Premise

BYRON BAY – TAFE NSW

Proposed TAFE Connected Learning Centre

TRAFFIC IMPACT ASSESSMENT

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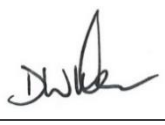
Latisha Ryall		Emily Lawson		David Walker	

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1. EXECUTIVE SUMMARY

1.1 Development Summary

Location: Bayshore Drive, Byron Bay, known as Lot 12 DP11896461

Use: TAFE Connected Learning Centre (CLC)

Access: Pedestrian and vehicular access would be direct from Bayshore Drive via a temporary internal driveway

Car Parking: BHA Architectural Drawings details the proposed location for the expansion of site parking for staff and students of the TAFE facility.

2. INTRODUCTION

2.1 Background

TAFE NSW have proposed development of an educational establishment, being a TAFE Connected Learning Centre (CLC), to be located at Bayshore Drive, Byron Bay (Lot 12 DP1189646). The Site will be known as TAFE CLC Byron Bay.

The purpose of this Traffic Impact Assessment (TIA) is to examine the potential traffic impacts of the proposed CLC development. This TIA has been prepared to accompany the Statement of Environmental Effects (SEE) for the proposed development. The subject property and its surroundings, including traffic data and plans of the development, have been examined through desktop study. External data prepared by GeoLINK Environmental Management and Design (2020) on the study area and Greg Alderson & Associates (2013) for Bayshore Drive has also formed part of this assessment.

