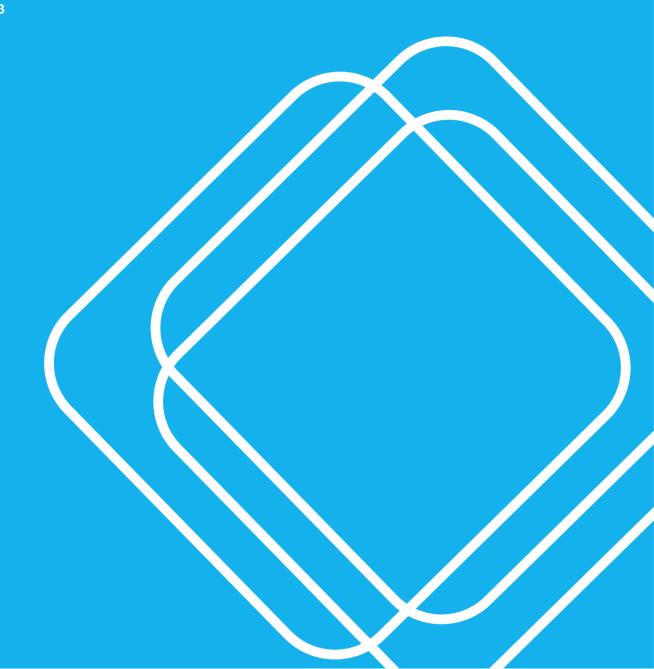
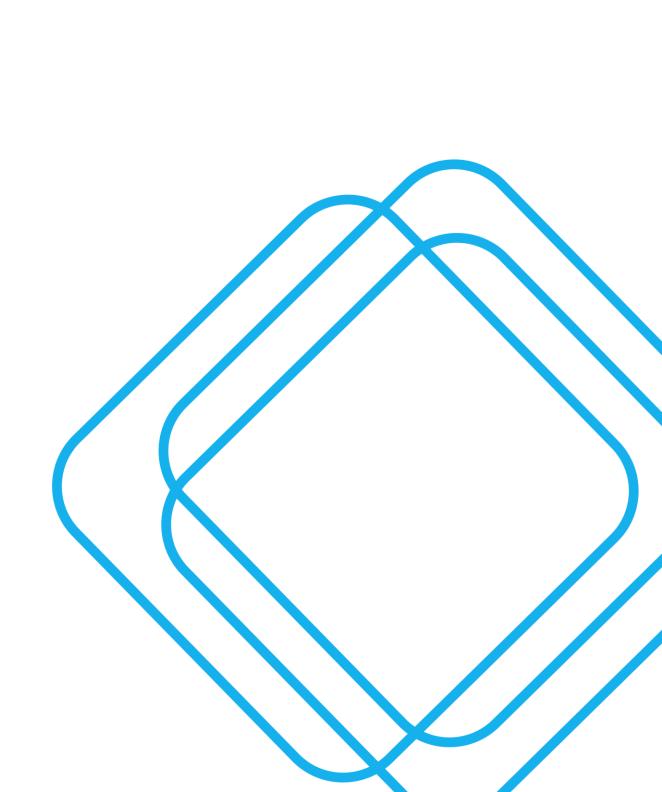


158-164 OLD BATHURST ROAD EMU PLAINS INDUSTRIAL PRECINCT

Transport Impact Assessment

12 APRIL 2023







Quality Assurance

Project:	158-164 Old Bathurst Road Emu Plains Industrial Precinct				
Project Number:	SCT_00284				
Client:	Penrith City Council ABN: 43 794 422 5				
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3.1	6 April 2022	Updated final report
4.0	8 September 2022	Updated final report
5.0	1 March 2023	Revised draft report (with revised traffic modelling to address TfNSW comments)
6.0	12 April 2023	Revised final report (with revised traffic modelling to address TfNSW comments)

$\hbox{@ SCT Consulting PTY LTD (SCT Consulting)}\\$

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Executive Summary

Purpose of this report

SCT Consulting has been engaged by Penrith City Council to prepare a Transport Impact Assessment (TIA) for a proposed industrial development located at 158-164 Old Bathurst Road, Emu Plains in the Penrith Local Government Area (LGA). The proposal would accommodate an industrial development that includes a total of 39 industrial lots.

This report has been revised with additional traffic data collection and traffic modelling, to address TfNSW's comments provided on 1 December 2022.

Existing conditions

The method of travel to work data indicates a high car dependence and low usage of public transport due to the character of the study area. It is estimated that approximately 80 per cent of all work-related trips were car trips. The train mode share was only three per cent and there was no recorded bus mode share, indicating a combined public transport mode share far less than the Greater Sydney average (23 per cent).

Emu Plains Station is located about 400 m to the east of the site, which provides T1 and Blue Mountains Line services. Improving walking and cycling facilities from the site to the station offers an opportunity to link future workers to a frequent public transport option that limits car dependency and the associated adverse environmental and safety impacts.

The site is located in an area not easily accessed by active transport. A footpath is located along the northern perimeter of Old Bathurst Road, connecting to Emu Plains Station to the east. There are no formal or informal crossing points from the footpath across Old Bathurst Road to the site. The 70 km/hr signposted speed along Old Bathurst Road is acting as a deterrent for people who ride and those who wish to ride, respectively.

An on-street parking survey showed that both David Road and Sommerville Circuit have a spare capacity of about 35-40 per cent at peak occupancy around midday. For similar industrial sites in the vicinity, the on-site parking occupancy rate varies from 36 to 96 per cent due to different parking scales and industrial types etc. It is more likely for the smaller parking area to have a higher occupancy rate of over 80-90 per cent which demonstrates potential high demand by the tenants for on-site parking.

The SIDRA modelling indicated that Old Bathurst Road/David Road and Old Bathurst Road/Smith Street are operating at LoS F or E respectively during peak hours. At these two priority intersections, the heavy traffic volumes on Old Bathurst Road impede the turning movements to/from the side roads, which further deteriorates the overall intersection performance.

The proposal

The proposed industrial development is designed to have one access to service the site via the western edge of the site, on David Road. All movements are permitted at the David Road access. This access is then connected with the intersection of David Road/Old Bathurst Road for strategic access.

The subdivision plan proposes an internal street network (generally with a 20.6 m road reserve) including the following:

- A proposed loop road MC01 to service the majority of the lots
- Access road MC02 that connects the loop road with David Road
- A north-south connection MC03 to improve the permeability and flexibility of the internal access.



Transport assessment

Based on the proposed development scale (the future development will result in a GFA potential of up to around 71,000 m²), it is estimated that the development could generate a net car trip increase of 405 vehicles and 437 vehicles (when fully developed) for a weekday AM and PM peak hour, respectively. This is the worst case given the site is currently vacant and has no trip generation.

The modelling confirms that the intersection of Old Bathurst Road/Russell Street and Old Bathurst Road/David Road would operate over capacity with unacceptable LoS F in the future year base (without development) and future year with development scenarios.

With the intersection upgrade at Old Bathurst Road/Smith Street associated with the opening of the commuter car park, the intersection performance is at a satisfactory level with remaining capacity.

Hence, further infrastructure upgrades are required to accommodate future traffic growth and the proposed development at below two intersections:

- Old Bathurst Road/Russell Street (Signal option)
 - The upgrade for a signalised Old Bathurst Road/Russell Street would result in a LoS C and D for the future base case and future year with development.
- Old Bathurst Road/David Road (Roundabout and signal options)
 - Though a roundabout at David Road/Old Bathurst Road still fails when adding development traffic, a signalised intersection could achieve LoS D for all scenarios, which is satisfactory.

For Old Bathurst Road/David Road, <u>a total of five hours meet the signal warrants criteria when traffic volumes</u> on a major road exceed 600 veh/h in each direction and that on a minor road exceeds 200 veh/h. Hence, <u>traffic signal is warranted at this location.</u>

It is noted that Council has been levying contributions for the signal at the intersection of Old Bathurst Road/Russell Street under the *Section 7.12 Development Contributions Plan*, hence it is most likely that a traffic signal will be constructed at this location to cater for background traffic growth and further development. A signalised intersection for Old Bathurst Road/David Road would also improve pedestrian/cyclist safety and indicates better operation performance, hence is recommended. There is no spacing issue with the two potential signalised intersections at Russell Street and David Road, i.e. being about 780m from each other.

According to Council DCP, it is estimated that a total of 708 – 945 parking spaces are required on-site based on the proposed GFA of the industrial development.

There would be limited impact on active transport and public transport associated with the proposed development.

Conclusion

The study concluded that the impacts of the proposed development are at a level able to be accommodated by the existing and planned infrastructure.



1.0 Introduction

1.1 Purpose of the report

SCT Consulting has been engaged by Penrith City Council to prepare a Transport Impact Assessment (TIA) for a proposed industrial development located at 158-164 Old Bathurst Road, Emu Plains in the Penrith Local Government Area (LGA). The proposal would accommodate an industrial development that includes a total of 39 industrial lots.

The site is bounded by the Main Western Railway Line to the south, Old Bathurst Road to the north, David Road to the west and a vacant triangular lot (future Emu Plains commuter car park) on the south-eastern boundary.

The Transport Impact Assessment considers the following:

- Collate existing travel pattern data including Census, Journey-to-work data, to understand existing traffic and transport conditions
- Undertake a desktop review of existing traffic and transport conditions, including the documentation of existing traffic and intersection capacity analysis as well as current public transport usage
- Collect and analyse weekday AM and PM peak intersection traffic counts at the following locations:
 - Old Bathurst Road/Russell Street
 - Old Bathurst Road/David Road
 - Old Bathurst Road/Smith Street/commuter car park access road
 - Old Bathurst Road/Great Western Highway.
- Based on the preferred concept lot layout plan, estimate future traffic trip generations based on the Roads and Maritime Services *Guide to Traffic Generating Developments (2002)* and subsequent technical direction as well as likely parking provision (also based on Council Development Control Plan)
- Distribute trip generation to the surrounding road network based on the preferred access strategy and travel pattern
- Undertake SIDRA intersection modelling for the four critical intersections to quantify the baseline intersection performance and forecast the future year performance for the below scenarios:
 - Future year base case (inclusive of background traffic growth and other committed development but without proposed development)
 - Future year base with proposed development
 - Future year base with proposed development and with additional infrastructure upgrades, if required.
- Identify key active transport and public transport routes to/from the development
- Identify public and active transport measures and sustainable travel initiatives for development.

The Transport Impact Assessment report provides the traffic modelling and transport inputs to form part of the Development Application (DA) to the local Council.

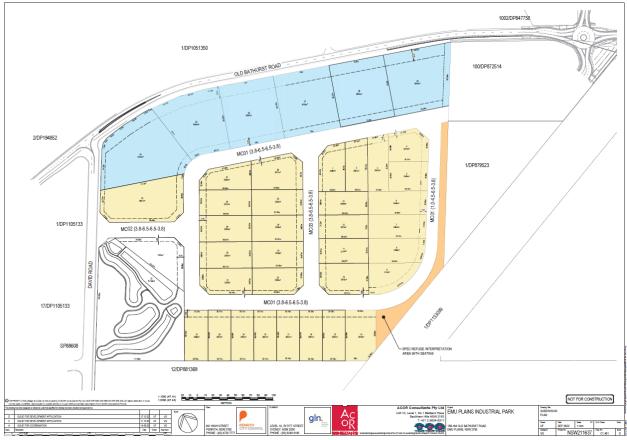
This report has been revised with additional traffic data collection and traffic modelling, to address TfNSW's comments provided on 1 December 2022.

1.2 Development context

The proposal would accommodate an industrial development with a total of 39 industrial lots. The site is proposed to be serviced by a western access at David Road. Existing access on Old Bathurst Road is proposed to be removed as part of the development (**Figure 1–1**).



Figure 1–1 Site plan



Source: Acor, 2023

1.3 Report structure

This report has been structured into four sections:

- Section 2 describes the existing transport conditions for all modes of transport.
- Section 3 describes the proposed development, its access strategy and a review of parking and access requirements
- Section 4 outlines the traffic and transport appraisal which describes the likely trip generation, and indicative impact because of the proposed development.
- Section 5 summarises the report's content and presents the final conclusions.



2.0 Existing conditions

This section provides an understanding of the existing transport conditions in the vicinity of the proposed industrial development at Emu Plains.

2.1 Travel behaviour

The site is situated within a study area characterised by light industrial units to its immediate west and south, low-density housing to the east and south, and a correctional facility with expansive paddocks/grass to the north. The study area is shown in **Figure 2–1**.

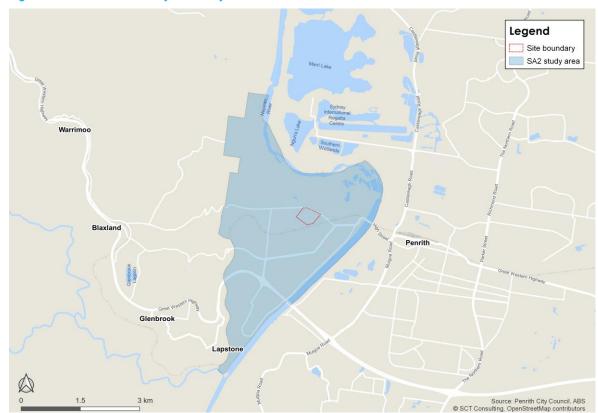


Figure 2-1 Emu Plains - Leonay SA2 study area

The travel modes for people travelling to Emu Plains have been influenced by land-use zoning, patterns of work for industrial premises, availability of car parking and sections of the study area poorly served by public transport. **Table 2-1** shows the modes shares for Places of Work, 2016 for Emu Plains - Leonay.



Table 2-1 Emu Plains - Leonay 'Place of Work' 2016

Travel mode	Percentage
Car, as driver	73%
Car, as passenger	6%
Train	3%
Walked, only	2%
Motorbike/scooter	1%
Truck	1%
Other (includes Works from Home, Did not work, and other modes less than one per cent)	14%

Source: Australian Bureau of Statistics, 2021

People who travelled by car represented about 80 per cent of the total population who worked in Emu Plains. If this mode share was representative of workers at the proposed industrial precinct this could place pressure on parking availability and capacity at local intersections. The train mode share was only three per cent and there was no recorded bus mode share, indicating a combined public transport mode share far less than the Greater Sydney average (23 per cent). Promoting more trips by active and public transport would help to address the previously mentioned issues as well as help to address climate change and health concerns.

2.2 Walking

Figure 2–2 shows the walking catchments originating from the existing access point on Old Bathurst Road and the proposed access point on David Road. Currently, the site is within 400-800 m from Emu Plains Station.

The site is in an area not easily accessed by walking. Factors such as no active frontages on nearby roads, no points of interest, the limited number of houses and predominately industrial premises situated in the vicinity restrict the uptake and attractiveness of walking.

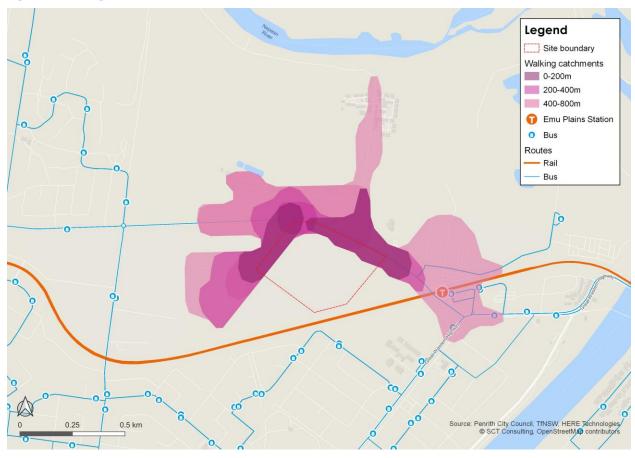
A footpath is located along the northern perimeter of Old Bathurst Road. The footpath connects to Emu Plains Station to the east, via Smith Street, and to the roundabout of Old Bathurst Road and Russell Street to the west. The footpath measures about 1.2 m with a grass verge measuring 1 m, on average, offsetting it from the road.

There are no formal or informal crossing points from the footpath across Old Bathurst Road to the site. There are no footpaths located along David Road. Improving walking links to Emu Plains Station presents the largest opportunity to promote and facilitate walking to the site.

It is noted that new and safe pedestrian links will be provided from the new Emu Plains Commuter Car Park (neighbouring site to the east) direct to Emu Plains Station.



Figure 2–2 Walking catchments



2.3 Cycling

Figure 2–3 shows there are no off-road or on-road cycling facilities in proximity to the site. Consequently, under the NSW Road Rules people aged 16 and above would be required to cycle in mixed traffic conditions. The 70 km/h signposted speed along Old Bathurst Road could create safety issues and act as a deterrent for people who ride and those who wish to ride, respectively.



Figure 2-3 Cycle network



2.4 Public transport

2.4.1 Bus

There are no bus stops and no public bus routes located along Old Bathurst Road between the roundabout with Russell Street to the west and the intersection with Great Western Highway to the east. Currently, people who travel by bus would need to alight at Emu Plains Station and walk along Old Bathurst Road to reach the site. However, there is no pedestrian crossing at Old Bathurst Street for a safe crossing between the station and the site. The bus routes indicated in **Figure 2–2** that travel along Old Bathurst Road and Smith Street are school bus routes.

Potential future installation of new bus stops near the site and a bus route that also serve the station and residential areas of Emu Plains could increase the public transport mode share to the site.

2.4.2 Train

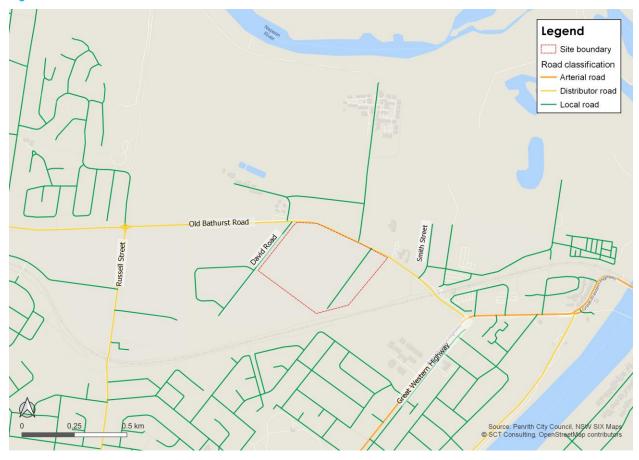
Emu Plains Station is located about 400 m from the site. The station is located on the T1 and Blue Mountains Line with trains departing to the Blue Mountains and Sydney every 6-8 minutes in the AM Peak (8-9 am) and PM Peak (5-6 pm). Improving walking and cycling facilities from the site to the station offers an opportunity to link future workers to a frequent public transport option that limits car dependency and the associated adverse environmental and safety impacts. This includes a new footbridge over Old Bathurst Road to provide safe and direct pedestrian access between the new Emu Plains Commuter Car Park (neighbouring site to the east) and the station.

2.5 Road network

Figure 2–4 shows the road network surrounding the site. The roads labelled in the figure have been considered to have the largest impact on the site.



Figure 2-4 Road network



Descriptions of the surrounding road network are as follows:

- Old Bathurst Road is located along the northern perimeter of the site and is classified as a 'Distributor Road' by TfNSW. The road has one lane in both directions, widening to two lanes at the signalised intersection with Great Western Highway to facilitate right-turn movements. There are four priority T-intersections located near the site plus numerous residential and commercial properties with driveway access points onto the road. The road has a signposted speed of 70 km/h slowing to 60 km/h as the road approaches Russell Street and Great Western Highway. The road passes under the Main Western Railway Line near Emu Plains Station with a clearance rate of 5.3 m. That section of the road is subject to flooding with warning signs located on either side of the underpass. On-street parking is not permitted along Old Bathurst Road within the range of the site.
- Great Western Highway is situated to the east of the site and is classified as an 'Arterial Road' by TfNSW. The road provides east-west connections between Parramatta and Bathurst, via the Blue Mountains. At the signalised intersection with Old Bathurst Road, the road has a four-lane configuration with two lanes in both directions. The outside lane for traffic travelling from the east is a right-turn lane only. The road has a signposted speed of 60 km/h except during weekdays during school terms when a 40 km/h School Zone is in operation on the western approach to the intersection with Old Bathurst Road. Parking is not permitted in the vicinity of the Old Bathurst Road intersection.
- Russell Street is located to the west of the site and is classified as a 'Distributor Road' by TfNSW. The road has one lane in both directions and is on a north-south alignment between open green space near the Napean River and the A44 Great Western Highway. The roundabout with Old Bathurst Road and the four-arm signalised intersection with the A44 / Great Western Highway is the two major intersections located along Russell Street. The road has a signposted speed of 50 km/h and four pedestrian crossing points at refuge islands. The road passes under the Main Western Railway Line between the priority intersections with Kite Street, and Ithaca Street, with a 'Low Clearance' height of 4.5 m. Parking bays along both sides of the road provide on-street parking opportunities.
- David Road is situated along the western perimeter of the site and as is classified as a 'Local Street' by TfNSW.
 The road has one travel lane in both directions, except at the intersection with Old Bathurst Road where it



widens to two lanes for the approach. The road has no through connection except to the development accesses and industrial units within the industrial precinct. The intersection at Old Bathurst Road allows for all vehicle movements. The road has a signposted speed of 60 km/h and on-street parking is available along both sides. There are no pedestrian crossings on David Road.

Smith Street is located to the east of the site and is classified as a 'Local Street' by TfNSW. The road has one
lane in both directions and provides a through connection to the industrial precinct via the priority intersection
with Old Bathurst Road. The road has a signposted speed of 50 km/h. The footpath along Old Bathurst Road
crosses Smith Street near the priority intersection. On-street parking is permittable north of the intersection with
Lee Street.

TfNSW is considering a new roundabout at the intersection of Smith Street and Old Bathurst Road to assist with vehicles entering and leaving the commuter car park. This will slow traffic down in the vicinity of the site.

2.6 On-street parking occupancy

SCT Consulting undertook a sample on-street parking occupancy survey using satellite imagery. The survey included both David Road and Sommerville Circuit, as shown in **Figure 2–5**.

