



TPSGROUP™

Traffic & Parking Systems

Attention : Andrew More

18th February 2022

Dear Andrew,

Proposed Industrial Subdivision

Lot 4 in DP 635505, 150 Lismore Road, Bangalow

Response to TfNSW Letter to Council dated 25th January 2022

I refer to your request for our response to matters raised in the above correspondence, which was sent to The General Manager, Byron Shire.

Our response to each of the TfNSW matters is provided under the boxed extracts from the TfNSW letter.

1. Response to Item 1

1. The supporting Traffic Engineering Assessment dated 20 May 2021 focuses on one potential use of the subject site and it is unclear if this reflects the highest-best use of the site under the proposed IN1 zoning. The TIA does not demonstrate vehicular access for relevant design vehicles. crossing. It is unclear if the supporting SIDRA analysis has been calibrated to reflect existing and forecast traffic conditions. The TIA should typically include 'Movement Summary' outputs for existing conditions, with development and without development along with digital files for review and validation.

The Traffic Engineering Assessment Addendum dated 29 October 2021 assumes that the subject site will be developed for service industry and low impact industrial categories, which may not reflect the range of permissible use in under the proposed zoning.

Notwithstanding, the assessments suggests there is sufficient capacity in the existing road network to support future uses of the subject site. Council should be satisfied that the Planning Proposal has demonstrated that existing infrastructure can support future uses of the subject land that are likely to be enabled by the proposed zoning.

Potential Development

The TPS traffic engineering report to which the above Item refers referred to traffic generation estimates as being based on an assumption that the development would be similar in nature to the existing developments which surround the site.

It is clear in the TPS traffic engineering report that there is considerable scope for the proposed development to be significantly more intense than assumed by TPS before any unacceptable impact would occur on the 2033 operation of the Lismore Rd / Dudgeons Lane intersection. For example, the SIDRA estimates contained in the TPS report indicated an intersection degree of saturation of no worse than 35%, an average delay of no more than 2 seconds and a 95th percentile queue length not exceeding 6m for any movement.

With respect to the potential range of development which could occur in the subject land, we refer to the following relevant description of zoning objectives and allowable uses under the relevant section of the Byron Shire Planning Scheme (shown in *italics*).

1 Objectives of zone

- *To provide a wide range of industrial and warehouse land uses.*
- *To encourage employment opportunities.*
- *To minimise any adverse effect of industry on other land uses.*
- *To support and protect industrial land for industrial uses.*
- *To enable other land uses that provide facilities or services to meet the day to day needs of workers in the area.*

2 Permitted without consent

Environmental protection works

3 Permitted with consent

Agricultural produce industries; Depots; Freight transport facilities; Garden centres; General industries; Hardware and building supplies; Industrial training facilities; Landscaping material supplies; Light industries; Liquid fuel depots; Neighbourhood shops; Offensive industries; Oyster aquaculture; Places of public worship; Plant nurseries; Roads; Rural supplies; Self-storage units; Take away food and drink premises; Tank-based aquaculture; Timber yards; Vehicle sales or hire premises; Warehouse or distribution centres; Any other development not specified in item 2 or 4

4 Prohibited

Agriculture; Air transport facilities; Airstrips; Amusement centres; Animal boarding or training establishments; Boat launching ramps; Boat sheds; Camping grounds; Caravan parks; Cemeteries; Charter and tourism boating facilities; Commercial premises; Community facilities; Correctional centres; Eco-tourist facilities; Educational establishments; Entertainment facilities; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Function centres; Hazardous industries; Health services facilities; Heavy industrial storage establishments; Helipads; Highway service centres; Home-based child care; Home businesses; Home occupations (sex services); Information and education facilities; Jetties; Marinas; Mooring pens; Moorings; Open cut mining; Passenger transport facilities; Pond-based aquaculture; Recreation areas; Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Research stations; Residential accommodation; Restricted premises; Rural industries; Sex services premises; Storage premises; Tourist and visitor accommodation; Water recreation structures; Water supply systems; Wharf or boating facilities

Based on the above descriptions of “permitted” uses, TPS is of the opinion that the most intense mix of traffic generators likely to occur in the development would be a mix of developments which would fall at the top end of the “business parks and industrial estates” definition applied by RMS, NSW in the following survey data summary.