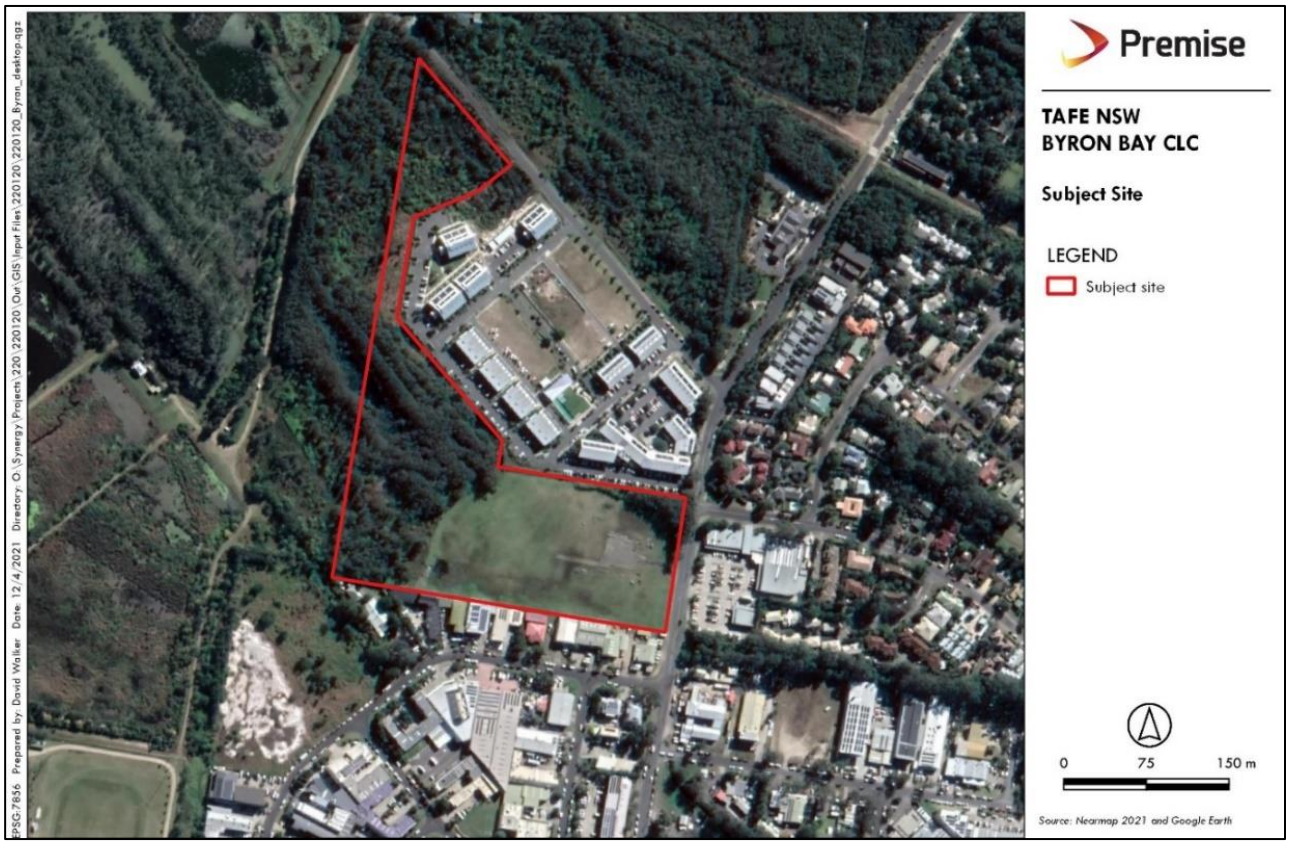
2.2 Site Location

The development site is located at Bayshore Drive, Byron Bay (Lot 12 DP1189646). The site is located within the B7 – Business Park zone, within a small commercial precinct suburb of Ewingsdale, approximately 3.1km north east from the city's central business district.

The site has a frontage to Bayshore Drive to the east. Parkes Avenue and Sunset Boulevard are located to the immediate north and Centennial Circuit is located to the immediate south, all of which are sealed public roads. Roads have not yet been established within the development Lot. A temporary internal driveway will be provided to connect the development to Bayshore Drive. It is understood the future subdivision of the lot is proposed by the land owner, as a result of which a new road would be installed that would replace the temporary driveway.

Figure 1 below shows the location of the site.

Figure 1 – Subject Site



2.3 Site Description

The Site is known as Bayshore Drive, Byron Bay being legally defined as Lot 12 in DP1189646. The Site in its current state is vacant, having previously been cleared of vegetation in the eastern extent. Prevailing vegetation exists in the western and northern extent of the site, which will not be affected by this application. The host lot has an approximate area of 5.7 hectares. The proposed development is expected to use an area of approximately 0.5 hectares of the overall a lot, located in the south east corner of the Site. A portion of the Site is identified via the *Byron Bay Local Environmental Plan 2014* (LEP) as a Deferred Matter, however the development does not affect this portion of the Site.

Vehicular access is provided by Bayshore Drive to the East, with the surrounding vicinity of the Site being characterised as mixed use being commercial, industrial and residential land uses. The western boundary of the Site is adjacent to areas zoned for rural and environmental land use respectively.

3. THE DEVELOPMENT

3.1 Proposed Development Description

The proposal seeks consents for the construction of a Connected Learning Centre by TAFE NSW.

Overall, the development will feature the following:

- Two buildings consisting of:-
    - Maker Space:

        - Mobile Training Unit
        - Maker Space
    - Connected Learning Centre:
        - Group Learning Areas
        - Media Lounge
        - Tech Bar
        - Kitchenette
        - Computer Hubs
        - Print Shop
        - Amenities
- Outdoor Learning Area;
- Landscaping;
- At-grade Carpark

The proposed operation hours are as follows:

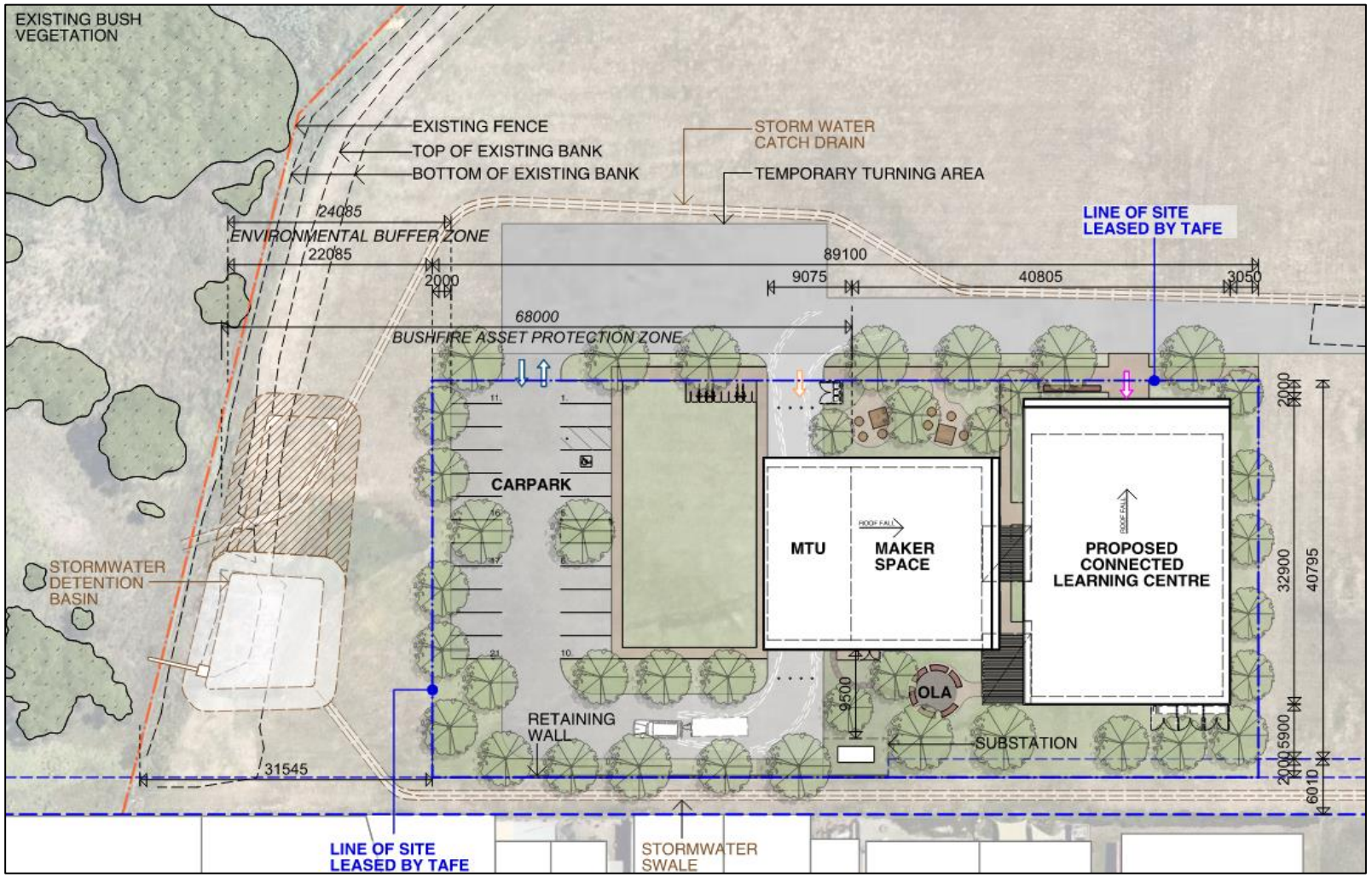
- Monday to Friday 8am – 9pm
- Saturday and Sunday 9am – 5pm.

The buildings would accommodate up to three (3) staff and forty five (45) students at any one time, with the proposed hours of operation not considered to give rise to unreasonable or significant noise impacts to the surrounding receivers.

At-grade car parking would be constructed to serve the development. Development application plans demonstrate sufficient parking would be provided to accommodate the needs of the proposal.

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

Figure 2 – Proposed Development Layout – BHA Drawing BB-DA00



4. EXISTING TRAFFIC CONDITIONS

4.1 Existing Road Network

4.1.1 BAYSHORE DRIVE

Vehicular access is provided by Bayshore Drive. Bayshore Drive provides access to industrial businesses to the east and west and is classified as a distributor Road which passes along the eastern boundary of the CLC site.

