Transport Assessment

State Significant Development Application
Hastings Secondary College – Port Macquarie Campus

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13/05/2021

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Revision History

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-	26/02/2021	Draft	M. Tangonan R. Butler-Madden T. Lehmann	D. Choi
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v2	10/03/2021	Issue I	M. Tangonan	D. Choi
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V7	13/05/2021	Issue VI	M. Tangonan & T. Lehmann	D. Choi

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Appendices

1 Introduction

1.1 Overview

Ason Group has been commissioned by School Infrastructure NSW (SINSW) on behalf of the Department of Education (DOE) to prepare a Transport Assessment Report (TA) to accompany a State Significant Development Application (SSDA-11920082) to the NSW Department of Planning, Industry and Environment (DPIE) for proposed upgrades to Hastings Secondary College (Port Macquarie Campus), previously known as Port Macquarie High School.

Hastings Secondary College consists of two campuses, being Westport and Port Macquarie. This report has been prepared for proposed works at the Port Macquarie Campus, which consists of two properties, the main Campus and the Ag Plot.

The works subject to this proposal are to be carried out on the main Port Macquarie Campus which is located at 16 Owen Street, Port Macquarie (the site). The site has a secondary street frontage to Burrawan Street and adjoins Oxley Oval along the eastern boundary.

On 23 December 2020, the Secretary of the DPIE issued Secretary's Environmental Assessment Requirements (SEARs) for SSD Application No. 11920082. This report has been prepared in accordance with the SEARs requirements.

The TA provides a comprehensive assessment of the traffic and transport elements of the project on the existing and future road network within proximity of the project and wider Port Macquarie area in line with Transport for NSW (TfNSW) guidelines. In addition, SINSW have outlined assessments of multi-modal transport, travel patterns and demand. These are accordingly undertaken within this TA, in conjunction with the Preliminary School Transport Plan (PSTP) document, which forms a separate report accompanying the submission.

1.2 Key References

The TA makes reference to a series of key strategic and planning documents in assessment of the traffic and transport related elements of the project. These documents include:

- Port Macquarie–Hastings Council Development Control Plan (2013)
- Port Macquarie–Hastings Council Local Environmental Plan (2011)
- Port Macquarie-Hastings, *Design Specifications and Supplementary Information*
- Transport for NSW, *NSW Movement and Place Framework*
- Transport for NSW, *Mid North Coast Regional Transport Plan*, December 2013)

- NSW Government, *Practitioner's Guide to Movement and Place*, March 2020
- NSW Government, *Planning Guidelines for Walking and Cycling*, November 2019
- Austroads, *Guide to Traffic Management Part 12 – Integrated Transport Assessments for Developments*, April 2020

This TA also references general access, traffic and parking guidelines, including:

- Roads and Maritime Services, *Guide to Traffic Generating Developments,* v2.02, 2002 (RMS Guide)
- Australian Standard 2890.1:2004 *Parking Facilities – Off Street Car Parking* (AS 2890.1: 2004)
- Australian Standard 2890.2:2018 *Parking Facilities – Off Street Commercial Vehicle Facilities* (AS 2890.2:2018)
- Australian Standard 2890.3:2015 *Parking Facilities – Bicycle Parking* (AS2890.3:2015)
- Australian Standard 2890.5:2020 *Parking Facilities – On-Street parking* (AS2890.5:2020)
- Australian Standard 2890.6:2009 *Parking Facilities – Off-street parking for people with disabilities* (AS2890.6:2009)
- Austroads, *Cycling Aspects of Austroads Guides*, April 2014

2 Response to SEARs

As mentioned above, the project team have submitted formal request for the SEARs for the preparation of an Environmental Impact Statement (EIS) and development application for the SSDA. This was formally lodged on the 26th November 2020, with the response documentation subsequently issued by the Department of Planning, Industry & Environment (DPIE) on the 23rd December 2020. A summary of the requirements relating to Transport & Accessibility are highlighted in the below table.

Table 1: SEARs Response

No.	SEARs Requirement	Ason Group Response
5	Provide a transport and accessibility impact assessment, which includes, but is not limited to the following:	Noted. In response, this TA document has been prepared to address the requirements outlined in the SEARs below.
a)	Analysis of the existing transport network, to at least the existing or proposed enrolment boundary, including: • Road hierarchy • Pedestrian, cycle and public transport infrastructure • Details of current daily and peak hour vehicle movements based on traffic surveys and / or existing traffic studies relevant to the locality. • Existing transport operation for 1hr before and after (existing or proposed) bell times such as span of service, frequency for public transport and school buses, pedestrian phasing for signals. • Existing performance levels of nearby intersections utilising appropriate traffic modelling methods (such as SIDRA network modelling)	Reference should be made to Section 5 and 6 of this report. The existing conditions study provides comprehensive assessment of the road network, active and public infrastructure, and existing traffic conditions. In addition, travel characteristics of the school are included to provide context for operational requirements and travel behaviour of the Campus and its student/staff population. Accompanying the Transport Assessment, traffic surveys were undertaken on the 3rd February 2021 by TTM on behalf of Ason Group to capture existing on-site conditions during a typical school term weekday. Accordingly, baseline modelling was undertaken with results provided in section 5.2.2.
b)	Details of the proposed development, including shared use of facilities, including: • a map of the proposed access which identifies public roads, bus routes, footpaths and cycleways. • pedestrian and cyclist site access and vehicular access arrangements, including for service and emergency vehicles and loading/unloading, including swept path analysis demonstrating the largest design vehicle entering and leaving the site and moving in each direction through intersections along the proposed transport routes. • car and motorcycle parking, bicycle parking and end-of-trip facilities. • drop-off / pick-zone(s) and arrival/departure bus bay(s). • pedestrian, cycleway, public transport or road infrastructure improvements or safety measures.	Noted. Reference should be made to Section 5 and 6 of this report. It should be considered that the proposed development largely relates to the upgrade and refurbishments of on-site buildings within the Campus. As a result, there are minimal impacts to the configuration of existing accesses for the Site. Notwithstanding, reference should be made to section 5.1.2 which demonstrates existing Campus accessibility, and the on-road controls fronting the Site that capture bus bays, pickup zones and pedestrian access via the main gate. In addition, reference should be made to Figure 11 which broadly captures public transport connectivity and available cycling routes to the Site. Swept paths have accordingly been undertaken and provided in Attachment A.
c)	Analysis of the impacts due to the operation of the proposed development, including any shared use of facilities, including: • proposed modal split for all users of the development including vehicle, pedestrian, bicycle riders, public	Reference should be made to Section 6, 7 and 10 of the report, which in response to the SEARs accommodate the following: • a Campus Travel Survey to establish existing modal split for the school,

No.	SEARs Requirement	Ason Group Response
	transport, school buses and other sustainable travel modes. • estimated total daily and peak hour vehicular trip generation. • a clear explanation and justification of the: ▪ assumed growth rate applied. ▪ volume and distribution of proposed trips to be generated. ▪ type and frequency of design vehicles accessing the site. ▪ details of performance of nearby intersections with the additional traffic generated by the development both at the commencement of operation and in a 10-year time period (using SIDRA network modelling). ▪ cumulative traffic impacts from any surrounding approved development(s). ▪ adequacy of pedestrian, bicycle and public transport infrastructure and operations to accommodate the development. ▪ adequacy of car and motorcycle parking and bicycle parking provisions when assessed against the relevant car / bicycle parking codes and standards. ▪ adequacy of the drop-off / pick-up zone(s) and bus bay(s), including assessment of any related queuing during peak-hour access. ▪ adequacy of the existing / proposed pedestrian infrastructure to enable convenient and safe access to and from the site for all users.	• a project-case modelling assessment of the PCYC facility, and a 10-year post development modelling exercise for both the Campus and the PCYC; and • an assessment of design in accordance with AS2890.
d)	measures to ameliorate any adverse traffic and transport impacts due to the development based on the above analysis, including: ▪ travel demand management programs to increase sustainable transport (such as a School Transport Plan). ▪ arrangements for the Travel Coordinator roles. ▪ governance arrangements or relationships with state and local government transport providers to update roads safety. ▪ infrastructure improvements, including details of timing and method of delivery.	Refer to the Preliminary School Transport Plan report prepared by Ason Group for details.
e)	a preliminary school transport plan detailing an operational traffic and access management plan for the site, pedestrian entries, the drop-off / pick-up zone(s) and bus bay(s).	Refer to the Preliminary School Transport Plan report prepared by Ason Group for details.
f)	analysis of the impacts of the traffic generated during construction of the proposed development, including: ▪ construction vehicle routes, types and volumes. ▪ construction program (duration and milestones). ▪ on-site car parking and access arrangements for construction, emergency and construction worker vehicles.	Refer to Section 9 of this report

No.	SEARs Requirement	Ason Group Response
	▪ cumulative impacts associated with other construction activities in the locality (if any). ▪ road safety at identified intersections near the site due to conflicts between construction vehicles and existing traffic in the locality. ▪ measures to mitigate impacts, including to ensure the safety of pedestrian and cyclists during construction.	
g)	A preliminary Construction Traffic and Pedestrian Management Plan.	Refer to Section 9 of this report

3 Overview of Proposal

3.1 Summary of Proposed Development

The upgrades will support high-quality educational outcomes to meet the needs of students within the local community and deliver innovative learning and teaching spaces as follows:

- Demolition works to accommodate new works;
- Upgrade to school entry;
- Construction of new two (2) storey Creative and Performing Arts (CAPA) building;
- Construction of new Police Citizens Youth Club (PCYC);
- Partial refurbishment of Building L;
- Refurbishment and alteration to Building B;
- Removal of Building S and demountable buildings;
- New lift connections, covered outdoor learning area (COLA) and covered walkways;
- Associated earthworks, landscaping, stormwater works, service upgrades; and
- Tree removal/ tree safety works.

No change to current staff or student numbers is proposed. Reference should be made to the reduced plans provided in the figures below.

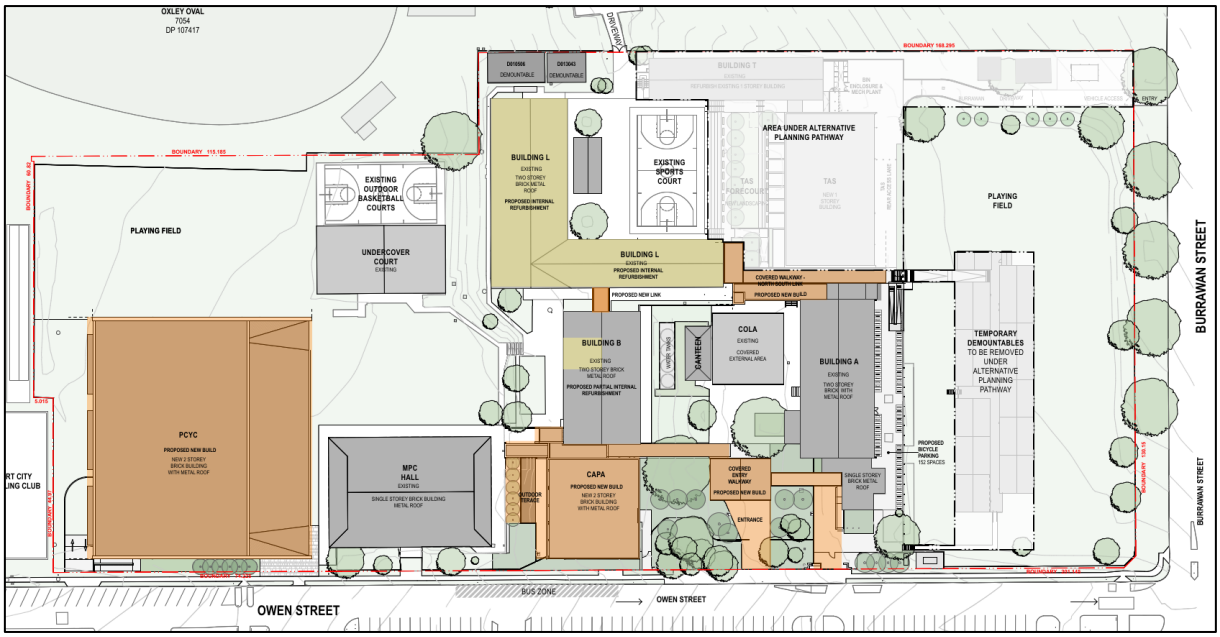


Figure 1: Port Macquarie Campus Proposed Upgrades

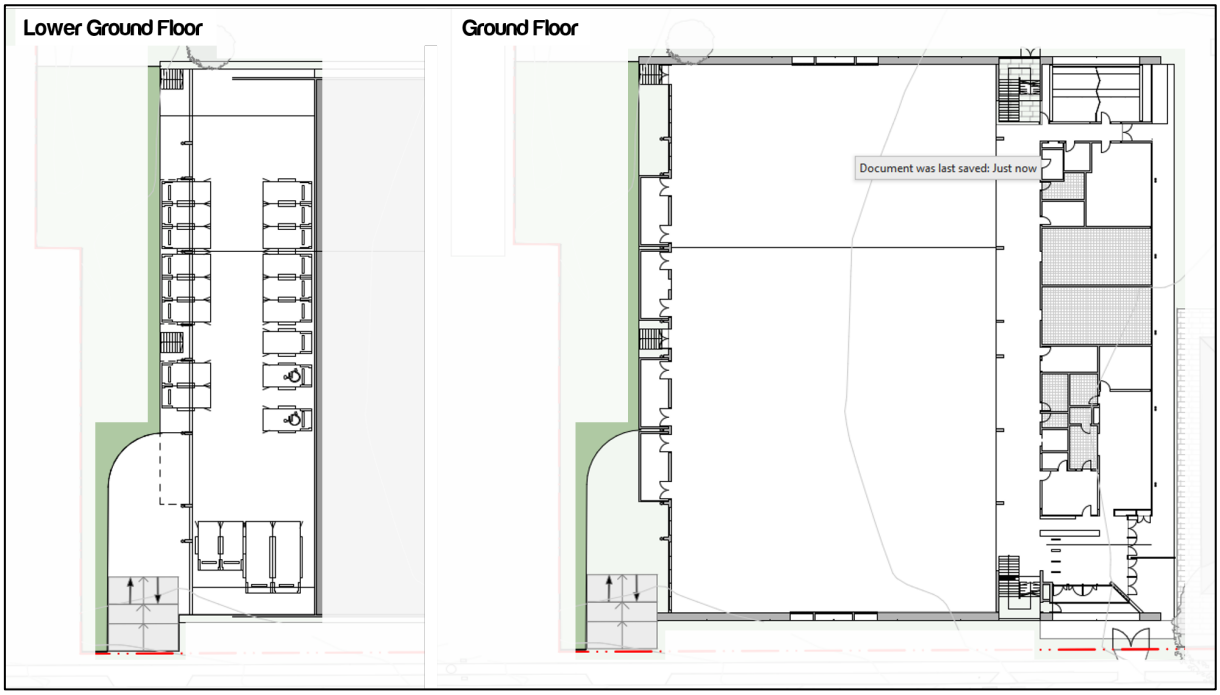


Figure 2: PCYC Facility

3.2 PCYC Operations

In collaboration with Hastings College and Department of Education, an envisioned PCYC is proposed as a shared use model, with Hastings Campus having exclusive access and usage agreements to activity and educational based spaces in the facility.

At this stage, hours of operation for the facility are anticipated between 06:00 and 22:00, with exclusive use of specific venues within the facility for Hastings College tentatively scheduled between 07:45 and 14:45 to ensure peak usage of the facility does not coincide with peak school transport movements and the road network peak.

PCYC have expressed for the requirement of accessibility, transportation, and parking elements for the facility. These are highlighted below –

- Designated drop-off area for parents at club entry
- Suitable commercial bus zone
- Bike storage at front/entry to facility for 20 bikes
- Designated secure parking area for PCYC vehicles (2 x 12 seat bus (mini-bus), 1 x passenger vehicle and 2 x police vehicles)
- Designated bus parking area for 2 commercial size buses outside school bus route operational hours within the surrounding road network

Operational details, including overall capacity of the facility, and detailed scheduling of likely activities within PCYC are being developed and subject to further operational coordination between the Department of Education and PCYC.

Given the co-location of PCYC at the Port Macquarie Campus, and considering the peak transport requirements associated with the School, the following principles of operations should be considered in the development of detailed operations plans for both the Port Macquarie Campus and the PCYC respectively.

- Detailed hours of operation associated with the facilities of the PCYC shall form part of the operations plan;
- Detailed staff hours and schedule to ensure parking requirements, in particular, secured parking on-site can fully accommodate demand generated by PCYC;
- Detailed schedule of use and intended group activities are prepared to ensure the scheduling of activities do not coincide with peak school movement times and peak school bus operations;
- Parking management arrangements outlining site access, parking allocation, service vehicle access and parking, and parking demand management measures;

- Any special events that generate high visitation should be subject to a detailed Event Traffic and Transport Management Plan.

It is therefore recommended that an Operations Plan of the PCYC with considerations of key transport principles outlined above be required by Condition of the SSD, prior to commencement of operations on-site.

4 Strategic Context

4.1 Port Macquarie Census Growth

Based on a population study undertaken for the Port Macquarie-Hastings LGA, the population demonstrates higher-than-average growth in consideration of regional NSW, at 1.70% in comparison to 0.83% for regional NSW between 2019 and 2020. This is detailed in **Table 2**.

Table 2: Population Growth

Year (ending June 30)	Number	Change in number	Change in percent	Regional NSW change in percent
2006	69,947			
2007	71,097	+1,150	+1.64	+0.89
2008	72,528	+1,431	+2.01	+1.01
2009	73,317	+789	+1.09	+1.08
2010	74,460	+1,143	+1.56	+1.07
2011	75,232	+772	+1.04	+0.80
2012	76,271	+1,039	+1.38	+0.72
2013	77,043	+772	+1.01	+0.76
2014	78,048	+1,005	+1.30	+0.81
2015	78,997	+949	+1.22	+0.74
2016	80,073	+1,076	+1.36	+0.69
2017	81,441	+1,368	+1.71	+0.85
2018	83,062	+1,621	+1.99	+0.88
2019	84,515	+1,453	+1.75	+0.81
2020	85,952	+1,437	+1.70	+0.83

Source: Australian Bureau of Statistics, Regional Population Growth, Australia (3218.0). Compiled and presented in profile.id by .id (informed decisions).

Accordingly, with consideration for the above data, a conservative estimation of 2% compound growth can be adequately adopted for future background traffic assessment.

4.2 Port Macquarie-Hastings 'Shaping Our Future 2040'

The *Shaping Our Future 2040 Draft* Local Strategic Planning Statement (LSPS) has been developed as an overarching strategic document for the future of the Council LGA. Relevant to the proposed development, the LSPS document explicitly refers to priorities in '*creating vibrant public places and*

spaces that inspire social interaction and support community wellbeing', and the '*provision of multi-modal integrated land-use and transport network across the LGA*'.

The outcomes of this TA intend to align with the priorities established in the LSPS for the development, through its primary focus on

4.3 Port Macquarie-Hastings Pedestrian Access Mobility Plan (PAMP)

As part of Council's Accessibility & Disability directives, a Pedestrian Access Mobility Plan study was undertaken in May 2015 to map existing pedestrian access and footpath infrastructure and identify the potential for connections to be implemented and improve the footpath network. With reference to an extract of the PAMP document in **Figure 3**, it has been considered that several proposed footpath connections have been identified immediately fronting the Campus location.

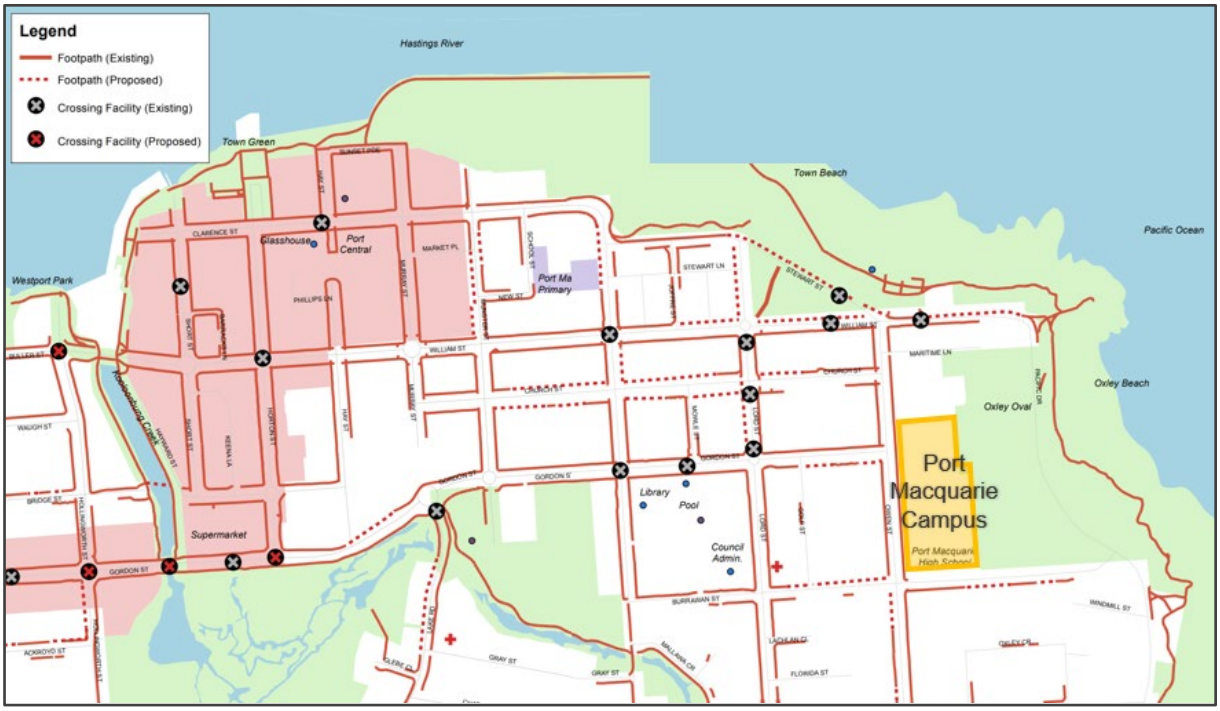


Figure 3: Council Pedestrian Access & Mobility Plan 2015 map[1]

4.4 Port Macquarie-Hastings Bike Plan

Similar to the PAMP document, the Port Macquarie-Hastings Bike Plan was prepared in May 2015 to assist in a coordinated approach to deliver future cycling infrastructure through the region. The plan identifies actions required to achieve cycling objectives outlined in the document.

[1] Figure captured from Port Macquarie Hastings, Pedestrian Access and Mobility Plan 2015.

As part of the plan, the existing provision for bicycle paths are documented as well as identification of proposed connections looking to improve connectivity for the region. The purpose being to provide active connections to the wider cycling corridors that provide improved connectivity between areas of demand. **Figure 4** demonstrates the state of existing and proposed cycling routes in the area, in context of the school.

It should be considered that while the school generally exhibits sufficient connectivity to the cycling network, in the context of providing future cycling connectivity to the campus, it should be noted that provision of on-road paths may not be adequate for students, and dedicated shared path upgrades outside of the road carriageway is the preferred option to improve cycling connectivity.

Furthermore, the Port Macquarie-Hastings Bike Plan meets the objectives detailed in the Planning Guidelines for Walking and Cycling prepared by NSW Government.

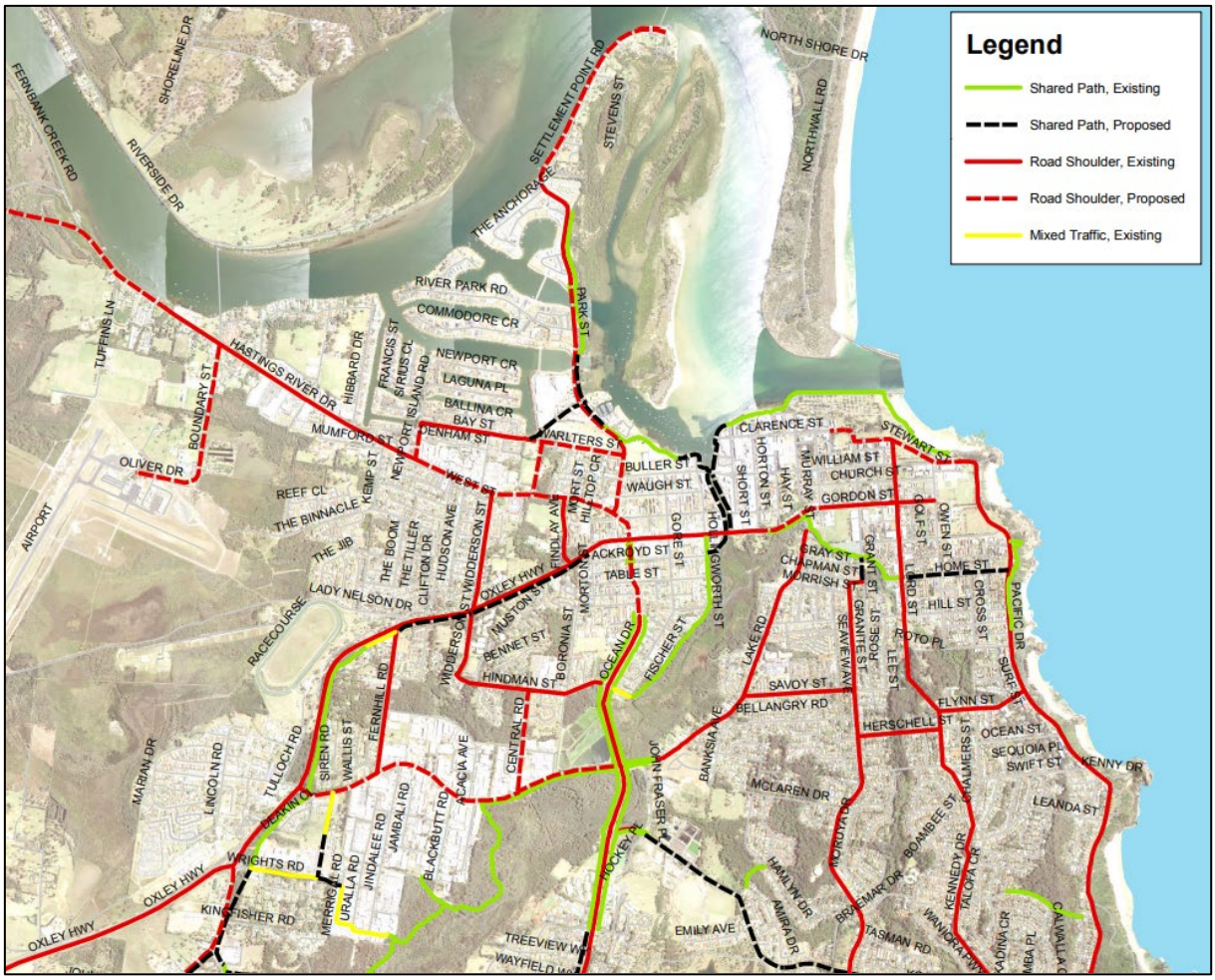


Figure 4: Council Bike Plan

4.5 Active Transport Networks Gap Analysis

In consideration of the future pedestrian and cycling networks as proposed in Councils planning documents, Ason Group have reviewed and identified several corridor upgrades in consideration of the catchment and school locale that are focussed to target improved accessibility for students, connectivity to the wider pedestrian and cycling networks and improved safety.

As mentioned previously, it should be considered that the provision of on-road cycleways may not provide adequate safety for accessibility to the school. As such, the identified corridors in **Figure 5** are recommended in the form of identification of shared path links, providing off-road connectivity for both pedestrians and students walking and cycling to school. Further details are provided in Table below.

