Your ref
Our ref 253779-00
File ref

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Owen Walsh
Development Director
Sydney Business Park
15 Hollinsworth Road
Marsden Park NSW 2765

28 October 2020

Dear Owen

Sydney Business Park - SSD Update

1 Introduction

Marsden Park Developments commissioned Arup to provide a traffic impact assessment dated 3 August 2020 for the proposed Stage 3 Industrial Developments (Warehouses 1 to 4) state significant development application (SSDA) in the Marsden Park Industrial Precinct. This report is referenced in this response.

Transport for NSW responded to the SSDA submission with a letter dated 10th of September 2020, requesting a number of additional considerations. Blacktown City Council also responded to the SSDA with a letter dated 14th of September 2020. This response letter has been prepared to address the additional considerations to the submissions for the SSDA.

2 Car Parking Considerations

2.1 Car Parking Provision

TfNSW requested that the development undertake a reassessment of the needs of each warehouse based on TfNSW policies for integrating transport with land use and more in line with the TfNSW guidelines for parking requirements. Blacktown City Council also in parallel requested that the DCP rates for industrial zones are applied.

It is proposed that the development provide enough overall provision for the required number of car parking spaces as defined in the Blacktown Development Control Plan (DCP). The formalised parking will be less than the DCP rate, provided for the staffing needs of the warehouses in their proposed form. Additional parking capacity is provided as provisional spaces which can come into effect if land use in the area intensifies. Due to

geometry constraints, Warehouses 2 and 3 have a slight shortfall in spaces, which can be balanced by the provisional spaces at Warehouses 1 and 4.

The TfNSW (Formerly Roads and Traffic Authority) Guide to Traffic Generating Developments car parking requirement is shown alongside the Council DCP rates for comparison. It is noted that the formalised parking is approximately 13% less than the DCP requirement, however if all provisional parking is included then there is 3% more than the DCP requirement.

In addition to car parking, 30 bicycle parking spaces are also provided at the site (accounting for approximately 5% of the total staff at any time).

The car parking provisions are outlined in Table 1.

Table 1: Car Parking Provision

Site Parcel	Use	DCP Requirement	TfNSW requirement	Proposed Main Car Park Spaces	Proposed Additional Provisional Spaces	Total potential parking spaces
Warehouse 1	Warehouse / Industrial	272	140	270 spaces	74 provisional spaces	270 spaces
	Office / Dock Office	50	50			
Warehouse 2	Warehouse / Industrial	143	53	143 spaces	14 provisional spaces	157 spaces (shortfall of 14 spaces by DCP)
	Office	28	28			
Warehouse 3	Warehouse / Industrial	46	12	50 spaces	4 provisional spaces	54 spaces (shortfall of 1 space by DCP)
	Office	9	9			
Warehouse 4	Warehouse / Industrial	190	85	194 spaces	30 provisional spaces	224 spaces
	Office	17	17			
Total		**755 spaces**	**394 spaces**	**657 spaces**	**122 spaces**	**779 spaces**

3 Road Network Considerations

The TfNSW response requested that the Transport Assessment be revised to provide a traffic impact assessment for five intersections, including:

- Richmond Road / South Street;
- Richmond Road / Hawthorne Avenue;
- Richmond Road / Townson Road / Hollinsworth Road;
- Richmond Road / Langford Drive / Alderton Drive; and
- Hollinsworth Road / Chifley Glade.

Email consultation with TfNSW on 17 September and 2 October 2020 confirmed the traffic assessment approach and sourcing of the data used. It was agreed that a network SIDRA assessment be conducted for the following scenarios:

1. Opening year 2021;
2. 2031; and
3. 2036 as proposed.

Based on the considerable growth in the North West Growth Area, 2% per annum growth was suggested and adopted for the assessment. It was also assumed that no future links were provided to the precinct, including the South Street extension or the proposed Castlereagh Freeway, given Future Transport has included these links under investigation in the Greater Sydney Visionary Initiative (20+ years).

The 2031 scenarios included an option to expand Richmond Road to three lanes each way. This was carried through to the 2036 scenarios as well.

3.1 Traffic assessment

3.1.1 Traffic Generation

Traffic generated from the Sydney Business Park within the Marsden Park Industrial Precinct was based on the land use assumptions identified in AECOM's Sydney Business Park – Road Network Staging Modelling Report (June 2014). The Sydney Business Park ultimate development form is assumed in 2036.

The traffic generation utilised for the site was previously provided in the Arup traffic impact assessment dated 3 August 2020 and is provided below for reference:

Table 2: Traffic generation

Development site	AM peak hour		PM peak hour	
	In	Out	In	Out
Warehouse 1	137	91	98	148
Warehouse 2	53	36	38	57
Warehouse 3	12	8	9	13
Warehouse 4	82	54	59	88

3.1.2 Traffic Distribution

The distribution of traffic has also been assumed based on AECOM's Quarry Road Intersection Development Application (July 2014). This results in a breakdown of site traffic as follows:

- 35% to/from the North
- 5% to/from the East
- 60% to/from the South

For traffic to/from the North, a consistent approach was taken with the Quarry Road Intersection Development Application as follows:

- 75% using South Street intersection
- 15% using Hawthorne Avenue intersection
- 10% using Hollinsworth Road intersection

For traffic to/from the East, a consistent approach was taken with the Quarry Road Intersection Development Application as follows:

- 50% using South Street intersection
- 25% using Hawthorne Avenue intersection
- 25% using Hollinsworth Road intersection

For traffic to/from the South, the Quarry Road Intersection Development Application was not considered appropriate. The following distribution was assumed:

- 33% using Hollinsworth Road intersection
- 25% using Hawthorne Avenue intersection
- 25% using Langford Drive intersection
- 17% using South Street intersection

These distributions have been applied to achieve the total traffic distribution shown in Figure 1.

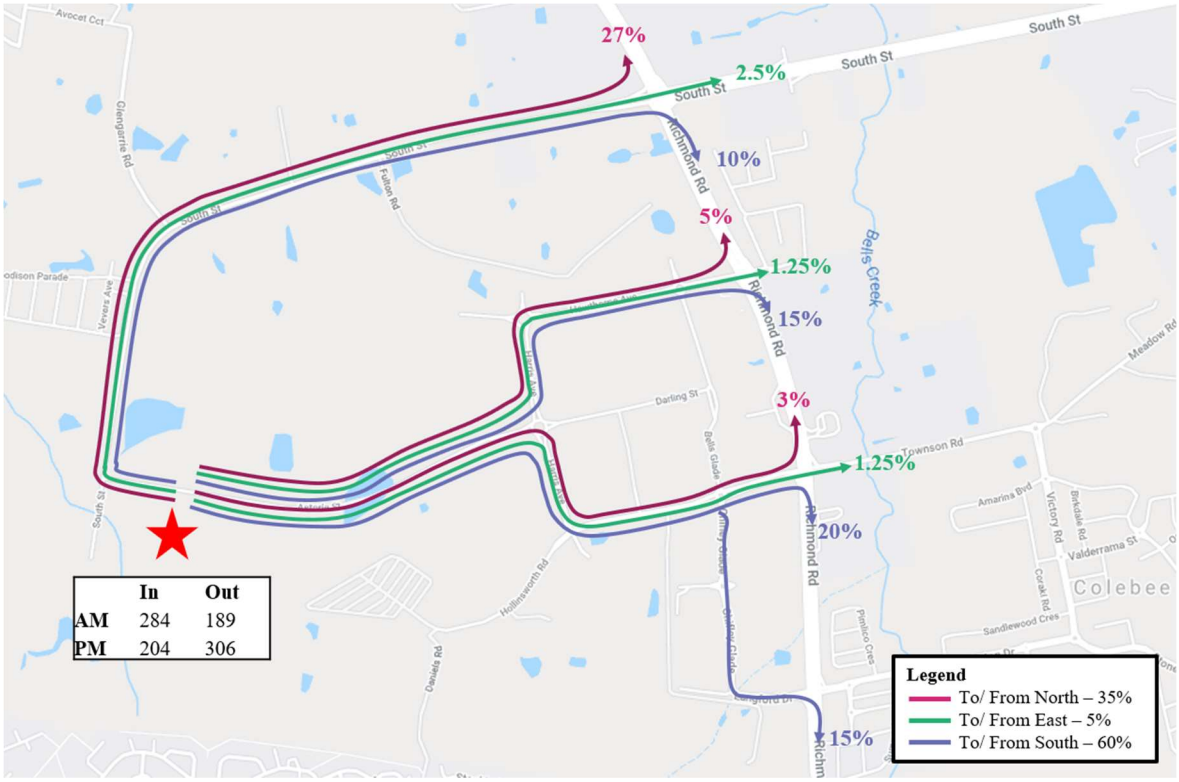


Figure 1: Traffic Distribution

3.1.3 Traffic Modelling Results

Traffic modelling was carried out using SIDRA Intersection 9. The modelled intersections are shown in Figure 2, which were arranged as a network model. Traffic turning movement volumes were based on historic SCATS counts obtained from TfNSW for Wednesday 13 November 2019 (as well as on site spot counts for the Hollinsworth Road / Bells Glade / Chifley Glade intersection on the 7th of October 2020).

Impacts related to the COVID-19 pandemic have meant that traffic levels decreased sharply in early 2020, before returning to normal levels in mid 2020 due to reasons such as decreased willingness to catch public transport. It is difficult to predict how traffic levels

will behave in the future, however, for simplicity, it was assumed that 2021 traffic levels would be the same as 2019 levels.

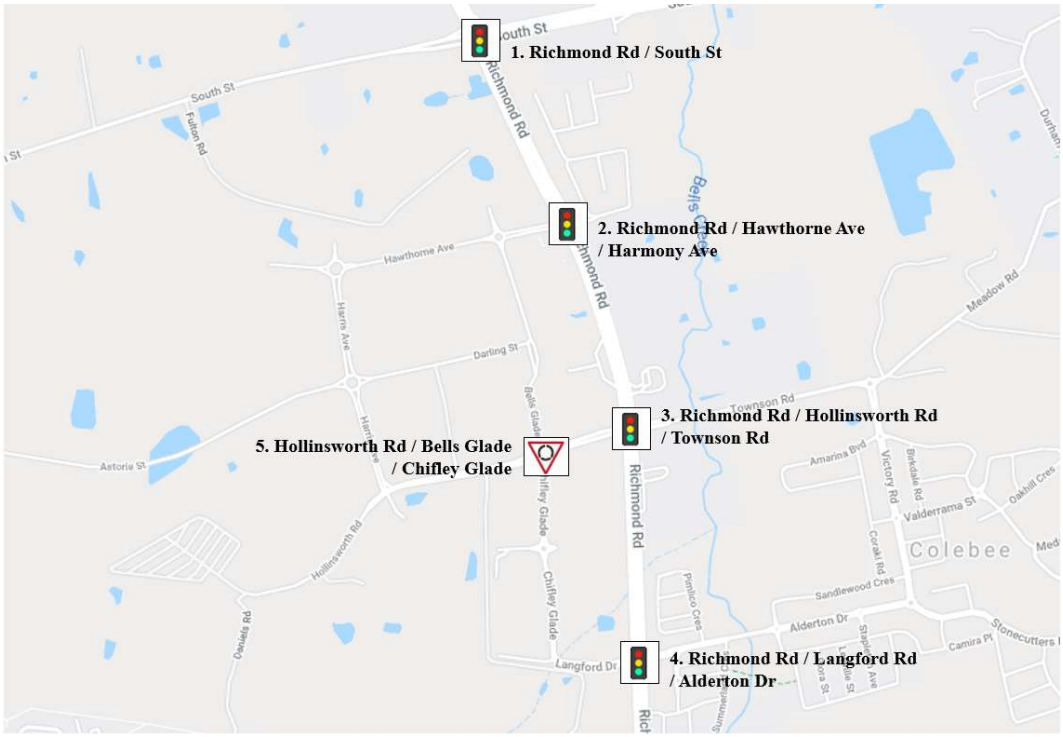


Figure 2: Intersections Overview

Full modelling results are provided in Appendix B. The following scenarios were modelled for the weekday AM and PM peak hours:

- **2021** Base Year Scenario
- **2031** Future Scenario, With & Without Development
- **2031** Future Scenario (With Richmond Road Upgrade), With & Without Development
- **2036** Future Scenario, (With Richmond Road Upgrade), With & Without Development

The intersection performance is assessed in this report in terms of the following three factors for each intersection:

- Degree of Saturation
- Average Delay (Seconds per vehicle)
- Level of Service

In urban areas, the traffic capacity of the major road network is generally a function of the performance of key intersections. This performance is quantified in terms of Level of Service (LoS), is based on the average delay per vehicle. LoS ranges from A = very good to F = unsatisfactory (see Table 5).

In this assessment, Level of Services A, B, C and D are considered acceptable performance, while Level of Service E and F are considered unacceptable as these indicate intersection performance is at or over capacity.

Table 5: Level of service criteria for intersections

Level of Service	Average delay (seconds)	Description
A	Less than 14	Good operation
B	15 to 28	Good with acceptable delays and spare capacity
C	29 to 42	Satisfactory
D	43 to 56	Operating near capacity
E	57 to 70	At Capacity. At signals, incidents will cause excessive delays. Roundabouts require other control mode
F	Greater than 71	Unsatisfactory with excessive queuing

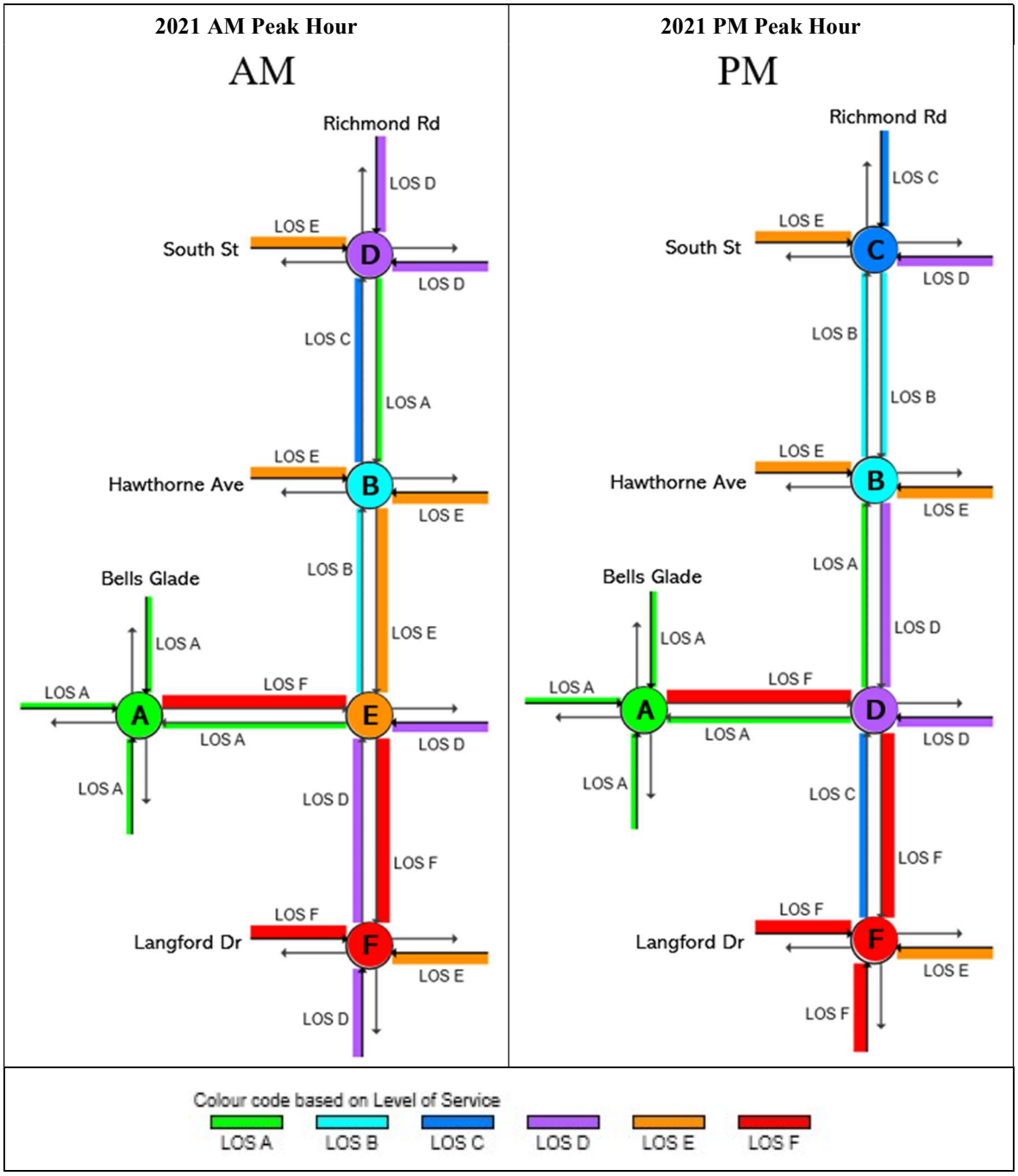
Another common measure of intersection performance is the degree of saturation (DoS), which provides an overall measure of the capability of the intersection to accommodate additional traffic. A DoS of 1.0 indicates that an intersection is operating at capacity.

2021 Base Year Scenario

The 2021 Base Year without development scenario was carried out to assess the current traffic level. It showed that the Richmond Road / Langford Drive intersection would perform poorly with LOS F in both peaks, indicating that the base condition has a failure within the network, located at the southern point of the corridor towards the M7 Motorway. This has flow on effects during both peaks, causing queuing and congestion in the network.

The Richmond Road / Hollinsworth Road / Townson Road intersection also performs at capacity with LOS E in the AM peak hour. The remaining intersections performed with spare capacity. Results for the 2021 Base Year scenario are shown in Table 3.

Table 3: 2021 Base Case SIDRA Results



2031 Future Scenario

The 2031 Future Scenario, with no upgrades, was assessed to understand the traffic conditions in 2031 and determine the impact of the development. A 2% per annum growth rate was applied to all background traffic between the years of 2021 and 2031.

The scenario showed that in the AM peak, both with and without the development, all four intersections of Richmond Road would operate at or over capacity.

In the PM Peak, both with and without the development, the Richmond Road intersections with Hollinsworth Road and Langford Drive operate over capacity. The intersections of Richmond Road / South Street, Richmond Road / Hawthorne Avenue and Hollinsworth Road / Bells Glade all operate with spare capacity.

The proposed development causes negligible impacts in road performance given the sensitivity of the road network already under failure. The results indicate that both with and without the development, Richmond Road will not operate satisfactorily in 2031, unless mitigation measures outside the scope of this development application are carried out.

Table 4: 2031 AM Future Scenario SIDRA Results

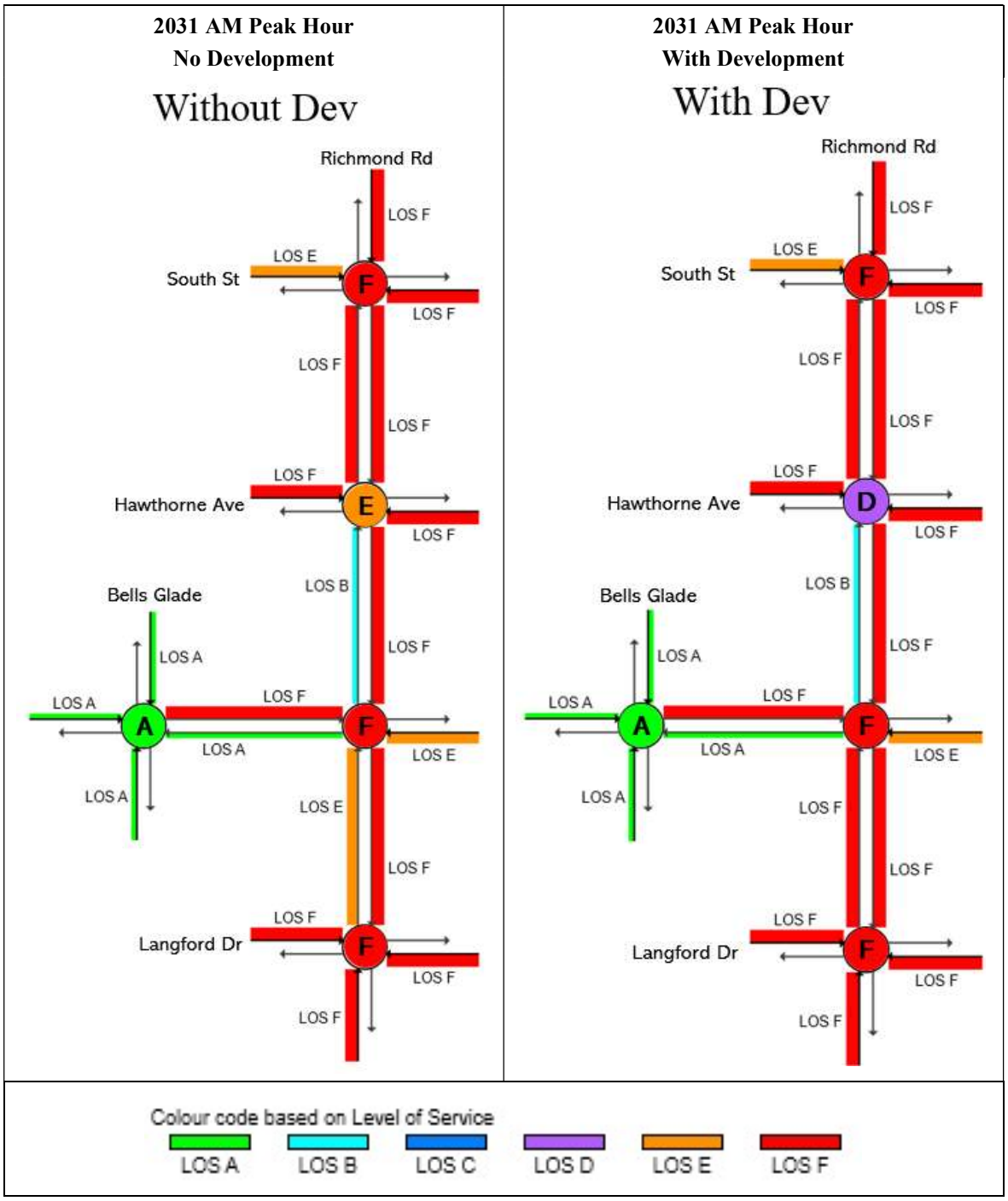
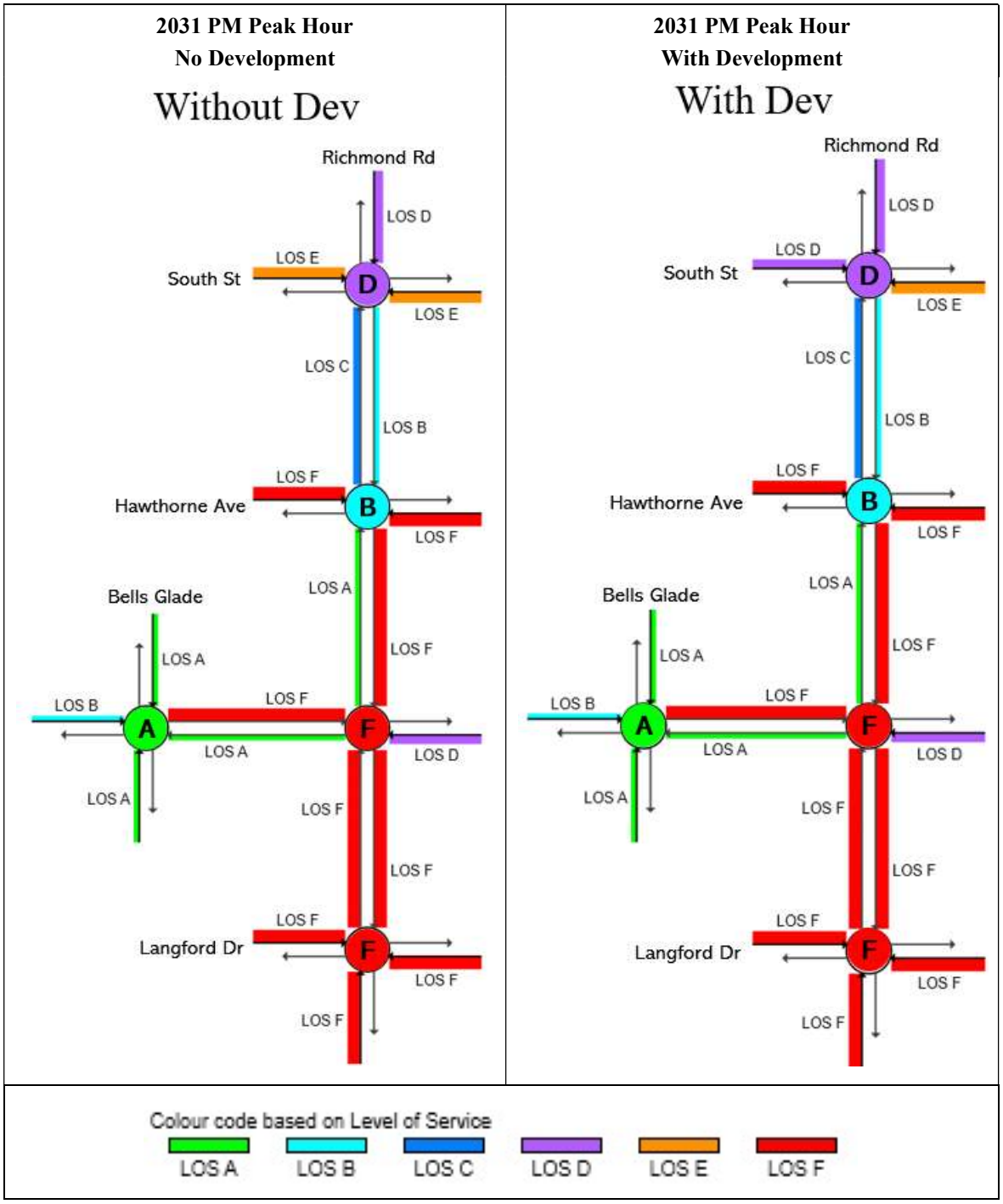


Table 5: 2031 PM Future Scenario SIDRA Results



2031 Future Scenario (Richmond Road Upgraded)

The 2031 Future Scenario was assessed with Richmond Road widened to three lanes in each direction to understand the traffic conditions in 2031 and determine the impact of the development. These upgrades are planned by TfNSW and will help relieve traffic congestion in the area through adding additional through capacities, however, a timeframe for the upgrades has not yet been resolved. A 2% per annum growth rate was applied to all background traffic between the years of 2021 and 2031.

The scenario showed that in the AM peak, both with and without the development, the intersections of Richmond Road with South Street operate over capacity. It is also noted that a slight worsening in the performance of the Richmond Road / Langford Drive intersection occurs, from LOS C to D due to the development traffic, however, this is still

within operational limits and does not cause the intersection to reach capacity. All other intersections operate with spare capacity.

In the PM Peak, both with and without the development, the Richmond Road intersections with Hollinsworth Road and Langford Drive operate at or over capacity. It is noted that the Richmond Road / Hollinsworth Road intersection performs at capacity with a Degree of Saturation over 1.0 without the development and operates over capacity with the development given the sensitivity of the intersection already under failure. All other intersections operate with spare capacity.

The proposed development causes negligible impacts in road performance given the sensitivity of the road network already under failure. The results indicate that both with and without the development, the widening of Richmond Road alone will not be sufficient to mitigate the capacity issue, and targeted measures will be needed to increase capacity at intersections (such as additional turn pockets and travel demand reduction measures).

Table 6: 2031 AM Future Scenario (With Upgrades) SIDRA Results

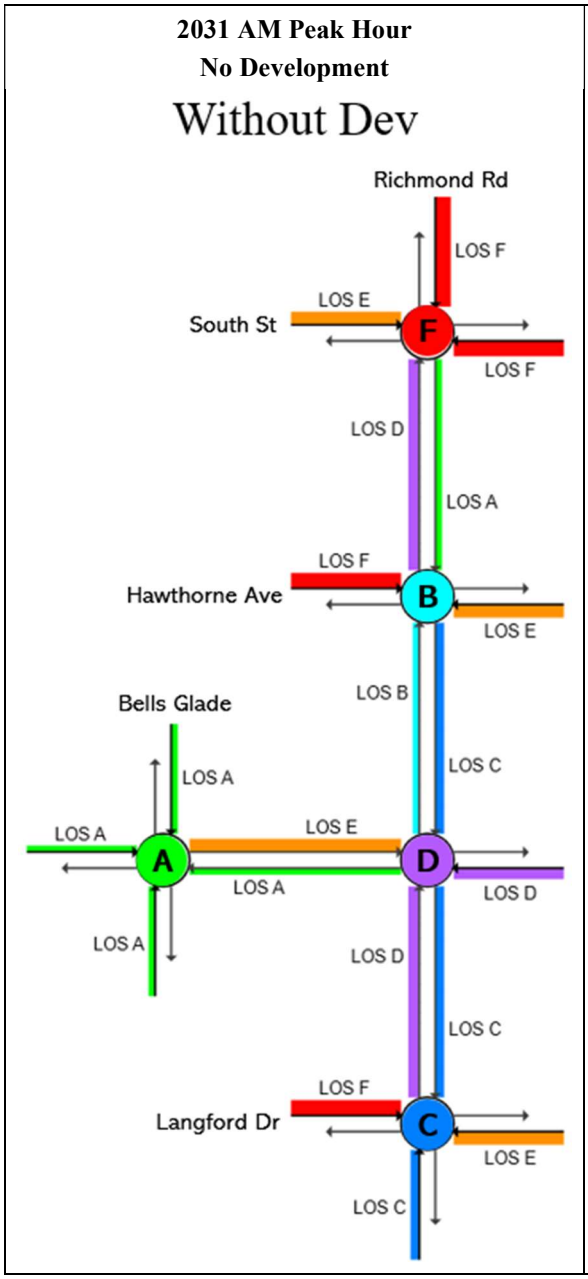
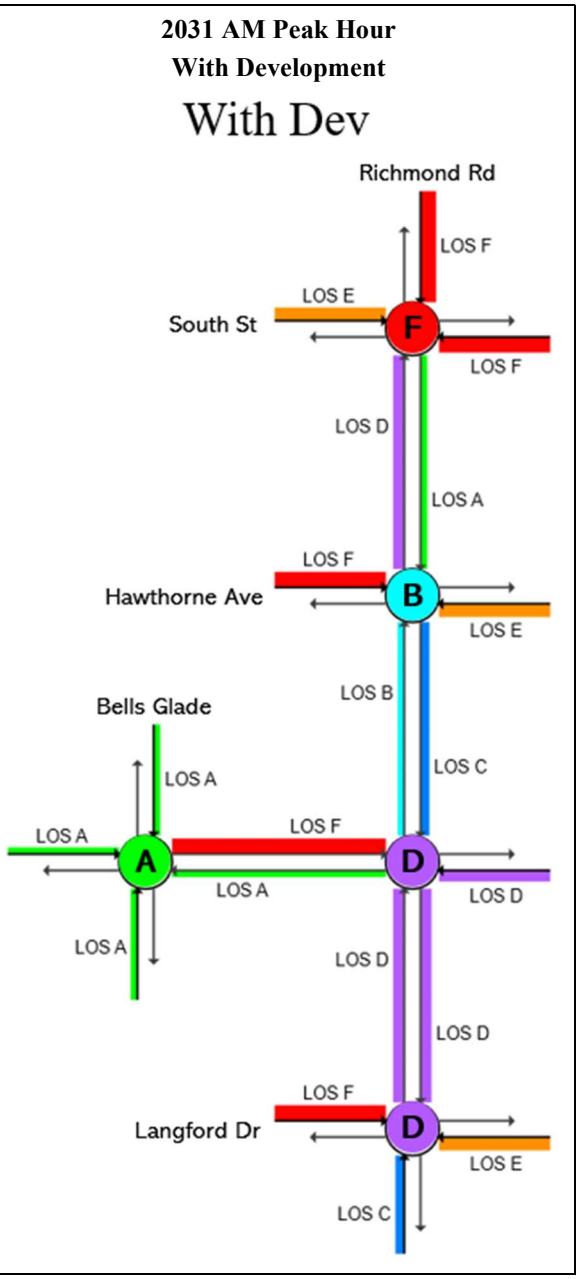
2031 AM Peak Hour **No Development**	**2031 AM Peak Hour** **With Development**
	

Table 7: 2031 PM Future Scenario (With Upgrades) SIDRA Results

2036 Future Scenario

The 2036 Future Scenario was assessed to understand the traffic conditions in 2036 and determine the impact of the development. It was also assumed that Richmond Road would

be widened to three lanes in each direction in 2036. A 2% per annum growth rate was applied to all background traffic between the years of 2021 and 2036.

This scenario shows that in the AM Peak, both with and without the development, the intersection of Richmond Road with South Street, Hollinsworth Road and Langford Drive would operate at or over capacity. It is noted that the Richmond Road / Hollinsworth Road and Richmond Road / Langford Drive intersections performs at capacity with a Degree of Saturation over 1.0 without the development and operate over capacity with the development, given the sensitivity of the intersections already under failure.

The intersections of Richmond Road with Hawthorne Avenue, as well Hollinsworth Road / Bells Glade, operate with spare capacity.

In the PM Peak, the Richmond Road / Langford Drive and Richmond Road / Hollinsworth Road intersections operate above capacity both with and without the development. The remaining intersections all operate with spare capacity.

The proposed development causes negligible impacts in road performance given the sensitivity of the road network already under failure. The results indicate that both with and without the development, the widening of Richmond Road alone will not be sufficient to mitigate the capacity issue, and targeted measures will be needed to increase capacity at intersections (such as additional turn pockets and travel demand reduction measures).

Table 8: 2036 AM Future Scenario SIDRA Results

2036 AM Peak Hour No Development	**2036 AM Peak Hour With Development**

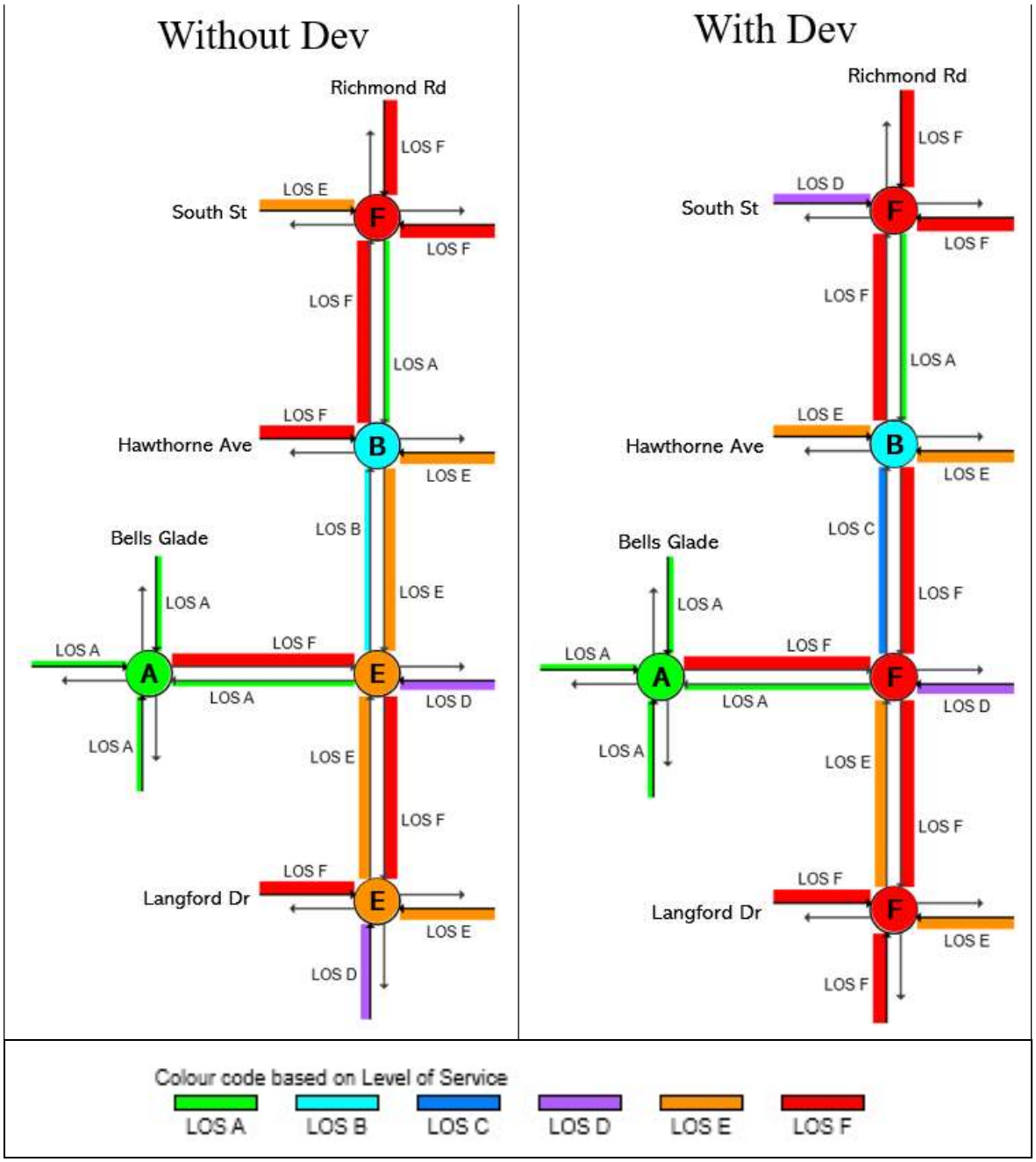

Without Dev
Richmond Rd
LOS F
LOS E
South St
F
LOS F
LOS F
LOS A
LOS F
Hawthorne Ave
B
LOS E
LOS B
Bells Glade
LOS A
LOS E
LOS A
LOS F
A
E
LOS A
LOS D
LOS A
LOS E
LOS F
LOS F
Langford Dr
E
LOS E
LOS D
With Dev
Richmond Rd
LOS F
LOS D
South St
F
LOS F
LOS F
LOS A
LOS E
Hawthorne Ave
B
LOS E
LOS C
Bells Glade
LOS A
LOS F
LOS A
LOS F
A
F
LOS A
LOS D
LOS A
LOS E
LOS F
LOS F
Langford Dr
F
LOS E
LOS F
Colour code based on Level of Service
LOS A
LOS B
LOS C
LOS D
LOS E
LOS F

Table 9: 2036 PM Future Scenario SIDRA Results

3.1.4 Road network impacts

The modelling indicates that the Richmond Road corridor is already operating over capacity, with the majority of capacity constraints occurring at the southern end of the corridor given this is where the majority of traffic from the region travels to and from during the AM and PM peaks respectively.

As the background traffic growth continues into the future, the network suffers additional failures at the northern intersections of the study area, even with a widening to three lanes. There are likely to be capacity constraints both along the corridor as well as entering/exiting the side roads including the Marsden Park Precinct in the future.

The proposed development causes negligible impacts in road performance in the context of the high background traffic and growth, given the sensitivity of the road network already under failure. However, the results indicate that both with and without the development, Richmond Road will require additional mitigation measures to operate satisfactorily in all scenarios.

3.2 Swept Path Assessment

A swept path assessment has been carried out on the latest designs. These swept paths are attached to this letter and have shown that there would not be any issues.

3.3 Queueing and Access

Council requested that safe access points for all road users were ensured at the driveways. This has been achieved with adequate sight distances as required as per Section 3.2.4 of AS2890.1 and Figure 3.2 of AS2890.1 to ensure safety of pedestrians on the footpaths and motor vehicles along the driveway.

It was noted that there are also multiple driveways proposed adjoining high walls along boundaries which can cause a safety risk. As such additional consideration will be provided in the detailed design by the Civil and Structural consultants to demonstrate the design elements safety of vehicles adjoining these level changes, such as barrier and kerbs.

Warehouse 1:

Queueing at the traffic control point gate to the warehouses has the potential to impact on-street traffic conditions and cause disruptions to the road network. To mitigate this, at Warehouse 1, 30m of queueing space is provided, which is enough for approximately one 19m AV or 30m Super B-Double vehicle (the largest vehicle that will access the warehouse). A queuing analysis has been carried out to determine the probability of there being a queue of more than one vehicle at the gates, as shown below. This analysis was based on the *Austroads Guide to Traffic Management, Part 3: Traffic Studies and Analysis (2013)*.

The queueing analysis identified that in the peak hour, a queue of more than one vehicle could be expected approximately 0.7% of the time. As a queue of more than one vehicle would be expected less than 1% of the time in the peak hour, additional queuing space is not considered necessary and the road network will not be impacted significantly by queuing vehicles.

Table 10: Queueing Analysis

Factor	Name	Value
r	Average arrival rate	100 vehicles per day 10 vehicles in peak hour 0.00277 vehicles per second
s	Average service rate	30 seconds per vehicle (assumed) 0.033 vehicles per second
ρ	Utilisation Factor	$\rho = r / s$ $\rho = 0.00277 / 0.033$ $\rho = 0.084$

Based on these factors, the following equation can be used to determine the probability of more than one vehicle in the queue at the gates:

- probability of more than n vehicles in the system, including the one being serviced (Equation 9):

$$P(>n) = \rho^{n+1} \quad (9)$$

$$\mathbf{P(>1) = \rho^2 = 0.084^2 = 0.7\%}$$

Warehouse 2:

Warehouse 2 is smaller than Warehouse 1 and will have less vehicle movements. It also has 35m of queuing space, sufficient to accommodate one 19m AV or 25m B-Double vehicle (the largest vehicle that will access the warehouse). Based on this, it is expected that Warehouse 2 will have a queue of more than one vehicle less than 1% of the time. Thus, additional queuing space is not considered necessary and the road network will not be impacted negatively by queuing vehicles.

Warehouse 3:

Warehouse 3 includes a shared access for the car parking and heavy vehicles, which can conflict between movement types. It is noted that this is a smaller warehouse with fewer heavy and articulated vehicle movements than Warehouse 1 and 2.

Vehicle conflicts at the site can be ameliorated through appropriate signage, such as “Give Way” and “No Pedestrian Access” signs as shown in Figure 3 below. It is recommended that vegetation be planted in a way that does not impact the visibility of these signs or sight lines between the vehicles at intersections.

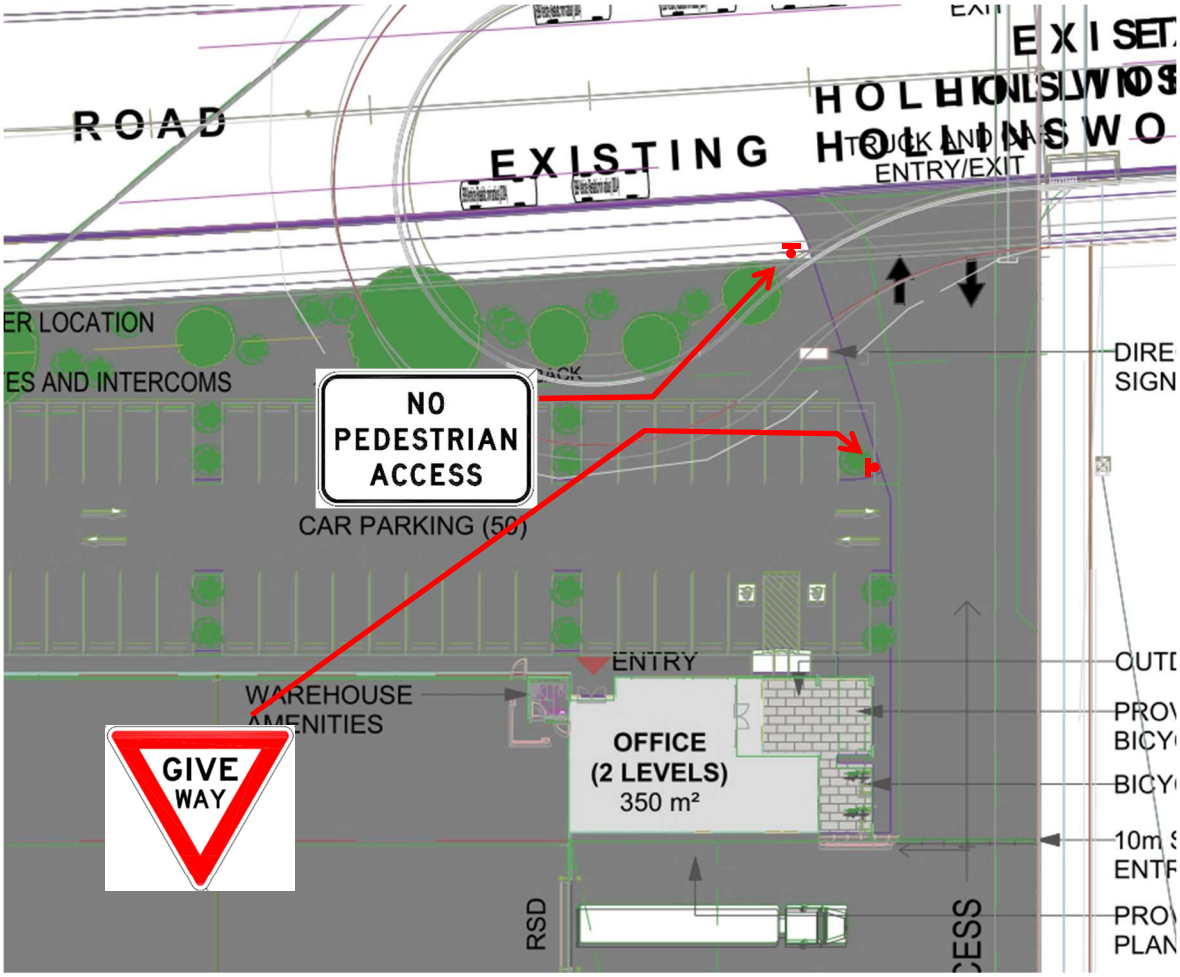


Figure 3: Warehouse 3 Signage

4 Travel Plan and Travel Demand Management

4.1 Travel plan and carpooling

TfNSW requested that prior to the issue of the first Occupation Certificate, the applicant be conditioned to prepare a comprehensive Travel Plan in consultation with TfNSW to reduce the proportion of single-occupant car travel and increase the mode share of car sharing, public transport and active transport for the development. This includes the request for a firm commitment and timeframe for each tenant to implement a carpooling scheme.