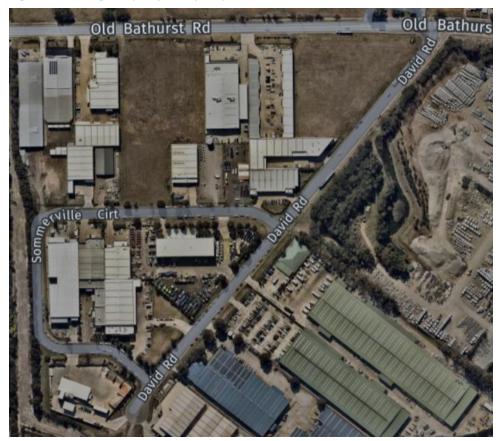


Figure 2-5 Parking occupancy survey scope area

Source: Near map, 2021

The results for David Road are shown in **Table 2-3** and for Sommerville Circuit in **Table 2-4**. Imagery from 2019, 2020 and 2021 was assessed to understand if COVID-19 had impacted the parking needs for the precinct. The tables show both David Road and Sommerville Circuit have a spare capacity of about 35-40 per cent at peak occupancy around midday.

2.7 Parking occupancy study for similar sites

SCT Consulting undertook an on-site parking occupancy survey using satellite imagery for similar industrial development sites. The survey included similar sites to the proposal as shown in **Table 2-2**.



Table 2-2 Similar sites' parking availability

Site	Location	Satellite view
Α	Bromley Road (No.9- 11)	
В	Pullman Place (No.11)	Ilman PI
С	David Road (No. 54- 62)	57-59

The parking occupancy rate varies from 36 to 96 per cent due to different parking scales, industrial types etc. It is more likely for the smaller parking area to have a higher occupancy rate of over 80-90 per cent which demonstrates potential high demand by the tenants (**Table 2-5**).



Table 2-3 David Road on-street parking availability

Date	Wednesday September 4 2019 (12:37 pm)		Thursday October 1 2020 (12:42 pm)		Thursday March 25 2021 (11:36 pm)			Thursday May 20 2021 (11:35 pm)				
Location	Nth	Sth	Tot	Nth	Sth	Tot	Nth	Sth	Tot	Nth	Sth	Tot
Number of spaces taken	16	33	49	18	29	47	16	27	43	18	28	46
Total spaces	83	83	168	83	83	168	83	83	168	83	83	168
Occupancy ratio (%)	19%	40%	29%	22%	35%	28%	19%	33%	26%	22%	34%	27%

Note: North = between Sommerville Circuit and Old Bathurst Road South = south of Sommerville Circuit

Table 2-4 Sommerville Circuit on-street parking availability

Date	Wednesday September 4 2019 (12:37 pm)	Thursday October 1 2020 (12:42 pm)	Thursday March 25 2021 (11:36 pm)	Thursday May 20 2021 (11:35 pm)
Number of spaces taken	53	35	53	56
Total spaces	152	152	152	152
Occupancy ratio (%)	35%	23%	35%	37%

Table 2-5 On-site parking availability

Date	Wednesday September 4 2019 (12:37 pm)		Thursday October 1 2020 (12:42 pm)		Thursday March 25 2021 (11:36 pm)			Thursday May 20 2021 (11:35 pm)				
Location	Α	В	С	Α	В	С	Α	В	С	Α	В	С
Number of spaces taken	21	8	21	20	10	15	16	8	19	23	10	17
Total spaces	24	12	42	24	12	42	24	12	42	24	12	42
Occupancy ratio (%)	88%	67%	50%	83%	83%	36%	67%	67%	45%	96%	83%	40%



2.8 Current access arrangement

Figure 2–6 shows the current access arrangement for the site. The access is located on Old Bathurst Road to the north of the site. All movements are permitted to and from this access.

Figure 2–6 Current access point on Old Bathurst Road



Source: Google Maps, 2021

The current access is for vehicles only and there is no facilitation for people who walk or ride to the site. The future access is expected to be on David Road.

2.9 Existing traffic conditions

SIDRA intersection models were prepared for the road network surrounding the site to understand the existing network performance and to test the impacts associated with the proposal. Intersection performance has been assessed for the weekday AM and PM peak hours for the intersections including:

- Old Bathurst Road/Russell Street
- Old Bathurst Road/David Road
- Old Bathurst Road/Smith Street/commuter car park access road
- Great Western Highway/Old Bathurst Road.



2.9.1 Key assumptions for base year model

Key assumptions used to develop the base year model are discussed below:

2.9.1.1 Traffic count data

Intersection surveys were conducted of the above locations for light and heavy vehicles on 7 Feb 2023. SIDRA models were prepared using the surveys as inputs.

The periods of 7:30-8:30 am and 4:15-5:15 pm were selected for modelling as these represent the times of peak traffic generation for the background traffic.

A copy of the raw traffic data is included in **Appendix A**. A traffic distribution diagram for both peak hours is also included in **Appendix B** to show the peak hour traffic volumes of the surveyed intersections surrounding the site.

2.9.1.2 Site layouts

Intersection layouts were derived from a combination of the Nearmap imagery and Google Streetview.

2.9.2 Model calibration

The SIDRA intersection models were calibrated based on queue comparisons of maximum observed approach queues and the modelled 95th percentile queues. However as identified in the TfNSW Modelling Guidelines, observations / surveys of queues are highly subjective:

Counting or calculating queue lengths is a subjective exercise since queued vehicles will often still be moving slowly and it will not always be clear what criteria should be used to constitute a queue. Also, since data is likely to be collected by a number of surveyors it is unlikely that consistent and accurate reporting will be possible across the study area. Additionally, software packages will each calculate queue lengths using different criteria and methodologies which add a further level of complexity. For this reason, RMS does not have mandatory statistical guideline criteria for queue length comparison.

As such, precise exact replication of queues between observed and modelled are impractical, as queues are dependent not only on intersection geometry but only on arrival profiles, adjacent movement of pedestrians, parking manoeuvres and property access. Rather, the intersections the calibrated to ensure queues are present where reported and signal timings are retained as reported by SCATS.

To reflect the queues reported at the intersections during the peak hours, the following adjustments were applied to calibrate the AM and PM models:

- Old Bathurst Road/Russell Street roundabout environment factors were adjusted to represent peak-specific
 conditions adjacent to the roundabout. Specifically for vehicle movements in and out of the surrounding
 developments. The default value of one was adjusted as follows:
 - Southern approach: 1.50 (AM Peak), 0.95 (PM peak)
 - Eastern approach: 1.30 (AM Peak), 1.02 (PM peak)
 - Northern approach: 0.90 (AM Peak)
 - Western approach: 0.92 (AM Peak)
- Old Bathurst Road/David Road default 'Critical Gap' and 'Follow-up Headway' were adjusted as follows:
 - Southern approach right turn: 'Critical Gap' 7.25 (+0.25 from default), 'Follow-up Headway' 3.0 (-1 from default)
 - West approach right turn: 'Critical Gap' 8.00 (+3.5 from default), 'Follow-up Headway' 5.0 (+2.5 from default)
- Old Bathurst Road/Smith Street default 'Critical Gap' and 'Follow-up Headway' were adjusted as follows:
 - Eastern approach right turn: 'Critical Gap' 6.0 (+2.5 from default), 'Follow-up Headway' 3.0 (+0.5 from default)
 - Northern approach right turn: 'Critical Gap' 8.0 (+1.0 from default), 'Follow-up Headway' 5.0 (+1.0 from default)



 Great Western Highway/Old Bathurst Road western approach Signal Coordination Arrivals During Green: 10% (AM Peak) and 50% (PM Peak).

Changes in model parameters implemented to achieve model calibration were highlighted in **Table 2-6** and **Table 2-7**

Table 2-6 AM peak model calibration

Inters	Intersection		Modelled 95 th percentile queue (vehicles)	Difference	Notes
	Southern approach	9	8.3	- 0.7	
Old Bathurst Road /	Eastern approach	9	6.4	- 2.6	Acceptable
Russell Street	Northern approach	8	6.8	- 1.2	Acceptable
	Western approach	18	19.6	+ 1.6	
	Southern approach	5	3.6	- 1.4	Acceptable
Old Bathurst Road / David Road	Western approach	3	0.3	- 2.7	The survey reports a maximum queue of 3 cars within a 5-minute window over one hour, with the remainder of the hour reporting maximum of one vehicle queue. This suggests the three vehicles reported arrived as a platoon and is not representative of queuing as a result of intersection delay.
Old	Eastern approach	11	13.9	+ 2.9	Acceptable
Bathurst Road / Smith	Northern approach	9	2.9	- 6.1	Queuing on the northern and western approach stems from delays originating
Street	Western approach	13	0	-13	from the downstream intersection of Great Western Highway and Old Bathurst Road. See below.
	Southern approach	21	14.6	- 6.4	Modelling indicates the adjacent signalised intersections impact the throughput of the
Great Western	Northern approach	19	13.8	- 5.2	Great Western Highway. For this study, without expanding the model scope, the focus has been on calibrating the western Old Bathurst Road approach to the intersection.
Highway / Old Bathurst Road	Western approach	15	29.5	+14.5	The surveyed queues only report on the maximum visible queue from the intersection. It is evident from the queues reported for the upstream intersection of Old Bathurst Road and Smith Street, that the western approach queues at Great Western Highway extend beyond the upstream intersection as such the queues are far greater than reported.



Table 2-7 PM peak model calibration

Intersection		Survey reported maximum queue	Modelled 95 th percentile queue	Difference	Notes
		(vehicles)	(vehicles)		
	Southern approach	17	19.4	+ 2.4	
Old	Eastern approach	32	30.5	- 1.4	Acceptable
Bathurst Road / Russell	Northern approach	3	1.1	- 1.8	
Street	Western approach	10	5.3	- 4.7	The survey reported a maximum queue of 10 cars only once within a 5-minute window over one hour, with the remainder of the hour reporting maximum of 6 cars
Old Bathurst	Southern approach	4	0.6	- 3.4	The survey reported a maximum queue of 4 cars only once within a 5-minute window over one hour, with the remainder of the hour reporting maximum of 2 cars
Road / David Road	Western approach	6	2.1	- 3.9	The survey reports a maximum queue of 6 cars within a 10-minute window over one hour. The remainder of the hour reported a maximum of three vehicles queued. As such, the reported six vehicles likely arrived as a platoon.
	Eastern approach	8	1.2	- 6.8	The reported queues represent a spike in the queues reported for a 15-minute
Old Bathurst Road / Smith Street	Northern approach	10	4.7	- 5.3	period, which coincides with concentrated volumes at the intersection, especially for vehicles exiting Smith Street. As such the queues are not representative of the average delays at the intersection, but rather the concentrated peak movement, likely due to the concentrated employment trips originating from within Smith Street.
	Western approach	0	0	0	Acceptable
	Southern approach	22	13.5	- 8.5	Modelling indicates the adjacent signalised intersections impact the throughput of the
Great Western	Northern approach	20	20.9	+ 0.9	Great Western Highway. For this study, without expanding the model scope, the focus has been on calibrating the western Old Bathurst Road approach to the intersection.
Western Highway / Old Bathurst Road	Western approach	15	20.1	+5.1	Similar to the AM peak, the surveyed queues only report the maximum visible queue from the intersection. It is evident from the queues reported for the upstream intersection of Old Bathurst Road and Smith Street, that the western approach queues at Great Western Highway extend beyond the upstream intersection as such the queues are far greater than reported.



2.9.3 Intersection level of service

The performances of key intersections surrounding the site were assessed using the SIDRA Network 9.0 software package. Intersection performance is measured in terms of the following:

- Degree of Saturation (DoS): The ratio of arrival (demand) flow rate to capacity during a given flow period.
 Acceptable intersection performance normally requires DoS < 1.0.
- Level of Service (LoS): An index of the operational performance of traffic for a given intersection during a given flow period. Acceptable intersection performance normally requires a minimum of LoS D.
- Average Vehicle Delay in seconds: The delay experienced by a vehicle traversing a signalised intersection.

Table 2-8 provides a summary of the LoS performance bands.

Table 2-8 Level of Service index

Level of Service	Average delay per vehicle (sec)	Performance explanation
Α	Less than 14.5	Good operation
В	14.5 to 28.4	Good with acceptable delays and spare capacity
С	28.5 to 42.4	Satisfactory
D	42.5 to 56.4	Operating near capacity
E	56.5 to 70.4	At capacity, at signals, incidents will cause excessive delays.
F	70.5 or greater	Roundabouts require other control methods.

Source: Guide to Traffic Generating Developments; RMS, 2002

2.9.4 Base year intersection performance

The outcomes of the intersection modelling are presented in **Table 2-9** based on a modelling assessment by SIDRA Intersection 9 software.

Table 2-9 Existing intersection performance (2023)

Intersection	Wee	ekday AM p	eak	Weekday PM peak		
mersection	Delay	LoS	DoS	Delay	LoS	DoS
Old Bathurst Road/Russell Street	37.6s	С	0.89	41.7s	С	0.96
Old Bathurst Road/David Road	>70.5s	F	0.83	>70.5s	F	0.65
Old Bathurst Road/Smith Street	>70.5s	F	0.99	69.5s	Е	0.89
Great Western Highway/Old Bathurst Road	33.0s	С	0.79	23.9s	В	0.66

The SIDRA results indicate that Old Bathurst Road/Russell Street and Great Western Highway/Old Bathurst Road intersections are operating at a satisfactory level of service (LoS C or better). However, Old Bathurst Road/David Road and Old Bathurst Road/Smith Street are operating at LoS F or E respectively during peak hours. At these two priority intersections, the heavy traffic volumes on Old Bathurst Road impede the turning movements to/from the side roads, which further deteriorates the overall intersection performance.

A summary of the detailed SIDRA modelling outputs is included in **Appendix C**.



3.0 The proposed development

3.1 Proposed industrial subdivision design

Located about 400 m away from the Emu Plains Station, the subject industrial site would accommodate a total of 39 Industrial lots, ranging from about 2,000 m² to 8,100 m² per lot and one lot for the stormwater infrastructure of around 18,000 m². The future development will result in a GFA potential of up to around 71,000 m² of GFA. The proposed subdivision plan is shown in **Figure 3-1**.

10CP105133

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10CP105133

10CP105133

10CP105133

10CP105133

10CP105133

10CP105133

Figure 3-1 Proposed subdivision plan

Source: Acor, 2023

3.2 Proposed transport access

Access to the proposal is provided through David Road, a local road located at the western edge of the site. The proposed access will accommodate all movements in and out of the site. This access is then connected with the intersection of David Road/Old Bathurst Road for strategic access.

The existing access on Old Bathurst Road would be removed from the proposed subdivision.

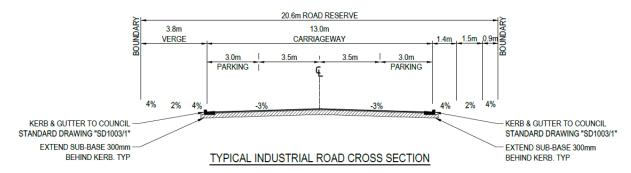
The subdivision plan proposes an internal street network (generally with a 20.6 m road reserve) including the following:

- A proposed loop road MC01 to service the majority of the lots
- Access road MC02 that connects the loop road with David Road
- A north-south connection MC03 to improve the permeability and flexibility of the internal access.

The proposed internal road widths are generally 13 m with a 3.8 m verge on both sides, which facilitates two-way internal traffic and on-street parking on both sides (**Figure 3-2**).



Figure 3-2 Proposed cross-section for a typical industrial road



Source: Acor, 2022

The swept path for the truck movements at critical locations across the site is provided as part of the civil engineering package for the Development Application prepared by Acor.



4.0 Traffic impact assessment

4.1 Future year traffic volume estimates

4.1.1 Background growth

The modelled intersections are formed by regional roads, including Old Bathurst Road and Russell Street, and a state road (Great Western Highway). A background growth rate of two per cent per annum will be applied to the future year network based on the *Old Bathurst Road & Smith Street Intersection Options Assessment Report* prepared by Beca in February 2021. This is verified by the nearby permanent traffic count at Great Western Highway (Station Id: 87001) and Parker Street (Station Id: 86036), indicating an average annual growth of about 1.9 (between 2012 to 2015) and 2.1 per cent (between 2012 to 2019).

Data for 2020 has been excluded due to the COVID-19 pandemic. It is also assumed that there will be no background traffic growth for the local road network up to 2035.

Hence, the average annual growth was applied to 2023 traffic volumes as the general background traffic growth to understand traffic volumes and potential impacts at the peak hours of 2035. This results in about 27 per cent background traffic growth on Old Bathurst Road, Russell Street and Great Western Highway in a 12-year time period, which is expected to cover the impact of surrounding new developments.

4.1.2 Emu Plains Commuter Car Park (CCP) trip generation

The Old Bathurst Road & Smith Street Intersection Options Assessment Report prepared by Beca in February 2021 indicated that the proposed car park would generate 750 additional trips in the AM peak period from 5-9 am and PM peak period from 3-7 pm. The report also indicated that the AM peak hour for station entries occurred from 7-8 am, accounting for 42 per cent over the four-hour AM peak period. Similarly, the PM peak hour occurred from 5-6 pm, accounting for 37 per cent over the PM peak period.

Given the peak hour used in this traffic study differs from the Beca report, the factors were adjusted by dividing the remaining percentages over the three-hour period, yielding 19 and 21 per cent in the AM and PM peaks. Therefore, it is assumed that the proposed car park would generate 145 and 158 additional trips during the AM and PM peak hours, respectively.

The background traffic growth and the Emu Plains Commuter Car Park (CCP) trips form the future year base case.

4.2 Trip generation and distribution

4.2.1 Trip generation and distribution of the proposal

Trip generation rates for this proposal were derived from the *RMS Technical Direction (TDT 2013/04a)*. It is assumed that the trip rates for business parks and industrial estates development for AM and PM peak hours would be 0.52 and 0.56 vehicle trips per 100 m² of GFA. For trip generation purposes, it is estimated that the proposed development could yield approximately 71,000 m² of GFA. Based on the development scale as specified in **Section 3.0**, the estimated vehicle trip generation is summarised in **Table 4-1**.

Table 4-1 Vehicle trip generation assumptions

Land use	GFA (m²)			Vehicl	e trips	Converted PCU*		
		AM peak	PM peak	AM peak	PM peak	AM peak	PM peak	
Business parks and industrial estates	71,000	0.52	0.56	369	397	405	437	

Source: SCT Consulting based on RMS TDT 2013/04a

^{*}PCU = Passenger car unit. Given the trip rates denote general vehicle trip rates for all types of vehicles, there is a need to identify the ratio between light vehicles and commercial vehicles (assuming 1 commercial vehicle = 1.5 light vehicles) to inform the actual road network impact. The site has similarities with Freeway Business Park Beresfield as shown in *RMS TDT 2013/04a*, which indicates a ratio of c. 80%:20% for light vehicles and commercial vehicles.



Therefore, the net car trip generation from the proposed development (when fully developed) for a weekday AM and PM peak hour could be 405 vehicles and 437 vehicles, respectively. This is the worst case given the site is currently vacant and has no trip generation.

It is assumed that all development traffic would access/exit the site via Old Bathurst Road/David Road. Traffic to and from the west would access via the south of Old Bathurst Road/Russell Street, while traffic to and from the east would access via the north of Great Western Highway/Old Bathurst Road. A directional split of 90 per cent inbound / 10 per cent outbound was assumed for the AM peak, and vice versa for the PM peak.

A summary of the traffic distribution is shown in Table 4-2.

Table 4-2 Traffic distribution

Peak Period	Origin / Destin	ation split (%)*	Directional split (%)		
	East	West	In	Out	
AM	46	54	90	10	
PM	46	54	10	90	

^{*}The distribution has considered the residential location of local workers and anticipated routings including:

- Penrith: 54% (1/3 from Russell street, 2/3 from Great Western Highway east)
- Blacktown: 12% (half from Russell street via M4, half from Great Western Highway east)
- Blue Mountains: 10% (from Russell street via M4)
- Hawkesbury: 4% (from Great Western Highway east)
- Liverpool: 2% (from Russell street via M4)
- Fairfield: 2% (from Russell street via M4)
- Other Local Government Areas are below 2% each across Sydney (from Russell street via M4).

4.3 Road network impact

4.3.1 Intersection performance based on existing and committed infrastructure

Table 4-3 summarises the performance of the intersections under each scenario based on existing intersection layouts. The only exception is that the intersection of Old Bathurst Road/Smith Street would warrant a proposed roundabout to connect with the access of the proposed commuter car park (CCP). Hence, the geometry layout for this roundabout is consistent with the preferred option C proposed in the *Old Bathurst Road & Smith Street Intersection Options Assessment Report* (Beca, 2021).

Table 4-3 Future year intersection performance (2035)

Intersection	Futur	e year base	case	Future year with development		
increction	Delay	LoS	DoS	Delay	LoS	DoS
	Weekday	/ AM Peak				
Old Bathurst Road/Russell Street	196.2s	F	1.20	370.0s	F	1.39
Old Bathurst Road/David Road	>70.5s	F	3.33	>70.5s	F	6.67
Old Bathurst Road/Smith Street	24.1s	В	0.72	25.8s	В	0.74
Great Western Highway/Old Bathurst Road	47.4s	D	0.96	53.0s	D	0.97
	Weekday	/ PM Peak				
Old Bathurst Road/Russell Street	150.1s	F	1.25	426.5s	F	1.46
Old Bathurst Road/David Road	>70.5s	F	3.86	>70.5s	F	16.81
Old Bathurst Road/Smith Street	22.2s	В	0.72	23.4s	В	0.74
Great Western Highway/Old Bathurst Road	28.4s	В	0.84	29.4s	С	0.86



Future year base case

During the peak hours in 2035, with the consideration of background traffic growth and the opening of the CCP,

- The intersection of Old Bathurst Road/Russell Street and Old Bathurst Road/David Road would both operate
 over capacity with poor LoS F. It should be noted that the latter already fails during the two peak hours under
 current (2023) traffic conditions. Hence, infrastructure upgrades are required at the above two intersections.
- With the intersection upgrade at Old Bathurst Road/Smith Street associated with the CCP access, the intersection performance is at a satisfactory level with remaining capacity.
- There are no capacity issues at the Great Western Highway/Old Bathurst Road intersection which records LoS
 D and B for AM and PM peak hours, respectively.

Future year with development

With the additional development traffic, the intersections of both Old Bathurst Road/Russell Street and Old Bathurst Road/David Road are forecast to operate over capacity during the peak hours assessed. There is limited impact at the other two intersections where the LoS maintains at the same category as future year base despite a minor drop of LoS at the intersection of Great Western Highway/Old Bathurst Road (from B to C during PM peak hour).

