

3 September 2020

P1848 AVIDPM Alesco School Charlestown

Avid Project Management  
PO Box 206,  
Carrington NSW 2294

**Attn: David Read**

Dear David,

**Proposed Redevelopment, Alesco Senior College, Charlestown, NSW.**

Further to your recent email, we have now completed our site work for the proposed school to be located at 27 Chapman Street, Charlestown. We have reviewed the documentation provided in relation to the proposed school and provide the following assessment of traffic, parking and access to support the Environmental Impact Statement (EIS) being prepared for the project. The report has been prepared to respond to the various matters raised in the SEARs which are included in **Attachment E**.

The following assessment has been prepared taking into consideration the requirements of the Austroads Guidelines and Guide to Traffic Generating Developments together with the relevant planning controls outlined within the Lake Macquarie Development Control Plan 2014.

## **Background and Existing Situation**

Alesco Senior College aims to offer education to young people whose circumstances have previously prohibited them from finding success in education and to provide opportunities for these young people to prove their capabilities; that their potential is endless and they can succeed in an environment that is designed specifically for their inclusion and experiences.

The proposed development comprises of a change of use from a Church to an Educational Facility to accommodate approximately 60 secondary school students typically from Year 9 and above.

## **Site Location and Access**

The subject site is located at 27 Chapman Street, Charlestown as shown in Figure 1. It has frontage to both Chapman Street and St Albans Close with vehicular access to St Albans Close only.

The adaptive reuse of the site allows for the church and hall to provide learning space for the school. The surrounding land use comprises mostly commercial and retail development with low density residential housing to the north. Charlestown Square shopping centre and Charlestown town centre are located to the east and south of the site.

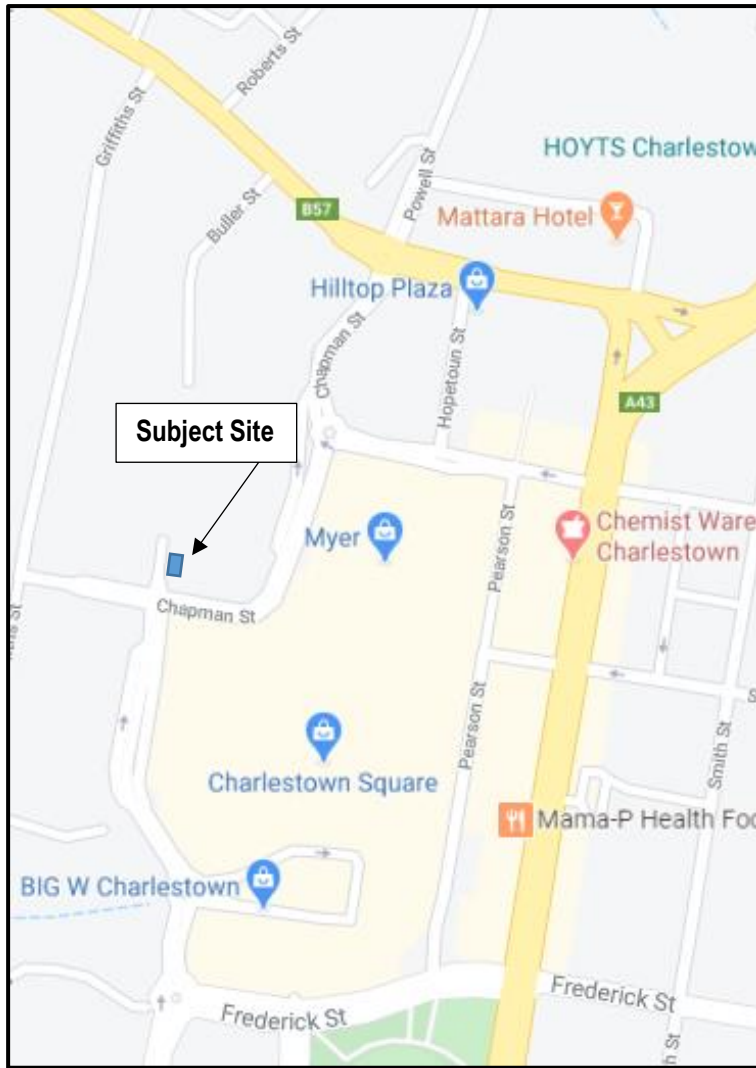


Figure 1 - Location of the subject site within the context of the local road network.

### Road Hierarchy

The **Pacific Highway** is the major arterial road through the locality, forming part of the state road network (HW10) providing a north-south link between the M1 Pacific Motorway near Doyalson to the south and through Newcastle to Raymond Terrace in the north. In the vicinity of the site it provides two lanes of travel in each direction plus a parking lane. Parking is managed during the peaks to improve capacity associated with the tidal peak demands. Street lighting and footpaths are provided through the Charlestown Town Centre. The posted speed limit is 60 km/hr.

**Charlestown Road** is a main collector road to the north of the site with an east-west orientation providing a connection between the Newcastle Bypass at Garden Suburb to the north west and the Pacific Highway at Charlestown to the east. It also connects with Hillsborough Road at Hillsborough which provides access to Warners Bay and the suburbs on the northern and western sides of Lake Macquarie. It provides two lanes of travel in each direction with no street parking.

**Chapman Street** is a local collector street which provides access to various lots to the west of the Charlestown town centre including Charlestown Square. It connects with Charlestown Road to the north at a roundabout and Griffiths Street at a T-intersection. Chapman Street connects with St Albans Close and Canberra Street at a signalised 4-way intersection with pedestrian crossings on three of the approaches. In the vicinity of the site it has a single lane in each direction separated by a raised concrete median with widening at the intersections to improve

capacity. There is no on street parking available. It has kerb and guttering and provides an overall width of 13 metres. It has a posted speed limit of 50km/h.

**Griffiths Street** and **Canberra Street** function in a similar manner to Chapman Street and as local roads are under the care and management of Lake Macquarie City Council.

**St Albans Close** is a cul de sac and which provides access to several residential dwellings along with a commercial premise and St Albans Anglican Church and Hall. It has kerb and guttering with two lanes of travel and on street parking. Signage indicates this parking is restricted to 2 hours Monday to Sunday with no times nominated. This sign however has no end sign nor sign on the western side. St Albans Close provides a road width in the order of 11 metres with a turn head at its northern end. A 50km/h speed limit applies. There is a footpath along the eastern side of the road along the St Albans church frontage.

St Albans Close forms the northern leg of the signalised intersection with Chapman Street. All turning movements are allowed from St Albans Close with left turn movements controlled to allow for a pedestrian crossing on the eastern approach. Right turns from Chapman Street are not permitted whilst through movements from Canberra Street and left turns from Griffiths Street are.

