

20 December 2019

P1292 MH Blakebrook Quarry Lismore

Mitchell Hanlon Consulting
P O Box 1568
Tamworth NSW 2340

Attn: Tim McLean

Dear Tim,

Proposed modification to Blakebrook Quarry, north of Lismore, NSW

Further to our site visit and review of the documentation provided for the above development we provide the following Traffic Impact Assessment. This assessment has been prepared in accordance with the Austroads Guidelines and Section 2.3 of the RMS Guide to Traffic Generating Developments 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.

Lismore City Council (LCC) is the owner and operator of the Blakebrook Quarry which is classified as a State Significant Project (SSP). There is an existing asphalt plant that operates as an ancillary activity within the Blakebrook Quarry footprint area, with the plant having approval under a standard council DA. LCC is proposing to modify the SSP development consent to include the Asphalt plant activities, with this traffic report providing an assessment of the overall development and impact on road safety as it relates to the project and the site access.

The subject site is located to the north of Lismore off Nimbin Road, as shown in Figure 1 to follow.

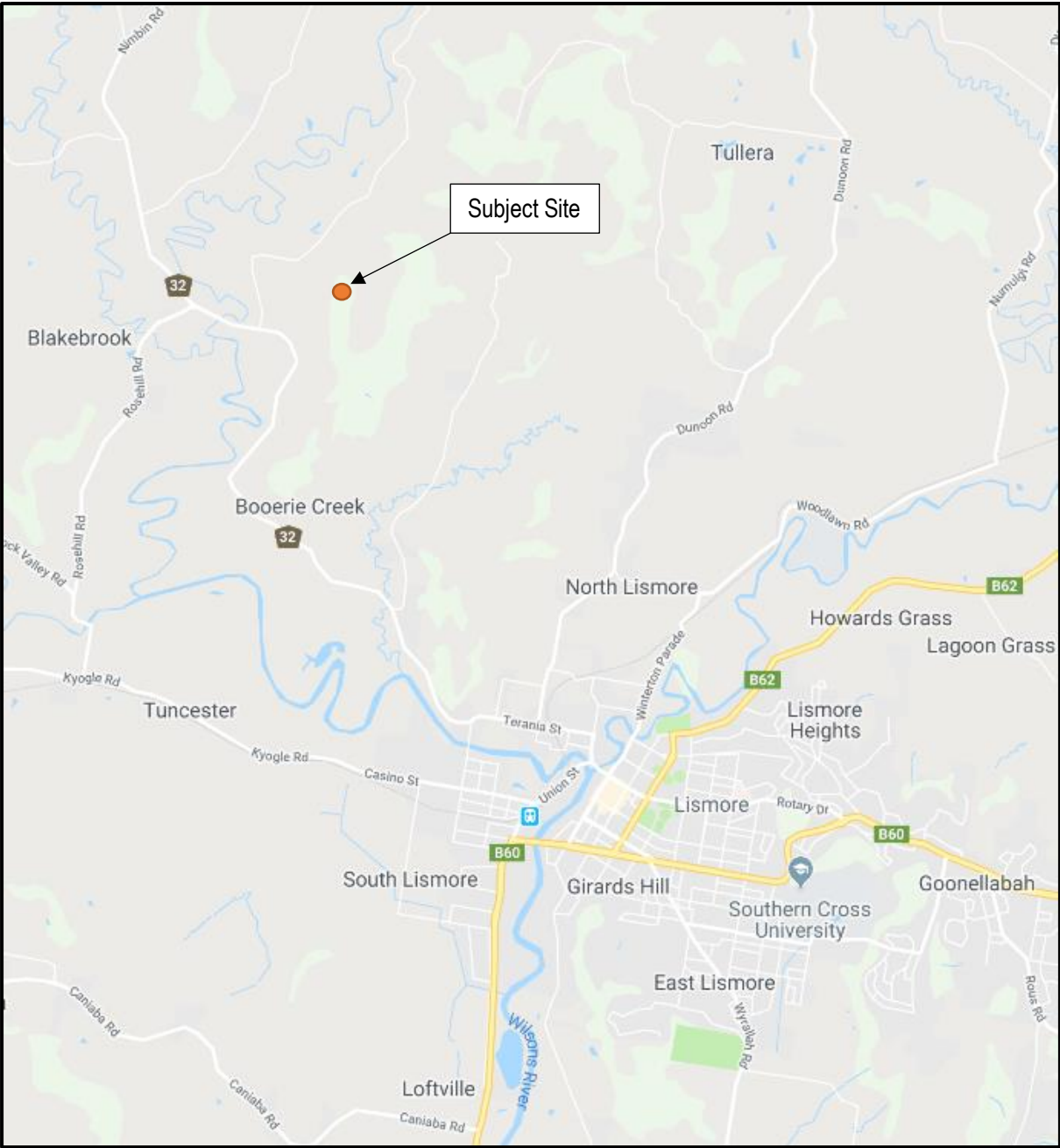


Figure 1 – Subject site in the context of the surrounding road network

Traffic Impact Assessment:

Item	Comment
Existing Situation	
2.1 Site Location and Access	The subject site is located approximately 6 kilometres north west of Lismore Town Centre, with access off Nimbin Road via a sealed access roadway (Quarry Access Road).
2.2.1 Road Hierarchy	<p>The main road through the locality is Nimbin Road which forms part of the regional road network providing connection between Lismore and Nimbin, with the network continuing on to Murwillumbah to the north.</p> <p>In the locality of the subject site it allows for a single lane of travel in each direction, with a pavement width varying between 6-8 metres. The posted speed limit is 80 km/hr in this location, with no kerb and guttering or street lighting. An auxiliary right turn treatment is provided for northbound vehicles, to allow for through traffic to pass vehicles turning into the quarry access road.</p> <p>The Quarry Access Road provides a sealed surface along its length until reaching the quarry operations, where the movements are distributed across the unsealed internal roads. It operates under the posted speed limit of 40km/hr with no kerb and guttering or street lighting provided. It has a pavement width in the order of 8.5 metres along the majority of its length, with the road widening significantly at the intersection with Nimbin Road to allow for more efficient turning movements for heavy vehicles into and out of Nimbin Road.</p> <p>To the south of the site, towards Lismore, Nimbin Road meets Wilson Street at a priority controlled T-intersection, with Nimbin Road having priority. On the southern approach to this intersection, Wilson Street provides a left turn slip lane allowing for free flow for vehicles turning left onto Nimbin Road, with an acceleration lane (140 metres) provided after which drivers are required to merge to form one lane. A channelised right turn is also provided on Nimbin Road.</p>
2.2.2 Current and Proposed Roadworks, Traffic Management Works and Bikeways	<p>There are currently no roadworks or traffic management works planned in the immediate vicinity of the subject site and no roadworks are currently occurring in this location.</p> <p>The previous conditions of consent for this development included upgrades along the quarry route all of which have been completed, including:</p> <ul style="list-style-type: none"> • Upgrade the intersection of the Quarry Access and Nimbin Road to a 'Type AUR Intersection Treatment', prior to 31 December 2010; • Upgrade the guard rails on the approaches to Booerie Creek Bridge prior to 31 December 2010; • Upgrade the Booerie Creek Road and Nimbin Road intersection to a 'Type BAR Right Turn Treatment on the Through Road' prior to 31 December 2010;

