

7 June 2023

P2558 Lockbridge Childcare Centre Muswellbrook

Lockbridge
44 Leveson Street,
North Melbourne VIC 3051

Attn: Matthew Bourke

Dear Matthew,

Proposed Childcare Centre, 200-206 Bridge Street, Muswellbrook, NSW.

We have now completed our site work and review of the documentation provided for the proposed childcare centre at 200-206 Bridge Street, Muswellbrook and provide the following assessment of parking demands, traffic generation and access arrangements for the development. This assessment has been completed with regard to the relevant requirements outlined in the Muswellbrook Development Control Plan 2009 (MDCP), with reference to the Guide to Traffic Generating Developments (GtTGD) and Australian Standard AS2890.1: Off-street Car Parking Facilities.

Background

The subject site is located on the western side of Bridge Street (New England Highway) as shown below in Figure 1.

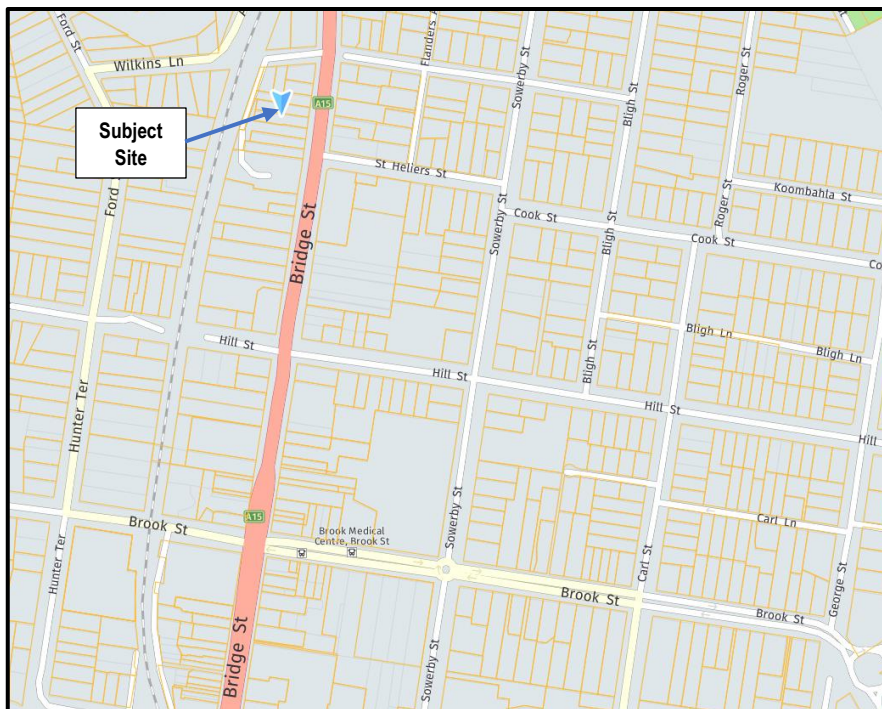


Figure 1 – Subject site in the context of the local road network

The subject site consists of four lots each with a single dwelling. The site is on the northern side of the Muswellbrook township, surrounded primarily by commercial and retail uses with some residential lots. To the rear of the site is the heavy rail corridor.

The site has frontage to Bridge Street with some lots relying on a rear vehicle access due to the age of the dwellings.

Road Hierarchy

The main road through the locality is **Bridge Street** which forms part of the New England Highway. It provides a significant transport corridor between Newcastle and the M1 Pacific Motorway to the south-east and the Queensland border to the north as well as carrying local and regional traffic through Muswellbrook. It carries a high volume of traffic and forms part of the state road network. In the vicinity of the subject site it provides two lanes of travel in each direction with additional lanes at intersections to improve capacity. Kerb and guttering is provided and parking is permitted along much of its length through Muswellbrook. There are pedestrian footpaths and street lighting, consistent with its function as a town centre. Major intersections are signalised with lesser intersections typically T-intersections with Bridge Street having priority. To the north there is a pedestrian refuge to support pedestrian movements across the highway. Bridge Street operates under the posted speed limit of 50 km/hr.

There are a wide range of users located along both sides of Bridge Street in this location with access direct to the road, allowing for all turning movements. These include service stations, fast food outlets and the RSL club.

The surrounding local roads provide access to the residential areas of Muswellbrook town centre. All of these roads are under the care and control of Muswellbrook Shire Council.