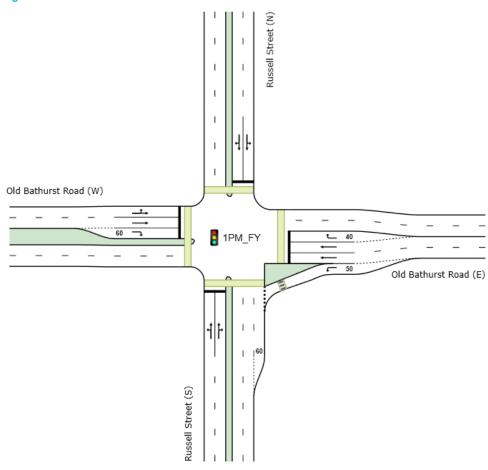
4.3.2 Intersection upgrades

Infrastructure upgrades would support background traffic growth and potential development in the corridor. Planning controls and reservation of land can assist in achieving land use outcomes for the corridor. The proposed infrastructure upgrade is at a level typically seen in Sydney.

Old Bathurst Road/Russell Street (Signal)

It is noted that Council has been levying contributions for the signal at the intersection of Old Bathurst Road/Russell Street under the Section 7.12 Development Contributions Plan (Figure 4-1 and Appendix D).

Figure 4-1 Old Bathurst Road / Russell Street





Old Bathurst Road/David Road

The following upgrades have been considered for Old Bathurst Road/David Road to accommodate the background traffic growth and development traffic (**Figure 4-2**, **Figure 4-3** and **Appendix D**).

Figure 4-2 Old Bathurst Road / David Road - roundabout

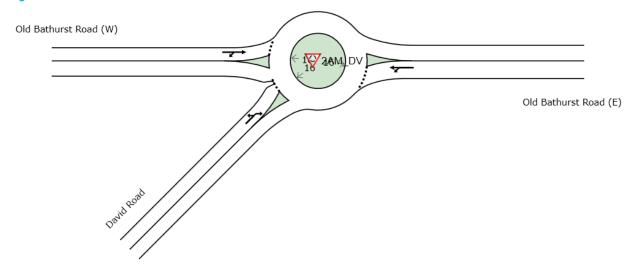
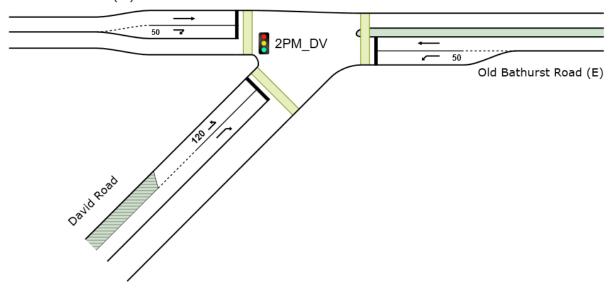


Figure 4-3 Old Bathurst Road / David Road - signalised





4.3.3 Intersection performance with upgrades

Table 4-4 summarises the performance of the intersections under future year scenarios based on upgraded infrastructure.

Old Bathurst Road / Russell Street

- The upgrade for a signalised Old Bathurst Road/Russell Street for future year base case would result in a LoS C with about 10 to 12 per cent remaining capacity before the addition of development traffic.
- It would perform at acceptable LoS with a delay of about 55 seconds during the peak hours when assessed with full development.



Old Bathurst Road / David Road

- The roundabout option would fail during the PM peak hour given excessive development traffic which needs to give way to the westbound through traffic (a major direction during the PM peak period).
- A signalised intersection could achieve LoS A and B in the future year base case with about 12 per cent remaining capacity. With the development traffic, the intersection could operate at LoS D for both peak hours which is satisfactory.

Hence, a signalised intersection for Old Bathurst Road / David Road is required to ensure the intersection accommodates the future background traffic and development traffic in 2035.

A summary of the detailed SIDRA modelling outputs is included in Appendix C.

Table 4-4 Future year intersection performance with upgrades (2035)

Intersection	Future year			Future year with development				
	Delay	LoS	DoS	Delay	LoS	DoS		
Weekday AM Peak								
Old Bathurst Road/Russell Street (signal)	41.1s	С	0.73	55.4s	D	0.93		
Old Bathurst Road/David Road (roundabout)	13.6s	Α	0.84	27.0s	В	1.01		
Old Bathurst Road/David Road (signal)	10.1s	Α	0.87	42.7s	D	1.00		
Wed	ekday PN	l Peak						
Old Bathurst Road/Russell Street (signal)	48.3s	С	0.92	54.6s	D	0.99		
Old Bathurst Road/David Road (roundabout)	24.5s	В	0.73	>70.5s	F	1.68		
Old Bathurst Road/David Road (signal)	15.6s	В	0.88	43.9s	D	0.98		

4.4 Signal warrants for Old Bathurst Road/David Road

A preliminary traffic signals review has been undertaken according to *Traffic Signal Design* – *Section 2 Warrants* (*RTA*), which are presented below, to determine whether traffic signals are warranted at the intersection of Old Bathurst Road/David Road.

TfNSW lists general warrants for the installation of traffic signals in *Traffic Signal Design* – *Section 2 Warrants* document (RTA). The document stresses that the list is a guide and that traffic signals may not be the most optimal solution, even if the site satisfies the warrants. Conversely, traffic signals may be installed irrespective of general warrants due to external factors.

A warrant review is shown in **Table 4-6** based on the volumes supplied in **Table 4-5**. The warrant assessment requires assessment over four hours.



Table 4-5 Traffic volumes against warrant criteria - Old Bathurst Road / David Road

Dook paried	Time	Traffic vol	Total		
Peak period	Time	major (E)	minor	major (W)	throughput
	6:00-7:00	450	350	1,050	1,850
	7:00-8:00	600	350	1,400	2,350
AM	8:00-9:00	650	500	1,500	2,650
AW	9:00-10:00	550	350	1,300	2,200
	10:00-11:00	500	350	1,050	1,900
	11:00-12:00	550	350	850	1,750
	12:00-01:00	900	350	500	1,750
	1:00-2:00	900	350	500	1,750
DM	2:00-3:00	950	350	500	1,800
PM	3:00-4:00	1,100	400	600	2,100
	4:00-5:00	1,150	550	650	2,350
	5:00-6:00	1,150	400	600	2,150

Note that the peak hour traffic volumes (in bold) were factored into other hours based on the Automatic Traffic Count survey data on Old Bathurst Road provided by Council

The warrant assessment indicates that:

- Two hours in the AM (green rows highlighted) meet the signal warrants, i.e. between 7-9 am when traffic volumes on a major road exceed 600 veh/h in each direction and that on a minor road exceeds 200 veh/h.
- Three hours in the PM (green rows highlighted) meet the signal warrants, i.e. between 3-6 pm when traffic volumes on a major road exceed 600 veh/h in each direction and that on a minor road exceeds 200 veh/h.
- Therefore, there could be a total of five hours to meet the traffic demand requirement for a signalised intersection.

In addition, the guidelines state that "Traffic signals are sometimes installed due to public pressure or an administrative directive irrespective of general warrants". Hence TfNSW can install signals where they are not warranted.

It is recommended that signals be installed at this location due to the pedestrian safety benefits and an overall better intersection performance than the roundabout option. There is no spacing issue with the two potential signalised intersections at Russell Street and David Road, i.e. The distance between Russell Street and David Road on Old Bathurst Road is about 780m. This recommendation would need to be supported by TfNSW as they retain approval authority for all new traffic signals in NSW (irrespective of road authority).



Table 4-6 Warrant criteria review results

Warrant	Criteria	AM	РМ	Warrants met?	
a) Traffic demand	(i) The major road flow exceeds 600 vehs / h in each direction; and	Yes	Yes	Yes	
	(ii) The minor road flow exceeds 200 vehs / h in one direction.		Yes	162	
	(i) The major road flow exceeds 900 vehs / h in each direction; and	No	No		
	(ii) The minor road flow exceeds 100 vehs / h in one direction; and	Yes	Yes		
b) Continuous traffic	(iii) The speed of traffic on the major road or limited sight distance from the minor road causes undue delay or hazard to the minor road vehicles; and		sibly	No	
	(iv) There is no other nearby traffic signal site easily accessible to the minor road vehicles.	Yes	Yes		
	(i) The pedestrian flow crossing the major road exceeds 150 persons / hr; and		No		
c) Pedestrian safety	(ii) The major road flow exceeds 600 vehicles / hr in each direction or, where there is a central median of at least 1.2m wide, 1,000 vehicles / hr in each direction.	Yes	Yes	No	
	(i) The pedestrian flow crossing the major road exceeds 150 persons / hr; and	No	No		
d) Pedestrian safety – high-speed road	(ii) The major road flow exceeds 450 vehicles / hr in each direction or, where there is a central median of at least 1.2m wide, 750 vehicles / hr in each direction; and				
	(iii) The 85th percentile speed on the major road exceeds 75 km / hr.		No		
e) Crashes	(i) The intersection has been the site of an average of three or more reported towaway or casualty traffic accidents per year over a three year period, where the traffic accidents could have been prevented by traffic signals; and		N/A	No	
	(ii) The traffic flows are at least 80% of the appropriate flow warrants.	No	No		

^{*-} The warrant criteria must be satisfied for each of four one-hour periods of an average day.



4.5 Active transport impact

It is important to ensure a safe and well-connected, high-quality footpath and cycle path system around the site, to promote sustainable transport use. Improving shared path links to Emu Plains Station presents the largest opportunity to promote and facilitate walking, cycling and public transport.

The *Penrith Accessible Trails Hierarchy (2009)* report lists the footpath along Old Bathurst Road as a 'Priority Pathway' with the potential to upgrade. Converting the footpath to a shared path, and extending its width, could facilitate new cycling trips to the site from Emu Plains Station and Penrith via the shared path along the Great Western Highway. A safe crossing point to the site would also be required to improve the attractiveness of cycling for commuting.

It is noted that a new footbridge over Old Bathurst Road will be provided to ensure safe and direct pedestrian access between the new Emu Plains Commuter Car Park (neighbouring site to the east) and the station.

The number of person/bicycle trips generated by the development during the peak periods would be very limited, hence no significant impact on the active transport network.

4.6 Public transport network impact

As analysed in **Section 2.4**, the area around the site experienced a low public transport mode share given the industrial land use. Based on the scale of the development, it is expected that the public transport demand would be limited, hence no significant impact on the public transport network.

4.7 Parking impact

According to Council DCP and the indicative yield of 71,000 m² of GFA, it is calculated that a total of 708 – 945 parking spaces are required on-site depending on the type of development (**Table 4-7**). This would be further addressed in the next stage of the application.

Table 4-7 Parking requirement

GFA (m²)	Type of development	Minimum parking rates according to DCP	Parking spaces
71,000	Industrial, including ancillary office	1 space per 75m ² of GFA or 1 space per 2 employees, whichever is the greater	945 spaces
	Warehouses or distribution centres, including ancillary office	1 space per 100m ² of GFA	708 spaces

Assuming there are enough on-site parking spaces to be provided according to the DCP and there is additional onstreet parking provision allowed for in the internal street network, the impacts of on-street parking on the surrounding road network should be negligible.



5.0 Conclusion

The proposed subdivision includes 39 industrial lots, that will result in a GFA potential of up to around 71,000 m² of GFA. In summary:

- A parking survey showed both David Road and Sommerville Circuit have a spare capacity of about 35-40 per cent at peak occupancy around midday. For similar industrial sites in the vicinity, the parking occupancy rate varies from 36 to 96 per cent due to different parking scales, industrial types etc. It is more likely for the smaller parking area to have a higher occupancy rate of over 80-90 per cent which demonstrates potential high demand by the tenants for on-site parking.
- The SIDRA modelling indicated that Old Bathurst Road/Russell Street and Great Western Highway/Old Bathurst Road intersections are operating at a satisfactory level of service (LoS C or better). However, Old Bathurst Road/David Road and Old Bathurst Road/Smith Street are operating at LoS F or E respectively during peak hours. At these two priority intersections, the heavy traffic volumes on Old Bathurst Road impede the turning movements to/from the side roads, which further deteriorates the overall intersection performance.
- The proposed development would have a western access on David Road (with all movements permitted).
- The internal street network contains a proposed loop road MC01, an access road (MC02) that connects the loop road with David Road and a north-south connection to improve the permeability and flexibility of the internal access.
- The development would generate a net car trip increase of 405 vehicles and 437 vehicles (when fully developed) for weekday AM and PM peak hours respectively. This is the worst case given the site is currently vacant and has no trip generation.
- The intersections of both Old Bathurst Road/Russell Street and Old Bathurst Road/David Road are forecast to operate over capacity during the peak hours assessed in the future year.
- Infrastructure upgrades are required to accommodate future traffic growth and development in 2035.
 - The intersection of Old Bathurst Road/Smith Street would warrant a proposed roundabout to connect with the access of the proposed commuter car park.
 - Council has been levying contributions for the signal at the intersection of Old Bathurst Road/Russell Street under the Section 7.12 Development Contributions Plan, hence it is most likely that a traffic signal will be constructed at this location to cater for background traffic growth and further development.
 - For the intersection of Old Bathurst Road/David Road intersection, a signal is warranted given it would
 meet the traffic volume criteria. A signal intersection improves pedestrian/cyclist safety and indicates better
 operation performance than a roundabout.
- According to Council DCP, it is calculated that a total of 708 945 parking spaces are required on-site
 depending on the type of development.
- Potential future installation of new bus stops near the site and a bus route that also serve the station and residential areas of Emu Plains could increase the public transport mode share to the site.
- Improving walking and cycling facilities from the site to the station offers an opportunity to link future workers to a frequent public transport option that limits car dependency and the associated adverse environmental and safety impacts. This includes a new footbridge over Old Bathurst Road to provide safe and direct pedestrian access between the new Emu Plains Commuter Car Park (neighbouring site to the east) and the station.



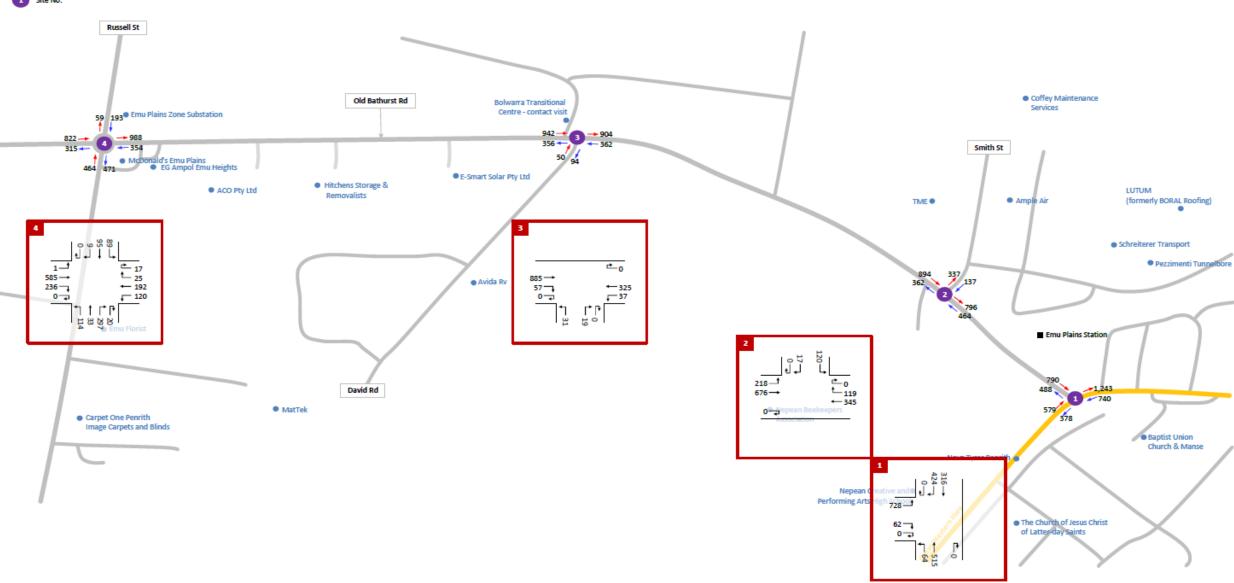
Surveyed traffic data

Old Bathurst Rd - Traffic Flows



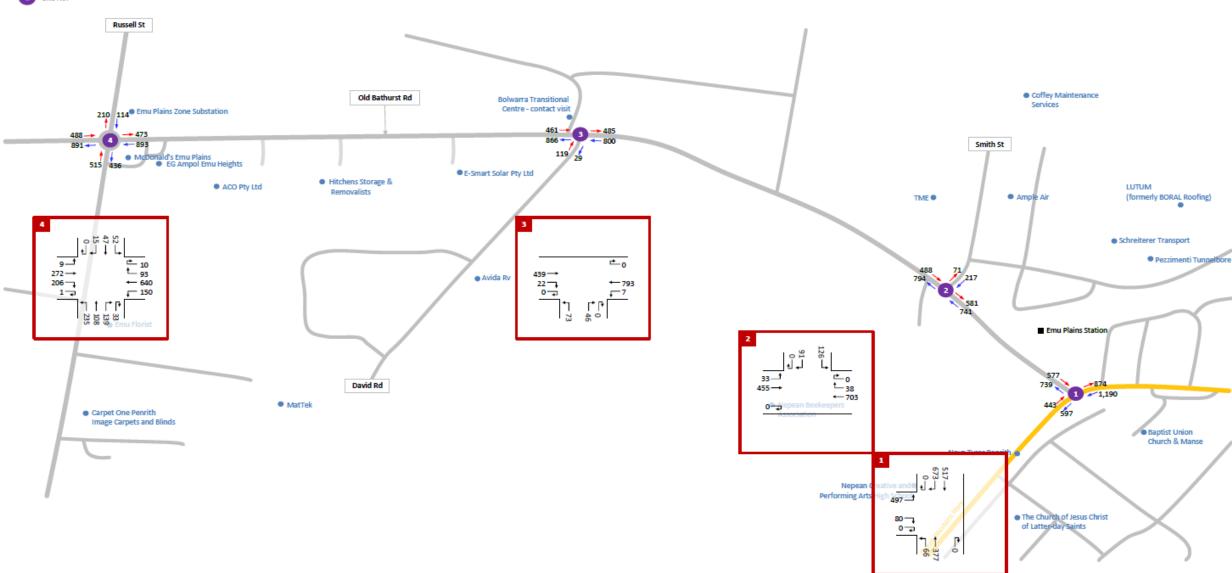


Site No.









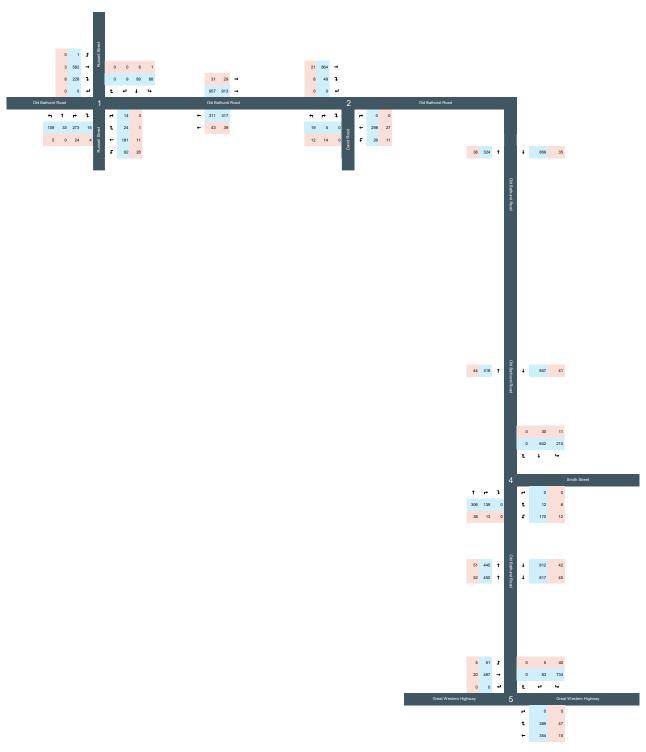


APPENDIX B

Network flow diagrams

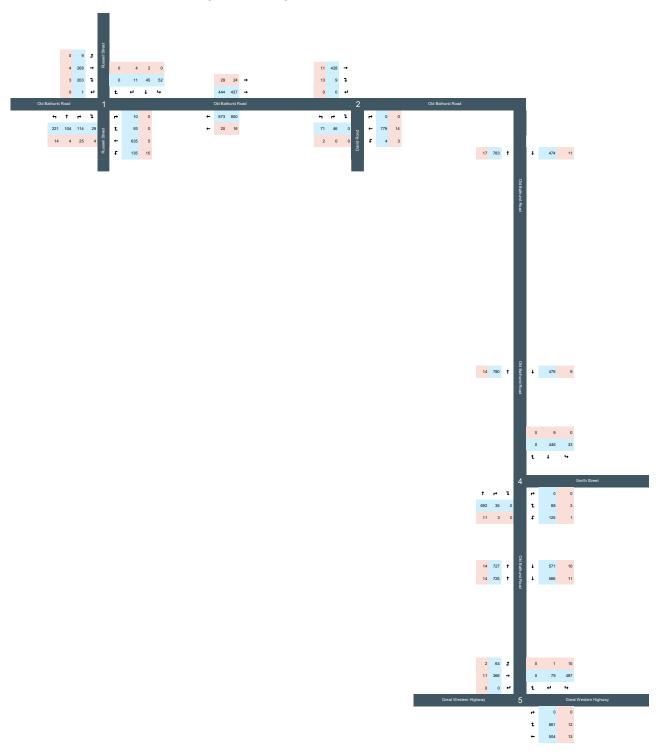


AM Base (7:30-8:30AM)