The identified corridors aim to support the outcomes of the School Travel Plan in encouraging modal shift towards active transport modes such as walking and cycling for the Campus population and intends to reduce dependency on private vehicles particularly for students within favourable walking and cycling proximity to the Campus.

Given walking and cycling were identified in the Transport for NSW, *Mid North Coast Regional Transport Plan* (December 2013), the identified upgrades are formulated at a network level and

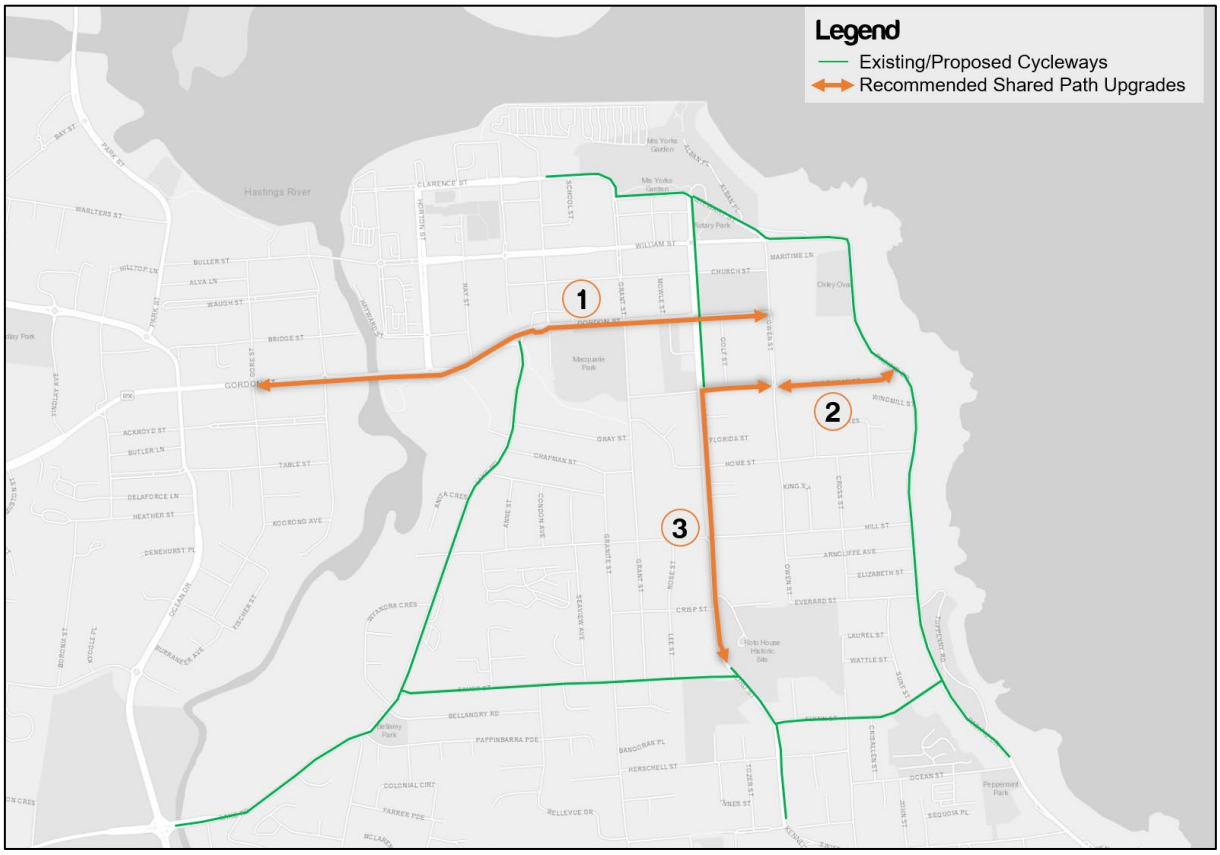


Figure 5: Proposed Shared Path recommendations

Table 3: Proposed Shared Path / Footpath upgrade recommendations

Element	Identified Connection	Justification	Recommended Action
1	Gordon St Corridor	The Gordon Street corridor is characterized by the primary bridge connection over the Kooloonbung Creek and forms the locale's primary east-west link in connecting the Port Macquarie CBD to the Campus locale. A shared path within the corridor aims to target and improve walking and cycling connectivity to the residential areas west/north-west of the Campus and the Port Macquarie township.	That SINSW provide data to assist Council / TfNSW in the justification of the network update.
2	Burrawan St Connection	The Burrawan shared path resolves a critical connecting point between the existing Pacific Drive cycleway, which forms part of a scenic cycling corridor spanning the coastline. While it is recognised that the Pacific Drive cycleway predominantly exists as a road-shoulder lane, it is anticipated that the Burrawan Shared Path form an ancillary connection with limited catchment, noting that the Lord St shared path corridor (detailed below) should form the primary catchment route for students south of the Campus.	That SINSW provide data to assist Council / TfNSW in the justification of the network update.
3	Lord St Corridor	Lord Street forms the main north-south corridor that provides connectivity between residential areas to the Port Macquarie CBD, as the Kooloonbung Creek separates the areas. In conjunction with the Burrawan St connection, the Lord St corridor aims to provide improved catchment for the Campus' south and south-west residential areas.	That SINSW provide data to assist Council / TfNSW in the justification of the network update.
4	Owen Street, between Burrawan St and William Street	Existing footpath is 1.2 metres wide on east side of Owen Street. Based on the number of pedestrians observed along the frontage of the school, where high volume of pedestrians were observed. Widening of footpath to 2.5 metres in width on the east side of Owen Street between PCYC and Burrawan Street intersection as part of the Project. Balance of footpath upgrade by others.	That SINSW include the footpath upgrade works along Owen Street, between Burrawan Street and the School Site boundary (PCYC). That SINSW provide data to assist Council / TfNSW in the justification of the network update.

5 Existing Conditions

5.1 Site & Location

The site is located approximately 1.2km south east of the Port Macquarie town centre, with access from Oxley Highway (Gordon Street) via Owen Street to the centre, William Street via Owen Street to the north and Burrawan Street via Owen Street to the south. A maintenance access road exists to the east of the site along Burrawan Street.

The site is located at 16 Owen Street, Port Macquarie and is legally known as Lot 111 in DP 1270315. The Port Macquarie Campus site is located within a coastal setting (east), with residential (single two storey and residential flat buildings) located to the west and south and Port Macquarie Bowling Club to the north. The surrounding street network provides on-street parking. Maintenance vehicular access is located off Burrawan Street.

No Natural watercourses are mapped as traversing the site. Scattered vegetation is located throughout the site, with a small area of vegetation concentrated towards the pedestrian access area.

The Port Macquarie Campus site is gently sloping downwards in three general 'platforms' towards the north, with distinct views out towards the ocean and the Hastings River. It also has a distinct view line to the row of Norfolk pine trees along the coastline. The siting of the campus provides many opportunities for ongoing cultural connection to Country. Current built form has an established language of two (2) story, face brick, low pitched metal roof buildings.

Reference should be made to the contextual site location referred in **Figure 6**.

Figure 6: Site Location

5.1.1 Hastings Secondary College

Hastings College is a secondary education school situated in the Port Macquarie area, with two campuses situated in proximity of the city centre. The Port Macquarie Campus – subject of this application – was established in 1962 prior to the schools' expansion to the Westport Campus, west of the Port Macquarie CBD area. Between the two campuses, the College facilitates upwards of approximately 1,300 students between grades 7 and 12 with catchment zones spanning the wider Port Macquarie and Hastings LGA, as defined in Figure 13.

The Port Macquarie Campus currently have 758 students enrolled in 2021.

5.1.2 Existing Site Access

The Site is situated on a corner block with two road frontages. The main access is via the western elevation fronting Owen Street, and the abovementioned service crossover towards Burrawan Street. An additional rear access provides direct connectivity to the public car park east of the Campus. Reference should be made to the access configuration diagram in **Figure 7** below which additionally captures on-street parking and bus arrangements for the Campus.

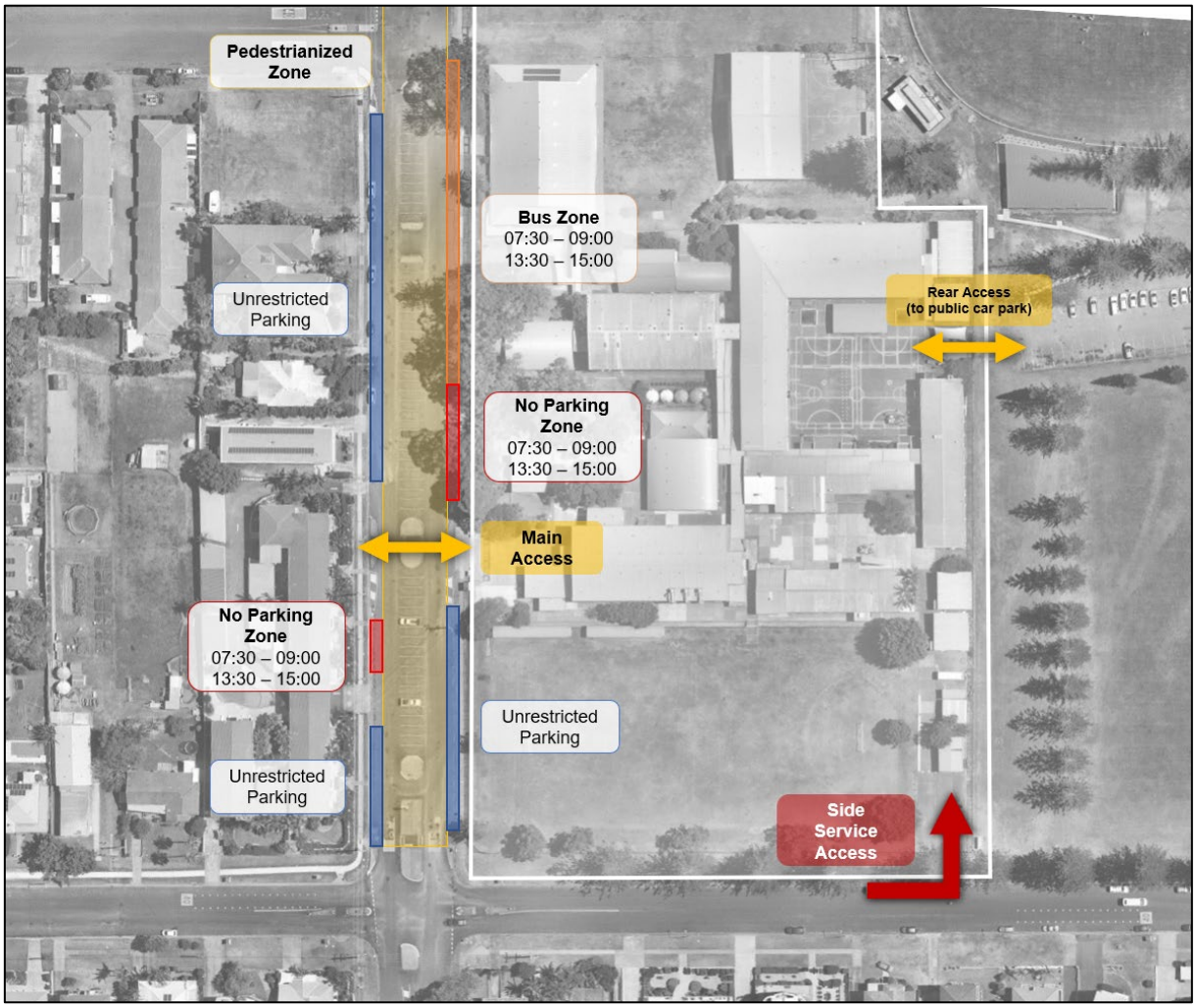


Figure 7: Access Configuration

5.2 Road Network

5.2.1 Road Hierarchy

The key roads in proximity of the site are summarised in **Table 4** with reference to the site plan and road hierarchy in **Figure 8** below.

Table 4: Road Hierarchy

Road Name	Road Classification	AADT[2] (vpd)[1]	Speed Limit[3]
Owen Street	Collector	~1,500	40km/h (High Pedestrianized Zone)
Burrawan Street	Local	~500	50 km/h (40km/h school zone)

Road Name	Road Classification	AADT[2] (vpd)[1]	Speed Limit[3]
Pacific Drive	Collector	~1,000 – 2,000	50 km/h
Gordon Street	Collector	~1,000 – 2,000	50 km/h

Notes: 1) If no data available, value based on typical environmental thresholds
2) vpd = two-way vehicles per day
3) Signposted speed limit. Actual speeds may vary.

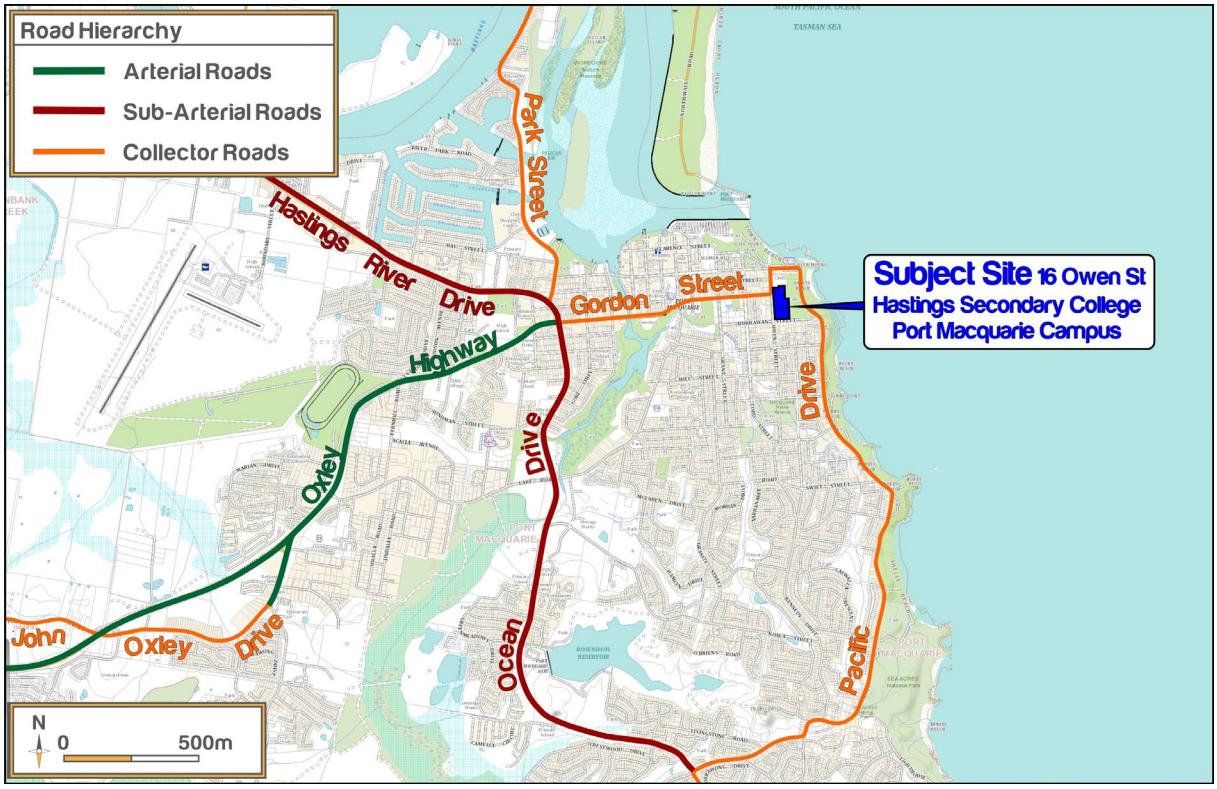


Figure 8: Site Locale and Road Hierarchy

5.2.2 Existing Intersection Performance

The key intersections in the vicinity of the site are discussed below:

- *Owen Street / Gordon Street* is a priority T-Junction to the Schools' north. Gordon Street forms a primary western connector to the broader Port Macquarie and provides a bridge connection over Kooloonbung Creek to the west.

- *Owen Street / Burrawan Street* is a priority 4-way intersection the School's south-western boundary. Burrawan Street provides connectivity to south and predominantly services residential traffic.

Baseline SIDRA Performance Testing

The performance of the key intersections has been analysed using the SIDRA Intersection computer program. SIDRA modelling outputs a range of performance measures, in particular:

- *Average Vehicle Delay (AVD)* – The AVD (or average delay per vehicle in seconds) for intersections also provides a measure of the operational performance of an intersection and is used to determine an intersection's Level of Service (see below). For signalised intersections, the AVD reported relates to the average of all vehicle movements through the intersection. For priority (Give Way, Stop & Roundabout controlled) intersections, the AVD reported is that for the movement with the highest AVD.
- *Level of Service (LOS)* – This is a comparative measure that provides an indication of the operating performance, based on AVD.

The following table provides a recommended baseline for assessment as per the RMS Guide:

Table 5: RMS Level of Service Guidelines

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way and Stop Signs
A	less than 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
F	More than 70	Unsatisfactory and requires additional capacity.	Unsatisfactory and requires other control mode or major treatment

Traffic surveys for the key intersections and baseline SIDRA modelling has been undertaken for the existing Site to assess the trip distribution and intersection operation. SIDRA Modelling has been prepared for the following peak periods and are attached in **Appendix A**.

- 2021 Baseline AM Peak.

- 2021 Baseline School PM Peak.
- 2021 Baseline Network PM Peak.

The intersection assessment indicates that generally, the two key intersections operate satisfactorily at a LoS A during the school peak periods of 07:45 – 08:45 and 13:00 – 14:00. The results of the baseline assessment are provided below.

Table 6: Existing Baseline Performance for School Peak Periods

Intersection	Control Type	Period	Intersection Delay	Level of Service
Owen St / Gordon St	Priority	AM	6.6	A
		PM	6.6	A
Owen St / Burrawan St	Priority	AM	7.5	A
		PM	6.7	A

In addition to the above, modelling has been undertaken for the PM Network Peak (1600 – 1700) to establish a baseline for the operations of the anticipated PCYC development. The results of the modelling are included below and demonstrate similarly sound network performance at LoS A for both priority intersections.

Table 7: Existing Baseline Performance for PM Network Peak Period

Intersection	Control Type	Period	Intersection Delay	Level of Service
Owen St / Gordon St	Priority	PM	6.4	A
Owen St / Burrawan St	Priority	PM	5.6	A

5.2.3 Road Safety

According to the TfNSW Centre for Road Safety, there have been a total of 8 recorded crash occurrences within the vicinity of the Site between 2015 and 2019. A summary of locations and crash typology is provided below.

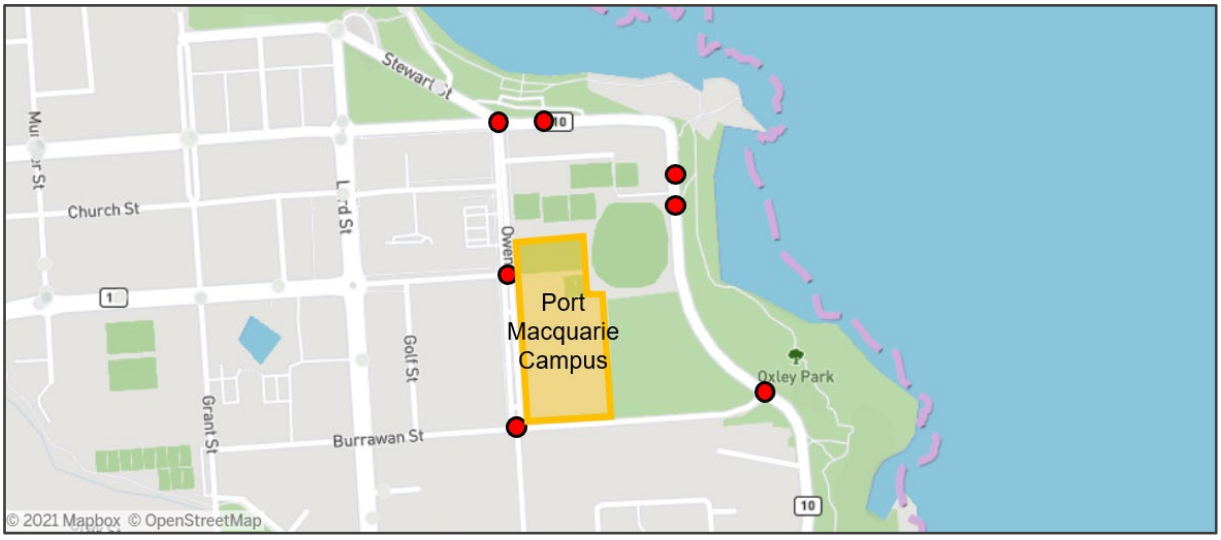


Figure 9: Crash History Locations

Table 8: Crash Typology

Reporting Year	Crash ID	Degree of Crash	RUM - Description	Type of Location	Natural Lighting	No
2015	1064659	Moderate Injury	Rear end	2-way undivided	Daylight	1
	107810	Moderate Injury	Right through	T-Junction	Daylight	2
2016	1102303	Moderate Injury	Left turn sideswipe	2-way undivided	Daylight	1
	1111305	Moderate Injury	Rear end	2-way undivided	Daylight	1
	1116197	Moderate Injury	Right near	T-Junction	Daylight	1
2017	1137975	Moderate Injury	Off rd left => obj	X-Intersection	Daylight	1
2018	1178395	Moderate Injury	Off left/rt bnd => obj	T-Junction	Daylight	1
2019	1203961	Non-Casualty (towaway)	Cross traffic	X-Intersection	Daylight	-

Of specific relevance to the Site, two crash occurrences have occurred at the main intersections in proximity of the Campus, one being at the intersection of Owen Street / Gordon Street in 2015 and another at the intersection of Owen Street / Burrawan Street in 2017. A review of the crashes found no discerning pattern that relates to a pattern of crashes. Therefore, it is considered that the local road network within the immediate vicinity of the site is operating in a relatively safe manner.

It is noted that in the consultation undertaken with stakeholders, safety concerns over pedestrian movement from the school to centre of road parking along Owen Street was previously raised as a safety concern. It is understood that 40km/h High Pedestrian area speed restrictions has been

implemented along Owen Street, between William Street and Burrawan Street to address the concern raised.

It is considered that further local traffic management treatment, such as the provision of rumble strip on approach to the school frontage along Owen Street, between Gordon Street and Burrawan Street may be appropriate, subject to consultation with Council to provide further awareness of the presence of potential hazards, combined with education and management of students during school finish time can achieve further improvements to safety of vulnerable road users.

5.2.4 Off-Site & On-Road Parking

On-site observations and desktop studies demonstrate that the locale is serviced by a variety of public on and off-street parking areas accounting for approximately 313 spaces and are utilised for both the school and other developments in the vicinity including the Port City Bowling Club and restaurants to the north of the Site. **Figure 10** below provides context for the location and quantity of available parking areas. It should be considered that the parking diagram captures discrete spaces specifically and does not include the availability of kerbside parking, in cognizance that kerbside restrictions are likely to change over time and with the introduction of new crossovers.

Currently, no parking controls exist at any of the disclosed locations and provide unlimited access.

The parking areas directly fronting the school boundary to the west, as well as the parking area to the east have been observed to be predominantly occupied by the College during school hours. Parking north-west of the Site demonstrates closer proximity to the abovementioned neighbouring developments, indicating higher occupancy rates in conjunction with both these uses and the school.

Figure 10: Parking Locations

5.3 Public Transport

The Port Macquarie locale is characterized by high modal dependency on private vehicle ownership. In terms of public transport connectivity for the region, the road network is predominantly facilitated by the private service provider, Busways. The closest regional train station for the area is situated in Wauchope, with coaches providing connectivity between Wauchope and the Port Macquarie CBD area. In addition, the regional Port Macquarie Airport is situated west of Port Macquarie.

Figure 11 below demonstrates network connectivity of the public bus network in the context of the Site, demonstrating that only a single public service is potentially viable for student commuting (route 322), while another less accessible route traverses the residential area south-west of the Site (route 334 / 334k. Additional details and a frequency summary are included in the below table.

Table 9: Public Bus Network

Route	Route Description	Stop Location	Service Frequency
322	Lighthouse Plaza via Shelly Beach	Lord St after Gordon St	~4 services during AM Peak, Hourly services until 22:00 during weekdays.
334	Lighthouse Plaza via	Hill St opp Rose St Hill St at Rose St	~2 services during AM Peak.
334K	Kendall via Laurieton	Hill St opp Rose St Hill St at Rose St	1 service during AM Peak, 2 services during PM Peak.

It should be noted that during the AM and PM Peak school periods, routes 322 and 334K have modified routes that provide additional services to facilitate before and after-school travel. These services are additionally included with the school bus network assessment in section 6.8.

It should be considered that while the Busways Public Bus network does not provide direct connectivity with the PMC Site, Busways provides services to facilitate the school network as demonstrated in **Figure** 12. Additional detail relating to service coverage of the school bus network is briefly covered in section 6.8 and is further assessed as part of the Preliminary STP document.