A draft travel plan has been appended to this letter to support the application for TfNSW review.

5 Summary

This letter has been prepared in response to the TfNSW and Blacktown City Council response to submissions for the proposed Stage 3 Industrial Developments (Warehouses 1 to 4) state significant development application (SSDA) in the Marsden Park Industrial Precinct. The letter has considered:

- Car parking provisions in line with Council comments and the associated DCP
- Road network assessment, including a revised traffic assessment and modelling along the Richmond Road corridor
- A revised swept path assessment
- A queuing assessment and consideration of the Warehouse 3 shared vehicle access
- A draft travel plan including carpooling

The assessment has found that the development is still supportable and that the wider traffic network requires further intervention beyond the scope of this development. This development is a very small percentage of the overall development both proposed and approved in the North West Growth Area.

Should you have any questions, please do not hesitate to contact the undersigned.

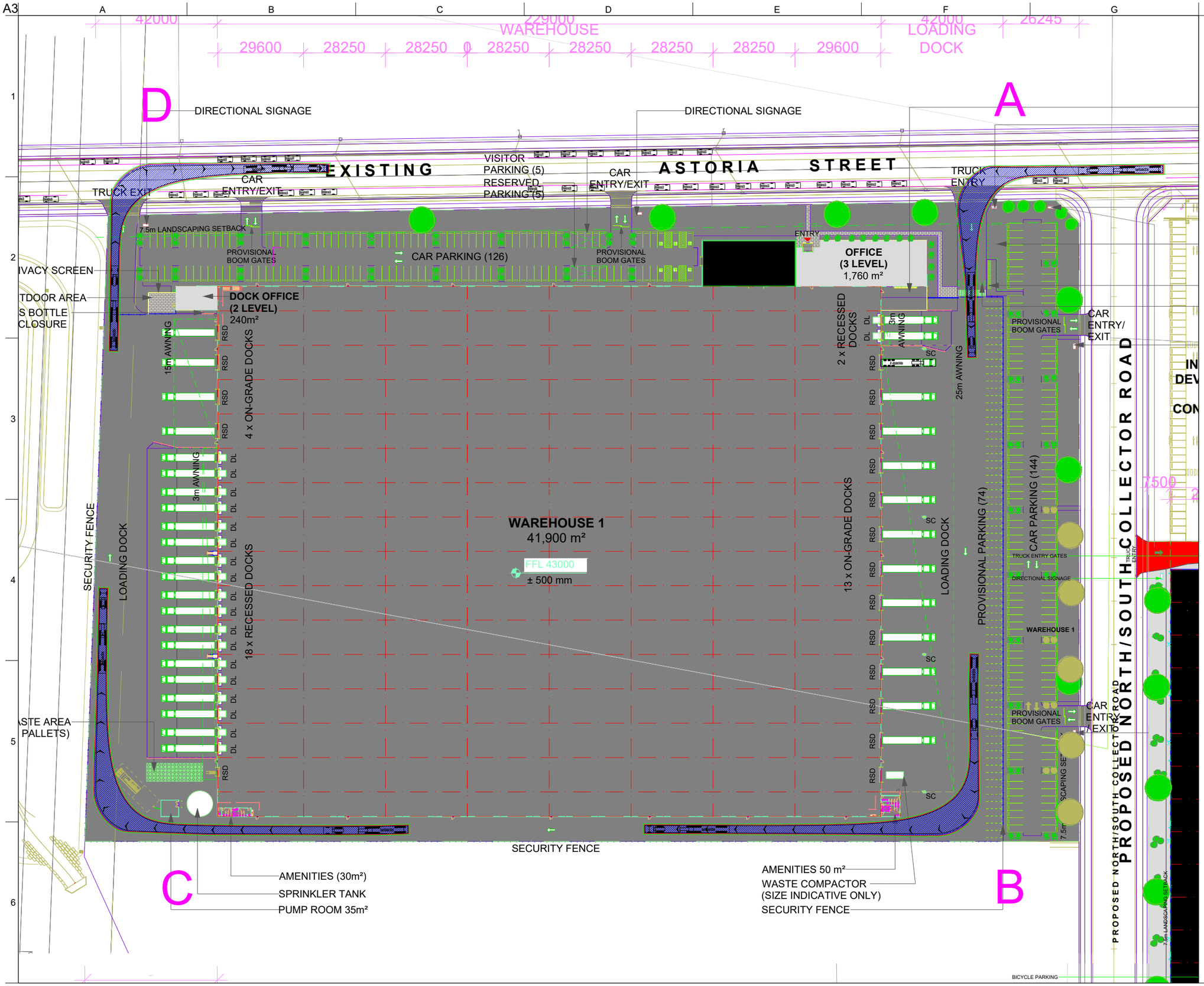
Yours sincerely

James Turner
Senior Engineer
BE (Hons) MIEAust CPEng NER

Appendix A

Swept Paths

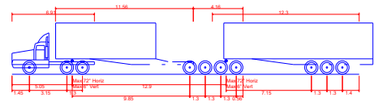
A3



Legend

- Body Envelope
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



Super B-Double (30.0m)

Overall Length	29.100m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.540m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	15.000m

Issue	Date	By	Chkd	Appd
F	03/08/20	LK	JT	JT
E	31/07/20	LK	JT	JT
D	30/07/20	LK	JT	JT
C	20/07/20	LK	JT	JT
B	14/07/20	LK	JT	JT
A	07/07/20	LK	JT	JT

For Information

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Client

Sydney Business Park
Marsden Park

Job Title

Business Park - Stage 3

Drawing Title

Turning Paths
Super B-Double
Entry and exit and Circulation
Warehouse 1

Scale at A3

Discipline

Transport

Drawing Status

Draft

Job No	Drawing No	Issue
253779	**SKT001**	**F**

Do not scale

A3

A

STREET

TRUCK ENTRY

ENTRY

OFFICE
(3 LEVEL)
1,760 m²

2 x RECESSED DOCKS

DL DL

3m AWNING

RSD

RSD

SC

AV - Articulated Vehicle

25m AWNING

PROVISIONAL BOOM GATES

CAR ENTRY/ EXIT

R ROAD

INDUS
DEVELO
UNI
CONSTR

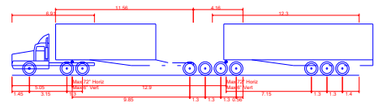
Super B-Double (30.0m)

44.93 44.72 45.01 45.11 45.17

Legend

- Body Envelope
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



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Curb to Curb Turning Radius	19.000m

Issue	Date	By	Chkd	Appd
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E	31/07/20	LK	JT	JT
D	30/07/20	LK	JT	JT
C	20/07/20	LK	JT	JT
B	14/07/20	LK	JT	JT
A	07/07/20	LK	JT	JT

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Client
Sydney Business Park
Marsden Park

Job Title
Business Park - Stage 3

Drawing Title
Turning Paths
Super B-Double
Entry Movement
Warehouse 1

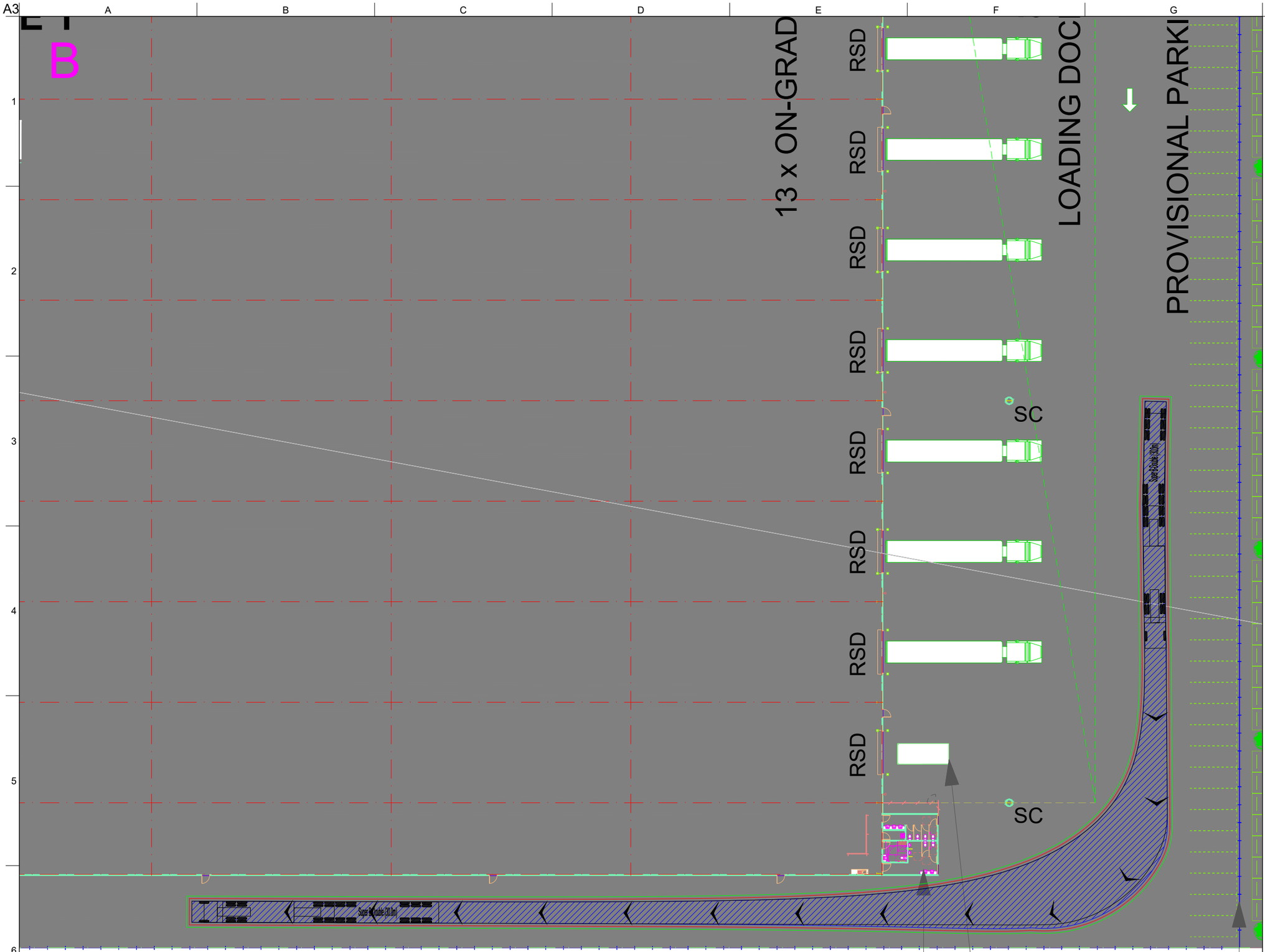
Scale at A3 1/450

Discipline Transport

Drawing Status **Draft**

Job No	Drawing No	Issue
253779	SKT002	F

Do not scale



Legend

- Body Envelope
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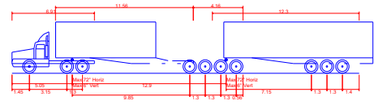
Design Vehicle(s)



Super B-Double (30.0m)

Overall Length	29.100m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.540m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	19.000m

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B	14/07/20	LK	JT	JT
A	07/07/20	LK	JT	JT

For Information

ARUP

Arup, Level 5 Barrack Place, 151 Clarence Street
Sydney, NSW, 2000
Tel +61(02)9320 9320 Fax +61(02)9320 9321
www.arup.com.au

Client
Sydney Business Park
Marsden Park

Job Title
Business Park - Stage 3

Drawing Title
Turning Paths
Super B-Double Circulation
Warehouse 1

Scale at A3 1/450

Discipline Transport

Drawing Status
Draft

Job No	Drawing No	Issue
253779	**SKT003**	**F**

A3

SECURITY FEN

LOADING DOCK

18 x RECESSED DOCKS

DL

RSD

STE AREA
PALLETS)

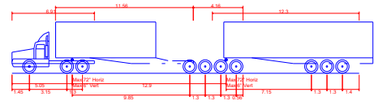
Super B-Double (30.0m)

Super B-Double (30.0m)

Legend

- Body Envelope
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



Super B-Double (30.0m)

Overall Length	29.100m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.540m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	19.000m

Issue	Date	By	Chkd	Appd
F	03/08/20	LK	JT	JT
E	31/07/20	LK	JT	JT
D	30/07/20	LK	JT	JT
C	20/07/20	LK	JT	JT
B	14/07/20	LK	JT	JT
A	07/07/20	LK	JT	JT

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Client
Sydney Business Park
Marsden Park

Job Title
Business Park - Stage 3

Drawing Title
Turning Paths
Super B-Double Circulation
Warehouse 1

Scale at A3 1/450

Discipline Transport

Drawing Status
Draft

Job No	Drawing No	Issue
253779	**SKT004**	**F**

Do not scale

A3

D

DIRECTIONAL SIGNAGE

EXISTING

CAR
ENTRY/EXIT

TRUCK EXIT

7.5m LANDSCAPING SETBACK

PROVISIONAL
BOOM GATES

CAR

RIVACY SCREEN

UTDOOR AREA

AS BOTTLE
NCLOSURE

DOCK OFFICE
(2 LEVEL)
240m²

15m AWNING

RSD

RSD

RSD

RSD

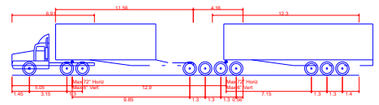
4 x ON-GRADE DOCKS

Super B-Double (30.0m)

Legend

- Body Envelope
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



Super B-Double (30.0m)

Overall Length	29.100m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.540m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	15.000m

Issue	Date	By	Chkd	Appd
F	03/08/20	LK	JT	JT
E	31/07/20	LK	JT	JT
D	30/07/20	LK	JT	JT
C	20/07/20	LK	JT	JT
B	14/07/20	LK	JT	JT
A	07/07/20	LK	JT	JT

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Client
Sydney Business Park
Marsden Park

Job Title
Business Park - Stage 3

Drawing Title
Turning Paths
Super B-Double
Exit Movement
Warehouse 1

Scale at A3 1/450

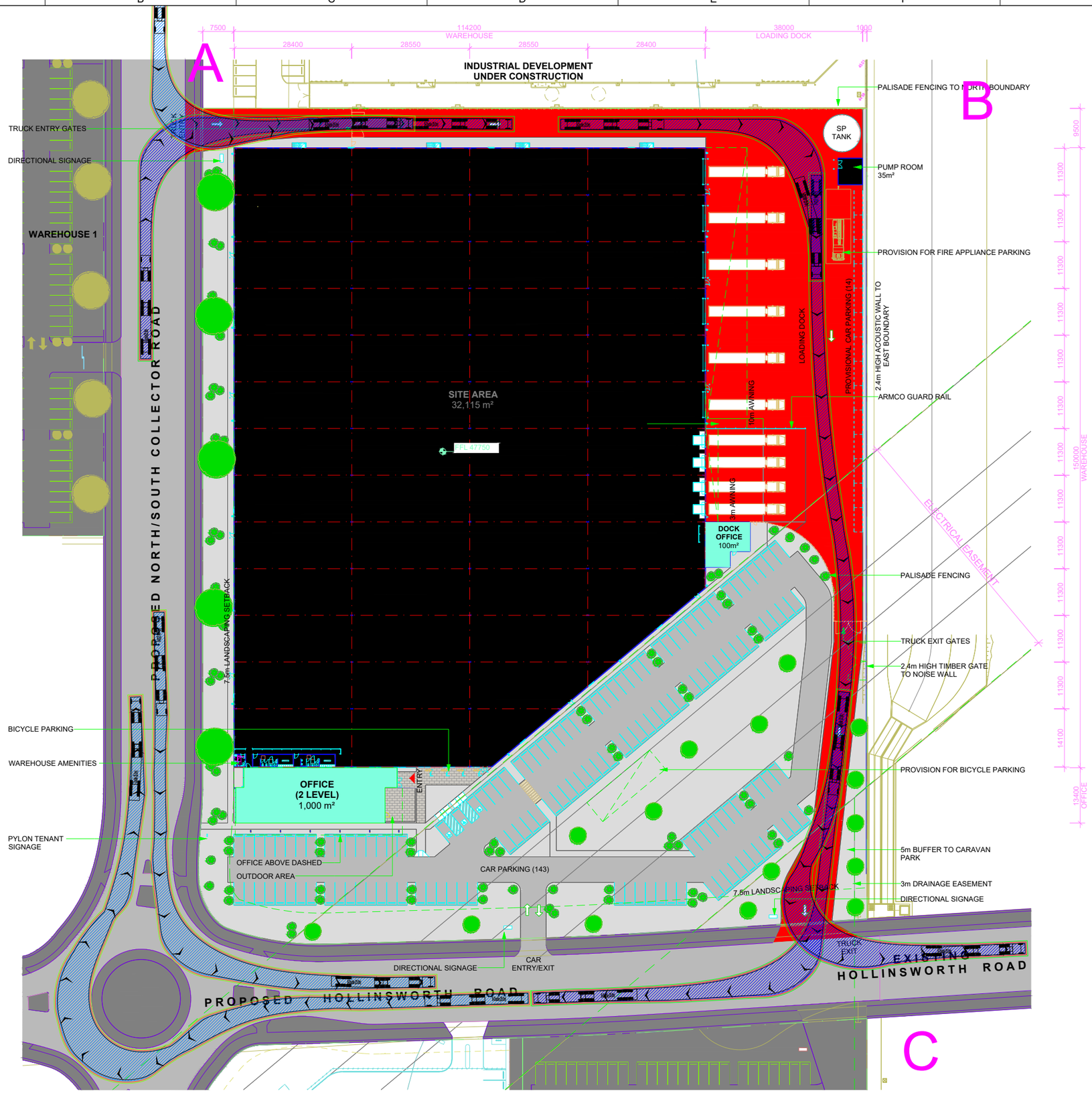
Discipline Transport

Drawing Status
Draft

Job No	Drawing No	Issue
253779	**SKT005**	**F**

Do not scale

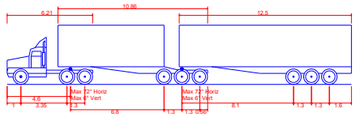
A3



Legend

- Body Envelope
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



B-Double (25.0m)

Overall Length	25.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.540m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	15.000m

Issue	Date	By	Chkd	Appd
H	21/10/20	AH	JT	JT
G	07/10/20	AH	JT	JT
F	03/08/20	LK	JT	JT
E	31/07/20	LK	JT	JT
D	31/07/20	LK	JT	JT
C	20/07/20	LK	JT	JT
B	14/07/20	LK	JT	JT
A	07/07/20	LK	JT	JT

For Information

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www.arup.com.au

Client

Sydney Business Park
Marsden Park

Job Title

Business Park - Stage 3

Drawing Title

Turning Paths
25m B-Double
Entry and exit and Circulation
Warehouse 2

Scale at A3

Discipline

Transport

Drawing Status

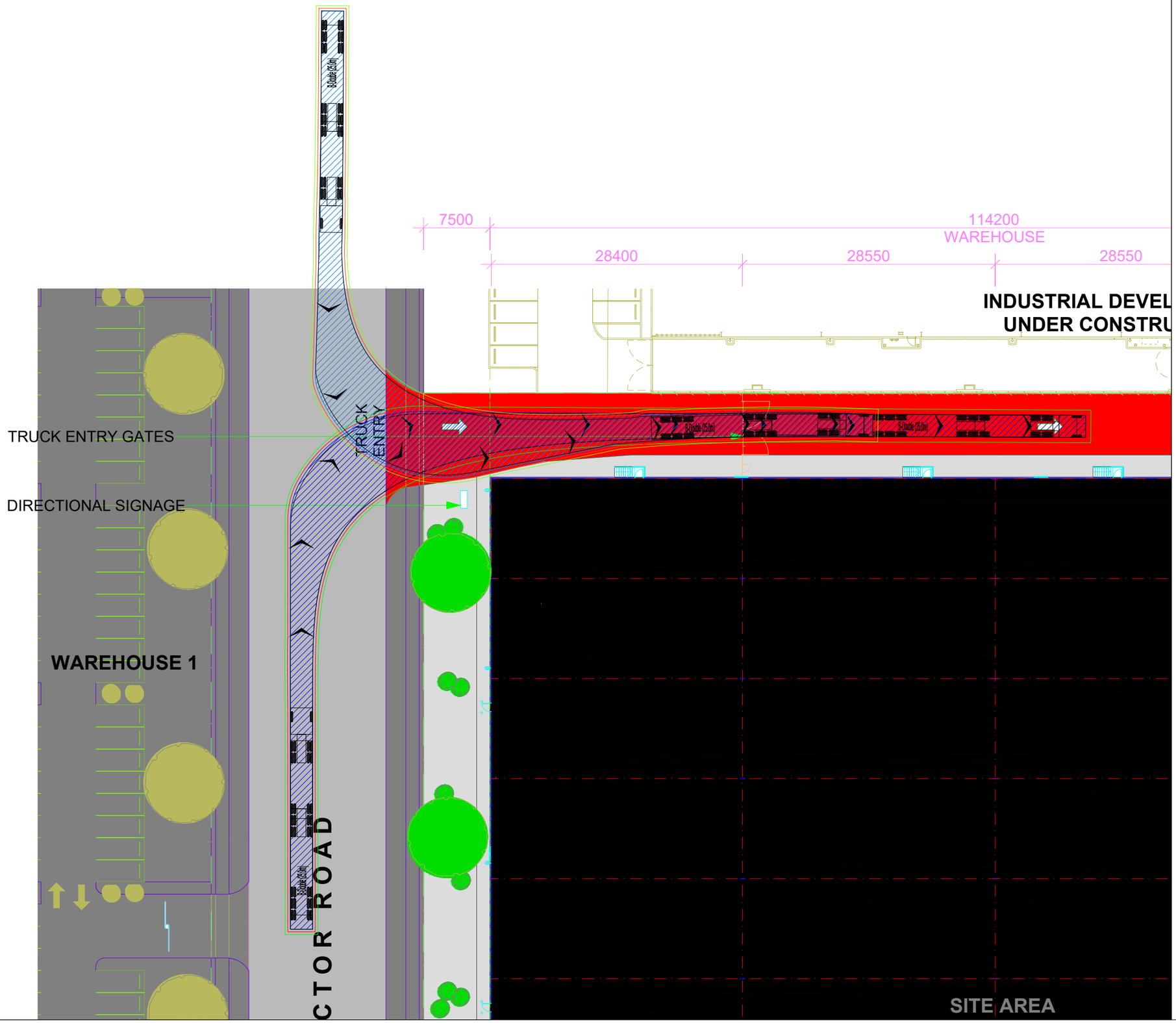
Draft

Job No	Drawing No	Issue
253779	**SKT006**	**H**

Do not scale

A3

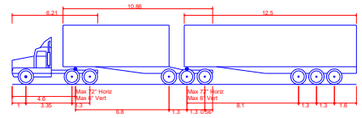
A



Legend

- Body Envelope
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



B-Double (25.0m)

Overall Length	25.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.540m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	15.000m

Issue	Date	By	Chkd	Appd
H	21/10/20	AH	JT	JT
G	07/10/20	AH	JT	JT
F	03/08/20	LK	JT	JT
E	31/07/20	LK	JT	JT
D	31/07/20	LK	JT	JT
C	20/07/20	LK	JT	JT
B	14/07/20	LK	JT	JT
A	07/07/20	LK	JT	JT

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www.arup.com.au

Client

Sydney Business Park
Marsden Park

Job Title

Business Park - Stage 3

Drawing Title

Turning Paths
25m B-Double
Entry Movement
Warehouse 2

Scale at A3 1/450

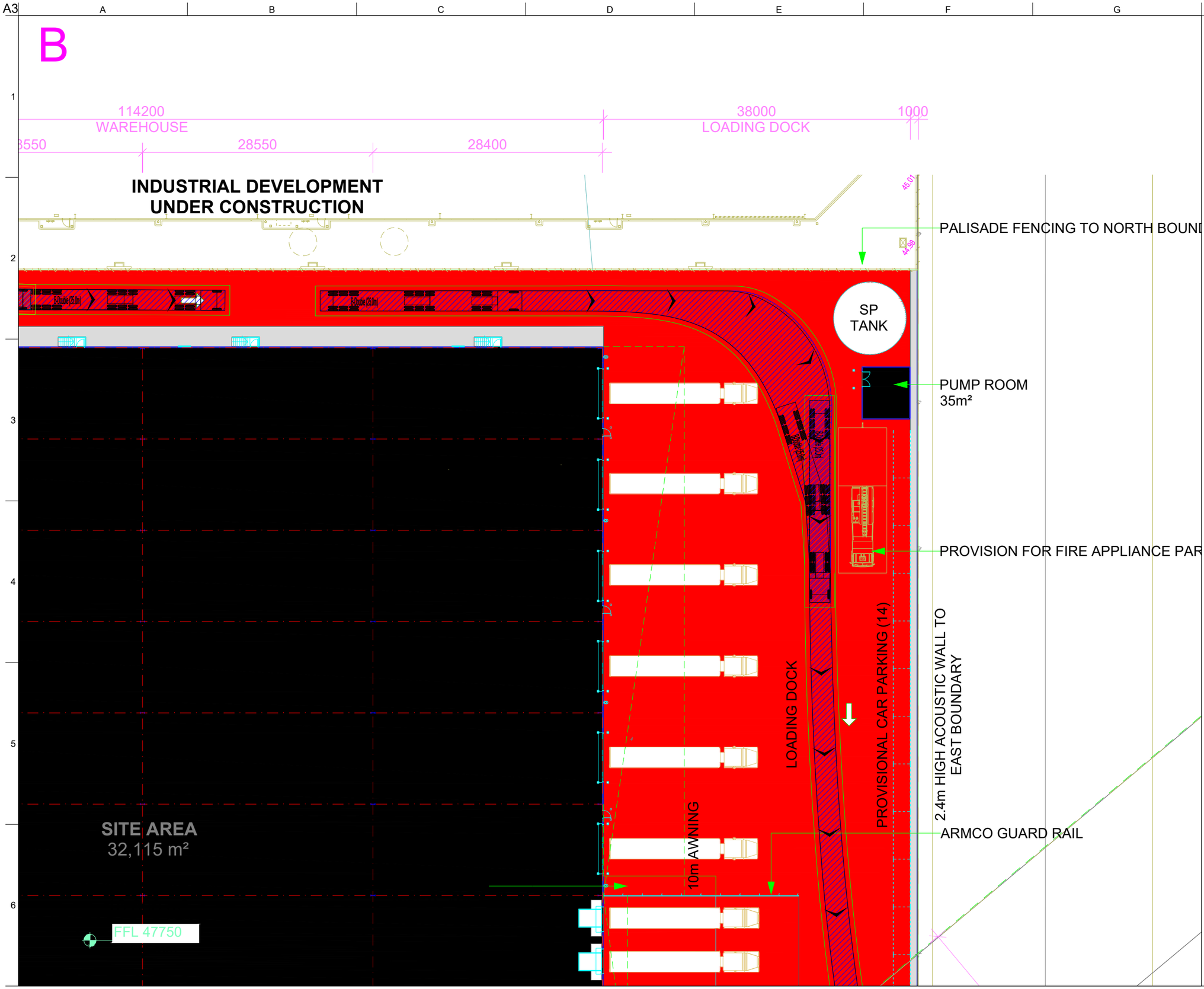
Discipline Transport

Drawing Status **Draft**

Job No	Drawing No	Issue
253779	**SKT007**	**H**

Do not scale

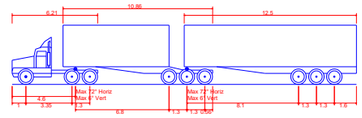
A3



Legend

- Body Envelope
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



B-Double (25.0m)

Overall Length	25.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.540m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	15.000m

G	21/10/20	AH	JT	JT
F	03/08/20	LK	JT	JT
E	31/07/20	LK	JT	JT
D	30/07/20	LK	JT	JT
C	20/07/20	LK	JT	JT
B	14/07/20	LK	JT	JT
A	07/07/20	LK	JT	JT

For Information

Issue	Date	By	Chkd	Appd

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www.arup.com.au

Client
Sydney Business Park
Marsden Park

Job Title
Business Park - Stage 3

Drawing Title
Turning Paths
25m B-Double Circulation
Warehouse 2

Scale at A3 1/450

Discipline Transport

Drawing Status
Draft

Job No	Drawing No	Issue
253779	**SKT008**	**G**

Do not scale

A3

PALISADE FENCING

TRUCK EXIT GATES

2.4m HIGH TIMBER GATE
TO NOISE WALL

PROVISION FOR BICYCLE PARKING

5m BUFFER TO CARAVAN
PARK

3m DRAINAGE EASEMENT

DIRECTIONAL SIGNAGE

CAR PARKING (143)

7.5m LANDSCAPING SETBACK

CAR
ENTRY/EXIT

TRUCK
EXIT

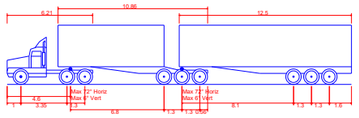
EXISTING
HOLLINSWORTH ROAD

11300
11300
11300
14100

Legend

- Body Envelope
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



B-Double (25.0m)

Overall Length	25.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.540m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	15.000m

Issue	Date	By	Chkd	Appd
H	21/10/20	AH	JT	JT
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C	20/07/20	LK	JT	JT
B	14/07/20	LK	JT	JT
A	07/07/20	LK	JT	JT

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www.arup.com.au

Client
Sydney Business Park
Marsden Park

Job Title
Business Park - Stage 3

Drawing Title
Turning Paths
25m B-Double
Exit Movement
Warehouse 2

Scale at A3 1/450

Discipline Transport

Drawing Status
Draft

Job No	Drawing No	Issue
253779	**SKT009**	**H**

Do not scale

A3

D

PROPOSED HOLLINSWORTH ROAD

7.5m LANDSCAPING SETB

B-Double (25.0m)

OFFICE
(2 LEVEL)
1,000 m²

ENTRY

'CLE PARKING

REHOUSE AMENITIES

ON TENANT
NAGE

OFFICE ABOVE DASHED

OUTDOOR AREA

CAR PARKING (143)

DIRECTIONAL SIGNAGE

CAR
ENTRY/EXIT

PROPOSED HOLLINSWORTH ROAD

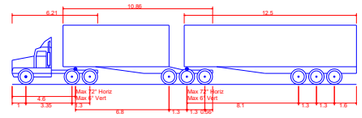
B-Double (25.0m)

B-Double (25.0m)

Legend

- Body Envelope
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



B-Double (25.0m)

Overall Length	25.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.540m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	15.000m

Issue	Date	By	Chkd	Appd
G	21/10/20	AH	JT	JT
F	03/08/20	LK	JT	JT
E	31/07/20	LK	JT	JT
D	30/07/20	LK	JT	JT
C	20/07/20	LK	JT	JT
B	14/07/20	LK	JT	JT
A	07/07/20	LK	JT	JT

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www.arup.com.au

Client

Sydney Business Park
Marsden Park

Job Title

Business Park - Stage 3

Drawing Title

Turning Paths
25m B-Double
Roundabout Circulation
Warehouse 2

Scale at A3 1/450

Discipline Transport

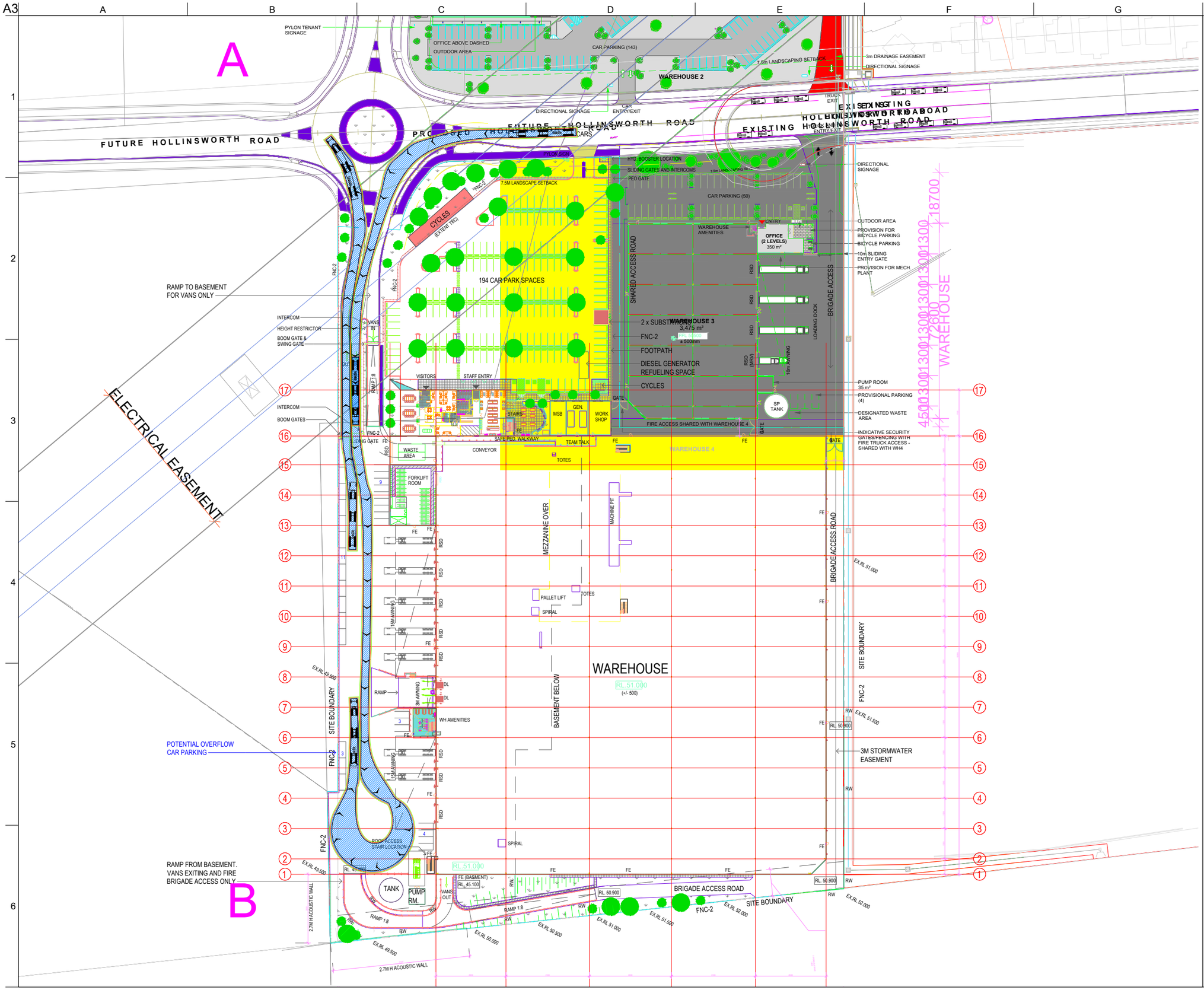
Drawing Status

Draft

Job No	Drawing No	Issue
253779	**SKT010**	**G**

Do not scale

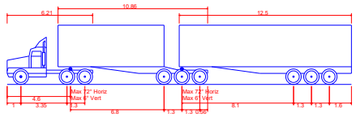
A3



Legend

- Body Envelope
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



B-Double (25.0m)

Overall Length	25.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.540m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	15.000m

Issue	Date	By	Chkd	Appd
G	07/10/20	AH	JT	JT
F	03/08/20	LK	JT	JT
E	31/07/20	LK	JT	JT
D	30/07/20	LK	JT	JT
C	20/07/20	LK	JT	JT
B	14/07/20	LK	JT	JT
A	07/07/20	LK	JT	JT

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Client

Sydney Business Park
Marsden Park

Job Title

Business Park - Stage 3

Drawing Title

Turning Paths
25m B-Double
Entry and exit and Circulation
Warehouse 4

Scale at A3

Discipline

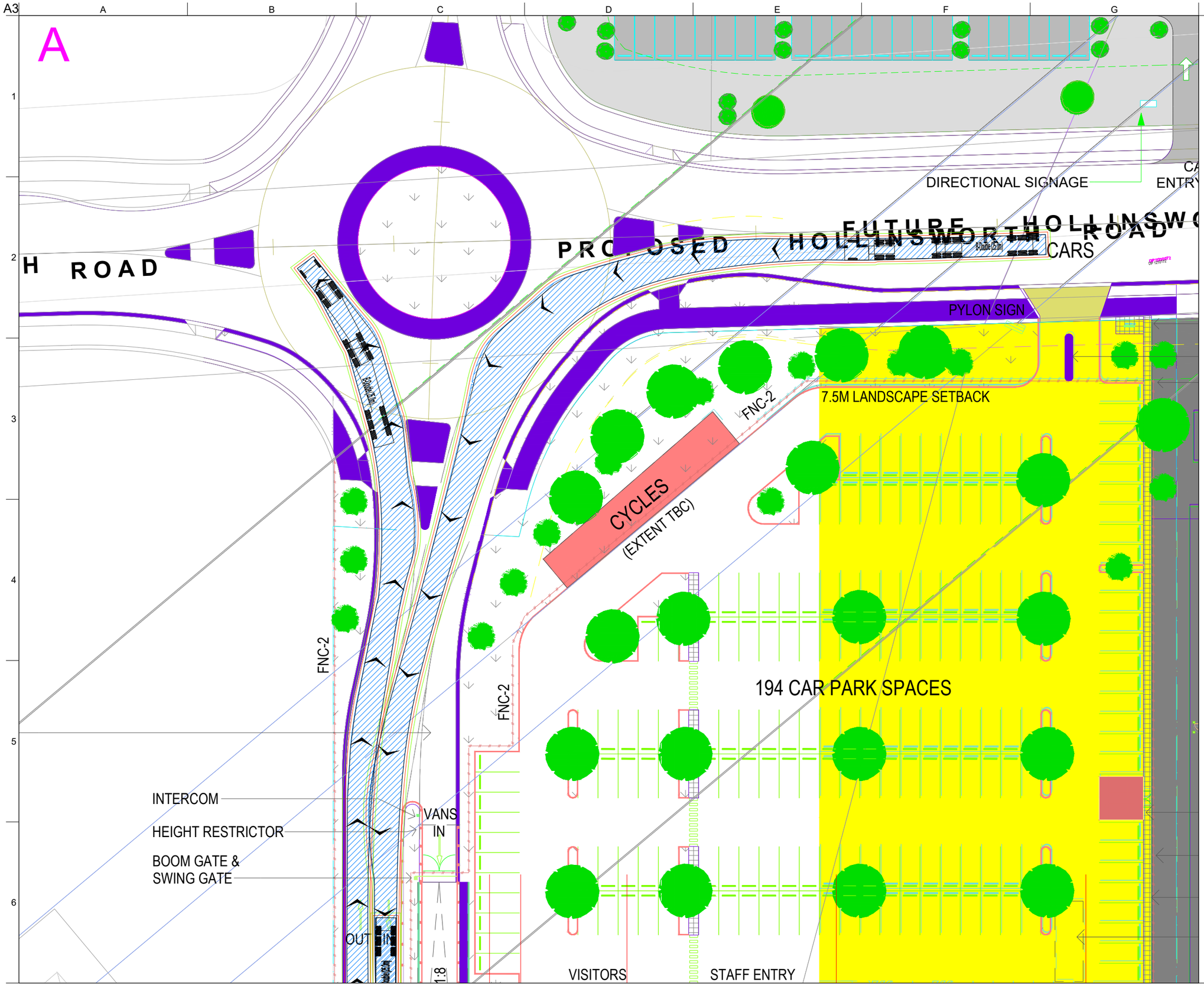
Transport

Drawing Status

Draft

Job No	Drawing No	Issue
253779	**SKT011**	**G**

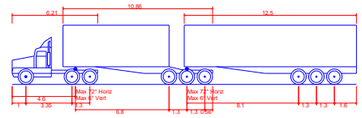
Do not scale



Legend

- Body Envelope
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



B-Double (25.0m)

Overall Length	25.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.540m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	15.000m

Issue	Date	By	Chkd	Appd
G	07/10/20	AH	JT	JT
F	03/08/20	LK	JT	JT
E	31/07/20	LK	JT	JT
D	30/07/20	LK	JT	JT
C	20/07/20	LK	JT	JT
B	14/07/20	LK	JT	JT
A	07/07/20	LK	JT	JT

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Client
Sydney Business Park
Marsden Park

Job Title
Business Park - Stage 3

Drawing Title
Turning Paths
25m B-Double
Entry and Exit Movement
Warehouse 4

Scale at A3 1/450

Discipline Transport

Drawing Status
Draft

Job No	Drawing No	Issue
253779	**SKT012**	**G**

Do not scale

A3

B

12
11
10
9
8
7
6
5
4
3
2
1

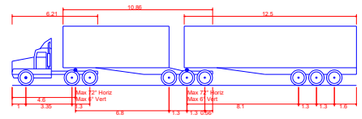
RSD
RSD
RSD
RSD
15M AWNING
FE
EX.RL 49.500
SITE BOUNDARY
RAMP
3M AWNING
DL
DL
WH AMENITIES
FE
3
FNC-2
15M AWNING
RSD
RSD
RSD
FE
RSD
4
ROOF ACCESS
STAIR LOCATION
FE
FNC-2
EX.RL 49.500
RL. 49.500
RL.51.000
FE
PALLET LIFT
TOTES
SPIRAL
SPIRAL
BASEMENT BELOW
VERFLOW
BASEMENT.
AND FIRE

Do not scale

Legend

- Body Envelope
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



B-Double (25.0m)

Overall Length	25.000m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.540m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	15.000m

Issue	Date	By	Chkd	Appd
F	03/08/20	LK	JT	JT
E	31/07/20	LK	JT	JT
D	30/07/20	LK	JT	JT
C	20/07/20	LK	JT	JT
B	14/07/20	LK	JT	JT
A	07/07/20	LK	JT	JT