Item	Comment
	<ul style="list-style-type: none"> • Upgrade the Wilson Street and Nimbin Road intersection to a 'Type CHR Right Turn Bay Treatment' prior to 31 December 2010; and • Re-align Nimbin Road and the Quarry Access intersection to meet the AUSTROADS sight distance requirements for vehicles travelling in both directions through the intersection prior to 31 December 2011.
2.3 Traffic Flows	<p>Seca Solution have collected traffic data at the key intersection of Nimbin Road and Wilson Street during a typical morning and afternoon peak period (Monday 16th December 2019).</p> <p>The surveys show that the current peak hour traffic flows are relatively low in this location with the 2-way flow on Nimbin Road to the immediate west of this intersection being 381 in the AM peak and 333 in the PM peak.</p> <p>On Wilson Street to the immediate south of this intersection the 2 way flows were 395 vehicles in the AM peak and 306 in the PM peak.</p> <p>This intersection was observed to operate very well with very low delays and queues.</p>
2.3.1 Daily Traffic Flows	<p>It is predicted in the prior Traffic Impact Report (Roadnet 2008) that traffic growth along Nimbin Road is approximately 2.2% per annum, based on a comparison of count data between 1970 to 2007. As such, allowing for 10 years growth the current flows along Nimbin Road could be in the order of:</p> <ul style="list-style-type: none"> • Average weekday traffic volume of 3,300 vehicles north of the quarry access • Average weekday traffic volume of 3,900 vehicles near Wilson Street. <p>The RMS Guide to Traffic Generating Developments provides advice on peak hour flows typically representing 8-12% (average 10%) of daily flows. As such, the current peak hour flows along Nimbin Road would be in the order of 330 vehicles per hour near the quarry access and 390 vehicles per hour near Wilson Street.</p> <p>The traffic data collected by Seca Solution in December 2019 confirms the above traffic assumptions. Based on the peak flows typically representing around 10% of the daily flows, the daily traffic flow on Nimbin Road to the immediate west of Wilson Street is 3,570 vehicles 2-way.</p>
2.3.2 Annual Average Daily Traffic (AADT)	There is no AADT data available in the locality from the road authority.
2.3.3 Daily Traffic Flow Distribution	The majority of vehicles along Nimbin Road passing the Quarry Access Road would be southbound in the AM, reflecting drivers travelling to work or school in the Lismore area, with the reverse pattern expected to occur in the PM.
2.3.4 Vehicle Speeds	No speed surveys were completed as part of the survey work. It is considered drivers travel at or just above the posted speed limit of 80 km/hr

Item	Comment
	<p>along Nimbin Road passing the subject site, given the low traffic flows and relatively easy flowing road geometry in this location.</p>
2.3.5 Existing Site Flows	<p>The current DPE approval for the Quarry allows for up to 100 laden trucks per day, with the potential increase of this value based on future amendments to the project approval. The maximum production level for the quarry is 600,000 tonnes per annum.</p> <p>The bulk of material is transported via 30 tonne truck and dog trailer combinations (80%), with the remainder completed using 13 tonne single unit tippers (20%), giving 80 truck and dog and 20 single unit tippers per day. The number of trucks travelling on Nimbin Road is double these figures allowing for empty trucks returning to the quarry.</p> <p>All trucks pass over the existing on-site weighbridge which places a limit of 25 trucks per hour that can exit the site.</p>
2.3.6 Current Road Network Operation	<p>Observations on site indicate that the local roads currently operate well with minimal delays or congestion observed during the survey work, undertaken during a typical morning peak period. The intersection of Nimbin Road and Wilson Street has been observed in September 2018 and December 2019 and operates very well with minor delays and queues.</p> <p>The operation of this intersection has been confirmed with Sidra modelling with the results provided in Attachment B.</p> <p>Observations on site noted that there were sufficient gaps in the flow of traffic to allow turning movements onto Nimbin Road at the intersection with the quarry access, with all heavy vehicles turning left out of the site. Right turns into the site also occurred in an efficient manner given the low through movements in this location.</p> <p>The intersection of Nimbin Road and Wilson Street operated well with low delays for turning traffic. The previous upgrade to allow for a sheltered right turn lane has improved the overall operation of this intersection whilst also improving road safety. This intersection was observed during the morning and afternoon peak period when there were trucks associated with the current operations on site travelling through this intersection, together with peak hour demands associated with school and work trips by commuters.</p> <p>During the afternoon peak period, the impact of the quarry would be less at this intersection, as the peak occurs at around 4.00 to 5.00 PM and at this time of the day, there would be a lower demand for trucks exiting the quarry. Normal construction demands for quarry material require the material to be delivered in the morning for the material to be used during the day and deliveries to construction sites typically do not occur late in the afternoon accordingly.</p>
2.4 Traffic Safety and Accident History	<p>A review of the accident data provided by the RMS, for the period between July 2012 to June 2017, has found a total of 27 accidents occurred along</p>

