# 158-164 OLD BATHURST ROAD EMU PLAINS INDUSTRIAL PRECINCT 

Transport Impact Assessment

12 APRIL 2023



## Quality Assurance

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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 $70 \mathrm{~km} / \mathrm{hr}$ 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 $71,000 \mathrm{~m}^{2}$ ), 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, a total of five hours meet the signal warrants criteria when traffic volumes on a major road exceed $600 \mathrm{veh} / \mathrm{h}$ in each direction and that on a minor road exceeds $200 \mathrm{veh} / \mathrm{h}$. Hence, traffic signal is warranted at this location.

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, lowdensity 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 <br> 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 $70 \mathrm{~km} / \mathrm{h}$ 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 (56 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 $70 \mathrm{~km} / \mathrm{h}$ slowing to $60 \mathrm{~km} / \mathrm{h}$ 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 $60 \mathrm{~km} / \mathrm{h}$ except during weekdays during school terms when a $40 \mathrm{~km} / \mathrm{h}$ 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 $50 \mathrm{~km} / \mathrm{h}$ 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 $60 \mathrm{~km} / \mathrm{h}$ 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 $50 \mathrm{~km} / \mathrm{h}$. 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

| Stite | Location | Satellite view |
| :---: | :---: | :---: |
| A | Bromley Road (No.9- 11) |  |
| B | Pullman Place (No.11) |  |
| C | David Road (No. 54- 62) |  |

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 <br> September 42019 <br> (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 <br> September 4 2019 <br> $(12: 37 \mathrm{pm})$ | Thursday October <br> 1 12020 (12:42 pm) | Thursday March <br> $252021(11: 36 \mathrm{pm})$ | Thursday May 20 <br> $2021(11: 35 \mathrm{pm})$ |
| :---: | :---: | :---: | :---: | :---: |
| Number of spaces <br> taken | 53 | 35 | 53 | 56 |
| Total spaces | 152 | 152 | 152 | 152 |
| Occupancy ratio <br> $(\%)$ | $\mathbf{3 5 \%}$ | $\mathbf{2 3 \%}$ | $\mathbf{3 5 \%}$ | $\mathbf{3 7 \%}$ |

Table 2-5 On-site parking availability

| Date | Wednesday September 42019 <br> (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 | A | B | C | A | B | C | A | B | C | A | B | C |
| 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 $95^{\text {th }}$ 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 27.

Table 2-6 AM peak model calibration

| Intersection |  | Survey reported maximum queue (vehicles) | Modelled $95^{\text {th }}$ percentile queue (vehicles) | Difference | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Old Bathurst Road/ Russell Street | Southern approach | 9 | 8.3 | - 0.7 | Acceptable |
|  | Eastern approach | 9 | 6.4 | -2.6 |  |
|  | Northern approach | 8 | 6.8 | -1.2 |  |
|  | Western approach | 18 | 19.6 | + 1.6 |  |
| Old Bathurst Road/ David Road | Southern approach | 5 | 3.6 | -1.4 | Acceptable |
|  | 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 Bathurst Road / Smith Street | Eastern approach | 11 | 13.9 | + 2.9 | Acceptable |
|  | Northern approach | 9 | 2.9 | -6.1 | Queuing on the northern and western approach stems from delays originating from the downstream intersection of Great Western Highway and Old Bathurst Road. See below. |
|  | Western approach | 13 | 0 | -13 |  |
| Great <br> Western <br> Highway / Old <br> Bathurst Road | Southern approach | 21 | 14.6 | - 6.4 | Modelling indicates the adjacent signalised intersections impact the throughput of the 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. |
|  | Northern approach | 19 | 13.8 | - 5.2 |  |
|  | 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 (vehicles) | Modelled $95^{\text {th }}$ percentile queue (vehicles) | Difference | Notes |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Old <br> Bathurst Road/ Russell Street | Southern approach | 17 | 19.4 | + 2.4 | Acceptable |
|  | Eastern approach | 32 | 30.5 | -1.4 |  |
|  | Northern approach | 3 | 1.1 | -1.8 |  |
|  | 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 Road/ David Road | 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 |
|  | 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. |
| Old <br> Bathurst Road/ Smith Street | Eastern approach | 8 | 1.2 | -6.8 | The reported queues represent a spike in the queues reported for a 15-minute 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. |
|  | Northern approach | 10 | 4.7 | - 5.3 |  |
|  | Western approach | 0 | 0 | 0 | Acceptable |
| Great <br> Western <br> Highway <br> / Old <br> Bathurst <br> Road | Southern approach | 22 | 13.5 | - 8.5 | Modelling indicates the adjacent signalised intersections impact the throughput of the 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. |
|  | Northern approach | 20 | 20.9 | + 0.9 |  |
|  | 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 <br> Service | Average delay per <br> vehicle $(\mathbf{s e c})$ | Performance explanation |
| :---: | :---: | :--- |
| A | Less than 14.5 | Good operation |
| B | 14.5 to 28.4 | Good with acceptable delays and spare capacity |
| C | 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. <br> Roundabouts require other control methods. |
| F | 70.5 or greater |  |

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 | Weekday AM peak |  |  | Weekday PM peak |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Delay | LoS | DoS | Delay | LoS | DoS |
| Old Bathurst Road/Russell Street | 37.6 s | C | 0.89 | 41.7 s | C | 0.96 |
| Old Bathurst Road/David Road | $>70.5 \mathrm{~s}$ | F | 0.83 | $>70.5 \mathrm{~s}$ | F | 0.65 |
| Old Bathurst Road/Smith Street | $>70.5 \mathrm{~s}$ | F | 0.99 | 69.5 s | E | 0.89 |
| Great Western Highway/Old Bathurst Road | 33.0 s | C | 0.79 | 23.9 s | B | 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 $2,000 \mathrm{~m}^{2}$ to $8,100 \mathrm{~m}^{2}$ per lot and one lot for the stormwater infrastructure of around $18,000 \mathrm{~m}^{2}$. The future development will result in a GFA potential of up to around $71,000 \mathrm{~m}^{2}$ of GFA. The proposed subdivision plan is shown in Figure 3-1.

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 $100 \mathrm{~m}^{2}$ of GFA. For trip generation purposes, it is estimated that the proposed development could yield approximately $71,000 \mathrm{~m}^{2}$ 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 | $\begin{aligned} & \text { GFA } \\ & \left(m^{2}\right) \end{aligned}$ | Trip rates (vehicle trips per $100 \mathrm{~m}^{2}$ of GFA) |  | Vehicle 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

[^0]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 / Destination 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 | Future year base case |  |  | Future year with development |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 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 | $>70.5 \mathrm{~s}$ | F | 3.33 | $>70.5 \mathrm{~s}$ | F | 6.67 |
| Old Bathurst Road/Smith Street | 24.1 s | B | 0.72 | 25.8 s | B | 0.74 |
| Great Western Highway/Old Bathurst Road | 47.4s | D | 0.96 | 53.0 s | 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 | $>70.5 \mathrm{~s}$ | F | 3.86 | $>70.5 \mathrm{~s}$ | F | 16.81 |
| Old Bathurst Road/Smith Street | 22.2 s | B | 0.72 | 23.4 s | B | 0.74 |
| Great Western Highway/Old Bathurst Road | 28.4 s | B | 0.84 | 29.4 s | C | 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 $A M$ 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
Old Bathurst Road (W)


### 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) | 41.1 s | C | 0.73 | 55.4 s | D | 0.93 |
| Old Bathurst Road/David Road (roundabout) | 13.6 s | A | 0.84 | 27.0s | B | 1.01 |
| Old Bathurst Road/David Road (signal) | 10.1 s | A | 0.87 | 42.7 s | D | 1.00 |
| Weekday PM Peak |  |  |  |  |  |  |
| Old Bathurst Road/Russell Street (signal) | 48.3s | C | 0.92 | 54.6s | D | 0.99 |
| Old Bathurst Road/David Road (roundabout) | 24.5s | B | 0.73 | >70.5s | F | 1.68 |
| Old Bathurst Road/David Road (signal) | 15.6s | B | 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

| Peak period | Time | Traffic volumes for all approaches |  |  | Total throughput |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | major (E) | minor | major (W) |  |
| AM | 6:00-7:00 | 450 | 350 | 1,050 | 1,850 |
|  | 7:00-8:00 | 600 | 350 | 1,400 | 2,350 |
|  | 8:00-9:00 | 650 | 500 | 1,500 | 2,650 |
|  | 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 |
| PM | 12:00-01:00 | 900 | 350 | 500 | 1,750 |
|  | 1:00-2:00 | 900 | 350 | 500 | 1,750 |
|  | 2:00-3:00 | 950 | 350 | 500 | 1,800 |
|  | 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 $600 \mathrm{veh} / \mathrm{h}$ in each direction and that on a minor road exceeds $200 \mathrm{veh} / \mathrm{h}$.
- 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 $200 \mathrm{veh} / \mathrm{h}$.
- 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 | PM | 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 | Yes |  |
| b) Continuous traffic | (i) The major road flow exceeds 900 vehs / h in each direction; and | No | No | No |
|  | (ii) The minor road flow exceeds 100 vehs / h in one direction; and | Yes | Yes |  |
|  | (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 | Possibly |  |  |
|  | (iv) There is no other nearby traffic signal site easily accessible to the minor road vehicles. | Yes | Yes |  |
| c) Pedestrian safety | (i) The pedestrian flow crossing the major road exceeds 150 persons/ hr ; and | No | No | No |
|  | (ii) The major road flow exceeds 600 vehicles / hr in each direction or, where there is a central median of at least 1.2 m wide, 1,000 vehicles / hr in each direction. | Yes | Yes |  |
| d) Pedestrian safety -high-speed road | (i) The pedestrian flow crossing the major road exceeds 150 persons / hr; and | No | No | No |
|  | (ii) The major road flow exceeds 450 vehicles / hr in each direction or, where there is a central median of at least 1.2 m wide, 750 vehicles / hr in each direction; and | Yes | Yes |  |
|  | (iii) The 85th percentile speed on the major road exceeds $75 \mathrm{~km} / \mathrm{hr}$. | No | 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 | 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 $71,000 \mathrm{~m}^{2}$ 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 <br> $\left(\mathrm{m}^{2}\right)$ | Type of development | Minimum parking rates according to <br> DCP | Parking <br> spaces |
| :--- | :--- | :--- | :--- |
| 71,000 | Industrial, including ancillary office | 1 space per $75 \mathrm{~m}^{2}$ of GFA or 1 space per 2 <br> employees, whichever is the greater | 945 spaces |
| Warehouses or distribution centres, <br> including ancillary office | 1 space per $100 \mathrm{~m}^{2}$ 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 $71,000 \mathrm{~m}^{2}$ 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.


## APPENDIX A

## Surveyed traffic data

Old Bathurst Rd - Traffic Flows


Volume Forecasting AM/PM Start Time
(1) Site No.


Old Bathurst Rd - Traffic Flows

(1) 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)


## APPENDIX C <br> SIDRA output

## MOVEMENT SUMMARY

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

AM_BY)]

```
New Site
Site Category: (None)
Roundabout
```

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mov Turn ID |  | UT MES HV] veh/h |  | $\begin{aligned} & \text { IND } \\ & \text { NS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. Satn <br> v/c | Aver. Delay $\qquad$ | Level of Service | $\begin{aligned} & 95 \% \text { B/ } \\ & \text { QUt } \\ & \text { [ Veh. } \\ & \text { veh } \end{aligned}$ | $\begin{gathered} \text { CK OF } \\ \text { UE } \\ \text { Dist ] } \\ \mathrm{m} \end{gathered}$ | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed <br> km/h |
| South: Russell Street (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 T 1 | 33 | 0 | 34 | 0.0 | 0.756 | 10.3 | LOS A | 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 |
| 3 u U | 20 | 4 | 28 | 20.0 | 0.756 | 17.0 | LOS B | 8.3 | 61.7 | 0.84 | 0.97 | 1.06 | 47.1 |
| Approach | 464 | 33 | 498 | 7.3 | 0.756 | 13.5 | LOS A | 8.3 | 61.7 | 0.84 | 0.97 | 1.06 | 46.1 |
| East: Old Bathurst Road (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 | LOS A | 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 |
| 6 u U | 17 | 3 | 22 | 17.6 | 0.661 | 19.0 | LOS B | 6.4 | 49.5 | 0.87 | 1.03 | 1.13 | 45.3 |
| Approach | 354 | 43 | 384 | 12.5 | 0.661 | 13.5 | LOS A | 6.4 | 49.5 | 0.87 | 1.03 | 1.13 | 45.1 |
| North: Russell Street (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 |
| Approach | 193 | 7 | 212 | 3.6 | 0.614 | 34.1 | LOS C | 6.8 | 49.0 | 1.00 | 1.23 | 1.53 | 41.3 |
| West: Old Bathurst 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 R 2 | 236 | 8 | 248 | 3.4 | 0.887 | 21.6 | LOS B | 19.6 | 138.9 | 1.00 | 1.27 | 1.72 | 44.2 |
| Approach | 822 | 11 | 879 | 1.3 | 0.887 | 18.6 | LOS B | 19.6 | 138.9 | 1.00 | 1.27 | 1.72 | 43.0 |
| All <br> Vehicles | 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.