Current Road Network Operation

The New England Highway carries significant traffic volumes with a high level of heavy vehicles representative of its role as a state highway. TfNSW traffic data shows that the daily traffic flows on the New England Highway to the north of Muswellbrook in 2022 were 8,874 whilst in 2019 were 10,299 (station I.D.6157). These reduced flows may reflect the opening of roadworks on the Pacific Highway associated with the duplication of this route north along the coast. The AADT showed that whilst daily flows are even north and south, the peak hour demands are typically tidal with slightly higher flows southbound in the morning and northbound in the afternoon reflecting daily commuter trips.

Seca Solution has undertaken peak hour traffic surveys on Bridge Street along the site frontage on 2nd March 2023 between 4pm and 6pm with the peak determined as being 4.15-5.15pm. This time was selected to reflect demands for the childcare centre and also to reflect local demands associated with commuter trips and businesses in this location.

- Northbound flows were 623 vehicles per hour (vph) and southbound flows were 518vph.

Bridge Street, allowing for two lanes of travel in each direction, operates with a capacity of up to 2200 vehicles per hour (vph) per direction. It can be seen that in this location this road operates well within its capacity being LoS A <900 vehicles in two lanes.

Allowing peak hour travel to be typically 10% of daily flows, the daily traffic demands in this location could be in the order of 11,500 vehicles per day.

The balance of the local roads within the vicinity of the site carry low traffic flows primarily associated with local residents and access to parking to the rear of shops along the highway. The Northern Rail line to the west of the subject site has constrained the development of the commercial precinct in this direction.

A review of the Interactive Crash Statistics (www.roadsafety.transport.nsw.gov.au) indicates there has been a single car crash along Bridge Street in the vicinity of the site in the past five years (2017-2021). The crash was a rear end collision resulting in a moderate injury. Allowing for the high traffic flows in this area this indicates that this length of road and the associated access to various sites operates safely with good forward visibility for motorists.

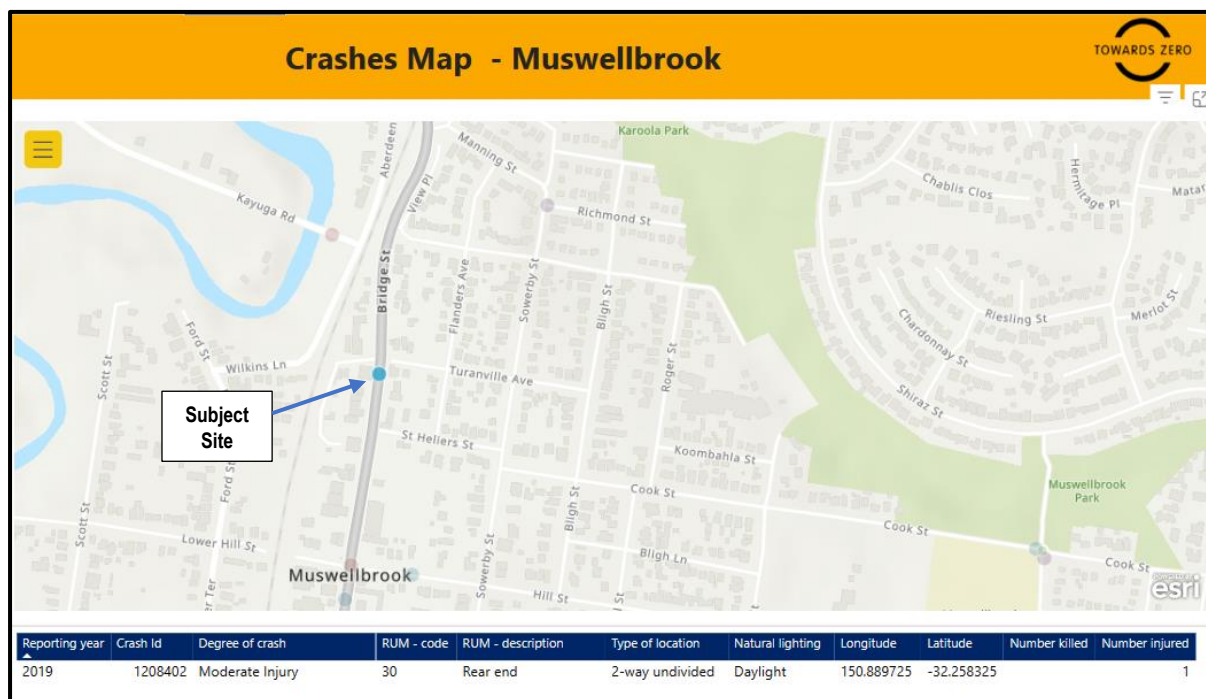


Figure 2 Crash Data in vicinity of site

Car Parking

On-street carparking is available along Bridge Street in the vicinity of the site with typical restrictions associated with driveways and intersections. Whilst some sites provide parking within individual lots the majority rely on on-street parking for customers and visitors reflecting the strip nature of the Muswellbrook CBD.