For Information

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www.arup.com.au

Client
Sydney Business Park
Marsden Park

Job Title
Business Park - Stage 3

Drawing Title
Turning Paths
25m B-Double
Turning Point
Warehouse 4

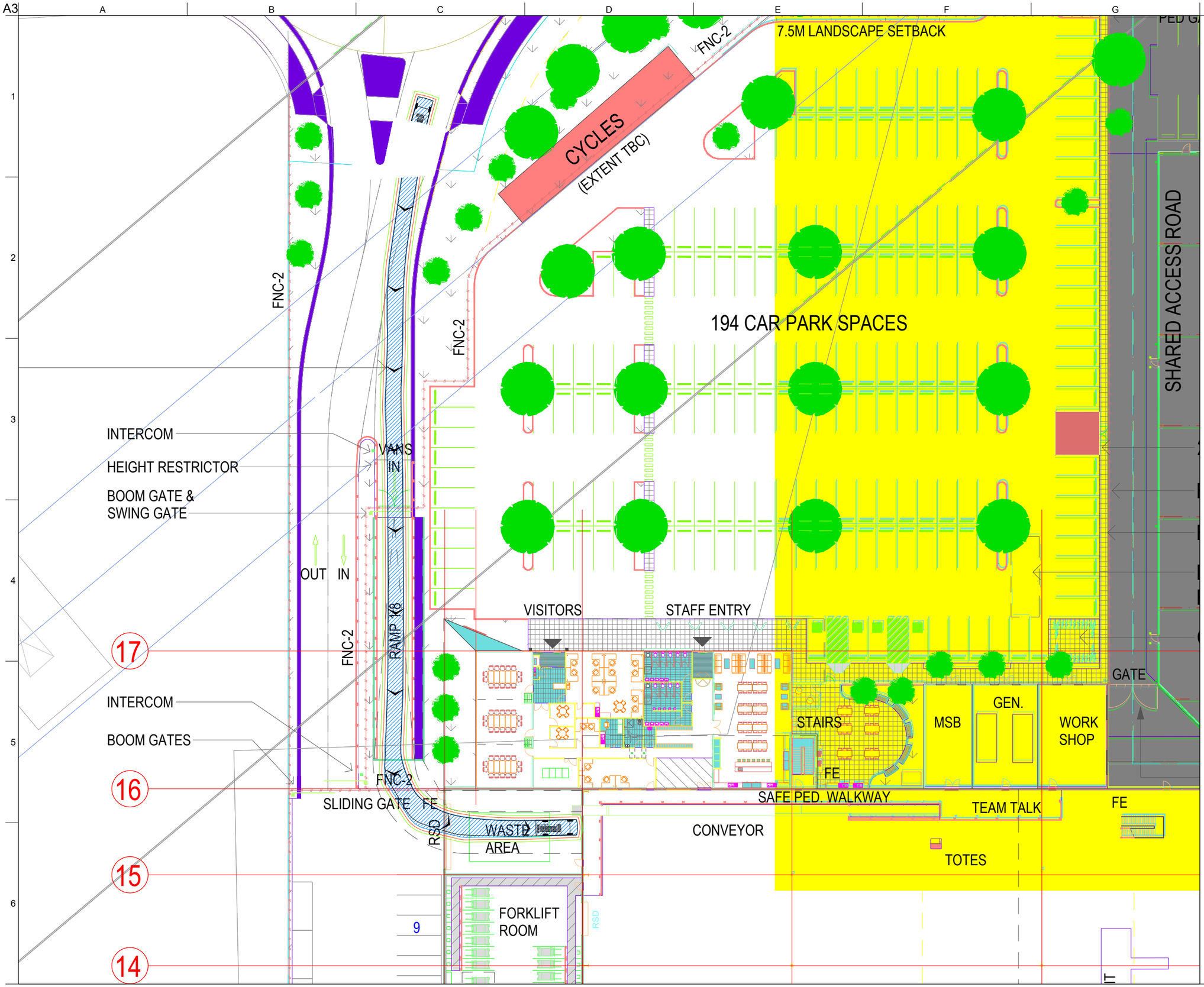
Scale at A3
1/450

Discipline
Transport

Drawing Status
Draft

Job No	Drawing No	Issue
253779	**SKT013**	**F**

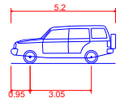
A3



Legend

- Body Envelope
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

Issue	Date	By	Chkd	Appd
B	03/08/20	LK	JT	JT
A	31/07/20	LK	JT	JT

For Information

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www.arup.com.au

Client
Sydney Business Park
Marsden Park

Job Title
Business Park - Stage 3

Drawing Title
Turning Paths
5m Van- Ramp circulation
Warehouse 4

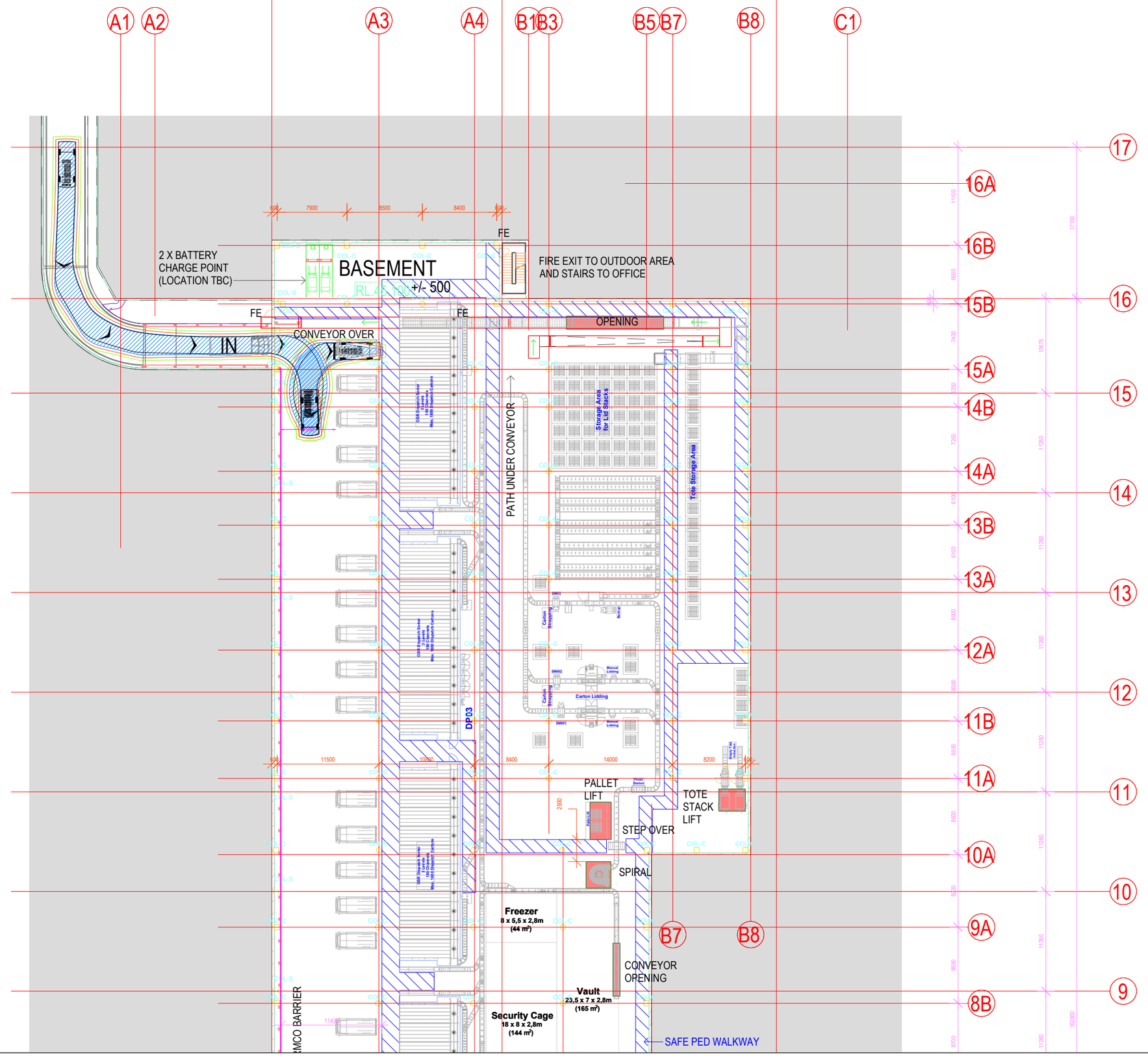
Scale at A3 1/450

Discipline Transport

Drawing Status
Draft

Job No	Drawing No	Issue
253779	**SKT001**	**B**

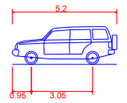
Do not scale



Legend

- Body Envelope
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

Issue	Date	By	Chkd	Appd
B	03/08/20	LK	JT	JT
A	31/07/20	LK	JT	JT

For Information

ARUP

Arup, Level 5 Barrack Place, 151 Clarence Street
Sydney, NSW, 2000
Tel +61(02)9320 9320 Fax +61(02)9320 9321
www.arup.com.au

Client

Sydney Business Park
Marsden Park

Job Title

Business Park - Stage 3

Drawing Title

Turning Paths
5m Van Entry Movement and Circulation
Warehouse 4 - Basement 1

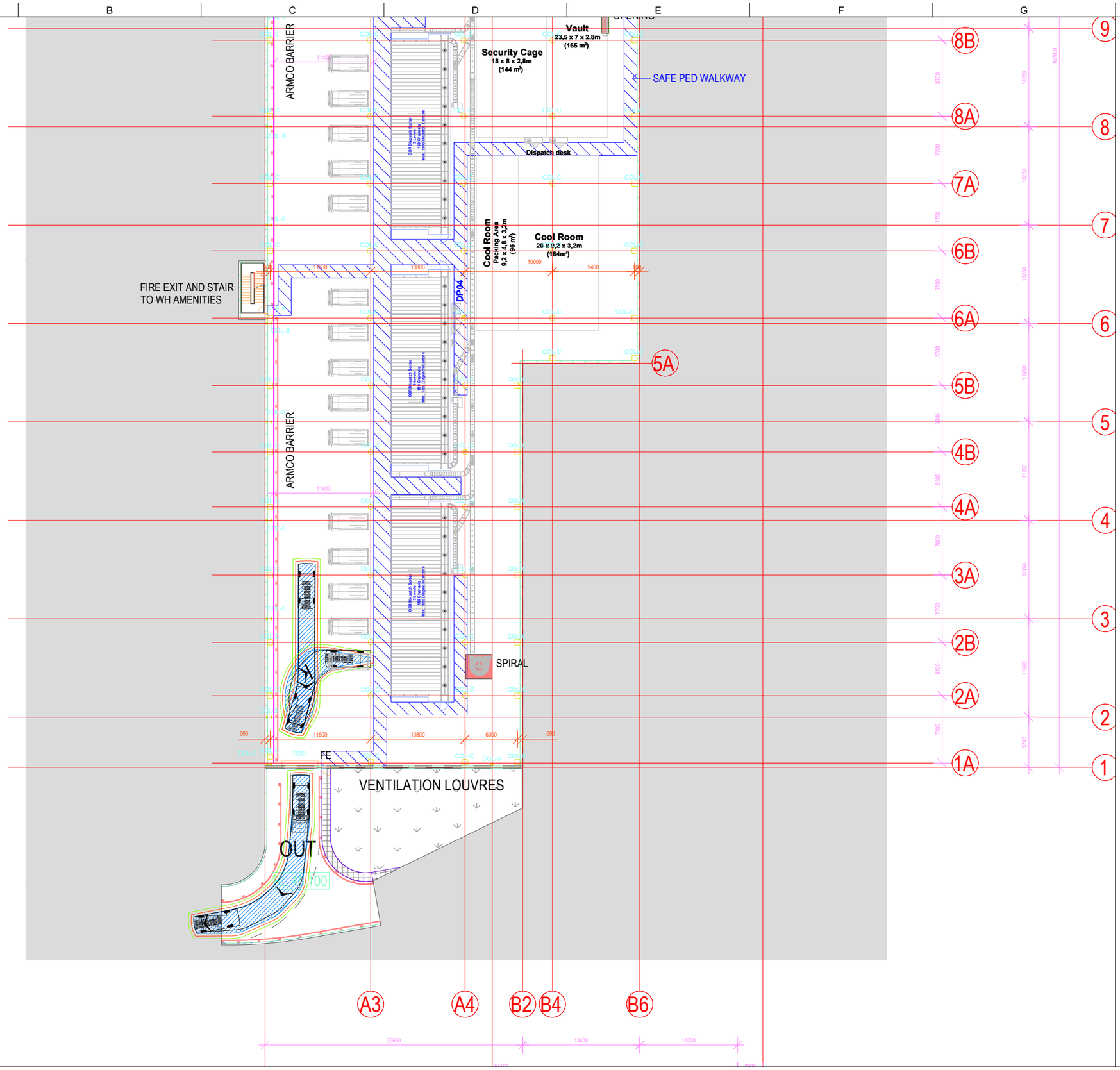
Scale at A3 1/450

Discipline Transport

Drawing Status **Draft**

Job No	Drawing No	Issue
253779	**SKT002**	**B**

Do not scale



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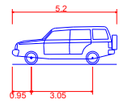
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



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Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

Issue	Date	By	Chkd	Appd
B	03/08/20	LK	JT	JT
A	31/07/20	LK	JT	JT

For Information

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www.arup.com.au

Client
Sydney Business Park
Marsden Park

Job Title
Business Park - Stage 3

Drawing Title
Turning Paths
5m Van Entry/Exit Movement
and Circulation
Warehouse 4 - Basement 1

Scale at A3
1/450

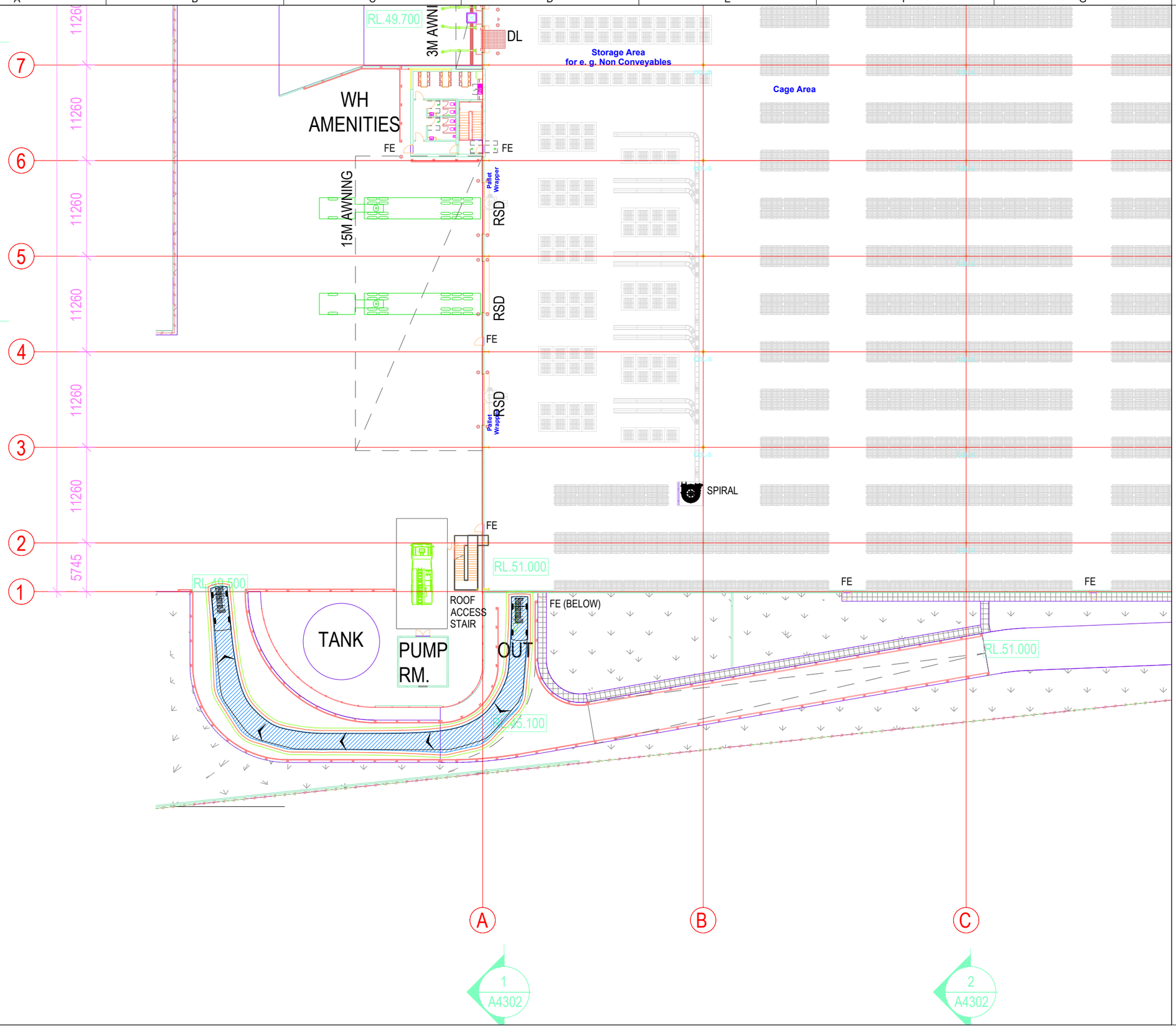
Discipline
Transport

Drawing Status
Draft

Job No	Drawing No	Issue
253779	**SKT003**	**B**

Do not scale

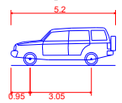
A3



Legend

- Body Envelope
- 300mm Envelope
- 600mm Envelope
- Wheel Envelope

Design Vehicle(s)



B99 Vehicle (Realistic min radius) (2004)

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Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m

Issue	Date	By	Chkd	Appd
B	03/08/20	LK	JT	JT
A	31/07/20	LK	JT	JT

For Information

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www.arup.com.au

Client
Sydney Business Park
Marsden Park

Job Title
Business Park - Stage 3

Drawing Title
Turning Paths
5m Van- Ramp circulation
Warehouse 4

Scale at A3 1/450

Discipline Transport

Drawing Status
Draft

Job No	Drawing No	Issue
253779	**SKT004**	**B**

Do not scale

Appendix B

SIDRA Modelling Results

MOVEMENT SUMMARY

Site: 101 [1 Richmond / South (Site Folder: 2021 AM)]

Network: N101 [AM (Network Folder: 2021)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	54	5.0	54	5.0	0.084	28.7	LOS C	2.0	14.9	0.75	0.73	0.75	45.7
2	T1	1182	5.0	1182	5.0	0.584	26.8	LOS B	17.8	130.3	0.91	0.78	0.91	56.1
3	R2	555	5.0	555	5.0	* 0.802	41.3	LOS C	10.8	79.2	0.99	0.87	1.07	39.0
Approach		1791	5.0	1791	5.0	0.802	31.3	LOS C	17.8	130.3	0.93	0.81	0.95	50.4
East: South Street														
4	L2	464	5.0	464	5.0	* 0.711	39.4	LOS C	19.0	138.8	0.92	0.85	0.92	27.9
5	T1	42	5.0	42	5.0	0.088	59.5	LOS E	1.3	9.4	0.91	0.67	0.91	29.6
6	R2	319	5.0	319	5.0	0.692	72.0	LOS F	10.8	79.0	1.00	0.83	1.05	32.1
Approach		825	5.0	825	5.0	0.711	53.1	LOS D	19.0	138.8	0.95	0.84	0.97	30.5
North: Richmond Road														
7	L2	460	5.0	460	5.0	* 0.528	21.9	LOS B	13.8	100.8	0.74	0.81	0.74	52.6
8	T1	1717	5.0	1717	5.0	* 0.885	57.1	LOS E	42.8	312.2	0.99	0.98	1.12	31.5
9	R2	13	5.0	13	5.0	0.047	36.7	LOS C	0.4	3.3	0.88	0.68	0.88	45.2
Approach		2189	5.0	2189	5.0	0.885	49.6	LOS D	42.8	312.2	0.94	0.94	1.04	35.6
West: South Street														
10	L2	22	5.0	22	5.0	0.041	26.4	LOS B	0.5	4.0	0.73	0.68	0.73	49.5
11	T1	82	5.0	82	5.0	* 0.203	62.6	LOS E	2.6	19.0	0.95	0.71	0.95	29.1
12	R2	45	5.0	45	5.0	0.118	67.5	LOS E	1.4	10.4	0.94	0.71	0.94	19.2
Approach		149	5.0	149	5.0	0.203	58.7	LOS E	2.6	19.0	0.91	0.70	0.91	28.9
All Vehicles		4955	5.0	4955	5.0	0.885	43.8	LOS D	42.8	312.2	0.93	0.87	0.99	39.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P11	Stage 1	53	64.3	LOS F	0.2	0.2	0.96	0.96	234.1	220.8	0.94
P12	Stage 2	53	64.3	LOS F	0.2	0.2	0.96	0.96	229.0	214.2	0.94
P1B	Slip/ Bypass	53	64.3	LOS F	0.2	0.2	0.96	0.96	221.4	204.3	0.92
East: South Street											
P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	241.4	230.3	0.95

P2B	Slip/ Bypass	53	64.3	LOS F	0.2	0.2	0.96	0.96	221.4	204.3	0.92
North: Richmond Road											
P31	Stage 1	53	64.3	LOS F	0.2	0.2	0.96	0.96	231.6	217.5	0.94
P32	Stage 2	53	29.5	LOS C	0.1	0.1	0.92	0.92	194.3	214.2	1.10
P3B	Slip/ Bypass	53	64.3	LOS F	0.2	0.2	0.96	0.96	221.4	204.3	0.92
West: South Street											
P4	Full	53	38.6	LOS D	0.1	0.1	0.92	0.92	216.1	230.8	1.07
P4B	Slip/ Bypass	53	64.3	LOS F	0.2	0.2	0.96	0.96	221.4	204.3	0.92
All Pedestrians		526	58.2	LOS E	0.2	0.2	0.95	0.95	223.2	214.5	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 102 [2 Richmond / Hawthorne / Harmony (Site Folder: 2021 AM)]

Network: N101 [AM (Network Folder: 2021)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	41	5.0	41	5.0	0.031	15.4	LOS B	1.2	8.8	0.47	0.69	0.47	52.5
2	T1	1712	5.0	1712	5.0	0.709	26.6	LOS B	48.7	355.6	0.91	0.84	0.91	41.7
3	R2	21	5.0	21	5.0	0.274	79.1	LOS F	1.4	10.6	0.97	0.70	0.97	28.5
Approach		1774	5.0	1774	5.0	0.709	26.9	LOS B	48.7	355.6	0.90	0.84	0.90	41.6
East: Harmony Avenue														
4	L2	72	5.0	72	5.0	0.224	62.1	LOS E	4.2	30.7	0.90	0.75	0.90	19.6
5	T1	4	5.0	4	5.0	0.024	62.5	LOS E	0.3	1.9	0.93	0.60	0.93	22.7
6	R2	27	5.0	27	5.0	* 0.356	79.6	LOS F	1.9	14.2	1.00	0.72	1.00	16.0
Approach		103	5.0	103	5.0	0.356	66.7	LOS E	4.2	30.7	0.93	0.74	0.93	18.6
North: Richmond Road														
7	L2	20	5.0	20	5.0	0.012	7.6	LOS A	0.0	0.2	0.03	0.62	0.03	56.3
8	T1	2153	5.0	2153	5.0	* 0.891	11.6	LOS A	43.9	320.7	0.58	0.57	0.61	55.8
9	R2	40	5.0	40	5.0	* 0.520	85.2	LOS F	2.9	21.3	1.00	0.74	1.01	22.2
Approach		2213	5.0	2213	5.0	0.891	12.9	LOS A	43.9	320.7	0.59	0.57	0.61	54.0
West: Hawthorne Avenue														
10	L2	24	5.0	24	5.0	0.076	59.3	LOS E	1.4	10.0	0.86	0.71	0.86	9.4
11	T1	2	5.0	2	5.0	0.012	63.5	LOS E	0.1	1.0	0.93	0.59	0.93	22.3
12	R2	19	5.0	19	5.0	0.123	78.9	LOS F	0.7	4.8	0.99	0.67	0.99	7.3
Approach		45	5.0	45	5.0	0.123	67.7	LOS E	1.4	10.0	0.92	0.69	0.92	9.2
All Vehicles		4135	5.0	4135	5.0	0.891	20.9	LOS B	48.7	355.6	0.73	0.69	0.74	45.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P11	Stage 1	53	64.3	LOS F	0.2	0.2	0.96	0.96	229.0	214.2	0.94
P12	Stage 2	53	64.3	LOS F	0.2	0.2	0.96	0.96	226.5	210.9	0.93
P1B	Slip/ Bypass	53	64.3	LOS F	0.2	0.2	0.96	0.96	221.4	204.3	0.92
East: Harmony Avenue											
P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	233.9	220.5	0.94

North: Richmond Road										
P31	Stage 1	53	64.3	LOS F	0.2	0.2	0.96	0.96	229.0	214.2	0.94
P32	Stage 2	53	64.3	LOS F	0.2	0.2	0.96	0.96	226.5	210.9	0.93
West: Hawthorne Avenue										
P4	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	236.8	224.3	0.95
All Pedestrians		368	64.3	LOS F	0.2	0.2	0.96	0.96	229.0	214.2	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 103 [3 Richmond / Hollinsworth / Townson (Site Folder: 2021 AM)]

Network: N101 [AM (Network Folder: 2021)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	121	5.0	121	5.0	0.114	29.9	LOS C	5.9	42.8	0.77	0.78	0.77	40.6
2	T1	1596	5.0	1596	5.0	0.872	55.8	LOS D	55.8	407.5	1.00	0.94	1.03	28.3
3	R2	41	5.0	41	5.0	0.202	72.1	LOS F	1.7	12.1	0.93	0.71	0.93	31.8
Approach		1758	5.0	1758	5.0	0.872	54.4	LOS D	55.8	407.5	0.98	0.92	1.01	29.1
East: Townson Road														
4	L2	121	5.0	121	5.0	0.210	45.2	LOS D	6.0	43.4	0.77	0.76	0.77	25.3
5	T1	54	5.0	54	5.0	0.137	48.5	LOS D	3.0	21.8	0.85	0.65	0.85	23.8
6	R2	45	5.0	45	5.0	0.589	82.3	LOS F	3.3	24.0	1.00	0.76	1.07	16.6
Approach		220	5.0	220	5.0	0.589	53.7	LOS D	6.0	43.4	0.84	0.73	0.85	22.5
North: Richmond Road														
7	L2	28	5.0	28	5.0	0.027	15.1	LOS B	0.4	3.1	0.23	0.65	0.23	54.9
8	T1	2094	5.0	2094	5.0	* 0.971	61.0	LOS E	71.8	524.4	0.98	1.11	1.26	25.6
9	R2	123	5.0	123	5.0	* 0.962	103.7	LOS F	10.4	76.2	1.00	1.01	1.61	17.4
Approach		2245	5.0	2245	5.0	0.971	62.8	LOS E	71.8	524.4	0.97	1.10	1.26	25.3
West: Hollinsworth Road														
10	L2	120	5.0	120	5.0	0.309	52.0	LOS D	7.9	57.8	0.85	0.77	0.85	14.0
11	T1	25	5.0	25	5.0	* 0.309	44.3	LOS D	7.9	57.8	0.85	0.77	0.85	28.7
12	R2	104	5.0	104	5.0	* 1.046	148.1	LOS F	5.6	40.8	1.00	1.09	2.08	5.5
Approach		249	5.0	249	5.0	1.046	91.3	LOS F	7.9	57.8	0.91	0.90	1.36	9.9
All Vehicles		4473	5.0	4473	5.0	1.046	60.6	LOS E	71.8	524.4	0.97	1.00	1.15	25.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P1	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	246.7	237.2	0.96
P1B	Slip/ Bypass	53	64.3	LOS F	0.2	0.2	0.96	0.96	221.4	204.3	0.92
East: Townson Road											
P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	236.1	223.4	0.95
North: Richmond Road											

P3	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	246.7	237.1	0.96
P3B	Slip/ Bypass	53	64.3	LOS F	0.2	0.2	0.96	0.96	221.4	204.3	0.92
West: Hollinsworth Road											
P4	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	233.4	219.9	0.94
All Pedestrians		316	64.3	LOS F	0.2	0.2	0.96	0.96	234.3	221.0	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 104 [4 Richmond / Langford / Alderton (Site Folder: 2021 AM)]

Network: N101 [AM (Network Folder: 2021)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	240	5.0	240	5.0	0.218	20.0	LOS B	7.1	52.0	0.48	0.73	0.48	54.7
2	T1	1718	5.0	1718	5.0	0.924	47.0	LOS D	65.2	475.8	0.94	0.98	1.09	39.6
3	R2	89	5.0	89	5.0	* 0.499	81.6	LOS F	3.2	23.2	1.00	0.74	1.00	29.2
Approach		2047	5.0	2047	5.0	0.924	45.4	LOS D	65.2	475.8	0.89	0.94	1.01	40.5
East: Alderton Road														
4	L2	248	5.0	248	5.0	0.637	57.3	LOS E	16.5	120.2	0.92	0.82	0.92	36.7
5	T1	31	5.0	31	5.0	* 0.637	47.4	LOS D	16.5	120.2	0.92	0.82	0.92	15.4
6	R2	62	5.0	62	5.0	0.808	85.2	LOS F	4.7	34.2	1.00	0.89	1.33	3.7
Approach		341	5.0	341	5.0	0.808	61.5	LOS E	16.5	120.2	0.93	0.83	0.99	29.8
North: Richmond Road														
7	L2	117	5.0	117	5.0	0.106	13.7	LOS A	1.5	11.3	0.21	0.66	0.21	53.3
8	T1	2184	5.0	2184	5.0	* 1.097	116.8	LOS F	127.2	928.3	1.00	1.49	1.69	31.3
9	R2	12	5.0	12	5.0	0.129	81.5	LOS F	0.8	6.0	1.00	0.68	1.00	25.6
Approach		2313	5.0	2313	5.0	1.097	111.4	LOS F	127.2	928.3	0.96	1.44	1.62	31.6
West: Langford Road														
10	L2	17	5.0	17	5.0	0.041	46.5	LOS D	1.0	7.1	0.76	0.67	0.76	14.4
11	T1	3	36.7	3	36.7	0.041	46.2	LOS D	1.0	7.1	0.81	0.65	0.81	16.0
12	R2	174	5.6	174	5.6	* 1.123	197.2	LOS F	10.8	78.7	1.00	1.30	2.24	16.6
Approach		194	6.0	194	6.0	1.123	181.6	LOS F	10.8	78.7	0.98	1.23	2.09	16.5
All Vehicles		4895	5.0	4895	5.0	1.123	83.1	LOS F	127.2	928.3	0.93	1.18	1.34	32.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P1	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	246.5	236.9	0.96
P1B	Slip/ Bypass	53	64.3	LOS F	0.2	0.2	0.96	0.96	221.4	204.3	0.92
East: Alderton Road											
P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	233.3	219.7	0.94
North: Richmond Road											

P3	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	246.7	237.1	0.96
P3B	Slip/ Bypass	53	64.3	LOS F	0.2	0.2	0.96	0.96	221.4	204.3	0.92
West: Langford Road											
P4	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	235.8	223.0	0.95
All Pedestrians		316	64.3	LOS F	0.2	0.2	0.96	0.96	234.2	220.9	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 105 [5 Hollinsworth / Chifley / Bells (Site Folder: 2021 AM)]

Network: N101 [AM (Network Folder: 2021)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Chifley Glade														
1	L2	37	5.0	37	5.0	0.044	4.7	LOS A	0.2	1.4	0.26	0.47	0.26	52.7
2	T1	112	5.0	112	5.0	0.243	4.3	LOS A	1.4	10.4	0.26	0.57	0.26	37.3
3	R2	167	5.0	167	5.0	0.243	9.4	LOS A	1.4	10.4	0.26	0.57	0.26	40.6
3u	U	56	0.0	56	0.0	0.243	11.6	LOS A	1.4	10.4	0.26	0.57	0.26	50.9
Approach		372	4.2	372	4.2	0.243	7.8	LOS A	1.4	10.4	0.26	0.56	0.26	42.9
East: Hollinsworth Road														
4	L2	194	5.0	194	5.0	0.124	4.3	LOS A	0.6	4.0	0.17	0.47	0.17	49.8
5	T1	44	5.0	44	5.0	0.083	4.3	LOS A	0.3	2.5	0.18	0.55	0.18	52.2
6	R2	60	5.0	60	5.0	0.083	9.4	LOS A	0.3	2.5	0.18	0.55	0.18	41.8
Approach		298	5.0	298	5.0	0.124	5.3	LOS A	0.6	4.0	0.17	0.49	0.17	48.9
North: Bells Glade														
7	L2	55	5.0	55	5.0	0.070	4.4	LOS A	0.2	1.4	0.24	0.51	0.24	35.0
8	T1	16	5.0	16	5.0	0.070	4.4	LOS A	0.2	1.4	0.24	0.51	0.24	49.4
9	R2	6	5.0	6	5.0	0.070	9.5	LOS A	0.2	1.4	0.24	0.51	0.24	53.4
Approach		77	5.0	77	5.0	0.070	4.8	LOS A	0.2	1.4	0.24	0.51	0.24	42.8
West: Hollinsworth Road														
10	L2	4	5.0	4	5.0	0.019	5.4	LOS A	0.1	0.8	0.48	0.47	0.48	49.4
11	T1	27	5.0	27	5.0	0.019	5.4	LOS A	0.1	0.8	0.48	0.50	0.48	47.9
12	R2	12	5.0	12	5.0	0.019	10.7	LOS A	0.1	0.7	0.49	0.58	0.49	50.4
Approach		43	5.0	43	5.0	0.019	6.8	LOS A	0.1	0.8	0.48	0.52	0.48	48.9
All Vehicles		789	4.6	789	4.6	0.243	6.5	LOS A	1.4	10.4	0.24	0.53	0.24	45.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [1 Richmond / South (Site Folder: 2021 PM)]

Network: N101 [PM (Network Folder: 2021)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	56	5.0	52	5.0	0.084	27.1	LOS B	1.5	10.6	0.55	0.70	0.55	46.6
2	T1	1401	5.0	1293	5.0	* 0.666	22.8	LOS B	17.5	127.9	0.77	0.67	0.77	58.9
3	R2	541	5.0	500	5.0	* 0.672	37.4	LOS C	9.2	67.4	1.00	0.83	1.00	40.8
Approach		1998	5.0	1845 N1	5.0	0.672	26.9	LOS B	17.5	127.9	0.83	0.71	0.83	53.5
East: South Street														
4	L2	458	5.0	458	5.0	* 0.675	32.9	LOS C	18.1	131.9	0.89	0.84	0.89	28.7
5	T1	100	5.0	100	5.0	0.208	60.9	LOS E	3.1	22.9	0.93	0.72	0.93	29.2
6	R2	321	5.0	321	5.0	* 0.696	72.1	LOS F	10.9	79.7	1.00	0.84	1.05	32.1
Approach		879	5.0	879	5.0	0.696	50.4	LOS D	18.1	131.9	0.94	0.83	0.96	30.6
North: Richmond Road														
7	L2	296	5.0	296	5.0	0.350	21.1	LOS B	8.2	60.1	0.67	0.78	0.67	53.1
8	T1	1217	5.0	1217	5.0	0.626	42.0	LOS C	23.0	168.0	0.90	0.78	0.90	37.1
9	R2	8	5.0	8	5.0	0.029	35.7	LOS C	0.3	2.2	0.86	0.67	0.86	45.7
Approach		1521	5.0	1521	5.0	0.626	37.9	LOS C	23.0	168.0	0.85	0.78	0.85	40.4
West: South Street														
10	L2	17	5.0	17	5.0	* 0.030	25.9	LOS B	0.4	3.0	0.72	0.66	0.72	49.9
11	T1	37	5.0	37	5.0	0.091	61.4	LOS E	1.1	8.4	0.93	0.66	0.93	29.4
12	R2	43	5.0	43	5.0	* 0.112	67.5	LOS E	1.4	9.9	0.94	0.71	0.94	19.2
Approach		97	5.0	97	5.0	0.112	57.9	LOS E	1.4	9.9	0.90	0.68	0.90	28.2
All Vehicles		4495	5.0	4341 N1	5.2	0.696	36.2	LOS C	23.0	168.0	0.86	0.76	0.86	43.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P11	Stage 1	53	64.3	LOS F	0.2	0.2	0.96	0.96	234.1	220.8	0.94
P12	Stage 2	53	64.3	LOS F	0.2	0.2	0.96	0.96	229.0	214.2	0.94
P1B	Slip/ Bypass	53	64.3	LOS F	0.2	0.2	0.96	0.96	221.4	204.3	0.92
East: South Street											

P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	241.4	230.3	0.95
P2B	Slip/ Bypass	53	64.3	LOS F	0.2	0.2	0.96	0.96	221.4	204.3	0.92
North: Richmond Road											
P31	Stage 1	53	64.3	LOS F	0.2	0.2	0.96	0.96	231.6	217.5	0.94
P32	Stage 2	53	29.5	LOS C	0.1	0.1	0.92	0.92	194.3	214.2	1.10
P3B	Slip/ Bypass	53	64.3	LOS F	0.2	0.2	0.96	0.96	221.4	204.3	0.92
West: South Street											
P4	Full	53	38.6	LOS D	0.1	0.1	0.92	0.92	216.1	230.8	1.07
P4B	Slip/ Bypass	53	64.3	LOS F	0.2	0.2	0.96	0.96	221.4	204.3	0.92
All Pedestrians		526	58.2	LOS E	0.2	0.2	0.95	0.95	223.2	214.5	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 102 [2 Richmond / Hawthorne / Harmony (Site Folder: 2021 PM)]

Network: N101 [PM (Network Folder: 2021)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	54	5.0	49	5.0	0.038	10.9	LOS A	0.5	3.7	0.16	0.64	0.16	57.1
2	T1	1924	5.0	1770	5.0	* 0.731	9.0	LOS A	33.7	246.1	0.40	0.37	0.40	61.1
3	R2	66	5.0	61	5.0	* 0.680	85.5	LOS F	4.5	32.5	1.00	0.78	1.07	27.3
Approach		2044	5.0	1880 N1	5.0	0.731	11.5	LOS A	33.7	246.1	0.41	0.39	0.41	57.0
East: Harmony Avenue														
4	L2	34	5.0	34	5.0	0.101	57.7	LOS E	1.9	13.9	0.86	0.72	0.86	20.1
5	T1	8	5.0	8	5.0	* 0.048	63.0	LOS E	0.5	3.9	0.94	0.63	0.94	22.6
6	R2	22	5.0	22	5.0	0.288	79.2	LOS F	1.6	11.4	1.00	0.71	1.00	16.1
Approach		64	5.0	64	5.0	0.288	65.8	LOS E	1.9	13.9	0.92	0.70	0.92	18.9
North: Richmond Road														
7	L2	27	5.0	27	5.0	0.017	7.8	LOS A	0.0	0.3	0.04	0.62	0.04	56.2
8	T1	1639	5.0	1639	5.0	0.676	13.4	LOS A	30.9	225.6	0.55	0.51	0.55	53.4
9	R2	38	5.0	38	5.0	0.423	81.3	LOS F	2.7	19.7	1.00	0.73	1.00	22.9
Approach		1704	5.0	1704	5.0	0.676	14.8	LOS B	30.9	225.6	0.55	0.51	0.55	51.6
West: Hawthorne Avenue														
10	L2	68	5.0	68	5.0	0.205	60.3	LOS E	4.0	29.0	0.89	0.76	0.89	9.3
11	T1	6	5.0	6	5.0	0.036	64.2	LOS E	0.4	2.9	0.93	0.63	0.93	22.2
12	R2	54	5.0	54	5.0	* 0.349	80.6	LOS F	1.9	13.9	1.00	0.71	1.00	7.1
Approach		128	5.0	128	5.0	0.349	69.0	LOS E	4.0	29.0	0.94	0.73	0.94	9.1
All Vehicles		3941	5.0	3777 N1	5.2	0.731	15.9	LOS B	33.7	246.1	0.50	0.46	0.50	50.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P11	Stage 1	53	64.3	LOS F	0.2	0.2	0.96	0.96	229.0	214.2	0.94
P12	Stage 2	53	64.3	LOS F	0.2	0.2	0.96	0.96	226.5	210.9	0.93
P1B	Slip/ Bypass	53	64.3	LOS F	0.2	0.2	0.96	0.96	221.4	204.3	0.92
East: Harmony Avenue											

P2 Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	233.9	220.5	0.94
North: Richmond Road										
P31 Stage 1	53	64.3	LOS F	0.2	0.2	0.96	0.96	229.0	214.2	0.94
P32 Stage 2	53	64.3	LOS F	0.2	0.2	0.96	0.96	226.5	210.9	0.93
West: Hawthorne Avenue										
P4 Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	236.8	224.3	0.95
All Pedestrians	368	64.3	LOS F	0.2	0.2	0.96	0.96	229.0	214.2	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 103 [3 Richmond / Hollinsworth / Townson (Site Folder: 2021 PM)] — Network: N101 [PM (Network Folder: 2021)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	77	5.0	69	5.0	0.071	13.2	LOS A	0.8	5.9	0.19	0.65	0.19	56.1
2	T1	1621	5.0	1457	5.0	* 0.941	37.7	LOS C	51.0	372.4	0.93	0.95	1.07	35.8
3	R2	61	5.0	55	5.0	0.158	74.2	LOS F	2.4	17.2	1.00	0.73	1.00	31.3
Approach		1759	5.0	1581 N1	5.0	0.941	37.9	LOS C	51.0	372.4	0.90	0.93	1.02	36.1
East: Townson Road														
4	L2	54	5.0	54	5.0	0.081	36.6	LOS C	2.3	17.0	0.68	0.71	0.68	27.9
5	T1	48	5.0	48	5.0	0.124	48.4	LOS D	2.7	19.6	0.85	0.65	0.85	23.9
6	R2	38	5.0	38	5.0	0.269	73.4	LOS F	2.5	18.4	0.98	0.73	0.98	18.0
Approach		140	5.0	140	5.0	0.269	50.7	LOS D	2.7	19.6	0.82	0.70	0.82	23.1
North: Richmond Road														
7	L2	52	5.0	52	5.0	0.053	25.7	LOS B	2.0	14.6	0.61	0.72	0.61	48.1
8	T1	1489	5.0	1489	5.0	0.639	42.4	LOS C	31.2	227.7	0.97	0.87	0.97	32.4
9	R2	198	5.0	198	5.0	* 0.909	64.2	LOS E	13.9	101.6	1.00	0.87	1.12	24.8
Approach		1739	5.0	1739	5.0	0.909	44.4	LOS D	31.2	227.7	0.97	0.86	0.98	31.8
West: Hollinsworth Road														
10	L2	338	5.0	338	5.0	0.848	67.1	LOS E	28.8	210.6	1.00	0.93	1.13	11.4
11	T1	72	5.0	72	5.0	* 0.848	59.1	LOS E	28.8	210.6	1.00	0.93	1.13	24.8
12	R2	257	5.0	257	5.0	* 0.911	90.4	LOS F	10.1	74.0	1.00	1.01	1.45	8.7
Approach		666	5.0	666	5.0	0.911	75.2	LOS F	28.8	210.6	1.00	0.96	1.25	11.9
All Vehicles		4304	5.0	4126 N1	5.2	0.941	47.1	LOS D	51.0	372.4	0.94	0.90	1.03	29.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P1	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	246.7	237.2	0.96
P1B	Slip/ Bypass	53	64.3	LOS F	0.2	0.2	0.96	0.96	221.4	204.3	0.92
East: Townson Road											
P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	236.1	223.4	0.95

North: Richmond Road											
P3	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	246.7	237.1	0.96
P3B	Slip/ Bypass	53	64.3	LOS F	0.2	0.2	0.96	0.96	221.4	204.3	0.92
West: Hollinsworth Road											
P4	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	233.4	219.9	0.94
All Pedestrians		316	64.3	LOS F	0.2	0.2	0.96	0.96	234.3	221.0	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 104 [4 Richmond / Langford / Alderton (Site Folder: 2021 PM)] Network: N101 [PM (Network Folder: 2021)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	613	5.0	613	5.0	0.598	28.1	LOS B	26.8	195.3	0.70	0.82	0.70	49.9
2	T1	1627	5.0	1627	5.0	* 1.130	188.9	LOS F	118.5	865.2	1.00	1.66	1.99	15.4
3	R2	361	5.0	361	5.0	* 1.084	171.1	LOS F	20.7	151.2	1.00	1.15	2.00	17.1
Approach		2601	5.0	2601	5.0	1.130	148.6	LOS F	118.5	865.2	0.93	1.39	1.69	19.3
East: Alderton Road														
4	L2	342	5.0	342	5.0	0.833	63.2	LOS E	25.4	185.1	0.96	0.91	1.08	34.4
5	T1	38	5.0	38	5.0	* 0.833	54.5	LOS D	25.4	185.1	0.96	0.91	1.08	14.1
6	R2	107	5.0	107	5.0	0.699	75.7	LOS F	7.6	55.2	1.00	0.84	1.10	4.1
Approach		487	5.0	487	5.0	0.833	65.3	LOS E	25.4	185.1	0.97	0.90	1.08	27.9
North: Richmond Road														
7	L2	219	5.0	219	5.0	0.214	22.8	LOS B	7.1	52.1	0.52	0.74	0.52	45.2
8	T1	1548	5.0	1548	5.0	0.933	79.2	LOS F	59.0	430.8	1.00	1.00	1.11	39.1
9	R2	44	5.0	44	5.0	0.266	72.9	LOS F	2.8	20.6	0.94	0.74	0.94	27.4
Approach		1812	5.0	1812	5.0	0.933	72.2	LOS F	59.0	430.8	0.94	0.96	1.03	39.2
West: Langford Road														
10	L2	118	5.0	118	5.0	0.250	46.6	LOS D	6.8	49.3	0.81	0.75	0.81	14.3
11	T1	14	12.3	14	12.3	0.250	40.9	LOS C	6.8	49.3	0.81	0.73	0.81	17.0
12	R2	348	5.0	348	5.0	* 1.133	205.8	LOS F	22.4	163.4	1.00	1.46	2.19	16.1
Approach		480	5.2	480	5.2	1.133	162.0	LOS F	22.4	163.4	0.95	1.27	1.81	16.0
All Vehicles		5380	5.0	5380	5.0	1.133	116.5	LOS F	118.5	865.2	0.94	1.19	1.42	24.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P1	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	246.5	236.9	0.96
P1B	Slip/ Bypass	53	64.3	LOS F	0.2	0.2	0.96	0.96	221.4	204.3	0.92
East: Alderton Road											
P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	233.3	219.7	0.94
North: Richmond Road											