### Current and Proposed Roadworks and Traffic Management Works

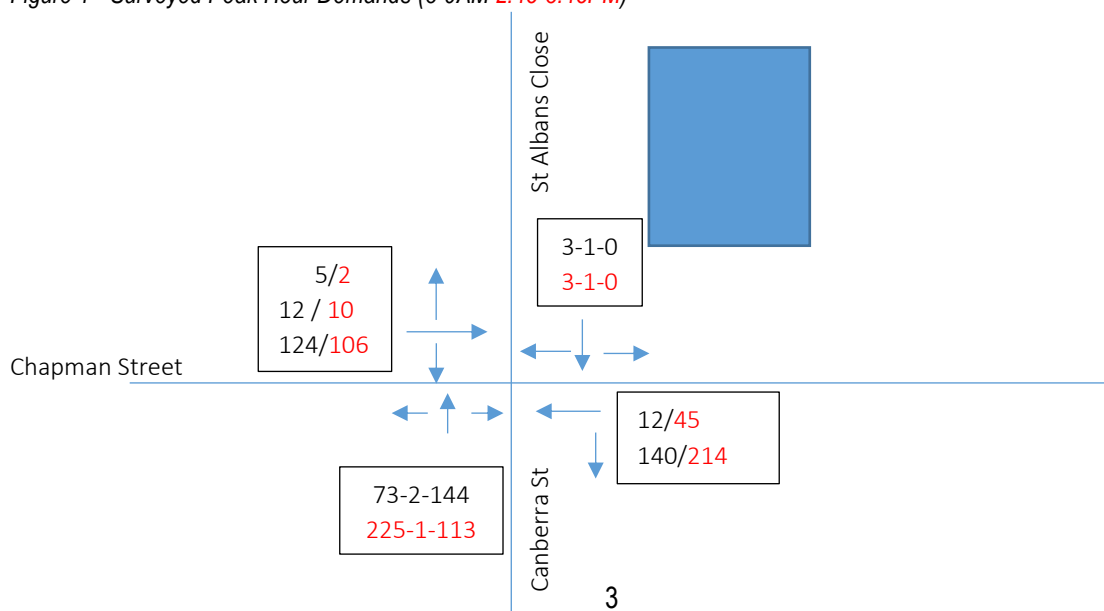
Except for maintenance, no road works or traffic management works are proposed in the vicinity of the site. The 2020-21 Operational Plan does note that drainage upgrades have been completed at St Albans Close. Upgrades to the Pearson Street mall are also being undertaken by Council.

### Traffic Surveys

Traffic surveys were undertaken at the signalised intersection of Chapman Street and St Albans Close on Tuesday 18<sup>th</sup> August 2020 to determine the current traffic demands both past the site as well as at this intersection. These surveys were completed during a typical weekday morning (7:30am-9:00am) and afternoon (2.30pm-4.00pm) to coincide with the typical peaks associated with the school. The peaks were confirmed as being 8-9AM and 2.45-3.45PM although a later peak is also expected associated with employees leaving the surrounding business including the shopping centre.

A summary of the peak hour volumes obtained from these surveys is shown in Figure 1 with detailed survey data provided within **Attachment C**.

Figure 1 - Surveyed Peak Hour Demands (8-9AM 2.45-3.45PM)



Peak hour traffic volumes typically represent between 8-12% of the daily traffic volumes. This would indicate that applying 10% daily traffic volumes on the Chapman Street to the east of the site could be in the order of 3500 vehicles per day (vpd) with flows on Canberra Street in the order of 5,750 vpd whilst St Albans Close are much lower at around 40 vpd.

### Existing Site Flows

The site has historically accommodated an Anglican Church however this is no longer operational at this location and so is not currently generating site flows.

Historically it would have generated traffic demands primarily of a Sunday. The church hall may also have generated some traffic and parking demands during the week when hosting church activities or if the hall had been used by community groups. Similarly, mid-week funerals and weddings of a Saturday would have generated parking and traffic demands.

### Current Road Network Operation

Observations on site indicate that the local roads currently provide a good standard of operation throughout the day and during the peak periods. The traffic signals at Chapman Street have been modelled with Sidra as well as observed during site work. The signals are vehicle actuated and during the surveys all vehicles were able to clear the intersection within a single phase of lights. Whilst pedestrians were noted in the area many did not use the pedestrian crossings but rather crossed during significant gaps in the traffic.

Performance standards for assessing the capacity of a road are described within The Guide to Traffic Generating Developments (GtTGD). For the local streets which provide a collector function offering a single lane in each direction with no parking the mid-block capacity would be in the order of 1,800 vph. The traffic volume on Chapman Street is less than 400vph and on Canberra Street less than 700vph with both therefore well within the mid-block capacity of these roads.

The capacity of St Albans Close may be considered for its environmental capacity due to the residential dwellings although the shift of these to commercial premises will change this over time. The environmental capacity for an access way would be 100 vph and for a local street would be 200 vph desirable with 300 vph the maximum. The current flows are in the order of 6 - 10 vehicles per hour.

These roads therefore have spare capacity to accommodate development in this area.

### Traffic Safety and Crash History

A review of crash data provided by Transport for New South Wales, indicates that there have been only two accident recorded at the intersection of Chapman Street and St Albans Close over the 5 year period between October 2014 and September 2019. One accident, a non-casualty, involved two turning vehicles whilst a moderate injury crash involved a vehicle running off the road and into a tree in wet conditions.

Detailed crash data is provided within **Attachment B**.

The local roads are typically well aligned and provide excellent visibility on approaches to intersections. Given this, together with the low number of accidents, it is considered that the local road network provides an acceptable level of road safety for road users and pedestrians.

### Car Parking Demands and Availability

Off-street car parking for several cars has been available adjacent to the church.

On-street car parking is available on St Albans Close. Signage limits this to two hours however this sign is only on the eastern side of the street with no end sign or signage on the western side of the cul-de sac.

There is a public carpark to the north of the site on the northern side of Charlestown Road. Other off street parking is available in Charlestown Square and associated with other commercial premises for customers and staff.

Local on street parking demands are high associated with employees in the many businesses throughout the Charlestown town centre including Charlestown Square. A number of vehicles were noted parked in St Albans Close with people then walking across Chapman Street towards Charlestown during the morning surveys.

### Pedestrian and Cyclist Facilities

A 1.2m wide footpath is provided across the site frontage to the traffic signals at Chapman Street.

