

19 June 2023

P2296 LAS Mungo Brush Caravan Park assessment

Land Advisory Services
265 King Street
Newcastle NSW 2300

Attn: Brett Philips

Dear Brett,

Proposed Caravan Park, 288 Mungo Brush Road, Hawks Nest, NSW.

Further to your email, we have now completed our site work and review of the documentation provided for the proposed development application for a caravan park development on Mungo Brush Road to the north of Hawks Nest township and provide the following traffic impact statement. This assessment has been prepared in accordance with the Austroads Guidelines and Section 2.3 of the RTA Guide to Traffic Generating Developments (RTA now labelled TfNSW) which provides the structure for the reporting of key issues to be addressed when determining the impacts of traffic associated with a development. This guide indicates that the use of this format and checklist ensures that the most significant matters are considered by the relevant road authority.

The report has also taken into consideration the planning requirements outlined within the Mid-Coast Council Development Control Plan 2014 (DCP) and the Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2021 (the Regulation).

The subject site comprises a parcel of land to the north of Hawks Nest as shown in Figure 1. It has a single frontage to Mungo Brush Road to the west and is surrounded by coastal bushland with the Pacific Ocean to the east.

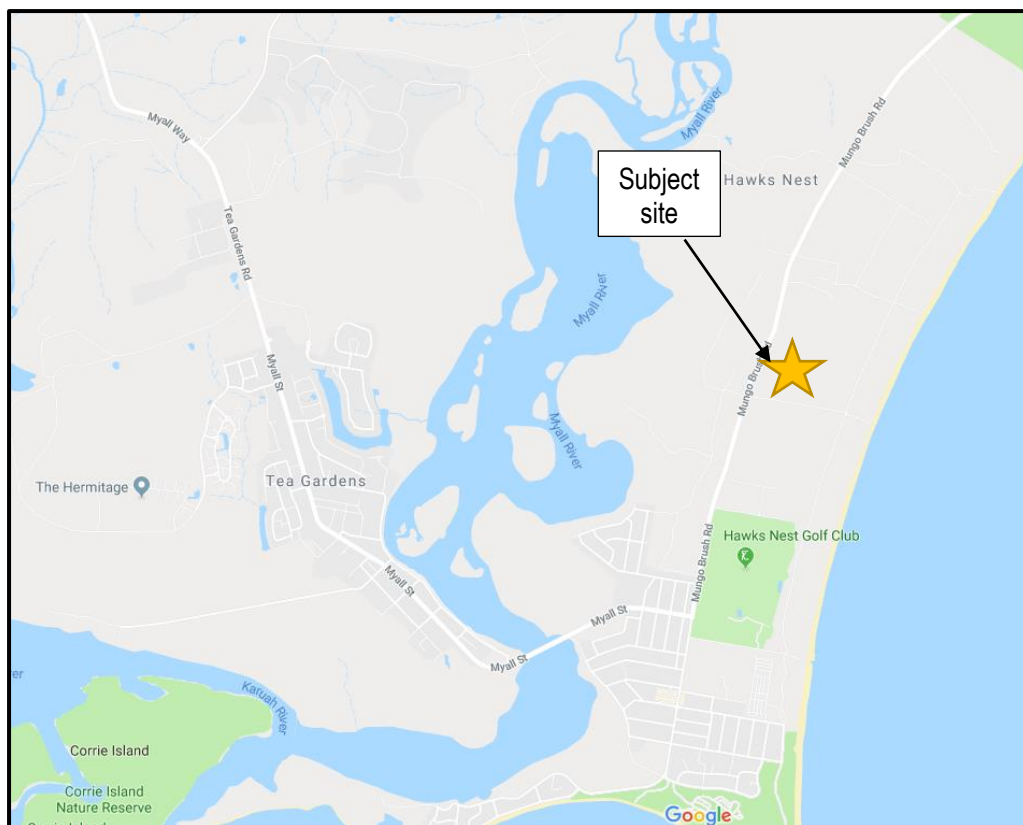


Figure 1 - Project area within the context of the local road network (Source: Google).

Table 1 - Traffic Impact Assessment

Item	Comment
Existing Situation	
2.1.1 Site Location and Access	The subject site sits to the north of the township of Hawks Nest with road access to Mungo Brush Road only. The existing access is a simple cross over with the access road being an un-sealed track.
2.2.1 Road Hierarchy	<p>The main road through the locality is Mungo Brush Road which provides a connection between Hawks Nest to the south and through Myall Lakes National Park to the ferry connection for access through to Bulahdelah. In the vicinity of the subject site Mungo Brush Road provides a sealed pavement of approximately 6.5 metres allowing for a single lane of travel in each direction. There is no kerb and guttering and an un-sealed verge to both sides. No pedestrian paths are provided with pedestrians able to walk along the road if required. It operates under the posted speed limit of 80 km/hr.</p> <p>To the south, Mungo Brush Road connects with Kingfisher Avenue forming a priority-controlled T-intersection with Tuloa Avenue (Mungo Brush Road). Kingfisher Avenue is the major road in this location and provides a connection through to Tea Gardens to connect to the Pacific Highway to the west.</p> <p>Kingfisher Avenue becomes Myall Street to the west and provides a single lane of travel in both directions. There is a partial footpath provided between Mungo Brush Road and Tea Gardens that allows for pedestrian demands as required.</p>