Item	Comment
	<p>the main quarry route on Nimbin Road between the quarry access and Wilson Street. Of these accidents:</p> <p>In the year of 2013 there were 17 accidents were recorded. It is noted that since 2014 (inclusive), when all road upgrades associated with the conditions of consent for the previous expansion of Quarry operations had been completed, there have been 9 accidents based on the current road layout. Of these 9 accidents:</p> <ul style="list-style-type: none"> • No accidents occurred at the intersection of Nimbin Road and Wilson Street. • No accidents occurred at the intersection of Nimbin Road and the Quarry Access Road. • No accidents involved heavy vehicles larger than light trucks. • 5 injury accidents resulting in 7 total injuries. • Speeding was determined as a contributing factor for 7 of the 9 accidents. Fatigue was determined as a contributing factor for 1 of the 9 accidents. Only 2 of the 9 accidents did not identify a contributing factor. • The vast majority of accidents related to vehicles going off-road accounting for 8 out of 9 which could relate to speeding, with the remaining accident being a head on collision. • 8 out of 9 involved a single vehicle which could again relate to speeding, with 1 accident including 2 vehicles. <p>A further 7 accidents were recorded in the vicinity of the roundabout intersection of Wilson Street and Casino Street in the same period, with 6 different crash types determined indicating there are no obvious safety concerns at this intersection.</p> <p>Given the spread of accident types, as well as the distribution over the length of the route studied, it is considered the road layout provides an adequate level of safety for road users. There were no accidents recorded at the key intersections on Nimbin Road, whilst the roundabout intersection of Wilson Street and Casino Street recorded no accidents involving heavy vehicles larger than light trucks.</p> <p>The accident data provided by the RMS can be found in Attachment A.</p>
2.5 Parking Supply and Demand	
2.5.1 On-street Parking Provision	There is no provision for vehicles to park along Nimbin Road passing the subject site, with minimal shoulder width available. Similarly, there is no provision for vehicles to park along the quarry access road.
2.5.2 Off-street Parking Provision	No formal off street parking in the general locality of the subject site.
2.5.3 Parking Demand and Utilisation	No vehicles observed parked on the local streets in the vicinity of the subject site, with the local residents parked within the individual lots.
2.5.4 Set down or pick up areas	No set down or pick up areas are provided in locality.

Item	Comment
2.6 Public Transport	
2.6.1 Rail Station Locations	The site is not serviced by a train line, with Lismore Station being located over 5.5 kilometres to the south.
2.6.2 Bus Stops and Associated Facilities	<p>There are no formal bus stops or facilities in the locality of the subject site.</p> <p>There is a widened road verge along the eastern side of Nimbin Road, approximately 50 metres south of the Quarry Access Road, that allows sufficient area for a bus to pull in off the roadway for pick up/ set down.</p>
2.6.3 Transport Services	<p>There is minimal public transport in this location reflecting the rural nature of the site.</p> <p>Bus route 650 operates along Nimbin Road passing the subject site, with this service provided by Waller's Bus Company. Services are provided Monday to Friday at limited times throughout the day, with services centred around school pick up and drop off periods.</p> <p>Bus Route 652 operates between Lismore and Tuntab Creek, passing the subject site, with limited services Monday to Friday.</p> <p>Tourist coaches and Community Transport buses also use the road network comprising the haul route.</p>
2.7 Pedestrians Network	<p>There are no pedestrian or cyclist's facilities in the locality of the subject site. Given the relatively remote location of the area it can be seen that there is little if any demand for pedestrians or cyclists in this location.</p> <p>There are no pedestrian paths in the locality of the subject site, reflective of its semi-rural setting and lack of demand. No pedestrians were observed during the site work.</p>
2.8 Other Proposed Developments	No other significant developments have been noted in the locality.
The Development	
3.1.1 Nature of Development	<p>This proposal relates to the modification to the existing State Significant Project (SSP) consent for the Blakebrook Quarry, to include the Asphalt Plant operations which currently occur as an ancillary activity on site under a separate consent (Council DA).</p> <p>The current approval for the site allows for:</p> <ul style="list-style-type: none"> Quarry Operations (including loading and dispatch of trucks) between 7am-6pm Monday to Friday and 7am-3pm on Saturdays, with no operations on Sundays/Public Holidays Asphalt Plant operations between 6am-5:30pm Monday to Saturday, with no operations on Sundays/Public Holidays <p>There are no changes proposed to the existing operating hours for the site.</p> <p>This proposal seeks approval for a <i>maximum</i> of 150 laden truck movements per day with 125 per day on average, inclusive of quarry and asphalt plant operations, with the asphalt production to increase from 15,000 tonnes per annum to 50,000 tonnes per annum.</p>

Item	Comment
3.1.2 Access and Circulation Requirements	There are no changes proposed to the existing access and transport routes for the development, with the internal site layout to operate as per the current situation. A Driver Code of Conduct is applicable to all heavy vehicle drivers for the site, which enforce all relevant conditions of consent for the development.
3.2 Access	
3.2.1 Driveway Location	<p>The existing Quarry Access Road, off Nimbin Road, shall continue to provide access to the subject site.</p> <p>The internal road layout for the quarry and asphalt plant is well defined, with no changes as part of this proposal.</p>
3.2.2 Sight Distances	<p>Sight distance requirements for intersections are outlined in the Austroads Guide to Road Design Part 4A, the critical requirement being safe intersection sight distance (SISD). SISD has been assessed for the critical intersections associated with the project site development.</p> <p><i>Nimbin Road / Quarry Access Road Intersection</i></p> <p>For the posted speed limit of 80km/hr on Nimbin Road the Austroads Guide states an SISD of 181 metres. The access road was recently realigned to allow for improved visibility in both directions. There is a minimum of 190 metres of visibility available to the left (south) out of the site access. The regular trimming of vegetation along the interior of the road curve in this location allows for visibility to the right (north) of approximately 240 metres.</p> <p>As such, sight distance out of the Quarry Access Road satisfies the requirements of Austroads.</p>
3.2.3 Service Vehicle Access	The site requires minimal waste vehicle access. The site will cater for truck and dog combinations and as such will cater for waste vehicle movements when required. There may be occasional servicing/maintenance requirements for the plant on site but this is minimal.
3.2.4 Queuing at entrance to site	The access road layout ensures no vehicle queues will extend back onto Nimbin Road, with this road travelling for approximately 900 metres, with no potential hold points, prior to reaching the Quarry operations.
3.2.5 Comparison with existing site access	There is no change proposed as part of the project work to the existing driveway which was upgraded as part of the prior approval to ensure that safety is maintained.
3.2.6 Access to Public Transport	The site is not easily accessible by public transport and it is considered that there is no demand for public transport associated with the site.
3.3 Circulation	
3.3.1 Pattern of circulation	All vehicles can enter and exit the site in a forward direction and circulate within the site using the various internal roads as required.

