 21.7          | 291.2                 |
| I16                     | 0.685 | 35.4          | 191.4                 | 0.852 | 43.0          | 283.3                 |
| I17                     | 0.770 | 45.7          | 219.2                 | 0.945 | 58.9          | 363.1                 |

\*Critical Delay Reported

**Figure 26** graphically illustrates the DOS values summarised in **Table 52**.

**Figure 29 Intersection DOS Summary – 2036 AM – Base and With Development**



From **Table 52** and **Figure 29**, it can be concluded that the subject development does have a minor impact on individual intersection critical movements, but it does not bring about the failure of any intersection that is not already beyond capacity (i.e. I1, I2, I6, I10, I11, I13, I14, and I17).

SIDRA outputs for each intersection are summarised in the following sections.



## I1 – Castlereagh Road / Coreen Avenue

**Table 53** summarises the SIDRA results by individual approach.

**Table 53 SIDRA Results Summary – I1 – Castlereagh Road / Coreen Avenue**

| Intersection Leg        | AM 1  |                      |                                 | AM 2  |                      |                                 |
|-------------------------|-------|----------------------|---------------------------------|-------|----------------------|---------------------------------|
|                         | DOS   | Critical Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Critical Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| <b>Base</b>             |       |                      |                                 |       |                      |                                 |
| North                   | 1.275 | 268.5                | 1090.7                          | 1.297 | 285.7                | 1193.5                          |
| East                    | 0.564 | 15.1                 | 25.3                            | 0.679 | 18.2                 | 32.4                            |
| South                   | 0.840 | 16.5                 | 87.1                            | 1.051 | 73.6                 | 416.1                           |
| West                    | 0.281 | 13.2                 | 10.7                            | 0.428 | 18.2                 | 16.9                            |
| <b>With Development</b> |       |                      |                                 |       |                      |                                 |
| North                   | 1.267 | 261.3                | 1076.5                          | 1.310 | 297.4                | 1255.7                          |
| East                    | 0.556 | 15.2                 | 24.8                            | 0.688 | 18.5                 | 33.0                            |
| South                   | 0.838 | 16.2                 | 86.3                            | 1.050 | 72.8                 | 411.9                           |
| West                    | 0.275 | 13.1                 | 10.4                            | 0.410 | 17.9                 | 16.1                            |

## I2 – Coreen Avenue / Lemongrave Road

**Table 54** summarises the SIDRA results by individual approach.

**Table 54 SIDRA Results Summary – I2 – Coreen Avenue / Lemongrave Road**

| Intersection Leg        | AM 1  |                     |                                 | AM 2  |                     |                                 |
|-------------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------------------|
|                         | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| <b>Base</b>             |       |                     |                                 |       |                     |                                 |
| East                    | 0.805 | 18.0                | 98.0                            | 0.965 | 26.3                | 129.0                           |
| South                   | 0.819 | 25.5                | 41.8                            | 0.955 | 31.6                | 69.8                            |
| West                    | 0.838 | 20.3                | 89.9                            | 0.996 | 43.4                | 181.6                           |
| <b>With Development</b> |       |                     |                                 |       |                     |                                 |
| East                    | 0.857 | 20.2                | 106.9                           | 0.957 | 25.0                | 124.1                           |
| South                   | 0.809 | 24.8                | 41.0                            | 0.942 | 30.3                | 66.3                            |
| West                    | 0.848 | 20.6                | 94.6                            | 0.982 | 39.4                | 168.2                           |

### I3 – Castlereagh Road / Jane Street

**Table 55** summarises the SIDRA results by individual approach.

**Table 55 SIDRA Results Summary – I3 – Castlereagh Road / Jane Street**

| Intersection Leg        | AM 1  |                     |                                 | AM 2  |                     |                                 |
|-------------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------------------|
|                         | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| <b>Base</b>             |       |                     |                                 |       |                     |                                 |
| North                   | 0.643 | 22.4                | 179.3                           | 0.708 | 18.1                | 212.8                           |
| East                    | 0.213 | 55.0                | 28.9                            | 0.426 | 66.5                | 38.9                            |
| South                   | 0.593 | 16.0                | 169.9                           | 0.844 | 15.2                | 156.7                           |
| <b>With Development</b> |       |                     |                                 |       |                     |                                 |
| North                   | 0.653 | 21.7                | 185.6                           | 0.774 | 19.9                | 240.1                           |
| East                    | 0.246 | 56.3                | 32.6                            | 0.457 | 66.8                | 42.0                            |
| South                   | 0.593 | 42.9                | 42.1                            | 0.854 | 55.3                | 74.1                            |

### I4 – Jane Street / Riley Street / Train Station Access

**Table 56** summarises the SIDRA results by individual approach.

**Table 56 SIDRA Results Summary – I4 – Jane Street / Riley Street / Train Station Access**

| Intersection Leg        | AM 1  |                     |                                 | AM 2  |                     |                                 |
|-------------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------------------|
|                         | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| <b>Base</b>             |       |                     |                                 |       |                     |                                 |
| North                   | 0.263 | 42.3                | 19.2                            | 0.342 | 47.7                | 17.2                            |
| East                    | 0.192 | 12.8                | 30.0                            | 0.288 | 11.9                | 47.9                            |
| South                   | 0.252 | 37.7                | 20.0                            | 0.334 | 37.3                | 28.6                            |
| West                    | 0.248 | 13.2                | 40.0                            | 0.324 | 12.1                | 55.2                            |
| <b>With Development</b> |       |                     |                                 |       |                     |                                 |
| North                   | 0.297 | 43.7                | 20.2                            | 0.399 | 49.4                | 17.7                            |
| East                    | 0.254 | 19.0                | 38.2                            | 0.343 | 17.1                | 56.4                            |
| South                   | 0.305 | 29.4                | 36.5                            | 0.382 | 30.0                | 47.0                            |
| West                    | 0.307 | 19.5                | 47.2                            | 0.381 | 17.5                | 63.9                            |

### ***I5 – Jane Street / Station Street***

**Table 57** summarises the SIDRA results by individual approach.

**Table 57 SIDRA Results Summary – I5 – Jane Street / Station Street**

| Intersection Leg        | AM 1  |                     |                                 | AM 2  |                     |                                 |
|-------------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------------------|
|                         | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| <b>Base</b>             |       |                     |                                 |       |                     |                                 |
| East                    | 0.294 | 19.3                | 34.1                            | 0.426 | 20.8                | 54.9                            |
| South                   | 0.289 | 24.3                | 26.0                            | 0.421 | 24.4                | 28.4                            |
| West                    | 0.253 | 9.1                 | 38.9                            | 0.317 | 8.3                 | 44.7                            |
| <b>With Development</b> |       |                     |                                 |       |                     |                                 |
| East                    | 0.321 | 19.3                | 41.1                            | 0.433 | 19.9                | 61.0                            |
| South                   | 0.328 | 21.9                | 30.9                            | 0.412 | 22.58               | 39.1                            |
| West                    | 0.260 | 8.7                 | 39.5                            | 0.322 | 8.1                 | 48.5                            |

### ***I6 – Mulgoa Road / Great Western Highway***

**Table 58** summarises the SIDRA results by individual approach.

**Table 58 SIDRA Results Summary – I6 – Mulgoa Road / Great Western Highway**

| Intersection Leg        | AM 1  |                     |                                 | AM 2  |                     |                                 |
|-------------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------------------|
|                         | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| <b>Base</b>             |       |                     |                                 |       |                     |                                 |
| North                   | 0.676 | 54.1                | 146.8                           | 0.844 | 58.6                | 164.9                           |
| East                    | 0.389 | 53.3                | 36.3                            | 0.528 | 51.4                | 48.9                            |
| South                   | 0.933 | 69.4                | 266.4                           | 1.046 | 114.7               | 372.7                           |
| West                    | 0.959 | 70.9                | 246.0                           | 1.067 | 120.8               | 510.2                           |
| <b>With Development</b> |       |                     |                                 |       |                     |                                 |
| North                   | 0.716 | 53.9                | 152.8                           | 0.868 | 58.9                | 173.5                           |
| East                    | 0.399 | 52.2                | 33.9                            | 0.549 | 51.3                | 48.0                            |
| South                   | 0.93  | 68.0                | 263.8                           | 1.027 | 103.6               | 360.1                           |
| West                    | 0.942 | 73.3                | 258.5                           | 1.07  | 114.9               | 469.7                           |

## 17 – Worth Street / Street

**Table 59** summarises the SIDRA results by individual approach.

**Table 59 SIDRA Results Summary – 17 – Worth Street / Street**

| Intersection Leg        | AM 1  |                     |                                 | AM 2  |                     |                                 |
|-------------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------------------|
|                         | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| <b>Base</b>             |       |                     |                                 |       |                     |                                 |
| North                   | 0.034 | 26.0                | 4.0                             | 0.069 | 28.5                | 4.0                             |
| East                    | 0.236 | 25.4                | 28.0                            | 0.368 | 28.6                | 42.8                            |
| South                   | 0.320 | 26.4                | 19.9                            | 0.507 | 27.4                | 35.8                            |
| West                    | 0.381 | 276                 | 45.2                            | 0.599 | 30.6                | 75.3                            |
| <b>With Development</b> |       |                     |                                 |       |                     |                                 |
| North                   | 0.037 | 27.6                | 3.3                             | 0.079 | 30.1                | 4.6                             |
| East                    | 0.213 | 24.5                | 25.7                            | 0.325 | 27.9                | 38.5                            |
| South                   | 0.335 | 27.0                | 20.9                            | 0.539 | 27.9                | 38.2                            |
| West                    | 0.435 | 27.3                | 57.1                            | 0.629 | 30.3                | 83.0                            |

## 18 – Riley Street / Henry Street / High Street

**Table 60** summarises the SIDRA results by individual approach.

**Table 60 SIDRA Results Summary – 18 – Riley Street / Henry Street / High Street**

| Intersection Leg        | AM 1  |                     |                                 | AM 2  |                     |                                 |
|-------------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------------------|
|                         | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| <b>Base</b>             |       |                     |                                 |       |                     |                                 |
| East                    | 0.128 | 4.0                 | 13.6                            | 0.202 | 4.5                 | 22.9                            |
| South                   | 0.278 | 36.1                | 14.0                            | 0.335 | 36.2                | 17.1                            |
| West                    | 0.277 | 15.4                | 38.6                            | 0.394 | 15.6                | 59.3                            |
| <b>With Development</b> |       |                     |                                 |       |                     |                                 |
| East                    | 0.128 | 4.5                 | 14.1                            | 0.197 | 4.3                 | 21.6                            |
| South                   | 0.251 | 34.8                | 14.0                            | 0.389 | 37.6                | 17.8                            |
| West                    | 0.306 | 13.7                | 44.6                            | 0.422 | 15.2                | 65.2                            |

## I9 – Station Street / Henry Street

**Table 61** summarises the SIDRA results by individual approach.

**Table 61 SIDRA Results Summary – I9 – Station Street / Henry Street**

| Intersection Leg        | AM 1  |                     |                                 | AM 2  |                     |                                 |
|-------------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------------------|
|                         | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| <b>Base</b>             |       |                     |                                 |       |                     |                                 |
| North                   | 0.345 | 25.3                | 34.2                            | 0.556 | 29.7                | 51.9                            |
| East                    | 0.198 | 11.0                | 26.7                            | 0.309 | 12.7                | 44.8                            |
| South                   | 0.227 | 24.9                | 24.1                            | 0.306 | 27.8                | 31.2                            |
| West                    | 0.350 | 11.5                | 44.5                            | 0.556 | 14.7                | 78.1                            |
| <b>With Development</b> |       |                     |                                 |       |                     |                                 |
| North                   | 0.382 | 29.6                | 33.3                            | 0.512 | 31.5                | 43.4                            |
| East                    | 0.199 | 9.2                 | 26.3                            | 0.279 | 10.2                | 39.2                            |
| South                   | 0.278 | 28.7                | 26.5                            | 0.310 | 29.5                | 29.3                            |
| West                    | 0.370 | 10.1                | 49.6                            | 0.534 | 11.6                | 79.0                            |

## I10 – Lawson Street / Henry Street

**Table 62** summarises the SIDRA results by individual approach.

**Table 62 SIDRA Results Summary – I10 – Lawson Street / Henry Street**

| Intersection Leg        | AM 1  |                     |                                 | AM 2  |                     |                                 |
|-------------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------------------|
|                         | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| <b>Base</b>             |       |                     |                                 |       |                     |                                 |
| North                   | 0.148 | 37.4                | 4.9                             | 0.534 | 36.2                | 22.0                            |
| East                    | 0.640 | 20.8                | 91.9                            | 0.913 | 36.3                | 179.7                           |
| South                   | 0.499 | 37.8                | 19.3                            | 0.572 | 39.8                | 21.1                            |
| West                    | 0.615 | 24.2                | 64.6                            | 0.928 | 41.0                | 143.1                           |
| <b>With Development</b> |       |                     |                                 |       |                     |                                 |
| North                   | 0.135 | 34.5                | 4.7                             | 0.454 | 34.7                | 18.3                            |
| East                    | 0.632 | 20.0                | 92.7                            | 0.927 | 38.7                | 188.9                           |
| South                   | 0.449 | 32.7                | 17.2                            | 0.578 | 31.1                | 19.4                            |
| West                    | 0.657 | 25.6                | 67.5                            | 0.888 | 34.8                | 123.5                           |

## I11 – Evan Street / Henry Street

**Table 63** summarises the SIDRA results by individual approach.

**Table 63 SIDRA Results Summary – I11 – Evan Street / Henry Street**

| Intersection Leg        | AM 1  |                     |                                 | AM 2  |                     |                                 |
|-------------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------------------|
|                         | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| <b>Base</b>             |       |                     |                                 |       |                     |                                 |
| North                   | 0.519 | 11.8                | 83.9                            | 1.172 | 97.6                | 341.8                           |
| East                    | 0.726 | 30.2                | 52.3                            | 0.916 | 36.4                | 72.6                            |
| South                   | 0.749 | 27.6                | 96.8                            | 0.935 | 45.1                | 197.9                           |
| West                    | 0.340 | 18.8                | 32.8                            | 0.556 | 21.0                | 59.8                            |
| <b>With Development</b> |       |                     |                                 |       |                     |                                 |
| North                   | 0.532 | 12.0                | 86.8                            | 1.066 | 71.8                | 343.3                           |
| East                    | 0.738 | 30.6                | 53.3                            | 1.004 | 49.0                | 84.0                            |
| South                   | 0.765 | 27.7                | 104.4                           | 0.917 | 41.2                | 183.8                           |
| West                    | 0.367 | 19.6                | 35.7                            | 0.580 | 21.6                | 60.0                            |

## I12 – Lawson Street / High Street

**Table 64** summarises the SIDRA results by individual approach.

**Table 64 SIDRA Results Summary – I12 – Lawson Street / High Street**

| Intersection Leg        | AM 1  |                     |                                 | AM 2  |                     |                                 |
|-------------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------------------|
|                         | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| <b>Base</b>             |       |                     |                                 |       |                     |                                 |
| North                   | 0.191 | 33.0                | 11.6                            | 0.313 | 32.8                | 19.4                            |
| East                    | 0.287 | 13.1                | 54.6                            | 0.529 | 16.5                | 106.5                           |
| West                    | 0.286 | 24.5                | 36.5                            | 0.535 | 23.8                | 53.5                            |
| <b>With Development</b> |       |                     |                                 |       |                     |                                 |
| North                   | 0.191 | 33.7                | 11.6                            | 0.336 | 32.2                | 20.9                            |
| East                    | 0.288 | 12.7                | 54.3                            | 0.538 | 16.5                | 107.8                           |
| West                    | 0.286 | 24.5                | 34.3                            | 0.252 | 24.0                | 55.7                            |



### I13 – Evan Street – High Street

**Table 65** summarises the SIDRA results by individual approach.

**Table 65 SIDRA Results Summary – I13 – Evan Street – High Street**

| Intersection Leg        | AM 1  |                     |                                 | AM 2  |                     |                                 |
|-------------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------------------|
|                         | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| <b>Base</b>             |       |                     |                                 |       |                     |                                 |
| North                   | 0.418 | 10.1                | 47.2                            | 0.888 | 26.5                | 140.1                           |
| East                    | 0.413 | 20.9                | 35.0                            | 0.924 | 37.8                | 99.9                            |
| South                   | 0.209 | 9.5                 | 23.0                            | 0.534 | 13.3                | 52.6                            |
| West                    | 0.313 | 21.2                | 24.7                            | 0.727 | 26.5                | 54.8                            |
| <b>With Development</b> |       |                     |                                 |       |                     |                                 |
| North                   | 0.431 | 20.9                | 36.4                            | 0.903 | 27.6                | 144.1                           |
| East                    | 0.428 | 20.9                | 36.4                            | 0.923 | 37.7                | 94.2                            |
| South                   | 0.222 | 9.5                 | 24.7                            | 0.546 | 13.7                | 52.8                            |
| West                    | 0.315 | 21.2                | 24.9                            | 0.815 | 30.0                | 30.9                            |

### I14 – Parker Street / Great Western Highway

**Table 66** summarises the SIDRA results by individual approach.

**Table 66 SIDRA Results Summary – I14 – Parker Street / Great Western Highway**

| Intersection Leg        | AM 1  |                     |                                 | AM 2  |                     |                                 |
|-------------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------------------|
|                         | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| <b>Base</b>             |       |                     |                                 |       |                     |                                 |
| North                   | 0.934 | 47.5                | 259.4                           | 1.049 | 79.7                | 331.8                           |
| East                    | 0.949 | 57.2                | 228.2                           | 1.029 | 101.1               | 383.2                           |
| South                   | 0.879 | 53.7                | 218.2                           | 1.045 | 102.7               | 345.5                           |
| West                    | 0.888 | 56.5                | 105.4                           | 0.964 | 56.5                | 169.2                           |
| <b>With Development</b> |       |                     |                                 |       |                     |                                 |
| North                   | 0.939 | 60.1                | 114.1                           | 1.057 | 81.4                | 336.1                           |
| East                    | 0.940 | 57.3                | 220.6                           | 1.064 | 122.6               | 432.4                           |
| South                   | 0.877 | 53.8                | 216.9                           | 1.037 | 98.5                | 335.4                           |
| West                    | 0.922 | 60.1                | 114.1                           | 0.964 | 58.2                | 179.7                           |

### I15 – Mulgoa Road / Ransley Street

**Table 67** summarises the SIDRA results by individual approach.

**Table 67 SIDRA Results Summary – I15 – Mulgoa Road / Ransley Street**

| Intersection Leg        | AM 1  |                     |                                 | AM 2  |                     |                                 |
|-------------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------------------|
|                         | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| <b>Base</b>             |       |                     |                                 |       |                     |                                 |
| North                   | 0.407 | 12.4                | 108.9                           | 0.470 | 15.0                | 135.3                           |
| East                    | 0.579 | 64.8                | 47.5                            | 0.680 | 67.1                | 51.5                            |
| South                   | 0.590 | 14.2                | 189.6                           | 0.762 | 18.6                | 279.4                           |
| West                    | 0.160 | 53.6                | 16.7                            | 0.387 | 56.6                | 45.4                            |
| <b>With Development</b> |       |                     |                                 |       |                     |                                 |
| North                   | 0.420 | 12.7                | 113.58                          | 0.487 | 15.2                | 0.56                            |
| East                    | 0.570 | 64.2                | 50.0                            | 0.793 | 70.1                | 0.97                            |
| South                   | 0.609 | 14.4                | 200.5                           | 0.752 | 18.7                | 0.72                            |
| West                    | 0.118 | 53.6                | 11.9                            | 0.410 | 57.3                | 0.93                            |

### I16 – Parker Street / Derby Street

**Table 68** summarises the SIDRA results by individual approach.

**Table 68 SIDRA Results Summary – I16 – Parker Street / Derby Street**

| Intersection Leg        | AM 1  |                     |                                 | AM 2  |                     |                                 |
|-------------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------------------|
|                         | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| <b>Base</b>             |       |                     |                                 |       |                     |                                 |
| North                   | 0.588 | 31.0                | 125.8                           | 0.825 | 34.8                | 138.1                           |
| East                    | 0.648 | 57.7                | 65.3                            | 0.673 | 59.6                | 110.5                           |
| South                   | 0.675 | 32.4                | 187.6                           | 0.843 | 41.4                | 275.5                           |
| West                    | 0.428 | 56.6                | 24.5                            | 0.848 | 42.2                | 48.7                            |
| <b>With Development</b> |       |                     |                                 |       |                     |                                 |
| North                   | 0.628 | 31.4                | 125.8                           | 0.820 | 35.3                | 146.4                           |
| East                    | 0.630 | 57.4                | 68.8                            | 0.703 | 59.7                | 115.3                           |
| South                   | 0.685 | 32.6                | 191.4                           | 0.852 | 42.9                | 283.3                           |
| West                    | 0.418 | 57.0                | 24.0                            | 0.751 | 59.3                | 50.7                            |

### I17 – Mulgoa Road / Jamison Road

**Table 69** summarises the SIDRA results by individual approach.

**Table 69 SIDRA Results Summary – I17 – Mulgoa Road / Jamison Road**

| Intersection Leg        | AM 1  |                     |                                 | AM 2  |                     |                                 |
|-------------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------------------|
|                         | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| <b>Base</b>             |       |                     |                                 |       |                     |                                 |
| North                   | 0.585 | 37.9                | 151.8                           | 0.636 | 38.6                | 166.6                           |
| East                    | 0.726 | 55.6                | 67.0                            | 0.886 | 59.9                | 88.3                            |
| South                   | 0.742 | 46.5                | 207.7                           | 0.929 | 64.1                | 326.7                           |
| West                    | 0.293 | 55.2                | 21.7                            | 0.234 | 21.7                | 34.8                            |
| <b>With Development</b> |       |                     |                                 |       |                     |                                 |
| North                   | 0.603 | 38.2                | 158.0                           | 0.663 | 39.1                | 175.7                           |
| East                    | 0.710 | 55.0                | 68.9                            | 0.912 | 61.9                | 90.4                            |
| South                   | 0.770 | 46.9                | 219.2                           | 0.945 | 69.2                | 363.1                           |
| West                    | 0.298 | 55.0                | 21.7                            | 0.234 | 51.8                | 36.5                            |

### I18 – Union Road / Worth Street

**Table 70** summarises the SIDRA results by individual approach.

**Table 70 SIDRA Results Summary – I18 – Union Road / Worth Street**

| Intersection Leg | AM 1  |                     |                                 | AM 2  |                     |                                 |
|------------------|-------|---------------------|---------------------------------|-------|---------------------|---------------------------------|
|                  | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) | DOS   | Average Delay (sec) | 95 <sup>th</sup> %ile Queue (m) |
| <b>Base</b>      |       |                     |                                 |       |                     |                                 |
| North            | 0.591 | 33.5                | 27.2                            | 0.866 | 47.7                | 82.8                            |
| East             | 0.574 | 32.9                | 26.6                            | 0.836 | 45.3                | 71.7                            |
| South            | 0.357 | 32.1                | 14.1                            | 0.485 | 44.4                | 19.6                            |
| West             | 0.641 | 27.5                | 63.5                            | 0.839 | 32.9                | 150.0                           |

#### 3.3.2.4 Method 4 | SIDRA Intersection Network Delay

A network-wide intersection delay method has been adopted to quantify the broader development impact on intersection operations. The method has been applied consistent with the Queensland Department of Transport and Main Roads' *Guide to Traffic Impact Assessments*.