P3	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	246.7	237.1	0.96
P3B	Slip/ Bypass	53	64.3	LOS F	0.2	0.2	0.96	0.96	221.4	204.3	0.92
West: Langford Road											
P4	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	235.8	223.0	0.95
All Pedestrians		316	64.3	LOS F	0.2	0.2	0.96	0.96	234.2	220.9	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 105 [5 Hollinsworth / Chifley / Bells (Site Folder: 2021 PM)]

Network: N101 [PM (Network Folder: 2021)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Chifley Glade														
1	L2	99	5.0	99	5.0	0.120	4.9	LOS A	0.6	4.0	0.30	0.50	0.30	52.5
2	T1	298	5.0	298	5.0	0.634	4.8	LOS A	6.1	44.4	0.46	0.58	0.46	36.5
3	R2	446	5.0	446	5.0	0.634	9.9	LOS A	6.1	44.4	0.46	0.58	0.46	39.3
3u	U	148	0.0	148	0.0	0.634	12.0	LOS A	6.1	44.4	0.46	0.58	0.46	49.7
Approach		992	4.3	992	4.3	0.634	8.2	LOS A	6.1	44.4	0.45	0.57	0.45	41.9
East: Hollinsworth Road														
4	L2	211	5.0	205	5.0	0.149	4.9	LOS A	0.7	5.2	0.31	0.51	0.31	49.0
5	T1	48	5.0	47	5.0	0.100	5.1	LOS A	0.4	3.2	0.32	0.59	0.32	51.5
6	R2	64	5.0	63	5.0	0.100	10.2	LOS A	0.4	3.2	0.32	0.59	0.32	40.9
Approach		323	5.0	315 N1	5.0	0.149	5.9	LOS A	0.7	5.2	0.31	0.54	0.31	48.1
North: Bells Glade														
7	L2	146	5.0	146	5.0	0.249	6.1	LOS A	1.1	7.7	0.55	0.72	0.55	31.3
8	T1	43	5.0	43	5.0	0.249	6.1	LOS A	1.1	7.7	0.55	0.72	0.55	46.9
9	R2	17	5.0	17	5.0	0.249	11.2	LOS A	1.1	7.7	0.55	0.72	0.55	51.4
Approach		206	5.0	206	5.0	0.249	6.5	LOS A	1.1	7.7	0.55	0.72	0.55	39.5
West: Hollinsworth Road														
10	L2	13	5.0	13	5.0	0.091	9.9	LOS A	0.7	5.1	0.87	0.73	0.87	45.9
11	T1	74	5.0	74	5.0	0.091	10.2	LOS A	0.7	5.1	0.87	0.75	0.87	43.6
12	R2	31	5.0	31	5.0	0.091	16.4	LOS B	0.6	4.4	0.85	0.80	0.85	45.9
Approach		117	5.0	117	5.0	0.091	11.8	LOS A	0.7	5.1	0.86	0.76	0.86	44.7
All Vehicles		1638	4.5	1630 N 1	4.6	0.634	7.8	LOS A	6.1	44.4	0.46	0.60	0.46	43.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 101 [1 Richmond / South (Site Folder: 2031 AM)]

Network: N101 [AM (Network Folder: 2031)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	65	5.0	59	5.0	0.086	33.6	LOS C	2.6	19.1	0.86	0.75	0.86	43.2
2	T1	1441	5.0	1292	5.0	0.600	33.0	LOS C	21.5	157.3	0.98	0.85	0.98	52.5
3	R2	676	5.0	606	5.0	* 1.492	480.5	LOS F[11]	55.4	404.4	1.00	1.54	3.08	6.1
Approach		2183	5.0	1958[N1]	5.0	1.492	171.6	LOS F[11]	55.4	404.4	0.98	1.06	1.62	18.3
East: South Street														
4	L2	566	5.0	566	5.0	* 1.138	221.1	LOS F[11]	68.5	500.0	1.00	1.29	2.00	5.9
5	T1	51	5.0	51	5.0	0.108	64.1	LOS E[11]	1.7	12.3	0.92	0.68	0.92	28.4
6	R2	389	5.0	389	5.0	0.856	85.1	LOS F[11]	15.4	112.2	1.00	0.92	1.24	29.2
Approach		1006	5.0	1006	5.0	1.138	160.5	LOS F[11]	68.5	500.0	1.00	1.12	1.65	13.1
North: Richmond Road														
7	L2	561	5.0	561	5.0	0.545	19.8	LOS B	17.7	129.0	0.67	0.80	0.67	54.1
8	T1	2093	5.0	2093	5.0	* 1.245	302.7	LOS F[11]	139.6	1019.4	1.00	1.89	2.39	8.5
9	R2	15	5.0	15	5.0	0.061	38.6	LOS C	0.5	3.8	0.90	0.69	0.90	44.4
Approach		2669	5.0	2669	5.0	1.245	241.7	LOS F[11]	139.6	1019.4	0.93	1.66	2.02	11.2
West: South Street														
10	L2	27	5.0	27	5.0	0.051	29.4	LOS C	0.9	6.2	0.74	0.68	0.74	48.2
11	T1	100	5.0	100	5.0	* 0.234	66.2	LOS E[11]	3.4	24.7	0.95	0.72	0.95	28.2
12	R2	55	5.0	55	5.0	0.223	73.5	LOS F[11]	2.2	15.7	0.95	0.73	0.95	18.1
Approach		182	5.0	182	5.0	0.234	63.0	LOS E[11]	3.4	24.7	0.92	0.72	0.92	27.8
All Vehicles		6040	5.0	5815[N1]	5.2	1.492	198.5	LOS F[11]	139.6	1019.4	0.96	1.33	1.79	14.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.
* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P11	Stage 1	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	239.2	220.8	0.92
P12	Stage 2	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	234.1	214.2	0.92
P1B	Slip/	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90

	Bypass										
East: South Street											
P2	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	246.5	230.3	0.93
P2B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
North: Richmond Road											
P31	Stage 1	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	236.6	217.5	0.92
P32	Stage 2	64	33.1	LOS D	0.2	0.2	0.92	0.92	197.9	214.2	1.08
P3B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
West: South Street											
P4	Full	64	45.4	LOS E[12]	0.2	0.2	0.92	0.92	222.9	230.8	1.04
P4B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
All Pedestrians		642	63.3	LOS F[12]	0.3	0.3	0.95	0.95	228.3	214.5	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

12 Level of Service is worse than the Pedestrian Level of Service Target specified in the Parameter Settings dialog.

MOVEMENT SUMMARY

Site: 102 [2 Richmond / Hawthorne / Harmony (Site Folder: 2031 AM)]

Network: N101 [AM (Network Folder: 2031)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	50	5.0	45	5.0	0.033	14.5	LOS B	1.2	8.9	0.41	0.68	0.41	53.3
2	T1	2086	5.0	1865	5.0	0.755	26.0	LOS B	56.0	408.5	0.89	0.83	0.89	42.1
3	R2	26	5.0	23	5.0	0.320	85.4	LOS F[11]	1.7	12.5	0.98	0.71	0.98	27.3
Approach		2162	5.0	1932[N1]	5.0	0.755	26.4	LOS B	56.0	408.5	0.88	0.83	0.88	41.9
East: Harmony Avenue														
4	L2	87	5.0	87	5.0	0.281	65.8	LOS E[11]	5.6	40.7	0.91	0.77	0.91	18.6
5	T1	5	5.0	5	5.0	0.029	66.9	LOS E[11]	0.3	2.5	0.93	0.61	0.93	21.8
6	R2	33	5.0	33	5.0	* 0.465	85.9	LOS F[11]	2.6	18.7	1.00	0.72	1.00	15.2
Approach		126	5.0	126	5.0	0.465	71.2	LOS F[11]	5.6	40.7	0.94	0.75	0.94	17.7
North: Richmond Road														
7	L2	24	5.0	21	5.0	0.013	7.6	LOS A	0.0	0.2	0.02	0.61	0.02	56.3
8	T1	2624	5.0	2230	5.0	* 1.037	81.4	LOS F[11]	126.7	924.8	0.98	1.27	1.41	19.8
9	R2	49	5.0	41	5.0	* 0.578	89.6	LOS F[11]	3.2	23.7	1.00	0.75	1.06	21.4
Approach		2697	5.0	2293[N1]	5.0	1.037	80.9	LOS F[11]	126.7	924.8	0.97	1.26	1.39	20.1
West: Hawthorne Avenue														
10	L2	30	5.0	30	5.0	0.095	64.3	LOS E[11]	1.8	13.2	0.87	0.72	0.87	8.8
11	T1	3	5.0	3	5.0	0.015	67.8	LOS E[11]	0.2	1.2	0.93	0.60	0.93	21.5
12	R2	23	5.0	23	5.0	0.185	85.8	LOS F[11]	1.0	7.3	1.00	0.68	1.00	6.8
Approach		55	5.0	55	5.0	0.185	73.5	LOS F[11]	1.8	13.2	0.93	0.70	0.93	8.6
All Vehicles		5040	5.0	4406[N1]	5.7	1.037	56.6	LOS E[11]	126.7	924.8	0.93	1.05	1.15	26.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.
* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P11	Stage 1	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	234.1	214.2	0.92
P12	Stage 2	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	231.5	210.9	0.91

P1B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
East: Harmony Avenue											
P2	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	238.9	220.5	0.92
North: Richmond Road											
P31	Stage 1	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	234.1	214.2	0.92
P32	Stage 2	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	231.5	210.9	0.91
West: Hawthorne Avenue											
P4	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	241.8	224.3	0.93
All Pedestrians		449	69.3	LOS F[12]	0.3	0.3	0.96	0.96	234.1	214.2	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

12 Level of Service is worse than the Pedestrian Level of Service Target specified in the Parameter Settings dialog.

MOVEMENT SUMMARY

Site: 103 [3 Richmond / Hollinsworth / Townson (Site Folder: 2031 AM)]

Network: N101 [AM (Network Folder: 2031)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	148	5.0	130	5.0	0.121	25.7	LOS B	5.7	41.6	0.65	0.75	0.65	43.6
2	T1	1945	5.0	1718	5.0	0.944	65.3	LOS E[11]	73.8	538.9	1.00	1.04	1.14	25.5
3	R2	50	5.0	44	5.0	0.211	79.9	LOS F[11]	1.9	14.1	0.95	0.71	0.95	30.1
Approach		2143	5.0	1893[N1]	5.0	0.944	62.9	LOS E[11]	73.8	538.9	0.97	1.01	1.10	26.4
East: Townson Road														
4	L2	148	5.0	148	5.0	0.257	48.8	LOS D[11]	7.9	57.7	0.78	0.77	0.78	24.2
5	T1	65	5.0	65	5.0	0.168	52.4	LOS D[11]	3.9	28.6	0.86	0.67	0.86	22.8
6	R2	55	5.0	55	5.0	0.577	85.0	LOS F[11]	4.2	30.6	1.00	0.77	1.03	16.2
Approach		268	5.0	268	5.0	0.577	57.1	LOS E[11]	7.9	57.7	0.85	0.75	0.85	21.7
North: Richmond Road														
7	L2	35	5.0	29	5.0	0.027	20.1	LOS B	0.7	5.3	0.37	0.67	0.37	51.5
8	T1	2552	5.0	2131	5.0	* 0.990	81.7	LOS F[11]	85.1	621.6	1.00	1.16	1.32	20.8
9	R2	150	5.0	125	5.0	* 0.953	106.7	LOS F[11]	11.1	81.3	1.00	0.99	1.55	17.0
Approach		2737	5.0	2286[N1]	5.0	0.990	82.3	LOS F[11]	85.1	621.6	0.99	1.15	1.32	20.9
West: Hollinsworth Road														
10	L2	146	5.0	146	5.0	0.381	56.9	LOS E[11]	10.6	77.4	0.87	0.79	0.87	13.1
11	T1	31	5.0	31	5.0	* 0.381	48.9	LOS D[11]	10.6	77.4	0.87	0.79	0.87	27.4
12	R2	127	5.0	127	5.0	* 1.023	140.9	LOS F[11]	6.8	49.4	1.00	1.09	1.91	5.8
Approach		304	5.0	304	5.0	1.023	91.2	LOS F[11]	10.6	77.4	0.92	0.91	1.30	10.0
All Vehicles		5452	5.0	4750[N1]	5.7	1.023	73.7	LOS F[11]	85.1	621.6	0.97	1.05	1.21	22.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.
* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P1	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	251.8	237.2	0.94
P1B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90

East: Townson Road											
P2	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	241.2	223.4	0.93
North: Richmond Road											
P3	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	251.7	237.1	0.94
P3B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
West: Hollinsworth Road											
P4	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	238.5	219.9	0.92
All Pedestrians		385	69.3	LOS F[12]	0.3	0.3	0.96	0.96	239.3	221.0	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

12 Level of Service is worse than the Pedestrian Level of Service Target specified in the Parameter Settings dialog.

MOVEMENT SUMMARY

Site: 104 [4 Richmond / Langford / Alderton (Site Folder: 2031 AM)]

Network: N101 [AM (Network Folder: 2031)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	293	5.0	293	5.0	0.260	20.5	LOS B	9.3	67.9	0.48	0.74	0.48	54.4
2	T1	2094	5.0	2094	5.0	* 1.132	186.6	LOS F[11]	156.1	1139.5	1.00	1.65	1.90	15.5
3	R2	109	5.0	109	5.0	* 0.652	88.8	LOS F[11]	4.2	30.9	1.00	0.78	1.11	27.7
Approach		2496	5.0	2496	5.0	1.132	162.9	LOS F[11]	156.1	1139.5	0.94	1.51	1.70	17.7
East: Alderton Road														
4	L2	303	5.0	303	5.0	0.794	67.9	LOS E[11]	23.5	171.8	0.97	0.88	1.03	33.7
5	T1	37	5.0	37	5.0	* 0.794	57.0	LOS E[11]	23.5	171.8	0.97	0.88	1.03	13.7
6	R2	76	5.0	76	5.0	0.792	88.0	LOS F[11]	6.0	43.8	1.00	0.89	1.25	3.5
Approach		416	5.0	416	5.0	0.794	70.6	LOS F[11]	23.5	171.8	0.97	0.89	1.07	27.6
North: Richmond Road														
7	L2	142	5.0	116	5.0	0.103	14.8	LOS B	1.8	13.5	0.24	0.66	0.24	52.2
8	T1	2663	5.0	2172	5.0	1.081	108.3	LOS F[11]	126.7	924.6	1.00	1.40	1.58	32.7
9	R2	14	5.0	12	5.0	0.138	87.0	LOS F[11]	0.9	6.3	1.00	0.68	1.00	24.5
Approach		2819	5.0	2300[N1]	5.0	1.081	103.4	LOS F[11]	126.7	924.6	0.96	1.36	1.51	33.0
West: Langford Road														
10	L2	21	5.0	21	5.0	0.050	50.3	LOS D[11]	1.3	9.3	0.77	0.68	0.77	13.7
11	T1	4	36.7	4	36.7	0.050	49.8	LOS D[11]	1.3	9.3	0.82	0.66	0.82	15.3
12	R2	212	5.6	212	5.6	* 1.100	184.8	LOS F[11]	13.0	94.8	1.00	1.30	2.06	17.5
Approach		236	6.0	236	6.0	1.100	170.9	LOS F[11]	13.0	94.8	0.98	1.23	1.93	17.4
All Vehicles		5967	5.0	5447[N1]	5.5	1.132	131.1	LOS F[11]	156.1	1139.5	0.95	1.38	1.58	24.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.
* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P1	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	251.5	236.9	0.94
P1B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90

East: Alderton Road											
P2	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	238.3	219.7	0.92
North: Richmond Road											
P3	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	251.7	237.1	0.94
P3B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
West: Langford Road											
P4	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	240.8	223.0	0.93
All Pedestrians		385	69.3	LOS F[12]	0.3	0.3	0.96	0.96	239.2	220.9	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

12 Level of Service is worse than the Pedestrian Level of Service Target specified in the Parameter Settings dialog.

MOVEMENT SUMMARY

Site: 105 [5 Hollinsworth / Chifley / Bells (Site Folder: 2031 AM)]

Network: N101 [AM (Network Folder: 2031)]

New Site
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Chifley Glade														
1	L2	45	5.0	45	5.0	0.054	4.8	LOS A	0.2	1.7	0.27	0.48	0.27	52.6
2	T1	136	5.0	136	5.0	0.297	4.4	LOS A	1.8	13.2	0.29	0.57	0.29	37.2
3	R2	204	5.0	204	5.0	0.297	9.5	LOS A	1.8	13.2	0.29	0.57	0.29	40.5
3u	U	68	0.0	68	0.0	0.297	11.6	LOS A	1.8	13.2	0.29	0.57	0.29	50.7
Approach		453	4.2	453	4.2	0.297	7.8	LOS A	1.8	13.2	0.28	0.56	0.28	42.8
East: Hollinsworth Road														
4	L2	236	5.0	205	5.0	0.134	4.4	LOS A	0.6	4.4	0.19	0.47	0.19	49.7
5	T1	54	5.0	47	5.0	0.089	4.4	LOS A	0.4	2.7	0.20	0.55	0.20	52.1
6	R2	73	5.0	63	5.0	0.089	9.5	LOS A	0.4	2.7	0.20	0.55	0.20	41.6
Approach		363	5.0	315[N1]	5.0	0.134	5.4	LOS A	0.6	4.4	0.20	0.50	0.20	48.7
North: Bells Glade														
7	L2	67	5.0	67	5.0	0.088	4.5	LOS A	0.2	1.8	0.28	0.53	0.28	34.5
8	T1	19	5.0	19	5.0	0.088	4.6	LOS A	0.2	1.8	0.28	0.53	0.28	49.1
9	R2	8	5.0	8	5.0	0.088	9.6	LOS A	0.2	1.8	0.28	0.53	0.28	53.2
Approach		94	5.0	94	5.0	0.088	4.9	LOS A	0.2	1.8	0.28	0.53	0.28	42.4
West: Hollinsworth Road														
10	L2	5	5.0	5	5.0	0.024	5.7	LOS A	0.1	1.0	0.53	0.50	0.53	49.0
11	T1	33	5.0	33	5.0	0.024	5.8	LOS A	0.1	1.0	0.53	0.53	0.53	47.5
12	R2	14	5.0	14	5.0	0.024	11.2	LOS A	0.1	1.0	0.54	0.61	0.54	50.0
Approach		53	5.0	53	5.0	0.024	7.2	LOS A	0.1	1.0	0.54	0.55	0.54	48.5
All Vehicles		962	4.6	914[N1]	4.9	0.297	6.7	LOS A	1.8	13.2	0.27	0.54	0.27	45.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 101 [1 Richmond / South (Site Folder: 2031 PM)]

Network: N101 [PM (Network Folder: 2031)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	68	5.0	54	5.0	0.094	31.6	LOS C	1.8	13.1	0.61	0.71	0.61	44.2
2	T1	1708	5.0	1353	5.0	* 0.747	27.6	LOS B	21.7	158.6	0.85	0.74	0.85	55.7
3	R2	660	5.0	523	5.0	* 0.662	37.5	LOS C	9.8	71.7	0.98	0.83	0.98	40.7
Approach		2435	5.0	1930 N1	5.0	0.747	30.4	LOS C	21.7	158.6	0.88	0.76	0.88	51.4
East: South Street														
4	L2	558	5.0	558	5.0	* 0.814	40.5	LOS C	25.6	186.9	0.95	0.88	0.97	26.5
5	T1	122	5.0	122	5.0	0.245	64.6	LOS E 11	4.1	29.8	0.94	0.73	0.94	28.3
6	R2	391	5.0	391	5.0	* 0.818	81.3	LOS F 11	15.0	109.6	1.00	0.90	1.17	30.0
Approach		1071	5.0	1071	5.0	0.818	58.1	LOS E 11	25.6	186.9	0.96	0.87	1.04	28.7
North: Richmond Road														
7	L2	361	5.0	361	5.0	0.431	23.5	LOS B	11.8	86.2	0.71	0.79	0.71	51.6
8	T1	1483	5.0	1483	5.0	0.805	52.0	LOS D 11	34.3	250.7	0.97	0.88	1.00	33.2
9	R2	10	5.0	10	5.0	0.030	35.7	LOS C	0.4	2.8	0.84	0.67	0.84	45.7
Approach		1854	5.0	1854	5.0	0.805	46.3	LOS D 11	34.3	250.7	0.92	0.86	0.94	36.7
West: South Street														
10	L2	21	5.0	21	5.0	0.033	25.7	LOS B	0.5	3.8	0.68	0.67	0.68	50.2
11	T1	45	5.0	45	5.0	0.105	64.8	LOS E 11	1.5	10.9	0.93	0.67	0.93	28.5
12	R2	53	5.0	53	5.0	* 0.129	70.9	LOS F 11	1.8	12.8	0.93	0.72	0.93	18.5
Approach		118	5.0	118	5.0	0.129	60.7	LOS E 11	1.8	12.8	0.89	0.69	0.89	27.5
All Vehicles		5479	5.0	4974 N1	5.5	0.818	43.0	LOS D 11	34.3	250.7	0.91	0.82	0.94	40.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.
* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P11	Stage 1	64	69.3	LOS F 12	0.3	0.3	0.96	0.96	239.2	220.8	0.92
P12	Stage 2	64	69.3	LOS F 12	0.3	0.3	0.96	0.96	234.1	214.2	0.92
P1B	Slip/	64	69.3	LOS F 12	0.3	0.3	0.96	0.96	226.5	204.3	0.90

	Bypass										
East: South Street											
P2	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	246.5	230.3	0.93
P2B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
North: Richmond Road											
P31	Stage 1	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	236.6	217.5	0.92
P32	Stage 2	64	32.1	LOS D	0.1	0.1	0.92	0.92	196.8	214.2	1.09
P3B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
West: South Street											
P4	Full	64	42.0	LOS E[12]	0.2	0.2	0.92	0.92	219.5	230.8	1.05
P4B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
All Pedestrians		642	62.9	LOS F[12]	0.3	0.3	0.95	0.95	227.9	214.5	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

12 Level of Service is worse than the Pedestrian Level of Service Target specified in the Parameter Settings dialog.

MOVEMENT SUMMARY

Site: 102 [2 Richmond / Hawthorne / Harmony (Site Folder: 2031 PM)]

Network: N101 [PM (Network Folder: 2031)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	65	5.0	51	5.0	0.038	11.2	LOS A	0.6	4.5	0.18	0.64	0.18	56.8
2	T1	2346	5.0	1838	5.0	0.734	9.2	LOS A	37.4	273.4	0.40	0.37	0.40	60.7
3	R2	81	5.0	63	5.0	* 0.883	94.3	LOS F[11]	5.1	37.5	1.00	0.83	1.27	25.8
Approach		2492	5.0	1953[N1]	5.0	0.883	12.0	LOS A	37.4	273.4	0.41	0.39	0.42	56.3
East: Harmony Avenue														
4	L2	41	5.0	41	5.0	0.132	64.6	LOS E[11]	2.5	18.6	0.88	0.73	0.88	18.9
5	T1	10	5.0	10	5.0	* 0.058	67.4	LOS E[11]	0.7	5.1	0.94	0.64	0.94	21.7
6	R2	27	5.0	27	5.0	0.376	85.4	LOS F[11]	2.1	15.0	1.00	0.72	1.00	15.3
Approach		78	5.0	78	5.0	0.376	72.2	LOS F[11]	2.5	18.6	0.93	0.71	0.93	17.9
North: Richmond Road														
7	L2	33	5.0	33	5.0	0.021	8.0	LOS A	0.1	0.9	0.08	0.62	0.08	56.0
8	T1	1998	5.0	1998	5.0	* 0.813	15.3	LOS B	48.3	352.6	0.65	0.61	0.65	51.1
9	R2	46	5.0	46	5.0	0.644	90.4	LOS F[11]	3.6	26.6	1.00	0.77	1.11	21.3
Approach		2077	5.0	2077	5.0	0.813	16.8	LOS B	48.3	352.6	0.65	0.61	0.65	49.3
West: Hawthorne Avenue														
10	L2	83	5.0	83	5.0	0.268	66.5	LOS E[11]	5.3	38.8	0.91	0.77	0.91	8.5
11	T1	8	5.0	8	5.0	0.044	68.6	LOS E[11]	0.5	3.8	0.94	0.64	0.94	21.4
12	R2	65	5.0	65	5.0	* 0.456	87.0	LOS F[11]	2.5	18.3	1.00	0.72	1.00	6.7
Approach		157	5.0	157	5.0	0.456	75.2	LOS F[11]	5.3	38.8	0.95	0.74	0.95	8.5
All Vehicles		4804	5.0	4265[N1]	5.6	0.883	17.8	LOS B	48.3	352.6	0.55	0.52	0.56	48.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.
* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P11	Stage 1	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	234.1	214.2	0.92
P12	Stage 2	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	231.5	210.9	0.91
P1B	Slip/	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90

	Bypass										
East: Harmony Avenue											
P2	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	238.9	220.5	0.92
North: Richmond Road											
P31	Stage 1	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	234.1	214.2	0.92
P32	Stage 2	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	231.5	210.9	0.91
West: Hawthorne Avenue											
P4	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	241.8	224.3	0.93
All Pedestrians		449	69.3	LOS F[12]	0.3	0.3	0.96	0.96	234.1	214.2	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

12 Level of Service is worse than the Pedestrian Level of Service Target specified in the Parameter Settings dialog.

MOVEMENT SUMMARY

Site: 103 [3 Richmond / Hollinsworth / Townson (Site Folder: 2031 PM)] — Network: N101 [PM (Network Folder: 2031)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	94	5.0	71	5.0	0.073	16.7	LOS B	1.2	8.6	0.25	0.66	0.25	51.9
2	T1	1976	5.0	1508	5.0	* 1.048	113.8	LOS F[11]	84.9	619.6	1.00	1.32	1.53	16.7
3	R2	74	5.0	57	5.0	0.157	78.3	LOS F[11]	2.6	19.0	1.00	0.74	1.00	30.4
Approach		2144	5.0	1637[N1]	5.0	1.048	108.3	LOS F[11]	84.9	619.6	0.97	1.27	1.46	17.7
East: Townson Road														
4	L2	65	5.0	65	5.0	0.098	39.5	LOS C	3.1	22.3	0.68	0.72	0.68	27.0
5	T1	59	5.0	59	5.0	0.151	52.1	LOS D[11]	3.5	25.7	0.86	0.66	0.86	22.8
6	R2	46	5.0	46	5.0	0.227	72.0	LOS F[11]	3.1	22.9	0.95	0.74	0.95	18.3
Approach		171	5.0	171	5.0	0.227	52.7	LOS D[11]	3.5	25.7	0.81	0.71	0.81	22.6
North: Richmond Road														
7	L2	63	5.0	63	5.0	0.064	27.7	LOS B	2.7	19.8	0.64	0.73	0.64	47.0
8	T1	1816	5.0	1816	5.0	1.019	123.8	LOS F[11]	74.4	542.9	1.00	1.23	1.45	15.0
9	R2	241	5.0	241	5.0	1.062	129.6	LOS F[11]	25.2	183.9	1.00	1.02	1.53	14.2
Approach		2120	5.0	2120	5.0	1.062	121.6	LOS F[11]	74.4	542.9	0.99	1.19	1.44	15.4
West: Hollinsworth Road														
10	L2	412	5.0	412	5.0	* 1.047	145.7	LOS F[11]	51.4	375.4	1.00	1.20	1.65	5.6
11	T1	87	5.0	87	5.0	1.047	137.6	LOS F[11]	51.4	375.4	1.00	1.20	1.65	14.2
12	R2	313	5.0	313	5.0	* 1.023	139.2	LOS F[11]	16.8	122.5	1.00	1.18	1.76	5.9
Approach		812	5.0	812	5.0	1.047	142.3	LOS F[11]	51.4	375.4	1.00	1.19	1.69	6.8
All Vehicles		5247	5.0	4739[N1]	5.5	1.062	118.1	LOS F[11]	84.9	619.6	0.98	1.20	1.46	14.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.
* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P1	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	251.8	237.2	0.94
P1B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90

East: Townson Road											
P2	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	241.2	223.4	0.93
North: Richmond Road											
P3	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	251.7	237.1	0.94
P3B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
West: Hollinsworth Road											
P4	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	238.5	219.9	0.92
All Pedestrians		385	69.3	LOS F[12]	0.3	0.3	0.96	0.96	239.3	221.0	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

12 Level of Service is worse than the Pedestrian Level of Service Target specified in the Parameter Settings dialog.

MOVEMENT SUMMARY

Site: 104 [4 Richmond / Langford / Alderton (Site Folder: 2031 PM)] Network: N101 [PM (Network Folder: 2031)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	747	5.0	747	5.0	1.047	134.5	LOS F[11]	90.8	662.7	1.00	1.14	1.60	22.8
2	T1	1984	5.0	1984	5.0	* 1.372	398.0	LOS F[11]	215.3	1571.9	1.00	2.30	2.77	8.1
3	R2	440	5.0	440	5.0	* 1.315	362.1	LOS F[11]	39.6	289.2	1.00	1.41	2.70	9.1
Approach		3171	5.0	3171	5.0	1.372	331.0	LOS F[11]	215.3	1571.9	1.00	1.90	2.49	10.0
East: Alderton Road														
4	L2	417	5.0	417	5.0	1.036	142.3	LOS F[11]	52.2	380.7	1.00	1.20	1.62	20.3
5	T1	46	5.0	46	5.0	* 1.036	132.1	LOS F[11]	52.2	380.7	1.00	1.20	1.62	7.1
6	R2	131	5.0	131	5.0	0.842	86.2	LOS F[11]	10.4	75.8	1.00	0.94	1.27	3.6
Approach		594	5.0	594	5.0	1.036	129.2	LOS F[11]	52.2	380.7	1.00	1.14	1.55	17.3
North: Richmond Road														
7	L2	267	5.0	265	5.0	0.255	25.8	LOS B	11.0	80.4	0.62	0.77	0.62	43.1
8	T1	1888	5.0	1874	5.0	1.107	180.4	LOS F[11]	117.3	856.2	1.00	1.49	1.71	23.0
9	R2	54	5.0	54	5.0	0.320	69.4	LOS E[11]	3.4	25.1	0.89	0.74	0.89	28.2
Approach		2208	5.0	2193[N1]	5.0	1.107	159.0	LOS F[11]	117.3	856.2	0.95	1.38	1.55	23.7
West: Langford Road														
10	L2	144	5.0	144	5.0	0.309	51.0	LOS D[11]	9.0	66.0	0.83	0.77	0.83	13.4
11	T1	17	12.3	17	12.3	0.309	45.1	LOS D[11]	9.0	66.0	0.83	0.75	0.83	16.0
12	R2	425	5.0	425	5.0	* 1.366	403.3	LOS F[11]	40.6	296.5	1.00	1.84	2.86	9.2
Approach		585	5.2	585	5.2	1.366	306.5	LOS F[11]	40.6	296.5	0.95	1.54	2.30	9.4
All Vehicles		6558	5.0	6542[N1]	5.0	1.372	252.8	LOS F[11]	215.3	1571.9	0.98	1.63	2.07	13.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.
* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P1	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	251.5	236.9	0.94
P1B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90

East: Alderton Road											
P2	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	238.3	219.7	0.92
North: Richmond Road											
P3	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	251.7	237.1	0.94
P3B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
West: Langford Road											
P4	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	240.8	223.0	0.93
All Pedestrians		385	69.3	LOS F[12]	0.3	0.3	0.96	0.96	239.2	220.9	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

12 Level of Service is worse than the Pedestrian Level of Service Target specified in the Parameter Settings dialog.

MOVEMENT SUMMARY

Site: 105 [5 Hollinsworth / Chifley / Bells (Site Folder: 2031 PM)]

Network: N101 [PM (Network Folder: 2031)]

New Site
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Chifley Glade														
1	L2	121	5.0	121	5.0	0.149	5.1	LOS A	0.7	5.2	0.33	0.51	0.33	52.3
2	T1	363	5.0	363	5.0	0.782	5.4	LOS A	10.2	73.9	0.66	0.59	0.66	35.7
3	R2	544	5.0	544	5.0	0.782	10.5	LOS A	10.2	73.9	0.66	0.59	0.66	38.1
3u	U	181	0.0	181	0.0	0.782	12.6	LOS A	10.2	73.9	0.66	0.59	0.66	48.7
Approach		1209	4.3	1209	4.3	0.782	8.7	LOS A	10.2	73.9	0.63	0.58	0.63	41.0
East: Hollinsworth Road														
4	L2	257	5.0	233	5.0	0.176	5.1	LOS A	0.9	6.5	0.35	0.53	0.35	48.7
5	T1	59	5.0	54	5.0	0.119	5.4	LOS A	0.5	4.0	0.36	0.61	0.36	51.3
6	R2	78	5.0	71	5.0	0.119	10.5	LOS A	0.5	4.0	0.36	0.61	0.36	40.6
Approach		394	5.0	358 N1	5.0	0.176	6.2	LOS A	0.9	6.5	0.35	0.56	0.35	47.8
North: Bells Glade														
7	L2	178	5.0	178	5.0	0.634	10.7	LOS A	4.8	35.2	0.73	0.96	1.00	24.1
8	T1	53	5.0	53	5.0	0.634	10.7	LOS A	4.8	35.2	0.73	0.96	1.00	40.8
9	R2	21	5.0	21	5.0	0.634	15.8	LOS B	4.8	35.2	0.73	0.96	1.00	46.5
Approach		251	5.0	251	5.0	0.634	11.1	LOS A	4.8	35.2	0.73	0.96	1.00	32.4
West: Hollinsworth Road														
10	L2	15	5.0	15	5.0	0.197	16.3	LOS B	0.7	5.4	0.98	0.92	0.98	40.3
11	T1	90	5.0	90	5.0	0.197	14.8	LOS B	1.8	12.9	0.99	0.88	0.99	38.8
12	R2	37	5.0	37	5.0	0.197	19.3	LOS B	1.8	12.9	1.00	0.86	1.00	44.6
Approach		142	5.0	142	5.0	0.197	16.1	LOS B	1.8	12.9	0.99	0.88	0.99	40.8
All Vehicles		1997	4.5	1960 N 1	4.6	0.782	9.1	LOS A	10.2	73.9	0.62	0.65	0.65	41.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 101 [1 Richmond / South (Site Folder: 2031 AM with Development)]

Network: N101 [AM (Network Folder: 2031 - with Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	96	5.0	82	5.0	0.116	31.2	LOS C	3.6	26.4	0.85	0.76	0.85	44.5
2	T1	1459	5.0	1249	5.0	0.560	30.0	LOS C	20.5	149.8	0.96	0.83	0.96	54.2
3	R2	677	5.0	579	5.0	* 1.346	351.5	LOS F	44.7	326.1	1.00	1.41	2.67	7.9
Approach		2232	5.0	1910 N1	5.0	1.346	127.6	LOS F	44.7	326.1	0.97	1.00	1.47	22.5
East: South Street														
4	L2	566	5.0	566	5.0	* 1.139	230.8	LOS F	68.7	501.7	1.00	1.29	2.00	5.9
5	T1	58	5.0	58	5.0	0.129	65.4	LOS E	1.9	14.1	0.93	0.69	0.93	28.1
6	R2	388	5.0	388	5.0	0.903	91.8	LOS F	16.1	117.7	1.00	0.96	1.34	27.9
Approach		1013	5.0	1013	5.0	1.139	168.0	LOS F	68.7	501.7	1.00	1.13	1.68	13.0
North: Richmond Road														
7	L2	561	5.0	561	5.0	0.546	19.8	LOS B	17.7	129.0	0.67	0.80	0.67	54.1
8	T1	2119	5.0	2119	5.0	* 1.269	327.3	LOS F	149.7	1092.7	1.00	1.95	2.47	8.0
9	R2	94	5.0	94	5.0	0.373	40.6	LOS C	3.3	24.0	0.95	0.77	0.95	43.6
Approach		2774	5.0	2774	5.0	1.269	255.4	LOS F	149.7	1092.7	0.93	1.68	2.06	10.9
West: South Street														
10	L2	79	5.0	79	5.0	0.154	31.1	LOS C	2.7	19.8	0.78	0.73	0.78	47.4
11	T1	105	5.0	105	5.0	0.261	67.5	LOS E	3.6	26.3	0.96	0.73	0.96	27.9
12	R2	75	5.0	75	5.0	* 0.333	75.9	LOS F	3.0	22.2	0.97	0.75	0.97	17.7
Approach		259	5.0	259	5.0	0.333	58.8	LOS E	3.6	26.3	0.91	0.73	0.91	30.3
All Vehicles		6277	5.0	5955 N1	5.3	1.346	191.0	LOS F	149.7	1092.7	0.95	1.33	1.76	14.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P11	Stage 1	53	69.3	LOS F	0.2	0.2	0.96	0.96	239.1	220.8	0.92
P12	Stage 2	53	69.3	LOS F	0.2	0.2	0.96	0.96	234.0	214.2	0.92
P1B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90

East: South Street											
P2	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	246.4	230.3	0.93
P2B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
North: Richmond Road											
P31	Stage 1	53	69.3	LOS F	0.2	0.2	0.96	0.96	236.6	217.5	0.92
P32	Stage 2	53	33.5	LOS D	0.1	0.1	0.92	0.92	198.3	214.2	1.08
P3B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
West: South Street											
P4	Full	53	45.9	LOS E	0.2	0.2	0.92	0.92	223.5	230.8	1.03
P4B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
All Pedestrians		526	63.4	LOS F	0.2	0.2	0.95	0.95	228.4	214.5	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 102 [2 Richmond / Hawthorne / Harmony (Site Folder: 2031 AM with Development)]

Network: N101 [AM (Network Folder: 2031 - with Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	95	5.0	81	5.0	0.060	14.4	LOS A	2.2	16.2	0.41	0.69	0.41	53.4
2	T1	2123	5.0	1806	5.0	0.729	24.5	LOS B	53.7	391.7	0.87	0.81	0.87	43.3
3	R2	25	5.0	21	5.0	0.300	85.2	LOS F	1.6	11.7	0.98	0.70	0.98	27.3
Approach		2243	5.0	1908 N1	5.0	0.729	24.7	LOS B	53.7	391.7	0.85	0.80	0.85	43.3
East: Harmony Avenue														
4	L2	87	5.0	87	5.0	0.292	66.9	LOS E	5.6	41.2	0.92	0.77	0.92	18.4
5	T1	9	5.0	9	5.0	* 0.058	68.6	LOS E	0.6	4.7	0.94	0.64	0.94	21.5
6	R2	33	5.0	33	5.0	* 0.455	85.9	LOS F	2.5	18.3	1.00	0.72	1.00	15.2
Approach		129	5.0	129	5.0	0.455	71.8	LOS F	5.6	41.2	0.94	0.75	0.94	17.7
North: Richmond Road														
7	L2	24	5.0	20	5.0	0.012	7.6	LOS A	0.0	0.2	0.02	0.61	0.02	56.3
8	T1	2655	5.0	2216	5.0	* 1.034	80.1	LOS F	124.7	910.0	0.98	1.26	1.39	20.1
9	R2	64	5.0	54	5.0	* 0.747	92.1	LOS F	4.3	31.3	1.00	0.81	1.23	21.0
Approach		2743	5.0	2290 N1	5.0	1.034	79.7	LOS F	124.7	910.0	0.97	1.24	1.37	20.3
West: Hawthorne Avenue														
10	L2	40	5.0	40	5.0	0.134	65.6	LOS E	2.5	18.2	0.89	0.73	0.89	8.6
11	T1	4	5.0	4	5.0	0.026	69.2	LOS E	0.3	2.1	0.94	0.62	0.94	21.2
12	R2	53	5.0	53	5.0	0.426	87.6	LOS F	2.3	17.1	1.00	0.72	1.00	6.6
Approach		97	5.0	97	5.0	0.426	77.7	LOS F	2.5	18.2	0.95	0.72	0.95	8.1
All Vehicles		5213	5.0	4424 N1	5.9	1.034	55.7	LOS D	124.7	910.0	0.92	1.03	1.13	26.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P11	Stage 1	53	69.3	LOS F	0.2	0.2	0.96	0.96	234.0	214.2	0.92
P12	Stage 2	53	69.3	LOS F	0.2	0.2	0.96	0.96	231.5	210.9	0.91

P1B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
East: Harmony Avenue											
P2	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	238.9	220.5	0.92
North: Richmond Road											
P31	Stage 1	53	69.3	LOS F	0.2	0.2	0.96	0.96	234.0	214.2	0.92
P32	Stage 2	53	69.3	LOS F	0.2	0.2	0.96	0.96	231.5	210.9	0.91
West: Hawthorne Avenue											
P4	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	241.8	224.3	0.93
All Pedestrians		368	69.3	LOS F	0.2	0.2	0.96	0.96	234.0	214.2	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 103 [3 Richmond / Hollinsworth / Townson (Site Folder: 2031 AM with Development)]

Network: N101 [AM (Network Folder: 2031 - with Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	206	5.0	172	5.0	0.159	25.3	LOS B	7.4	54.2	0.64	0.76	0.64	44.0
2	T1	2020	5.0	1689	5.0	0.967	75.5	LOS F	78.7	574.7	1.00	1.09	1.21	23.1
3	R2	49	5.0	41	5.0	0.198	79.8	LOS F	1.8	13.2	0.95	0.71	0.95	30.1
Approach		2276	5.0	1903 N1	5.0	0.967	71.0	LOS F	78.7	574.7	0.97	1.05	1.15	24.3
East: Townson Road														
4	L2	147	5.0	147	5.0	0.262	49.5	LOS D	8.0	58.3	0.79	0.77	0.79	24.0
5	T1	71	5.0	71	5.0	0.187	53.5	LOS D	4.3	31.2	0.87	0.68	0.87	22.5
6	R2	55	5.0	55	5.0	0.416	80.1	LOS F	4.0	29.1	1.00	0.75	1.00	16.9
Approach		273	5.0	273	5.0	0.416	56.7	LOS E	8.0	58.3	0.85	0.75	0.85	21.8
North: Richmond Road														
7	L2	35	5.0	28	5.0	0.026	19.6	LOS B	0.7	5.0	0.36	0.66	0.36	51.8
8	T1	2602	5.0	2112	5.0	* 1.038	122.5	LOS F	106.0	774.0	1.00	1.34	1.56	15.1
9	R2	160	5.0	130	5.0	* 0.988	119.3	LOS F	12.3	89.7	1.00	1.03	1.65	15.6
Approach		2797	5.0	2270 N1	5.0	1.038	121.0	LOS F	106.0	774.0	0.99	1.31	1.55	15.3
West: Hollinsworth Road														
10	L2	154	5.0	154	5.0	0.412	58.0	LOS E	11.3	82.8	0.88	0.79	0.88	12.9
11	T1	33	5.0	33	5.0	* 0.412	50.1	LOS D	11.3	82.8	0.88	0.79	0.88	27.1
12	R2	166	5.0	166	5.0	* 1.031	147.0	LOS F	9.1	66.7	1.00	1.14	1.90	5.6
Approach		353	5.0	353	5.0	1.031	99.3	LOS F	11.3	82.8	0.94	0.96	1.36	9.1
All Vehicles		5698	5.0	4798 N1	5.9	1.038	95.9	LOS F	106.0	774.0	0.97	1.15	1.34	18.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P1	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	251.7	237.2	0.94
P1B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90

East: Townson Road											
P2	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	241.1	223.4	0.93
North: Richmond Road											
P3	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	251.7	237.1	0.94
P3B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
West: Hollinsworth Road											
P4	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	238.4	219.9	0.92
All Pedestrians		316	69.3	LOS F	0.2	0.2	0.96	0.96	239.3	221.0	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 104 [4 Richmond / Langford / Alderton (Site Folder: 2031 AM with Development)]

Network: N101 [AM (Network Folder: 2031 - with Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	338	4.3	338	4.3	0.296	20.4	LOS B	10.9	78.9	0.48	0.74	0.48	54.5
2	T1	2227	5.0	2227	5.0	* 1.195	239.3	LOS F	187.7	1370.5	1.00	1.85	2.15	12.6
3	R2	109	5.0	109	5.0	* 0.654	88.8	LOS F	4.2	31.0	1.00	0.78	1.11	27.7
Approach		2675	4.9	2675	4.9	1.195	205.5	LOS F	187.7	1370.5	0.93	1.67	1.90	14.7
East: Alderton Road														
4	L2	303	5.0	303	5.0	0.795	68.3	LOS E	23.3	170.2	0.97	0.89	1.04	33.6
5	T1	33	5.0	33	5.0	* 0.795	57.2	LOS E	23.3	170.2	0.97	0.89	1.04	13.6
6	R2	76	5.0	76	5.0	0.792	88.1	LOS F	6.0	43.8	1.00	0.89	1.25	3.5
Approach		412	5.0	412	5.0	0.795	71.1	LOS F	23.3	170.2	0.97	0.89	1.08	27.6
North: Richmond Road														
7	L2	142	5.0	113	5.0	0.100	13.9	LOS A	1.6	11.7	0.21	0.66	0.21	53.1
8	T1	2752	5.0	2190	5.0	1.076	117.6	LOS F	131.5	960.3	1.00	1.42	1.60	31.1
9	R2	14	5.0	11	5.0	0.130	86.9	LOS F	0.8	6.0	1.00	0.68	1.00	24.5
Approach		2907	5.0	2314 N1	5.0	1.076	112.3	LOS F	131.5	960.3	0.96	1.38	1.53	31.4
West: Langford Road														
10	L2	20	5.0	20	5.0	0.043	49.3	LOS D	1.1	8.1	0.76	0.68	0.76	13.8
11	T1	2	55.0	2	55.0	0.043	46.7	LOS D	1.1	8.1	0.79	0.59	0.79	16.2
12	R2	240	5.0	240	5.0	* 1.255	309.5	LOS F	19.9	145.1	1.00	1.55	2.57	11.5
Approach		262	5.4	262	5.4	1.255	287.5	LOS F	19.9	145.1	0.98	1.48	2.42	11.5
All Vehicles		6256	5.0	5663 N1	5.5	1.255	161.5	LOS F	187.7	1370.5	0.95	1.49	1.71	20.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P1	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	251.5	236.9	0.94
P1B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
East: Alderton Road											

