BEGA TAFE CONNECTED LEARNING CENTRE – STAGE 2

TRAFFIC IMPACT ASSESSMENT

1 MCKEE STREET AND 199 AUCKLAND STREET BEGA

Premise

PREPARED FOR:

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ENGINEERING ENVIRONMENT AGRICULTURE WATER

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1.1 DEVELOPMENT SUMMARY

Location: 1 McKee Drive and 199 Auckland Street, Bega, known as Lots 1 and 2 DP1243054

Use: TAFE Connected Learning Centre (CLC)

Access: Pedestrian and vehicular access would be off Auckland Street through the current entry to the existing stage 1 CLC.

Car Parking: **GWA Drawings SK001-SK005** details the proposed location for the expansion of site parking for staff and students of the TAFE facility.

2. INTRODUCTION

2.1 BACKGROUND

The purpose of this Traffic Impact Assessment is to examine the potential traffic impacts of the proposed Bega TAFE facility at 1 McKee Drive and 199 Auckland Street, Bega, known as Lots 1 and 2 DP1243054.

This Traffic Impact Assessment has been prepared to accompany the Statement of Environmental Effects (SEE) for the development.

2.2 SITE LOCATION

The development site is located on a corner lot at the intersection of Auckland Street and McKee Drive in Bega, approximately 500m from the city's central business district. Stage 1 of the development – the Connected Learning Centre (CLC) – is immediately north of the site on Auckland Street and its entrance will be used to access the proposed facility (hereafter referred to the as the Stage 2 CLC). **Figure 1** below shows the location of the site in relation to the township of Bega.

Figure 1: Development Site (Imagery: NSW Spatial Services)

2.3 SITE DESCRIPTION

The portion of Lot 2 over which the Stage 2 CLC is proposed is currently unused and was originally part of the Bega District Hospital and Emergency Department lot. A single building is located on the area in which the development is proposed, which would be demolished via the proposed DA. The site slopes to the north towards the Stage 1 CLC.

2.4 PROPOSED DEVELOPMENT DESCRIPTION

The development the subject of this application proposes the development of a new educational establishment, being the Stage 2 TAFE NSW Connected Learning Centre (CLC), to be located to the south of the existing Stage 1 CLC, to be located in the south-eastern extent of the site.

The details of the proposed Stage 2 CLC building are demonstrated on the **Gardner Wetherill Architectural Drawings BG-SK001-SK004**

The land area accommodating the proposed Stage 2 CLC and associated car parking would be excised from the existing portion of Lot 2 DP1243054 and consolidated with existing Lot 1, which hosts the Stage 1 CLC. This process does not form part of this application and is expected to be managed by TAFE as acquisition under the *Land Acquisition (Just Terms Compensation) Act 1991.*

The proposed Stage 2 CLC building would be a split level building, designed to integrate with the sloping nature of the subject site, and match levels with the existing constructed Stage 1 CLC. The building would provide:

- At the lower level:
  - Approximately 594 square metres of multi-trade/workshop area
  - Approximately 242 square metres of covered outdoor bricklaying and forklift area;
  - Approximately 172 square metres of storage;
  - Approximately 228 square metres of teaching spaces (light green);
  - Approximately 68 square metres of communications and other service areas (light blue);
  - Lift shaft and stairwell;
- Upper level:
  - Male and female amenities;
  - Break out area (42 square metres);
  - Staff offices, meeting spaces and kitchenette (194 square metres);
  - Educational areas, meeting spaces, kitchenette and deck (405 square metres).

Due to the sloping nature of the land, the height of the building would range from 2 metres in the south to 8 metres in the north.

A parking area is proposed adjacent (west) to the proposed CLC building, providing parking for 32 car parking spaces. The existing accessible parking space adjacent to the Stage 1 CLC would be relied upon in relation to both the Stage 1 and 2 CLC buildings.

Earthworks, including variable height retaining walls would be required to facilitate the development of the Stage 2 CLC and provide a developable building site. The retaining walls would be well setback from boundaries to ensure sufficient room for landscaping between the wall and the boundary.

A number of non-native trees would be removed to facilitate the development. Extensive landscaping is proposed consistent with **Landscape Drawings**.

Any external lighting installed would be installed in accordance with Australian Standard 4282-1997 Control of the obtrusive effects of outdoor lighting.

The proposed Stage 2 CLC facility would accommodate 22 staff and up to 98 students at any one time. Hours of operation would typically be 8am – 6pm, Monday to Friday although consent is sought for 8 am – 9pm Monday to Friday, and 9 am – 5 pm Saturday and Sunday, to provide flexibility in the use of the building. These proposed hours are consistent with the Stage 1 CLC. The proposed hours are not considered likely to give rise to unreasonable or significant noise impacts to the surrounding locality.