The incremental delay imposed on Base traffic as a result of the development is calculated as shown in Equation 1.

## Equation 1 Intersection Delay Calculation

$$ID = \sum_{i=1}^n WD - \sum_{i=1}^n BC$$

Where:

- ID** is the aggregate intersection-delay impact vehicle minutes;
- WD** is with development intersection vehicle-minutes for design peak periods. This is calculated by multiplying the with development average delay by movement to the base case volume on each movement, thus not counting the impact as delays to development traffic, only to pre-existing traffic that is affected by these additional delays;
- BC** is the base case intersection vehicle minutes for design peak periods;
- n** is the number of intersections in the impact assessment area;
- i** is each in intersection within the impact assessment area.

**Table 71** summarises the delay impact that can be attributed to the Planning Proposal when delays are summed up across the study network. The delay impacts are estimated for the base traffic movements with the summed time being the difference in individual movement delays (With Development minus Base) multiplied by the Base traffic demands.

**Table 71 Network-wide Intersection Delay Summary**

| ID           | 2018                         |                         |                              |                         |                                |                           | 2036                         |                         |
|--------------|------------------------------|-------------------------|------------------------------|-------------------------|--------------------------------|---------------------------|------------------------------|-------------------------|
|              | Total AM Intersection Impact | Total AM Network Impact | Total PM Intersection Impact | Total PM Network Impact | Total 2018 Intersection Impact | Total 2018 Network Impact | Total AM Intersection Impact | Total AM Network Impact |
| I1*          | 2%                           | 0%                      | 3%                           | 0%                      | <u>3%</u>                      | <u>0.1%</u>               | <u>0%</u>                    | <u>0.1%</u>             |
| I2           | 0%                           | 0%                      | 3%                           | 0%                      | <u>2%</u>                      | <u>0.2%</u>               | <u>-3%</u>                   | <u>-0.1%</u>            |
| I3           | 0%                           | 0%                      | 2%                           | 0%                      | <u>1%</u>                      | <u>0.1%</u>               | <u>2%</u>                    | <u>0.1%</u>             |
| I4           | 26%                          | 1%                      | 9%                           | 0%                      | <u>14%</u>                     | <u>0.4%</u>               | <u>26%</u>                   | <u>0.3%</u>             |
| I5           | 0%                           | 0%                      | 2%                           | 0%                      | <u>1%</u>                      | <u>0.0%</u>               | <u>-2%</u>                   | <u>0.0%</u>             |
| I6           | 0%                           | 0%                      | 7%                           | 1%                      | <u>4%</u>                      | <u>0.7%</u>               | <u>-2%</u>                   | <u>-0.5%</u>            |
| I7           | -3%                          | 0%                      | 2%                           | 0%                      | <u>1%</u>                      | <u>0.0%</u>               | <u>-1%</u>                   | <u>0.0%</u>             |
| I8           | -6%                          | 0%                      | -2%                          | 0%                      | <u>-3%</u>                     | <u>0.0%</u>               | <u>-4%</u>                   | <u>0.0%</u>             |
| I9           | 2%                           | 0%                      | 5%                           | 0%                      | <u>4%</u>                      | <u>0.1%</u>               | <u>-3%</u>                   | <u>0.0%</u>             |
| I10          | 1%                           | 0%                      | 0%                           | 0%                      | <u>0%</u>                      | <u>0.0%</u>               | <u>-4%</u>                   | <u>-0.1%</u>            |
| I11          | 0%                           | 0%                      | 4%                           | 0%                      | <u>2%</u>                      | <u>0.1%</u>               | <u>-13%</u>                  | <u>-0.6%</u>            |
| I12          | 0%                           | 0%                      | 0%                           | 0%                      | <u>0%</u>                      | <u>0.0%</u>               | <u>0%</u>                    | <u>0.0%</u>             |
| I13          | 6%                           | 0%                      | -1%                          | 0%                      | <u>2%</u>                      | <u>0.0%</u>               | <u>3%</u>                    | <u>0.0%</u>             |
| I14          | 3%                           | 1%                      | 3%                           | 1%                      | <u>3%</u>                      | <u>0.7%</u>               | <u>5%</u>                    | <u>0.8%</u>             |
| I15          | 1%                           | 0%                      | 2%                           | 0%                      | <u>2%</u>                      | <u>0.1%</u>               | <u>1%</u>                    | <u>0.0%</u>             |
| I16          | 0%                           | 0%                      | 1%                           | 0%                      | <u>0%</u>                      | <u>0.0%</u>               | <u>1%</u>                    | <u>0.1%</u>             |
| I17          | 1%                           | 0%                      | 1%                           | 0%                      | <u>1%</u>                      | <u>0.1%</u>               | <u>4%</u>                    | <u>0.3%</u>             |
| I18          | -                            | -                       | -                            | -                       | -                              | -                         | -                            | -                       |
| <b>Total</b> | -                            | <b>1.5%</b>             | -                            | <b>3.1%</b>             | -                              | <b>2.5%</b>               | -                            | <b>0.5%</b>             |

It can be concluded from **Table 71** that the development will have a network-wide intersection delay impact (volume weighted and averaged over both AM and PM peak periods) of 2.5% at the 2018 design year reducing to 0.5% at the 2036 design horizon (AM). This magnitude of change is comparable to the annual network-wide demand increase of 2.0% advised by Council officers during the modelled period 2018-2036. Accordingly, the increase in traffic attributable to the development is comparable to one years' assumed background growth.

Again, intersection capacity upgrades have not been evaluated at this time given Council's future planning has not yet been confirmed and/or modelled. It is recommended that any possible upgrade options attributable to the development should only be determined when this planning is resolved. Such analysis could occur as part of a future development application.

### 3.3.2.5 Method 5 | AIMSUN Intersection Performance

The Table 72 and 73 results are reproduced from the Bitzios modelling report (May 2022). These are AIMSUN results which may vary to those reported by SIDRA, primarily because of the differences in phasing and other input assumptions.

**Table 72 AIMSUN Intersection Performance Delay and LoS Summary (2019)**

| Route                                              | AM        |          |           |          | PM        |          |           |          |
|----------------------------------------------------|-----------|----------|-----------|----------|-----------|----------|-----------|----------|
|                                                    | 0700-0800 |          | 0800-0900 |          | 1600-1700 |          | 1700-1800 |          |
|                                                    | Base      | With Dev | Base      | With Dev | Base      | With Dev | Base      | With Dev |
| Castlereagh Rd / Coreen Ave;                       | 14 (A)    | 13 (A)   | 14 (B)    | 16 (B)   | 17 (B)    | 18 (B)   | 20 (B)    | 20 (B)   |
| Coreen Ave / Lemongrove Rd;                        | 11 (A)    | 11 (A)   | 11 (A)    | 13 (A)   | 26 (B)    | 26 (B)   | 23 (B)    | 23 (B)   |
| Castlereagh Rd / Jane Street;                      | 16 (B)    | 16 (B)   | 13 (A)    | 14 (B)   | 19 (B)    | 20 (B)   | 18 (B)    | 19 (B)   |
| Jane Street / Riley Street / Train Station Access; | 24 (B)    | 23 (B)   | 24 (B)    | 24 (B)   | 24 (B)    | 25 (B)   | 25 (B)    | 26 (B)   |
| Jane Street/Station Street;                        | 9 (A)     | 10 (A)   | 11 (A)    | 13 (A)   | 13 (A)    | 16 (B)   | 14 (B)    | 17 (B)   |
| Mulgoa Rd / Great Western Highway;                 | 28 (B)    | 29 (C)   | 43 (C)    | 44 (D)   | 30 (C)    | 31 (C)   | 34 (C)    | 36 (C)   |
| Worth Street / High Street;                        | 22 (B)    | 21 (B)   | 23 (B)    | 22 (B)   | 26 (B)    | 26 (B)   | 25 (B)    | 25 (B)   |
| Riley Street / Henry Street / High Street;         | 9 (A)     | 10 (A)   | 13 (A)    | 14 (A)   | 15 (A)    | 15 (A)   | 16 (B)    | 16 (B)   |
| Station Street / Henry Street;                     | 12 (A)    | 12 (A)   | 16 (B)    | 18 (B)   | 17 (B)    | 18 (B)   | 18 (B)    | 19 (B)   |
| Lawson Street / Henry Street;                      | 11 (A)    | 11 (A)   | 15 (B)    | 15 (B)   | 28 (B)    | 26 (B)   | 30 (C)    | 29 (B)   |
| Evan Street / Henry Street;                        | 13 (A)    | 13 (A)   | 19 (B)    | 20 (B)   | 26 (B)    | 26 (B)   | 27 (B)    | 27 (B)   |
| Lawson Street / High Street;                       | 10 (A)    | 9 (A)    | 13 (A)    | 13 (A)   | 25 (B)    | 24 (B)   | 25 (B)    | 26 (B)   |
| Evan Street / High Street;                         | 9 (A)     | 9 (A)    | 15 (B)    | 15 (B)   | 19 (B)    | 20 (B)   | 20 (B)    | 20 (B)   |
| Parker Street / Great Western Highway;             | 17 (B)    | 17 (B)   | 17 (B)    | 17 (B)   | 20 (B)    | 20 (B)   | 19 (B)    | 19 (B)   |
| Mulgoa Rd / Ransley Street;                        | 19 (B)    | 19 (B)   | 16 (B)    | 16 (B)   | 29 (B)    | 29 (B)   | 32 (C)    | 33 (C)   |
| Parker Street / Derby Street;                      | 34 (C)    | 34 (C)   | 49 (D)    | 50 (D)   | 41 (C)    | 44 (D)   | 45 (D)    | 49 (D)   |
| Mulgoa Road / Jamison Road.                        | 35 (C)    | 35 (C)   | 46 (D)    | 48 (D)   | 31 (C)    | 31 (C)   | 32 (C)    | 33 (C)   |

**Table 73 AIMSUN Intersection Performance Delay and LoS Summary (2036)**

| Route                                              | AM        |          |           |          |
|----------------------------------------------------|-----------|----------|-----------|----------|
|                                                    | 0700-0800 |          | 0800-0900 |          |
|                                                    | Base      | With Dev | Base      | With Dev |
| Castlereagh Rd / Coreen Ave;                       | 23 (B)    | 23 (B)   | 51 (D)    | 48 (D)   |
| Coreen Ave / Lemongrove Rd;                        | 14 (A)    | 16 (B)   | 27 (B)    | 27 (B)   |
| Castlereagh Rd / Jane Street;                      | 14 (A)    | 15 (A)   | 15 (A)    | 14 (A)   |
| Jane Street / Riley Street / Train Station Access; | 22 (B)    | 22 (B)   | 23 (B)    | 22 (B)   |
| Jane Street/Station Street;                        | 10 (A)    | 10 (A)   | 12 (A)    | 12 (A)   |
| Mulgoa Rd / Great Western Highway;                 | 29 (B)    | 29 (B)   | 39 (C)    | 38 (C)   |
| Worth Street / High Street;                        | 26 (B)    | 24 (B)   | 28 (B)    | 27 (B)   |
| Riley Street / Henry Street / High Street;         | 9 (A)     | 10 (A)   | 15 (A)    | 16 (B)   |
| Station Street / Henry Street;                     | 10 (A)    | 10 (A)   | 12 (A)    | 11 (A)   |
| Lawson Street / Henry Street;                      | 13 (A)    | 12 (A)   | 18 (B)    | 18 (B)   |
| Evan Street / Henry Street;                        | 15 (B)    | 15 (B)   | 27 (B)    | 28 (B)   |
| Lawson Street / High Street;                       | 11 (A)    | 11 (A)   | 13 (A)    | 14 (A)   |
| Evan Street / High Street;                         | 10 (A)    | 10 (A)   | 15 (A)    | 15 (A)   |
| Parker Street / Great Western Highway;             | 16 (B)    | 16 (B)   | 17 (B)    | 17 (B)   |
| Mulgoa Rd / Ransley Street;                        | 23 (B)    | 23 (B)   | 21 (B)    | 22 (B)   |
| Parker Street / Derby Street;                      | 42 (C)    | 42 (C)   | 111 (F)   | 109 (F)  |
| Mulgoa Road / Jamison Road.                        | 40 (C)    | 40 (C)   | 76 (F)    | 81 (F)   |

## 4 Conclusions

In summary, the key road network assessment matters of the Planning Proposal are as follows:

- Council's calibrated base AIMSUN model has been adopted;
- A 2036 design horizon has been evaluated using the AIMSUN model at the request of Council officers
- No future road capacity upgrades are included in the model, although it is understood that Council's own future year modelling has been progressed but is not yet available for release or use;
- The following Planning Proposal uses and yields were assessed:
  - +21,820sq.m GFA Commercial (office);
  - +1,500sq.m GLFA Retail;
  - +152 room Motel (short-term accommodation).
- The proposed development would increase retail and employment densities close to good public transport services (heavy rail and bus) and is consistent with government objectives to reduce private car travel and encourage public transport use;
- The Planning Proposal does not incorporate any new vehicle access locations beyond those which already exist;



- It would be reasonable for the following to be prepared as part of any future development application:
  - A Green Travel Plan;
  - A Loading and Servicing Access and Management Plan.
- The AIMSUN and SIDRA Intersection modelling indicates that the proposed development will introduce some incremental traffic delays and impacts on the network. The nature and scale of these impacts suggests that some minor intersection capacity upgrades may be warranted to mitigate and/or offset the development impact;
- At the appropriate point in time, likely as part of a future development application, the Bitzios and SLR traffic assessments should be reviewed to quantify such possible capacity upgrades. The determination of possible improvements and the magnitude of the development impact or contribution can only be understood pending resolution of Council's own planning and finalisation of their own future year AIMSUN modelling.