P2	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	238.3	219.7	0.92
North: Richmond Road											
P3	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	251.7	237.1	0.94
P3B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
West: Langford Road											
P4	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	240.8	223.0	0.93
All Pedestrians		316	69.3	LOS F	0.2	0.2	0.96	0.96	239.2	220.9	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 105 [5 Hollinsworth / Chifley / Bells (Site Folder: 2031 AM with Development)]

Network: N101 [AM (Network Folder: 2031 - with Development)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Chifley Glade														
1	L2	91	5.0	91	5.0	0.114	5.3	LOS A	0.5	3.9	0.35	0.52	0.35	52.3
2	T1	137	5.0	137	5.0	0.314	4.7	LOS A	2.0	14.4	0.36	0.59	0.36	36.9
3	R2	204	5.0	204	5.0	0.314	9.8	LOS A	2.0	14.4	0.36	0.59	0.36	40.0
3u	U	67	0.0	67	0.0	0.314	11.9	LOS A	2.0	14.4	0.36	0.59	0.36	50.3
Approach		499	4.3	499	4.3	0.314	7.9	LOS A	2.0	14.4	0.36	0.58	0.36	43.6
East: Hollinsworth Road														
4	L2	236	5.0	195	5.0	0.131	4.5	LOS A	0.6	4.3	0.22	0.48	0.22	49.5
5	T1	128	5.0	106	5.0	0.130	4.5	LOS A	0.6	4.2	0.24	0.51	0.24	53.0
6	R2	73	5.0	60	5.0	0.130	9.6	LOS A	0.6	4.2	0.24	0.51	0.24	42.6
Approach		437	5.0	362[N1]	5.0	0.131	5.3	LOS A	0.6	4.3	0.23	0.49	0.23	49.8
North: Bells Glade														
7	L2	66	5.0	66	5.0	0.091	4.7	LOS A	0.3	1.9	0.31	0.55	0.31	34.1
8	T1	20	5.0	20	5.0	0.091	4.7	LOS A	0.3	1.9	0.31	0.55	0.31	48.9
9	R2	7	5.0	7	5.0	0.091	9.8	LOS A	0.3	1.9	0.31	0.55	0.31	53.0
Approach		94	5.0	94	5.0	0.091	5.1	LOS A	0.3	1.9	0.31	0.55	0.31	42.0
West: Hollinsworth Road														
10	L2	5	5.0	5	5.0	0.062	5.8	LOS A	0.4	2.7	0.55	0.53	0.55	48.8
11	T1	82	5.0	82	5.0	0.062	5.8	LOS A	0.4	2.7	0.55	0.55	0.55	47.5
12	R2	44	5.0	44	5.0	0.062	11.3	LOS A	0.3	2.5	0.56	0.66	0.56	49.5
Approach		132	5.0	132	5.0	0.062	7.6	LOS A	0.4	2.7	0.55	0.59	0.55	48.4
All Vehicles		1161	4.7	1086[N1]	5.0	0.314	6.8	LOS A	2.0	14.4	0.34	0.55	0.34	46.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 101 [1 Richmond / South (Site Folder: 2031 PM with Development)]

Network: N101 [PM (Network Folder: 2031 - with Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	89	5.0	66	5.0	0.111	31.3	LOS C	2.2	16.2	0.61	0.71	0.61	44.4
2	T1	1737	5.0	1289	5.0	0.683	26.5	LOS B	19.9	145.0	0.80	0.69	0.80	56.5
3	R2	660	5.0	490	5.0	0.640	37.7	LOS C	9.3	68.2	0.99	0.83	0.99	40.6
Approach		2486	5.0	1845 N1	5.0	0.683	29.7	LOS C	19.9	145.0	0.84	0.73	0.84	51.8
East: South Street														
4	L2	558	5.0	558	5.0	* 0.816	42.0	LOS C	26.0	190.1	0.95	0.88	0.97	26.3
5	T1	127	5.0	127	5.0	0.243	63.7	LOS E	4.2	30.9	0.93	0.73	0.93	28.5
6	R2	392	5.0	392	5.0	0.780	78.2	LOS F	14.6	106.8	1.00	0.87	1.12	30.7
Approach		1077	5.0	1077	5.0	0.816	57.8	LOS E	26.0	190.1	0.96	0.86	1.02	29.0
North: Richmond Road														
7	L2	360	5.0	360	5.0	0.418	22.5	LOS B	11.3	82.7	0.69	0.79	0.69	52.2
8	T1	1502	5.0	1502	5.0	* 0.813	52.1	LOS D	35.6	259.8	0.97	0.88	1.00	33.3
9	R2	67	5.0	67	5.0	0.209	38.0	LOS C	2.6	19.0	0.89	0.75	0.89	44.7
Approach		1929	5.0	1929	5.0	0.813	46.1	LOS D	35.6	259.8	0.91	0.86	0.94	37.1
West: South Street														
10	L2	104	5.0	104	5.0	0.178	28.2	LOS B	2.8	20.7	0.75	0.73	0.75	49.0
11	T1	53	5.0	53	5.0	0.131	66.2	LOS E	1.8	12.9	0.94	0.68	0.94	28.2
12	R2	85	5.0	85	5.0	* 0.223	73.0	LOS F	2.9	21.3	0.95	0.74	0.95	18.2
Approach		242	5.0	242	5.0	0.223	52.2	LOS D	2.9	21.3	0.86	0.72	0.86	32.9
All Vehicles		5735	5.0	5094 N1	5.6	0.816	42.9	LOS D	35.6	259.8	0.90	0.81	0.92	40.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P11	Stage 1	53	69.3	LOS F	0.2	0.2	0.96	0.96	239.1	220.8	0.92
P12	Stage 2	53	69.3	LOS F	0.2	0.2	0.96	0.96	234.0	214.2	0.92
P1B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90

East: South Street											
P2	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	246.4	230.3	0.93
P2B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
North: Richmond Road											
P31	Stage 1	53	69.3	LOS F	0.2	0.2	0.96	0.96	236.6	217.5	0.92
P32	Stage 2	53	32.1	LOS D	0.1	0.1	0.92	0.92	196.8	214.2	1.09
P3B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
West: South Street											
P4	Full	53	42.5	LOS E	0.2	0.2	0.92	0.92	220.0	230.8	1.05
P4B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
All Pedestrians		526	62.9	LOS F	0.2	0.2	0.95	0.95	227.9	214.5	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 102 [2 Richmond / Hawthorne / Harmony (Site Folder: 2031 PM with Development)]

Network: N101 [PM (Network Folder: 2031 - with Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	99	5.0	72	5.0	0.053	11.1	LOS A	0.9	6.3	0.18	0.65	0.18	56.9
2	T1	2378	5.0	1734	5.0	0.684	8.7	LOS A	33.1	241.5	0.37	0.34	0.37	61.6
3	R2	81	5.0	59	5.0	* 0.824	92.4	LOS F	4.7	34.6	1.00	0.81	1.19	26.1
Approach		2558	5.0	1866 N1	5.0	0.824	11.4	LOS A	33.1	241.5	0.38	0.37	0.38	57.1
East: Harmony Avenue														
4	L2	41	5.0	41	5.0	0.137	65.5	LOS E	2.6	18.7	0.89	0.73	0.89	18.7
5	T1	14	5.0	14	5.0	* 0.084	68.9	LOS E	0.9	6.8	0.95	0.66	0.95	21.4
6	R2	26	5.0	26	5.0	0.367	85.4	LOS F	2.0	14.7	1.00	0.71	1.00	15.3
Approach		81	5.0	81	5.0	0.367	72.5	LOS F	2.6	18.7	0.94	0.71	0.94	17.9
North: Richmond Road														
7	L2	33	5.0	33	5.0	0.020	8.0	LOS A	0.1	1.0	0.09	0.62	0.09	56.0
8	T1	2038	5.0	2038	5.0	* 0.872	16.7	LOS B	52.4	382.2	0.72	0.68	0.72	49.4
9	R2	57	5.0	57	5.0	0.792	93.2	LOS F	4.6	33.5	1.00	0.83	1.29	20.8
Approach		2127	5.0	2127	5.0	0.872	18.6	LOS B	52.4	382.2	0.72	0.68	0.73	47.4
West: Hawthorne Avenue														
10	L2	101	5.0	101	5.0	0.338	68.0	LOS E	6.6	48.1	0.93	0.78	0.93	8.3
11	T1	12	5.0	12	5.0	0.071	70.1	LOS E	0.8	5.8	0.95	0.66	0.95	21.1
12	R2	115	5.0	115	5.0	* 0.847	94.2	LOS F	5.0	36.2	1.00	0.90	1.40	6.2
Approach		227	5.0	227	5.0	0.847	81.3	LOS F	6.6	48.1	0.97	0.83	1.17	7.9
All Vehicles		4994	5.0	4301 N1	5.8	0.872	19.8	LOS B	52.4	382.2	0.59	0.55	0.61	45.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P11	Stage 1	53	69.3	LOS F	0.2	0.2	0.96	0.96	234.0	214.2	0.92
P12	Stage 2	53	69.3	LOS F	0.2	0.2	0.96	0.96	231.5	210.9	0.91
P1B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90

East: Harmony Avenue										
P2 Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	238.9	220.5	0.92
North: Richmond Road										
P31 Stage 1	53	69.3	LOS F	0.2	0.2	0.96	0.96	234.0	214.2	0.92
P32 Stage 2	53	69.3	LOS F	0.2	0.2	0.96	0.96	231.5	210.9	0.91
West: Hawthorne Avenue										
P4 Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	241.8	224.3	0.93
All Pedestrians	368	69.3	LOS F	0.2	0.2	0.96	0.96	234.0	214.2	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 103 [3 Richmond / Hollinsworth / Townson (Site Folder: 2031 PM with Development)]

Network: N101 [PM (Network Folder: 2031 - with Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	136	5.0	99	5.0	0.101	16.9	LOS B	1.7	12.2	0.25	0.66	0.25	51.7
2	T1	2029	5.0	1473	5.0	1.068	129.9	LOS F	88.0	642.2	1.00	1.38	1.62	15.0
3	R2	75	5.0	54	5.0	0.150	78.2	LOS F	2.5	18.1	1.00	0.73	1.00	30.4
Approach		2240	5.0	1626 N1	5.0	1.068	121.4	LOS F	88.0	642.2	0.95	1.31	1.51	16.1
East: Townson Road														
4	L2	66	5.0	66	5.0	0.099	39.4	LOS C	3.1	22.6	0.68	0.72	0.68	27.0
5	T1	62	5.0	62	5.0	0.159	52.2	LOS D	3.7	27.1	0.86	0.67	0.86	22.8
6	R2	45	5.0	45	5.0	0.199	69.6	LOS E	3.0	21.9	0.93	0.74	0.93	18.7
Approach		174	5.0	174	5.0	0.199	51.9	LOS D	3.7	27.1	0.81	0.71	0.81	22.8
North: Richmond Road														
7	L2	62	5.0	62	5.0	0.063	27.4	LOS B	2.6	19.3	0.63	0.73	0.63	47.1
8	T1	1897	5.0	1897	5.0	* 1.096	171.0	LOS F	93.2	680.2	1.00	1.45	1.76	11.2
9	R2	248	5.0	248	5.0	1.094	156.0	LOS F	28.4	207.4	1.00	1.07	1.66	12.1
Approach		2207	5.0	2207	5.0	1.096	165.3	LOS F	93.2	680.2	0.99	1.38	1.72	11.8
West: Hollinsworth Road														
10	L2	424	5.0	424	5.0	* 1.085	172.4	LOS F	51.4	375.4	1.00	1.27	1.80	4.7
11	T1	92	5.0	92	5.0	1.085	164.5	LOS F	51.4	375.4	1.00	1.27	1.80	12.3
12	R2	378	5.0	378	5.0	* 1.102	191.6	LOS F	24.4	178.0	1.00	1.31	2.01	4.3
Approach		894	5.0	894	5.0	1.102	179.7	LOS F	51.4	375.4	1.00	1.29	1.89	5.4
All Vehicles		5515	5.0	4901 N1	5.6	1.102	149.3	LOS F	93.2	680.2	0.97	1.32	1.65	11.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P1	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	251.7	237.2	0.94
P1B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
East: Townson Road											

P2	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	241.1	223.4	0.93
North: Richmond Road											
P3	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	251.7	237.1	0.94
P3B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
West: Hollinsworth Road											
P4	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	238.4	219.9	0.92
All Pedestrians		316	69.3	LOS F	0.2	0.2	0.96	0.96	239.3	221.0	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 104 [4 Richmond / Langford / Alderton (Site Folder: 2031 PM with Development)]

Network: N101 [PM (Network Folder: 2031 - with Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	779	5.0	779	5.0	1.081	158.9	LOS F	102.4	747.2	1.00	1.19	1.74	20.2
2	T1	2080	5.0	2080	5.0	* 1.443	460.5	LOS F	238.6	1742.1	1.00	2.46	2.98	7.1
3	R2	440	5.0	440	5.0	* 1.416	447.9	LOS F	44.3	323.3	1.00	1.51	3.00	7.5
Approach		3299	5.0	3299	5.0	1.443	387.6	LOS F	238.6	1742.1	1.00	2.03	2.69	8.7
East: Alderton Road														
4	L2	418	5.0	418	5.0	1.067	163.8	LOS F	56.0	408.8	1.00	1.26	1.75	18.1
5	T1	45	5.0	45	5.0	* 1.067	153.2	LOS F	56.0	408.8	1.00	1.26	1.75	6.2
6	R2	131	5.0	131	5.0	0.811	83.7	LOS F	10.2	74.3	1.00	0.91	1.21	3.7
Approach		594	5.0	594	5.0	1.067	145.4	LOS F	56.0	408.8	1.00	1.18	1.63	15.7
North: Richmond Road														
7	L2	266	5.0	246	5.0	0.231	24.1	LOS B	9.6	70.2	0.59	0.76	0.59	44.3
8	T1	2033	5.0	1875	5.0	1.090	167.0	LOS F	112.7	822.8	1.00	1.43	1.63	24.4
9	R2	54	5.0	50	5.0	0.319	74.3	LOS F	3.4	24.5	0.93	0.74	0.93	27.1
Approach		2353	5.0	2170 N1	5.0	1.090	148.7	LOS F	112.7	822.8	0.95	1.34	1.50	25.0
West: Langford Road														
10	L2	143	5.0	143	5.0	0.311	51.1	LOS D	8.9	65.3	0.83	0.77	0.83	13.3
11	T1	15	13.3	15	13.3	0.311	45.2	LOS D	8.9	65.3	0.83	0.75	0.83	16.0
12	R2	474	5.0	474	5.0	* 1.415	444.8	LOS F	47.7	348.0	1.00	1.91	2.99	8.5
Approach		632	5.2	632	5.2	1.415	346.2	LOS F	47.7	348.0	0.96	1.63	2.45	8.7
All Vehicles		6877	5.0	6694 N1	5.2	1.443	284.8	LOS F	238.6	1742.1	0.98	1.69	2.19	12.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P1	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	251.5	236.9	0.94
P1B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
East: Alderton Road											

P2	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	238.3	219.7	0.92
North: Richmond Road											
P3	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	251.7	237.1	0.94
P3B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
West: Langford Road											
P4	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	240.8	223.0	0.93
All Pedestrians		316	69.3	LOS F	0.2	0.2	0.96	0.96	239.2	220.9	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 105 [5 Hollinsworth / Chifley / Bells (Site Folder: 2031 PM with Development)]

Network: N101 [PM (Network Folder: 2031 - with Development)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Chifley Glade														
1	L2	154	5.0	154	5.0	0.198	5.5	LOS A	1.0	7.1	0.39	0.55	0.39	52.0
2	T1	363	5.0	363	5.0	0.816	6.5	LOS A	11.9	86.4	0.79	0.65	0.81	35.2
3	R2	544	5.0	544	5.0	0.816	11.6	LOS A	11.9	86.4	0.79	0.65	0.81	37.4
3u	U	181	0.0	181	0.0	0.816	13.6	LOS A	11.9	86.4	0.79	0.65	0.81	48.0
Approach		1242	4.3	1242	4.3	0.816	9.6	LOS A	11.9	86.4	0.74	0.63	0.76	40.8
East: Hollinsworth Road														
4	L2	256	5.0	222	5.0	0.174	5.3	LOS A	0.9	6.5	0.39	0.55	0.39	48.5
5	T1	112	5.0	97	5.0	0.158	5.6	LOS A	0.8	5.5	0.40	0.60	0.40	51.7
6	R2	79	5.0	69	5.0	0.158	10.7	LOS A	0.8	5.5	0.40	0.60	0.40	41.0
Approach		446	5.0	388 N1	5.0	0.174	6.3	LOS A	0.9	6.5	0.39	0.57	0.39	48.4
North: Bells Glade														
7	L2	178	5.0	178	5.0	0.704	13.6	LOS A	9.6	69.9	0.78	1.03	1.19	20.7
8	T1	52	5.0	52	5.0	0.704	13.7	LOS A	9.6	69.9	0.78	1.03	1.19	37.4
9	R2	21	5.0	21	5.0	0.704	18.8	LOS B	9.6	69.9	0.78	1.03	1.19	43.6
Approach		251	5.0	251	5.0	0.704	14.1	LOS A	9.6	69.9	0.78	1.03	1.19	28.8
West: Hollinsworth Road														
10	L2	15	5.0	15	5.0	0.414	19.7	LOS B	3.3	24.3	1.00	1.04	1.11	37.8
11	T1	169	5.0	169	5.0	0.414	17.0	LOS B	4.0	29.1	1.00	0.98	1.06	37.0
12	R2	86	5.0	86	5.0	0.414	20.5	LOS B	4.0	29.1	1.00	0.94	1.03	43.5
Approach		271	5.0	271	5.0	0.414	18.3	LOS B	4.0	29.1	1.00	0.97	1.06	39.5
All Vehicles		2209	4.6	2151 N1	4.7	0.816	10.6	LOS A	11.9	86.4	0.72	0.71	0.78	41.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 101 [1 Richmond / South (Site Folder: 2036 AM)]

Network: N101 [AM (Network Folder: 2036)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)
Design Life Analysis (Final Year): Results for 15 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	72	5.0	72	5.0	0.104	28.4	LOS B	2.8	20.8	0.75	0.74	0.75	45.8
2	T1	1591	5.0	1591	5.0	0.726	28.2	LOS B	26.4	192.8	0.96	0.84	0.96	54.8
3	R2	747	5.0	747	5.0	* 1.157	186.8	LOS F[11]	39.4	287.6	1.00	1.22	1.98	13.1
Approach		2410	5.0	2410	5.0	1.157	77.4	LOS F[11]	39.4	287.6	0.96	0.96	1.27	30.8
East: South Street														
4	L2	625	5.0	625	5.0	1.003	96.0	LOS F[11]	53.4	389.9	1.00	1.07	1.44	10.6
5	T1	57	5.0	57	5.0	0.114	63.1	LOS E[11]	1.9	13.5	0.91	0.69	0.91	28.6
6	R2	429	5.0	429	5.0	0.898	89.8	LOS F[11]	17.7	129.2	1.00	0.96	1.31	28.3
Approach		1111	5.0	1111	5.0	1.003	91.9	LOS F[11]	53.4	389.9	1.00	1.01	1.36	18.7
North: Richmond Road														
7	L2	619	5.0	619	5.0	* 0.681	23.0	LOS B	20.1	147.1	0.81	0.84	0.81	51.9
8	T1	2311	5.0	2311	5.0	* 1.183	237.0	LOS F[11]	127.3	929.1	1.00	1.76	2.14	10.2
9	R2	17	5.0	17	5.0	0.075	41.2	LOS C	0.7	5.0	0.91	0.69	0.91	43.4
Approach		2947	5.0	2947	5.0	1.183	190.9	LOS F[11]	127.3	929.1	0.96	1.56	1.85	13.2
West: South Street														
10	L2	30	5.0	30	5.0	0.059	27.3	LOS B	0.8	6.0	0.76	0.69	0.76	48.1
11	T1	111	5.0	111	5.0	* 0.258	66.5	LOS E[11]	3.8	27.4	0.95	0.72	0.95	28.1
12	R2	61	5.0	61	5.0	0.150	71.1	LOS F[11]	2.0	14.9	0.94	0.72	0.94	18.5
Approach		201	5.0	201	5.0	0.258	62.1	LOS E[11]	3.8	27.4	0.92	0.72	0.92	28.0
All Vehicles		6668	5.0	6668	5.0	1.183	129.5	LOS F[11]	127.3	929.1	0.97	1.22	1.53	19.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.
* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P11	Stage 1	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	239.2	220.8	0.92
P12	Stage 2	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	234.1	214.2	0.92
P1B	Slip/ Bypass	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
East: South Street											

P2	Full	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	246.5	230.3	0.93
P2B	Slip/ Bypass	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
North: Richmond Road											
P31	Stage 1	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	236.6	217.5	0.92
P32	Stage 2	71	31.9	LOS D	0.1	0.1	0.92	0.92	196.6	214.2	1.09
P3B	Slip/ Bypass	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
West: South Street											
P4	Full	71	40.0	LOS E[12]	0.2	0.2	0.92	0.92	217.6	230.8	1.06
P4B	Slip/ Bypass	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
All Pedestrians		708	62.6	LOS F[12]	0.3	0.3	0.95	0.95	227.6	214.5	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

12 Level of Service is worse than the Pedestrian Level of Service Target specified in the Parameter Settings dialog.

MOVEMENT SUMMARY

Site: 102 [2 Richmond / Hawthorne / Harmony (Site Folder: 2036 AM)]

Network: N101 [AM (Network Folder: 2036)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)
Design Life Analysis (Final Year): Results for 15 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	55	5.0	55	5.0	0.042	14.8	LOS B	1.4	10.6	0.39	0.68	0.39	53.1
2	T1	2304	5.0	2304	5.0	0.638	24.6	LOS B	45.2	329.7	0.84	0.78	0.84	43.3
3	R2	28	5.0	28	5.0	0.395	88.3	LOS F[11]	2.1	15.7	1.00	0.72	1.00	26.9
Approach		2387	5.0	2387	5.0	0.638	25.1	LOS B	45.2	329.7	0.83	0.77	0.83	42.9
East: Harmony Avenue														
4	L2	96	5.0	96	5.0	0.278	62.7	LOS E[11]	6.0	44.0	0.90	0.77	0.90	19.1
5	T1	6	5.0	6	5.0	0.026	63.6	LOS E[11]	0.4	2.7	0.91	0.61	0.91	22.6
6	R2	37	5.0	37	5.0	* 0.514	86.2	LOS F[11]	2.8	20.7	1.00	0.73	1.01	15.2
Approach		139	5.0	139	5.0	0.514	69.0	LOS E[11]	6.0	44.0	0.92	0.75	0.93	18.0
North: Richmond Road														
7	L2	27	5.0	24	5.0	0.015	7.6	LOS A	0.0	0.2	0.02	0.61	0.02	56.3
8	T1	2897	5.0	2550	5.0	* 0.696	8.1	LOS A	26.6	194.5	0.37	0.35	0.37	61.5
9	R2	54	5.0	47	5.0	* 0.661	90.3	LOS F[11]	3.7	27.2	1.00	0.76	1.07	21.4
Approach		2978	5.0	2621[N1]	5.0	0.696	9.6	LOS A	26.6	194.5	0.38	0.36	0.38	58.9
West: Hawthorne Avenue														
10	L2	33	5.0	33	5.0	0.094	60.7	LOS E[11]	1.9	14.2	0.86	0.72	0.86	9.1
11	T1	3	5.0	3	5.0	0.013	64.6	LOS E[11]	0.2	1.3	0.91	0.60	0.91	22.3
12	R2	26	5.0	26	5.0	0.178	85.1	LOS F[11]	1.0	7.0	0.99	0.68	0.99	6.9
Approach		61	5.0	61	5.0	0.178	71.1	LOS F[11]	1.9	14.2	0.92	0.70	0.92	8.9
All Vehicles		5565	5.0	5208[N1]	5.3	0.696	19.0	LOS B	45.2	329.7	0.61	0.56	0.61	47.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.
* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P11	Stage 1	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	236.6	217.5	0.92
P12	Stage 2	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	234.1	214.2	0.92
P1B	Slip/	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90

	Bypass										
East: Harmony Avenue											
P2	Full	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	238.9	220.5	0.92
North: Richmond Road											
P31	Stage 1	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	236.6	217.5	0.92
P32	Stage 2	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	234.1	214.2	0.92
West: Hawthorne Avenue											
P4	Full	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	241.9	224.3	0.93
All Pedestrians		496	69.3	LOS F[12]	0.3	0.3	0.96	0.96	235.5	216.1	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

12 Level of Service is worse than the Pedestrian Level of Service Target specified in the Parameter Settings dialog.

MOVEMENT SUMMARY

Site: 103 [3 Richmond / Hollinsworth / Townson (Site Folder: 2036 AM)]

Network: N101 [AM (Network Folder: 2036)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)
Design Life Analysis (Final Year): Results for 15 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	163	5.0	163	5.0	0.160	34.4	LOS C	8.8	63.9	0.80	0.79	0.80	37.8
2	T1	2148	5.0	2148	5.0	0.813	58.5	LOS E[11]	52.6	384.3	1.00	0.91	1.00	27.5
3	R2	55	5.0	55	5.0	0.242	74.4	LOS F[11]	2.3	17.1	0.92	0.72	0.92	31.3
Approach		2366	5.0	2366	5.0	0.813	57.2	LOS E[11]	52.6	384.3	0.98	0.90	0.98	28.1
East: Townson Road														
4	L2	163	5.0	163	5.0	0.257	45.0	LOS D[11]	8.4	61.0	0.75	0.77	0.75	25.4
5	T1	72	5.0	72	5.0	0.164	48.9	LOS D[11]	4.2	30.5	0.84	0.66	0.84	23.8
6	R2	61	5.0	61	5.0	0.849	93.8	LOS F[11]	5.0	36.3	1.00	0.90	1.39	15.1
Approach		296	5.0	296	5.0	0.849	56.0	LOS D[11]	8.4	61.0	0.82	0.77	0.91	21.9
North: Richmond Road														
7	L2	38	5.0	34	5.0	0.033	17.5	LOS B	0.6	4.5	0.27	0.65	0.27	53.2
8	T1	2818	5.0	2494	5.0	* 0.997	57.5	LOS E[11]	78.4	572.1	0.95	1.08	1.20	26.7
9	R2	166	5.0	147	5.0	* 1.023	136.7	LOS F[11]	15.1	110.2	1.00	1.08	1.75	13.8
Approach		3022	5.0	2675[N1]	5.0	1.023	61.3	LOS E[11]	78.4	572.1	0.94	1.07	1.22	25.7
West: Hollinsworth Road														
10	L2	162	5.0	162	5.0	0.379	53.1	LOS D[11]	11.4	83.0	0.85	0.78	0.85	13.7
11	T1	34	5.0	34	5.0	* 0.379	45.8	LOS D[11]	11.4	83.0	0.85	0.78	0.85	28.3
12	R2	140	5.0	140	5.0	* 1.076	169.6	LOS F[11]	8.2	60.2	1.00	1.13	2.05	4.9
Approach		336	5.0	336	5.0	1.076	101.0	LOS F[11]	11.4	83.0	0.91	0.93	1.35	9.0
All Vehicles		6020	5.0	5672[N1]	5.3	1.076	61.7	LOS E[11]	78.4	572.1	0.95	0.98	1.11	25.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.
* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P1	Full	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	254.3	240.5	0.95
P1B	Slip/ Bypass	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90

East: Townson Road											
P2	Full	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	241.2	223.4	0.93
North: Richmond Road											
P3	Full	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	254.2	240.4	0.95
P3B	Slip/ Bypass	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
West: Hollinsworth Road											
P4	Full	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	238.5	219.9	0.92
All Pedestrians		425	69.3	LOS F[12]	0.3	0.3	0.96	0.96	240.2	222.1	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

12 Level of Service is worse than the Pedestrian Level of Service Target specified in the Parameter Settings dialog.

MOVEMENT SUMMARY

Site: 104 [4 Richmond / Langford / Alderton (Site Folder: 2036 AM)]

Network: N101 [AM (Network Folder: 2036)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)
Design Life Analysis (Final Year): Results for 15 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	323	5.0	323	5.0	0.314	24.9	LOS B	12.0	87.7	0.56	0.76	0.56	51.7
2	T1	2312	5.0	2312	5.0	0.920	53.3	LOS D[11]	64.5	470.5	0.97	0.99	1.10	37.1
3	R2	120	5.0	120	5.0	* 0.630	87.3	LOS F[11]	4.6	33.7	1.00	0.78	1.08	28.1
Approach		2755	5.0	2755	5.0	0.920	51.5	LOS D[11]	64.5	470.5	0.92	0.96	1.04	38.0
East: Alderton Road														
4	L2	334	5.0	334	5.0	0.748	55.1	LOS D[11]	23.8	173.6	0.92	0.85	0.93	36.6
5	T1	41	5.0	41	5.0	* 0.748	47.7	LOS D[11]	23.8	173.6	0.92	0.85	0.93	15.4
6	R2	84	5.0	84	5.0	0.777	86.4	LOS F[11]	6.6	47.8	1.00	0.88	1.22	3.7
Approach		459	5.0	459	5.0	0.777	60.2	LOS E[11]	23.8	173.6	0.94	0.85	0.99	29.7
North: Richmond Road														
7	L2	157	5.0	141	5.0	0.137	16.3	LOS B	2.4	17.4	0.25	0.67	0.25	50.7
8	T1	2940	5.0	2627	5.0	* 1.023	85.3	LOS F[11]	95.2	695.2	0.99	1.24	1.40	37.5
9	R2	16	5.0	14	5.0	0.146	86.2	LOS F[11]	1.0	7.6	1.00	0.69	1.00	24.8
Approach		3112	5.0	2781[N1]	5.0	1.023	81.9	LOS F[11]	95.2	695.2	0.96	1.21	1.34	37.6
West: Langford Road														
10	L2	23	5.0	23	5.0	0.048	44.1	LOS D[11]	1.3	9.7	0.73	0.67	0.73	14.9
11	T1	4	36.7	4	36.7	0.048	43.6	LOS D[11]	1.3	9.7	0.77	0.66	0.77	16.6
12	R2	234	5.6	234	5.6	* 1.080	169.8	LOS F[11]	13.7	99.8	1.00	1.29	1.98	18.7
Approach		261	6.0	261	6.0	1.080	156.8	LOS F[11]	13.7	99.8	0.97	1.22	1.85	18.6
All Vehicles		6588	5.0	6256[N1]	5.3	1.080	70.0	LOS E[11]	95.2	695.2	0.94	1.07	1.20	36.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.
* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P1	Full	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	256.6	243.5	0.95
P1B	Slip/ Bypass	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90

East: Alderton Road											
P2	Full	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	238.3	219.7	0.92
North: Richmond Road											
P3	Full	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	256.8	243.7	0.95
P3B	Slip/ Bypass	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
West: Langford Road											
P4	Full	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	240.9	223.0	0.93
All Pedestrians		425	69.3	LOS F[12]	0.3	0.3	0.96	0.96	240.9	223.1	0.93

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

12 Level of Service is worse than the Pedestrian Level of Service Target specified in the Parameter Settings dialog.

MOVEMENT SUMMARY

Site: 105 [5 Hollinsworth / Chifley / Bells (Site Folder: 2036 AM)]

Network: N101 [AM (Network Folder: 2036)]

New Site
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 15 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Chifley Glade														
1	L2	50	5.0	50	5.0	0.061	4.9	LOS A	0.3	2.0	0.30	0.49	0.30	52.5
2	T1	150	5.0	150	5.0	0.334	4.6	LOS A	2.2	15.9	0.33	0.58	0.33	37.0
3	R2	225	5.0	225	5.0	0.334	9.6	LOS A	2.2	15.9	0.33	0.58	0.33	40.2
3u	U	75	0.0	75	0.0	0.334	11.8	LOS A	2.2	15.9	0.33	0.58	0.33	50.5
Approach		500	4.2	500	4.2	0.334	8.0	LOS A	2.2	15.9	0.33	0.57	0.33	42.6
East: Hollinsworth Road														
4	L2	261	5.0	246	5.0	0.162	4.4	LOS A	0.8	5.5	0.20	0.48	0.20	49.6
5	T1	60	5.0	56	5.0	0.109	4.5	LOS A	0.5	3.4	0.21	0.56	0.21	52.1
6	R2	81	5.0	76	5.0	0.109	9.6	LOS A	0.5	3.4	0.21	0.56	0.21	41.6
Approach		401	5.0	379[N1]	5.0	0.162	5.5	LOS A	0.8	5.5	0.21	0.50	0.21	48.7
North: Bells Glade														
7	L2	74	5.0	74	5.0	0.099	4.6	LOS A	0.3	2.1	0.30	0.54	0.30	34.2
8	T1	21	5.0	21	5.0	0.099	4.7	LOS A	0.3	2.1	0.30	0.54	0.30	48.9
9	R2	9	5.0	9	5.0	0.099	9.7	LOS A	0.3	2.1	0.30	0.54	0.30	53.0
Approach		103	5.0	103	5.0	0.099	5.0	LOS A	0.3	2.1	0.30	0.54	0.30	42.1
West: Hollinsworth Road														
10	L2	6	5.0	6	5.0	0.028	6.0	LOS A	0.2	1.2	0.57	0.52	0.57	48.7
11	T1	37	5.0	37	5.0	0.028	6.1	LOS A	0.2	1.2	0.58	0.55	0.58	47.2
12	R2	16	5.0	16	5.0	0.028	11.6	LOS A	0.2	1.2	0.58	0.62	0.58	49.7
Approach		58	5.0	58	5.0	0.028	7.5	LOS A	0.2	1.2	0.58	0.57	0.58	48.2
All Vehicles		1063	4.6	1040[N] 1	4.7	0.334	6.7	LOS A	2.2	15.9	0.29	0.54	0.29	45.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 101 [1 Richmond / South (Site Folder: 2036 PM)]

Network: N101 [PM (Network Folder: 2036)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)
Design Life Analysis (Final Year): Results for 15 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	75	5.0	67	5.0	0.114	29.5	LOS C	2.1	15.1	0.58	0.71	0.58	45.3
2	T1	1886	5.0	1672	5.0	* 0.912	31.9	LOS C	32.8	239.4	0.95	0.90	1.05	52.7
3	R2	728	5.0	646	5.0	* 0.844	48.5	LOS D[11]	13.9	101.5	1.00	0.88	1.07	36.1
Approach		2689	5.0	2384[N1]	5.0	0.912	36.3	LOS C	32.8	239.4	0.95	0.89	1.05	47.9
East: South Street														
4	L2	616	5.0	616	5.0	* 0.917	52.4	LOS D[11]	36.8	268.7	1.00	0.96	1.18	20.1
5	T1	135	5.0	135	5.0	0.270	64.9	LOS E[11]	4.5	33.0	0.94	0.74	0.94	28.2
6	R2	432	5.0	432	5.0	* 0.904	90.8	LOS F[11]	17.9	131.0	1.00	0.96	1.32	28.1
Approach		1183	5.0	1183	5.0	0.917	67.9	LOS E[11]	36.8	268.7	0.99	0.94	1.20	25.3
North: Richmond Road														
7	L2	398	5.0	398	5.0	0.469	23.2	LOS B	12.9	94.1	0.72	0.80	0.72	51.7
8	T1	1638	5.0	1638	5.0	0.889	60.3	LOS E[11]	43.9	320.8	0.99	0.98	1.13	29.7
9	R2	11	5.0	11	5.0	0.034	36.4	LOS C	0.4	3.1	0.84	0.68	0.84	45.4
Approach		2047	5.0	2047	5.0	0.889	52.9	LOS D[11]	43.9	320.8	0.94	0.94	1.05	33.5
West: South Street														
10	L2	23	5.0	23	5.0	0.037	23.6	LOS B	0.6	4.3	0.69	0.67	0.69	50.0
11	T1	50	5.0	50	5.0	0.116	64.9	LOS E[11]	1.6	12.0	0.93	0.68	0.93	28.5
12	R2	58	5.0	58	5.0	* 0.143	71.1	LOS F[11]	1.9	14.2	0.94	0.72	0.94	18.5
Approach		130	5.0	130	5.0	0.143	60.5	LOS E[11]	1.9	14.2	0.89	0.69	0.89	27.5
All Vehicles		6049	5.0	5745[N1]	5.3	0.917	49.3	LOS D[11]	43.9	320.8	0.95	0.91	1.07	37.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.
* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P11	Stage 1	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	239.2	220.8	0.92
P12	Stage 2	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	234.1	214.2	0.92
P1B	Slip/	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90

	Bypass										
East: South Street											
P2	Full	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	246.5	230.3	0.93
P2B	Slip/ Bypass	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
North: Richmond Road											
P31	Stage 1	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	236.6	217.5	0.92
P32	Stage 2	71	32.0	LOS D	0.1	0.1	0.92	0.92	196.8	214.2	1.09
P3B	Slip/ Bypass	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
West: South Street											
P4	Full	71	41.0	LOS E[12]	0.2	0.2	0.92	0.92	218.5	230.8	1.06
P4B	Slip/ Bypass	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
All Pedestrians		708	62.8	LOS F[12]	0.3	0.3	0.95	0.95	227.8	214.5	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

12 Level of Service is worse than the Pedestrian Level of Service Target specified in the Parameter Settings dialog.

MOVEMENT SUMMARY

Site: 102 [2 Richmond / Hawthorne / Harmony (Site Folder: 2036 PM)]

Network: N101 [PM (Network Folder: 2036)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)
Design Life Analysis (Final Year): Results for 15 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	72	5.0	64	5.0	0.051	13.3	LOS A	1.0	7.3	0.23	0.66	0.23	54.5
2	T1	2590	5.0	2283	5.0	* 0.650	7.9	LOS A	31.5	229.6	0.30	0.28	0.30	62.8
3	R2	89	5.0	79	5.0	* 0.658	88.9	LOS F[11]	6.0	44.1	1.00	0.78	1.04	26.8
Approach		2751	5.0	2425[N1]	5.0	0.658	10.7	LOS A	31.5	229.6	0.32	0.31	0.33	58.1
East: Harmony Avenue														
4	L2	45	5.0	45	5.0	0.115	56.4	LOS D[11]	2.6	19.2	0.84	0.72	0.84	20.2
5	T1	11	5.0	11	5.0	* 0.053	64.1	LOS E[11]	0.7	5.4	0.92	0.64	0.92	22.5
6	R2	30	5.0	30	5.0	0.415	85.6	LOS F[11]	2.3	16.6	1.00	0.72	1.00	15.3
Approach		86	5.0	86	5.0	0.415	67.5	LOS E[11]	2.6	19.2	0.90	0.71	0.90	18.6
North: Richmond Road														
7	L2	37	5.0	37	5.0	0.023	8.4	LOS A	0.2	1.7	0.14	0.63	0.14	55.7
8	T1	2206	5.0	2206	5.0	0.641	19.4	LOS B	38.5	281.2	0.68	0.63	0.68	46.5
9	R2	51	5.0	51	5.0	0.427	86.9	LOS F[11]	3.9	28.2	1.00	0.75	1.00	22.0
Approach		2294	5.0	2294	5.0	0.641	20.7	LOS B	38.5	281.2	0.68	0.63	0.68	45.3
West: Hawthorne Avenue														
10	L2	92	5.0	92	5.0	0.233	59.2	LOS E[11]	5.5	40.3	0.86	0.77	0.86	9.3
11	T1	9	5.0	9	5.0	0.040	65.3	LOS E[11]	0.6	4.1	0.92	0.64	0.92	22.1
12	R2	72	5.0	72	5.0	* 0.504	87.3	LOS F[11]	2.8	20.3	1.00	0.73	1.00	6.8
Approach		173	5.0	173	5.0	0.504	71.2	LOS F[11]	5.5	40.3	0.92	0.74	0.93	8.9
All Vehicles		5304	5.0	4978[N1]	5.3	0.658	18.4	LOS B	38.5	281.2	0.52	0.48	0.52	47.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.
* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P11	Stage 1	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	236.6	217.5	0.92
P12	Stage 2	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	234.1	214.2	0.92
P1B	Slip/	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90

	Bypass										
East: Harmony Avenue											
P2	Full	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	238.9	220.5	0.92
North: Richmond Road											
P31	Stage 1	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	236.6	217.5	0.92
P32	Stage 2	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	234.1	214.2	0.92
West: Hawthorne Avenue											
P4	Full	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	241.9	224.3	0.93
All Pedestrians		496	69.3	LOS F[12]	0.3	0.3	0.96	0.96	235.5	216.1	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

12 Level of Service is worse than the Pedestrian Level of Service Target specified in the Parameter Settings dialog.

MOVEMENT SUMMARY

Site: 103 [3 Richmond / Hollinsworth / Townson (Site Folder: 2036 PM)]

Network: N101 [PM (Network Folder: 2036)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)
Design Life Analysis (Final Year): Results for 15 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	103	5.0	89	5.0	0.099	16.4	LOS B	1.5	10.9	0.25	0.66	0.25	52.3
2	T1	2182	5.0	1875	5.0	0.925	32.9	LOS C	43.7	318.7	0.88	0.87	0.99	38.5
3	R2	82	5.0	71	5.0	0.169	76.7	LOS F[11]	3.2	23.5	1.00	0.75	1.00	30.8
Approach		2367	5.0	2035[N1]	5.0	0.925	33.7	LOS C	43.7	318.7	0.85	0.86	0.95	38.4
East: Townson Road														
4	L2	72	5.0	72	5.0	0.096	34.7	LOS C	3.1	22.8	0.64	0.72	0.64	28.9
5	T1	65	5.0	65	5.0	0.148	48.7	LOS D[11]	3.8	27.4	0.83	0.65	0.83	23.9
6	R2	51	5.0	51	5.0	0.305	75.9	LOS F[11]	3.6	26.1	0.97	0.75	0.97	17.6
Approach		188	5.0	188	5.0	0.305	50.7	LOS D[11]	3.8	27.4	0.79	0.70	0.79	23.2
North: Richmond Road														
7	L2	69	5.0	69	5.0	0.077	33.9	LOS C	3.5	25.7	0.75	0.75	0.75	43.9
8	T1	2005	5.0	2005	5.0	* 1.028	124.7	LOS F[11]	71.6	522.7	1.00	1.20	1.40	14.8
9	R2	266	5.0	266	5.0	1.013	89.7	LOS F[11]	24.0	175.4	1.00	0.96	1.33	19.4
Approach		2340	5.0	2340	5.0	1.028	118.1	LOS F[11]	71.6	522.7	0.99	1.16	1.37	15.8
West: Hollinsworth Road														
10	L2	455	5.0	455	5.0	* 1.044	142.0	LOS F[11]	51.4	375.4	1.00	1.19	1.62	5.7
11	T1	96	5.0	96	5.0	1.044	134.4	LOS F[11]	51.4	375.4	1.00	1.19	1.62	14.5
12	R2	346	5.0	346	5.0	* 1.033	140.6	LOS F[11]	18.3	133.6	1.00	1.18	1.76	5.9
Approach		897	5.0	897	5.0	1.044	140.7	LOS F[11]	51.4	375.4	1.00	1.19	1.67	6.9
All Vehicles		5793	5.0	5461[N1]	5.3	1.044	88.0	LOS F[11]	71.6	522.7	0.94	1.04	1.25	18.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.
* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P1	Full	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	254.3	240.5	0.95
P1B	Slip/ Bypass	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90

East: Townson Road											
P2	Full	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	241.2	223.4	0.93
North: Richmond Road											
P3	Full	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	254.2	240.4	0.95
P3B	Slip/ Bypass	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
West: Hollinsworth Road											
P4	Full	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	238.5	219.9	0.92
All Pedestrians		425	69.3	LOS F[12]	0.3	0.3	0.96	0.96	240.2	222.1	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