## MOVEMENT SUMMARY

$\nabla$ Site: 2AM_BY [0730_OLD_DAV_23_AM_BY (Site Folder:
AM_BY)]
New Site
Site Category: (None)
Give-Way (Two-Way)

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { Mov Turn } \\ & \text { ID } \end{aligned}$ | $\begin{aligned} & \text { INP } \\ & \text { VOLU } \\ & \text { [ Total } \\ & \text { veh/h } \end{aligned}$ | UT MES HV ] veh/h | $\begin{aligned} & \text { DEN } \\ & \text { FLC } \\ & \text { [ Total } \\ & \text { veh/h } \end{aligned}$ | $\begin{aligned} & \text { IND } \\ & \text { NS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. Satn <br> v/c | Aver. Delay <br> sec | Level of Service | $\begin{aligned} & 95 \% \text { B } \\ & \text { QU } \\ & \text { [ Veh. } \\ & \text { veh } \end{aligned}$ | $\begin{gathered} \text { CK OF } \\ \text { UE } \\ \text { Dist ] } \\ \mathrm{m} \end{gathered}$ | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed <br> km/h |
| East: Old Bathurst Road (E) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4a L1 | 37 | 11 | 39 | 29.7 | 0.024 | 5.9 | LOS A | 0.0 | 0.0 | 0.00 | 0.60 | 0.00 | 54.2 |
| 5 T1 | 325 | 27 | 342 | 8.3 | 0.185 | 0.1 | LOSA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 69.9 |
| Approach | 362 | 38 | 381 | 10.5 | 0.185 | 0.7 | NA | 0.0 | 0.0 | 0.00 | 0.06 | 0.00 | 68.2 |
| West: Old Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11 T1 | 885 | 21 | 932 | 2.4 | 0.489 | 0.3 | LOSA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 69.6 |
| 12b R3 | 57 | 8 | 60 | 14.0 | 0.196 | 16.1 | LOS B | 0.7 | 5.4 | 0.60 | 0.86 | 0.60 | 51.9 |
| Approach | 942 | 29 | 992 | 3.1 | 0.489 | 1.2 | NA | 0.7 | 5.4 | 0.04 | 0.05 | 0.04 | 68.3 |
| SouthWest: David Road |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 30b L3 | 31 | 12 | 33 | 38.7 | 0.045 | 9.3 | LOS A | 0.2 | 1.5 | 0.43 | 0.67 | 0.43 | 53.8 |
| 32a R1 | 19 | 14 | 20 | 73.7 | 0.827 | 411.3 | LOS F | 3.4 | 39.1 | 1.00 | 1.14 | 1.49 | 8.7 |
| Approach | 50 | 26 | 53 | 52.0 | 0.827 | 162.0 | LOS F | 3.4 | 39.1 | 0.65 | 0.85 | 0.84 | 18.8 |
| All <br> Vehicles | 1354 | 93 | 1425 | 6.9 | 0.827 | 7.0 | NA | 3.4 | 39.1 | 0.05 | 0.08 | 0.06 | 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.

## MOVEMENT SUMMARY

$\nabla$ Site: 4AM_BY [0745_OLD_SMI_23_AM_BY (Site Folder:
AM_BY)]
New Site
Site Category: (None)
Give-Way (Two-Way)

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { Mov Turn } \\ & \text { ID } \end{aligned}$ |  | JT MES HV ] veh/h |  | $\begin{aligned} & \text { AND } \\ & \text { WS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. Satn <br> v/c | Aver. Delay $\qquad$ | Level of Service | $\begin{aligned} & 95 \% \text { B } \\ & \text { QU } \\ & \text { [ Veh. } \\ & \text { veh } \end{aligned}$ | CK OF UE Dist ] m | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed <br> km/h |
| East: Old Bathurst Road (E) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 T1 | 344 | 38 | 362 | 11.0 | 0.985 | 87.2 | LOS F | 33.9 | 258.1 | 1.00 | 0.62 | 4.64 | 24.1 |
| 6 R2 | 152 | 13 | 160 | 8.6 | 0.985 | 96.9 | LOS F | 33.9 | 258.1 | 1.00 | 0.62 | 4.64 | 15.9 |
| Approach | 496 | 51 | 522 | 10.3 | 0.985 | 90.2 | NA | 33.9 | 258.1 | 1.00 | 0.62 | 4.64 | 21.8 |
| North: Smith 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 R2 | 18 | 6 | 19 | 33.3 | 0.604 | 78.1 | LOS F | 3.0 | 22.9 | 0.80 | 1.15 | 1.46 | 41.6 |
| Approach | 200 | 18 | 211 | 9.0 | 0.604 | 21.0 | LOS B | 3.0 | 22.9 | 0.80 | 1.15 | 1.46 | 34.4 |
| West: Old Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 L2 | 226 | 11 | 238 | 4.9 | 0.465 | 6.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.29 | 0.00 | 62.2 |
| 11 T1 | 672 | 30 | 707 | 4.5 | 0.465 | 1.2 | LOS A | 0.0 | 0.0 | 0.00 | 0.29 | 0.00 | 67.1 |
| Approach | 898 | 41 | 945 | 4.6 | 0.465 | 2.6 | NA | 0.0 | 0.0 | 0.00 | 0.29 | 0.00 | 65.8 |
| All <br> Vehicles | 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.

## MOVEMENT SUMMARY

目 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)

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mov Turn ID | $\begin{array}{r} \text { INP } \\ \text { VOLU } \\ \text { [ Total } \\ \text { veh/h } \end{array}$ | UT MES HV] veh/h | $\begin{array}{r} \text { DEM } \\ \text { FLC } \\ \text { [ Total } \\ \text { veh/h } \end{array}$ | $\begin{aligned} & \text { IND } \\ & \text { NS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. Satn <br> v/c | Aver. Delay $\qquad$ <br> sec | Level of Service | $\begin{gathered} 95 \% \text { E } \\ \text { Q } \\ \text { [ Veh. } \\ \text { veh } \end{gathered}$ | CK OF UE Dist ] m | Prop. Que | Effective Stop Rate | $\begin{aligned} & \text { Aver. } \\ & \text { No. } \\ & \text { Cycles } \end{aligned}$ | Aver. Speed km/h |
| South: Great Western Highway (S) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 L2 | 66 | 5 | 69 | 7.6 | 0.633 | 48.0 | LOS D | 15.7 | 114.6 | 0.94 | 0.81 | 0.94 | 25.6 |
| 2 T1 | 517 | 20 | 544 | 3.9 | * 0.633 | 42.6 | LOS D | 16.2 | 116.9 | 0.94 | 0.81 | 0.94 | 31.6 |
| Approach | 583 | 25 | 614 | 4.3 | 0.633 | 43.2 | LOS D | 16.2 | 116.9 | 0.94 | 0.81 | 0.94 | 30.9 |
| North: Great Western Highway (N) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8 T1 | 364 | 10 | 383 | 2.7 | 0.274 | 7.7 | LOS A | 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 |
| Approach | 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 Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 L2 | 774 | 40 | 815 | 5.2 | * 0.793 | 37.7 | LOS C | 43.1 | 315.4 | 1.00 | 0.92 | 1.00 | 32.8 |
| 12 R 2 | 88 | 5 | 114 | 5.7 | 0.415 | 55.7 | LOS D | 6.4 | 47.2 | 0.99 | 0.80 | 0.99 | 21.2 |
| Approach | 862 | 45 | 929 | 5.2 | 0.793 | 39.9 | LOS C | 43.1 | 315.4 | 1.00 | 0.91 | 1.00 | 31.2 |
| All <br> Vehicles | 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 Movement Performance |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mov <br> ID Crossing | Input Vol. ped/h | Dem. <br> Flow <br> ped/h | Aver. Delay sec | Level of Service | $\begin{gathered} \text { VERAC } \\ \text { Q } \\ \text { [ Ped } \\ \text { ped } \end{gathered}$ | ACK OF E Dist ] m | Prop. Que | ective Stop Rate | Travel Time sec | Travel Dist. m | Aver. Speed |
| North: Great Western 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 Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |
| P4 Full | 174 | 295 | 54.8 | LOS E | 1.0 | 1.0 | 0.96 | 0.96 | 239.4 | 221.5 | 0.93 |
| All <br> 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:IUsersIShawn Cen\SCT\Emu plain\SCT_00284_Emu Plains Industrial Estate_SIDRA_2023_v0.9_DL.sip9

## MOVEMENT SUMMARY

© Site: 1PM_BY [1615_OLD_RUS_23_PM_BY (Site Folder:
PM_BY)]

```
New Site
Site Category: (None)
Roundabout
```

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mov Turn ID |  | UT MES HV] veh/h |  | $\begin{aligned} & \text { IND } \\ & \text { NS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. Satn <br> v/c | Aver. Delay $\qquad$ | Level of Service | $\begin{aligned} & \text { 95\% B/ } \\ & \text { QU! } \\ & \text { [ Veh. } \\ & \text { veh } \end{aligned}$ | CK OF UE Dist ] m | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed <br> km/h |
| South: Russell Street (S) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 L2 | 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 1 | 108 | 4 | 114 | 3.7 | 0.927 | 35.6 | LOS C | 18.9 | 142.4 | 1.00 | 1.66 | 2.43 | 41.6 |
| 3 R2 | 139 | 25 | 146 | 18.0 | 0.927 | 40.3 | LOS C | 18.9 | 142.4 | 1.00 | 1.66 | 2.43 | 40.0 |
| 3 u U | 33 | 4 | 35 | 12.1 | 0.927 | 41.7 | LOS C | 18.9 | 142.4 | 1.00 | 1.66 | 2.43 | 41.9 |
| Approach | 515 | 47 | 542 | 9.1 | 0.927 | 37.3 | LOS C | 18.9 | 142.4 | 1.00 | 1.66 | 2.43 | 40.1 |
| East: Old Bathurst Road (E) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 L2 | 150 | 15 | 155 | 10.0 | 0.955 | 25.3 | LOS B | 31.1 | 221.6 | 1.00 | 1.43 | 2.04 | 42.5 |
| $5 \quad \mathrm{~T} 1$ | 640 | 5 | 703 | 0.8 | 0.955 | 24.8 | LOS B | 31.1 | 221.6 | 1.00 | 1.43 | 2.04 | 39.9 |
| 6 R2 | 93 | 0 | 100 | 0.0 | 0.955 | 28.8 | LOS C | 31.1 | 221.6 | 1.00 | 1.43 | 2.04 | 42.8 |
| 6 u U | 10 | 0 | 12 | 0.0 | 0.955 | 30.5 | LOS C | 31.1 | 221.6 | 1.00 | 1.43 | 2.04 | 41.4 |
| Approach | 893 | 20 | 970 | 2.2 | 0.955 | 25.4 | LOS B | 31.1 | 221.6 | 1.00 | 1.43 | 2.04 | 40.8 |
| North: Russell Street ( N ) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7 L2 | 52 | 0 | 55 | 0.0 | 0.182 | 7.7 | LOS A | 1.1 | 8.4 | 0.77 | 0.77 | 0.77 | 47.1 |
| 8 T1 | 47 | 2 | 49 | 4.3 | 0.182 | 7.8 | LOSA | 1.1 | 8.4 | 0.77 | 0.77 | 0.77 | 48.1 |
| 9 R2 | 15 | 4 | 16 | 26.7 | 0.182 | 12.9 | LOS A | 1.1 | 8.4 | 0.77 | 0.77 | 0.77 | 47.2 |
| Approach | 114 | 6 | 120 | 5.3 | 0.182 | 8.4 | LOS A | 1.1 | 8.4 | 0.77 | 0.77 | 0.77 | 47.6 |
| West: Old Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 L2 | 9 | 0 | 9 | 0.0 | 0.577 | 7.5 | LOS A | 5.4 | 37.9 | 0.81 | 0.85 | 0.91 | 46.5 |
| 11 T1 | 272 | 4 | 286 | 1.5 | 0.577 | 7.6 | LOS A | 5.4 | 37.9 | 0.81 | 0.85 | 0.91 | 46.1 |
| 12 R2 | 206 | 3 | 217 | 1.5 | 0.577 | 11.6 | LOS A | 5.4 | 37.9 | 0.81 | 0.85 | 0.91 | 47.1 |
| 12u U | 1 | 0 | 1 | 0.0 | 0.577 | 13.3 | LOS A | 5.4 | 37.9 | 0.81 | 0.85 | 0.91 | 46.1 |
| Approach | 488 | 7 | 514 | 1.4 | 0.577 | 9.3 | LOS A | 5.4 | 37.9 | 0.81 | 0.85 | 0.91 | 46.6 |
| All <br> Vehicles | 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.