Item	Comment
	The surrounding roads are local roads under the control and care of Mid Coast Council.
2.2.2 Roadworks	None noted in the general vicinity of site.
2.2.3 Traffic Management Works	<p>There are no traffic management works within the general locality of the subject site. The local road network in this location typically carries very low traffic flows and as such there is limited traffic delay and congestion in this location.</p> <p>Traffic flows increase significantly during peak summer holiday periods but remain well within the capacity of the local road network with limited delays and congestion apparent at the intersection of Mungo Brush Road and Kingfisher Avenue.</p>
2.2.4 Pedestrian and Cycling Facilities	<p>There are no pedestrian or cycling facilities within the vicinity of the site, reflecting its rural / coastal location.</p> <p>A pedestrian pathway is provided along the western side of Tuloa Avenue which allows for connection to local shops within the Hawks Nest Town Centre. A pedestrian (zebra) crossing is provided along Tuloa Avenue adjacent to the shops.</p> <p>There are no dedicated cycling facilities in this location, reflective of the low traffic demands and safe environment for on-road cycling.</p>
2.2.5 Public Transport	<p>Public transport in the area is limited with local bus services providing daily trips to Newcastle, Taree and Forster as well as school bus runs to nearby schools.</p> <p>Local bus services are provided by Busways and include:</p> <ul style="list-style-type: none"> • Route 150: Newcastle to Taree via Forster (2x daily, each way) • Route 152: Hawks Nest to Newcastle (1x daily, each way) <p>The area is not serviced by rail with the nearest station located more than 60 km from the subject site.</p>
2.3 Traffic Flows	
2.3.1 Daily Traffic Flows	<p>Seca Solution undertook surveys at the intersection of Mungo Brush Road / Kingfisher Avenue on Saturday 5th October 2019 between 9.30am-noon. This day was selected as it was the middle Saturday of the school holidays and also coincided with the October long weekend. It was expected to be representative of high holiday demands as it coincides with the end of week changeover for local holiday accommodation as well as inbound long weekend tourist demands. The peak hour was determined as being 10.30-11.30am.</p> <p>Seca Solution has previously completed traffic surveys during a typical weekday morning (7am-9am, Thursday 13th July 2017) and weekday evening (4:30pm-6pm, Wednesday 12th July 2017) to determine the typical mid week peak hour traffic flows in the locality. These days were selected as they were during the school holidays and so would include local holiday demands.</p> <p>The intersection of Kingfisher Avenue / Mungo Brush Road / Tuloa Avenue has a dominant flow being the right turn into and left turn out of Tuloa Avenue into Kingfisher Avenue (representative of trips between Hawks Nest and the Pacific Highway or Tea Gardens).</p> <p>A summary of the two-way peak hour traffic flows along these roads from the surveys undertaken is provided below. Survey data is included in Attachment B.</p>