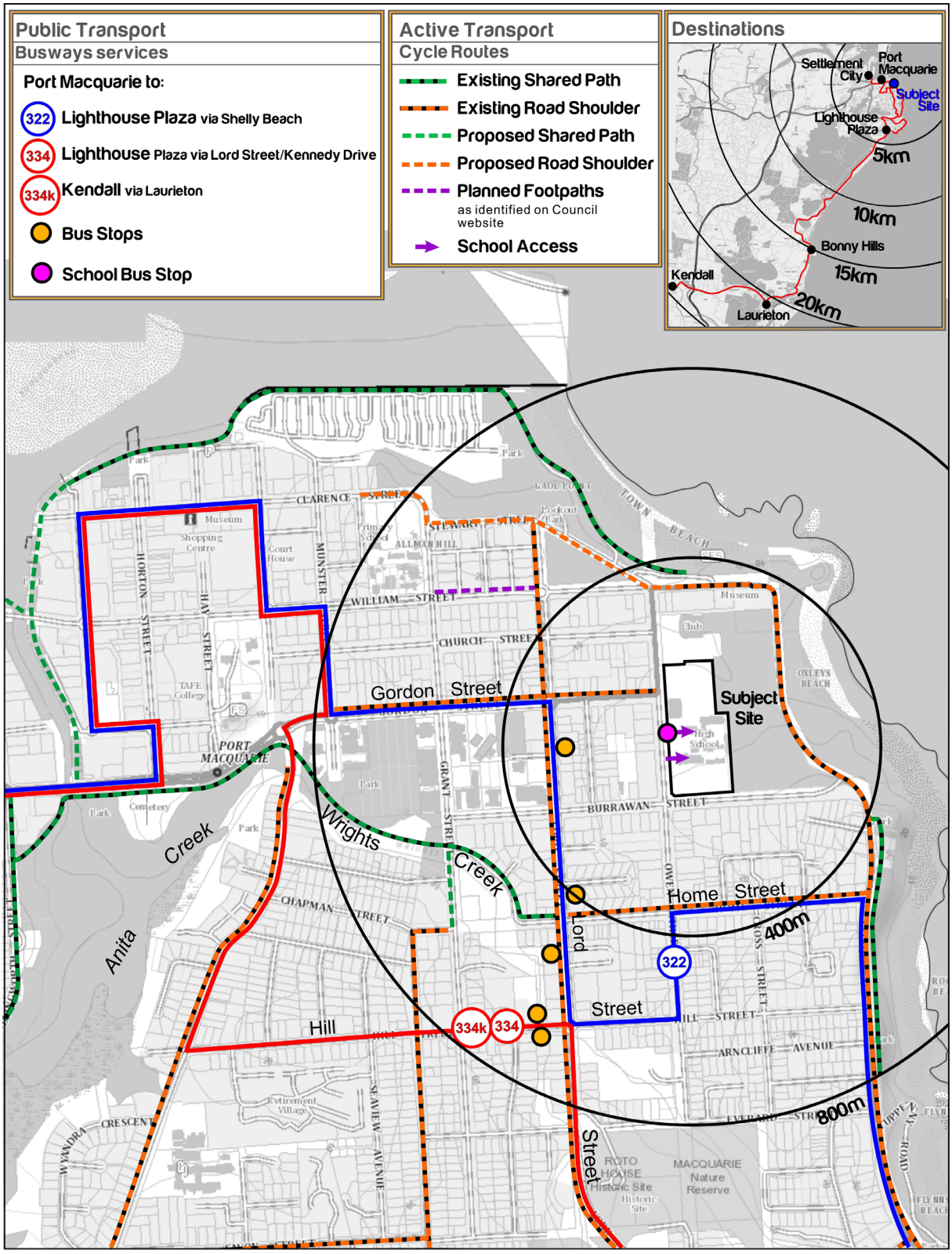


Figure 11: Public Transport Services

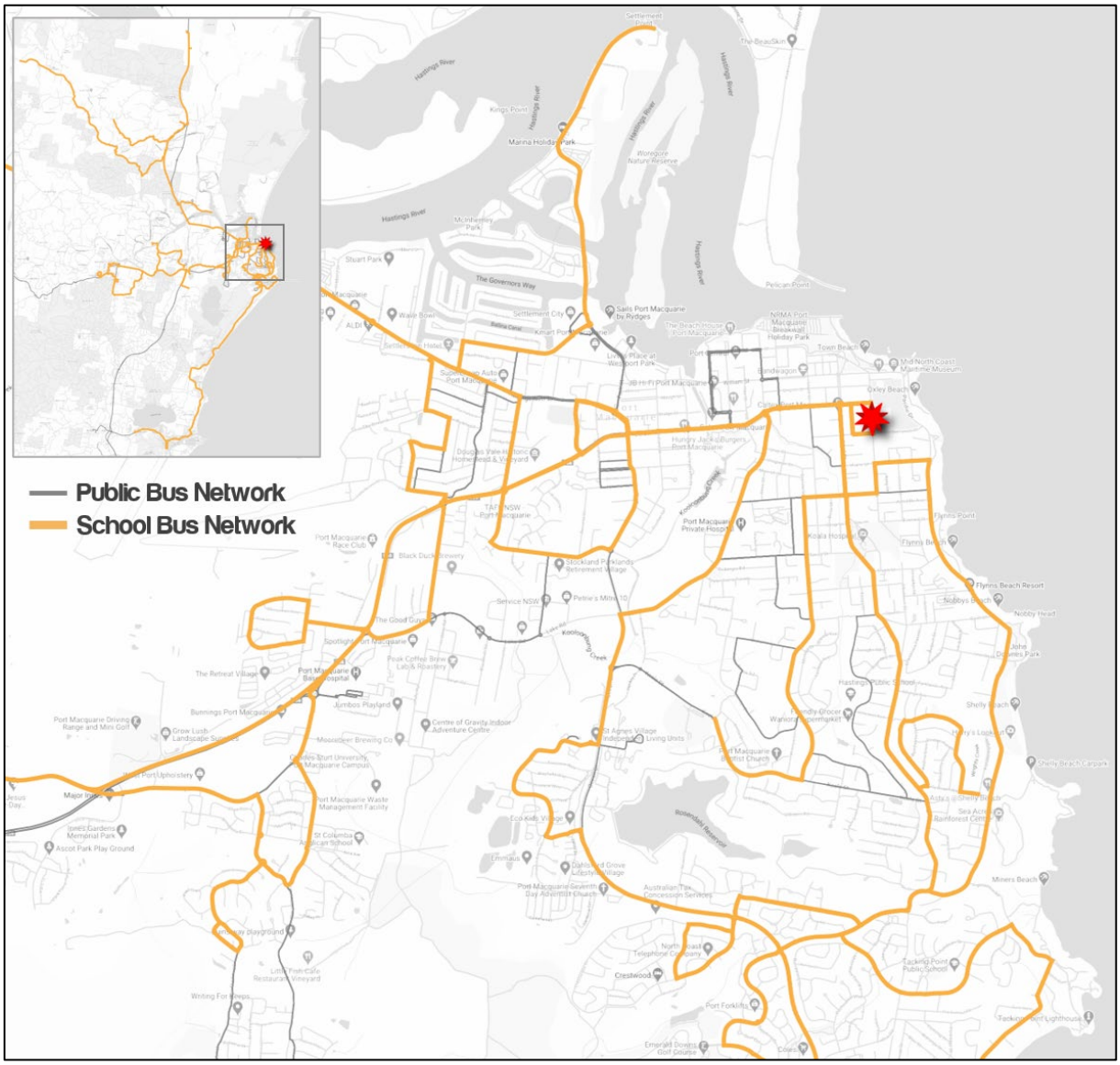


Figure 12: Port Macquarie Campus School Bus Network

6 Existing School Travel Characteristics

6.1 College Catchment Boundary

The catchment areas for the Hastings Secondary Colleges (inclusive of both campuses) have been defined by the Department of Education and are provided for reference in **Figure 13**. The catchment area spans the Port Macquarie region, capturing rural communities situated in the northern parts of the Council Local Government Area.

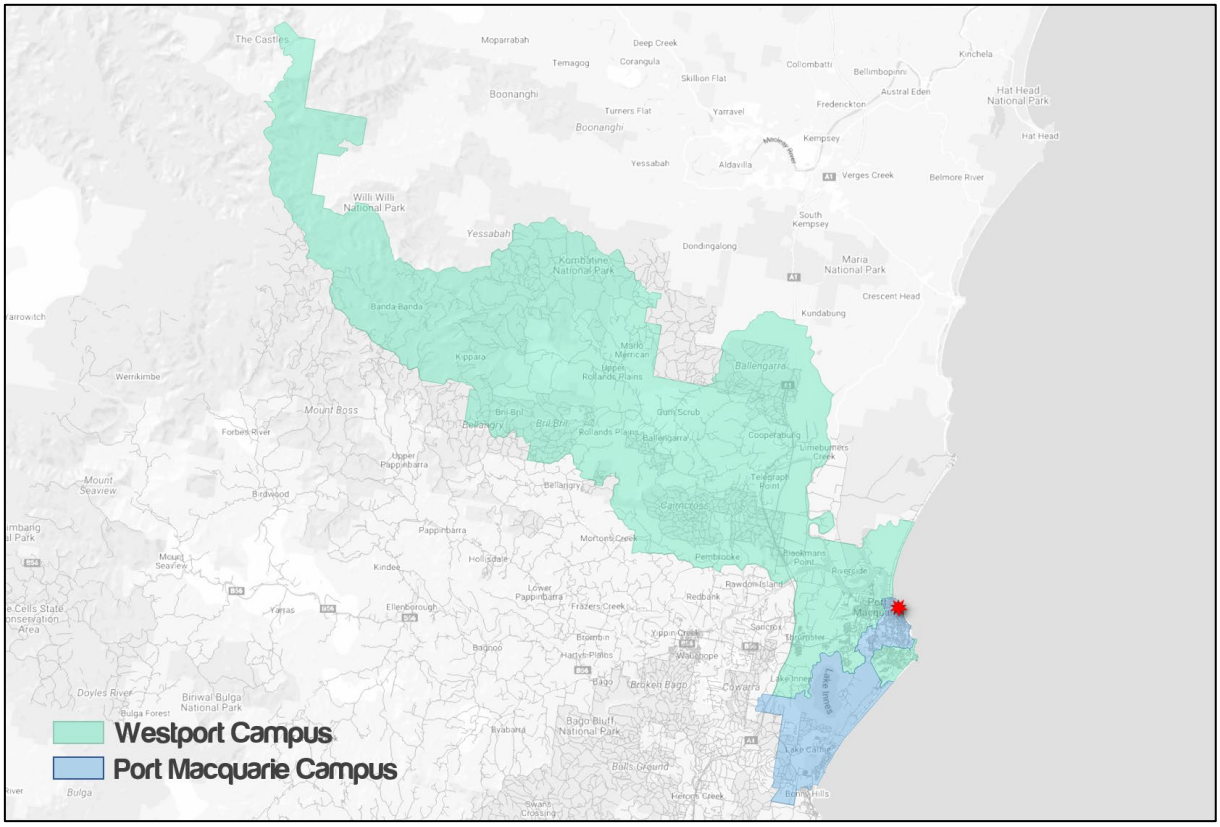


Figure 13: Hastings Secondary College Catchment Boundaries

On advice provided by the College, the defined catchment boundaries for each campus do not necessitate student attendance specific to the campus – the student populous is generally allocated to either location on availability, with cross-campus movements occurring more commonly for the senior grades (11 and 12).

6.2 Student Enrolment Map

In addition to the catchment zones, enrolment data for the existing student population attending the campus has been provided to Ason Group for travel and transport assessment. The figure below demonstrates an amalgamated student density map for students attending the Port Macquarie Campus.

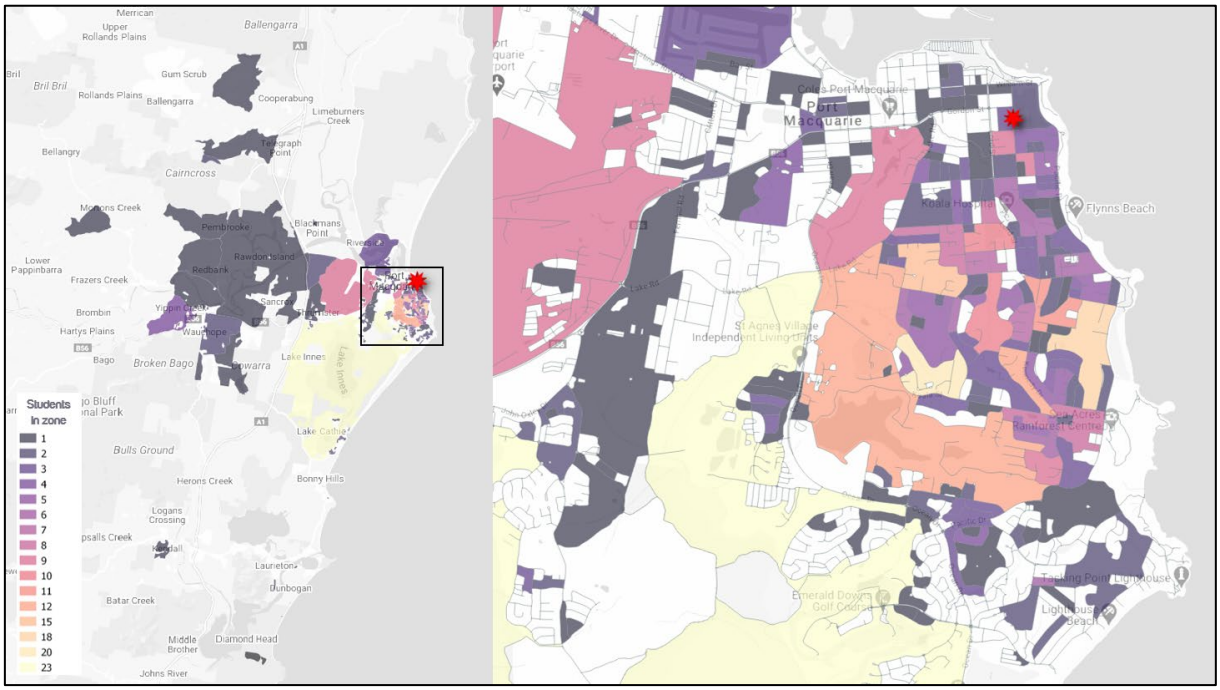


Figure 14: Student Enrolment

The enrolment data demonstrates that the majority of PMC students live within a 4km radius of the Site, primarily towards the schools' south. A smaller portion of students live west of Port Macquarie CBD.

It has been noted that a small percentage of students (approximately 5%) live outside of the Port Macquarie/Hastings area, in recognition that these students may potentially be boarding or attend living arrangements within proximity of the campus.

6.3 Operating Hours

In an operating capacity, the school period and bell times occurs between 08:15 and 14:15 during weekdays, with student arrival typically occurring between 07:30 and 08:30.

Traffic surveys undertaken for the key intersections to the Site demonstrate consistency with the Campus' operating hours, with AM School peak observed to occur between 08:00 and 08:15 and the PM school peak to occur from 14:00 to 14:15.

6.4 Campus Travel

Both the Port Macquarie Campus and Westport Campus have a degree of interaction and facilitate the requirement for movement between the two, predominantly for senior years (grades 11 and 12), as well as by staff. Generally, travel between the two campuses has been observed to be undertaken predominantly via vehicular trips – both through a chartered taxi program, and private vehicles with

conditional carpooling. Reasons for moving between campuses typically involves curriculum-specific senior classes, and staff/faculty meetings.

6.5 Student and Staff Survey Information

In consultation with the college, Ason Group have prepared a Travel Survey which was made available to all students and staff via the Survey Monkey application. The purpose of the travel survey was to determine key traffic and parking characteristics of existing students and staff, including:

- Travel mode for both the arrival and departure trip;
- For those students and staff driving or being driven, car occupancy;
- Arrival and departures peak periods;
- On and off-site parking demand.

Separate surveys were undertaken for students and staff to reflect the different travel characteristics for each user group. Approximately 23% (174) of the existing 758 students responded to the Travel Survey and 100% (65) of the 65 staff responded to the Travel Survey; with the results discussed in sections below.

It should be considered that the Preliminary School Travel Plan accompanying this document goes into further detail relating to detailed modal travel patterns and assessments from the survey.

In addition to the survey, Ason Group have undertaken a catchment analysis of the student enrolment data. The table below captures the volume and percentage of the student population within active transport proximities outlined in Section 6.7 and allowable for SSTS eligibility as demonstrated in Section 6.8.

Table 10: Catchment Analysis

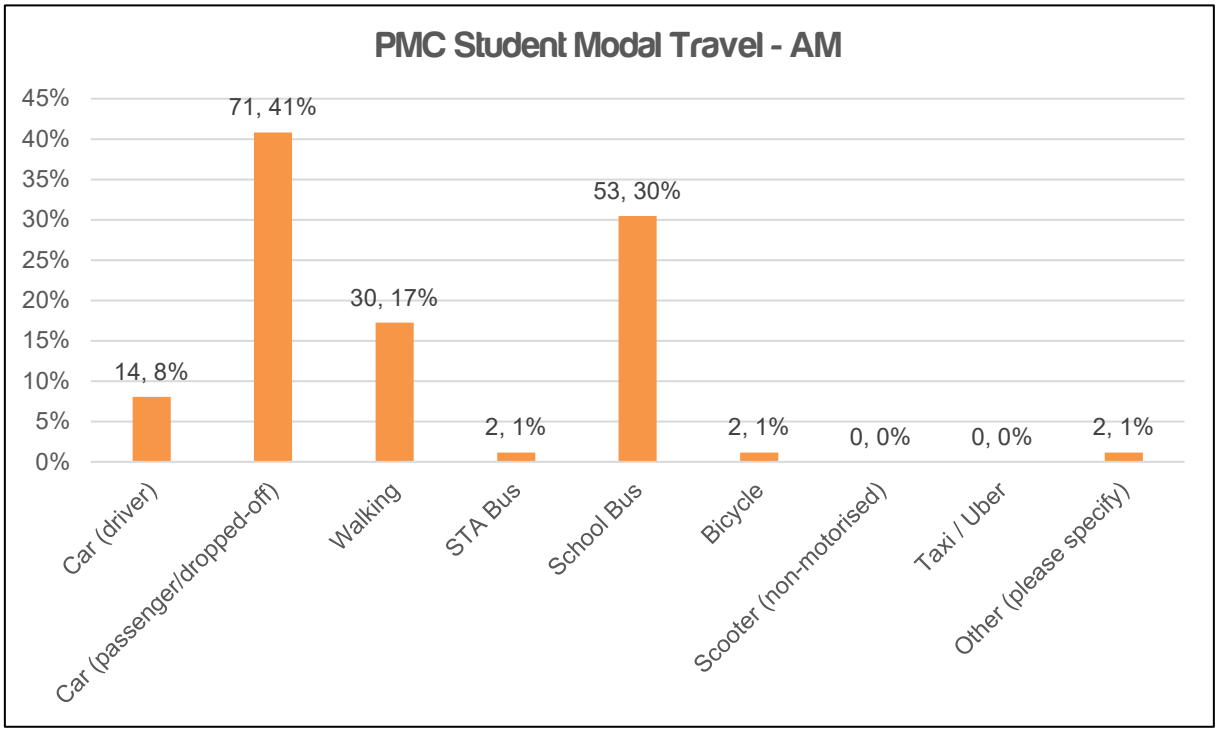
		Notional		Actual	
Mode	**Distance / Time**	**#**	**%**	**#**	**%**
Walking	1m-400m / 5-min	24	3%	5	1%
	400m-800m / 10-min	51	7%	32	4%
	800m-1200m / 15-min	50	7%	32	4%

Mode	Distance / Time	Notional		Actual	
		#	%	#	%
Cycling	1m-1200m / 5-min	125	16%	98	13%
	1200m-2400m / 10-min	221	29%	170	22%
	2400m-3600m / 15-min	169	22%	173	23%
SSTS (Eligibility)	1600m radius/ 2200m on-path	479	63%	406	54%

Based on the assessments of active and public transport modes above, the results approximate an indicator for the efficacy of modal shift to active transport modes and is encouraged to form the basis of goals outlined within the preliminary STP document with the intent to increase dependency on active travel modes by promoting incentives and improving accessibility for students.

6.5.1 Senior School Students

With reference to **Figure 15**, both the AM and PM travel mode assessments broadly demonstrate a high dependency on private vehicular travel, consistent with modal travel patterns in the wider locale. This is followed by dependency on bus travel, particularly in the afternoon period where the volume of students catching the bus home surpasses private vehicle dependency as opposed to modal travel during the AM Peak.



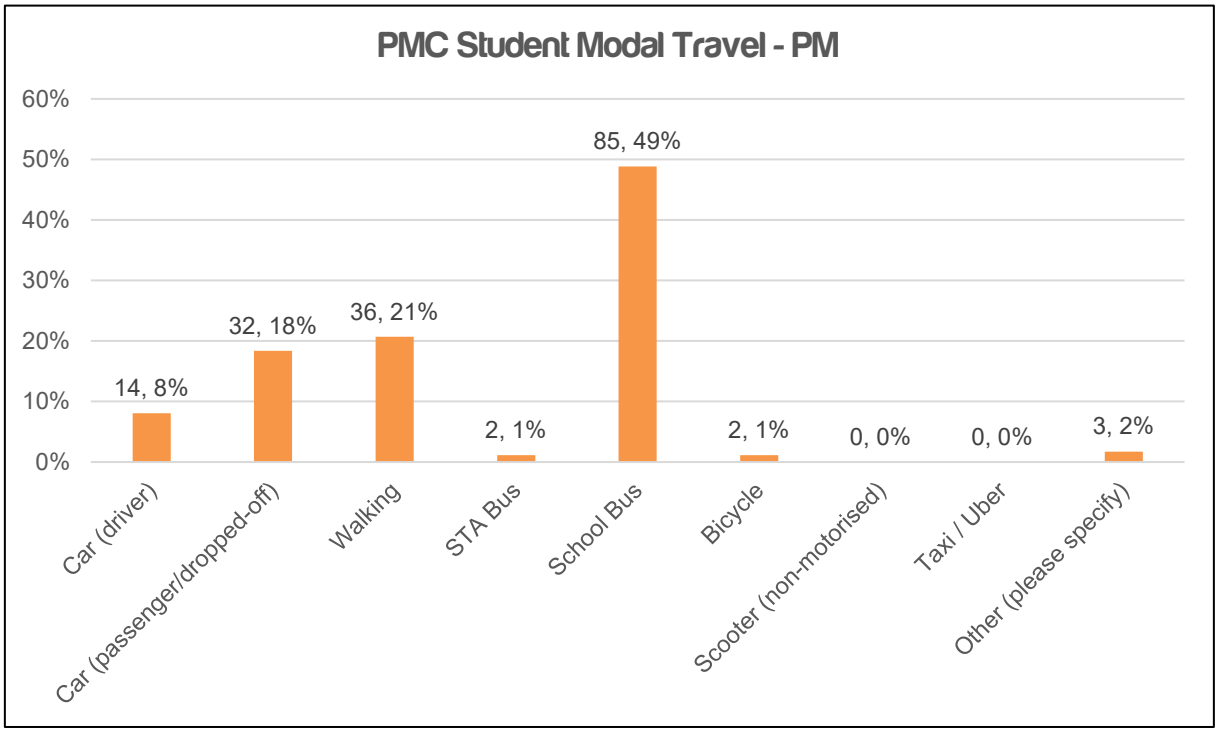


Figure 15: Student Travel Mode Distribution

6.5.2 Staff Travel Surveys

The surveys relating to staff of the PMC demonstrate conventional to-and-from work movements. The staff population at PMC demonstrate a high dependency on private vehicle usage – particularly as drivers, at 94% (or 61 staff members) – as indicated in **Figure 16** and utilise parking facilities to the east and west of the Campus.

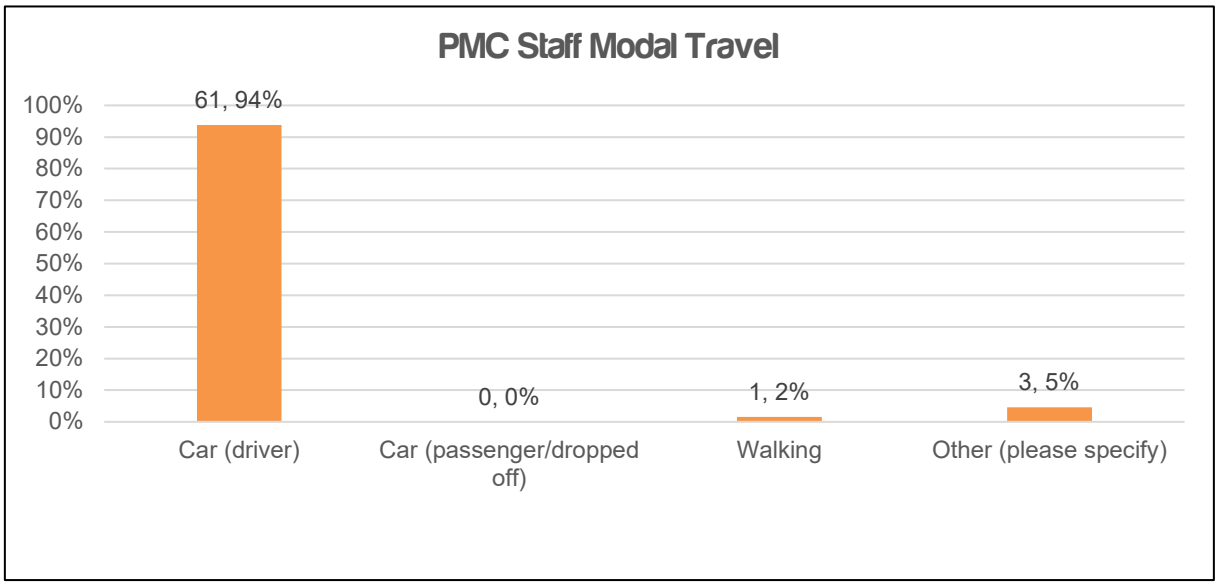


Figure 16: Staff Travel Mode Distribution

From the surveys, it is observed that 45 staff members (~69%) have indicated arrival to work before the start of the school network peak at 07:45, while departure trips from work are staggered out between 14:15 and 17:15, with 22 staff members (~34%) leaving during the school PM Peak period (14:00 – 15:00).

6.6 School Traffic Generation

The existing baseline modelling assessments undertaken in section 5.2.2 inherently capture both background traffic and PMC traffic. In conjunction with the staff and student campus travel survey results, vehicle trips associated with the School can been conservatively estimated and isolated from the survey traffic by application of the mode share and vehicle occupancy factor (refer to **Appendix B** for the existing traffic distribution), which is assessed in more detail in the Preliminary STP Document. The results of this exercise indicate the following number of trips associated with the Port Macquarie Campus and account for both student and staff trips:

- 435 total trips during the AM, consisting of 272 inbound trips and 163 outbound trips.
- 213 total trips during the PM, consisting of 49 inbound trips and 163 outbound trips.

It should be considered that the outbound trips during the AM accounted for vehicles leaving the Site after attending the Kiss & Ride facilities or similar drop-off arrangement, and the inbound trips during the PM account for vehicles arriving for pick-up. In addition, while the survey demonstrates staggered staff movements, the above assessment conservatively captures 100% of the staff movements during the peak periods.

6.7 Active Travel Catchment

6.7.1 Pedestrian Catchment Area

As referred to in SINSW Guidelines, the pedestrian catchment area can be defined by the walking time (or distance) to the secondary education facility. The catchment zone is nominally divided into 3 categories for 5, 10 and 15-minute walking durations (or 400m, 800 and 1,200m walking distances), demonstrating varying propensities of walking desirability for students within the pedestrian catchment area. Students outside of this catchment are more likely to rely on other modes of travel, including cycling, buses, or private vehicles.

The figure below captures the amalgamated student density map in conjunction with the pedestrian catchment areas.

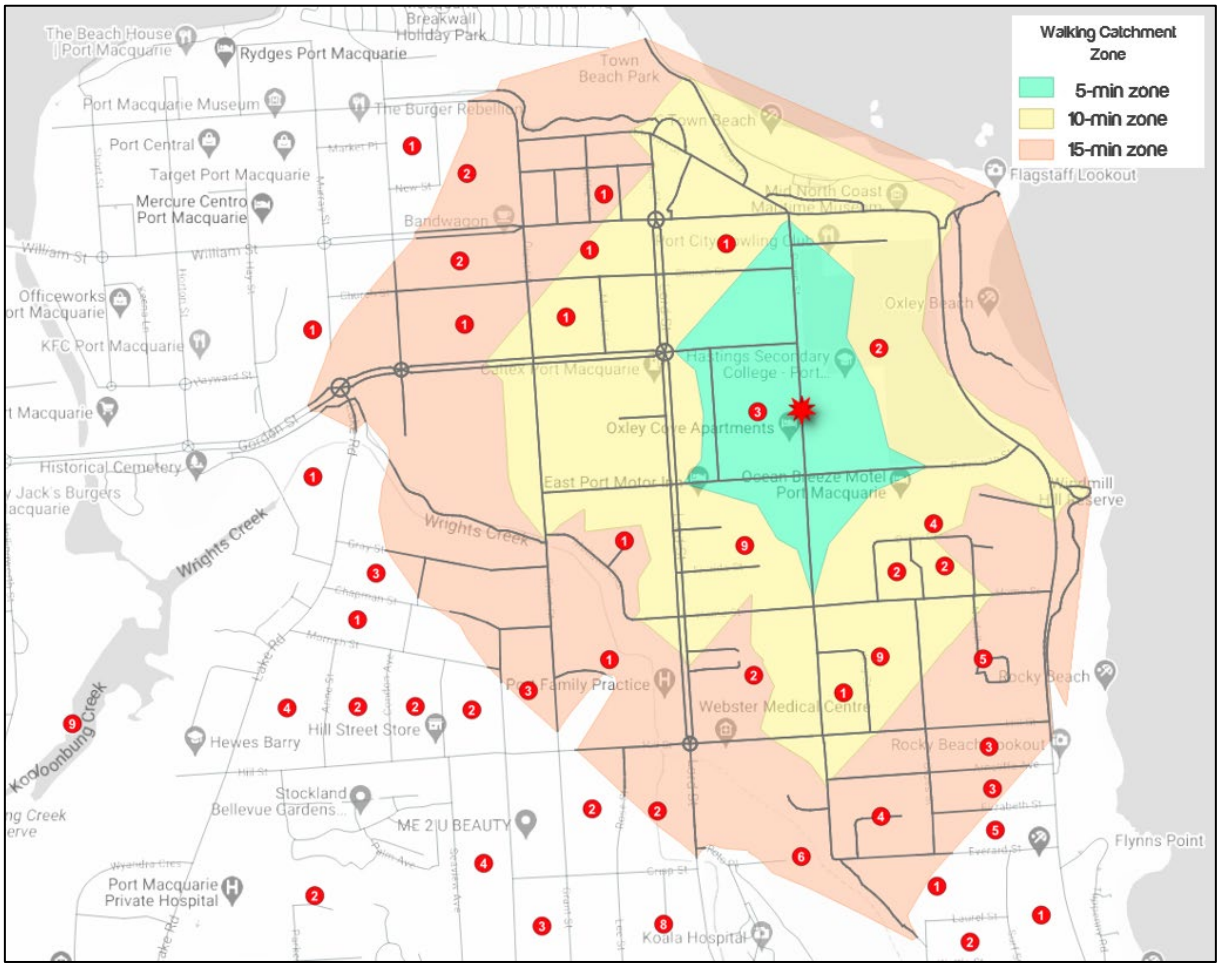


Figure 17: Walking Trips Catchment Area

The map indicates that approximately 9% of the PMC student population live within the walking catchment of the campus.