Table 1 Surveyed Traffic Generation Rates (Ref : RMS Technical Direction 2013/04A)

Business parks and industrial estates				
In 2012 eleven of these two types of sites were surveyed, four within the Sydney urban area, four within the Lower Hunter, one in the Illawarra and one in Dubbo. Summary vehicle trip generation rates were as follows:				
Weekday Rates	Sydney Average	Sydney Range	Regional Average	Regional Range
AM peak (1 hour) vehicle trips per 100 m ² of GFA.	0.52	0.15-1.31	0.70	0.32-1.20
PM peak (1 hour) vehicle trips per 100 m ² of GFA.	0.56	0.16-1.50	0.78	0.39-1.30
Daily total vehicle trips	4.60	1.89-10.47	7.83	3.78-11.99

The RMS survey findings confirm survey results from Queensland where generation rates for industrial developments were found to lie in the range of 5.0vpd/100sq.m.(gfa) to 10.0vpd/100sq.m.(gfa) depending on the location of the development and the nature of industrial activity being conducted.

TPS estimates contained in the 20th May report to which TfNSW refers were based on an “average” rate of 7.5 vph/100 sq.m.(gfa) in peak hours. In order to respond to the TfNSW request we have now revised the original traffic generation and 2033 intersection traffic estimates based on the top of the any range shown in the above table. That is, a traffic generation rate of 1.2, 1.5 and 12.0 vehs/100 sq.m.(gfa) for the AM, PM and Daily periods applied to 3,500 sq.m.(gfa) or 50% of site area.

Revised traffic estimates (which TPS regards as highly improbable) are shown in the following table.

Table 2 MAXIMUM FEASIBLE Traffic Generation

	Vehs (in+out)		
	Revised	20/5/21	Increase
AM Peak Hour	45	25	20 (68%)
PM Peak Hour	55	30	25 (77%)
Daily	420	275	145 (53%)

Fig 1 shows estimated 2033 peak hour intersection volumes after adjusting for the revised traffic generation shown in Table 2.

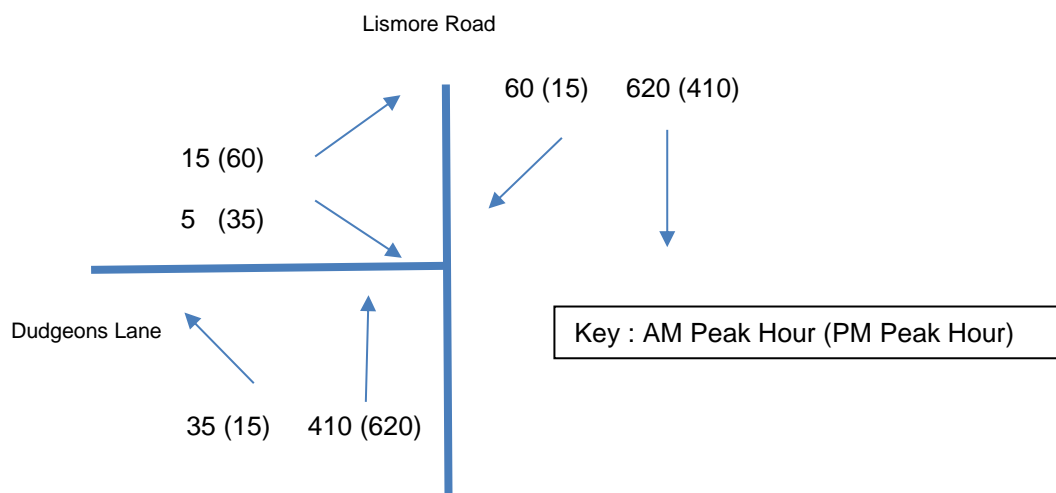


Fig 1 Maximum Feasible 2033 AM (PM) Peak Hour Traffic Volumes Based on Table 2 “Revised” Estimates

Tables 3 and 4 show SIDRA intersection performance estimates based on the 2033 peak hour volumes shown in Fig 1.

Despite the peak hour traffic generation estimates on which the TPS 20/5/21 report was based having been increased by approximately 70%, the SIDRA estimates shown in Tables 3 and 4 do not indicate any significant change in 2033 peak hour intersection operations. That is, degrees of saturation remain at approximately 35%, average delays remain at approximately 2 seconds and 95th percentile queues for any movement are less than 6.5m.

The revised estimates show conclusively that even with the maximum feasible development in the subject site, the 2033 peak hour operation of the Lismore Rd / Dudgeons Lane intersection will be significantly less than capacity and all movements will operate with minimal queues and delays.