Chapman Street has footpaths to both sides of the road as does Canberra Street. To the north the footpath on the eastern side of Chapman Street connects with footpaths on Ridley Street which provide pedestrian connection with Pearson Street and the bus interchange. Pedestrian connection is also available through Charlestown Square. Pedestrian phases on the signalised intersection of Chapman Street and St Albans Close allow for the safe crossing of pedestrians.

There are no marked cycle lanes on the streets surrounding the subject site. Whilst cyclists under 16 can ride on footpaths, older cyclists would need to ride on the streets. Traffic volumes throughout this area are not conducive to on road cycling except for experienced cyclists.

Whilst some demands for pedestrian were noted in this location during the surveys no cyclists were observed.

Although cycling facilities within the immediate vicinity of the site are limited, Council does plan to undertake feasibility and planning for a shared pathway between Charlestown and Dudley which will improve cycling connections into this housing area and possibly to the Fernleigh Track.

### Public Transport

Charlestown provides a bus hub and interchange for a wide range of services provided by Newcastle Buses and Hunter Valley Buses with a Network Map included as **Attachment D**.

Table 2 Summary of bus services connecting at Charlestown

Route Number	General Description
11	Charlestown to Newcastle via Jesmond (Newcastle Buses)
14	Swansea Head to Newcastle via Charlestown (Newcastle Buses)
22,25,28	Mount Hutton & Charlestown to Broadmeadow & Newcastle (Newcastle Buses)
41,43,48	Swansea North & Belmont to Charlestown, Warners Bay & Glendale (Newcastle Buses)
D59	Lake Macquarie On Demand (Newcastle Buses)
262,263	Cameron Park to Charlestown (Hunter Valley Buses)
269	Toronto to Charlestown (Hunter Valley Buses)

An On Demand service is also available in this area with collection from a point near someone's home to Charlestown. The service area covers Charlestown, Dudley, Whitebridge, Gateshead, Redhead, Warners Bay, Mount Hutton, Windale, Tingira Heights, Eleebana, Croudace Bay, Valentine, Belmont North and Belmont areas.

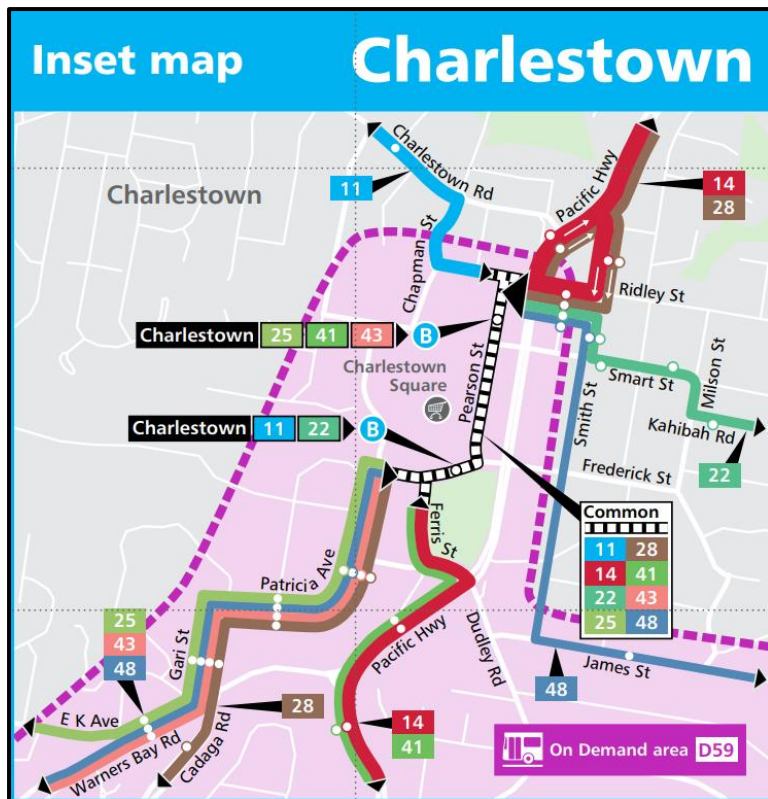


Figure 2 Details of Charlestown bus routes

The bus interchange is focused on Pearson Street as shown in Figure 2 above. Pearson Street is able to be accessed from the subject site by pathways along Chapman Street and Ridley Street or through Charlestown Square when open. Pearson Street is approximately 400m walking distance from the subject site.

The wide catchment area and regularity of services provide feasible public transport access for both staff and students attending the school. There is adequate spare capacity on all services with Keolis Downer promoting ongoing increases in patronage across the bus, light rail and ferry networks throughout Newcastle.

The closest railway stations are at Cardiff (approximately 5kms) and Kotara (approximately 4kms). Neither provide convenient connection although there are regular bus services between Cardiff station and Charlestown (Route 262). Both are serviced by the Central Coast Newcastle line.

#### Other Developments

There is an 80 place childcare centre proposed to be built at 2 – 4 St Albans Close, to the immediate north of the school site. A traffic impact assessment has been prepared for this development and the traffic associated with it has been included in this assessment below.



### Proposed Development

The proposal allows for the adaptive re-use of the former St Albans Anglican Church and Hall to provide a new independent senior school. The proposed development will initially cater for around 40-45 students and grow over time to accommodate up to 60 students and 5 staff. This assessment caters for this upper student and staff number.

Alesco Senior College caters for students who are disenfranchised from traditional education. They may have mental health concerns, school refusal issues etc which see them struggle to achieve in a mainstream environment. The small number of students and the older cohort (Years 9 -12) provide a learning environment driven by the needs of the student with a focus on independence.

Alesco have campuses in Raymond Terrace, Newcastle and Argenton and this Charlestown site has been selected due to its connection with existing public transport. Students are encouraged to make their own way to school by public transport as it is affordable and promotes independence. Due to the socio-economic situation of many of the students car ownership is very low. Older students who may have access to a vehicle are dissuaded from driving to school, in part to ensure once students are at school they remain within the site for the whole day.

Due to the nature of the students' needs average attendance, based on a review of data from other existing campuses in the area, is typically only 60% on any one day and so with a cohort of 60 students only 36 are likely to be at school at any point in time.

Consistent with most school operations the hours of operation for this school are proposed as 8am to 4pm weekdays with extended hours as required for school events such as parent teacher interviews etc. No changes are proposed to the existing access arrangements from St Albans Close with three parking spaces to be formalised on site, one of which can accommodate the need for people with a disability. This space will not however be designated solely for this purpose and shall be managed as required.

A concept site plan for the development is provided within **Attachment A**.

### Review of Parking

#### Parking Supply

The site shall provide 3 on site parking spaces, two of which shall be stacked with all spaces managed by staff on site.