6.7.2 Cycling Catchment Area

Similar to the walking guidelines by SINSW above, the cycling catchment area can be defined by the cycling time (or distance) to the secondary education facility. The catchment zone is divided into 3 categories for 5, 10 and 15-minute walking durations (or 1,200m, 2,400m and 3,600m walking distances), demonstrating varying propensities of cycling desirability for students within the catchment area. Students outside of this catchment are more likely to rely on vehicular modes of travel, including buses or private vehicles.

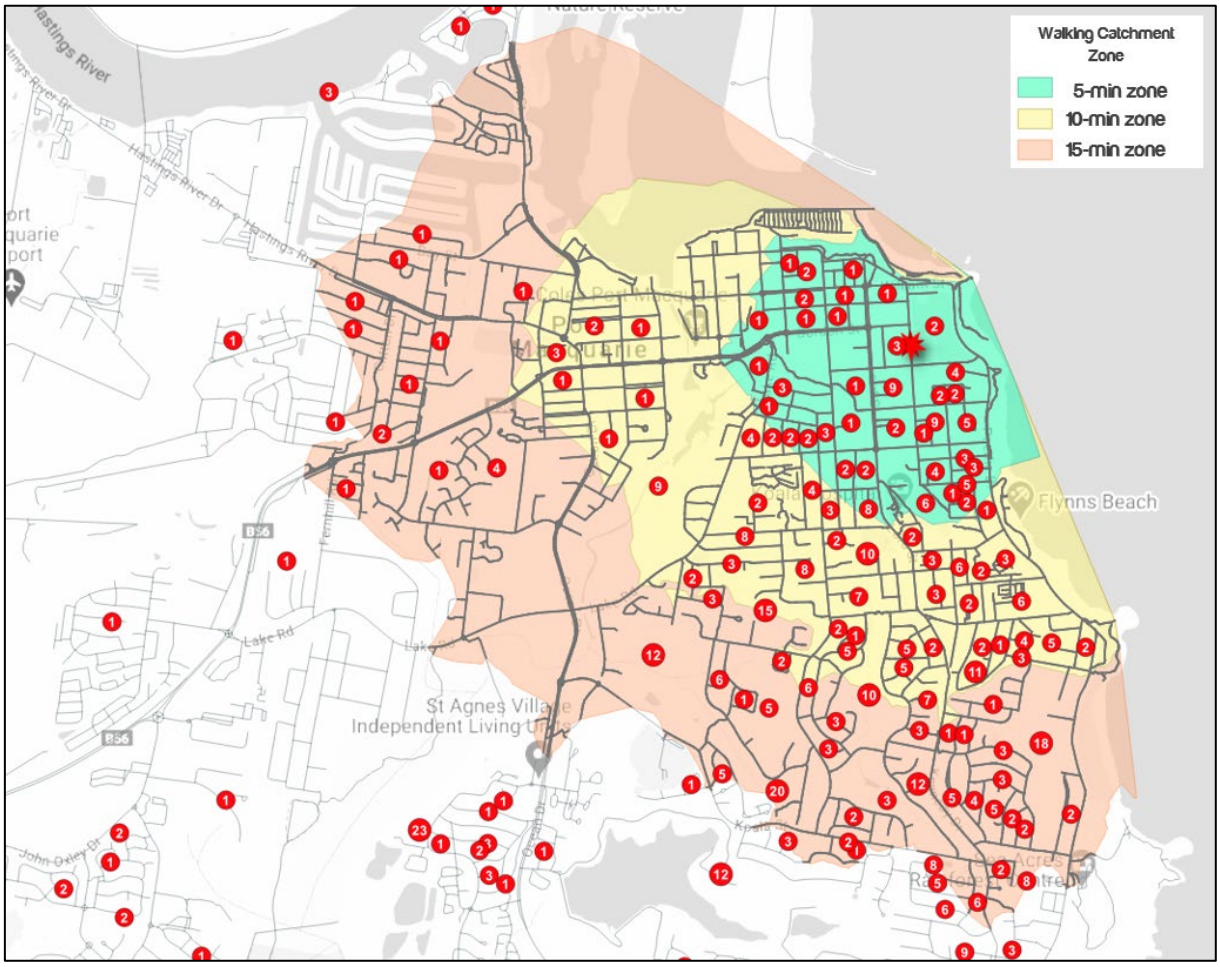


Figure 18: Cycling Trips Catchment Area

The map indicates that approximately 58% of the PMC student population live within the cycling catchment of the campus. It should be noted that while the map above demonstrates the extent of catchment via the road network, it does not capture the availability of on and off-street cycling infrastructure.

6.8 Public Transport Catchment

As mentioned in section 5.3, Busways facilitate a private school bus network for the PMC in a separate capacity to facilitate patronage demands associated with the school. The student survey demonstrates a high utilisation on bus travel, particularly in the PM period when modal utilisation exceeds more than 50% of total mode split from the school over the 31% observed in the morning.

In line with the School Student Transport Scheme (SSTS) outlined by the NSW Government, students at the PMC are eligible for free or subsidised travel when they meet the eligibility criteria defined below:

- *They are a resident of NSW or an overseas student who is eligible for free government education,*

- *The straight line distance from their home address to school is more than 2 km, or*
- *The walking distance from home to school is 2.9 km or further.*

Secondary school students who live too close to the school to be eligible for free travel may qualify for a School Term Bus Pass which provides bus travel at a discounted price for the whole school term.

The figure below demonstrates the geographical requirements of the area relative to the declassified student locations to determine SSTS eligibility.

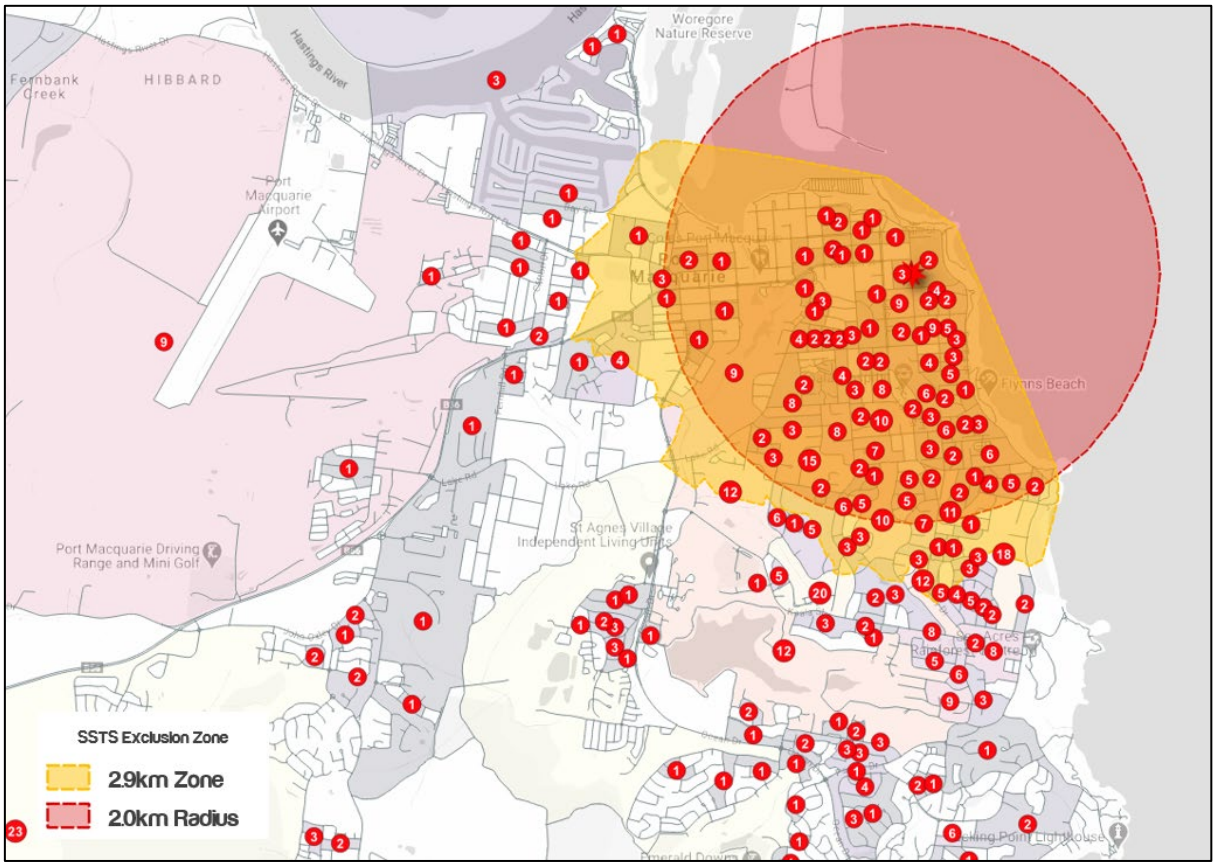


Figure 19: SSTS Exclusion Zones

In capturing the wider PMC populous, approximately 54% of students live outside of the exclusion zone and are eligible for the benefits of the scheme. With consideration the school bus routes offered and the locations of existing enrolments, bus catchment assessment conducted in the School Travel Plan demonstrate high efficacy of the existing school bus routes, with maximum student accessibility to the services already in place.

6.8.1 School Bus Catchment Area

With reference to the discussion undertaken for the public bus network in section 5.3, Busways facilitates several services for the exclusive use of the school, including some existing public routes modified to provide access to the school on the 332, 334K and 335W routes.

During the AM period, Busways provides for a total of 10 single-run services, and is additionally supported by 2 modified public bus routes during a single trip, equating for a total of 12 bus services departing between 06:26 and 07:43.

The PM period facilitates additional services, reflecting the increased patronage demand. A total of 13 single-run services departs from the school, supported by another 2 modified bus routes. A total of 15 bus services departs the school from 14:40, with the last bus departing at 15:17. The map below captures the bus service areas during the AM and PM Peaks, indicating broad coverage of the student population. Of note is the provision of services to students to the north of the Port Macquarie Campus, servicing more regional locations in the area.

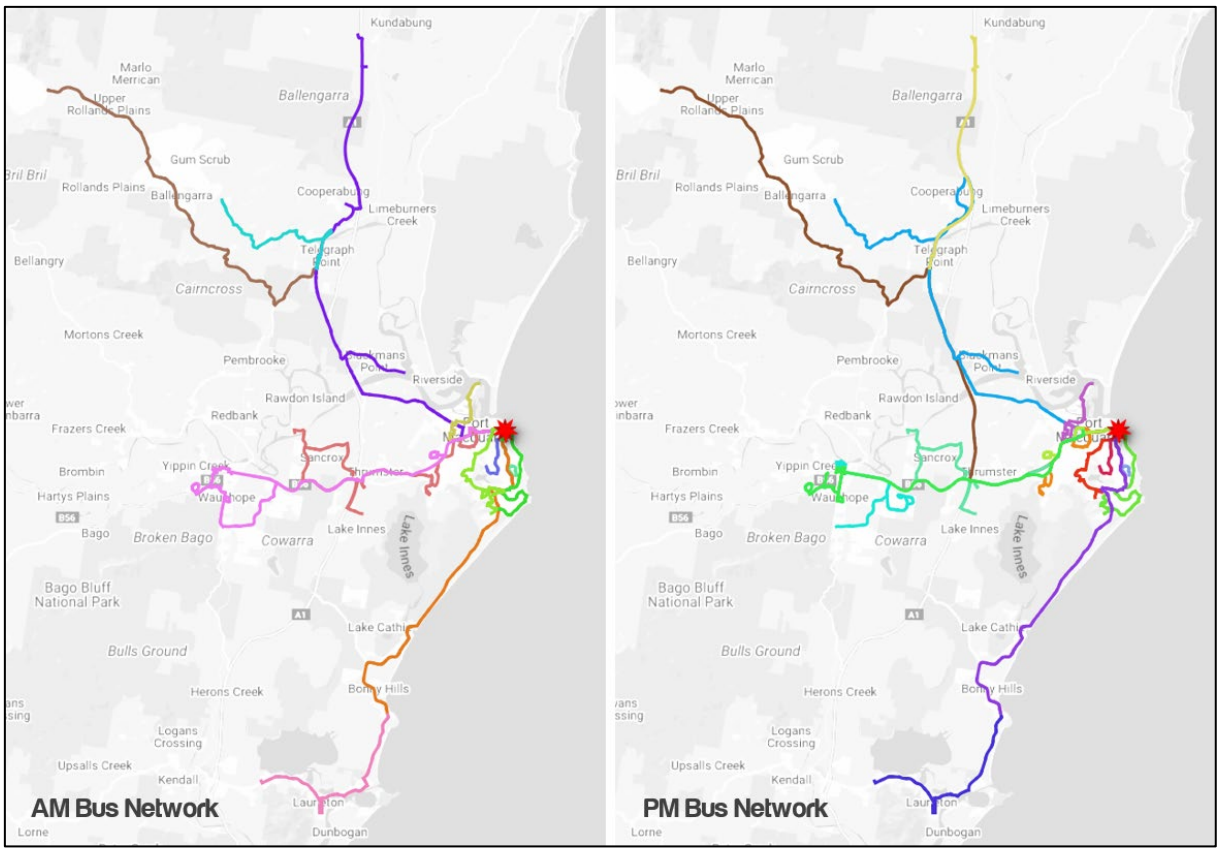


Figure 20: School Bus Network

As mentioned above, the school bus network demonstrates adequate coverage of the school catchment area. Notwithstanding, a regular review of the bus network provides potential opportunity to improve

and optimise the efficacy of school services and changes in travel patterns for the PMC populous and changing conditions in the locale. In this regard, reference should be made to the STP document with regard to accessibility.

7 Transport Assessment

The application relates to a series of upgrades associated with the Port Macquarie Campus, as well as the provision of a shared community use recreational facility operated by PCYC.

With reference to the proposed development, it should be considered that the works associated with the Port Macquarie Campus are upgrades and refurbishment elements to existing facilities on-site. Hastings College has expressed that there is no intention for the upgrade and refurbishment works at this stage to be associated with any increase to enrolments to the Campus. Therefore, with reference to the existing baseline SIDRA assessment conducted in section 5.2.2, it should be noted that traffic generation by the School is not anticipated to increase.

The PCYC recreational facility is likely to induce increased trips to the locale. As such, the transport assessment relating to the application aims to assess the facility in isolation from the packaged works involved with the Port Macquarie Campus.

7.1 Trip Generation

The courts, gymnasium area, and multipurpose rooms of the PCYC are booked on a scheduled basis, while the gym situated on level 1 remains open to public during club hours between 06:00 and 22:00.

During school hours of the Hastings Secondary College – Port Macquarie Campus, between 08: and 14:00, PMC have exclusive use of the PCYC Courts and Multipurpose Room 1. On certain days, this window is extended to 15:30 to facilitate after-school team training.

In line with the above, reference is made to a first principles assessment of PCYC Waitara Facility and its accompanying patronage schedule to determine a realistic traffic generation for the proposed PCYC courts, gymnasium and multipurpose rooms. In addition, the RMS Guide supplements the assessment on the basis of traffic generation for the PCYC gym.

7.1.1 RMS Guide Traffic Generation Rates

As stated above, the RMS Guide has been adopted for Gymnasiums (Gym), which defines evening peak hour vehicle trips for metropolitan sub-regional areas as:

- 9 trips per 100m^2 GFA

7.1.2 PCYC Traffic Assessment

Reference is made to the patronage schedule for the PCYC Waitara facility included in **Appendix C**. For the purposes of the traffic assessment, a first principles study of the patronage data provides indicative trips associated with the individual land uses on-site. The study assumes the following:

- Typical patron duration of stay is expected to be between 1 and 2 hours for activities undertaken on the courts and gymnasium, and shorter periods for the multi-purpose rooms between 30 minutes to an hour for scheduled classes.
- The Study predominantly adopts the busiest observed weekday, or weekday with highest attendances for scheduled classes, per venue.
- The Waitara Facility is home to 4 multi-purpose rooms. The 3 highest patronage schedules were assumed for the study.
- The afternoon peak period between 16:30 and 17:30 has been adopted to align with the network peak period. It should be considered that traffic generation during the AM Peak has not been assessed, as the patronage schedule typically demonstrated no classes occurring before 09:00 on weekdays and trips associated with gym usage are anticipated to be moderate in comparison to the evening peak.

Based on the above, the below table summarises in and out trips per venue at the Waitara Facility and provides a total traffic generation for the facility.

Table 11: PCYC Traffic Generation (PM Peak)

PCYC Waitara	Trips IN	Trips OUT	Total Trips
Main Court 1	6	6	12
Main Court 2	12	12	24
Gymnastics Gymnasium	10	10	20
Multipurpose Room 1	2	2	4
Multipurpose Room 2	10	10	20
Multipurpose Room 3	0	0	0
Gym[1]	12	12	24
Total	**52**	**52**	**104**

Notes) 1. RMS Guide rates have been adopted and applied for gym land use.

The first principles assessment above demonstrates an indicative total of 104 vehicle trips associated with the recreational facility during peak hour, reflecting a venue turnover as 52 trips are attending the Site, while 52 trips are leaving the Site after attending classes.

7.2 Trip Distribution

The trip distribution of the proposed PCYC facility has been undertaken with consideration for the existing traffic distribution determined from the traffic surveys. In this regard, **Appendix D** details the anticipated trip distribution for the following scenarios:

- 2021 Baseline Network PM + PCYC Facility
- 2031 AM Peak.
- 2031 School PM Peak.
- 2031 Network PM + PCYC Facility.

7.3 Project Case Modelling

The traffic generation of the PCYC facility has been modelled over the existing baseline network (16:00 – 17:00) to establish the anticipated uplift in traffic associated with the development. Traffic distribution for the site reflects the background PM Network peak and has been adopted to demonstrate consistency with baseline trends. The results of the modelling are provided below.

Table 12: PCYC Project Case

Intersection	Control Type	Period	Intersection Delay	Level of Service
Owen St / Gordon St	Priority	PM	6.4	A
Owen St / Burrawan St	Priority	PM	5.8	A

The modelling indicates that the existing intersections have sufficient capacity to provide for the additional traffic demands associated with the PCYC facility.

7.3.1 10-year Post Development Modelling

As part of TfNSW and SINSW assessment requirements, 10-year post development modelling has been undertaken to provide indication of intersection performance with the inclusion of underlying background growth.

Background Traffic Isolation

With reference to the availability of survey data and the existing school traffic study undertaken in section 6.6, the level of background traffic can be extracted from the survey data by subtracting the school traffic to provide a comprehensive modelling case for 10-year post development:

Background Traffic = Survey Data – Extrapolated School Traffic

With consideration for the on-road network peak between 16:00 and 17:00, the amount of traffic associated with the school can be considered minimal, therefore can be interpreted as background traffic.

For the purposes of modelling, a compound annual growth rate of 2% has been adopted to provide a conservative indicator for the level of background growth expected for the area, noting that population growth for the region is demonstrably lower as referred in the census study in section 4 . To facilitate project case modelling, 3 scenarios are included with details outlined below.

Table 13: Post Development Modelling Scenarios

Scenario	Peak Period	Background Growth Applied to:	Project Inclusion
3a	AM Network Peak	Baseline (Surveyed – AM Campus Traffic)	PMC AM Traffic
	PM School Peak (1400 – 1500)	Baseline (Surveyed – PM Campus Traffic)	PMC PM Traffic
3b	PM Network Peak (1600-1700)	Surveyed PM	PCYC Traffic

The results of the modelling are referred below.

Table 14: 10-year Post Development Modelling Results

Scenario	Intersection	Control Type	Period	Intersection Delay	Level of Service
3a	Owen St / Gordon St	Priority	AM	6.7	A
			PM	6.7	A
	Owen St / Burrawan St	Priority	AM	7.9	A
			PM	7.1	A
3b	Owen St / Gordon St	Priority	PM	6.5	A
	Owen St / Burrawan St	Priority	PM	6.1	A

The intersections are demonstrated to perform at LoS A during all assessed modelling periods, including traffic peaks associated with the campus as well as the afternoon network peak. The post-development modelling results demonstrate that there is sufficient network capacity to provide for both the demands of background growth, as well as traffic associated with PMC and the PCYC facility. Refer to **Appendix E** for the Post Development SDIRA results.

7.3.2 Inter Campus Travel

While the traffic modelling results demonstrate satisfactory performance during school and network peak hours, there is a degree of inter-campus movements between the Hastings Port Macquarie and Westport sites, particularly for senior students attending classes between the two.

Currently, these movements occur intermittently throughout the day and are facilitated predominantly by chartered taxi services, or senior students using their private vehicles. Data from the schools estimates there being 178 students being affected with up to 712 trips per week. The number of students that transfer across campus is higher than typical scenarios, due to the planning for construction activities at each of the Westport and Port Macquarie Campus which necessitated in the need for higher levels of inter-campus transfer.

The existing movement patterns present an opportunity to consolidate the travel demand for inter-campus movements and reduce dependency on taxi services and private vehicle ridership.

Investigations being undertaken involve considerations of regular bus movement between the two campuses, which is subject to detailed operational review with the Department of Education.

This transport issue will be mitigated through an SINSW School Operations Review that will deliver short, medium, and long-term options to reduce or remove the frequency of trips and ensure the safety of travel for students. To safely accommodate the current inter-campus trips a transfer stop is proposed to be located on Owen Street utilising the same area as the existing bus stop, on the basis that the transfer occurs outside School Bus operations.

8 Parking Assessment

8.1 Car Parking Requirements

8.1.1 General Provisions (DCP Requirements) – Hastings Port Macquarie Campus

Similar to the transport assessment, the proposed upgrades at the Port Macquarie Campus do not result in an increase in student capacity.

Reference is made to Section B4 of the Port Macquarie-Hastings DCP 2013 which sets out the Transport, Traffic Management, Access and Car Parking provisions that applies to all land within the Port Macquarie-Hastings Local Government Area.

Specifically, Clause 25 of Section B4 of the DCP specified the following Development Provisions:

- *A development proposal to alter, enlarge, convert or redevelop an existing building, whether or not demolition is involved, shall provide the total number of parking spaces calculated from the schedule for the proposed use, subject to a credit for any existing deficiency, including any contributions previously accepted in lieu of parking provision.*

The school currently has 65 staff and 758 students enrolled at the Port Macquarie Campus, with 92 Year 12 students. No on-site parking is currently provided within the school site. An on-site loading area is provided and accessed via Burrawan Street.

With reference to the Council DCP, rates for educational establishments are provided below.

Table 15: Council DCP Rates

Source	Land Use	Rate
Port Macquarie / Hastings Development Control Plan 2013	Educational establishments (schools)	1 per staff member + 1 per 8 student [Year 12 Students] + 1/30 students for visitors. Adequate bus pickup / set down area provided + delivery / service vehicles area.

Based on application of the DCP rate, the existing Port Macquarie Campus have a parking credit of 102 spaces, on the following basis:

- 65 staff parking spaces;
- 12 student parking spaces for Year 12 Students; and
- 25 visitor parking spaces.

With no proposed increase to student enrolments and staff numbers, the existing parking demand and observed patterns on Site is expected to continue. The parking credit is therefore considered to be sufficient to continually meet the parking requirements of the School.

Therefore, in recognition that anticipated change to parking demand is predominantly associated with PCYC, the parking assessment isolates the PCYC recreational facilities and assesses the likelihood for parking demand over the existing scenario in the following sections of this report.

8.1.2 General Provisions (DCP Requirements) – PCYC

With reference to the Council DCP, rates for recreational facilities are broadly provided to demonstrate indicative parking rates. The relevant rates are provided below.

Table 16: Council DCP Rates

Source	Land Use	Rate
Port Macquarie / Hastings Development Control Plan 2013	Recreation areas(general)	(not including neighbourhood parks) 30 minimum + any additional requirement of Council, depending on location and activity.
	Recreation Facilities (indoor): Gymnasium	7.5 per 100m^2 GFA

It should be considered that while the above provide indicative rates for minimum parking provision, the nature of the PCYC development as a multi-purpose recreational facility are not fully captured. Notwithstanding, the above rates would indicate for parking provision of approximately 57 spaces.

To develop a more comprehensive understanding for the facility requirements in the contexts of the Port Macquarie project, a first principles assessment of the PCYC has been conducted to provide more sufficiently indicative parking demand, to determine the sufficiency of existing provisions.

Taking into consideration preliminary operational plans that are under development for the PCYC, Ason Group have undertaken a desktop assessment of existing facilities accounting for the proposed and anticipated operations of the Port Macquarie PCYC, as well as existing data from PCYC's Waitara facility, which demonstrates reasonable similarity in size and scale to the proposed Port Macquarie centre.

It has been considered that an agreement between the Hastings Secondary College and PCYC has occurred to allow the school dedicated use of PCYC facilities during scheduled school hours. Based on the most recent architectural plans, the primary attractors for parking demand are captured below.

Multipurpose Courts

A study of recreational facilities with accompanying multi-purpose courts (defined for the uses of indoor sports including but not limited to netball, basketball, futsal and volleyball) has determined that a single court facility typically requires between 9 and 20 spaces, dependent predominantly on proximity to public transport and nature of organised play. The broader study conducted by GTA consultants for a Netball Court development in Leichardt[2] typically demonstrated that within the metro area, an average of 10 spaces per court per game was expected.

It should be considered that parking demand for court usage typically increases during scheduled events, primarily organised local competitions. In this regard and in consideration for the locales' predominant reliance on private vehicles, as well as the anticipated scale of operations, a required provision of 15 parking spaces per court can be considered sufficient to meet anticipated demand.

Gymnastics Gymnasium

With reference to usage of the gymnastics gymnasium, PCYC indicates that the space is anticipated to accommodate a variety of gymnastics and similar class-based disciplines such as martial arts. It should be considered that in this regard, assessment of traffic demand cannot typically be indicatively captured, and is largely dependent on the timing and scheduling of classes, as well as class size.