[^1]
## MOVEMENT SUMMARY

$\nabla$ Site: 2PM_BY [1615_OLD_DAV_23_PM_BY (Site Folder:
PM_BY)]
New Site
Site Category: (None)
Give-Way (Two-Way)

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { Mov Turn } \\ & \text { ID } \end{aligned}$ |  | UT HV ] veh/h |  | ND VS HV ] \% | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95\% <br> QU <br> [ Veh veh | CK OF UE Dist $]$ m | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed km/h |
| East: Old Bathurst Road (E) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4a L1 | 7 | 3 | 7 | 42.9 | 0.005 | 6.1 | LOS A | 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 |
| Approach | 800 | 17 | 842 | 2.1 | 0.433 | 0.2 | NA | 0.0 | 0.0 | 0.00 | 0.01 | 0.00 | 69.5 |
| West: Old Bathurst 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 |
| Approach | 461 | 24 | 485 | 5.2 | 0.648 | 7.9 | NA | 2.1 | 22.3 | 0.05 | 0.05 | 0.06 | 62.7 |
| SouthWest: David Road |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 |
| Approach | 119 | 2 | 125 | 1.7 | 0.552 | 46.7 | LOS D | 2.6 | 18.2 | 0.82 | 0.96 | 0.95 | 38.0 |
| All Vehicles | 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.

## MOVEMENT SUMMARY

$\nabla$ Site: 4PM_BY [1615_OLD_SMI_23_PM_BY (Site Folder:
PM_BY)]
New Site
Site Category: (None)
Give-Way (Two-Way)

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { Mov Turn } \\ & \text { ID } \end{aligned}$ |  |  |  | VS HV ] \% | Deg. Satn v/c | Aver. Delay sec | Level of Service |  | CK OF UE Dist ] | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed km/h |
| East: Old Bathurst Road (E) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 T1 | 703 | 11 | 740 | 1.6 | 0.418 | 1.4 | LOS A | 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 |
| Approach | 741 | 14 | 780 | 1.9 | 0.418 | 2.1 | NA | 1.9 | 13.8 | 0.17 | 0.03 | 0.24 | 64.1 |
| North: Smith Street |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7 L2 | 126 | 1 | 133 | 0.8 | 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 |
| Approach | 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 Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 L2 | 33 | 0 | 35 | 0.0 | 0.246 | 6.4 | LOS A | 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 |
| Approach | 488 | 9 | 514 | 1.8 | 0.246 | 1.5 | NA | 0.0 | 0.0 | 0.00 | 0.21 | 0.00 | 68.3 |
| All Vehicles | 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.

## MOVEMENT SUMMARY

目 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)

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { Mov Turn } \\ & \text { ID } \end{aligned}$ |  | UT MES HV ] veh/h |  | ND NS HV ] \% | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95\% <br> [ Veh <br> veh | CK OF UE Dist ] m | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed km/h |
| South: Great Western Highway (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 |
| Approach | 443 | 13 | 466 | 2.9 | 0.658 | 53.3 | LOS D | 13.8 | 98.9 | 0.98 | 0.82 | 0.98 | 27.6 |
| North: Great Western Highway ( N ) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8 T1 | 517 | 13 | 544 | 2.5 | 0.365 | 4.2 | LOS A | 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 |
| Approach | 1190 | 25 | 1253 | 2.1 | 0.638 | 14.4 | LOSA | 20.9 | 148.8 | 0.53 | 0.64 | 0.53 | 45.4 |
| West: Old Bathurst 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 R 2 | 80 | 1 | 84 | 1.3 | * 0.400 | 38.4 | LOS C | 3.4 | 23.9 | 0.65 | 0.71 | 0.65 | 27.8 |
| Approach | 577 | 11 | 607 | 1.9 | 0.408 | 20.8 | LOS B | 20.1 | 142.9 | 0.68 | 0.78 | 0.68 | 40.2 |
| All <br> Vehicles | 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)

| Pedestrian Movement Performance |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mov <br> ID Crossing | Input Vol. ped/h | Dem. <br> Flow <br> ped/h | Aver. Delay sec | Level of Service | $\begin{gathered} \text { VERAC } \\ \text { Q } \\ \text { [ Ped } \\ \text { ped } \end{gathered}$ | ACK OF E Dist ] m | Prop. Que | ective Stop Rate | Travel Time sec | Travel Dist. m | Aver. Speed |
| North: Great Western 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 Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |
| P4 Full | 10 | 12 | 58.2 | LOSE | 0.0 | 0.0 | 0.95 | 0.95 | 238.2 | 216.0 | 0.91 |
| All <br> Pedestrians | 28 | 38 | 58.2 | LOSE | 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:IUsersIShawn Cen\SCT\Emu plain\SCT_00284_Emu Plains Industrial Estate_SIDRA_2023_v0.9_DL.sip9

## MOVEMENT SUMMARY

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

AM_FY)]

```
New Site
Site Category: (None)
Roundabout
```

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mov Turn ID | $\begin{aligned} & \text { INF } \\ & \text { vOL } \\ & \text { [ Total } \\ & \text { veh/h } \end{aligned}$ | UT MES HV] veh/h |  | $\begin{aligned} & \text { IND } \\ & \text { NS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. Satn <br> v/c | Aver. Delay $\qquad$ | Level of Service | $\begin{aligned} & 95 \% \text { B/ } \\ & \text { QUt } \\ & \text { [ Veh. } \\ & \text { veh } \end{aligned}$ | CK OF UE Dist ] m | Prop. Que | Effective Stop Rate | $\begin{aligned} & \text { Aver. } \\ & \text { No. } \\ & \text { Cycles } \end{aligned}$ | Aver. Speed <br> km/h |
| South: Russell Street (S) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 T 1 | 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 |
| 3 u U | 20 | 4 | 28 | 20.0 | 0.883 | 25.3 | LOS B | 13.9 | 103.1 | 1.00 | 1.27 | 1.60 | 45.2 |
| Approach | 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 Bathurst Road (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 | LOS A | 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 |
| 6 u U | 19 | 3 | 25 | 15.8 | 0.732 | 20.8 | LOS B | 8.3 | 63.7 | 0.91 | 1.10 | 1.28 | 44.6 |
| Approach | 408 | 46 | 439 | 11.6 | 0.732 | 15.4 | LOS B | 8.3 | 63.7 | 0.91 | 1.10 | 1.28 | 44.3 |
| North: Russell Street (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 |
| Approach | 226 | 9 | 248 | 4.0 | 0.871 | 95.5 | LOS F | 15.3 | 110.8 | 1.00 | 1.74 | 2.69 | 31.4 |
| West: Old Bathurst 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 R 2 | 236 | 8 | 248 | 3.4 | 1.195 | 196.2 | LOS F | 138.2 | 976.6 | 1.00 | 5.33 | 9.43 | 20.3 |
| Approach | 1043 | 12 | 1116 | 1.1 | 1.195 | 193.0 | LOS F | 138.2 | 976.6 | 1.00 | 5.33 | 9.43 | 17.5 |
| All <br> Vehicles | 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.

## MOVEMENT SUMMARY

$\nabla$ Site: 2AM_FY [0730_OLD_DAV_35_AM_FY (Site Folder:
AM_FY)]
New Site
Site Category: (None)
Give-Way (Two-Way)

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { Mov Turn } \\ & \text { ID } \end{aligned}$ | $\begin{aligned} & \text { INP } \\ & \text { VOLU } \\ & \text { [ Total } \\ & \text { veh/h } \end{aligned}$ | JT MES HV] veh/h | $\begin{aligned} & \text { DEN } \\ & \text { FL( } \\ & \text { [ Total } \\ & \text { veh/h } \end{aligned}$ | $\begin{aligned} & \text { ND } \\ & \text { NS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. Satn <br> v/c | Aver. Delay $\qquad$ | Level of Service | $\begin{aligned} & 95 \% \text { B } \\ & \text { QU } \\ & \text { [ Veh. } \\ & \text { veh } \end{aligned}$ | CK OF UE Dist ] $m$ | Prop. Que | Effective Stop Rate | $\begin{aligned} & \text { Aver. } \\ & \text { No. } \\ & \text { Cycles } \end{aligned}$ | Aver. Speed $\mathrm{km} / \mathrm{h}$ |
| East: Old Bathurst Road (E) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4a L1 | 37 | 11 | 39 | 29.7 | 0.024 | 5.9 | LOS A | 0.0 | 0.0 | 0.00 | 0.60 | 0.00 | 54.2 |
| 5 T1 | 412 | 34 | 434 | 8.3 | 0.234 | 0.1 | LOSA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 69.9 |
| Approach | 449 | 45 | 473 | 10.0 | 0.234 | 0.6 | NA | 0.0 | 0.0 | 0.00 | 0.05 | 0.00 | 68.5 |
| West: Old Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11 T1 | 1224 | 27 | 1288 | 2.2 | 0.675 | 0.5 | LOS A | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 69.0 |
| 12b R3 | 57 | 8 | 60 | 14.0 | 0.249 | 20.9 | LOS B | 0.9 | 7.1 | 0.70 | 0.92 | 0.78 | 49.2 |
| Approach | 1281 | 35 | 1348 | 2.7 | 0.675 | 1.5 | NA | 0.9 | 7.1 | 0.03 | 0.04 | 0.03 | 67.9 |
| SouthWest: David Road |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 30b L3 | 31 | 12 | 33 | 38.7 | 0.052 | 10.2 | LOS A | 0.2 | 1.7 | 0.49 | 0.72 | 0.49 | 53.2 |
| 32a R1 | 19 | 14 | 20 | 73.7 | 3.333 | 2693.9 | LOS F | 17.5 | 200.2 | 1.00 | 1.33 | 2.26 | 1.3 |
| Approach | 50 | 26 | 53 | 52.0 | 3.333 | 1030.0 | LOS F | 17.5 | 200.2 | 0.69 | 0.95 | 1.16 | 3.5 |
| All <br> Vehicles | 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.

## MOVEMENT SUMMARY

- 8 Site: 4AM_FY [0745_OLD_SMI_35_AM_FY (Site Folder:

AM_FY)]
New Site
Site Category: (None)
Roundabout

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mov Turn ID |  | T HV ] veh/h |  | $\begin{aligned} & \text { ND } \\ & \text { NS } \\ & \text { HV ] } \\ & \% \\ & \hline \end{aligned}$ | Deg. Satn <br> v/c | Aver. Delay <br> sec | Level of Service |  | CK OF UE Dist] m | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. <br> Speed <br> km/h |
| South: AGCP entrance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 R 2 | 1 | 0 | 1 | 0.0 | 0.006 | 12.0 | LOSA | 0.0 | 0.2 | 0.68 | 0.61 | 0.68 | 49.5 |
| 3 u U | 1 | 0 | 1 | 0.0 | 0.006 | 13.9 | LOSA | 0.0 | 0.2 | 0.68 | 0.61 | 0.68 | 52.1 |
| Approach | 4 | 0 | 4 | 0.0 | 0.006 | 10.4 | LOSA | 0.0 | 0.2 | 0.68 | 0.61 | 0.68 | 49.5 |
| East: Old Bathurst Road (E) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 L2 | 44 | 0 | 46 | 0.0 | 0.545 | 5.1 | LOS A | 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 | LOS A | 4.9 | 36.8 | 0.51 | 0.56 | 0.51 | 46.8 |
| 6 u U | 1 | 0 | 1 | 0.0 | 0.545 | 11.4 | LOSA | 4.9 | 36.8 | 0.51 | 0.56 | 0.51 | 50.5 |
| Approach | 633 | 61 | 666 | 9.6 | 0.545 | 6.5 | LOS A | 4.9 | 36.8 | 0.51 | 0.56 | 0.51 | 47.6 |
| North: Smith 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 |
| 9 u U | 1 | 0 | 1 | 0.0 | 0.520 | 23.4 | LOS B | 4.5 | 34.0 | 1.00 | 1.12 | 1.26 | 37.1 |
| Approach | 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 Bathurst 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 |
| 12 u U | 1 | 0 | 1 | 0.0 | 0.719 | 11.9 | LOSA | 8.5 | 61.6 | 0.70 | 0.58 | 0.70 | 49.2 |
| Approach | 1181 | 49 | 1243 | 4.1 | 0.719 | 6.4 | LOS A | 8.5 | 61.6 | 0.66 | 0.59 | 0.66 | 47.8 |
| All Vehicles | 2020 | 128 | 2126 | 6.3 | 0.719 | 7.7 | LOS A | 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.

