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7 October 2025

P1292A Asphalt Plant Modification, Blakebrook Quarry Lismore

Element Environment

Attn: Shania Van Cuylenburg

Dear Shania,

Proposed modification to Asphalt Plant, 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 Austroads GTM Part 12, the TfNSW Supplement, and the RTA Guide to Traffic Generating Developments and subsequent TfNSW Guide to Transport Impact Assessments which outlines the structure for the reporting of key issues to be addressed when determining the impacts of traffic associated with a development.

Background

Downer EDI Works Pty Ltd (Downer) operate an existing asphalt plant situated within the Blakebrook Quarry site at 550 Nimbin Road, Blakebrook, NSW. The Blakebrook Quarry, otherwise known as the Northern Rivers Quarry, is owned and operated by Lismore City Council (LCC) and Downer lease a portion of the site, on which the asphalt plant is located.

The quarry and ancillary asphalt plant currently operate under State significant development (SSD) consent MP07_0020.

Development consent MP07_0020 for the Blakebrook Quarry Project was originally granted on 24th November 2009 by the Minister for Planning, under the former Part 3A of the EP&A Act. The consent has since been modified on two separate occasions.

Downer is now seeking approval to further modify development consent MP07_0020, under Section 4.55(2) of the EP&A Act, to allow:

- the receipt and processing of up to 15,000 tpa of Reclaimed Asphalt Pavement (RAP) and any-one-time storage of up to 10,000 tonnes of RAP (unprocessed and processed combined) on the site;
- the receipt and processing of up to 10,000 tpa of recovered glass sand and any-one-time storage of up to 2,500 tonnes of recovered glass sand on the site;
- the receipt and processing of up to 1,500 tpa of crumb rubber and 350 tpa of TonerPlas and any-one-time storage of up to 45 tonnes of crumb rubber and 20 tonnes of TonerPlas on the site;
- an increase in asphalt production and transportation limits from 50,000 tonnes per annum (tpa) to100,000 tonnes tpa;
- a change in operating hours of the asphalt plant (not the quarry) to allow 24/7 operations; and
- minor administrative changes to a number of the existing consent conditions.

No changes are proposed to the existing operations of the quarry.

In proposing the increase in throughput per annum of the asphalt plant, the additional traffic demands per hour may be offset by the increase in operating hours. This traffic report therefore quantifies and provides an assessment of the *additional* demands associated with this modification.

Seca Solution prepared a traffic impact assessment for the site in 2019 for the Mod-3 application. This has been considered in the preparation of this assessment.