An estimation of PCYC patron demands from the Waitara Site demonstrates that the gymnastics gymnasium is typically attended by 10 patrons per class. Assuming that two classes can concurrently take place at a time, a conservative rate of 1 parking space per attending patron indicates that 20 parking spaces is sufficient to meet anticipated demand, noting that the parking rate is likely lower in consideration of child 'drop-off' for classes and carpooling.

For the purposes of assessment, the Council DCP can similarly be adopted for their definition of 'recreational areas (general)' and would imply a minimum requirement of 30 spaces for the gymnasium.

Gym

The facility includes a gym (270 m^2) on the first level. While it is widely understood that gym facilities typically observed within the NSW greater metropolitan area are high generators of traffic and parking demand, reference should be made to the nature, size and exclusivity of the gym facilities for public use.

With reference to an updated study by Peopletrans of gymnasium facilities in NSW[3] to the RMS survey undertaken in 1993, it is recognised that the landscape has changed considerably. A cross-sectional

[2] GTA Consultants, Richard Murden Reserve Netball Courts, March 2018
[3] Peopletrans, Trip Generation and Parking Demand Surveys of Gymnasiums, November 2014

analysis of the report demonstrates that, generally, a peak parking accumulation of approximately 6 parking spaces per 100 m^2 of functional gym space (inclusive of equipment and class areas) was observed across the 5 surveyed sites.

In application of the PCYC gym facilities, this demonstrates a requirement of approximately 15 spaces to the Council DCP's requirement for 27 spaces, which reflects the RMS Guide surveys from 1993. As such, anticipated parking demand for the gym can indicatively be determined as 15 spaces.

Multipurpose Rooms

A total of 3 multi-purpose rooms are provided as part of the facility on the first level. The spaces are designated predominantly for community uses such as workshops, education rooms or hosting of courses. The multi-purpose rooms are also anticipated for one-off scheduled events, with flexibility to merge 2 of the rooms for a larger space.

The multipurpose rooms provide functionality for a broad range of activities. In the context of parking demand, reference is made to a first principles' assessment of the PCYC Waitara Site, which provides a sample schedule for the multipurpose room usage during typical weekdays.

The Waitara site features a larger multipurpose area for activities at 631 m^2, and facilitates up to 75 patrons in attendance of different classes during a typical weekday evening. This equates broadly to a patronage rate of approximately 12 patrons per 100 m^2 of Multipurpose area GFA.

Using this rate an indicative patronage generation for the Port Macquarie Facilities is calculated for approximately 38 patrons. Conservatively this indicates a parking demand for 38 spaces in considering that all patrons are driving to the facility.

Combined Parking Demand Requirements

In accordance with the above discussions, a total estimated parking demand is provided in **Table 17** below.

Table 17: Parking Demand Assessment

		Total Requirements	
PCYC Element	**Parking Requirements**	**Lower Margin**	**Higher Margin**
Multipurpose Courts (2)	15 spaces per court.	30	30
Gymnastics Gymnasium	20 to 30 spaces for attending classes.	20	30
Gym (270 m^2)	5.6 to 7.5 spaces per 100 m^2.	15	20

Multipurpose Rooms (3)	12 spaces per 100 m^2	38	38
	Total	**103**	**118**

Based on the above, it is noted that at maximum capacity, the PCYC is likely to require between 103 and 118 spaces under full occupation. However, reference is made in the RMS Guide for parking consideration on the basis of 85th percentile capacity usage. This is further supported on the following basis:

- The PCYC facility is unlikely to operate under full capacity as demonstrated in the first principles assessment on a common occurrence. It is more feasible that patronage to the site will vary widely – particularly for the scheduled class-based elements - pending community interest in activities being facilitated.
- In addition, parking demand is largely dependent on the concurrent scheduling and availability of space at the facility. To this effect, PCYC can readily mitigate any potential impacts to parking demands through effective management of the booking schedule, which is common practice for PCYC facilities across the NSW region.

Accounting for the above, parking demand is more rationally determined between 88 and 100 spaces during peak operational periods.

8.1.3 Parking Assessment

A total of 19 car spaces are proposed within the school boundary for the use of the PCYC site, with the balance of parking requirement based on existing on-street parking referenced in Section 5.2.4. The anticipated PCYC location is situated in proximity to both on-street parking options fronting the school.

With reference to the traffic survey footage recorded for the parking areas fronting the school, it should be considered that occupancy rates for the spaces sharply decline following from the end of school period at 14:15. This demonstrates that generally, outside of the school hours these sections of on-street parking become largely available for PCYC.

Fronting the PCYC facility, both the on and off-street parking facilities share occupancy for other venues in the locale, predominantly Port City Bowling Club north of the Site. While it is understood that the shared nature of the parking areas indicates combined demand, it should be considered that generally, the additional demands induced by the PCYC can still be accommodated for on the following basis:

- After school hours, the 58 spaces fronting the site largely becomes available for public use. Assuming a 20% occupancy during the afternoon peak accounting for the potential of residential use, this indicates approximately 46 spaces readily available for PCYC activities.
- North-west of the Site, the shared on and off-street parking arrangements combine for a total provision of 142 spaces. While these are predominantly allocated for shared land usage, it is envisaged that capacity for a further 43 spaces demand associated with the PCYC can be readily accommodated when considering a 70% occupancy rate reserved for Port City and neighbouring developments.
- In addition the above, the additional capacity of the public parking area east of the Campus provides a potential 44 spaces readily accessible and in proximity of the PCYC facility.

In consideration of the above, it can be considered that the availability of on-street and dedicated parking facilities in the locale is able to facilitate for the excess parking demand of the PCYC after school periods. Consultation with Council should be facilitated to ensure that the public parking in the locale is effectively managed as a community resource.

8.2 Parking Options Study

In the consultation undertaken with TfNSW on the 22nd February 2021, the improvement of the existing on-street parking was proposed in conjunction with the development team to respond to the following key points –

- To increase the capacity of on-street parking within the area, following TfNSW and Council's previous experience with parking constraints in the locale during specific, one-off events.
- To improve the safety of Owen Street – which is currently designated as a high pedestrianised zone – predominantly at the Campus' frontage.

A review found that Gordon Street and Church Street, between Owen Street and Lord Street have adequate roadway width that can accommodate a re-configuration of existing parallel on-street parking to accommodate angled parking which generate an additional 37 parking spaces within the immediate vicinity of the School and PCYC.

The figure below captures the proposed amended on-street parking option on Gordon Street and Church Street.

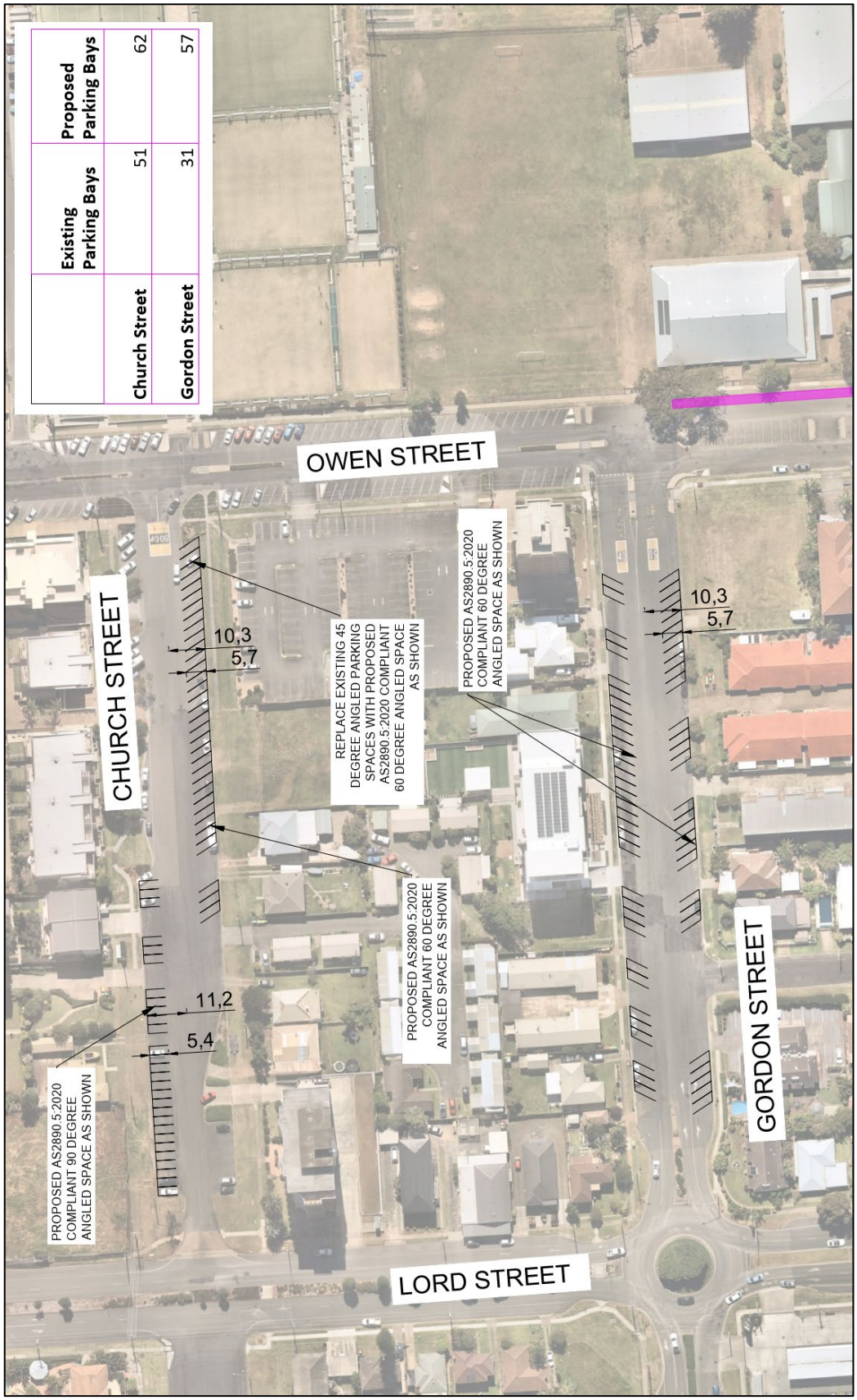


Figure 21: Proposed On-Street Parking Modifications – Gordon Street & Church Street

School Travel Plan

With regard for the overall parking demands for the Campus and PCYC, it should be considered that the STP document formulates strategies aimed to encourage modal shift towards public and active transport modes within the catchment and reduce dependency on private vehicle usage. With reference to parking demands for the PCYC it is envisioned that infrastructure improvements to pedestrian and cycling networks, as well as the provision of cycling amenities on-site will reduce private vehicle trips to the facility, and by extension parking demand.

8.3 Accessible Parking

The school currently provide no on-site accessible parking spaces. Based on the review undertaken, it is recommended that one on-street accessible parking space be provided to accommodate occasional demand for accessible parking, pick-up / drop-off within the immediate vicinity of the Owen Street main gate of the School. It is encouraged that the project teamwork with Council to delineate an existing on-street space for an accessible bay for school usage.

For the PCYC development, one accessible parking space is required in accordance with D3.5 of the National Construction Code 2019. In response, two are provided.

8.4 Bicycle Parking

It has been considered that the existing provision of bicycle parking and storage facilities on-site are insufficient to capture existing and future growth of cycling. With reference to the Austroads *Cycling Aspects of Austroads Guides*, provision rates for the existing and anticipated land uses on-site are provided below -

Table 18: Bicycle Parking Requirements

Land Use	Rate	Requirement
Educational Establishment	1 space per 5 students	152
Recreation Centre	1 space per 1,500 m^2 GFA	3
	Total	**155**

In addition to the above, adequate end-of-trip facilities are to be provided accompanying the bicycle parking spaces.

- One shower and changeroom is recommended to accommodate staff requirements.

Shower and changeroom requirements associated with student bicycle parking will be accommodated by the PCYC, given the exclusive school use during certain times of the day.

8.5 Transfer of Students

To safely accommodate transfer of students between campuses, a transfer area will be located on Owen street utilising the same area as the existing bus stops and maintained during school hours for this purpose.

8.6 Service Vehicles

While the requirement for service vehicles has not changed for the Campus, it should be considered that the access of loading operation and facilities will change from existing access via the main school gate to utilising the side-access on Burrawan Street following the completion of the construction works for the Site.

It is noted that whilst an on-site loading bay is available, the school canteen, and on some occasions when ambulances attend the school, they rely on the Owen Street main gate for access, whereby school staff assist with the management of pedestrians.

It is recommended that the kerbside un-restricted on-street parking spaces immediately south of the Owen Street main access of the school be converted to an on-street loading space to provide for occasional deliveries, as well as ambulance parking should the need arise.

Refer to the following **Figure 21** for proposed modifications to on-street parking.

The PCYC proposal requires bus parking sufficient to accommodate 2 commercial buses. It is acknowledged that these will likely be provided at the site frontage of Owen Street.

On this basis, consideration should be provided for the bus stopping zone fronting the Campus to be a 24/7 zone, from the currently existing zoning scheme that designates the area as a bus stop between 07:30 - 09:00 and 13:30 – 15:00. This will provide access to the bus stop not only for the school and inter-campus transfer, but additionally for the recreational facility, and presents an opportunity in the future for the location to serve as a bus stop to service public routes, improving accessibility for residents and developments in the wider locale.

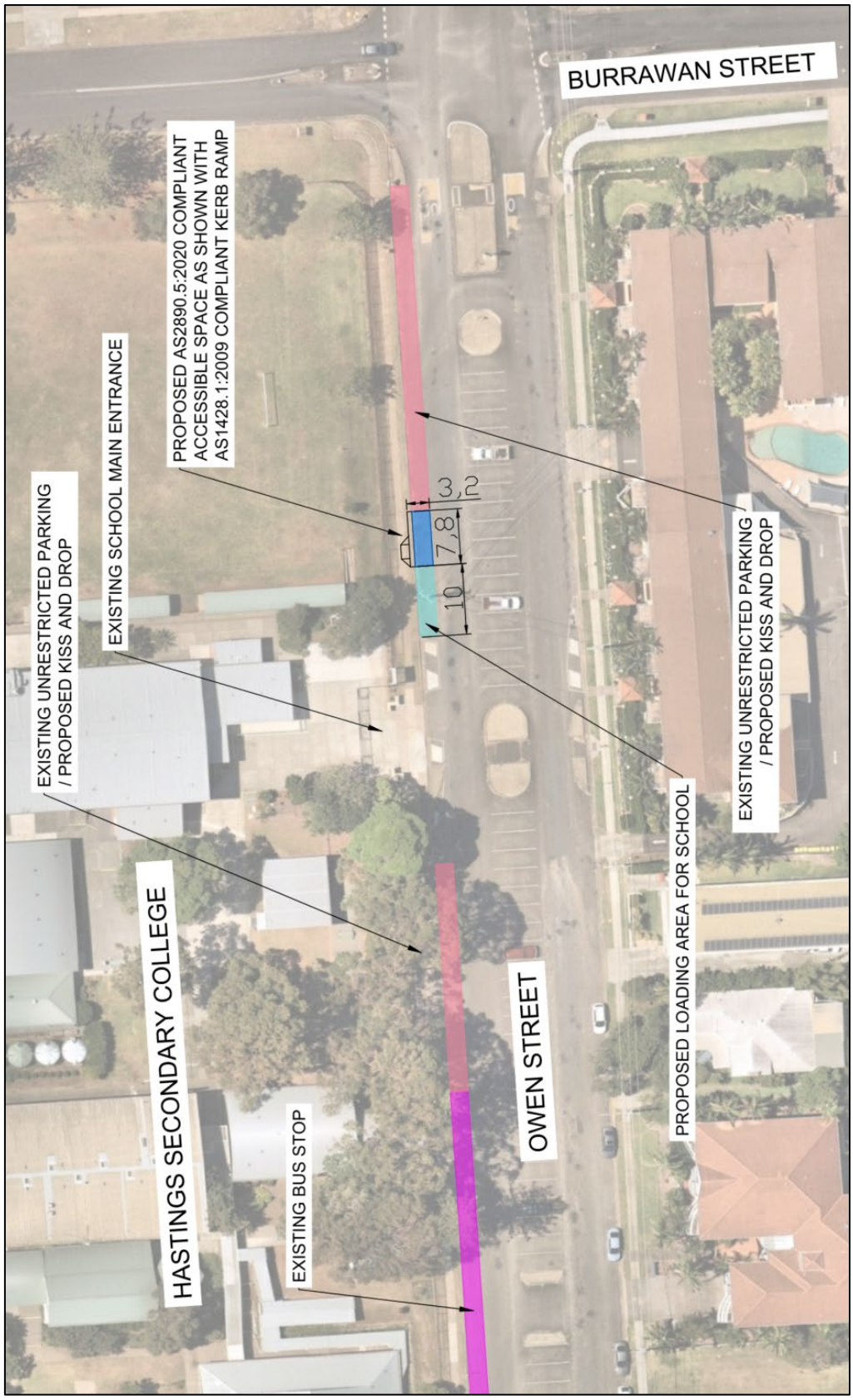


Figure 22: Proposed Modifications to On-street Parking – Owen Street, between Gordon Street and Burrawan Street

9 Preliminary Construction Traffic Management Plan

9.1 Overview

The proposed works forming part of this SSDA include the following:

- Demolition works to accommodate new works;
- Upgrade to school entry;
- Construction of new two (2) storey Creative and Performing Arts (CAPA) building;
- Construction of new Police Citizens Youth Club (PCYC);
- Partial refurbishment of Building L;
- Refurbishment and alteration to Building B;
- Removal of Building S and demountable buildings;
- New lift connections, covered outdoor learning area (COLA) and covered walkways;
- Associated earthworks, landscaping, stormwater works, service upgrades; and
- Tree removal/ tree safety works.

This Preliminary Construction Traffic Management Plan outlines principles that shall be adopted by the appointed contractors for the project and is subject to a detailed Construction Traffic Management Plan that forms part of a Construction Management Plan to be prepared and commissioned by the incumbent contractor.

9.2 Overall Principles of Construction Traffic Management

The overall principals of traffic management during construction activities include:

- Minimising the impact on pedestrian and cyclist safety and movements
- Maintaining appropriate public transport and school bus access
- Minimising the impact to existing traffic on adjacent roads and intersections
- Minimising the loss of on-street parking
- Maintaining access to / from adjacent properties
- Restricting construction vehicle movements to designated routes to / from the site
- Managing and controlling construction vehicle activity near the site

- Ensuring construction activity is carried out in accordance with Council's approved hours of work.

9.3 Contractor Parking

No on-site parking will be available to construction contractors due to the Port Macquarie Campus will continue to operate as a school campus throughout the construction programme.

The incumbent contractor will be required to ensure contractors working on the project are aware of no on-site parking being available, and any reliance on on-street parking shall comply with parking restrictions displayed.

Where required, the incumbent contractor may negotiate the partial use of the Bowling Club Car Park throughout the construction programme.

9.4 Proposed Work Hours

The construction work will vary depending on the phase of construction and associated activities. Construction works however will be undertaken during standard construction-working hours, with no deliveries allowed prior to the AM and PM school bell time as follows:

- Monday to Friday: 7.00AM to 6:00PM.
- No construction deliveries between 7:30am to 9:00am, and between 1:30pm to 3:00pm on school days.
- Saturday: 8.00AM to 5.00PM
- Sunday and Public holidays: No planned work.

It may (on occasions) be necessary to undertake night works to minimise disruption to traffic however any works undertaken outside of these times will only occur with prior approval from Council.

9.5 Staging and Duration

The construction program would generally consist of the following construction stages and duration:

- Stage 1: Site Establishment and Demolition, Duration: 1 month
- Stage 2: Construction, Duration: 13 months

It is noted during Stage 1, all vehicle entry and exit movements are to be in a forward direction only, with spoil to be loaded within the site and under the careful supervision of an authorised traffic controller.

Accordingly, supervision by an authorised traffic controller would also be required for the movements of vehicles that would cross the footpath during deliveries.

9.6 Worker Induction

All workers and subcontractors engaged on-site would be required to complete a site induction. The induction should include permitted access routes to and from the construction site for all vehicles, as well as standard environmental, work, health and safety (WHS), driver protocols and emergency procedures.

Any workers required to undertake works or traffic control within the public domain would be suitably trained and covered by adequate and appropriate insurances.

9.7 Authorised Traffic Controller

There is a requirement for an authorised traffic controllers to be present throughout the demolition, and construction stages of the project. The responsibilities include:

- Pedestrian and cyclist management, to ensure that adverse conflicts between vehicle movements and pedestrians do not occur.
- Supervision of all vehicle movements across pedestrian footpaths at all times, and
- Supervision of all loading and unloading of construction materials during the deliveries in the construction phase of the project.

Refer to **Appendix E** for a Draft Traffic Guidance Scheme for details of the proposed work zone, location of traffic controllers and associated traffic management measures.

9.8 Work Zone

A Work Zone will be required throughout the duration of the construction stage along the PCYC frontage of the school along Owen Street, between the site boundary and the intersection of Gordon Street and Owen Street. It is currently fronted by 60-degree angled, unrestricted spaces. Additional Work Zone along Owen Street, south of the existing main entry gate may be required. This will provide the capacity for construction vehicles to safely perform loading and unloading manoeuvres. This will have no material impact on the intersection performance as heavy construction vehicles access and deliveries are required to be scheduled outside of the peak periods and school pick-up / drop-off times. In this regard, construction activity during peak period will be limited to general vehicle movements and will not compromise the existing traffic performance.

Refer to Appendix E for a Draft Traffic Guidance Scheme for details of the proposed work zone and associated traffic management measures.

9.9 Construction Traffic Volumes

Construction traffic will generally incorporate:

- Vehicles up to the dimensions of a 12.5m Heavy Rigid Vehicle for removal of spoil and transportation of material.
- Concrete mixer trucks up to 12m in length.

Any oversize vehicles using local roads to access the site for would require additional Council and/or Transport for NSW approval.

The maximum number of trucks accessing the site is estimated to be between 4 to 12 trucks per hour, depending on the works undertaken and type of material required on-site.

It is anticipated that there will be an average of 20 – 40 workers on-site during peak construction activities. Workers will be advised that there is no on-site parking and encouraged to car pool, of travel to / from the site using public transport where practicable.

9.10 Site Access

Construction vehicles accessing the site are expected to travel in a forward-in and forward-out direction via the location generally aligned with the PCYC Access Driveway, or along the existing driveway along Burrawan Street.

Site access via the existing Main Pedestrian Entry Gate of the Port Macquarie campus is not available during school hours, and may only be used under the management of authorised traffic controllers.

9.11 Construction Mitigation Measures

Construction of the above development would generate a moderate increase in traffic on the surrounding road network. In this regard, the following measures should be undertaken to minimise the impacts of the construction activities of the development:

- A construction fence and Class A Hoarding will be provided along the Owen Street site boundaries to provide safe pedestrian access. The hoardings will consist of a combination of timber and chain wire fencing along the remaining site boundaries, that will be maintained for the duration of the construction program.

- Traffic control would be required to manage and regulate traffic movements into and out of the site during construction, with pedestrian priority provided during peak hour periods to maintain accessibility to public transport facilities.
- Disruption to road users would be kept to a minimum by scheduling intensive delivery activities outside of peak network hours.
- Supervised traffic control will be required where two-way flow is restricted over any length of the roadway, depending on the number of truck movements required and would be managed outside of peak hour vehicle and pedestrian activity.

9.12 Pedestrian and Cyclist Management

During construction, pedestrian movements will be maintained along the Main Street frontage of the site. It is expected that the hoarding is to be located as close as possible to the property boundary, maintaining maximum footpath width along the Main Street frontage of the site to minimise impact on pedestrian amenity.

Specifically, there will be no footpath closure along Owen Street during school term due to high volumes of pedestrian movements and safety considerations within the vicinity of an operational Port Macquarie Campus.

Construction hoarding / fencing will be provided around the perimeter of the site and shall be documented in the Project's Construction Management Plan.

Traffic controller(s) will be present at the site accesses to manage pedestrian and vehicular traffic to ensure public safety while construction vehicles enter and exit the site. Pedestrians will not be directed to use the other footpath by use of signage alone. Also, traffic controls would need to be in accordance with AS1742.3 and RMS 'Traffic Control at Worksites' manual at all times.

Should any unforeseen activities require the temporary closure of any existing pedestrian access, a TGS should be developed and implemented by the contractor to ensure a safe alternative for pedestrians traversing these routes in the vicinity of the site.

9.13 Truck Routes

It is proposed that construction vehicles enter and exit the Site via the routes shown in **Figure 23**. A copy of the truck route maps shall be provided to all drivers prior to attending the Site.

The access and egress routes are to be utilised by all construction vehicles associated with the Site and represents the shortest route between the local and regional road network – hence minimising the

impacts of the construction process. No trucks are to be queued on local roads. Mobile phones and two-way radios will be used to coordinate truck arrivals.

Figure 23: Construction Vehicle Route Map

10 Design Commentary

10.1 Relevant Design Standards

The site access, car park and loading has generally been designed to comply with the following relevant Australian Standards:

- AS2890.1 (2004) for car parking areas;
- AS2890.2 (2018) for commercial vehicle loading areas;
- AS2890.3 (2015) for bicycle parking
- AS2890.6 (2009) for accessible (disabled) parking.

A detailed review of the car park and related areas has been undertaken and the following characteristics are noteworthy:

- The access driveway is located along the northern end of the site. The access driveway is 7.8m wide, and will require the removal of 8 existing on-street, angled parking spaces along Owen Street, as per the assessment prepared and attached in Appendix B.
- The removal of on-street parking spaces is required due to Safe Intersection Sight Distance requirement of 78.5 metres, based on an existing operating speed of 40km/h applicable to Owen Street.
- The proposed parking area and access has been assessed using a Toyota Coaster (6.990 metres long), as well as B99 vehicles.
- The main car park aisle has been designed with a minimum clear width of 5.8m, meeting the aisle width requirements outlined in Figure 2.2 of AS2890.2.
- Staff parking spaces are designed in accordance with a User Class 2 and are provided with a minimum space length of 5.4m, a minimum width of 2.5m.
- All accessible parking spaces are provided in accordance with AS2890.6, which requires a space with a clear width of 2.4m, by 5.4m long and located adjacent to a minimum shared area of 2.4m wide by 5.4m long.

It is expected that any detailed construction drawings in relation to any modified areas of the car park or site access would comply with these Standards. Furthermore, compliance with the above Standards would be expected to form a standard condition of consent to any development approval.

10.2 Mini Bus Access and Parking

The parking area has been designed to accommodate 2 mini-buses in line with PCYC requirements. In this regard the following is considered noteworthy:

- The internal design of the parking area has been undertaken in accordance with the requirements of AS28090.2 for the maximum length vehicle accessing the site being a Small Rigid Vehicle of 6.4m in length, with a design height of 3.5m.
- A minimum clear head height of 3.5m is provided within all areas traversed by service vehicles.
- A minimum bay width of 3.5m by 6.4m length for minibus use. The line marking length shall be adjusted to suit the type of mini-buses that will be utilised by PCYC, given the length of mini buses can extend up to 7.7m in length.

Swept path analysis is provided on the plan attached at **Appendix G**, which demonstrate compliance with relevant sections of AS2890.2:2018.

11 Summary and Conclusions

11.1 Key Findings

Based on a comprehensive assessment of the traffic and transport related elements of the proposal, the key findings are outlined below.