Item	Comment																								
	<p><i>Table 2 - Peak Hour Flows</i></p> <table><tr><th colspan="2">Location</th><th>Peak Hour Flows (two-way)</th></tr><tr><td rowspan="3">Kingfisher Avenue (west of Tuloa Ave)</td><td>AM</td><td>207</td></tr><tr><td>PM</td><td>268</td></tr><tr><td>Weekend</td><td>716</td></tr><tr><td rowspan="3">Tuloa Avenue (south of Kingfisher Avenue)</td><td>AM</td><td>218</td></tr><tr><td>PM</td><td>290</td></tr><tr><td>Weekend</td><td>737</td></tr><tr><td rowspan="3">Mungo Brush Road (north of Kingfisher Avenue)</td><td>AM</td><td>28</td></tr><tr><td>PM</td><td>30</td></tr><tr><td>Weekend</td><td>231</td></tr></table> <p>TfNSW Guidelines indicate that peak hour flows typically represent around 10% of the daily traffic flows. Therefore, the typical daily flows along Kingfisher Avenue (west of Tuloa Avenue) would be in the order of 2,000-3,000 vehicles per day. Traffic flows north of this intersection on Mungo Brush Road would typically be in the order of 300 vehicles per day two-way.</p> <p>Traffic demands during peak holidays periods can see traffic increase three-fold over mid-week daily flows with Mungo Brush Road carrying flows in the order of 2,300vpd.</p> <p>Whilst this traffic data is 3 years old, given the lack of any significant development within Hawks Nest since this time it is considered that this traffic data would represent current traffic demands in this location.</p>	Location		Peak Hour Flows (two-way)	Kingfisher Avenue (west of Tuloa Ave)	AM	207	PM	268	Weekend	716	Tuloa Avenue (south of Kingfisher Avenue)	AM	218	PM	290	Weekend	737	Mungo Brush Road (north of Kingfisher Avenue)	AM	28	PM	30	Weekend	231
Location		Peak Hour Flows (two-way)																							
Kingfisher Avenue (west of Tuloa Ave)	AM	207																							
	PM	268																							
	Weekend	716																							
Tuloa Avenue (south of Kingfisher Avenue)	AM	218																							
	PM	290																							
	Weekend	737																							
Mungo Brush Road (north of Kingfisher Avenue)	AM	28																							
	PM	30																							
	Weekend	231																							
2.3.2 Daily Traffic Flow Distribution	Daily traffic flows would be reasonably balanced over the day. The surveys indicate a slight bias in northbound traffic along Tuloa Avenue during the morning peak and southbound during the evening peak. The Saturday flows along Mungo Brush Road show a north/south distribution associated with local trips to shops, the beach etc.																								
2.3.3 Vehicle Speeds	No speed surveys were completed as part of the survey work, however observations on the site indicate that drivers typically travel at or just above the posted speed limit along Mungo Brush Road due to the relatively good road alignment and very low traffic demands.																								
2.3.4 Existing Site Flows	The subject site is currently vacant land and generates no traffic.																								
2.3.5 Heavy Vehicle Flows	Due to the nature of the surrounding area, there is very low demand for heavy vehicles other than local buses and waste collection vehicles that operate regularly within the area in Hawks Nest. Other heavy vehicle movements associated with deliveries to local business etc are not as frequent. These heavy vehicles are typically south of the subject site.																								
2.3.6 Current Road Network Operation	Observations on site show that the local road network operates very well throughout the day with no delays or congestion observed.																								
2.4 Traffic Safety and Accident History	<p>A review of accident data provided by TfNSW up to reporting year 2021 indicates that in 2018 there was an accident in the vicinity of the subject site with a vehicle running of the road and hitting an object.</p> <p>The local roads are generally well aligned providing a straight horizontal and vertical road alignment offering excellent visibility on the approaches to intersections. Allowing for this, together with the low overall traffic</p>																								

Item	Comment
	demands, it is concluded that the local road network provides an acceptable level of overall traffic safety.
2.5 Parking Supply and Demand	
2.5.1 On-street Parking Provision	There is no formal on street parking along Mungo Brush Road with drivers able to stop within the unsealed verge as required.
2.5.2 Off-street Parking Provision	No formal off-street parking provided in the locality. All parking demands are contained within individual sites.
2.5.3 Parking Demand and Utilisation	Very limited demand for parking observed along Mungo Brush Road, other than at beach access points or bush walking tracks to the west of Mungo Brush Road.
2.5.4 Set down or pick up areas	There are no set down or pick up areas in the vicinity of the site.
2.6 Public Transport	
2.6.1 Rail Station Locations	The area is not serviced by rail with the nearest station located more than 60 km from the subject site.
2.6.2 Bus Stops and Associated Facilities	The nearest bus stop is located on Booner Street, close to local shops to the south. This bus stops provides seating and a shelter.
2.6.3 Pedestrians	As described in Section 2.2.4, there is a shared pathway along the western side of Tuloa Avenue which allows for connection to local shops to the south within the Hawks Nest Town Centre.
2.7 Other Proposed Developments	There are a number of proposals submitted for apartment developments to the south of the subject site and long-term camp sites within the general vicinity of the subject site.
The Development	
3.1.1 Nature of Development	The proposal allows for the development of a 223 lot caravan park comprising 130 short term sites and 93 camps sites. Designated parking areas will be provided on site for visitors near the office with resident parking provided within each pitch. There are internal circulating driveways and a single access point connecting to Mungo Brush Road.
3.1.2 Access and Circulation Requirements	In accordance with the Regulation Division 3 Subdivision 3: (1) A road that forms an entrance to or exit from a caravan park or camping ground must be at least 7 metres wide (2) Access roads must be 6m two way or 4m one-way All vehicles shall be required to enter and exit the site in a forward direction.
3.2 Access	The main entry to the caravan park is proposed on a straight section of Mungo Brush Road with a new access road designed to allow for the two-way movement of car with caravan combinations with a 7 metre road width to be provided in accordance with the <i>Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2021</i> . This new access will be designed and constructed in accordance with Council requirements. Two separate emergency exit points are provided towards the northern and southern end of the site. These will not be used for day to day use.
3.2.1 Driveway Location	Access to the site is via a new access replacing the existing unformed access to the site.
3.2.2 Sight Distances	Mungo Brush Road provides a reasonably straight and flat road alignment which ensures that there is excellent visibility for drivers travelling in either direction to observe a vehicle entering or exiting a driveway and vice versa.