#### Car Parking Demands

Lake Macquarie Development Control Plan 2014 Development in Business Zones provides the following car parking rates for education facilities In B1, B2, B3, B4 zones or as a component of Mixed Use Development:

- 1 space per 2 full-time equivalent staff, plus 1 space per 50 students

Applying these rates, the proposed school would require 2.5 car spaces for staff plus 2 spaces (being >50 students). Allowing for the low attendance of students and the school policy to support active travel rather than students driving to school the provision of three spaces on site shall allow for the equivalent of 6 staff to be provided on site with no parking required for students.

Whilst this parking is less than required by the LMDCP it is considered appropriate given the unique nature of the proposed school. The proposal is also supported by a green travel plan to provide guidance on opportunities to support active travel to and from the school.

### Drop off Zone

Whilst the site frontage can provide for up to three vehicles to pull up and drop off students this is not consistent with the school ethos of promoting active travel to the school. The restriction of parking along the site frontage to 15min parking during the start and finish of the school day could however provide for a high turn over area and ensure that workers from surrounding business are not able to park along the school frontage for the whole day.

### Bus Demands

The school does not utilise private buses for daily pick up and drop off of students. Given their age (14+) students are instead encouraged to use public bus services as detailed above and walk to the site from the bus interchange on Pearson Street consistent with the school's Green Travel Plan. There is therefore no demand for the provision of a bus zone adjacent to the school.

### Bicycle Parking

The LMDCP provides guidance for the provision of bike parking for staff and visitors. Based on the DCP bike storage for employees is to be provided in a secure undercover area. Whilst only 1 space is required for staff, given the Green Travel Plan and the promotion of cycling as an active travel option bike storage for 5 bikes is recommended for the site. This equates to 10% of the anticipated number of people on site at any point in time.

Suitable storage can be provided in secure, convenient areas with suitable lighting to allow for staff who may ride as well as passive surveillance from surrounding rooms within the school.

End of trips are also to be provided in accordance with the Green Travel Plan and shall include lockers for the storage of changes of clothes as well as gear.

### Site Servicing

The site shall have minimal servicing needs with the main being that of waste collection. This will occur in a manner consistent with the existing situation with kerb side waste pick up.

The majority of other requirements for the school will typically be brought by staff to the site.

### Emergency Access

Emergency vehicles will be able to access the site using the existing driveway off St Albans Close.

### Review of Access

Access to the site shall continue to be as per the existing situation with a combined entry/exit driveway off St Albans Close. Allowing for the low number of parking spaces and the classification of the parking for staff only the existing driveway width of approximately 4 metres is appropriate for the proposed development. This access can also allow for emergency vehicles to stand within the site if required.

### Sight Distances

#### **Safe Intersection Sight Distance**

- Minimum of 45 metres, 69 metres desirable for the posted speed limit of 50km/hr on St Albans Road
- Minimum of 35 metres, 55 metres desirable for the posted speed limit of 40km/hr on St Albans Road

Allowing for the length of St Albans Road (47 metres) and the proximity of the driveway to the signalised intersection (27 metres) vehicle speeds at this location are likely to be much less than 40km/h. Vehicle exiting St



Albans Close would be likely to be driving at less than 20km/h. Whilst this sight distance is not available, St Albans Close offers a straight road alignment which enables vehicles exiting the driveway to see to the right to see a vehicle approaching. Visibility to the right can be impacted upon by parked vehicles requiring motorists to exit with care. The staff using the on site parking will be familiar with this situation and can exit with caution.



*Photo 1 - View looking south (left) from existing driveway crossover.*



*Photo 2 - View looking north (right) along St Albans Close from existing driveway crossover.*

### Queueing at Site Entry

Observations on site confirmed that there are minimal delays for vehicles entering the site from St Albans Close. Staff vehicles arriving to the site will be typically at the start of the day (8am) with vehicles exiting St Albans Close at this time primarily associated with the childcare centre proposed to the north of the school. These vehicle numbers are anticipated to be less than one every two minutes and so should see minimal delays for entering staff vehicles.

As detailed above car ownership is low in the school cohort and although students are not encouraged to be dropped to school there may be times when this does occur. To provide a robust assessment it has been assumed, based on data from existing Alesco campuses, that on a particular day 20% of the students on site may be driven to school resulting in 7 vehicles arriving to the school in the morning or afternoon (7 inbound/7 outbound). Typical of school demands, motorists arriving and leaving the site in the morning shall be disbursed throughout the half hour or so prior to school starting. These low numbers can be accommodated within St Albans Close given they represent one vehicle every 4 minutes.

After school pick up shall also be discouraged and parents/carers will be directed not to pick up students directly from the school except for exceptional circumstances. If, however 7 vehicles were to enter St Albans Close and queue within the street there would be approximately 35 m between the back of this queue and the signalised intersection. This would therefore not impact the operation of these signals.

## Review of Traffic Impacts

### Traffic Generation

The Guide to Traffic Generating Developments does not provide standard trip rates for schools or education facilities.

Given the unique nature of this school the following mode share would be considered appropriate:

- 25% travel by car
- 70% travel by bus
- 5% walk or cycle

The majority of these car movements would be associated with staff (3-4) and would typically arrive at 8am. Any pupils will be dropped to school between 8.30-9.00. This could see 19 vehicle movements (11 inbound/8 outbound) in the morning peak hour with the opposite in the afternoon peak (2.45-3.45pm) with staff normally departing once the majority of students have left.

### Traffic Distribution

Given the large catchment area expected for the school, the distribution of these trips onto the local road network is expected to be equally distributed in all directions with arrivals approaching from the east and south using Canberra Street and from the north and west approaching from the west from Griffiths Street as there is no right turn into St Albans Close from Chapman Street. Exiting traffic shall be equally distributed to the east, south and west from St Albans Close.

### Impacts to Road Capacity

The impact of these additional trips on the local road network shall be negligible with 19 trips in the AM and the school afternoon peak period. The afternoon pick up period also does not coincide with the local road peak which typically occurs around 5pm when local businesses and retail outlets close.

Allowing for the traffic distribution above, the proposed development could see traffic flows on Chapman (west of the site) and Canberra streets increase by up to 9 vph. This represents a minimal increase of between 1.5% and 2.5% over the existing situation and shall therefore have a minimal and acceptance impact upon the capacity of both of these streets.

With regard to mid-block capacity, the existing traffic volumes together with the additional traffic demands associated with the development would see no change to the existing Level of Service and is therefore well within the capacity of these roads. Similarly, the future scenario would still be less than 100 vph on St Albans Close.

### Impacts to Intersection Performance

The key intersection that could be impacted upon by the proposed development is the signalised intersection of St Albans Close/Canberra Street/Chapman Street. To determine the existing operation and quantify the potential impacts of the proposed development, this intersection has been assessed using Sidra with the following considered:

As a worst-case scenario, has been assessed applying 35 additional trips in the morning and afternoon peak hours.