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

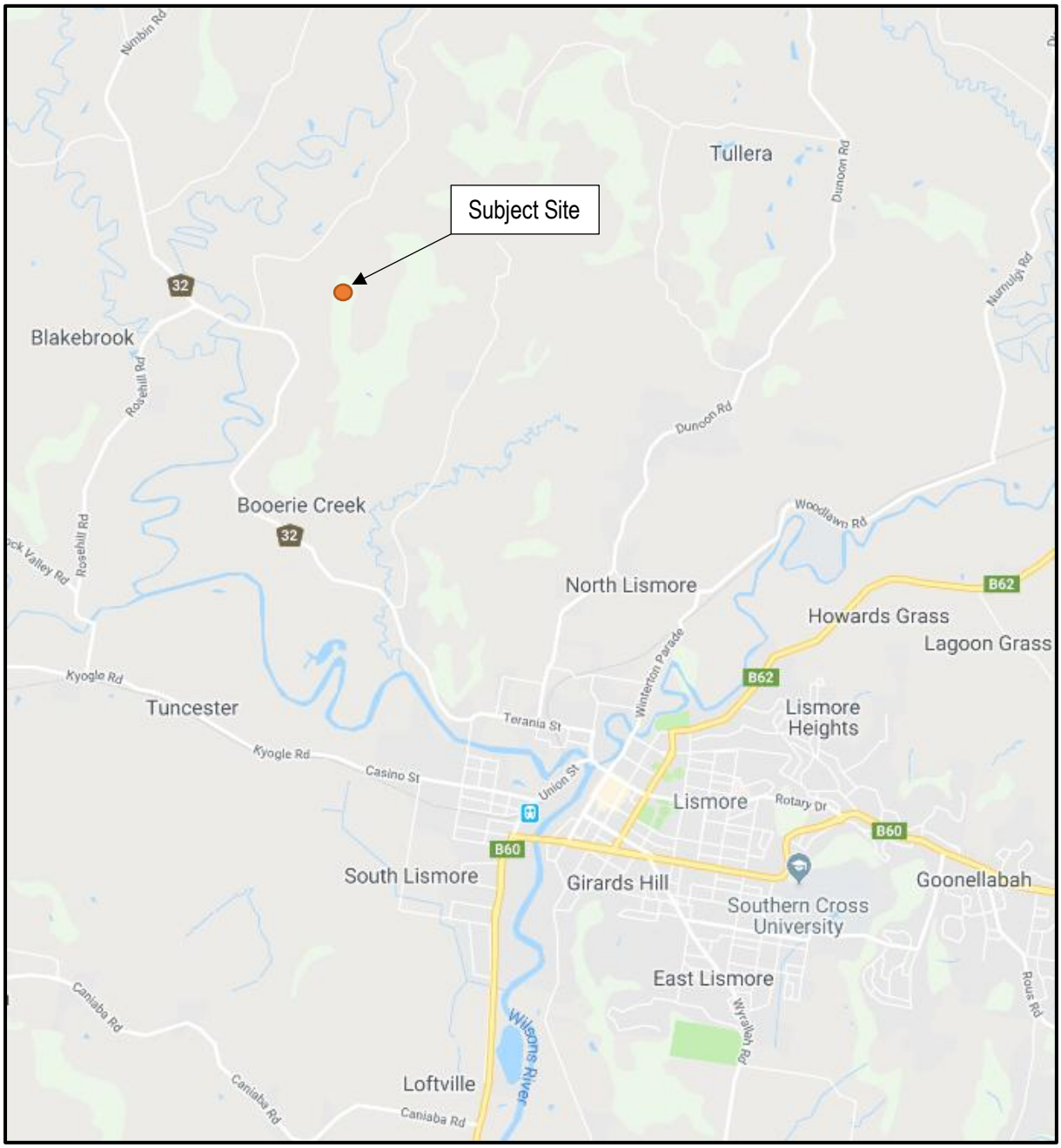

Figure 1 – Subject site in the context of the surrounding road network

Traffic Impact Assessment:

Item	Comment
Existing Situation	
2.1 Site Location and Access	The subject site is located approximately 6 kilometres northwest of Lismore Town Centre, just before Blakebrook with access off Nimbin Road via a sealed access roadway (Quarry Access Road).
2.2.1 Road Hierarchy	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. 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. A channelised right turn treatment is provided for northbound vehicles, to allow for through traffic to pass vehicles turning into the quarry access road. 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. To the south of the site, approaching north 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.
2.2.2 *Current and Proposed Roadworks, Traffic Management Works and Bikeways*	Roadworks and road maintenance, particularly associated with flood events, are occurring along many roads in the Lismore region.
2.3 Traffic Flows	Seca Solution has collected traffic data at the key intersection of Nimbin Road and Wilson Street during a typical morning and afternoon peak period (27th/28th May 2025) as well as an evening count. 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: • 350 vehicles per hour (vph) in the AM peak and • 341 vph in the PM peak • 65 vph in the evening

Item	Comment
	These flows are similar to the counts undertaken by Seca Solution in 2019 which showed that the peak hour traffic flows on Nimbin Road were 381 in the AM peak and 333 in the PM peak. On Wilson Street to the immediate south of this intersection the two-way flows were: • 300 vph in the AM peak and 264 in the PM peak. These traffic demands have reduced between 14-24% since 2019. This intersection was observed to operate very well with very low delays and queues. Flows on Nimbin Road in the vicinity of the quarry access would be similar given there are no significant generators or attractors of traffic along this length of road.
2.3.1 Daily Traffic Flows	Whilst traffic growth along Nimbin Road had historically been determined as approximately 2.2% per annum, based on a comparison of count data between 1970 to 2007 (Roadnet 2008) from the recent counts (2019 to 2025) it appears there has been no growth to speak of. This potentially reflects the impact of flooding events during this period on local population and in turn traffic demands during this period. The Austroads Guide provides advice on peak hour flows typically representing 8-12% (average 10%) of daily flows. As such, the current daily flows along Nimbin Road would be in the order of 3,500 vehicles two way, consistent with the 2019 report prepared by Seca Solution.
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 would be southbound in the AM, reflecting drivers travelling to work or school in the Lismore area, with the reverse pattern 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 along Nimbin Road passing the subject site, given the low traffic flows and relatively easy flowing road geometry in this location.
2.3.5 Existing Site Flows	The movements inclusive of both operations (Quarry and Asphalt) entails a maximum of 150 laden trucks per day, with an average in the order of 125 trucks per day. All trucks pass over the existing on-site weighbridge which places a limit of 25 trucks per hour that can exit the site.
2.3.6 Current Road Network Operation	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 and afternoon peak period as well as early evening to coincide with proposed 24/7 operation of the asphalt plant. The intersection of Nimbin Road and Wilson Street has been observed in September 2018, December 2019 and May 2025 and

Item	Comment
	continues to operate very well with minimal delays and queues. 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. The operation of this intersection has been confirmed with Sidra modelling in 2019 with the results provided in **Attachment C**. Given the lack of traffic growth these results are still considered valid with no updates required. 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, allowing for heavy vehicles turning either left or right out of the site. Right turns into the site also occurred in an efficient manner given the low through movements in this location.
2.4 Traffic Safety and Accident History	A review of the accident data provided by Transport for NSW (TfNSW), for the five year period 2019-2023 found a total of 10 accidents occurred along the main quarry route on Nimbin Road between the quarry access and Wilson Street (**Attachment A**). Of these accidents: • 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. • One accident resulted in a fatality with 3 resulting in serious injuries. • 8 injury accidents resulting in 7 people injured plus one fatally • Speeding was determined as a contributing factor for 7 of the 10 accidents. Fatigue was determined as a contributing factor for 1 of the 10 accidents. • The vast majority of accidents related to vehicles going off-road accounting for 8 out of 10, with one accident being an animal being struck and one with the remaining accident being a head on collision. • One of the accidents involved a heavy vehicle running off the road with speed a contributing factor 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. Crash patterns are similar to those for the period 2014-2017. 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.
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.