# ATTACHMENT 1

## Intersection Traffic Movements Output from AIMSUN Model (Bitzios)

# P5045 Westfield Penrith Expansion TIA

Traffic Volumes  
AM 0700-0800

| ID  | Intersection                                                        | From                     | To                        | Turn | Traffic Volume<br>(Veh/h)<br>(Base) | Traffic Volume<br>(Veh/h)<br>(With Dev) |
|-----|---------------------------------------------------------------------|--------------------------|---------------------------|------|-------------------------------------|-----------------------------------------|
| 001 | Castlereagh Rd<br>Coreen Ave<br>Castlereagh Rd<br>Coreen Ave        | Castlereagh Rd (N)       | Coreen Ave (W)            | R    | 74                                  | 75                                      |
|     |                                                                     |                          | Castlereagh Rd (S)        | T    | 988                                 | 1,018                                   |
|     |                                                                     |                          | Castlereagh Rd (E)        | L    | 376                                 | 377                                     |
|     |                                                                     |                          | Castlereagh Rd (N)        | R    | 194                                 | 195                                     |
|     |                                                                     | Castlereagh Rd (E)       | Coreen Ave (W)            | T    | 74                                  | 74                                      |
|     |                                                                     |                          | Castlereagh Rd (S)        | L    | 154                                 | 154                                     |
|     |                                                                     |                          | Castlereagh Rd (E)        | R    | 290                                 | 290                                     |
|     |                                                                     |                          | Castlereagh Rd (N)        | T    | 777                                 | 792                                     |
|     |                                                                     | Castlereagh Rd (S)       | Coreen Ave (W)            | L    | 45                                  | 44                                      |
|     |                                                                     |                          | Castlereagh Rd (S)        | R    | 14                                  | 14                                      |
|     |                                                                     |                          | Castlereagh Rd (E)        | T    | 78                                  | 78                                      |
|     |                                                                     |                          | Castlereagh Rd (N)        | L    | 57                                  | 57                                      |
|     |                                                                     | All                      |                           |      | 3,122                               | 3,169                                   |
| 002 | Coreen Ave<br>Lemongrove Rd                                         | Coreen Ave (E)           | Coreen Ave (W)            | T    | 408                                 | 407                                     |
|     |                                                                     |                          | Lemongrove Rd (S)         | L    | 213                                 | 214                                     |
|     |                                                                     | Lemongrove Rd (S)        | Coreen Ave (E)            | R    | 157                                 | 157                                     |
|     |                                                                     |                          | Coreen Ave (W)            | L    | 112                                 | 112                                     |
|     |                                                                     | Coreen Ave (W)           | Lemongrove Rd (S)         | R    | 141                                 | 142                                     |
|     |                                                                     |                          | Coreen Ave (E)            | T    | 302                                 | 302                                     |
|     |                                                                     | All                      |                           |      | 1,333                               | 1,334                                   |
| 003 | Castlereagh Rd<br>Jane Street                                       | Castlereagh Rd (N)       | Castlereagh Rd (S)        | T    | 1,040                               | 1,068                                   |
|     |                                                                     |                          | Jane Street (E)           | L    | 270                                 | 269                                     |
|     |                                                                     | Jane Street (E)          | Castlereagh Rd (N)        | R    | 132                                 | 149                                     |
|     |                                                                     |                          | Castlereagh Rd (S)        | L    | 63                                  | 103                                     |
|     |                                                                     | Castlereagh Rd (S)       | Jane Street (E)           | R    | 171                                 | 167                                     |
|     |                                                                     |                          | Castlereagh Rd (N)        | T    | 1,267                               | 1,270                                   |
|     |                                                                     | All                      |                           |      | 2,943                               | 3,025                                   |
| 004 | Train Station Access<br>Jane Street<br>Riley Street                 | Train Station Access (N) | Jane Street (W)           | R    | 6                                   | 6                                       |
|     |                                                                     |                          | Riley Street (S)          | T    | 0                                   | 0                                       |
|     |                                                                     | Jane Street (E)          | Jane Street (E)           | L    | 35                                  | 35                                      |
|     |                                                                     |                          | Train Station Access (N)  | R    | 0                                   | 0                                       |
|     |                                                                     |                          | Jane Street (W)           | T    | 239                                 | 241                                     |
|     |                                                                     |                          | Riley Street (S)          | L    | 0                                   | 0                                       |
|     |                                                                     | Riley Street (S)         | Jane Street (E)           | R    | 45                                  | 78                                      |
|     |                                                                     |                          | Train Station Access (N)  | T    | 0                                   | 0                                       |
|     |                                                                     |                          | Jane Street (W)           | L    | 15                                  | 72                                      |
|     |                                                                     |                          | Riley Street (S)          | R    | 0                                   | 0                                       |
|     |                                                                     | Jane Street (W)          | Jane Street (E)           | T    | 336                                 | 331                                     |
|     |                                                                     |                          | Train Station Access (N)  | L    | 0                                   | 0                                       |
|     |                                                                     | All                      |                           |      | 676                                 | 763                                     |
| 005 | Jane Street<br>Station Street                                       | Jane Street (E)          | Jane Street (W)           | T    | 126                                 | 156                                     |
|     |                                                                     |                          | Station Street (S)        | L    | 188                                 | 186                                     |
|     |                                                                     | Station Street (S)       | Jane Street (E)           | R    | 120                                 | 117                                     |
|     |                                                                     |                          | Jane Street (W)           | L    | 127                                 | 262                                     |
|     |                                                                     | Jane Street (W)          | Station Street (S)        | R    | 181                                 | 192                                     |
|     |                                                                     |                          | Jane Street (E)           | T    | 234                                 | 251                                     |
|     |                                                                     | All                      |                           |      | 977                                 | 1,165                                   |
| 006 | Castlereagh Rd<br>High Street<br>Mulgoa Rd<br>Great Western Highway | Castlereagh Rd (N)       | Great Western Highway (W) | R    | 334                                 | 343                                     |
|     |                                                                     |                          | Mulgoa Rd (S)             | T    | 695                                 | 726                                     |
|     |                                                                     |                          | High Street (E)           | L    | 63                                  | 94                                      |
|     |                                                                     |                          | Castlereagh Rd (N)        | R    | 60                                  | 59                                      |
|     |                                                                     | High Street (E)          | Great Western Highway (W) | T    | 183                                 | 183                                     |
|     |                                                                     |                          | Mulgoa Rd (S)             | L    | 50                                  | 50                                      |
|     |                                                                     |                          | High Street (E)           | R    | 44                                  | 73                                      |
|     |                                                                     |                          | Castlereagh Rd (N)        | T    | 789                                 | 788                                     |
|     |                                                                     | Mulgoa Rd (S)            | Great Western Highway (W) | L    | 121                                 | 121                                     |
|     |                                                                     |                          | Mulgoa Rd (S)             | R    | 182                                 | 182                                     |
|     |                                                                     |                          | High Street (E)           | T    | 391                                 | 408                                     |
|     |                                                                     |                          | Castlereagh Rd (N)        | L    | 594                                 | 592                                     |
|     |                                                                     | All                      |                           |      | 3,505                               | 3,618                                   |
| 007 | Worth Street<br>High Street                                         | Worth Street (N)         | High Street (W)           | R    | 3                                   | 3                                       |
|     |                                                                     |                          | Worth Street (S)          | T    | 1                                   | 1                                       |
|     |                                                                     |                          | High Street (E)           | L    | 17                                  | 18                                      |
|     |                                                                     |                          | Worth Street (N)          | R    | 7                                   | 7                                       |
|     |                                                                     | High Street (E)          | High Street (W)           | T    | 213                                 | 215                                     |
|     |                                                                     |                          | Worth Street (S)          | L    | 39                                  | 38                                      |
|     |                                                                     |                          | High Street (E)           | R    | 28                                  | 29                                      |
|     |                                                                     |                          | Worth Street (N)          | T    | 28                                  | 29                                      |
|     |                                                                     | Worth Street (S)         | High Street (W)           | L    | 97                                  | 97                                      |
|     |                                                                     |                          | Worth Street (S)          | R    | 74                                  | 75                                      |
|     |                                                                     |                          | High Street (E)           | T    | 356                                 | 432                                     |
|     |                                                                     |                          | Worth Street (N)          | L    | 22                                  | 23                                      |
|     |                                                                     | All                      |                           |      | 885                                 | 969                                     |

| ID  | Intersection                                               | From                      | To                        | Turn | Traffic Volume<br>(Veh/h)<br>(Base) | Traffic Volume<br>(Veh/h)<br>(With Dev) |
|-----|------------------------------------------------------------|---------------------------|---------------------------|------|-------------------------------------|-----------------------------------------|
| 008 | Riley Street<br>Henry Street<br>High Street<br>High Street | Riley Street (N)          | High Street (W)           | R    | 0                                   | 0                                       |
|     |                                                            |                           | High Street (S)           | T    | 0                                   | 0                                       |
|     |                                                            |                           | Henry Street (E)          | L    | 0                                   | 0                                       |
|     |                                                            | Henry Street (E)          | Riley Street (N)          | R    | 29                                  | 31                                      |
|     |                                                            |                           | High Street (W)           | T    | 255                                 | 256                                     |
|     |                                                            |                           | High Street (S)           | L    | 0                                   | 0                                       |
|     |                                                            | High Street (S)           | Henry Street (E)          | R    | 9                                   | 9                                       |
|     |                                                            |                           | Riley Street (N)          | T    | 29                                  | 29                                      |
|     |                                                            |                           | High Street (W)           | L    | 4                                   | 4                                       |
|     |                                                            | High Street (W)           | High Street (S)           | R    | 0                                   | 0                                       |
|     |                                                            |                           | Henry Street (E)          | T    | 359                                 | 435                                     |
|     |                                                            |                           | Riley Street (N)          | L    | 30                                  | 31                                      |
|     |                                                            | All                       |                           |      | 714                                 | 794                                     |
| 009 | Station Street<br>Henry Street                             | Station Street (N)        | Henry Street (W)          | R    | 80                                  | 80                                      |
|     |                                                            |                           | Station Street (S)        | T    | 139                                 | 143                                     |
|     |                                                            |                           | Henry Street (E)          | L    | 86                                  | 92                                      |
|     |                                                            | Henry Street (E)          | Station Street (N)        | R    | 64                                  | 79                                      |
|     |                                                            |                           | Henry Street (W)          | T    | 151                                 | 155                                     |
|     |                                                            |                           | Station Street (S)        | L    | 45                                  | 47                                      |
|     |                                                            | Station Street (S)        | Henry Street (E)          | R    | 53                                  | 53                                      |
|     |                                                            |                           | Station Street (N)        | T    | 98                                  | 148                                     |
|     |                                                            |                           | Henry Street (W)          | L    | 56                                  | 56                                      |
|     |                                                            | Henry Street (W)          | Station Street (S)        | R    | 75                                  | 77                                      |
|     |                                                            |                           | Henry Street (E)          | T    | 204                                 | 212                                     |
|     |                                                            |                           | Station Street (N)        | L    | 88                                  | 156                                     |
|     |                                                            | All                       |                           |      | 1,140                               | 1,297                                   |
| 010 | Lawson Street<br>Henry Street                              | Lawson Street (N)         | Henry Street (W)          | R    | 12                                  | 12                                      |
|     |                                                            |                           | Lawson Street (S)         | T    | 3                                   | 3                                       |
|     |                                                            |                           | Henry Street (E)          | L    | 4                                   | 4                                       |
|     |                                                            | Henry Street (E)          | Lawson Street (N)         | R    | 97                                  | 97                                      |
|     |                                                            |                           | Henry Street (W)          | T    | 222                                 | 242                                     |
|     |                                                            |                           | Lawson Street (S)         | L    | 30                                  | 30                                      |
|     |                                                            | Lawson Street (S)         | Henry Street (E)          | R    | 20                                  | 20                                      |
|     |                                                            |                           | Lawson Street (N)         | T    | 37                                  | 37                                      |
|     |                                                            |                           | Henry Street (W)          | L    | 15                                  | 16                                      |
|     |                                                            | Henry Street (W)          | Lawson Street (S)         | R    | 19                                  | 20                                      |
|     |                                                            |                           | Henry Street (E)          | T    | 251                                 | 263                                     |
|     |                                                            |                           | Lawson Street (N)         | L    | 8                                   | 8                                       |
|     |                                                            | All                       |                           |      | 720                                 | 752                                     |
| 011 | Evan Street<br>Henry Street                                | Evan Street (N)           | Henry Street (W)          | R    | 156                                 | 159                                     |
|     |                                                            |                           | Evan Street (S)           | T    | 261                                 | 262                                     |
|     |                                                            |                           | Henry Street (E)          | L    | 89                                  | 90                                      |
|     |                                                            | Henry Street (E)          | Evan Street (N)           | R    | 94                                  | 94                                      |
|     |                                                            |                           | Henry Street (W)          | T    | 176                                 | 187                                     |
|     |                                                            |                           | Evan Street (S)           | L    | 27                                  | 27                                      |
|     |                                                            | Evan Street (S)           | Henry Street (E)          | R    | 35                                  | 35                                      |
|     |                                                            |                           | Evan Street (N)           | T    | 231                                 | 231                                     |
|     |                                                            |                           | Henry Street (W)          | L    | 60                                  | 67                                      |
|     |                                                            | Henry Street (W)          | Evan Street (S)           | R    | 0                                   | 0                                       |
|     |                                                            |                           | Henry Street (E)          | T    | 153                                 | 164                                     |
|     |                                                            |                           | Evan Street (N)           | L    | 104                                 | 106                                     |
|     |                                                            | All                       |                           |      | 1,387                               | 1,423                                   |
| 012 | Lawson Street<br>High Street                               | Lawson Street (N)         | High Street (W)           | R    | 23                                  | 23                                      |
|     |                                                            |                           | High Street (E)           | L    | 11                                  | 11                                      |
|     |                                                            | High Street (E)           | Lawson Street (N)         | R    | 53                                  | 52                                      |
|     |                                                            |                           | High Street (W)           | T    | 273                                 | 286                                     |
|     |                                                            | High Street (W)           | High Street (E)           | T    | 129                                 | 130                                     |
|     |                                                            |                           | Lawson Street (N)         | L    | 112                                 | 112                                     |
|     |                                                            | All                       |                           |      | 600                                 | 614                                     |
| 013 | Evan Street<br>High Street                                 | Evan Street (N)           | High Street (W)           | R    | 78                                  | 77                                      |
|     |                                                            |                           | Evan Street (S)           | T    | 182                                 | 184                                     |
|     |                                                            |                           | High Street (E)           | L    | 39                                  | 39                                      |
|     |                                                            | High Street (E)           | Evan Street (N)           | R    | 87                                  | 90                                      |
|     |                                                            |                           | High Street (W)           | T    | 146                                 | 158                                     |
|     |                                                            |                           | Evan Street (S)           | L    | 32                                  | 32                                      |
|     |                                                            | Evan Street (S)           | High Street (E)           | R    | 23                                  | 23                                      |
|     |                                                            |                           | Evan Street (N)           | T    | 166                                 | 170                                     |
|     |                                                            |                           | High Street (W)           | L    | 18                                  | 18                                      |
|     |                                                            | High Street (W)           | Evan Street (S)           | R    | 17                                  | 16                                      |
|     |                                                            |                           | High Street (E)           | T    | 96                                  | 99                                      |
|     |                                                            |                           | Evan Street (N)           | L    | 82                                  | 82                                      |
|     |                                                            | All                       |                           |      | 967                                 | 989                                     |
| 014 | Parker Street<br>Great Western Highway<br>High Street      | Parker Street (N)         | High Street (W)           | R    | 191                                 | 193                                     |
|     |                                                            |                           | Parker Street (S)         | T    | 665                                 | 665                                     |
|     |                                                            |                           | Great Western Highway (E) | L    | 736                                 | 736                                     |
|     |                                                            | Great Western Highway (E) | Parker Street (N)         | R    | 366                                 | 366                                     |
|     |                                                            |                           | High Street (W)           | T    | 463                                 | 502                                     |

| ID | Intersection | From              | To                        | Turn | Traffic Volume<br>(Veh/h)<br>(Base) | Traffic Volume<br>(Veh/h)<br>(With<br>Dev) |
|----|--------------|-------------------|---------------------------|------|-------------------------------------|--------------------------------------------|
|    |              | Parker Street (S) | Parker Street (S)         | L    | 136                                 | 136                                        |
|    |              |                   | Great Western Highway (E) | R    | 168                                 | 168                                        |
|    |              |                   | Parker Street (N)         | T    | 659                                 | 657                                        |
|    |              |                   | High Street (W)           | L    | 236                                 | 247                                        |
|    |              | High Street (W)   | Parker Street (S)         | R    | 84                                  | 89                                         |
|    |              |                   | Great Western Highway (E) | T    | 294                                 | 314                                        |
|    |              |                   | Parker Street (N)         | L    | 142                                 | 144                                        |
|    |              |                   |                           |      |                                     |                                            |
|    |              | All               |                           |      | 4,139                               | 4,218                                      |

| ID  | Intersection                  | From               | To                 | Turn | Traffic Volume<br>(Veh/h)<br>(Base) | Traffic Volume<br>(Veh/h)<br>(With Dev) |
|-----|-------------------------------|--------------------|--------------------|------|-------------------------------------|-----------------------------------------|
| 015 | Mulgoa Rd<br>Ransley Street   | Mulgoa Rd (N)      | Ransley Street (W) | R    | 19                                  | 20                                      |
|     |                               |                    | Mulgoa Rd (S)      | T    | 701                                 | 727                                     |
|     |                               |                    | Ransley Street (E) | L    | 78                                  | 81                                      |
|     |                               | Ransley Street (E) | Mulgoa Rd (N)      | R    | 81                                  | 82                                      |
|     |                               |                    | Ransley Street (W) | T    | 17                                  | 17                                      |
|     |                               |                    | Mulgoa Rd (S)      | L    | 9                                   | 11                                      |
|     |                               | Mulgoa Rd (S)      | Ransley Street (E) | R    | 19                                  | 19                                      |
|     |                               |                    | Mulgoa Rd (N)      | T    | 997                                 | 1,026                                   |
|     |                               |                    | Ransley Street (W) | L    | 13                                  | 14                                      |
|     |                               | Ransley Street (W) | Mulgoa Rd (S)      | R    | 8                                   | 7                                       |
|     |                               |                    | Ransley Street (E) | T    | 15                                  | 18                                      |
|     |                               |                    | Mulgoa Rd (N)      | L    | 24                                  | 25                                      |
|     |                               | All                |                    |      | 1,981                               | 2,047                                   |
| 016 | Parker Street<br>Derby Street | Parker Street (N)  | Derby Street (W)   | R    | 86                                  | 94                                      |
|     |                               |                    | Parker Street (S)  | T    | 632                                 | 636                                     |
|     |                               |                    | Derby Street (E)   | L    | 84                                  | 84                                      |
|     |                               | Derby Street (E)   | Parker Street (N)  | R    | 106                                 | 106                                     |
|     |                               |                    | Derby Street (W)   | T    | 59                                  | 59                                      |
|     |                               |                    | Parker Street (S)  | L    | 40                                  | 40                                      |
|     |                               | Parker Street (S)  | Derby Street (E)   | R    | 119                                 | 119                                     |
|     |                               |                    | Parker Street (N)  | T    | 1,015                               | 1,029                                   |
|     |                               |                    | Derby Street (W)   | L    | 37                                  | 37                                      |
|     |                               | Derby Street (W)   | Parker Street (S)  | R    | 51                                  | 52                                      |
|     |                               |                    | Derby Street (E)   | T    | 31                                  | 30                                      |
|     |                               |                    | Parker Street (N)  | L    | 17                                  | 17                                      |
|     |                               | All                |                    |      | 2,278                               | 2,303                                   |
| 017 | Mulgoa Road<br>Jamison Road   | Mulgoa Road (N)    | Jamison Road (W)   | R    | 26                                  | 25                                      |
|     |                               |                    | Mulgoa Road (S)    | T    | 651                                 | 676                                     |
|     |                               |                    | Jamison Road (E)   | L    | 94                                  | 91                                      |
|     |                               | Jamison Road (E)   | Mulgoa Road (N)    | R    | 153                                 | 153                                     |
|     |                               |                    | Jamison Road (W)   | T    | 25                                  | 26                                      |
|     |                               |                    | Mulgoa Road (S)    | L    | 170                                 | 171                                     |
|     |                               | Mulgoa Road (S)    | Jamison Road (E)   | R    | 297                                 | 324                                     |
|     |                               |                    | Mulgoa Road (N)    | T    | 861                                 | 892                                     |
|     |                               |                    | Jamison Road (W)   | L    | 17                                  | 17                                      |
|     |                               | Jamison Road (W)   | Mulgoa Road (S)    | R    | 45                                  | 45                                      |
|     |                               |                    | Jamison Road (E)   | T    | 28                                  | 28                                      |
|     |                               |                    | Mulgoa Road (N)    | L    | 19                                  | 19                                      |
|     |                               | All                |                    |      | 2,385                               | 2,466                                   |