1. 2020 Baseline Assessment - Allowing for surveyed traffic volumes
2. 2020 Plus Development Plus Child Care centre traffic - Allowing for the above assessment together with *additional* traffic generated by both the school and childcare centre.
3. 2030 Future Design Year - Allowing for the above assessments together with 1.5% per annum growth

The results of this modelling are summarised below.

Table 3 - Sidra Results - - 2020 Existing Situation Assessment (AM/PM)

Approach	Level of service	Delay (seconds)	Queue (metres)
Canberra Street	B / B	23.7 / 20.8	25.8 / 28.5
Chapman Street east	B / B	16.7 / 18.5	16.7 / 27.8
St Albans Close	B / B	24.8 / 24.8	0.8 / 0.8
Chapman Street west	B / B	27.8 / 26.3	23.3 / 18.8

Table 4 Sidra Results - Existing 2020 flows plus development AM / PM plus childcare centre (AM Only)

Approach	Level of service	Delay (seconds)	Queue (metres)
Canberra Street	B / B	24.0 / 20.8	31.3 / 28.5
Chapman Street east	B / B	16.7 / 18.5	16.7 / 27.8
St Albans Close	B / B	25.3 / 25.5	6.2 / 6.9
Chapman Street west	B / B	25.0 / 26.3	23.3 / 18.8

The above results demonstrate that the current intersection layout can accommodate the development traffic flows associated with both the school and the child care centre with minimal impact to the delays and queues on the key approaches.

The intersection was then assessed for the future design year of 2030, allowing for 1.5% background growth. The results of this Sidra modelling are presented below.

Table 5 - Sidra Results - 2030 plus Development Traffic (AM/PM) Plus Childcare Centre Assessment (AM only)

Approach	Level of service	Delay (seconds)	Queue (metres)
Canberra Street	B / B	24.8 / 21.1	36.8 / 33.5
Chapman Street east	B / B	16.9 / 18.8	19.5 / 32.7
St Albans Close	B / B	25.3 / 25.5	6.2 / 6.9
Chapman Street west	B / B	25.9 / 26.5	27.4 / 21.9

The above results demonstrate that the current intersection control is adequate for the future design year of 2030.

## Construction

As the project provides for the adaptive reuse of the existing building construction is expected to primarily involve internal fit out and modifications to the building.

Deliveries to the site can be managed within the site with minimal tradespeople on site at any one time.

Some controls to the parking along the frontage on St Albans Close may be required to support concrete pours to upgrade the parking and driveway. Such measures will be managed by the contractor once appointed.

Similarly, there may be the need for skips to be delivered or a truck associated with the removal of demolition waste. All such requirements can occur with minimal impact to St Albans Close and no impact to the intersection or surrounding roads.

All construction vehicles will be able to approach the site using the signalised intersection having used Charlestown Road or the Pacific Highway to connect with the broader road network.

There is no impact to bus or taxi zones nor constraints to emergency vehicles.

Pedestrian demands in St Albans Close are minor with pedestrians able to use the western side of the road to then use the signalised crossing at Chapman Street.

There is no impact anticipated to Chapman Street in conjunction with these works.

Traffic demands shall be low and well within the capacity of the surrounding streets.

## Conclusion

From the site visit completed and the above assessment of parking, traffic and access against the requirements of the Guide to Traffic Generating Developments and Lake Macquarie Development Control Plan 2014, it is concluded that the proposed development shall have an acceptable impact upon the surrounding road network and should be recommended for approval.

- The unique nature of the school sees attendance typically in the order of 60%. This, coupled with the low level of car ownership and school rules regarding students driving to school sees low levels of vehicle traffic associated with the school. The vast majority (70%) travel to school by public transport with a further 5% walking or cycling.
- The additional traffic movements generated by the development shall be minimal and have an acceptable impact on the road network given low staff and student numbers along with a high level of public transport use. Whilst morning trips coincide with the existing road network peak the afternoon traffic occurs outside of the road peak. Traffic generated by the development is well within the capacity of the local road network and shall see no change to the overall level of service of the signalised intersection of St Albans Close/Canberra Street/Chapman Street.
- Sight lines at the existing site access have been reviewed on site. Due to the short length of the roadway the minimum requirements for a 50km/hr speed zone cannot be achieved however the driveway can operate in a safe and suitable manner with three parking spaces on site generating minimal traffic movements.
- Given the provision of three on site parking spaces the driveway meets the width requirements of AS2890.
- The provision of car parking within the site is less than that required under the LMDCP however exceeds the requirements for staff parking. Due to the unique nature of the school and the low socio-economic position of many of the students car usage is low with the site having been selected due to its quality connection to the Charlestown bus interchange. For the three spaces provided, one will be suitable for use as an accessible parking space if required.
- The location of the site within 400 metres walk of the bus interchange on Pearson Street ensures the use of public bus services is conveniently accessible for staff and students. Charlestown acts as a hub for routes operated by Newcastle Buses and Hunter Valley Buses which both run frequent services

throughout the day. Pedestrian access to Pearson Street is available via existing footpaths along with signalised pedestrian crossings at the intersection of Chapman Street and St Albans Close.