Item	Comment
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.
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	There are no formal bus stops or facilities in the locality of the subject site.
2.6.3 Transport Services	There is minimal public transport in this location reflecting the rural nature of the site. 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. Bus Route 652 operates between Lismore and Tuntable Creek, passing the subject site, with limited services Monday to Friday. Tourist coaches and Community Transport buses also use the road network.
2.7 Pedestrians Network	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. 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.
2.8 Other Proposed Developments	No other significant developments have been noted in the locality.
The Development	
3.1.1 Nature of Development	This proposal relates to the modification to the existing State Significant Development (SSD) consent for the Blakebrook Quarry, to increase capacity and operating hours for the existing the Asphalt Plant which operates in conjunction with the quarry. The current approval for the site allows for: • 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 are the same as the Quarry, as per the Project Approval Sch 3, cond 1. It is these existing operating hours for the Asphalt Plant that are proposed to be modified to allow 24 hour operation over a seven day week.

Item	Comment
	This proposal seeks approval for the asphalt production to increase from 50,000 tonnes per annum to 100,000 tonnes per annum being an increase in production of 100% supported by extended operating hours. The existing approval allows a *maximum* of 150 laden truck movements per day inclusive of quarry and asphalt plant operations. This will be maintained with the mix of quarry and asphalt demands managed operationally on site.
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	Access is required for the following vehicles: - Tanker - Semi Trailer - 13m Long - 24t Capacity (For Diesel, Bitumen & Lime) - Tandem Axle Truck w Trailer - Truck & Dog - 19m Long - 32t Capacity (For Material Imports & for carting Asphalt) - Live Floor Asphalt Truck - Semi Trailer - 13m Long - 24t Capacity (For carting Asphalt) - Twin Steer Truck - Rigid Body - 9m Long - 18t Capacity (For carting Asphalt) - Tandem Axle Truck - Rigid Body - 8m Long - 13t Capacity (For carting Asphalt)
3.2.1 Driveway Location	The existing Quarry Access Road, off Nimbin Road, shall continue to provide access to the subject site allowing for the above mix of vehicles. The internal road layout for the quarry and asphalt plant is well defined, with no changes as part of this proposal.
3.2.2 Sight Distances	The existing access has been constructed taking into consideration Austroads sight distance requirements.
3.2.3 Service Vehicle Access	Occasional servicing/maintenance requirements for the plant on site however this is minimal with no significant change anticipated.
3.2.4 Queuing at entrance to site	The access road layout ensures unimpeded vehicle movement into the site with no vehicle queues extending back onto Nimbin Road.
3.2.5 Comparison with existing site access	There is no change proposed to the existing arrangement.
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 in a manner consistent with existing operations

Item	Comment
3.3.2 Internal Road width	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. The internal roads for the site provide sufficient width for heavy vehicles to circulate as required to access the Asphalt Plant. There are no changes to the existing internal circulation or road widths as part of this proposal.
3.3.3 Internal Bus Movements	No requirement for buses to access the development.
3.3.4 Service Area Layout	No changes to the existing arrangement.
3.4 Parking	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. Whilst there is one additional staff to be employed in association with the extra shift the total on site will be no higher than the current arrangement. Parking for visitors and any maintenance/servicing personnel can be catered for on site as required.
3.5 Pedestrian and Bicycle Facilities	There are no demands for on-site pedestrian or cyclist movements by the general public. 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.
Traffic Assessment	
4.1 Traffic Generation – operational demands	The existing approval for the site allows for up to 150 laden trucks per day in association with the Quarry and Asphalt Plant. Laden movements associated with the asphalt plant vary throughout the year. The mix of laden truck demands is managed operationally on site. The site is physically limited however to 25 laden trucks outbound per hour by the operation of the on-site weighbridge. The existing asphalt plant approval is based on an estimated 9 movements per hour (4-5 inbound and 4-5 outbound per hour) across an 11 hour day. The proposal to increase the plant capacity to 100,000 tonnes per annum will generate the following heavy vehicle traffic demands:

Item	Comment
	Daily truck movements associated with plant

	External	Internal (quarry movements)	TOTAL
Import raw material	5	10	1
Import RAP material	5	-	5
Dispatch asphalt/product	50	-	50
	60	10	70

Of these, 10 heavy vehicles per day are associated with internal truck movements between the quarry and the asphalt plant transporting raw product and so do not impact the external road network.

The above traffic demands are based on trucks bringing raw material to site and leaving empty or arriving empty, to exit full of product.

Total external truck movements associated with the proposed modification is therefore 60 laden trucks or 120 truck movements per day (60 inbound/60 outbound). This includes an allowance for the import of RAP material as well as raw product (sand etc) and not just the number of laden trucks.

This represents an additional 10 laden trucks per day over those estimated for the existing apporval with the potential for all movements to be spread across a 24 hour day and a seven day week.

This is an average of 5 movements per hour across the 24-hour day compared with the existing arrangement which sees an average of 9 movements per hour because of the shorter working day. The average truck numbers per hour is therefore less when spread across the increased operating hours despite the doubling of capacity.

The uppermost hourly numbers remain restricted by the physical capacity of weighbridge on the site which was considered in the existing approval. Therefore, the hourly impact of the asphalt plant will not change being consistent with the existing (approved) traffic demands.

In considering the maximum throughput during the busiest hour of the day there would be 10 laden trucks (assumed 10 inbound unladen movements and 10 outbound laden movements). This would typically occur between 6am-7am and 6pm-7pm allowing for 24 hour operation.

