



TRAFFIC IMPACT ASSESSMENT

PROPOSED CARAVAN PARK

**LOT 1 DP174385
313 MAGPIE LANE, GALAMBINE**

PREPARED FOR: CRAIG BATEMAN

FEBRUARY 2024

REF:23/066

**TRAFFIC IMPACT ASSESSMENT
GALAMBINE LIFESTYLE RESORT – CARAVAN PARK
CRAIG BATEMAN****LOT 1 DP174385
313 MAGPIE LANE, GALAMBINE**

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1. INTRODUCTION

Intersect Traffic Pty Ltd (Intersect Traffic) was engaged by Craig Bateman to prepare a traffic impact assessment (TIA) report for a proposed caravan park on Lot 1 DP174385 being 313 Magpie Lane, Galambine. The proposal includes 147 short-term sites and 240 long-term sites, with the short-term sites predominantly utilised for tourism purposes, and the long-term sites to predominantly be utilised for accommodation for workers in the agricultural and mining industries or an alternate form of affordable housing. The report is required to support a development application submission to Mid-Western Regional Council for the development.

The aim of this assessment is to determine the likely impact of the development on the adjacent local road network due to the traffic generated by the development. This report presents the findings of the traffic impact assessment and includes the following:

1. An outline of the existing road network in the vicinity of the proposed development.
2. An assessment of the likely peak traffic generation from the development.
3. An assessment of the likely traffic impacts of the proposal on the adjacent road network in particular in terms of the capacity of the existing road network linking to the sub-arterial road network.
4. An assessment of the proposed development access and on-site parking.
5. Presentation of conclusions and any recommendations.

This assessment has been carried out with reference to the *RTA's Guide to Traffic Generating Developments*, *Austrroads Guide to Road Design Guidelines (2019)*, *Austrroads Guide to Traffic Management Guidelines (2020)*, Mid-Western Regional Council's DCP and the NSW Local Government Caravan Park Regulations as well as utilising information provided by ADW Johnson Pty Ltd.

2. SITE DESCRIPTION

The subject site is located on the southern side of Magpie Lane, Galambine, immediately east of Guntawang Road. The site has frontage to both Guntawang Road and Magpie Lane. The site is approximately 3.1 km's west of the Castlereagh Highway, 7 km's south-west of Gulgong and 22 km's north-west of Mudgee. The development site is vacant and partially vegetated land containing one dwelling and associated structures. The subject site is shown in **Figure 1** in context with the surrounding properties, and roads.



Figure 1 – Site Location Plan

The site has the following property descriptors:

- ◆ Formal title of Lot 1 in DP 174385.
- ◆ Address of 313 Magpie Lane, Galambine.
- ◆ Area of approximately 73.6 ha, and
- ◆ Zoning of RU4 – Primary Production Small Lots pursuant to the Mid-Western Regional Local Environmental Plan 2012.

The site is currently served by an existing vehicular access off Magpie Lane. **Photographs 1 & 2** below show the site from the existing vehicular access off Magpie Lane and from Guntawang Road.



Photograph 1 – Existing site access – Magpie Lane.



Photograph 2 – Site from Guntawang Road

3. EXISTING ROAD NETWORK

3.1 Castlereagh Highway

The Castlereagh Highway is a classified state highway (SH18) therefore performs the function of an arterial road and is a major transportation route in central west NSW. It is therefore under the care and control of Transport for NSW (TfNSW). It commences at the Great Western Highway at Marrangaroo and runs through Ilford, Mudgee, and Gulgong to the Golden Highway near Craboon before recommencing at Dunedoo and running to Gilgandra and then to Coonamble and onto the Queensland border near Hebel. Near the site the Castlereagh Highway is a two-lane two-way sealed road of variable carriageway width with grassed verges and table drains on both sides of the road. Additional turning lanes are provided at major intersections along its length. Lane widths are generally 3.5 metres with a sealed shoulder / breakdown lane on both sides of the road which near Magpie Lane are in the order of 1.5 to 2 metres wide. The highway is both centre-line and edge line marked, and a 100 km/h speed limit applies to this section of the Highway. At the time of inspection, it was observed to be in good condition as shown in **Photographs 3 & 4** below.



Photograph 3 – Castlereagh Highway near Magpie Lane intersection.



Photograph 4 – Castlereagh Highway near Guntawang Road intersection.

3.2 Guntawang Road.

Guntawang Road is a classified state road (MR633) that runs from the Castlereagh Highway near Cullenbone north of Mudgee to the Mitchell Highway north of Wellington. It therefore performs the function of a sub-arterial road and though under the care and control of Mid-Western Regional Council near the site, Council receives funding assistance for its maintenance from TfNSW. Near the site it is a two-lane two-way rural sealed road with grassed verges and table drains on both sides of the road. Lane widths are approximately 3.5 metres with a sealed shoulder / breakdown lane provided on both sides of the road. Near the site the sealed shoulder is approximately 1.5 metres wide. The road is both centre-line and edge line marked, and a 100 km/h speed limit applies to this section of road. At the time of inspection Guntawang Road was observed to be in good condition as shown in **Photographs 5 and 6** below.

Magpie Lane intersects Guntawang Road near the site via a give way priority-controlled T-intersection constructed as a BAR / BAL intersection while Guntawang Road connects to the Castlereagh Highway at Cullenbone via a give way priority-controlled T-intersection constructed as a BAR / AUL(s) intersection providing a left turn deceleration lane for northbound vehicles turning left into Guntawang Road from the Castlereagh Highway.

Guntawang Road is part of the signposted route to Gulgong, Wellington, and Dubbo from the site.



Photograph 5 – Guntawang Road near Magpie Lane.



Photograph 6 – Guntawang Road near the Castlereagh Highway

3.3 Magpie Lane.

Magpie Lane is a local rural laneway that provides vehicular access to a small number of properties along its length. It runs east-west from the Castlereagh Highway to Guntawang Road near the site. As a local road it is under the care and control of Mid-Western Regional Council.

It is a two-way two-lane sealed road though there is no centre line marking along the road. The pavement width is approximately 5.5 metres wide near the site however it appears the seal is only a dust abatement style seal with little underlying pavement material and poor drainage along its length. As such the pavement is only in fair condition as shown in **Photograph 7** below and the road would not be suited to high traffic volumes or caravan traffic in its current condition. Whilst a 100 km/h speed zone would probably apply to the road safe travelling speed along the road would be in the order of only 50 – 60 km/h.

Magpie Lane connects to the Castlereagh Highway by a give way priority-controlled T-intersection which appears to be recently upgraded to a CHR(s) / AUL intersection with both right turn deceleration and left turn deceleration lanes being provided for vehicles turning from the Castlereagh Highway into Magpie Lane.



Photograph 7 – Magpie Lane near the site access.

4. ROAD NETWORK IMPROVEMENTS

There are no known road network improvements currently programmed that will increase the capacity of the local road network. Maintenance and reconstruction work in the area would be carried out in line with Mid-Western Regional Council's and TfNSW Annual Works Programmes.

5. TRAFFIC VOLUMES

Manual intersection counts were carried out by Intersect Traffic at the Castlereagh Highway / Guntawang Road intersection and the Guntawang Road / Magpie Lane intersection on Wednesday, Thursday, and Friday 14th June to 16th June 2023 during the likely AM and PM peak traffic hours of 8.00 am – 9.00 am and 3.00 pm – 4.00 pm. The tally sheets for the manual traffic counts are provided within **Appendix 2**.

The peak 2023 AM and PM two-way mid-block peak hour traffic volumes calculated from the counts were as shown in **Table 1** below. **Table 1** also shows the predicted 2033 peak based on a background traffic growth rate of 2 % per annum. These values have been adopted within this assessment.

Table 1 – Peak Hour Traffic Volumes

Road	Section	2023		2033 @ 2% p.a.	
		AM (vtph)	PM (vtph)	AM (vtph)	PM (vtph)
Castlereagh Highway	south of Guntawang Road	315	386	384	471
Castlereagh Highway	north of Guntawang Road	224	294	273	358
Guntawang Road	west of Castlereagh Highway	95	98	116	119
Guntawang Road	north of Magpie Lane	126	121	154	147
Guntawang Road	south of Magpie Lane	123	123	150	150
Magpie Lane	east of Guntawang Road	3	4	4	5

6. ROAD CAPACITIES

The capacity of the road network is generally determined by the capacity of intersections. However, for urban roads Table 4.3 of the RTA’s Guide to Traffic Generating Developments, reproduced below, provides some guidance on mid-block capacities for a level of service (LoS) C.

Table 4.3
Typical mid-block capacities for urban roads with interrupted flow

Type of Road	One-Way Mid-block Lane Capacity (pcu/hr)	
Median or inner lane:	Divided Road	1,000
	Undivided Road	900
Outer or kerb lane:	With Adjacent Parking Lane	900
	Clearway Conditions	900
	Occasional Parked Cars	600
4 lane undivided:	Occasional Parked Cars	1,500
	Clearway Conditions	1,800
4 lane divided:	Clearway Conditions	1,900

Source: - RTA’s Guide to Traffic Generating Developments (2002).

Noting all roads on the local and state road network being two-lane two-way undivided roads they would have a one-way mid-block capacity of at least 900 vtpm and a two-way mid-block capacity of 1,800 vtpm for a LoS C.

However, as Magpie Lane is a local road providing access to residential dwellings the environmental capacity goals for the road network are also relevant for Magpie Lane. Table 4.6 of the RTA’s Guide to Traffic Generating Developments provides guidance on the environmental capacity goals for local streets. This table is reproduced below.

Table 4.6
Environmental capacity performance standards on residential streets

Road class	Road type	Maximum Speed (km/hr)	Maximum peak hour volume (veh/hr)
Local	Access way	25	100
	Street	40	200 environmental goal 300 maximum
Collector	Street	50	300 environmental goal 500 maximum

Note: Maximum speed relates to the appropriate design maximum speeds in new residential developments. In existing areas maximum speed relates to 85th percentile speed.

Source: - RTA's Guide to Traffic Generating Developments (2002).

Magpie Lane being a local road has an environmental capacity of a maximum of 300 vph based on the table above. Therefore, the two-way mid-block road capacities adopted within this assessment are.

- ◆ Castlereagh Highway and Guntawang Road - 1,800 vph; and
- ◆ Magpie Lane - 300 vph.

As the current peak traffic volumes on the Castlereagh Highway, Guntawang Road and Magpie Lane determined in **Section 5** above are less than the technical mid-block or environmental capacities determined above it is concluded the local and state road network has spare capacity to cater for additional traffic generated by the proposed development subject to satisfactory intersection performance.

7. ALTERNATE TRANSPORT MODES

There are no regular public transport bus services that service this site the nearest public bus service is the Mudgee Town Service while Eastend Buses run a once a day bi-monthly bus service from Gulgong to Mudgee which would be of very limited use to residents of the Lifestyle Village. Being a rural area there is also no pedestrian or bicycle infrastructure in the vicinity of the site. Currently pedestrians and cyclists would need to utilise and share the sealed shoulders or travel lanes on the road with other vehicles.

8. PROPOSED DEVELOPMENT

The proposal involves the construction of a caravan park with both long-term and short-term sites. The short-term sites are intended to be tourism based, whilst the long-term sites are to be predominantly utilised for accommodation for workers in the local agricultural and mining industries or an alternate form of affordable housing. The proposed site plan is shown in **Appendix 1**. Specifically, the development will include the provision of:

- ◆ 147 short-term sites and 240 long-term sites.
- ◆ Two community centre buildings in the long-term site area.
- ◆ Office and activities centre in both the short-term and long-term site areas.
- ◆ On-site resident parking in both the short-term and long-term site areas.
- ◆ 9 visitor car parking spaces in addition to 1 accessible space plus a car wash bay within the short-term site.
- ◆ 77 visitor car parking spaces including 13 accessible spaces and a car wash bay within nine separate car parking areas spread throughout the long-term site.
- ◆ Main vehicular access off Magpie Lane.
- ◆ Emergency, maintenance, and service vehicular access from Guntawang Road.
- ◆ Emergency exit access from Magpie Lane/
- ◆ Internal roadways for site circulation; and
- ◆ Drainage and landscaping to Mid-Western Regional Council requirements.