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

## MOVEMENT SUMMARY

目 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)

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mov Turn ID |  | JT <br> MES <br> HV ] <br> veh/h |  | $\begin{aligned} & \text { IND } \\ & \text { NS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. Satn <br> v/c | Aver. Delay <br> sec | Level of Service |  | $\begin{gathered} \text { CK OF } \\ \text { =UE } \\ \text { Dist ] } \\ \mathrm{m} \end{gathered}$ | Prop. Que | Effective Stop Rate |  | Aver Speed <br> km/h |
| South: Great Western Highway (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 |
| Approach | 760 | 31 | 800 | 4.1 | 0.948 | 75.0 | LOS F | 29.9 | 216.2 | 1.00 | 1.16 | 1.41 | 22.7 |
| North: Great Western Highway ( N ) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8 T1 | 462 | 13 | 486 | 2.8 | 0.352 | 8.5 | LOS A | 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 |
| Approach | 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 Bathurst 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 R 2 | 110 | 5 | 143 | 4.5 | 0.489 | 55.7 | LOS D | 8.1 | 58.8 | 1.00 | 0.81 | 1.00 | 21.2 |
| Approach | 1092 | 56 | 1177 | 5.1 | 0.956 | 51.9 | LOS D | 67.4 | 493.1 | 0.99 | 0.97 | 1.12 | 27.5 |
| All <br> Vehicles | 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)

| Pedestrian Movement Performance |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mov Crossing | Input Vol. <br> ped/h | Dem. Flow <br> ped/h | Aver. Delay <br> sec | Level of AVERAGE BACK OF Service QUEUE |  |  | Prop. Effective Que Stop Rate |  | Travel Time $\qquad$ sec | Travel Aver. Dist. Speed m m/sec |  |
| North: Great Western 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 Bathurst Road (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:IUsersIShawn Cen\SCT\Emu plain\SCT_00284_Emu Plains Industrial Estate_SIDRA_2023_v0.9_DL.sip9

## MOVEMENT SUMMARY

© Site: 1PM_FY [1615_OLD_RUS_35_PM_FY (Site Folder:
PM_FY)]

```
New Site
Site Category: (None)
Roundabout
```

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { Mov Turn } \\ & \text { ID } \end{aligned}$ |  | TT MES HV] veh/h |  | $\begin{aligned} & \text { ND } \\ & \text { NS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. Satn v/c | Aver. Delay <br> sec | Level of Service | $\begin{aligned} & 95 \% \text { B } \\ & \text { QU } \\ & \text { [ Veh. } \\ & \text { veh } \end{aligned}$ | CK OF UE Dist] m | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed $\mathrm{km} / \mathrm{h}$ |
| South: Russell Street (S) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 R 2 | 139 | 25 | 146 | 18.0 | 1.101 | 134.9 | LOS F | 53.4 | 402.0 | 1.00 | 3.25 | 5.93 | 26.3 |
| 3 u U | 33 | 4 | 35 | 12.1 | 1.101 | 136.3 | LOS F | 53.4 | 402.0 | 1.00 | 3.25 | 5.93 | 29.1 |
| Approach | 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 Bathurst Road (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 |
| 6 u U | 10 | 0 | 12 | 0.0 | 1.249 | 243.1 | LOS F | 185.3 | 1316.7 | 1.00 | 5.99 | 10.06 | 15.9 |
| Approach | 1174 | 21 | 1277 | 1.7 | 1.249 | 237.9 | LOS F | 185.3 | 1316.7 | 1.00 | 5.99 | 10.06 | 15.5 |
| North: Russell Street (N) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| $7 \quad$ L2 | 52 | 0 | 55 | 0.0 | 0.222 | 8.3 | LOS A | 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 |
| Approach | 127 | 7 | 134 | 5.5 | 0.222 | 9.0 | LOS A | 1.5 | 10.6 | 0.82 | 0.82 | 0.82 | 47.5 |
| West: Old Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 L2 | 9 | 0 | 9 | 0.0 | 0.651 | 8.4 | LOS A | 7.0 | 49.6 | 0.86 | 0.89 | 1.01 | 46.3 |
| 11 T1 | 345 | 5 | 363 | 1.4 | 0.651 | 8.5 | LOS A | 7.0 | 49.6 | 0.86 | 0.89 | 1.01 | 45.8 |
| 12 R 2 | 206 | 3 | 217 | 1.5 | 0.651 | 12.5 | LOSA | 7.0 | 49.6 | 0.86 | 0.89 | 1.01 | 46.9 |
| 12 u U | 1 | 0 | 1 | 0.0 | 0.651 | 14.2 | LOSA | 7.0 | 49.6 | 0.86 | 0.89 | 1.01 | 45.8 |
| Approach | 561 | 8 | 591 | 1.4 | 0.651 | 10.0 | LOS A | 7.0 | 49.6 | 0.86 | 0.89 | 1.01 | 46.3 |
| All <br> Vehicles | 2406 | 84 | 2574 | 3.4 | 1.249 | 150.1 | LOS F | 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.

[^2]
## MOVEMENT SUMMARY

$\nabla$ Site: 2PM_FY [1615_OLD_DAV_35_PM_FY (Site Folder:
PM_FY)]
New Site
Site Category: (None)
Give-Way (Two-Way)

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { Mov Turn } \\ & \text { ID } \end{aligned}$ |  | UT HV ] veh/h |  | $\begin{aligned} & \text { AND } \\ & \text { WS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. Satn v/c | Aver. Delay sec | Level of Service | 95\% B <br> QU <br> [ Veh. <br> veh | ACK OF UE Dist ] | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed km/h |
| East: Old Bathurst Road (E) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4a L1 | 7 | 3 | 7 | 42.9 | 0.005 | 6.1 | LOS A | 0.0 | 0.0 | 0.00 | 0.61 | 0.00 | 51.5 |
| 5 T1 | 1116 | 18 | 1175 | 1.6 | 0.609 | 0.4 | LOSA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 69.3 |
| Approach | 1123 | 21 | 1182 | 1.9 | 0.609 | 0.4 | NA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 69.2 |
| West: Old Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11 T1 | 557 | 14 | 586 | 2.5 | 2.947 | 5364.0 | LOS F | 1298.5 | 9285.3 | 1.00 | 0.00 | 4.61 | 0.9 |
| 12b R3 | 22 | 13 | 23 | 59.1 | 3.860 | 2931.8 | LOS F | 19.6 | 206.5 | 1.00 | 1.32 | 2.52 | 1.4 |
| Approach | 579 | 27 | 609 | 4.7 | 3.860 | 5271.5 | NA | 1298.5 | 9285.3 | 1.00 | 0.05 | 4.53 | 0.9 |
| SouthWest: David Road |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 30b L3 | 73 | 2 | 77 | 2.7 | 0.434 | 31.4 | LOS C | 1.4 | 10.4 | 0.92 | 1.03 | 1.17 | 44.1 |
| 32a R1 | 46 | 0 | 48 | 0.0 | 3.094 | 2182.6 | LOS F | 30.3 | 212.2 | 1.00 | 1.61 | 3.64 | 1.7 |
| Approach | 119 | 2 | 125 | 1.7 | 3.094 | 863.0 | LOS F | 30.3 | 212.2 | 0.95 | 1.25 | 2.12 | 4.4 |
| All <br> Vehicles | 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.

## MOVEMENT SUMMARY

© Site: 4PM_FY [1615_OLD_SMI_35_PM_FY (Site Folder:
PM_FY)]
New Site
Site Category: (None)
Roundabout

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mov Turn ID | $\begin{array}{r} \text { INP } \\ \text { VOLU } \\ \text { [ Total } \\ \text { veh/h } \end{array}$ | UT MES HV] veh/h |  | $\begin{aligned} & \text { IND } \\ & \text { NS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. Satn <br> v/c | Aver. Delay <br> sec | Level of Service | $\begin{gathered} 95 \% \text { E } \\ \text { Q } \\ \text { [ Veh. } \\ \text { veh } \end{gathered}$ | $\begin{gathered} \text { CK OF } \\ \text { UE } \\ \text { Dist ] } \\ \mathrm{m} \end{gathered}$ | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed km/h |
| South: AGCP entrance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 T 1 | 1 | 0 | 1 | 0.0 | 0.390 | 16.2 | LOS B | 3.0 | 21.0 | 0.98 | 1.02 | 1.05 | 42.7 |
| 3 R 2 | 47 | 0 | 49 | 0.0 | 0.390 | 20.3 | LOS B | 3.0 | 21.0 | 0.98 | 1.02 | 1.05 | 44.2 |
| 3 u U | 1 | 0 | 1 | 0.0 | 0.390 | 22.2 | LOS B | 3.0 | 21.0 | 0.98 | 1.02 | 1.05 | 47.4 |
| Approach | 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 Bathurst Road (E) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 L2 | 1 | 0 | 1 | 0.0 | 0.724 | 5.2 | LOS A | 9.6 | 68.1 | 0.62 | 0.51 | 0.62 | 50.5 |
| 5 T1 | 892 | 14 | 939 | 1.6 | 0.724 | 5.5 | LOS A | 9.6 | 68.1 | 0.62 | 0.51 | 0.62 | 48.9 |
| 6 R2 | 38 | 3 | 40 | 7.9 | 0.724 | 9.7 | LOS A | 9.6 | 68.1 | 0.62 | 0.51 | 0.62 | 46.6 |
| 6 u U | 1 | 0 | 1 | 0.0 | 0.724 | 11.5 | LOS A | 9.6 | 68.1 | 0.62 | 0.51 | 0.62 | 50.3 |
| Approach | 932 | 17 | 981 | 1.8 | 0.724 | 5.7 | LOS A | 9.6 | 68.1 | 0.62 | 0.51 | 0.62 | 48.8 |
| North: Smith Street |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7 L2 | 126 | 1 | 133 | 0.8 | 0.308 | 7.7 | LOS A | 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 | LOS A | 1.9 | 13.8 | 0.75 | 0.81 | 0.75 | 43.0 |
| 9 u U | 1 | 0 | 1 | 0.0 | 0.308 | 13.4 | LOSA | 1.9 | 13.8 | 0.75 | 0.81 | 0.75 | 44.5 |
| Approach | 219 | 4 | 231 | 1.8 | 0.308 | 9.4 | LOS A | 1.9 | 13.8 | 0.75 | 0.81 | 0.75 | 42.8 |
| West: Old Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 L2 | 36 | 3 | 38 | 8.3 | 0.042 | 5.2 | LOS A | 0.2 | 1.6 | 0.30 | 0.51 | 0.30 | 46.6 |
| 11 T1 | 577 | 11 | 607 | 1.9 | 0.402 | 4.9 | LOS A | 3.3 | 23.2 | 0.35 | 0.45 | 0.35 | 50.7 |
| 12 R 2 | 1 | 0 | 1 | 0.0 | 0.402 | 9.0 | LOS A | 3.3 | 23.2 | 0.35 | 0.45 | 0.35 | 53.0 |
| 12 u U | 1 | 0 | 1 | 0.0 | 0.402 | 10.9 | LOSA | 3.3 | 23.2 | 0.35 | 0.45 | 0.35 | 51.9 |
| Approach | 615 | 14 | 647 | 2.3 | 0.402 | 4.9 | LOS A | 3.3 | 23.2 | 0.35 | 0.46 | 0.35 | 50.5 |
| All <br> Vehicles | 1925 | 35 | 2026 | 1.8 | 0.724 | 6.8 | LOS A | 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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Project: C:IUsersIShawn Cen\SCT\Emu plain\SCT_00284_Emu Plains Industrial Estate_SIDRA_2023_v0.9_DL.sip9

## MOVEMENT SUMMARY

目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)