12 Level of Service is worse than the Pedestrian Level of Service Target specified in the Parameter Settings dialog.

MOVEMENT SUMMARY

Site: 104 [4 Richmond / Langford / Alderton (Site Folder: 2036 PM)] Network: N101 [PM (Network Folder: 2036)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)
Design Life Analysis (Final Year): Results for 15 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	825	5.0	825	5.0	1.158	221.5	LOS F[11]	123.9	904.8	1.00	1.30	2.04	15.6
2	T1	2190	5.0	2190	5.0	* 1.189	243.1	LOS F[11]	124.5	909.2	1.00	1.75	2.17	12.4
3	R2	486	5.0	486	5.0	* 1.196	262.8	LOS F[11]	36.7	268.2	1.00	1.30	2.30	12.0
Approach		3501	5.0	3501	5.0	1.196	240.8	LOS F[11]	124.5	909.2	1.00	1.58	2.16	13.1
East: Alderton Road														
4	L2	460	5.0	460	5.0	0.981	99.7	LOS F[11]	48.1	351.2	0.99	1.09	1.40	25.6
5	T1	51	5.0	51	5.0	* 0.981	93.7	LOS F[11]	48.1	351.2	0.99	1.09	1.40	9.5
6	R2	145	5.0	145	5.0	0.711	76.8	LOS F[11]	10.7	77.8	1.00	0.85	1.07	4.2
Approach		656	5.0	656	5.0	0.981	94.2	LOS F[11]	48.1	351.2	1.00	1.04	1.33	21.6
North: Richmond Road														
7	L2	295	5.0	283	5.0	0.370	38.7	LOS C	16.3	119.0	0.86	0.83	0.86	35.7
8	T1	2084	5.0	2005	5.0	1.079	164.8	LOS F[11]	84.5	616.9	1.00	1.35	1.61	24.6
9	R2	60	5.0	57	5.0	0.282	74.3	LOS F[11]	3.8	27.9	0.93	0.75	0.93	27.2
Approach		2438	5.0	2345[N1]	5.0	1.079	147.3	LOS F[11]	84.5	616.9	0.98	1.27	1.51	25.1
West: Langford Road														
10	L2	159	5.0	159	5.0	0.288	44.3	LOS D[11]	9.3	67.8	0.78	0.76	0.78	14.8
11	T1	18	12.3	18	12.3	0.288	38.9	LOS C	9.3	67.8	0.78	0.73	0.78	17.6
12	R2	469	5.0	469	5.0	* 1.154	226.3	LOS F[11]	32.8	239.6	1.00	1.49	2.16	15.0
Approach		646	5.2	646	5.2	1.154	176.3	LOS F[11]	32.8	239.6	0.94	1.29	1.78	15.0
All Vehicles		7241	5.0	7148[N1]	5.1	1.196	190.8	LOS F[11]	124.5	909.2	0.99	1.40	1.83	17.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.
* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P1	Full	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	256.6	243.5	0.95
P1B	Slip/ Bypass	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90

East: Alderton Road											
P2	Full	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	238.3	219.7	0.92
North: Richmond Road											
P3	Full	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	256.8	243.7	0.95
P3B	Slip/ Bypass	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
West: Langford Road											
P4	Full	71	69.3	LOS F[12]	0.3	0.3	0.96	0.96	240.9	223.0	0.93
All Pedestrians		425	69.3	LOS F[12]	0.3	0.3	0.96	0.96	240.9	223.1	0.93

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

12 Level of Service is worse than the Pedestrian Level of Service Target specified in the Parameter Settings dialog.

MOVEMENT SUMMARY

Site: 105 [5 Hollinsworth / Chifley / Bells (Site Folder: 2036 PM)]

Network: N101 [PM (Network Folder: 2036)]

New Site
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 15 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Chifley Glade														
1	L2	133	5.0	133	5.0	0.169	5.3	LOS A	0.8	5.9	0.37	0.53	0.37	52.2
2	T1	401	5.0	401	5.0	0.880	7.2	LOS A	17.0	123.4	0.91	0.64	0.95	34.7
3	R2	601	5.0	601	5.0	0.880	12.3	LOS A	17.0	123.4	0.91	0.64	0.95	36.6
3u	U	200	0.0	200	0.0	0.880	14.4	LOS A	17.0	123.4	0.91	0.64	0.95	47.3
Approach		1335	4.3	1335	4.3	0.880	10.4	LOS A	17.0	123.4	0.85	0.63	0.89	39.8
East: Hollinsworth Road														
4	L2	283	5.0	272	5.0	0.213	5.3	LOS A	1.2	8.5	0.39	0.55	0.39	48.5
5	T1	65	5.0	62	5.0	0.145	5.6	LOS A	0.7	5.1	0.40	0.62	0.40	51.0
6	R2	86	5.0	83	5.0	0.145	10.7	LOS A	0.7	5.1	0.40	0.62	0.40	40.3
Approach		435	5.0	417[N1]	5.0	0.213	6.4	LOS A	1.2	8.5	0.39	0.58	0.39	47.6
North: Bells Glade														
7	L2	197	5.0	197	5.0	0.844	21.4	LOS B	9.8	71.5	0.85	1.20	1.63	15.2
8	T1	58	5.0	58	5.0	0.844	21.4	LOS B	9.8	71.5	0.85	1.20	1.63	30.8
9	R2	23	5.0	23	5.0	0.844	26.5	LOS B	9.8	71.5	0.85	1.20	1.63	37.4
Approach		278	5.0	278	5.0	0.844	21.8	LOS B	9.8	71.5	0.85	1.20	1.63	22.3
West: Hollinsworth Road														
10	L2	17	5.0	17	5.0	0.321	21.5	LOS B	1.5	11.1	1.00	0.98	1.00	36.5
11	T1	99	5.0	99	5.0	0.321	19.7	LOS B	3.2	23.1	1.00	0.93	1.00	35.0
12	R2	41	5.0	41	5.0	0.321	24.0	LOS B	3.2	23.1	1.00	0.91	1.00	41.3
Approach		157	5.0	157	5.0	0.321	21.0	LOS B	3.2	23.1	1.00	0.93	1.00	37.1
All Vehicles		2204	4.5	2187[N] 1	4.6	0.880	11.9	LOS A	17.0	123.4	0.78	0.72	0.90	39.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 101 [1 Richmond / South (Site Folder: 2036 AM with Development)]

Network: N101 [AM (Network Folder: 2036 - with Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	102	5.0	102	5.0	0.150	28.2	LOS B	3.9	28.3	0.76	0.76	0.76	46.0
2	T1	1608	5.0	1608	5.0	0.750	27.8	LOS B	25.7	187.4	0.97	0.86	0.97	55.1
3	R2	746	5.0	746	5.0	* 1.214	234.9	LOS F	43.9	320.5	1.00	1.34	2.29	11.1
Approach		2457	5.0	2457	5.0	1.214	90.7	LOS F	43.9	320.5	0.97	1.00	1.36	28.1
East: South Street														
4	L2	625	5.0	625	5.0	1.033	111.7	LOS F	55.5	404.9	1.00	1.13	1.60	9.5
5	T1	64	5.0	64	5.0	0.134	60.1	LOS E	2.0	14.5	0.92	0.69	0.92	29.4
6	R2	429	5.0	429	5.0	0.931	92.1	LOS F	17.5	127.5	1.00	1.00	1.42	27.8
Approach		1119	5.0	1119	5.0	1.033	101.3	LOS F	55.5	404.9	1.00	1.06	1.49	17.5
North: Richmond Road														
7	L2	620	5.0	620	5.0	* 0.682	22.3	LOS B	19.8	144.3	0.81	0.84	0.81	52.3
8	T1	2337	5.0	2337	5.0	* 1.185	235.7	LOS F	125.6	917.1	1.00	1.80	2.23	10.2
9	R2	96	5.0	96	5.0	0.415	40.4	LOS C	3.7	27.0	0.96	0.77	0.96	43.7
Approach		3053	5.0	3053	5.0	1.185	186.2	LOS F	125.6	917.1	0.96	1.57	1.90	13.6
West: South Street														
10	L2	82	5.0	82	5.0	0.164	26.9	LOS B	2.3	16.7	0.79	0.73	0.79	48.3
11	T1	116	5.0	116	5.0	* 0.286	63.4	LOS E	3.7	27.2	0.96	0.73	0.96	28.9
12	R2	81	5.0	81	5.0	0.211	68.5	LOS E	2.6	18.9	0.95	0.74	0.95	19.0
Approach		279	5.0	279	5.0	0.286	54.1	LOS D	3.7	27.2	0.91	0.73	0.91	31.4
All Vehicles		6907	5.0	6907	5.0	1.214	133.2	LOS F	125.6	917.1	0.97	1.25	1.60	18.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P11	Stage 1	53	64.3	LOS F	0.2	0.2	0.96	0.96	234.1	220.8	0.94
P12	Stage 2	53	64.3	LOS F	0.2	0.2	0.96	0.96	229.0	214.2	0.94
P1B	Slip/ Bypass	53	64.3	LOS F	0.2	0.2	0.96	0.96	221.4	204.3	0.92
East: South Street											
P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	241.4	230.3	0.95

P2B	Slip/ Bypass	53	64.3	LOS F	0.2	0.2	0.96	0.96	221.4	204.3	0.92
North: Richmond Road											
P31	Stage 1	53	64.3	LOS F	0.2	0.2	0.96	0.96	231.6	217.5	0.94
P32	Stage 2	53	29.5	LOS C	0.1	0.1	0.92	0.92	194.3	214.2	1.10
P3B	Slip/ Bypass	53	64.3	LOS F	0.2	0.2	0.96	0.96	221.4	204.3	0.92
West: South Street											
P4	Full	53	38.6	LOS D	0.1	0.1	0.92	0.92	216.1	230.8	1.07
P4B	Slip/ Bypass	53	64.3	LOS F	0.2	0.2	0.96	0.96	221.4	204.3	0.92
All Pedestrians		526	58.2	LOS E	0.2	0.2	0.95	0.95	223.2	214.5	0.96

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 102 [2 Richmond / Hawthorne / Harmony (Site Folder: 2036 AM with Development)]

Network: N101 [AM (Network Folder: 2036 - with Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	101	5.0	101	5.0	0.079	16.4	LOS B	3.1	22.3	0.48	0.71	0.48	51.6
2	T1	2340	5.0	2340	5.0	0.670	29.0	LOS C	46.8	341.9	0.91	0.84	0.91	40.0
3	R2	28	5.0	28	5.0	0.317	77.7	LOS F	1.9	14.1	0.97	0.72	0.97	28.9
Approach		2469	5.0	2469	5.0	0.670	29.0	LOS C	46.8	341.9	0.90	0.83	0.90	40.1
East: Harmony Avenue														
4	L2	96	5.0	96	5.0	0.267	58.2	LOS E	5.5	40.5	0.89	0.77	0.89	20.0
5	T1	9	5.0	9	5.0	* 0.047	60.8	LOS E	0.6	4.3	0.92	0.63	0.92	23.2
6	R2	37	5.0	37	5.0	* 0.479	80.3	LOS F	2.6	19.3	1.00	0.73	1.00	16.0
Approach		142	5.0	142	5.0	0.479	64.1	LOS E	5.5	40.5	0.92	0.75	0.92	19.0
North: Richmond Road														
7	L2	26	5.0	23	5.0	0.014	7.6	LOS A	0.0	0.2	0.02	0.62	0.02	56.3
8	T1	2927	5.0	2557	5.0	* 0.724	9.2	LOS A	28.6	208.8	0.43	0.40	0.43	59.7
9	R2	69	5.0	61	5.0	* 0.677	85.7	LOS F	4.4	32.4	1.00	0.77	1.07	22.2
Approach		3023	5.0	2640 N1	5.0	0.724	10.9	LOS A	28.6	208.8	0.44	0.41	0.45	56.9
West: Hawthorne Avenue														
10	L2	43	5.0	43	5.0	0.120	56.8	LOS E	2.4	17.6	0.86	0.73	0.86	9.7
11	T1	5	5.0	5	5.0	0.026	61.8	LOS E	0.3	2.4	0.92	0.62	0.92	22.8
12	R2	55	5.0	55	5.0	0.360	80.8	LOS F	2.0	14.4	1.00	0.72	1.00	7.2
Approach		103	5.0	103	5.0	0.360	69.8	LOS E	2.4	17.6	0.94	0.72	0.94	9.1
All Vehicles		5738	5.0	5355 N1	5.4	0.724	21.8	LOS B	46.8	341.9	0.67	0.62	0.68	44.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P11	Stage 1	53	64.3	LOS F	0.2	0.2	0.96	0.96	231.6	217.5	0.94
P12	Stage 2	53	64.3	LOS F	0.2	0.2	0.96	0.96	229.0	214.2	0.94
P1B	Slip/ Bypass	53	64.3	LOS F	0.2	0.2	0.96	0.96	221.4	204.3	0.92

East: Harmony Avenue										
P2 Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	233.9	220.5	0.94
North: Richmond Road										
P31 Stage 1	53	64.3	LOS F	0.2	0.2	0.96	0.96	231.6	217.5	0.94
P32 Stage 2	53	64.3	LOS F	0.2	0.2	0.96	0.96	229.0	214.2	0.94
West: Hawthorne Avenue										
P4 Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	236.8	224.3	0.95
All Pedestrians	368	64.3	LOS F	0.2	0.2	0.96	0.96	230.5	216.1	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 103 [3 Richmond / Hollinsworth / Townson (Site Folder: 2036 AM with Development)]

Network: N101 [AM (Network Folder: 2036 - with Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	222	5.0	222	5.0	0.222	34.9	LOS C	11.6	84.8	0.84	0.81	0.84	37.6
2	T1	2222	5.0	2222	5.0	0.889	63.7	LOS E	55.0	401.3	1.00	0.95	1.05	26.0
3	R2	56	5.0	56	5.0	0.228	69.9	LOS E	2.2	16.1	0.92	0.72	0.92	32.4
Approach		2500	5.0	2500	5.0	0.889	61.2	LOS E	55.0	401.3	0.98	0.94	1.03	26.9
East: Townson Road														
4	L2	163	5.0	163	5.0	0.255	42.0	LOS C	7.8	56.8	0.75	0.77	0.75	26.4
5	T1	77	5.0	77	5.0	0.178	46.5	LOS D	4.2	30.7	0.84	0.66	0.84	24.5
6	R2	61	5.0	61	5.0	0.681	82.1	LOS F	4.4	32.4	1.00	0.81	1.14	16.6
Approach		301	5.0	301	5.0	0.681	51.3	LOS D	7.8	56.8	0.82	0.75	0.85	23.2
North: Richmond Road														
7	L2	38	5.0	33	5.0	0.033	17.0	LOS B	0.6	4.1	0.27	0.65	0.27	53.6
8	T1	2867	5.0	2522	5.0	* 1.035	82.6	LOS F	84.9	620.0	0.99	1.25	1.42	20.5
9	R2	176	5.0	155	5.0	* 1.006	122.7	LOS F	14.5	105.9	1.00	1.07	1.72	15.2
Approach		3081	5.0	2710 N1	5.0	1.035	84.1	LOS F	84.9	620.0	0.98	1.23	1.43	20.4
West: Hollinsworth Road														
10	L2	168	5.0	168	5.0	0.398	50.5	LOS D	11.2	81.7	0.86	0.79	0.86	14.3
11	T1	36	5.0	36	5.0	* 0.398	43.3	LOS D	11.2	81.7	0.86	0.79	0.86	29.1
12	R2	180	5.0	180	5.0	* 1.073	162.0	LOS F	10.0	73.1	1.00	1.18	2.06	5.1
Approach		384	5.0	384	5.0	1.073	102.1	LOS F	11.2	81.7	0.92	0.97	1.42	8.9
All Vehicles		6266	5.0	5895 N1	5.3	1.073	73.9	LOS F	84.9	620.0	0.97	1.07	1.23	22.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P1	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	249.3	240.5	0.96
P1B	Slip/ Bypass	53	64.3	LOS F	0.2	0.2	0.96	0.96	221.4	204.3	0.92
East: Townson Road											

P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	236.1	223.4	0.95
North: Richmond Road											
P3	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	249.2	240.4	0.96
P3B	Slip/ Bypass	53	64.3	LOS F	0.2	0.2	0.96	0.96	221.4	204.3	0.92
West: Hollinsworth Road											
P4	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	233.4	219.9	0.94
All Pedestrians		316	64.3	LOS F	0.2	0.2	0.96	0.96	235.1	222.1	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 104 [4 Richmond / Langford / Alderton (Site Folder: 2036 AM with Development)]

Network: N101 [AM (Network Folder: 2036 - with Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 140 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	368	5.0	368	5.0	0.355	23.9	LOS B	13.1	95.4	0.57	0.77	0.57	52.3
2	T1	2445	5.0	2445	5.0	0.994	86.5	LOS F	83.1	606.7	0.98	1.20	1.37	27.8
3	R2	120	5.0	120	5.0	* 0.669	83.5	LOS F	4.4	31.8	1.00	0.79	1.12	28.9
Approach		2934	5.0	2934	5.0	0.994	78.5	LOS F	83.1	606.7	0.93	1.13	1.26	29.9
East: Alderton Road														
4	L2	334	5.0	334	5.0	0.752	53.8	LOS D	22.4	163.4	0.93	0.85	0.95	37.0
5	T1	37	5.0	37	5.0	* 0.752	46.5	LOS D	22.4	163.4	0.93	0.85	0.95	15.6
6	R2	83	5.0	83	5.0	0.649	76.8	LOS F	5.9	42.8	1.00	0.81	1.07	4.2
Approach		454	5.0	454	5.0	0.752	57.5	LOS E	22.4	163.4	0.95	0.85	0.98	30.7
North: Richmond Road														
7	L2	157	5.0	137	5.0	0.132	15.7	LOS B	2.2	15.9	0.25	0.67	0.25	51.3
8	T1	3028	5.0	2640	5.0	* 1.045	88.7	LOS F	92.3	674.2	0.99	1.29	1.46	36.6
9	R2	15	5.0	13	5.0	0.143	81.7	LOS F	0.9	6.6	1.00	0.69	1.00	25.6
Approach		3200	5.0	2789 N 1	5.0	1.045	85.1	LOS F	92.3	674.2	0.96	1.25	1.40	36.8
West: Langford Road														
10	L2	22	5.0	22	5.0	0.044	41.6	LOS C	1.1	8.3	0.72	0.67	0.72	15.6
11	T1	3	25.0	3	25.0	0.044	37.1	LOS C	1.1	8.3	0.74	0.62	0.74	18.4
12	R2	262	5.0	262	5.0	* 1.023	128.5	LOS F	12.8	93.1	1.00	1.23	1.81	23.0
Approach		287	5.2	287	5.2	1.023	120.8	LOS F	12.8	93.1	0.98	1.18	1.72	22.8
All Vehicles		6875	5.0	6464 N 1	5.3	1.045	81.7	LOS F	92.3	674.2	0.94	1.17	1.32	32.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P1	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	251.6	243.5	0.97
P1B	Slip/ Bypass	53	64.3	LOS F	0.2	0.2	0.96	0.96	221.4	204.3	0.92
East: Alderton Road											

P2	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	233.3	219.7	0.94
North: Richmond Road											
P3	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	251.7	243.7	0.97
P3B	Slip/ Bypass	53	64.3	LOS F	0.2	0.2	0.96	0.96	221.4	204.3	0.92
West: Langford Road											
P4	Full	53	64.3	LOS F	0.2	0.2	0.96	0.96	235.8	223.0	0.95
All Pedestrians		316	64.3	LOS F	0.2	0.2	0.96	0.96	235.9	223.1	0.95

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 105 [5 Hollinsworth / Chifley / Bells (Site Folder: 2036 AM with Development)]

Network: N101 [AM (Network Folder: 2036 - with Development)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Chifley Glade														
1	L2	95	5.0	95	5.0	0.122	5.6	LOS A	0.6	4.3	0.39	0.53	0.39	52.1
2	T1	149	5.0	149	5.0	0.356	5.0	LOS A	2.5	17.9	0.43	0.60	0.43	36.6
3	R2	225	5.0	225	5.0	0.356	10.1	LOS A	2.5	17.9	0.43	0.60	0.43	39.6
3u	U	76	0.0	76	0.0	0.356	12.2	LOS A	2.5	17.9	0.43	0.60	0.43	49.9
Approach		545	4.3	545	4.3	0.356	8.2	LOS A	2.5	17.9	0.42	0.59	0.42	43.2
East: Hollinsworth Road														
4	L2	260	5.0	248	5.0	0.168	4.5	LOS A	0.8	5.8	0.23	0.49	0.23	49.4
5	T1	134	5.0	127	5.0	0.162	4.6	LOS A	0.7	5.4	0.24	0.52	0.24	52.9
6	R2	80	5.0	76	5.0	0.162	9.7	LOS A	0.7	5.4	0.24	0.52	0.24	42.5
Approach		474	5.0	452 N1	5.0	0.168	5.4	LOS A	0.8	5.8	0.24	0.50	0.24	49.7
North: Bells Glade														
7	L2	75	5.0	75	5.0	0.105	4.8	LOS A	0.3	2.3	0.34	0.57	0.34	33.7
8	T1	22	5.0	22	5.0	0.105	4.8	LOS A	0.3	2.3	0.34	0.57	0.34	48.6
9	R2	8	5.0	8	5.0	0.105	9.9	LOS A	0.3	2.3	0.34	0.57	0.34	52.8
Approach		105	5.0	105	5.0	0.105	5.2	LOS A	0.3	2.3	0.34	0.57	0.34	41.7
West: Hollinsworth Road														
10	L2	6	5.0	6	5.0	0.067	6.1	LOS A	0.4	3.1	0.60	0.56	0.60	48.5
11	T1	85	5.0	85	5.0	0.067	6.1	LOS A	0.4	3.1	0.60	0.58	0.60	47.1
12	R2	45	5.0	45	5.0	0.067	11.7	LOS A	0.4	2.9	0.61	0.68	0.61	49.1
Approach		137	5.0	137	5.0	0.067	8.0	LOS A	0.4	3.1	0.60	0.61	0.60	48.0
All Vehicles		1261	4.7	1239 N 1	4.8	0.356	6.9	LOS A	2.5	17.9	0.37	0.56	0.37	46.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 101 [1 Richmond / South (Site Folder: 2036 PM with Development)]

Network: N101 [PM (Network Folder: 2036 - with Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	96	5.0	84	5.0	0.132	28.1	LOS B	2.5	18.4	0.56	0.71	0.56	46.1
2	T1	1914	5.0	1671	5.0	* 0.836	23.9	LOS B	28.2	206.1	0.87	0.79	0.90	57.6
3	R2	728	5.0	636	5.0	* 0.806	47.7	LOS D	13.6	99.6	1.00	0.86	1.05	36.4
Approach		2738	5.0	2390 N1	5.0	0.836	30.3	LOS C	28.2	206.1	0.89	0.80	0.92	51.1
East: South Street														
4	L2	617	5.0	617	5.0	* 0.919	53.4	LOS D	37.5	273.9	1.00	0.97	1.18	19.8
5	T1	140	5.0	140	5.0	0.296	66.2	LOS E	4.8	34.8	0.95	0.74	0.95	27.9
6	R2	432	5.0	432	5.0	* 0.950	102.4	LOS F	19.2	140.5	1.00	1.02	1.45	26.0
Approach		1188	5.0	1188	5.0	0.950	72.7	LOS F	37.5	273.9	0.99	0.96	1.25	24.2
North: Richmond Road														
7	L2	398	5.0	398	5.0	0.469	23.0	LOS B	12.6	92.1	0.72	0.80	0.72	51.9
8	T1	1657	5.0	1657	5.0	0.895	60.7	LOS E	45.5	332.4	0.99	0.99	1.13	29.6
9	R2	68	5.0	68	5.0	0.220	38.4	LOS C	2.7	19.4	0.90	0.75	0.90	44.5
Approach		2123	5.0	2123	5.0	0.895	52.9	LOS D	45.5	332.4	0.94	0.95	1.05	33.7
West: South Street														
10	L2	106	5.0	106	5.0	* 0.185	26.0	LOS B	2.9	21.2	0.76	0.74	0.76	48.8
11	T1	58	5.0	58	5.0	0.144	66.3	LOS E	1.9	14.2	0.94	0.69	0.94	28.2
12	R2	91	5.0	91	5.0	* 0.237	73.1	LOS F	3.1	22.6	0.95	0.74	0.95	18.1
Approach		255	5.0	255	5.0	0.237	51.9	LOS D	3.1	22.6	0.87	0.73	0.87	32.5
All Vehicles		6304	5.0	5957 N1	5.3	0.950	47.8	LOS D	45.5	332.4	0.93	0.88	1.03	37.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P11	Stage 1	53	69.3	LOS F	0.2	0.2	0.96	0.96	239.1	220.8	0.92
P12	Stage 2	53	69.3	LOS F	0.2	0.2	0.96	0.96	234.0	214.2	0.92
P1B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90

East: South Street											
P2	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	246.4	230.3	0.93
P2B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
North: Richmond Road											
P31	Stage 1	53	69.3	LOS F	0.2	0.2	0.96	0.96	236.6	217.5	0.92
P32	Stage 2	53	32.1	LOS D	0.1	0.1	0.92	0.92	196.8	214.2	1.09
P3B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
West: South Street											
P4	Full	53	41.5	LOS E	0.2	0.2	0.92	0.92	219.0	230.8	1.05
P4B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
All Pedestrians		526	62.8	LOS F	0.2	0.2	0.95	0.95	227.8	214.5	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 102 [2 Richmond / Hawthorne / Harmony (Site Folder: 2036 PM with Development)]

Network: N101 [PM (Network Folder: 2036 - with Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	105	5.0	91	5.0	0.071	12.9	LOS A	1.4	10.1	0.23	0.66	0.23	55.0
2	T1	2622	5.0	2273	5.0	0.648	7.9	LOS A	31.7	231.4	0.30	0.28	0.30	62.8
3	R2	89	5.0	78	5.0	* 0.721	90.4	LOS F	6.0	43.9	1.00	0.80	1.08	26.5
Approach		2817	5.0	2442 N1	5.0	0.721	10.7	LOS A	31.7	231.4	0.32	0.31	0.32	58.1
East: Harmony Avenue														
4	L2	45	5.0	45	5.0	0.122	58.4	LOS E	2.7	19.6	0.85	0.73	0.85	19.8
5	T1	15	5.0	15	5.0	* 0.073	65.5	LOS E	1.0	7.1	0.93	0.65	0.93	22.3
6	R2	29	5.0	29	5.0	0.308	81.9	LOS F	2.2	16.0	1.00	0.72	1.00	15.8
Approach		89	5.0	89	5.0	0.308	67.3	LOS E	2.7	19.6	0.91	0.71	0.91	18.7
North: Richmond Road														
7	L2	37	5.0	37	5.0	0.023	8.4	LOS A	0.2	1.8	0.14	0.63	0.14	55.7
8	T1	2246	5.0	2246	5.0	* 0.685	20.8	LOS B	41.1	299.7	0.72	0.66	0.72	45.1
9	R2	63	5.0	63	5.0	0.587	88.9	LOS F	4.8	35.3	1.00	0.76	1.02	21.7
Approach		2346	5.0	2346	5.0	0.685	22.5	LOS B	41.1	299.7	0.72	0.67	0.72	43.8
West: Hawthorne Avenue														
10	L2	108	5.0	108	5.0	0.293	61.7	LOS E	6.7	48.9	0.89	0.78	0.89	9.0
11	T1	13	5.0	13	5.0	0.063	66.8	LOS E	0.8	6.1	0.93	0.66	0.93	21.8
12	R2	121	5.0	121	5.0	* 0.664	86.5	LOS F	4.8	35.2	1.00	0.80	1.11	6.8
Approach		242	5.0	242	5.0	0.664	74.4	LOS F	6.7	48.9	0.95	0.78	1.00	8.7
All Vehicles		5495	5.0	5120 N1	5.4	0.721	20.1	LOS B	41.1	299.7	0.54	0.50	0.55	45.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P11	Stage 1	53	69.3	LOS F	0.2	0.2	0.96	0.96	236.6	217.5	0.92
P12	Stage 2	53	69.3	LOS F	0.2	0.2	0.96	0.96	234.0	214.2	0.92
P1B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90

East: Harmony Avenue										
P2 Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	238.9	220.5	0.92
North: Richmond Road										
P31 Stage 1	53	69.3	LOS F	0.2	0.2	0.96	0.96	236.6	217.5	0.92
P32 Stage 2	53	69.3	LOS F	0.2	0.2	0.96	0.96	234.0	214.2	0.92
West: Hawthorne Avenue										
P4 Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	241.8	224.3	0.93
All Pedestrians	368	69.3	LOS F	0.2	0.2	0.96	0.96	235.5	216.1	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 103 [3 Richmond / Hollinsworth / Townson (Site Folder: 2036 PM with Development)]

Network: N101 [PM (Network Folder: 2036 - with Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	145	5.0	123	5.0	0.136	16.1	LOS B	2.1	15.0	0.25	0.66	0.25	52.6
2	T1	2236	5.0	1896	5.0	0.961	44.6	LOS D	51.0	372.0	0.95	0.99	1.14	32.5
3	R2	82	5.0	70	5.0	0.174	77.4	LOS F	3.2	23.2	1.00	0.75	1.00	30.6
Approach		2463	5.0	2088 N1	5.0	0.961	44.0	LOS D	51.0	372.0	0.91	0.97	1.08	33.1
East: Townson Road														
4	L2	73	5.0	73	5.0	0.098	35.3	LOS C	3.2	23.2	0.64	0.72	0.64	28.7
5	T1	68	5.0	68	5.0	0.155	48.8	LOS D	3.9	28.8	0.83	0.65	0.83	23.8
6	R2	52	5.0	52	5.0	0.270	73.4	LOS F	3.5	25.9	0.96	0.75	0.96	18.0
Approach		193	5.0	193	5.0	0.270	50.3	LOS D	3.9	28.8	0.80	0.70	0.80	23.3
North: Richmond Road														
7	L2	69	5.0	69	5.0	0.076	33.2	LOS C	3.5	25.4	0.74	0.75	0.74	44.2
8	T1	2086	5.0	2086	5.0	* 1.087	164.2	LOS F	86.8	633.3	1.00	1.38	1.64	11.6
9	R2	274	5.0	274	5.0	1.090	148.4	LOS F	31.0	226.2	1.00	1.08	1.64	12.7
Approach		2429	5.0	2429	5.0	1.090	158.6	LOS F	86.8	633.3	0.99	1.33	1.62	12.2
West: Hollinsworth Road														
10	L2	466	5.0	466	5.0	* 1.077	164.7	LOS F	51.4	375.4	1.00	1.25	1.75	5.0
11	T1	100	5.0	100	5.0	1.077	157.1	LOS F	51.4	375.4	1.00	1.25	1.75	12.8
12	R2	409	5.0	409	5.0	* 1.070	164.9	LOS F	23.9	174.2	1.00	1.25	1.87	5.0
Approach		976	5.0	976	5.0	1.077	164.0	LOS F	51.4	375.4	1.00	1.25	1.80	5.9
All Vehicles		6061	5.0	5686 N1	5.3	1.090	113.8	LOS F	86.8	633.3	0.96	1.16	1.42	15.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P1	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	254.3	240.5	0.95
P1B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
East: Townson Road											

P2	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	241.1	223.4	0.93
North: Richmond Road											
P3	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	254.2	240.4	0.95
P3B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
West: Hollinsworth Road											
P4	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	238.4	219.9	0.92
All Pedestrians		316	69.3	LOS F	0.2	0.2	0.96	0.96	240.1	222.1	0.93

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 104 [4 Richmond / Langford / Alderton (Site Folder: 2036 PM with Development)]

Network: N101 [PM (Network Folder: 2036 - with Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	857	5.0	857	5.0	1.168	229.0	LOS F	131.4	959.1	1.00	1.32	2.07	15.2
2	T1	2286	5.0	2286	5.0	* 1.205	255.6	LOS F	134.4	981.3	1.00	1.81	2.22	11.9
3	R2	486	5.0	486	5.0	* 1.196	263.5	LOS F	36.8	268.9	1.00	1.30	2.31	12.0
Approach		3629	5.0	3629	5.0	1.205	250.4	LOS F	134.4	981.3	1.00	1.62	2.20	12.6
East: Alderton Road														
4	L2	461	5.0	461	5.0	1.040	139.6	LOS F	58.7	428.4	1.00	1.20	1.63	20.1
5	T1	52	5.0	52	5.0	* 1.040	133.5	LOS F	58.7	428.4	1.00	1.20	1.63	7.1
6	R2	145	5.0	145	5.0	0.675	74.9	LOS F	10.5	76.9	1.00	0.83	1.04	4.2
Approach		658	5.0	658	5.0	1.040	124.9	LOS F	58.7	428.4	1.00	1.12	1.50	17.4
North: Richmond Road														
7	L2	294	5.0	270	5.0	0.296	35.4	LOS C	14.7	107.2	0.81	0.82	0.81	37.4
8	T1	2229	5.0	2048	5.0	1.059	150.9	LOS F	81.9	597.6	1.00	1.30	1.53	26.2
9	R2	60	5.0	55	5.0	0.271	74.2	LOS F	3.6	26.5	0.92	0.75	0.92	27.2
Approach		2583	5.0	2373 N1	5.0	1.059	136.0	LOS F	81.9	597.6	0.98	1.23	1.43	26.7
West: Langford Road														
10	L2	159	5.0	159	5.0	0.301	46.0	LOS D	9.4	69.0	0.79	0.76	0.79	14.3
11	T1	17	10.9	17	10.9	0.301	40.6	LOS C	9.4	69.0	0.79	0.74	0.79	17.1
12	R2	518	5.0	518	5.0	* 1.203	266.2	LOS F	39.7	290.0	1.00	1.59	2.32	13.1
Approach		694	5.1	694	5.1	1.203	210.3	LOS F	39.7	290.0	0.95	1.38	1.94	13.2
All Vehicles		7564	5.0	7354 N1	5.2	1.205	198.5	LOS F	134.4	981.3	0.99	1.43	1.86	16.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P1	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	256.6	243.5	0.95
P1B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
East: Alderton Road											

P2	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	238.3	219.7	0.92
North: Richmond Road											
P3	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	256.7	243.7	0.95
P3B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
West: Langford Road											
P4	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	240.8	223.0	0.93
All Pedestrians		316	69.3	LOS F	0.2	0.2	0.96	0.96	240.9	223.1	0.93

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 105 [5 Hollinsworth / Chifley / Bells (Site Folder: 2036 PM with Development)]

Network: N101 [PM (Network Folder: 2036 - with Development)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Chifley Glade														
1	L2	166	5.0	166	5.0	0.219	5.7	LOS A	1.1	8.0	0.43	0.57	0.43	51.9
2	T1	401	5.0	401	5.0	0.918	11.3	LOS A	23.8	172.4	1.00	0.79	1.21	32.2
3	R2	601	5.0	601	5.0	0.918	16.4	LOS B	23.8	172.4	1.00	0.79	1.21	33.1
3u	U	200	0.0	200	0.0	0.918	18.4	LOS B	23.8	172.4	1.00	0.79	1.21	43.9
Approach		1368	4.3	1368	4.3	0.918	13.9	LOS A	23.8	172.4	0.93	0.76	1.12	37.3
East: Hollinsworth Road														
4	L2	282	5.0	256	5.0	0.207	5.5	LOS A	1.1	8.3	0.43	0.57	0.43	48.3
5	T1	118	5.0	107	5.0	0.186	5.8	LOS A	0.9	6.8	0.44	0.62	0.44	51.4
6	R2	87	5.0	79	5.0	0.186	10.9	LOS A	0.9	6.8	0.44	0.62	0.44	40.7
Approach		487	5.0	443[N1]	5.0	0.207	6.5	LOS A	1.1	8.3	0.43	0.59	0.43	48.1
North: Bells Glade														
7	L2	197	5.0	197	5.0	0.935	39.2	LOS C	13.7	99.8	0.89	1.50	2.48	9.5
8	T1	58	5.0	58	5.0	0.935	39.3	LOS C	13.7	99.8	0.89	1.50	2.48	21.9
9	R2	23	5.0	23	5.0	0.935	44.3	LOS D	13.7	99.8	0.89	1.50	2.48	28.3
Approach		278	5.0	278	5.0	0.935	39.7	LOS C	13.7	99.8	0.89	1.50	2.48	14.7
West: Hollinsworth Road														
10	L2	17	5.0	17	5.0	0.643	53.7	LOS D	4.5	32.6	1.00	1.20	1.52	23.5
11	T1	179	5.0	179	5.0	0.643	46.3	LOS D	8.3	60.6	1.00	1.19	1.52	22.9
12	R2	89	5.0	89	5.0	0.643	47.3	LOS D	8.3	60.6	1.00	1.19	1.52	30.4
Approach		285	5.0	285	5.0	0.643	47.1	LOS D	8.3	60.6	1.00	1.19	1.52	25.5
All Vehicles		2419	4.6	2374[N1]	4.7	0.935	19.5	LOS B	23.8	172.4	0.84	0.87	1.20	33.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 101 [1 Richmond / South - Copy (Site Folder: 2031 AM Upgraded)]

Network: N101 [AM (Network Folder: 2031 Upgraded)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	65	5.0	65	5.0	0.096	28.5	LOS B	2.6	18.7	0.74	0.74	0.74	45.8
2	T1	1441	5.0	1441	5.0	0.669	27.5	LOS B	23.4	171.0	0.93	0.82	0.93	55.3
3	R2	676	5.0	676	5.0	* 1.047	98.2	LOS F[11]	24.9	181.9	1.00	1.06	1.55	20.1
Approach		2183	5.0	2183	5.0	1.047	49.4	LOS D[11]	24.9	181.9	0.95	0.89	1.12	38.6
East: South Street														
4	L2	566	5.0	566	5.0	* 0.924	61.6	LOS E[11]	37.9	276.3	1.00	0.99	1.21	17.8
5	T1	51	5.0	51	5.0	0.108	64.1	LOS E[11]	1.7	12.3	0.92	0.68	0.92	28.4
6	R2	389	5.0	389	5.0	0.856	85.1	LOS F[11]	15.4	112.2	1.00	0.92	1.24	29.2
Approach		1006	5.0	1006	5.0	0.924	70.8	LOS F[11]	37.9	276.3	1.00	0.95	1.20	24.3
North: Richmond Road														
7	L2	561	5.0	561	5.0	* 0.617	22.6	LOS B	18.1	132.5	0.77	0.83	0.77	52.2
8	T1	2093	5.0	2093	5.0	* 1.055	136.4	LOS F[11]	88.6	646.5	1.00	1.37	1.63	16.3
9	R2	15	5.0	15	5.0	0.061	39.5	LOS C	0.6	4.3	0.90	0.69	0.90	44.0
Approach		2669	5.0	2669	5.0	1.055	111.9	LOS F[11]	88.6	646.5	0.95	1.26	1.44	20.3
West: South Street														
10	L2	27	5.0	27	5.0	0.051	26.4	LOS B	0.7	5.4	0.74	0.68	0.74	48.6
11	T1	100	5.0	100	5.0	* 0.234	66.2	LOS E[11]	3.4	24.7	0.95	0.72	0.95	28.2
12	R2	55	5.0	55	5.0	0.136	71.0	LOS F[11]	1.8	13.4	0.93	0.72	0.93	18.5
Approach		182	5.0	182	5.0	0.234	61.8	LOS E[11]	3.4	24.7	0.91	0.71	0.91	28.1
All Vehicles		6040	5.0	6040	5.0	1.055	81.0	LOS F[11]	88.6	646.5	0.96	1.06	1.27	26.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.
* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P11	Stage 1	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	239.2	220.8	0.92
P12	Stage 2	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	234.1	214.2	0.92
P1B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90

East: South Street											
P2	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	246.5	230.3	0.93
P2B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
North: Richmond Road											
P31	Stage 1	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	236.6	217.5	0.92
P32	Stage 2	64	32.0	LOS D	0.1	0.1	0.92	0.92	196.8	214.2	1.09
P3B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
West: South Street											
P4	Full	64	41.0	LOS E[12]	0.2	0.2	0.92	0.92	218.5	230.8	1.06
P4B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
All Pedestrians		642	62.7	LOS F[12]	0.3	0.3	0.95	0.95	227.7	214.5	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

12 Level of Service is worse than the Pedestrian Level of Service Target specified in the Parameter Settings dialog.

MOVEMENT SUMMARY

Site: 102 [2 Richmond / Hawthorne / Harmony - Copy (Site Folder: 2031 AM Upgraded)]

Network: N101 [AM (Network Folder: 2031 Upgraded)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	50	5.0	50	5.0	0.038	13.9	LOS A	1.2	8.4	0.34	0.67	0.34	54.0
2	T1	2086	5.0	2086	5.0	0.575	21.7	LOS B	38.1	277.8	0.78	0.72	0.78	45.7
3	R2	26	5.0	26	5.0	0.358	86.3	LOS F[11]	1.9	14.1	0.99	0.71	0.99	27.2
Approach		2162	5.0	2162	5.0	0.575	22.3	LOS B	38.1	277.8	0.77	0.72	0.77	45.3
East: Harmony Avenue														
4	L2	87	5.0	87	5.0	0.252	62.3	LOS E[11]	5.4	39.6	0.89	0.76	0.89	19.1
5	T1	5	5.0	5	5.0	0.024	63.5	LOS E[11]	0.3	2.4	0.91	0.60	0.91	22.7
6	R2	33	5.0	33	5.0	* 0.465	85.9	LOS F[11]	2.6	18.7	1.00	0.72	1.00	15.3
Approach		126	5.0	126	5.0	0.465	68.6	LOS E[11]	5.4	39.6	0.92	0.75	0.92	18.1
North: Richmond Road														
7	L2	24	5.0	23	5.0	0.014	7.6	LOS A	0.0	0.2	0.02	0.61	0.02	56.3
8	T1	2624	5.0	2519	5.0	* 0.688	7.1	LOS A	23.3	169.9	0.33	0.31	0.33	63.3
9	R2	49	5.0	47	5.0	* 0.653	90.2	LOS F[11]	3.7	26.9	1.00	0.76	1.06	21.4
Approach		2697	5.0	2589[N] 1	5.0	0.688	8.6	LOS A	23.3	169.9	0.34	0.32	0.34	60.5
West: Hawthorne Avenue														
10	L2	30	5.0	30	5.0	0.085	60.3	LOS E[11]	1.8	12.9	0.85	0.72	0.85	9.1
11	T1	3	5.0	3	5.0	0.012	64.5	LOS E[11]	0.2	1.2	0.91	0.59	0.91	22.3
12	R2	23	5.0	23	5.0	0.161	84.9	LOS F[11]	0.9	6.3	0.99	0.68	0.99	6.9
Approach		55	5.0	55	5.0	0.161	70.8	LOS F[11]	1.8	12.9	0.91	0.70	0.91	8.9
All Vehicles		5040	5.0	4932[N] 1	5.1	0.688	16.8	LOS B	38.1	277.8	0.55	0.51	0.55	49.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.
* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P11	Stage 1	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	236.6	217.5	0.92
P12	Stage 2	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	234.1	214.2	0.92

P1B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
East: Harmony Avenue											
P2	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	238.9	220.5	0.92
North: Richmond Road											
P31	Stage 1	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	236.6	217.5	0.92
P32	Stage 2	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	234.1	214.2	0.92
West: Hawthorne Avenue											
P4	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	241.8	224.3	0.93
All Pedestrians		449	69.3	LOS F[12]	0.3	0.3	0.96	0.96	235.5	216.1	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

12 Level of Service is worse than the Pedestrian Level of Service Target specified in the Parameter Settings dialog.

MOVEMENT SUMMARY

Site: 103 [3 Richmond / Hollinsworth / Townson - Copy (Site Folder: 2031 AM Upgraded)]