This is 5 more laden trucks during the absolute peak periods (one hour, twice per day under 24 hour operations). This peak demand (10 laden trucks) plus quarry demands sees the site operating within the weighbridge constraint of 25 outbound laden trucks per hour.

Item	Comment
	The weighbridge will not be upgraded as part of this project and as such this upper limit on hourly flows will remain the same as previously assessed and approved.
4.1a Traffic Generation – ancillary staff and services	In addition to the operational demands of the asphalt plant there are [2] services/maintenance trucks per day Monday to Friday. Staff numbers are low with a minimal increase (one) anticipated. Currently Downer employee 3 staff during their daily operations becoming 2 during the day and 2 at night when they operate over a 24 hour shift. Night shift demands are dependent upon market forces and specific project requirements.
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 operating at full production capacity and low demand periods potentially seeing much lower movements over the course of the day. During periods of inclement weather there may be no operation at all.
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	Destination is market driven. Approximately 75% of movements head south along Nimbin Road towards Lismore, the other 25% heading north along Nimbin Road.
4.3 Impact on Road Safety	The surrounding roads and intersections have been upgraded in recent years to ensure road safety is maintained. There are no changes proposed to the current transport routes. Given that there is the potential for less hourly movements with only a minor increase in movements twice per day in the operational peak hour, it is considered there are no further safety issues generated by the proposed modification to consent for the site operations. A review of the accident data provided indicates that accident numbers along the primary transport route remains low since 2014. Drivers associated with the quarry and asphalt plant are required to always follow road rules and signage. 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 plant were observed driving within the applicable road rules.
4.4.1 Impact on Daily Traffic Flows	There is no proposed change to the daily operational site limit of 150 laden trucks (150 laden/150 unladen) managed on site between the quarry and the asphalt plant. The spread of these however across the 24 hour day in association with the Asphalt Plant modification sees the potential for less hourly demands than present. The impact upon the capacity of the road network is therefore acceptable with operational peak hour demands occurring 6-7am and 6-7pm, with the morning peak earlier than present given the

Item	Comment
	proposed change in hours. Both peaks will therefore be outside the local road peak periods including for school pick up and drop off and local commuter peaks resulting in a lesser impact during local road peaks Traffic demands on Nimbin Road are similar during peak periods to the 2019 survey data with no significant growth along this corridor and reduced demands on other roads. The overall impact therefore has the potential to be less than those assessed in 2019.
4.4.2 Peak Hour Impacts on Intersections	Updated traffic surveys at the intersection of Nimbin Road / Terania Street / Wilson Street in May 2025 demonstrate that traffic flows have reduced in this area since the prior approved assessment. The key intersections impacted by the project have been observed during a typical morning, afternoon and evening period to review the operations and road safety. As outlined above there is no proposed increase in the maximum number of laden trucks per day with the increase in operating hours for the asphalt plant offsetting the increase in production capacity. This could result in an overall reduction in hourly truck movements with in turn a reduced impact on the operation of intersections. During absolute peak periods there could be 10 laden trucks, a small increase of 2 trucks each way east of the site over the 6 vehicles per hour per direction originally assessed. This peak period will also occur earlier than the existing approval due to the expanded hours which will reduce the impact of these additional peak demands on the local road network. Outside these peak periods the hourly demands may be lower than existing demands given the spread of operations across a 24/7 period. All intersections along the primary transport route are operating well within their capacity, with sufficient spare capacity to accommodate the minor increase in absolute peak hour vehicles movements as a result of this proposal. The turn lanes provided at the Wilson Street intersection and the quarry access ensure that through traffic movements experience minimal delays due to right turning traffic. The operation of Nimbin Road and Wilson Street has been surveyed during the morning and afternoon peak periods with the current demands similar to those recorded in 2019. The SIDRA modelling undertaken for the earlier approval therefore remains valid. This SIDRA modelling (**Attachment B and C)** demonstrates observations on site which is that this intersection is working very well with Levels of Service (LoS) on each approach of A, the highest level of service with minimum delays (less than 15 seconds per vehicle) and queues. The potential for 7-8 trucks per hour to turn right here, two more than the existing operation shall have a minimal impact upon these delays and the future level of service shall remain at LoS A. 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

Item	Comment
	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 2 truck movements per hour inbound and outbound shall have a minimal impact at this roundabout, further assisted by the change in peak hour operation.
4.4.3 Impact of Construction Traffic	No construction work is required as part of the project. Some additional equipment may be delivered to the site.
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 shall be maintained to ensure safety is maximised.
4.6.2 Improvements to External Road Network	None required. The site will not generate additional traffic demands over those previously approved which is well within the capacity of the surrounding road network. 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.
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 – Quarry Access - Nimbin Road

Photo 2 – View to the left for drivers exiting the Quarry Access Road onto Nimbin Road including right turn lane on Nimbin Road

Photo 3 – View to right along Nimbin Road from the Quarry Access Road

Conclusion:

From the site work undertaken and the review of the development proposal against the requirements of the RTA Guide to Traffic Generating Developments, Guide to Transport Impact Assessment and Austroads Guide to Traffic Management Part 12 and the TfNSW Supplement, it is considered that the proposed modification of the SSD consent for the existing Asphalt Plant associated with Blakebrook Quarry should be approved based on traffic and access grounds.