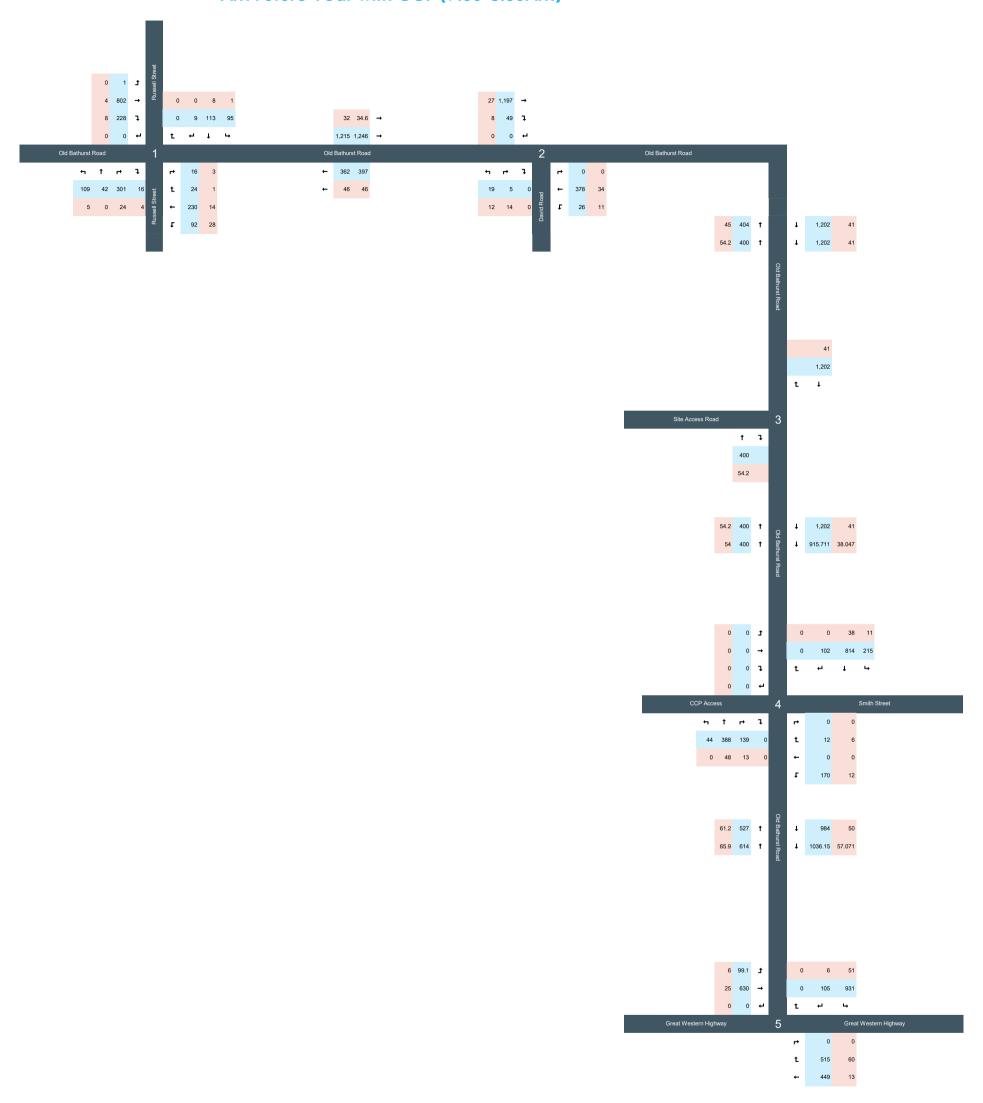


PM Base (4:15-5:15PM)



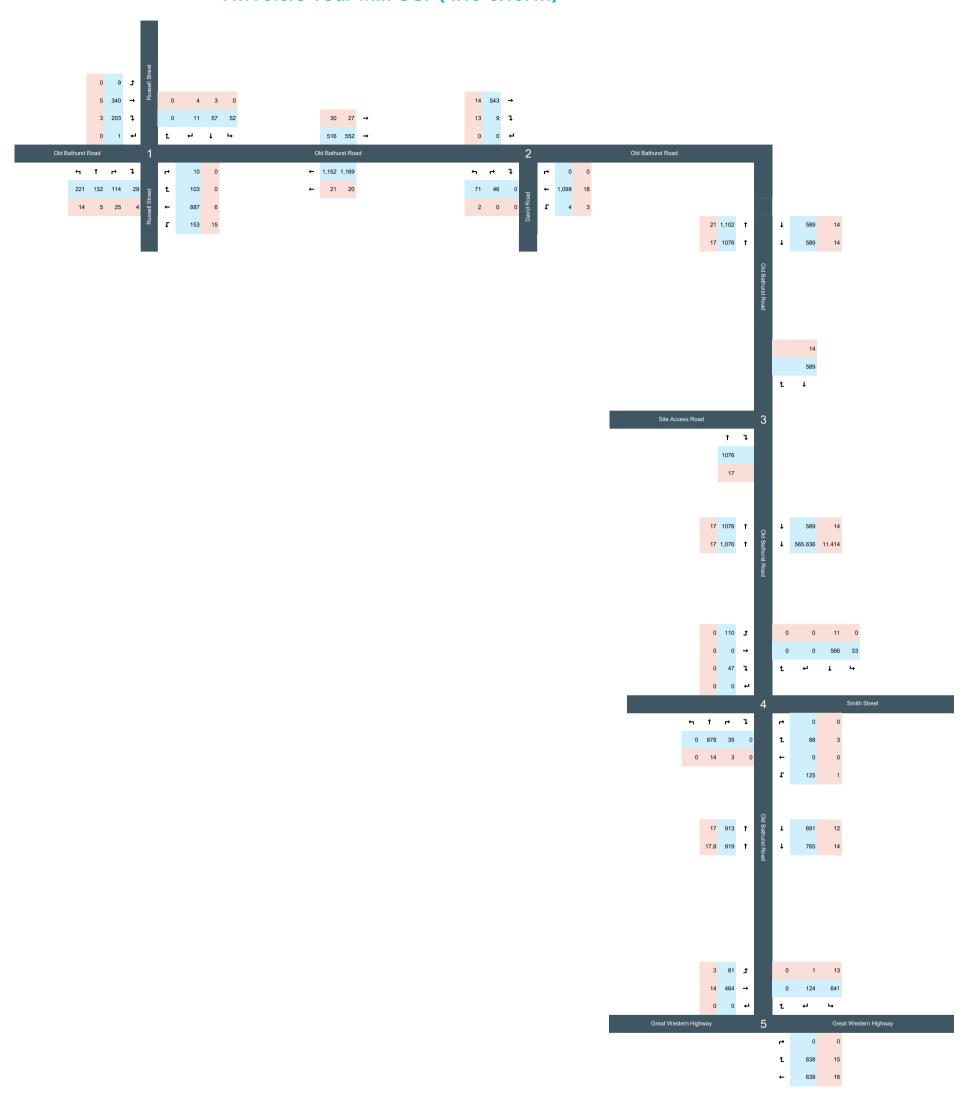


AM Future Year with CCP (7:30-8:30AM)



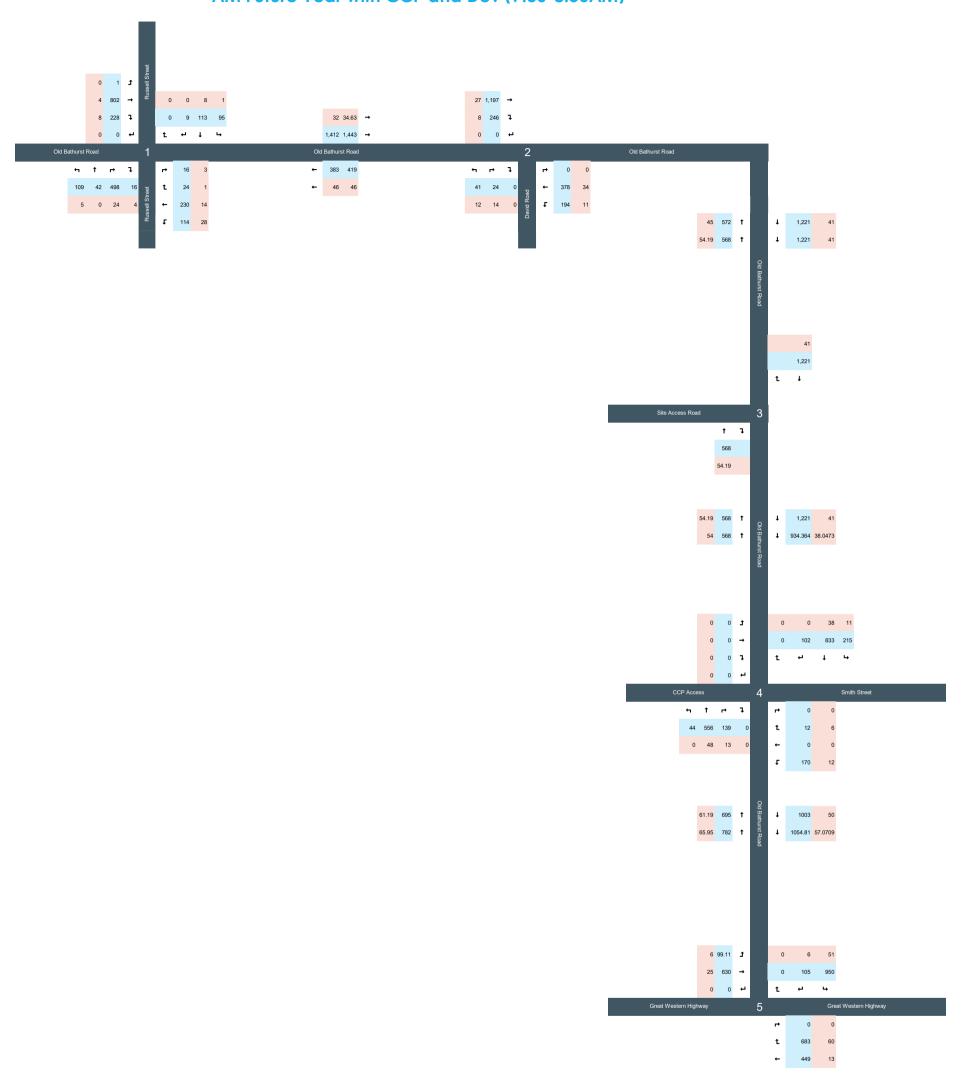


PM Future Year with CCP (4:15-5:15PM)



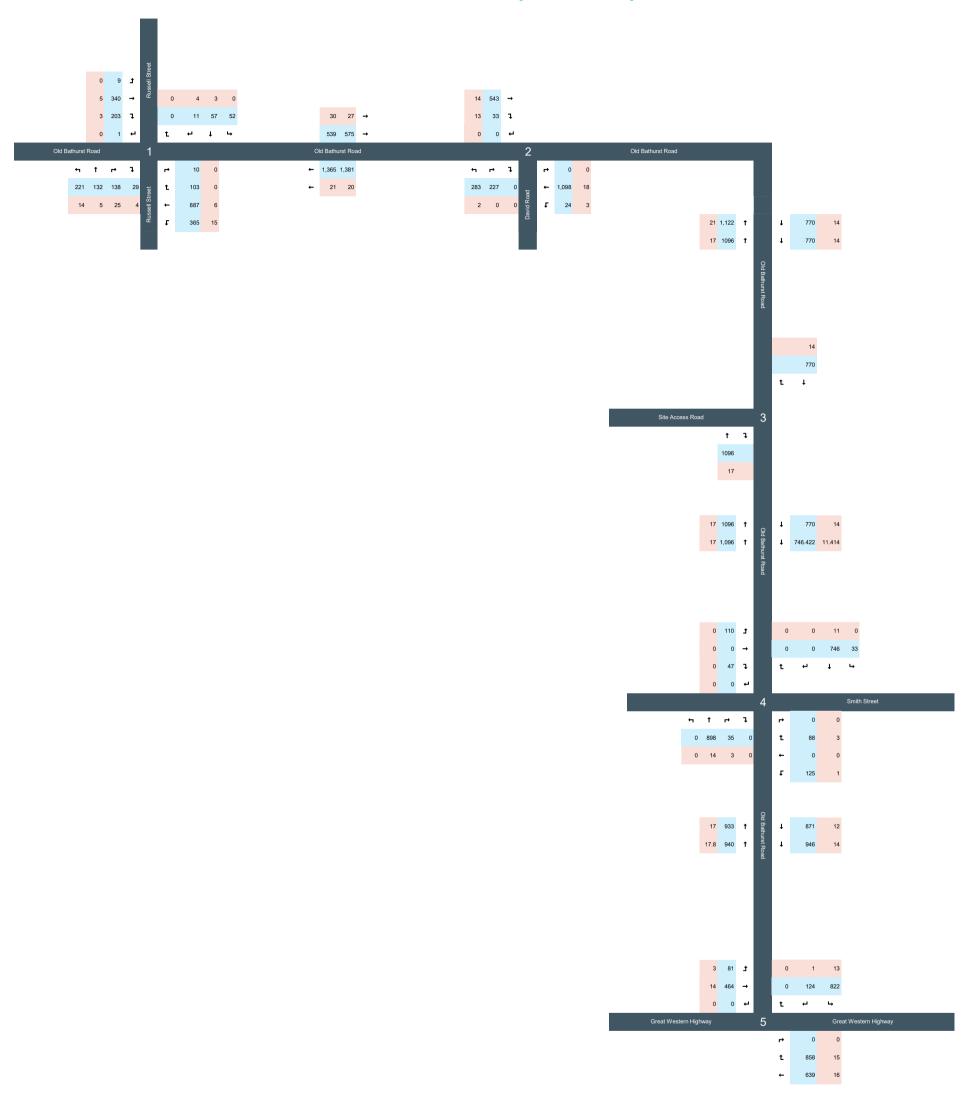


AM Future Year with CCP and Dev (7:30-8:30AM)





PM Future Year with CCP and Dev (4:15-5:15PM)





SIDRA output

♥ Site: 1AM_BY [0730_OLD_RUS_23_AM_BY (Site Folder:

AM_BY)]

New Site

Site Category: (None)

Roundabout

Vehi	icle M	ovemen	t Perfo	rmance										
Mov ID	Turn	INP VOLU [Total veh/h		DEM, FLO [Total veh/h		Deg. Satn v/c		Level of Service	95% BA QUE [Veh. veh		Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
Sout	h: Rus	sell Stree	t (S)											
1	L2	114	5	116	4.4	0.756	10.5	LOSA	8.3	61.7	0.84	0.97	1.06	45.2
2	T1	33	0	34	0.0	0.756	10.3	LOSA	8.3	61.7	0.84	0.97	1.06	46.8
3	R2	297	24	320	8.1	0.756	14.7	LOS B	8.3	61.7	0.84	0.97	1.06	46.1
3u	U	20	4	28	20.0	0.756	17.0	LOS B	8.3	61.7	0.84	0.97	1.06	47.1
Appr	oach	464	33	498	7.3	0.756	13.5	LOSA	8.3	61.7	0.84	0.97	1.06	46.1
East	: Old B	athurst R	oad (E)											
4	L2	120	28	136	23.3	0.661	13.5	LOSA	6.4	49.5	0.87	1.03	1.13	45.6
5	T1	192	11	194	5.7	0.661	12.4	LOSA	6.4	49.5	0.87	1.03	1.13	44.3
6	R2	25	1	32	4.0	0.661	16.4	LOS B	6.4	49.5	0.87	1.03	1.13	46.0
6u	U	17	3	22	17.6	0.661	19.0	LOS B	6.4	49.5	0.87	1.03	1.13	45.3
Appr	oach	354	43	384	12.5	0.661	13.5	LOSA	6.4	49.5	0.87	1.03	1.13	45.1
North	n: Russ	sell Street	t (N)											
7	L2	89	1	98	1.1	0.614	33.7	LOS C	6.8	49.0	1.00	1.23	1.53	40.2
8	T1	95	6	104	6.3	0.614	34.1	LOS C	6.8	49.0	1.00	1.23	1.53	42.2
9	R2	9	0	10	0.0	0.614	37.6	LOS C	6.8	49.0	1.00	1.23	1.53	39.8
Appr	oach	193	7	212	3.6	0.614	34.1	LOS C	6.8	49.0	1.00	1.23	1.53	41.3
West	t: Old E	Bathurst F	Road (W))										
10	L2	1	0	1	0.0	0.887	17.4	LOS B	19.6	138.9	1.00	1.27	1.72	43.6
11	T1	585	3	629	0.5	0.887	17.4	LOS B	19.6	138.9	1.00	1.27	1.72	42.3
12	R2	236	8	248	3.4	0.887	21.6	LOS B	19.6	138.9	1.00	1.27	1.72	44.2
Appr	oach	822	11	879	1.3	0.887	18.6	LOS B	19.6	138.9	1.00	1.27	1.72	43.0
All Vehic	cles	1833	94	1973	5.3	0.887	18.0	LOS B	19.6	138.9	0.94	1.14	1.42	44.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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▽ Site: 2AM_BY [0730_OLD_DAV_23_AM_BY (Site Folder:

AM_BY)]

New Site Site Category: (None) Give-Way (Two-Way)

Vehi	cle M	ovemen	t Perfor	mance										
Mov ID	Turn	INP VOLU [Total veh/h		DEM. FLO [Total veh/h		Deg. Satn v/c		Level of Service		ACK OF EUE Dist] m	Prop. E Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East:	Old B	athurst R	oad (E)											
4a 5 Appro	L1 T1 pach	37 325 362	11 27 38	39 342 381	29.7 8.3 10.5	0.024 0.185 0.185	5.9 0.1 0.7	LOS A LOS A NA	0.0 0.0 0.0	0.0 0.0 0.0	0.00 0.00 0.00	0.60 0.00 0.06	0.00 0.00 0.00	54.2 69.9 68.2
West	: Old E	Bathurst F	Road (W)											
11 12b Appro	T1 R3 pach	885 57 942	21 8 29	932 60 992	2.4 14.0 3.1	0.489 0.196 0.489	0.3 16.1 1.2	LOS A LOS B NA	0.0 0.7 0.7	0.0 5.4 5.4	0.00 0.60 0.04	0.00 0.86 0.05	0.00 0.60 0.04	69.6 51.9 68.3
South	nWest:	David R	oad											
30b 32a	L3 R1	31 19	12 14	33 20	38.7 73.7	0.045 0.827	9.3 411.3	LOS A LOS F	0.2 3.4	1.5 39.1	0.43 1.00	0.67 1.14	0.43 1.49	53.8 8.7
Appro		50 1354	26 93	53 1425	52.0 6.9	0.827	7.0	LOS F	3.4	39.1	0.65	0.85	0.84	18.8 62.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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V Site: 4AM_BY [0745_OLD_SMI_23_AM_BY (Site Folder:

AM_BY)]

New Site

Site Category: (None) Give-Way (Two-Way)

Vehi	cle M	ovemen	t Perfor	mance										
Mov ID	Turn	INF VOLU [Total veh/h		DEM, FLO [Total veh/h		Deg. Satn v/c		Level of Service		ACK OF EUE Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East:	Old B	athurst R												
5 6	T1 R2	344 152	38 13	362 160	11.0 8.6	0.985 0.985	87.2 96.9	LOS F LOS F	33.9 33.9	258.1 258.1	1.00 1.00	0.62 0.62	4.64 4.64	24.1 15.9
Appro		496	51	522	10.3	0.985	90.2	NA	33.9	258.1	1.00	0.62	4.64	21.8
North	: Smitl	h Street												
7	L2	182	12	192	6.6	0.604	15.4	LOS B	3.0	22.9	0.80	1.15	1.46	33.4
9 Appro	R2 pach	18 200	6 18	19 211	9.0	0.604 0.604	78.1 21.0	LOS F	3.0	22.9	0.80	1.15 1.15	1.46 1.46	41.6 34.4
West	: Old E	Bathurst F	Road (W))										
10 11	L2 T1	226 672	11 30	238 707	4.9 4.5	0.465 0.465	6.6 1.2	LOS A LOS A	0.0	0.0 0.0	0.00	0.29 0.29	0.00	62.2 67.1
Appro	oach	898	41	945	4.6	0.465	2.6	NA	0.0	0.0	0.00	0.29	0.00	65.8
All Vehic	eles	1594	110	1678	6.9	0.985	32.1	NA	33.9	258.1	0.41	0.50	1.63	39.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Site: 5AM_BY [0745_GWH_OLD_23_AM_BY (Site Folder:

AM_BY)]

TCS 701

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Site User-Given Phase Times)

Vehi	cle M	ovemen	t Perfor	rmance										
Mov ID	Turn	INP VOLU [Total veh/h		DEM/ FLO [Total veh/h		Deg. Satn v/c		Level of Service		ACK OF EUE Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South	n: Grea	at Wester												
1 2	L2 T1	66 517	5 20	69 544	7.6 3.9	0.633 * 0.633	48.0 42.6	LOS D LOS D	15.7 16.2	114.6 116.9	0.94 0.94	0.81 0.81	0.94 0.94	25.6 31.6
Appro		583 at Westeri	25 n Highwa	614 av (N)	4.3	0.633	43.2	LOS D	16.2	116.9	0.94	0.81	0.94	30.9
8	T1	364	10	383	2.7	0.274	7.7	LOSA	7.1	50.8	0.35	0.54	0.35	44.9
9	R2	436	47	459	10.8	0.534	26.3	LOS B	15.2	116.5	0.73	0.90	0.73	37.2
Appro	oach	800	57	842	7.1	0.534	17.8	LOS B	15.2	116.5	0.55	0.74	0.55	40.3
West	Old E	Bathurst F	Road (W))										
10 12	L2 R2	774 88	40 5	815 114	5.2 5.7	* 0.793 0.415	37.7 55.7	LOS C LOS D	43.1 6.4	315.4 47.2	1.00 0.99	0.92 0.80	1.00 0.99	32.8 21.2
Appro	oach	862	45	929	5.2	0.793	39.9	LOS C	43.1	315.4	1.00	0.91	1.00	31.2
All Vehic	les	2245	127	2385	5.7	0.793	33.0	LOS C	43.1	315.4	0.83	0.82	0.83	33.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).

Queue Model: SIDRA Standard.

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 I	Novem	ent Perf	ormano	e							
Mov ID Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE QUE I Ped		Prop. Et Que	fective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
	ped/h	ped/h	sec		ped	m		rtato	sec	m	m/sec
North: Great V	Vestern	Highway	(N)								
P3 Full	15	20	54.2	LOS E	0.1	0.1	0.95	0.95	232.9	214.5	0.92
West: Old Bat	hurst Ro	ad (W)									
P4 Full	174	295	54.8	LOS E	1.0	1.0	0.96	0.96	239.4	221.5	0.93
All Pedestrians	189	315	54.8	LOS E	1.0	1.0	0.96	0.96	239.0	221.1	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.