Public Transport

Whilst school services and regional buses to towns to the north run along Bridge Street, local bus services don't with Route 412 Town Loop providing the closest services some 700m north of the site.

Muswellbrook train station is approximately 1.2 kilometres to the south of the site.

Other Developments

A review of the Muswellbrook Shire Council DA Tracker indicates there are no significant developments proposed in the immediate vicinity of the site. There are a number of refurbishments and modifications to various commercial sites within the CBD.

The most significant development in the vicinity of the site will be the proposed Muswellbrook Bypass. The Submissions Report was available for review in 2022 with funding announced for the building of the project and early works commencing in 2023. The project will see significant through traffic volumes removed from Bridge Street as well as a reduction in heavy vehicles using this section of the road.

Proposed Development

The proposed development is for the construction of a childcare centre with the capacity to provide care for up to 109 children with up to 19 staff. The centre will operate as a long day care centre, providing a wide spread of drop off and pick up times for parents and carers. The plans for the development show provision for 27 parking spaces on site including an accessible space.

A concept plan for the proposed childcare centre is included in **Attachment A**.

Access

The access to the site is proposed via a single driveway with a width of 6.5m allowing two way movements into and out of the site.

The driveway, being greater than 6 metres wide shall be in accordance with AS2890.1 for whilst the car park is off an arterial road it provides a mix of both User Class 1 and 3 and so shall operate primarily as having less than 25 parking spaces for User Class 3 access of an arterial road.

Sight distance requirements for an access driveway are prescribed by Australian Standard AS2890.1:2004 Parking Facilities (Off-street Car Parking), which requires a minimum sight distance of 45 metres for the posted speed limit of 50 km/hr, with a desirable sight distance of 69 metres. Visibility to the north exceeds 200 metres whilst to the south is 90 metres and therefore exceeds the sight distance requirements per AS2890 for the posted speed limit.

Visibility can be impacted by some tree branches although the jacarandas generally appear to be trimmed. Parked cars can also impact visibility to the right, consistent with other accesses along Bridge Street and the general urban environment, with motorists nosing forward to confirm visibility prior to entering the road.

Allowing for the spread of arrivals there is no queuing anticipated at the site access. Left turning vehicles will be able to enter the site unopposed whilst vehicles turning right into the site will be able to anticipate a gap in the approaching (northbound) traffic and adjust their approach speed to suit. The forward visibility for southbound traffic is in the order of 200 metres allowing a vehicle following to change lanes or adjust their speed in the event of a vehicle turning right into the site. This is consistent with numerous existing access points to businesses on both sides of Bridge Street.



Photo 1 Looking south (right) along Bridge Street



Photo 2 Looking left (north) from the site frontage

Parking

A total of 27 parking spaces are to be provided within the proposed carpark on site with one of these to be accessible.

MDCP specifies a carparking requirement for a childcare centre of 1 space per employee, PLUS 1 space per 15 children enrolled (if provision of 3 set down/pick up areas) or 1 per 10 children.

The parking requirement is therefore 27 spaces (19+8 spaces).

The Guide to Traffic Generating Developments by comparison provides a rate of 1 space per 4 children in attendance. This would see a requirement for 27.25 spaces if all in attendance and 25 spaces allowing for 10% absenteeism.

These rates make no allowance however for the high number of siblings in long day care centres where 0-6 year olds are catered for. In this way the car occupancy rate increases reducing parking demands. This is reflected in the most recent surveys undertaken on behalf of TfNSW where rates of 1 space per 6 enrolments were found reflective of larger centres (over 70 places) offering long day care with a wider spread of arrival and departure times and higher sibling numbers compared with historic pre-schools and kindergartens. For this centre that would represent parking requirements of 19 spaces.

On this basis the provision of 27 parking spaces within the site is considered appropriate for the development, being 8 greater than that required by TfNSW guidelines and just one less than the Council DCP.