- The Development relates to a series of upgrade and refurbishment works in the Hastings secondary College Port Macquarie Campus, aimed to support high-quality educational outcomes to meet the needs of students within the local community and deliver innovative learning and teaching spaces. The location forms part of the Port Macquarie-Hastings Council area and is subject to that Council's controls.
- A formal SEARs have been issued by DPIE relating to the State Significant Development Application for the Site. The Transport Assessment, Preliminary School Travel Plan and Preliminary Construction Traffic Management Plan are documents intended to address the Requirements relating to traffic and transport elements of the proposed works.
- The Campus is situated within a residential area, with connectivity to the public bus network and provides a degree of footpaths within the walking catchment area. An assessment of the school bus network generally indicates adequate servicing availability to the student population.
- A Campus Travel Survey undertaken by Ason Group on February 16th 2021 indicates that there is additional opportunity to cultivate a higher proportion of active travel modes (walking and cycling) for students within appropriate distance.
- An assessment of the survey indicates a high dependency on private vehicle ridership, primarily for staff and students during the AM period. However, the afternoon peak for students demonstrates increased bus modal travel. Throughout both periods, active travel modes vary between 18% and 22%.
- While the survey demonstrates high dependency on bus travel, the catchment assessment demonstrates that there is additional opportunity to capture a higher proportion of bus travel, particularly during the morning peak.
- Ason Group have undertaken traffic surveys for the locale at the two key intersections fronting the Campus to establish existing baseline performance of the surrounding road network. An assessment of the school peak periods (AM between 07:45 and 08:45, and PM between 14:00 and 15:00) as well as an indicative network peak (between 16:00 and 17:00) demonstrate that generally, traffic performance is satisfactory, demonstrating LoS A's for each assessed period.
- With regard to anticipated traffic uplift resultant from the intended works, it should be considered that the works associated with the Port Macquarie Campus are upgrades and refurbishment elements to existing facilities on-site which are unlikely to increase travel demand.

- The PCYC recreational facility is anticipated to induce increased travel demand to the locale outside of school hours. Accordingly, modelling has been undertaken for the PM network peak only, on the basis that the Hastings Campus has exclusive access to most of the facility during the day.
- The traffic assessment indicates and overall traffic generation of 104 vehicle trips during peak hour, based on a first principles assessment of existing PCYC facilities and operations; specifically, the PCYC Waitara site which demonstrates reasonable similarity in terms of venue offerings, scheduling, and scale.
- Accordingly, the network modelling demonstrates that both the Owen Street / Gordon Street intersection and the Owen Street / Burrawan Street intersections continue to operate satisfactorily at LoS A, demonstrating that both intersections have sufficient capacity for the increase to traffic of the locale.
- As part of the traffic assessment, 10-year post development modelling has additionally been undertaken. Based on the scenarios for 2031 and with the application of a conservative 2% growth rate, both intersections continue to perform satisfactorily at LoS A During school peak periods. During the afternoon peak period with the inclusion of PCYC traffic, both intersections continue to perform at LoS A.
- Therefore, it can be determined that the increase of traffic associated with works included as part of the SSDA are not anticipated to impact the road network, with the intersections exhibiting adequate capacity to provide for existing and future demands of the Site.
- Similar to the traffic assessment, parking demand from the school is not anticipated to change in line with the associated works of the SSDA. Notwithstanding, a parking demand assessment for the PCYC has been undertaken based on first principles application of the PCYC Waitara Facility. The study concluded that a provision of between 88 to 100 spaces is required to meet facility demands during peak occupation periods (indicating highest level of venues booked within the facility with largest class size).
- An assessment of the on-road and off-street public parking facilities concludes that, broadly, availability of parking can accommodate the PCYC.

11.2 Recommendations

While the existing intersections and background level of traffic can readily accommodate the perceived demands of the development, and the existing configuration and provision of on and off-street parking is anticipated to accommodate the recreational facility parking demands, it should be considered that additional recommendations accompanying the works have been recommended to support the intentions of the proposal and improve travel and accessibility conditions of the Campus catchment area. These include the following –

- Ason Group have identified several corridor upgrades in consideration of the catchment and school locale that are focussed to target improved accessibility for students, connectivity to the wider pedestrian and cycling networks and improved safety. The identified corridors in Figure 5 are recommended in the form of shared path configurations, providing off-road connectivity for both pedestrians and students commuting to school. Further detail is provided in Table below.

The identified corridors aim to support the outcomes of the School Travel Plan in encouraging modal shift towards active transport modes such as walking and cycling for the Campus population and intends to reduce dependency on private vehicles particularly for students within favourable walking and cycling proximity to the Campus.

- It has been considered that a degree of inter-campus movements between the Hastings Port Macquarie and Westport Campuses take place, predominantly by senior students attempting classes between the two. Currently, these movements occur intermittently throughout the day and are facilitated predominantly by chartered taxi services, or private vehicles driven by students. The existing movement patterns present an opportunity to consolidate the travel demand for inter-campus movements and reduce dependency on taxi services and private vehicle ridership.

With the introduction of the PCYC at Port Macquarie Campus, transfer movement arrangement is being investigated and expected to be detailed post SSDA in the revised School Travel Plan.

Investigations being undertaken involve considerations of regular bus movement between the two campuses, which is subject to detailed operational review with the Department of Education.

- That a Detailed Operations Plan be prepared for the PCYC taking into consideration peak school uses to ensure the PCYC operations do not result in significant increases to traffic and parking demand during peak periods on school days.
- The implementation of a zebra crossing at the school's frontage should be considered by Council to improve safety of the location for students, and to additionally support overall active transport goals for the Campus. While it is recognised that the Owen Street frontage has been designated by Council as a 'high pedestrianized zone' with reduced speed limits, in discussion with TfNSW an option to provide a zebra crossing was raised to improve the safety and nature of the existing crossing. Currently, the existing configuration of on-street parking through the central median of the carriageway reduces visibility between drivers and pedestrians crossing between parked vehicles.
- While the existing conditions do not satisfy a normal warrant for a zebra crossing, reference is made to the reduced warrant for crossings predominantly utilised by children. Based on preliminary survey results, traffic volumes during the AM are demonstrated to exceed the

reduced warrant threshold and as a response may provide the basis for re-examination at a future date.

- With reference to the preliminary meeting with TfNSW, a proposed option study re-evaluating the availability of on-street parking has been undertaken by Ason Group to demonstrate the potential to increase the capacity of on-street parking in the locale, as well as to provide a safer carriageway for pedestrians crossing the road fronting the school. Consideration should be provided to the undertaken study referred in section 8.2
- The existing bus stop location servicing the school to be implemented as a 24-hour bus stop zone. In turn, this will better facilitate the bus requirements of both the Campus and the proposed PCYC facility, with the option to provide for future serviceability to the public bus route network and improve accessibility for residents and developments in the locale.

11.3 Conclusions

In summary, the Proposal is supportable on traffic planning grounds and is not anticipated to result in any adverse impacts on the surrounding road network or the availability of on-street parking. Reference should be made to the abovementioned recommendations to support the existing infrastructure network, improve transport connectivity.

Appendix A

Existing SIDRA Analysis

MOVEMENT SUMMARY

Site: 102 [[Sc.1 AM] 2021 Base_Owen St x Burrawan St]

2021 Existing Configuration
2021 Baseline Traffic 0745-0845
Site Category: (None)
Giveway / Yield (Two-Way)

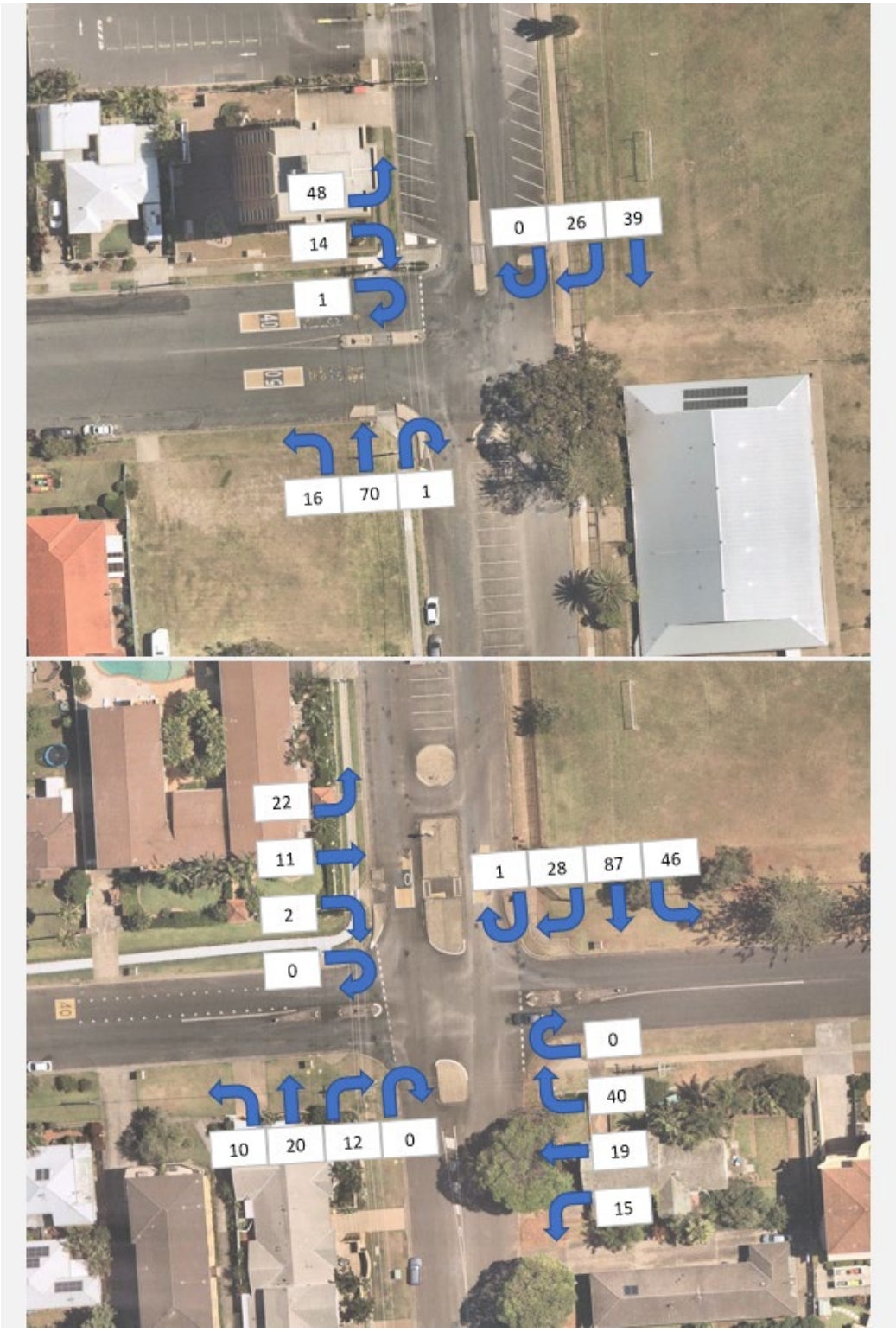
Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Owen Street (230m)												
1	L2	11	0.0	0.200	4.7	LOS A	1.1	7.5	0.11	0.26	0.11	46.0
2	T1	216	0.0	0.200	1.4	LOS A	1.1	7.5	0.11	0.26	0.11	42.3
3	R2	13	0.0	0.200	5.2	LOS A	1.1	7.5	0.11	0.26	0.11	47.4
Approach		239	0.0	0.200	1.8	NA	1.1	7.5	0.11	0.26	0.11	42.8
East: Burrawan Street (375m)												
4	L2	16	0.0	0.011	4.9	LOS A	0.0	0.3	0.22	0.50	0.22	43.9
5	T1	20	5.3	0.088	5.8	LOS A	0.3	2.2	0.47	0.67	0.47	42.6
6	R2	42	2.5	0.088	7.5	LOS A	0.3	2.2	0.47	0.67	0.47	40.3
Approach		78	2.7	0.088	6.5	LOS A	0.3	2.2	0.42	0.64	0.42	41.6
North: Owen Street (230m)												
7	L2	48	2.2	0.141	3.7	LOS A	0.7	5.0	0.10	0.22	0.10	43.2
8	T1	92	0.0	0.141	0.1	LOS A	0.7	5.0	0.10	0.22	0.10	43.2
9	R2	29	32.1	0.141	4.9	LOS A	0.7	5.0	0.10	0.22	0.10	41.1
9u	U	1	0.0	0.141	6.4	LOS A	0.7	5.0	0.10	0.22	0.10	38.2
Approach		171	6.2	0.141	2.0	NA	0.7	5.0	0.10	0.22	0.10	42.9
West: Burrawan Street (200m)												
10	L2	23	4.5	0.018	5.4	LOS A	0.1	0.5	0.33	0.53	0.33	38.4
11	T1	12	9.1	0.018	5.8	LOS A	0.1	0.5	0.45	0.58	0.45	43.4
12	R2	2	0.0	0.018	6.8	LOS A	0.1	0.5	0.45	0.58	0.45	41.4
Approach		37	5.7	0.018	5.6	LOS A	0.1	0.5	0.37	0.55	0.37	40.3
All Vehicles		524	2.8	0.200	2.8	NA	1.1	7.5	0.17	0.32	0.17	42.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

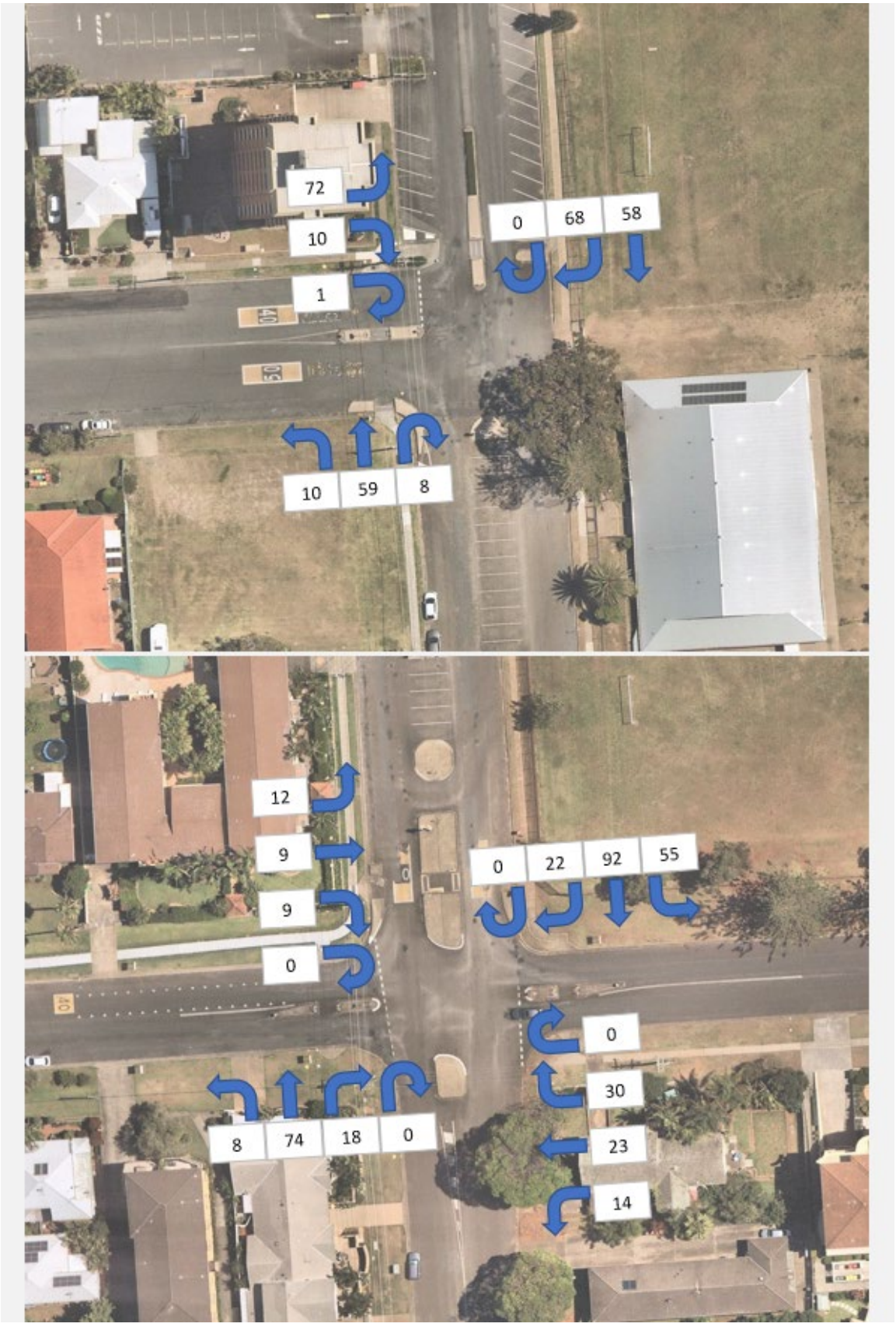
Appendix B

Existing Traffic Trip Distribution

2021 Baseline AM Peak



2021 Baseline School PM Peak



2021 Baseline Network PM Peak

Appendix C

PCYC Patronage Data

Cultural Exercise & Boxing

	DAY	MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY		SATURDAY		SUNDAY	
START	END	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd
8:00 AM	8:30 AM	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5
8:30 AM	9:00 AM	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5
9:00 AM	9:30 AM	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5
9:30 AM	10:00 AM	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5
10:00 AM	10:30 AM	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5
10:30 AM	11:00 AM	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5
11:00 AM	11:30 AM	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5
11:30 AM	12:00 PM	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5
12:00 PM	12:30 PM	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5
12:30 PM	1:00 PM	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5
1:00 PM	1:30 PM	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5
1:30 PM	2:00 PM	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5
2:00 PM	2:30 PM	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5
2:30 PM	3:00 PM	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5
3:00 PM	3:30 PM	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5
3:30 PM	4:00 PM	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5
4:00 PM	4:30 PM	Gym Fitness	5	Boxing	7	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5
4:30 PM	5:00 PM	Gym Fitness	5	Boxing	7	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5
5:00 PM	5:30 PM	Boxing	8	Boxing	7	Boxing	15	Boxing	10	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5
5:30 PM	6:00 PM	Boxing	8	Boxing	7	Boxing	15	Boxing	10	Gym Fitness	5	Gym Fitness	5	Gym Fitness	5
6:00 PM	6:30 PM	Boxing	8			Boxing	15	Boxing	10	Gym Fitness	10	Gym Fitness	5	Gym Fitness	5
6:30 PM	7:00 PM	Boxing	8	KickBoxing	20	Boxing	15	Boxing	10	Gym Fitness	10	Gym Fitness	5	Gym Fitness	5
7:00 PM	7:30 PM	Boxing	8	KickBoxing	20	Boxing	15	Boxing	10	Gym Fitness	10	Gym Fitness	5	Gym Fitness	5
7:30 PM	8:00 PM	Gym Fitness	10	KickBoxing	20	Boxing Fitness	10	Gym Fitness	10	Gym Fitness	10	Gym Fitness	5	Gym Fitness	5
8:00 PM	8:30 PM	Gym Fitness	10	Gym Fitness	10	Boxing Fitness	10	Gym Fitness	10	Gym Fitness	10	Gym Fitness	5	Gym Fitness	5
8:30 PM	9:00 PM	Gym Fitness	10	Gym Fitness	10			Gym Fitness	10	Gym Fitness	10	Gym Fitness	5	Gym Fitness	5
9:00 PM	9:30 PM	Gym Fitness	10	Gym Fitness	10			Gym Fitness	10	Gym Fitness	10	Gym Fitness	5	Gym Fitness	5
9:30 PM	10:00 PM														

Youth Hub

	DAY	MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY		SATURDAY		SUNDAY	
START	END	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd
8:00 AM	8:30 AM														
8:30 AM	9:00 AM														
9:00 AM	9:30 AM											Drop In Center	5	Drop In Center	5
9:30 AM	10:00 AM											Drop In Center	5	Drop In Center	5
10:00 AM	10:30 AM											Drop In Center	5	Drop In Center	5
10:30 AM	11:00 AM											Drop In Center	5	Drop In Center	5
11:00 AM	11:30 AM											Drop In Center	5	Drop In Center	5
11:30 AM	12:00 PM											Drop In Center	5	Drop In Center	5
12:00 PM	12:30 PM											Drop In Center	5	Drop In Center	5
12:30 PM	1:00 PM											Drop In Center	5	Drop In Center	5
1:00 PM	1:30 PM											Drop In Center	5	Drop In Center	5
1:30 PM	2:00 PM											Drop In Center	5	Drop In Center	5
2:00 PM	2:30 PM											Drop In Center	5	Drop In Center	5
2:30 PM	3:00 PM											Drop In Center	5	Drop In Center	5
3:00 PM	3:30 PM	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5
3:30 PM	4:00 PM	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5
4:00 PM	4:30 PM	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5
4:30 PM	5:00 PM	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5
5:00 PM	5:30 PM	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5
5:30 PM	6:00 PM	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5
6:00 PM	6:30 PM	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5
6:30 PM	7:00 PM	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5
7:00 PM	7:30 PM	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5
7:30 PM	8:00 PM	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5
8:00 PM	8:30 PM	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5
8:30 PM	9:00 PM	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5
9:00 PM	9:30 PM	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5	Drop In Center	5
9:30 PM	10:00 PM														

Gymnastics

	DAY	MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY		SATURDAY		SUNDAY	
START	END	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd
8:00 AM	8:30 AM														
8:30 AM	9:00 AM														
9:00 AM	9:30 AM											Gymnastics	10	Gymnastics	10
9:30 AM	10:00 AM											Gymnastics	10	Gymnastics	10
10:00 AM	10:30 AM											Gymnastics	10	Gymnastics	10
10:30 AM	11:00 AM											Gymnastics	10	Gymnastics	10
11:00 AM	11:30 AM											Gymnastics	10	Gymnastics	10
11:30 AM	12:00 PM											Gymnastics	10	Gymnastics	10
12:00 PM	12:30 PM											Gymnastics	10	Gymnastics	10
12:30 PM	1:00 PM											Gymnastics	10	Gymnastics	10
1:00 PM	1:30 PM											Gymnastics	10	Gymnastics	10
1:30 PM	2:00 PM											Gymnastics	10	Gymnastics	10
2:00 PM	2:30 PM											Gymnastics	10	Gymnastics	10
2:30 PM	3:00 PM											Gymnastics	10	Gymnastics	10
3:00 PM	3:30 PM											Gymnastics	10	Gymnastics	10
3:30 PM	4:00 PM											Gymnastics	10	Gymnastics	10
4:00 PM	4:30 PM	Gymnastics	10	Gymnastics	10	Gymnastics	10	Gymnastics	10	Gymnastics	10	Gymnastics	10	Gymnastics	10
4:30 PM	5:00 PM	Gymnastics	10	Gymnastics	10	Gymnastics	10	Gymnastics	10	Gymnastics	10	Gymnastics	10	Gymnastics	10
5:00 PM	5:30 PM	Gymnastics	10	Gymnastics	10	Gymnastics	10	Gymnastics	10	Gymnastics	10	Gymnastics	10	Gymnastics	10
5:30 PM	6:00 PM	Gymnastics	10	Gymnastics	10	Gymnastics	10	Gymnastics	10	Gymnastics	10				
6:00 PM	6:30 PM	Gymnastics	10	Gymnastics	10	Gymnastics	10	Gymnastics	10	Gymnastics	10				
6:30 PM	7:00 PM	Gymnastics	10	Gymnastics	10	Gymnastics	10	Gymnastics	10	Gymnastics	10				
7:00 PM	7:30 PM	Gymnastics	5	Gymnastics	5	Gymnastics	5	Gymnastics	5	Gymnastics	5				
7:30 PM	8:00 PM	Gymnastics	5	Gymnastics	5	Gymnastics	5	Gymnastics	5	Gymnastics	5				
8:00 PM	8:30 PM	Gymnastics	5	Gymnastics	5	Gymnastics	5	Gymnastics	5	Gymnastics	5				
8:30 PM	9:00 PM	Gymnastics	5	Gymnastics	5	Gymnastics	5	Gymnastics	5	Gymnastics	5				
9:00 PM	9:30 PM														
9:30 PM	10:00 PM														

Creche

	DAY	MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY		SATURDAY		SUNDAY	
START	END	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd
8:00 AM	8:30 AM														
8:30 AM	9:00 AM														
9:00 AM	9:30 AM											Weekend care	5	Weekend care	5
9:30 AM	10:00 AM											Weekend care	5	Weekend care	5
10:00 AM	10:30 AM											Weekend care	5	Weekend care	5
10:30 AM	11:00 AM											Weekend care	5	Weekend care	5
11:00 AM	11:30 AM											Weekend care	5	Weekend care	5
11:30 AM	12:00 PM											Weekend care	5	Weekend care	5
12:00 PM	12:30 PM											Weekend care	5	Weekend care	5
12:30 PM	1:00 PM											Weekend care	5	Weekend care	5
1:00 PM	1:30 PM											Weekend care	5	Weekend care	5
1:30 PM	2:00 PM											Weekend care	5	Weekend care	5
2:00 PM	2:30 PM											Weekend care	5	Weekend care	5
2:30 PM	3:00 PM	After School Care	5	After School Care	5	After School Care	5	After School Care	5	After School Care	5	Weekend care	5	Weekend care	5
3:00 PM	3:30 PM	After School Care	5	After School Care	5	After School Care	5	After School Care	5	After School Care	5	Weekend care	5	Weekend care	5
3:30 PM	4:00 PM	After School Care	5	After School Care	5	After School Care	5	After School Care	5	After School Care	5	Weekend care	5	Weekend care	5
4:00 PM	4:30 PM	After School Care	5	After School Care	5	After School Care	5	After School Care	5	After School Care	5	Weekend care	5	Weekend care	5
4:30 PM	5:00 PM	After School Care	5	After School Care	5	After School Care	5	After School Care	5	After School Care	5	Weekend care	5	Weekend care	5
5:00 PM	5:30 PM	After School Care	5	After School Care	5	After School Care	5	After School Care	5	After School Care	5				
5:30 PM	6:00 PM	After School Care	5	After School Care	5	After School Care	5	After School Care	5	After School Care	5				
6:00 PM	6:30 PM	After School Care	5	After School Care	5	After School Care	5	After School Care	5	After School Care	5				
6:30 PM	7:00 PM														
7:00 PM	7:30 PM														
7:30 PM	8:00 PM														
8:00 PM	8:30 PM														
8:30 PM	9:00 PM														
9:00 PM	9:30 PM														
9:30 PM	10:00 PM														