Item	Comment
3.3.2 Internal Road width	<p>The existing access road to the site allows for two-way traffic movements including heavy vehicles, with a width of approximately 8.5 metres along the majority of its length including narrow sealed shoulders.</p> <p>The internal roads for the site provide sufficient width for heavy vehicles (up to truck and dog trailer combinations) to circulate through the Quarry, as well as access the Asphalt Plant. There are no changes to the existing internal circulation or road widths as part of this proposal.</p>
3.3.3 Internal Bus Movements	No requirement for buses to access the development.
3.3.4 Service Area Layout	<p>No dedicated service area is required.</p> <p>Any on-site servicing requirements for machinery is performed adjacent to the machines on site and can be completed in a safe manner. There shall be internal site controls under OH&S requirements which govern these activities.</p>
3.4 Parking	<p>There are no changes proposed to the existing supply of parking on site. The existing on-site parking provision is sufficient to meet the demands of the work force based on site, with no increases to this work force as part of this proposal.</p> <p>Parking for visitors and any maintenance/servicing personnel can be catered for on site as required.</p>
3.5 Pedestrian and Bicycle Facilities	<p>There are no demands for on-site pedestrian or cyclist movements by the general public.</p> <p>All staff movements on the site are controlled by existing OH&S requirements for the site. Drivers associated with transport of materials follow appropriate controls and signage within the site, in accordance with the existing Driver Code of Conduct.</p>
Traffic Assessment	
4.1 Traffic Generation	<p>The existing approval for the site allows for up to 100 laden trucks per day in association with the Quarry. It is understood that based on the current high demand for materials the Quarry is distributing close to its production limit over the course of the year. Laden movements associated with the asphalt plant vary throughout the year, with an average of 14 heavy vehicles per day and in the order of 20 per day during periods of higher demand. The site is physically limited to 25 laden trucks outbound per hour by the on-site weighbridge operations.</p> <p>The proposed movements inclusive of both operations entails an increase to a maximum of 150 laden trucks per day, with an average in the order of 125 trucks per day. As such, the proposal could see an additional 50 laden truck movements per day during periods of high demand due to the maximum daily increasing from 100 to 150 trucks per day.</p> <p>Based on the site operations occurring over 11 hours, the proposal could generate 14 trucks per hour, an increase of 5 per hour over the current 9 trucks per hour. However, the average number of outbound trucks is</p>

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	<p>considered to be 125 per day, generating 11 outbound truck movements per hour.</p> <p>For both the current and future situation the absolute maximum number of outbound trucks per hour is 25, based upon the capacity of the weighbridge on site. The weighbridge will not be upgraded as part of this project and as such this upper limit on hourly flows will remain.</p>
4.1.1 Daily and Seasonal Factors	The traffic generated by the subject site is dictated by the demand for materials which can vary throughout the year, with high demand seeing the site operate at the upper limit of the approval being sought (150 per day outbound) and low demand periods potentially seeing much lower movements over the course of the day.
4.1.2 Pedestrian Movements	There are no external pedestrian demands generated by the project.
4.2 Traffic Distribution and Assignments	
4.2.1 Origin / destinations assignment	Currently, the quarry delivers approximately 5% of product to the north of the site. The remaining material is transported towards Lismore, south of the quarry. From this material, approximately 30% is taken along Terania Street. Approximately 70% of the material is transported via Wilson Street to the Bruxner Highway or Ballina Road and deposited in the industrial area and the CBD. It is considered the asphalt plant truck movements would be distributed in a similar manner.
4.3 Impact on Road Safety	<p>The surrounding roads and intersections have been upgraded in recent years in order to ensure road safety can be managed. There are no changes proposed to the current transport routes. Given the minor increase in additional movements per hour, it is considered there are no further safety issues generated by the proposed modification to consent for the site operations.</p> <p>A review of the accident data provided by the RMS indicates there has been a low number of accidents along the primary transport route since 2014 (the year all road works required for the previous modification approval to the Quarry were completed), with no accidents occurring involving vehicles related to the dispatch of materials from the subject site.</p> <p>Drivers associated with the quarry and asphalt plant are required to follow road rules and signage at all times. Safety and appropriate driver behaviour is reinforced through the existing OH&S Guidelines and Drivers Codes of Conduct. During the site work trucks associated with the quarry were observed driving along Wilson Street and past the Lismore South Public School during the morning drop off period. The drivers of these trucks were all observing the 40 km/h speed zone and driving in an appropriate and safe manner. This is reinforced through the Drive Code of Conduct for the project site.</p>
4.4.1 Impact on Daily Traffic Flows	There will be an increase in daily flows of up to 100 heavy vehicles (50 laden/50 unladen) during periods of peak demand as a result of this proposal. This increase shall be distributed across the normal 11 hour

Item	Comment
	working day, thereby limiting the impact upon the capacity of the road network which currently operates well based on observations on site. This will give typically around 5-6 extra truck movements per hour (5-6 inbound and 5-6 outbound).
4.4.2 Peak Hour Impacts on Intersections	<p>The key intersections impacted by the project site have been observed during a typical morning peak period to review the operations and road safety at these key locations. The increase in heavy vehicles per day could see an additional 6 vehicles per hour per direction, including during the peak periods.</p> <p>All intersections along the primary transport route are currently operating well within their capacity, with sufficient spare capacity to accommodate the minor increase in peak hour vehicles movements as a result of this proposal. Previous road upgrades have improved the safety at the site access and at Wilson Street whilst also increasing the capacity of these two intersections by providing a sheltered right turn lane. These turn lanes ensure that through traffic movements experience minimal delays due to right turning traffic.</p> <p>The operation of Nimbin Road and Wilson Street has been observed during the morning and afternoon peak periods and has been assessed with Sidra modelling. The Sidra modelling demonstrates that this intersection is working very well with levels of service on each approach of A, the highest level of service with minimum delays and queues. The potential for 5-6 additional trucks per hour to turn right here shall have a minimal impact upon these delays and the future level of service shall remain at AB.</p> <p>Other intersections along the haul routes typically operate very well with low delays and queues. The haul route via Wilson Street and Three Chain Road to the Bruxner Highway operates very well with minimal delays during the peak periods. The roundabout controlled intersection with the Bruxner Highway operates very well with minimal delays and congestion and is considered to have capacity for the on-going use of the project site. The additional 6 truck movements per hour inbound and outbound shall have a minimal impact at this roundabout.</p>
4.4.3 Impact of Construction Traffic	No construction work is required as part of the project.
4.4.4 Other Developments	No other developments noted in the general vicinity of the site.
4.5 Public Transport	
4.5.1 Options for improving services	None proposed or required.
4.5.2 Pedestrian Access to Bus Stops	No bus stops and no demands.
4.6 Recommended Works	
4.6.1 Improvements to Access and Circulation	On-site WH&S controls should be maintained to ensure safety is maximised.

Item	Comment
4.6.2 Improvements to External Road Network	<p>None required. The site will not generate additional traffic demands over the existing use on the site during the peak hours which are well within the capacity of the surrounding road network.</p> <p>The existing Driver Code of Conduct stipulates access routes in and out of the project site to ensure that the routes nominated in this assessment are utilised by the truck drivers.</p>
4.6.3 Improvements to Pedestrian Facilities	No pedestrian footpath upgrades required as part of this development.
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	None.
4.6.6 Provision of LATM Measures	None Required
4.6.7 Funding	No external works to be funded.