# P5045 Westfield Penrith Expansion TIA

Traffic Volumes  
AM 0800-0900

| ID  | Intersection                                                        | From                     | To                        | Turn | Traffic Volume<br>(Veh/h)<br>(Base) | Traffic Volume<br>(Veh/h)<br>(With Dev) |
|-----|---------------------------------------------------------------------|--------------------------|---------------------------|------|-------------------------------------|-----------------------------------------|
| 001 | Castlereagh Rd<br>Coreen Ave<br>Castlereagh Rd<br>Coreen Ave        | Castlereagh Rd (N)       | Coreen Ave (W)            | R    | 69                                  | 68                                      |
|     |                                                                     |                          | Castlereagh Rd (S)        | T    | 1,351                               | 1,380                                   |
|     |                                                                     |                          | Castlereagh Rd (E)        | L    | 159                                 | 159                                     |
|     |                                                                     |                          | Castlereagh Rd (N)        | R    | 109                                 | 108                                     |
|     |                                                                     | Castlereagh Rd (E)       | Coreen Ave (W)            | T    | 114                                 | 113                                     |
|     |                                                                     |                          | Castlereagh Rd (S)        | L    | 191                                 | 185                                     |
|     |                                                                     |                          | Castlereagh Rd (E)        | R    | 267                                 | 268                                     |
|     |                                                                     |                          | Castlereagh Rd (N)        | T    | 1,051                               | 1,067                                   |
|     |                                                                     | Castlereagh Rd (S)       | Coreen Ave (W)            | L    | 47                                  | 48                                      |
|     |                                                                     |                          | Castlereagh Rd (S)        | R    | 20                                  | 20                                      |
|     |                                                                     |                          | Castlereagh Rd (E)        | T    | 70                                  | 70                                      |
|     |                                                                     |                          | Castlereagh Rd (N)        | L    | 40                                  | 40                                      |
|     |                                                                     | All                      |                           |      | 3,488                               | 3,527                                   |
| 002 | Coreen Ave<br>Lemongrove Rd                                         | Coreen Ave (E)           | Coreen Ave (W)            | T    | 343                                 | 339                                     |
|     |                                                                     |                          | Lemongrove Rd (S)         | L    | 444                                 | 448                                     |
|     |                                                                     | Lemongrove Rd (S)        | Coreen Ave (E)            | R    | 189                                 | 189                                     |
|     |                                                                     |                          | Coreen Ave (W)            | L    | 124                                 | 127                                     |
|     |                                                                     | Coreen Ave (W)           | Lemongrove Rd (S)         | R    | 310                                 | 314                                     |
|     |                                                                     |                          | Coreen Ave (E)            | T    | 309                                 | 308                                     |
|     |                                                                     | All                      |                           |      | 1,719                               | 1,726                                   |
| 003 | Castlereagh Rd<br>Jane Street                                       | Castlereagh Rd (N)       | Castlereagh Rd (S)        | T    | 1,264                               | 1,292                                   |
|     |                                                                     |                          | Jane Street (E)           | L    | 543                                 | 543                                     |
|     |                                                                     | Jane Street (E)          | Castlereagh Rd (N)        | R    | 155                                 | 169                                     |
|     |                                                                     |                          | Castlereagh Rd (S)        | L    | 75                                  | 122                                     |
|     |                                                                     | Castlereagh Rd (S)       | Jane Street (E)           | R    | 264                                 | 275                                     |
|     |                                                                     |                          | Castlereagh Rd (N)        | T    | 1,421                               | 1,416                                   |
|     |                                                                     | All                      |                           |      | 3,721                               | 3,816                                   |
| 004 | Train Station Access<br>Jane Street<br>Riley Street                 | Train Station Access (N) | Jane Street (W)           | R    | 3                                   | 3                                       |
|     |                                                                     |                          | Riley Street (S)          | T    | 0                                   | 0                                       |
|     |                                                                     |                          | Jane Street (E)           | L    | 29                                  | 29                                      |
|     |                                                                     |                          | Train Station Access (N)  | R    | 0                                   | 0                                       |
|     |                                                                     | Jane Street (E)          | Jane Street (W)           | T    | 402                                 | 406                                     |
|     |                                                                     |                          | Riley Street (S)          | L    | 0                                   | 0                                       |
|     |                                                                     |                          | Jane Street (E)           | R    | 70                                  | 104                                     |
|     |                                                                     |                          | Train Station Access (N)  | T    | 0                                   | 0                                       |
|     |                                                                     | Riley Street (S)         | Jane Street (W)           | L    | 17                                  | 77                                      |
|     |                                                                     |                          | Riley Street (S)          | R    | 0                                   | 0                                       |
|     |                                                                     |                          | Jane Street (E)           | T    | 591                                 | 596                                     |
|     |                                                                     |                          | Train Station Access (N)  | L    | 0                                   | 0                                       |
|     |                                                                     | All                      |                           |      | 1,113                               | 1,214                                   |
| 005 | Jane Street<br>Station Street                                       | Jane Street (E)          | Jane Street (W)           | T    | 245                                 | 279                                     |
|     |                                                                     |                          | Station Street (S)        | L    | 197                                 | 197                                     |
|     |                                                                     | Station Street (S)       | Jane Street (E)           | R    | 114                                 | 108                                     |
|     |                                                                     |                          | Jane Street (W)           | L    | 169                                 | 309                                     |
|     |                                                                     | Jane Street (W)          | Station Street (S)        | R    | 367                                 | 386                                     |
|     |                                                                     |                          | Jane Street (E)           | T    | 319                                 | 339                                     |
|     |                                                                     | All                      |                           |      | 1,411                               | 1,618                                   |
| 006 | Castlereagh Rd<br>High Street<br>Mulgoa Rd<br>Great Western Highway | Castlereagh Rd (N)       | Great Western Highway (W) | R    | 452                                 | 457                                     |
|     |                                                                     |                          | Mulgoa Rd (S)             | T    | 768                                 | 804                                     |
|     |                                                                     |                          | High Street (E)           | L    | 113                                 | 144                                     |
|     |                                                                     |                          | Castlereagh Rd (N)        | R    | 109                                 | 108                                     |
|     |                                                                     | High Street (E)          | Great Western Highway (W) | T    | 253                                 | 254                                     |
|     |                                                                     |                          | Mulgoa Rd (S)             | L    | 60                                  | 60                                      |
|     |                                                                     |                          | High Street (E)           | R    | 70                                  | 106                                     |
|     |                                                                     |                          | Castlereagh Rd (N)        | T    | 829                                 | 829                                     |
|     |                                                                     | Mulgoa Rd (S)            | Great Western Highway (W) | L    | 163                                 | 164                                     |
|     |                                                                     |                          | Mulgoa Rd (S)             | R    | 252                                 | 250                                     |
|     |                                                                     |                          | High Street (E)           | T    | 537                                 | 535                                     |
|     |                                                                     |                          | Castlereagh Rd (N)        | L    | 797                                 | 806                                     |
|     |                                                                     | All                      |                           |      | 4,403                               | 4,517                                   |
| 007 | Worth Street<br>High Street                                         | Worth Street (N)         | High Street (W)           | R    | 12                                  | 12                                      |
|     |                                                                     |                          | Worth Street (S)          | T    | 1                                   | 1                                       |
|     |                                                                     |                          | High Street (E)           | L    | 16                                  | 17                                      |
|     |                                                                     |                          | Worth Street (N)          | R    | 43                                  | 48                                      |
|     |                                                                     | High Street (E)          | High Street (W)           | T    | 280                                 | 277                                     |
|     |                                                                     |                          | Worth Street (S)          | L    | 39                                  | 41                                      |
|     |                                                                     |                          | High Street (E)           | R    | 23                                  | 24                                      |
|     |                                                                     |                          | Worth Street (N)          | T    | 102                                 | 106                                     |
|     |                                                                     | Worth Street (S)         | High Street (W)           | L    | 127                                 | 126                                     |
|     |                                                                     |                          | Worth Street (S)          | R    | 146                                 | 144                                     |
|     |                                                                     |                          | High Street (E)           | T    | 425                                 | 495                                     |
|     |                                                                     |                          | Worth Street (N)          | L    | 92                                  | 89                                      |
|     |                                                                     | All                      |                           |      | 1,307                               | 1,380                                   |



| ID  | Intersection                                               | From                      | To                        | Turn | Traffic Volume<br>(Veh/h)<br>(Base) | Traffic Volume<br>(Veh/h)<br>(With Dev) |
|-----|------------------------------------------------------------|---------------------------|---------------------------|------|-------------------------------------|-----------------------------------------|
| 008 | Riley Street<br>Henry Street<br>High Street<br>High Street | Riley Street (N)          | High Street (W)           | R    | 0                                   | 0                                       |
|     |                                                            |                           | High Street (S)           | T    | 0                                   | 0                                       |
|     |                                                            |                           | Henry Street (E)          | L    | 0                                   | 0                                       |
|     |                                                            | Henry Street (E)          | Riley Street (N)          | R    | 39                                  | 41                                      |
|     |                                                            |                           | High Street (W)           | T    | 365                                 | 368                                     |
|     |                                                            |                           | High Street (S)           | L    | 0                                   | 0                                       |
|     |                                                            | High Street (S)           | Henry Street (E)          | R    | 10                                  | 10                                      |
|     |                                                            |                           | Riley Street (N)          | T    | 36                                  | 36                                      |
|     |                                                            |                           | High Street (W)           | L    | 3                                   | 3                                       |
|     |                                                            | High Street (W)           | High Street (S)           | R    | 0                                   | 0                                       |
|     |                                                            |                           | Henry Street (E)          | T    | 444                                 | 513                                     |
|     |                                                            |                           | Riley Street (N)          | L    | 32                                  | 32                                      |
|     |                                                            | All                       |                           |      | 928                                 | 1,002                                   |
| 009 | Station Street<br>Henry Street                             | Station Street (N)        | Henry Street (W)          | R    | 84                                  | 85                                      |
|     |                                                            |                           | Station Street (S)        | T    | 268                                 | 276                                     |
|     |                                                            |                           | Henry Street (E)          | L    | 131                                 | 141                                     |
|     |                                                            | Henry Street (E)          | Station Street (N)        | R    | 80                                  | 98                                      |
|     |                                                            |                           | Henry Street (W)          | T    | 263                                 | 269                                     |
|     |                                                            |                           | Station Street (S)        | L    | 77                                  | 76                                      |
|     |                                                            | Station Street (S)        | Henry Street (E)          | R    | 76                                  | 75                                      |
|     |                                                            |                           | Station Street (N)        | T    | 121                                 | 167                                     |
|     |                                                            |                           | Henry Street (W)          | L    | 57                                  | 55                                      |
|     |                                                            | Henry Street (W)          | Station Street (S)        | R    | 87                                  | 86                                      |
|     |                                                            |                           | Henry Street (E)          | T    | 280                                 | 280                                     |
|     |                                                            |                           | Station Street (N)        | L    | 80                                  | 150                                     |
|     |                                                            | All                       |                           |      | 1,604                               | 1,757                                   |
| 010 | Lawson Street<br>Henry Street                              | Lawson Street (N)         | Henry Street (W)          | R    | 17                                  | 17                                      |
|     |                                                            |                           | Lawson Street (S)         | T    | 65                                  | 65                                      |
|     |                                                            |                           | Henry Street (E)          | L    | 4                                   | 4                                       |
|     |                                                            | Henry Street (E)          | Lawson Street (N)         | R    | 90                                  | 90                                      |
|     |                                                            |                           | Henry Street (W)          | T    | 334                                 | 356                                     |
|     |                                                            |                           | Lawson Street (S)         | L    | 89                                  | 89                                      |
|     |                                                            | Lawson Street (S)         | Henry Street (E)          | R    | 39                                  | 41                                      |
|     |                                                            |                           | Lawson Street (N)         | T    | 15                                  | 15                                      |
|     |                                                            |                           | Henry Street (W)          | L    | 32                                  | 33                                      |
|     |                                                            | Henry Street (W)          | Lawson Street (S)         | R    | 37                                  | 37                                      |
|     |                                                            |                           | Henry Street (E)          | T    | 341                                 | 350                                     |
|     |                                                            |                           | Lawson Street (N)         | L    | 7                                   | 7                                       |
|     |                                                            | All                       |                           |      | 1,072                               | 1,104                                   |
| 011 | Evan Street<br>Henry Street                                | Evan Street (N)           | Henry Street (W)          | R    | 317                                 | 322                                     |
|     |                                                            |                           | Evan Street (S)           | T    | 473                                 | 476                                     |
|     |                                                            |                           | Henry Street (E)          | L    | 187                                 | 188                                     |
|     |                                                            | Henry Street (E)          | Evan Street (N)           | R    | 88                                  | 90                                      |
|     |                                                            |                           | Henry Street (W)          | T    | 253                                 | 264                                     |
|     |                                                            |                           | Evan Street (S)           | L    | 50                                  | 51                                      |
|     |                                                            | Evan Street (S)           | Henry Street (E)          | R    | 37                                  | 36                                      |
|     |                                                            |                           | Evan Street (N)           | T    | 305                                 | 305                                     |
|     |                                                            |                           | Henry Street (W)          | L    | 112                                 | 114                                     |
|     |                                                            | Henry Street (W)          | Evan Street (S)           | R    | 0                                   | 0                                       |
|     |                                                            |                           | Henry Street (E)          | T    | 268                                 | 276                                     |
|     |                                                            |                           | Evan Street (N)           | L    | 141                                 | 142                                     |
|     |                                                            | All                       |                           |      | 2,231                               | 2,264                                   |
| 012 | Lawson Street<br>High Street                               | Lawson Street (N)         | High Street (W)           | R    | 40                                  | 40                                      |
|     |                                                            |                           | High Street (E)           | L    | 24                                  | 24                                      |
|     |                                                            | High Street (E)           | Lawson Street (N)         | R    | 103                                 | 103                                     |
|     |                                                            |                           | High Street (W)           | T    | 467                                 | 477                                     |
|     |                                                            | High Street (W)           | High Street (E)           | T    | 231                                 | 231                                     |
|     |                                                            |                           | Lawson Street (N)         | L    | 119                                 | 123                                     |
|     |                                                            | All                       |                           |      | 984                                 | 998                                     |
| 013 | Evan Street<br>High Street                                 | Evan Street (N)           | High Street (W)           | R    | 131                                 | 129                                     |
|     |                                                            |                           | Evan Street (S)           | T    | 339                                 | 344                                     |
|     |                                                            |                           | High Street (E)           | L    | 63                                  | 63                                      |
|     |                                                            | High Street (E)           | Evan Street (N)           | R    | 113                                 | 114                                     |
|     |                                                            |                           | High Street (W)           | T    | 271                                 | 283                                     |
|     |                                                            |                           | Evan Street (S)           | L    | 74                                  | 77                                      |
|     |                                                            | Evan Street (S)           | High Street (E)           | R    | 41                                  | 45                                      |
|     |                                                            |                           | Evan Street (N)           | T    | 266                                 | 267                                     |
|     |                                                            |                           | High Street (W)           | L    | 61                                  | 61                                      |
|     |                                                            | High Street (W)           | Evan Street (S)           | R    | 48                                  | 48                                      |
|     |                                                            |                           | High Street (E)           | T    | 168                                 | 169                                     |
|     |                                                            |                           | Evan Street (N)           | L    | 91                                  | 90                                      |
|     |                                                            | All                       |                           |      | 1,667                               | 1,691                                   |
| 014 | Parker Street<br>Great Western Highway<br>High Street      | Parker Street (N)         | High Street (W)           | R    | 290                                 | 293                                     |
|     |                                                            |                           | Parker Street (S)         | T    | 835                                 | 836                                     |
|     |                                                            |                           | Great Western Highway (E) | L    | 806                                 | 806                                     |
|     |                                                            | Great Western Highway (E) | Parker Street (N)         | R    | 382                                 | 382                                     |
|     |                                                            |                           | High Street (W)           | T    | 776                                 | 819                                     |

| ID | Intersection | From              | To                        | Turn | Traffic Volume<br>(Veh/h)<br>(Base) | Traffic Volume<br>(Veh/h)<br>(With<br>Dev) |
|----|--------------|-------------------|---------------------------|------|-------------------------------------|--------------------------------------------|
|    |              | Parker Street (S) | Parker Street (S)         | L    | 149                                 | 151                                        |
|    |              |                   | Great Western Highway (E) | R    | 135                                 | 132                                        |
|    |              |                   | Parker Street (N)         | T    | 706                                 | 706                                        |
|    |              | High Street (W)   | High Street (W)           | L    | 267                                 | 274                                        |
|    |              |                   | Parker Street (S)         | R    | 121                                 | 126                                        |
|    |              |                   | Great Western Highway (E) | T    | 402                                 | 425                                        |
|    |              |                   | Parker Street (N)         | L    | 224                                 | 224                                        |
|    |              |                   |                           |      |                                     |                                            |
|    |              | All               |                           |      | 5,093                               | 5,175                                      |

| ID  | Intersection                  | From               | To                 | Turn | Traffic Volume<br>(Veh/h)<br>(Base) | Traffic Volume<br>(Veh/h)<br>(With Dev) |
|-----|-------------------------------|--------------------|--------------------|------|-------------------------------------|-----------------------------------------|
| 015 | Mulgoa Rd<br>Ransley Street   | Mulgoa Rd (N)      | Ransley Street (W) | R    | 28                                  | 29                                      |
|     |                               |                    | Mulgoa Rd (S)      | T    | 737                                 | 772                                     |
|     |                               |                    | Ransley Street (E) | L    | 125                                 | 125                                     |
|     |                               | Ransley Street (E) | Mulgoa Rd (N)      | R    | 87                                  | 88                                      |
|     |                               |                    | Ransley Street (W) | T    | 25                                  | 25                                      |
|     |                               |                    | Mulgoa Rd (S)      | L    | 13                                  | 15                                      |
|     |                               | Mulgoa Rd (S)      | Ransley Street (E) | R    | 38                                  | 38                                      |
|     |                               |                    | Mulgoa Rd (N)      | T    | 1,125                               | 1,159                                   |
|     |                               |                    | Ransley Street (W) | L    | 19                                  | 21                                      |
|     |                               | Ransley Street (W) | Mulgoa Rd (S)      | R    | 3                                   | 3                                       |
|     |                               |                    | Ransley Street (E) | T    | 36                                  | 37                                      |
|     |                               |                    | Mulgoa Rd (N)      | L    | 26                                  | 28                                      |
|     |                               | All                |                    |      | 2,260                               | 2,341                                   |
| 016 | Parker Street<br>Derby Street | Parker Street (N)  | Derby Street (W)   | R    | 168                                 | 179                                     |
|     |                               |                    | Parker Street (S)  | T    | 746                                 | 748                                     |
|     |                               |                    | Derby Street (E)   | L    | 152                                 | 152                                     |
|     |                               | Derby Street (E)   | Parker Street (N)  | R    | 109                                 | 108                                     |
|     |                               |                    | Derby Street (W)   | T    | 100                                 | 100                                     |
|     |                               |                    | Parker Street (S)  | L    | 47                                  | 47                                      |
|     |                               | Parker Street (S)  | Derby Street (E)   | R    | 181                                 | 178                                     |
|     |                               |                    | Parker Street (N)  | T    | 1,114                               | 1,133                                   |
|     |                               |                    | Derby Street (W)   | L    | 48                                  | 45                                      |
|     |                               | Derby Street (W)   | Parker Street (S)  | R    | 65                                  | 67                                      |
|     |                               |                    | Derby Street (E)   | T    | 112                                 | 112                                     |
|     |                               |                    | Parker Street (N)  | L    | 30                                  | 30                                      |
|     |                               | All                |                    |      | 2,872                               | 2,897                                   |
| 017 | Mulgoa Road<br>Jamison Road   | Mulgoa Road (N)    | Jamison Road (W)   | R    | 27                                  | 28                                      |
|     |                               |                    | Mulgoa Road (S)    | T    | 655                                 | 698                                     |
|     |                               |                    | Jamison Road (E)   | L    | 162                                 | 162                                     |
|     |                               | Jamison Road (E)   | Mulgoa Road (N)    | R    | 223                                 | 223                                     |
|     |                               |                    | Jamison Road (W)   | T    | 24                                  | 24                                      |
|     |                               |                    | Mulgoa Road (S)    | L    | 232                                 | 234                                     |
|     |                               | Mulgoa Road (S)    | Jamison Road (E)   | R    | 511                                 | 530                                     |
|     |                               |                    | Mulgoa Road (N)    | T    | 933                                 | 972                                     |
|     |                               |                    | Jamison Road (W)   | L    | 15                                  | 15                                      |
|     |                               | Jamison Road (W)   | Mulgoa Road (S)    | R    | 36                                  | 36                                      |
|     |                               |                    | Jamison Road (E)   | T    | 103                                 | 105                                     |
|     |                               |                    | Mulgoa Road (N)    | L    | 40                                  | 39                                      |
|     |                               | All                |                    |      | 2,962                               | 3,063                                   |