LANE SUMMARY



Site: 101 [Lismore / Dudgeon 2033 AM (Site Folder: General)]

2033 AM Peak
Site Category: (None)
Stop (Two-Way)

Lane Use and Performance													
	DEMAND FLOWS [Total HV]		Cap.	Deg.	Lane	Aver.	Level of	95% BACK OF QUEUE		Lane	Lane	Cap.	Prob.
	veh/h	%	veh/h	Satn	Util.	Delay	Service	[Veh	Dist]	Config	Length	Adj.	Block.
				v/c	%	sec			m		m	%	%
South: Lismore													
Lane 1	35	7.5	1763	0.020	100	5.6	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	410	7.5	1859	0.221	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	445	7.5		0.221		0.5	NA	0.0	0.0				
North: Lismore													
Lane 1	620	7.5	1845	0.336	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	60	7.5	831	0.072	100	8.1	LOS A	0.3	2.0	Short	130	0.0	NA
Approach	680	7.5		0.336		0.8	NA	0.3	2.0				
West: Dudgeon													
Lane 1	15	7.5	687	0.022	100	11.0	LOS A	0.1	0.5	Short	20	0.0	NA
Lane 2	5	7.5	123	0.041	100	36.3	LOS C	0.1	0.9	Full	500	0.0	0.0
Approach	20	7.5		0.041		17.3	LOS B	0.1	0.9				
Intersection	1145	7.5		0.336		1.0	NA	0.3	2.0				

Table 3	Lismore Rd / Dudgeons Lane Estimated 2033 AM Peak Hour Intersection Operations Based on Table 2 “Revised” Estimates
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LANE SUMMARY



Site: 101 [Lismore / Dudgeon 2033 PM (Site Folder: General)]

2033 PM Peak
Site Category: (None)
Stop (Two-Way)

Lane Use and Performance													
	DEMAND FLOWS [Total HV]		Cap.	Deg. Satn	Lane Util.	Aver. Delay	Level of Service	95% BACK OF QUEUE [Veh Dist]		Lane Config	Lane Length	Cap. Adj.	Prob. Block.
	veh/h	%	veh/h	v/c	%	sec			m		m	%	%
South: Lismore													
Lane 1	15	7.5	1763	0.009	100	5.6	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	620	7.5	1859	0.333	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Approach	635	7.5		0.333		0.2	NA	0.0	0.0				
North: Lismore													
Lane 1	410	7.5	1859	0.221	100	0.1	LOS A	0.0	0.0	Full	500	0.0	0.0
Lane 2	15	7.5	618	0.024	100	9.7	LOS A	0.1	0.6	Short	130	0.0	NA
Approach	425	7.5		0.221		0.5	NA	0.1	0.6				
West: Dudgeon													
Lane 1	60	7.5	477	0.126	100	14.1	LOS A	0.4	3.2	Short	20	0.0	NA
Lane 2	35	7.5	137	0.256	100	37.8	LOS C	0.9	6.4	Full	500	0.0	0.0
Approach	95	7.5		0.256		22.8	LOS B	0.9	6.4				
Intersection	1155	7.5		0.333		2.2	NA	0.9	6.4				

Table 4

**Lismore Rd / Dudgeons Lane
Estimated 2033 PM Peak Hour Intersection Operations
Based on Table 2 “Revised” Estimates**

Relevant Design Vehicles

The Lismore Rd / Dudgeons Lane is constructed to facilitate 19m AV movements, including the design of the Lismore Road right turn lane.

It is a standard Council requirement that all roads, streets and intersections in industrial development need to facilitate 19m AV and 12.5m HRV movements, and B-Double movements where B-Double access is permitted.

Lismore Road is not a designated B-double route. Consequently, there is no requirement for designs to facilitate b-double movement.

SIDRA Estimates and "Calibration"

SIDRA "calibration" is inappropriate for a range of technical reasons.

Amongst other considerations, SIDRA calibration is only appropriate to assist high level design development and testing exercises. Further, it is of questionable value in circumstances where SIDRA is being used to forecast intersection operations many years into the future. That is primarily due to changes which occur in saturation flow rates etc. and other performance inputs as traffic demands and delays increase at an intersection over time.

Notwithstanding the above, the magnitude of any potential changes in estimates which might be arise from "calibration" of the Lismore Rd / Dudgeons Lane SIDRA model would be insignificant when compared against the exceptionally low degree of saturation, low delay and queueing which the TPS SIDRA model already predicts for the intersection in 2033.

In our view a "calibration" of the SIDRA model would be inappropriate and unproductive and would make no contribution to an objective assessment of the traffic engineering merits of the proposed development.

SIDRA Outputs

SIDRA outputs are shown in Tables 3 and 4.

The outputs provide all the information necessary to assess and decide the adequacy of the Lismore Rd / Dudgeons Lane intersection in 2033 peak hours.