Network: N101 [AM (Network Folder: 2031 Upgraded)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	148	5.0	148	5.0	0.145	31.1	LOS C	7.6	55.2	0.76	0.78	0.76	39.8
2	T1	1945	5.0	1945	5.0	0.733	53.9	LOS D[11]	46.8	341.5	1.00	0.91	1.00	29.0
3	R2	50	5.0	50	5.0	0.202	77.4	LOS F[11]	2.3	16.5	0.99	0.72	0.99	30.6
Approach		2143	5.0	2143	5.0	0.733	52.8	LOS D[11]	46.8	341.5	0.98	0.89	0.98	29.6
East: Townson Road														
4	L2	148	5.0	148	5.0	0.233	44.2	LOS D[11]	7.5	54.7	0.75	0.76	0.75	25.5
5	T1	65	5.0	65	5.0	0.153	49.6	LOS D[11]	3.8	27.8	0.84	0.65	0.84	23.6
6	R2	55	5.0	55	5.0	0.769	90.9	LOS F[11]	4.4	32.2	1.00	0.84	1.26	15.4
Approach		268	5.0	268	5.0	0.769	55.1	LOS D[11]	7.5	54.7	0.82	0.75	0.87	22.1
North: Richmond Road														
7	L2	35	5.0	33	5.0	0.033	17.4	LOS B	0.6	4.4	0.27	0.65	0.27	53.2
8	T1	2552	5.0	2454	5.0	* 0.920	28.2	LOS B	54.6	398.5	0.81	0.80	0.88	40.4
9	R2	150	5.0	144	5.0	* 0.929	96.5	LOS F[11]	12.1	88.2	1.00	0.94	1.37	18.5
Approach		2737	5.0	2632[N1]	5.0	0.929	31.8	LOS C	54.6	398.5	0.82	0.81	0.90	38.2
West: Hollinsworth Road														
10	L2	146	5.0	146	5.0	0.350	53.2	LOS D[11]	10.3	75.0	0.85	0.78	0.85	13.7
11	T1	31	5.0	31	5.0	* 0.350	46.1	LOS D[11]	10.3	75.0	0.85	0.78	0.85	28.2
12	R2	127	5.0	127	5.0	* 0.885	96.2	LOS F[11]	5.3	38.5	1.00	0.93	1.47	8.3
Approach		304	5.0	304	5.0	0.885	70.4	LOS E[11]	10.3	75.0	0.91	0.84	1.11	12.4
All Vehicles		5452	5.0	5347[N1]	5.1	0.929	43.6	LOS D[11]	54.6	398.5	0.89	0.84	0.95	31.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.
* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P1	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	254.3	240.5	0.95

P1B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
East: Townson Road											
P2	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	241.2	223.4	0.93
North: Richmond Road											
P3	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	254.2	240.4	0.95
P3B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
West: Hollinsworth Road											
P4	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	238.5	219.9	0.92
All Pedestrians		385	69.3	LOS F[12]	0.3	0.3	0.96	0.96	240.2	222.1	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

12 Level of Service is worse than the Pedestrian Level of Service Target specified in the Parameter Settings dialog.

MOVEMENT SUMMARY

Site: 104 [4 Richmond / Langford / Alderton - Copy (Site Folder: 2031 AM Upgraded)]

Network: N101 [AM (Network Folder: 2031 Upgraded)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	293	5.0	293	5.0	0.278	23.5	LOS B	10.3	75.3	0.53	0.75	0.53	52.5
2	T1	2094	5.0	2094	5.0	0.797	33.2	LOS C	44.2	322.7	0.88	0.80	0.88	46.5
3	R2	109	5.0	109	5.0	* 0.652	88.9	LOS F[11]	4.2	30.9	1.00	0.78	1.11	27.8
Approach		2496	5.0	2496	5.0	0.797	34.5	LOS C	44.2	322.7	0.85	0.80	0.85	45.8
East: Alderton Road														
4	L2	303	5.0	303	5.0	0.698	55.1	LOS D[11]	21.2	154.8	0.92	0.83	0.92	36.6
5	T1	37	5.0	37	5.0	* 0.698	47.7	LOS D[11]	21.2	154.8	0.92	0.83	0.92	15.4
6	R2	76	5.0	76	5.0	0.704	84.5	LOS F[11]	5.8	42.5	1.00	0.83	1.13	3.8
Approach		416	5.0	416	5.0	0.704	59.8	LOS E[11]	21.2	154.8	0.93	0.83	0.95	29.8
North: Richmond Road														
7	L2	142	5.0	138	5.0	0.131	15.8	LOS B	2.3	16.6	0.25	0.67	0.25	51.1
8	T1	2663	5.0	2570	5.0	* 0.972	37.7	LOS C	70.7	516.4	0.89	0.95	1.06	53.4
9	R2	14	5.0	14	5.0	0.163	87.4	LOS F[11]	1.0	7.5	1.00	0.69	1.00	24.5
Approach		2819	5.0	2722[N1]	5.0	0.972	36.8	LOS C	70.7	516.4	0.85	0.94	1.02	53.2
West: Langford Road														
10	L2	21	5.0	21	5.0	0.044	45.4	LOS D[11]	1.2	9.0	0.74	0.67	0.74	14.6
11	T1	4	36.7	4	36.7	0.044	45.1	LOS D[11]	1.2	9.0	0.78	0.66	0.78	16.3
12	R2	212	5.6	212	5.6	* 0.978	112.3	LOS F[11]	9.7	70.9	1.00	1.11	1.65	25.3
Approach		236	6.0	236	6.0	0.978	105.4	LOS F[11]	9.7	70.9	0.97	1.07	1.55	24.9
All Vehicles		5967	5.0	5869[N1]	5.1	0.978	40.2	LOS C	70.7	516.4	0.86	0.88	0.96	47.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.
* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P1	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	256.6	243.5	0.95

P1B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
East: Alderton Road											
P2	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	238.3	219.7	0.92
North: Richmond Road											
P3	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	256.8	243.7	0.95
P3B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
West: Langford Road											
P4	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	240.8	223.0	0.93
All Pedestrians		385	69.3	LOS F[12]	0.3	0.3	0.96	0.96	240.9	223.1	0.93

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

12 Level of Service is worse than the Pedestrian Level of Service Target specified in the Parameter Settings dialog.

MOVEMENT SUMMARY

Site: 105 [5 Hollinsworth / Chifley / Bells - Copy (Site Folder: 2031 AM Upgraded)]

Network: N101 [AM (Network Folder: 2031 Upgraded)]

New Site
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Chifley Glade														
1	L2	45	5.0	45	5.0	0.054	4.9	LOS A	0.2	1.8	0.29	0.48	0.29	52.6
2	T1	136	5.0	136	5.0	0.301	4.5	LOS A	1.9	13.7	0.31	0.58	0.31	37.1
3	R2	204	5.0	204	5.0	0.301	9.6	LOS A	1.9	13.7	0.31	0.58	0.31	40.3
3u	U	68	0.0	68	0.0	0.301	11.7	LOS A	1.9	13.7	0.31	0.58	0.31	50.6
Approach		453	4.2	453	4.2	0.301	7.9	LOS A	1.9	13.7	0.31	0.57	0.31	42.7
East: Hollinsworth Road														
4	L2	236	5.0	232	5.0	0.151	4.4	LOS A	0.7	5.1	0.19	0.47	0.19	49.7
5	T1	54	5.0	53	5.0	0.101	4.4	LOS A	0.4	3.2	0.20	0.55	0.20	52.1
6	R2	73	5.0	72	5.0	0.101	9.5	LOS A	0.4	3.2	0.20	0.55	0.20	41.7
Approach		363	5.0	357[N1]	5.0	0.151	5.4	LOS A	0.7	5.1	0.19	0.50	0.19	48.7
North: Bells Glade														
7	L2	67	5.0	67	5.0	0.088	4.5	LOS A	0.3	1.8	0.28	0.53	0.28	34.4
8	T1	19	5.0	19	5.0	0.088	4.6	LOS A	0.3	1.8	0.28	0.53	0.28	49.1
9	R2	8	5.0	8	5.0	0.088	9.6	LOS A	0.3	1.8	0.28	0.53	0.28	53.2
Approach		94	5.0	94	5.0	0.088	4.9	LOS A	0.3	1.8	0.28	0.53	0.28	42.3
West: Hollinsworth Road														
10	L2	5	5.0	5	5.0	0.025	5.8	LOS A	0.1	1.0	0.54	0.50	0.54	48.9
11	T1	33	5.0	33	5.0	0.025	5.8	LOS A	0.1	1.0	0.54	0.53	0.54	47.4
12	R2	14	5.0	14	5.0	0.025	11.3	LOS A	0.1	1.0	0.55	0.61	0.55	50.0
Approach		53	5.0	53	5.0	0.025	7.3	LOS A	0.1	1.0	0.54	0.55	0.54	48.5
All Vehicles		962	4.6	957[N1]	4.7	0.301	6.6	LOS A	1.9	13.7	0.28	0.54	0.28	45.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 101 [1 Richmond / South - Copy (2) (Site Folder: 2031 PM Upgraded)] Network: N101 [PM (Network Folder: 2031 Upgraded)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	68	5.0	65	5.0	0.105	27.6	LOS B	1.9	14.0	0.54	0.70	0.54	46.3
2	T1	1708	5.0	1642	5.0	* 0.836	22.7	LOS B	27.6	201.4	0.86	0.77	0.88	58.4
3	R2	660	5.0	634	5.0	* 0.856	50.7	LOS D[11]	14.2	103.3	1.00	0.88	1.09	35.3
Approach		2435	5.0	2342[N1]	5.0	0.856	30.4	LOS C	27.6	201.4	0.89	0.80	0.93	51.1
East: South Street														
4	L2	558	5.0	558	5.0	* 0.859	41.8	LOS C	28.9	211.3	0.98	0.91	1.06	23.5
5	T1	122	5.0	122	5.0	0.257	65.7	LOS E[11]	4.1	30.1	0.94	0.73	0.94	28.0
6	R2	391	5.0	391	5.0	* 0.861	85.7	LOS F[11]	15.6	113.5	1.00	0.93	1.25	29.1
Approach		1071	5.0	1071	5.0	0.861	60.6	LOS E[11]	28.9	211.3	0.98	0.90	1.11	27.1
North: Richmond Road														
7	L2	361	5.0	361	5.0	0.419	22.3	LOS B	11.1	81.2	0.70	0.79	0.70	52.3
8	T1	1483	5.0	1483	5.0	0.756	45.3	LOS D[11]	32.3	235.7	0.94	0.84	0.94	35.2
9	R2	10	5.0	10	5.0	0.033	36.9	LOS C	0.4	2.8	0.86	0.67	0.86	45.2
Approach		1854	5.0	1854	5.0	0.756	40.8	LOS C	32.3	235.7	0.89	0.83	0.89	38.6
West: South Street														
10	L2	21	5.0	21	5.0	* 0.035	24.3	LOS B	0.5	3.8	0.71	0.67	0.71	49.6
11	T1	45	5.0	45	5.0	0.105	64.8	LOS E[11]	1.5	10.9	0.93	0.67	0.93	28.5
12	R2	53	5.0	53	5.0	* 0.129	70.9	LOS F[11]	1.8	12.8	0.93	0.72	0.93	18.5
Approach		118	5.0	118	5.0	0.129	60.5	LOS E[11]	1.8	12.8	0.89	0.69	0.89	27.5
All Vehicles		5479	5.0	5385[N1]	5.1	0.861	40.6	LOS C	32.3	235.7	0.91	0.83	0.95	41.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.
* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P11	Stage 1	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	239.2	220.8	0.92
P12	Stage 2	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	234.1	214.2	0.92
P1B	Slip/	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90

	Bypass										
East: South Street											
P2	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	246.5	230.3	0.93
P2B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
North: Richmond Road											
P31	Stage 1	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	236.6	217.5	0.92
P32	Stage 2	64	32.1	LOS D	0.1	0.1	0.92	0.92	196.8	214.2	1.09
P3B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
West: South Street											
P4	Full	64	41.5	LOS E[12]	0.2	0.2	0.92	0.92	219.0	230.8	1.05
P4B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
All Pedestrians		642	62.8	LOS F[12]	0.3	0.3	0.95	0.95	227.8	214.5	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

12 Level of Service is worse than the Pedestrian Level of Service Target specified in the Parameter Settings dialog.

MOVEMENT SUMMARY

Site: 102 [2 Richmond / Hawthorne / Harmony - Copy (2) (Site Folder: 2031 PM Upgraded)]

Network: N101 [PM (Network Folder: 2031 Upgraded)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	65	5.0	63	5.0	0.050	12.8	LOS A	0.9	6.6	0.21	0.65	0.21	55.0
2	T1	2346	5.0	2251	5.0	* 0.641	7.5	LOS A	29.9	218.1	0.29	0.27	0.29	63.4
3	R2	81	5.0	78	5.0	* 0.649	88.8	LOS F[11]	5.9	43.4	1.00	0.78	1.04	26.8
Approach		2492	5.0	2391[N1]	5.0	0.649	10.3	LOS A	29.9	218.1	0.31	0.30	0.31	58.7
East: Harmony Avenue														
4	L2	41	5.0	41	5.0	0.104	56.0	LOS D[11]	2.4	17.4	0.83	0.72	0.83	20.3
5	T1	10	5.0	10	5.0	* 0.048	64.0	LOS E[11]	0.7	4.9	0.92	0.63	0.92	22.6
6	R2	27	5.0	27	5.0	0.376	85.4	LOS F[11]	2.1	15.0	1.00	0.72	1.00	15.3
Approach		78	5.0	78	5.0	0.376	67.2	LOS E[11]	2.4	17.4	0.90	0.71	0.90	18.6
North: Richmond Road														
7	L2	33	5.0	33	5.0	0.021	8.1	LOS A	0.1	1.1	0.09	0.63	0.09	56.0
8	T1	1998	5.0	1998	5.0	0.569	16.5	LOS B	31.7	231.5	0.58	0.53	0.58	49.6
9	R2	46	5.0	46	5.0	0.386	86.6	LOS F[11]	3.5	25.5	1.00	0.75	1.00	22.0
Approach		2077	5.0	2077	5.0	0.569	17.9	LOS B	31.7	231.5	0.58	0.54	0.58	48.1
West: Hawthorne Avenue														
10	L2	83	5.0	83	5.0	0.211	58.9	LOS E[11]	5.0	36.3	0.86	0.76	0.86	9.4
11	T1	8	5.0	8	5.0	0.036	65.3	LOS E[11]	0.5	3.7	0.92	0.64	0.92	22.1
12	R2	65	5.0	65	5.0	* 0.456	87.0	LOS F[11]	2.5	18.3	1.00	0.72	1.00	6.8
Approach		157	5.0	157	5.0	0.456	70.9	LOS F[11]	5.0	36.3	0.92	0.74	0.92	8.9
All Vehicles		4804	5.0	4704[N1]	5.1	0.649	16.6	LOS B	31.7	231.5	0.46	0.42	0.46	49.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.
* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P11	Stage 1	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	236.6	217.5	0.92
P12	Stage 2	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	234.1	214.2	0.92
P1B	Slip/	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90

	Bypass										
East: Harmony Avenue											
P2	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	238.9	220.5	0.92
North: Richmond Road											
P31	Stage 1	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	236.6	217.5	0.92
P32	Stage 2	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	234.1	214.2	0.92
West: Hawthorne Avenue											
P4	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	241.8	224.3	0.93
All Pedestrians		449	69.3	LOS F[12]	0.3	0.3	0.96	0.96	235.5	216.1	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

12 Level of Service is worse than the Pedestrian Level of Service Target specified in the Parameter Settings dialog.

MOVEMENT SUMMARY

Site: 103 [3 Richmond / Hollinsworth / Townson - Copy (2) (Site Folder: 2031 PM Upgraded)]

Network: N101 [PM (Network Folder: 2031 Upgraded)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	94	5.0	89	5.0	0.099	15.5	LOS B	1.4	9.9	0.23	0.66	0.23	53.3
2	T1	1976	5.0	1876	5.0	0.925	33.0	LOS C	43.6	318.2	0.88	0.87	0.99	38.5
3	R2	74	5.0	71	5.0	0.169	76.7	LOS F[11]	3.2	23.5	1.00	0.75	1.00	30.8
Approach		2144	5.0	2035[N1]	5.0	0.925	33.7	LOS C	43.6	318.2	0.85	0.86	0.95	38.4
East: Townson Road														
4	L2	65	5.0	65	5.0	0.087	34.4	LOS C	2.8	20.6	0.63	0.71	0.63	29.0
5	T1	59	5.0	59	5.0	0.134	48.5	LOS D[11]	3.4	24.7	0.83	0.64	0.83	23.9
6	R2	46	5.0	46	5.0	0.276	75.6	LOS F[11]	3.2	23.6	0.97	0.74	0.97	17.6
Approach		171	5.0	171	5.0	0.276	50.4	LOS D[11]	3.4	24.7	0.79	0.70	0.79	23.2
North: Richmond Road														
7	L2	63	5.0	63	5.0	0.070	33.2	LOS C	3.1	22.7	0.73	0.74	0.73	44.2
8	T1	1816	5.0	1816	5.0	* 0.930	79.3	LOS F[11]	51.7	377.3	1.00	0.99	1.12	21.3
9	R2	241	5.0	241	5.0	0.917	61.0	LOS E[11]	17.9	130.5	1.00	0.88	1.11	25.8
Approach		2120	5.0	2120	5.0	0.930	75.8	LOS F[11]	51.7	377.3	0.99	0.97	1.11	22.3
West: Hollinsworth Road														
10	L2	412	5.0	412	5.0	* 0.946	89.3	LOS F[11]	44.4	323.9	1.00	1.03	1.29	8.9
11	T1	87	5.0	87	5.0	0.946	81.8	LOS F[11]	44.4	323.9	1.00	1.03	1.29	20.6
12	R2	313	5.0	313	5.0	* 0.935	99.3	LOS F[11]	13.6	99.0	1.00	1.03	1.46	8.1
Approach		812	5.0	812	5.0	0.946	92.4	LOS F[11]	44.4	323.9	1.00	1.03	1.36	10.1
All Vehicles		5247	5.0	5138[N1]	5.1	0.946	60.9	LOS E[11]	51.7	377.3	0.93	0.93	1.08	24.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.
* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P1	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	254.3	240.5	0.95
P1B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90

East: Townson Road											
P2	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	241.2	223.4	0.93
North: Richmond Road											
P3	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	254.2	240.4	0.95
P3B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
West: Hollinsworth Road											
P4	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	238.5	219.9	0.92
All Pedestrians		385	69.3	LOS F[12]	0.3	0.3	0.96	0.96	240.2	222.1	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

12 Level of Service is worse than the Pedestrian Level of Service Target specified in the Parameter Settings dialog.

MOVEMENT SUMMARY

Site: 104 [4 Richmond / Langford / Alderton - Copy (2) (Site Folder: 2031 PM Upgraded)]

Network: N101 [PM (Network Folder: 2031 Upgraded)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	747	5.0	747	5.0	1.038	128.4	LOS F[11]	87.2	636.9	1.00	1.12	1.56	23.5
2	T1	1984	5.0	1984	5.0	* 1.061	142.6	LOS F[11]	87.3	637.5	1.00	1.39	1.66	19.2
3	R2	440	5.0	440	5.0	* 1.083	175.2	LOS F[11]	26.5	193.2	1.00	1.15	1.90	16.9
Approach		3171	5.0	3171	5.0	1.083	143.8	LOS F[11]	87.3	637.5	1.00	1.29	1.67	19.8
East: Alderton Road														
4	L2	417	5.0	417	5.0	0.905	71.2	LOS F[11]	36.1	263.4	0.97	0.97	1.17	31.5
5	T1	46	5.0	46	5.0	* 0.905	65.2	LOS E[11]	36.1	263.4	0.97	0.97	1.17	12.5
6	R2	131	5.0	131	5.0	0.644	75.1	LOS F[11]	9.5	69.0	1.00	0.81	1.02	4.2
Approach		594	5.0	594	5.0	0.905	71.6	LOS F[11]	36.1	263.4	0.97	0.94	1.14	25.9
North: Richmond Road														
7	L2	267	5.0	267	5.0	0.312	40.5	LOS C	15.3	111.8	0.86	0.83	0.86	34.9
8	T1	1888	5.0	1888	5.0	0.999	111.6	LOS F[11]	64.3	469.5	1.00	1.12	1.30	32.3
9	R2	54	5.0	54	5.0	0.265	74.1	LOS F[11]	3.6	26.2	0.93	0.75	0.93	27.2
Approach		2208	5.0	2208	5.0	0.999	102.1	LOS F[11]	64.3	469.5	0.98	1.07	1.23	32.4
West: Langford Road														
10	L2	144	5.0	144	5.0	0.266	44.7	LOS D[11]	8.4	61.4	0.77	0.75	0.77	14.7
11	T1	17	12.3	17	12.3	0.266	39.3	LOS C	8.4	61.4	0.77	0.73	0.77	17.4
12	R2	425	5.0	425	5.0	* 1.045	146.7	LOS F[11]	23.3	170.3	1.00	1.26	1.77	20.9
Approach		585	5.2	585	5.2	1.045	118.6	LOS F[11]	23.3	170.3	0.94	1.12	1.50	20.4
All Vehicles		6558	5.0	6558	5.0	1.083	121.0	LOS F[11]	87.3	637.5	0.99	1.17	1.46	24.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

11 Level of Service is worse than the Level of Service Target specified in the Parameter Settings dialog.
* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P1	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	256.6	243.5	0.95
P1B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
East: Alderton Road											
P2	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	238.3	219.7	0.92

North: Richmond Road											
P3	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	256.8	243.7	0.95
P3B	Slip/ Bypass	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	226.5	204.3	0.90
West: Langford Road											
P4	Full	64	69.3	LOS F[12]	0.3	0.3	0.96	0.96	240.8	223.0	0.93
All Pedestrians		385	69.3	LOS F[12]	0.3	0.3	0.96	0.96	240.9	223.1	0.93

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

12 Level of Service is worse than the Pedestrian Level of Service Target specified in the Parameter Settings dialog.

MOVEMENT SUMMARY

Site: 105 [5 Hollinsworth / Chifley / Bells - Copy (2) (Site Folder: 2031 PM Upgraded)]

Network: N101 [PM (Network Folder: 2031 Upgraded)]

New Site
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Chifley Glade														
1	L2	121	5.0	121	5.0	0.151	5.2	LOS A	0.7	5.2	0.35	0.52	0.35	52.3
2	T1	363	5.0	363	5.0	0.791	5.5	LOS A	10.4	75.2	0.70	0.60	0.70	35.5
3	R2	544	5.0	544	5.0	0.791	10.6	LOS A	10.4	75.2	0.70	0.60	0.70	37.9
3u	U	181	0.0	181	0.0	0.791	12.7	LOS A	10.4	75.2	0.70	0.60	0.70	48.5
Approach		1209	4.3	1209	4.3	0.791	8.9	LOS A	10.4	75.2	0.66	0.59	0.66	40.8
East: Hollinsworth Road														
4	L2	257	5.0	254	5.0	0.192	5.1	LOS A	1.0	7.3	0.36	0.54	0.36	48.7
5	T1	59	5.0	58	5.0	0.130	5.4	LOS A	0.6	4.4	0.37	0.61	0.37	51.2
6	R2	78	5.0	77	5.0	0.130	10.5	LOS A	0.6	4.4	0.37	0.61	0.37	40.6
Approach		394	5.0	389[N1]	5.0	0.192	6.2	LOS A	1.0	7.3	0.36	0.56	0.36	47.8
North: Bells Glade														
7	L2	178	5.0	178	5.0	0.523	8.9	LOS A	2.3	16.6	0.73	0.91	0.89	26.5
8	T1	53	5.0	53	5.0	0.523	9.0	LOS A	2.3	16.6	0.73	0.91	0.89	43.1
9	R2	21	5.0	21	5.0	0.523	14.1	LOS A	2.3	16.6	0.73	0.91	0.89	48.4
Approach		251	5.0	251	5.0	0.523	9.4	LOS A	2.3	16.6	0.73	0.91	0.89	34.9
West: Hollinsworth Road														
10	L2	15	5.0	15	5.0	0.191	16.6	LOS B	1.0	7.5	0.99	0.92	0.99	40.0
11	T1	90	5.0	90	5.0	0.191	15.1	LOS B	1.7	12.6	1.00	0.88	1.00	38.6
12	R2	37	5.0	37	5.0	0.191	19.5	LOS B	1.7	12.6	1.00	0.86	1.00	44.4
Approach		142	5.0	142	5.0	0.191	16.4	LOS B	1.7	12.6	1.00	0.88	1.00	40.6
All Vehicles		1997	4.5	1992[N1]	4.6	0.791	9.0	LOS A	10.4	75.2	0.64	0.65	0.66	41.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 101 [1 Richmond / South - Copy (3) (Site Folder: 2031 AM Upgraded - With Development)]

Network: N101 [AM (Network Folder: 2031 Upgraded - With Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	101	5.0	101	5.0	0.146	29.4	LOS C	4.1	30.0	0.77	0.76	0.77	45.4
2	T1	1436	5.0	1436	5.0	0.655	28.7	LOS C	24.0	175.0	0.94	0.83	0.94	54.5
3	R2	665	5.0	665	5.0	* 1.031	86.6	LOS F	23.0	168.2	1.00	1.04	1.49	21.4
Approach		2202	5.0	2202	5.0	1.031	46.2	LOS D	24.0	175.0	0.95	0.89	1.10	39.6
East: South Street														
4	L2	557	5.0	557	5.0	0.927	59.7	LOS E	36.1	263.7	1.00	0.97	1.22	18.3
5	T1	58	5.0	58	5.0	0.129	65.4	LOS E	1.9	14.1	0.93	0.69	0.93	28.1
6	R2	383	5.0	383	5.0	0.890	89.9	LOS F	15.7	114.5	1.00	0.95	1.31	28.2
Approach		998	5.0	998	5.0	0.927	71.6	LOS F	36.1	263.7	1.00	0.95	1.24	24.2
North: Richmond Road														
7	L2	552	5.0	552	5.0	* 0.599	22.4	LOS B	18.1	132.0	0.76	0.82	0.76	52.3
8	T1	2086	5.0	2086	5.0	* 1.035	122.4	LOS F	85.7	625.6	1.00	1.32	1.55	17.9
9	R2	94	5.0	94	5.0	0.356	40.5	LOS C	3.6	26.3	0.94	0.77	0.94	43.6
Approach		2732	5.0	2732	5.0	1.035	99.4	LOS F	85.7	625.6	0.95	1.20	1.37	22.4
West: South Street														
10	L2	79	5.0	79	5.0	0.150	27.4	LOS B	2.4	17.4	0.77	0.73	0.77	48.0
11	T1	104	5.0	104	5.0	* 0.259	67.5	LOS E	3.6	26.1	0.96	0.72	0.96	27.9
12	R2	78	5.0	78	5.0	0.204	72.8	LOS F	2.7	19.4	0.95	0.73	0.95	18.2
Approach		261	5.0	261	5.0	0.259	56.9	LOS E	3.6	26.1	0.90	0.73	0.90	30.6
All Vehicles		6193	5.0	6193	5.0	1.035	74.2	LOS F	85.7	625.6	0.96	1.03	1.23	28.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P11	Stage 1	53	69.3	LOS F	0.2	0.2	0.96	0.96	239.1	220.8	0.92
P12	Stage 2	53	69.3	LOS F	0.2	0.2	0.96	0.96	234.0	214.2	0.92
P1B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
East: South Street											
P2	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	246.4	230.3	0.93

P2B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
North: Richmond Road											
P31	Stage 1	53	69.3	LOS F	0.2	0.2	0.96	0.96	236.6	217.5	0.92
P32	Stage 2	53	32.4	LOS D	0.1	0.1	0.92	0.92	197.1	214.2	1.09
P3B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
West: South Street											
P4	Full	53	42.5	LOS E	0.2	0.2	0.92	0.92	220.0	230.8	1.05
P4B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
All Pedestrians		526	62.9	LOS F	0.2	0.2	0.95	0.95	227.9	214.5	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 102 [2 Richmond / Hawthorne / Harmony - Copy (3) (Site Folder: 2031 AM Upgraded - With Development)]

Network: N101 [AM (Network Folder: 2031 Upgraded - With Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	102	5.0	102	5.0	0.078	14.4	LOS A	2.6	18.6	0.37	0.69	0.37	53.4
2	T1	2097	5.0	2097	5.0	0.580	22.4	LOS B	39.1	285.3	0.80	0.73	0.80	45.1
3	R2	25	5.0	25	5.0	0.302	86.2	LOS F	1.9	13.6	0.98	0.71	0.98	27.3
Approach		2224	5.0	2224	5.0	0.580	22.8	LOS B	39.1	285.3	0.78	0.73	0.78	44.9
East: Harmony Avenue														
4	L2	86	5.0	86	5.0	0.249	62.3	LOS E	5.4	39.1	0.89	0.76	0.89	19.1
5	T1	9	5.0	9	5.0	* 0.047	65.0	LOS E	0.6	4.6	0.92	0.63	0.92	22.3
6	R2	33	5.0	33	5.0	* 0.455	85.8	LOS F	2.5	18.3	1.00	0.72	1.00	15.3
Approach		128	5.0	128	5.0	0.455	68.5	LOS E	5.4	39.1	0.92	0.74	0.92	18.2
North: Richmond Road														
7	L2	24	5.0	24	5.0	0.014	7.6	LOS A	0.0	0.2	0.02	0.61	0.02	56.3
8	T1	2618	5.0	2550	5.0	* 0.696	7.7	LOS A	24.7	180.2	0.36	0.33	0.36	62.2
9	R2	63	5.0	62	5.0	* 0.735	92.0	LOS F	4.8	35.3	1.00	0.79	1.10	21.1
Approach		2705	5.0	2636 N1	5.0	0.735	9.7	LOS A	24.7	180.2	0.37	0.35	0.37	58.7
West: Hawthorne Avenue														
10	L2	39	5.0	39	5.0	0.112	60.7	LOS E	2.3	17.1	0.86	0.73	0.86	9.1
11	T1	4	5.0	4	5.0	0.021	65.9	LOS E	0.3	2.0	0.92	0.61	0.92	22.0
12	R2	58	5.0	58	5.0	0.404	86.7	LOS F	2.2	16.2	1.00	0.72	1.00	6.8
Approach		101	5.0	101	5.0	0.404	75.8	LOS F	2.3	17.1	0.94	0.72	0.94	8.3
All Vehicles		5159	5.0	5089 N1	5.1	0.735	18.2	LOS B	39.1	285.3	0.58	0.53	0.58	47.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P11	Stage 1	53	69.3	LOS F	0.2	0.2	0.96	0.96	236.6	217.5	0.92
P12	Stage 2	53	69.3	LOS F	0.2	0.2	0.96	0.96	234.0	214.2	0.92
P1B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90

East: Harmony Avenue										
P2 Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	238.9	220.5	0.92
North: Richmond Road										
P31 Stage 1	53	69.3	LOS F	0.2	0.2	0.96	0.96	236.6	217.5	0.92
P32 Stage 2	53	69.3	LOS F	0.2	0.2	0.96	0.96	234.0	214.2	0.92
West: Hawthorne Avenue										
P4 Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	241.8	224.3	0.93
All Pedestrians	368	69.3	LOS F	0.2	0.2	0.96	0.96	235.5	216.1	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 103 [3 Richmond / Hollinsworth / Townson - Copy (3) (Site Folder: 2031 AM Upgraded - With Development)]

Network: N101 [AM (Network Folder: 2031 Upgraded - With Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	235	5.0	235	5.0	0.226	31.4	LOS C	12.3	89.6	0.78	0.81	0.78	39.6
2	T1	2004	5.0	2004	5.0	0.768	54.9	LOS D	49.4	360.3	1.00	0.91	1.00	28.6
3	R2	48	5.0	48	5.0	0.196	77.4	LOS F	2.1	15.6	0.97	0.72	0.97	30.6
Approach		2287	5.0	2287	5.0	0.768	53.0	LOS D	49.4	360.3	0.98	0.89	0.98	29.5
East: Townson Road														
4	L2	145	5.0	145	5.0	0.238	45.9	LOS D	7.5	55.0	0.76	0.77	0.76	25.0
5	T1	69	5.0	69	5.0	0.172	51.6	LOS D	4.1	30.1	0.86	0.67	0.86	23.1
6	R2	54	5.0	54	5.0	0.561	84.9	LOS F	4.1	29.7	1.00	0.76	1.02	16.2
Approach		268	5.0	268	5.0	0.561	55.1	LOS D	7.5	55.0	0.83	0.74	0.84	22.1
North: Richmond Road														
7	L2	34	5.0	33	5.0	0.032	16.3	LOS B	0.6	4.0	0.25	0.65	0.25	54.0
8	T1	2573	5.0	2510	5.0	* 0.947	35.2	LOS C	62.3	455.1	0.86	0.89	0.98	36.0
9	R2	158	5.0	154	5.0	* 0.991	115.6	LOS F	14.3	104.6	1.00	1.01	1.55	16.0
Approach		2764	5.0	2697 N1	5.0	0.991	39.5	LOS C	62.3	455.1	0.86	0.89	1.00	33.9
West: Hollinsworth Road														
10	L2	152	5.0	152	5.0	0.384	55.2	LOS D	11.0	80.0	0.87	0.79	0.87	13.3
11	T1	33	5.0	33	5.0	* 0.384	48.2	LOS D	11.0	80.0	0.87	0.79	0.87	27.6
12	R2	185	5.0	185	5.0	* 0.969	110.3	LOS F	8.4	61.2	1.00	1.04	1.64	7.4
Approach		369	5.0	369	5.0	0.969	82.2	LOS F	11.0	80.0	0.93	0.92	1.26	10.8
All Vehicles		5689	5.0	5622 N1	5.1	0.991	48.6	LOS D	62.3	455.1	0.91	0.89	1.00	29.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P1	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	254.3	240.5	0.95
P1B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
East: Townson Road											

P2	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	241.1	223.4	0.93
North: Richmond Road											
P3	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	254.2	240.4	0.95
P3B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
West: Hollinsworth Road											
P4	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	238.4	219.9	0.92
All Pedestrians		316	69.3	LOS F	0.2	0.2	0.96	0.96	240.1	222.1	0.93

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 104 [4 Richmond / Langford / Alderton - Copy (3) (Site Folder: 2031 AM Upgraded - With Development)]

Network: N101 [AM (Network Folder: 2031 Upgraded - With Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	287	5.0	287	5.0	0.267	22.4	LOS B	9.8	71.3	0.51	0.74	0.51	53.2
2	T1	2240	5.0	2240	5.0	0.833	33.6	LOS C	48.5	354.0	0.90	0.83	0.91	46.3
3	R2	107	5.0	107	5.0	* 0.642	88.8	LOS F	4.2	30.4	1.00	0.78	1.10	27.8
Approach		2635	5.0	2635	5.0	0.833	34.6	LOS C	48.5	354.0	0.86	0.82	0.87	45.8
East: Alderton Road														
4	L2	298	5.0	298	5.0	0.704	56.8	LOS E	20.9	152.3	0.92	0.83	0.92	36.1
5	T1	33	5.0	33	5.0	* 0.704	49.2	LOS D	20.9	152.3	0.92	0.83	0.92	15.1
6	R2	75	5.0	75	5.0	0.695	84.3	LOS F	5.7	41.9	1.00	0.83	1.12	3.8
Approach		405	5.0	405	5.0	0.704	61.2	LOS E	20.9	152.3	0.94	0.83	0.96	29.6
North: Richmond Road														
7	L2	140	5.0	137	5.0	0.127	15.1	LOS B	2.1	15.6	0.23	0.66	0.23	51.8
8	T1	2741	5.0	2682	5.0	* 0.987	46.1	LOS D	80.8	589.9	0.92	1.02	1.13	49.7
9	R2	14	5.0	13	5.0	0.160	87.3	LOS F	1.0	7.4	1.00	0.69	1.00	24.5
Approach		2895	5.0	2832 N1	5.0	0.987	44.8	LOS D	80.8	589.9	0.89	1.00	1.09	49.6
West: Langford Road														
10	L2	20	5.0	20	5.0	0.038	44.6	LOS D	1.1	7.7	0.73	0.67	0.73	14.7
11	T1	2	55.0	2	55.0	0.038	42.6	LOS D	1.1	7.7	0.76	0.58	0.76	17.3
12	R2	207	5.0	207	5.0	* 0.964	107.4	LOS F	9.3	68.1	1.00	1.09	1.61	26.0
Approach		229	5.5	229	5.5	0.964	101.3	LOS F	9.3	68.1	0.97	1.05	1.53	25.6
All Vehicles		6164	5.0	6102 N1	5.1	0.987	43.6	LOS D	80.8	589.9	0.88	0.91	1.00	45.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P1	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	256.6	243.5	0.95
P1B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
East: Alderton Road											

P2	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	238.3	219.7	0.92
North: Richmond Road											
P3	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	256.7	243.7	0.95
P3B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
West: Langford Road											
P4	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	240.8	223.0	0.93
All Pedestrians		316	69.3	LOS F	0.2	0.2	0.96	0.96	240.9	223.1	0.93

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 105 [5 Hollinsworth / Chifley / Bells - Copy (3) (Site Folder: 2031 AM Upgraded - With Development)]

Network: N101 [AM (Network Folder: 2031 Upgraded - With Development)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Chifley Glade														
1	L2	44	5.0	44	5.0	0.057	5.4	LOS A	0.2	1.8	0.37	0.52	0.37	52.2
2	T1	134	5.0	134	5.0	0.321	4.9	LOS A	2.0	14.3	0.41	0.61	0.41	36.7
3	R2	201	5.0	201	5.0	0.321	10.0	LOS A	2.0	14.3	0.41	0.61	0.41	39.7
3u	U	66	0.0	66	0.0	0.321	12.1	LOS A	2.0	14.3	0.41	0.61	0.41	50.1
Approach		445	4.3	445	4.3	0.321	8.3	LOS A	2.0	14.3	0.40	0.60	0.40	42.2
East: Hollinsworth Road														
4	L2	233	5.0	231	5.0	0.160	4.4	LOS A	0.8	5.5	0.19	0.47	0.19	49.7
5	T1	158	5.0	157	5.0	0.160	4.4	LOS A	0.8	5.5	0.21	0.50	0.21	53.4
6	R2	72	5.0	71	5.0	0.160	9.5	LOS A	0.7	5.4	0.21	0.50	0.21	42.9
Approach		462	5.0	458 N1	5.0	0.160	5.1	LOS A	0.8	5.5	0.20	0.48	0.20	50.4
North: Bells Glade														
7	L2	65	5.0	65	5.0	0.089	4.6	LOS A	0.3	1.9	0.31	0.55	0.31	34.1
8	T1	19	5.0	19	5.0	0.089	4.7	LOS A	0.3	1.9	0.31	0.55	0.31	48.9
9	R2	7	5.0	7	5.0	0.089	9.8	LOS A	0.3	1.9	0.31	0.55	0.31	53.0
Approach		92	5.0	92	5.0	0.089	5.1	LOS A	0.3	1.9	0.31	0.55	0.31	42.0
West: Hollinsworth Road														
10	L2	5	5.0	5	5.0	0.058	5.8	LOS A	0.3	2.5	0.55	0.53	0.55	48.7
11	T1	103	5.0	103	5.0	0.058	5.9	LOS A	0.3	2.5	0.56	0.56	0.56	47.6
12	R2	14	5.0	14	5.0	0.058	11.3	LOS A	0.3	2.4	0.57	0.59	0.57	51.1
Approach		122	5.0	122	5.0	0.058	6.5	LOS A	0.3	2.5	0.56	0.56	0.56	48.2
All Vehicles		1121	4.7	1117 N 1	4.7	0.321	6.6	LOS A	2.0	14.3	0.33	0.54	0.33	46.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

MOVEMENT SUMMARY

Site: 101 [1 Richmond / South - Copy (4) (Site Folder: 2031 PM Upgraded - With Development)]

Network: N101 [PM (Network Folder: 2031 Upgraded - With Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	93	5.0	89	5.0	0.135	26.2	LOS B	2.5	18.2	0.52	0.71	0.52	47.1
2	T1	1709	5.0	1642	5.0	* 0.790	20.9	LOS B	25.2	183.8	0.83	0.73	0.83	59.7
3	R2	649	5.0	624	5.0	* 0.815	49.5	LOS D	13.8	100.9	1.00	0.87	1.05	35.7
Approach		2452	5.0	2355 N1	5.0	0.815	28.7	LOS C	25.2	183.8	0.86	0.77	0.88	52.0
East: South Street														
4	L2	549	5.0	549	5.0	* 0.847	40.6	LOS C	28.1	205.1	0.97	0.90	1.04	24.0
5	T1	125	5.0	125	5.0	0.279	67.0	LOS E	4.3	31.3	0.95	0.74	0.95	27.7
6	R2	385	5.0	385	5.0	* 0.895	90.6	LOS F	15.9	115.7	1.00	0.96	1.32	28.1
Approach		1060	5.0	1060	5.0	0.895	61.9	LOS E	28.1	205.1	0.98	0.90	1.13	26.8
North: Richmond Road														
7	L2	355	5.0	355	5.0	0.412	22.1	LOS B	10.7	78.0	0.69	0.79	0.69	52.5
8	T1	1480	5.0	1480	5.0	0.749	44.3	LOS D	32.4	236.3	0.93	0.83	0.93	35.6
9	R2	67	5.0	67	5.0	0.225	38.7	LOS C	2.6	18.9	0.90	0.75	0.90	44.4
Approach		1902	5.0	1902	5.0	0.749	40.0	LOS C	32.4	236.3	0.89	0.82	0.89	39.1
West: South Street														
10	L2	104	5.0	104	5.0	* 0.185	26.4	LOS B	2.9	21.3	0.77	0.74	0.77	48.6
11	T1	53	5.0	53	5.0	0.131	66.2	LOS E	1.8	12.9	0.94	0.68	0.94	28.2
12	R2	91	5.0	91	5.0	* 0.237	73.1	LOS F	3.1	22.6	0.95	0.74	0.95	18.1
Approach		247	5.0	247	5.0	0.237	51.9	LOS D	3.1	22.6	0.87	0.73	0.87	32.4
All Vehicles		5661	5.0	5564 N1	5.1	0.895	39.9	LOS C	32.4	236.3	0.89	0.81	0.93	41.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P11	Stage 1	53	69.3	LOS F	0.2	0.2	0.96	0.96	239.1	220.8	0.92
P12	Stage 2	53	69.3	LOS F	0.2	0.2	0.96	0.96	234.0	214.2	0.92
P1B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90

East: South Street											
P2	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	246.4	230.3	0.93
P2B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
North: Richmond Road											
P31	Stage 1	53	69.3	LOS F	0.2	0.2	0.96	0.96	236.6	217.5	0.92
P32	Stage 2	53	32.1	LOS D	0.1	0.1	0.92	0.92	196.9	214.2	1.09
P3B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
West: South Street											
P4	Full	53	41.5	LOS E	0.2	0.2	0.92	0.92	219.0	230.8	1.05
P4B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
All Pedestrians		526	62.8	LOS F	0.2	0.2	0.95	0.95	227.8	214.5	0.94

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 102 [2 Richmond / Hawthorne / Harmony - Copy (4) (Site Folder: 2031 PM Upgraded - With Development)]

Network: N101 [PM (Network Folder: 2031 Upgraded - With Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	104	5.0	100	5.0	0.079	13.3	LOS A	1.6	11.7	0.24	0.66	0.24	54.5
2	T1	2345	5.0	2248	5.0	* 0.648	8.0	LOS A	31.9	233.1	0.30	0.28	0.30	62.7
3	R2	80	5.0	77	5.0	* 0.641	88.7	LOS F	5.9	42.9	1.00	0.78	1.03	26.8
Approach		2529	5.0	2424 N1	5.0	0.648	10.8	LOS A	31.9	233.1	0.32	0.31	0.32	58.0
East: Harmony Avenue														
4	L2	40	5.0	40	5.0	0.105	56.9	LOS E	2.3	17.1	0.84	0.72	0.84	20.1
5	T1	14	5.0	14	5.0	* 0.068	65.4	LOS E	0.9	6.6	0.93	0.65	0.93	22.3
6	R2	26	5.0	26	5.0	0.275	81.7	LOS F	1.9	14.2	0.99	0.72	0.99	15.8
Approach		80	5.0	80	5.0	0.275	66.5	LOS E	2.3	17.1	0.91	0.71	0.91	18.9
North: Richmond Road														
7	L2	33	5.0	33	5.0	0.021	8.1	LOS A	0.1	1.1	0.09	0.63	0.09	55.9
8	T1	2014	5.0	2014	5.0	0.580	17.2	LOS B	32.3	235.7	0.60	0.55	0.60	48.8
9	R2	57	5.0	57	5.0	0.475	87.3	LOS F	4.3	31.5	1.00	0.76	1.00	21.9
Approach		2103	5.0	2103	5.0	0.580	19.0	LOS B	32.3	235.7	0.60	0.55	0.60	47.0
West: Hawthorne Avenue														
10	L2	99	5.0	99	5.0	0.259	60.4	LOS E	6.0	44.0	0.88	0.77	0.88	9.2
11	T1	12	5.0	12	5.0	0.057	66.7	LOS E	0.8	5.6	0.93	0.66	0.93	21.9
12	R2	123	5.0	123	5.0	* 0.644	85.9	LOS F	4.7	34.5	1.00	0.79	1.09	6.9
Approach		234	5.0	234	5.0	0.644	74.1	LOS F	6.0	44.0	0.94	0.78	0.99	8.6
All Vehicles		4946	5.0	4841 N1	5.1	0.648	18.3	LOS B	32.3	235.7	0.48	0.45	0.49	47.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P11	Stage 1	53	69.3	LOS F	0.2	0.2	0.96	0.96	236.6	217.5	0.92
P12	Stage 2	53	69.3	LOS F	0.2	0.2	0.96	0.96	234.0	214.2	0.92
P1B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90