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mov Turn ID |  | JT <br> MES <br> HV ] <br> veh/h |  | $\begin{aligned} & \text { ND } \\ & \text { VS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. Satn <br> v/c | Aver. Delay <br> sec | Level of Service |  | $\begin{gathered} \text { CK OF } \\ \text { =UE } \\ \text { Dist ] } \\ \mathrm{m} \end{gathered}$ | Prop. Que | Effective Stop Rate |  | Aver Speed <br> km/h |
| South: Great Western Highway (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 |
| Approach | 562 | 17 | 592 | 3.0 | 0.836 | 61.3 | LOS E | 19.6 | 140.6 | 1.00 | 0.96 | 1.17 | 25.6 |
| North: Great Western Highway ( N ) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8 T1 | 655 | 16 | 689 | 2.4 | 0.462 | 4.7 | LOS A | 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 |
| Approach | 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 Bathurst 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 R 2 | 125 | 1 | 132 | 0.8 | * 0.624 | 39.5 | LOS C | 6.2 | 43.5 | 0.76 | 0.75 | 0.77 | 27.5 |
| Approach | 779 | 14 | 820 | 1.8 | 0.624 | 23.1 | LOS B | 28.8 | 204.8 | 0.74 | 0.81 | 0.75 | 38.9 |
| All Vehicles | 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 Movement Performance |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mov <br> ID Crossing | Input Vol. ped/h | Dem. <br> Flow <br> ped/h | Aver. Delay sec | Level of Service | $\begin{gathered} \text { VERAC } \\ \text { Q } \\ \text { [ Ped } \\ \text { ped } \end{gathered}$ | ACK OF E Dist ] m | Prop. Que | ective Stop Rate | Travel Time sec | Travel Dist. m | Aver. Speed |
| North: Great Western 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 Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |
| P4 Full | 10 | 12 | 58.2 | LOSE | 0.0 | 0.0 | 0.95 | 0.95 | 238.2 | 216.0 | 0.91 |
| All <br> Pedestrians | 28 | 38 | 58.2 | LOSE | 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:IUsersIShawn Cen\SCT\Emu plain\SCT_00284_Emu Plains Industrial Estate_SIDRA_2023_v0.9_DL.sip9

## MOVEMENT SUMMARY

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

AM_DV)]

```
New Site
Site Category: (None)
Roundabout
```

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { Mov Turn } \\ & \text { ID } \end{aligned}$ | $\begin{aligned} & \text { INP } \\ & \text { VOLU } \\ & \text { [ Total } \\ & \text { veh/h } \end{aligned}$ | JT MES HV ] veh/h |  | $\begin{aligned} & \text { IND } \\ & \text { NS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. <br> Satn <br> v/c | Aver. Delay $\qquad$ sec | Level of Service | $\begin{aligned} & 95 \% \text { Bt } \\ & \text { QUI } \\ & \text { [ Veh. } \\ & \text { veh } \end{aligned}$ | $\begin{gathered} \text { ACK OF } \\ \text { EUE } \\ \text { Dist ] } \\ \text { m } \end{gathered}$ | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed <br> km/h |
| South: Russell Street (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 |
| 3 u U | 20 | 4 | 28 | 20.0 | 1.167 | 175.1 | LOS F | 87.4 | 637.5 | 1.00 | 3.99 | 7.05 | 25.9 |
| Approach | 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 Bathurst Road (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 |
| 6 u U | 19 | 3 | 25 | 15.8 | 0.725 | 19.5 | LOS B | 8.3 | 63.6 | 0.90 | 1.05 | 1.21 | 45.1 |
| Approach | 430 | 46 | 464 | 11.0 | 0.725 | 14.1 | LOS A | 8.3 | 63.6 | 0.90 | 1.05 | 1.21 | 44.8 |
| North: Russell Street (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 |
| Approach | 226 | 9 | 248 | 4.0 | 0.797 | 71.6 | LOS F | 12.1 | 87.6 | 1.00 | 1.58 | 2.32 | 34.7 |
| West: Old Bathurst 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 R 2 | 236 | 8 | 248 | 3.4 | 1.390 | 370.0 | LOS F | 217.2 | 1535.2 | 1.00 | 7.76 | 14.72 | 13.2 |
| Approach | 1043 | 12 | 1116 | 1.1 | 1.390 | 366.8 | LOS F | 217.2 | 1535.2 | 1.00 | 7.76 | 14.72 | 11.0 |
| All Vehicles | 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.

## MOVEMENT SUMMARY

$\nabla$ Site: 2AM_DV [0730_OLD_DAV_35_AM_DV (Site Folder:
AM_DV)]
New Site
Site Category: (None)
Give-Way (Two-Way)

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { Mov Turn } \\ & \text { ID } \end{aligned}$ | $\begin{gathered} \text { IN } \\ \text { VOL } \\ \text { [ Total } \\ \text { veh/h } \end{gathered}$ | JT MES HV] veh/h |  | $\begin{aligned} & \text { AND } \\ & \text { WS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. Satn <br> v/c | Aver. Delay sec $\qquad$ | Level of Service | $\begin{gathered} \text { 95\% BA } \\ \text { QUE } \\ \text { [ Veh. } \\ \text { veh } \end{gathered}$ | $\qquad$ | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed <br> km/h |
| East: Old Bathurst Road (E) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4a L1 | 205 | 11 | 216 | 5.4 | 0.115 | 5.6 | LOS A | 0.0 | 0.0 | 0.00 | 0.60 | 0.00 | 60.0 |
| 5 T1 | 412 | 34 | 434 | 8.3 | 0.234 | 0.1 | LOSA | 0.0 | 0.0 | 0.00 | 0.00 | 0.00 | 69.9 |
| Approach | 617 | 45 | 649 | 7.3 | 0.234 | 1.9 | NA | 0.0 | 0.0 | 0.00 | 0.20 | 0.00 | 66.7 |
| West: Old Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11 T1 | 1224 | 27 | 1288 | 2.2 | 1.396 | 409.1 | LOS F | 314.5 | 2243.1 | 1.00 | 0.00 | 12.60 | 10.4 |
| 12b R3 | 254 | 8 | 267 | 3.1 | 1.467 | 458.8 | LOS F | 61.3 | 440.6 | 1.00 | 3.67 | 12.42 | 8.5 |
| Approach | 1478 | 35 | 1556 | 2.4 | 1.467 | 417.6 | NA | 314.5 | 2243.1 | 1.00 | 0.63 | 12.57 | 10.0 |
| SouthWest: David Road |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 30b L3 | 53 | 12 | 56 | 22.6 | 0.080 | 9.6 | LOS A | 0.3 | 2.3 | 0.48 | 0.73 | 0.48 | 54.6 |
| 32a R1 | 38 | 14 | 40 | 36.8 | 6.667 | 5498.2 | LOS F | 38.4 | 353.9 | 1.00 | 1.36 | 2.51 | 0.7 |
| Approach | 91 | 26 | 96 | 28.6 | 6.667 | 2301.5 | LOS F | 38.4 | 353.9 | 0.70 | 0.99 | 1.33 | 1.7 |
| All Vehicles | 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.

## MOVEMENT SUMMARY

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

AM_DV)]
New Site
Site Category: (None)
Roundabout

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mov Turn ID |  | JT MES HV] veh/h |  | $\begin{aligned} & \text { ND } \\ & \text { NS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. Satn <br> v/c | Aver. Delay $\qquad$ | Level of Service |  | $\begin{gathered} \text { CK OF } \\ \text { UE } \\ \text { Dist ] } \\ \text { m } \end{gathered}$ | Prop. Que | Effective Stop Rate |  | Aver. Speed <br> km/h |
| South: AGCP entrance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 L2 | 1 | 0 | 1 | 0.0 | 0.007 | 9.3 | LOS A | 0.0 | 0.3 | 0.79 | 0.64 | 0.79 | 47.1 |
| 2 T1 | 1 | 0 | 1 | 0.0 | 0.007 | 9.6 | LOS A | 0.0 | 0.3 | 0.79 | 0.64 | 0.79 | 46.5 |
| 3 R 2 | 1 | 0 | 1 | 0.0 | 0.007 | 13.7 | LOS A | 0.0 | 0.3 | 0.79 | 0.64 | 0.79 | 48.2 |
| 3 u U | 1 | 0 | 1 | 0.0 | 0.007 | 15.6 | LOS B | 0.0 | 0.3 | 0.79 | 0.64 | 0.79 | 50.9 |
| Approach | 4 | 0 | 4 | 0.0 | 0.007 | 12.0 | LOS A | 0.0 | 0.3 | 0.79 | 0.64 | 0.79 | 48.3 |
| East: Old Bathurst Road (E) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 L2 | 44 | 0 | 46 | 0.0 | 0.673 | 5.4 | LOS A | 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 | LOS A | 7.4 | 55.4 | 0.62 | 0.56 | 0.62 | 46.4 |
| 6 u U | 1 | 0 | 1 | 0.0 | 0.673 | 11.7 | LOSA | 7.4 | 55.4 | 0.62 | 0.56 | 0.62 | 50.0 |
| Approach | 801 | 61 | 843 | 7.6 | 0.673 | 6.6 | LOS A | 7.4 | 55.4 | 0.62 | 0.56 | 0.62 | 47.5 |
| North: Smith 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 |
| 9 u U | 1 | 0 | 1 | 0.0 | 0.545 | 25.1 | LOS B | 4.9 | 36.8 | 1.00 | 1.13 | 1.31 | 36.0 |
| Approach | 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 Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 L2 | 226 | 11 | 238 | 4.9 | 0.278 | 6.2 | LOS A | 1.8 | 12.9 | 0.49 | 0.60 | 0.49 | 45.9 |
| 11 T1 | 871 | 38 | 917 | 4.4 | 0.736 | 6.0 | LOS A | 9.2 | 66.3 | 0.73 | 0.59 | 0.73 | 47.6 |
| 12 R 2 | 102 | 0 | 107 | 0.0 | 0.736 | 10.1 | LOS A | 9.2 | 66.3 | 0.73 | 0.59 | 0.73 | 50.8 |
| 12u U | 1 | 0 | 1 | 0.0 | 0.736 | 12.0 | LOSA | 9.2 | 66.3 | 0.73 | 0.59 | 0.73 | 49.0 |
| Approach | 1200 | 49 | 1263 | 4.1 | 0.736 | 6.4 | LOS A | 9.2 | 66.3 | 0.69 | 0.59 | 0.69 | 47.7 |
| All Vehicles | 2207 | 128 | 2323 | 5.8 | 0.736 | 7.7 | LOS A | 9.2 | 66.3 | 0.69 | 0.63 | 0.72 | 46.1 |

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

## MOVEMENT SUMMARY

目 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)

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mov Turn |  | JT MES HV] veh/h |  | $\begin{aligned} & \text { ND } \\ & \text { NS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. Satn <br> v/c | Aver. Delay <br> sec | Level of Service | $\begin{gathered} \text { 95\% BA } \\ \text { QUE } \\ \text { [ Veh. } \\ \text { veh } \end{gathered}$ | CK OF UE Dist ] m | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed <br> km/h |
| South: Great Western Highway (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 |
| Approach | 760 | 31 | 800 | 4.1 | 0.948 | 75.0 | LOS F | 29.9 | 216.2 | 1.00 | 1.16 | 1.41 | 22.7 |
| North: Great Western Highway (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 |
| Approach | 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 Bathurst 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 R 2 | 111 | 6 | 144 | 5.4 | 0.522 | 56.7 | LOS E | 8.2 | 60.1 | 1.00 | 0.81 | 1.00 | 21.0 |
| Approach | 1112 | 57 | 1198 | 5.1 | 0.974 | 58.2 | LOSE | 73.0 | 533.5 | 1.00 | 0.99 | 1.17 | 25.9 |
| All <br> Vehicles | 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 Movement Performance |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mov <br> ID Crossing | Input Vol. ped/h | Dem. <br> Flow <br> ped/h | Aver. Delay sec | Level of Service | $\begin{gathered} \text { VERAC } \\ \text { Q } \\ \text { [ Ped } \\ \text { ped } \end{gathered}$ | ACK OF E Dist ] m | Prop. Que | ective Stop Rate | Travel Time sec | Travel Dist. m | Aver. Speed |
| North: Great Western 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 Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |
| P4 Full | 174 | 295 | 54.8 | LOS E | 1.0 | 1.0 | 0.96 | 0.96 | 239.4 | 221.5 | 0.93 |
| All <br> 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:IUsersIShawn Cen\SCT\Emu plain\SCT_00284_Emu Plains Industrial Estate_SIDRA_2023_v0.9_DL.sip9

## MOVEMENT SUMMARY

『 Site: 1PM_DV [1615_OLD_RUS_35_PM_DV (Site Folder:
PM_DV)]

```
New Site
Site Category: (None)
Roundabout
```