There is minimal change to staff arrangement with an increase in the production limit for the Asphalt Plant from the current 50,000 tonnes to 100,000 tonnes. Operating hours are proposed to be modified to operate 24 hours per day 7 days per week. As such, whilst there is a small increase in daily traffic volumes associated with the asphalt plan as a result of the proposal (60 trucks per day compared with the previous 50 trucks per day), hourly truck movement shall remain similar, or less than present. During the two peak periods each day (6-7AM and 6-7PM) the number of laden trucks associated with the plant may be 10 per hour (assumed both inbound and outbound), a small increase over existing operations however still within the site limit which continues to be constrained by the weighbridge to 25 outbound trucks per hour (quarry and asphalt combined). Total daily movements for the site will continue to be limited to 150 laden trucks across both the quarry and asphalt plant with these managed operationally on site.

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 laden trucks per day maximum) could be accommodated within the road network.

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.

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

Yours sincerely,

Cathy Thomas
Director

Version	Date	Description	Prepared by	Reviewed and Approved for Issue
Ver01	18/8/25	Draft	C.Thomas	S.Morgan
Ver02	2/10/25	Final	C.Thomas	S.Morgan
Ver03	7/10/25	Final	C.Thomas	S.Morgan

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Attachment A: Accident Data 2019-2023

All

Degree of crash

All

Type of crash

All

Speed limit

All

RUM code group

All

Type of location group

All

Speeding involved in crash

All

Fatigue involved in crash

All

Road classification

All

DATA AVAILABILITY

Finalised data is available for the 5 year period 2019 to 2023

Reporting year	Crash Id	Degree of crash	RUM - code	RUM - description	Type of location	Natural lighting	Longitude	Latitude	Number killed	Number injured
2019	1192685	Serious Injury	87	Off lft/lft bnd=>obj	2-way undivided	Daylight	153.245001	-28.785269		1
2019	1200449	Non-casualty (towaway)	81	Off left/rt bnd=>obj	2-way undivided	Daylight	153.241403	-28.774022		
2019	1204159	Moderate Injury	88	Out of cont on bend	2-way undivided	Daylight	153.245786	-28.785817		1
2019	1205081	Minor/Other Injury	67	Struck animal	2-way undivided	Darkness	153.249883	-28.788823		1
2020	1226114	Serious Injury	87	Off lft/lft bnd=>obj	2-way undivided	Daylight	153.245786	-28.785817		1
2021	1263729	Serious Injury	30	Rear end	2-way undivided	Daylight	153.251194	-28.789048		1
2022	1280179	Moderate Injury	81	Off left/rt bnd=>obj	2-way undivided	Darkness	153.256049	-28.795280		1
2022	1302388	Non-casualty (towaway)	84	Off right/left bend	2-way undivided	Daylight	153.247698	-28.788395		
2023	1325625	Fatal	85	Off rt/lft bnd=>obj	2-way undivided	Daylight	153.247820	-28.788441	1	
2023	1328741	Minor/Other Injury	81	Off left/rt bnd=>obj	2-way undivided	Daylight	153.242932	-28.765318		1

Attachment B – Criteria for interpreting results of SIDRA

1-Level of Service (LoS)

LoS	Traffic Signals and Roundabouts	Give Way and Stop Signs
A	Good	Good
B	Good, with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	Satisfactory	Satisfactory, but requires accident study
D	Operating near capacity	Near capacity and requires accident study
E	At capacity, excessive delay: roundabout requires other control method	At capacity, requires other control mode
F	Unsatisfactory, requires other control mode or additional capacity	Unsatisfactory, requires other control mode

2-Average Vehicle Delay (AVD)

The AVD is a measure of operational performance of an intersection relating to its LoS. The average delay should be taken as a guide only for an average intersection. Longer delays may be tolerated at some intersections where delays are expected by motorists (e.g. those in inner city areas or major arterial roads).

LoS	Average Delay / Vehicle (secs)	Traffic Signals and Roundabouts	Give Way and Stop Signs
A	Less than 15	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	28 to 42	Satisfactory	Satisfactory but accident study required
D	42 to 56	Operating near capacity	Near capacity, accident study required
E	56 to 70	At capacity, excessive delays: roundabout requires other control mode	At capacity; requires other control mode
F	Exceeding 70	Unsatisfactory, requires additional capacity	Unsatisfactory, requires other control mode

3-Degree of Saturation (D/S)

The D/S of an intersection is usually taken as the highest ratio of traffic volumes on an approach to an intersection compared with the theoretical capacity, and is a measure of the utilisation of available green time. For intersections controlled by traffic signals, both queues and delays increase rapidly as DS approaches 1.0. An intersection operates satisfactorily when its D/S is kept below 0.75. When D/S exceeds 0.9, queues are expected.

Attachment C - 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 undertaken in 2019 are summarised below.

Road demands in 2025 are lower than surveyed at this time with the peak site demands occurring prior to the local road peak and so these results remain valid.