# P5045 Westfield Penrith Expansion TIA

Traffic Volumes  
PM 1600-1700

| ID  | Intersection                                                        | From                      | To                        | Turn  | Traffic Volume<br>(Veh/h)<br>(Base) | Traffic Volume<br>(Veh/h)<br>(With Dev) |
|-----|---------------------------------------------------------------------|---------------------------|---------------------------|-------|-------------------------------------|-----------------------------------------|
| 001 | Castlereagh Rd<br>Coreen Ave<br>Castlereagh Rd<br>Coreen Ave        | Castlereagh Rd (N)        | Coreen Ave (W)            | R     | 75                                  | 75                                      |
|     |                                                                     |                           | Castlereagh Rd (S)        | T     | 999                                 | 1,027                                   |
|     |                                                                     | Castlereagh Rd (E)        | Castlereagh Rd (E)        | L     | 244                                 | 243                                     |
|     |                                                                     |                           | Castlereagh Rd (N)        | R     | 258                                 | 256                                     |
|     |                                                                     | Castlereagh Rd (S)        | Coreen Ave (W)            | T     | 53                                  | 53                                      |
|     |                                                                     |                           | Castlereagh Rd (S)        | L     | 341                                 | 335                                     |
|     |                                                                     | Castlereagh Rd (S)        | Castlereagh Rd (E)        | R     | 306                                 | 306                                     |
|     |                                                                     |                           | Castlereagh Rd (N)        | T     | 1,077                               | 1,107                                   |
|     |                                                                     | Coreen Ave (W)            | Coreen Ave (W)            | L     | 51                                  | 51                                      |
|     |                                                                     |                           | Castlereagh Rd (S)        | R     | 22                                  | 21                                      |
|     |                                                                     | Castlereagh Rd (E)        | T                         | 83    | 83                                  |                                         |
|     |                                                                     | Castlereagh Rd (N)        | L                         | 72    | 72                                  |                                         |
|     |                                                                     | All                       |                           |       | 3,580                               | 3,629                                   |
| 002 | Coreen Ave<br>Lemongrove Rd                                         | Coreen Ave (E)            | Coreen Ave (W)            | T     | 362                                 | 361                                     |
|     |                                                                     |                           | Lemongrove Rd (S)         | L     | 256                                 | 260                                     |
|     |                                                                     | Lemongrove Rd (S)         | Coreen Ave (E)            | R     | 361                                 | 361                                     |
|     |                                                                     |                           | Coreen Ave (W)            | L     | 343                                 | 334                                     |
|     |                                                                     | Coreen Ave (W)            | Lemongrove Rd (S)         | R     | 316                                 | 326                                     |
|     |                                                                     | Coreen Ave (E)            | T                         | 588   | 598                                 |                                         |
|     |                                                                     | All                       |                           |       | 2,225                               | 2,240                                   |
| 003 | Castlereagh Rd<br>Jane Street                                       | Castlereagh Rd (N)        | Castlereagh Rd (S)        | T     | 1,321                               | 1,335                                   |
|     |                                                                     |                           | Jane Street (E)           | L     | 331                                 | 339                                     |
|     |                                                                     | Jane Street (E)           | Castlereagh Rd (N)        | R     | 314                                 | 347                                     |
|     |                                                                     |                           | Castlereagh Rd (S)        | L     | 382                                 | 449                                     |
|     |                                                                     | Castlereagh Rd (S)        | Jane Street (E)           | R     | 156                                 | 156                                     |
|     |                                                                     | Castlereagh Rd (N)        | T                         | 1,232 | 1,234                               |                                         |
|     |                                                                     | All                       |                           |       | 3,735                               | 3,861                                   |
| 004 | Train Station Access<br>Jane Street<br>Riley Street                 | Train Station Access (N)  | Jane Street (W)           | R     | 1                                   | 1                                       |
|     |                                                                     |                           | Riley Street (S)          | T     | 0                                   | 0                                       |
|     |                                                                     | Jane Street (E)           | Jane Street (E)           | L     | 33                                  | 33                                      |
|     |                                                                     |                           | Train Station Access (N)  | R     | 0                                   | 0                                       |
|     |                                                                     | Riley Street (S)          | Jane Street (W)           | T     | 504                                 | 519                                     |
|     |                                                                     |                           | Riley Street (S)          | L     | 0                                   | 0                                       |
|     |                                                                     | Jane Street (W)           | Jane Street (E)           | R     | 322                                 | 406                                     |
|     |                                                                     |                           | Train Station Access (N)  | T     | 0                                   | 0                                       |
|     |                                                                     | Jane Street (W)           | Jane Street (W)           | L     | 98                                  | 185                                     |
|     |                                                                     |                           | Riley Street (S)          | R     | 0                                   | 0                                       |
|     |                                                                     | Jane Street (E)           | T                         | 482   | 489                                 |                                         |
|     |                                                                     | Train Station Access (N)  | L                         | 0     | 0                                   |                                         |
|     |                                                                     | All                       |                           |       | 1,440                               | 1,633                                   |
| 005 | Jane Street<br>Station Street                                       | Jane Street (E)           | Jane Street (W)           | T     | 539                                 | 587                                     |
|     |                                                                     |                           | Station Street (S)        | L     | 240                                 | 239                                     |
|     |                                                                     | Station Street (S)        | Jane Street (E)           | R     | 158                                 | 158                                     |
|     |                                                                     |                           | Jane Street (W)           | L     | 92                                  | 162                                     |
|     |                                                                     | Jane Street (W)           | Station Street (S)        | R     | 229                                 | 245                                     |
|     |                                                                     | Jane Street (E)           | T                         | 610   | 683                                 |                                         |
|     |                                                                     | All                       |                           |       | 1,867                               | 2,074                                   |
| 006 | Castlereagh Rd<br>High Street<br>Mulgoa Rd<br>Great Western Highway | Castlereagh Rd (N)        | Great Western Highway (W) | R     | 685                                 | 697                                     |
|     |                                                                     |                           | Mulgoa Rd (S)             | T     | 894                                 | 941                                     |
|     |                                                                     | High Street (E)           | High Street (E)           | L     | 102                                 | 122                                     |
|     |                                                                     |                           | Castlereagh Rd (N)        | R     | 149                                 | 150                                     |
|     |                                                                     | Mulgoa Rd (S)             | Great Western Highway (W) | T     | 575                                 | 580                                     |
|     |                                                                     |                           | Mulgoa Rd (S)             | L     | 153                                 | 161                                     |
|     |                                                                     | Great Western Highway (W) | High Street (E)           | R     | 77                                  | 93                                      |
|     |                                                                     |                           | Castlereagh Rd (N)        | T     | 664                                 | 663                                     |
|     |                                                                     | Great Western Highway (W) | Great Western Highway (W) | L     | 285                                 | 285                                     |
|     |                                                                     |                           | Mulgoa Rd (S)             | R     | 222                                 | 222                                     |
|     |                                                                     | High Street (E)           | T                         | 290   | 305                                 |                                         |
|     |                                                                     | Castlereagh Rd (N)        | L                         | 478   | 479                                 |                                         |
|     |                                                                     | All                       |                           |       | 4,575                               | 4,698                                   |
| 007 | Worth Street<br>High Street                                         | Worth Street (N)          | High Street (W)           | R     | 299                                 | 301                                     |
|     |                                                                     |                           | Worth Street (S)          | T     | 232                                 | 238                                     |
|     |                                                                     | High Street (E)           | High Street (E)           | L     | 139                                 | 143                                     |
|     |                                                                     |                           | Worth Street (N)          | R     | 105                                 | 105                                     |
|     |                                                                     | Worth Street (S)          | High Street (W)           | T     | 412                                 | 427                                     |
|     |                                                                     |                           | Worth Street (S)          | L     | 86                                  | 84                                      |
|     |                                                                     | High Street (W)           | High Street (E)           | R     | 137                                 | 137                                     |
|     |                                                                     |                           | Worth Street (N)          | T     | 273                                 | 280                                     |
|     |                                                                     | High Street (W)           | High Street (W)           | L     | 133                                 | 134                                     |
|     |                                                                     |                           | Worth Street (S)          | R     | 62                                  | 65                                      |
|     |                                                                     | High Street (E)           | T                         | 159   | 199                                 |                                         |
|     |                                                                     | Worth Street (N)          | L                         | 248   | 259                                 |                                         |
|     |                                                                     | All                       |                           |       | 2,286                               | 2,372                                   |

| ID  | Intersection                                               | From                      | To                        | Turn | Traffic Volume<br>(Veh/h)<br>(Base) | Traffic Volume<br>(Veh/h)<br>(With Dev) |
|-----|------------------------------------------------------------|---------------------------|---------------------------|------|-------------------------------------|-----------------------------------------|
| 008 | Riley Street<br>Henry Street<br>High Street<br>High Street | Riley Street (N)          | High Street (W)           | R    | 0                                   | 0                                       |
|     |                                                            |                           | High Street (S)           | T    | 0                                   | 0                                       |
|     |                                                            |                           | Henry Street (E)          | L    | 0                                   | 0                                       |
|     |                                                            | Henry Street (E)          | Riley Street (N)          | R    | 63                                  | 65                                      |
|     |                                                            |                           | High Street (W)           | T    | 534                                 | 544                                     |
|     |                                                            |                           | High Street (S)           | L    | 0                                   | 0                                       |
|     |                                                            | High Street (S)           | Henry Street (E)          | R    | 72                                  | 72                                      |
|     |                                                            |                           | Riley Street (N)          | T    | 61                                  | 63                                      |
|     |                                                            |                           | High Street (W)           | L    | 72                                  | 74                                      |
|     |                                                            | High Street (W)           | High Street (S)           | R    | 0                                   | 0                                       |
|     |                                                            |                           | Henry Street (E)          | T    | 376                                 | 419                                     |
|     |                                                            |                           | Riley Street (N)          | L    | 57                                  | 59                                      |
|     |                                                            | All                       |                           |      | 1,235                               | 1,295                                   |
| 009 | Station Street<br>Henry Street                             | Station Street (N)        | Henry Street (W)          | R    | 119                                 | 126                                     |
|     |                                                            |                           | Station Street (S)        | T    | 242                                 | 250                                     |
|     |                                                            |                           | Henry Street (E)          | L    | 63                                  | 64                                      |
|     |                                                            | Henry Street (E)          | Station Street (N)        | R    | 58                                  | 63                                      |
|     |                                                            |                           | Henry Street (W)          | T    | 441                                 | 448                                     |
|     |                                                            |                           | Station Street (S)        | L    | 77                                  | 76                                      |
|     |                                                            | Station Street (S)        | Henry Street (E)          | R    | 58                                  | 57                                      |
|     |                                                            |                           | Station Street (N)        | T    | 91                                  | 117                                     |
|     |                                                            |                           | Henry Street (W)          | L    | 35                                  | 33                                      |
|     |                                                            | Henry Street (W)          | Station Street (S)        | R    | 70                                  | 71                                      |
|     |                                                            |                           | Henry Street (E)          | T    | 268                                 | 270                                     |
|     |                                                            |                           | Station Street (N)        | L    | 105                                 | 144                                     |
|     |                                                            | All                       |                           |      | 1,626                               | 1,718                                   |
| 010 | Lawson Street<br>Henry Street                              | Lawson Street (N)         | Henry Street (W)          | R    | 28                                  | 28                                      |
|     |                                                            |                           | Lawson Street (S)         | T    | 164                                 | 166                                     |
|     |                                                            |                           | Henry Street (E)          | L    | 105                                 | 103                                     |
|     |                                                            | Henry Street (E)          | Lawson Street (N)         | R    | 91                                  | 90                                      |
|     |                                                            |                           | Henry Street (W)          | T    | 374                                 | 386                                     |
|     |                                                            |                           | Lawson Street (S)         | L    | 165                                 | 164                                     |
|     |                                                            | Lawson Street (S)         | Henry Street (E)          | R    | 112                                 | 115                                     |
|     |                                                            |                           | Lawson Street (N)         | T    | 50                                  | 50                                      |
|     |                                                            |                           | Henry Street (W)          | L    | 94                                  | 93                                      |
|     |                                                            | Henry Street (W)          | Lawson Street (S)         | R    | 30                                  | 30                                      |
|     |                                                            |                           | Henry Street (E)          | T    | 363                                 | 366                                     |
|     |                                                            |                           | Lawson Street (N)         | L    | 8                                   | 7                                       |
|     |                                                            | All                       |                           |      | 1,584                               | 1,600                                   |
| 011 | Evan Street<br>Henry Street                                | Evan Street (N)           | Henry Street (W)          | R    | 266                                 | 276                                     |
|     |                                                            |                           | Evan Street (S)           | T    | 506                                 | 513                                     |
|     |                                                            |                           | Henry Street (E)          | L    | 96                                  | 97                                      |
|     |                                                            | Henry Street (E)          | Evan Street (N)           | R    | 112                                 | 117                                     |
|     |                                                            |                           | Henry Street (W)          | T    | 224                                 | 225                                     |
|     |                                                            |                           | Evan Street (S)           | L    | 36                                  | 36                                      |
|     |                                                            | Evan Street (S)           | Henry Street (E)          | R    | 14                                  | 15                                      |
|     |                                                            |                           | Evan Street (N)           | T    | 405                                 | 396                                     |
|     |                                                            |                           | Henry Street (W)          | L    | 45                                  | 42                                      |
|     |                                                            | Henry Street (W)          | Evan Street (S)           | R    | 0                                   | 0                                       |
|     |                                                            |                           | Henry Street (E)          | T    | 311                                 | 309                                     |
|     |                                                            |                           | Evan Street (N)           | L    | 334                                 | 338                                     |
|     |                                                            | All                       |                           |      | 2,350                               | 2,365                                   |
| 012 | Lawson Street<br>High Street                               | Lawson Street (N)         | High Street (W)           | R    | 174                                 | 175                                     |
|     |                                                            |                           | High Street (E)           | L    | 82                                  | 83                                      |
|     |                                                            | High Street (E)           | Lawson Street (N)         | R    | 182                                 | 182                                     |
|     |                                                            |                           | High Street (W)           | T    | 405                                 | 409                                     |
|     |                                                            | High Street (W)           | High Street (E)           | T    | 251                                 | 248                                     |
|     |                                                            |                           | Lawson Street (N)         | L    | 230                                 | 233                                     |
|     |                                                            | All                       |                           |      | 1,325                               | 1,330                                   |
| 013 | Evan Street<br>High Street                                 | Evan Street (N)           | High Street (W)           | R    | 81                                  | 81                                      |
|     |                                                            |                           | Evan Street (S)           | T    | 425                                 | 433                                     |
|     |                                                            |                           | High Street (E)           | L    | 9                                   | 10                                      |
|     |                                                            | High Street (E)           | Evan Street (N)           | R    | 60                                  | 53                                      |
|     |                                                            |                           | High Street (W)           | T    | 285                                 | 285                                     |
|     |                                                            |                           | Evan Street (S)           | L    | 58                                  | 59                                      |
|     |                                                            | Evan Street (S)           | High Street (E)           | R    | 47                                  | 48                                      |
|     |                                                            |                           | Evan Street (N)           | T    | 433                                 | 429                                     |
|     |                                                            |                           | High Street (W)           | L    | 42                                  | 43                                      |
|     |                                                            | High Street (W)           | Evan Street (S)           | R    | 79                                  | 80                                      |
|     |                                                            |                           | High Street (E)           | T    | 239                                 | 233                                     |
|     |                                                            |                           | Evan Street (N)           | L    | 91                                  | 90                                      |
|     |                                                            | All                       |                           |      | 1,848                               | 1,844                                   |
| 014 | Parker Street<br>Great Western Highway<br>High Street      | Parker Street (N)         | High Street (W)           | R    | 246                                 | 248                                     |
|     |                                                            |                           | Parker Street (S)         | T    | 825                                 | 825                                     |
|     |                                                            |                           | Great Western Highway (E) | L    | 526                                 | 526                                     |
|     |                                                            | Great Western Highway (E) | Parker Street (N)         | R    | 453                                 | 453                                     |
|     |                                                            |                           | High Street (W)           | T    | 916                                 | 947                                     |

| ID | Intersection | From              | To                        | Turn | Traffic Volume<br>(Veh/h)<br>(Base) | Traffic Volume<br>(Veh/h)<br>(With<br>Dev) |
|----|--------------|-------------------|---------------------------|------|-------------------------------------|--------------------------------------------|
|    |              | Parker Street (S) | Parker Street (S)         | L    | 172                                 | 172                                        |
|    |              |                   | Great Western Highway (E) | R    | 83                                  | 93                                         |
|    |              |                   | Parker Street (N)         | T    | 747                                 | 752                                        |
|    |              |                   | High Street (W)           | L    | 195                                 | 206                                        |
|    |              | High Street (W)   | Parker Street (S)         | R    | 136                                 | 145                                        |
|    |              |                   | Great Western Highway (E) | T    | 527                                 | 533                                        |
|    |              |                   | Parker Street (N)         | L    | 467                                 | 443                                        |
|    |              |                   |                           |      |                                     |                                            |
|    |              | All               |                           |      | 5,294                               | 5,344                                      |

| ID  | Intersection                  | From               | To                 | Turn | Traffic Volume<br>(Veh/h)<br>(Base) | Traffic Volume<br>(Veh/h)<br>(With Dev) |
|-----|-------------------------------|--------------------|--------------------|------|-------------------------------------|-----------------------------------------|
| 015 | Mulgoa Rd<br>Ransley Street   | Mulgoa Rd (N)      | Ransley Street (W) | R    | 40                                  | 40                                      |
|     |                               |                    | Mulgoa Rd (S)      | T    | 1,146                               | 1,200                                   |
|     |                               |                    | Ransley Street (E) | L    | 90                                  | 88                                      |
|     |                               | Ransley Street (E) | Mulgoa Rd (N)      | R    | 167                                 | 174                                     |
|     |                               |                    | Ransley Street (W) | T    | 76                                  | 76                                      |
|     |                               |                    | Mulgoa Rd (S)      | L    | 67                                  | 68                                      |
|     |                               | Mulgoa Rd (S)      | Ransley Street (E) | R    | 41                                  | 42                                      |
|     |                               |                    | Mulgoa Rd (N)      | T    | 888                                 | 898                                     |
|     |                               |                    | Ransley Street (W) | L    | 18                                  | 18                                      |
|     |                               | Ransley Street (W) | Mulgoa Rd (S)      | R    | 21                                  | 20                                      |
|     |                               |                    | Ransley Street (E) | T    | 11                                  | 11                                      |
|     |                               |                    | Mulgoa Rd (N)      | L    | 59                                  | 60                                      |
|     |                               | All                |                    |      | 2,624                               | 2,694                                   |
| 016 | Parker Street<br>Derby Street | Parker Street (N)  | Derby Street (W)   | R    | 170                                 | 169                                     |
|     |                               |                    | Parker Street (S)  | T    | 1,048                               | 1,055                                   |
|     |                               |                    | Derby Street (E)   | L    | 83                                  | 82                                      |
|     |                               | Derby Street (E)   | Parker Street (N)  | R    | 71                                  | 76                                      |
|     |                               |                    | Derby Street (W)   | T    | 187                                 | 183                                     |
|     |                               |                    | Parker Street (S)  | L    | 106                                 | 106                                     |
|     |                               | Parker Street (S)  | Derby Street (E)   | R    | 75                                  | 75                                      |
|     |                               |                    | Parker Street (N)  | T    | 879                                 | 885                                     |
|     |                               |                    | Derby Street (W)   | L    | 39                                  | 40                                      |
|     |                               | Derby Street (W)   | Parker Street (S)  | R    | 59                                  | 63                                      |
|     |                               |                    | Derby Street (E)   | T    | 177                                 | 176                                     |
|     |                               |                    | Parker Street (N)  | L    | 82                                  | 94                                      |
|     |                               | All                |                    |      | 2,976                               | 3,003                                   |
| 017 | Mulgoa Road<br>Jamison Road   | Mulgoa Road (N)    | Jamison Road (W)   | R    | 126                                 | 125                                     |
|     |                               |                    | Mulgoa Road (S)    | T    | 1,023                               | 1,077                                   |
|     |                               |                    | Jamison Road (E)   | L    | 244                                 | 246                                     |
|     |                               | Jamison Road (E)   | Mulgoa Road (N)    | R    | 162                                 | 159                                     |
|     |                               |                    | Jamison Road (W)   | T    | 172                                 | 172                                     |
|     |                               |                    | Mulgoa Road (S)    | L    | 412                                 | 413                                     |
|     |                               | Mulgoa Road (S)    | Jamison Road (E)   | R    | 301                                 | 328                                     |
|     |                               |                    | Mulgoa Road (N)    | T    | 801                                 | 814                                     |
|     |                               |                    | Jamison Road (W)   | L    | 18                                  | 18                                      |
|     |                               | Jamison Road (W)   | Mulgoa Road (S)    | R    | 26                                  | 26                                      |
|     |                               |                    | Jamison Road (E)   | T    | 25                                  | 25                                      |
|     |                               |                    | Mulgoa Road (N)    | L    | 22                                  | 22                                      |
|     |                               | All                |                    |      | 3,332                               | 3,427                                   |