Item	Comment
	<p>For the posted speed limit of 80 km/hr along Mungo Brush Road, Austroads Road Design Guidelines specifies a minimum sight distance of 181 metres. The sight distance has been assessed on site and exceeds 200 metres in both directions at the proposed access point.</p> <p>To improve visibility to the north (right), it is considered that the overhanging vegetation within the subject site and road reserve could be removed. The extent of any vegetation needing to be removed can be determined at detail stage for the site access.</p>
3.2.3 Service Vehicle Access	There will be minimal servicing required for the site. The proposed driveway shall be designed to accommodate the turning movements of the largest service vehicles that will access the site including waste vehicles ensuring they can enter and exit in a forward direction.
3.2.4 Queuing at entrance to site	No vehicle queues expected at site entry / exit point due to the very low traffic flows on the adjacent road network. Entry to the site shall primarily be a right turn from Mungo Brush Road and there is no restriction for entering vehicles with a queuing space to be provided within the site boundary prior to any control point and the majority of vehicles exiting the site will be a left turn out and shall not impact on the through traffic on Mungo Brush Road.
3.2.5 Comparison with existing site access	There is an existing site access with an un-sealed track providing access.
3.2.6 Access to Public Transport	All bus services (excluding school buses) either commence or stop at the Hawks Nest Community Centre where there is a single bus stop provided. Services running along Tuloa Avenue can be Hale and Ride.
3.3 Circulation	
3.3.1 Pattern of circulation	<p>The internal roadways shall allow for 2-way traffic movements and provide an overall width of 6 metres. These will allow for safe and appropriate traffic movements. The overall layout of the site roads provides for short straights with T-intersections helping to contain vehicle speeds within the site to ensure safety is provided for all future users. The roadway around the development provides for emergency access for a fire appliance if required.</p> <p>All vehicles shall be able to enter and exit the site in a forward direction, with the internal road layout allowing for all turning movements within the site.</p>
3.3.2 Road width	<p>All roads will be designed in accordance with the requirements of the Manufactured, Caravan Parks, Camping Grounds and Moveable Dwellings Regulations 2021. Division 3 Subdivision 3:</p> <ul style="list-style-type: none"> (1) A road that forms an entrance to or exit from a caravan park or camping ground must be at least 7 metres wide (2) Access roads must be 6m two way or 4m one-way
3.3.3 Internal Bus Movements	No internal bus movements required for the development.
3.3.4 Service Area Layout	A suitable waste management area shall be provided on-site.
3.4 Parking	
3.4.1 Proposed Supply	Parking shall be provided on each site along with additional parking adjacent to the on-site facilities and along the internal roadway, catering for visitor demands.
3.4.2 Authority Parking	<p>The Regulation nominates:</p> <p>A caravan park or camping ground must contain at least one resident parking space for each dwelling site or camp site either on-site or off-site.</p>

Item	Comment
	<p>An off-site space must be marked (for example, by means of line marking, marker pegs or similar means) to identify the particular dwelling site or camp site to which it relates.</p> <p>An off-site parking space for a dwelling site or camp site must be situated in the location specified in the approval for the caravan park or camping ground.</p> <p>A caravan park must contain no fewer visitor parking spaces than the following:</p> <ul style="list-style-type: none"> long-term sites - one visitor parking space for each 10 sites short-term sites – one visitor parking for each 20 sites camping sites – one visitor parking space for 40 camp sites <p>The minimum number of visitor parking spaces to be provided is 10.</p> <p>A caravan park that contains more than 100 sites must contain at least one visitor parking space for people with disabilities for each 100 sites or fraction of 100 sites.</p> <p>DCP</p> <p>The Mid-Coast Council DCP 2014 makes no provision for parking for caravan parks.</p> <p>The parking rate outlined in the Regulation is therefore considered the appropriate parking rate to apply.</p>
3.4.3 Parking Layout	<p>On-sites spaces minimum, dimensions of:</p> <ul style="list-style-type: none"> 5.4 metres by 2.5 metres, in the case of angle parking, and 6.1 metres by 2.5 metres, in any other case <p>Visitor spaces:</p> <ul style="list-style-type: none"> 5.4 metres by 2.5 metres, in the case of angle parking, and 6.1 metres by 2.5 metres, in any other case.
3.4.4 Parking Demand	<p>Allowing for 93 camp sites and 130 short term sites the visitor parking requirement is 3 + 7 giving 10 overall.</p> <p>Three spaces are to be provided for people with disabilities in accordance with AS2890.6.</p> <p>Given the size of the site and design of the caravan park all parking demands can be contained on site.</p>
3.4.5 Service Vehicle Parking	<p>A suitable waste management area shall be provided on-site in accordance with Council's requirements.</p> <p>Servicing for the site shall be minimal with no parking required.</p>
3.4.6 Pedestrian and Bicycle Facilities	<p>No dedicated pedestrian or cyclist facilities will be provided within the caravan park. Pedestrians and cyclists can walk on the internal driveways as required, with these driveways operating at slow speed and allow for a shared zone operation.</p>
Traffic Assessment	
4.1 Traffic Generation	<p>The Guide to Traffic Generating Developments provided by TfNSW does not provide any rates for traffic movements associated with caravan parks.</p> <p>For the short term and camping sites, the rate equivalent to a hotel room has been adopted, giving a value of 0.4 trips per pitch in the peak periods. This has been assumed for both the AM and PM peak periods. A daily rate of 4 trips has been assumed.</p> <p>Using these rates, the following traffic movements could be generated:</p>