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mov Turn ID |  | JT <br> VES <br> HV ] <br> veh/h |  | $\begin{aligned} & \text { ND } \\ & \text { NS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. <br> Satn <br> v/c | Aver. Delay sec | Level of Service |  | CK OF UE Dist ] m | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver Speed km/h |
| South: Russell Street (S) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 R 2 | 163 | 25 | 172 | 15.3 | 0.950 | 42.4 | LOS C | 21.9 | 164.5 | 1.00 | 1.78 | 2.66 | 39.6 |
| 3 u U | 33 | 4 | 35 | 12.1 | 0.950 | 44.0 | LOS D | 21.9 | 164.5 | 1.00 | 1.78 | 2.66 | 41.5 |
| Approach | 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 Bathurst Road (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 |
| 6 u U | 10 | 0 | 12 | 0.0 | 1.456 | 426.5 | LOS F | 318.5 | 2257.4 | 1.00 | 8.76 | 14.95 | 10.4 |
| Approach | 1386 | 21 | 1496 | 1.5 | 1.456 | 421.1 | LOS F | 318.5 | 2257.4 | 1.00 | 8.76 | 14.95 | 10.5 |
| North: Russell Street (N) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7 L2 | 52 | 0 | 55 | 0.0 | 0.235 | 8.8 | LOS A | 1.6 | 11.5 | 0.84 | 0.84 | 0.84 | 46.8 |
| 8 T1 | 60 | 3 | 63 | 5.0 | 0.235 | 9.0 | LOS A | 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 |
| Approach | 127 | 7 | 134 | 5.5 | 0.235 | 9.6 | LOS A | 1.6 | 11.5 | 0.84 | 0.84 | 0.84 | 47.3 |
| West: Old Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 L2 | 9 | 0 | 9 | 0.0 | 0.689 | 9.9 | LOS A | 8.0 | 56.9 | 0.91 | 0.98 | 1.14 | 45.8 |
| 11 T1 | 345 | 5 | 363 | 1.4 | 0.689 | 9.9 | LOS A | 8.0 | 56.9 | 0.91 | 0.98 | 1.14 | 45.2 |
| 12 R 2 | 206 | 3 | 217 | 1.5 | 0.689 | 14.0 | LOSA | 8.0 | 56.9 | 0.91 | 0.98 | 1.14 | 46.4 |
| 12 u U | 1 | 0 | 1 | 0.0 | 0.689 | 15.6 | LOS B | 8.0 | 56.9 | 0.91 | 0.98 | 1.14 | 45.1 |
| Approach | 561 | 8 | 591 | 1.4 | 0.689 | 11.4 | LOS A | 8.0 | 56.9 | 0.91 | 0.98 | 1.14 | 45.7 |
| All Vehicles | 2642 | 84 | 2818 | 3.1 | 1.456 | 234.8 | LOS F | 318.5 | 2257.4 | 0.97 | 5.27 | 8.78 | 17.1 |

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.

[^3]
## MOVEMENT SUMMARY

$\nabla$ Site: 2PM_DV [1615_OLD_DAV_35_PM_DV (Site Folder:
PM_DV)]
New Site
Site Category: (None)
Give-Way (Two-Way)

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { Mov Turn } \\ & \text { ID } \end{aligned}$ |  | UT MES HV ] veh/h |  | $\begin{aligned} & \text { IND } \\ & \text { NS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. Satn <br> v/c | Aver. Delay <br> sec | Level of Service | $\begin{gathered} \text { 95\% BA } \\ \text { QUE } \\ \text { [ Veh. } \\ \text { veh } \end{gathered}$ | $\begin{gathered} \text { ACK OF } \\ \text { EUE } \\ \text { Dist ] } \\ \mathrm{m} \end{gathered}$ | Prop. Que | Effective Stop Rate | $\begin{aligned} & \text { Aver. } \\ & \text { No. } \\ & \text { Cycles } \end{aligned}$ | Aver. Speed <br> km/h |
| East: Old Bathurst Road (E) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4a L1 | 27 | 3 | 28 | 11.1 | 0.016 | 5.7 | LOS A | 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 |
| Approach | 1143 | 21 | 1203 | 1.8 | 0.609 | 0.5 | NA | 0.0 | 0.0 | 0.00 | 0.01 | 0.00 | 69.0 |
| West: Old Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 |
| Approach | 603 | 27 | 635 | 4.5 | 5.332 | 4179.8 | NA | 723.3 | 5172.0 | 1.00 | 0.11 | 4.45 | 1.1 |
| SouthWest: David Road |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 |
| Approach | 512 | 2 | 539 | 0.4 | 16.805 | 6695.1 | LOS F | 191.5 | 1340.6 | 1.00 | 3.56 | 11.87 | 0.6 |
| All Vehicles | 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.

## MOVEMENT SUMMARY

『 Site: 4PM_DV [1615_OLD_SMI_35_PM_DV (Site Folder:
PM_DV)]
New Site
Site Category: (None)
Roundabout

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mov Turn |  | JT MES HV ] veh/h |  | $\begin{aligned} & \text { ND } \\ & \text { NS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. Satn <br> v/c | Aver. Delay $\qquad$ <br> sec | Level of Service | $\begin{gathered} 95 \% \text { B } \\ \text { QU } \\ \text { [ Veh. } \\ \text { veh } \end{gathered}$ | $\begin{gathered} \text { CK OF } \\ \text { UE } \\ \text { Dist ] } \\ \text { m } \end{gathered}$ | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed <br> km/h |
| South: AGCP entrance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 |
| 3 u U | 1 | 0 | 1 | 0.0 | 0.410 | 23.4 | LOS B | 3.2 | 22.7 | 1.00 | 1.04 | 1.11 | 46.7 |
| Approach | 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 Bathurst Road (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 | LOS A | 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 |
| 6 u U | 1 | 0 | 1 | 0.0 | 0.741 | 11.5 | LOS A | 10.4 | 73.9 | 0.66 | 0.51 | 0.66 | 50.1 |
| Approach | 952 | 17 | 1002 | 1.8 | 0.741 | 5.7 | LOS A | 10.4 | 73.9 | 0.66 | 0.51 | 0.66 | 48.6 |
| North: Smith Street |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 7 L2 | 126 | 1 | 133 | 0.8 | 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 | LOS A | 2.6 | 18.4 | 0.86 | 0.92 | 0.88 | 40.9 |
| 9 u U | 1 | 0 | 1 | 0.0 | 0.378 | 15.8 | LOS B | 2.6 | 18.4 | 0.86 | 0.92 | 0.88 | 42.3 |
| Approach | 219 | 4 | 231 | 1.8 | 0.378 | 11.9 | LOS A | 2.6 | 18.4 | 0.86 | 0.92 | 0.88 | 40.8 |
| West: Old Bathurst 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 | LOS A | 4.9 | 35.0 | 0.41 | 0.46 | 0.41 | 50.4 |
| 12 R 2 | 1 | 0 | 1 | 0.0 | 0.521 | 9.1 | LOSA | 4.9 | 35.0 | 0.41 | 0.46 | 0.41 | 52.7 |
| 12 u U | 1 | 0 | 1 | 0.0 | 0.521 | 11.0 | LOSA | 4.9 | 35.0 | 0.41 | 0.46 | 0.41 | 51.5 |
| Approach | 795 | 14 | 837 | 1.8 | 0.521 | 5.0 | LOS A | 4.9 | 35.0 | 0.40 | 0.46 | 0.40 | 50.2 |
| All <br> Vehicles | 2125 | 35 | 2237 | 1.6 | 0.741 | 7.0 | LOS A | 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.

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Project: C:IUsers\Shawn Cen\SCT\Emu plainISCT_00284_Emu Plains Industrial Estate_SIDRA_2023_v0.9_DL.sip9

## MOVEMENT SUMMARY

目 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)

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mov Turn ID |  | UT <br> MES HV ] veh/h |  | $\begin{aligned} & \text { ND } \\ & \text { VS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. <br> Satn <br> v/c | Aver. Delay <br> sec | Level of Service |  | CK OF UE Dist] m | Prop. Que | Effective Stop Rate |  | Aver Speed km/h |
| South: Great Western Highway (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 |
| Approach | 562 | 17 | 592 | 3.0 | 0.836 | 61.3 | LOS E | 19.6 | 140.6 | 1.00 | 0.96 | 1.17 | 25.6 |
| North: Great Western Highway ( N ) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8 T1 | 655 | 16 | 689 | 2.4 | 0.462 | 4.7 | LOS A | 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 |
| Approach | 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 Bathurst 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 | 0.8 | * 0.624 | 39.5 | LOS C | 6.2 | 43.5 | 0.76 | 0.75 | 0.77 | 27.5 |
| Approach | 960 | 14 | 1011 | 1.5 | 0.753 | 25.1 | LOS B | 40.9 | 289.8 | 0.82 | 0.85 | 0.82 | 37.9 |
| All Vehicles | 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 Movement Performance |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mov <br> ID Crossing | Input Vol. ped/h | Dem. <br> Flow <br> ped/h | Aver. Delay sec | Level of Service | $\begin{gathered} \text { VERAC } \\ \text { Q } \\ \text { [ Ped } \\ \text { ped } \end{gathered}$ | ACK OF E Dist ] m | Prop. Que | ective Stop Rate | Travel Time sec | Travel Dist. m | Aver. Speed |
| North: Great Western 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 Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |
| P4 Full | 10 | 12 | 58.2 | LOSE | 0.0 | 0.0 | 0.95 | 0.95 | 238.2 | 216.0 | 0.91 |
| All <br> Pedestrians | 28 | 38 | 58.2 | LOSE | 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:IUsersIShawn Cen\SCT\Emu plain\SCT_00284_Emu Plains Industrial Estate_SIDRA_2023_v0.9_DL.sip9

## MOVEMENT SUMMARY

目 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)

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { Mov Turn } \\ & \text { ID } \end{aligned}$ |  | JT MES HV] veh/h |  | $\begin{aligned} & \text { AND } \\ & \text { WS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. Satn <br> v/c | Aver. Delay $\qquad$ sec | Level of Service | $\begin{gathered} \text { 95\% BA } \\ \text { QUE } \\ \text { [ Veh. } \\ \text { veh } \end{gathered}$ | CK OF UE Dist ] m | Prop. Que | Effective Stop Rate | Aver No. Cycles | Aver. Speed <br> km/h |
| South: Russell Street (S) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 |
| $3 \quad \mathrm{R} 2$ | 345 | 28 | 372 | 8.1 | * 0.726 | 46.4 | LOS D | 19.9 | 148.7 | 0.96 | 0.86 | 0.97 | 37.9 |
| Approach | 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 Bathurst Road (E) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 L2 | 120 | 28 | 136 | 23.3 | 0.131 | 11.3 | LOS A | 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 |
| Approach | 408 | 46 | 439 | 11.6 | 0.646 | 42.5 | LOS D | 6.9 | 50.5 | 0.80 | 0.73 | 0.82 | 36.6 |
| North: Russell Street (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 | LOSE | 6.6 | 48.9 | 0.98 | 0.78 | 0.98 | 34.9 |
| Approach | 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 Bathurst 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 R 2 | 236 | 8 | 248 | 3.4 | 0.548 | 47.0 | LOS D | 12.7 | 91.7 | 0.92 | 0.82 | 0.92 | 36.6 |
| Approach | 1043 | 12 | 1116 | 1.1 | 0.733 | 39.4 | LOS C | 24.5 | 172.2 | 0.92 | 0.81 | 0.93 | 36.1 |
| All <br> Vehicles | 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 Movement Performance |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { Mov } \\ & \text { ID } \end{aligned}$ | Input Vol. <br> ped/h | Dem. Flow <br> ped/h | Aver. Delay <br> sec | Level of AVERAGE BACK OF Service QUEUE |  |  | Prop. Effective Que Stop |  | Travel Time $\qquad$ sec | Travel Dist. $\qquad$ | Aver. <br> Speed <br> $\mathrm{m} / \mathrm{sec}$ |
| South: Russell 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 Bathurst Road (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 Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |
| P4 Full | 50 | 53 | 54.3 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 | 223.9 | 220.5 | 0.98 |
| All | 0 | 211 | 54.3 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 | 222.9 | 219.2 | 0.98 |
| Pedestrians |  |  |  |  |  |  |  |  |  |  |  |

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

## MOVEMENT SUMMARY

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

AM_FY)]

## New Site <br> Site Category: (None)

Roundabout

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mov Turn ID |  | JT <br> MES <br> HV ] <br> veh/h |  | $\begin{aligned} & \text { IND } \\ & \text { NS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. Satn <br> v/c | Aver. Delay <br> sec | Level of Service |  | CK OF UE Dist ] m | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. <br> Speed <br> km/h |
| East: Old Bathurst Road (E) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4a L1 | 37 | 11 | 39 | 29.7 | 0.340 | 5.6 | LOS A | 1.9 | 14.4 | 0.21 | 0.48 | 0.21 | 58.4 |
| 5 T1 | 412 | 34 | 434 | 8.3 | 0.340 | 5.7 | LOS A | 1.9 | 14.4 | 0.21 | 0.48 | 0.21 | 63.2 |
| Approach | 449 | 45 | 473 | 10.0 | 0.340 | 5.7 | LOS A | 1.9 | 14.4 | 0.21 | 0.48 | 0.21 | 62.8 |
| West: Old Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11 T1 | 1224 | 27 | 1288 | 2.2 | 0.842 | 5.9 | LOS A | 21.4 | 153.6 | 0.48 | 0.42 | 0.48 | 62.3 |
| 12b R3 | 57 | 8 | 60 | 14.0 | 0.842 | 11.3 | LOSA | 21.4 | 153.6 | 0.48 | 0.42 | 0.48 | 58.6 |
| Approach | 1281 | 35 | 1348 | 2.7 | 0.842 | 6.2 | LOSA | 21.4 | 153.6 | 0.48 | 0.42 | 0.48 | 62.1 |
| SouthWest: David Road |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 30b L3 | 31 | 12 | 33 | 38.7 | 0.093 | 8.9 | LOS A | 0.5 | 4.6 | 0.60 | 0.72 | 0.60 | 53.3 |
| 32a R1 | 19 | 14 | 20 | 73.7 | 0.093 | 13.6 | LOSA | 0.5 | 4.6 | 0.60 | 0.72 | 0.60 | 50.4 |
| Approach | 50 | 26 | 53 | 52.0 | 0.093 | 10.7 | LOSA | 0.5 | 4.6 | 0.60 | 0.72 | 0.60 | 52.2 |
| All <br> Vehicles | 1780 | 106 | 1874 | 6.0 | 0.842 | 6.2 | LOS A | 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.