Site Photos



Photo 1 – View to right for drivers exiting the Quarry Access Road onto Nimbin Road



Photo 2 – View to the left for drivers exiting the Quarry Access Road onto Nimbin Road



Photo 3 – AUR provided on Nimbin Road for the right turn movement into the Quarry Access Road



Photo 4 – Trucks turning signage on the southbound approach to the access road

Conclusion:

From the site work undertaken and the review of the development proposal against the requirements of the RMS Guide to Traffic Generating Developments and Austroads Guide to Traffic Management, it is considered that the proposed modification of the SSP consent for the existing Blakebrook Quarry to include the ancillary Asphalt Plant operations should be approval based on traffic and access grounds.

There are no changes proposed to the existing staff arrangement, with an increase in the production limit for the Asphalt Plant from the current 15,000 tonnes to 50,000 tonnes. As such, there shall be an increase in daily traffic volumes as a result of the proposal, with maximum daily flows increasing from the current approval of 100 laden trucks to 150 per day maximum. This will generate typically 5-6 additional truck movements per hour per direction when the site is operating at maximum capacity.

Road safety has been reviewed and accident data obtained, which shows that the current operation of the road network in this location is safe and acceptable. The prior modification to consent for the quarry operations included a number of road upgrades, that have since been completed, to ensure the heavy vehicle movements (up to 150 per day maximum) could be accommodated within the road network.

The key intersection of Nimbin Road and the Quarry Access Road has been assessed against Austroads Guidelines and sight lines exceed the requirements of this guide. The haulage route has been assessed to ensure adequate safety, with the current intersections providing sufficient capacity to cater for the turn movements associated with the heavy vehicles used for the material haulage.

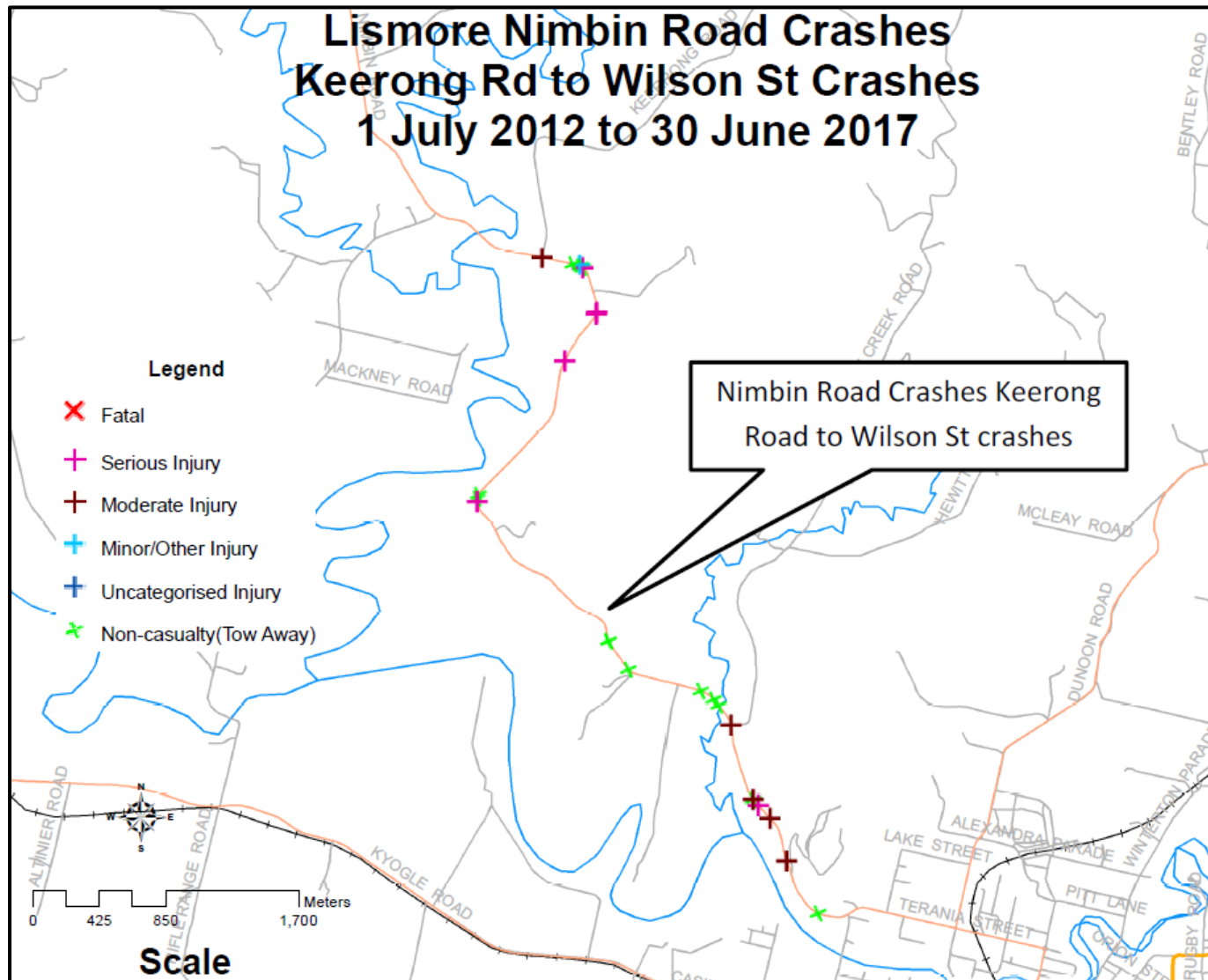
Please feel free to contact me our office on 4032 7979, should you have any queries.