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

Approach	Movement	Level of Service	Ave. Delay (s)	95th 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)

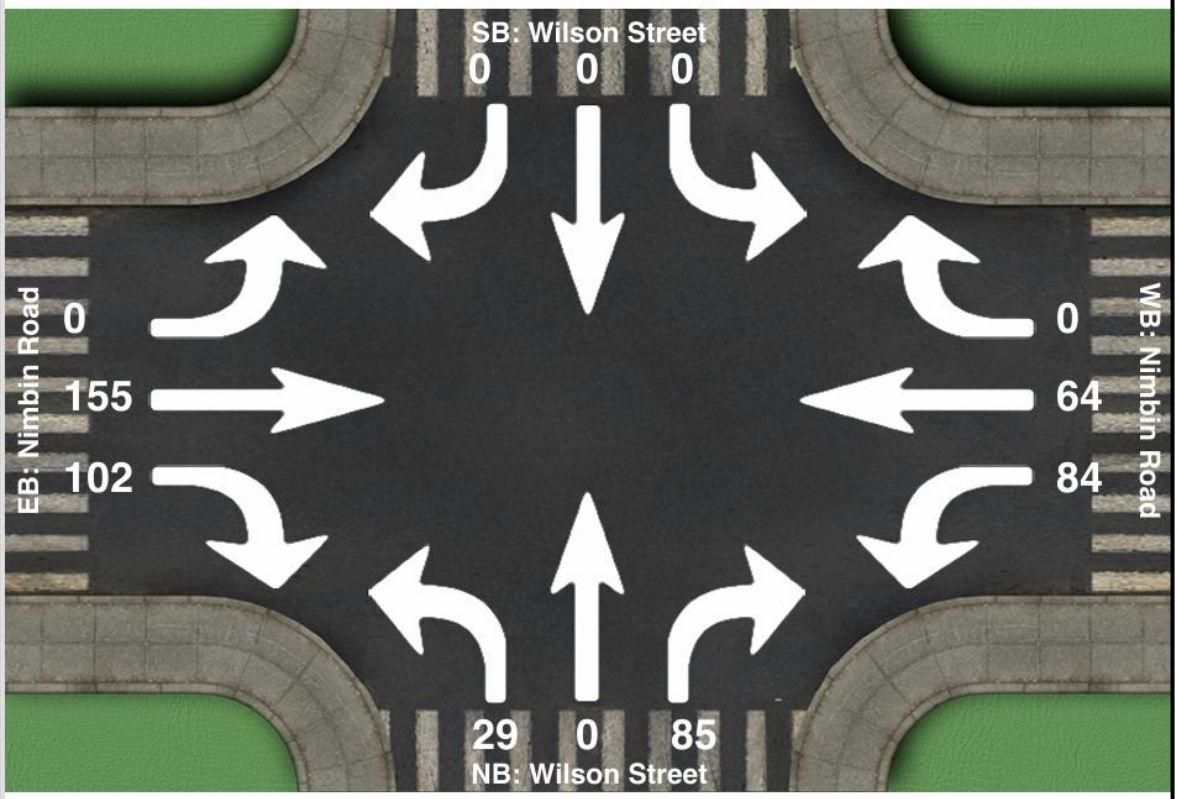
Approach	Movement	Level of Service	Ave. Delay (s)	95th Percentile Queue (m)
Wilson Street (northbound)	Left Turn	A	8.0	6.6
	Right Turn	A	9.4	
Terania Street (westbound)	Left Turn	A	7.6	3.7
	Through	A	0.1	
Nimbin Road (eastbound)	Through	A	0.0	0.0
	Right Turn	A	7.3	0.9

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 D – Traffic survey data (May 2025 AM/PM and Evening Peak Hours)

Intersection Peak Hour

Location: Wilson Street at Nimbin Road, Lismore
GPS Coordinates: Lat=-28.814844, Lon=153.260264
Date: 2025-05-28
Day of week: Wednesday
Weather: Clear
Analyst: ST