## MOVEMENT SUMMARY

目 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)

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mov Turn | $\begin{array}{r} \text { IN } \\ \text { VOL } \\ \text { [ Total } \\ \text { veh/h } \end{array}$ | JT MES HV] veh/h |  | $\begin{aligned} & \text { AND } \\ & \text { WS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. Satn <br> v/c | Aver. <br> Delay <br> sec | Level of Service |  | CK OF UE Dist ] m | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed <br> km/h |
| East: Old Bathurst Road (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 | LOS A | 11.7 | 87.5 | 0.50 | 0.45 | 0.50 | 59.4 |
| Approach | 449 | 45 | 473 | 10.0 | 0.368 | 11.0 | LOS A | 11.7 | 87.5 | 0.50 | 0.47 | 0.50 | 58.4 |
| West: Old Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 |
| Approach | 1281 | 35 | 1348 | 2.7 | 0.877 | 8.7 | LOSA | 45.4 | 323.5 | 0.65 | 0.63 | 0.65 | 60.8 |
| SouthWest: David Road |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 | LOSE | 1.2 | 13.4 | 0.97 | 0.71 | 0.97 | 23.8 |
| Approach | 70 | 26 | 74 | 37.1 | 0.208 | 49.7 | LOS D | 2.4 | 20.5 | 0.85 | 0.73 | 0.85 | 34.3 |
| All <br> Vehicles | 1800 | 106 | 1895 | 5.9 | 0.877 | 10.9 | LOS A | 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)

| Pedestrian Movement Performance |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mov <br> ID Crossing | Input Vol. ped/h | Dem. Flow ped/h | Aver. Delay sec | Level of Service | $\begin{gathered} \text { VERAC } \\ \text { Q } \\ \text { [ Ped } \\ \text { ped } \end{gathered}$ | $\begin{aligned} & \text { ACK OF } \\ & \text { E } \\ & \text { Dist ] } \\ & \text { m } \end{aligned}$ | Prop. Que | Effective Stop Rate | Travel Time sec | Travel Dist. m | Aver. Speed |
| East: Old Bathurst Road (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 Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |
| P4 Full | 50 | 53 | 54.3 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 | 217.4 | 212.1 | 0.98 |
| SouthWest: David Road |  |  |  |  |  |  |  |  |  |  |  |
| P8 Full | 50 | 53 | 54.3 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 | 220.0 | 215.5 | 0.98 |
| All | 0 | 158 | 54.3 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 | 218.7 | 213.8 | 0.98 |
| Pedestrians |  |  |  |  |  |  |  |  |  |  |  |

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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## MOVEMENT SUMMARY

目 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)

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mov Turn ID |  | UT <br> MES HV ] veh/h |  | $\begin{aligned} & \text { IND } \\ & \text { NS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. <br> Satn <br> v/c | Aver. Delay <br> sec | Level of Service |  | CK OF UE Dist ] m | Prop. Que | Effective Stop Rate |  | Aver Speed km/h |
| South: Russell Street (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 | LOSA | 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 |
| Approach | 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 Bathurst Road (E) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 L2 | 142 | 28 | 161 | 19.7 | 0.155 | 8.8 | LOS A | 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 |
| Approach | 430 | 46 | 464 | 11.0 | 0.646 | 40.0 | LOS C | 6.9 | 50.5 | 0.75 | 0.72 | 0.77 | 37.3 |
| North: Russell Street (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 | LOSE | 6.4 | 47.0 | 0.98 | 0.78 | 0.98 | 34.9 |
| Approach | 226 | 9 | 248 | 4.0 | 0.487 | 54.5 | LOS D | 7.4 | 52.5 | 0.97 | 0.78 | 0.97 | 37.3 |
| West: Old Bathurst 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 R 2 | 236 | 8 | 248 | 3.4 | 0.747 | 57.5 | LOS E | 14.5 | 104.2 | 1.00 | 0.88 | 1.08 | 34.6 |
| Approach | 1043 | 12 | 1116 | 1.1 | 0.934 | 65.0 | LOS E | 34.6 | 242.9 | 0.99 | 1.08 | 1.28 | 30.6 |
| All <br> Vehicles | 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)

| Pedestrian Movement Performance |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ${ }_{\text {ID }} \begin{aligned} & \text { Mov } \\ & \text { Crossing } \end{aligned}$ | Input Vol. <br> ped/h | Dem. Flow ped/h | Aver. Delay sec | Level of Service | VERAG <br> [Ped ped | ACK OF <br> Dist] | Prop. Que | Effective Stop Rate | Travel Time | Travel Dist. <br> m | Aver. Speed <br> $\mathrm{m} / \mathrm{sec}$ |
| South: Russell 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 Bathurst Road (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 Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |
| P4 Full | 50 | 53 | 54.3 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 | 223.9 | 220.5 | 0.98 |
| All | 0 | 211 | 54.3 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 | 222.9 | 219.2 | 0.98 |
| Pedestrians |  |  |  |  |  |  |  |  |  |  |  |

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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## MOVEMENT SUMMARY

© Site: 2AM_DV [0730_OLD_DAV_35_AM_DV_I (Site Folder:
AM_DV)]

## New Site <br> Site Category: (None)

Roundabout

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mov Turn ID |  | JT MES HV ] veh/h |  | $\begin{aligned} & \text { IND } \\ & \text { NS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. Satn <br> v/c | Aver. Delay $\qquad$ | Level of Service | $\begin{gathered} 95 \% \text { B } \\ \text { QU } \\ \text { [ Veh. } \\ \text { veh } \end{gathered}$ | $\begin{gathered} \text { CK OF } \\ \text { UE } \\ \text { Dist ] } \\ \mathrm{m} \end{gathered}$ | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed <br> km/h |
| East: Old Bathurst Road (E) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4a L1 | 205 | 11 | 216 | 5.4 | 0.587 | 6.6 | LOSA | 4.8 | 35.5 | 0.65 | 0.65 | 0.66 | 57.3 |
| 5 T1 | 412 | 34 | 434 | 8.3 | 0.587 | 7.1 | LOSA | 4.8 | 35.5 | 0.65 | 0.65 | 0.66 | 61.5 |
| Approach | 617 | 45 | 649 | 7.3 | 0.587 | 7.0 | LOS A | 4.8 | 35.5 | 0.65 | 0.65 | 0.66 | 60.2 |
| West: Old Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11 T1 | 1224 | 27 | 1288 | 2.2 | 1.007 | 21.8 | LOS B | 110.5 | 788.9 | 1.00 | 0.49 | 1.16 | 53.0 |
| 12b R3 | 254 | 8 | 267 | 3.1 | 1.007 | 27.0 | LOS B | 110.5 | 788.9 | 1.00 | 0.49 | 1.16 | 49.8 |
| Approach | 1478 | 35 | 1556 | 2.4 | 1.007 | 22.7 | LOS B | 110.5 | 788.9 | 1.00 | 0.49 | 1.16 | 52.5 |
| SouthWest: David Road |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 30b L3 | 53 | 12 | 56 | 22.6 | 0.154 | 8.4 | LOS A | 0.9 | 7.4 | 0.65 | 0.75 | 0.65 | 54.4 |
| 32a R1 | 38 | 14 | 40 | 36.8 | 0.154 | 12.1 | LOSA | 0.9 | 7.4 | 0.65 | 0.75 | 0.65 | 52.9 |
| Approach | 91 | 26 | 96 | 28.6 | 0.154 | 10.0 | LOS A | 0.9 | 7.4 | 0.65 | 0.75 | 0.65 | 53.8 |
| All <br> Vehicles | 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.

## MOVEMENT SUMMARY

目 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)

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mov Turn | $\begin{array}{r} \text { IN } \\ \text { VOL } \\ \text { [ Total } \\ \text { veh/h } \end{array}$ | JT MES HV ] veh/h |  | $\begin{aligned} & \text { AND } \\ & \text { WS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. Satn <br> v/c | Aver. <br> Delay <br> sec | Level of Service |  | CK OF UE Dist ] m | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver. Speed <br> km/h |
| East: Old Bathurst Road (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 |
| Approach | 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 Bathurst 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 |
| Approach | 1478 | 35 | 1556 | 2.4 | 0.991 | 46.6 | LOS D | 82.4 | 587.4 | 0.59 | 0.78 | 0.81 | 39.1 |
| SouthWest: David Road |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 |
| Approach | 91 | 26 | 96 | 28.6 | 0.363 | 50.1 | LOS D | 2.7 | 25.3 | 0.78 | 0.73 | 0.78 | 33.7 |
| All <br> Vehicles | 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)

| Pedestrian Movement Performance |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { Mov } \\ & { }_{\text {ID }} \end{aligned}$ | Input Vol. <br> ped/h | Dem. Flow ped/h | Aver. Delay sec | Level of Service | AVERA <br> [Ped <br> ped | $\begin{aligned} & \text { ACK OF } \\ & \text { E } \\ & \text { Dist ] } \\ & \text { m } \end{aligned}$ | Prop. Que | ective <br> Stop <br> Rate | Travel Time sec | Travel Dist. <br> m | Aver. <br> Speed <br> $\mathrm{m} / \mathrm{sec}$ |
| East: Old Bathurst Road (E) |  |  |  |  |  |  |  |  |  |  |  |
| P2 Full | 50 | 53 | 64.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 | 228.7 | 213.8 | 0.93 |
| West: Old Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |
| P4 Full | 50 | 53 | 64.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 | 227.4 | 212.1 | 0.93 |
| SouthWest: David Road |  |  |  |  |  |  |  |  |  |  |  |
| P8 Full | 50 | 53 | 64.3 | LOS F | 0.2 | 0.2 | 0.96 | 0.96 | 230.0 | 215.5 | 0.94 |
| All <br> Pedestrians | 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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## MOVEMENT SUMMARY

## 目 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)

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mov Turn ID | $\begin{aligned} & \text { INP } \\ & \text { vOLU } \\ & \text { [ Total } \\ & \text { veh/h } \end{aligned}$ | UT HV ] veh/h |  | $\begin{aligned} & \text { IND } \\ & \text { NS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. Satn v/c | Aver. Delay sec | Level of Service |  | CK OF UE Dist ] <br> m | Prop. Que | Effective <br> Stop <br> Rate | Aver. No. Cycles | Aver. Speed km/h |
| South: Russell Street (S) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 |
| Approach | 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 Bathurst Road (E) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 L2 | 168 | 15 | 190 | 8.9 | 0.165 | 7.4 | LOS A | 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 |
| Approach | 1174 | 21 | 1237 | 1.9 | 0.921 | 51.1 | LOS D | 31.0 | 218.3 | 0.85 | 0.97 | 1.08 | 34.0 |
| North: Russell 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 |
| Approach | 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 Bathurst 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 R 2 | 206 | 3 | 217 | 1.5 | 0.674 | 55.9 | LOS D | 12.2 | 86.5 | 0.99 | 0.84 | 1.01 | 34.9 |
| Approach | 560 | 8 | 597 | 1.4 | 0.674 | 42.7 | LOS D | 12.2 | 86.5 | 0.87 | 0.74 | 0.88 | 35.8 |
| All <br> Vehicles | 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 Movement Performance |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ${ }_{\text {ID }}^{\text {Mov }} \text { Crossing }$ | Input Vol. <br> ped/h | Dem. Flow ped/h | Aver. Delay sec | Level of AVERAGE BACK OF Service QUEUE |  |  | Prop. E Que | ctive <br> Stop <br> Rate | Travel Time | Travel Aver. Dist. Speed |  |
| South: Russell 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 Bathurst Road (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 Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |
| P4 Full | 50 | 53 | 54.3 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 | 223.9 | 220.5 | 0.98 |
| All | 0 | 211 | 54.3 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 | 222.9 | 219.2 | 0.98 |
| Pedestrians |  |  |  |  |  |  |  |  |  |  |  |