Yours sincerely,




Tyler Neve
Traffic Engineer

Attachment A: Accident Data




Centre for Road Safety

Crashid dataset SECA Lismore Nimbin Rd Keerong Rd to Wilson St 1 July 2012 to 30 June 2017

Detailed Crash Report																							 Transport for NSW Centre for Road Safety	
Crash No.	Data Source	Date	Day of Week	Time	Distance	ID Feature	Loc Type	Alignment	Weather	Surface Condition	Speed Limit	No. of Tus	Tu Type/Obj	Age/Sex	Street Travelling	Speed Travelling	Manoeuvre	Degree of Crash-Detailed Killed	Seriously Inj.	Moderately Inj.	Minor/Other Inj.	Uncateg'd Inj.	Factors	
Northern Region																								
Lismore LGA																								
Blakebrook																								
Nimbin Rd																								
839059	P	20/05/2013	Mon	16:00	1 km	N BOOERIE CREEK RD	2WY	STR	Fine	Dry	80	1	CAR	M U	N in NIMBIN RD	50	Proceeding in lane	NC	0	0	0	0		
E51417075							RUM	71	Off rd left => obj			Tree/bush												
834256	P	09/04/2013	Tue	00:01	1 km	W BOOERIE CREEK RD	2WY	CRV	Fine	Dry	80	1	CAR	U U	W in NIMBIN RD	80	Proceeding in lane	NC	0	0	0	0	S F	
E50903627							RUM	80	Off left/right bend															
1028602	P	01/06/2014	Sun	05:00	100 m	E KEERONG RD	2WY	CRV	Fog or mist	Wet	80	1	CAR	F48	N in NIMBIN RD	65	Proceeding in lane	NC	0	0	0	0	S	
E55078764							RUM	87	Off lft/lft bnd=>obj			Embankment												
824113	P	21/01/2013	Mon	08:00	200 m	E KEERONG RD	2WY	CRV	Raining	Wet	80	1	4WD	F46	W in NIMBIN RD	50	Proceeding in lane	NC	0	0	0	0	S	
E51194139							RUM	87	Off lft/lft bnd=>obj			Fence (prior to 2014)												
856369	P	20/09/2013	Fri	15:30	575 m	S KEERONG RD	2WY	CRV	Fine	Dry	80	1	TRK	M34	N in NIMBIN RD	Unk	Proceeding in lane	SC	0	1	0	1	S F	
E52385627							RUM	81	Off left/rt bnd=>obj			Fence												
1135455	P	12/02/2017	Sun	14:58	600 m	S KEERONG RD	2WY	CRV	Fine	Dry	80	1	M/C	M24	S in NIMBIN RD	80	Proceeding in lane	SC	0	1	0	0	S	
E65729877							RUM	81	Off left/rt bnd=>obj			S/Barrier - Guardrail												
840949	P	31/05/2013	Fri	15:20	2 km	S KEERONG RD	2WY	CRV	Fine	Dry	80	1	CAR	F25	S in NIMBIN RD	50	Proceeding in lane	NC	0	0	0	0	S	
E51410406							RUM	85	Off rt/lft bnd=>obj			Fence (prior to 2014)												
1045576	P	07/09/2014	Sun	10:37		at KEERRONG RD	TJN	STR	Fine	Dry	80	1	WAG	M44	W in NIMBIN RD	20	Proceeding in lane	MC	0	0	1	0		
E56129277							RUM	71	Off rd left => obj			Tree/bush												
849432	P	15/02/2013	Fri	08:30	270 m	E KEERRONG RD	2WY	CRV	Overcast	Wet	80	2	CAR	M57	W in NIMBIN RD	70	Incorrect side	SC	0	1	0	0		
E50345814							RUM	20	Head on			4WD F34 E in NIMBIN RD		65 Proceeding in lane										
1106933	P	14/06/2016	Tue	15:00	5 km	N LISMORE TN	2WY	CRV	Raining	Wet	80	1	CAR	F36	N in NIMBIN RD	55	Proceeding in lane	MC	0	0	1	0	S	
E61760131							RUM	87	Off lft/lft bnd=>obj			Embankment												
1120454	S	21/11/2016	Mon	16:02	170 m	N NUMBER 540 HN	2WY	CRV	Fine	Dry	50	1	UTE	M61	N in NIMBIN RD	Unk	Proceeding in lane	NC	0	0	0	0	S	
E62737452							RUM	87	Off lft/lft bnd=>obj			S/Barrier - Guardrail												
856429	P	07/10/2013	Mon	12:57	5 km	N TERANIA ST	2WY	CRV	Fine	Dry	80	1	M/C	M30	S in NIMBIN RD	Unk	Proceeding in lane	SC	0	2	0	0	S F	
E101825901							RUM	85	Off rt/lft bnd=>obj			Fence (prior to 2014)												
Booerie Creek																								
Nimbin Rd																								
1075264	P	07/05/2015	Thu	16:02		at BOOERIE CREEK RD	TJN	CRV	Fine	Dry	80	1	TRK	M65	S in NIMBIN RD	80	Proceeding in lane	MC	0	0	1	0	S	
E58383542							RUM	80	Off left/right bend															
1090093	P	07/12/2015	Mon	11:55	150 m	N BOOERIE CREEK RD	2WY	CRV	Fine	Dry	80	1	WAG	M54	S in NIMBIN RD	60	Proceeding in lane	NC	0	0	0	0	S F	
E59910438							RUM	81	Off left/rt bnd=>obj			Drain/culvert												