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

Yours sincerely



**Sean Morgan**

*Director*

**List of Attachments:**

Attachment A - Site Plan

Attachment B – TfNSW Crash Data

Attachment C – Traffic Surveys

Attachment D – Bus Network Map

Attachment E - Interpreting Sidra Results

Attachment F – SEARS

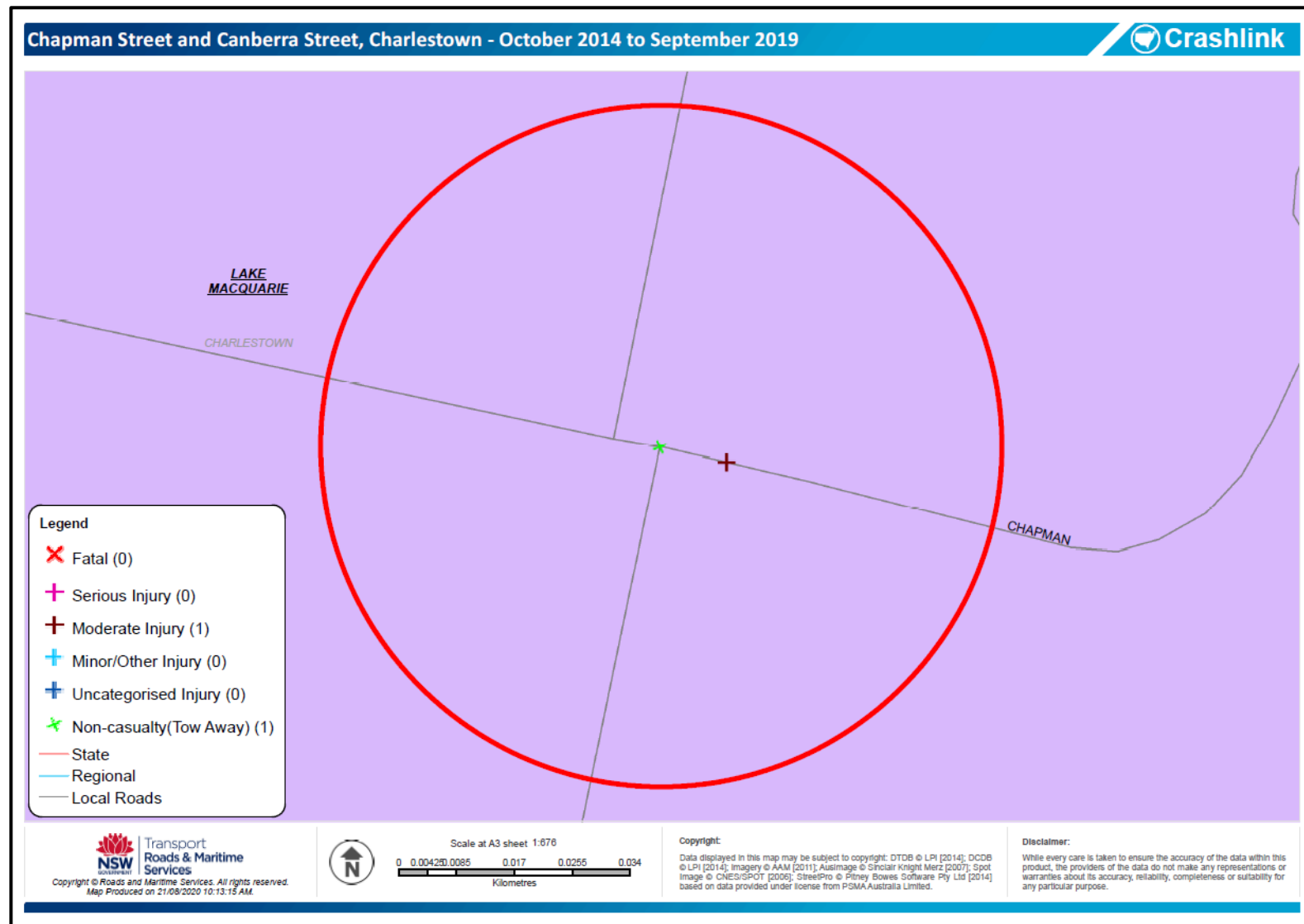
Attachment G – Green Travel Plan

Attachment A – Site Plan





## Attachment B – Crash Data



Detailed Crash Report																			
<div><div><div><div><div><div></div></div></div><div><div>NSW</div><div>GOVERNMENT</div></div><div>Transport for NSW</div><div>Centre for Road Safety</div></div></div></div>																			
Crash No.	Data Source	Date	Day of Week	Time	Distance	ID Feature	Loc Type	Alignment	Weather	Surface Condition	Speed Limit	No. of Tus	Tu Type/Obj	Age/Sex	Street Travelling	Speed Travelling	Manoeuvre	Degree of Crash-Detailed Killed	Seriously Inj. Moderately Inj. Minor/Other Inj. Uncateg'd Inj. Factors
Natural Lighting																			
Hunter Region																			
Lake Macquarie LGA																			
Charlestown																			
Canberra St																			
1191481 S	E70490828	23/01/2019	Wed	11:00		at CHAPMAN ST	XJN	STR	Fine	Dry	50	2	4WD	M44	N in CHAPMAN ST		Unk Turning right	NC	0 0 0 0 0
Chapman St																			
1199852 P	E70300324	30/03/2019	Sat	11:00	10 m	E CANBERRA ST	TJN	STR	Raining	Wet	50	1	CAR	F20	W in CHAPMAN ST		20 Proceeding in lane	MC	0 0 1 0 0
Report Totals: Crashes: 2																			
Fatal Crashes(FC): 0																			
Serious Injury Crashes(SC): 0																			
Moderate Injury Crashes(MC): 1																			
Minor/Other Injury Crashes(OC): 0																			
Uncategorised Injury Crashes(UC): 0																			
Non-Casualty Crashes(NC): 1																			
Killed(K): 0																			
Seriously Injured(S): 0																			
Moderately Injured(M): 1																			
Minor/Other Injured(O): 0																			
Uncategorised Injured(U): 0																			
Crashid dataset Chapman Street and Canberra Street, Charlestown - October 2014 to September 2019																			
Note: Ordered by: Crash Date. Data for the 9 month period prior to the generated date of this report are incomplete and are subject to change.																			
Crash self reporting, including self reported injuries began Oct 2014. Trends from 2014 are expected to vary from previous yrs. More unknowns are expected in self reported data.																			
Reporting yrs 1996-2004 & 2019 Q4 onwards contain uncategorised inj crashes.																			
Rep ID: DCR01 Office: Hunter User ID: gillettj																			
Page 1 of 1																			
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## Attachment C: Survey Data

## Turn Count Summary

Location: St Albans Street at Chapman Street, Charlestown

GPS Coordinates:

Date: 2020-08-18

Day of week: Tuesday

Weather: Overcast

Analyst: CT

Count period: 07:26 - 09:00

## Total vehicle traffic

Interval starts	Southbound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
07:26	0	0	0	6	0	0	2	0	5	0	0	5	18
07:30	0	0	1	19	4	0	11	1	17	0	5	8	66
07:45	0	0	0	13	1	1	13	1	23	3	4	23	82
08:00	0	0	0	20	1	0	18	0	30	0	3	17	89
08:15	0	0	0	41	4	0	14	0	35	3	4	38	139
08:30	0	1	0	37	3	0	13	0	41	0	2	37	134
08:45	0	0	3	42	4	0	28	2	38	2	3	32	154
09:00	0	0	0	0	0	0	1	0	0	0	0	2	3

## Turn Count Summary

Location: St Albans Street at Chapman Street, Charlestown

GPS Coordinates:

Date: 2020-08-18

Day of week: Tuesday

Weather: Overcast

Analyst: CT

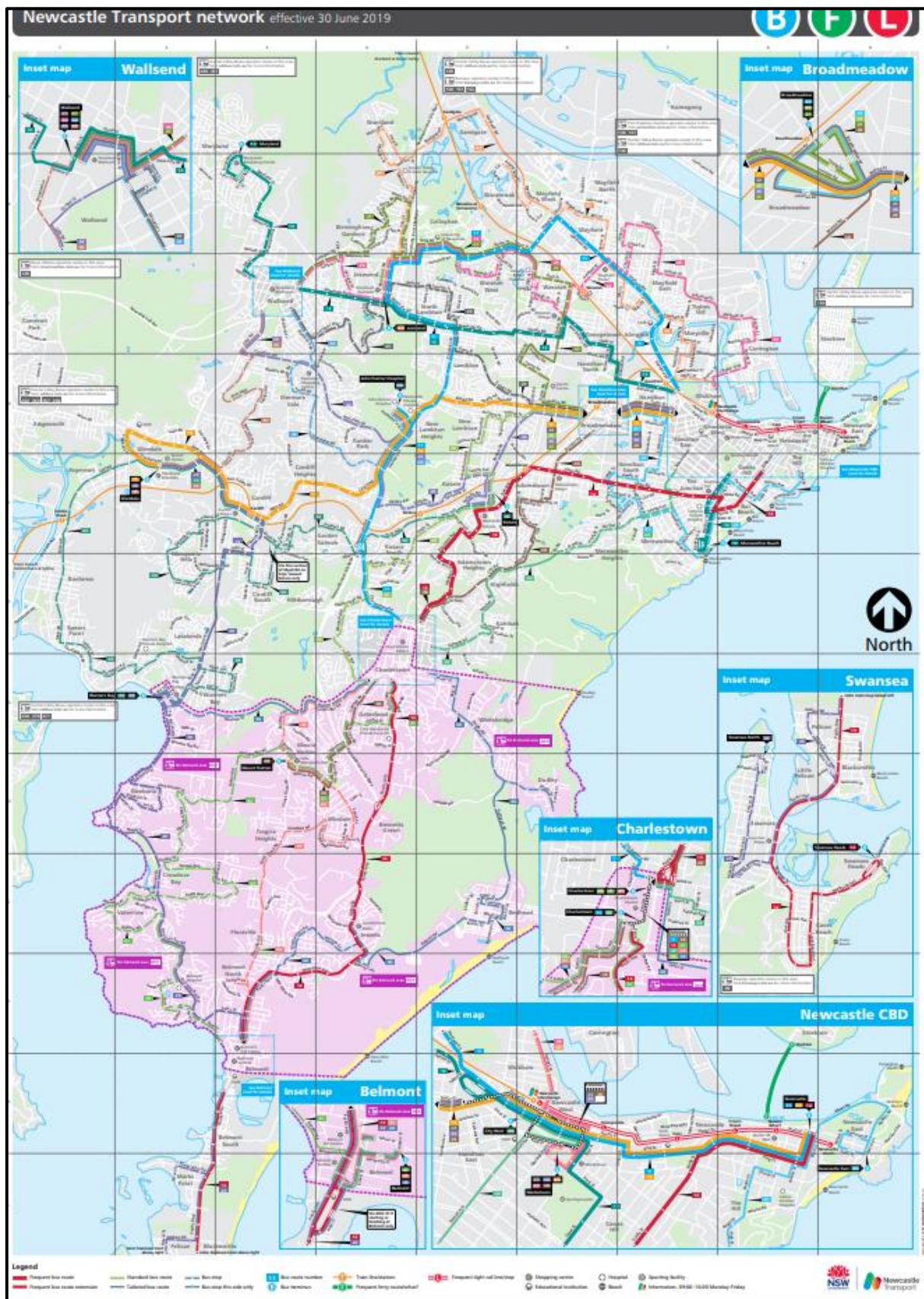
Count period: 14:31 - 16:00

## Total vehicle traffic

Interval starts	Southbound			Westbound			Northbound			Eastbound			Total
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
14:31	0	1	2	53	6	0	54	0	28	1	2	27	174
14:45	0	0	1	50	7	0	54	0	33	1	4	23	173
15:00	0	1	1	60	11	0	58	0	31	1	2	38	203
15:15	0	0	0	45	6	0	57	0	21	0	1	27	157
15:30	0	0	1	59	21	0	56	1	28	0	3	18	187
15:45	0	2	0	67	11	0	43	0	20	1	3	27	174
16:00	0	0	0	6	0	0	6	0	2	0	2	5	21



## Attachment D: Bus Network Map



## Attachment E: Criteria for Interpreting Sidra Results

The capacity of an urban road is typically limited by the overall performance of the various intersections. The RMS Guide to Traffic Generating Developments specifies delays and queuing as the key performance measures for assessing the effectiveness of both signalised and unsignalised intersections. Degree of saturation is also recommended for assessing the performance of roundabouts and traffic signals.

A summary of the key criteria for assessing the operation of signalised and unsignalised intersections is provided below.

### Average Delays

The level of service criteria for each intersection type is outlined below.

Level of Service	Average Delay per Vehicle (secs)	Traffic Signals & Roundabouts	Give Way & Stop Signs
A	$d \leq 14.5$	Good operation.	Good operation.
B	$14.5 \leq d \leq 28.5$	Good with acceptable delays and spare capacity.	Acceptable delays and spare capacity.
C	$28.5 \leq d \leq 42.5$	Satisfactory.	Satisfactory, accident study required.
D	$42.5 \leq d \leq 56.5$	Operating near capacity.	Near capacity, accident study required.
E	$56.5 \leq d \leq 70.5$	At capacity; at signals, incidents will cause excessive delays. Roundabout requires other control mode.	At capacity, requires other control mode.
F	$70.5 < d$	Failure.	Failure.

### Degree of Saturation

Degree of Saturation (DoS) is another measure for assessing the performance of an intersection. It is usually calculated based on as the highest ratio of traffic volumes on an approach to its theoretical capacity and is a measure of the utilisation of available green time at traffic signals.