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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## MOVEMENT SUMMARY

© Site: 2AM_DV [1615_OLD_DAV_35_PM_FY_I (Site Folder:
PM_FY)]

```
New Site
Site Category: (None)
Roundabout
```

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { Mov Turn } \\ & \text { ID } \end{aligned}$ | $\begin{aligned} & \text { INP } \\ & \text { VOLU } \\ & \text { [ Total } \\ & \text { veh/h } \end{aligned}$ | JT MES HV] veh/h |  | $\begin{aligned} & \text { IND } \\ & \text { NS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. Satn <br> v/c | Aver. Delay sec $\qquad$ | Level of Service | $\begin{gathered} 95 \% \text { B } \\ \text { Qu } \\ \text { [ Veh. } \\ \text { veh } \end{gathered}$ | CK OF Dist ] m | Prop. Que | Effective Stop Rate | Aver No. Cycles | Aver. Speed $\mathrm{km} / \mathrm{h}$ |
| East: Old Bathurst Road (E) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4a L1 | 7 | 3 | 7 | 42.9 | 0.732 | 5.8 | LOS A | 8.1 | 57.6 | 0.24 | 0.45 | 0.24 | 57.9 |
| 5 T1 | 1116 | 18 | 1175 | 1.6 | 0.732 | 5.6 | LOSA | 8.1 | 57.6 | 0.24 | 0.45 | 0.24 | 63.4 |
| Approach | 1123 | 21 | 1182 | 1.9 | 0.732 | 5.6 | LOS A | 8.1 | 57.6 | 0.24 | 0.45 | 0.24 | 63.4 |
| West: Old Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11 T1 | 557 | 14 | 586 | 2.5 | 0.421 | 5.7 | LOS A | 3.9 | 28.5 | 0.29 | 0.47 | 0.29 | 63.1 |
| 12b R3 | 22 | 13 | 23 | 59.1 | 0.421 | 11.9 | LOSA | 3.9 | 28.5 | 0.29 | 0.47 | 0.29 | 57.7 |
| Approach | 579 | 27 | 609 | 4.7 | 0.421 | 6.0 | LOS A | 3.9 | 28.5 | 0.29 | 0.47 | 0.29 | 62.9 |
| SouthWest: David Road |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 |
| Approach | 119 | 2 | 125 | 1.7 | 0.355 | 22.8 | LOS B | 2.4 | 17.0 | 0.94 | 1.00 | 1.02 | 47.7 |
| All <br> Vehicles | 1821 | 50 | 1917 | 2.7 | 0.732 | 6.9 | LOS A | 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.

## MOVEMENT SUMMARY

目 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)

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mov Turn ID |  | UT MES HV ] veh/h |  | $\begin{aligned} & \text { IND } \\ & \text { NS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. Satn <br> v/c | Aver. Delay <br> sec | Level of Service |  | $\begin{gathered} \text { CK OF } \\ \text { =UE } \\ \text { Dist ] } \\ \mathrm{m} \end{gathered}$ | Prop. Que | Effective Stop Rate |  | Aver Speed <br> km/h |
| East: Old Bathurst Road (E) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4a L1 | 7 | 3 | 7 | 42.9 | 0.007 | 12.6 | LOS A | 0.1 | 1.3 | 0.34 | 0.64 | 0.34 | 48.6 |
| 5 T1 | 1116 | 18 | 1175 | 1.6 | * 0.880 | 17.9 | LOS B | 55.6 | 394.3 | 0.84 | 0.82 | 0.87 | 53.8 |
| Approach | 1123 | 21 | 1182 | 1.9 | 0.880 | 17.9 | LOS B | 55.6 | 394.3 | 0.84 | 0.82 | 0.87 | 53.7 |
| West: Old Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11 T1 | 557 | 14 | 586 | 2.5 | 0.380 | 3.6 | LOS A | 9.6 | 68.8 | 0.31 | 0.28 | 0.31 | 66.0 |
| 12b R3 | 22 | 13 | 23 | 59.1 | * 0.178 | 42.8 | LOS D | 1.1 | 11.5 | 0.81 | 0.75 | 0.81 | 39.2 |
| Approach | 579 | 27 | 609 | 4.7 | 0.380 | 5.1 | LOS A | 9.6 | 68.8 | 0.33 | 0.30 | 0.33 | 64.2 |
| SouthWest: David Road |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 30b L3 | 73 | 2 | 77 | 2.7 | 0.238 | 50.5 | LOS D | 3.8 | 27.4 | 0.88 | 0.77 | 0.88 | 37.3 |
| 32a R1 | 46 | 0 | 48 | 0.0 | * 0.333 | 64.0 | LOS E | 2.8 | 19.7 | 0.99 | 0.74 | 0.99 | 27.6 |
| Approach | 119 | 2 | 125 | 1.7 | 0.333 | 55.7 | LOS D | 3.8 | 27.4 | 0.92 | 0.76 | 0.92 | 33.6 |
| All Vehicles | 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 Movement Performance |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ${ }_{\text {ID }}^{\text {Mov }} \text { Crossing }$ | Input Vol. ped/h | Dem. Flow ped/h | Aver. Delay sec | Level of Service | $\begin{gathered} \text { VERAG } \\ \text { Q } \\ \text { [ Ped } \\ \text { ped } \end{gathered}$ | ACK OF Dist ] m | Prop. Que | ective <br> Stop <br> Rate | Travel Time | Travel Dist. <br> m | Aver. Speed <br> $\mathrm{m} / \mathrm{sec}$ |
| East: Old Bathurst Road (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 Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |
| P4 Full | 50 | 53 | 54.3 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 | 217.4 | 212.1 | 0.98 |
| SouthWest: David Road |  |  |  |  |  |  |  |  |  |  |  |
| P8 Full | 50 | 53 | 54.3 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 | 220.0 | 215.5 | 0.98 |
| All <br> Pedestrians |  | 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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## MOVEMENT SUMMARY

目 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)

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { Mov Turn } \\ & \text { ID } \end{aligned}$ |  | UT <br> MES HV ] veh/h |  | $\begin{aligned} & \text { IND } \\ & \text { NS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. <br> Satn <br> v/c | Aver. Delay <br> sec | Level of Service | 95\% B QU [ Veh veh | $\begin{aligned} & \text { CK OF } \\ & \text { CUE } \\ & \text { Dist ] } \\ & \mathrm{m} \end{aligned}$ | Prop. Que | Effective Stop Rate | Aver. No. Cycles | Aver Speed km/h |
| South: Russell Street (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 |
| Approach | 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 Bathurst Road (E) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 L2 | 380 | 15 | 431 | 3.9 | 0.366 | 8.0 | LOS A | 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 |
| Approach | 1386 | 21 | 1478 | 1.6 | 0.988 | 60.9 | LOS E | 42.1 | 296.2 | 0.77 | 1.04 | 1.12 | 32.6 |
| North: Russell 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 |
| Approach | 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 Bathurst 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 R 2 | 207 | 3 | 218 | 1.4 | 0.711 | 57.8 | LOS E | 12.6 | 89.0 | 1.00 | 0.86 | 1.06 | 34.5 |
| Approach | 561 | 8 | 598 | 1.4 | 0.711 | 41.7 | LOS C | 12.6 | 89.0 | 0.87 | 0.73 | 0.89 | 36.0 |
| All <br> Vehicles | 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 Movement Performance |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mov <br> ID Crossing | Input Vol. <br> ped/h | Dem. Flow ped/h | Aver. Delay sec | Level of AVERAGE BACK OF Service QUEUE |  |  | $\begin{aligned} & \text { Prop. Effective } \\ & \text { Que } \text { Stop } \\ & \text { Rate } \end{aligned}$ |  | Travel Time sec | Travel Dist. <br> m | Aver. <br> Speed <br> $\mathrm{m} / \mathrm{sec}$ |
| South: Russell 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 Bathurst Road (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 Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |
| P4 Full | 50 | 53 | 54.3 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 | 223.9 | 220.5 | 0.98 |
| All | 0 | 211 | 54.3 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 | 222.9 | 219.2 | 0.98 |
| Pedestrians |  |  |  |  |  |  |  |  |  |  |  |

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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## MOVEMENT SUMMARY

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

PM_DV)]

## New Site <br> Site Category: (None) <br> Roundabout

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { Mov Turn } \\ & \text { ID } \end{aligned}$ | $\begin{aligned} & \text { INP } \\ & \text { VOLU } \\ & \text { [ Total } \\ & \text { veh/h } \end{aligned}$ | JT MES HV ] veh/h | $\begin{aligned} & \text { DEN } \\ & \text { FL( } \\ & \text { [ Total } \\ & \text { veh/h } \end{aligned}$ | $\begin{aligned} & \text { ND } \\ & \text { NS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. Satn <br> v/c | Aver. Delay sec $\qquad$ | Level of Service | $\begin{aligned} & \text { 95\% B } \\ & \text { QU } \\ & \text { [ Veh. } \\ & \text { veh } \end{aligned}$ | CK OF UE Dist ] m | Prop. Que | Effective Stop Rate | $\begin{aligned} & \text { Aver. } \\ & \text { No. } \\ & \text { Cycles } \end{aligned}$ | Aver. Speed $\mathrm{km} / \mathrm{h}$ |
| East: Old Bathurst Road (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 |
| Approach | 1143 | 21 | 1203 | 1.8 | 0.783 | 5.9 | LOSA | 10.8 | 77.1 | 0.43 | 0.46 | 0.43 | 62.5 |
| West: Old Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11 T1 | 557 | 14 | 586 | 2.5 | 0.521 | 6.5 | LOS A | 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 |
| Approach | 603 | 27 | 635 | 4.5 | 0.521 | 7.0 | LOSA | 5.0 | 36.0 | 0.56 | 0.56 | 0.56 | 61.6 |
| SouthWest: David Road |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 |
| Approach | 512 | 2 | 539 | 0.4 | 1.683 | 654.7 | LOS F | 154.0 | 1081.7 | 1.00 | 5.42 | 13.71 | 6.0 |
| All <br> Vehicles | 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.

## MOVEMENT SUMMARY

目 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)

| Vehicle Movement Performance |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { Mov Turn } \\ & \text { ID } \end{aligned}$ | $\begin{gathered} \text { IN } \\ \text { VOL } \\ \text { [ Total } \\ \text { veh/h } \end{gathered}$ | JT MES HV] veh/h |  | $\begin{aligned} & \text { AND } \\ & \text { WS } \\ & \text { HV ] } \\ & \% \end{aligned}$ | Deg. Satn <br> v/c | Aver. Delay sec $\qquad$ | Level of Service | $\begin{gathered} 95 \% \text { B } \\ \text { QU } \\ \text { [ Veh. } \\ \text { veh } \end{gathered}$ | CK OF UE Dist] m | Prop. Que | Effective Stop Rate | Aver No. Cycles | Aver. Speed <br> km/h |
| East: Old Bathurst Road (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 |
| Approach | 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 Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 11 T1 | 557 | 14 | 586 | 2.5 | 0.448 | 6.0 | LOS A | 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 |
| Approach | 603 | 27 | 635 | 4.5 | 0.448 | 10.1 | LOS A | 12.4 | 89.0 | 0.44 | 0.39 | 0.44 | 59.4 |
| SouthWest: David Road |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 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 |
| Approach | 512 | 2 | 539 | 0.4 | 0.923 | 62.8 | LOS E | 16.6 | 116.5 | 0.98 | 0.93 | 1.18 | 31.5 |
| All Vehicles | 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 Movement Performance |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Mov <br> ID Crossing | Input Vol. ped/h | Dem. <br> Flow <br> ped/h | Aver. Delay sec | Level of Service | $\begin{gathered} \text { VERAC } \\ \text { Q } \\ \text { [ Ped } \\ \text { ped } \end{gathered}$ | $\begin{aligned} & \text { ACK OF } \\ & \text { E } \\ & \text { Dist ] } \\ & \text { m } \end{aligned}$ | Prop. Que | Effective Stop Rate | Travel Time sec | Travel Dist. m | Aver. Speed |
| East: Old Bathurst Road (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 Bathurst Road (W) |  |  |  |  |  |  |  |  |  |  |  |
| P4 Full | 50 | 53 | 54.3 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 | 217.4 | 212.1 | 0.98 |
| SouthWest: David Road |  |  |  |  |  |  |  |  |  |  |  |
| P8 Full | 50 | 53 | 54.3 | LOS E | 0.2 | 0.2 | 0.95 | 0.95 | 220.0 | 215.5 | 0.98 |
| All <br> 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







[^0]:    *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.

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