Main Hall Court 1

	DAY	MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY		SATURDAY	
START	END	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd
8:00 AM	8:30 AM												
8:30 AM	9:00 AM											HYPE Aerobics	12
9:00 AM	9:30 AM											HYPE Aerobics	12
9:30 AM	10:00 AM											HYPE Aerobics	12
10:00 AM	10:30 AM	Ready Steady Go	5									HYPE Aerobics	12
10:30 AM	11:00 AM	Ready Steady Go	5									HYPE Aerobics	12
11:00 AM	11:30 AM											HYPE Aerobics	12
11:30 AM	12:00 PM												
12:00 PM	12:30 PM												
12:30 PM	1:00 PM					Badminton (ABH)	20						
1:00 PM	1:30 PM					Badminton (ABH)	20	Badminton (CHS)	45				
1:30 PM	2:00 PM					Badminton (ABH)	20	Badminton (CHS)	45				
2:00 PM	2:30 PM					Badminton (ABH)	20	Badminton (CHS)	45				
2:30 PM	3:00 PM												
3:00 PM	3:30 PM												
3:30 PM	4:00 PM	Badminton (HGH)	20										
4:00 PM	4:30 PM	Badminton (HGH)	20			Futsal (U/12)	6			Futsal (U/8)	12	Badminton	
4:30 PM	5:00 PM					Futsal (U/12)	6			Futsal (U/8)	12	Badminton	
5:00 PM	5:30 PM	Basketball (HBA)	10	Basketball (HBA)	12	Futsal (U/12)	6	HYPE Aerobics	12	Futsal (U/8)	12	Badminton	
5:30 PM	6:00 PM	Basketball (HBA)	10	Basketball (HBA)	12	Futsal (U/12)	6	HYPE Aerobics	12	Futsal (U/10)	12	Badminton	
6:00 PM	6:30 PM	Basketball (HBA)	10	Basketball (HBA)	12	Handicapped Soccer	8	HYPE Aerobics	12	Futsal (U/10)	12	Badminton	
6:30 PM	7:00 PM			Basketball (HBA)	12	Handicapped Soccer	8	Futsal (U/16)	12	Sydney Basketball Aca	8	Badminton	
7:00 PM	7:30 PM	Futsal (Open Pre'ship)	12	Basketball (HBA)	12	Futsal (Open Pre'ship)	12	Futsal (U/16)	12	Sydney Basketball Aca	8	Badminton (Biong)	20
7:30 PM	8:00 PM	Futsal (Open Pre'ship)	12	Badminton (Gomez)	30	Futsal (Open Pre'ship)	12	Futsal (Open Ch'ship)	12	Sydney Basketball Aca	8	Badminton (Biong)	20
8:00 PM	8:30 PM	Futsal (Open Pre'ship)	12	Badminton (Gomez)	30	Futsal (Open Pre'ship)	12	Futsal (Open Ch'ship)	12	Badminton (Gomez)	30	Badminton (Biong)	20
8:30 PM	9:00 PM	Futsal (Open Pre'ship)	12	Badminton (Gomez)	30	Futsal (Open Pre'ship)	12	Futsal (Open Ch'ship)	12	Badminton (Gomez)	30	Badminton (Biong)	20
9:00 PM	9:30 PM	Futsal (Open Pre'ship)	12	Badminton (Gomez)	30	Futsal (Open Pre'ship)	12			Badminton (Gomez)	30	Badminton (Biong)	20
9:30 PM	10:00 PM			Badminton (Gomez)	30					Badminton (Gomez)	30		
10.00 PM	10:30 PM			Badminton (Gomez)	30					Badminton (Gomez)	30		

Main Hall Court 2

	DAY	MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY		SATURDAY		SUNDAY	
START	END	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd
8:00 AM	8:30 AM														
8:30 AM	9:00 AM														
9:00 AM	9:30 AM														
9:30 AM	10:00 AM											Drop in Basketball	6	Drop in Basketball	6
10:00 AM	10:30 AM											Drop in Basketball	6	Drop in Basketball	6
10:30 AM	11:00 AM											Drop in Basketball	6	Drop in Basketball	6
11:00 AM	11:30 AM											Drop in Basketball	6	Drop in Basketball	6
11:30 AM	12:00 PM											Drop in Basketball	6	Drop in Basketball	6
12:00 PM	12:30 PM											Drop in Basketball	6	Drop in Basketball	6
12:30 PM	1:00 PM											Drop in Basketball	6	Drop in Basketball	6
1:00 PM	1:30 PM											Drop in Basketball	6	Drop in Basketball	6
1:30 PM	2:00 PM											Drop in Basketball	6	Drop in Basketball	6
2:00 PM	2:30 PM											Drop in Basketball	6	Drop in Basketball	6
2:30 PM	3:00 PM											Drop in Basketball	6	Drop in Basketball	6
3:00 PM	3:30 PM											Drop in Basketball	6	Drop in Basketball	6
3:30 PM	4:00 PM											Drop in Basketball	6	Drop in Basketball	6
4:00 PM	4:30 PM					Futsal (U/12)	6			Futsal (U/8)	12				
4:30 PM	5:00 PM					Futsal (U/12)	6			Futsal (U/8)	12				
5:00 PM	5:30 PM	Basketball (HBA)	10	Basketball (HBA)	12	Futsal (U/12)	6	Futsal (U/16)	12	Futsal (U/8)	12				
5:30 PM	6:00 PM	Basketball (HBA)	10	Basketball (HBA)	12	Futsal (U/12)	6	Futsal (U/16)	12	Futsal (U/10)	12				
6:00 PM	6:30 PM	Basketball (HBA)	10	Basketball (HBA)	12	Handicapped Soccer	8	Futsal (U/16)	12	Futsal (U/10)	12				
6:30 PM	7:00 PM			Basketball (HBA)	12	Handicapped Soccer	8	Futsal (U/16)	12	Sydney Basketball Aca	8				
7:00 PM	7:30 PM	Futsal (Open Pre'ship)	12	Basketball (HBA)	12	Futsal (Open Pre'ship)	12	Futsal (U/16)	12	Sydney Basketball Aca	8	Badminton (Biong)	20		
7:30 PM	8:00 PM	Futsal (Open Pre'ship)	12	Badminton (Gomez)	30	Futsal (Open Pre'ship)	12	Futsal (Open Ch'ship)	12	Sydney Basketball Aca	8	Badminton (Biong)	20		
8:00 PM	8:30 PM	Futsal (Open Pre'ship)	12	Badminton (Gomez)	30	Futsal (Open Pre'ship)	12	Futsal (Open Ch'ship)	12	Badminton (Gomez)	30	Badminton (Biong)	20		
8:30 PM	9:00 PM	Futsal (Open Pre'ship)	12	Badminton (Gomez)	30	Futsal (Open Pre'ship)	12	Futsal (Open Ch'ship)	12	Badminton (Gomez)	30	Badminton (Biong)	20		
9:00 PM	9:30 PM	Futsal (Open Pre'ship)	12	Badminton (Gomez)	30	Futsal (Open Pre'ship)	12			Badminton (Gomez)	30	Badminton (Biong)	20		
9:30 PM	10:00 PM			Badminton (Gomez)	30					Badminton (Gomez)	30				
10.00 PM	10:30 PM			Badminton (Gomez)	30					Badminton (Gomez)	30				

Multi-Purpose Room 1

	DAY	MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY		SATURDAY		SUNDAY	
START	END	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd
8:00 AM	8:30 AM														
8:30 AM	9:00 AM														
9:00 AM	9:30 AM														
9:30 AM	10:00 AM											Social Play T/Tennis	2		
10:00 AM	10:30 AM	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2			Social Play T/Tennis	2	Social Play T/Tennis	2		
10:30 AM	11:00 AM	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2			Social Play T/Tennis	2	Social Play T/Tennis	2		
11:00 AM	11:30 AM	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2			Social Play T/Tennis	2	Social Play T/Tennis	2		
11:30 AM	12:00 PM	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2			Social Play T/Tennis	2	Social Play T/Tennis	2		
12:00 PM	12:30 PM	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2			Social Play T/Tennis	2	Social Play T/Tennis	2		
12:30 PM	1:00 PM	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2			Social Play T/Tennis	2	Social Play T/Tennis	2		
1:00 PM	1:30 PM	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	T/Tennis (CHS)	45	Social Play T/Tennis	2	Social Play T/Tennis	2		
1:30 PM	2:00 PM	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	T/Tennis (CHS)	45	Social Play T/Tennis	2	Social Play T/Tennis	2	T/Tennis Coaching	30
2:00 PM	2:30 PM	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	T/Tennis (CHS)	45	Social Play T/Tennis	2	Social Play T/Tennis	2	T/Tennis Coaching	30
2:30 PM	3:00 PM	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	T/Tennis Coaching	30
3:00 PM	3:30 PM	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	T/Tennis Coaching	30
3:30 PM	4:00 PM	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	T/Tennis Coaching	30
4:00 PM	4:30 PM	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	T/Tennis Coaching	30
4:30 PM	5:00 PM	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	T/Tennis Coaching	30
5:00 PM	5:30 PM	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	T/Tennis Coaching	30
5:30 PM	6:00 PM	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	T/Tennis Coaching	30
6:00 PM	6:30 PM	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	Social Play T/Tennis	2	T/Tennis Coaching	30
6:30 PM	7:00 PM	T/Tennis Coaching	20	Social Play T/Tennis	2	T/Tennis Coaching	30	Social Play T/Tennis	2	T/Tennis Coaching	20	Social Play T/Tennis	2	T/Tennis Coaching	30
7:00 PM	7:30 PM	T/Tennis Coaching	20	Social Play T/Tennis	2	T/Tennis Coaching	30	Social Play T/Tennis	2	T/Tennis Coaching	20	Social Play T/Tennis	2	T/Tennis Coaching	30
7:30 PM	8:00 PM	T/Tennis Coaching	20	Social Play T/Tennis	2	T/Tennis Coaching	30	Social Play T/Tennis	2	T/Tennis Coaching	20			T/Tennis Coaching	30
8:00 PM	8:30 PM	T/Tennis Coaching	20	Social Play T/Tennis	2	T/Tennis Coaching	30	Social Play T/Tennis	2	T/Tennis Coaching	20			T/Tennis Coaching	30
8:30 PM	9:00 PM	T/Tennis Coaching	20	Social Play T/Tennis	2	T/Tennis Coaching	30	Social Play T/Tennis	2	T/Tennis Coaching	20			T/Tennis Coaching	30
9:00 PM	9:30 PM	T/Tennis Coaching	20	Social Play T/Tennis	2	T/Tennis Coaching	30			T/Tennis Coaching	20			T/Tennis Coaching	30
9:30 PM	10:00 PM	T/Tennis Coaching	20	Social Play T/Tennis	2	T/Tennis Coaching	30			T/Tennis Coaching	20			T/Tennis Coaching	30

Multi-Purpose Room 2

	DAY	MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY		SATURDAY	
START	END	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd
8:00 AM	8:30 AM											Industry Dance	10
8:30 AM	9:00 AM											Industry Dance	10
9:00 AM	9:30 AM											Industry Dance	10
9:30 AM	10:00 AM											Industry Dance	10
10:00 AM	10:30 AM			Senior Dancing	5							Industry Dance	10
10:30 AM	11:00 AM			Senior Dancing	5							Industry Dance	10
11:00 AM	11:30 AM											Industry Dance	10
11:30 AM	12:00 PM											Industry Dance	10
12:00 PM	12:30 PM											Industry Dance	10
12:30 PM	1:00 PM											Industry Dance	10
1:00 PM	1:30 PM											Industry Dance	10
1:30 PM	2:00 PM											Industry Dance	10
2:00 PM	2:30 PM											Industry Dance	10
2:30 PM	3:00 PM											Industry Dance	10
3:00 PM	3:30 PM												
3:30 PM	4:00 PM												
4:00 PM	4:30 PM	Industry Dance	10										
4:30 PM	5:00 PM	Industry Dance	10	Industry Dance	10	Industry Dance	10	HYPE Aerobics	10				
5:00 PM	5:30 PM	Industry Dance	10	Industry Dance	10	Industry Dance	10						
5:30 PM	6:00 PM	Industry Dance	10	Industry Dance	10								
6:00 PM	6:30 PM	Industry Dance	10	Industry Dance	10								
6:30 PM	7:00 PM	Industry Dance	10	Industry Dance	10								
7:00 PM	7:30 PM			Industry Dance	10	Icon Gymsports	15			Senior Dancing	5		
7:30 PM	8:00 PM			Industry Dance	10	Icon Gymsports	15			Senior Dancing	5		
8:00 PM	8:30 PM			Industry Dance	10	Icon Gymsports	15						
8:30 PM	9:00 PM					Icon Gymsports	15						
9:00 PM	9:30 PM					Icon Gymsports	15						
9:30 PM	10:00 PM												

Multi-Purpose Room 3

	DAY	MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY	
START	END	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd
8:00 AM	8:30 AM										
8:30 AM	9:00 AM										
9:00 AM	9:30 AM	Chinese Comty	20							Chinese Comty	20
9:30 AM	10:00 AM	Chinese Comty	20							Chinese Comty	20
10:00 AM	10:30 AM	Chinese Comty	20							Chinese Comty	20
10:30 AM	11:00 AM	Chinese Comty	20							Chinese Comty	20
11:00 AM	11:30 AM	Chinese Comty	20							Chinese Comty	20
11:30 AM	12:00 PM	Chinese Comty	20							Chinese Comty	20
12:00 PM	12:30 PM										
12:30 PM	1:00 PM										
1:00 PM	1:30 PM										
1:30 PM	2:00 PM										
2:00 PM	2:30 PM										
2:30 PM	3:00 PM										
3:00 PM	3:30 PM										
3:30 PM	4:00 PM										
4:00 PM	4:30 PM							SDC	8		
4:30 PM	5:00 PM							SDC	8		
5:00 PM	5:30 PM							SDC	8		
5:30 PM	6:00 PM							SDC	8		
6:00 PM	6:30 PM							SDC	8		
6:30 PM	7:00 PM							SDC	8		
7:00 PM	7:30 PM			TOIP	30	TOIP	30	SDC	8		
7:30 PM	8:00 PM			TOIP	30	TOIP	30				
8:00 PM	8:30 PM			TOIP	30	TOIP	30				
8:30 PM	9:00 PM			TOIP	30	TOIP	30				
9:00 PM	9:30 PM										
9:30 PM	10:00 PM										

Multi-Purpose Room 4

	DAY	MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY		SATURDAY	
START	END	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd	ACTIVITY	Attd
8:00 AM	8:30 AM												
8:30 AM	9:00 AM												
9:00 AM	9:30 AM												
9:30 AM	10:00 AM												
10:00 AM	10:30 AM												
10:30 AM	11:00 AM												
11:00 AM	11:30 AM												
11:30 AM	12:00 PM												
12:00 PM	12:30 PM												
12:30 PM	1:00 PM												
1:00 PM	1:30 PM												
1:30 PM	2:00 PM												
2:00 PM	2:30 PM											Chinese Kung Fu	8
2:30 PM	3:00 PM											Chinese Kung Fu	8
3:00 PM	3:30 PM												
3:30 PM	4:00 PM												
4:00 PM	4:30 PM												
4:30 PM	5:00 PM												
5:00 PM	5:30 PM												
5:30 PM	6:00 PM	Jnr Wrestling	5							Jnr Wrestling	5		
6:00 PM	6:30 PM	Jnr Wrestling	5			Judo	6	Aikido	8	Jnr Wrestling	5		
6:30 PM	7:00 PM	Wrestling	10			Judo	6	Aikido	8	Wrestling	10		
7:00 PM	7:30 PM	Wrestling	10	Jishukan	10	Judo	5	Aikido	3	Wrestling	10		
7:30 PM	8:00 PM	Wrestling	10	Jishukan	10	Judo	5	Aikido	3	Wrestling	10		
8:00 PM	8:30 PM	Wrestling	10	Jishukan	10	Judo	5	Aikido	3	Wrestling	10		
8:30 PM	9:00 PM			Jishukan	10					Wrestling	10		
9:00 PM	9:30 PM												
9:30 PM	10:00 PM												

Appendix D

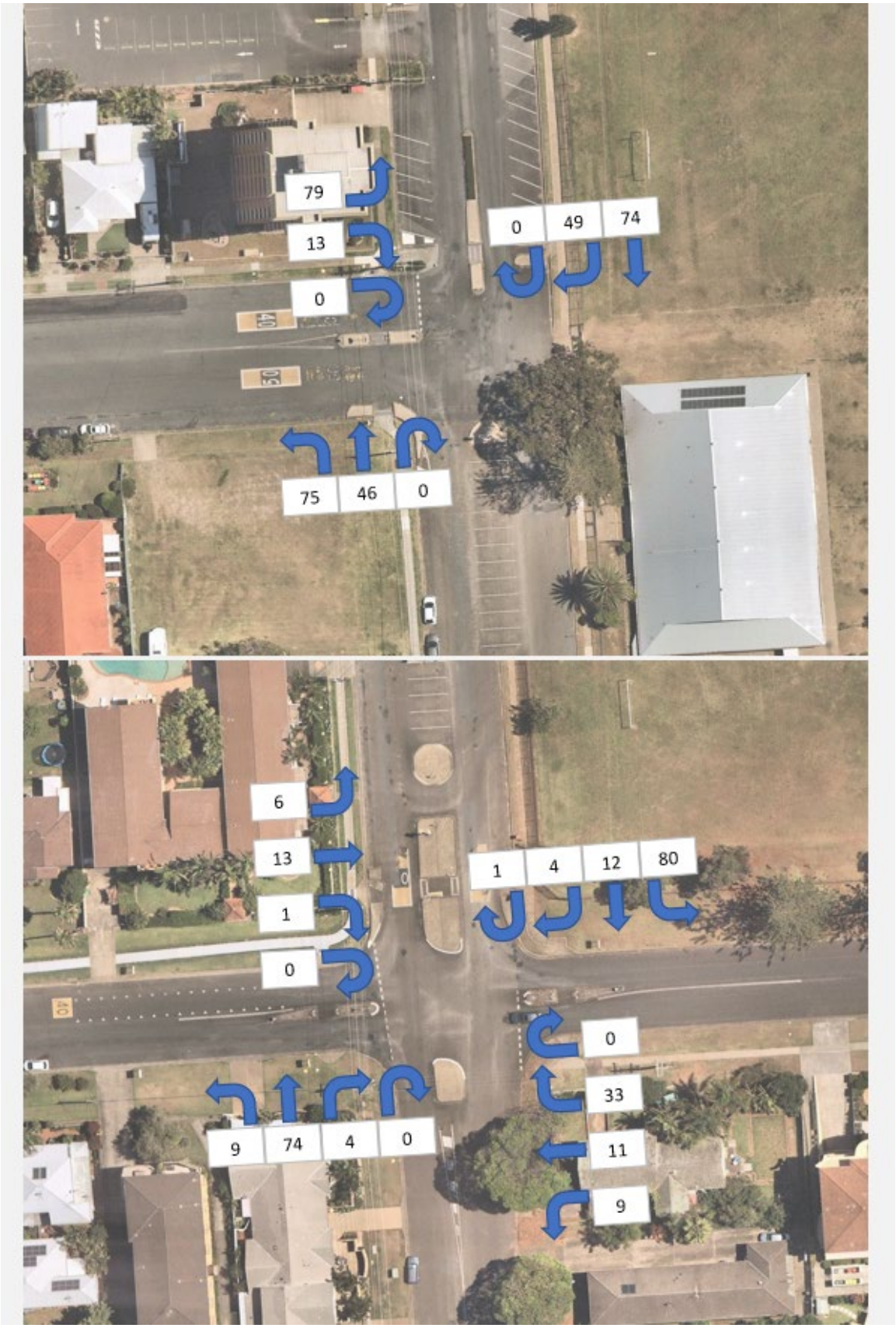
Future Traffic Trip Distribution

2021 Baseline Network PM Peak + PCYC Facility

2031 AM Peak

2031 School PM Peak

2031 Network PM Peak + PCYC Facility



Appendix E

Future SIDRA Analysis

MOVEMENT SUMMARY

Site: 102 [[Sc.2 PM] 2021 PCYC_Owen St x Burrawan St 1600-1700]

2021 Existing Configuration
2021 Baseline Traffic 1600-1700 + PCYC Traffic
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Owen Street (230m)												
1	L2	7	0.0	0.063	4.6	LOS A	0.3	2.1	0.04	0.26	0.04	46.2
2	T1	66	1.6	0.063	1.3	LOS A	0.3	2.1	0.04	0.26	0.04	42.5
3	R2	3	0.0	0.063	5.2	LOS A	0.3	2.1	0.04	0.26	0.04	47.5
Approach		77	1.4	0.063	1.8	NA	0.3	2.1	0.04	0.26	0.04	43.1
East: Burrawan Street (375m)												
4	L2	7	0.0	0.005	4.9	LOS A	0.0	0.1	0.21	0.49	0.21	44.0
5	T1	9	0.0	0.043	4.4	LOS A	0.1	1.0	0.32	0.55	0.32	43.8
6	R2	29	0.0	0.043	5.8	LOS A	0.1	1.0	0.32	0.55	0.32	41.3
Approach		46	0.0	0.043	5.4	LOS A	0.1	1.0	0.31	0.54	0.31	42.2
North: Owen Street (230m)												
7	L2	72	0.0	0.144	3.5	LOS A	0.7	5.0	0.05	0.19	0.05	43.4
8	T1	108	1.0	0.144	0.0	LOS A	0.7	5.0	0.05	0.19	0.05	43.5
9	R2	4	0.0	0.144	3.6	LOS A	0.7	5.0	0.05	0.19	0.05	41.6
Approach		184	0.6	0.144	1.5	NA	0.7	5.0	0.05	0.19	0.05	43.4
West: Burrawan Street (200m)												
10	L2	5	0.0	0.003	4.8	LOS A	0.0	0.1	0.16	0.49	0.16	39.0
11	T1	12	0.0	0.013	4.5	LOS A	0.0	0.3	0.33	0.49	0.33	44.5
12	R2	1	0.0	0.013	5.5	LOS A	0.0	0.3	0.33	0.49	0.33	42.5
Approach		18	0.0	0.013	4.6	LOS A	0.0	0.3	0.28	0.49	0.28	42.9
All Vehicles		325	0.6	0.144	2.3	NA	0.7	5.0	0.10	0.27	0.10	43.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [[Sc.2 PM] 2021 PCYC_Owen St x Gordon St 1600-1700]

2021 Existing Configuration
2021 Baseline Traffic 1600-1700 + PCYC Traffic
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Owen Street (230m)												
1	L2	67	1.6	0.084	3.5	LOS A	0.4	2.6	0.09	0.29	0.09	40.4
2	T1	41	0.0	0.084	0.1	LOS A	0.4	2.6	0.09	0.29	0.09	37.2
3u	U	1	0.0	0.084	5.1	LOS A	0.4	2.6	0.09	0.29	0.09	37.6
Approach		109	1.0	0.084	2.2	NA	0.4	2.6	0.09	0.29	0.09	39.2
North: Owen Street (125m)												
8	T1	66	1.6	0.083	0.1	LOS A	0.4	2.8	0.09	0.18	0.09	38.1
9	R2	42	0.0	0.083	3.7	LOS A	0.4	2.8	0.09	0.18	0.09	42.4
Approach		108	1.0	0.083	1.5	NA	0.4	2.8	0.09	0.18	0.09	39.6
West: Gordon Street (200m)												
10	L2	68	3.1	0.045	4.8	LOS A	0.2	1.3	0.16	0.50	0.16	38.7
12	R2	116	0.0	0.109	5.3	LOS A	0.4	2.6	0.28	0.54	0.28	39.3
12u	U	1	0.0	0.109	6.4	LOS A	0.4	2.6	0.28	0.54	0.28	41.7
Approach		185	1.1	0.109	5.1	LOS A	0.4	2.6	0.24	0.53	0.24	39.1
All Vehicles		403	1.0	0.109	3.4	NA	0.4	2.8	0.16	0.37	0.16	39.3

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 102 [[Sc.3a AM] 2031 Growth_Owen St x Burrawan St]

2021 Existing Configuration
2031 Baseline Traffic (2% Growth) + School Traffic
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Owen Street (230m)												
1	L2	13	0.0	0.220	4.7	LOS A	1.2	8.5	0.11	0.26	0.11	46.0
2	T1	235	0.0	0.220	1.4	LOS A	1.2	8.5	0.11	0.26	0.11	42.3
3	R2	16	0.0	0.220	5.3	LOS A	1.2	8.5	0.11	0.26	0.11	47.3
Approach		263	0.0	0.220	1.8	NA	1.2	8.5	0.11	0.26	0.11	42.8
East: Burrawan Street (375m)												
4	L2	19	0.0	0.013	5.0	LOS A	0.1	0.4	0.23	0.50	0.23	43.9
5	T1	24	4.3	0.104	6.1	LOS A	0.4	2.5	0.49	0.70	0.49	42.3
6	R2	45	2.3	0.104	7.9	LOS A	0.4	2.5	0.49	0.70	0.49	40.1
Approach		88	2.4	0.104	6.8	LOS A	0.4	2.5	0.44	0.66	0.44	41.4
North: Owen Street (230m)												
7	L2	55	1.9	0.160	3.7	LOS A	0.8	5.8	0.10	0.23	0.10	43.2
8	T1	103	0.0	0.160	0.1	LOS A	0.8	5.8	0.10	0.23	0.10	43.2
9	R2	34	34.4	0.160	5.1	LOS A	0.8	5.8	0.10	0.23	0.10	41.1
9u	U	1	0.0	0.160	6.6	LOS A	0.8	5.8	0.10	0.23	0.10	38.2
Approach		193	6.6	0.160	2.0	NA	0.8	5.8	0.10	0.23	0.10	42.8
West: Burrawan Street (200m)												
10	L2	25	4.2	0.020	5.5	LOS A	0.1	0.6	0.34	0.54	0.34	38.3
11	T1	14	7.7	0.022	6.1	LOS A	0.1	0.5	0.47	0.60	0.47	43.2
12	R2	2	0.0	0.022	7.2	LOS A	0.1	0.5	0.47	0.60	0.47	41.1
Approach		41	5.1	0.022	5.8	LOS A	0.1	0.6	0.39	0.56	0.39	40.2
All Vehicles		585	2.9	0.220	2.9	NA	1.2	8.5	0.17	0.33	0.17	42.4

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [[Sc.3a AM] 2031 Growth_Owen St x Gordon St]

2021 Existing Configuration
2031 Baseline Traffic (2% Growth) + School Traffic
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Owen Street (230m)												
1	L2	201	3.1	0.217	3.5	LOS A	1.1	7.8	0.11	0.32	0.11	40.0
2	T1	83	0.0	0.217	0.2	LOS A	1.1	7.8	0.11	0.32	0.11	36.9
3u	U	1	100.0	0.217	5.9	LOS A	1.1	7.8	0.11	0.32	0.11	37.0
Approach		285	2.6	0.217	2.6	NA	1.1	7.8	0.11	0.32	0.11	39.1
North: Owen Street (125m)												
8	T1	44	4.8	0.064	0.1	LOS A	0.3	2.1	0.08	0.21	0.08	37.8
9	R2	34	0.0	0.064	4.3	LOS A	0.3	2.1	0.08	0.21	0.08	42.0
Approach		78	2.7	0.064	1.9	NA	0.3	2.1	0.08	0.21	0.08	39.4
West: Gordon Street (200m)												
10	L2	61	1.7	0.041	4.9	LOS A	0.2	1.2	0.20	0.50	0.20	38.5
12	R2	168	8.1	0.179	5.9	LOS A	0.6	4.8	0.36	0.60	0.36	38.9
12u	U	1	0.0	0.179	6.7	LOS A	0.6	4.8	0.36	0.60	0.36	41.3
Approach		231	6.4	0.179	5.7	LOS A	0.6	4.8	0.32	0.57	0.32	38.8
All Vehicles		594	4.1	0.217	3.7	NA	1.1	7.8	0.19	0.40	0.19	39.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 102 [[Sc.3a PM] 2031 Growth_Owen St x Burrawan St 1400-1500]