Project: C:\Users\Shawn Cen\SCT\Emu plain\SCT_00284_Emu Plains Industrial Estate_SIDRA_2023_v0.9_DL.sip9

♥ Site: 1PM_BY [1615_OLD_RUS_23_PM_BY (Site Folder:

PM_BY)]

New Site

Site Category: (None)

Roundabout

Mov Tu ID South: F		INPl VOLUI [Total veh/h ell Street		DEM. FLO [Total		Deg.	Aver.	Level of	95% BA	CK OF	Prop	Effective	Aver.	A.,
		[Total veh/h	HV]		WS									Aver.
South: F		veh/h		Lotal		Satn	Delay	Service		EUE	Que	Stop		Speed
South: F				veh/h	HV] %	v/c	sec		[Veh. veh	Dist] m		Rate	Cycles	km/h
	L2			7011/11	,,,	V/0			7011					1011/11
1 L		235	14	247	6.0	0.927	35.8	LOS C	18.9	142.4	1.00	1.66	2.43	38.9
2 T	Γ1	108	4	114	3.7	0.927	35.6	LOS C	18.9	142.4	1.00	1.66	2.43	41.6
3 F	R2	139	25	146	18.0	0.927	40.3	LOS C	18.9	142.4	1.00	1.66	2.43	40.0
3u l	U	33	4	35	12.1	0.927	41.7	LOS C	18.9	142.4	1.00	1.66	2.43	41.9
Approac	ch	515	47	542	9.1	0.927	37.3	LOS C	18.9	142.4	1.00	1.66	2.43	40.1
East: Ol	ld Ba	thurst Ro	ad (E)											
4 L	L2	150	15	155	10.0	0.955	25.3	LOS B	31.1	221.6	1.00	1.43	2.04	42.5
5 T	Т1	640	5	703	0.8	0.955	24.8	LOS B	31.1	221.6	1.00	1.43	2.04	39.9
6 F	R2	93	0	100	0.0	0.955	28.8	LOS C	31.1	221.6	1.00	1.43	2.04	42.8
6u l	U	10	0	12	0.0	0.955	30.5	LOS C	31.1	221.6	1.00	1.43	2.04	41.4
Approac	ch	893	20	970	2.2	0.955	25.4	LOS B	31.1	221.6	1.00	1.43	2.04	40.8
North: F	Russe	ell Street	(N)											
7 L	L2	52	0	55	0.0	0.182	7.7	LOSA	1.1	8.4	0.77	0.77	0.77	47.1
8 T	Τ1	47	2	49	4.3	0.182	7.8	LOSA	1.1	8.4	0.77	0.77	0.77	48.1
9 F	R2	15	4	16	26.7	0.182	12.9	LOSA	1.1	8.4	0.77	0.77	0.77	47.2
Approac	ch	114	6	120	5.3	0.182	8.4	LOS A	1.1	8.4	0.77	0.77	0.77	47.6
West: O	old Ba	athurst R	oad (W)											
10 L	L2	9	0	9	0.0	0.577	7.5	LOSA	5.4	37.9	0.81	0.85	0.91	46.5
	 Г1	272	4	286	1.5	0.577	7.6	LOSA	5.4	37.9	0.81	0.85	0.91	46.1
	R2	206	3	217	1.5	0.577	11.6	LOSA	5.4	37.9	0.81	0.85	0.91	47.1
	U	1	0	1	0.0	0.577	13.3	LOSA	5.4	37.9	0.81	0.85	0.91	46.1
Approac		488	7	514	1.4	0.577	9.3	LOSA	5.4	37.9	0.81	0.85	0.91	46.6
A.I.														
All Vehicles	s	2010	80	2146	3.9	0.955	23.6	LOS B	31.1	221.6	0.94	1.31	1.79	42.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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▽ Site: 2PM_BY [1615_OLD_DAV_23_PM_BY (Site Folder:

PM_BY)]

New Site

Site Category: (None) Give-Way (Two-Way)

Vehi	cle M	ovemen	t Perfor	mance										
Mov ID	Turn	INP VOLU [Total		DEM FLO [Total		Deg. Satn		Level of Service		ACK OF EUE Dist]	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		veh/h	veh/h	veh/h	%	v/c	sec		veh	m ¯				km/h
East:	Old B	athurst R	load (E)											
4a	L1	7	3	7	42.9	0.005	6.1	LOSA	0.0	0.0	0.00	0.61	0.00	51.5
5	T1	793	14	835	1.8	0.433	0.2	LOSA	0.0	0.0	0.00	0.00	0.00	69.6
Appro	oach	800	17	842	2.1	0.433	0.2	NA	0.0	0.0	0.00	0.01	0.00	69.5
West	: Old E	Bathurst F	Road (W)											
11	T1	439	11	462	2.5	0.243	0.1	LOSA	0.0	0.0	0.00	0.00	0.00	69.8
12b	R3	22	13	23	59.1	0.648	164.6	LOS F	2.1	22.3	0.98	1.08	1.36	19.1
Appro	oach	461	24	485	5.2	0.648	7.9	NA	2.1	22.3	0.05	0.05	0.06	62.7
South	nWest	David R	oad											
30b	L3	73	2	77	2.7	0.180	13.7	LOSA	0.6	4.2	0.72	0.89	0.72	53.2
32a	R1	46	0	48	0.0	0.552	99.0	LOS F	2.6	18.2	0.97	1.08	1.32	25.3
Appro	oach	119	2	125	1.7	0.552	46.7	LOS D	2.6	18.2	0.82	0.96	0.95	38.0
All Vehic	les	1380	43	1453	3.1	0.648	6.8	NA	2.6	22.3	0.09	0.10	0.10	63.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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V Site: 4PM_BY [1615_OLD_SMI_23_PM_BY (Site Folder:

PM_BY)]

New Site

Site Category: (None) Give-Way (Two-Way)

Vehi	cle M	ovemen	t Perfor	mance										
Mov ID	Turn	INP VOLU [Total		DEM. FLO [Total		Deg. Satn		Level of Service		ACK OF EUE Dist]	Prop. E Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		veh/h	veh/h	veh/h	%	v/c	sec		veh	m		. 15.15		km/h
East:	Old B	athurst R	toad (E)											
5	T1	703	11	740	1.6	0.418	1.4	LOSA	1.9	13.8	0.17	0.03	0.24	64.6
6	R2	38	3	40	7.9	0.418	14.0	LOSA	1.9	13.8	0.17	0.03	0.24	50.7
Appro	oach	741	14	780	1.9	0.418	2.1	NA	1.9	13.8	0.17	0.03	0.24	64.1
North	: Smit	h Street												
7	L2	126	1	133	8.0	0.893	39.7	LOS C	7.8	55.3	0.85	1.77	3.13	22.4
9	R2	91	3	96	3.3	0.893	69.5	LOS E	7.8	55.3	0.85	1.77	3.13	30.9
Appro	oach	217	4	228	1.8	0.893	52.2	LOS D	7.8	55.3	0.85	1.77	3.13	26.3
West	: Old E	Bathurst F	Road (W)											
10	L2	33	0	35	0.0	0.246	6.4	LOSA	0.0	0.0	0.00	0.21	0.00	64.5
11	T1	455	9	479	2.0	0.246	1.1	LOSA	0.0	0.0	0.00	0.21	0.00	68.6
Appro	oach	488	9	514	1.8	0.246	1.5	NA	0.0	0.0	0.00	0.21	0.00	68.3
All Vehic	eles	1446	27	1522	1.9	0.893	9.4	NA	7.8	55.3	0.21	0.35	0.59	55.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Site: 5PM_BY [1615_GWH_OLD_23_PM_BY (Site Folder:

PM_BY)]

TCS 701

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 128 seconds (Site User-Given Phase Times)

Vehi	cle M	ovemen	t Perfor	rmance										
Mov ID	Turn	INP VOLU		DEM. FLO		Deg. Satn		Level of Service		ACK OF EUE	Prop. Que	Effective Stop	Aver. No.	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %	v/c	sec		[Veh. veh	Dist] m		Rate	Cycles	km/h
South	n: Grea	at Wester	n Highwa	ay (S)										
1	L2	66	2	69	3.0	0.658	57.9	LOS E	13.5	96.9	0.98	0.82	0.98	22.9
2	T1	377	11	397	2.9	* 0.658	52.5	LOS D	13.8	98.9	0.98	0.82	0.98	28.4
Appro	oach	443	13	466	2.9	0.658	53.3	LOS D	13.8	98.9	0.98	0.82	0.98	27.6
North	: Grea	t Wester	n Highwa	ay (N)										
8	T1	517	13	544	2.5	0.365	4.2	LOSA	9.8	70.2	0.32	0.29	0.32	55.2
9	R2	673	12	708	1.8	* 0.638	22.2	LOS B	20.9	148.8	0.68	0.90	0.68	40.0
Appro	oach	1190	25	1253	2.1	0.638	14.4	LOSA	20.9	148.8	0.53	0.64	0.53	45.4
West	: Old E	Bathurst F	Road (W))										
10	L2	497	10	523	2.0	0.408	18.0	LOS B	20.1	142.9	0.68	0.80	0.68	42.4
12	R2	80	1	84	1.3	* 0.400	38.4	LOS C	3.4	23.9	0.65	0.71	0.65	27.8
Appro	oach	577	11	607	1.9	0.408	20.8	LOS B	20.1	142.9	0.68	0.78	0.68	40.2
All Vehic	les	2210	49	2326	2.2	0.658	23.9	LOS B	20.9	148.8	0.66	0.71	0.66	39.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).

Queue Model: SIDRA Standard.

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)

Mov	Input	Dem.	Aver.		AVERAGE		Prop. Et			Travel	Aver.
ID Crossing	Vol.	Flow	Delay	Service	QUE [Ped	:UE Dist]	Que	Stop Rate	Time	Dist.	Speed
	ped/h	ped/h	sec		ped	m			sec	m	m/sec
North: Great V	Vestern	Highway	(N)								
P3 Full	18	26	58.2	LOS E	0.1	0.1	0.95	0.95	236.9	214.4	0.91
West: Old Bat	hurst Ro	ad (W)									
P4 Full	10	12	58.2	LOS E	0.0	0.0	0.95	0.95	238.2	216.0	0.91
All Pedestrians	28	38	58.2	LOS E	0.1	0.1	0.95	0.95	237.3	214.9	0.91

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.

Project: C:\Users\Shawn Cen\SCT\Emu plain\SCT_00284_Emu Plains Industrial Estate_SIDRA_2023_v0.9_DL.sip9

♥ Site: 1AM_FY [0730_OLD_RUS_35_AM_FY (Site Folder:

AM_FY)]

New Site

Site Category: (None)

Roundabout

Vehi	icle M	ovemen	t Perfor	mance										
	Turn	INP		DEM.		Deg.		Level of	95% BA		Prop.	Effective	Aver.	Aver.
ID		VOLU	JMES HV]	FLO [Total	WS HV]	Satn	Delay	Service	QUE		Que	Stop		Speed
		veh/h	пv ј veh/h	veh/h	пv ј %	v/c	sec		[Veh. veh	Dist] m		Rate	Cycles	km/h
Sout	h: Rus	sell Stree												
1	L2	114	5	116	4.4	0.883	18.6	LOS B	13.9	103.1	1.00	1.27	1.60	42.9
2	T1	42	0	43	0.0	0.883	18.3	LOS B	13.9	103.1	1.00	1.27	1.60	44.9
3	R2	325	24	350	7.4	0.883	22.8	LOS B	13.9	103.1	1.00	1.27	1.60	43.9
3u	U	20	4	28	20.0	0.883	25.3	LOS B	13.9	103.1	1.00	1.27	1.60	45.2
Appr	oach	501	33	537	6.8	0.883	21.6	LOS B	13.9	103.1	1.00	1.27	1.60	43.9
East	: Old B	athurst R	oad (E)											
4	L2	120	28	136	23.3	0.732	15.5	LOS B	8.3	63.7	0.91	1.10	1.28	45.0
5	T1	244	14	246	5.7	0.732	14.4	LOSA	8.3	63.7	0.91	1.10	1.28	43.5
6	R2	25	1	32	4.0	0.732	18.3	LOS B	8.3	63.7	0.91	1.10	1.28	45.5
6u	U	19	3	25	15.8	0.732	20.8	LOS B	8.3	63.7	0.91	1.10	1.28	44.6
Appr	oach	408	46	439	11.6	0.732	15.4	LOS B	8.3	63.7	0.91	1.10	1.28	44.3
North	n: Russ	sell Street	t (N)											
7	L2	96	1	105	1.0	0.871	95.1	LOS F	15.3	110.8	1.00	1.74	2.69	29.8
8	T1	121	8	133	6.6	0.871	95.6	LOS F	15.3	110.8	1.00	1.74	2.69	32.7
9	R2	9	0	10	0.0	0.871	99.1	LOS F	15.3	110.8	1.00	1.74	2.69	28.8
Appr	oach	226	9	248	4.0	0.871	95.5	LOS F	15.3	110.8	1.00	1.74	2.69	31.4
West	t: Old E	Bathurst F	Road (W)											
10	L2	1	0	1	0.0	1.195	192.0	LOS F	138.2	976.6	1.00	5.33	9.43	19.9
11	T1	806	4	867	0.5	1.195	192.0	LOS F	138.2	976.6	1.00	5.33	9.43	16.6
12	R2	236	8	248	3.4	1.195	196.2	LOS F	138.2	976.6	1.00	5.33	9.43	20.3
Appr	oach	1043	12	1116	1.1	1.195	193.0	LOS F	138.2	976.6	1.00	5.33	9.43	17.5
All Vehic	cles	2178	100	2341	4.7	1.195	110.0	LOS F	138.2	976.6	0.98	3.22	5.39	26.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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V Site: 2AM_FY [0730_OLD_DAV_35_AM_FY (Site Folder:

AM_FY)]

New Site

Site Category: (None) Give-Way (Two-Way)

Vehi	cle M	ovemen	t Perfor	mance										
Mov ID	Turn	INP VOLU [Total veh/h		DEM FLO [Total veh/h		Deg. Satn v/c		Level of Service		ACK OF EUE Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East:	Old B	athurst R		7 3 1 1 1										
4a 5	L1 T1	37 412	11 34	39 434	29.7 8.3	0.024 0.234	5.9 0.1	LOS A LOS A	0.0 0.0	0.0	0.00 0.00	0.60 0.00	0.00 0.00	54.2 69.9
Appro		449 Bathurst F	45	473	10.0	0.234	0.6	NA	0.0	0.0	0.00	0.05	0.00	68.5
11	. Old L	1224	27	1288	2.2	0.675	0.5	LOSA	0.0	0.0	0.00	0.00	0.00	69.0
12b	R3	57	8	60	14.0	0.073	20.9	LOS B	0.0	7.1	0.70	0.92	0.78	49.2
Appro	oach	1281	35	1348	2.7	0.675	1.5	NA	0.9	7.1	0.03	0.04	0.03	67.9
South	nWest:	David R	oad											
30b 32a	L3 R1	31 19	12 14	33 20	38.7 73.7	0.052 3.333	10.2 2693.9	LOS A LOS F	0.2 17.5	1.7 200.2	0.49 1.00	0.72 1.33	0.49 2.26	53.2 1.3
Appro	oach	50	26	53	52.0	3.333	1030.0	LOS F	17.5	200.2	0.69	0.95	1.16	3.5
All Vehic	les	1780	106	1874	6.0	3.333	30.1	NA	17.5	200.2	0.04	0.07	0.06	46.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: C:\Users\Shawn Cen\SCT\Emu plain\SCT_00284_Emu Plains Industrial Estate_SIDRA_2023_v0.9_DL.sip9

♥ Site: 4AM_FY [0745_OLD_SMI_35_AM_FY (Site Folder:

AM_FY)]

New Site

Site Category: (None)

Roundabout

Vehi	cle M	ovemen	t Perfor	rmance										
Mov ID	Turn	INF VOLU [Total	JMES HV]	DEM FLO [Total	WS HV]	Deg. Satn		Level of Service	QUI [Veh.	ACK OF EUE Dist]	Prop. E Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		veh/h	veh/h	veh/h	%	v/c	sec		veh	m				km/h
Sout	h: AGC	CP entran	ce											
1	L2	1	0	1	0.0	0.006	7.6	LOSA	0.0	0.2	0.68	0.61	0.68	48.3
2	T1	1	0	1	0.0	0.006	7.9	LOSA	0.0	0.2	0.68	0.61	0.68	47.7
3	R2	1	0	1	0.0	0.006	12.0	LOSA	0.0	0.2	0.68	0.61	0.68	49.5
3u	U	1	0	1	0.0	0.006	13.9	LOSA	0.0	0.2	0.68	0.61	0.68	52.1
Appr	oach	4	0	4	0.0	0.006	10.4	LOSA	0.0	0.2	0.68	0.61	0.68	49.5
East	Old B	athurst R	oad (E)											
4	L2	44	0	46	0.0	0.545	5.1	LOSA	4.9	36.8	0.51	0.56	0.51	50.7
5	T1	436	48	459	11.0	0.545	5.6	LOSA	4.9	36.8	0.51	0.56	0.51	47.5
6	R2	152	13	160	8.6	0.545	9.7	LOSA	4.9	36.8	0.51	0.56	0.51	46.8
6u	U	1	0	1	0.0	0.545	11.4	LOSA	4.9	36.8	0.51	0.56	0.51	50.5
Appr	oach	633	61	666	9.6	0.545	6.5	LOSA	4.9	36.8	0.51	0.56	0.51	47.6
North	n: Smit	h Street												
7	L2	182	12	192	6.6	0.520	18.1	LOS B	4.5	34.0	1.00	1.12	1.26	35.7
8	T1	1	0	1	0.0	0.520	17.6	LOS B	4.5	34.0	1.00	1.12	1.26	41.1
9	R2	18	6	19	33.3	0.520	24.1	LOS B	4.5	34.0	1.00	1.12	1.26	33.0
9u	U	1	0	1	0.0	0.520	23.4	LOS B	4.5	34.0	1.00	1.12	1.26	37.1
Appr	oach	202	18	213	8.9	0.520	18.6	LOS B	4.5	34.0	1.00	1.12	1.26	35.5
West	: Old E	Bathurst F	Road (W)											
10	L2	226	11	238	4.9	0.277	6.2	LOSA	1.7	12.6	0.48	0.60	0.48	46.0
11	T1	852	38	897	4.5	0.719	6.0	LOSA	8.5	61.6	0.70	0.58	0.70	47.8
12	R2	102	0	107	0.0	0.719	10.0	LOSA	8.5	61.6	0.70	0.58	0.70	51.0
12u	U	1	0	1	0.0	0.719	11.9	LOSA	8.5	61.6	0.70	0.58	0.70	49.2
Appr	oach	1181	49	1243	4.1	0.719	6.4	LOSA	8.5	61.6	0.66	0.59	0.66	47.8
All Vehic	cles	2020	128	2126	6.3	0.719	7.7	LOSA	8.5	61.6	0.65	0.63	0.67	46.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 5AM_FY [0745_GWH_OLD_35_AM_FY (Site Folder:

AM_FY)]

TCS 701

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Vehi	cle M	ovemen	t Perfor	rmance										
Mov ID	Turn	INF VOLU		DEM. FLO		Deg. Satn		Level of Service		ACK OF EUE	Prop. Que	Effective Stop	Aver. No.	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %	v/c	sec		[Veh. veh	Dist] m		Rate	Cycles	km/h
South	n: Grea	at Wester	n Highwa	ay (S)										
1	L2	105	6	111	5.7	0.948	79.7	LOS F	29.1	211.4	1.00	1.15	1.42	18.4
2	T1	655	25	689	3.8	* 0.948	74.3	LOS F	29.9	216.2	1.00	1.16	1.41	23.4
Appro	oach	760	31	800	4.1	0.948	75.0	LOS F	29.9	216.2	1.00	1.16	1.41	22.7
North	: Grea	t Wester	n Highwa	ay (N)										
8	T1	462	13	486	2.8	0.352	8.5	LOSA	10.0	71.7	0.39	0.56	0.39	44.3
9	R2	575	60	605	10.4	0.722	33.3	LOS C	24.4	185.7	0.85	0.97	0.85	34.1
Appro	oach	1037	73	1092	7.0	0.722	22.2	LOS B	24.4	185.7	0.64	0.79	0.64	38.0
West	: Old E	Bathurst F	Road (W))										
10	L2	982	51	1034	5.2	* 0.956	51.4	LOS D	67.4	493.1	0.99	0.99	1.14	28.3
12	R2	110	5	143	4.5	0.489	55.7	LOS D	8.1	58.8	1.00	0.81	1.00	21.2
Appro	oach	1092	56	1177	5.1	0.956	51.9	LOS D	67.4	493.1	0.99	0.97	1.12	27.5
All Vehic	les	2889	160	3068	5.5	0.956	47.4	LOS D	67.4	493.1	0.87	0.95	1.03	28.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).

Queue Model: SIDRA Standard.

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)

Mov _	Input	Dem.	Aver.	Level of	AVERAGE	BACK OF	Prop. Et	fective	Travel	Travel	Aver.
ID Crossing	Vol.	Flow	Delay	Service	QUE [Ped	EUE Dist]	Que	Stop Rate	Time	Dist.	Speed
	ped/h	ped/h	sec		ped	m ¯			sec	m	m/sec
North: Great V	Vestern	Highway	(N)								
P3 Full	15	20	54.2	LOS E	0.1	0.1	0.95	0.95	232.9	214.5	0.92
West: Old Bat	hurst Ro	ad (W)									
P4 Full	174	295	54.8	LOS E	1.0	1.0	0.96	0.96	239.4	221.5	0.93
All Pedestrians	189	315	54.8	LOS E	1.0	1.0	0.96	0.96	239.0	221.1	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.