Bayshore Drive extends in its entirety from Ewingsdale Road in the south through the Byron Industrial Estate to a coastal termination point (North Belongil Beach) approximately 1.7km to the north east. The road is a bitumen sealed two-way road, reaching 11m wide with sealed curb and guttering. There are no shoulders on the road, however one lane passes in each direction and the road is aligned north south along the study area. To the south no road markings are evident, however, road markings are visible adjacent (east) to the study area indicating left and right turn lanes into the commercial precinct (Byron Bay Fair). There are currently no turn lanes for vehicles accessing Lot 12 DP11896461and currently no right-hand turn accessibility from the development. Speed limits in the area are posted 50km/hour.

The site distance at the existing accessway is approximately 150m to the north and south and has been assessed to be adequate. The surrounding land is relatively flat, with surrounding bushland.

Figure 4 below shows Bayshore Drive, north of Centennial Circuit with the study area shown on the left and the shopping centre to the right. This figure provides a typical section of Bayshore Drive near the subject site. Parking restrictions apply to this section of Bayshore Drive on both sides.

Figure 3 – Bayshore Drive – View North (Source: Google Earth)

4.2 Existing Roadway Capacity

Traffic data for generation and parking rates for the proposed CLC are calculated on the information provided in previous studies undertaken in the area such as *Traffic Study and Analysis of Options for Site Access Lot 12 DP 1189646, Bayshore Drive, Ewingsdale* prepared by GeoLink (2020).

Existing traffic volumes for the CLC have been estimated by GeoLink using manual traffic count data undertaken at the Bayshore Drive / Wallum Place intersection for Stage 5 of the Habitat development as presented in the *Traffic Impact Assessment* prepared by Rytenskild (V1, Feb 2020).

The Austroads *Guide to Traffic Management Part 3: Traffic Studies and Analysis* and Byron Shire Councils Development Control Plan 2014 (Chapter B4) are also relevant.

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 is a zone of forced flow. If the amount of traffic approaching the point under consideration exceeds which can pass it flow breakdowns occur and queuing and delays result.

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.

No traffic generator was available for the locality at the time this report was prepared. However, the traffic environment in the area around the industrial and residential centre has been historically high, characterised by vehicles accessing industrial businesses, residential properties and public recreation areas.

It is expected Bayshore Drive accommodates traffic associated with people travelling to and from the commercial and residential areas and would also likely accommodate on street overflow parking to south of the site when on site resources where maximised.

4.3 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 Byron Bay CLC development site for the preparation of this Traffic Study. However, analysis undertaken by GeoLink (**Appendix A**) of projected traffic generation to the year 2030, would result in forecast growth rate on Bayshore Drive of no more than 2.5% annually.

An earlier traffic assessment undertaken on Bayshore Drive[1], located to the north of the subject site in 2013 also assessed traffic data for the locality. Traffic survey data on the Pacific Motorway near the Ewingsdale interchange and on Ewingsdale Road between 1982 and 2007 indicated the annual traffic growth rate in the area ranged between 4-5%.

It is expected vehicles arriving to the industrial centre, residential area and business park from the south, would have travelled via Ewingsdale Road then Bayshore Drive. Other vehicle access to this area would include those travelling via Ewingsdale Road, then Sunrise Boulevard, or from Ewingsdale Road then Banksia Drive, both onto Bayshore Drive. The first scenario carries traffic directly passed the site locality. Ewingsdale Road is the main connection road between Byron Bay CBD and the Pacific Motorway.

Previous studies in the area have indicated heavy queuing occurs on Ewingsdale Road, which also affects some intersections leading towards it. Without road upgrades in this area, traffic growth will be limited by the physical capacity of the road network.

This suggests traffic volumes along Bayshore Drive are dominated by traffic associated with access and egress to the existing industrial, commercial and residential centres.