Item	Comment																
	<table><tr><th>Element</th><th>AM peak</th><th>PM Peak</th><th>Daily</th></tr><tr><td>93 camping sites</td><td>38</td><td>38</td><td>380</td></tr><tr><td>130 short term</td><td>52</td><td>52</td><td>520</td></tr><tr><td>TOTAL</td><td>90</td><td>90</td><td>900</td></tr></table>	Element	AM peak	PM Peak	Daily	93 camping sites	38	38	380	130 short term	52	52	520	TOTAL	90	90	900
Element	AM peak	PM Peak	Daily														
93 camping sites	38	38	380														
130 short term	52	52	520														
TOTAL	90	90	900														
4.1.1 Daily and Seasonal Factors	Significant seasonal variation in traffic movements associated with the nature of the area as a popular holiday destination. The camp site will be popular during the summer months and school holidays with much lower demands outside of these periods.																
4.1.2 Pedestrian Movements	<p>There may be pedestrian demands from the caravan park to the beach east of the site or the river to the west of the site as well as potential demands towards Hawks Nest.</p> <p>Pedestrians are able to walk along the side of Mungo Brush Road if required, due to the low traffic flows along this road. However, it is considered that this demand would be very low due to the distance to the centre of Hawks Nest being 5 kms from the site.</p> <p>A walking track is proposed linking the park to the golf course.</p>																
4.2 Traffic Distribution and Assignments	The majority of traffic movements would be to / from the south of the site. For the short term and camping pitches, it is considered that the movements would be near 50 : 50 inbound and outbound during the peak periods, reflective of general tourist use for trips being spread across the day.																
4.2.1 Origin / destinations assignment	<p>All traffic would travel via Mungo Brush Road towards Hawks Nest or Kingfisher Avenue. Minimal demand for vehicles with an origin/destination to the north. It is expected that a number of peak hour trips would be west towards Tea Gardens or beyond.</p> <p>Overall, it is considered that 90% of the trips would be towards the south and 10% to the north.</p>																
4.3 Impact on road safety	<p>Access to the site is located on a straight and flat road alignment offering excellent visibility for vehicles travelling in both directions.</p> <p>In the last 5 years, there has been one accident recorded along the local roads within the immediate vicinity of the site with the local road network providing an acceptable level of traffic safety.</p> <p>The site access will be the critical design issue for the site, generally relating around the right turn demands into the site, especially at peak periods when there could be a high number of car / caravan combinations making this turn. The site access will require a right turn treatment in accordance with Austroads Guidelines that will allow for the right turn to occur at the same time as the through traffic movements northbound.</p> <p>The design will also need to allow for adequate queue space within the site boundary, prior to any control point, to allow for a car / caravan combination waiting to book into the site at the office. This will be reviewed and detailed as part of the detailed design element of the project.</p>																