# P5045 Westfield Penrith Expansion TIA

Traffic Volumes  
PM 1700-1800

| ID  | Intersection                                                        | From                      | To                        | Turn | Traffic Volume<br>(Veh/h)<br>(Base) | Traffic Volume<br>(Veh/h )<br>(With Dev) |
|-----|---------------------------------------------------------------------|---------------------------|---------------------------|------|-------------------------------------|------------------------------------------|
| 001 | Castlereagh Rd<br>Coreen Ave<br>Castlereagh Rd<br>Coreen Ave        | Castlereagh Rd (N)        | Coreen Ave (W)            | R    | 76                                  | 76                                       |
|     |                                                                     |                           | Castlereagh Rd (S)        | T    | 1,001                               | 1,025                                    |
|     |                                                                     |                           | Castlereagh Rd (E)        | L    | 171                                 | 173                                      |
|     |                                                                     | Castlereagh Rd (E)        | Castlereagh Rd (N)        | R    | 273                                 | 271                                      |
|     |                                                                     |                           | Coreen Ave (W)            | T    | 37                                  | 37                                       |
|     |                                                                     |                           | Castlereagh Rd (S)        | L    | 356                                 | 350                                      |
|     |                                                                     | Castlereagh Rd (S)        | Castlereagh Rd (E)        | R    | 304                                 | 317                                      |
|     |                                                                     |                           | Castlereagh Rd (N)        | T    | 1,180                               | 1,207                                    |
|     |                                                                     |                           | Coreen Ave (W)            | L    | 55                                  | 54                                       |
|     |                                                                     | Coreen Ave (W)            | Castlereagh Rd (S)        | R    | 24                                  | 23                                       |
|     |                                                                     |                           | Castlereagh Rd (E)        | T    | 84                                  | 85                                       |
|     |                                                                     |                           | Castlereagh Rd (N)        | L    | 72                                  | 72                                       |
|     |                                                                     | All                       |                           |      | 3,632                               | 3,690                                    |
| 002 | Coreen Ave<br>Lemongrove Rd                                         | Coreen Ave (E)            | Coreen Ave (W)            | T    | 358                                 | 358                                      |
|     |                                                                     |                           | Lemongrove Rd (S)         | L    | 255                                 | 258                                      |
|     |                                                                     | Lemongrove Rd (S)         | Coreen Ave (E)            | R    | 399                                 | 394                                      |
|     |                                                                     |                           | Coreen Ave (W)            | L    | 318                                 | 314                                      |
|     |                                                                     | Coreen Ave (W)            | Lemongrove Rd (S)         | R    | 273                                 | 275                                      |
|     |                                                                     |                           | Coreen Ave (E)            | T    | 622                                 | 619                                      |
|     |                                                                     | All                       |                           |      | 2,225                               | 2,218                                    |
| 003 | Castlereagh Rd<br>Jane Street                                       | Castlereagh Rd (N)        | Castlereagh Rd (S)        | T    | 1,387                               | 1,394                                    |
|     |                                                                     |                           | Jane Street (E)           | L    | 337                                 | 344                                      |
|     |                                                                     | Jane Street (E)           | Castlereagh Rd (N)        | R    | 299                                 | 326                                      |
|     |                                                                     |                           | Castlereagh Rd (S)        | L    | 379                                 | 458                                      |
|     |                                                                     | Castlereagh Rd (S)        | Jane Street (E)           | R    | 109                                 | 107                                      |
|     |                                                                     |                           | Castlereagh Rd (N)        | T    | 1,305                               | 1,315                                    |
|     |                                                                     | All                       |                           |      | 3,816                               | 3,944                                    |
| 004 | Train Station Access<br>Jane Street<br>Riley Street                 | Train Station Access (N)  | Jane Street (W)           | R    | 2                                   | 2                                        |
|     |                                                                     |                           | Riley Street (S)          | T    | 0                                   | 0                                        |
|     |                                                                     |                           | Jane Street (E)           | L    | 33                                  | 33                                       |
|     |                                                                     | Jane Street (E)           | Train Station Access (N)  | R    | 0                                   | 0                                        |
|     |                                                                     |                           | Jane Street (W)           | T    | 506                                 | 518                                      |
|     |                                                                     |                           | Riley Street (S)          | L    | 0                                   | 0                                        |
|     |                                                                     | Riley Street (S)          | Jane Street (E)           | R    | 319                                 | 396                                      |
|     |                                                                     |                           | Train Station Access (N)  | T    | 0                                   | 0                                        |
|     |                                                                     |                           | Jane Street (W)           | L    | 98                                  | 195                                      |
|     |                                                                     | Jane Street (W)           | Riley Street (S)          | R    | 0                                   | 0                                        |
|     |                                                                     |                           | Jane Street (E)           | T    | 408                                 | 412                                      |
|     |                                                                     |                           | Train Station Access (N)  | L    | 0                                   | 0                                        |
|     |                                                                     | All                       |                           |      | 1,367                               | 1,556                                    |
| 005 | Jane Street<br>Station Street                                       | Jane Street (E)           | Jane Street (W)           | T    | 533                                 | 576                                      |
|     |                                                                     |                           | Station Street (S)        | L    | 203                                 | 201                                      |
|     |                                                                     | Station Street (S)        | Jane Street (E)           | R    | 134                                 | 134                                      |
|     |                                                                     |                           | Jane Street (W)           | L    | 97                                  | 174                                      |
|     |                                                                     | Jane Street (W)           | Station Street (S)        | R    | 157                                 | 245                                      |
|     |                                                                     |                           | Jane Street (E)           | T    | 602                                 | 595                                      |
|     |                                                                     | All                       |                           |      | 1,727                               | 1,924                                    |
| 006 | Castlereagh Rd<br>High Street<br>Mulgoa Rd<br>Great Western Highway | Castlereagh Rd (N)        | Great Western Highway (W) | R    | 741                                 | 762                                      |
|     |                                                                     |                           | Mulgoa Rd (S)             | T    | 945                                 | 1,000                                    |
|     |                                                                     |                           | High Street (E)           | L    | 103                                 | 119                                      |
|     |                                                                     | High Street (E)           | Castlereagh Rd (N)        | R    | 156                                 | 153                                      |
|     |                                                                     |                           | Great Western Highway (W) | T    | 636                                 | 645                                      |
|     |                                                                     |                           | Mulgoa Rd (S)             | L    | 175                                 | 171                                      |
|     |                                                                     | Mulgoa Rd (S)             | High Street (E)           | R    | 74                                  | 95                                       |
|     |                                                                     |                           | Castlereagh Rd (N)        | T    | 674                                 | 679                                      |
|     |                                                                     |                           | Great Western Highway (W) | L    | 302                                 | 303                                      |
|     |                                                                     | Great Western Highway (W) | Mulgoa Rd (S)             | R    | 224                                 | 224                                      |
|     |                                                                     |                           | High Street (E)           | T    | 284                                 | 293                                      |
|     |                                                                     |                           | Castlereagh Rd (N)        | L    | 517                                 | 523                                      |
|     |                                                                     | All                       |                           |      | 4,829                               | 4,966                                    |
| 007 | Worth Street<br>High Street                                         | Worth Street (N)          | High Street (W)           | R    | 276                                 | 285                                      |
|     |                                                                     |                           | Worth Street (S)          | T    | 230                                 | 237                                      |
|     |                                                                     |                           | High Street (E)           | L    | 145                                 | 157                                      |
|     |                                                                     | High Street (E)           | Worth Street (N)          | R    | 110                                 | 117                                      |
|     |                                                                     |                           | High Street (W)           | T    | 402                                 | 392                                      |
|     |                                                                     |                           | Worth Street (S)          | L    | 95                                  | 90                                       |
|     |                                                                     | Worth Street (S)          | High Street (E)           | R    | 97                                  | 99                                       |
|     |                                                                     |                           | Worth Street (N)          | T    | 268                                 | 275                                      |
|     |                                                                     |                           | High Street (W)           | L    | 280                                 | 279                                      |
|     |                                                                     | High Street (W)           | Worth Street (S)          | R    | 57                                  | 63                                       |
|     |                                                                     |                           | High Street (E)           | T    | 171                                 | 203                                      |
|     |                                                                     |                           | Worth Street (N)          | L    | 251                                 | 256                                      |
|     |                                                                     | All                       |                           |      | 2,383                               | 2,452                                    |

| ID  | Intersection                                               | From                      | To                        | Turn | Traffic Volume<br>(Veh/h)<br>(Base) | Traffic Volume<br>(Veh/h )<br>(With Dev) |
|-----|------------------------------------------------------------|---------------------------|---------------------------|------|-------------------------------------|------------------------------------------|
| 008 | Riley Street<br>Henry Street<br>High Street<br>High Street | Riley Street (N)          | High Street (W)           | R    | 0                                   | 0                                        |
|     |                                                            |                           | High Street (S)           | T    | 0                                   | 0                                        |
|     |                                                            |                           | Henry Street (E)          | L    | 0                                   | 0                                        |
|     |                                                            | Henry Street (E)          | Riley Street (N)          | R    | 61                                  | 63                                       |
|     |                                                            |                           | High Street (W)           | T    | 531                                 | 522                                      |
|     |                                                            |                           | High Street (S)           | L    | 0                                   | 0                                        |
|     |                                                            | High Street (S)           | Henry Street (E)          | R    | 68                                  | 68                                       |
|     |                                                            |                           | Riley Street (N)          | T    | 62                                  | 64                                       |
|     |                                                            |                           | High Street (W)           | L    | 72                                  | 74                                       |
|     |                                                            | High Street (W)           | High Street (S)           | R    | 0                                   | 0                                        |
|     |                                                            |                           | Henry Street (E)          | T    | 357                                 | 401                                      |
|     |                                                            |                           | Riley Street (N)          | L    | 59                                  | 61                                       |
|     |                                                            | All                       |                           |      | 1,212                               | 1,252                                    |
| 009 | Station Street<br>Henry Street                             | Station Street (N)        | Henry Street (W)          | R    | 125                                 | 124                                      |
|     |                                                            |                           | Station Street (S)        | T    | 253                                 | 282                                      |
|     |                                                            |                           | Henry Street (E)          | L    | 73                                  | 130                                      |
|     |                                                            | Henry Street (E)          | Station Street (N)        | R    | 63                                  | 71                                       |
|     |                                                            |                           | Henry Street (W)          | T    | 428                                 | 428                                      |
|     |                                                            |                           | Station Street (S)        | L    | 80                                  | 81                                       |
|     |                                                            | Station Street (S)        | Henry Street (E)          | R    | 62                                  | 59                                       |
|     |                                                            |                           | Station Street (N)        | T    | 102                                 | 128                                      |
|     |                                                            |                           | Henry Street (W)          | L    | 39                                  | 33                                       |
|     |                                                            | Henry Street (W)          | Station Street (S)        | R    | 76                                  | 83                                       |
|     |                                                            |                           | Henry Street (E)          | T    | 287                                 | 282                                      |
|     |                                                            |                           | Station Street (N)        | L    | 63                                  | 105                                      |
|     |                                                            | All                       |                           |      | 1,651                               | 1,804                                    |
| 010 | Lawson Street<br>Henry Street                              | Lawson Street (N)         | Henry Street (W)          | R    | 27                                  | 27                                       |
|     |                                                            |                           | Lawson Street (S)         | T    | 148                                 | 157                                      |
|     |                                                            |                           | Henry Street (E)          | L    | 122                                 | 112                                      |
|     |                                                            | Henry Street (E)          | Lawson Street (N)         | R    | 96                                  | 96                                       |
|     |                                                            |                           | Henry Street (W)          | T    | 357                                 | 362                                      |
|     |                                                            |                           | Lawson Street (S)         | L    | 147                                 | 149                                      |
|     |                                                            | Lawson Street (S)         | Henry Street (E)          | R    | 102                                 | 106                                      |
|     |                                                            |                           | Lawson Street (N)         | T    | 47                                  | 48                                       |
|     |                                                            |                           | Henry Street (W)          | L    | 94                                  | 96                                       |
|     |                                                            | Henry Street (W)          | Lawson Street (S)         | R    | 28                                  | 29                                       |
|     |                                                            |                           | Henry Street (E)          | T    | 396                                 | 444                                      |
|     |                                                            |                           | Lawson Street (N)         | L    | 11                                  | 10                                       |
|     |                                                            | All                       |                           |      | 1,575                               | 1,636                                    |
| 011 | Evan Street<br>Henry Street                                | Evan Street (N)           | Henry Street (W)          | R    | 258                                 | 261                                      |
|     |                                                            |                           | Evan Street (S)           | T    | 469                                 | 478                                      |
|     |                                                            |                           | Henry Street (E)          | L    | 100                                 | 97                                       |
|     |                                                            | Henry Street (E)          | Evan Street (N)           | R    | 88                                  | 87                                       |
|     |                                                            |                           | Henry Street (W)          | T    | 205                                 | 208                                      |
|     |                                                            |                           | Evan Street (S)           | L    | 32                                  | 32                                       |
|     |                                                            | Evan Street (S)           | Henry Street (E)          | R    | 19                                  | 23                                       |
|     |                                                            |                           | Evan Street (N)           | T    | 441                                 | 436                                      |
|     |                                                            |                           | Henry Street (W)          | L    | 96                                  | 94                                       |
|     |                                                            | Henry Street (W)          | Evan Street (S)           | R    | 0                                   | 0                                        |
|     |                                                            |                           | Henry Street (E)          | T    | 335                                 | 377                                      |
|     |                                                            |                           | Evan Street (N)           | L    | 368                                 | 363                                      |
|     |                                                            | All                       |                           |      | 2,412                               | 2,456                                    |
| 012 | Lawson Street<br>High Street                               | Lawson Street (N)         | High Street (W)           | R    | 166                                 | 176                                      |
|     |                                                            |                           | High Street (E)           | L    | 81                                  | 80                                       |
|     |                                                            | High Street (E)           | Lawson Street (N)         | R    | 190                                 | 188                                      |
|     |                                                            |                           | High Street (W)           | T    | 427                                 | 434                                      |
|     |                                                            | High Street (W)           | High Street (E)           | T    | 218                                 | 213                                      |
|     |                                                            |                           | Lawson Street (N)         | L    | 226                                 | 231                                      |
|     |                                                            | All                       |                           |      | 1,308                               | 1,322                                    |
| 013 | Evan Street<br>High Street                                 | Evan Street (N)           | High Street (W)           | R    | 89                                  | 94                                       |
|     |                                                            |                           | Evan Street (S)           | T    | 383                                 | 382                                      |
|     |                                                            |                           | High Street (E)           | L    | 12                                  | 13                                       |
|     |                                                            | High Street (E)           | Evan Street (N)           | R    | 83                                  | 80                                       |
|     |                                                            |                           | High Street (W)           | T    | 308                                 | 303                                      |
|     |                                                            |                           | Evan Street (S)           | L    | 64                                  | 63                                       |
|     |                                                            | Evan Street (S)           | High Street (E)           | R    | 46                                  | 44                                       |
|     |                                                            |                           | Evan Street (N)           | T    | 473                                 | 471                                      |
|     |                                                            |                           | High Street (W)           | L    | 44                                  | 47                                       |
|     |                                                            | High Street (W)           | Evan Street (S)           | R    | 81                                  | 78                                       |
|     |                                                            |                           | High Street (E)           | T    | 200                                 | 194                                      |
|     |                                                            |                           | Evan Street (N)           | L    | 98                                  | 100                                      |
|     |                                                            | All                       |                           |      | 1,882                               | 1,868                                    |
| 014 | Parker Street<br>Great Western Highway<br>High Street      | Parker Street (N)         | High Street (W)           | R    | 249                                 | 250                                      |
|     |                                                            |                           | Parker Street (S)         | T    | 763                                 | 763                                      |
|     |                                                            |                           | Great Western Highway (E) | L    | 528                                 | 528                                      |
|     |                                                            | Great Western Highway (E) | Parker Street (N)         | R    | 443                                 | 443                                      |
|     |                                                            |                           | High Street (W)           | T    | 915                                 | 949                                      |

| ID | Intersection | From              | To                        | Turn | Traffic Volume<br>(Veh/h)<br>(Base) | Traffic Volume<br>(Veh/h )<br>(With Dev) |
|----|--------------|-------------------|---------------------------|------|-------------------------------------|------------------------------------------|
|    |              | Parker Street (S) | Parker Street (S)         | L    | 170                                 | 169                                      |
|    |              |                   | Great Western Highway (E) | R    | 130                                 | 198                                      |
|    |              |                   | Parker Street (N)         | T    | 710                                 | 703                                      |
|    |              | High Street (W)   | High Street (W)           | L    | 183                                 | 190                                      |
|    |              |                   | Parker Street (S)         | R    | 141                                 | 143                                      |
|    |              |                   | Great Western Highway (E) | T    | 536                                 | 534                                      |
|    |              |                   | Parker Street (N)         | L    | 464                                 | 468                                      |
|    |              |                   |                           |      |                                     |                                          |
|    |              | All               |                           |      | 5,231                               | 5,339                                    |

| ID  | Intersection                  | From               | To                 | Turn | Traffic Volume<br>(Veh/h)<br>(Base) | Traffic Volume<br>(Veh/h )<br>(With Dev) |
|-----|-------------------------------|--------------------|--------------------|------|-------------------------------------|------------------------------------------|
| 015 | Mulgoa Rd<br>Ransley Street   | Mulgoa Rd (N)      | Ransley Street (W) | R    | 35                                  | 35                                       |
|     |                               |                    | Mulgoa Rd (S)      | T    | 1,266                               | 1,320                                    |
|     |                               |                    | Ransley Street (E) | L    | 106                                 | 103                                      |
|     |                               | Ransley Street (E) | Mulgoa Rd (N)      | R    | 179                                 | 190                                      |
|     |                               |                    | Ransley Street (W) | T    | 81                                  | 82                                       |
|     |                               |                    | Mulgoa Rd (S)      | L    | 72                                  | 67                                       |
|     |                               | Mulgoa Rd (S)      | Ransley Street (E) | R    | 41                                  | 42                                       |
|     |                               |                    | Mulgoa Rd (N)      | T    | 951                                 | 965                                      |
|     |                               |                    | Ransley Street (W) | L    | 18                                  | 18                                       |
|     |                               | Ransley Street (W) | Mulgoa Rd (S)      | R    | 24                                  | 24                                       |
|     |                               |                    | Ransley Street (E) | T    | 14                                  | 13                                       |
|     |                               |                    | Mulgoa Rd (N)      | L    | 57                                  | 59                                       |
|     |                               | All                |                    |      | 2,843                               | 2,920                                    |
| 016 | Parker Street<br>Derby Street | Parker Street (N)  | Derby Street (W)   | R    | 181                                 | 185                                      |
|     |                               |                    | Parker Street (S)  | T    | 976                                 | 975                                      |
|     |                               |                    | Derby Street (E)   | L    | 84                                  | 82                                       |
|     |                               | Derby Street (E)   | Parker Street (N)  | R    | 67                                  | 63                                       |
|     |                               |                    | Derby Street (W)   | T    | 185                                 | 189                                      |
|     |                               |                    | Parker Street (S)  | L    | 103                                 | 103                                      |
|     |                               | Parker Street (S)  | Derby Street (E)   | R    | 79                                  | 79                                       |
|     |                               |                    | Parker Street (N)  | T    | 892                                 | 897                                      |
|     |                               |                    | Derby Street (W)   | L    | 34                                  | 37                                       |
|     |                               | Derby Street (W)   | Parker Street (S)  | R    | 72                                  | 92                                       |
|     |                               |                    | Derby Street (E)   | T    | 221                                 | 229                                      |
|     |                               |                    | Parker Street (N)  | L    | 67                                  | 67                                       |
|     |                               | All                |                    |      | 2,960                               | 2,999                                    |
| 017 | Mulgoa Road<br>Jamison Road   | Mulgoa Road (N)    | Jamison Road (W)   | R    | 129                                 | 129                                      |
|     |                               |                    | Mulgoa Road (S)    | T    | 1,106                               | 1,157                                    |
|     |                               |                    | Jamison Road (E)   | L    | 257                                 | 255                                      |
|     |                               | Jamison Road (E)   | Mulgoa Road (N)    | R    | 152                                 | 151                                      |
|     |                               |                    | Jamison Road (W)   | T    | 171                                 | 173                                      |
|     |                               |                    | Mulgoa Road (S)    | L    | 406                                 | 414                                      |
|     |                               | Mulgoa Road (S)    | Jamison Road (E)   | R    | 302                                 | 327                                      |
|     |                               |                    | Mulgoa Road (N)    | T    | 809                                 | 824                                      |
|     |                               |                    | Jamison Road (W)   | L    | 19                                  | 19                                       |
|     |                               | Jamison Road (W)   | Mulgoa Road (S)    | R    | 25                                  | 25                                       |
|     |                               |                    | Jamison Road (E)   | T    | 76                                  | 75                                       |
|     |                               |                    | Mulgoa Road (N)    | L    | 90                                  | 91                                       |
|     |                               | All                |                    |      | 3,543                               | 3,639                                    |