5. TRAFFIC IMPACT OF THE PROPOSED DEVELOPMENT

5.1 Traffic generation

Traffic generation regarding the proposed facility is based on staff and student numbers provided by TAFE NSW for the current Byron Bay CLC and projected enrolments for the future facility. TAFE currently does not operate a campus in Byron Bay, with the closest centre operating in Ballina (approximately 25.7 km to the south). The proposed CLC site will be the primary facility on Bayshore Drive. Byron Bay TAFE student usage numbers is a total of 45 students at any one time.

Considering a ten-year design horizon, GeoLink project traffic volumes on Bayshore Drive within the study area will increase as a result of the adjacent Habitat development, the proposed bioenergy plant on Wallum Place and the proposed future development on Lot 12 DP11896461. Additionally, it can be expected general growth of background traffic volumes will be no more than 2.5% per year (as adopted by TfNSW, formerly RTA, in 2006 for Byron Shire local roads). Note reports by Veitch Lister Consulting (West Byron Development Transport Study Report, March 2011) and Bitzios Consulting (West Byron Development Area – Western Precinct Traffic

[1] https://northbyronbeachresort.com.au/pdfs/Traffic-Impact-Assessment.pdf

Assessment, November 2016) indicate a forecast growth rate on Bayshore Drive of only 0.49% compounded annually.

Permanent traffic to and from the site will consist of staff and student arrival and departure during peak hours and throughout the day. Note 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
Maker spaces	50% frequency with 75% room occupancy

It is expected approximately 45 students will be enrolled into classes in teaching areas and maker spaces. With these figures and the above noted room frequency and occupancy rates, it is expected up to forty five (45) students will be present at any one time in the CLC facility. Three (3) staff will be operating the facility, with the expectation teachers can stream into the CLC to deliver classes.

The CLC will cater for both High School and Tertiary level students, however for the purposes of this assessment, it has been assumed that the more onerous requirements associated with tertiary students apply.

The total occupation for the CLC is three (3) staff and forty five (45) students.

GeoLINK (2020) notes there was no data available to estimate traffic generated by Lot 12 DP11896461 beyond the TAFE CLC. GeoLINK note that if anticipated peak hour traffic volumes will be significantly higher than the volumes estimated, additional assessment should be undertaken.

GeoLINK also note:

- The Guide to Traffic Studies and Analysis Methods (AGTM03, Austroads, 2020) Table 6.1 suggests the typical mid-block capacity of an urban road is between 900 and 1,000 passenger vehicles per hour. The traffic on Bayshore Drive is expected to around 800 vehicles per hour during the peak hour in the year 2030 based on the assumptions described herein.

Peak hour traffic generation associated with the facility is expected to be consistent with the parking rates as per the Byron Shire DCP are, 1 *parking space per 2 staff members and 1 parking space per 10 students* for secondary education and *1 parking space per 5 students plus 1 parking space per 2 staff members* for tertiary education. The remainder of students attending the facility are assumed to be using alternative forms of transport, including public transport, walking or a bicycle.

It is proposed 10 bicycle parking spaces will be available.

CLC movements equates to 2 spaces/trips per staff member and 7 spaces/trips per 45 students.

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

- 3 staff arriving in the morning peak hour and departing in the afternoon peak hour. These morning and afternoon peak hour figures are conservative;
- All students 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 14 is therefore conservative.

Therefore, the AM and PM peak is assumed to be 17 movements. Arrivals of students is expected to be staggered over the day to ensure sufficient parking is provided between each programmed session. Car parking has been designed to allow for an overlap between sessions.

5.2 Traffic Impact

5.2.1 PEAK HOUR TRAFFIC

The subject site has traditionally lain vacant., therefore existing peak hour traffic volumes at the site have been estimated by GeoLINK using manual traffic count data undertaken at the Bayshore Drive / Wallum Place intersection for Stage 5 of the Habitat development. Data for this estimation was obtained from the Traffic Impact Assessment prepared by Rytenskild (V1, Feb 2020) and provided by Council.