Project: C:\Users\Shawn Cen\SCT\Emu plain\SCT_00284_Emu Plains Industrial Estate_SIDRA_2023_v0.9_DL.sip9

♥ Site: 1PM_FY [1615_OLD_RUS_35_PM_FY (Site Folder:

PM_FY)]

New Site

Site Category: (None)

Roundabout

Vehi	cle M	ovemen	t Perfor	mance										
	Turn	INP		DEM.		Deg.		Level of	95% B	ACK OF		Effective	Aver.	Aver.
ID		VOLU		FLO		Satn	Delay	Service		EUE	Que	Stop	No.	Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %	v/c	sec		[Veh. veh	Dist] m		Rate	Cycles	km/h
South	h: Rus	sell Stree	t (S)											
1	L2	235	14	247	6.0	1.101	130.4	LOS F	53.4	402.0	1.00	3.25	5.93	24.9
2	T1	137	5	144	3.6	1.101	130.2	LOS F	53.4	402.0	1.00	3.25	5.93	28.8
3	R2	139	25	146	18.0	1.101	134.9	LOS F	53.4	402.0	1.00	3.25	5.93	26.3
3u	U	33	4	35	12.1	1.101	136.3	LOS F	53.4	402.0	1.00	3.25	5.93	29.1
Appr	oach	544	48	573	8.8	1.101	131.8	LOS F	53.4	402.0	1.00	3.25	5.93	26.6
East:	Old B	athurst R	oad (E)											
4	L2	168	15	173	8.9	1.249	237.8	LOS F	185.3	1316.7	1.00	5.99	10.06	18.9
5	T1	893	6	981	0.7	1.249	237.4	LOS F	185.3	1316.7	1.00	5.99	10.06	14.3
6	R2	103	0	111	0.0	1.249	241.4	LOS F	185.3	1316.7	1.00	5.99	10.06	18.7
6u	U	10	0	12	0.0	1.249	243.1	LOS F	185.3	1316.7	1.00	5.99	10.06	15.9
Appr	oach	1174	21	1277	1.7	1.249	237.9	LOS F	185.3	1316.7	1.00	5.99	10.06	15.5
North	n: Russ	sell Street	t (N)											
7	L2	52	0	55	0.0	0.222	8.3	LOSA	1.5	10.6	0.82	0.82	0.82	46.9
8	T1	60	3	63	5.0	0.222	8.5	LOS A	1.5	10.6	0.82	0.82	0.82	47.9
9	R2	15	4	16	26.7	0.222	13.6	LOSA	1.5	10.6	0.82	0.82	0.82	47.0
Appr	oach	127	7	134	5.5	0.222	9.0	LOSA	1.5	10.6	0.82	0.82	0.82	47.5
West	:: Old E	Bathurst F	Road (W)											
10	L2	9	0	9	0.0	0.651	8.4	LOSA	7.0	49.6	0.86	0.89	1.01	46.3
11	T1	345	5	363	1.4	0.651	8.5	LOSA	7.0	49.6	0.86	0.89	1.01	45.8
12	R2	206	3	217	1.5	0.651	12.5	LOSA	7.0	49.6	0.86	0.89	1.01	46.9
12u	U	1	0	1	0.0	0.651	14.2	LOSA	7.0	49.6	0.86	0.89	1.01	45.8
Appr		561	8	591	1.4	0.651	10.0	LOSA	7.0	49.6	0.86	0.89	1.01	46.3
All Vehic	cles	2406	84	2574	3.4	1.249	150.1	LOSF	185.3	1316.7	0.96	3.94	6.59	22.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

V Site: 2PM_FY [1615_OLD_DAV_35_PM_FY (Site Folder:

PM_FY)]

New Site

Site Category: (None) Give-Way (Two-Way)

Vehi	cle M	ovemen	t Perfor	mance										
Mov ID	Turn	INP VOLU [Total veh/h		DEM, FLO [Total veh/h		Deg. Satn v/c		Level of Service		ACK OF EUE Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East:	Old B	athurst R				.,,								
4a 5 Appro	L1 T1 pach	7 1116 1123	3 18 21	7 1175 1182	42.9 1.6 1.9	0.005 0.609 0.609	6.1 0.4 0.4	LOS A LOS A NA	0.0 0.0 0.0	0.0 0.0 0.0	0.00 0.00 0.00	0.61 0.00 0.00	0.00 0.00 0.00	51.5 69.3 69.2
West	: Old E	Bathurst F	Road (W)											
11 12b Appro	T1 R3 pach	557 22 579	14 13 27	586 23 609	2.5 59.1 4.7	2.947 3.860 3.860	5364.0 2931.8 5271.5	LOS F LOS F NA	1298.5 19.6 1298.5	9285.3 206.5 9285.3	1.00 1.00 1.00	0.00 1.32 0.05	4.61 2.52 4.53	0.9 1.4 0.9
South	nWest:	David R	oad											
30b 32a	L3 R1	73 46	2 0	77 48	2.7 0.0	0.434 3.094	31.4 2182.6	LOS C LOS F	1.4 30.3	10.4 212.2	0.92 1.00	1.03 1.61	1.17 3.64	44.1 1.7
Appro	oach	119	2	125	1.7	3.094	863.0	LOS F	30.3	212.2	0.95	1.25	2.12	4.4
All Vehic	eles	1821	50	1917	2.7	3.860	1732.8	NA	1298.5	9285.3	0.38	0.10	1.58	2.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Project: C:\Users\Shawn Cen\SCT\Emu plain\SCT_00284_Emu Plains Industrial Estate_SIDRA_2023_v0.9_DL.sip9

♥ Site: 4PM_FY [1615_OLD_SMI_35_PM_FY (Site Folder:

PM_FY)]

New Site

Site Category: (None)

Roundabout

Vehi	cle M	ovemen	t Perfo	rmance										
Mov ID	Turn	INP VOLU [Total		DEM/ FLO' [Total		Deg. Satn		Level of Service		ACK OF EUE Dist]	Prop. Que	Effective Stop		Aver. Speed
		veh/h	пv ј veh/h	veh/h	пv ј %	v/c	sec		ven. veh	m m		Rate	Cycles	km/h
South	h: AGC	P entran	се											
1	L2	110	0	116	0.0	0.390	15.9	LOS B	3.0	21.0	0.98	1.02	1.05	43.2
2	T1	1	0	1	0.0	0.390	16.2	LOS B	3.0	21.0	0.98	1.02	1.05	42.7
3	R2	47	0	49	0.0	0.390	20.3	LOS B	3.0	21.0	0.98	1.02	1.05	44.2
3u	U	1	0	1	0.0	0.390	22.2	LOS B	3.0	21.0	0.98	1.02	1.05	47.4
Appr	oach	159	0	167	0.0	0.390	17.2	LOS B	3.0	21.0	0.98	1.02	1.05	43.5
East:	Old B	athurst R	oad (E)											
4	L2	1	0	1	0.0	0.724	5.2	LOSA	9.6	68.1	0.62	0.51	0.62	50.5
5	T1	892	14	939	1.6	0.724	5.5	LOSA	9.6	68.1	0.62	0.51	0.62	48.9
6	R2	38	3	40	7.9	0.724	9.7	LOSA	9.6	68.1	0.62	0.51	0.62	46.6
6u	U	1	0	1	0.0	0.724	11.5	LOSA	9.6	68.1	0.62	0.51	0.62	50.3
Appr	oach	932	17	981	1.8	0.724	5.7	LOSA	9.6	68.1	0.62	0.51	0.62	48.8
North	n: Smit	h Street												
7	L2	126	1	133	8.0	0.308	7.7	LOSA	1.9	13.8	0.75	0.81	0.75	42.6
8	T1	1	0	1	0.0	0.308	7.6	LOSA	1.9	13.8	0.75	0.81	0.75	47.4
9	R2	91	3	96	3.3	0.308	11.8	LOSA	1.9	13.8	0.75	0.81	0.75	43.0
9u	U	1	0	1	0.0	0.308	13.4	LOSA	1.9	13.8	0.75	0.81	0.75	44.5
Appr	oach	219	4	231	1.8	0.308	9.4	LOSA	1.9	13.8	0.75	0.81	0.75	42.8
West	: Old E	Bathurst F	Road (W))										
10	L2	36	3	38	8.3	0.042	5.2	LOSA	0.2	1.6	0.30	0.51	0.30	46.6
11	T1	577	11	607	1.9	0.402	4.9	LOSA	3.3	23.2	0.35	0.45	0.35	50.7
12	R2	1	0	1	0.0	0.402	9.0	LOSA	3.3	23.2	0.35	0.45	0.35	53.0
12u	U	1	0	1	0.0	0.402	10.9	LOSA	3.3	23.2	0.35	0.45	0.35	51.9
Appr	oach	615	14	647	2.3	0.402	4.9	LOSA	3.3	23.2	0.35	0.46	0.35	50.5
All Vehic	cles	1925	35	2026	1.8	0.724	6.8	LOSA	9.6	68.1	0.58	0.57	0.59	47.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Site: 5PM_FY [1615_GWH_OLD_35_PM_FY (Site Folder:

PM_FY)]

TCS 701

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 128 seconds (Site User-Given Phase Times)

Vehi	cle M	ovemen	t Perfor	rmance										
Mov ID	Turn	INP VOLU		DEM. FLO		Deg. Satn		Level of Service		ACK OF EUE	Prop. Que	Effective Stop	Aver. No.	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %	v/c	sec		[Veh. veh	Dist] m		Rate	Cycles	km/h
South	n: Grea	at Wester	n Highwa	ay (S)										
1	L2	84	3	88	3.6	0.836	65.9	LOS E	19.1	137.6	1.00	0.96	1.17	21.0
2	T1	478	14	503	2.9	* 0.836	60.5	LOS E	19.6	140.6	1.00	0.96	1.17	26.3
Appro	oach	562	17	592	3.0	0.836	61.3	LOS E	19.6	140.6	1.00	0.96	1.17	25.6
North	: Grea	t Wester	n Highwa	ay (N)										
8	T1	655	16	689	2.4	0.462	4.7	LOSA	13.9	99.7	0.36	0.33	0.36	54.6
9	R2	853	15	898	1.8	* 0.837	29.8	LOS C	40.9	290.5	0.88	0.99	0.88	36.2
Appro	oach	1508	31	1587	2.1	0.837	18.9	LOS B	40.9	290.5	0.65	0.70	0.66	42.4
West	: Old E	Bathurst F	Road (W))										
10	L2	654	13	688	2.0	0.606	19.9	LOS B	28.8	204.8	0.74	0.83	0.74	41.2
12	R2	125	1	132	8.0	* 0.624	39.5	LOS C	6.2	43.5	0.76	0.75	0.77	27.5
Appro	oach	779	14	820	1.8	0.624	23.1	LOS B	28.8	204.8	0.74	0.81	0.75	38.9
All Vehic	les	2849	62	2999	2.2	0.837	28.4	LOS B	40.9	290.5	0.75	0.78	0.78	36.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).

Queue Model: SIDRA Standard.

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 I	Novem	ent Perf	ormano	e							
Mov ID Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE QUE I Ped		Prop. Ef Que	fective Stop Rate	Travel Time	Travel Dist.	Aver. Speed
	ped/h	ped/h	sec		ped	m m		rtato	sec	m	m/sec
North: Great V	Vestern	Highway	(N)								
P3 Full	18	26	58.2	LOS E	0.1	0.1	0.95	0.95	236.9	214.4	0.91
West: Old Bat	hurst Ro	ad (W)									
P4 Full	10	12	58.2	LOS E	0.0	0.0	0.95	0.95	238.2	216.0	0.91
All Pedestrians	28	38	58.2	LOS E	0.1	0.1	0.95	0.95	237.3	214.9	0.91

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.

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♥ Site: 1AM_DV [0730_OLD_RUS_35_AM_DV (Site Folder:

AM_DV)]

New Site

Site Category: (None)

Roundabout

Vehi	icle M	ovemen	t Perfor	mance										
Mov ID	Turn	INP VOLU [Total veh/h		DEM FLO [Total veh/h		Deg. Satn v/c		Level of Service		ACK OF EUE Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
Sout	h: Rus	sell Stree	t (S)											
1	L2	114	5	116	4.4	1.167	168.4	LOS F	87.4	637.5	1.00	3.99	7.05	21.7
2	T1	42	0	43	0.0	1.167	168.1	LOS F	87.4	637.5	1.00	3.99	7.05	25.6
3	R2	522	24	563	4.6	1.167	172.4	LOS F	87.4	637.5	1.00	3.99	7.05	23.1
3u	U	20	4	28	20.0	1.167	175.1	LOS F	87.4	637.5	1.00	3.99	7.05	25.9
Appr	oach	698	33	750	4.9	1.167	171.7	LOS F	87.4	637.5	1.00	3.99	7.05	23.1
East	: Old B	athurst R	oad (E)											
4	L2	142	28	161	19.7	0.725	14.0	LOSA	8.3	63.6	0.90	1.05	1.21	45.4
5	T1	244	14	246	5.7	0.725	13.2	LOSA	8.3	63.6	0.90	1.05	1.21	44.1
6	R2	25	1	32	4.0	0.725	17.1	LOS B	8.3	63.6	0.90	1.05	1.21	45.9
6u	U	19	3	25	15.8	0.725	19.5	LOS B	8.3	63.6	0.90	1.05	1.21	45.1
Appr	oach	430	46	464	11.0	0.725	14.1	LOSA	8.3	63.6	0.90	1.05	1.21	44.8
North	h: Russ	sell Street	t (N)											
7	L2	96	1	105	1.0	0.797	71.2	LOS F	12.1	87.6	1.00	1.58	2.32	33.2
8	T1	121	8	133	6.6	0.797	71.7	LOS F	12.1	87.6	1.00	1.58	2.32	35.8
9	R2	9	0	10	0.0	0.797	75.1	LOS F	12.1	87.6	1.00	1.58	2.32	32.2
Appr	oach	226	9	248	4.0	0.797	71.6	LOS F	12.1	87.6	1.00	1.58	2.32	34.7
West	t: Old E	Bathurst F	Road (W))										
10	L2	1	0	1	0.0	1.390	365.8	LOS F	217.2	1535.2	1.00	7.76	14.72	12.9
11	T1	806	4	867	0.5	1.390	365.8	LOS F	217.2	1535.2	1.00	7.76	14.72	10.3
12	R2	236	8	248	3.4	1.390	370.0	LOS F	217.2	1535.2	1.00	7.76	14.72	13.2
Appr	oach	1043	12	1116	1.1	1.390	366.8	LOS F	217.2	1535.2	1.00	7.76	14.72	11.0
All Vehic	cles	2397	100	2578	4.3	1.390	218.1	LOS F	217.2	1535.2	0.98	4.86	8.87	18.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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V Site: 2AM_DV [0730_OLD_DAV_35_AM_DV (Site Folder:

AM_DV)] **New Site**

Site Category: (None) Give-Way (Two-Way)

Vehi	cle M	ovemen	t Perfor	mance										
Mov ID	Turn	INP VOLU [Total veh/h		DEM, FLO [Total veh/h		Deg. Satn v/c		Level of Service		ACK OF EUE Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East:	Old B	athurst R												
4a 5	L1 T1	205 412	11 34	216 434	5.4 8.3	0.115 0.234	5.6 0.1	LOS A LOS A	0.0	0.0 0.0	0.00	0.60 0.00	0.00	60.0 69.9
Appro		617	45	649	7.3	0.234	1.9	NA	0.0	0.0	0.00	0.20	0.00	66.7
West	: Old E	Bathurst F	Road (W))										
11 12b Appro	T1 R3 pach	1224 254 1478	27 8 35	1288 267 1556	2.2 3.1 2.4	1.396 1.467 1.467	409.1 458.8 417.6	LOS F LOS F NA	314.5 61.3 314.5	2243.1 440.6 2243.1	1.00 1.00 1.00	0.00 3.67 0.63	12.60 12.42 12.57	10.4 8.5 10.0
South	nWest:	David R	oad											
30b 32a	L3 R1	53 38	12 14	56 40	22.6 36.8	0.080 6.667	9.6 5498.2	LOS A LOS F	0.3 38.4	2.3 353.9	0.48 1.00	0.73 1.36	0.48 2.51	54.6 0.7
Appro	oach	91	26	96	28.6	6.667	2301.5	LOS F	38.4	353.9	0.70	0.99	1.33	1.7
All Vehic	eles	2186	106	2301	4.8	6.667	378.7	NA	314.5	2243.1	0.71	0.52	8.55	10.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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♥ Site: 4AM_DV [0745_OLD_SMI_35_AM_DV (Site Folder:

AM_DV)]

New Site

Site Category: (None)

Roundabout

Vehi	cle M	ovemen	t Perfo	rmance										
Mov ID	Turn	INF VOLU	JMES	DEM, FLO	WS	Deg. Satn		Level of Service	QUE		Prop. Que	Effective Stop		Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %	v/c	sec		[Veh. veh	Dist] m		Rate	Cycles	km/h
South	h: AGC	CP entran	се											
1	L2	1	0	1	0.0	0.007	9.3	LOSA	0.0	0.3	0.79	0.64	0.79	47.1
2	T1	1	0	1	0.0	0.007	9.6	LOSA	0.0	0.3	0.79	0.64	0.79	46.5
3	R2	1	0	1	0.0	0.007	13.7	LOSA	0.0	0.3	0.79	0.64	0.79	48.2
3u	U	1	0	1	0.0	0.007	15.6	LOS B	0.0	0.3	0.79	0.64	0.79	50.9
Appr	oach	4	0	4	0.0	0.007	12.0	LOSA	0.0	0.3	0.79	0.64	0.79	48.3
East:	Old B	athurst R	load (E)											
4	L2	44	0	46	0.0	0.673	5.4	LOSA	7.4	55.4	0.62	0.56	0.62	50.3
5	T1	604	48	636	7.9	0.673	5.8	LOSA	7.4	55.4	0.62	0.56	0.62	47.6
6	R2	152	13	160	8.6	0.673	9.9	LOSA	7.4	55.4	0.62	0.56	0.62	46.4
6u	U	1	0	1	0.0	0.673	11.7	LOSA	7.4	55.4	0.62	0.56	0.62	50.0
Appr	oach	801	61	843	7.6	0.673	6.6	LOSA	7.4	55.4	0.62	0.56	0.62	47.5
North	n: Smit	h Street												
7	L2	182	12	192	6.6	0.545	19.8	LOS B	4.9	36.8	1.00	1.13	1.31	34.7
8	T1	1	0	1	0.0	0.545	19.3	LOS B	4.9	36.8	1.00	1.13	1.31	40.1
9	R2	18	6	19	33.3	0.545	25.8	LOS B	4.9	36.8	1.00	1.13	1.31	32.1
9u	U	1	0	1	0.0	0.545	25.1	LOS B	4.9	36.8	1.00	1.13	1.31	36.0
Appr	oach	202	18	213	8.9	0.545	20.3	LOS B	4.9	36.8	1.00	1.13	1.31	34.5
West	: Old E	Bathurst F	Road (W))										
10	L2	226	11	238	4.9	0.278	6.2	LOSA	1.8	12.9	0.49	0.60	0.49	45.9
11	T1	871	38	917	4.4	0.736	6.0	LOSA	9.2	66.3	0.73	0.59	0.73	47.6
12	R2	102	0	107	0.0	0.736	10.1	LOSA	9.2	66.3	0.73	0.59	0.73	50.8
12u	U	1	0	1	0.0	0.736	12.0	LOS A	9.2	66.3	0.73	0.59	0.73	49.0
Appr	oach	1200	49	1263	4.1	0.736	6.4	LOSA	9.2	66.3	0.69	0.59	0.69	47.7
All Vehic	cles	2207	128	2323	5.8	0.736	7.7	LOSA	9.2	66.3	0.69	0.63	0.72	46.1

 $\hbox{Site Level of Service (LOS) Method: Delay (RTA NSW)}. \hbox{ Site LOS Method is specified in the Parameter Settings dialog (Site tab)}. \\$

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).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Project: C:\Users\Shawn Cen\SCT\Emu plain\SCT_00284_Emu Plains Industrial Estate_SIDRA_2023_v0.9_DL.sip9

Site: 5AM_DV [0745_GWH_OLD_35_AM_DV (Site Folder:

AM_DV)]

TCS 701

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Vehi	cle M	ovemen	t Perfo	rmance										
Mov ID	Turn	INP VOLU [Total veh/h		DEM, FLO [Total veh/h		Deg. Satn v/c		Level of Service		ACK OF EUE Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South	n: Grea	at Wester			,,,	1,5			7011					1(11)/11
1 2	L2 T1	105 655	6 25	111 689	5.7 3.8	0.948 * 0.948	79.7 74.3	LOS F LOS F	29.1 29.9	211.4 216.2	1.00 1.00	1.15 1.16	1.42 1.41	18.4 23.4
Appro	oach	760	31	800	4.1	0.948	75.0	LOS F	29.9	216.2	1.00	1.16	1.41	22.7
North	: Grea	at Wester	n Highwa	ay (N)										
8	T1	462	13	486	2.8	0.348	8.1	LOSA	9.7	69.4	0.38	0.56	0.38	44.6
9	R2	743	60	782	8.1	0.904	50.4	LOS D	46.3	346.2	0.99	1.10	1.14	28.5
Appro	oach	1205	73	1268	6.1	0.904	34.2	LOS C	46.3	346.2	0.75	0.89	0.85	33.0
West	: Old E	Bathurst F	Road (W))										
10	L2	1001	51	1054	5.1	* 0.974	58.4	LOS E	73.0	533.5	1.00	1.02	1.20	26.5
12	R2	111	6	144	5.4	0.522	56.7	LOS E	8.2	60.1	1.00	0.81	1.00	21.0
Appro	oach	1112	57	1198	5.1	0.974	58.2	LOS E	73.0	533.5	1.00	0.99	1.17	25.9
All Vehic	les	3077	161	3266	5.2	0.974	53.0	LOS D	73.0	533.5	0.90	0.99	1.11	27.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).

Queue Model: SIDRA Standard.

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 I	Pedestrian Movement Performance												
Mov ID Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of AVERAGE BACK OF Service QUEUE [Ped Dist]			Prop. Ef Que	fective Stop Rate	Travel Time	Travel Dist.	Aver. Speed		
	ped/h	ped/h	sec		ped	m		rtato	sec	m	m/sec		
North: Great V	Vestern	Highway	(N)										
P3 Full	15	20	54.2	LOS E	0.1	0.1	0.95	0.95	232.9	214.5	0.92		
West: Old Bat	hurst Ro	ad (W)											
P4 Full	174	295	54.8	LOS E	1.0	1.0	0.96	0.96	239.4	221.5	0.93		
All Pedestrians	189	315	54.8	LOS E	1.0	1.0	0.96	0.96	239.0	221.1	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.