The parking shall be designed in accordance with AS2890.1 with accessible parking in accordance with AS2890.6.

Servicing

Servicing for the site will be minimal with the main requirements being associated with waste collection. Waste shall be collected on site outside operating times enabling the waste truck to enter and exit in a forward direction and manoeuvre on site as required. Swept paths have been undertaken (Attachment B) and the driveway designed to allow for the garbage truck to enter from the near lane on Bridge Street without impacting traffic flows. Similarly, it will be able to re-enter Bridge Street by turning left into the near travel lane. Waste collection would occur outside of the peak pick up and drop off times for the centre.

The majority of materials are brought to the site by staff. Occasional deliveries will otherwise be during the day, outside of peak pick up and drop off times with such deliveries typically in a small van which can park within the site carpark using a visitor parking space.

Traffic Analysis

Traffic Generation

The Guide to Traffic Generating Developments specifies the following traffic generation rates for a long day care centre:

- Morning commuter peak hour trips - 0.8 trips per child in attendance.
- Evening commuter peak hour trips - 0.7 trips per child in attendance.
- No daily rates specified.

Allowing for the maximum capacity of 109 children attending the childcare centre and OOSH each day, the proposal could generate up to:

- 88 trips during the morning peak period
- 76 trips during the evening peak period.

The above does not include discounts for absenteeism nor for shared trips for siblings enrolled in the centre. Allowing up to 10% for absenteeism and shared trips with siblings, the proposed development could generate:

- 80 vehicle trips in the morning peak hour and
- 69 vehicle trips during the afternoon peak hour.

Daily trips would be based on 4 trips per day per child in attendance to allow for drop off and pick up and 2 trips per staff (19 staff). Total daily trips for the childcare centre could be 430 (215 inbound and 215 outbound).

The centre is likely to appeal to local residents as well as people working within the Muswellbrook town centre. A large percentage of the traffic generated by the proposal is expected to be diverted trips being passing traffic associated with parents and carers who live in the surrounding area dropping off their children as part of their commute. These vehicles would already be travelling in the locality of, and potentially past the site as part of their journey to work etc and would therefore have a negligible impact upon the broader road network.

Given this, the extent of *additional* traffic movements generated by the development could be much lower than allowed for above.

To provide a robust assessment the majority of traffic associated with 90% attendance will be assessed as development traffic. No allowance has been made for the traffic associated with the existing dwellings on site.

Traffic Distribution

Based on the existing traffic demands past the site, per the traffic surveys undertaken, traffic generated by the development is expected to be slightly higher southbound in the morning and northbound in the afternoon. Diverted trips are expected to continue their journey direction upon exiting.

Table 1 - Distribution of traffic in AM and PM

	55/45%	AM (80 trips)		PM (69 trips)	
Origin / Destination		INBOUND	OUTBOUND	INBOUND	OUTBOUND
To / From the north		22	18	15	19
To / From the south		18	22	19	16
Total		40	40	34	35