9. TRAFFIC GENERATION

In considering the traffic generating potential of the development reference is made to the recommended traffic generation rates within the TfNSW documents *RTA's Guide to Traffic Generating Developments (2002)* and *Technical Direction TDT 2013/4* which released updated traffic generation rates in 2013.

It is considered that the long-term portion of the site will be similar to that of seniors housing, in that a similar vehicle occupancy and vehicle trips would be expected due to the sharing of company vehicles for travelling by the workers. The relevant recommended traffic generation rate for assessment is the most recent available data found in TDT 2013/04 which provides the following rates for Seniors Housing.

*Weekday daily vehicle trips = 2.1 per dwelling; and
Weekday peak hour vehicle trips = 0.4 per dwelling.*

It is noted that the TDT also states that the morning peak does not generally coincide with the road network peak however to ensure a robust assessment of this proposal it is assumed the morning peak does coincide with the road network peak.

The short-term sites will be considered more as typical tourist accommodation therefore the appropriate rate will be similar to motels. The RTA Guide to Traffic Generating Developments provides the following recommended traffic generation rates for motels.

*Weekday daily vehicle trips = 3 per dwelling; and
Weekday peak hour vehicle trips = 0.4 per dwelling.*

Therefore, in terms of the peak hour trips the rate for seniors housing and motels is the same. Based on the above rates and the proposed development the likely traffic generation for the proposed development is calculated as follows.

- ◆ Weekday daily vehicle trips = $240 \times 2.1 + 147 \times 3 = 945$ **vehicle trips per day (vtpd)**; and
- ◆ Weekday peak hour vehicle trips = $387 \times 0.4 = 155$ **vehicle trips per hour (vtpH)**.

These values have been adopted in this assessment.

This traffic is distributed through the road network using the following assumptions based on the type of development, likely origin / destinations, and existing traffic distributions. It is considered the majority of trips will be to and from Mudgee which provides all the business, retail, health, and education services in the region as well as the major tourist attractions. Therefore, the adopted trip distribution is as follows. Note there may be other traffic routes used by traffic generated by the development, but these are considered to be minor in terms of numbers and will have no impact on the road network.

- ◆ All traffic utilising the site will use Guntawang Road and Magpie Lane to access the site.
- ◆ In the AM peak 70 % of traffic will be outbound while in the PM peak 70 % of traffic will be inbound.
- ◆ 80% of traffic will have an origin / destination south towards Mudgee and 20 % will have an origin destination north towards Gulgong.

The resulting trip distribution is therefore as shown graphically below in **Figure 2**.

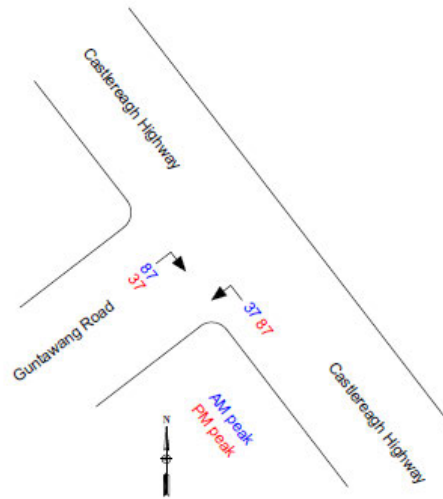
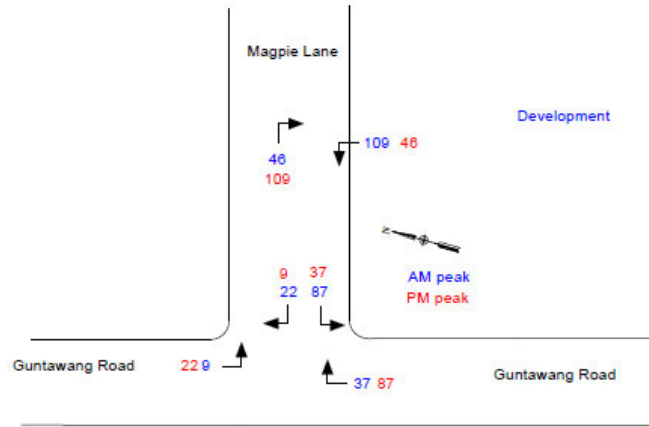


Figure 2 – Development Traffic Trip Distribution

10. TRAFFIC IMPACT ASSESSMENT

10.1 Road Network Capacity

This assessment has determined (**Section 6**) that the existing road network around the site is currently operating below its technical or environmental mid-block two-way capacity and has spare capacity to cater for additional traffic from the proposed development. **Section 9** of this report determined that the subject development is likely to generate 155 additional vehicle trips per hour during the road network peaks (AM & PM). The resulting additional traffic distributed as shown in **Figure 3** is not sufficient for the Castlereagh Highway, Guntawang Road or Magpie Lane to reach their respective two-way mid-block capacities as shown in **Table 2** below.

Table 2 – Two-way mid-block road capacity check

Road	Section	Capacity vtp	2023		2033 @ 2% p.a.		Development traffic	
			AM (vtp)	PM (vtp)	AM (vtp)	PM (vtp)	AM	PM
Castlereagh Highway	south of Guntawang Road	1800	439	510	508	595	124	124
Castlereagh Highway	north of Guntawang Road	1800	224	294	273	358	0	0
Guntawang Road	west of Castlereagh Highway	1800	219	222	240	243	124	124
Guntawang Road	north of Magpie Lane	1800	157	152	185	178	31	31
Guntawang Road	south of Magpie Lane	1800	247	247	274	274	124	124
Magpie Lane	east of Guntawang Road	300	158	159	159	160	155	155

Therefore, it is reasonable to conclude the development will not adversely impact on the mid-block levels of service experienced on the state and local road network.

10.2 Intersection Capacity

The intersections that are likely to be impacted by this development are as follows.

- ◆ Castlereagh Highway / Guntawang Road give way BAR / AUL T-intersection; and
- ◆ Guntawang Road / Magpie Lane give way BAR / BAL T-intersection.

The impact of this development on the operation of these intersections can be determined by using the SIDRA intersection modelling software. The SIDRA INTERSECTION software package predicts likely delays, queue lengths and thus levels of service that will occur at intersections. Assessment is then based on the level of service requirements of TfNSW shown below.

Table 4.2
Level of service criteria for intersections

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Signs
A	< 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity; at signals, incidents will cause excessive delays Roundabouts require other control mode	At capacity, requires other control mode

Source: - RTA's Guide to Traffic Generating Developments (2002).

This software package predicts likely delays, queue lengths and thus levels of service that will occur at intersections. The assumptions made in the modelling were:

- ◆ Post development AM and PM peak hours were modelled for 2023 and 2033,
- ◆ 2033 AM and PM traffic volumes post development were determined using a background traffic growth rate of 2% per annum on the road network,
- ◆ Development traffic was distributed onto the road network as per **Figure 2**, and
- ◆ The intersections were modelled as per its current configuration.

Summaries of the results of the relevant AM and PM modelling for the ‘worst’ case movement for these intersections are shown below in **Tables 3 & 4** while the Sidra Movement Summary Tables for the models are provided in **Appendix 3**.

Table 3 – Castlereagh Highway / Guntawang Road intersection – Sidra results summary

Modelled Peak	Degree of Saturation (v/c)	Worst Average Delay (s)	Worst Level of Service	95% back of queue length (cars)
2023 AM	0.077	9.4	A	0.2
2023 AM + development	0.176	9.8	A	0.7
2033 AM + development	0.232	10.4	A	1.0
2023 PM	0.084	10.0	A	0.3
2023 PM + development	0.126	10.5	A	0.5
2033 PM + development	0.172	11.4	A	0.7

Table 4 – Guntawang Road / Magpie Lane intersection – Sidra results summary

Modelled Peak	Degree of Saturation (v/c)	Worst Average Delay (s)	Worst Level of Service	95% back of queue length (cars)
2023 AM	0.035	8.1	A	0.0
2023 AM + development	0.086	8.2	A	0.3
2023 AM + development (CHR(s)/BAL)	0.089	8.6	A	0.4
2033 AM + development	0.107	8.4	A	0.4
2033 AM + development (CHR(s)/BAL)	0.111	8.9	A	0.5
2023 PM	0.040	8.2	A	0.0
2023 PM + developments	0.088	8.5	A	0.4
2023 PM + development (CHR(s)/BAL)	0.060	8.9	A	0.3
2033 PM + development	0.109	8.7	A	0.5
2033 PM + development (CHR(s)/BAL)	0.074	9.3	A	0.3

This modelling shows that both the Castlereagh Highway / Guntawang Road and Guntawang Road / Magpie Lane T-intersections will continue to operate satisfactorily with the additional traffic generated by the subject development and with a background traffic growth through to and beyond 2033. The average delay, levels of service and queue lengths for all movements remain well within the thresholds determined by TfNSW’s as representing satisfactory operation.

It is therefore concluded the proposed development will not adversely impact on the operation of intersections on the local and state road network.

10.3 On-Site Car Parking

The proposed development will generate an on-site parking demand. Therefore, on-site parking in accordance with the *Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2021* will need to be provided. The relevant requirements within the Regulation are:

Resident Parking

1 resident parking space per dwelling and camping site.

Visitor Parking

1 visitor parking space for each 10 (and any remaining fraction of 10) long-term sites and 1 visitor car parking space for each 20 (and any remaining fraction of 20) short term sites.

Accessible Parking

1 visitor accessible parking space per 100 sites or fraction of 100 sites (long-term & short-term).

Resident and visitor parking is to be 6.1 metres x 2.5 metres while the accessible visitor car parks are to comply with Australian Standard AS2890.6-2009 Parking facilities Part 6: Off-street parking for people with disabilities.

Noting that on completion of the development a total of 240 long term sites and 147 short-terms sites would exist on the site, the following on-site parking is required to be provided:

- ◆ Resident Parking – 387 car parks
- ◆ Visitor Car Parking – $240 / 10 + 147 / 20$ (rounded up) = $24 + 8 = 32$ car parks
- ◆ Accessible Visitor Car Parking $387 / 100 = 4$ car parks (within the 32 visitor car parks to be provided)

On examination of the plans, it was found that:

- ◆ As each long-term site has an area in excess of 75m² it is considered there is sufficient room on each site to provide an on-site resident car park,
- ◆ A total of 86 visitor car parking spaces are shown with 9 spaces in the short-term site and 77 within the long-term site, and
- ◆ 13 car parking spaces have been marked as accessible spaces, with 1 space in the short-term site and 13 spaces within the long-term site.
- ◆ ADW Johnson have advised that the car parking spaces are all 6.1m long x 2.5m wide.

It is therefore concluded that the proposal would meet the requirements of the Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2021 and will therefore provide sufficient and suitable on-site car parking is provided within the development.

10.4 Access

The proposed extension would utilise a new main access off Magpie Lane approximately 280 metres east of Guntawang Road. Access to the site and individual sites would be required to meet the requirements of the *Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2021*, and Australian Standard AS2890.1-2004 *Parking facilities Part 1: Off-street car parking* and in the case of Magpie Lane the requirements of *Mid-Western Regional Council*.

In regard to the regulation the important requirements and an assessment of compliance are:

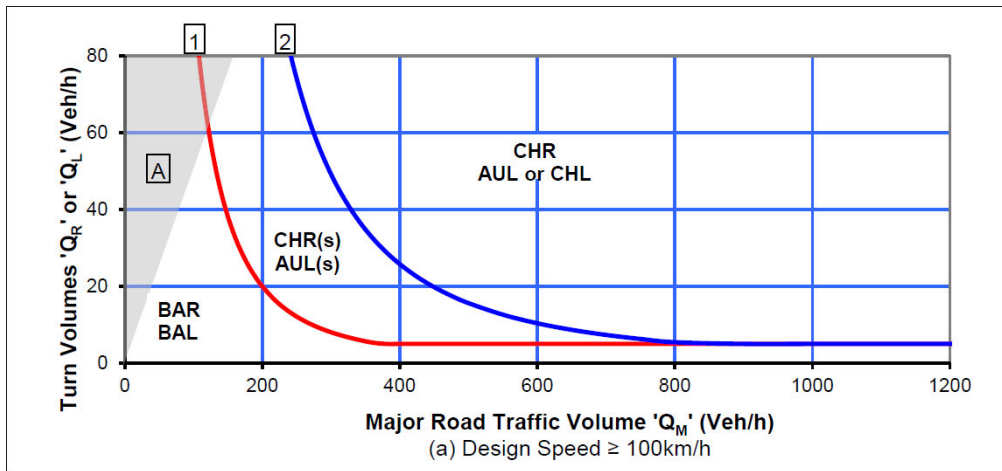
- ◆ A dwelling site must have access to an access road. The development is compliant.
- ◆ In the case of a divided entrance and exit road the width of the sealed road on either side of the median must be at least 5 metres – The entrance and exit road to the site is to be divided, and therefore required to be 5 metres on either side of the median. The road is 5 metres either side of the median; and is therefore compliant.
- ◆ A forecourt 4 metres x 20 metres needs to be provided for incoming vehicles – This forecourt is located in front of the Office and Activities Centre at the front of the short-term site; and therefore, the development is compliant.
- ◆ The width of an access road (internal) must be 6 metres for two-way flow or 4 metres for one way flow and one way flow needs to be indicated by a conspicuous sign. The proposal roads are compliant with the minimum widths which also allows easy access through the site for most rigid heavy vehicles including waste collection vehicles operated by a private contractor.

Overall, it is concluded the access roads within the development are suitable for two-way flow of vehicles and the internal access within the development is compliant with the Regulation requirements therefore is suitable for the development.

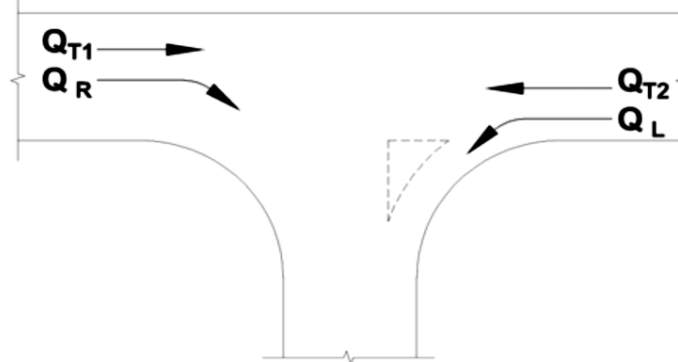
Sight distance along Magpie Lane at the proposed access has been observed to be in excess of 280 metres which is in excess of the 111 metres required to be compliant with Figure 3.2 of Australian Standard *AS 2890.1-2004 Parking facilities Part 1: Off street car parking* for an 80 km/h speed environment which is realistically the speed environment in Magpie Lane. Therefore, the proposed site access is suitably safe to service the development. With little through traffic on Magpie Lane the access to the site can be constructed as a basic right turn and basic left turn rural intersection (BAR/BAL).

In assessing the suitability of the public road intersections, it is noted that Guntawang Road and Castlereagh Highway at Magpie Lane and Guntawang Road respectively have a 100 km/h speed environment and the Safe intersection sight distance of Austroads as shown in Table 3.2 of Austroads Guide to Road Design – Part 4A – Signalised and Unsignalised Intersections is a minimum of 250 metres. By observation the sight distance along Guntawang Road and Castlereagh Highway at the respective intersections is in excess of 250 metres therefore it can be concluded there is sufficient safe intersection sight distance at both the Guntawang Road / Magpie Lane and the Castlereagh Highway / Guntawang Road intersections.

Turn Lane warrant assessments have been undertaken on both the Guntawang Road / Magpie Lane intersection and the Castlereagh Highway / Guntawang Road intersection to determine if the additional traffic from the development requires these intersections to be upgraded to maintain a suitable level of safety at the intersections. The turn lane assessment was undertaken in accordance with Figure's 3.25 and 3.26 of *Austroads Guide to Traffic Management Part 6 – Intersections, Interchanges and Crossings Management* both of which are reproduced below (relevant graph only being for a 100 km/h speed zoning).



Source: - Austroads Guide to Traffic Management Part 6 – Intersections, Interchanges and Crossings Management (2020)



Road type	Turn type	Splitter island	Q _M (veh/h)
Two-lane two-way	Right	No	= Q _{T1} + Q _{T2} + Q _L
		Yes	= Q _{T1} + Q _{T2}
	Left	Yes or no	= Q _{T2}
Four-lane two-way	Right	No	= 50% X Q _{T1} + Q _{T2} + Q _L
		Yes	= 50% X Q _{T1} + Q _{T2}
	Left	Yes or no	= 50% X Q _{T2}
Six-lane two-way	Right	No	= 33% X Q _{T1} + Q _{T2} + Q _L
		Yes	= 33% X Q _{T1} + Q _{T2}
	Left	Yes or no	= 33% X Q _{T2}

Source: - Austroads Guide to Traffic Management Part 6 – Intersections, Interchanges and Crossings Management (2020)

For the Castlereagh Highway / Guntawang Road intersection noting peak turning volumes occur in the PM peak the relevant variables for the graph assessment are as follows noting the assessment year as 2033 (post development).

$$Q_R = 2 \text{ vtp} + 0 \text{ (development)} = 2$$

$$Q_L = 45 \times 1.2 \text{ (2\% background traffic growth for 10 years)} + 87 \text{ (development)} = 141$$

$$Q_{T1} = 141 \times 1.2 = 170 \text{ vtp}; \text{ and}$$

$$Q_{T2} = 150 \times 1.2 = 180 \text{ vtp}.$$

Therefore, from the above graph with Q_R only equating to 2 turning movements the right turn warrant remains in the BAR zone while with a turning volume of 144 vtp the left turn warrant falls within the AUR zone.

Therefore, the turn lane warrant assessment has determined that the required intersection layout for the intersection is a BAR / AUL intersection. As the existing intersection is already constructed to this standard except the existing intersection is deficient in that the required 3 metre shoulder widening on the southbound lane of the Castlereagh Highway is not provided (requires 1 to 1.5 metres additional

shoulder width) there is no nexus for the development to upgrade the intersection. However, as the required shoulder widening is a relatively minor cost the developer may be willing to construct this as part of the development works in lieu of part of any developer contributions applying to the development. For the Guntawang Road / Magpie Lane intersection currently constructed as a BAR / BAL intersection the relevant variables for the turning lane graph assessment are as follows.

$$Q_R = 1 \text{ vtpd} + 87 \text{ (development)} = 88 \text{ vtpd.}$$

$$Q_L = 1 + 37 \text{ (development)} = 38 \text{ vtpd.}$$

$$Q_{T1} = 49 \times 1.2 = 59 \text{ vtpd; and}$$

$$Q_{T2} = 71 \times 1.2 = 86 \text{ vtpd.}$$

$$QMR = 59 + 86 + 39 = 184.$$

Therefore, from the above graph the right turn warrant is in the CHR(s) zone while the left turn warrant falls within the BAL zone. Therefore, the Guntawang Road / Magpie Lane intersection will need to be upgraded to a CHR(s) / BAL intersection as part of the development works.

Having undertaken an assessment of the existing Magpie Lane Road pavement it was observed that there was little pavement material under the seal and the seal was deteriorating quickly. Therefore, I would recommend that the section of Magpie Lane from the site access to Guntawang Road be reconstructed to Mid-Western Council's standards for a rural local road or at least to a 7-metre-wide pavement to comply with Austroad requirements for a rural road catering for greater than 1,000 vtpd.

10.5 Alternate Transport Modes

The development site is not currently suitably serviced by public transport services. As the development is not covered by SEPP Housing there is no requirement to provide a private shuttle bus service to Mudgee. The development is unlikely to generate any significant demand for public transport services therefore no nexus would exist for any change to the existing public transport services in the area.

Similarly, the development is not expected to generate any additional demand for bicycle or pedestrian infrastructure particularly as there is no existing infrastructure to connect to and it is unreasonable to require the development to provide such infrastructure as there are no suitable destinations within close proximity to the site. Therefore, no nexus exists for this development to provide any external pedestrian or bicycle infrastructure near the site.

11. CONCLUSIONS

This traffic impact assessment for the for a proposed caravan park on Lot 1 DP174385 313 Magpie Lane, Galambine has determined the following:

- ◆ As existing traffic volumes on the local road network are less than the technical and environmental mid-block two-way capacities of the roads, as relevant, there is spare capacity to cater for the additional traffic generated by this development.
- ◆ The site is currently not serviced by public transport whilst other alternative transport mode infrastructure is non-existent in the vicinity of the site.
- ◆ The proposed development is predicted to generate approximately an additional 945 vtpd or 155 vtpd in the AM and PM peak hour periods on the local and state road network.
- ◆ The additional traffic generated by the development will not cause the adjacent state and local road network to reach their relevant mid-block two-way capacities therefore subject to satisfactory intersection operation the local and state road network has sufficient spare capacity to cater for the development.
- ◆ Sidra Intersection modelling has shown that the additional traffic from the development will not adversely impact on the operation / capacity of the Castlereagh Highway / Guntawang Road or the Guntawang Road / Magpie Lane T- intersections post development in 2023 and through to and beyond 2033 with background traffic growth at 2 % per annum.

- ◆ However, from visual inspection and the undertaking of turn lane warrant assessments of the key roads and intersections to be used to access the site the following road upgrades are deemed warranted to provide as safe access to the site;
 - Magpie Lane should be reconstructed to Mid-Western Regional Council standards for a rural local road from the site access to Guntawang Road.
 - The Guntawang Road / Magpie Lane intersection should be upgraded to a CHR(s) / BAL intersection.
 - The current deficiency in the Castlereagh Highway / Guntawang Road BAR / AUL intersection, being the provision of a widened shoulder (1 – 1.5 metres in additional width is required) on the Castlereagh Highway southbound lane through the intersection should be constructed by the road authority or by agreement by the developer should this development proceed or not.
- ◆ The proposed development can provide sufficient on-site parking provision to meet the likely peak parking demand generated by the development and satisfy the requirements of the *Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2021*.
- ◆ The proposed development can be easily serviced for waste collection on-site by a private contractor using the internal road system which being 8 metres wide allows two-way traffic flow for most rigid heavy vehicles.
- ◆ The existing access to the site is compliant with the requirements of the *Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2021* and the proposed internal access roads would also comply with the regulation for two-way traffic flow on the internal access roads.
- ◆ Suitable sight distance in accordance with Australian Standard AS 2890.1-2004 *Parking facilities Part 1: Off street car parking* is available at the proposed site access to be utilised by the development, while safe sight distance criteria required by Austroads at the public road intersections leading to the site have also been assessed by observation as being compliant with these requirements.
- ◆ The development is unlikely to generate any significant demand for public transport services therefore no nexus would exist for any change to the existing public transport services in the area.
- ◆ The development is not expected to generate any additional demand for bicycle or pedestrian infrastructure particularly as there is no existing infrastructure to connect to and it is unreasonable to require the development to provide such infrastructure as there are no suitable destinations within close proximity to the site. Therefore, no nexus exists for this development to provide any external pedestrian or bicycle infrastructure near the site.

12. RECOMMENDATION

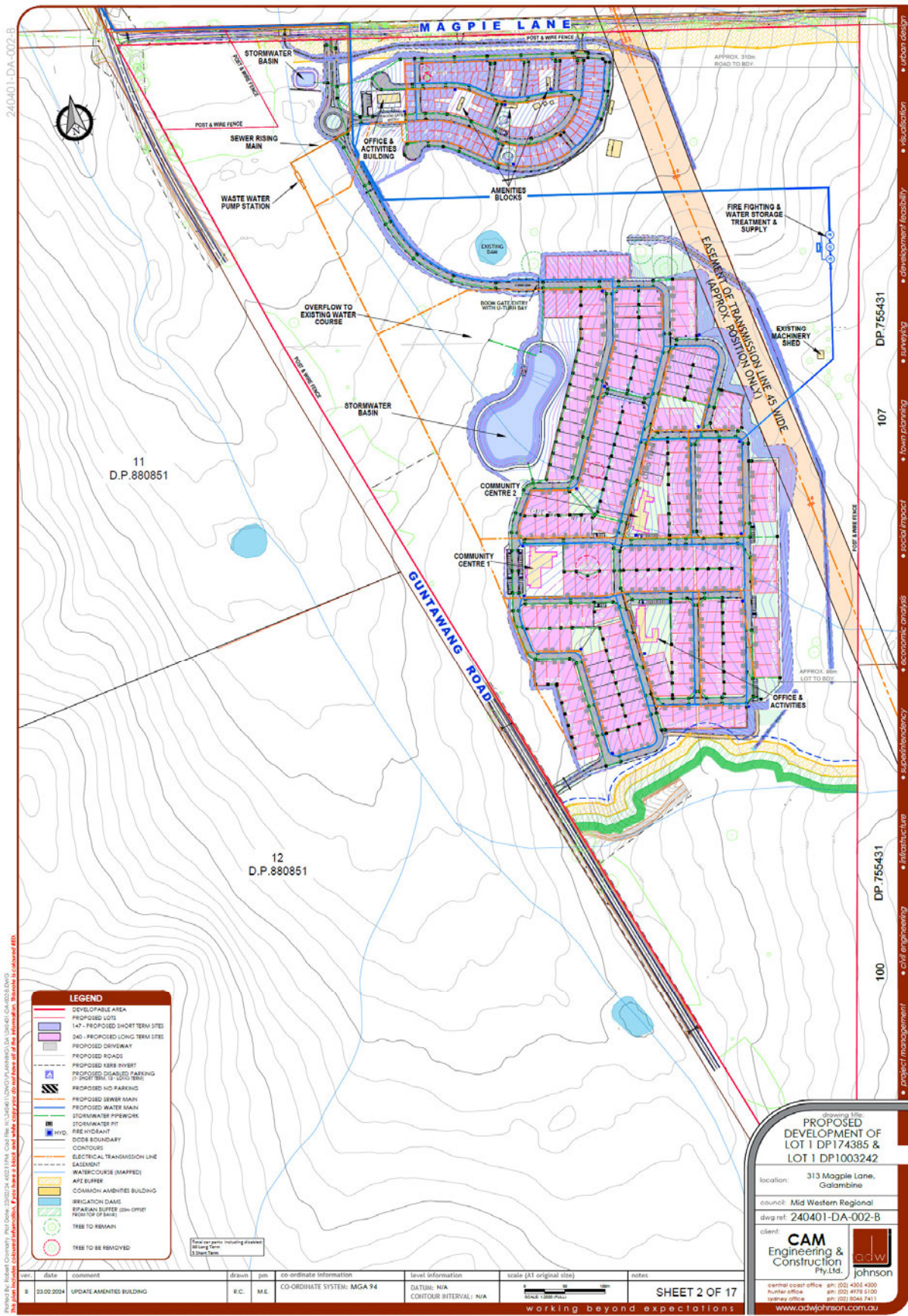
Having undertaken this traffic impact assessment for a proposed caravan park on Lot 1 DP174385 313 Magpie Lane, Galambine it is recommended that the proposal can be supported from a traffic impact perspective, subject to suitable conditions of consent for road and intersection upgrades as described in this report, as the development will not have an adverse impact on the local and state road network. It will therefore comply with all the requirements of Mid-Western Regional Council, Australian Standards, Austroads, TfNSW and The NSW Government Regulations for Manufactured Home Villages and Caravan Parks.



JR Garry BE (Civil), Masters of Traffic
Director
Intersect Traffic Pty Ltd

APPENDIX 1

DEVELOPMENT PLANS



Prepared by: Robert Connors, PRC, Date: 23/02/2024, 4021 ERM, Code Ref: N:\240401\240401\240401\240401-DA-002-B.DWG
 This plan includes confidential information. It is to be used for the purposes stated only and is not to be distributed outside the project team.

LEGEND	
[Pink Shaded Area]	DEVELOPABLE AREA
[Blue Dotted Area]	PROPOSED LOTS
[Blue Dotted Area]	L47 - PROPOSED SHORT TERM SITES
[Blue Dotted Area]	D40 - PROPOSED LONG TERM SITES
[Blue Dotted Area]	PROPOSED DRIVEWAY
[Blue Dotted Area]	PROPOSED ROAD
[Blue Dotted Area]	PROPOSED KERB INVERT
[Blue Dotted Area]	PROPOSED DISABLED PARKING (1:10 SHORT TERM, 1:15 LONG TERM)
[Blue Dotted Area]	PROPOSED NO PARKING
[Blue Dotted Area]	PROPOSED SEWER MAIN
[Blue Dotted Area]	PROPOSED WATER MAIN
[Blue Dotted Area]	STORMWATER PIPEWORK
[Blue Dotted Area]	STORMWATER PIT
[Blue Dotted Area]	HYD.
[Blue Dotted Area]	FIRE HYDRANT
[Blue Dotted Area]	DOSE BOUNDARY
[Blue Dotted Area]	CONTIGUOUS
[Blue Dotted Area]	ELECTRICAL TRANSMISSION LINE
[Blue Dotted Area]	EASEMENT
[Blue Dotted Area]	WATERCOURSE (MAPPED)
[Blue Dotted Area]	APZ BUFFER
[Blue Dotted Area]	COMMON AMENITIES BUILDING
[Blue Dotted Area]	IRIGATION DRAIN
[Blue Dotted Area]	RIPARIAN BUFFER (50M OFFSET FRONT OF BANK)
[Blue Dotted Area]	TREE TO REMAIN
[Blue Dotted Area]	TREE TO BE REMOVED

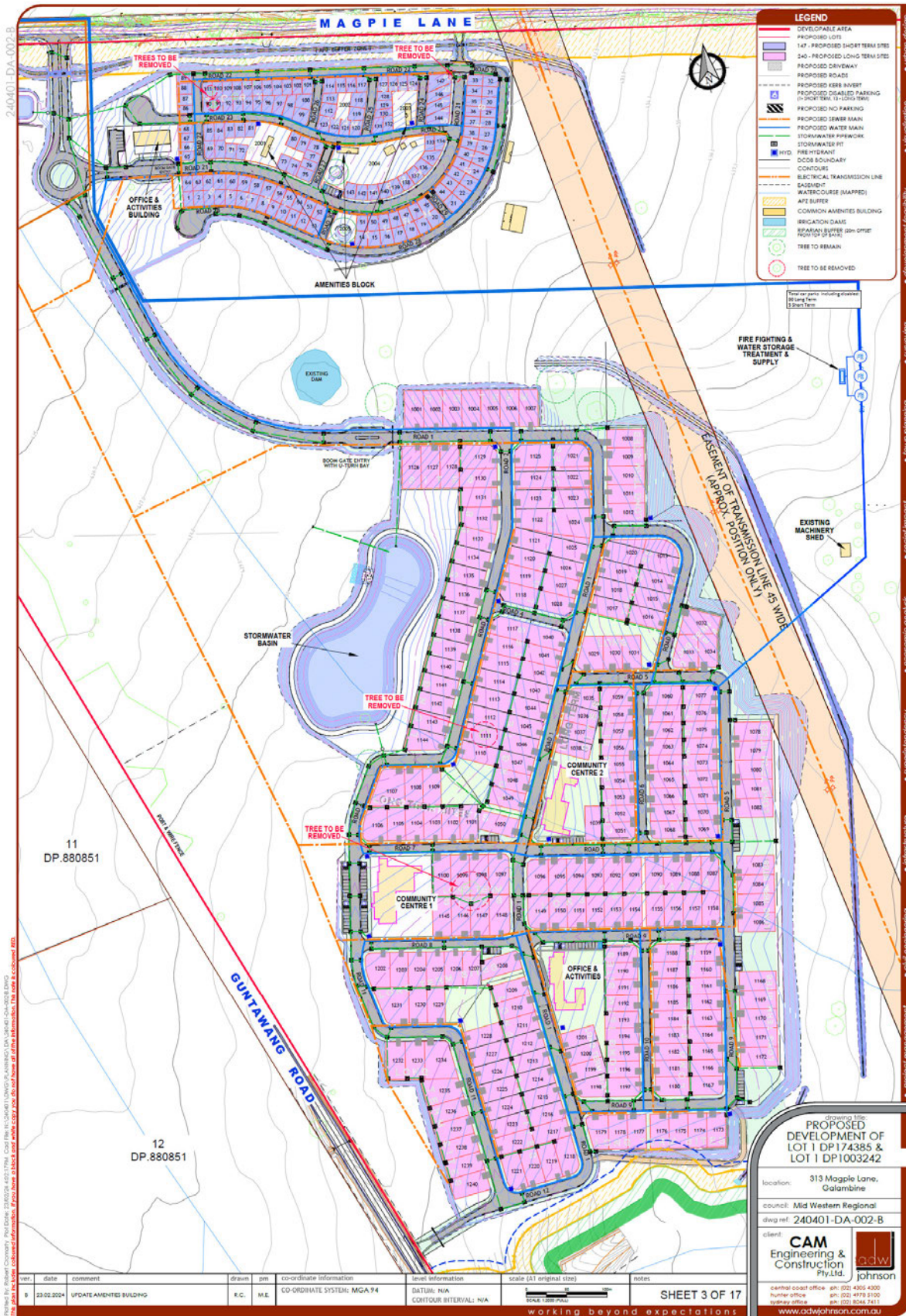
[Tree Symbol] These are plants including disabled
 [Tree Symbol] (15 Short Term)

rev.	date	comment	drawn	pin	co-ordinate information	level information	scale (at original size)	notes
1	23.02.2024	UPDATE AMENITIES BUILDING	R.C.	M.E.	CO-ORDINATE SYSTEM: MGA 94	DATUM: N/A CONTIGUOUS INTERVAL: N/A		

SHEET 2 OF 17

drawing title:
PROPOSED DEVELOPMENT OF LOT 1 DP174385 & LOT 1 DP1003242
 location: 313 Magpie Lane, Galambine
 council: Mid Western Regional
 dwg ref: 240401-DA-002-B
 client: **CAM Engineering & Construction Pty Ltd** **adw johnson**
 regional coast office: ph: (08) 4361 4300
 hunter office: ph: (02) 4978 5100
 sydney office: ph: (02) 8246 7411
 www.adwjohnson.com.au

DP 755431 107 DP 755431 100
 • urban design • relocation • development feasibility • surveying • town planning • social impact • economic analysis • sustainability • infrastructure • project management • civil engineering



no.	date	comment	drawn	am	co-ordinate information	level information	scale (at original size)	notes
1	23.02.2024	UPDATE AMENITIES BUILDING	R.C.	M.E.	CO-ORDINATE SYSTEM: MGA 94	DATUM: N/A CONTOUR INTERVAL: N/A	SCALE: 1:1000	

drawing title
PROPOSED DEVELOPMENT OF LOT 1 DP174385 & LOT 1 DP1003242

location: 313 Magpie Lane, Galambine

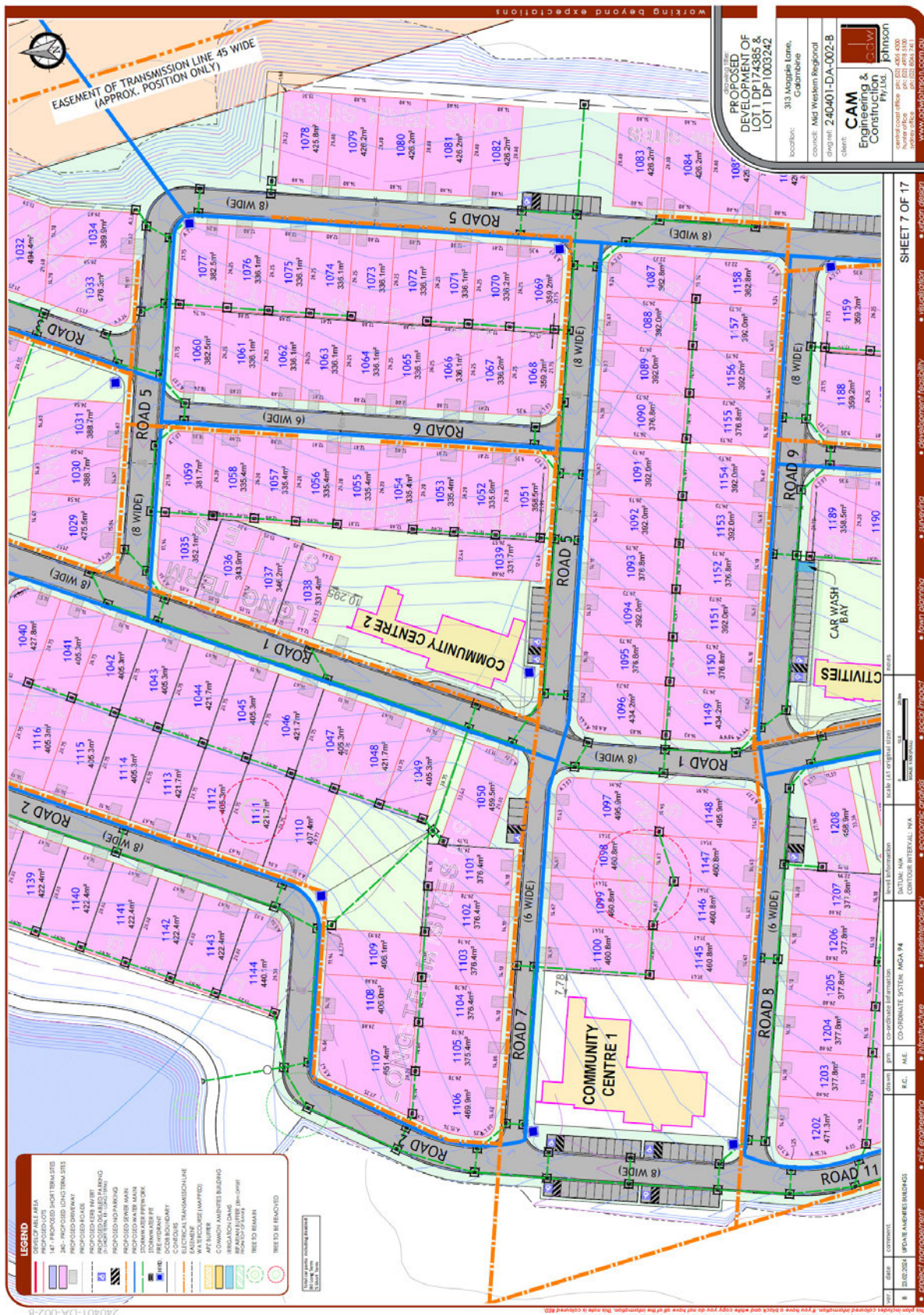
council: Mid Western Regional

dwg ref: 240401-DA-002-B

client: **CAM Engineering & Construction Pty Ltd.**

central coast office: ph: (02) 4305 4300
 hunter office: ph: (02) 4978 2100
 swdney office: ph: (02) 8044 7411
www.cdwjohnson.com.au



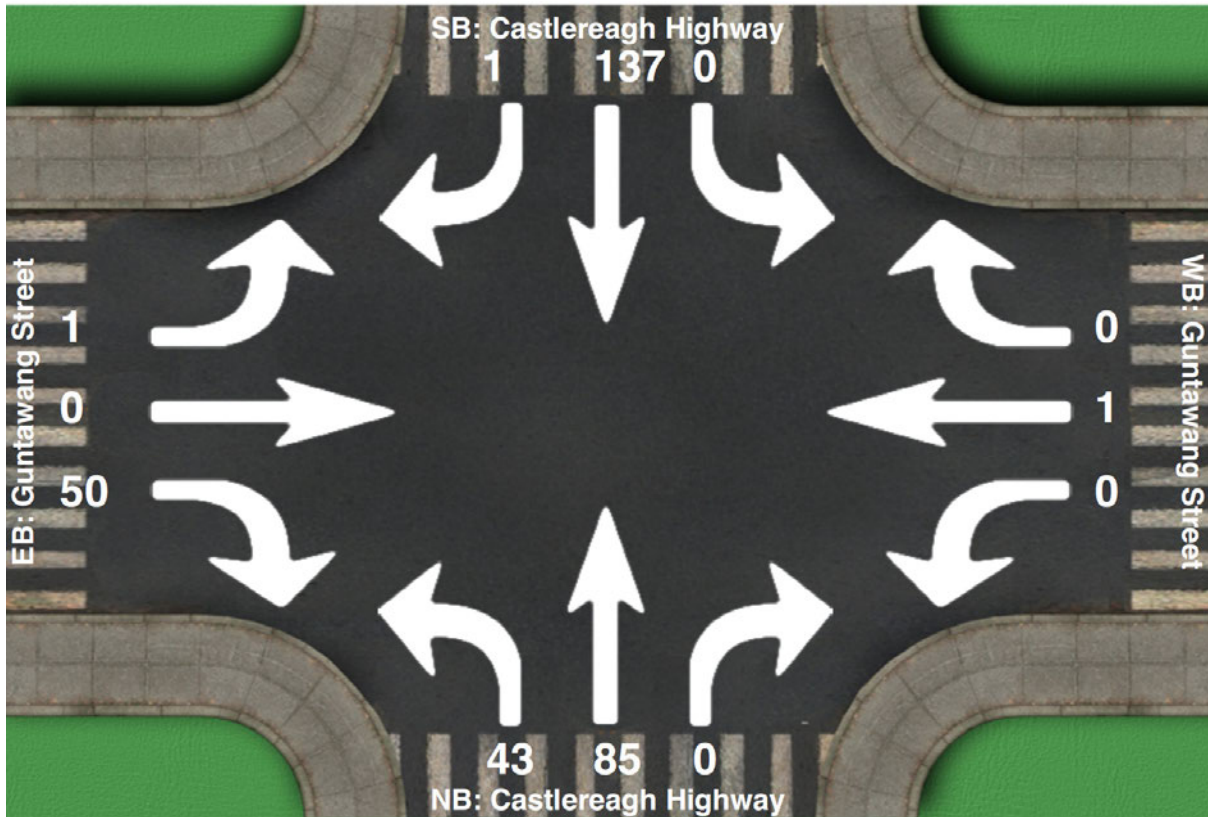


APPENDIX 2

TRAFFIC COUNT DATA

Intersection Peak Hour

Location: Castlereagh Highway at Guntawang Street, Mudgee
 GPS Coordinates: Lat=-32.479379, Lon=149.506980
 Date: 2023-06-15
 Day of week: Thursday
 Weather:
 Analyst: Jeff



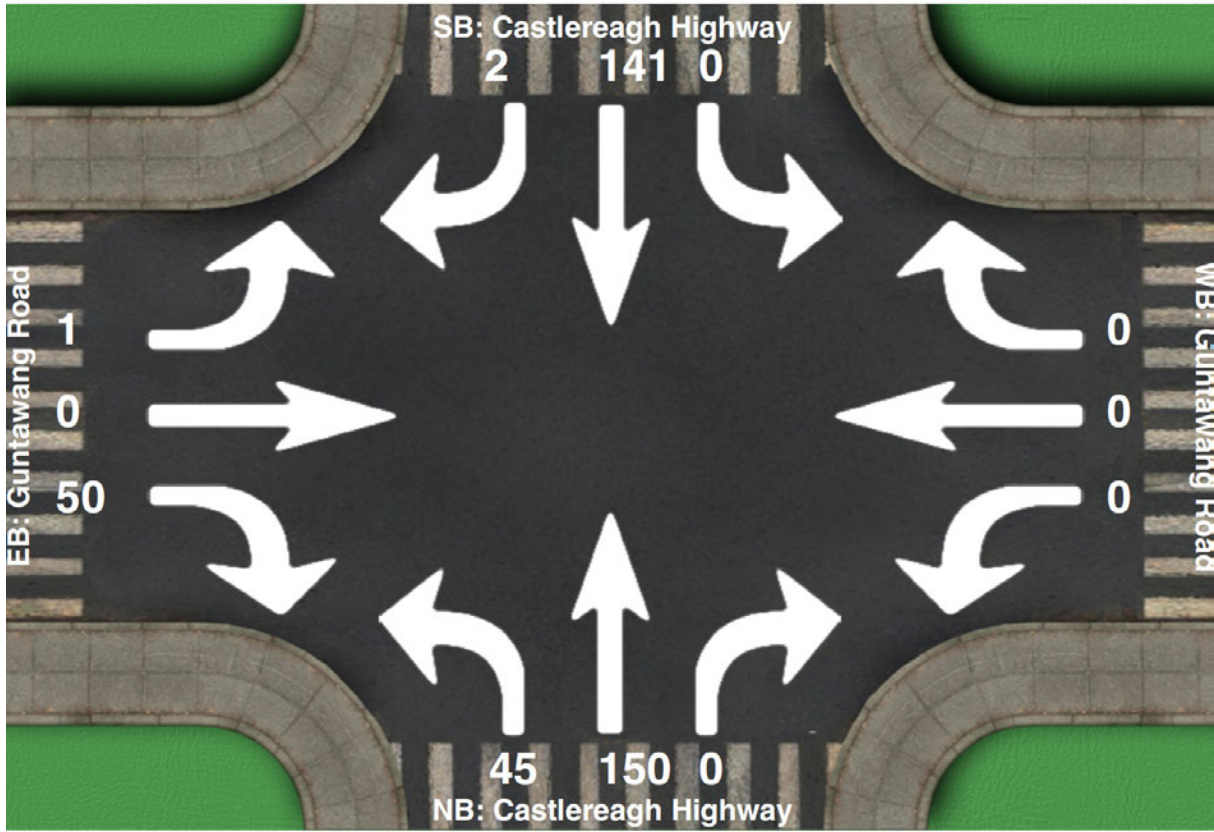
Intersection Peak Hour

08:00 - 09:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	137	1	0	1	0	43	85	0	1	0	50	318
Factor	0.00	0.80	0.25	0.00	0.25	0.00	0.60	0.82	0.00	0.25	0.00	0.66	0.82
Approach Factor	0.78			0.25			0.86			0.64			

Intersection Peak Hour

Location: Castlereagh Highway at Guntawang Road, Mudgee
 GPS Coordinates: Lat=-32.584714, Lon=149.571463
 Date: 2023-06-15
 Day of week: Thursday
 Weather:
 Analyst: Jeff



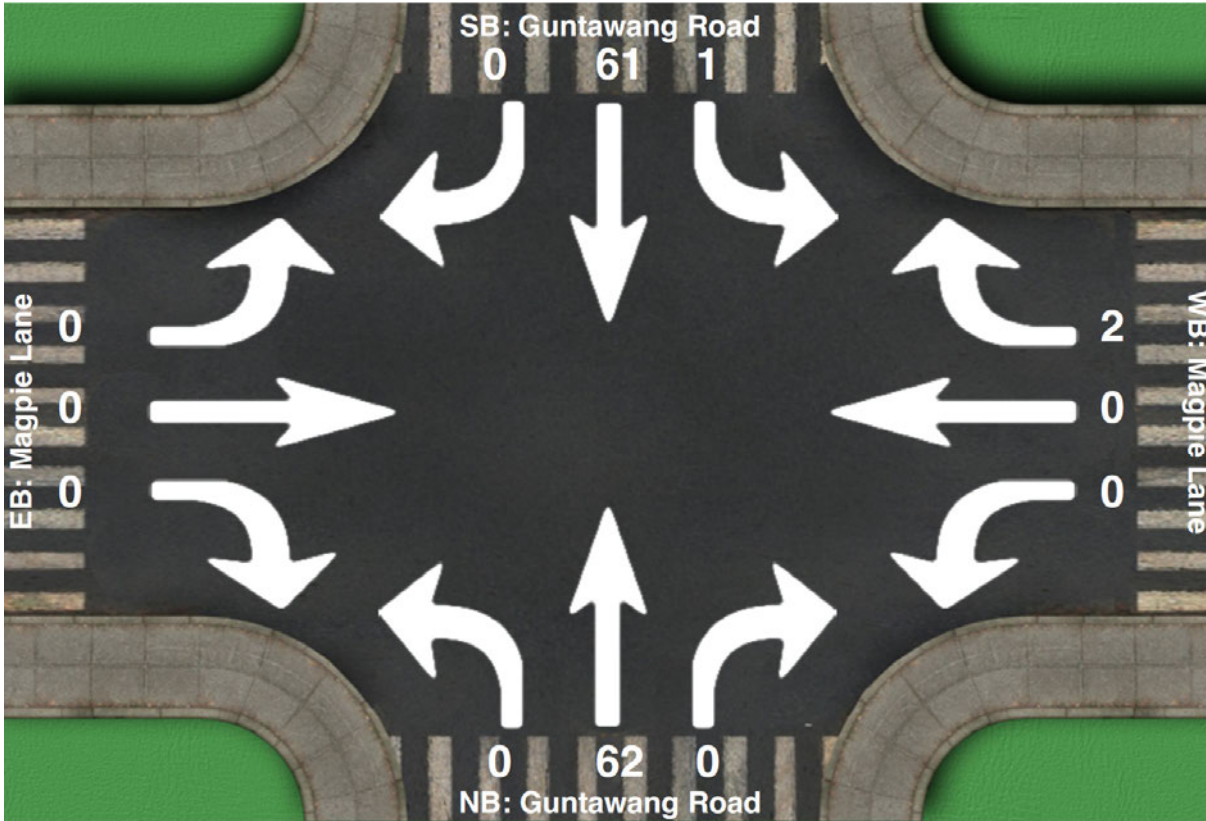
Intersection Peak Hour

15:00 - 16:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	141	2	0	0	0	45	150	0	1	0	50	389
Factor	0.00	0.84	0.50	0.00	0.00	0.00	0.70	0.91	0.00	0.25	0.00	0.96	0.88
Approach Factor	0.83			0.00			0.90			0.91			

Intersection Peak Hour

Location: Guntawang Road at Magpie Lane, Galambine
 GPS Coordinates: Lat=-32.409323, Lon=149.483570
 Date: 2023-06-16
 Day of week: Friday
 Weather:
 Analyst: Jeff



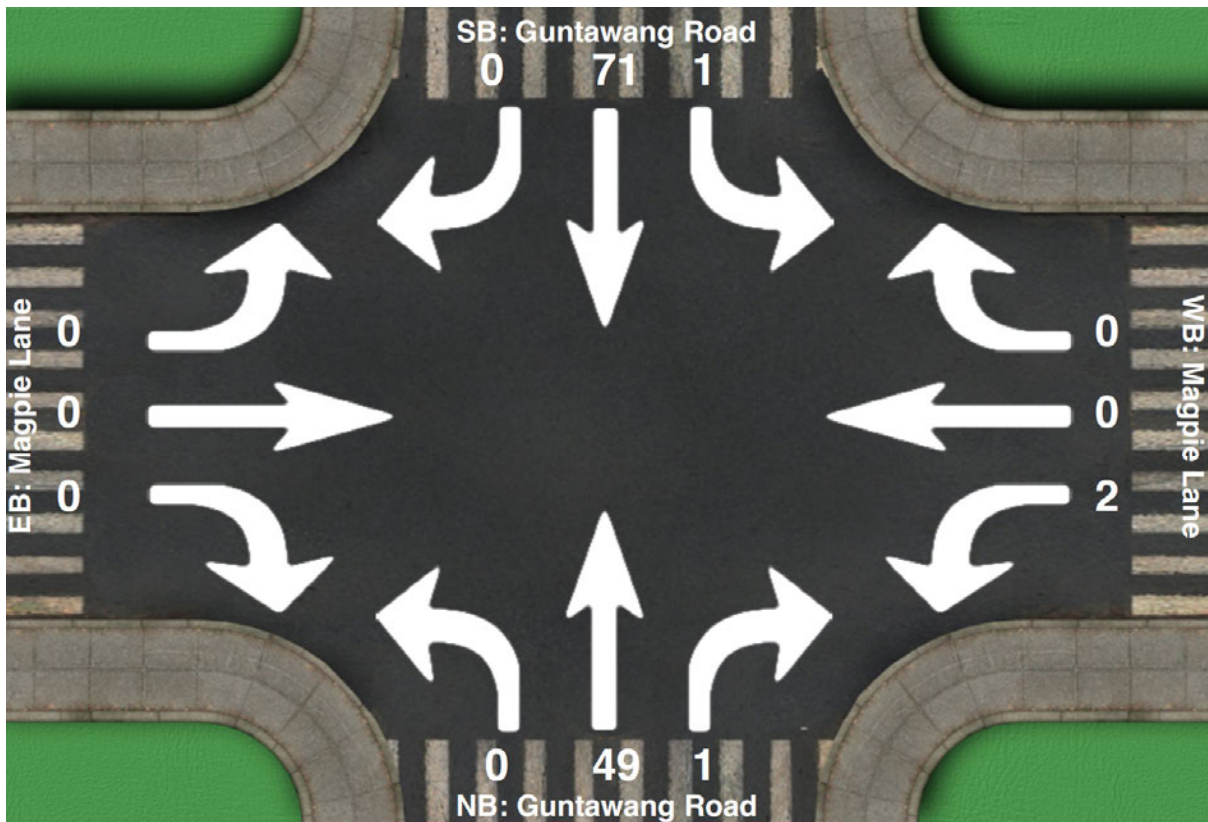
Intersection Peak Hour

08:00 - 09:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	1	61	0	0	0	2	0	62	0	0	0	0	126
Factor	0.25	0.64	0.00	0.00	0.00	0.50	0.00	0.67	0.00	0.00	0.00	0.00	0.73
Approach Factor	0.65			0.50			0.67			0.00			

Intersection Peak Hour

Location: Guntawang Road at Magpie Lane, Galambine
 GPS Coordinates: Lat=-32.409209, Lon=149.483622
 Date: 2023-06-14
 Day of week: Wednesday
 Weather:
 Analyst: Jeff



Intersection Peak Hour

15:00 - 16:00

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	1	71	0	2	0	0	0	49	1	0	0	0	124
Factor	0.25	0.81	0.00	0.50	0.00	0.00	0.00	0.82	0.25	0.00	0.00	0.00	0.91
Approach Factor	0.82			0.50			0.83			0.00			

APPENDIX 3

SIDRA SUMMARY TABLES

MOVEMENT SUMMARY

Site: 101 [2023AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Castlereagh Highway / Guntawang Road give way BAR/AUL

June 2023 counts

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh.]	[Dist]				
			veh/h		veh/h		v/c	sec		veh	m				km/h
South: Castlereagh Highway															
1	L2	All MCs	45	5.0	45	5.0	0.025	8.0	LOS A	0.0	0.0	0.00	0.66	0.00	71.8
2	T1	All MCs	89	5.0	89	5.0	0.047	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
Approach			135	5.0	135	5.0	0.047	2.7	NA	0.0	0.0	0.00	0.22	0.00	88.3
North: Castlereagh Highway															
8	T1	All MCs	144	5.0	144	5.0	0.077	0.0	LOS A	0.0	0.1	0.01	0.01	0.01	99.8
9	R2	All MCs	1	5.0	1	5.0	0.077	8.1	LOS A	0.0	0.1	0.01	0.01	0.01	84.7
Approach			145	5.0	145	5.0	0.077	0.1	NA	0.0	0.1	0.01	0.01	0.01	99.6
West: Guntawang Road															
10	L2	All MCs	1	5.0	1	5.0	0.001	8.2	LOS A	0.0	0.0	0.18	0.59	0.18	70.8
12	R2	All MCs	53	5.0	53	5.0	0.061	9.4	LOS A	0.2	1.7	0.38	0.67	0.38	69.8
Approach			54	5.0	54	5.0	0.061	9.4	LOS A	0.2	1.7	0.38	0.67	0.38	69.8
All Vehicles			334	5.0	334	5.0	0.077	2.6	NA	0.2	1.7	0.06	0.20	0.06	88.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: D:\Work\2023\23.066 - Gulgong Lifestyle resort - Allam\Sidra\Castlereagh_Guntawang.sip9

MOVEMENT SUMMARY

▼ Site: 101 [2023AM + development (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Castlereagh Highway / Guntawang Road give way BAR/AUL

June 2023 counts

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	[Total HV]	[Total HV]	[Total HV]	v/c	sec		[Veh.]	[Dist]				km/h
			veh/h	%	veh/h	%				veh	m				
South: Castlereagh Highway															
1	L2	All MCs	85	5.0	85	5.0	0.048	8.0	LOS A	0.0	0.0	0.00	0.66	0.00	71.8
2	T1	All MCs	89	5.0	89	5.0	0.047	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
Approach			175	5.0	175	5.0	0.048	3.9	NA	0.0	0.0	0.00	0.32	0.00	83.9
North: Castlereagh Highway															
8	T1	All MCs	144	5.0	144	5.0	0.077	0.0	LOS A	0.0	0.1	0.01	0.01	0.01	99.8
9	R2	All MCs	1	5.0	1	5.0	0.077	8.2	LOS A	0.0	0.1	0.01	0.01	0.01	84.7
Approach			145	5.0	145	5.0	0.077	0.1	NA	0.0	0.1	0.01	0.01	0.01	99.6
West: Guntawang Road															
10	L2	All MCs	1	5.0	1	5.0	0.001	8.2	LOS A	0.0	0.0	0.18	0.59	0.18	70.8
12	R2	All MCs	147	5.0	147	5.0	0.176	9.8	LOS A	0.7	5.3	0.43	0.70	0.43	69.3
Approach			148	5.0	148	5.0	0.176	9.8	LOS A	0.7	5.3	0.43	0.70	0.43	69.3
All Vehicles			468	5.0	468	5.0	0.176	4.6	NA	0.7	5.3	0.14	0.34	0.14	82.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

▽ Site: 101 [2033AM + development (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Castlereagh Highway / Guntawang Road give way BAR/AUL

June 2023 counts

Site Category: (None)

Give-Way (Two-Way)

Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	[Total HV]	[Total HV]	[Total HV]	v/c	sec		[Veh. veh	[Dist] m				km/h
			veh/h	%	veh/h	%									
South: Castlereagh Highway															
1	L2	All MCs	104	5.0	104	5.0	0.058	8.0	LOS A	0.0	0.0	0.00	0.66	0.00	71.8
2	T1	All MCs	109	5.0	109	5.0	0.058	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
Approach			213	5.0	213	5.0	0.058	3.9	NA	0.0	0.0	0.00	0.32	0.00	83.9
North: Castlereagh Highway															
8	T1	All MCs	176	5.0	176	5.0	0.094	0.0	LOS A	0.0	0.1	0.01	0.01	0.01	99.7
9	R2	All MCs	1	5.0	1	5.0	0.094	8.4	LOS A	0.0	0.1	0.01	0.01	0.01	84.7
Approach			177	5.0	177	5.0	0.094	0.1	NA	0.0	0.1	0.01	0.01	0.01	99.6
West: Guntawang Road															
10	L2	All MCs	1	5.0	1	5.0	0.001	8.3	LOS A	0.0	0.0	0.20	0.58	0.20	70.7
12	R2	All MCs	180	5.0	180	5.0	0.232	10.4	LOS A	1.0	7.2	0.49	0.73	0.49	68.4
Approach			181	5.0	181	5.0	0.232	10.4	LOS A	1.0	7.2	0.49	0.73	0.49	68.5
All Vehicles			571	5.0	571	5.0	0.232	4.8	NA	1.0	7.2	0.16	0.35	0.16	82.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: D:\Work\2023\23.066 - Gulgong Lifestyle resort - Allam\Sidra\Castlereagh_Guntawang.sip9

MOVEMENT SUMMARY

Site: 101 [2023PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Castlereagh Highway / Guntawang Road give way BAR/AUL

June 2023 counts

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV] veh/h	%	[Total HV] veh/h	%				[Veh.] veh	[Dist] m				
South: Castlereagh Highway															
1	L2	All MCs	47	5.0	47	5.0	0.026	8.0	LOS A	0.0	0.0	0.00	0.66	0.00	71.8
2	T1	All MCs	158	5.0	158	5.0	0.084	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
Approach			205	5.0	205	5.0	0.084	1.8	NA	0.0	0.0	0.00	0.15	0.00	91.7
North: Castlereagh Highway															
8	T1	All MCs	148	5.0	148	5.0	0.080	0.0	LOS A	0.0	0.1	0.01	0.01	0.01	99.5
9	R2	All MCs	2	5.0	2	5.0	0.080	8.7	LOS A	0.0	0.1	0.01	0.01	0.01	84.5
Approach			151	5.0	151	5.0	0.080	0.1	NA	0.0	0.1	0.01	0.01	0.01	99.3
West: Guntawang Road															
10	L2	All MCs	1	5.0	1	5.0	0.001	8.4	LOS A	0.0	0.0	0.25	0.58	0.25	70.5
12	R2	All MCs	53	5.0	53	5.0	0.067	10.0	LOS A	0.3	1.9	0.44	0.70	0.44	69.0
Approach			54	5.0	54	5.0	0.067	9.9	LOS A	0.3	1.9	0.43	0.70	0.43	69.0
All Vehicles			409	5.0	409	5.0	0.084	2.3	NA	0.3	1.9	0.06	0.17	0.06	90.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: D:\Work\2023\23.066 - Gulgong Lifestyle resort - Allam\Sidra\Castlereagh_Guntawang.sip9

MOVEMENT SUMMARY

Site: 101 [2023PM + development (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Castlereagh Highway / Guntawang Road give way BAR/AUL

June 2023 counts

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h	%	Arrival Flows [Total HV] veh/h	%	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. Dist] veh m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h	
South: Castlereagh Highway															
1	L2	All MCs	142	5.0	142	5.0	0.079	8.0	LOS A	0.0	0.0	0.00	0.66	0.00	71.8
2	T1	All MCs	158	5.0	158	5.0	0.084	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
Approach			300	5.0	300	5.0	0.084	3.8	NA	0.0	0.0	0.00	0.31	0.00	84.3
North: Castlereagh Highway															
8	T1	All MCs	148	5.0	148	5.0	0.081	0.0	LOS A	0.0	0.2	0.02	0.01	0.02	99.5
9	R2	All MCs	2	5.0	2	5.0	0.081	9.8	LOS A	0.0	0.2	0.02	0.01	0.02	84.5
Approach			151	5.0	151	5.0	0.081	0.1	NA	0.0	0.2	0.02	0.01	0.02	99.2
West: Guntawang Road															
10	L2	All MCs	1	5.0	1	5.0	0.001	8.4	LOS A	0.0	0.0	0.25	0.58	0.25	70.5
12	R2	All MCs	93	5.0	93	5.0	0.126	10.5	LOS A	0.5	3.6	0.48	0.74	0.48	68.3
Approach			94	5.0	94	5.0	0.126	10.5	LOS A	0.5	3.6	0.48	0.74	0.48	68.3
All Vehicles			544	5.0	544	5.0	0.126	3.9	NA	0.5	3.6	0.09	0.30	0.09	84.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: D:\Work\2023\23.066 - Gulgong Lifestyle resort - Allam\Sidra\Castlereagh_Guntawang.sip9

MOVEMENT SUMMARY

▼ Site: 101 [2033PM + development (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Castlereagh Highway / Guntawang Road give way BAR/AUL

June 2023 counts

Site Category: (None)

Give-Way (Two-Way)

Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV] veh/h	%	[Total HV] veh/h	%				[Veh. veh	[Dist] m				
South: Castlereagh Highway															
1	L2	All MCs	173	5.0	173	5.0	0.097	8.0	LOS A	0.0	0.0	0.00	0.66	0.00	71.8
2	T1	All MCs	192	5.0	192	5.0	0.102	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
Approach			366	5.0	366	5.0	0.102	3.8	NA	0.0	0.0	0.00	0.31	0.00	84.3
North: Castlereagh Highway															
8	T1	All MCs	181	5.0	181	5.0	0.099	0.0	LOS A	0.0	0.2	0.02	0.02	0.02	99.4
9	R2	All MCs	3	5.0	3	5.0	0.099	11.0	LOS A	0.0	0.2	0.02	0.02	0.02	84.5
Approach			183	5.0	183	5.0	0.099	0.2	NA	0.0	0.2	0.02	0.02	0.02	99.2
West: Guntawang Road															
10	L2	All MCs	1	5.0	1	5.0	0.001	8.5	LOS A	0.0	0.0	0.28	0.58	0.28	70.3
12	R2	All MCs	113	5.0	113	5.0	0.172	11.4	LOS A	0.7	4.9	0.54	0.79	0.54	67.2
Approach			114	5.0	114	5.0	0.172	11.4	LOS A	0.7	4.9	0.54	0.79	0.54	67.2
All Vehicles			663	5.0	663	5.0	0.172	4.1	NA	0.7	4.9	0.10	0.31	0.10	84.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: D:\Work\2023\23.066 - Gulgong Lifestyle resort - Allam\Sidra\Castlereagh_Guntawang.sip9

MOVEMENT SUMMARY

Site: 101 [2023AM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Guntawang Road / Magpie Lane

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance													
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h %	Arrival Flows [Total HV] veh/h %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. Dist] veh m	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h	
South: Guntawang Road													
2	T1	All MCs	65 5.0	65 5.0	0.035	0.0	LOS A	0.0 0.0	0.01	0.01	0.01	99.6	
3	R2	All MCs	1 5.0	1 5.0	0.035	7.6	LOS A	0.0 0.0	0.01	0.01	0.01	84.4	
Approach			66 5.0	66 5.0	0.035	0.1	NA	0.0 0.0	0.01	0.01	0.01	99.3	
East: Magpie Lane													
4	L2	All MCs	1 5.0	1 5.0	0.003	8.1	LOS A	0.0 0.1	0.18	0.61	0.18	71.3	
6	R2	All MCs	2 5.0	2 5.0	0.003	8.0	LOS A	0.0 0.1	0.18	0.61	0.18	71.1	
Approach			3 5.0	3 5.0	0.003	8.0	LOS A	0.0 0.1	0.18	0.61	0.18	71.2	
North: Guntawang Road													
7	L2	All MCs	1 5.0	1 5.0	0.035	8.0	LOS A	0.0 0.0	0.00	0.01	0.00	84.6	
8	T1	All MCs	64 5.0	64 5.0	0.035	0.0	LOS A	0.0 0.0	0.00	0.01	0.00	99.6	
Approach			65 5.0	65 5.0	0.035	0.1	NA	0.0 0.0	0.00	0.01	0.00	99.4	
All Vehicles			135 5.0	135 5.0	0.035	0.3	NA	0.0 0.1	0.01	0.03	0.01	98.4	

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

▽ Site: 101 [2023AM + development (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Guntawang Road / Magpie Lane

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV] veh/h	%	[Total HV] veh/h	%				[Veh.] veh	[Dist] m				
South: Guntawang Road															
2	T1	All MCs	65	5.0	65	5.0	0.060	0.0	LOS A	0.2	1.6	0.13	0.26	0.13	91.4
3	R2	All MCs	40	5.0	40	5.0	0.060	8.0	LOS A	0.2	1.6	0.13	0.26	0.13	78.4
Approach			105	5.0	105	5.0	0.060	3.0	NA	0.2	1.6	0.13	0.26	0.13	86.0
East: Magpie Lane															
4	L2	All MCs	95	5.0	95	5.0	0.086	8.2	LOS A	0.3	2.5	0.17	0.62	0.17	71.0
6	R2	All MCs	25	5.0	25	5.0	0.086	8.2	LOS A	0.3	2.5	0.17	0.62	0.17	70.9
Approach			120	5.0	120	5.0	0.086	8.2	LOS A	0.3	2.5	0.17	0.62	0.17	71.0
North: Guntawang Road															
7	L2	All MCs	12	5.0	12	5.0	0.040	8.0	LOS A	0.0	0.0	0.00	0.10	0.00	82.6
8	T1	All MCs	64	5.0	64	5.0	0.040	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	96.8
Approach			76	5.0	76	5.0	0.040	1.2	NA	0.0	0.0	0.00	0.10	0.00	94.3
All Vehicles			301	5.0	301	5.0	0.086	4.6	NA	0.3	2.5	0.11	0.36	0.11	80.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: D:\Work\2023\23.066 - Gulgong Lifestyle resort - Allam\Sidra\Guntawang_Magpie\Guntawang_Magpie.sip9

MOVEMENT SUMMARY

▽ Site: 101 [2023AM + development - CHR(s)/BAL (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Guntawang Road / Magpie Lane
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	[Dist]				km/h
			veh/h		veh/h					veh	m				
South: Guntawang Road															
2	T1	All MCs	65	5.0	65	5.0	0.035	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
3	R2	All MCs	40	5.0	40	5.0	0.024	7.8	LOS A	0.1	0.8	0.17	0.61	0.17	71.3
Approach			105	5.0	105	5.0	0.035	3.0	NA	0.1	0.8	0.07	0.23	0.07	86.7
East: Magpie Lane															
4	L2	All MCs	95	5.0	95	5.0	0.089	8.2	LOS A	0.4	2.7	0.18	0.61	0.18	71.0
6	R2	All MCs	25	5.0	25	5.0	0.089	8.6	LOS A	0.4	2.7	0.18	0.61	0.18	70.8
Approach			120	5.0	120	5.0	0.089	8.3	LOS A	0.4	2.7	0.18	0.61	0.18	70.9
North: Guntawang Road															
7	L2	All MCs	12	5.0	12	5.0	0.040	8.0	LOS A	0.0	0.0	0.00	0.10	0.00	82.6
8	T1	All MCs	64	5.0	64	5.0	0.040	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	96.8
Approach			76	5.0	76	5.0	0.040	1.2	NA	0.0	0.0	0.00	0.10	0.00	94.3
All Vehicles			301	5.0	301	5.0	0.089	4.6	NA	0.4	2.7	0.10	0.35	0.10	81.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 101 [2033AM + development (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Guntawang Road / Magpie Lane

Site Category: (None)

Give-Way (Two-Way)

Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	[Dist]				km/h
			veh/h		veh/h					veh	m				
South: Guntawang Road															
2	T1	All MCs	80	5.0	80	5.0	0.073	0.0	LOS A	0.3	2.0	0.15	0.27	0.15	91.2
3	R2	All MCs	49	5.0	49	5.0	0.073	8.1	LOS A	0.3	2.0	0.15	0.27	0.15	78.3
Approach			128	5.0	128	5.0	0.073	3.1	NA	0.3	2.0	0.15	0.27	0.15	85.8
East: Magpie Lane															
4	L2	All MCs	115	5.0	115	5.0	0.107	8.2	LOS A	0.4	3.2	0.19	0.62	0.19	70.9
6	R2	All MCs	31	5.0	31	5.0	0.107	8.4	LOS A	0.4	3.2	0.19	0.62	0.19	70.7
Approach			146	5.0	146	5.0	0.107	8.3	LOS A	0.4	3.2	0.19	0.62	0.19	70.8
North: Guntawang Road															
7	L2	All MCs	14	5.0	14	5.0	0.049	8.0	LOS A	0.0	0.0	0.00	0.10	0.00	82.6
8	T1	All MCs	78	5.0	78	5.0	0.049	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	96.8
Approach			92	5.0	92	5.0	0.049	1.2	NA	0.0	0.0	0.00	0.10	0.00	94.3
All Vehicles			367	5.0	367	5.0	0.107	4.7	NA	0.4	3.2	0.13	0.37	0.13	80.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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MOVEMENT SUMMARY

Site: 101 [2033AM + development - CHR(s)/BAL (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Guntawang Road / Magpie Lane
 Site Category: (None)
 Give-Way (Two-Way)
 Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%				[Veh. veh	Dist]				
			veh/h		veh/h		v/c	sec		veh	m				km/h
South: Guntawang Road															
2	T1	All MCs	80	5.0	80	5.0	0.042	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
3	R2	All MCs	49	5.0	49	5.0	0.030	7.8	LOS A	0.1	1.0	0.20	0.61	0.20	71.2
Approach			128	5.0	128	5.0	0.042	3.0	NA	0.1	1.0	0.08	0.23	0.08	86.7
East: Magpie Lane															
4	L2	All MCs	115	5.0	115	5.0	0.111	8.2	LOS A	0.5	3.4	0.21	0.61	0.21	70.8
6	R2	All MCs	31	5.0	31	5.0	0.111	8.9	LOS A	0.5	3.4	0.21	0.61	0.21	70.7
Approach			146	5.0	146	5.0	0.111	8.4	LOS A	0.5	3.4	0.21	0.61	0.21	70.8
North: Guntawang Road															
7	L2	All MCs	14	5.0	14	5.0	0.049	8.0	LOS A	0.0	0.0	0.00	0.10	0.00	82.6
8	T1	All MCs	78	5.0	78	5.0	0.049	0.0	LOS A	0.0	0.0	0.00	0.10	0.00	96.8
Approach			92	5.0	92	5.0	0.049	1.2	NA	0.0	0.0	0.00	0.10	0.00	94.3
All Vehicles			367	5.0	367	5.0	0.111	4.7	NA	0.5	3.4	0.11	0.35	0.11	81.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [2023PM (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Guntawang Road / Magpie Lane

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV]		Arrival Flows [Total HV]		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue [Veh. Dist]		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Guntawang Road															
2	T1	All MCs	52	5.0	52	5.0	0.028	0.0	LOS A	0.0	0.0	0.01	0.01	0.01	99.5
3	R2	All MCs	1	5.0	1	5.0	0.028	7.6	LOS A	0.0	0.0	0.01	0.01	0.01	84.3
Approach			53	5.0	53	5.0	0.028	0.2	NA	0.0	0.0	0.01	0.01	0.01	99.1
East: Magpie Lane															
4	L2	All MCs	2	5.0	2	5.0	0.002	8.2	LOS A	0.0	0.1	0.17	0.60	0.17	71.1
6	R2	All MCs	1	5.0	1	5.0	0.002	8.0	LOS A	0.0	0.1	0.17	0.60	0.17	70.9
Approach			3	5.0	3	5.0	0.002	8.1	LOS A	0.0	0.1	0.17	0.60	0.17	71.0
North: Guntawang Road															
7	L2	All MCs	1	5.0	1	5.0	0.040	8.0	LOS A	0.0	0.0	0.00	0.01	0.00	84.6
8	T1	All MCs	75	5.0	75	5.0	0.040	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	99.7
Approach			76	5.0	76	5.0	0.040	0.1	NA	0.0	0.0	0.00	0.01	0.00	99.4
All Vehicles			132	5.0	132	5.0	0.040	0.3	NA	0.0	0.1	0.01	0.03	0.01	98.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: D:\Work\2023\23.066 - Gulgong Lifestyle resort - Allam\Sidra\Guntawang_Magpie\Guntawang_Magpie.sip9

MOVEMENT SUMMARY

Site: 101 [2023PM + development (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Guntawang Road / Magpie Lane

Site Category: (None)

Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh.]	[Dist]				km/h
			veh/h		veh/h					veh	m				
South: Guntawang Road															
2	T1	All MCs	52	5.0	52	5.0	0.088	0.0	LOS A	0.4	3.0	0.21	0.43	0.21	86.5
3	R2	All MCs	96	5.0	96	5.0	0.088	8.0	LOS A	0.4	3.0	0.21	0.43	0.21	74.8
Approach			147	5.0	147	5.0	0.088	5.2	NA	0.4	3.0	0.21	0.43	0.21	78.5
East: Magpie Lane															
4	L2	All MCs	42	5.0	42	5.0	0.040	8.2	LOS A	0.1	1.1	0.18	0.61	0.18	71.0
6	R2	All MCs	12	5.0	12	5.0	0.040	8.5	LOS A	0.1	1.1	0.18	0.61	0.18	70.8
Approach			54	5.0	54	5.0	0.040	8.3	LOS A	0.1	1.1	0.18	0.61	0.18	70.9
North: Guntawang Road															
7	L2	All MCs	24	5.0	24	5.0	0.053	8.0	LOS A	0.0	0.0	0.00	0.17	0.00	81.2
8	T1	All MCs	75	5.0	75	5.0	0.053	0.0	LOS A	0.0	0.0	0.00	0.17	0.00	95.0
Approach			99	5.0	99	5.0	0.053	2.0	NA	0.0	0.0	0.00	0.17	0.00	91.2
All Vehicles			300	5.0	300	5.0	0.088	4.7	NA	0.4	3.0	0.13	0.38	0.13	80.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

Site: 101 [2023PM + development - CHR(s)/BAL (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Guntawang Road / Magpie Lane
 Site Category: (None)
 Give-Way (Two-Way)

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV] veh/h	%	[Total HV] veh/h	%				[Veh.] veh	[Dist] m				
South: Guntawang Road															
2	T1	All MCs	52	5.0	52	5.0	0.027	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
3	R2	All MCs	96	5.0	96	5.0	0.060	7.9	LOS A	0.3	2.0	0.21	0.62	0.21	71.1
Approach			147	5.0	147	5.0	0.060	5.1	NA	0.3	2.0	0.14	0.40	0.14	79.1
East: Magpie Lane															
4	L2	All MCs	42	5.0	42	5.0	0.041	8.2	LOS A	0.2	1.2	0.19	0.61	0.19	70.9
6	R2	All MCs	12	5.0	12	5.0	0.041	8.9	LOS A	0.2	1.2	0.19	0.61	0.19	70.7
Approach			54	5.0	54	5.0	0.041	8.4	LOS A	0.2	1.2	0.19	0.61	0.19	70.9
North: Guntawang Road															
7	L2	All MCs	24	5.0	24	5.0	0.053	8.0	LOS A	0.0	0.0	0.00	0.17	0.00	81.2
8	T1	All MCs	75	5.0	75	5.0	0.053	0.0	LOS A	0.0	0.0	0.00	0.17	0.00	95.0
Approach			99	5.0	99	5.0	0.053	2.0	NA	0.0	0.0	0.00	0.17	0.00	91.2
All Vehicles			300	5.0	300	5.0	0.060	4.6	NA	0.3	2.0	0.10	0.36	0.10	81.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

MOVEMENT SUMMARY

▽ Site: 101 [2033PM + development (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Guntawang Road / Magpie Lane

Site Category: (None)

Give-Way (Two-Way)

Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			[Total HV]	%	[Total HV]	%	v/c	sec		[Veh. veh	Dist] m				km/h
South: Guntawang Road															
2	T1	All MCs	63	5.0	63	5.0	0.109	0.0	LOS A	0.5	3.8	0.24	0.44	0.24	86.3
3	R2	All MCs	117	5.0	117	5.0	0.109	8.2	LOS A	0.5	3.8	0.24	0.44	0.24	74.6
Approach			180	5.0	180	5.0	0.109	5.3	NA	0.5	3.8	0.24	0.44	0.24	78.3
East: Magpie Lane															
4	L2	All MCs	51	5.0	51	5.0	0.050	8.3	LOS A	0.2	1.4	0.21	0.61	0.21	70.8
6	R2	All MCs	14	5.0	14	5.0	0.050	8.7	LOS A	0.2	1.4	0.21	0.61	0.21	70.7
Approach			65	5.0	65	5.0	0.050	8.4	LOS A	0.2	1.4	0.21	0.61	0.21	70.8
North: Guntawang Road															
7	L2	All MCs	30	5.0	30	5.0	0.065	8.0	LOS A	0.0	0.0	0.00	0.17	0.00	81.2
8	T1	All MCs	91	5.0	91	5.0	0.065	0.0	LOS A	0.0	0.0	0.00	0.17	0.00	95.0
Approach			121	5.0	121	5.0	0.065	2.0	NA	0.0	0.0	0.00	0.17	0.00	91.2
All Vehicles			366	5.0	366	5.0	0.109	4.7	NA	0.5	3.8	0.15	0.38	0.15	80.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.

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Project: D:\Work\2023\23.066 - Gulgong Lifestyle resort - Allam\Sidra\Guntawang_Magpie\Guntawang_Magpie.sip9

MOVEMENT SUMMARY

Site: 101 [2033PM + development - CHR(s)/BAL (Site Folder: General)]

Output produced by SIDRA INTERSECTION Version: 9.1.3.210

Guntawang Road / Magpie Lane
 Site Category: (None)
 Give-Way (Two-Way)
 Design Life Analysis (Final Year): Results for 10 years

Vehicle Movement Performance													
Mov ID	Turn	Mov Class	Demand Flows [Total HV] veh/h	Arrival Flows [Total HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% Back Of Queue [Veh. veh] [Dist] m		Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed km/h
South: Guntawang Road													
2	T1	All MCs	63 5.0	63 5.0	0.033	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	100.0
3	R2	All MCs	117 5.0	117 5.0	0.074	7.9	LOS A	0.3	2.5	0.24	0.62	0.24	71.0
Approach			180 5.0	180 5.0	0.074	5.2	NA	0.3	2.5	0.16	0.40	0.16	79.0
East: Magpie Lane													
4	L2	All MCs	51 5.0	51 5.0	0.052	8.3	LOS A	0.2	1.5	0.22	0.61	0.22	70.7
6	R2	All MCs	14 5.0	14 5.0	0.052	9.3	LOS A	0.2	1.5	0.22	0.61	0.22	70.6
Approach			65 5.0	65 5.0	0.052	8.5	LOS A	0.2	1.5	0.22	0.61	0.22	70.7
North: Guntawang Road													
7	L2	All MCs	30 5.0	30 5.0	0.065	8.0	LOS A	0.0	0.0	0.00	0.17	0.00	81.2
8	T1	All MCs	91 5.0	91 5.0	0.065	0.0	LOS A	0.0	0.0	0.00	0.17	0.00	95.0
Approach			121 5.0	121 5.0	0.065	2.0	NA	0.0	0.0	0.00	0.17	0.00	91.2
All Vehicles			366 5.0	366 5.0	0.074	4.7	NA	0.3	2.5	0.12	0.36	0.12	80.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Options 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 (TWSC): Level of Service is not defined for major road approaches or the intersection as a whole for Two-Way Sign Control (HCM LOS rule).

Two-Way Sign Control Capacity Model: SIDRA Standard.

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

Queue Model: SIDRA queue estimation methods are used for Back of Queue and Queue at Start of Gap.

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

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

Arrival Flows used in performance calculations are adjusted to include any Initial Queued Demand and Upstream Capacity Constraint effects.