Additional data was collected by GeoLINK during early December 2019 to analyse peak hour traffic. This data indicated :

- the afternoon peak hour traffic travelling south on Bayshore Drive immediately south of the Wallum Place intersection is 255 vehicles per hour, and 185 vehicles per hour travelling north at the same location. It is noted the Sunrise Boulevard and Bayshore Lane intersections are located between the study area and the Wallum Place intersection. A portion of the southbound traffic captured by Rytenskild would turn off Bayshore Drive onto Sunrise Boulevard, thus not entering the study area. Similarly, a portion of traffic would turn left onto Bayshore Drive from Sunrise Boulevard or Bayshore Lane heading into the study area. However, the latter is estimated to be less than the former and as such, it is assumed the volume of traffic travelling south at our study site would be lower than 255 v/h.
- For the northbound traffic, the Rytenskild data would not have captured traffic volumes travelling through our study area turning off into Sunrise Boulevard or Bayshore Lane. Conversely, it would include traffic bypassed the study area by entering Bayshore Drive from Sunrise Boulevard. It is assumed these two volumes would be similar and as such the 185 v/h is taken to be representative of the traffic travelling north within the study area.

GeoLINK undertook manual traffic counts to estimate the peak hour traffic volumes at the shopping centre site entrance. The traffic data was collected during the afternoon peak hour on 28 April 2020, however, was undertaken during the COVID19 restrictions and were assumed to have represented 20% lower than expected traffic volumes under 'normal circumstances'. Adjusted figures are as follows:

- Adjusted figures for south and northbound traffic on Bayshore Drive are 174 v/h and 184 v/h. These figures correlate with the Rytenskild data, taking into account the expected loss of traffic from the stream between Wallum Place and the study area via Sunrise Boulevard.
- 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 CLC is, as outlined above, expected to be 17 movements.

As the surrounding road network is in a mixed-use location within a suburb of Ewingsdale in Byron Bay, traffic movements in the area would already be relatively high. Future development in the area is also likely to increase volumes, however these future uses would need to address traffic generation at the time of those developments. Traffic generated by the facility is expected to be of a higher volume and frequency than the previous storage use.

The addition of a further 17 movements into the local traffic environment in the peak hour is expected to result in negligible impacts, given the historically moderate levels of use and the function of Bayshore Drive as a primary route to Ewingsdale Road to the Byron Bay CBD from the western suburbs area.

5.2.2 SITE ACCESS AND EGRESS

The proposed CLC is designed to accommodate the arrival and departure of light vehicles (students and staff) associated with the use of CLC together with a small amount of heavy vehicles (delivery vehicles and the MTU). Arrival and departure of larger vehicles during the construction phase are not considered via this assessment, as this level of usage would be short-lived and manageable under a construction traffic control plan.

Bayshore Drive is not currently wide enough to enable a vehicle to pass a standing vehicle waiting to enter the site, as there are parking restrictions in place in this locality and traffic will be utilising space to enter the adjacent shopping centre site, which would result in an obstruction to passing vehicle movement. However, as demonstrated, additional traffic during peak hour (17 vph) is low and thus it is not anticipated that the additional movements would in a significant change in traffic levels. It is however a recommendation of this traffic study that parking restrictions remain in place on the eastern side of Bayshore Drive in proximity to the facility, to ensure further obstructions are not added to the road for northbound vehicles.

GeoLINK have identified a number of potential access and egress options for the CLC site (Lot 12 DP11896461) including T-intersection(s) and a roundabout.

GeoLINK have identified a draft design for the development, included a two-way intersection at the southern boundary of the site and an entry-only intersection approximately halfway along the CLC site eastern boundary. However, this configuration (right turns in/out of the site at the southern boundary) conflict with the existing shopping centre intersection access and was not suitable for the already relatively high traffic volumes in the area.