Item	Comment																																																																									
	Traffic associated with the proposed development is well within the capacity of the surrounding road network with the nearby intersections continuing to operate to an acceptable standard. As such, the proposed development will have a minimum and acceptable impact on road safety.																																																																									
4.4 Impact of Generated Traffic																																																																										
4.4.1 Impact on Daily Traffic Flows	<p>As shown in Section 4.1, the project site could generate up to 900 vehicle movements generated by the proposed development daily. This assumes that all sites are occupied.</p> <p>This could increase daily traffic flows on Mungo Brush Road by 810 vehicles per day (vpd) south of the site, well within the capacity of this road. During the summer months and holiday periods the traffic flows would be much higher, increasing to around 3,000vpd.</p> <p>The RMS Guide does not assess the capacity of a rural road based on daily flows but rather nominates two-way hourly flows.</p> <p style="text-align: center;">Table 4.5 peak hour flow on two-lane rural roads (veh/hr) (Design speed of 100km/hr)</p> <table><tr><th rowspan="2">Terrain</th><th rowspan="2">Level of Service</th><th colspan="4">Percent of Heavy Vehicles</th></tr><tr><th>0</th><th>5</th><th>10</th><th>15</th></tr><tr><td rowspan="4">Level</td><td>B</td><td>630</td><td>590</td><td>560</td><td>530</td></tr><tr><td>C</td><td>1030</td><td>970</td><td>920</td><td>870</td></tr><tr><td>D</td><td>1630</td><td>1550</td><td>1480</td><td>1410</td></tr><tr><td>E</td><td>2630</td><td>2500</td><td>2390</td><td>2290</td></tr><tr><td rowspan="4">Rolling</td><td>B</td><td>500</td><td>420</td><td>360</td><td>310</td></tr><tr><td>C</td><td>920</td><td>760</td><td>650</td><td>570</td></tr><tr><td>D</td><td>1370</td><td>1140</td><td>970</td><td>700</td></tr><tr><td>E</td><td>2420</td><td>2000</td><td>1720</td><td>1510</td></tr><tr><td rowspan="4">Mountainous</td><td>B</td><td>340</td><td>230</td><td>180</td><td>150</td></tr><tr><td>C</td><td>600</td><td>410</td><td>320</td><td>260</td></tr><tr><td>D</td><td>1050</td><td>680</td><td>500</td><td>400</td></tr><tr><td>E</td><td>2160</td><td>1400</td><td>1040</td><td>820</td></tr></table> <p>Weekday Peak Hour Flows.</p> <p>Major roads: Level of service C Minor roads: Level of service C desirable.</p> <p>Recreational Peak Hours (weekends).</p> <p>Major roads: Level of service D Minor roads: Level of service D desirable.</p> <p>Where design speeds of 80 km/hr are used, the resulting capacities are between 85-95% of the figures quoted, depending on the level of service.</p> <p>Allowing for the proposed development mid-week peak hour flows would be in the order of 250 vph whilst weekend holiday flows could be 500 vph. The impact of the development on Mungo Brush Road is therefore acceptable with adequate capacity to cater for this and future demands.</p>	Terrain	Level of Service	Percent of Heavy Vehicles				0	5	10	15	Level	B	630	590	560	530	C	1030	970	920	870	D	1630	1550	1480	1410	E	2630	2500	2390	2290	Rolling	B	500	420	360	310	C	920	760	650	570	D	1370	1140	970	700	E	2420	2000	1720	1510	Mountainous	B	340	230	180	150	C	600	410	320	260	D	1050	680	500	400	E	2160	1400	1040	820
Terrain	Level of Service			Percent of Heavy Vehicles																																																																						
		0	5	10	15																																																																					
Level	B	630	590	560	530																																																																					
	C	1030	970	920	870																																																																					
	D	1630	1550	1480	1410																																																																					
	E	2630	2500	2390	2290																																																																					
Rolling	B	500	420	360	310																																																																					
	C	920	760	650	570																																																																					
	D	1370	1140	970	700																																																																					
	E	2420	2000	1720	1510																																																																					
Mountainous	B	340	230	180	150																																																																					
	C	600	410	320	260																																																																					
	D	1050	680	500	400																																																																					
	E	2160	1400	1040	820																																																																					
4.4.2 Peak Hour Impacts on Intersections	Existing traffic flows along the local roads are low and well within the capacity of the road network. It is considered that the key intersection that would be impacted upon by this development is the intersection of Mungo Brush Road and Kingfisher Avenue. This intersection currently operates very well with minimal delays or congestion during the critical peak period over the summer holidays.																																																																									

Item	Comment
	<p>The additional traffic flows associated with the proposed development are well within the capacity of the local road network and would not significantly impact on the operation of this intersection.</p> <p>Sidra modelling has been completed for the intersection of Tuloa Avenue / Kingfisher Avenue / Mungo Brush Road. The modelling shows that this intersection will continue to operate at Level of Service A during the peak hours with very minimal delays or congestion, consistent with its current operation. Similarly, an assessment of this intersection allowing for the Saturday holiday flows, including provision for towing vehicles (caravan/boats/campers), still sees the intersection operating at LoS A. This assessment also indicates that traffic volumes could increase by a further 70% before the critical right turn out of Kingfisher Avenue becomes a concern.</p>
4.4.3 Impact of Construction Traffic	<p>Excluding works associated with the new access driveway, all works can be contained within the site with no impact upon the external road network. The site area is large and all parking demands associated with construction workers and equipment can be provided on site. During construction, there will be a requirement for construction vehicles to access the site and additional traffic movements associated with workers. These movements can be catered for within the local road network. The development will require a low number of construction workers and as such will have a minimal impact upon the local road network.</p>
4.4.4 Other Developments	<p>There are a number of apartment developments and long-term camp sites proposed for Hawks Nest. It is considered that the traffic flows associated with the subject site and these proposals will not have a significant impact upon the overall operation of the local road network.</p>
4.5 Public Transport	
4.5.1 Options for improving services	None required. Consistent with the nature of the site and the limited demand for public transport in the locality.
4.5.2 Pedestrian Access to Bus Stops	None. Consistent with the current provisions and the limited demand.
4.6 Recommended Works	
4.6.1 Improvements to Access and Circulation	None required.
4.6.2 Improvements to External Road Network	None required.
4.6.3 Improvements to Pedestrian Facilities	No upgrade to external facilities required or proposed.
4.6.4 Effect of Recommended Works on Adjacent Developments	No works proposed that will impact on adjacent developments.
4.6.5 Effect of Recommended Works on Public Transport Services	Nil
4.6.6 Provision of LATM Measures	None Required
4.6.7 Funding	All internal works to be funded by the developer.