# P5045 Westfield Penrith Expansion TIA

Traffic Volumes  
AM 0700-0800

| ID  | Intersection                                                        | From                      | To                        | Turn | Traffic Volume<br>(Veh/h)<br>(Base) | Traffic Volume<br>(Veh/h)<br>(With Dev) |
|-----|---------------------------------------------------------------------|---------------------------|---------------------------|------|-------------------------------------|-----------------------------------------|
| 001 | Castlereagh Rd<br>Coreen Ave<br>Castlereagh Rd<br>Coreen Ave        | Castlereagh Rd (N)        | Coreen Ave (W)            | R    | 96                                  | 96                                      |
|     |                                                                     |                           | Castlereagh Rd (S)        | T    | 1,360                               | 1,379                                   |
|     |                                                                     | Castlereagh Rd (E)        | Castlereagh Rd (E)        | L    | 524                                 | 518                                     |
|     |                                                                     |                           | Castlereagh Rd (N)        | R    | 187                                 | 176                                     |
|     |                                                                     | Castlereagh Rd (S)        | Coreen Ave (W)            | T    | 103                                 | 105                                     |
|     |                                                                     |                           | Castlereagh Rd (S)        | L    | 227                                 | 226                                     |
|     |                                                                     | Coreen Ave (W)            | Castlereagh Rd (E)        | R    | 447                                 | 439                                     |
|     |                                                                     |                           | Castlereagh Rd (N)        | T    | 1,098                               | 1,114                                   |
|     |                                                                     | Castlereagh Rd (N)        | Coreen Ave (W)            | L    | 62                                  | 64                                      |
|     |                                                                     |                           | Castlereagh Rd (S)        | R    | 17                                  | 16                                      |
|     |                                                                     | Castlereagh Rd (E)        | Castlereagh Rd (E)        | T    | 106                                 | 105                                     |
|     |                                                                     |                           | Castlereagh Rd (N)        | L    | 71                                  | 70                                      |
|     |                                                                     | All                       |                           |      | 4,297                               | 4,306                                   |
| 002 | Coreen Ave<br>Lemongrove Rd                                         | Coreen Ave (E)            | Coreen Ave (W)            | T    | 513                                 | 514                                     |
|     |                                                                     |                           | Lemongrove Rd (S)         | L    | 328                                 | 333                                     |
|     |                                                                     | Lemongrove Rd (S)         | Coreen Ave (E)            | R    | 165                                 | 163                                     |
|     |                                                                     |                           | Coreen Ave (W)            | L    | 191                                 | 194                                     |
|     |                                                                     | Coreen Ave (W)            | Lemongrove Rd (S)         | R    | 289                                 | 306                                     |
|     |                                                                     |                           | Coreen Ave (E)            | T    | 366                                 | 368                                     |
|     |                                                                     | All                       |                           |      | 1,853                               | 1,878                                   |
| 003 | Castlereagh Rd<br>Jane Street                                       | Castlereagh Rd (N)        | Castlereagh Rd (S)        | T    | 1,364                               | 1,388                                   |
|     |                                                                     |                           | Jane Street (E)           | L    | 352                                 | 349                                     |
|     |                                                                     | Jane Street (E)           | Castlereagh Rd (N)        | R    | 136                                 | 151                                     |
|     |                                                                     |                           | Castlereagh Rd (S)        | L    | 122                                 | 173                                     |
|     |                                                                     | Castlereagh Rd (S)        | Jane Street (E)           | R    | 256                                 | 241                                     |
|     |                                                                     |                           | Castlereagh Rd (N)        | T    | 1,731                               | 1,725                                   |
|     |                                                                     | All                       |                           |      | 3,961                               | 4,026                                   |
| 004 | Train Station Access<br>Jane Street<br>Riley Street                 | Train Station Access (N)  | Jane Street (W)           | R    | 6                                   | 6                                       |
|     |                                                                     |                           | Riley Street (S)          | T    | 0                                   | 0                                       |
|     |                                                                     | Jane Street (E)           | Jane Street (E)           | L    | 35                                  | 36                                      |
|     |                                                                     |                           | Train Station Access (N)  | R    | 0                                   | 0                                       |
|     |                                                                     | Riley Street (S)          | Jane Street (W)           | T    | 345                                 | 359                                     |
|     |                                                                     |                           | Riley Street (S)          | L    | 0                                   | 0                                       |
|     |                                                                     | Jane Street (W)           | Jane Street (E)           | R    | 64                                  | 86                                      |
|     |                                                                     |                           | Train Station Access (N)  | T    | 0                                   | 0                                       |
|     |                                                                     | Jane Street (W)           | Jane Street (W)           | L    | 14                                  | 75                                      |
|     |                                                                     |                           | Riley Street (S)          | R    | 0                                   | 0                                       |
|     |                                                                     | Jane Street (E)           | Jane Street (E)           | T    | 446                                 | 433                                     |
|     |                                                                     |                           | Train Station Access (N)  | L    | 0                                   | 0                                       |
|     |                                                                     | All                       |                           |      | 909                                 | 994                                     |
| 005 | Jane Street<br>Station Street                                       | Jane Street (E)           | Jane Street (W)           | T    | 264                                 | 329                                     |
|     |                                                                     |                           | Station Street (S)        | L    | 177                                 | 167                                     |
|     |                                                                     | Station Street (S)        | Jane Street (E)           | R    | 94                                  | 100                                     |
|     |                                                                     |                           | Jane Street (W)           | L    | 98                                  | 207                                     |
|     |                                                                     | Jane Street (W)           | Station Street (S)        | R    | 173                                 | 165                                     |
|     |                                                                     |                           | Jane Street (E)           | T    | 372                                 | 388                                     |
|     |                                                                     | All                       |                           |      | 1,176                               | 1,355                                   |
| 006 | Castlereagh Rd<br>High Street<br>Mulgoa Rd<br>Great Western Highway | Castlereagh Rd (N)        | Great Western Highway (W) | R    | 502                                 | 513                                     |
|     |                                                                     |                           | Mulgoa Rd (S)             | T    | 890                                 | 926                                     |
|     |                                                                     | High Street (E)           | High Street (E)           | L    | 92                                  | 115                                     |
|     |                                                                     |                           | Castlereagh Rd (N)        | R    | 66                                  | 67                                      |
|     |                                                                     | Mulgoa Rd (S)             | Great Western Highway (W) | T    | 169                                 | 160                                     |
|     |                                                                     |                           | Mulgoa Rd (S)             | L    | 40                                  | 46                                      |
|     |                                                                     | Great Western Highway (W) | High Street (E)           | R    | 56                                  | 119                                     |
|     |                                                                     |                           | Castlereagh Rd (N)        | T    | 1,087                               | 1,077                                   |
|     |                                                                     | High Street (E)           | Great Western Highway (W) | L    | 156                                 | 155                                     |
|     |                                                                     |                           | Mulgoa Rd (S)             | R    | 270                                 | 265                                     |
|     |                                                                     | Castlereagh Rd (N)        | High Street (E)           | T    | 452                                 | 471                                     |
|     |                                                                     |                           | Castlereagh Rd (N)        | L    | 851                                 | 841                                     |
|     |                                                                     | All                       |                           |      | 4,628                               | 4,752                                   |
| 007 | Worth Street<br>High Street                                         | Worth Street (N)          | High Street (W)           | R    | 6                                   | 8                                       |
|     |                                                                     |                           | Worth Street (S)          | T    | 0                                   | 0                                       |
|     |                                                                     | High Street (E)           | High Street (E)           | L    | 21                                  | 16                                      |
|     |                                                                     |                           | Worth Street (N)          | R    | 20                                  | 17                                      |
|     |                                                                     | Worth Street (S)          | High Street (W)           | T    | 193                                 | 182                                     |
|     |                                                                     |                           | Worth Street (S)          | L    | 50                                  | 47                                      |
|     |                                                                     | High Street (W)           | High Street (E)           | R    | 35                                  | 40                                      |
|     |                                                                     |                           | Worth Street (N)          | T    | 50                                  | 50                                      |
|     |                                                                     | Worth Street (N)          | High Street (W)           | L    | 102                                 | 100                                     |
|     |                                                                     |                           | Worth Street (S)          | R    | 107                                 | 112                                     |
|     |                                                                     | High Street (E)           | High Street (E)           | T    | 380                                 | 474                                     |
|     |                                                                     |                           | Worth Street (N)          | L    | 39                                  | 38                                      |

| ID  | Intersection          | From                      | To                        | Turn | Traffic Volume<br>(Veh/h)<br>(Base) | Traffic Volume<br>(Veh/h)<br>(With Dev) |
|-----|-----------------------|---------------------------|---------------------------|------|-------------------------------------|-----------------------------------------|
|     |                       | All                       |                           |      | 1,002                               | 1,083                                   |
| 008 | Riley Street          | Riley Street (N)          | High Street (W)           | R    | 0                                   | 0                                       |
|     | Henry Street          |                           | High Street (S)           | T    | 0                                   | 0                                       |
|     | High Street           |                           | Henry Street (E)          | L    | 0                                   | 0                                       |
|     | High Street           | Henry Street (E)          | Riley Street (N)          | R    | 42                                  | 43                                      |
|     |                       |                           | High Street (W)           | T    | 259                                 | 243                                     |
|     |                       |                           | High Street (S)           | L    | 0                                   | 0                                       |
|     |                       | High Street (S)           | Henry Street (E)          | R    | 12                                  | 13                                      |
|     |                       |                           | Riley Street (N)          | T    | 40                                  | 40                                      |
|     |                       |                           | High Street (W)           | L    | 5                                   | 3                                       |
|     |                       |                           | High Street (S)           | R    | 0                                   | 0                                       |
|     |                       | Henry Street (E)          | T                         | 389  | 473                                 |                                         |
|     |                       |                           | Riley Street (N)          | L    | 38                                  | 43                                      |
|     |                       | All                       |                           |      | 783                                 | 858                                     |
| 009 | Station Street        | Station Street (N)        | Henry Street (W)          | R    | 40                                  | 34                                      |
|     | Henry Street          |                           | Station Street (S)        | T    | 114                                 | 104                                     |
|     |                       |                           | Henry Street (E)          | L    | 107                                 | 111                                     |
|     |                       | Henry Street (E)          | Station Street (N)        | R    | 57                                  | 70                                      |
|     |                       |                           | Henry Street (W)          | T    | 213                                 | 219                                     |
|     |                       |                           | Station Street (S)        | L    | 61                                  | 62                                      |
|     |                       | Station Street (S)        | Henry Street (E)          | R    | 55                                  | 54                                      |
|     |                       |                           | Station Street (N)        | T    | 84                                  | 94                                      |
|     |                       |                           | Henry Street (W)          | L    | 50                                  | 39                                      |
|     |                       |                           | Station Street (S)        | R    | 80                                  | 71                                      |
|     |                       | Henry Street (E)          | T                         | 269  | 269                                 |                                         |
|     |                       |                           | Station Street (N)        | L    | 53                                  | 147                                     |
|     |                       | All                       |                           |      | 1,181                               | 1,273                                   |
| 010 | Lawson Street         | Lawson Street (N)         | Henry Street (W)          | R    | 15                                  | 15                                      |
|     | Henry Street          |                           | Lawson Street (S)         | T    | 4                                   | 6                                       |
|     |                       |                           | Henry Street (E)          | L    | 6                                   | 6                                       |
|     |                       | Henry Street (E)          | Lawson Street (N)         | R    | 144                                 | 145                                     |
|     |                       |                           | Henry Street (W)          | T    | 292                                 | 309                                     |
|     |                       |                           | Lawson Street (S)         | L    | 67                                  | 63                                      |
|     |                       | Lawson Street (S)         | Henry Street (E)          | R    | 36                                  | 31                                      |
|     |                       |                           | Lawson Street (N)         | T    | 36                                  | 34                                      |
|     |                       |                           | Henry Street (W)          | L    | 18                                  | 15                                      |
|     |                       |                           | Lawson Street (S)         | R    | 36                                  | 34                                      |
|     |                       | Henry Street (E)          | T                         | 301  | 307                                 |                                         |
|     |                       |                           | Lawson Street (N)         | L    | 6                                   | 5                                       |
|     |                       | All                       |                           |      | 958                                 | 969                                     |
| 011 | Evan Street           | Evan Street (N)           | Henry Street (W)          | R    | 264                                 | 261                                     |
|     | Henry Street          |                           | Evan Street (S)           | T    | 419                                 | 427                                     |
|     |                       |                           | Henry Street (E)          | L    | 127                                 | 132                                     |
|     |                       | Henry Street (E)          | Evan Street (N)           | R    | 139                                 | 142                                     |
|     |                       |                           | Henry Street (W)          | T    | 258                                 | 254                                     |
|     |                       |                           | Evan Street (S)           | L    | 17                                  | 17                                      |
|     |                       | Evan Street (S)           | Henry Street (E)          | R    | 13                                  | 10                                      |
|     |                       |                           | Evan Street (N)           | T    | 328                                 | 338                                     |
|     |                       |                           | Henry Street (W)          | L    | 53                                  | 69                                      |
|     |                       |                           | Evan Street (S)           | R    | 0                                   | 0                                       |
|     |                       | Henry Street (E)          | T                         | 150  | 162                                 |                                         |
|     |                       |                           | Evan Street (N)           | L    | 137                                 | 129                                     |
|     |                       | All                       |                           |      | 1,904                               | 1,939                                   |
| 012 | Lawson Street         | Lawson Street (N)         | High Street (W)           | R    | 33                                  | 33                                      |
|     | High Street           |                           | High Street (E)           | L    | 27                                  | 25                                      |
|     |                       | High Street (E)           | Lawson Street (N)         | R    | 56                                  | 54                                      |
|     |                       |                           | High Street (W)           | T    | 282                                 | 287                                     |
|     |                       | High Street (W)           | High Street (E)           | T    | 113                                 | 114                                     |
|     |                       |                           | Lawson Street (N)         | L    | 164                                 | 155                                     |
|     |                       | All                       |                           |      | 674                                 | 666                                     |
| 013 | Evan Street           | Evan Street (N)           | High Street (W)           | R    | 53                                  | 57                                      |
|     | High Street           |                           | Evan Street (S)           | T    | 354                                 | 357                                     |
|     |                       |                           | High Street (E)           | L    | 28                                  | 30                                      |
|     |                       | High Street (E)           | Evan Street (N)           | R    | 37                                  | 38                                      |
|     |                       |                           | High Street (W)           | T    | 151                                 | 157                                     |
|     |                       |                           | Evan Street (S)           | L    | 56                                  | 57                                      |
|     |                       | Evan Street (S)           | High Street (E)           | R    | 25                                  | 27                                      |
|     |                       |                           | Evan Street (N)           | T    | 291                                 | 311                                     |
|     |                       |                           | High Street (W)           | L    | 43                                  | 42                                      |
|     |                       |                           | Evan Street (S)           | R    | 30                                  | 29                                      |
|     |                       | High Street (E)           | T                         | 105  | 107                                 |                                         |
|     |                       |                           | Evan Street (N)           | L    | 68                                  | 67                                      |
|     |                       | All                       |                           |      | 1,242                               | 1,277                                   |
| 014 | Parker Street         | Parker Street (N)         | High Street (W)           | R    | 227                                 | 230                                     |
|     | Great Western Highway |                           | Parker Street (S)         | T    | 841                                 | 840                                     |
|     | High Street           |                           | Great Western Highway (E) | L    | 839                                 | 836                                     |
|     |                       | Great Western Highway (E) | Parker Street (N)         | R    | 452                                 | 448                                     |
|     |                       |                           | High Street (W)           | T    | 717                                 | 752                                     |
|     |                       |                           | Parker Street (S)         | L    | 127                                 | 127                                     |
|     |                       | Parker Street (S)         | Great Western Highway (E) | R    | 134                                 | 134                                     |
|     |                       |                           | Parker Street (N)         | T    | 783                                 | 781                                     |
|     |                       |                           | High Street (W)           | L    | 294                                 | 295                                     |
|     |                       |                           | Parker Street (S)         | R    | 98                                  | 103                                     |
|     |                       | Great Western Highway (E) | T                         | 365  | 379                                 |                                         |
|     |                       |                           | Parker Street (N)         | L    | 156                                 | 158                                     |
|     |                       | All                       |                           |      | 5,032                               | 5,081                                   |

| ID  | Intersection                  | From               | To                 | Turn | Traffic Volume<br>(Veh/h)<br>(Base) | Traffic Volume<br>(Veh/h)<br>(With Dev) |
|-----|-------------------------------|--------------------|--------------------|------|-------------------------------------|-----------------------------------------|
| 015 | Mulgoa Rd<br>Ransley Street   | Mulgoa Rd (N)      | Ransley Street (W) | R    | 23                                  | 27                                      |
|     |                               |                    | Mulgoa Rd (S)      | T    | 905                                 | 928                                     |
|     |                               |                    | Ransley Street (E) | L    | 85                                  | 93                                      |
|     |                               | Ransley Street (E) | Mulgoa Rd (N)      | R    | 97                                  | 103                                     |
|     |                               |                    | Ransley Street (W) | T    | 28                                  | 29                                      |
|     |                               |                    | Mulgoa Rd (S)      | L    | 10                                  | 6                                       |
|     |                               | Mulgoa Rd (S)      | Ransley Street (E) | R    | 38                                  | 40                                      |
|     |                               |                    | Mulgoa Rd (N)      | T    | 1,382                               | 1,442                                   |
|     |                               |                    | Ransley Street (W) | L    | 28                                  | 15                                      |
|     |                               | Ransley Street (W) | Mulgoa Rd (S)      | R    | 8                                   | 8                                       |
|     |                               |                    | Ransley Street (E) | T    | 30                                  | 19                                      |
|     |                               |                    | Mulgoa Rd (N)      | L    | 28                                  | 28                                      |
|     |                               | All                |                    |      | 2,662                               | 2,737                                   |
| 016 | Parker Street<br>Derby Street | Parker Street (N)  | Derby Street (W)   | R    | 101                                 | 108                                     |
|     |                               |                    | Parker Street (S)  | T    | 809                                 | 808                                     |
|     |                               |                    | Derby Street (E)   | L    | 76                                  | 77                                      |
|     |                               | Derby Street (E)   | Parker Street (N)  | R    | 72                                  | 70                                      |
|     |                               |                    | Derby Street (W)   | T    | 145                                 | 152                                     |
|     |                               |                    | Parker Street (S)  | L    | 40                                  | 40                                      |
|     |                               | Parker Street (S)  | Derby Street (E)   | R    | 114                                 | 116                                     |
|     |                               |                    | Parker Street (N)  | T    | 1,271                               | 1,288                                   |
|     |                               |                    | Derby Street (W)   | L    | 112                                 | 109                                     |
|     |                               | Derby Street (W)   | Parker Street (S)  | R    | 47                                  | 46                                      |
|     |                               |                    | Derby Street (E)   | T    | 32                                  | 32                                      |
|     |                               |                    | Parker Street (N)  | L    | 38                                  | 34                                      |
|     |                               | All                |                    |      | 2,855                               | 2,877                                   |
| 017 | Mulgoa Road<br>Jamison Road   | Mulgoa Road (N)    | Jamison Road (W)   | R    | 27                                  | 23                                      |
|     |                               |                    | Mulgoa Road (S)    | T    | 810                                 | 842                                     |
|     |                               |                    | Jamison Road (E)   | L    | 133                                 | 129                                     |
|     |                               | Jamison Road (E)   | Mulgoa Road (N)    | R    | 223                                 | 218                                     |
|     |                               |                    | Jamison Road (W)   | T    | 24                                  | 26                                      |
|     |                               |                    | Mulgoa Road (S)    | L    | 201                                 | 206                                     |
|     |                               | Mulgoa Road (S)    | Jamison Road (E)   | R    | 417                                 | 420                                     |
|     |                               |                    | Mulgoa Road (N)    | T    | 1,211                               | 1,258                                   |
|     |                               |                    | Jamison Road (W)   | L    | 17                                  | 16                                      |
|     |                               | Jamison Road (W)   | Mulgoa Road (S)    | R    | 45                                  | 45                                      |
|     |                               |                    | Jamison Road (E)   | T    | 43                                  | 45                                      |
|     |                               |                    | Mulgoa Road (N)    | L    | 23                                  | 25                                      |
|     |                               | All                |                    |      | 3,172                               | 3,251                                   |