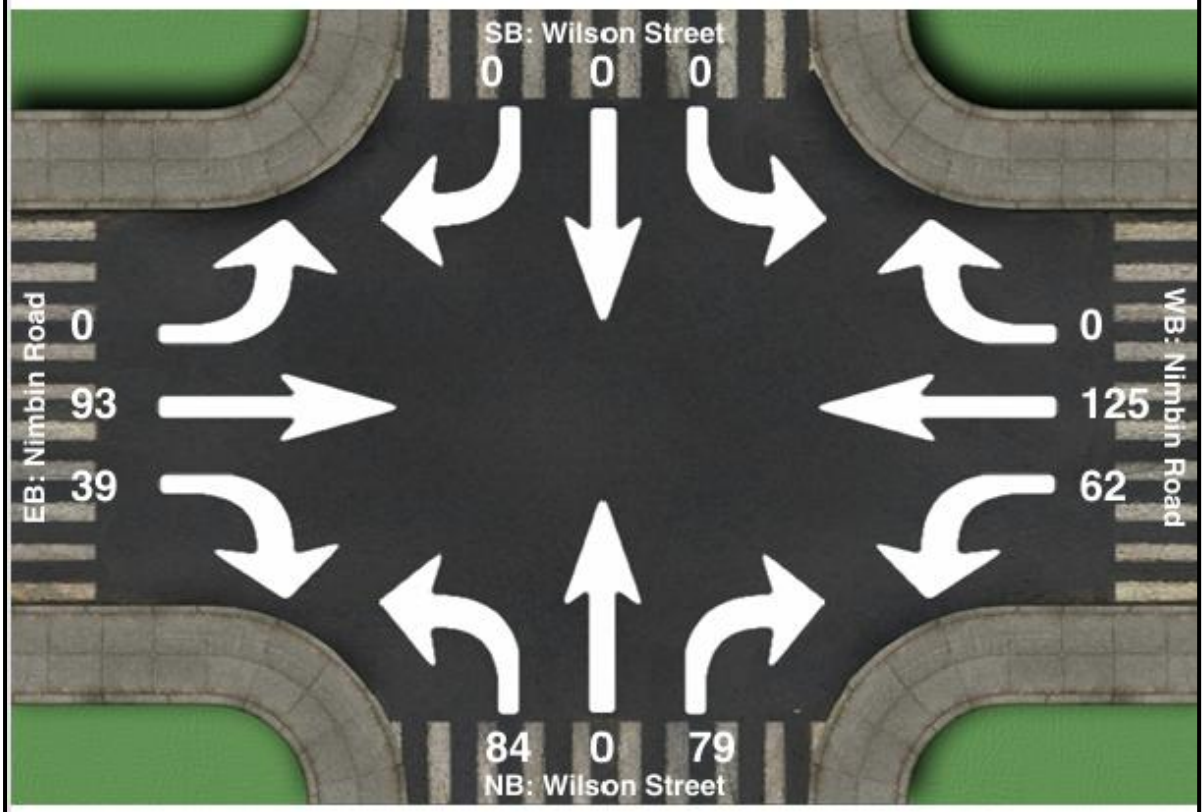
Intersection Peak Hour

07:50 - 08:50

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	0	0	84	64	0	29	0	85	0	155	102	519
Factor	0.00	0.00	0.00	0.70	0.44	0.00	0.48	0.00	0.59	0.00	0.59	0.61	0.70
Approach Factor	0.00			0.73			0.59			0.61			

Intersection Peak Hour

Location: Wilson Street at Nimbin Road, Lismore
GPS Coordinates:
Date: 2025-05-27
Day of week: Tuesday
Weather: Cloudy
Analyst: ST



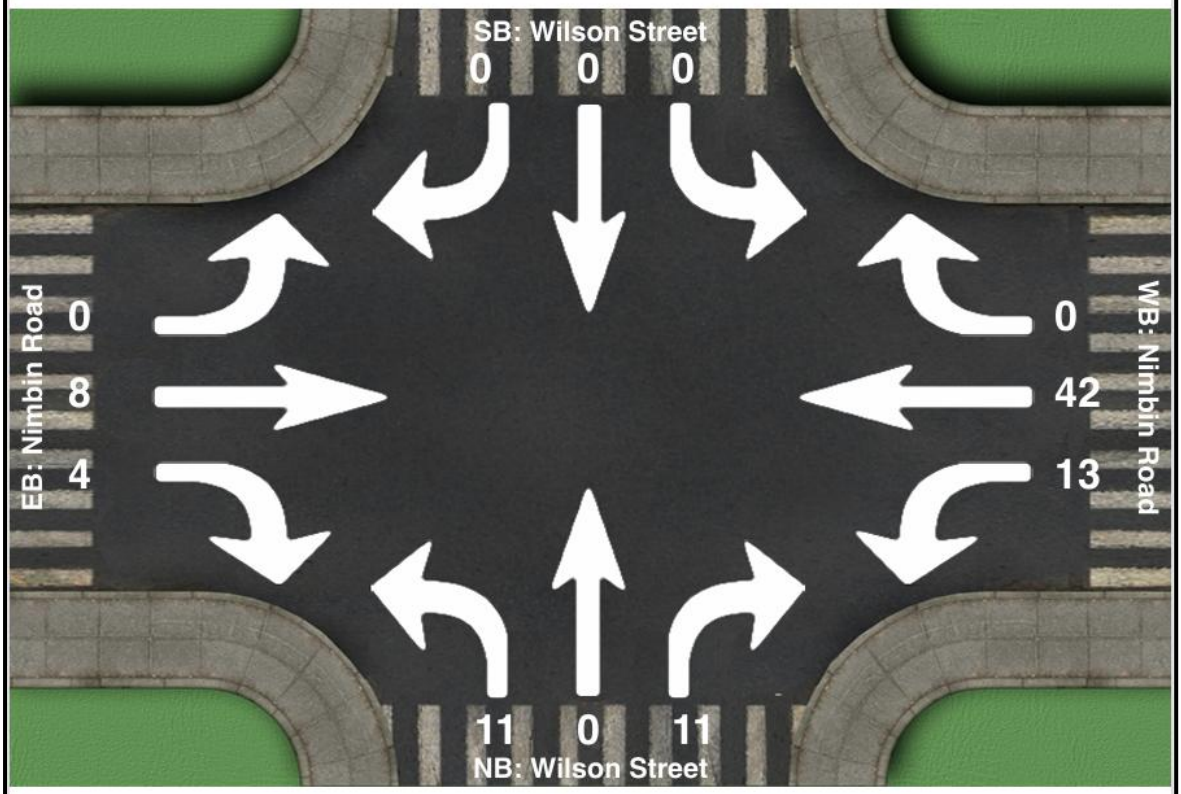
Intersection Peak Hour

15:55 - 16:55

	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	0	0	62	125	0	84	0	79	0	93	39	482
Factor	0.00	0.00	0.00	0.52	0.65	0.00	0.54	0.00	0.51	0.00	0.48	0.46	0.79
Approach Factor	0.00			0.65			0.65			0.50			