The following intersection options were proposed:

- T-intersection(s)
- One T-intersection north of the shopping centre site entry
- Two T-intersections, one north of the shopping centre site entry and one to the south, the latter providing left in access only
- Roundabout
- Dual lane
- Single lane

Five scenarios for the site have been modelled using SIDRA Intersection v8 traffic modelling software:

1. Bayshore Drive / shopping centre entrance intersection

    a. Existing layout with 2020 traffic volumes- modelled to understand the current traffic situation in the area

    b. Existing layout with 2030 traffic volumes- modelled to understand the likely 2030 traffic situation in the area

2. Two T-intersections (shopping centre entrance and Lot 12 entrance) with 2030 traffic volumes- modelled for 2030 traffic generation and development of the CLC site, whist maintaining access to the shopping centre site

3. Dual lane roundabout servicing the shopping centre site and Lot 12 with 2030 traffic volumes- *Same as scenario 2*

4. Single lane roundabout servicing the shopping centre site and Lot 12 with 2030 traffic volumes – Same as scenario 2

Based on the above scenarios:

- Scenario 2 is the **most desirable option** based on costs, acceptable traffic efficiency accommodating pedestrians with minor alterations to the existing refuge.
- Whilst, Scenario 3 and 4 (Roundabout options) will provide a higher level of safety and lower crash rates, an overall efficiency and minimal delay to through traffic flow, the cost associated would be more than Scenario 2.

Whilst Scenario 2 is the acceptable scenario to serve the develop, further development of the Site will require a review of the Bayshore Drive / shopping centre entrance intersection which may require upgrading.

The following figure shows the level of service Criteria for intersections as assessed by GeoLINK for the study area, with information obtained from *RTA Guide to Traffic Generating Developments version 2.2*

Figure 4 – Level of Service Criteria

Level of service criteria for intersections

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Signs
A	< 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity; at signals, incidents will cause excessive delays Roundabouts require other control mode	At capacity, requires other control mode

Table 1 – SIDRA intersection modelling for Lot 12 CLC site and Level of Service Assessment

Scenario	Layout	Modelling requirements	Level of Service (LOS) and delays
1a	Bayshore Drive / shopping centre entrance intersection Existing layout with 2020 traffic volumes	modelled to understand the current traffic situation in the area	B for right turn from shopping centre (12.7s delay) A for all other movements
1b	Bayshore Drive / shopping centre entrance intersection Existing layout with 2030 traffic volumes	modelled to understand the likely 2030 traffic situation in the area	C for right turn from shopping centre (22.0s delay) A for all other movements

2	Two T-intersections (shopping centre entrance and Lot 12 entrance) with 2030 traffic volumes	modelled for 2030 traffic generation and development of the CLC site, whist maintaining access to the shopping centre site	D for right turn from shopping centre (24.9s delay) C for right turn from Lot 12 (20.3s delay) A for all other movements
3	Dual lane roundabout servicing the shopping centre site and Lot 12 with 2030 traffic volumes	Same as scenario 2	B for right turn into Lot 12 (10.2s delay) A for all other movements
4	Single lane roundabout servicing the shopping centre site and Lot 12 with 2030 traffic volumes	Same as scenario 2	B for right turn into Lot 12 (15.4s delay) B for straight southbound (12.7s delay) B for left turn into shopping centre (12.8s delay) B for right turn from Lot 12 (12.3s delay) A for all other movements

Results of the traffic modelling are outlined in **Appendix A**.

The proposed development is being imposed into an environment with existing traffic issues, as outlined in the GeoLINK report. The low volume of peak hour numbers (even when conservatively assessed) suggests that the proposed development is unlikely to result in an impact to the local traffic environment.

It is understood that further development of Lot 12 is proposed by Council, and the nature and impacts of that development would need to be the subject of further assessment, to determine the appropriate site access treatment. This would be the subject of a separate assessment.