# P5045 Westfield Penrith Expansion TIA

Traffic Volumes  
AM 0800-0900

| ID  | Intersection                                                        | From                      | To                        | Turn  | Traffic Volume<br>(Veh/h)<br>(Base) | Traffic Volume<br>(Veh/h)<br>(With Dev) |
|-----|---------------------------------------------------------------------|---------------------------|---------------------------|-------|-------------------------------------|-----------------------------------------|
| 001 | Castlereagh Rd<br>Coreen Ave<br>Castlereagh Rd<br>Coreen Ave        | Castlereagh Rd (N)        | Coreen Ave (W)            | R     | 91                                  | 90                                      |
|     |                                                                     |                           | Castlereagh Rd (S)        | T     | 1,618                               | 1,662                                   |
|     |                                                                     | Castlereagh Rd (E)        | Castlereagh Rd (E)        | L     | 372                                 | 371                                     |
|     |                                                                     |                           | Castlereagh Rd (N)        | R     | 172                                 | 174                                     |
|     |                                                                     | Castlereagh Rd (S)        | Coreen Ave (W)            | T     | 136                                 | 135                                     |
|     |                                                                     |                           | Castlereagh Rd (S)        | L     | 216                                 | 219                                     |
|     |                                                                     | Castlereagh Rd (S)        | Castlereagh Rd (E)        | R     | 415                                 | 406                                     |
|     |                                                                     |                           | Castlereagh Rd (N)        | T     | 1,497                               | 1,503                                   |
|     |                                                                     | Coreen Ave (W)            | Coreen Ave (W)            | L     | 71                                  | 71                                      |
|     |                                                                     |                           | Castlereagh Rd (S)        | R     | 27                                  | 19                                      |
|     |                                                                     | Castlereagh Rd (E)        | T                         | 106   | 108                                 |                                         |
|     |                                                                     | Castlereagh Rd (N)        | L                         | 59    | 59                                  |                                         |
|     |                                                                     | All                       |                           |       | 4,779                               | 4,817                                   |
| 002 | Coreen Ave<br>Lemongrove Rd                                         | Coreen Ave (E)            | Coreen Ave (W)            | T     | 470                                 | 466                                     |
|     |                                                                     |                           | Lemongrove Rd (S)         | L     | 600                                 | 596                                     |
|     |                                                                     | Lemongrove Rd (S)         | Coreen Ave (E)            | R     | 220                                 | 217                                     |
|     |                                                                     |                           | Coreen Ave (W)            | L     | 250                                 | 240                                     |
|     |                                                                     | Coreen Ave (W)            | Lemongrove Rd (S)         | R     | 422                                 | 422                                     |
|     |                                                                     | Coreen Ave (E)            | T                         | 371   | 359                                 |                                         |
|     |                                                                     | All                       |                           |       | 2,333                               | 2,300                                   |
| 003 | Castlereagh Rd<br>Jane Street                                       | Castlereagh Rd (N)        | Castlereagh Rd (S)        | T     | 1,549                               | 1,583                                   |
|     |                                                                     |                           | Jane Street (E)           | L     | 518                                 | 508                                     |
|     |                                                                     | Jane Street (E)           | Castlereagh Rd (N)        | R     | 163                                 | 175                                     |
|     |                                                                     |                           | Castlereagh Rd (S)        | L     | 172                                 | 210                                     |
|     |                                                                     | Castlereagh Rd (S)        | Jane Street (E)           | R     | 363                                 | 361                                     |
|     |                                                                     | Castlereagh Rd (N)        | T                         | 1,994 | 1,971                               |                                         |
|     |                                                                     | All                       |                           |       | 4,759                               | 4,807                                   |
| 004 | Train Station Access<br>Jane Street<br>Riley Street                 | Train Station Access (N)  | Jane Street (W)           | R     | 3                                   | 3                                       |
|     |                                                                     |                           | Riley Street (S)          | T     | 0                                   | 0                                       |
|     |                                                                     | Jane Street (E)           | Jane Street (E)           | L     | 29                                  | 29                                      |
|     |                                                                     |                           | Train Station Access (N)  | R     | 0                                   | 0                                       |
|     |                                                                     | Riley Street (S)          | Jane Street (W)           | T     | 555                                 | 543                                     |
|     |                                                                     |                           | Riley Street (S)          | L     | 0                                   | 0                                       |
|     |                                                                     | Jane Street (W)           | Jane Street (E)           | R     | 96                                  | 124                                     |
|     |                                                                     |                           | Train Station Access (N)  | T     | 0                                   | 0                                       |
|     |                                                                     | Jane Street (W)           | Jane Street (W)           | L     | 15                                  | 78                                      |
|     |                                                                     |                           | Riley Street (S)          | R     | 0                                   | 0                                       |
|     |                                                                     | Jane Street (E)           | T                         | 624   | 603                                 |                                         |
|     |                                                                     | Train Station Access (N)  | L                         | 0     | 0                                   |                                         |
|     |                                                                     | All                       |                           |       | 1,321                               | 1,379                                   |
| 005 | Jane Street<br>Station Street                                       | Jane Street (E)           | Jane Street (W)           | T     | 419                                 | 481                                     |
|     |                                                                     |                           | Station Street (S)        | L     | 209                                 | 208                                     |
|     |                                                                     | Station Street (S)        | Jane Street (E)           | R     | 94                                  | 92                                      |
|     |                                                                     |                           | Jane Street (W)           | L     | 152                                 | 242                                     |
|     |                                                                     | Jane Street (W)           | Station Street (S)        | R     | 267                                 | 238                                     |
|     |                                                                     | Jane Street (E)           | T                         | 477   | 515                                 |                                         |
|     |                                                                     | All                       |                           |       | 1,618                               | 1,776                                   |
| 006 | Castlereagh Rd<br>High Street<br>Mulgoa Rd<br>Great Western Highway | Castlereagh Rd (N)        | Great Western Highway (W) | R     | 583                                 | 600                                     |
|     |                                                                     |                           | Mulgoa Rd (S)             | T     | 960                                 | 1,008                                   |
|     |                                                                     | High Street (E)           | High Street (E)           | L     | 166                                 | 179                                     |
|     |                                                                     |                           | Castlereagh Rd (N)        | R     | 133                                 | 128                                     |
|     |                                                                     | Mulgoa Rd (S)             | Great Western Highway (W) | T     | 237                                 | 233                                     |
|     |                                                                     |                           | Mulgoa Rd (S)             | L     | 55                                  | 60                                      |
|     |                                                                     | Great Western Highway (W) | High Street (E)           | R     | 108                                 | 159                                     |
|     |                                                                     |                           | Castlereagh Rd (N)        | T     | 1,175                               | 1,183                                   |
|     |                                                                     | Great Western Highway (W) | Great Western Highway (W) | L     | 202                                 | 207                                     |
|     |                                                                     |                           | Mulgoa Rd (S)             | R     | 374                                 | 356                                     |
|     |                                                                     | High Street (E)           | T                         | 686   | 694                                 |                                         |
|     |                                                                     | Castlereagh Rd (N)        | L                         | 1,105 | 1,079                               |                                         |
|     |                                                                     | All                       |                           |       | 5,782                               | 5,885                                   |
| 007 | Worth Street<br>High Street                                         | Worth Street (N)          | High Street (W)           | R     | 15                                  | 17                                      |
|     |                                                                     |                           | Worth Street (S)          | T     | 0                                   | 0                                       |
|     |                                                                     | High Street (E)           | High Street (E)           | L     | 20                                  | 17                                      |
|     |                                                                     |                           | Worth Street (N)          | R     | 58                                  | 64                                      |
|     |                                                                     | Worth Street (S)          | High Street (W)           | T     | 265                                 | 259                                     |
|     |                                                                     |                           | Worth Street (S)          | L     | 80                                  | 61                                      |
|     |                                                                     | High Street (W)           | High Street (E)           | R     | 31                                  | 38                                      |
|     |                                                                     |                           | Worth Street (N)          | T     | 132                                 | 138                                     |
|     |                                                                     | High Street (W)           | High Street (W)           | L     | 130                                 | 128                                     |
|     |                                                                     |                           | Worth Street (S)          | R     | 170                                 | 172                                     |
|     |                                                                     | High Street (E)           | T                         | 571   | 629                                 |                                         |
|     |                                                                     | Worth Street (N)          | L                         | 116   | 111                                 |                                         |

| ID  | Intersection                                               | From                      | To                        | Turn | Traffic Volume<br>(Veh/h)<br>(Base) | Traffic Volume<br>(Veh/h)<br>(With Dev) |
|-----|------------------------------------------------------------|---------------------------|---------------------------|------|-------------------------------------|-----------------------------------------|
|     |                                                            | All                       |                           |      | 1,586                               | 1,634                                   |
| 008 | Riley Street<br>Henry Street<br>High Street<br>High Street | Riley Street (N)          | High Street (W)           | R    | 0                                   | 0                                       |
|     |                                                            |                           | High Street (S)           | T    | 0                                   | 0                                       |
|     |                                                            |                           | Henry Street (E)          | L    | 0                                   | 0                                       |
|     |                                                            | Henry Street (E)          | Riley Street (N)          | R    | 59                                  | 62                                      |
|     |                                                            |                           | High Street (W)           | T    | 402                                 | 386                                     |
|     |                                                            |                           | High Street (S)           | L    | 0                                   | 0                                       |
|     |                                                            | High Street (S)           | Henry Street (E)          | R    | 13                                  | 12                                      |
|     |                                                            |                           | Riley Street (N)          | T    | 50                                  | 52                                      |
|     |                                                            |                           | High Street (W)           | L    | 3                                   | 4                                       |
|     |                                                            | High Street (W)           | High Street (S)           | R    | 0                                   | 0                                       |
|     |                                                            |                           | Henry Street (E)          | T    | 582                                 | 646                                     |
|     |                                                            |                           | Riley Street (N)          | L    | 46                                  | 47                                      |
|     |                                                            | All                       |                           |      | 1,153                               | 1,209                                   |
| 009 | Station Street<br>Henry Street                             | Station Street (N)        | Henry Street (W)          | R    | 62                                  | 52                                      |
|     |                                                            |                           | Station Street (S)        | T    | 145                                 | 119                                     |
|     |                                                            |                           | Henry Street (E)          | L    | 165                                 | 165                                     |
|     |                                                            | Henry Street (E)          | Station Street (N)        | R    | 60                                  | 64                                      |
|     |                                                            |                           | Henry Street (W)          | T    | 336                                 | 342                                     |
|     |                                                            |                           | Station Street (S)        | L    | 82                                  | 77                                      |
|     |                                                            | Station Street (S)        | Henry Street (E)          | R    | 64                                  | 57                                      |
|     |                                                            |                           | Station Street (N)        | T    | 93                                  | 93                                      |
|     |                                                            |                           | Henry Street (W)          | L    | 64                                  | 53                                      |
|     |                                                            | Henry Street (W)          | Station Street (S)        | R    | 86                                  | 86                                      |
|     |                                                            |                           | Henry Street (E)          | T    | 408                                 | 389                                     |
|     |                                                            |                           | Station Street (N)        | L    | 92                                  | 175                                     |
|     |                                                            | All                       |                           |      | 1,656                               | 1,671                                   |
| 010 | Lawson Street<br>Henry Street                              | Lawson Street (N)         | Henry Street (W)          | R    | 22                                  | 18                                      |
|     |                                                            |                           | Lawson Street (S)         | T    | 66                                  | 64                                      |
|     |                                                            |                           | Henry Street (E)          | L    | 12                                  | 10                                      |
|     |                                                            | Henry Street (E)          | Lawson Street (N)         | R    | 144                                 | 140                                     |
|     |                                                            |                           | Henry Street (W)          | T    | 406                                 | 414                                     |
|     |                                                            |                           | Lawson Street (S)         | L    | 138                                 | 152                                     |
|     |                                                            | Lawson Street (S)         | Henry Street (E)          | R    | 64                                  | 59                                      |
|     |                                                            |                           | Lawson Street (N)         | T    | 13                                  | 11                                      |
|     |                                                            |                           | Henry Street (W)          | L    | 41                                  | 41                                      |
|     |                                                            | Henry Street (W)          | Lawson Street (S)         | R    | 68                                  | 72                                      |
|     |                                                            |                           | Henry Street (E)          | T    | 443                                 | 418                                     |
|     |                                                            |                           | Lawson Street (N)         | L    | 7                                   | 7                                       |
|     |                                                            | All                       |                           |      | 1,422                               | 1,406                                   |
| 011 | Evan Street<br>Henry Street                                | Evan Street (N)           | Henry Street (W)          | R    | 412                                 | 407                                     |
|     |                                                            |                           | Evan Street (S)           | T    | 676                                 | 682                                     |
|     |                                                            |                           | Henry Street (E)          | L    | 187                                 | 178                                     |
|     |                                                            | Henry Street (E)          | Evan Street (N)           | R    | 128                                 | 137                                     |
|     |                                                            |                           | Henry Street (W)          | T    | 334                                 | 339                                     |
|     |                                                            |                           | Evan Street (S)           | L    | 30                                  | 27                                      |
|     |                                                            | Evan Street (S)           | Henry Street (E)          | R    | 15                                  | 13                                      |
|     |                                                            |                           | Evan Street (N)           | T    | 461                                 | 443                                     |
|     |                                                            |                           | Henry Street (W)          | L    | 98                                  | 105                                     |
|     |                                                            | Henry Street (W)          | Evan Street (S)           | R    | 0                                   | 0                                       |
|     |                                                            |                           | Henry Street (E)          | T    | 260                                 | 256                                     |
|     |                                                            |                           | Evan Street (N)           | L    | 215                                 | 192                                     |
|     |                                                            | All                       |                           |      | 2,815                               | 2,776                                   |
| 012 | Lawson Street<br>High Street                               | Lawson Street (N)         | High Street (W)           | R    | 54                                  | 58                                      |
|     |                                                            |                           | High Street (E)           | L    | 52                                  | 60                                      |
|     |                                                            | High Street (E)           | Lawson Street (N)         | R    | 104                                 | 107                                     |
|     |                                                            |                           | High Street (W)           | T    | 459                                 | 462                                     |
|     |                                                            | High Street (W)           | High Street (E)           | T    | 199                                 | 197                                     |
|     |                                                            |                           | Lawson Street (N)         | L    | 190                                 | 173                                     |
|     |                                                            | All                       |                           |      | 1,058                               | 1,057                                   |
| 013 | Evan Street<br>High Street                                 | Evan Street (N)           | High Street (W)           | R    | 75                                  | 84                                      |
|     |                                                            |                           | Evan Street (S)           | T    | 579                                 | 578                                     |
|     |                                                            |                           | High Street (E)           | L    | 51                                  | 50                                      |
|     |                                                            | High Street (E)           | Evan Street (N)           | R    | 52                                  | 42                                      |
|     |                                                            |                           | High Street (W)           | T    | 281                                 | 275                                     |
|     |                                                            |                           | Evan Street (S)           | L    | 113                                 | 114                                     |
|     |                                                            | Evan Street (S)           | High Street (E)           | R    | 44                                  | 45                                      |
|     |                                                            |                           | Evan Street (N)           | T    | 459                                 | 455                                     |
|     |                                                            |                           | High Street (W)           | L    | 92                                  | 98                                      |
|     |                                                            | High Street (W)           | Evan Street (S)           | R    | 52                                  | 56                                      |
|     |                                                            |                           | High Street (E)           | T    | 189                                 | 189                                     |
|     |                                                            |                           | Evan Street (N)           | L    | 72                                  | 74                                      |
|     |                                                            | All                       |                           |      | 2,059                               | 2,059                                   |
| 014 | Parker Street<br>Great Western Highway<br>High Street      | Parker Street (N)         | High Street (W)           | R    | 244                                 | 246                                     |
|     |                                                            |                           | Parker Street (S)         | T    | 848                                 | 851                                     |
|     |                                                            |                           | Great Western Highway (E) | L    | 731                                 | 737                                     |
|     |                                                            | Great Western Highway (E) | Parker Street (N)         | R    | 453                                 | 449                                     |

| ID | Intersection | From              | To                        | Turn | Traffic Volume<br>(Veh/h)<br>(Base) | Traffic Volume<br>(Veh/h)<br>(With<br>Dev) |
|----|--------------|-------------------|---------------------------|------|-------------------------------------|--------------------------------------------|
|    |              | Parker Street (S) | High Street (W)           | T    | 1,118                               | 1,159                                      |
|    |              |                   | Parker Street (S)         | L    | 131                                 | 131                                        |
|    |              |                   | Great Western Highway (E) | R    | 85                                  | 83                                         |
|    |              | High Street (W)   | Parker Street (N)         | T    | 851                                 | 844                                        |
|    |              |                   | High Street (W)           | L    | 314                                 | 320                                        |
|    |              |                   | Parker Street (S)         | R    | 137                                 | 155                                        |
|    |              |                   | Great Western Highway (E) | T    | 506                                 | 533                                        |
|    |              |                   | Parker Street (N)         | L    | 370                                 | 354                                        |
|    |              | All               |                           |      | 5,787                               | 5,861                                      |

| ID  | Intersection                  | From               | To                 | Turn | Traffic Volume<br>(Veh/h)<br>(Base) | Traffic Volume<br>(Veh/h)<br>(With Dev) |
|-----|-------------------------------|--------------------|--------------------|------|-------------------------------------|-----------------------------------------|
| 015 | Mulgoa Rd<br>Ransley Street   | Mulgoa Rd (N)      | Ransley Street (W) | R    | 35                                  | 36                                      |
|     |                               |                    | Mulgoa Rd (S)      | T    | 932                                 | 956                                     |
|     |                               |                    | Ransley Street (E) | L    | 178                                 | 192                                     |
|     |                               | Ransley Street (E) | Mulgoa Rd (N)      | R    | 101                                 | 123                                     |
|     |                               |                    | Ransley Street (W) | T    | 37                                  | 35                                      |
|     |                               |                    | Mulgoa Rd (S)      | L    | 14                                  | 12                                      |
|     |                               | Mulgoa Rd (S)      | Ransley Street (E) | R    | 78                                  | 77                                      |
|     |                               |                    | Mulgoa Rd (N)      | T    | 1,606                               | 1,644                                   |
|     |                               |                    | Ransley Street (W) | L    | 76                                  | 76                                      |
|     |                               | Ransley Street (W) | Mulgoa Rd (S)      | R    | 8                                   | 19                                      |
|     |                               |                    | Ransley Street (E) | T    | 99                                  | 88                                      |
|     |                               |                    | Mulgoa Rd (N)      | L    | 27                                  | 29                                      |
|     |                               | All                |                    |      | 3,191                               | 3,285                                   |
| 016 | Parker Street<br>Derby Street | Parker Street (N)  | Derby Street (W)   | R    | 176                                 | 175                                     |
|     |                               |                    | Parker Street (S)  | T    | 822                                 | 834                                     |
|     |                               |                    | Derby Street (E)   | L    | 107                                 | 119                                     |
|     |                               | Derby Street (E)   | Parker Street (N)  | R    | 47                                  | 47                                      |
|     |                               |                    | Derby Street (W)   | T    | 223                                 | 230                                     |
|     |                               |                    | Parker Street (S)  | L    | 43                                  | 45                                      |
|     |                               | Parker Street (S)  | Derby Street (E)   | R    | 176                                 | 171                                     |
|     |                               |                    | Parker Street (N)  | T    | 1,270                               | 1,257                                   |
|     |                               |                    | Derby Street (W)   | L    | 346                                 | 353                                     |
|     |                               | Derby Street (W)   | Parker Street (S)  | R    | 60                                  | 62                                      |
|     |                               |                    | Derby Street (E)   | T    | 106                                 | 110                                     |
|     |                               |                    | Parker Street (N)  | L    | 53                                  | 52                                      |
|     |                               | All                |                    |      | 3,428                               | 3,453                                   |
| 017 | Mulgoa Road<br>Jamison Road   | Mulgoa Road (N)    | Jamison Road (W)   | R    | 31                                  | 23                                      |
|     |                               |                    | Mulgoa Road (S)    | T    | 831                                 | 871                                     |
|     |                               |                    | Jamison Road (E)   | L    | 192                                 | 190                                     |
|     |                               | Jamison Road (E)   | Mulgoa Road (N)    | R    | 272                                 | 280                                     |
|     |                               |                    | Jamison Road (W)   | T    | 21                                  | 20                                      |
|     |                               |                    | Mulgoa Road (S)    | L    | 258                                 | 263                                     |
|     |                               | Mulgoa Road (S)    | Jamison Road (E)   | R    | 547                                 | 546                                     |
|     |                               |                    | Mulgoa Road (N)    | T    | 1,470                               | 1,515                                   |
|     |                               |                    | Jamison Road (W)   | L    | 14                                  | 16                                      |
|     |                               | Jamison Road (W)   | Mulgoa Road (S)    | R    | 36                                  | 36                                      |
|     |                               |                    | Jamison Road (E)   | T    | 130                                 | 133                                     |
|     |                               |                    | Mulgoa Road (N)    | L    | 38                                  | 43                                      |
|     |                               | All                |                    |      | 3,838                               | 3,933                                   |

## ASIA PACIFIC OFFICES

### BRISBANE

Level 2, 15 Astor Terrace  
Spring Hill QLD 4000  
Australia  
T: +61 7 3858 4800  
F: +61 7 3858 4801

### CANBERRA

GPO 410  
Canberra ACT 2600  
Australia  
T: +61 2 6287 0800  
F: +61 2 9427 8200

### DARWIN

Unit 5, 21 Parap Road  
Parap NT 0820  
Australia  
T: +61 8 8998 0100  
F: +61 8 9370 0101

### GOLD COAST

Level 2, 194 Varsity Parade  
Varsity Lakes QLD 4227  
Australia  
M: +61 438 763 516

### MACKAY

21 River Street  
Mackay QLD 4740  
Australia  
T: +61 7 3181 3300

### MELBOURNE

Level 11, 176 Wellington Parade  
East Melbourne VIC 3002  
Australia  
T: +61 3 9249 9400  
F: +61 3 9249 9499

### NEWCASTLE

10 Kings Road  
New Lambton NSW 2305  
Australia  
T: +61 2 4037 3200  
F: +61 2 4037 3201

### PERTH

Ground Floor, 503 Murray Street  
Perth WA 6000  
Australia  
T: +61 8 9422 5900  
F: +61 8 9422 5901

### SYDNEY

Tenancy 202 Submarine School  
Sub Base Platypus  
120 High Street  
North Sydney NSW 2060  
Australia  
T: +61 2 9427 8100  
F: +61 2 9427 8200

### TOWNSVILLE

12 Cannan Street  
South Townsville QLD 4810  
Australia  
T: +61 7 4722 8000  
F: +61 7 4722 8001

### WOLLONGONG

Level 1, The Central Building  
UoW Innovation Campus  
North Wollongong NSW 2500  
Australia  
T: +61 404 939 922

### AUCKLAND

68 Beach Road  
Auckland 1010  
New Zealand  
T: 0800 757 695

### NELSON

6/A Cambridge Street  
Richmond, Nelson 7020  
New Zealand  
T: +64 274 898 628