Project: C:\Users\Shawn Cen\SCT\Emu plain\SCT_00284_Emu Plains Industrial Estate_SIDRA_2023_v0.9_DL.sip9

♥ Site: 1PM_DV [1615_OLD_RUS_35_PM_DV (Site Folder:

PM_DV)]

New Site

Site Category: (None)

Roundabout

Vehi	cle M	ovemen	t Perfo	mance										
	Turn	INP		DEM.		Deg.		Level of		ACK OF		Effective	Aver.	Aver.
ID		VOLU [Total	MES HV]	FLO [Total	WS HV]	Satn	Delay	Service	QUI [Veh.	EUE Dist]	Que	Stop Rate	No. Cycles	Speed
		veh/h	veh/h	veh/h	пv ј %	v/c	sec		ven. veh	m m		Nate	Cycles	km/h
South	South: Russell Street (S)													
1	L2	235	14	247	6.0	0.950	38.0	LOS C	21.9	164.5	1.00	1.78	2.66	38.3
2	T1	137	5	144	3.6	0.950	37.9	LOS C	21.9	164.5	1.00	1.78	2.66	41.2
3	R2	163	25	172	15.3	0.950	42.4	LOS C	21.9	164.5	1.00	1.78	2.66	39.6
3u	U	33	4	35	12.1	0.950	44.0	LOS D	21.9	164.5	1.00	1.78	2.66	41.5
Appr	oach	568	48	598	8.5	0.950	39.6	LOS C	21.9	164.5	1.00	1.78	2.66	39.7
East	Old B	athurst R	oad (E)											
4	L2	380	15	392	3.9	1.456	420.9	LOS F	318.5	2257.4	1.00	8.76	14.95	12.8
5	T1	893	6	981	0.7	1.456	420.7	LOS F	318.5	2257.4	1.00	8.76	14.95	9.2
6	R2	103	0	111	0.0	1.456	424.8	LOS F	318.5	2257.4	1.00	8.76	14.95	12.6
6u	U	10	0	12	0.0	1.456	426.5	LOS F	318.5	2257.4	1.00	8.76	14.95	10.4
Appr		1386	21	1496	1.5	1.456	421.1	LOS F	318.5	2257.4	1.00	8.76	14.95	10.5
North	n: Russ	sell Street	t (N)											
7	L2	52	0	55	0.0	0.235	8.8	LOSA	1.6	11.5	0.84	0.84	0.84	46.8
8	T1	60	3	63	5.0	0.235	9.0	LOSA	1.6	11.5	0.84	0.84	0.84	47.8
9	R2	15	4	16	26.7	0.235	14.2	LOSA	1.6	11.5	0.84	0.84	0.84	46.8
Appr		127	7	134	5.5	0.235	9.6	LOSA	1.6	11.5	0.84	0.84	0.84	47.3
West	·· Old E	Bathurst F	Road (W)											
			` '		0.0	0.000	0.0	1004	0.0	50.0	0.04	0.00	4 4 4	45.0
10	L2	9	0	9	0.0	0.689	9.9	LOSA	8.0	56.9	0.91	0.98	1.14	45.8
11	T1	345	5	363	1.4	0.689	9.9	LOSA	8.0	56.9	0.91	0.98	1.14	45.2
12	R2	206	3	217	1.5	0.689	14.0	LOSA	8.0	56.9	0.91	0.98	1.14	46.4
12u	U	1	0	1	0.0	0.689	15.6	LOS B	8.0	56.9	0.91	0.98	1.14	45.1
Appr	oach	561	8	591	1.4	0.689	11.4	LOSA	8.0	56.9	0.91	0.98	1.14	45.7
All		2642	84	2818	3.1	1.456	234.8	LOS F	318.5	2257.4	0.97	5.27	8.78	17.1
Vehic	cles													

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

V Site: 2PM_DV [1615_OLD_DAV_35_PM_DV (Site Folder:

PM_DV)]

New Site

Site Category: (None) Give-Way (Two-Way)

Vehi	Vehicle Movement Performance													
Mov ID	Turn	INPUT VOLUMES		DEM. FLO	WS	Deg. Satn		Level of Service	QU	ACK OF EUE	Prop. Que	Effective Stop		Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %	v/c	sec		[Veh. veh	Dist] m		Rate	Cycles	km/h
East:	Old B	athurst R	oad (E)											
4a	L1	27	3	28	11.1	0.016	5.7	LOSA	0.0	0.0	0.00	0.60	0.00	58.5
5	T1	1116	18	1175	1.6	0.609	0.4	LOSA	0.0	0.0	0.00	0.00	0.00	69.3
Appro	oach	1143	21	1203	1.8	0.609	0.5	NA	0.0	0.0	0.00	0.01	0.00	69.0
West	: Old E	Bathurst F	Road (W)	1										
11	T1	557	14	586	2.5	3.707	4186.9	LOS F	723.3	5172.0	1.00	0.00	4.54	1.1
12b	R3	46	13	48	28.3	5.332	4094.0	LOS F	37.3	324.7	1.00	1.47	3.37	1.0
Appro	oach	603	27	635	4.5	5.332	4179.8	NA	723.3	5172.0	1.00	0.11	4.45	1.1
South	nWest:	David R	oad											
30b	L3	285	2	300	0.7	1.636	604.7	LOS F	79.0	556.3	1.00	5.00	17.91	6.7
32a	R1	227	0	239	0.0	16.805	14341.7	LOS F	191.5	1340.6	1.00	1.75	4.29	0.3
Appro	oach	512	2	539	0.4	16.805	6695.1	LOS F	191.5	1340.6	1.00	3.56	11.87	0.6
All Vehic	eles	2258	50	2377	2.2	16.805	2634.6	NA	723.3	5172.0	0.49	0.84	3.88	1.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab). Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

Delay Model: SIDRA Standard (Geometric Delay is included).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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♥ Site: 4PM_DV [1615_OLD_SMI_35_PM_DV (Site Folder:

PM_DV)]

New Site

Site Category: (None)

Roundabout

Vehi	cle M	ovemen	t Perfo	rmance										
Mov ID	Turn	INPUT VOLUMES [Total HV]		DEMAND FLOWS [Total HV]		Deg. Satn		Level of Service	95% B <i>I</i> QUI [Veh.	ACK OF EUE Dist]	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		veh/h	veh/h	veh/h	%	v/c	sec		veh	m m		rtato	Cyclos	km/h
South	h: AGC	CP entran	се											
1	L2	110	0	116	0.0	0.410	17.1	LOS B	3.2	22.7	1.00	1.04	1.11	42.4
2	T1	1	0	1	0.0	0.410	17.4	LOS B	3.2	22.7	1.00	1.04	1.11	41.9
3	R2	47	0	49	0.0	0.410	21.5	LOS B	3.2	22.7	1.00	1.04	1.11	43.4
3u	U	1	0	1	0.0	0.410	23.4	LOS B	3.2	22.7	1.00	1.04	1.11	46.7
Appr	oach	159	0	167	0.0	0.410	18.5	LOS B	3.2	22.7	1.00	1.04	1.11	42.7
East:	Old B	athurst R	oad (E)											
4	L2	1	0	1	0.0	0.741	5.2	LOSA	10.4	73.9	0.66	0.51	0.66	50.3
5	T1	912	14	960	1.5	0.741	5.5	LOSA	10.4	73.9	0.66	0.51	0.66	48.7
6	R2	38	3	40	7.9	0.741	9.8	LOSA	10.4	73.9	0.66	0.51	0.66	46.4
6u	U	1	0	1	0.0	0.741	11.5	LOSA	10.4	73.9	0.66	0.51	0.66	50.1
Appr	oach	952	17	1002	1.8	0.741	5.7	LOSA	10.4	73.9	0.66	0.51	0.66	48.6
North	n: Smit	h Street												
7	L2	126	1	133	8.0	0.378	10.1	LOSA	2.6	18.4	0.86	0.92	0.88	40.6
8	T1	1	0	1	0.0	0.378	10.1	LOSA	2.6	18.4	0.86	0.92	0.88	45.5
9	R2	91	3	96	3.3	0.378	14.3	LOSA	2.6	18.4	0.86	0.92	0.88	40.9
9u	U	1	0	1	0.0	0.378	15.8	LOS B	2.6	18.4	0.86	0.92	0.88	42.3
Appr	oach	219	4	231	1.8	0.378	11.9	LOSA	2.6	18.4	0.86	0.92	0.88	40.8
West	:: Old E	Bathurst F	Road (W))										
10	L2	36	3	38	8.3	0.042	5.2	LOSA	0.2	1.6	0.30	0.51	0.30	46.6
11	T1	757	11	797	1.5	0.521	5.0	LOSA	4.9	35.0	0.41	0.46	0.41	50.4
12	R2	1	0	1	0.0	0.521	9.1	LOSA	4.9	35.0	0.41	0.46	0.41	52.7
12u	U	1	0	1	0.0	0.521	11.0	LOSA	4.9	35.0	0.41	0.46	0.41	51.5
Appr	oach	795	14	837	1.8	0.521	5.0	LOSA	4.9	35.0	0.40	0.46	0.40	50.2
All Vehic	cles	2125	35	2237	1.6	0.741	7.0	LOSA	10.4	73.9	0.61	0.57	0.62	47.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Site: 5PM_DV [1615_GWH_OLD_35_PM_DV (Site Folder:

PM_DV)]

TCS 701

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Coordinated Cycle Time = 128 seconds (Site User-Given Phase Times)

Vehi	Vehicle Movement Performance													
Mov ID	Turn	INPUT VOLUMES		DEM. FLO		Deg. Satn		Level of Service		ACK OF EUE	Prop. Que	Effective Stop	Aver. No.	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %	v/c	sec		[Veh. veh	Dist] m		Rate	Cycles	km/h
South	n: Grea	at Wester	n Highwa	ay (S)										
1	L2	84	3	88	3.6	0.836	65.9	LOS E	19.1	137.6	1.00	0.96	1.17	21.0
2	T1	478	14	503	2.9	* 0.836	60.5	LOS E	19.6	140.6	1.00	0.96	1.17	26.3
Appro	oach	562	17	592	3.0	0.836	61.3	LOS E	19.6	140.6	1.00	0.96	1.17	25.6
North	: Grea	t Wester	n Highwa	ay (N)										
8	T1	655	16	689	2.4	0.462	4.7	LOSA	13.9	99.7	0.36	0.33	0.36	54.6
9	R2	873	15	919	1.7	* 0.856	32.3	LOS C	44.7	317.2	0.90	1.01	0.92	35.1
Appro	oach	1528	31	1608	2.0	0.856	20.5	LOS B	44.7	317.2	0.67	0.72	0.68	41.4
West	: Old E	Bathurst F	Road (W))										
10	L2	835	13	879	1.6	0.753	22.9	LOS B	40.9	289.8	0.83	0.87	0.83	39.6
12	R2	125	1	132	8.0	* 0.624	39.5	LOS C	6.2	43.5	0.76	0.75	0.77	27.5
Appro	oach	960	14	1011	1.5	0.753	25.1	LOS B	40.9	289.8	0.82	0.85	0.82	37.9
All Vehic	les	3050	62	3211	2.0	0.856	29.4	LOS C	44.7	317.2	0.78	0.80	0.81	36.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).

Queue Model: SIDRA Standard.

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 N	Pedestrian Movement Performance												
Mov ID Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	evel of AVERAGE BACK OF ervice QUEUE [Ped Dist]		Prop. Ef Que	fective Stop Rate	Travel Time	Travel Dist. S	Aver. Speed		
	ped/h	ped/h	sec		ped	m -			sec	m	m/sec		
North: Great V	Vestern	Highway	(N)										
P3 Full	18	26	58.2	LOS E	0.1	0.1	0.95	0.95	236.9	214.4	0.91		
West: Old Bat	hurst Ro	ad (W)											
P4 Full	10	12	58.2	LOS E	0.0	0.0	0.95	0.95	238.2	216.0	0.91		
All Pedestrians	28	38	58.2	LOS E	0.1	0.1	0.95	0.95	237.3	214.9	0.91		

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.

Project: C:\Users\Shawn Cen\SCT\Emu plain\SCT_00284_Emu Plains Industrial Estate_SIDRA_2023_v0.9_DL.sip9

Site: 1AM_FY [0730_OLD_RUS_35_AM_FY_I (Site Folder:

AM_FY)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Vehi	cle M	ovemen	t Perfo	rmance										
	Turn	INP		DEM		Deg.		Level of	95% BA			Effective	Aver.	Aver.
ID		VOLU		FLO		Satn	Delay	Service	QUE		Que	Stop		Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %	v/c	sec		[Veh. veh	Dist] m		Rate	Cycles	km/h
South	n: Rus	sell Stree		7011/11	70	V/ 0			7011					1011/11
1	L2	114	5	116	4.4	0.258	35.1	LOS C	6.7	48.1	0.76	0.72	0.76	39.5
2	T1	42	0	43	0.0	0.258	30.5	LOS C	6.7	48.1	0.76	0.72	0.76	42.0
3	R2	345	28	372	8.1	* 0.726	46.4	LOS D	19.9	148.7	0.96	0.86	0.97	37.9
Appro	oach	501	33	531	6.6	0.726	42.7	LOS D	19.9	148.7	0.90	0.82	0.91	38.6
East:	Old B	athurst R	load (E)											
4	L2	120	28	136	23.3	0.131	11.3	LOSA	2.6	21.7	0.41	0.62	0.41	46.4
5	T1	244	14	246	5.7	0.492	53.3	LOS D	6.9	50.5	0.97	0.78	0.97	32.0
6	R2	44	4	56	9.1	0.646	70.6	LOS F	3.5	26.7	1.00	0.80	1.13	33.2
Appro	oach	408	46	439	11.6	0.646	42.5	LOS D	6.9	50.5	0.80	0.73	0.82	36.6
North	n: Russ	sell Street	t (N)											
7	L2	96	1	105	1.0	* 0.505	32.0	LOS C	4.0	28.8	0.97	0.78	0.97	40.8
8	T1	121	8	133	6.6	* 0.505	49.3	LOS D	6.6	48.9	0.98	0.78	0.98	39.0
9	R2	9	0	10	0.0	0.505	58.9	LOS E	6.6	48.9	0.98	0.78	0.98	34.9
Appro	oach	226	9	248	4.0	0.505	42.3	LOS C	6.6	48.9	0.97	0.78	0.97	39.5
West	: Old E	Bathurst F	Road (W))										
10	L2	1	0	1	0.0	* 0.733	42.5	LOS C	24.5	172.2	0.95	0.83	0.95	38.4
11	T1	806	4	867	0.5	0.733	37.3	LOS C	24.5	172.2	0.92	0.81	0.93	35.9
12	R2	236	8	248	3.4	0.548	47.0	LOS D	12.7	91.7	0.92	0.82	0.92	36.6
Appro	oach	1043	12	1116	1.1	0.733	39.4	LOS C	24.5	172.2	0.92	0.81	0.93	36.1
All Vehic	cles	2178	100	2334	4.7	0.733	41.1	LOS C	24.5	172.2	0.90	0.80	0.91	37.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).

Queue Model: SIDRA Standard.

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 Nov	novem Input	ent Peri Dem.	ormand Aver.		AV/FRAGE	BACK OF	Prop. Ef	fective	Travel	Travel	Aver.
ID Crossing	Vol.	Flow	Delay	Service	QUE [Ped		Que	Stop	Time		Speed
	ped/h	ped/h	sec		ped	m			sec	m	m/sec
South: Russell	l Street	(S)									
P1 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	223.9	220.5	0.98
East: Old Bath	urst Ro	ad (E)									
P2 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	222.3	218.5	0.98
North: Russell	Street ((N)									

P3 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	221.3	217.2	0.98
West: Old Bath	urst Roa	ad (W)									
P4 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	223.9	220.5	0.98
All Pedestrians	0	211	54.3	LOS E	0.2	0.2	0.95	0.95	222.9	219.2	0.98

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.

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♥ Site: 2AM_DV [0730_OLD_DAV_35_AM_FY_I (Site Folder:

AM_FY)]

New Site

Site Category: (None)

Roundabout

Vehi	cle M	ovemen	t Perfor	mance										
Mov ID	Turn	INP VOLU [Total veh/h		DEM FLO [Total veh/h		Deg. Satn v/c		Level of Service		ACK OF EUE Dist] m	Prop. I Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East:	Old B	athurst R	oad (E)											
4a 5 Appro	L1 T1 pach	37 412 449	11 34 45	39 434 473	29.7 8.3 10.0	0.340 0.340 0.340	5.6 5.7 5.7	LOS A LOS A	1.9 1.9 1.9	14.4 14.4 14.4	0.21 0.21 0.21	0.48 0.48 0.48	0.21 0.21 0.21	58.4 63.2 62.8
West	: Old E	Bathurst F	Road (W)											
11 12b Appro	T1 R3 pach	1224 57 1281	27 8 35	1288 60 1348	2.2 14.0 2.7	0.842 0.842 0.842	5.9 11.3 6.2	LOS A LOS A	21.4 21.4 21.4	153.6 153.6 153.6	0.48 0.48 0.48	0.42 0.42 0.42	0.48 0.48 0.48	62.3 58.6 62.1
South	nWest:	David R	oad											
30b 32a	L3 R1	31 19	12 14	33 20	38.7 73.7	0.093 0.093	8.9 13.6	LOS A LOS A	0.5 0.5	4.6 4.6	0.60 0.60	0.72 0.72	0.60 0.60	53.3 50.4
Appro	oach	50	26	53	52.0	0.093	10.7	LOSA	0.5	4.6	0.60	0.72	0.60	52.2
All Vehic	les	1780	106	1874	6.0	0.842	6.2	LOSA	21.4	153.6	0.41	0.44	0.41	62.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Site: 2AM_DV [0730_OLD_DAV_35_AM_FY_I (Site Folder:

AM_FY)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Vehi	cle M	ovemen	t Perfor	mance										
Mov ID	Turn	INP VOLU		DEM. FLO		Deg. Satn		Level of Service		ACK OF EUE	Prop. Que	Effective Stop	Aver. No.	Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %	v/c	sec		[Veh. veh	Dist] m		Rate	Cycles	km/h
East:	Old B	athurst R	oad (E)											
4a	L1	37	11	39	29.7	0.040	15.3	LOS B	0.9	7.7	0.41	0.67	0.41	47.1
5	T1	412	34	434	8.3	0.368	10.6	LOSA	11.7	87.5	0.50	0.45	0.50	59.4
Appro	oach	449	45	473	10.0	0.368	11.0	LOSA	11.7	87.5	0.50	0.47	0.50	58.4
West	: Old E	Bathurst F	Road (W)	1										
11	T1	1224	27	1288	2.2	* 0.877	8.5	LOSA	45.4	323.5	0.66	0.63	0.66	61.2
12b	R3	57	8	60	14.0	0.099	14.2	LOSA	1.2	9.2	0.40	0.71	0.40	53.1
Appro	oach	1281	35	1348	2.7	0.877	8.7	LOSA	45.4	323.5	0.65	0.63	0.65	60.8
South	nWest	David Ro	oad											
30b	L3	51	12	54	23.5	0.146	43.9	LOS D	2.4	20.5	0.81	0.74	0.81	38.8
32a	R1	19	14	20	73.7	* 0.208	65.4	LOS E	1.2	13.4	0.97	0.71	0.97	23.8
Appro	oach	70	26	74	37.1	0.208	49.7	LOS D	2.4	20.5	0.85	0.73	0.85	34.3
All Vehic	eles	1800	106	1895	5.9	0.877	10.9	LOSA	45.4	323.5	0.62	0.60	0.62	58.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).

Queue Model: SIDRA Standard.

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)

Ped	lestrian N	loveme	ent Perf	ormano	се							
Mov ID	Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE QUE [Ped		Prop. Ef Que	fective Stop Rate	Travel Time	Travel Dist. S	Aver. Speed
		ped/h	ped/h	sec		ped	m '			sec	m	m/sec
East	t: Old Bath	urst Roa	ad (E)									
P2	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	218.7	213.8	0.98
Wes	st: Old Batl	nurst Ro	ad (W)									
P4	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	217.4	212.1	0.98
Sou	thWest: Da	avid Roa	nd									
P8	Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	220.0	215.5	0.98
All Ped	estrians	0	158	54.3	LOS E	0.2	0.2	0.95	0.95	218.7	213.8	0.98

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.

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Site: 1AM_DV [0730_OLD_RUS_35_AM_DV_I (Site Folder:

AM_DV)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Vehi	icle M	ovemen	t Perfor	mance										
	Turn	INP		DEM		Deg.		Level of		ACK OF		Effective	Aver.	Aver.
ID		VOLU		FLO		Satn	Delay	Service		EUE	Que	Stop		Speed
		veh/h	HV] veh/h	[Total veh/h	HV] %	v/c	sec		[Veh. veh	Dist] m		Rate	Cycles	km/h
Sout	h: Rus	sell Stree	t (S)											
1	L2	114	5	116	4.4	0.227	19.0	LOS B	3.9	28.0	0.71	0.69	0.71	43.8
2	T1	42	0	43	0.0	0.227	14.4	LOS A	3.9	28.0	0.71	0.69	0.71	45.5
3	R2	542	28	584	5.2	* 0.910	60.0	LOS E	39.4	288.1	1.00	1.02	1.23	35.4
Appr	oach	698	33	743	4.7	0.910	50.9	LOS D	39.4	288.1	0.94	0.95	1.12	37.0
East	: Old B	athurst R	oad (E)											
4	L2	142	28	161	19.7	0.155	8.8	LOSA	2.5	20.2	0.33	0.60	0.33	47.2
5	T1	244	14	246	5.7	0.492	53.3	LOS D	6.9	50.5	0.97	0.78	0.97	32.0
6	R2	44	4	56	9.1	* 0.646	70.6	LOS F	3.5	26.7	1.00	0.80	1.13	33.2
Appr	oach	430	46	464	11.0	0.646	40.0	LOS C	6.9	50.5	0.75	0.72	0.77	37.3
North	n: Russ	sell Street	t (N)											
7	L2	96	1	105	1.0	0.487	55.3	LOS D	7.4	52.5	0.96	0.79	0.96	36.0
8	T1	121	8	133	6.6	* 0.487	53.5	LOS D	7.4	52.5	0.97	0.78	0.97	38.3
9	R2	9	0	10	0.0	0.487	58.8	LOS E	6.4	47.0	0.98	0.78	0.98	34.9
Appr	oach	226	9	248	4.0	0.487	54.5	LOS D	7.4	52.5	0.97	0.78	0.97	37.3
West	t: Old E	Bathurst F	Road (W))										
10	L2	1	0	1	0.0	0.934	71.6	LOS F	34.6	242.9	1.00	1.14	1.33	32.6
11	T1	806	4	867	0.5	* 0.934	67.1	LOS E	34.6	242.9	0.99	1.14	1.34	29.3
12	R2	236	8	248	3.4	0.747	57.5	LOS E	14.5	104.2	1.00	0.88	1.08	34.6
Appr	oach	1043	12	1116	1.1	0.934	65.0	LOS E	34.6	242.9	0.99	1.08	1.28	30.6
All Vehic	cles	2397	100	2572	4.2	0.934	55.4	LOS D	39.4	288.1	0.93	0.95	1.11	34.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).

Queue Model: SIDRA Standard.

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)

Mov	Input	Dem.	Aver.	Level of A	AVERAGE	BACK OF	Prop. Et	fective	Travel	Travel	Aver.
ID Crossing	Vol.	Flow	Delay	Service	QUE		Que	Stop	Time	Dist. S	Speed
					[Ped	Dist]		Rate			
	ped/h	ped/h	sec		ped	m			sec	m i	m/sec
South: Russel	Street (S)									
P1 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	223.9	220.5	0.98
East: Old Bath	urst Roa	ad (E)									
P2 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	222.3	218.5	0.98
North: Russell	Street (N)									

P3 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	221.3	217.2	0.98
West: Old Batl	hurst Ro	ad (W)									
P4 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	223.9	220.5	0.98
All Pedestrians	0	211	54.3	LOS E	0.2	0.2	0.95	0.95	222.9	219.2	0.98

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.