3. EXISTING TRAFFIC CONDITIONS

3.1 EXISTING ROAD NETWORK

3.1.1 AUCKLAND STREET

Auckland Street is a sealed, two lane, two-way local road reaching 11m wide with sealed shoulders on both sides of the road.

The applicable section of Auckland Road extends from Newtown Road through to Bridge Street north of Bega and is aligned in a north – south direction. Speed limits in the area are posted 50km/hour.

Figure 2 below shows the intersection of McKee Drive and Auckland Street and provides a typical section of Auckland Road near the subject site. No parking restrictions apply to this section of Auckland Street.

Figure 2: **Auckland Street and McKee street intersection, facing the proposed site (north) (Source: Google Street View)**

3.1.2 MCKEE DRIVE

McKee Drive is a sealed local Council road connecting Auckland Street to Koolgarra Drive and Spindler Street. The road is approximately 12 metres wide with shoulders on each side. No parking restrictions apply to this section of McKee Drive.

Figure 3 represents a typical section of McKee Drive looking west towards Spindler Street.

Figure 3: **McKee Drive typical section (Source: Google Street View)**

3.2 EXISTING ROADWAY CAPACITY

The provision of roads within an urban area provides four main functions:

i) to cater for moving vehicles;

ii) to cater for parked vehicles;

iii) to cater for pedestrians and bicycle traffic; and

iv) to allow for development and to provide access to adjoining property.

In carrying out the above functions, a road must also be capable of handling the traffic demands placed on it. Roads have varying capacities dependent on the function they are performing. The United States Highway Capacity Manual defines capacity as follows:

> *"Capacity is the maximum number of vehicles which has a reasonable expectation of passing over a given section of a lane or roadway in one direction (or in both directions for a two-lane or three-lane highway) during a given time period under prevailing roadway and traffic conditions."*

The physical characteristics of a roadway such as lane width, alignment, frequency of intersections *etc.* make up the prevailing roadway conditions.

Level of Service of a road is a qualitative measure based upon a road's capacity and driver expectations of the operational characteristics of a traffic stream. Level of Service definitions combine such factors as speed, travel time, safety, convenience and traffic interruptions and fall into six levels of service categories ranging from A down to F.

The Austroads *"Guide to Traffic Management Part 3: Traffic Studies and Analysis*" describes Level of Service A as:

> *A condition of a free flow in which individual drivers are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and to manoeuvre within the traffic stream is extremely high and the general level of comfort and convenience provided is excellent.*

The categories are graduated from Level of Service A down through six levels to Level of Service F that is a zone of forced flow. If the amount of traffic approaching the point under consideration exceeds that which can pass it flow breakdowns occur and queuing and delays result.

The existing connections onto the surrounding road network provide access to and from the development site via a system of roads regulated by efficient traffic controls such as intersection controls.

It is also notable that the Bega Hospital has been located on the subject site for many years and was closed recently following the opening of the new Bega Hospital in 2016. Around the hospital site, land uses are typically characterised as residential.

The traffic environment in the area around the hospital has therefore been historically heavily characterised by vehicles accessing the hospital site.

The recent development of the Stage 1 CLC has provided a new traffic generator in the locality, albeit at a much lower level than the traditional hospital land use.

It is expected Auckland Drive would have accommodated traffic associated with people travelling to and from the hospital and would also likely have accommodated on street overflow parking when on site resources where maximised.

McKee Drive was previously used as an access route to the Bega District Hospital and Emergency Department and would have also accommodated overflow on street parking.

Despite this, neither street appears to have current parking limits.

Public hospitals generate frequent and high daily volumes of traffic across and average day, with peak periods in the morning and evening coinciding with the beginning and end of daytime shifts. However even outside of these times, traffic volumes would be higher than for a and the surrounding road network managed this traffic previously.

To the north of the subject site, also located on Auckland Street, is the University of Wollongong, Bega Campus and the Bega High School.

Based on the physical configuration of Auckland Street and McKee Drive in the vicinity of the development site, observations of traffic movements and the methodology outlined in the Austroads *"Guide to Traffic Management Part 3: Traffic Studies and Analysis*", the capacity and Level of Service of the surrounding roads can be determined as Level of Service A with a two way capacity of 1,200 vehicles per hour.