Detailed Crash Report


Detailed Crash Report																									 Transport for NSW	
Centre for Road Safety																										
Crash No.	Data Source	Date	Day of Week	Time	Distance	ID Feature	Loc Type	Alignment	Weather	Surface Condition	Speed Limit	No. of Tus	Tu Type/Obj	Age/Sex	Street Travelling	Speed Travelling	Manoeuvre	Degree of Crash-Detailed Killed	Seriously Inj.	Moderately Inj.	Minor/Other Inj.	Uncateg'd Inj.	Factors			
S F																										
1095520 S	03/03/2016	Thu	08:33	200 m	N	BOOERIE CREEK RD	2WY	CRV	Raining	Wet	80	1	WAG F64	N in NIMBIN RD		Unk	Proceeding in lane	NC	0	0	0	0	0	S		
E60582557							RUM 87		Off lft/lft bnd=>obj				Fence													
1005284 P	20/09/2013	Fri	19:30	300 m	N	BOOERIE CREEK RD	2WY	CRV	Fine	Dry	80	1	TRK M43	N in NIMBIN RD		80	Proceeding in lane	NC	0	0	0	0	0			
E451962191							RUM 67		Struck animal				Straying stock													
837083 P	14/05/2013	Tue	11:00	2.3 km	N	BOOERIE CREEK RD	2WY	CRV	Raining	Wet	80	1	CAR M50	N in NIMBIN RD		60	Proceeding in lane	NC	0	0	0	0	0	S		
E51302005							RUM 82		Off right/right bend																	
846071 P	13/07/2013	Sat	06:45	500 m	S	BOOERIE CREEK RD	2WY	CRV	Fog or mist	Wet	80	1	CAR M19	S in NIMBIN RD		60	Proceeding in lane	NC	0	0	0	0	0	F		
E51896475							RUM 85		Off r/lft bnd=>obj				Fence (prior to 2014)													
845393 P	14/07/2013	Sun	22:00	500 m	S	BOOERIE CREEK RD	2WY	CRV	Overcast	Wet	80	1	CAR M18	S in NIMBIN RD		100	Proceeding in lane	MC	0	0	1	0	0	S		
E54583388							RUM 87		Off lft/lft bnd=>obj				Fence (prior to 2014)													
847688 P	31/07/2013	Wed	17:53	500 m	S	BOOERIE CREEK RD	2WY	CRV	Fine	Dry	80	1	4WD M30	S in NIMBIN RD		80	Proceeding in lane	SC	0	1	0	0	0	S		
E52158554							RUM 87		Off lft/lft bnd=>obj				Fence (prior to 2014)													
855925 P	28/10/2013	Mon	11:57	550 m	S	BOOERIE CREEK RD	2WY	CRV	Fine	Dry	80	1	M/C M61	S in NIMBIN RD		80	Proceeding in lane	SC	0	1	0	0	0	S F		
E55109589							RUM 85		Off r/lft bnd=>obj				Drain/culvert													
839872 P	13/04/2013	Sat	13:15	250 m	E	KEERONG RD	2WY	CRV	Raining	Wet	80	1	CAR F68	W in NIMBIN RD		70	Proceeding in lane	OC	0	0	0	1	0	S		
E51532273							RUM 85		Off r/lft bnd=>obj				Tree/bush													
1067922 P	28/02/2015	Sat	11:25			at NUMBER 359 HN	2WY	CRV	Fine	Dry	80	2	M/C M45	S in NIMBIN RD		70	Incorrect side	SC	0	1	2	0	0			
E57440161							RUM 20		Head on				VAN M57	N in NIMBIN RD		55	Proceeding in lane									
853703 P	16/09/2013	Mon	19:40	4.3 km	S	ROSEHILL RD	2WY	CRV	Raining	Wet	100	1	CAR F17	N in NIMBIN RD		80	Proceeding in lane	NC	0	0	0	0	0	S		
E52956073							RUM 83		Off r/lft bnd=>obj				Tree/bush													
Lismore																										
Nimbin Rd																										
830740 P	19/03/2013	Tue	13:35	10 m	S	NUMBER 90 HN	2WY	STR	Fine	Dry	80	1	VAN M20	E in NIMBIN RD		100	Incorrect side	MC	0	0	1	0	0	S		
E51365428							RUM 71		Off rd left => obj				Drain/culvert													
North Lismore																										
Nimbin Rd																										
811287 P	07/09/2012	Fri	21:45	200 m	W	WILSON ST	2WY	CRV	Fine	Dry	60	1	CAR F61	W in NIMBIN RD		60	Proceeding in lane	NC	0	0	0	0	0			
E49123157							RUM 81		Off left/rft bnd=>obj				Utility pole													
852685 P	17/09/2013	Tue	10:45	600 m	W	WILSON ST	2WY	CRV	Fine	Dry	100	1	4WD M66	W in NIMBIN RD		60	Proceeding in lane	MC	0	0	1	0	0			
E52366611							RUM 85		Off r/lft bnd=>obj				Drain/culvert													
Report Totals: Crashes: 27																										
Fatal Crashes(FC): 0																										
Serious Injury Crashes(SC): 7																										
Moderate Injury Crashes(MC): 6																										
Minor/Other Injury Crashes(OC): 1																										
Uncategorised Injury Crashes(UC): 0																										
Non-Casualty Crashes(NC): 13																										
Killed(K): 0																										
Seriously Injured(S): 8																										
Moderately Injured(M): 8																										
Minor/Other Injured(O): 2																										
Uncategorised Injured(U): 0																										

Lismore Wilson St Casino St Terania St Intersection Crashes 1 July 2012 to 30 June 2017



CASUALTIES 4

# Crash Type			Contributing Factors			Crash Movement			CRASHES			CASUALTIES							
Car Crash	7	100.0%	Speeding	0	0.0%	Intersection, adjacent approaches	2	28.6%	Fatal	0	0.0%	Killed	0	0.0%					
Light Truck Crash	3	42.9%	Fatigue	0	0.0%	Head-on (not overtaking)	0	0.0%	Serious inj.	1	14.3%	Seriously inj.	1	25.0%					
Rigid Truck Crash	0	0.0%				Opposing vehicles; turning	1	14.3%	Moderate inj.	0	0.0%	Moderately inj.	0	0.0%					
Articulated Truck Crash	0	0.0%				U-turn	0	0.0%	Minor/Other inj.	2	28.6%	Minor/Other inj.	3	75.0%					
*Heavy Truck Crash	(0)	(0.0%)				Rear-end	1	14.3%	Uncategorised inj.	0	0.0%	Uncategorised inj.	0	0.0%					
Bus Crash	0	0.0%				Lane change	0	0.0%	Non-casualty	4	57.1%	^ Unrestrained	0	0.0%					
"Heavy Vehicle Crash	(0)	(0.0%)				Parallel lanes; turning	0	0.0%	Self Reported Crash			3	42.86%	^ Belt fitted but not worn, No restraint fitted to position OR No helmet worn					
Emergency Vehicle Crash	0	0.0%				Vehicle leaving driveway	0	0.0%	Time Group			% of Day							
Motorcycle Crash	0	0.0%				Overtaking; same direction	0	0.0%	00:01 - 02:59			0	0.0%	12.5%	1	2016	2		
Pedal Cycle Crash	0	0.0%				Hit parked vehicle	0	0.0%	03:00 - 04:59			0	0.0%	8.3%	2	2015	0		
Pedestrian Crash	0	0.0%				Hit railway train	0	0.0%	05:00 - 05:59			0	0.0%	4.2%	1	2014	0		
						Hit pedestrian	0	0.0%	06:00 - 06:59			0	0.0%	4.2%	2	2013	2		
						Permanent obstruction on road	0	0.0%	07:00 - 07:59			0	0.0%	4.2%	1	2012	0		
						Hit animal	0	0.0%	08:00 - 08:59			0	0.0%	4.2%					
						Off road, on straight	1	14.3%	09:00 - 09:59			1	14.3%	4.2%					
						Off road on straight, hit object	1	14.3%	10:00 - 10:59			2	28.6%	4.2%					
						Out of control on straight	0	0.0%	11:00 - 11:59			0	0.0%	4.2%					
						Off road, on curve	0	0.0%	12:00 - 12:59			0	0.0%	4.2%					
						Off road on curve, hit object	0	0.0%	13:00 - 13:59			0	0.0%	4.2%					
						Out of control on curve	0	0.0%	14:00 - 14:59			0	0.0%	4.2%					
						Other crash type	1	14.3%	15:00 - 15:59			0	0.0%	4.2%					
									16:00 - 16:59			1	14.3%	4.2%					
									17:00 - 17:59			2	28.6%	4.2%					
									18:00 - 18:59			1	14.3%	4.2%					
									19:00 - 19:59			0	0.0%	4.2%					
									20:00 - 21:59			0	0.0%	8.3%					
									22:00 - 24:00			0	0.0%	8.3%					
									Street Lighting Off/Nil			% of Dark			McLean Periods			% Week	
									1			of	1	in Dark	100.0%	A	0	0.0%	17.9%
																B	0	0.0%	7.1%
																C	2	28.6%	17.9%
																D	1	14.3%	3.5%
																E	0	0.0%	3.6%
																F	1	14.3%	10.7%
																G	2	28.6%	7.1%
																H	1	14.3%	7.1%
																I	0	0.0%	12.5%
																J	0	0.0%	10.7%
#Holiday Periods																			
New Year	0	0.0%	Easter	0	0.0%	Queen's BD	0	0.0%	Christmas	0	0.0%	Easter SH	0	0.0%	Sept./Oct. SH	0	0.0%		
Aust. Day	0	0.0%	Anzac Day	0	0.0%	Labour Day	0	0.0%	January SH	0	0.0%	June/July SH	2	28.6%	December SH	0	0.0%		