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♥ Site: 2AM_DV [0730_OLD_DAV_35_AM_DV_I (Site Folder:

AM_DV)]

New Site

Site Category: (None)

Roundabout

Vehi	cle M	ovemen	t Perfor	mance										
Mov ID	Turn	INF VOLU [Total veh/h		DEM FLO [Total veh/h		Deg. Satn v/c		Level of Service		ACK OF EUE Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East:	Old B	athurst R	oad (E)											
4a 5 Appro	L1 T1 pach	205 412 617	11 34 45	216 434 649	5.4 8.3 7.3	0.587 0.587 0.587	6.6 7.1 7.0	LOS A LOS A	4.8 4.8 4.8	35.5 35.5 35.5	0.65 0.65 0.65	0.65 0.65 0.65	0.66 0.66 0.66	57.3 61.5 60.2
West	: Old E	Bathurst F	Road (W)											
11 12b Appro	T1 R3 pach	1224 254 1478	27 8 35	1288 267 1556	2.2 3.1 2.4	1.007 1.007 1.007	21.8 27.0 22.7	LOS B LOS B	110.5 110.5 110.5	788.9 788.9 788.9	1.00 1.00 1.00	0.49 0.49 0.49	1.16 1.16 1.16	53.0 49.8 52.5
South	nWest:	David R	oad											
30b 32a	L3 R1	53 38	12 14	56 40	22.6 36.8	0.154 0.154	8.4 12.1	LOS A LOS A	0.9 0.9	7.4 7.4	0.65 0.65	0.75 0.75	0.65 0.65	54.4 52.9
Appro	oach	91	26	96	28.6	0.154	10.0	LOSA	0.9	7.4	0.65	0.75	0.65	53.8
All Vehic	les	2186	106	2301	4.8	1.007	17.7	LOS B	110.5	788.9	0.89	0.55	1.00	54.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Site: 2AM_DV [0730_OLD_DAV_35_AM_DV_I (Site Folder:

AM_DV)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 140 seconds (Site User-Given Cycle Time)

Vehi	cle M	ovemen	t Perfor	mance										
Mov ID	Turn	INP VOLU	JMES	DEM. FLO	WS	Deg. Satn		Level of Service	QUI	ACK OF EUE	Prop. Que	Effective Stop		Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %	v/c	sec		[Veh. veh	Dist] m		Rate	Cycles	km/h
East:	Old B	athurst R	oad (E)											
4a	L1	205	11	216	5.4	0.254	29.5	LOS C	8.8	64.3	0.65	0.76	0.65	39.5
5	T1	412	34	434	8.3	0.596	25.6	LOS B	19.6	146.9	0.72	0.64	0.72	48.9
Appro	oach	617	45	649	7.3	0.596	26.9	LOS B	19.6	146.9	0.70	0.68	0.70	45.8
West	: Old E	Bathurst F	Road (W)											
11	T1	1224	27	1288	2.2	* 0.991	52.0	LOS D	82.4	587.4	0.59	0.77	0.86	37.3
12b	R3	254	8	267	3.1	0.372	20.7	LOS B	9.6	69.0	0.60	0.79	0.60	49.7
Appro	oach	1478	35	1556	2.4	0.991	46.6	LOS D	82.4	587.4	0.59	0.78	0.81	39.1
South	nWest:	David R	oad											
30b	L3	53	12	56	22.6	0.091	31.9	LOS C	2.2	18.6	0.62	0.72	0.62	43.1
32a	R1	38	14	40	36.8	* 0.363	75.4	LOS F	2.7	25.3	0.99	0.74	0.99	23.6
Appro	oach	91	26	96	28.6	0.363	50.1	LOS D	2.7	25.3	0.78	0.73	0.78	33.7
All Vehic	les	2186	106	2301	4.8	0.991	41.2	LOS C	82.4	587.4	0.63	0.75	0.78	40.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).

Queue Model: SIDRA Standard.

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)

Ped	destrian N	<i>l</i> loveme	ent Perf	ormano	e							
Mov ID	V Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE QUE		Prop. Ef Que	fective Stop	Travel Time	Travel Dist. S	Aver.
טו	Croconing	VOI.	FIOW	Delay	Service	[Ped	Dist]	Que	Rate	Tillie	DISt. (speed
		ped/h	ped/h	sec		ped	m			sec	m	m/sec
Eas	t: Old Bath	urst Roa	ad (E)									
P2	Full	50	53	64.3	LOS F	0.2	0.2	0.96	0.96	228.7	213.8	0.93
We	st: Old Batl	hurst Ro	ad (W)									
P4	Full	50	53	64.3	LOS F	0.2	0.2	0.96	0.96	227.4	212.1	0.93
Sou	ıthWest: Da	avid Roa	ad									
P8	Full	50	53	64.3	LOS F	0.2	0.2	0.96	0.96	230.0	215.5	0.94
All Pec	lestrians	0	158	64.3	LOS F	0.2	0.2	0.96	0.96	228.7	213.8	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.

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Site: 1PM_FY [1615_OLD_RUS_35_PM_FY_I (Site Folder: PM_FY)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Vehi	cle M	ovemen	t Perfor	mance										
	Turn	INP		DEM		Deg.		Level of	95% BA			Effective	Aver.	Aver.
ID		VOLU		FLO		Satn	Delay	Service	QUE		Que	Stop		Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %	v/c	sec		[Veh. veh	Dist] m		Rate	Cycles	km/h
South	n: Rus	sell Stree				.,,								
1	L2	235	14	239	6.0	* 0.805	37.9	LOS C	13.7	100.1	1.00	0.91	1.13	38.8
2	T1	137	5	141	3.6	* 0.805	44.3	LOS D	15.5	120.5	1.00	0.92	1.14	39.4
3	R2	172	29	185	16.9	0.805	60.8	LOS E	15.5	120.5	1.00	0.94	1.15	35.5
Appro	oach	544	48	566	9.0	0.805	47.0	LOS D	15.5	120.5	1.00	0.92	1.14	37.9
East:	Old B	athurst R	load (E)											
4	L2	168	15	190	8.9	0.165	7.4	LOSA	2.4	18.0	0.28	0.59	0.28	47.6
5	T1	893	6	902	0.7	* 0.921	60.0	LOS E	31.0	218.3	0.95	1.08	1.27	30.7
6	R2	113	0	145	0.0	0.445	53.0	LOS D	7.7	53.9	0.94	0.79	0.94	36.2
Appro	oach	1174	21	1237	1.9	0.921	51.1	LOS D	31.0	218.3	0.85	0.97	1.08	34.0
North	: Russ	sell Street	t (N)											
7	L2	52	0	57	0.0	0.278	53.3	LOS D	4.1	28.8	0.92	0.75	0.92	36.4
8	T1	60	3	66	5.0	0.278	51.4	LOS D	4.1	28.8	0.94	0.74	0.94	38.5
9	R2	15	4	17	26.7	0.278	57.4	LOS E	3.4	25.9	0.95	0.73	0.95	35.0
Appro	oach	127	7	140	5.5	0.278	52.9	LOS D	4.1	28.8	0.93	0.74	0.93	37.4
West	: Old E	Bathurst F	Road (W))										
10	L2	9	0	9	0.0	* 0.312	41.5	LOS C	8.3	58.6	0.80	0.69	0.80	38.5
11	T1	345	5	371	1.4	0.312	35.1	LOS C	8.4	59.6	0.80	0.68	0.80	36.5
12	R2	206	3	217	1.5	0.674	55.9	LOS D	12.2	86.5	0.99	0.84	1.01	34.9
Appro	oach	560	8	597	1.4	0.674	42.7	LOS D	12.2	86.5	0.87	0.74	0.88	35.8
All Vehic	eles	2405	84	2540	3.5	0.921	48.3	LOS D	31.0	218.3	0.89	0.89	1.04	35.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).

Queue Model: SIDRA Standard.

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 Nov	novem Input	ent Peri Dem.	ormand Aver.		AV/FRAGE	BACK OF	Prop. Ef	fective	Travel	Travel	Aver.
ID Crossing	Vol.	Flow	Delay	Service	QUE [Ped		Que	Stop	Time		Speed
	ped/h	ped/h	sec		ped	m			sec	m	m/sec
South: Russell	l Street	(S)									
P1 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	223.9	220.5	0.98
East: Old Bath	urst Ro	ad (E)									
P2 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	222.3	218.5	0.98
North: Russell	Street ((N)									

P3 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	221.3	217.2	0.98
West: Old Batl	hurst Ro	ad (W)									
P4 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	223.9	220.5	0.98
All Pedestrians	0	211	54.3	LOS E	0.2	0.2	0.95	0.95	222.9	219.2	0.98

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.

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♥ Site: 2AM_DV [1615_OLD_DAV_35_PM_FY_I (Site Folder:

PM_FY)]

New Site

Site Category: (None)

Roundabout

Vehi	cle M	ovemen	t Perfor	mance										
Mov ID	Turn	INP VOLU [Total veh/h		DEM FLO [Total veh/h		Deg. Satn v/c		Level of Service		ACK OF EUE Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East:	Old B	athurst R	oad (E)											
4a	L1	7	3	7	42.9	0.732	5.8	LOSA	8.1	57.6	0.24	0.45	0.24	57.9
5	T1	1116	18	1175	1.6	0.732	5.6	LOS A	8.1	57.6	0.24	0.45	0.24	63.4
Appro	oach	1123	21	1182	1.9	0.732	5.6	LOSA	8.1	57.6	0.24	0.45	0.24	63.4
West	Old E	Bathurst F	Road (W)											
11	T1	557	14	586	2.5	0.421	5.7	LOSA	3.9	28.5	0.29	0.47	0.29	63.1
12b	R3	22	13	23	59.1	0.421	11.9	LOS A	3.9	28.5	0.29	0.47	0.29	57.7
Appro	oach	579	27	609	4.7	0.421	6.0	LOSA	3.9	28.5	0.29	0.47	0.29	62.9
South	nWest:	: David R	oad											
30b	L3	73	2	77	2.7	0.355	21.7	LOS B	2.4	17.0	0.94	1.00	1.02	47.9
32a	R1	46	0	48	0.0	0.355	24.5	LOS B	2.4	17.0	0.94	1.00	1.02	47.3
Appro	oach	119	2	125	1.7	0.355	22.8	LOS B	2.4	17.0	0.94	1.00	1.02	47.7
All Vehic	les	1821	50	1917	2.7	0.732	6.9	LOSA	8.1	57.6	0.30	0.49	0.31	62.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Site: 2PM_DV [1615_OLD_DAV_35_PM_FY_I (Site Folder: PM_FY)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Vehi	cle M	ovemen	t Perfor	mance										
Mov ID	Turn	INP VOLU [Total veh/h		DEM. FLO [Total veh/h		Deg. Satn v/c		Level of Service		ACK OF EUE Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East:	Old B	athurst R	oad (E)											
4a 5 Appro	L1 T1 pach	7 1116 1123	3 18 21	7 1175 1182	42.9 1.6 1.9	0.007 * 0.880 0.880	12.6 17.9 17.9	LOS A LOS B	0.1 55.6 55.6	1.3 394.3 394.3	0.34 0.84 0.84	0.64 0.82 0.82	0.34 0.87 0.87	48.6 53.8 53.7
West	: Old E	Bathurst F	Road (W)	ı										
11 12b	T1 R3	557 22	14 13	586 23	2.5 59.1	0.380 * 0.178	3.6 42.8	LOS A LOS D	9.6 1.1	68.8 11.5	0.31 0.81	0.28 0.75	0.31 0.81	66.0 39.2
Appro		579	27	609	4.7	0.380	5.1	LOSA	9.6	68.8	0.33	0.30	0.33	64.2
South	nWest:	: David R	oad											
30b 32a	L3 R1	73 46	2 0	77 48	2.7 0.0	0.238 * 0.333	50.5 64.0	LOS D LOS E	3.8 2.8	27.4 19.7	0.88 0.99	0.77 0.74	0.88 0.99	37.3 27.6
Appro	oach	119	2	125	1.7	0.333	55.7	LOS D	3.8	27.4	0.92	0.76	0.92	33.6
All Vehic	les	1821	50	1917	2.7	0.880	16.3	LOS B	55.6	394.3	0.68	0.65	0.70	54.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).

Queue Model: SIDRA Standard.

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 I	Movem	ent Perf	ormano	е							
Mov ID Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE QUE [Ped		Prop. Ef Que	fective Stop Rate	Travel Time	Travel Dist. S	Aver. Speed
	ped/h	ped/h	sec		ped	m [*]			sec	m	m/sec
East: Old Bath	nurst Roa	ad (E)									
P2 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	218.7	213.8	0.98
West: Old Bat	hurst Ro	ad (W)									
P4 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	217.4	212.1	0.98
SouthWest: D	avid Roa	ad									
P8 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	220.0	215.5	0.98
All Pedestrians	0	158	54.3	LOS E	0.2	0.2	0.95	0.95	218.7	213.8	0.98

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. SIDRA INTERSECTION 9.0 | Copyright © 2000-2020 Akcelik and Associates Pty Ltd | sidrasolutions.com
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Site: 1PM_DV [1615_OLD_RUS_35_PM_DV_I (Site Folder: PM_DV)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Veh	icle M	ovemen	t Perfor	mance										
	Turn	INP		DEM		Deg.		Level of	95% BA			Effective	Aver.	Aver.
ID		VOLU [Total	MES HV1	FLO [Total		Satn	Delay	Service	QUE		Que	Stop Rate		Speed
		veh/h	veh/h	veh/h	HV] %	v/c	sec		[Veh. veh	Dist] m		Nate	Cycles	km/h
Sout	h: Rus	sell Stree	t (S)											
1	L2	235	14	239	6.0	* 0.852	43.9	LOS D	15.6	114.2	1.00	0.96	1.20	37.5
2	T1	137	5	141	3.6	* 0.852	47.8	LOS D	17.2	132.8	1.00	0.97	1.21	38.8
3	R2	196	29	211	14.8	0.852	64.6	LOS E	17.2	132.8	1.00	0.98	1.23	34.8
Appr	roach	568	48	591	8.6	0.852	52.2	LOS D	17.2	132.8	1.00	0.97	1.21	36.9
East	: Old B	athurst R	oad (E)											
4	L2	380	15	431	3.9	0.366	8.0	LOSA	6.6	47.9	0.35	0.62	0.35	47.5
5	T1	893	6	902	0.7	* 0.988	87.2	LOS F	42.1	296.2	0.95	1.27	1.51	26.1
6	R2	113	0	145	0.0	0.467	54.1	LOS D	7.8	54.6	0.95	0.80	0.95	36.0
Appr	roach	1386	21	1478	1.6	0.988	60.9	LOS E	42.1	296.2	0.77	1.04	1.12	32.6
Nortl	h: Russ	sell Street	: (N)											
7	L2	52	0	57	0.0	0.278	53.3	LOS D	4.1	28.8	0.92	0.75	0.92	36.4
8	T1	60	3	66	5.0	* 0.278	51.4	LOS D	4.1	28.8	0.94	0.74	0.94	38.5
9	R2	15	4	17	26.7	0.278	57.4	LOS E	3.4	25.9	0.95	0.73	0.95	35.0
Appr	roach	127	7	140	5.5	0.278	52.9	LOS D	4.1	28.8	0.93	0.74	0.93	37.4
Wes	t: Old E	Bathurst F	Road (W)											
10	L2	9	0	9	0.0	0.304	37.0	LOS C	8.3	58.5	0.79	0.67	0.79	39.6
11	T1	345	5	371	1.4	0.304	32.4	LOS C	8.3	58.9	0.79	0.66	0.79	37.2
12	R2	207	3	218	1.4	0.711	57.8	LOS E	12.6	89.0	1.00	0.86	1.06	34.5
Appr	roach	561	8	598	1.4	0.711	41.7	LOS C	12.6	89.0	0.87	0.73	0.89	36.0
All Vehi	cles	2642	84	2807	3.2	0.988	54.6	LOS D	42.1	296.2	0.85	0.94	1.08	34.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).

Queue Model: SIDRA Standard.

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 Mov	Input	Dem.	Aver.		AVERAGE	BACK OF	Prop. Ef	fective	Travel	Travel	Aver.
ID Crossing	٧ol.	Flow	Delay	Service	QUE	UE	Que	Stop	Time	Dist.	Speed
					[Ped	Dist]		Rate			
	ped/h	ped/h	sec		ped	m			sec	m	m/sec
South: Russel	Street ((S)									
P1 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	223.9	220.5	0.98
East: Old Bath	urst Ro	ad (E)									
P2 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	222.3	218.5	0.98
North: Russell	Street (N)									

P3 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	221.3	217.2	0.98
West: Old Batl	hurst Ro	ad (W)									
P4 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	223.9	220.5	0.98
All Pedestrians	0	211	54.3	LOS E	0.2	0.2	0.95	0.95	222.9	219.2	0.98

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.

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♥ Site: 2PM_DV [1615_OLD_DAV_35_PM_DV_I (Site Folder:

PM_DV)]

New Site

Site Category: (None)

Roundabout

Vehi	cle M	ovemen	t Perfor	mance										
Mov ID	Turn	INF VOLU [Total		DEM. FLO [Total		Deg. Satn		Level of Service		ACK OF EUE Dist]	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed
		veh/h	veh/h	veh/h	% -	v/c	sec		veh	m ¹			,	km/h
East:	Old B	athurst R	load (E)											
4a	L1	27	3	28	11.1	0.783	5.6	LOSA	10.8	77.1	0.43	0.46	0.43	57.9
5	T1	1116	18	1175	1.6	0.783	5.9	LOSA	10.8	77.1	0.43	0.46	0.43	62.6
Appro	oach	1143	21	1203	1.8	0.783	5.9	LOSA	10.8	77.1	0.43	0.46	0.43	62.5
West	: Old E	Bathurst F	Road (W)											
11	T1	557	14	586	2.5	0.521	6.5	LOSA	5.0	36.0	0.56	0.56	0.56	61.9
12b	R3	46	13	48	28.3	0.521	12.3	LOSA	5.0	36.0	0.56	0.56	0.56	57.7
Appro	oach	603	27	635	4.5	0.521	7.0	LOSA	5.0	36.0	0.56	0.56	0.56	61.6
South	nWest:	David R	oad											
30b	L3	285	2	300	0.7	1.683	653.4	LOS F	154.0	1081.7	1.00	5.42	13.71	6.2
32a	R1	227	0	239	0.0	1.683	656.4	LOS F	154.0	1081.7	1.00	5.42	13.71	5.8
Appro	oach	512	2	539	0.4	1.683	654.7	LOS F	154.0	1081.7	1.00	5.42	13.71	6.0
All Vehic	les	2258	50	2377	2.2	1.683	153.3	LOS F	154.0	1081.7	0.59	1.61	3.47	21.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).

Queue Model: SIDRA Standard.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

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Site: 2PM_DV [1615_OLD_DAV_35_PM_DV_I (Site Folder: PM_DV)]

New Site

Site Category: (None)

Signals - EQUISAT (Fixed-Time/SCATS) Isolated Cycle Time = 120 seconds (Site User-Given Cycle Time)

Vehi	cle M	ovemen	t Perfor	mance										
Mov ID	Turn	INP VOLU	JMES	DEM. FLO	WS	Deg. Satn		Level of Service	QUI	ACK OF EUE	Prop. Que	Effective Stop		Aver. Speed
		[Total veh/h	HV] veh/h	[Total veh/h	HV] %	v/c	sec		[Veh. veh	Dist] m		Rate	Cycles	km/h
East:	Old B	athurst R	oad (E)											
4a	L1	27	3	28	11.1	0.026	14.9	LOS B	0.6	4.8	0.41	0.66	0.41	47.8
5	T1	1116	18	1175	1.6	* 0.974	55.8	LOS D	89.2	632.9	1.00	1.16	1.28	36.0
Appro	oach	1143	21	1203	1.8	0.974	54.9	LOS D	89.2	632.9	0.99	1.15	1.26	36.2
West	: Old E	Bathurst F	Road (W)											
11	T1	557	14	586	2.5	0.448	6.0	LOSA	12.4	89.0	0.40	0.36	0.40	63.5
12b	R3	46	13	48	28.3	* 0.359	58.9	LOS E	2.7	23.9	0.96	0.77	0.96	34.8
Appro	oach	603	27	635	4.5	0.448	10.1	LOSA	12.4	89.0	0.44	0.39	0.44	59.4
South	nWest:	David R	oad											
30b	L3	285	2	300	0.7	0.711	51.2	LOS D	16.4	115.2	0.97	0.86	0.99	37.1
32a	R1	227	0	239	0.0	* 0.923	77.3	LOS F	16.6	116.5	1.00	1.01	1.43	24.8
Appro	oach	512	2	539	0.4	0.923	62.8	LOS E	16.6	116.5	0.98	0.93	1.18	31.5
All Vehic	les	2258	50	2377	2.2	0.974	44.7	LOS D	89.2	632.9	0.84	0.90	1.03	39.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site 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).

Queue Model: SIDRA Standard.

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 I	Movem	ent Perf	ormano	е							
Mov ID Crossing	Input Vol.	Dem. Flow	Aver. Delay	Level of Service	AVERAGE QUE [Ped		Prop. Ef Que	fective Stop Rate	Travel Time	Travel Dist. S	Aver. Speed
	ped/h	ped/h	sec		ped	m [*]			sec	m	m/sec
East: Old Bath	nurst Roa	ad (E)									
P2 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	218.7	213.8	0.98
West: Old Bat	hurst Ro	ad (W)									
P4 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	217.4	212.1	0.98
SouthWest: D	avid Roa	ad									
P8 Full	50	53	54.3	LOS E	0.2	0.2	0.95	0.95	220.0	215.5	0.98
All Pedestrians	0	158	54.3	LOS E	0.2	0.2	0.95	0.95	218.7	213.8	0.98

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.

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APPENDIX D

Intersection upgrade proposal



PROJECT NAME: Concept Traffic Light @ OLD BATHURST RD & RUSSELL ST PROJECT NUMBER:

A3 HORZ SCALE: 1 : 500
A3 VERT SCALE: 1 : 500

DRAINAGE MODEL:
DESIGN A.R.I. (years)



DRAWING:

SHEET:

CHAINAGE: CH to CH

DESIGNER: T SHRESTHA

REVISION:

