

TRAFFIC IMPACT ASSESSMENT (TIA)

Proposed Restaurant Development 40 Myoora Road, Terrey Hills

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Appendices

Appendix A:Photographic RecordAppendix B:Reduced PlansAppendix C:Intersection Survey ResultsAppendix D:SIDRA Modelling ResultsAppendix E:Swept Path AnalysisAppendix F:Council Traffic Engineer Referral Response Letter



1. INTRODUCTION

TRAFFIX has been commissioned by Isaac Property Terry Hills P/L to undertake a traffic impact assessment (TIA) in support of a development application (DA) relating to a proposed restaurant located at 40 Myoora Road, Terrey Hills. The development is located within the Northern Beaches Local Government Area (LGA) and has been assessed under that Council's controls.

This report documents the findings of our investigations and should be read in the context of the Statement of Environmental Effects (SEE) prepared separately.

The report is structured as follows:

- Section 2: Describes the site and its location
- Section 3: Documents existing traffic conditions
- Section 4: Describes the proposed development
- Section 5: Assesses the parking requirements
- Section 6: Assesses traffic impacts
- Section 7: Discusses access and internal design aspects
- Section 8: Presents the overall study conclusions

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2. LOCATION AND SITE

The subject site is known as 40 Myoora Road, Terrey Hills (Lot 180 of DP752017) is located on the eastern side of Myoora Road and fronts Mona Vale Road to the east. The site is located approximately 28 kilometres north of the Sydney CBD.

The site has a total site area of approximately 15,957m² and contains one dwelling house and two metal sheds. The site has an eastern frontage of 60 metres to Mona Vale Road and a western frontage of 60 metres to Myoora Road. It is bounded to the north and south by commercial / light industrial developments.

Vehicular access to the dual frontage site is currently provided via two access driveways from Mona Vale Road frontage and from an access driveway from Myoora Road.

A Location Plan is presented in **Figure 1**, with a Site Plan presented in **Figure 2**. Reference should be made to the photographic record presented in **Appendix A** which provides an appreciation of the existing surrounding road network within the vicinity of the subject site.



Figure 1: Location Plan



Figure 2: Site Plan



3. EXISTING TRAFFIC CONDITIONS

3.1 Road Network

The road hierarchy in the vicinity of the site is shown in **Figure 3** with the following roads of particular interest:

Mona Vale Road:	a TfNSW Main Road (MR 162) that traverses north-east-south-west				
	between Mona Vale in the east and Pymble in the west. In the				
	vicinity of the site, Mona Vale Road carries about 42,100 vpd				
	(2022 AADT) and is subject to an 80km/h speed zoning local to				
	the site. It generally consists of two traffic lanes in either direction				
	separated by a median.				
Myoora Road:	a local road that traverses north-south between Booralie Road in				
	the north and Mona Vale Road in the south-east. It is subject to				
	50km/h speed zoning. Myoora Road carries a single lane of				
	traffic in each direction and generally permits on-street parking				
	along both sides.				
📀 Aumuna Road	a local road that generally traverses east-west between				
	Coolowie Road in the north-west and Mona Vale Road in the				
	south-east. It is subject to a 50km/h speed zoning, carries a single				
	lane of traffic in each direction and generally permits unrestricted				
	kerbside parallel parking along both sides.				
Kamber Road	a local road that generally traverses east-west between Mona				
	Vale Road in the east and Kamber Road Trail the east. It is subject				
	to 50km/h speed zoning, carries a single lane of traffic in each				
	direction and generally permits unrestricted kerbside parallel				
	parking along the southern side.				

It can be seen from the road hierarchy presented in **Figure 3** below that access to the wider regional road network is provided via Mona Vale Road using Myoora Road and Aumuna Road.



Figure 3: Road Hierarchy



3.2 Key Intersections

The key intersections in the vicinity of the site are shown below and provide an understanding of the existing road geometry and alignment.

3.2.1 Intersection of Mona Vale Road / Aumuna Road / Kamber Road



Figure 4: Intersection of Mona Vale Road / Aumuna Road / Kamber Road

It can be seen from **Figure 4** that the intersection of Mona Vale Road / Aumuna Road / Kamber Road is a four-legged cross intersection. The main attributes of each approach outlined as follows:

- Mona Vale Road (north and south leg)
 - The northern approach provides four lanes from which all movements are permitted.
 - The southern approach provides four lanes from which all movements are permitted.
- Aumuna Road (east leg)
 - The eastern approach provides a single lane from which all movements are permitted.
- Kamber Road (west leg)
 - The eastern approach provides a single lane from which all movements are permitted.





3.2.2 Intersection of Aumuna Road and Myoora Road

Figure 5: Intersection of Aumuna Road and Myoora Road

It can be seen from **Figure 5** that the intersection of Aumuna Road and Myoora Road is a fourlegged roundabout intersection. The main attributes of each approach outlined as follows:

- Myoora Road (north and south leg)
 - The northern approach provides a single lane from which all movements are permitted.
 - The southern approach provides a single lane from which all movements are permitted.
- Aumuna Road (east and west leg)
 - The eastern approach provides a single lane from which all movements are permitted.
 - The western approach provides a single lane from which all movements are permitted.

3.3 Public Transport

The existing bus services that operate in the locality are shown in **Figure 6**. The subject site is within optimal walking distance (200 metres) of existing bus services operating in the locality. These bus services and their frequencies are detailed in **Table 1** below:

Due		Frequency				
No.	Route	Weekday	Saturday	Sunday & Public Holidays		
196	Gordon to Mona Vale	Every 20-30 minutes in AM and PM peaks only	Every 1 hour	Every 1 hour		
197	Macquarie University to Mona Vale	Every 20-30 minutes	Every 1 hour	Every 1 hour		
260	Terrey Hills to North Sydney	Every 20-30 minutes in AM and PM peaks only	No service	No service		
270	Terry Hills to City QVB	Every 10-20 mins in AM and PM peaks. 30 mins outside of peak	Every 1 hour	Every 1 hour		
271	Belrose to City QVB	Every 15-30 mins	Every 30 mins	Every 30 mins		
284	Duffys Forest to Terrey Hills and Chatswood	Limited to 9 services	Limited to 7 services	Limited to 7 services		

It is evident that the development benefits from good bus services with bus stops in either direction being situated within 200 metres of the site along Myoora Road. These services provide connections to such centres as Mona Vale, Gordon, Macquarie Park, Macquarie University, Sydney CBD, North Sydney and Chatswood. These bus routes provide frequent services during the weekday peak hour periods.



Figure 6: Public Transport



4. DESCRIPTION OF PROPOSED DEVELOPMENT

A detailed description of the proposed development is provided in the Statement of Environmental Effects prepared separately. In summary, the development for which approval is for restaurant comprising the following:

- Restaurant and associated all-day dining (internal), terrace dining and outdoor dining (external) with ancillary bistro kitchen, amenities and back of house.
- 31,399m² Gross Floor Area (GFA).
- 198 car parking spaces comprising:
 - 191 standard car parking spaces.
 - 7 accessible parking spaces
- 1 x loading bay
- Proposed maximum patron capacity of 594 seats.
- Proposed operating hours are from 10:00am to 12:00am Monday to Sunday

The parking and traffic impacts arising from the development are discussed in **Section 5** and **Section 6**. Reference should be made to the plans submitted separately to Council which are presented at reduced scale in **Appendix B**.



5. PARKING REQUIREMENTS

5.1 Car Parking

5.1.1 Council Controls

The Warringah Council Development Control Plan (DCP) 2011, Part H Appendix 1 - requires parking for developments to be provided in accordance with **Table 2** below:

Туре	Area / Units	Seats	Minimum Parking Rate	Minimum Spaces Required	Spaces Provided
Restaurant	1,399m²	594	15 spaces per 100m ² GFA Dr 1 space per 3 seats (whichever is greater)	210	198
Totals				210	198

Table 2: Council Parking Rates and Provision

It can be seen in **Table 2** the proposed development requires a minimum of 210 spaces in strict accordance with Council's DCP based on the proposed restaurant GFA which is higher than the minimum spaces that would be required if assessed against the number of proposed seats (198 parking spaces). In response, the proposed development provides 198 spaces, a nominal shortfall of 12 car parking spaces in strict accordance with Council's DCP based on the 1,399m² of Restaurant GFA. However, this nominal shortfall when assessed against Councils DCP is considered minor and does not account for changes in travel behaviour over time that can be induced to encourage travel by more sustainable modes of transport as discussed in more detail in Section 5.1.2 below.

5.1.2 Green Travel Plan

It is envisaged that a Green Travel / Operational Management Plan could be prepared in response to a suitable DA Condition of Consent which would include travel modal targets with the intention of minimising private vehicle arrivals and providing more sustainable transport options for patrons in line with state government sustainable transport targets and initiatives.



5.1.3 Parking Summary

In summary, it is evident there is a requirement to provide 210 spaces based on Council's DCP with a Restaurant floor area of 1,399m² and a seating capacity of 594 patrons. In response, 198 parking spaces are provided, a nominal shortfall of 12 spaces. However, measures to encourage travel by more sustainable modes of transport including implementation of a green travel plan will further reduce reliance on parking associated with private vehicle trips and encourage travel to and from the proposed development via more sustainable modes of transport.

5.2 Accessible Parking

The development is required to provide accessible parking spaces in accordance with the requirements of the Building Code of Australia. The restaurant will require a minimum of one (1) space per 50 spaces or part thereof thereby requiring at least five (5) accessible parking spaces based on the standard parking requirement of 210 spaces. In response, seven (7) accessible parking spaces are provided in compliance with the requirements of the Building Code of Australia and Councils DCP and is considered acceptable.

5.3 Bicycle Parking

Council's DCP does not provide a bicycle parking requirements for restaurants. Alternatively, Council has suggested that bicycle parking requirements are to be assessed as discussed in Section 8.1 based on Council's business and retail bicycle parking rate as follows:

"Warringah DCP requires high-medium security bicycle parking (in a secure room/enclosure) at a rate of 1 space per 200m² GFA for business and retail premises with a further 1 space per 600m² of low security spaces (bike racks/rail)."

Application of the above rate to the 1,399m² of restaurant area results in the following bicycle parking requirement:

7 spaces for business and retail premises.

3 low security spaces.



It can be seen there is a requirement for 10 bicycle parking spaces to be provided and 10 spaces are provided in response within the underground carpark level, thereby complying with Council's DCP.

5.4 Motorcycle Parking

Council's DCP does not specify any motorcycle parking requirements for restaurants. Notwithstanding, three (3) motorcycle parking spaces are proposed onsite thereby ensuring that all future motorcycle spaces are accommodated onsite without having to rely on standard parking spaces.

5.5 Refuse Collection and Servicing

A loading dock has been provided on the site on the ground floor with access provided via Myoora Road and can accommodate vehicles up to an including 8.8m Medium Rigid Vehicles (MRV's). All waste collection and servicing requirements are proposed to be undertaken via this dedicated loading bay.



6. TRAFFIC AND TRANSPORT IMPACTS

6.1 Existing Site Generation

The subject site currently accommodates one residential dwelling. The TfNSW Technical Direction (TDT 2013/04a) provides traffic generation rates for single-occupancy dwellings. The Technical Direction recommends the following peak hour trip generation rates:

- 0.95 vehicle trips per dwelling during the AM peak periods; and
- 0.99 vehicle trips per dwelling during the PM peak periods.

Adoption of this rate to the single dwelling results in the following trip generation,

- 1 vehicle trips per hour during the AM peak; and
- 1 vehicle trips per hour during the PM peak.

6.2 Development Trip Generation

The traffic impacts of the proposed development (restaurant) to the external surrounding road network have been assessed having regard for the requirements of the TfNSW (former RMS) Guideline to Traffic Generating Developments (2002) applicable to restaurants.

In accordance with The Guide, restaurants attract a vehicle trip rate of 5 vehicle trips/100m² GFA during the weekday afternoon peak. The weekday afternoon peak between 4:00pm-6:00pm and the Saturday lunchtime peak between 10:00am-2:00pm was assessed in order to capture peak weekday and Saturday lunchtime trading periods.

Application of the TfNSW vehicle trip rate applied to restaurants (5 vehicle trips per 100m²GFA) to the proposed 1,399m² of restaurant GFA and assuming a 50/50 split results in the following vehicle trips:

- 70 veh/hr (35 in, 35 out) during the weekday evening peak.
- 70 veh/hr (35 in, 35 out) during the Saturday lunchtime peak.

6.3 Net Impacts

The proposed development has been assessed as a net increase of +70 vehicles per hour above existing conditions in order to undertake a conservative assessment.

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6.4 Intersection Performance

6.4.1 Traffic Surveys

For the purposes of assessing the traffic impacts of this development, traffic surveys were obtained at the critical intersections within proximity of the site. The intersection survey results are provided in **Appendix C** for reference.

These surveys were conducted on Friday 5 April 2024 and Saturday 6 April 2024 during the critical evening network peak between 4:00pm-6:00pm and between 10:00am- 2:00pm on Saturday at the below following key intersections.

The intersection of Mona Vale Road / Aumuna Road / Kamber Road; and

The intersection of Aumuna Road / Myoora Road.

6.4.2 Trip Distribution

The adopted trip distribution is summarised in the vehicle trip distribution diagram presented in **Figure 7** below whereby it was assumed that traffic will be split evenly across the surrounding road network which is generally consistent with surveys undertaken of the key intersections of interest.



Figure 7: Vehicle Trip Distributions

6.4.3 Scenarios

To assess the potential traffic impacts of a proposed development, the following scenarios were identified:

- Existing Scenario; and
- Existing + Development Scenario.

6.4.4 SIDRA Intersection Analysis

The surveys were analysed using the SIDRA Intersection 9 computer program to determine their performance characteristics under existing traffic conditions. The SIDRA model produces a range of outputs, the most useful of which are the Degree of Saturation (DoS) and Average



Vehicle Delay per vehicle (AVD). The AVD is in turn related to a level of service (LoS) criteria. These performance measures can be interpreted using the following explanations:

- **Dos** the DoS is a measure of the operational performance of individual intersections. As both queue length and delay increase rapidly as DoS approaches 1, it is usual to attempt to keep DoS to less than 0.9. When DoS exceeds 0.9 residual queues can be anticipated, as occurs at many major intersections throughout the metropolitan area during peak periods. In this regard, a practical limit at 1.1 can be assumed. For intersections controlled by roundabout or give way / stop control, satisfactory intersection operation is generally indicated by a DoS of 0.8 or less.
- AVD the AVD for individual intersections provides a measure of the operational performance of an intersection. In general, levels of acceptability of AVD for individual intersections depend on the time of day (motorists generally accept higher delays during peak commuter periods) and the road system being modelled (motorists are more likely to accept longer delays on side streets than on the main road system).
- Los this is a comparative measure which provides an indication of the operating performance of an intersection as shown in Table 3.

Level of Service (LoS)	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way and Stop Signs
A	less than 14	Good operation	Good operation
В	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
С	29 to 42	Satisfactory	Satisfactory but accident study required
D	D 43 to 56 Operating near capacity		Near capacity and accident study required
E	57 to 70	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity and requires other control mode
F	More than 70	Unsatisfactory and requires additional capacity.	Unsatisfactory and requires other control mode or major treatment.

Table 3: Intersection Performance Indicators (TfNSW)

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A summary of the modelled results is provided in **Table 3**, reference should also be made to the SIDRA outputs provided in **Appendix D** which provide detailed results for each movement.

Intersection	Control Type	Scenario	Period	Degree of Saturation (DoS)	Average Delay	Level of Service
Mona Vale Road and Aumuna Road (south approach)	Give way	Existing	PM	0.398	35.8	С
			SAT	0.486	200.1	F
		Existing + Development	PM	0.398	36.6	С
			SAT	0.501	195.9	F
Mona Vale Road and Kamber Road (north approach)	Give way	Existing	PM	0.325	21.7	В
			SAT	0.379	60.2	E
		Existing + Development	PM	0.325	22.1	В
			SAT	0.381	61.3	E
Aumuna Road and Myoora Road	Roundabout	Existing	PM	0.204	8.8	А
			SAT	0.226	8.7	A
		Existing + Development	PM	0.224	8.8	А
			SAT	0.246	8.8	А

Table 3: Intersection Performance for Existing and Development

6.5 Traffic Impacts

It can be seen from **Table 3** above that the intersection of Mona Vale Road and Aumuna Road (south approach) operates at a level of service C during the weekday PM peak in the existing and development scenarios with a minor increase in average delay from 35.8 seconds (existing) to 36.6 seconds (existing plus development), a minor increase of 0.8 seconds.

The intersection of Mona Vale Road and Aumuna Road (south approach) operates at a level of service F during the Saturday peak in the existing and development scenarios with a minor decrease in average delay from 200.1 seconds (existing) to 195.9 seconds (proposed) a decrease of 4.2 (-4.2) seconds. This decrease in average delay is likely due to the fact that more vehicles are able to pass through the intersection without causing the worst performing movement (the right turn movement from Kamber Road onto Mona Vale Road) to perform any worse than it is already performing under the existing scenario, hence the slight improvement in average delay.

The intersection of Mona Vale Road and Kamber Road (north approach) operates at a level of service B during the weekday PM in the existing and development scenarios with a minor



increase in average delay from 21.7 seconds (existing) to 22.1 seconds (existing plus development), a minor increase of 0.4 seconds.

The intersection of Mona Vale Road and Aumuna Road (north approach) operates at a level of service E during the Saturday peak in the existing and development scenarios with a minor increase in average delay from 60.2 seconds (existing) to 61.3 seconds (existing plus development), a minor increase of 1.1 seconds.

The intersection of Aumuna Road and Myoora Road operates at a level of service A during the weekday PM in the existing and development scenarios with no increase in average delay (8.8 seconds).

The intersection of Aumuna Road and Myoora Road operates at a level of service A during the Saturday peak in the existing and development scenarios with a minor increase in average delay from 8.7 seconds (existing) to 8.8 seconds (existing plus development), an increase of less than one second.

It is emphasised that whilst the intersection of Mona Vale Road/Aumuna Road (south approach) operates at a Level of Service 'F' during the Saturday peak in both the existing and development scenarios this is caused by vehicles waiting to turn right from Kamber Road, westbound onto Mona Vale Road, northbound as shown in **Figure 8** below.



Figure 8: Mona Vale Road / Aumuna Road/ Kamber Road Intersection Performance Summary (Saturday Lunchtime Peak)



Whilst the intersection of Mona Vale Road and Aumuna Road currently fails under the existing scenario and will continue to fail under the development scenario, this is due to vehicles turning right from Kamber Road onto Mona Vale Road, northbound and is not attributed to the additional traffic generated by the proposed development. Reference should be made to the intersection performance summary diagram for the Saturday peak presented in **Figure 8** above showing the Level of Service for each leg respectively for the existing and existing plus development scenarios. Whilst there is a small increase to the average delay for vehicles turning right from Aumuna Road, eastbound onto Mona Vale Road, southbound, this is minor (+5.1 seconds in total), and the overall performance of the intersection does not change as shown in **Table 3** above.

Furthermore, the critical movement involving vehicles departing the subject site and turning right from Aumuna Road (eastbound) onto Mona Vale Road, southbound will result in an additional six (6) vehicles per hour undertaking this manoeuvre during peak times which is considered minor (equivalent to one additional vehicle every 10 minutes) and will have no noticeable impact on the performance of this intersection. A summary of additional vehicle movements caused by the proposed development, including the additional six (6) additional vehicles per hour turning right from Aumuna Road, eastbound onto Mona Vale Road, southbound in green, is shown in **Figure 9** below for clarity.



Figure 9: Additional Development Hourly Peak Vehicle Trips



Therefore, no improvements are required to the critical intersection of Mona Vale Road and Aumuna Road to facilitate the proposed development in accordance with TfNSW guidelines.

A review of survey video footage undertaken at this intersection during the Saturday lunchtime peak between 12:00pm-1:00pm shows that in general no more than one (1) vehicle at any one time arrived on Aumuna Road, eastbound and turned right onto Mona Vale Road, southbound. This is supported by the SIDRA modelling results presented in **Appendix D** which shows a 95th percentile back of queue length of no more than one (1) vehicle under the existing scenario and no more than two (2) vehicles under the proposed development scenario.

Having regard for the above, it is evident there is no change to the level of service of any of the key intersections assessed as a result of the proposed development and no noticeable adverse changes to average delays. Therefore, the impacts to traffic on the existing external road network and surrounding intersections are considered acceptable and consistent with existing intersection performance parameters.

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7. ACCESS AND INTERNAL DESIGN ASPECTS

7.1 Site Vehicular Access

7.1.1 Access

The subject development proposes a total of 198 parking spaces with access via Myoora Road, a local road. It will therefore require a Category 2 driveway under AS2890.1 (2004), being a combined entry/exit width of 6.0 metres. In response, a combined 6.0-metre wide access driveway is provided sufficient to accommodate all vehicle movements to and from the subject site, including the largest service vehicle required to access the subject site being an 8.8m MRV. Reference should be made to the swept path analysis provided in **Appendix E** showing the satisfactory operation of the access driveway.

7.2 Internal Design

The internal car park complies with the requirements of AS 2890.1 (2004), AS 2890.2 (2018) and AS 2890.6 (2022), and the following characteristics are noteworthy:

7.2.1 Parking Modules

- All standard car parking spaces have been designed in accordance with User Class 2 being for medium-term parking. These spaces are provided with a minimum space length of 5.4m, a minimum width of 2.5m and a minimum aisle width of 5.8m.
- All spaces located adjacent to obstructions of greater than 150mm in height are provided with an additional width of 300mm.
- Dead-end aisles are provided with the required 1.0m aisle extension in accordance with Figure 2.3 of AS2890.1 (2004).
- All accessible parking spaces have been designed in accordance with AS 2890.6 (2022), being 2.4m wide, 5.4m long and situated immediately adjacent to a dedicated shared area or the circulating aisle.

7.2.2 Clear Head Heights

A minimum clear head height of 2.2m is provided for all areas within the undercover car park as required by AS 2890.1 (2004).



- A minimum clear head height of 4.5m is provided for all areas accessed by the service vehicle as required by AS 2890.2 (2018).
- A minimum clear head height of 2.5m is to be provided above all disabled spaces in accordance with AS 2890.6 (2022).

7.2.3 Ramps

- A maximum gradient of 1:20 (5.0%) has been provided for the first 6.0 metres within the property boundary in accordance with AS2890.1 (2004).
- The ramp and transitions from the ground floor to the undercover carpark has been designed in accordance with A\$2890.1 (2004).
- The ramp and transitions providing access to the loading bay and truck turning area have been designed in accordance with AS2890.2 (2018).

7.2.4 Loading

A minimum bay width of 3.5m and length of 8.8m is provided for the largest service vehicle required to access the subject development being an 8.8m MRV as required under AS 2890.2 (2018).

7.2.5 Other Considerations

- All columns are located outside of the parking space design envelope shown in Figure 5.2 of AS 2890.1 (2004).
- Visual splay has been provided at the access driveway in accordance with Figure 3.3 of AS 2890.1 (2004).
- All vehicle (service vehicles and light vehicles) can enter and exit the subject site in a forward direction.
- Reference should be made to the swept path analysis provided in Appendix E showing all critical vehicle manoeuvres.

7.3 Summary

In summary, the internal configuration of the car park has been designed in accordance with AS 2890.1 (2004), AS 2890.2 (2018) and AS 2890.6 (2022).



8. RESPONSE TO REQUESTS FOR INFORMATION

8.1 Council Traffic Engineer Referral Response

Traffix has received the following comments from Northern Beaches Council as per the Traffic Engineer Referral Response Letter dated 07/01/2025 provided in **Appendix F** for reference, and TRAFFIX has responded to each item as discussed below. This is with reference to the original proposed development yields assessed in the original TIA prepared for the subject development (TRAFFIX report reference: 14.014r01v02) which has since been significantly reduced.

<u>Parking</u>

"The Warringah DCP parking requirements for a restaurant are the greater of 15 spaces per 100m2 GFA (405 spaces) OR 1 space per 3 seats (265 spaces). The premises therefore requires a minimum of 405 parking spaces for compliance with the DCP. While the DCP advises that there is potential to allow a reduced parking supply if there is suitable available parking in the vicinity, on Myoora Road, as parking is in high demand near the proposed premises, a reduction in the parking requirements on the basis of spare capacity elsewhere is not appropriate. The developer's traffic consultant advises that a parking assessment has also been undertaken noting TfNSW guidelines. The latest TfNSW guidelines are the 2024 Guide to Transport Impact Assessment which became active from 4 November 2024. These guidelines also suggest that parking rates for restaurants should be determined from the greater of 15 spaces per 100m2 of GFA or 1 space per 3 seats. The TfNSW and Warringah DCP parking requirements are identical and should be met. While the use of a shuttle bus and a green travel plan are welcomed and may assist in resulting in small reductions in trips to/from the facility, given the relatively isolated location of the development and the scattered nature of residential development in the surrounding area it is considered likely that patrons will remain heavily car dependent for travel to and from the facility. The proposed parking provision of 297 spaces is well below DCP requirements and unacceptable. It is also noted that the referral from Council's Landscape Officer has raised concerns about the reliance on a part of the landscaped area on the site for overflow carparking with its ongoing use as carparking limiting is landscaping benefit. Given that it is proposed to mark the overflow carpark with paving "dots" which would presumably need to be affixed into a hardpaved surface, the impact of the above coupled with the wear and tear created by parking activity would limit the potential for any meaningful landscaping. It is noted that the drop off/pick up bay on the "at grade"



parking level is capable of accommodating the developer's mini bus. This drop off/pick up bay is also likely to be well used by clients dropping off elderly/less mobile passengers and to ensure this activity is able to occur a dedicated parking bay of appropriate dimensions should be identified to accommodate the mini-bus when not in use. This bay should be identified on the plans with access to/from that bay demonstrated by turning movement plots for the mini-bus.

The developer proposes to provided 5 accessible parking spaces all located in the basement carpark. The Building Code of Australia requires accessible parking at a rate of 1 space per 50 spaces or part thereof and it is therefore required that at least 9 accessible parking spaces designed in compliance with AS2890.6 be provided. Some of these spaces should be located in the at grade carpark near the entrance to the restaurant with suitably graded access to the premises. The 5 spaces proposed is insufficient. Although the Warringah DCP does not specifically require motorcycle parking, it is noted and supported that 5 motorcycle parking spaces have been provided to cater for this alternate transport mode."

TRAFFIX Response:

The car parking requirements have been updated based on the parking assessment discussed in **Section 5.1** whereby the development requires parking to be provided in the order of 210 spaces (based on Council's DCP) and 198 spaces are provided, a nominal shortfall of 12 parking spaces. This minor shortfall is considered acceptable in the circumstances when considering the change in travel behaviour with preparation of a Green Travel Plan which will encourage travel by more sustainable transport.

Bicycle Parking:

The Warringah DCP requires high-medium security bicycle parking (in a secure room/enclosure) at a rate of 1 space per 200m² GFA for business and retail premises with a further 1 space per 600m² of low security spaces (bike racks/rail). This equates to a requirement for 14 secure spaces and 5 lower security spaces. The developer has proposed only 10 low security spaces which is considered inadequate to support a development of this size. The developer's traffic consultant has incorrectly advised that Mona Vale Road does not provide cycle lanes. On the contrary, Mona Vale Road has cycle lanes in both directions and is well used by cyclists. Terrey Hills, as an area is also conducive to cycling being quite flat and there is potential for cycling to and from the development site. Bicycle parking consistent with DCP requirements should be provided.



TRAFFIX Response:

The bicycle parking requirements have been updated as discussed in Section 5.3 and have been provided in accordance with Council's DCP.

Traffic Generation

It is noted that TfNSW has raised concerns about the traffic generated by the development impacting on the operation of the Aumuna Road/Mona Vale Road intersection in particular the increase in delays for vehicles exiting Aumuna Road via a right turn. TfNSW has also raised concerns about the absence of any measures to mitigate such impacts. TfNSW has also raised a number of concerns about the SIDRA modelling undertaken to support the project. Until such time as the above issues have been addressed to TfNSW satisfaction, Council's traffic engineers are unsupportive of the development application. As noted by TfNSW, traffic data collected by the traffic consultants has not been provided for review. This data, collected at the intersections of Aumuna Road/Mona Vale Road & Aumuna Road/Myoora Road on Friday 5 April and Saturday 6 April between 4pm and 6pm and 10am to 2pm should be provided and supplemented by additional data collected at the other key intersection in the vicinity i.e Myoora Road/Mona Vale Road/Forest Way. Council agrees with TfNSW that the majority of traffic movements to/from the development will or should be using Aumuna Road/Mona Vale Road however given that the developer is suggesting that 25% of traffic will use Myoora Rd south of Aumuna Road at the very least traffic data should be provided to provide background information for that intersection.

TRAFFIX Response:

Responses to the above have been addressed in the response to Transport for New South Wales (TfNSW) comments provided separately (TRAFFIX reference: 24.014r03v03 dated 08 April 2025).

<u>Servicing</u>

The developer's traffic consultant has advised that the largest vehicle servicing the site will be a Medium Rigid Vehicle and the loading bay and turning area has been designed to accommodate that size vehicle. It is however anticipated that deliveries of beer and other produce for the 3 restaurants on the site and also for waste collection are likely to exceed the 8.8m length of a MRV and the loading bay and turning area should therefore be designed to accommodate HRVs up to 12.5m in length.



TRAFFIX Response:

The proposed development yield is reduced significantly in scale from 794 seats and 2,698m² of floor space (previously proposed) to 594 seats and 1,399m² of restaurant GFA (updated) as per the amended plans. TRAFFIX has been advised that servicing with an 8.8m MRV as proposed is more than adequate to accommodate all servicing requirements of the subject development onsite based on operator experience.

<u>Access</u>

The developer's traffic consultant has advised that the largest vehicle servicing the site will be a Medium Rigid Vehicle and the loading bay and turning area has been designed to accommodate that size vehicle. It is however anticipated that deliveries of beer and other produce for the 3 restaurants on the site and also for waste collection are likely to exceed the 8.8m length of a MRV and the loading bay and turning area should therefore be designed to accommodate HRVs up to 12.5m in length.

TRAFFIX Response:

As discussed above, the proposed development yield has reduced significantly in terms of scale and the proposed access arrangements accommodating service vehicles up to and including 8.8m MRV's are considered appropriate, and no changes are intended to be made to the proposed access arrangements in this regard.

8.2 Response to Transport for New South Wales Comments

TRAFFIX has provided responses to comments received form TfNSW separately. Reference should be made to the RFI response letter provided by TRAFFIX (TRAFFIX Reference: 24.014r03v02, dated: 08 April 2025).

TRAFFIX

9. CONCLUSIONS

In summary:

- The proposal seeks approval for a restaurant located at 40 Myoora Road, Terrey Hills comprising 1,399m² Gross Floor Area (GFA) and a maximum capacity of 594 patrons.
- The subject site is well connected to the public transport network with reliable access to regular bus services as discussed in Section 3.3.
- 210 spaces are required in strict accordance with Council's DCP and 198 parking spaces are provided, a nominal shortfall of 12 spaces which is a minor deviation from Council's DCP and is considered an acceptable deviation in the circumstances for the reasons discussed in Section 5.
- The traffic generation arising from the development has been assessed as a net change over existing conditions and equates to an additional 70 vehicle trips per hour during the weekday afternoon and Saturday peaks. Traffic impacts have been assessed using SIDRA Intersection 9.1 and there are no changes in the Level of Service of each of the key intersection surveys surveyed in relation to the existing and proposed developments and traffic impacts are considered acceptable in this regard for the reasons discussed in Section 6.5.
- The at-grade and undercover car park has been assessed to comply with the requirements of AS 2890.1 (2004), AS 2890.2 (2018) and AS 2890.6 (2022).
- Waste collection and servicing is to be undertaken onsite via the loading dock which can accommodate vehicles up to and including an 8.8m MRV.
- S Council's comments have been satisfactorily addressed as outlined in Section 8.
- Transport for New South Wales comments have been addressed in a separate letter (TRAFFIX Reference: 24.014r03v02, dated: 08 April 2025) and no external road mitigation measures or upgrades are required.

This traffic impact assessment therefore demonstrates that the subject development is supportable on traffic engineering and transport planning grounds.

APPENDIX A

Photographic Record



View looking east across Myoora Road towards the subject site



View looking south along Myoora Road towards its intersection with Amuna Road


View looking east along Amuna Road towards its intersection with Mona Vale Road



View looking south along Mona Vale Road towards its intersection with Amuna Road and Kamber Road

APPENDIX B

Reduced Plans



^{1:18:28} AM









General Notes

General Notes The copyright of this design remains the property of H&E Architects. This design is not to be used, copied or reproduced without the authority of H&E Architects. Do not scale from drawings. Confirm dimensions on site prior to the commencement of works. Where a discrepancy arises seek direction prior to proceeding with the works. This drawing is only to be used by the stated Olient in the stated location for the purpose it was created. Do not use this drawing for construction unless designated.

Rev Date Amendments

 Rev
 Date
 Amendments

 02
 16:10 23
 Issue for Information

 03
 27:10 23
 Issue for Information

 04
 31:10 23
 Issue for Information

 05
 19:03 24
 Consultant Issue

 06
 02:04 24
 Issue for Information: Pre-DA Meeting

 07
 03:05 24
 Issue for Information: Design and Sustainability Advisory Panel

 09
 26:07:24
 Issue for Information

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 For Development Approval

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 28.02.25
 Issue for Information

 15
 28.03.25
 Issue for Information

 16
 28.03.25
 Issue for Information

- 6 28.03.25 Issue for Information 7 07.04.25 For Development Approval: Amended Scheme

H &E ARCHITECTS

Suite 4.02, 80 Cooper Street Surry Hills NSW 2010 Australia +612 9357 2288 hello@h-e.com.au www.h-e.com.au PO Box 490 Darlinghurst NSW 1300 Humphrey & Edwards Pty Ltd | ABN 89056638227 Nominated Architect: Glenn Cunnington #6415

Project 40 Myoora Road

Client Gardoxi P/L (Norwest) Drawing Site Plan - Pr

Location 40 Myoora R

UNO the general extent and location of alterations or additions, including demolition is indicated accordingly:

Proposed new building fabric

Neighbouring Light Industrial Buildings

Area of proposed demolition



Subject to final layout this area is to comply with Australian Standard 4674-2004; Design, construction and fit out of food premises. Refer to DA1-1200.

Strahler System 1st Order Watercourse as per Warringah DCP 2011Map Data

For Development Approval

	Scale @ A1	1:400	Drawn by	Checked by
Road, Terrey Hills NSW 2084	Scale @ A3	1:800		
	Project Start Date	Issue Date	Sheet Issue Date	07/04/25
roposed	Project # 27	25		
	Drawing #	DA1	-0500	^{Rev} 17
				0/04/2025 11:17:56 AM



Intersection Survey Results



Location	Monavale Road	Duration	10:00	-	14:00
	Kamber Road			-	
	Monavale Road			-	
	Aumuna Road	Date	Saturd	ay, 6 April 2	024
Suburb	TERRY HILLS	Weather		RAIN	

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Time	Per 1	5 Mins						Mon	navale F	Road											Ka	mber R	oad								
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10:15	-	10:30	0	0	0	318	8	326	6	1	7	3	0	3	336	1	0	1	0	0	0	2	0	2	0	0	0	3	683	19	702
10:30	-	10:45	2	2	4	321	4	325	7	2	9	0	0	0	338	2	0	2	0	0	0	1	0	1	0	0	0	3	703	14	717
10:45	-	11:00	3	1	4	329	11	340	6	1	7	3	0	3	354	1	0	1	0	0	0	0	2	2	0	0	0	3	746	20	766
11:00	-	11:15	1	0	1	345	7	352	7	2	9	2	0	2	364	2	1	3	1	0	1	1	0	1	0	0	0	5	766	13	779
11:15	-	11:30	1	0	1	359	6	365	7	0	7	1	0	1	374	1	0	1	0	0	0	3	0	3	0	0	0	4	768	14	782
11:30	-	11:45	0	0	0	372	4	376	7	1	8	1	0	1	385	0	0	0	0	0	0	0	0	0	0	0	0	0	803	18	821
11:45	-	12:00	2	0	2	307	10	317	2	0	2	1	0	1	322	1	0	1	0	0	0	2	0	2	0	0	0	3	753	16	769
12:00	-	12:15	0	0	0	333	4	337	8	2	10	1	0	1	348	2	0	2	0	0	0	1	1	2	0	0	0	4	798	12	810
12:15	-	12:30	1	0	1	347	10	357	7	1	8	3	0	3	369	1	0	1	0	0	0	0	0	0	0	0	0	1	840	18	858
12:30	-	12:45	3	1	4	392	2	394	9	3	12	7	0	7	417	4	0	4	0	0	0	0	0	0	0	0	0	4	880	18	898
12:45	-	13:00	0	0	0	296	7	303	12	0	12	1	0	1	316	0	0	0	0	0	0	0	0	0	0	0	0	0	804	14	818
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10:15	-	10:30	14	0	14	318	8	326	1	0	1	0	0	0	341	5	2	7	2	0	2	13	0	13	0	0	0	22	683	19	702
10:30	-	10:45	18	0	18	327	6	333	1	0	1	0	0	0	352	9	0	9	1	0	1	14	0	14	0	0	0	24	703	14	717
10:45	-	11:00	22	1	23	366	4	370	0	0	0	2	0	2	395	5	0	5	0	0	0	9	0	9	0	0	0	14	746	20	766
11:00	-	11:15	12	0	12	379	3	382	0	0	0	0	0	0	394	3	0	3	0	0	0	13	0	13	0	0	0	16	766	13	779
11:15	-	11:30	4	1	5	364	7	371	1	0	1	1	0	1	378	13	0	13	1	0	1	12	0	12	0	0	0	26	768	14	782
11:30	-	11:45	13	0	13	387	8	395	1	0	1	1	0	1	410	6	3	9	0	0	0	15	2	17	0	0	0	26	803	18	821
11:45	-	12:00	20	0	20	399	5	404	3	0	3	1	0	1	428	7	1	8	0	0	0	8	0	8	0	0	0	16	753	16	769
12:00	-	12:15	4	0	4	423	4	427	1	0	1	2	0	2	434	13	1	14	0	0	0	10	0	10	0	0	0	24	798	12	810
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12:30	-	12:45	12	1	13	429	10	439	1	0	1	0	0	0	453	10	1	11	0	0	0	13	0	13	0	0	0	24	880	18	898
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Location	Monavale Road	Duration	10:00	-	14:00
	Kamber Road			-	
	Monavale Road			-	
	Aumuna Road	Date	Saturda	y, 6 April 202	4
Suburb	TERRY HILLS	Weather	I	RAIN	

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10:15	-	11:15	6	3	9	1313	30	1343	26	6	32	8	0	8	1392	6	1	7	1	0	1	4	2	6	0	0	0	14	2898	66	2964
10:30	-	11:30	7	3	10	1354	28	1382	27	5	32	6	0	6	1430	6	1	7	1	0	1	5	2	7	0	0	0	15	2983	61	3044
10:45	-	11:45	5	1	6	1405	28	1433	27	4	31	7	0	7	1477	4	1	5	1	0	1	4	2	6	0	0	0	12	3083	65	3148
11:00	-	12:00	4	0	4	1383	27	1410	23	3	26	5	0	5	1445	4	1	5	1	0	1	6	0	6	0	0	0	12	3090	61	3151
11:15	-	12:15	3	0	3	1371	24	1395	24	3	27	4	0	4	1429	4	0	4	0	0	0	6	1	7	0	0	0	11	3122	60	3182
11:30	-	12:30	3	0	3	1359	28	1387	24	4	28	6	0	6	1424	4	0	4	0	0	0	3	1	4	0	0	0	8	3194	64	3258
11:45	-	12:45	6	1	7	1379	26	1405	26	6	32	12	0	12	1456	8	0	8	0	0	0	3	1	4	0	0	0	12	3271	64	3335
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12:15	-	13:15	4	1	5	1035	19	1054	28	4	32	11	0	11	1102	5	0	5	0	0	0	0	0	0	0	0	0	5	2524	50	2574
12:30	-	13:30	3	1	4	688	9	697	21	3	24	8	0	8	733	4	0	4	0	0	0	0	0	0	0	0	0	4	1684	32	1716
12:45	-	13:45	0	0	0	296	7	303	12	0	12	1	0	1	316	0	0	0	0	0	0	0	0	0	0	0	0	0	804	14	818
13:00	-	14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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10:15	-	11:15	66	1	67	1390	21	1411	2	0	2	2	0	2	1482	22	2	24	3	0	3	49	0	49	0	0	0	76	2898	66	2964
10:30	-	11:30	56	2	58	1436	20	1456	2	0	2	3	0	3	1519	30	0	30	2	0	2	48	0	48	0	0	0	80	2983	61	3044
10:45	-	11:45	51	2	53	1496	22	1518	2	0	2	4	0	4	1577	27	3	30	1	0	1	49	2	51	0	0	0	82	3083	65	3148
11:00	-	12:00	49	1	50	1529	23	1552	5	0	5	3	0	3	1610	29	4	33	1	0	1	48	2	50	0	0	0	84	3090	61	3151
11:15	-	12:15	41	1	42	1573	24	1597	6	0	6	5	0	5	1650	39	5	44	1	0	1	45	2	47	0	0	0	92	3122	60	3182
11:30	-	12:30	49	0	49	1663	23	1686	5	0	5	4	0	4	1744	33	6	39	0	0	0	41	2	43	0	0	0	82	3194	64	3258
11:45	-	12:45	48	1	49	1705	25	1730	5	0	5	3	0	3	1787	37	4	41	0	0	0	39	0	39	0	0	0	80	3271	64	3335
12:00	-	13:00	50	1	51	1755	27	1782	5	0	5	3	0	3	1841	35	3	38	0	0	0	46	0	46	0	0	0	84	3322	62	3384
12:15	-	13:15	46	1	47	1332	23	1355	4	0	4	1	0	1	1407	22	2	24	0	0	0	36	0	36	0	0	0	60	2524	50	2574
12:30	-	13:30	34	1	35	878	17	895	4	0	4	1	0	1	935	15	1	16	0	0	0	28	0	28	0	0	0	44	1684	32	1716
12:45	-	13:45	22	0	22	449	7	456	3	0	3	1	0	1	482	5	0	5	0	0	0	15	0	15	0	0	0	20	804	14	818
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Location	Aumuna Road	Duration		-	
	Myoora Road			-	
	Aumuna Road		16:00	-	18:00
	Myoora Road	Date	Friday,	, 5 April	2024
Suburb	TERRY HILLS	Weather		RAIN	

All	Vehic	les						NC	ORTHWE	ST											N	ORTHEA	ST								
Time	Per 1	5 Mins						Au	muna R	oad											My	oora Ro	bad								
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16:15	-	16:30	2	0	2	3	0	3	11	0	11	0	0	0	16	6	0	6	48	5	53	1	0	1	0	0	0	60	115	15	130
16:30	-	16:45	0	0	0	4	0	4	10	0	10	0	0	0	14	8	1	9	58	2	60	0	0	0	0	0	0	69	118	8	126
16:45	-	17:00	1	0	1	1	0	1	8	0	8	0	0	0	10	10	0	10	35	3	38	2	0	2	1	0	1	51	107	7	114
17:00	-	17:15	0	0	0	3	0	3	3	0	3	0	0	0	6	9	0	9	54	1	55	1	0	1	0	0	0	65	119	2	121
17:15	-	17:30	0	0	0	1	0	1	9	0	9	0	0	0	10	14	0	14	32	3	35	0	0	0	0	0	0	49	96	6	102
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Pe	riod E	nd	5	0	5	22	0	22	64	0	64	0	0	0	91	77	1	78	347	19	366	6	0	6	1	0	1	451	866	60	926

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16:15	-	16:30	8	0	8	3	0	3	10	2	12	0	0	0	23	7	0	7	6	8	14	10	0	10	0	0	0	31	115	15	130
16:30	-	16:45	6	2	8	1	0	1	6	1	7	0	0	0	16	4	0	4	14	1	15	7	1	8	0	0	0	27	118	8	126
16:45	-	17:00	7	2	9	4	0	4	12	0	12	0	0	0	25	5	0	5	15	2	17	6	0	6	0	0	0	28	107	7	114
17:00	-	17:15	5	0	5	6	0	6	7	0	7	0	0	0	18	8	0	8	17	1	18	6	0	6	0	0	0	32	119	2	121
17:15	-	17:30	6	0	6	2	0	2	11	0	11	0	0	0	19	4	0	4	12	3	15	5	0	5	0	0	0	24	96	6	102
17:30	-	17:45	7	1	8	2	0	2	7	0	7	0	0	0	17	5	0	5	10	2	12	4	0	4	0	0	0	21	97	3	100
17:45	-	18:00	10	0	10	4	0	4	10	0	10	0	0	0	24	2	0	2	7	6	13	6	0	6	0	0	0	21	77	8	85
Pe	riod E	Ind	55	0 0 10 4 0 4 10 0 10 0 0 24 5 7 62 28 0 28 72 4 76 0 0 0 166												41	0	41	101	26	127	47	3	50	0	0	0	218	866	60	926



Location	Aumuna Road	Duration		-	
	Myoora Road			-	
	Aumuna Road		16:00	-	18:00
	Myoora Road	Date	Friday,	5 April	2024
Suburb	TERRY HILLS	Weather	I	RAIN	

All	Vehic	cles						NC	RTHWE	ST											NC	ORTHEA	ST								
Time	Per	Hour						Au	muna Re	oad											My	oora Ro	bad								
				L <u>I</u> <u>R</u> <u>U</u> IGHT HEAVY Σ LIGHT HEAVY Σ LIGHT HEAVY Σ Σ ΤΟΤ																I			R			U			TO	TAL	
			L I <u>R U</u> LIGHT HEAVY <u>X</u> LIGHT HEAVY <u>X</u> LIGHT HEAVY <u>X</u>												TOTAL	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
16:00	-	17:00	5	0	5	10	0	10	42	0	42	0	0	0	57	37	1	38	196	13	209	5	0	5	1	0	1	253	477	41	518
16:15	-	17:15	3	0	3	11	0	11	32	0	32	0	0	0	46	33	1	34	195	11	206	4	0	4	1	0	1	245	459	32	491
16:30	-	17:30	1	0	1	9	0	9	30	0	30	0	0	0	40	41	1	42	179	9	188	3	0	3	1	0	1	234	440	23	463
16:45	-	17:45	1	0	1	11	0	11	24	0	24	0	0	0	36	44	0	44	162	7	169	3	0	3	1	0	1	217	419	18	437
17:00	-	18:00	0	0	0	12	0	12	22	0	22	0	0	0	34	40	0	40	151	6	157	1	0	1	0	0	0	198	389	19	408
Pe	riod F	Ind																													

All	Vehio	les						SC	OUTHEA	ST											SC	UTHWE	ST								
Time	e Per	Hour						Au	muna R	oad											My	oora Ro	ad								
																				I			R			U			TO	TAL	
			LIGHT	$\begin{array}{c c c c c c c c c c c c c c c c c c c $													HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
16:00	-	17:00	27	6	33	14	0	14	37	4	41	0	0	0	88	22	0	22	55	14	69	26	3	29	0	0	0	120	477	41	518
16:15	-	17:15	26	4	30	14	0	14	35	3	38	0	0	0	82	24	0	24	52	12	64	29	1	30	0	0	0	118	459	32	491
16:30	-	17:30	24	4	28	13	0	13	36	1	37	0	0	0	78	21	0	21	58	7	65	24	1	25	0	0	0	111	440	23	463
16:45	-	17:45	25	3	28	14	0	14	37	0	37	0	0	0	79	22	0	22	54	8	62	21	0	21	0	0	0	105	419	18	437
17:00	-	18:00	28	1	29	14	0	14	35	0	35	0	0	0	78	19	0	19	46	12	58	21	0	21	0	0	0	98	389	19	408
Pe	riod E	Ind																													







Location	Monavale Road	Duration		-	
	Kamber Road			-	
	Monavale Road		16:00	-	18:00
	Aumuna Road	Date	Frida	y, 5 April 20	024
Suburb	TERRY HILLS	Weather		RAIN	

All	Vehio	cles						NO	RTHEA	ST												EAST									
Time	Per 1	5 Mins						Mon	avale R	Road											Ka	amber R	oad								
				L			I			<u>R</u>			<u>U</u>				L			I			<u>R</u>			<u>U</u>			<u>T0</u>	TAL	
			LIGHT HEAVY Σ LIGHT HEAVY LIGHT HEAVY Σ L											LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL		
16:00	-	16:15	0	0	0	234	10	244	4	2	6	0	0	0	250	2	0	2	0	0	0	2	0	2	0	0	0	4	656	29	685
16:15	-	16:30	2	0	2	267	11	278	6	0	6	0	0	0	286	2	0	2	0	0	0	0	0	0	0	0	0	2	656	22	678
16:30	-	16:45	4	0	4	266	7	273	8	2	10	1	0	1	288	0	0	0	0	0	0	2	0	2	0	0	0	2	672	19	691
16:45	-	17:00	1	0	1	282	12	294	4	2	6	0	0	0	301	2	0	2	0	0	0	1	0	1	0	0	0	3	694	22	716
17:00	-	17:15	0	0	0	315	14	329	1	0	1	0	0	0	330	2	0	2	0	0	0	1	0	1	0	0	0	3	761	23	784
17:15	-	17:30	0	0	0	316	3	319	2	0	2	1	0	1	322	0	0	0	0	0	0	0	0	0	0	0	0	0	730	7	737
17:30	-	17:45	0	0	0	253	8	261	3	1	4	0	0	0	265	1	0	1	0	0	0	0	0	0	0	0	0	1	648	11	659
17:45	-	18:00	0	0	0	207	4	211	3	0	3	0	0	0	214	0	0	0	1	0	1	0	0	0	0	0	0	1	596	9	605
Pe	riod E	End	7	0	7	2140	69	2209	31	7	38	2	0	2		9	0	9	1	0	1	6	0	6	0	0	0	16	5413	142	5555

All	Vehi	cles						SO	UTHWE	EST												WEST									
Time	Per 1	5 Mins						Mon	avale R	Road											Au	muna R	oad								
																L			I			R			U			TO	TAL		
			$\begin{array}{c c c c c c c c c c c c c c c c c c c $											LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL		
16:00	-	16:15	30	1	31	353	13	366	2	0	2	8	0	8	407	14	2	16	0	0	0	7	1	8	0	0	0	24	656	29	685
16:15	-	16:30	17	2	19	334	9	343	3	0	3	4	0	4	369	12	0	12	0	0	0	9	0	9	0	0	0	21	656	22	678
16:30	-	16:45	17	1	18	342	7	349	3	0	3	8	0	8	378	12	1	13	0	0	0	9	1	10	0	0	0	23	672	19	691
16:45	-	17:00	21	0	21	358	7	365	0	0	0	5	0	5	391	11	0	11	0	0	0	9	1	10	0	0	0	21	694	22	716
17:00	-	17:15	18	2	20	390	7	397	1	0	1	13	0	13	431	11	0	11	0	0	0	9	0	9	0	0	0	20	761	23	784
17:15	-	17:30	21	0	21	359	2	361	1	0	1	9	0	9	392	10	2	12	0	0	0	11	0	11	0	0	0	23	730	7	737
17:30	-	17:45	15	1	16	354	1	355	2	0	2	5	0	5	378	6	0	6	0	0	0	9	0	9	0	0	0	15	648	11	659
17:45	-	18:00	25	0	25	335	5	340	0	0	0	3	0	3	368	14	0	14	0	0	0	8	0	8	0	0	0	22	596	9	605
Pe	riod E	End	164	7	171	2825	51	2876	12	0	12	55	0	55	3114	90	5	95	0	0	0	71	3	74	0	0	0	169	5413	142	5555



Location	Monavale Road	Duration		-	
	Kamber Road			-	
	Monavale Road		16:00	-	18:00
	Aumuna Road	Date	Friday	r, 5 April 2024	
Suburb	TERRY HILLS	Weather		RAIN	

All	Vehio	cles						NC	RTHEA	ST												EAST									
Time	e Per	Hour						Mon	avale R	load											Ka	mber R	oad								
			L I R U														L			I			R			U			TO	[AL	
			$\begin{array}{ c c c c c c c c c c c c c c c c c c c$												TOTAL	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
16:00	-	17:00	7	0	7	1049	40	1089	22	6	28	1	0	1	1125	6	0	6	0	0	0	5	0	5	0	0	0	11	2678	92	2770
16:15	-	17:15	7	0	7	1130	44	1174	19	4	23	1	0	1	1205	6	0	6	0	0	0	4	0	4	0	0	0	10	2783	86	2869
16:30	-	17:30	5	0	5	1179	36	1215	15	4	19	2	0	2	1241	4	0	4	0	0	0	4	0	4	0	0	0	8	2857	71	2928
16:45	-	17:45	1	0	1	1166	37	1203	10	3	13	1	0	1	1218	5	0	5	0	0	0	2	0	2	0	0	0	7	2833	63	2896
17:00	-	18:00	0	0	0	1091	29	1120	9	1	10	1	0	1	1131	3	0	3	1	0	1	1	0	1	0	0	0	5	2735	50	2785
Pe	riod E	End																													

All	Vehic	cles						SO	UTHWE	EST												WEST									
Time	e Per	Hour						Mon	avale F	Road											Au	muna R	oad								
				L			Ι			<u>R</u>			U				L			I			R			U			<u>T0</u>	<u>FAL</u>	
			LIGHT	ight heavy Σ light heavy Σ														Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
16:00	-	17:00	85	4	89	1387	36	1423	8	0	8	25	0	25	1545	49	3	52	0	0	0	34	3	37	0	0	0	89	2678	92	2770
16:15	-	17:15	73	5	78	1424	30	1454	7	0	7	30	0	30	1569	46	1	47	0	0	0	36	2	38	0	0	0	85	2783	86	2869
16:30	-	17:30	77	3	80	1449	23	1472	5	0	5	35	0	35	1592	44	3	47	0	0	0	38	2	40	0	0	0	87	2857	71	2928
16:45	-	17:45	75	3	78	1461	17	1478	4	0	4	32	0	32	1592	38	2	40	0	0	0	38	1	39	0	0	0	79	2833	63	2896
17:00	-	18:00	79	3	82	1438	15	1453	4	0	4	30	0	30	1569	41	2	43	0	0	0	37	0	37	0	0	0	80	2735	50	2785
Pe	riod E	Ind																													







Location	Aumuna Road	Duration	10:00	-	14:00	
	Myoora Road			-		
	Aumuna Road			-		
	Myoora Road	Date	Saturda	y, 6 April	2024	
Suburb	TERRY HILLS	Weather		RAIN		

All	Vehi	cles						N	ORTHWE	ST											N	ORTHEA	ST								
Time	Per 1	5 Mins						Au	ımuna R	oad											M	oora Ro	oad								
				L			Ι			<u>R</u>			U				Ŀ			Ţ			R			U			TO	TAL	
			LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
10:00	-	10:15	1	0	1	3	0	3	11	1	12	0	0	0	16	12	0	12	56	1	57	0	0	0	0	0	0	69	128	6	134
10:15	-	10:30	0	0	0	5	0	5	9	0	9	0	0	0	14	9	0	9	55	3	58	1	0	1	0	0	0	68	126	5	131
10:30	-	10:45	0	0	0	4	0	4	5	0	5	0	0	0	9	15	0	15	57	2	59	3	0	3	1	0	1	78	127	5	132
10:45	-	11:00	0	0	0	3	0	3	9	0	9	0	0	0	12	11	1	12	51	2	53	0	0	0	3	0	3	68	136	4	140
11:00	-	11:15	3	0	3	0	0	0	15	0	15	0	0	0	18	16	0	16	71	2	73	2	0	2	1	0	1	92	152	5	157
11:15	-	11:30	0	0	0	3	0	3	5	0	5	0	0	0	8	11	0	11	46	1	47	1	0	1	0	0	0	59	100	3	103
11:30	-	11:45	1	0	1	7	0	7	10	0	10	0	0	0	18	9	1	10	66	0	66	1	0	1	0	0	0	77	134	9	143
11:45	-	12:00	2	0	2	4	0	4	4	0	4	0	0	0	10	12	0	12	48	1	49	1	0	1	0	0	0	62	116	4	120
12:00	-	12:15	0	0	0	3	0	3	10	0	10	1	0	1	14	16	0	16	67	1	68	2	0	2	1	0	1	87	139	3	142
12:15	-	12:30	0	0	0	5	0	5	13	0	13	0	0	0	18	9	0	9	43	3	46	0	0	0	0	0	0	55	110	6	116
12:30	-	12:45	0	0	0	3	0	3	4	0	4	0	0	0	7	14	0	14	62	0	62	0	0	0	1	0	1	77	126	5	131
12:45	-	13:00	0	0	0	6	0	6	6	1	7	0	0	0	13	7	0	7	52	2	54	1	0	1	1	0	1	63	119	4	123
Pe	riod	End	7	0	7	46	0	46	101	2	103	1	0	1	157	141	2	143	674	18	692	12	0	12	8	0	8	855	1513	59	1572

All	Vehi	cles						SC	DUTHEA	ST											SO	UTHW	ST								
Time	Per 1	5 Mins						Au	muna R	oad											My	oora R	oad								
				L			I			R			U				L			I			R			U			<u>T0</u>	<u>FAL</u>	
			LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
10:00	-	10:15	7	0	7	3	0	3	10	0	10	1	0	1	21	5	0	5	17	2	19	2	2	4	0	0	0	28	128	6	134
10:15	-	10:30	7	1	8	2	0	2	12	0	12	0	0	0	22	1	0	1	24	0	24	1	1	2	0	0	0	27	126	5	131
10:30	-	10:45	8	1	9	4	0	4	6	0	6	0	0	0	19	7	0	7	17	2	19	0	0	0	0	0	0	26	127	5	132
10:45	-	11:00	7	1	8	2	0	2	16	0	16	0	0	0	26	9	0	9	24	0	24	1	0	1	0	0	0	34	136	4	140
11:00	-	11:15	10	2	12	5	0	5	8	0	8	0	0	0	25	4	0	4	14	1	15	3	0	3	0	0	0	22	152	5	157
11:15	-	11:30	8	1	9	2	0	2	3	0	3	1	0	1	15	6	0	6	10	0	10	4	0	4	0	1	1	21	100	3	103
11:30	-	11:45	10	1	11	1	0	1	4	0	4	0	0	0	16	7	0	7	14	1	15	3	4	7	1	2	3	32	134	9	143
11:45	-	12:00	6	1	7	6	0	6	3	0	3	0	0	0	16	5	0	5	17	2	19	7	0	7	1	0	1	32	116	4	120
12:00	-	12:15	6	1	7	3	0	3	5	0	5	1	0	1	16	8	0	8	12	0	12	4	1	5	0	0	0	25	139	3	142
12:15	-	12:30	6	2	8	3	0	3	8	0	8	0	0	0	19	3	0	3	16	1	17	3	0	3	1	0	1	24	110	6	116
12:30	-	12:45	10	3	13	1	0	1	6	0	6	2	0	2	22	3	1	4	16	1	17	4	0	4	0	0	0	25	126	5	131
12:45	-	13:00	12	0	12	1	0	1	14	0	14	0	0	0	27	3	0	3	14	1	15	2	0	2	0	0	0	20	119	4	123
Pe	riod	End	97	14	111	33	0	33	95	0	95	5	0	5	244	61	1	62	195	11	206	34	8	42	3	3	6	316	1513	59	1572



Location	Aumuna Road	Duration	10:00	-	14:00
	Myoora Road			-	
	Aumuna Road			-	
	Myoora Road	Date	Saturda	ıy, 6 Apri	l 2024
Suburb	TERRY HILLS	Weather		RAIN	

Al	Vehi	cles						N	ORTHWE	ST											N	ORTHEA	AST								
Tim	e Per	Hour						Au	muna R	oad											M	oora R	oad								
				L			Ţ			<u>R</u>			U				L			Ţ			R			U			<u>T0</u>	TAL_	
			LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
10:00	-	11:00	1	1 0 1 15 0 15 34 1 35 0 0 0 51													1	48	219	8	227	4	0	4	4	0	4	283	517	20	537
10:15	-	11:15	3	0 1 15 0 15 34 1 35 0 0 0 51 0 3 12 0 12 38 0 38 0 0 0 53													1	52	234	9	243	6	0	6	5	0	5	306	541	19	560
10:30	-	11:30	3	0	3	10	0	10	34	0	34	0	0	0	47	53	1	54	225	7	232	6	0	6	5	0	5	297	515	17	532
10:45	-	11:45	4	0	4	13	0	13	39	0	39	0	0	0	56	47	2	49	234	5	239	4	0	4	4	0	4	296	522	21	543
11:00	-	12:00	6	0	6	14	0	14	34	0	34	0	0	0	54	48	1	49	231	4	235	5	0	5	1	0	1	290	502	21	523
11:15	-	12:15	3	0	3	17	0	17	29	0	29	1	0	1	50	48	1	49	227	3	230	5	0	5	1	0	1	285	489	19	508
11:30	-	12:30	3	0	3	19	0	19	37	0	37	1	0	1	60	46	1	47	224	5	229	4	0	4	1	0	1	281	499	22	521
11:45	-	12:45	2	0	2	15	0	15	31	0	31	1	0	1	49	51	0	51	220	5	225	3	0	3	2	0	2	281	491	18	509
12:00	-	13:00	0	0	0	17	0	17	33	1	34	1	0	1	52	46	0	46	224	6	230	3	0	3	3	0	3	282	494	18	512
12:15	-	13:15	0	0	0	14	0	14	23	1	24	0	0	0	38	30	0	30	157	5	162	1	0	1	2	0	2	195	355	15	370
12:30	-	13:30	0	0	0	9	0	9	10	1	11	0	0	0	20	21	0	21	114	2	116	1	0	1	2	0	2	140	245	9	254
12:45	-	13:45	0	0	0	6	0	6	6	1	7	0	0	0	13	7	0	7	52	2	54	1	0	1	1	0	1	63	119	4	123
13:00	-	14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pe	riod	End																													

All	Vehi	cles						SC	DUTHEA	ST											SC	UTHWE	ST								
Time	e Per	Hour						Au	muna R	oad											Му	oora Ro	oad								
				L			I			<u>R</u>			<u>U</u>				L			I			<u>R</u>			<u>U</u>			<u>T0</u>	TAL	
			LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	LIGHT	HEAVY	Σ	TOTAL	LIGHT	HEAVY	TOTAL
10:00	-	11:00	29	3	32	11	0	11	44	0	44	1	0	1	88	22	0	22	82	4	86	4	3	7	0	0	0	115	517	20	537
10:15	-	11:15	32	5	37	13	0	13	42	0	42	0	0	0	92	21	0	21	79	3	82	5	1	6	0	0	0	109	541	19	560
10:30	-	11:30	33	5	38	13	0	13	33	0	33	1	0	1	85	26	0	26	65	3	68	8	0	8	0	1	1	103	515	17	532
10:45	-	11:45	35	5	40	10	0	10	31	0	31	1	0	1	82	26	0	26	62	2	64	11	4	15	1	3	4	109	522	21	543
11:00	-	12:00	34	5	39	14	0	14	18	0	18	1	0	1	72	22	0	22	55	4	59	17	4	21	2	3	5	107	502	21	523
11:15	-	12:15	30	4	34	12	0	12	15	0	15	2	0	2	63	26	0	26	53	3	56	18	5	23	2	3	5	110	489	19	508
11:30	-	12:30	28	5	33	13	0	13	20	0	20	1	0	1	67	23	0	23	59	4	63	17	5	22	3	2	5	113	499	22	521
11:45	-	12:45	28	7	35	13	0	13	22	0	22	3	0	3	73	19	1	20	61	4	65	18	1	19	2	0	2	106	491	18	509
12:00	-	13:00	34	6	40	8	0	8	33	0	33	3	0	3	84	17	1	18	58	3	61	13	1	14	1	0	1	94	494	18	512
12:15	-	13:15	28	5	33	5	0	5	28	0	28	2	0	2	68	9	1	10	46	3	49	9	0	9	1	0	1	69	355	15	370
12:30	-	13:30	22	3	25	2	0	2	20	0	20	2	0	2	49	6	1	7	30	2	32	6	0	6	0	0	0	45	245	9	254
12:45	-	13:45	12	0	12	1	0	1	14	0	14	0	0	0	27	3	0	3	14	1	15	2	0	2	0	0	0	20	119	4	123
13:00	-	14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pe	riod	End													-																







SIDRA Modelling Results

SITE LAYOUT

₩ Site: 103 [Aumuna / Myoora PM Peak - Existing (Site Folder: Existing)]

New Site Site Category: Existing Design Roundabout

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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W Site: 103 [Aumuna / Myoora PM Peak - Existing (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site Site Category: Existing Design Roundabout

Vehicle Movem	nent Perf	ormance													
Mov	Turn	Mov	Dema	and Flows	Arriv	al Flows	Deg.	Aver.	Level of	95	% Back Of Queue	Prop.	Eff.	Aver.	Aver.
םו		Class	[lotal	HVJ	[Iotal	HVJ	Sath	Delay	Service	Į ven.	Dist j	Que	Stop Rate	No. of Cvcles	Speed
			veh/h	%	veh/h	%	v/c	sec		veh	m			.,	km/h
South: Myoora R	d														
1	L2	All MCs	25	0.0	25	0.0	0.103	3.9	LOS A	0.5	4.2	0.21	0.48	0.21	45.6
2	T1	All MCs	67	18.8	67	18.8	0.103	4.1	LOS A	0.5	4.2	0.21	0.48	0.21	45.8
3	R2	All MCs	32	3.3	32	3.3	0.103	7.2	LOS A	0.5	4.2	0.21	0.48	0.21	45.4
Approach			124	11.0	124	11.0	0.103	4.8	LOS A	0.5	4.2	0.21	0.48	0.21	45.6
East: Aumuna Ro	ł														
4	L2	All MCs	32	13.3	32	13.3	0.088	5.3	LOS A	0.4	3.3	0.43	0.59	0.43	44.7
5	T1	All MCs	15	0.0	15	0.0	0.088	5.0	LOS A	0.4	3.3	0.43	0.59	0.43	45.1
6	R2	All MCs	40	7.9	40	7.9	0.088	8.4	LOS A	0.4	3.3	0.43	0.59	0.43	44.5
Approach			86	8.5	86	8.5	0.088	6.7	LOS A	0.4	3.3	0.43	0.59	0.43	44.7
North: Myoora Ro	b														
7	L2	All MCs	36	2.9	36	2.9	0.204	4.1	LOS A	1.1	8.3	0.25	0.42	0.25	45.9
8	T1	All MCs	217	5.3	217	5.3	0.204	4.1	LOS A	1.1	8.3	0.25	0.42	0.25	46.2
9	R2	All MCs	4	0.0	4	0.0	0.204	7.3	LOS A	1.1	8.3	0.25	0.42	0.25	45.7
9u	U	All MCs	1	0.0	1	0.0	0.204	8.8	LOS A	1.1	8.3	0.25	0.42	0.25	45.7
Approach			258	4.9	258	4.9	0.204	4.1	LOS A	1.1	8.3	0.25	0.42	0.25	46.1
West: Aumuna R	d														
10	L2	All MCs	3	0.0	3	0.0	0.042	4.3	LOS A	0.2	1.4	0.30	0.57	0.30	44.8
11	T1	All MCs	12	0.0	12	0.0	0.042	4.3	LOS A	0.2	1.4	0.30	0.57	0.30	45.0
12	R2	All MCs	34	0.0	34	0.0	0.042	7.6	LOS A	0.2	1.4	0.30	0.57	0.30	44.5
Approach			48	0.0	48	0.0	0.042	6.6	LOS A	0.2	1.4	0.30	0.57	0.30	44.7
All Vehicles			517	6.5	517	6.5	0.204	5.0	LOS A	1.1	8.3	0.27	0.48	0.27	45.6

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.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout 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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W Site: 103 [Aumuna / Myoora SAT Peak - Existing (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site Site Category: Existing Design Roundabout

Vehicle Moven	nent Perf	ormance													
Mov	Turn	Mov	Dema	nd Flows	Arriv	al Flows	Deg.	Aver.	Level of	95	% Back Of Queue	Prop.	Eff.	Aver.	Aver.
D		Class	[Iotal	HVJ	[Iotai	HVJ	Sath	Delay	Service	[ven.	Dist j	Que	Stop Rate	NO. Of Cvcles	Speed
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Myoora R	d														
1	L2	All MCs	19	5.6	19	5.6	0.078	3.9	LOS A	0.4	3.0	0.18	0.45	0.18	45.9
2	T1	All MCs	64	4.9	64	4.9	0.078	3.9	LOS A	0.4	3.0	0.18	0.45	0.18	46.2
3	R2	All MCs	15	7.1	15	7.1	0.078	7.2	LOS A	0.4	3.0	0.18	0.45	0.18	45.6
Approach			98	5.4	98	5.4	0.078	4.4	LOS A	0.4	3.0	0.18	0.45	0.18	46.0
East: Aumuna Ro	d														
4	L2	All MCs	42	15.0	42	15.0	0.088	5.5	LOS A	0.4	3.3	0.45	0.59	0.45	44.7
5	T1	All MCs	8	0.0	8	0.0	0.088	5.1	LOS A	0.4	3.3	0.45	0.59	0.45	45.1
6	R2	All MCs	35	0.0	35	0.0	0.088	8.4	LOS A	0.4	3.3	0.45	0.59	0.45	44.6
Approach			85	7.4	85	7.4	0.088	6.6	LOS A	0.4	3.3	0.45	0.59	0.45	44.7
North: Myoora R	d														
7	L2	All MCs	48	0.0	48	0.0	0.226	4.0	LOS A	1.3	9.3	0.24	0.42	0.24	46.0
8	T1	All MCs	242	2.6	242	2.6	0.226	4.0	LOS A	1.3	9.3	0.24	0.42	0.24	46.2
9	R2	All MCs	3	0.0	3	0.0	0.226	7.2	LOS A	1.3	9.3	0.24	0.42	0.24	45.7
9u	U	All MCs	3	0.0	3	0.0	0.226	8.7	LOS A	1.3	9.3	0.24	0.42	0.24	45.7
Approach			297	2.1	297	2.1	0.226	4.1	LOS A	1.3	9.3	0.24	0.42	0.24	46.2
West: Aumuna R	d														
10	L2	All MCs	1	0.0	1	0.0	0.047	4.2	LOS A	0.2	1.6	0.27	0.55	0.27	44.9
11	T1	All MCs	18	0.0	18	0.0	0.047	4.2	LOS A	0.2	1.6	0.27	0.55	0.27	45.2
12	R2	All MCs	36	2.9	36	2.9	0.047	7.5	LOS A	0.2	1.6	0.27	0.55	0.27	44.6
Approach			55	1.9	55	1.9	0.047	6.3	LOS A	0.2	1.6	0.27	0.55	0.27	44.8
All Vehicles			535	3.5	535	3.5	0.226	4.8	LOS A	1.3	9.3	0.26	0.47	0.26	45.8

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.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout 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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W Site: 103 [Aumuna / Myoora PM Peak (Site Folder: Post development)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site Site Category: Existing Design Roundabout

Vehicle Mover	nent Perf	ormance													
Mov	Turn	Mov	Demar	nd Flows	Arriv	al Flows	Deg.	Aver.	Level of	95	% Back Of Queue	Prop.	Eff.	Aver.	Aver.
D		Class	[lotal	HV J	[Iotal	HV J	Satn	Delay	Service	[Veh.	Dist J	Que	Stop Rate	No. of Cycles	Speed
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Myoora F	٦d														
1	L2	All MCs	25	0.0	25	0.0	0.117	4.0	LOS A	0.6	4.8	0.24	0.47	0.24	45.6
2	T1	All MCs	82	15.4	82	15.4	0.117	4.1	LOS A	0.6	4.8	0.24	0.47	0.24	45.8
3	R2	All MCs	32	3.3	32	3.3	0.117	7.3	LOS A	0.6	4.8	0.24	0.47	0.24	45.3
Approach			139	9.8	139	9.8	0.117	4.8	LOS A	0.6	4.8	0.24	0.47	0.24	45.6
East: Aumuna R	d														
4	L2	All MCs	32	13.3	32	13.3	0.101	5.4	LOS A	0.5	3.8	0.44	0.60	0.44	44.6
5	T1	All MCs	15	0.0	15	0.0	0.101	5.1	LOS A	0.5	3.8	0.44	0.60	0.44	45.0
6	R2	All MCs	53	6.0	53	6.0	0.101	8.5	LOS A	0.5	3.8	0.44	0.60	0.44	44.4
Approach			99	7.4	99	7.4	0.101	7.0	LOS A	0.5	3.8	0.44	0.60	0.44	44.5
North: Myoora F	Rd														
7	L2	All MCs	48	2.2	48	2.2	0.224	4.1	LOS A	1.3	9.3	0.25	0.43	0.25	45.9
8	T1	All MCs	232	5.0	232	5.0	0.224	4.1	LOS A	1.3	9.3	0.25	0.43	0.25	46.2
9	R2	All MCs	4	0.0	4	0.0	0.224	7.3	LOS A	1.3	9.3	0.25	0.43	0.25	45.7
9u	U	All MCs	1	0.0	1	0.0	0.224	8.8	LOS A	1.3	9.3	0.25	0.43	0.25	45.7
Approach			285	4.4	285	4.4	0.224	4.1	LOS A	1.3	9.3	0.25	0.43	0.25	46.1
West: Aumuna F	۶d														
10	L2	All MCs	3	0.0	3	0.0	0.043	4.5	LOS A	0.2	1.5	0.33	0.57	0.33	44.7
11	T1	All MCs	12	0.0	12	0.0	0.043	4.5	LOS A	0.2	1.5	0.33	0.57	0.33	45.0
12	R2	All MCs	34	0.0	34	0.0	0.043	7.7	LOS A	0.2	1.5	0.33	0.57	0.33	44.5
Approach			48	0.0	48	0.0	0.043	6.7	LOS A	0.2	1.5	0.33	0.57	0.33	44.6
All Vehicles			572	5.9	572	5.9	0.224	5.0	LOS A	1.3	9.3	0.29	0.48	0.29	45.6

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.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout 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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W Site: 103 [Aumuna / Myoora SAT Peak (Site Folder: Post development)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site Site Category: Existing Design Roundabout

Vehicle Moven	nent Perf	ormance													
Mov	Turn	Mov	Dem	and Flows	Arriv	al Flows	Deg.	Aver.	Level of	95	% Back Of Queue	Prop.	Eff.	Aver.	Aver.
U		Class	[Iotai	HVJ	[Iotal	HVJ	Sath	Delay	Service	[ven.	Dist j	Que	Stop Rate	NO. OF Cycles	Speed
			veh/h	%	veh/h	%	v/c	sec		veh	m			, 	km/h
South: Myoora F	Rd														
1	L2	All MCs	19	5.6	19	5.6	0.091	4.0	LOS A	0.5	3.5	0.21	0.45	0.21	45.8
2	T1	All MCs	79	4.0	79	4.0	0.091	3.9	LOS A	0.5	3.5	0.21	0.45	0.21	46.1
3	R2	All MCs	15	7.1	15	7.1	0.091	7.3	LOS A	0.5	3.5	0.21	0.45	0.21	45.5
Approach			113	4.7	113	4.7	0.091	4.4	LOS A	0.5	3.5	0.21	0.45	0.21	46.0
East: Aumuna R	d														
4	L2	All MCs	42	15.0	42	15.0	0.102	5.6	LOS A	0.5	3.8	0.46	0.61	0.46	44.5
5	T1	All MCs	8	0.0	8	0.0	0.102	5.2	LOS A	0.5	3.8	0.46	0.61	0.46	45.0
6	R2	All MCs	47	0.0	47	0.0	0.102	8.5	LOS A	0.5	3.8	0.46	0.61	0.46	44.5
Approach			98	6.5	98	6.5	0.102	7.0	LOS A	0.5	3.8	0.46	0.61	0.46	44.5
North: Myoora R	d														
7	L2	All MCs	61	0.0	61	0.0	0.246	4.0	LOS A	1.5	10.4	0.24	0.42	0.24	46.0
8	T1	All MCs	257	2.5	257	2.5	0.246	4.0	LOS A	1.5	10.4	0.24	0.42	0.24	46.2
9	R2	All MCs	3	0.0	3	0.0	0.246	7.2	LOS A	1.5	10.4	0.24	0.42	0.24	45.7
9u	U	All MCs	3	0.0	3	0.0	0.246	8.8	LOS A	1.5	10.4	0.24	0.42	0.24	45.7
Approach			324	1.9	324	1.9	0.246	4.1	LOS A	1.5	10.4	0.24	0.42	0.24	46.2
West: Aumuna R	٨d														
10	L2	All MCs	1	0.0	1	0.0	0.048	4.3	LOS A	0.2	1.6	0.30	0.56	0.30	44.8
11	T1	All MCs	18	0.0	18	0.0	0.048	4.3	LOS A	0.2	1.6	0.30	0.56	0.30	45.1
12	R2	All MCs	36	2.9	36	2.9	0.048	7.6	LOS A	0.2	1.6	0.30	0.56	0.30	44.6
Approach			55	1.9	55	1.9	0.048	6.5	LOS A	0.2	1.6	0.30	0.56	0.30	44.7
All Vehicles			589	3.2	589	3.2	0.246	4.8	LOS A	1.5	10.4	0.28	0.47	0.28	45.7

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.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

Roundabout 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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NETWORK LAYOUT

■ Network: N103 [Mona Vale Road PM (Network Folder: Existing)]

New Network Network Category: (None)

Layout pictures are schematic functional drawings reflecting input data. They are not design drawings.



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V Site: 101 [Mona Vale / Aumuna South Approach PM Peak - Existing (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site Site Category: Existing Design Give-Way (Two-Way)

Vehicle Moven	nent Perf	ormance														
Mov ID	Turn	Mov Class		Demand Total	Flows HV]	Arriva [Total	l Flows HV]	Deg. Satn	Aver. Delay	Level of Service	95' [Veh.	% Back Of Queue Dist]	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			V	eh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Mona Val	e Road (so	outh)														
1	L2	All MCs		82	6.4	82	6.4	0.046	7.1	LOS A	0.0	0.0	0.00	0.63	0.00	67.3
2	T1	All MCs		1531	2.1	1531	2.1	0.398	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	79.7
3	R2	All MCs		7	0.0	7	0.0	0.004	8.1	LOS A	0.0	0.0	0.00	0.78	0.00	67.8
Approach				1620	2.3	1620	2.3	0.398	0.6	NA	0.0	0.0	0.00	0.04	0.00	79.1
East: Waiting ba	y															
5	T1	All MCs		6	0.0	6	0.0	0.069	20.2	LOS B	0.2	1.5	0.90	0.90	0.90	26.5
6	R2	All MCs		4	0.0	4	0.0	0.069	28.2	LOS B	0.2	1.5	0.90	0.90	0.90	45.2
Approach				11	0.0	11	0.0	0.069	23.4	LOS B	0.2	1.5	0.90	0.90	0.90	34.6
West: Aumuna R	load															
10	L2	All MCs		49	2.1	49	2.1	0.038	5.0	LOS A	0.0	0.0	0.00	0.53	0.00	60.0
11	T1	All MCs		40	5.3	40	5.3	0.263	35.8	LOS C	0.8	5.9	0.92	1.01	1.02	25.5
Approach				89	3.5	89	3.5	0.263	18.8	LOS B	0.8	5.9	0.41	0.74	0.45	46.4
All Vehicles				1720	2.3	1720	2.3	0.398	1.7	NA	0.8	5.9	0.03	0.08	0.03	77.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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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■ Network: N103 [Mona Vale Road PM (Network Folder: Existing)]

V Site: 102 [Mona Vale / Kamber North Approach PM Peak - Existing (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site Site Category: Existing Design Give-Way (Two-Way)

Vehicle Move	ment Per	formance													
Mov ID	Turn	Mov Class	Demano [Total	d Flows HV]	Arriva [Total	al Flows HV]	Deg. Satn	Aver. Delay	Level of Service	95' [Veh.	% Back Of Queue Dist]	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Kamber R	oad														
4	L2	All MCs	6	0.0	6	0.0	0.005	4.7	LOS A	0.0	0.0	0.00	0.53	0.00	60.2
5	T1	All MCs	4	0.0	4	0.0	0.016	21.3	LOS B	0.1	0.4	0.82	0.93	0.82	31.8
Approach			11	0.0	11	0.0	0.016	11.3	LOS A	0.1	0.4	0.33	0.69	0.33	51.7
North: Mona Val	le Road (N	lorth)													
7	L2	All MCs	7	0.0	7	0.0	0.004	6.9	LOS A	0.0	0.0	0.00	0.63	0.00	69.0
8	T1	All MCs	1236	3.7	1236	3.7	0.325	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
9	R2	All MCs	24	17.4	24	17.4	0.015	8.6	LOS A	0.0	0.0	0.00	0.78	0.00	67.8
Approach			1267	4.0	1267	4.0	0.325	0.3	NA	0.0	0.0	0.00	0.02	0.00	79.6
West: Waiting B	ay														
11	T1	All MCs	1	0.0	1	0.0	0.228	14.6	LOS B	0.7	5.2	0.87	0.95	0.95	27.6
12	R2	All MCs	40	5.3	40	5.3	0.228	21.7	LOS B	0.7	5.2	0.87	0.95	0.95	46.3
Approach			41	5.1	41	5.1	0.228	21.5	LOS B	0.7	5.2	0.87	0.95	0.95	45.9
All Vehicles			1319	4.0	1319	4.0	0.325	1.1	NA	0.7	5.2	0.03	0.05	0.03	78.5

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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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■ Network: N103 [Mona Vale Road PM (Network Folder: Existing)]

V Site: 101 [Mona Vale / Aumuna South Approach SAT Peak - Existing (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site Site Category: Existing Design Give-Way (Two-Way)

Vehicle Mover	nent Perf	ormance														
Mov ID	Turn	Mov Class	De [Tot	mand al	Flows HV]	Arriva [Total	ll Flows HV]	Deg. Satn	Aver. Delay	Level of Service	95º [Veh.	% Back Of Queue Dist]	Prop. Que	Eff. Stop Rate	Aver. No. of	Aver. Speed
			veh	h	%	veh/h	%	v/c	sec		veh	m			Cycles	km/h
South: Mona Va	le Road (so	outh)														
1	L2	All MCs	5	4	2.0	54	2.0	0.029	7.0	LOS A	0.0	0.0	0.00	0.63	0.00	68.5
2	T1	All MCs	187	6	1.5	1876	1.5	0.486	0.3	LOS A	0.0	0.0	0.00	0.00	0.00	79.5
3	R2	All MCs		5	0.0	5	0.0	0.003	8.1	LOS A	0.0	0.0	0.00	0.78	0.00	67.8
Approach			193	5	1.5	1935	1.5	0.486	0.5	NA	0.0	0.0	0.00	0.02	0.00	79.3
East: Waiting ba	ıy															
5	T1	All MCs		1	0.0	1	0.0	0.142	35.6	LOS C	0.2	2.2	0.98	0.99	0.99	9.8
6	R2	All MCs		2	50.0	2	50.0	0.142	200.1	LOS F	0.2	2.2	0.98	0.99	0.99	17.4
Approach				3	33.3	3	33.3	0.142	145.2	LOS F	0.2	2.2	0.98	0.99	0.99	15.0
West: Aumuna F	Road															
10	L2	All MCs	4	0	7.9	40	7.9	0.031	5.5	LOS A	0.0	0.0	0.00	0.53	0.00	59.5
11	T1	All MCs	4	8	0.0	48	0.0	0.431	52.5	LOS D	1.4	10.1	0.96	1.04	1.16	20.7
Approach			8	8	3.6	88	3.6	0.431	31.3	LOS C	1.4	10.1	0.53	0.81	0.63	38.5
All Vehicles			202	6	1.7	2026	1.7	0.486	2.0	NA	1.4	10.1	0.02	0.06	0.03	77.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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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■ Network: N101 [Mona Vale Road SAT (Network Folder: Existing)]

V Site: 102 [Mona Vale / Kamber North Approach SAT Peak - Existing (Site Folder: Existing)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: Existing Design Give-Way (Two-Way)

Vehicle Move	ment Perf	ormance													
Mov ID	Turn	Mov Class	Demano [Total	l Flows HV]	Arriva [Total	al Flows HV]	Deg. Satn	Aver. Delay	Level of Service	95° [Veh.	% Back Of Queue Dist]	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
Faatu Karabar D	aad	_	veh/h	%	veh/h	%	v/c	Sec	_	veh	m	_	_	_	km/h
East: Kamper R	0a0														
4	L2	All MCs	7	0.0	7	0.0	0.006	4.8	LOS A	0.0	0.0	0.00	0.53	0.00	60.2
5	T1	All MCs	2	50.0	2	50.0	0.031	60.2	LOS E	0.1	0.7	0.93	0.98	0.93	19.2
Approach			9	11.1	9	11.1	0.031	17.1	LOS B	0.1	0.7	0.21	0.63	0.21	50.6
North: Mona Va	le Road (N	orth)													
7	L2	All MCs	5	20.0	5	20.0	0.003	7.3	LOS A	0.0	0.0	0.00	0.63	0.00	64.2
8	T1	All MCs	1464	1.7	1464	1.7	0.379	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	79.7
9	R2	All MCs	44	14.3	44	14.3	0.026	8.5	LOS A	0.0	0.0	0.00	0.78	0.00	67.8
Approach			1514	2.1	1514	2.1	0.379	0.4	NA	0.0	0.0	0.00	0.03	0.00	79.4
West: Waiting B	ay														
11	T1	All MCs	1	0.0	1	0.0	0.335	23.1	LOS B	1.1	7.9	0.92	1.08	1.08	24.7
12	R2	All MCs	48	0.0	48	0.0	0.335	29.7	LOS C	1.1	7.9	0.92	1.08	1.08	42.5
Approach			49	0.0	49	0.0	0.335	29.5	LOS C	1.1	7.9	0.92	1.08	1.08	42.2
All Vehicles			1573	2.1	1573	2.1	0.379	1.5	NA	1.1	7.9	0.03	0.06	0.04	78.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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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■ Network: N101 [Mona Vale Road SAT (Network Folder: Existing)]

V Site: 101 [Mona Vale / Aumuna South Approach PM Peak (Site Folder: Post development)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: Existing Design

Vehicle Moven	nent Perf	ormance														
Mov ID	Turn	Mov Class	D [To	emand tal	Flows HV]	Arriva [Total	al Flows HV]	Deg. Satn	Aver. Delay	Level of Service	95 [Veh.	5% Back Of Queue Dist]	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			veł	ו/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Mona Val	e Road (s	outh)														
1	L2	All MCs		88	6.0	88	6.0	0.050	7.1	LOS A	0.0	0.0	0.00	0.63	0.00	67.5
2	T1	All MCs	15	31	2.1	1531	2.1	0.398	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	79.7
3	R2	All MCs		7	0.0	7	0.0	0.004	8.1	LOS A	0.0	0.0	0.00	0.78	0.00	67.8
Approach			16	26	2.3	1626	2.3	0.398	0.6	NA	0.0	0.0	0.00	0.04	0.00	79.1
East: Waiting ba	у															
5	T1	All MCs		13	0.0	13	0.0	0.106	20.6	LOS B	0.3	2.3	0.90	0.90	0.90	26.7
6	R2	All MCs		4	0.0	4	0.0	0.106	29.0	LOS C	0.3	2.3	0.90	0.90	0.90	45.4
Approach				17	0.0	17	0.0	0.106	22.7	LOS B	0.3	2.3	0.90	0.90	0.90	31.9
West: Aumuna R	load															
10	L2	All MCs		56	1.9	56	1.9	0.042	5.0	LOS A	0.0	0.0	0.00	0.53	0.00	60.0
11	T1	All MCs		46	4.5	46	4.5	0.301	36.6	LOS C	1.0	7.0	0.92	1.02	1.05	25.2
Approach			1	02	3.1	102	3.1	0.301	19.3	LOS B	1.0	7.0	0.42	0.75	0.48	46.0
All Vehicles			17	45	2.3	1745	2.3	0.398	1.9	NA	1.0	7.0	0.03	0.09	0.04	76.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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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■ Network: N101 [Mona Vale Rd PM (Network Folder: Post development - right turn from Aumuna Rd permitted)]

V Site: 102 [Mona Vale / Kamber North Approach PM Peak (Site Folder: Post development)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: Existing Design

vo-Way)