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Detailed Crash Report

Crash No.	Data Source	Date	Day of Week	Time	Distance	ID Feature	Loc Type	Alignment	Weather	Surface Condition	Speed Limit	No. of Tus	Tu Type/Obj	Age/Sex	Street Travelling	Speed Travelling	Manoeuvre	Degree of Crash-Detailed Killed	Seriously Inj.	Moderately Inj.	Minor/Other Inj.	Uncateg'd Inj.	Factors
Northern Region																							
Lismore LGA																							
Lismore																							
Casino St																							
803529 P	02/07/2012	Mon	17:10			at WILSON ST	RDB	STR	Fine	Dry	50	1	CAR	M17	E in CASINO ST	45	Proceeding in lane	NC	0	0	0	0	0
E48777468							RUM	70	Off road to left														
South Lismore																							
Casino St																							
1026239 P	09/05/2014	Fri	18:00			at WILSON ST	RDB	STR	Fine	Dry	50	2	CAR	M34	W in CASINO ST	50	Proceeding in lane	NC	0	0	0	0	0
E56560087							RUM	10	Cross traffic				CAR	M37	S in WILSON ST	50	Proceeding in lane						
1074187 S	12/07/2015	Sun	16:55			at WILSON ST	RDB	STR	Fine	Dry	50	2	VAN	M U	E in CASINO ST	Unk	Other forward	NC	0	0	0	0	0
E253229394							RUM	39	Other same direction				TRK	M U	E in CASINO ST	Unk	Other forward						
1081281 S	09/10/2015	Fri	10:15			at WILSON ST	RDB	STR	Fine	Dry	50	2	4WD	F52	N in WILSON ST	Unk	Proceeding in lane	NC	0	0	0	0	0
E59772451							RUM	10	Cross traffic				TRK	F49	E in CASINO ST	Unk	Proceeding in lane						
1109142 S	12/03/2016	Sat	09:59			at WILSON ST	RDB	CRV	Fine	Dry	50	2	TRK	M42	W in CASINO ST	Unk	Turning right	OC	0	0	0	2	0
E217479998							RUM	21	Right through				4WD	F48	E in CASINO ST	Unk	Proceeding in lane						
850485 P	12/09/2013	Thu	10:20	10 m	W	WILSON ST	RDB	STR	Fine	Dry	50	3	VAN	F38	E in CASINO ST	30	Proceeding in lane	OC	0	0	0	1	0
E53026671							RUM	30	Rear end				CAR	F27	E in CASINO ST	0	Stationary						
													CAR	M59	E in CASINO ST	0	Stationary						
Wilson St																							
836317 P	12/04/2013	Fri	17:34	25 m	N	CASINO ST	2WY	STR	Raining	Wet	50	1	WAG	M31	S in WILSON ST	50	Proceeding in lane	SC	0	1	0	0	0
E52924982							RUM	73	Off rd rght => obj				Tree/bush										
<div> <div>Report Totals: Crashes: 7</div> <div>Fatal Crashes(FC): 0</div> <div>Serious Injury Crashes(SC): 1</div> <div>Moderate Injury Crashes(MC): 0</div> <div>Minor/Other Injury Crashes(OC): 2</div> <div>Uncategorised Injury Crashes(UC): 0</div> <div>Non-Casualty Crashes(NC): 4</div> </div> <div> <div>Killed(K): 0</div> <div>Seriously Injured(S): 1</div> <div>Moderately Injured(M): 0</div> <div>Minor/Other Injured(O): 3</div> <div>Uncategorised Injured(U): 0</div> </div>																							
Crashid dataset SECA Lismore Wilson St Casino St Terania St Crashes Crash self reporting, including self reported injuries began Oct 2014. Trends from 2014 are expected to vary from previous yrs. More unknowns are expected in self reported data. Reporting yrs 1996-2004 and 2018 onwards contain uncategorised inj crashes.																							

Appendix B – Sidra output

The intersection of Nimbin Road / Terania Street / Wilson Street has been modelled using *Sidra Intersection 8* to determine its assess its current operation and available capacity during the morning (8:00am-9:00am) and afternoon (4pm-5pm) peak periods. The results of this assessment are summarised below.

Table 1 - Sidra Results - 2019 Existing Situation - AM Peak (8:00am-9:00am)

Approach	Movement	Level of Service	Ave. Delay (s)	95 th Percentile Queue (m)
Wilson Street (northbound)	Left Turn	A	7.8	9.1
	Right Turn	A	11.1	
Terania Street (westbound)	Left Turn	A	7.9	4.8
	Through	A	0.3	
Nimbin Road (eastbound)	Through	A	0.0	0.0
	Right Turn	A	7.0	1.8

Table 2 - Sidra Results - 2019 Existing Situation - PM Peak (4:00pm-5:00pm)

Approach	Movement	Level of Service	Ave. Delay (s)	95 th Percentile Queue (m)
Wilson Street (northbound)	Left Turn	A	8.0	6.6
	Right Turn	A	9.4	
Terania Street (westbound)	Left Turn	A	7.6	3.7
	Through	A	0.1	
Nimbin Road (eastbound)	Through	A	0.0	0.0
	Right Turn	A	7.3	0.9

The above results indicate that the intersection Nimbin Road / Terania Street / Wilson Street is currently operating well within its capacity, with minimal delays and queuing reported for all turning movements. Both the critical right turn into and right turn out of Wilson Street provide an existing Level of Service (LoS) A with a practical spare capacity of 196% reported by Sidra.

Attachment C – Traffic survey data (December 2019)