East: Harmony Avenue										
P2 Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	238.9	220.5	0.92
North: Richmond Road										
P31 Stage 1	53	69.3	LOS F	0.2	0.2	0.96	0.96	236.6	217.5	0.92
P32 Stage 2	53	69.3	LOS F	0.2	0.2	0.96	0.96	234.0	214.2	0.92
West: Hawthorne Avenue										
P4 Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	241.8	224.3	0.93
All Pedestrians	368	69.3	LOS F	0.2	0.2	0.96	0.96	235.5	216.1	0.92

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 103 [3 Richmond / Hollinsworth / Townson - Copy (4) (Site Folder: 2031 PM Upgraded - With Development)]

Network: N101 [PM (Network Folder: 2031 Upgraded - With Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	157	5.0	149	5.0	0.161	15.0	LOS B	2.2	16.2	0.22	0.66	0.22	53.9
2	T1	2009	5.0	1904	5.0	0.972	49.8	LOS D	54.2	396.0	0.97	1.03	1.18	30.4
3	R2	74	5.0	70	5.0	0.175	77.4	LOS F	3.2	23.3	1.00	0.75	1.00	30.6
Approach		2240	5.0	2123 N1	5.0	0.972	48.3	LOS D	54.2	396.0	0.92	0.99	1.11	31.4
East: Townson Road														
4	L2	65	5.0	65	5.0	0.089	35.8	LOS C	2.9	21.0	0.65	0.71	0.65	28.4
5	T1	61	5.0	61	5.0	0.143	49.5	LOS D	3.5	25.8	0.84	0.65	0.84	23.6
6	R2	45	5.0	45	5.0	0.223	71.9	LOS F	3.1	22.4	0.95	0.74	0.95	18.3
Approach		172	5.0	172	5.0	0.223	50.2	LOS D	3.5	25.8	0.79	0.70	0.79	23.3
North: Richmond Road														
7	L2	61	5.0	61	5.0	0.066	31.9	LOS C	3.0	21.5	0.71	0.74	0.71	44.9
8	T1	1884	5.0	1884	5.0	* 0.980	95.8	LOS F	59.1	431.7	1.00	1.07	1.24	18.5
9	R2	245	5.0	245	5.0	0.977	73.9	LOS F	20.1	147.0	1.00	0.92	1.23	22.5
Approach		2191	5.0	2191	5.0	0.980	91.6	LOS F	59.1	431.7	0.99	1.05	1.22	19.4
West: Hollinsworth Road														
10	L2	417	5.0	417	5.0	* 0.989	110.0	LOS F	50.4	368.1	1.00	1.09	1.43	7.4
11	T1	91	5.0	91	5.0	0.989	102.5	LOS F	50.4	368.1	1.00	1.09	1.43	17.8
12	R2	404	5.0	404	5.0	* 0.994	120.3	LOS F	19.7	143.8	1.00	1.12	1.60	6.8
Approach		912	5.0	912	5.0	0.994	113.8	LOS F	50.4	368.1	1.00	1.10	1.51	8.3
All Vehicles		5514	5.0	5396 N1	5.1	0.994	77.0	LOS F	59.1	431.7	0.96	1.03	1.21	20.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)
N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P1	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	254.3	240.5	0.95
P1B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
East: Townson Road											

P2	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	241.1	223.4	0.93
North: Richmond Road											
P3	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	254.2	240.4	0.95
P3B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
West: Hollinsworth Road											
P4	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	238.4	219.9	0.92
All Pedestrians		316	69.3	LOS F	0.2	0.2	0.96	0.96	240.1	222.1	0.93

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 104 [4 Richmond / Langford / Alderton - Copy (4) (Site Folder: 2031 PM Upgraded - With Development)]

Network: N101 [PM (Network Folder: 2031 Upgraded - With Development)]

New Site
Site Category: (None)
Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 150 seconds (Network User-Given Cycle Time)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Richmond Road														
1	L2	736	5.0	736	5.0	1.012	111.4	LOS F	81.0	591.1	1.00	1.08	1.46	25.9
2	T1	2081	5.0	2081	5.0	* 1.063	142.5	LOS F	92.7	676.7	1.00	1.40	1.66	19.2
3	R2	433	5.0	433	5.0	* 1.064	162.3	LOS F	24.9	181.8	1.00	1.13	1.84	17.9
Approach		3249	5.0	3249	5.0	1.064	138.1	LOS F	92.7	676.7	1.00	1.29	1.64	20.4
East: Alderton Road														
4	L2	411	5.0	411	5.0	0.923	77.8	LOS F	37.2	271.6	0.98	1.00	1.23	30.0
5	T1	45	5.0	45	5.0	* 0.923	71.6	LOS F	37.2	271.6	0.98	1.00	1.23	11.7
6	R2	128	5.0	128	5.0	0.671	76.7	LOS F	9.4	68.6	1.00	0.83	1.05	4.2
Approach		584	5.0	584	5.0	0.923	77.1	LOS F	37.2	271.6	0.98	0.96	1.19	24.8
North: Richmond Road														
7	L2	263	5.0	263	5.0	0.281	35.5	LOS C	14.4	104.9	0.82	0.82	0.82	37.3
8	T1	2052	5.0	2052	5.0	1.025	128.5	LOS F	74.7	545.1	1.00	1.19	1.38	29.4
9	R2	53	5.0	53	5.0	0.259	69.8	LOS E	3.4	24.9	0.90	0.75	0.90	28.2
Approach		2367	5.0	2367	5.0	1.025	116.8	LOS F	74.7	545.1	0.98	1.14	1.31	29.7
West: Langford Road														
10	L2	141	5.0	141	5.0	0.270	45.6	LOS D	8.3	60.9	0.78	0.75	0.78	14.5
11	T1	16	13.3	16	13.3	0.270	40.2	LOS C	8.3	60.9	0.78	0.74	0.78	17.2
12	R2	418	5.0	418	5.0	* 1.092	179.4	LOS F	25.6	187.2	1.00	1.36	1.95	18.0
Approach		575	5.2	575	5.2	1.092	142.7	LOS F	25.6	187.2	0.94	1.20	1.63	17.7
All Vehicles		6776	5.0	6776	5.0	1.092	125.8	LOS F	92.7	676.7	0.99	1.20	1.49	23.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

* Critical Movement (Signal Timing)

Pedestrian Movement Performance

Mov ID	Crossing	Dem. Flow ped/h	Aver. Delay sec	Level of Service	AVERAGE BACK OF QUEUE [Ped ped	Dist] m	Prop. Que	Effective Stop Rate	Travel Time sec	Travel Dist. m	Aver. Speed m/sec
South: Richmond Road											
P1	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	256.6	243.5	0.95
P1B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
East: Alderton Road											
P2	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	238.3	219.7	0.92
North: Richmond Road											

P3	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	256.7	243.7	0.95
P3B	Slip/ Bypass	53	69.3	LOS F	0.2	0.2	0.96	0.96	226.4	204.3	0.90
West: Langford Road											
P4	Full	53	69.3	LOS F	0.2	0.2	0.96	0.96	240.8	223.0	0.93
All Pedestrians		316	69.3	LOS F	0.2	0.2	0.96	0.96	240.9	223.1	0.93

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)
Pedestrian movement LOS values are based on average delay per pedestrian movement.
Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

Site: 105 [5 Hollinsworth / Chifley / Bells - Copy (4) (Site Folder: 2031 PM Upgraded - With Development)]

Network: N101 [PM (Network Folder: 2031 Upgraded - With Development)]

New Site
Site Category: (None)
Roundabout

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Chifley Glade														
1	L2	120	5.0	120	5.0	0.160	5.7	LOS A	0.8	5.6	0.42	0.57	0.42	51.9
2	T1	358	5.0	358	5.0	0.836	8.3	LOS A	14.2	102.7	0.87	0.73	0.97	34.2
3	R2	536	5.0	536	5.0	0.836	13.4	LOS A	14.2	102.7	0.87	0.73	0.97	35.9
3u	U	178	0.0	178	0.0	0.836	15.4	LOS B	14.2	102.7	0.87	0.73	0.97	46.6
Approach		1192	4.3	1192	4.3	0.836	11.4	LOS A	14.2	102.7	0.82	0.72	0.92	39.2
East: Hollinsworth Road														
4	L2	253	5.0	248	5.0	0.189	5.1	LOS A	1.0	7.3	0.38	0.54	0.38	48.6
5	T1	134	5.0	131	5.0	0.189	5.3	LOS A	1.0	6.9	0.40	0.58	0.40	52.0
6	R2	78	5.0	77	5.0	0.189	10.4	LOS A	1.0	6.9	0.40	0.58	0.40	41.4
Approach		464	5.0	456 N1	5.0	0.189	6.1	LOS A	1.0	7.3	0.39	0.56	0.39	48.8
North: Bells Glade														
7	L2	176	5.0	176	5.0	0.677	12.4	LOS A	2.9	21.0	0.78	1.01	1.13	22.0
8	T1	52	5.0	52	5.0	0.677	12.4	LOS A	2.9	21.0	0.78	1.01	1.13	38.7
9	R2	21	5.0	21	5.0	0.677	17.5	LOS B	2.9	21.0	0.78	1.01	1.13	44.7
Approach		248	5.0	248	5.0	0.677	12.9	LOS A	2.9	21.0	0.78	1.01	1.13	30.2
West: Hollinsworth Road														
10	L2	15	5.0	15	5.0	0.394	18.2	LOS B	1.8	13.0	1.00	1.03	1.07	38.9
11	T1	200	5.0	200	5.0	0.394	15.5	LOS B	3.7	27.3	1.00	0.95	1.02	38.6
12	R2	37	5.0	37	5.0	0.394	19.5	LOS B	3.7	27.3	1.00	0.92	1.00	45.0
Approach		252	5.0	252	5.0	0.394	16.3	LOS B	3.7	27.3	1.00	0.95	1.02	39.8
All Vehicles		2156	4.6	2148 N1	4.6	0.836	11.0	LOS A	14.2	102.7	0.75	0.74	0.84	40.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Network tab).
Vehicle movement LOS values are based on average delay per movement.
Intersection and Approach LOS values are based on average delay for all vehicle movements.
Roundabout Capacity Model: SIDRA Standard.
Delay Model: SIDRA Standard (Geometric Delay is included).
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

N1 Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

Marsden Park Developments

Sydney Business Park - Industrial Developments, Stage 3 SSDA

Green Travel Plan and Transport Access Guide (TAG)

Draft | 28 October 2020

Job number 253779

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Contents

Appendices

1 Introduction

1.1 Background

This Green Travel Plan has been prepared following the planning processes for the proposed Stage 3 Industrial Developments (Warehouses 1 to 4) in the Marsden Park Industrial Precinct.

The proposal is considered to be classified as State Significant Development under Part 4, Division 4.7 of the Environmental Planning and Assessment Act 1979 (EP&A Act), as it involves development with a capital investment value of more than $50 million for the purposes of warehousing and distribution, and therefore triggers the criteria in Clause 12 of Schedule 1 of State Environmental Planning Policy (State and Regional Development) 2011.

This Green Travel Plan aims to provide measures which positively influence transport demand and behaviours to the site. Additionally, a Transport Access Guide (TAG) has also been prepared for the site, which will outline active and public transport accessibility to the site in a concise manner. The TAG is attached to this document as Appendix A.

1.2 Site Location

The site location in the context of the Marsden Park Industrial Precinct is highlighted below in Figure 1.

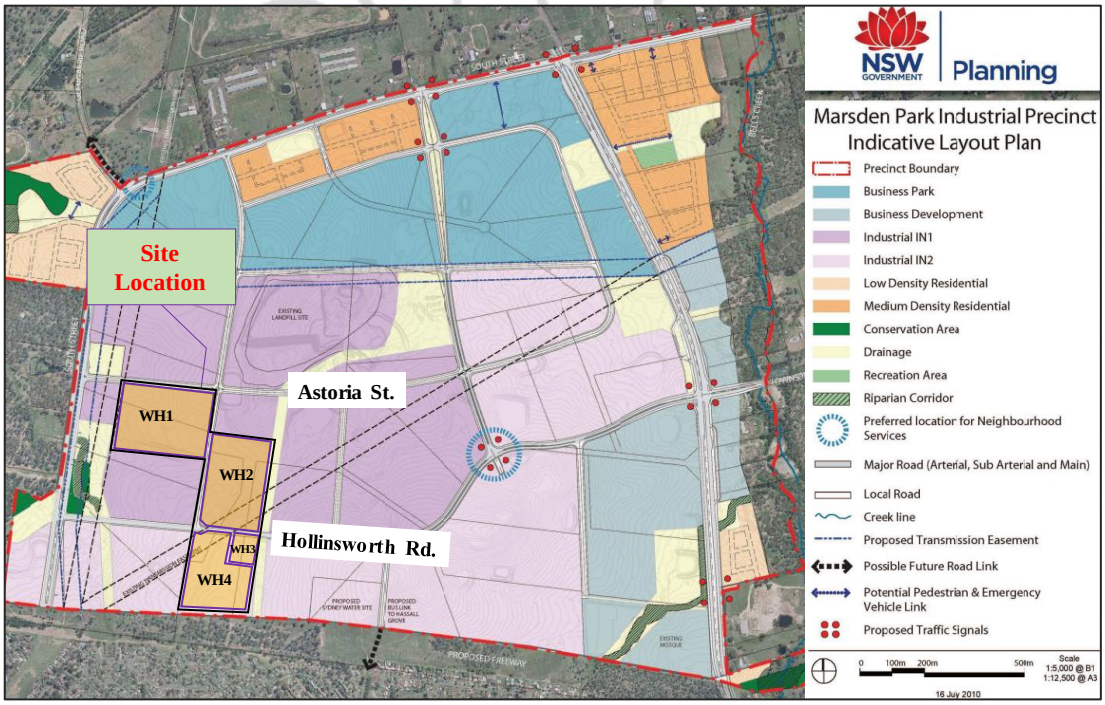

Figure 1: Site location

1.3 What is a Green Travel Plan and Transport Access Guide (TAG)?

A Green Travel Plan is a package of measures put in place by an employer to try and encourage more sustainable travel whilst commuting to work and also during the course of work. It is a means for an organisation to demonstrate a commitment and take a pro-active step towards improving the environmental sustainability of its activities.

More generally, the principles of a Green Travel Plan are applied to all people travelling to and from a site. Government authorities are placing increasing emphasis on the need to reduce the number and lengths of motorised journeys and in doing so encourage greater use of alternative means of travel with less negative environmental impacts than the car.

2 Existing Transport Condition

2.1 Site Location

The site location in the context of the broader area is highlighted in Figure 2.

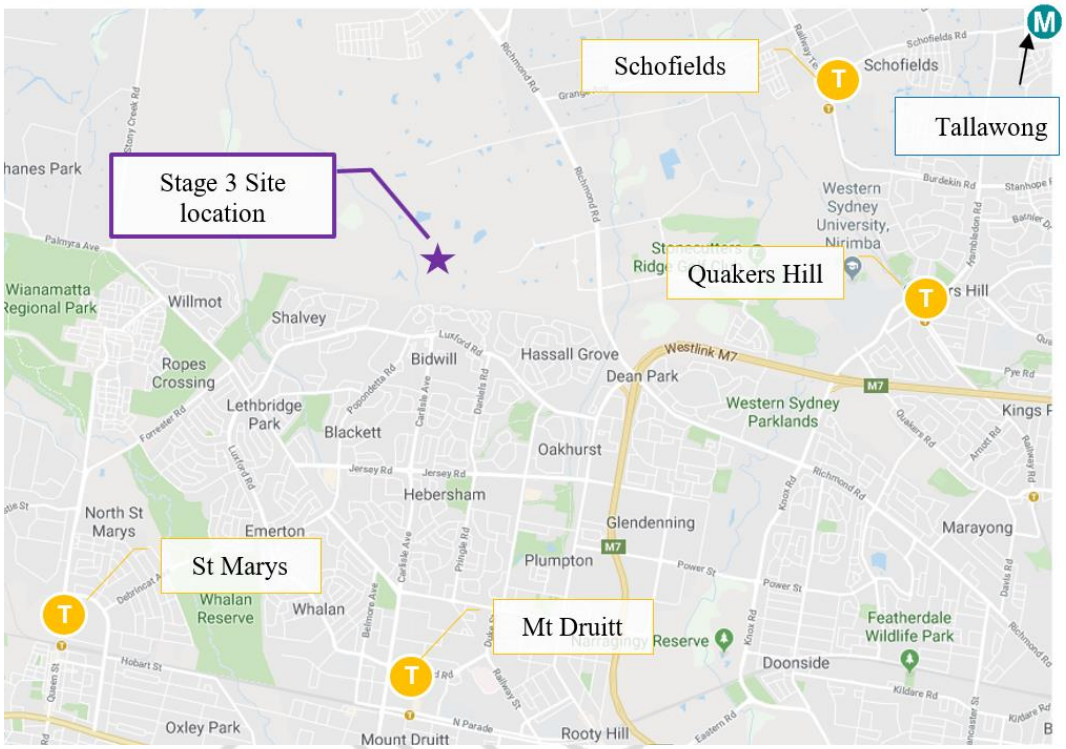

Figure 2: Site Location (Broader Area)

2.2 Existing Travel Characteristics

2.2.1 Travel Pattern

2016 Journey to Work Census data for the Riverstone-Marsden Park Statistical Area (SA2) is shown in Table 1 and Figure 3. This indicates that car-based trips account for the vast majority of travel to work in the area, constituting more than 90 percent of trips. Public and active transport account for approximately 6% of trips for worker trips in the area.

Table 1: Existing Journey to Work Mode Share for People Working in Area (Source: 2016 Census)

Mode of Travel	Count	Proportion of Trips
Private Vehicle	5524	94%
Public Transport	208	4%
Active Transport	139	2%
Other Mode	25	0%
Total	**5896**	**100%**

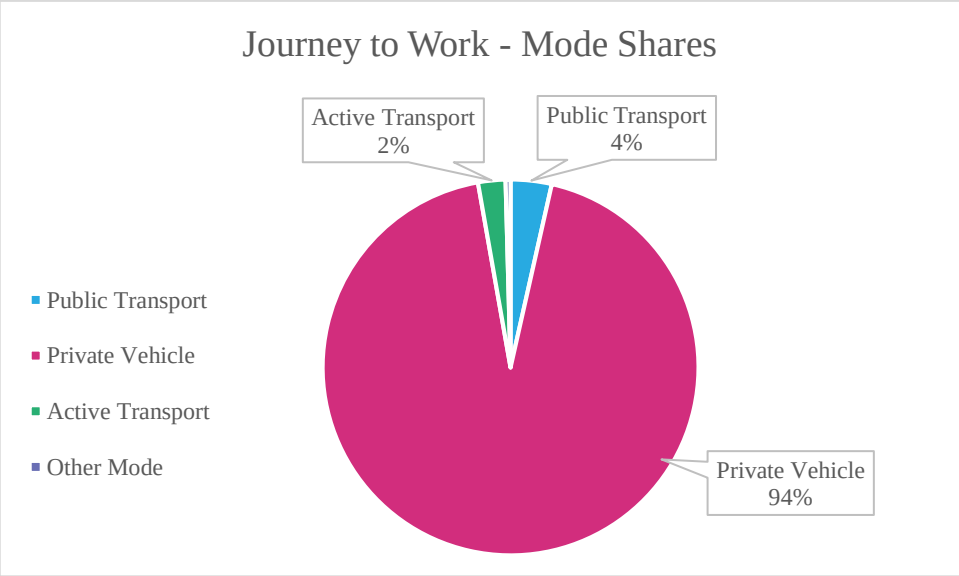

Figure 3: Existing Journey to Work Mode Share for People Working in Area (Source: 2016 Census)

It is expected that the percentage of residents using trains will have increased with the introduction of Metro Trains due to the higher frequencies and reliability of service. This will be further enhanced by the expansion of the Metro service to Marsden Park as identified in the Future Transport 2056 strategy.

2.2.2 Worker Home Locations

The top 20 home locations of all workers travelling to the Riverstone-Marsden Park SA2 are shown in Table 2. This indicates the Blacktown LGA, which is the site's LGA, is the most popular LGA and represents over 40 percent of workers. It is followed by Hawkesbury Council, The Hills Shire Council, Penrith Council, Cumberland Council and Parramatta Council, which are all councils that are adjacent to Blacktown Council.

Table 2: Worker Home LGA (Source: 2016 Census)

Rank	LGA	%
1	Blacktown (C)	43%
2	Hawkesbury (C)	13%
3	The Hills Shire (A)	11%
4	Penrith (C)	10%
5	Cumberland (A)	3%
6	Parramatta (C)	3%
7	Fairfield (C)	2%
8	Liverpool (C)	2%
9	Hornsby (A)	2%
10	Blue Mountains (C)	1%
	Other	11%

2.3 Existing Public Transport

The closest train stations are on the T1 Western Line / T5 Cumberland Line which can be used to access locations such as Blacktown, Parramatta, Sydney CBD, as well as the wider Sydney Trains network through interchanging on to other lines. The stations are located too far away to be accessed by foot or bike directly, but buses connect to Schofields, Riverstone, Tallawong, Blacktown and Mount Druitt stations.

The T1 Richmond line has trains running every half an hour throughout the day on weekdays and weekends, whereas the T1 Penrith line has trains running every 15 minutes throughout the weekdays and weekends. The Sydney Northwest Metro has trains running every 10 minutes throughout off-peak periods.

The Sydney Trains network is shown in Figure 4.

Figure 4: Sydney Trains Network

The existing bus stops in the vicinity of the site are shown in Figure 5. The site is relatively well serviced by public transport and has stops located within a reasonable walking distance on Hollinsworth Road and Harris Avenue.

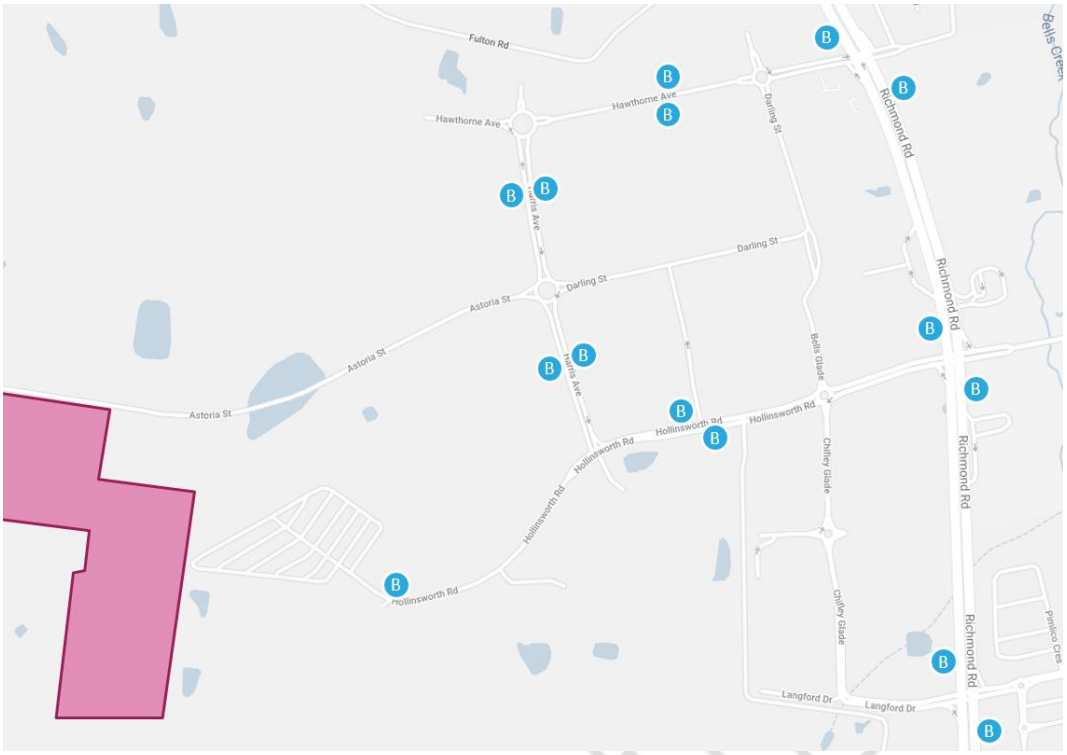

Figure 5: Bus Stops

Bus 757 provides access from the site to Riverstone Station and to Mt Druitt Station while Bus 742 also provides access to Rouse Hill via Riverstone Station. Bus 751 provides access to Blacktown Station, but is located a distance away on Harris Avenue.

All services typically operate with one bus every hour. The bus stops on Hollinsworth Road are within an acceptable walking distance of the site (i.e. within 400m or 5 minutes' walk).

An overview of the bus routes is shown in Figure 6.

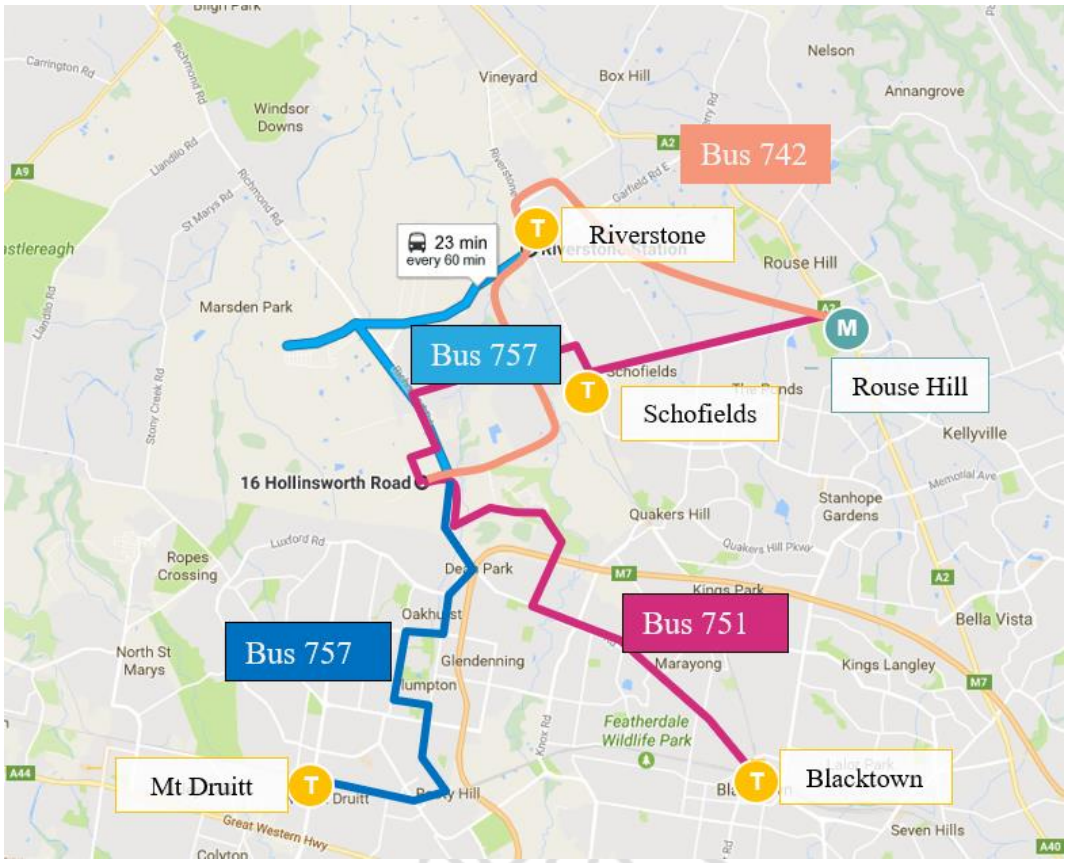

Figure 6: Bus Routes Overview

A future bus route is also being provided within the Marsden Park Precinct as per Figure 7. This will entail an additional bus stop along the future Hollingsworth Road near the site.

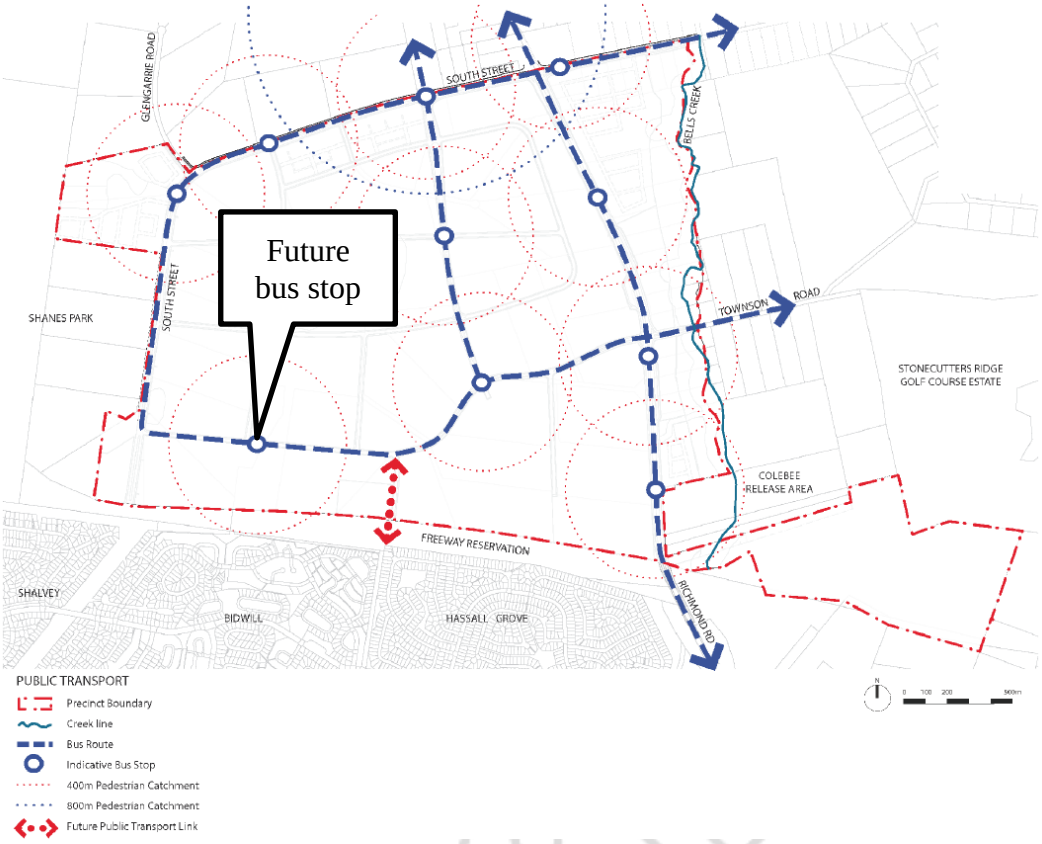

Figure 7: Future bus network, Marsden Park Industrial Precinct, Schedule 3 DCP

2.4 Existing Pedestrian and Cycling Network

The site can be accessed by bicycles using the dedicated bicycle lanes along Richmond Road. Bicycle paths are also provided along South Street and Alderton Drive. Bicycles can also utilise Richmond Road to access the Westlink M7 Shared Path, a 40 kilometre long shared path running from Prestons to Baulkham Hills. The existing cycle infrastructure near the site is shown in Figure 8. The shared path along Richmond Road is also shown in Figure 9.

Figure 8: Cycleway Overview

Figure 9: Pedestrian and bicycle shared a path along Richmond Road (Source: Google Maps Street View)

Pedestrian access to the site is good with a comprehensive network of footpaths connecting to Richmond Road and beyond.

The future pedestrian and cycle plan for Marsden Park is shown in Figure 10. Richmond Road forms the main pedestrian and bicycle access spine throughout the industrial precinct, with a shared pedestrian and cycle road planned along Hollinsworth Avenue and South Street.

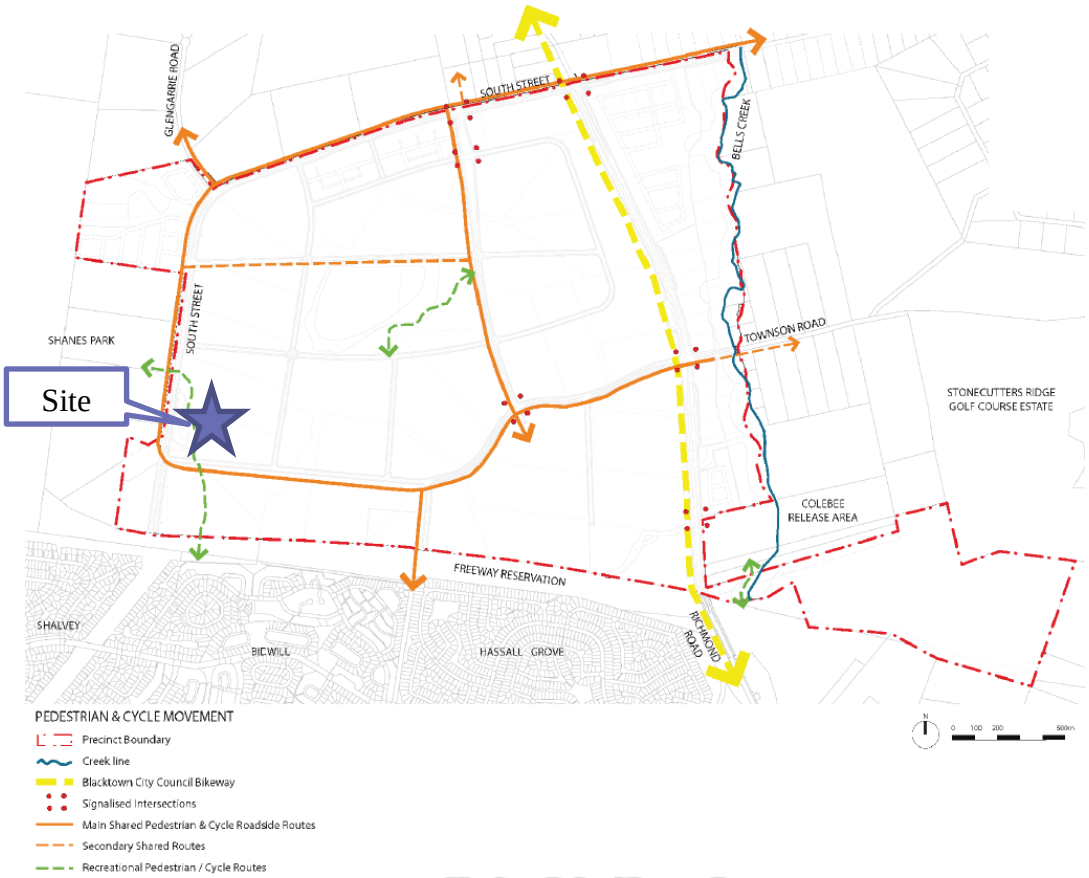

Figure 10: Future pedestrian and bicycle network, Marsden Park Industrial Precinct, Schedule 3 DCP

3 Green Travel Plan Framework

3.1 Objectives

The main objectives of the Green Travel Plan and Transport Access Guide are to reduce the need to travel and promotion of sustainable means of transport.

The more specific objectives include:

- High mode share for public transport, cycling and walking to work journeys;
- Ensuring adequate facilities are provided at the site to enable staff and visitors to commute by sustainable transport modes;
- Reduce the number of car journeys associated with business travel;
- Facilitate the sustainable and safe travel of new employees; and
- Raise awareness of sustainable transport amongst staff and visitors.

3.2 Proposed Green Travel Measures

3.2.1 Green Travel

Description of measure

With the transport options available to staff and other users to access the site, this Green Travel Plan has been prepared to promote the use of public transport, walking and cycling by patrons and employees for travel to and from work and for business-related trips.

Monitoring mechanisms

- Feedback from staff and other users travelling to the building (via an annual travel survey) as to effectiveness and usefulness of plan
- Annual travel survey of staff and visitors should be conducted to understand travel patterns and trends for people accessing the complex.

3.2.2 Staff Induction

Description of measure

To ensure new members of staff are aware of the Green Travel Plan and Travel Access Plan, all new staff members should be made aware of the Plan as part of their induction process, which will include:

- A brief introduction to the plan and its purpose;
- Tour of the site to include a visit to the bicycle parking areas and shower and changing facilities; and
- Establishment of transport information packs to new staff explaining the various ways (other than a motor vehicle) of travelling to and from the site

Monitoring mechanisms

- Marsden Park Developments to maintain a record of a number of staff and customers inducted through the updated process as a way of understanding their exposure to the plan.
- Marsden Park Developments to monitor the proportion of staff and other users travelling to the building by non-car modes through an annual travel survey.

3.2.3 Cycling

It is estimated that the total number of staff across the site is approximately 600 people at any one time. In response, 30 bicycle spaces (5% of staff number) are proposed within an enclosed room for the staff of the development to assist with promoting alternative active travel options to the site. Showers and lockers are provided to act as the suitable end of trip facilities.

All users of the building should be made aware of the bicycle parking areas.

Events such as National Bike Week and Bike2Work Days, which encourage the usage of bikes as a mode of transport, should be promoted.

Monitoring measures

- Marsden Park Developments to monitor the demand for bicycle parking at the site through an occupancy survey undertaken every three months
- Marsden Park Developments to monitor the percentage of staff cycling to the site through an annual travel survey

3.2.4 Car pooling

Based on the information noted in Section 2.2.2, staff demographic information already indicated that a high proportion of staff already reside within close proximity to the future building, making the site conducive to potential car pooling programs.

This could involve a simple poster on the noticeboard or staff intranet page where staff would register their interest in car pooling by indicating where they live and their shift times.

Monitoring mechanisms

- Marsden Park Developments should monitor the number of staff utilising car pooling to access the complex through an annual travel survey

3.2.5 Car parking

It is proposed that the development provide 5% less than the Blacktown Development Control Plan (DCP) required number of car parking spaces. This is in order to encourage mode shift away from private vehicles and towards green travel modes such as cycling and public transport.

3.3 Summary of monitoring mechanisms

The Green Travel Plan will be updated annually and implemented accordingly. A summary of the proposed monitoring mechanisms supporting the plan is provided below.

- Feedback from staff and other users travelling to the building (via the annual travel survey) as to effectiveness and usefulness of the plan
- Annual travel survey of staff and visitors to be conducted to understand travel patterns and trends for people accessing the site.
- Marsden Park Developments to maintain a record of number of staff inducted through the updated process as a way of understanding their exposure to the Green Travel Plan.
- Marsden Park Developments to monitor the proportion of staff travelling to the site by non-car modes through an annual travel survey.
- Marsden Park Developments to monitor the demand for bicycle parking at the site through an occupancy (observational) survey undertaken every three months
- Marsden Park Developments to monitor the percentage of staff cycling to the campus through annual travel survey
- Marsden Park Developments to monitor the number of staff utilising car pooling to access the hospital through an annual travel survey

4 Mode Share Targets

As detailed in Section 2.2.1 of this document, approximately 94% of journeys to work in the area are made by private vehicle.

It has been assumed that as a result of the measures to be implemented by the future development to encourage alternate modes of transport, a 10% mode shift away from the private vehicle can be achieved compared to the current mode share for people working in the area.

The annual travel survey conducted by Marsden Park Developments will be mechanism for monitoring whether this target will be reached. Should the target not be reached, further measures will need to be considered to promote public transport, walking and cycling to the site such as greater incentives for staff to travel via these modes.

5 Conclusion

The encouragement of sustainable and active transportation options is a major issue for various developments across NSW.

There are always opportunities to reduce car dependency to encourage travel to the future site by sustainable, alternative modes – taking particular advantage of the site's close proximity to bus stops and high-quality cycling infrastructure. A proportion of the staff working at the proposed industrial development may also live within a walking distance of the site, in residential areas nearby.

In order to promote active travel to the site, 30 bicycle parking spaces are provided within a secure room for staff.

These travel demand measures complement the objectives of the NSW Government to encourage non-car modes to make up a larger mode share of travel on roads.

Appendix A

Transport Access Guide (TAG)

A1 Transport Options to Sydney Business Park

A1.1 Walking

A proportion of the staff working at the Industrial Precinct may live within a walking distance of the site, in the residential areas nearby. Footpaths are provided along Richmond Road and on a number of internal roads, such as along parts of Hollinsworth Road. The nearest train station, Schofields station, can be accessed by catching bus service 751. Other buses can be used to access Blacktown, Riverstone and Mount Druitt stations as well as Rouse Hill Metro Station.

A1.2 Buses

Various bus stops are located within a short walk of the site, including along Richmond Road, Hollinsworth Road and Harris Avenue.

The following routes are accessible:

- Route 742 – Marsden Park to Rouse Hill
- Route 751 – Rouse Hill Town Centre to Blacktown
- Route 757 – Riverstone to Mount Druitt

A1.3 Trains

The closest train station is Schofields, on the T1 Western and T5 Cumberland Line. This train station can be used to access locations such as Blacktown, Parramatta, Sydney CBD, as well as the wider Sydney Trains network through interchanging on to other lines. The T1 Richmond line has trains running every half an hour throughout the day on weekdays and weekends. Schofields Station can be accessed by catching bus service 751.

Other buses can also be used to access train stations including Blacktown (Route 751), Riverstone (Route 757 and 742) and Mount Druitt (Route 757) stations, as well as Rouse Hill Metro Station (Route 751).

A1.4 Cycling

Cycling is an inexpensive, quick and healthy way to travel. For those living within 10 kilometres of the hospital, this can save time and effort of finding parking at the hospital. High quality bicycle paths are provided along Richmond Road and South Street and connect to the state of the art Westlink M7 Cycleway. On-site bicycle parking is provided, as well as shower and change facilities for staff.

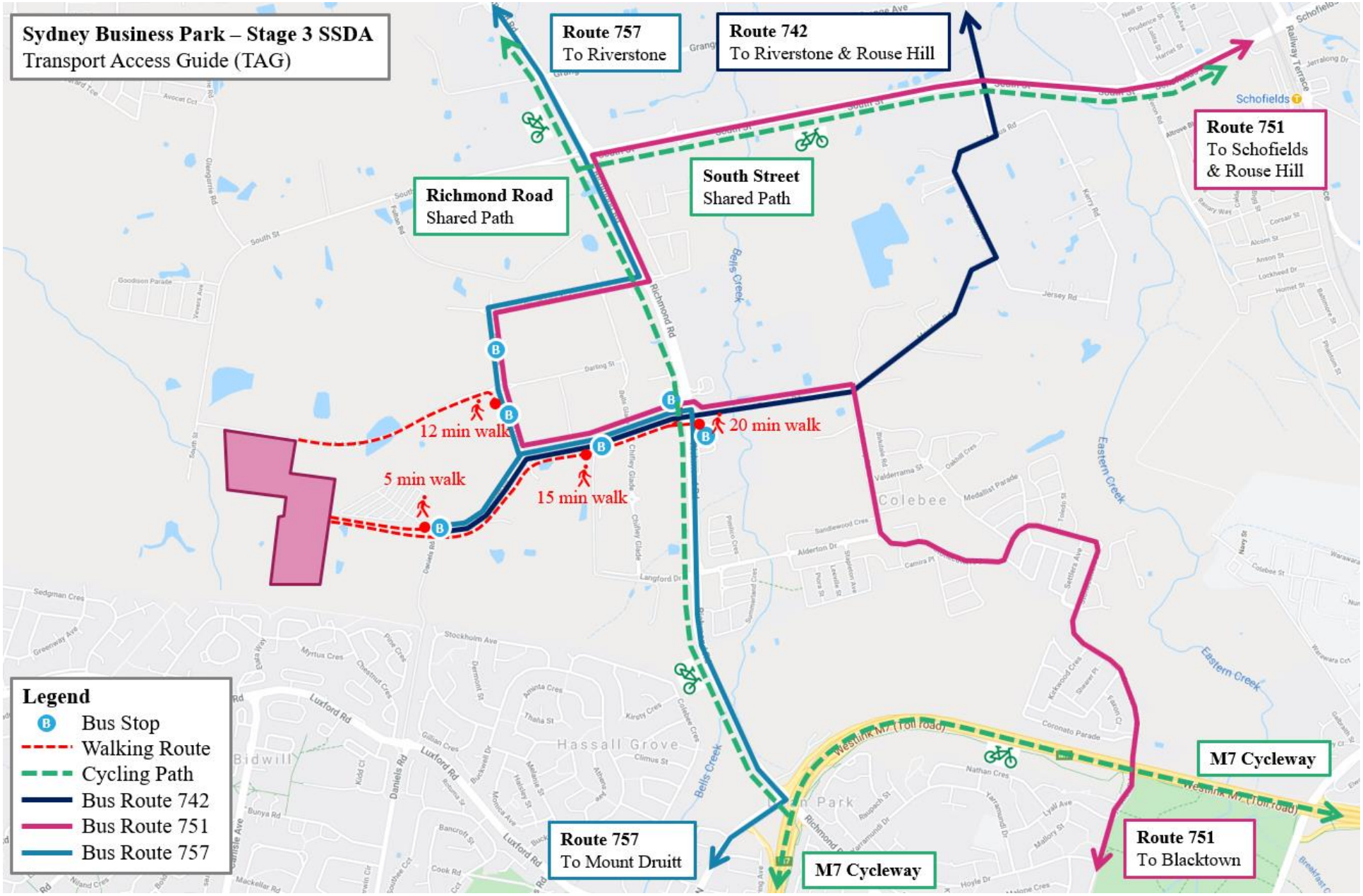

Figure 11: Transport Access Guide