Intersection Peak Hour

Location: Wilson Street at Nimbin Road, Lismore
GPS Coordinates:
Date: 2025-05-27
Day of week: Tuesday
Weather: Cloudy
Analyst: ST

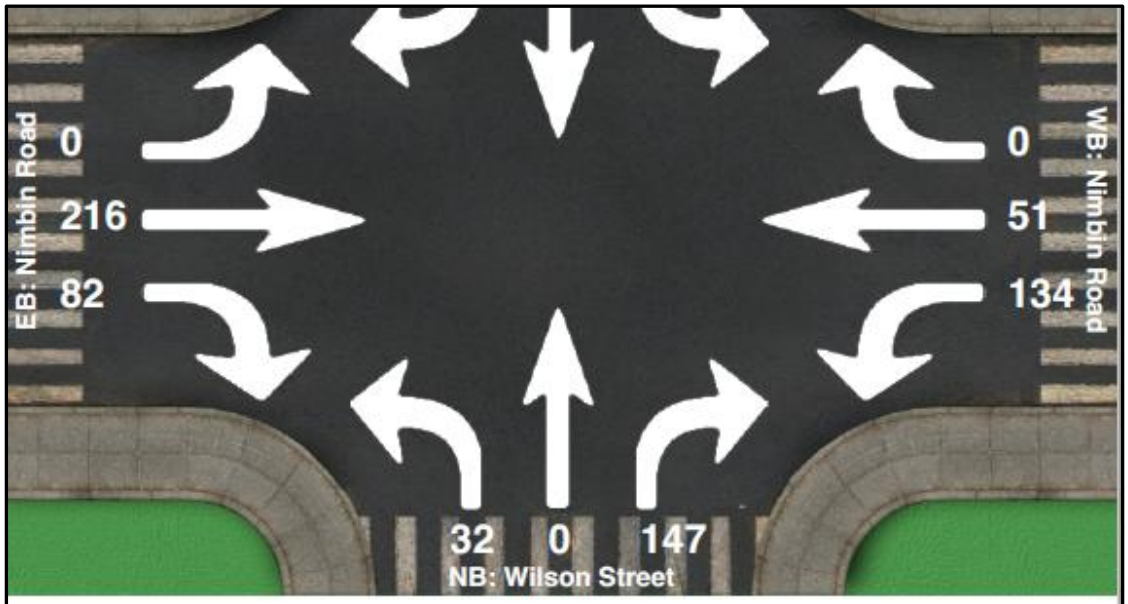


Intersection Peak Hour

18:35 - 19:35

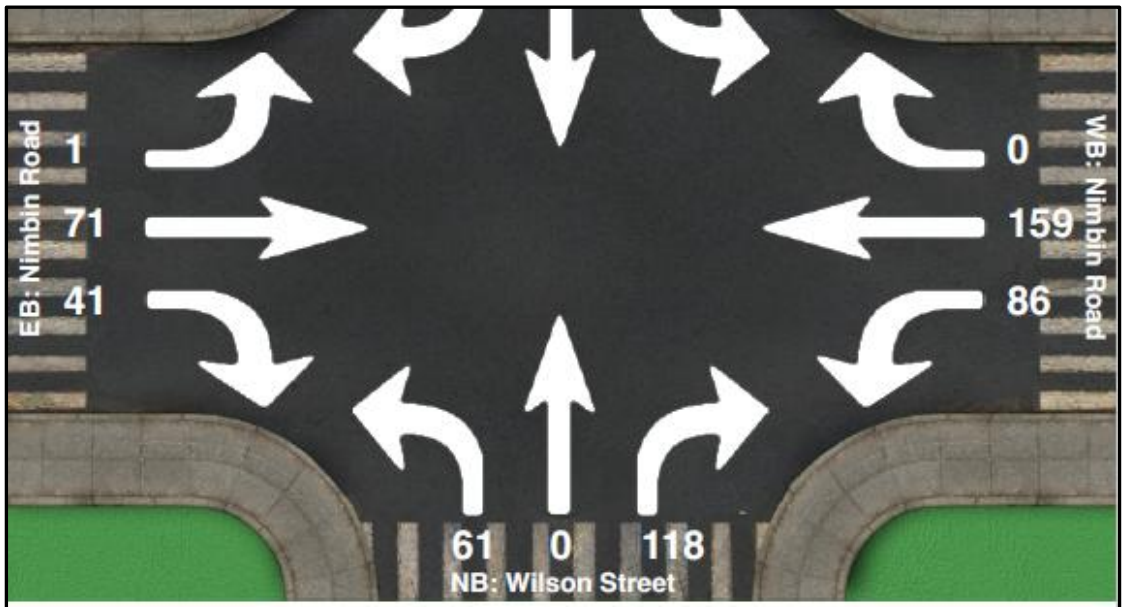
	SouthBound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Vehicle Total	0	0	0	13	42	0	11	0	11	0	8	4	89
Factor	0.00	0.00	0.00	0.36	0.44	0.00	0.46	0.00	0.31	0.00	0.22	0.17	0.57
Approach Factor	0.00			0.51			0.46			0.33			

Attachment E – Traffic survey data (December 2019)



Intersection Peak Hour

08:00 - 09:00



Intersection Peak Hour

16:00 - 17:00