Vehicle Mover	nent Perf	ormance													
Mov ID	Turn	Mov Class	Dema [Total	nd Flows HV]	Arriva [Total	al Flows HV]	Deg. Satn	Aver. Delay	Level of Service	95 [Veh.	% Back Of Queue Dist]	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
veh/h % veh/h % v/c sec veh m												km/h			
4	L2	All MCs	6	0.0	6	0.0	0.005	4.7	LOS A	0.0	0.0	0.00	0.53	0.00	60.2
5	T1	All MCs	4	0.0	4	0.0	0.016	21.5	LOS B	0.1	0.4	0.82	0.93	0.82	31.7
Approach			11	0.0	11	0.0	0.016	11.4	LOS A	0.1	0.4	0.33	0.69	0.33	51.6
North: Mona Val	e Road (No	orth)													
7	L2	All MCs	7	0.0	7	0.0	0.004	6.9	LOS A	0.0	0.0	0.00	0.63	0.00	69.0
8	T1	All MCs	1236	3.7	1236	3.7	0.325	0.1	LOS A	0.0	0.0	0.00	0.00	0.00	79.8
9	R2	All MCs	31	13.8	31	13.8	0.018	8.5	LOS A	0.0	0.0	0.00	0.78	0.00	67.8
Approach			1274	4.0	1274	4.0	0.325	0.4	NA	0.0	0.0	0.00	0.02	0.00	79.5
West: Waiting B	ау														
11	T1	All MCs	1	0.0	1	0.0	0.260	15.3	LOS B	0.8	6.1	0.88	0.98	0.98	27.4
12	R2	All MCs	46	4.5	46	4.5	0.260	22.1	LOS B	0.8	6.1	0.88	0.98	0.98	46.1
Approach			47	4.4	47	4.4	0.260	22.0	LOS B	0.8	6.1	0.88	0.98	0.98	45.8
All Vehicles			1332	4.0	1332	4.0	0.325	1.2	NA	0.8	6.1	0.03	0.06	0.04	78.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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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■ Network: N101 [Mona Vale Rd PM (Network Folder: Post development - right turn from Aumuna Rd permitted)]

V Site: 101 [Mona Vale / Aumuna South Approach SAT Peak (Site Folder: Post development)] Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: Existing Design

Give-Way (1	lwo-Way)
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Vehicle Movem	nent Perf	ormance														
Mov ID	Turn	Mov Class	D. [To	emand tal	l Flows HV]	Arriva [Total	ll Flows HV]	Deg. Satn	Aver. Delay	Level of Service	95 [Veh.	5% Back Of Queue Dist]	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			ver	ı/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Mona Vale	e Road (so	outh)														
1	L2	All MCs		60	1.8	60	1.8	0.033	7.0	LOS A	0.0	0.0	0.00	0.63	0.00	68.5
2	T1	All MCs	18	76	1.5	1876	1.5	0.486	0.3	LOS A	0.0	0.0	0.00	0.00	0.00	79.5
3	R2	All MCs		5	0.0	5	0.0	0.003	8.1	LOS A	0.0	0.0	0.00	0.78	0.00	67.8
Approach			19	41	1.5	1941	1.5	0.486	0.5	NA	0.0	0.0	0.00	0.02	0.00	79.2
East: Waiting bay	/															
5	T1	All MCs		1	0.0	1	0.0	0.146	36.0	LOS C	0.3	2.3	0.98	0.99	0.99	9.9
6	R2	All MCs		2	50.0	2	50.0	0.146	195.9	LOS F	0.3	2.3	0.98	0.99	0.99	17.6
Approach				3	33.3	3	33.3	0.146	142.6	LOS F	0.3	2.3	0.98	0.99	0.99	15.2
West: Aumuna R	oad															
10	L2	All MCs		46	6.8	46	6.8	0.036	5.5	LOS A	0.0	0.0	0.00	0.53	0.00	59.6
11	T1	All MCs		55	0.0	55	0.0	0.501	55.8	LOS D	1.7	11.7	0.96	1.06	1.21	20.0
Approach			1	01	3.1	101	3.1	0.501	32.7	LOS C	1.7	11.7	0.52	0.81	0.66	38.0
All Vehicles			20-	45	1.6	2045	1.6	0.501	2.3	NA	1.7	11.7	0.03	0.06	0.03	76.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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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■ Network: N101 [Mona Vale Rd SAT (Network Folder: Post development - right turn from Aumuna Rd permitted)]

V Site: 102 [Mona Vale / Kamber North Approach SAT Peak (Site Folder: Post development)]

Output produced by SIDRA INTERSECTION Version: 9.1.6.228

New Site

Site Category: Existing Design

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demai [Total	nd Flows HV]	Arriva [Total	al Flows HV]	Deg. Satn	Aver. Delay	Level of Service	95 [Veh.	i% Back Of Queue Dist]	Prop. Que	Eff. Stop Rate	Aver. No. of Cycles	Aver. Speed
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
East: Kamber R	oad														
4	L2	All MCs	7	0.0	7	0.0	0.006	4.8	LOS A	0.0	0.0	0.00	0.53	0.00	60.2
5	T1	All MCs	2	50.0	2	50.0	0.032	61.3	LOS E	0.1	0.7	0.93	0.98	0.93	19.0
Approach			9	11.1	9	11.1	0.032	17.4	LOS B	0.1	0.7	0.21	0.63	0.21	50.5
North: Mona Val	e Road (N	orth)													
7	L2	All MCs	5	20.0	5	20.0	0.003	7.3	LOS A	0.0	0.0	0.00	0.63	0.00	64.2
8	T1	All MCs	1464	1.7	1464	1.7	0.379	0.2	LOS A	0.0	0.0	0.00	0.00	0.00	79.7
9	R2	All MCs	51	12.5	51	12.5	0.030	8.4	LOS A	0.0	0.0	0.00	0.78	0.00	67.8
Approach			1520	2.1	1520	2.1	0.379	0.5	NA	0.0	0.0	0.00	0.03	0.00	79.4
West: Waiting B	ay														
11	T1	All MCs	1	0.0	1	0.0	0.381	24.5	LOS B	1.3	9.2	0.93	1.12	1.12	24.2
12	R2	All MCs	55	0.0	55	0.0	0.381	31.2	LOS C	1.3	9.2	0.93	1.12	1.12	41.8
Approach			56	0.0	56	0.0	0.381	31.1	LOS C	1.3	9.2	0.93	1.12	1.12	41.5
All Vehicles			1585	2.1	1585	2.1	0.381	1.6	NA	1.3	9.2	0.03	0.07	0.04	77.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Network Data dialog (Override Site Data 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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■ Network: N101 [Mona Vale Rd SAT (Network Folder: Post development - right turn from Aumuna Rd permitted)]

APPENDIX E

Swept Path Analysis






APPENDIX F

Council Traffic Engineer Referral Response Letter



Traffic Engineer Referral Response

Application Number:	DA2024/1362
Proposed Development:	Demolition works and construction of mixed use hospitality venue with supporting car parking, servicing and landscaping works
Date:	07/01/2025
Responsible Officer	
Land to be developed (Address):	Lot 180 DP 752017,40 Myoora Road TERREY HILLS NSW 2084

Officer comments

The development application is for a restaurant and beer garden with a GFA of 2698m2, parking for 297 vehicles (comprised of 223 car spaces in a carpark plus overflow parking on grass for 74 vehicles), 1 x loading bay, 1 x minibus drop off/pick bay, patronage for 794 persons and operating 10am to 12 midnight Mon-Sun

Parking_

The Warringah DCP parking requirements for a restaurant are the greater of 15 spaces per 100m2 GFA (405 spaces) OR 1 space per 3 seats (265 spaces). The premises therefore requires a minimum of 405 parking spaces for compliance with the DCP. While the DCP advises that there is potential to allow a reduced parking supply if there is suitable available parking in the vicinity, on Myoora Road, as parking is in high demand near the proposed premises, a reduction in the parking requirements on the basis of spare capacity elsewhere is not appropriate. The developer's traffic consultant advises that a parking assessment has also been undertaken noting TfNSW guidelines. The latest TfNSW guidelines are the 2024 Guide to Transport Impact Assessment which became active from 4 November 2024. These guidelines also suggest that parking rates for restaurants should be determined from the greater of 15 spaces per 100m2 of GFA or 1 space per 3 seats. The TfNSW and Warringah DCP parking requirements are identical and should be met. While the use of a shuttle bus and a green travel plan are welcomed and may assist in resulting in small reductions in trips to/from the facility, given the relatively isolated location of the development and the scattered nature of residential development in the surrounding area it is considered likely that patrons will remain heavily car dependent for travel to and from the facility. The proposed parking provision of 297 spaces is well below DCP requirements and unacceptable.

It is also noted that the referral from Council's Landscape Officer has raised concerns about the reliance on a part of the landscaped area on the site for overflow carparking with its ongoing use as carparking limiting is landscaping benefit. Given that it is proposed to mark the overflow carpark with paving "dots" which would presumably need to be affixed into a hardpaved surface, the impact of the above coupled with the wear and tear created by parking activity would limit the potential for any meaningful landscaping.

It is noted that the drop off/pick up bay on the "at grade" parking level is capable of accommodating the developer's mini bus. This drop off/pick up bay is also likely to be well used by clients dropping off elderly/less mobile passengers and to ensure this activity is able to occur a dedicated parking bay of appropriate dimensions should be identified to accommodate the mini-bus when not in use. This bay should be identified on the plans with access to/from that bay demonstrated by turning movement



plots for the mini-bus

The developer proposes to provided 5 accessible parking spaces all located in the basement carpark. The Building Code of Australia requires accessible parking at a rate of 1 space per 50 spaces or part thereof and it is therefore required that at least 9 accessible parking spaces designed in compliance with AS2890.6 be provided. Some of these spaces should be located in the at grade carpark near the entrance to the restaurant with suitably graded access to the premises. The 5 spaces proposed is insufficient.

Although the Warringah DCP does not specifically require motorcycle parking, it is noted and supported that 5 motorcycle parking spaces have been provided to cater for this alternate transport mode.

Bicycle Parking

The Warringah DCP requires high-medium security bicycle parking (in a secure room/enclosure) at a rate of 1 space per 200m2 GFA for business and retail premises with a further 1 space per 600m2 of low security spaces (bike racks/rail). This equates to a requirement for 14 secure spaces and 5 lower security spaces. The developer has proposed only 10 low security spaces which is considered inadequate to support a development of this size.

The developer's traffic consultant has incorrectly advised that Mona Vale Road does not provide cycle lanes. On the contrary, Mona Vale Road has cycle lanes in both directions and is well used by cyclists. Terrey Hills, as an area is also conducive to cycling being quite flat and there is potential for cycling to and from the development site. Bicycle parking consistent with DCP requirements should be provided.

Traffic Generation

It is noted that TfNSW has raised concerns about the traffic generated by the development impacting on the operation of the Aumuna Road/Mona Vale Road intersection in particular the increase in delays for vehicles exiting Aumuna Road via a right turn. TfNSW has also raised concerns about the absence of any measures to mitigate such impacts. TfNSW has also raised a number of concerns about the SIDRA modelling undertaken to support the project. Until such time as the above issues have been addressed to TfNSW satisfaction, Council's traffic engineers are unsupportive of the development application.

As noted by TfNSW, traffic data collected by the traffic consultants has not been provided for review. This data, collected at the intersections of Aumuna Road/Mona Vale Road & Aumuna Road/Myoora Road on Friday 5 April and Saturday 6 April between 4pm and 6pm and 10am to 2pm should be provided and supplemented by additional data collected at the other key intersection in the vicinity i.e Myoora Road/Mona Vale Road/Forest Way. Council agrees with TfNSW that the majority of traffic movements to/from the development will or should should be using Aumuna Road/Mona Vale Road however given that the developer is suggesting that 25% of traffic will use Myoora Rd south of Aumuna Road at the very least traffic data should be provided to provide background information for that intersection.

Servicing

The developer's traffic consultant has advised that the largest vehicle servicing the site will be a Medium Rigid Vehicle and the loading bay and turning area has been designed to accommodate that size vehicle. It is however anticipated that deliveries of beer and other produce for the 3 restaurants on the site and also for waste collection are likely to exceed the 8.8m length of a MRV and the loading bay and turning area should therefore be designed to accommodate HRVs up to 12.5m in length.



Revised turning bay dimensions and swept path plots for vehicles of this size should be provided.

Access

It is noted and supported that the development will be accessed solely from Myoora Road. As outlined above, the developer should provide adequate access for the largest anticipated vehicle likely to service the site. It is considered that this is more likely to be a HVR rather than the MRV that has been anticipated by the developer's traffic consultant. The vehicle crossing and driveway should be designed to cater for a left turn in and out of the driveway by a HRV without encroachment on the opposing travel lane on Myoora Road. This may require widening of the driveway to accommodate this.

To cater for pedestrian access to/from the development the existing footpath which currently terminates at the western Myoora Road boundary of the site shall be extended across the full frontage of the property to allow for eventual extension of the path to the bus stop east of the site. This should be indicated on the DA plans

The proposal is therefore unsupported.

Note: Should you have any concerns with the referral comments above, please discuss these with the Responsible Officer.

Recommended Traffic Engineer Conditions:

Nil.