If requested, TPS can provide the SIDRA 9.0 digital files.

2. Response to Item 2

2. Figure 2 of Traffic Engineering Assessment proposes a public road connection immediately adjacent to a non-operational rail corridor. The subject site is noted as having less than 30m of frontage to Dudgeons Lane suggesting any new access connection will be within safe stopping distance (SSD) of the rail level crossing.

Any future access will need to have consideration for the rail level crossing and road safety. Any access must be designed to enable through traffic to pass turning vehicles. It is recommended that the Rail Infrastructure Manager (RIM) be consulted during preparation of any future development application and prior to lodgement. Refer to the TfNSW website [here](#) for further details regarding road safety at level crossings.

The rail corridor to which TfNSW refers has been rendered permanently inoperable. Consequently, the issues raised by TfNSW regarding stopping sight distance and queueing etc. relating to the rail crossing is not relevant to traffic engineering investigations or assessing the Application.

Notwithstanding the above, the proposed location of the subdivision access on the back of a horizontal curve in Dudgeons Lane will ensure that adequate sight distances will be available to and from both directions along Dudgeons Lane.

The function of Dudgeons Lane and future traffic volume expectations for Dudgeons Lane will be such as to only require a T-intersection access arrangement with priorities to Dudgeons Lane approaches, without the need for auxiliary turn lanes.

3. Response to Item 3

3. Any expansion of the industrial uses in the subject location is likely to increase demand for heavy vehicle movements. General Access vehicles are currently approved to travel from the Pacific Highway via Bangalow and along Lismore Road to access Dudgeons Ln. Restrictions apply to larger vehicle combinations, which may travel under permit conditions in some instances. For further details refer to heavy vehicle access maps on the TfNSW website [here](#).

The Lismore to Bangalow Road Corridor Strategy (2015) describes the following planning objectives and functions for Lismore Bangalow Road (shown in *italics*). The strategy was developed jointly by RMS and Byron Shire.

- *The road is an important link between Lismore and surrounding communities, and further to the Byron coastal area. The Bruxner Highway is the major freight link between Lismore and the Pacific Highway, while the Pacific Highway, part of the National Land Transport Network, is the major link between Sydney and Brisbane.*
- *Objective - To support Lismore to Bangalow Road as general access route travelling north south between Lismore, Bangalow and Byron Bay, while complementing the Bruxner Highway as a principal freight route*
- *Currently General Access Vehicles can access the full length of the Lismore to Bangalow corridor. 19 metre long B-doubles not greater than 4.3 metres high (including its load) and carrying less than 50 tonne is allowed on all roads in NSW including Lismore to Bangalow Road.*
- *Lismore to Bangalow Road is currently not suitable for longer 26 metre B-Doubles and other Restricted Access Vehicles because of its road alignment and formation width. The Bruxner Highway provides transport and freight links between Lismore and the Pacific Highway which are suitable for 26 metres B-Doubles operating at Higher Mass Limits (HML).*

The proposed development and the nature and volume of traffic movements likely to be generated by the proposed development are entirely consistent with the above extracts from the Corridor Strategy.

The IN1 zoning which the Applicant seeks to apply to the subject land allows developments which are described previously in this response. Whilst the type and potential volume of vehicles likely to travel to and from the subject land is implicit in the allowable development descriptions, the following should be noted with respect to the TfNSW comment.

- Lismore Road is NOT nominated or approved by RMS for vehicles exceeding 19m articulated vehicles which are typically referred to as “semi-trailers”.
- The operator of any vehicle exceeding the dimensions of the above vehicle must seek approval before using Lismore Road, including travelling through Bangalow.
- Any development on land within the subject development land which requires access by vehicles exceeding the dimensions of a 19m AV will not be approved by Council (or other authorities) without the appropriate approval (permit) to operate “over-dimensional” vehicles.

In the opinion of TPS, the likely developments to occur on the subject land will not generate truck movements which require special permit, or other truck movements to the degree that the amenity of Bangalow will be affected.

4. Remarks

Based on the investigations and traffic estimates etc. described in the TPS report dated 20th May 2021 and further estimates described in this report in response to TfNSW, we continue to be of the opinion that the proposed subdivision should be approved with respect to traffic engineering matters, provided that final Lot configurations allow road widths and Lot access arrangements within the subdivision to satisfy Council standards for industrial development.

If you have any questions, please call me on 0419 722451 or email me at gholdsworth@trafficparking.com.au .

`Yours sincerely,

A handwritten signature in blue ink, appearing to read 'Glen', with a stylized flourish at the end.

Glen R Holdsworth
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