Site Photos:



Photo 1 – View to right for driver exiting the subject site



Photo 2 – View to left for drivers exiting the subject site



Photo 3 – View of Mungo Brush Road and Kingfisher Avenue intersection looking south

Conclusion:

From the site work undertaken and the review of the development proposal and associated plans against the requirements of the RTA Guide to Traffic Generating Developments and Austroads Guide to Traffic Management, it is considered that the proposed development of a 223 lot caravan park, with 93 camping sites and 130 short term sites.

Parking on site is able to be provided in accordance with the Local Government (Manufactured Home Estates, Caravan Parks, Camping Grounds and Moveable Dwellings) Regulation 2021.

The additional traffic demands generated by a future development have been quantified and assessed using rates provided by TfNSW and are within the capacity of the surrounding road network.

Access to the site can be provided to satisfy the sight distance requirements as required under Austroads Guidelines.

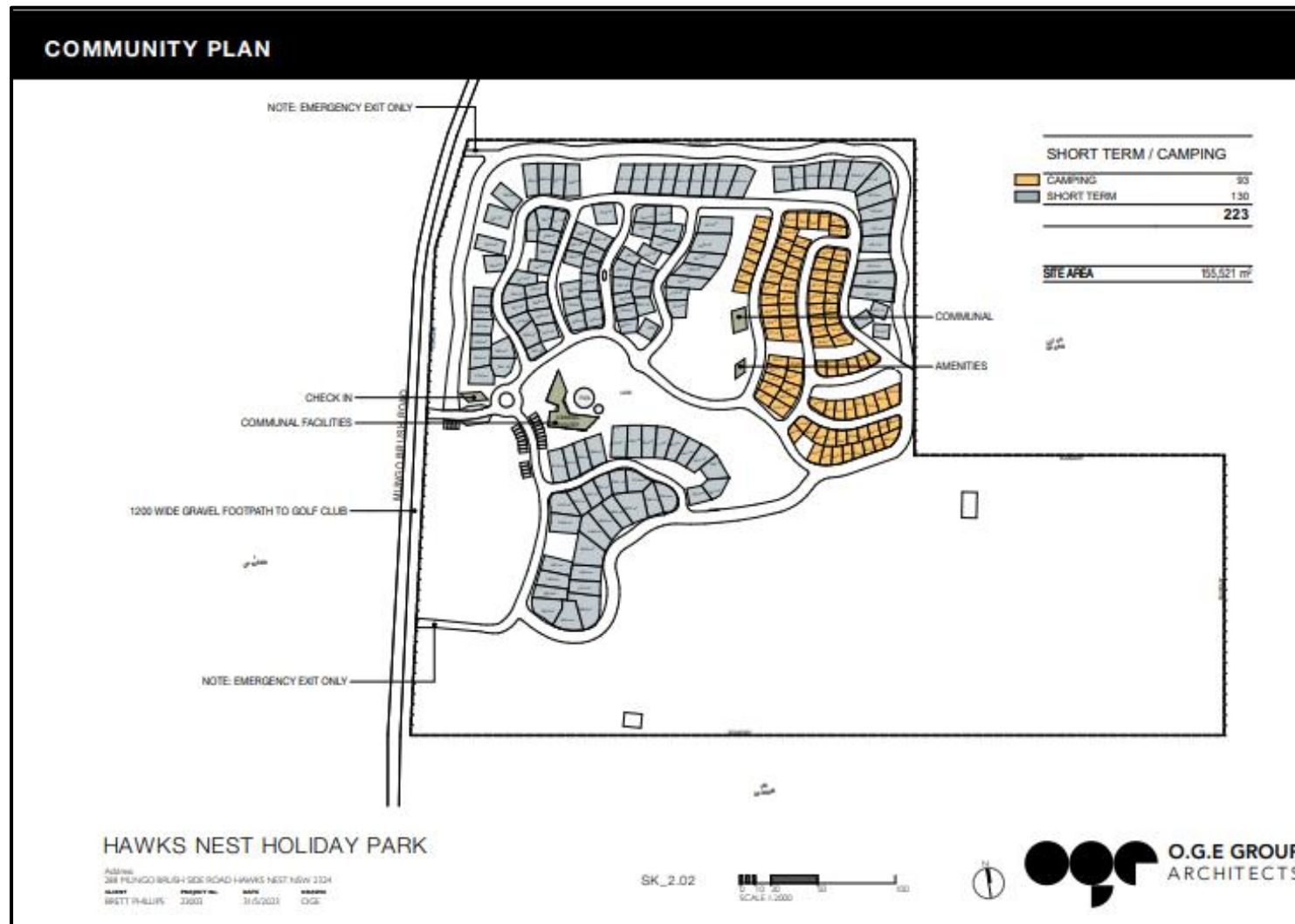
Should you have any questions please feel free to contact our office on 4032 7979, should you have any queries.

Yours sincerely,



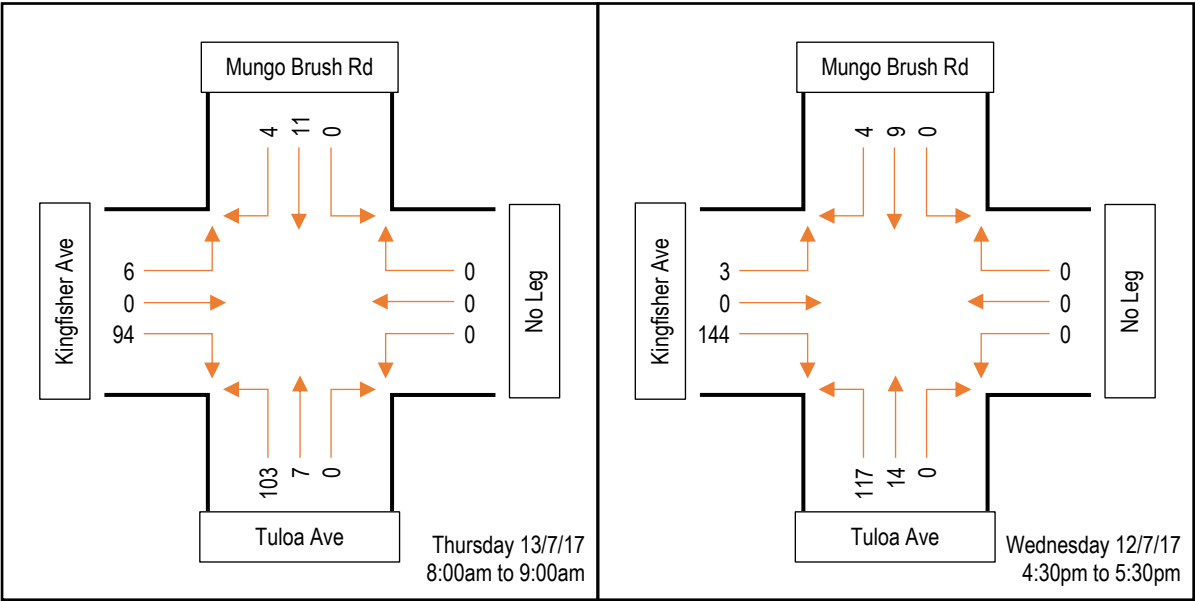
Sean Morgan
Director

Attachment A: Site Plan



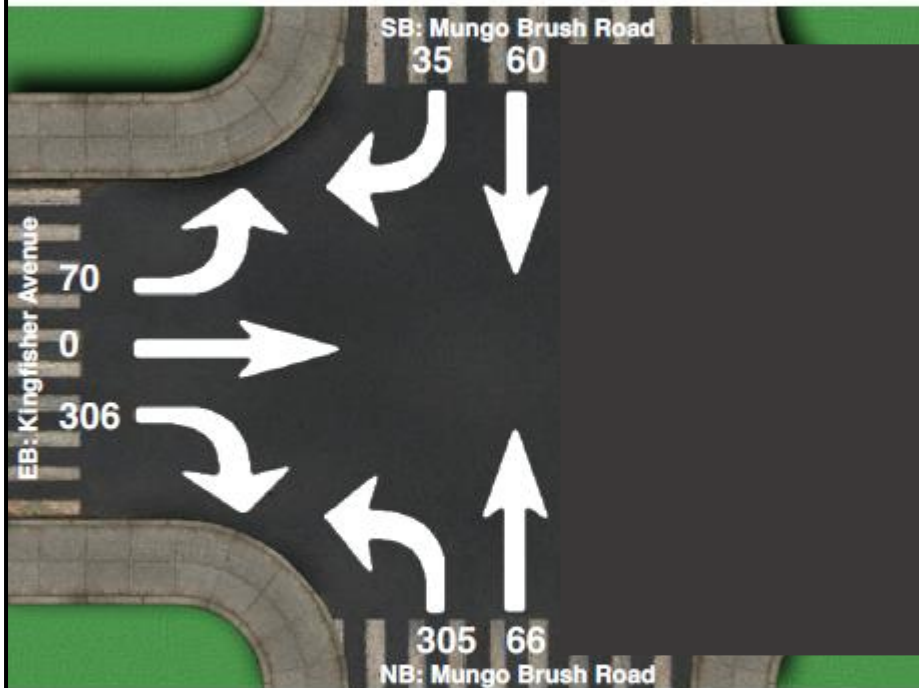
Attachment B: Traffic Data

Intersection of Kingfisher Avenue / Tuloa Avenue / Mungo Brush Road



Intersection Peak Hour

Location: Mungo Brush Road at Kingfisher Avenue, Hawks Nest
 GPS Coordinates: Lat=-32.657150, Lon=152.181290
 Date: 2019-10-05
 Day of week: Saturday
 Weather: Overcast And Drizzle
 Analyst: CT



Intersection Peak Hour

10:30 - 11:30

	Southbound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	60	35	0	0	0	305	66	0	70	0	306	842
Factor	0.00	0.88	0.58	0.00	0.00	0.00	0.93	0.66	0.00	0.76	0.00	0.90	0.96
Approach Factor	0.74			0.00			0.87			0.89			