3.3 EXISTING ANNUAL AVERAGE DAILY TRAFFIC

Annual Average Daily Traffic (AADT) is defined as the total volume of traffic passing a roadside observation point over a period of a year divided by the number of days in the year.

Site specific AADT traffic data was not collected on individual roads surrounding the proposed service station development site for the preparation of this Traffic Study

The only locatable traffic counter in the urban area of Bega is located on Newtown Road, approximately 1,000 metres to the south of the subject site. AADT from this counter for the period 2007-2008 was approximately 2,500 vehicles in each direction. As Newtown Road is an arterial road providing linkages from the urban area to the Princes Highway to the south, it is expected traffic on this road would significantly higher than the smaller urban local roads connecting to it.

It is expected that vehicles arriving to the former hospital site from the south, would have travelled either via Newtown Road, then Auckland Street, then McKee Drive, or from Newtown Road, then Rawlinson Street, Spindler Street, then McKee Drive. Both scenarios carry traffic past the subject site, but neither would have necessitated travelling on the section of Auckland Street on which the property access is currently located.

For vehicles travelling to the former hospital from the north, a large proportion would be expected to have travelled south along Auckland Street, past the now Stage 1 CLC driveway, as the most direct route. Vehicles are expected to have departed in the same way.

This suggests that traffic volumes along Auckland Street would have been heavily dominated by traffic associated with access and egress to the hospital.

4. TRAFFIC IMPACT OF THE PROPOSED DEVELOPMENT

4.1 TRAFFIC GENERATION

Traffic generation regarding the proposed facility is based on staff and student numbers provided by TAFE NSW for the current Bega TAFE and projected enrolments for the future facility. TAFE currently operates two campuses in Bega, being the primary facility on Barrack Street and the existing approved Stage 1 CLC. The 2019 Bega TAFE enrolments across both campuses total 298 students, with a forecast

estimating 644 enrolments in 2028. The traffic to the site will be based on future projections to ensure future loading is accounted for.

Permanent traffic to and from the site will consist of staff and student arrival and departure during peak hours and throughout the day. Note that staff and student numbers will fluctuate throughout the year due to TAFE semesters and breaks.

TAFE advise the target room frequency and occupancy rates for the facility are as follows:

- Teaching areas 75% frequency with 75% room occupancy
- Workshops 50% frequency with 75% room occupancy

It is expected that approximately 78 students will be enrolled into classes in teaching areas and 144 enrolled into classes in workshops. With these figures and the above noted room frequency and occupancy rates , it is expected around 98 students will be present at any one time in the Stage 2 CLC facility, in addition to the 45 currently in attendance at the Stage 1 CLC. 3 staff currently operate the stage 1 facility, with an additional 22 required for the stage 2 facility.

The total occupation of stage 1 and 2 is therefore 25 staff and 143 students.

Peak hour traffic generation associated with the facility is expected to be consistent with the parking rates as per the DCP, that is, 1 parking space per staff member and 1 parking space per 10 students. The remainder of students attending the facility are assumed to be using alternative forms of transport, including public transport, walking or a bicycle.

Stage 2 movements equates to 22 spaces/trips per staff member and 10 spaces/trips per 100 students.

Existing traffic in relation to Stage 1 is 3 spaces/trips per staff and 5 spaces/trips for 45 students (rounded up).

Behaviour of facility users is expected to operate in line with the following assumptions:

- 25 staff arriving in the morning peak hour and departing in the afternoon peak hour. It is acknowledged that staff may move between the two campuses over the course of the day, but, as maximum levels are assessed as no more than 25, these morning and afternoon peak hour figures are conservative;
- All students (15 movements) arriving in the morning peak hour and leaving in the afternoon peak hour. In reality, given the nature of the education model, students will arrive and depart over the course of the day. The AM and PM peak hour figure of 15 is therefore conservative.

Therefore, the AM and PM peak is assumed to be 40 movements.

4.2 TRAFFIC IMPACT

4.2.1 PEAK HOUR TRAFFIC

The subject site has traditionally hosted the Bega Hospital, now closed.

Traffic generated permanently by the facility by staff and student arrival and departure will be at various times during the day including peak hours. Daily attendance will vary dependent on class scheduling. Peak movements associated with the combined Stage 1 and 2 CLC is, as outlined above, expected to be 40 movements, being 29 additional over the 11 associated with the Stage 1 CLC.

As the surrounding road network is in a central residential location within Bega, traffic movements in the area would already be moderately high. The site was once used for the public hospital and the traffic generated by the facility is expected to be of a lower volume and frequency than is expected for hospitals and therefore the impact of the generated traffic will be less than that when the hospital was operating. The addition of a further 29 movements into the local traffic environment is expected to result in negligible impacts, given the historically high levels of use and the function of Auckland Street as a primary route from the areas of Northern Bega.