For intersections controlled by traffic signals, both queues and delays increase rapidly as the DoS approaches 1.0, with overflow queuing starting to become a problem at around 0.8-0.85. A satisfactory level of operation is generally achieved when DoS is kept below 0.75



## Attachment F: SEARS

Include a transport and accessibility impact assessment, which details, but not limited to the following:

SEARS	Response
Details of estimated total daily and peak hour trips generated by the proposal, including vehicle, public transport, pedestrian and bicycle trips based on surveys of the existing and similar schools within the local area	Page 10
The adequacy of existing public transport or any future public transport infrastructure within the vicinity of the site, pedestrian and bicycle networks and associated infrastructure to meet the likely future demand of the proposed development.	Page 5
· the impact of trips generated by the development on nearby intersections, with consideration of the cumulative impacts from other approved developments in the vicinity, (Traffic modelling is to be undertaken using SIDRA network modelling for current and future years);	Page 10
Assessment of cumulative impacts of vehicular trips generated by the proposed child care centre adjacent to the site and the proposed development.	Page 11
Details of a location-specific sustainable travel plan (Green Travel Plan and specific Workplace travel plan) and the provision of facilities to increase the non-car mode share for travel to and from the site	Attachment G
Details of proposed access arrangements, including car and bus pick-up/drop-off facilities, and measures to mitigate any associated traffic impacts and impacts on public transport, pedestrian and bicycle networks, including pedestrian crossings and refuges.	Pages 8-9
Details of the proposed bicycle parking provision, including end of trip facilities, in secure, convenient, accessible areas close to main entries incorporating lighting and passive surveillance	Page 8
Details of the proposed number of on-site car parking spaces for staff and visitors and provide justification for the number of car parking spaces proposed.	Page 7
An assessment of the cumulative on-street parking impacts of cars and bus pick-up/drop-off, staff parking and any other parking demands associated with the development.	Page 9
An assessment of road and pedestrian safety adjacent to the proposed development and the details of required road safety measures and personal safety in line with CPTED.	Page 4
Details of the emergency vehicle access, service vehicle access, delivery and loading arrangements and estimated service vehicle movements (including vehicle type and the likely arrival and departure times).	Page 8
· the preparation of a preliminary Construction Traffic and Pedestrian Management Plan to demonstrate the proposed management of the impact in relation to construction traffic addressing the following: o assessment of cumulative impacts associated with other construction activities (if any); o an assessment of road safety at key intersection and locations subject to heavy vehicle construction traffic movements and high pedestrian activity o details of construction program detailing the anticipated construction duration o details of anticipated peak hour and daily construction vehicle movements to and from the site; o details of on-site car parking and access arrangements of construction vehicles, construction workers to and from the site, emergency vehicles and service vehicle; o details of temporary cycling and pedestrian access during construction	Page 11-12

### Attachment G: Green Travel Plan - Alesco Senior College Charlestown

Having undertaken an analysis of the opportunities for active travel to and from the school by both staff and parents/carers, the following provides an action plan for sustainable travel to the Alesco Senior College. As a school that focuses on independent travel with students typically 14 -19 years old active travel opportunities will be relevant. Surveying of students and staff and monitoring of facilities can be undertaken to enable improvements to the action plan and to maintain relevance to the school community over time. The details for this shall be established in conjunction with the school principal.

The objective of this Green Travel Plan is to identify and implement measures that will implement and support active transport and the use of public transport while reducing the dependence on car-based travel. For the purpose of the current assessment a target of 75% has been adopted as a realistic objective for travel by means other than private vehicle. This reflects the low level of car ownership and the schools philosophy which dissuades older students to drive to school.

1.1 Active Transport	Implementation
<p>Introduce the role of Transport Coordinator to oversee the implementation and management of this Green Travel Plan.</p> <ul style="list-style-type: none"> <li>Undertake a staff and student survey as part of enrolment to determine initial travel patterns and provide a baseline for implementation and monitoring.</li> <li>Review the plan in conjunction with the surveys, determine mode share targets and prioritise implementation around survey results and the implementation timeline provided in this plan.</li> <li>monitor the effectiveness of this plan through regular reviews once the majority of the measures have been implemented then an ongoing annual review with the overarching target to be to promote independent travel by means other than by private vehicle.</li> </ul>	Upon commencement
Ensure that staff or parent concerns or complaints relating to travel are fed back to the Transport Coordinator for review and assessment as appropriate.	Ongoing
Educate staff about their travel choices and provide an information pack to encourage active transport and shared travel. Include trip planning, bus timetable information, cycle routes and end of trip facilities.	Upon commencement
Provide future staff with information about their travel choices as part of their orientation.	3 months and ongoing
Provide staff and parents with information that makes their travel choices easy to make and less car reliant. Reinforce school philosophy of independent travel choices.	3 months
Promote a culture of being a non-driving school.	Immediate
1.2 Public Transport	
Ensure new staff who are open to travelling by bus have sufficient information and support for this to be a positive experience.	Immediate
Add Transport for NSW trip planning information to individual workstations and the school website.	Immediate
Provide information about public transport to new staff as part of their orientation	3 months

Educate students on the safe and appropriate use of public transport. Include understanding the use of Opal cards, navigating timetables and scheduling apps etc. Liaise with Keolis Downer to see if they have educational officers who can assist with this.	Immediate
Help students overcome barriers to public transport use. Be aware of On Demand bus options not just general bus routes.	Immediate
Ensure all students apply for student opal cards.	Immediate
<b>1.3 Carpooling and Car Sharing</b>	
Encourage car sharing and a staff carpooling program.	3 months
Prioritise allocation of car parking spaces for staff that carpool	Immediate
Encourage families to implement carpooling and shared travel arrangements for the pick up and drop off of students where such travel is necessary	Immediate
<b>1.4 Bicycle and Pedestrian Travel</b>	
Ensure that those who are intending to ride are well supported including allocation of lockers for changes of clothes, provision of route information etc.	Immediate
Provide secure and weatherproof bike/scooter storage space for riders	Immediate
Promote annual "Walk Safely to School Day" campaign	May each year
Promote "National Ride to Work Day" and networking with bike rider groups.	October each year
Promote "National Ride2School Day"	March each year Register Term 4
Apply for Grant funding to support Ride to School Day	6 month
Promote the health and environmental benefits of walking and cycling to students and staff. Incorporate into the school curriculum where possible.	3-12 months
<b>1.5 Communication Plan</b>	
Using school based communication platforms educate parents and staff of active transport opportunities	3 months
Encourage staff and parents to utilise active transport options through access to accurate travel information	3 months
Liaise with Lake Macquarie City Council to support opportunities for shared pathways to continue to connect Charlestown with existing and future residential developments.	3 months
Liaise with Bicycle Network and other bike user groups to access educational support for cycling and walking programs	3 -12 months
<b>1.6 Taxi and Uber Services</b>	
Provide information for staff on accessing local taxi and Uber services to support non car based travel.	3 months

### 1.7 Monitoring and Review

A Green Travel Plan is a living document which to ensure a successful outcome needs to be monitored and the actions reviewed and modified to support changing circumstances.

Actions implemented should be monitored to ensure they are having a positive impact in achieving the goals of reducing the degree of private car usage, particularly for single drivers or a parent and individual child.

Such a review should be monitored frequently during the first year of implementation or whilst the school cohort is expanding to adjust and modify as necessary. Once the plan has been fully implemented then an annual review is appropriate.