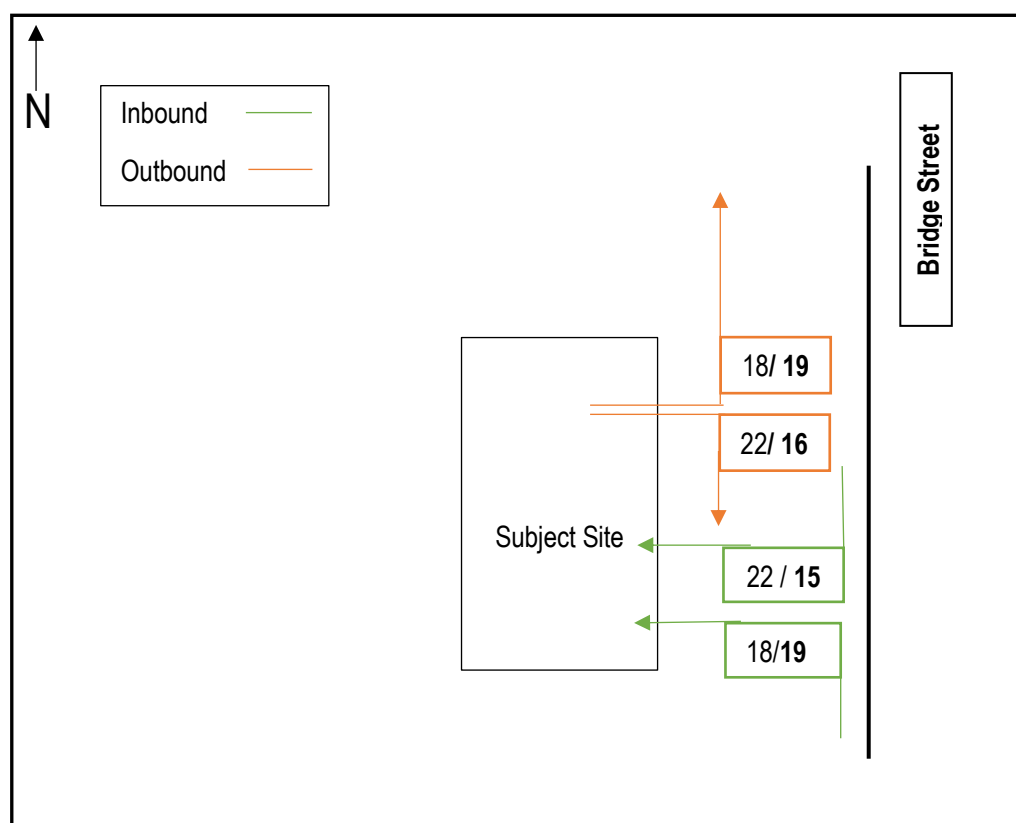


Figure 3 – Distribution of development traffic including diverted trip (AM/PM)

Impact on Traffic Flows

All trips are assumed to continue their journey having diverted into the site per Figure 3 above. The development could result in an increase in peak hour flows along Bridge Street to the north or south of the site of 40 trips two way in the AM and 35 trips in the PM. However this is considered an over estimation given the likely appeal for workers passing to use the centre.

Bridge Street is currently well within its capacity as an arterial road with the development increasing flows to 1176 vehicle movements (642 northbound/ 534 southbound) in the afternoon peak, as a worst case scenario if all development traffic is considered additional, maintaining the existing level of service A.

Allowing for daily flows on Bridge Street to be in the order of 11,500 vehicles per day, these could increase to 11,715 vpd two way either side of the site if the centre generated additional trips. This is acceptable given that the New England Highway carries significantly lower flows than in 2017-2019 whilst the Muswellbrook Bypass will further reduce future through traffic in this location.

Peak Hour Impact on Intersections

Observations undertaken by Seca Solution as part of this project work show that the various intersections within the Muswellbrook CBD operate well with minimal delays and congestion.

Most of the development trips are expected to be passing traffic with minimal additional trips and thus minimal impacts on these intersections.

Conclusion

Overall, the proposed childcare centre will have a minor and acceptable impact upon traffic and parking in the local area.

The parking proposed for the development exceeds the TfNSW requirements and is one space less than the requirement of the Muswellbrook DCP. Allowing for the higher rate of sibling attendance in association with this type of centre the parking provision is considered appropriate. The layout for the carpark can be designed in accordance with AS2890.

The proposed access and circulation through the car park can be provided in a manner consistent with the requirements of AS2890 with suitable sight lines available for exiting vehicles. The access has been designed to allow for the swept path of a waste collection vehicle (10.8m) entering and exiting the site in a forward direction without impeding the traffic flow on Bridge Street. Waste collection will occur outside of the operational hours for the centre.

Traffic demands will consist of mostly diverted traffic already on Bridge Street or within the general vicinity with Bridge Street having adequate capacity to accommodate these additional trips maintaining its level of service A.

Please feel free to contact our office on 4032 7979 should you require any additional information.

Yours sincerely



Sean Morgan

Director



Garbage 10.8m

Width : 2.50
Track : 2.50
Lock to Lock Time : 6.0
Steering Angle : 38.0

BAR SCALES		CLIENT	PROJECT	TITLE	STATUS
		SECA solution	200-206 BRIDGE STREET MUSWELLBROOK P2558	VEHICLE SWEEP PATHS	FOR INFORMATION ONLY
DATE ISSUED FOR INFORMATION	11.08.20				
DATE REVISED	2020				
REVISIONS					

FROM	TO	DATE	BY
FX	FX	PM	PM
AHD	MGA	1:100	1:100

Project No. SY21-028
Drawing No. C-3150

Engineering & Project Management
ABN: 72646610002
P: +61 835 586 008
E: info@skyengineering.com.au
www.skyengineering.com.au