6. PARKING REQUIREMENTS

6.1 Car Parking

Byron Shire Council's Development Control Plan (DCP) requires for secondary educational facilities "1 parking space per 2 staff members plus 1 parking space per 10 students" and for tertiary education "1 space per 5 students plus 1 space per two staff members". The proposed CLC will cater for both High School and Tertiary level students. The parking requirements are based on solely staff and student numbers.

This is consistent with the *TAFE NSW Connected Learning Centre Parking Guidelines v3* with reference to Byron Shire DCP shown below.

Table 2:TAFE NSW CLC Parking Guidelines for Byron Shire

Car parking Requirements of Council DCPs at CLC Locations (as at 20 Sept. 2019)			
Location		**Parking Requirements**	
Council	**CLC/Town**	**Staff**	**Students**
Byron Shire Council	Byron Bay	1 space per 2 staff	Secondary Education Facilities - 1 space per 10 students (aged 17 and under) 1 space per 5 students (aged 17 and over)

The proposed CLC facility will have at maximum three (3) staff and up to forty five (45) students on site at any one time. Based on **Table 2**, the CLC facility generates the need for two spaces for staff and seven for students (9 in total).

The parking spaces made available for the development total 21, including one accessible parking space, which is conservative for the nine required.

To accommodate the proposed facility's attendance to the site, it is planned to construct the car parking location to the west of the learning facility.

Drawing BB02.B shows the proposed car parking area with proposed 21 parking spaces. This will accommodate (and exceed) the spaces as required by the DCP.

In recognition of Section 4.15(3A) of the EP&A Act, any condition of consent with respect to parking should reflect the DCP requirements rather than the proposed arrangements.

6.2 Bicycle parking

The requirement for the Byron Shire DCP for bicycle parking at a tertiary educational establishment is "1 space per 5 students" The DCP bicycle parking is designed in accordance with current editions of *AS 2890 Parking Facilities, Austroads and the NSW RTA Bicycle Guideline 2005* as appropriate and as nominated under *Chapter B5 Providing for Cycling.*

The proposed CLC will have a maximum attendance of 3 staff and 45 students at any time. 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 9 student bicycle parks will be required for the CLC. 10 bicycle spaces are proposed, which exceeds the DCP requirement.

In recognition of Section 4.15(3A) of the EP&A Act, any condition of consent with respect to bicycle parking should reflect the DCP requirements rather than the proposed arrangements.

7. CONCLUSION

7.1 Summary

The development of the Byron Bay TAFE CLC will produce 17 car movements in peak hour, from both staff and students to the site (3 staff and capacity for 45 students).

The surrounding road network of Bayshore Drive is capable of accommodating these movements as was demonstrated previously by traffic movement around the industrial, commercial and residential areas which is located to the north, east and south of the lot.

8. RECOMMENDATIONS

A total of 21 car parking and 10 bicycle spaces are proposed for the site. This exceeds the parking requirements of the DCP.

It is also recommended Council be approached to retain parking restrictions on the eastern side of Bayshore Drive, to ensure adequate capacity for through Northbound traffic to move around standing traffic waiting to turn into the facility.

9. REFERENCES

References
Austroads 2020. *Guide to Traffic Management Part 3: Transport Studies and Analysis Methods*
GeoLINK Environmental Management and Design, 2020. *Traffic Study and Analysis of Options for Site Access Lot 12 DP 1189646, Bayshore Drive, Ewingsdale*
Greg Alderson & Associates, 2013. *NBBR Central Facilities DA Traffic* Impact Assessment for North Byron Beach Resort Rev. 3.
NSW Government TAFE NSW, 2019. *TAFE NSW Connected Learning Centre (CLC) Parking Guideline*
RTA, 2002. RTA *Guide to traffic Generating Developments.*
Traffic Planning, Vehicle Parking, Circulation and Access Byron Shire Council DCP 2014 Chapter B4

DRAWINGS

APPENDIX A

GEOLINK TRAFFIC STUDY AND ANALYSIS OF OPTIONS FOR SITE ACCESS LOT 12 DP 1189646, BAYSHORE DRIVE, EWINGSDALE

Premise