4.2.2 SITE ACCESS AND EGRESS

The Stage 1 CLC was designed to accommodate the arrival and departure of light and heavy vehicles associated with the use of Stage 1.

The proposal is to utilise this existing access for all additional traffic associated with the Stage 2 CLC.

No larger vehicles are proposed to use the Stage 2 CLC than currently access the Stage 1 CLC.

The existing access is suitable to accommodate the current form of traffic accessing the site and is considered to be able to accommodate the future traffic as well.

Whilst Auckland Street is currently wide enough to enable a vehicle to pass a standing vehicle waiting to enter the site, as there are no parking restrictions in place on Auckland Street, cars may be parked in this space and obstruct this passing manoeuvre.

It is therefore the recommendation of this traffic study that parking restrictions be introduced on the eastern side of Auckland Street in proximity to the facility, at least in core hours, to ensure capacity exists for through southbound traffic vehicles to pass turning vehicles.

5. PARKING REQUIREMENTS

5.1 CAR PARKING

Bega Valley Shire Council's Development Control Plan (DCP) requires "*1 parking space per employee, plus 1 parking space per 10 students, plus 1 parking space per 10 seats in assembly hall*" for a tertiary educational establishment. As neither the CLC or the proposed TAFE facility includes an assembly hall, the parking requirements are based on solely staff and student numbers.

Currently, the CLC has at maximum 3 staff and 45 students on site at any one time. The parking spaces made available for Stage 1 total 11 as well as one accessible parking space, which is conservative for the required 3 staff and 5 student car parks (8 total).

To accommodate the proposed facility's attendance to the site, it is planned to expand the car parking location to the west of the current parking area. Considering the above DCP requirements and the expected maximum attendance at any one time (22 staff and 98 students), the requirements for parking for the TAFE facility will be 22 staff car parks and 10 student car parks.

Drawing SK01 shows the proposed car parking area with an additional 32 parking spaces. This will accommodate the Stage 2 increases of 22 staff and 10 student spaces as required by the Development Control Plan. Of the 32 spaces provided, 10 would be double stacked spaces reserved for staff. Given staff would remain in the facility for longer periods, and students for shorter periods, an arrangement to provide double stacked parking is considered acceptable. In any event, as noted below, the proposal

provides two spaces in excess of the minimum required meaning only eight of the required spaces are limited by stacking.

For the combined Stage 1 and Stage 2 maximum attendance of 25 staff and 143 students, a total of 40 car parks are required by the DCP. The total car parks available with the proposed extension of the parking area is equal to 42 including one accessible parking space, which exceeds the facilities requirements.

5.2 BICYCLE PARKING

The requirement for the DCP for bicycle parking at a tertiary educational establishment is "*1 space per 20 employees, plus 1 space per 10 full time students*".

The combined Stage 1 and 2 of the facility will have a maximum attendance of 25 staff and 143 students at any time. 3 staff bicycle parks will be required to cater for staff movements for both stages. As the nature of the TAFE facility is different to other tertiary educational establishments, "full time students" has been interpreted to be the maximum attendance of students at any time, consistent with the car parking volumes. This means that 15 student bicycle parks will be required for both stages.

The CLC currently has 3 bicycle parks, which means that an extra 15 will be required along with the new facility.

6. CONCLUSION

6.1 SUMMARY

The development of Stage 2 of the Bega TAFE and Connected Learning Centre will produce an extra 32 car movements in peak hour from both staff and students to the site (22 staff and 10 students). It is expected the remainder of students attending the facility will use alternative means of transport to reach the site. In total for Stage 1 and 2, a maximum of 25 staff and 143 students will be in attendance at any time.

The surrounding road network of McKee Drive and Auckland Street is capable of accommodating these movements as was demonstrated previously by the old public hospital and emergency department which is located on the same lot.

6.2 RECOMMENDATIONS

A total of 32 additional car parking spaces have been proposed for the site, together with the existing 11 spaces, which would be maintained. This exceeds the parking requirements of the DCP.

It is recommended 15 new bicycle parks be installed on site for Stage 2 to cater for the extra movements in accordance with the DCP requirements.

It is further recommended that Council be approached to provide parking restrictions on the eastern side of Auckland Street, at least during core hours, to ensure adequate capacity for through southbound traffic to move around standing traffic waiting to turn into the facility.

7. REFERENCES

RTA, 2002. RTA *Guide to traffic Generating Developments.*