2021 Existing Configuration
2031 Baseline Traffic 1400-1500 (2% Growth) + School Traffic
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Owen Street (230m)												
1	L2	11	0.0	0.104	4.6	LOS A	0.5	3.6	0.06	0.31	0.06	45.5
2	T1	92	5.7	0.104	1.4	LOS A	0.5	3.6	0.06	0.31	0.06	41.9
3	R2	23	0.0	0.104	5.5	LOS A	0.5	3.6	0.06	0.31	0.06	47.0
Approach		125	4.2	0.104	2.4	NA	0.5	3.6	0.06	0.31	0.06	43.3
East: Burrawan Street (375m)												
4	L2	18	0.0	0.013	5.2	LOS A	0.1	0.4	0.29	0.51	0.29	43.7
5	T1	29	17.9	0.089	5.9	LOS A	0.3	2.3	0.45	0.65	0.45	42.7
6	R2	37	0.0	0.089	7.1	LOS A	0.3	2.3	0.45	0.65	0.45	40.6
Approach		84	6.3	0.089	6.2	LOS A	0.3	2.3	0.41	0.62	0.41	41.9
North: Owen Street (230m)												
7	L2	64	3.3	0.162	3.9	LOS A	0.8	6.0	0.08	0.22	0.08	43.3
8	T1	107	2.0	0.162	0.1	LOS A	0.8	6.0	0.08	0.22	0.08	43.4
9	R2	25	50.0	0.162	4.3	LOS A	0.8	6.0	0.08	0.22	0.08	41.1
Approach		197	8.6	0.162	1.9	NA	0.8	6.0	0.08	0.22	0.08	43.1
West: Burrawan Street (200m)												
10	L2	15	0.0	0.010	4.9	LOS A	0.0	0.3	0.21	0.49	0.21	38.9
11	T1	12	9.1	0.029	5.7	LOS A	0.1	0.7	0.40	0.58	0.40	43.4
12	R2	12	0.0	0.029	6.2	LOS A	0.1	0.7	0.40	0.58	0.40	41.4
Approach		38	2.8	0.029	5.5	LOS A	0.1	0.7	0.33	0.55	0.33	41.1
All Vehicles		444	6.4	0.162	3.2	NA	0.8	6.0	0.16	0.35	0.16	42.7

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [[Sc.3a PM] 2031 Growth_Owen St x Gordon St 1400-1500]

2021 Existing Configuration
2031 Baseline Traffic 1400-1500 (2% Growth) + School Traffic
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Owen Street (230m)												
1	L2	126	1.7	0.159	3.5	LOS A	0.8	5.4	0.10	0.31	0.10	40.1
2	T1	68	3.1	0.159	0.2	LOS A	0.8	5.4	0.10	0.31	0.10	36.9
3u	U	11	0.0	0.159	5.2	LOS A	0.8	5.4	0.10	0.31	0.10	37.4
Approach		205	2.1	0.159	2.5	NA	0.8	5.4	0.10	0.31	0.10	38.9
North: Owen Street (125m)												
8	T1	72	1.5	0.122	0.2	LOS A	0.6	4.2	0.11	0.26	0.11	37.5
9	R2	86	2.4	0.122	4.1	LOS A	0.6	4.2	0.11	0.26	0.11	41.5
Approach		158	2.0	0.122	2.3	NA	0.6	4.2	0.11	0.26	0.11	39.5
West: Gordon Street (200m)												
10	L2	92	2.3	0.062	4.9	LOS A	0.3	1.8	0.19	0.50	0.19	38.6
12	R2	133	11.1	0.149	6.2	LOS A	0.5	3.9	0.38	0.61	0.38	38.8
12u	U	1	0.0	0.149	6.7	LOS A	0.5	3.9	0.38	0.61	0.38	41.2
Approach		225	7.5	0.149	5.6	LOS A	0.5	3.9	0.30	0.57	0.30	38.7
All Vehicles		588	4.1	0.159	3.6	NA	0.8	5.4	0.18	0.40	0.18	39.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 102 [[Sc.3b PM] 2031 Growth_Owen St x Burrawan St 1600-1700]

2021 Existing Configuration
2031 Baseline Traffic 1600-1700 (2% Growth) + PCYC Traffic
Site Category: (None)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Owen Street (230m)												
1	L2	9	0.0	0.075	4.6	LOS A	0.4	2.5	0.04	0.27	0.04	46.2
2	T1	78	1.4	0.075	1.3	LOS A	0.4	2.5	0.04	0.27	0.04	42.5
3	R2	4	0.0	0.075	5.3	LOS A	0.4	2.5	0.04	0.27	0.04	47.5
Approach		92	1.1	0.075	1.8	NA	0.4	2.5	0.04	0.27	0.04	43.1
East: Burrawan Street (375m)												
4	L2	9	0.0	0.007	5.0	LOS A	0.0	0.2	0.23	0.49	0.23	43.9
5	T1	12	0.0	0.053	4.6	LOS A	0.2	1.3	0.36	0.57	0.36	43.7
6	R2	35	0.0	0.053	6.1	LOS A	0.2	1.3	0.36	0.57	0.36	41.2
Approach		56	0.0	0.053	5.6	LOS A	0.2	1.3	0.33	0.56	0.33	42.1
North: Owen Street (230m)												
7	L2	84	0.0	0.170	3.5	LOS A	0.9	6.0	0.06	0.19	0.06	43.4
8	T1	128	0.8	0.170	0.0	LOS A	0.9	6.0	0.06	0.19	0.06	43.5
9	R2	4	0.0	0.170	3.7	LOS A	0.9	6.0	0.06	0.19	0.06	41.6
Approach		217	0.5	0.170	1.4	NA	0.9	6.0	0.06	0.19	0.06	43.4
West: Burrawan Street (200m)												
10	L2	6	0.0	0.004	4.8	LOS A	0.0	0.1	0.17	0.49	0.17	39.0
11	T1	14	0.0	0.015	4.7	LOS A	0.1	0.4	0.36	0.51	0.36	44.4
12	R2	1	0.0	0.015	5.8	LOS A	0.1	0.4	0.36	0.51	0.36	42.4
Approach		21	0.0	0.015	4.8	LOS A	0.1	0.4	0.31	0.51	0.31	42.8
All Vehicles		385	0.5	0.170	2.3	NA	0.9	6.0	0.11	0.28	0.11	43.1

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 101 [[Sc.3b PM] 2031 Growth_Owen St x Gordon St 1600-1700]

2021 Existing Configuration
2031 Baseline Traffic 1600-1700 (2% Growth) + PCYC Traffic
Site Category: (None)
Giveway / Yield (Two-Way)

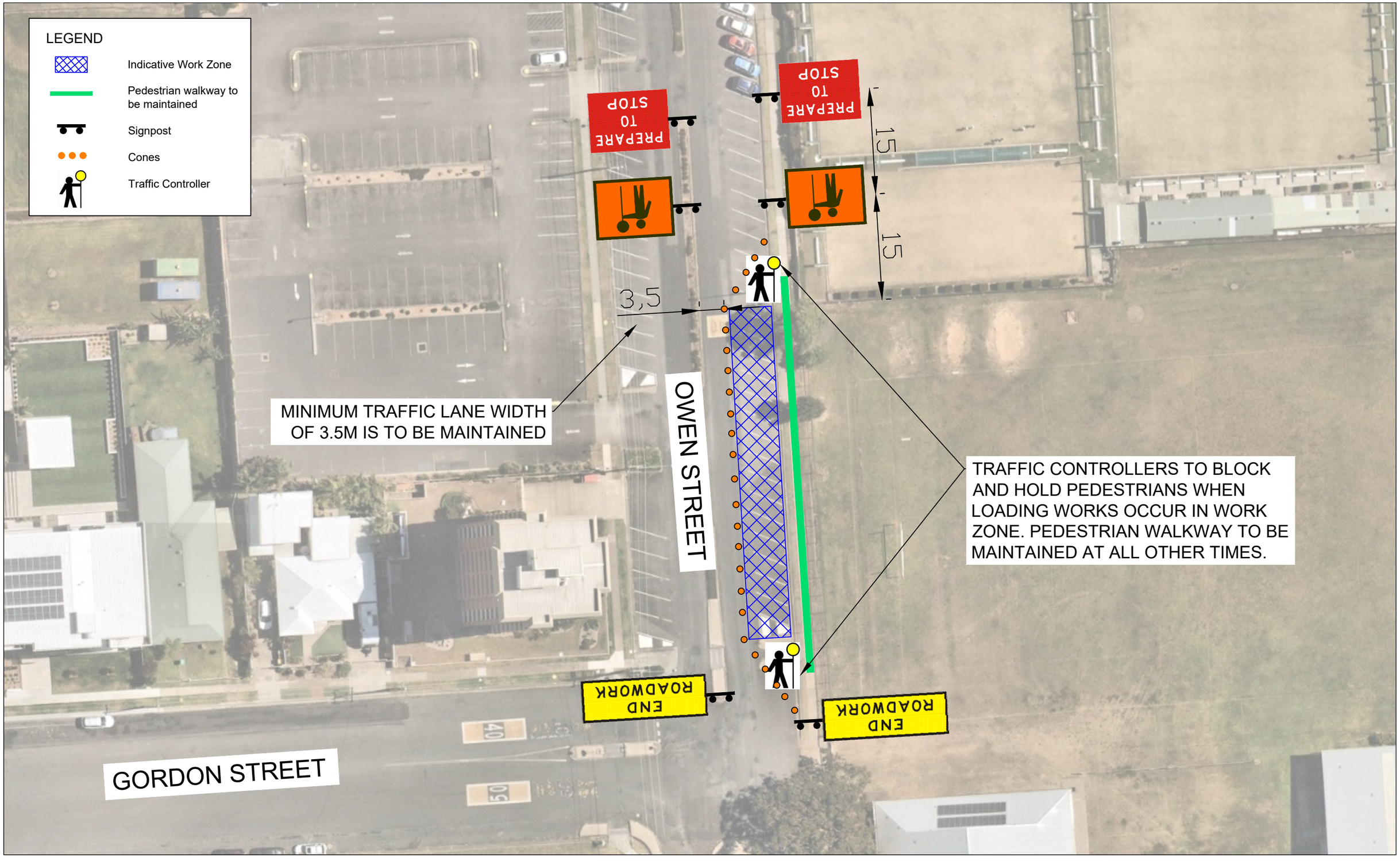
Movement Performance - Vehicles

Mov ID	Turn	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate	Aver. No. Cycles	Average Speed km/h
South: Owen Street (230m)												
1	L2	79	1.3	0.099	3.5	LOS A	0.4	3.1	0.09	0.29	0.09	40.4
2	T1	48	0.0	0.099	0.1	LOS A	0.4	3.1	0.09	0.29	0.09	37.2
3u	U	1	0.0	0.099	5.2	LOS A	0.4	3.1	0.09	0.29	0.09	37.6
Approach		128	0.8	0.099	2.2	NA	0.4	3.1	0.09	0.29	0.09	39.2
North: Owen Street (125m)												
8	T1	78	1.4	0.100	0.1	LOS A	0.5	3.4	0.09	0.19	0.09	38.1
9	R2	52	0.0	0.100	3.8	LOS A	0.5	3.4	0.09	0.19	0.09	42.4
Approach		129	0.8	0.100	1.6	NA	0.5	3.4	0.09	0.19	0.09	39.6
West: Gordon Street (200m)												
10	L2	83	2.5	0.055	4.8	LOS A	0.2	1.6	0.17	0.50	0.17	38.7
12	R2	137	0.0	0.132	5.5	LOS A	0.5	3.2	0.31	0.56	0.31	39.1
12u	U	1	0.0	0.132	6.5	LOS A	0.5	3.2	0.31	0.56	0.31	41.6
Approach		221	1.0	0.132	5.2	LOS A	0.5	3.2	0.26	0.54	0.26	39.0
All Vehicles		479	0.9	0.132	3.5	NA	0.5	3.4	0.17	0.38	0.17	39.2

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Appendix F

Traffic Guidance Scheme



NOTES

- All public roads (i.e. all roads except for the 'Mews' will have a speed limit of 50km/h
- Not all dimensions shown are to scale
- Location of signs are to be confirmed on-site to ensure appropriate visibility
- All signs are to be minimum size A
- All signs are to be Class 1 retroreflective
- All traffic control plans are to be implemented in accordance with TfNSW's Traffic Control at Work Sites Technical Manual Issue 6 (released 2020) and Australian Standards AS1742.3:2019 Manual of Uniform Traffic Control Devices, Part 3: Traffic Control Devices for Works on Roads
- This Traffic Control Plan must be set up by a person holding an "Implement Traffic Management Plan" ticket and TfNSW's Traffic Control at Work Sites checklist shall be completed prior to implementation
- The accredited personnel shall implement the approved TCP before any physical work commences and ensure a copy of the TCP is kept on-site. The accredited personnel shall also drive through the site before works begin to ensure that the TCP has been implemented correctly and that the it will warn, instruct and guide road users as designed. Any variations to the plan must be marked on the plan and initialed by the accredited personnel
- It is the responsibility of the an accredited personnel with a 'Prepare a Work Zone Traffic Management Plan' to ensure the following:
  * The integrity of all traffic control measure through to the final removal. This includes daily checks of all signs and devices. The corresponding records of checks shall be kept on file for auditing purposes.
  * Vehicular access and servicing requirements are to be maintained at all times to adjacent properties affected by traffic control measures
  * At all times an up-to-date copy of "Traffic Control at Work Sites" shall be available for reference and implementation as required on-site
- All workers will be confined to the dedicated works area shown on the plan
- If the worksite is left unattended it is the contractor's duty to ensure that the appropriate measures are taken to provide a safe environment for vehicles and pedestrians to relevant Australian Standards
- Traffic controller (T1-34) and Prepare to Stop (T1-18) signs are to be covered or removed when traffic controller/s are not on site.
- All signage is to be clean, clearly visible and not obscured
- All workers must adhere to the applicable safe work distance as described in AS1742.3:2019
All distances between signs are to be in accordance with Section 2.5.2 of AS1742.3:2019. However, modifications can be made to suit site conditions
- If required, a TGS must be selected, developed and implemented by a suitability qualified person (PWZTMP and ITCP qualifications)

Document Info:
Drawn by: Alan Tan
File name: AG1600-06-v1.dwg

Client:
CURRIE & BROWN

Project:
1600
HASTINGS SECONDARY COLLEGE

Drawing Title:
TRAFFIC CONTROL PLAN

Date:
8-Apr-21

Scale @ A3:
1:500

Drawing Number:
01

asongroup

Designer: DORA CHOI
Ticket No.: 0051848825

Appendix G

Swept Path Assessment

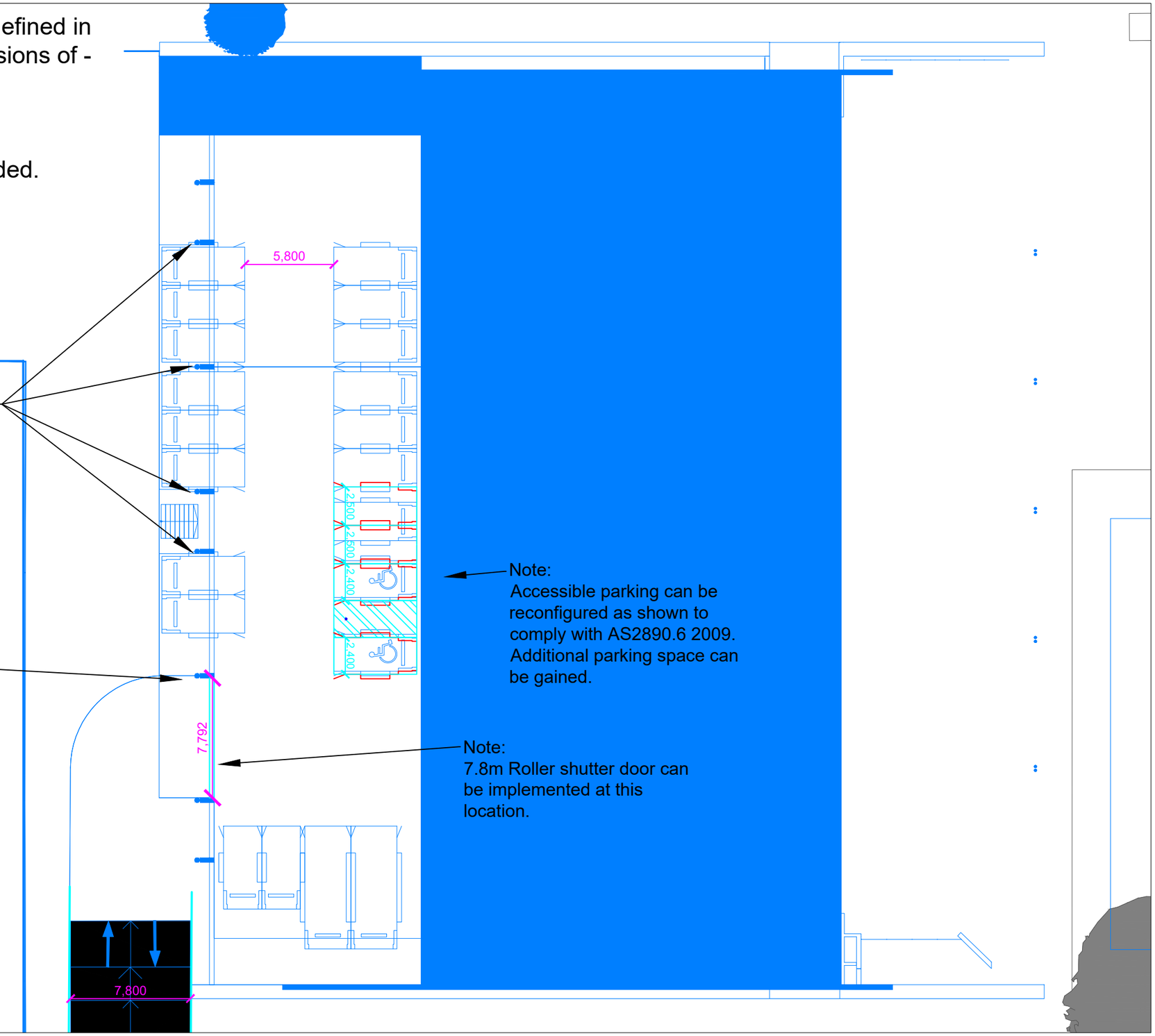
Parking has been assessed as User Class 2 as defined in AS2890.1 (2004). This requires minimum dimensions of -
- 2.5m x 5.4m for parking spaces; and
- minimum aisle width of 5.8m.

Minimum headway clearance of 3.2m to be provided.

Issue:
Column locations impact parking envelope of adjacent spaces.

Resolution:
Shift row of columns eastwards or westwards (relative to page) out of parking envelope.

Note:
Convex or dome mirror recommended at this location to improve visibility around corner.



Note:
Accessible parking can be reconfigured as shown to comply with AS2890.6 2009. Additional parking space can be gained.

Note:
7.8m Roller shutter door can be implemented at this location.

Revision notes:

Rev:	Date:	Notes:
r01	19/03/21	SSDA-202000 [01] Overall Plan- Lower Ground Floor North PCYC

For information purposes only - not for construction

Drawn By: M TANGONAN

Client: SI NSW

Project: P1600 Hastings Secondary College Port Macquarie Campus

Drawing Title: PCYC Parking -

Date: 25-Mar-21

Scale @ A3: [scale]

Drawing Number: AG00

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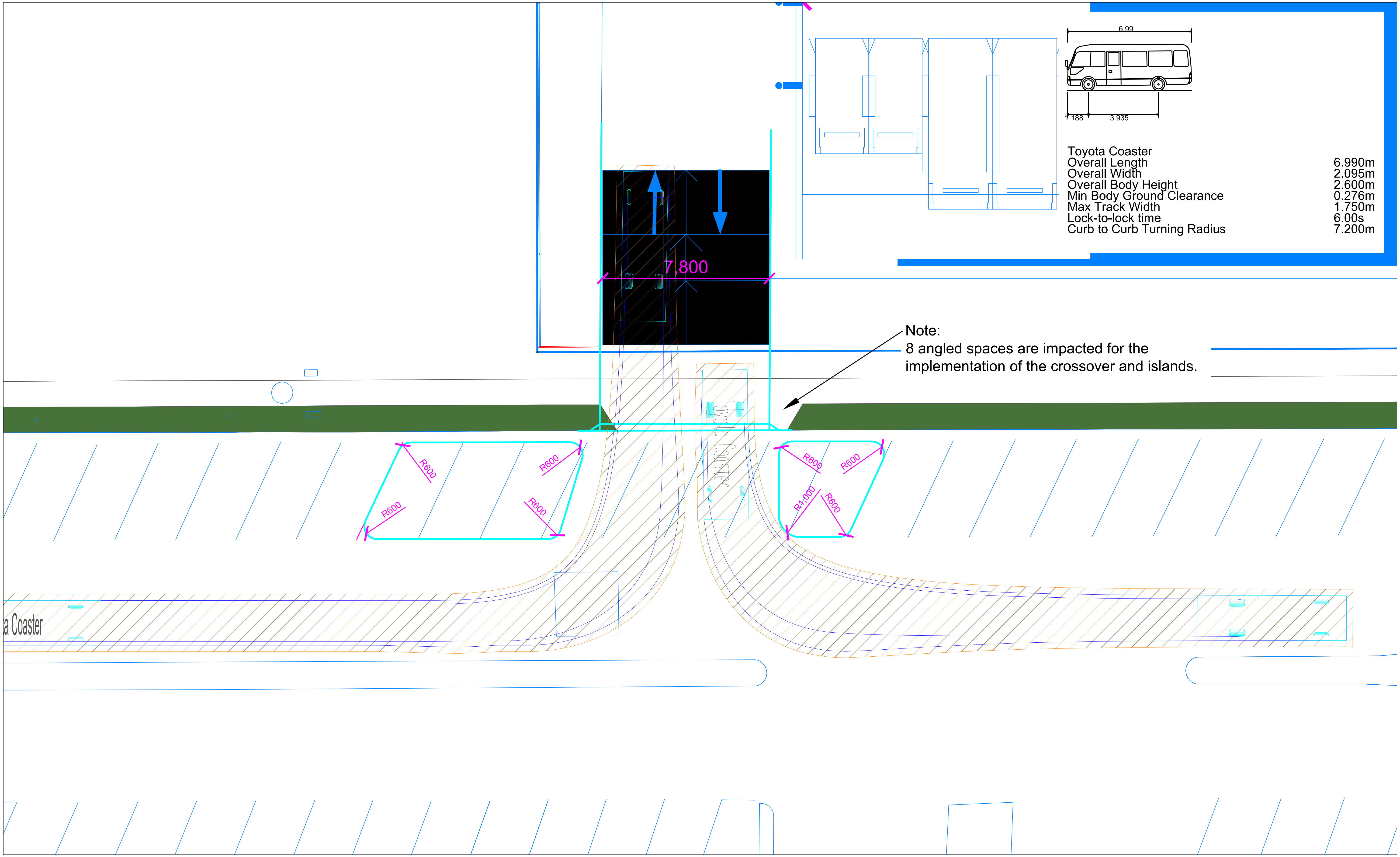
Suite 5.02, Level 5, 1 Castlereagh Street
Sydney NSW 2000
info@asongroup.com.au



Revision notes:

Rev:	Date:	Notes:
r01	19/03/21	SSDA-202000 [01] Overall Plan- Lower Ground Floor North PCYC

For information purposes only - not for construction

Drawn By:
M TANGONAN

Client:
SI NSW

Project:
P1600
Hastings Secondary College Port Macquarie Campus

Drawing Title:
PCYC Crossover
Toyota Van Vehicle

Date:
25-Mar-21

Scale @ A3:
[scale]

Drawing Number:
AG01

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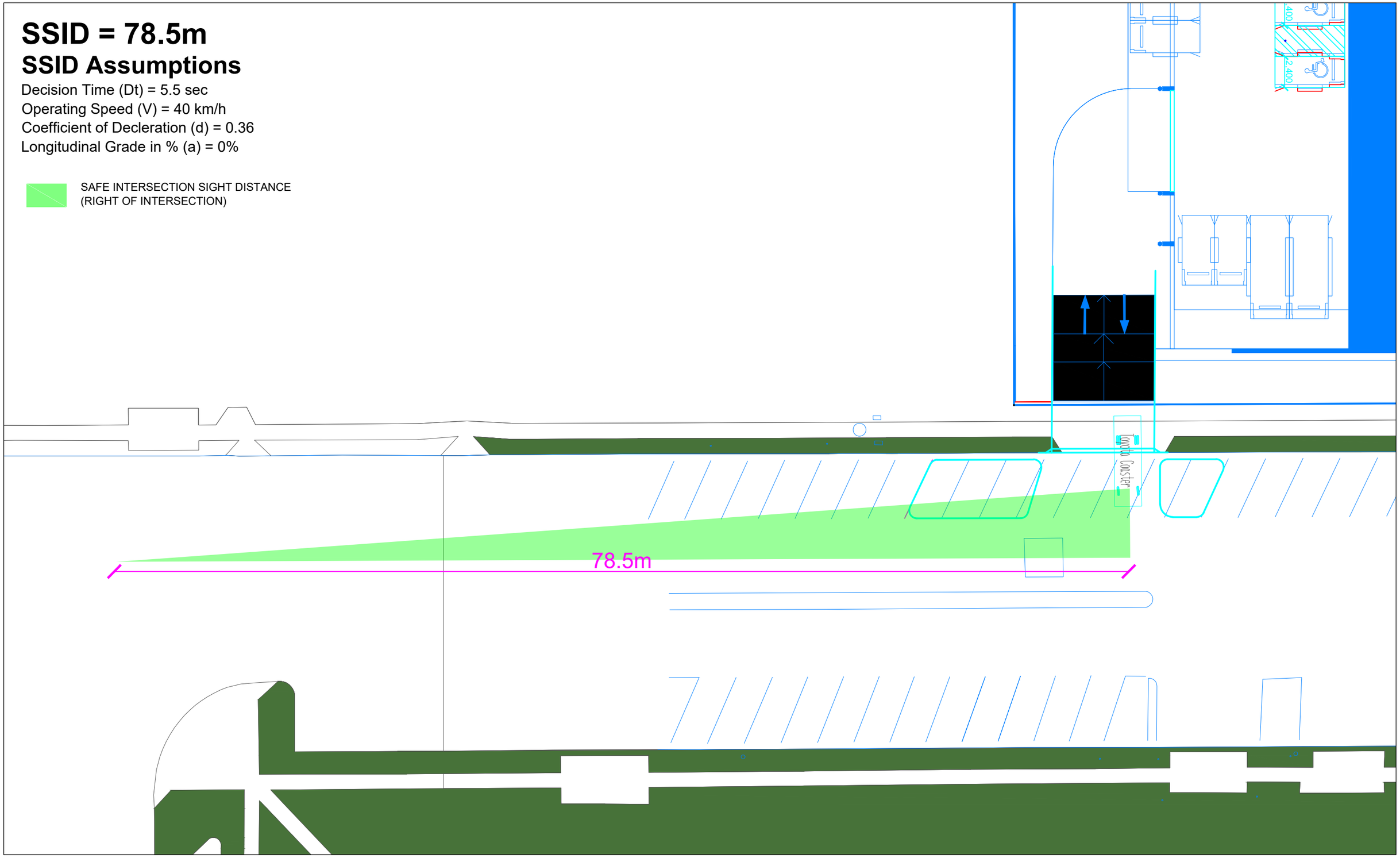
Suite 5.02, Level 5, 1 Castlereagh Street
Sydney NSW 2000
info@asongroup.com.au

SSID = 78.5m

SSID Assumptions

Decision Time (Dt) = 5.5 sec
Operating Speed (V) = 40 km/h
Coefficient of Decleration (d) = 0.36
Longitudinal Grade in % (a) = 0%

SAFE INTERSECTION SIGHT DISTANCE
(RIGHT OF INTERSECTION)



Revision notes:

Rev:	Date:	Notes:
r01	19/03/21	SSDA-202000 [01] Overall Plan- Lower Ground Floor North PCYC

For information purposes only - not for construction

Drawn By: M TANGONAN

Client: SI NSW

Project: P1600 Hastings Secondary College Port Macquarie Campus

Drawing Title: PCYC Crossover Sight Distance

Date: 25-Mar-21

Scale @ A3: [scale]

Drawing Number: AG02

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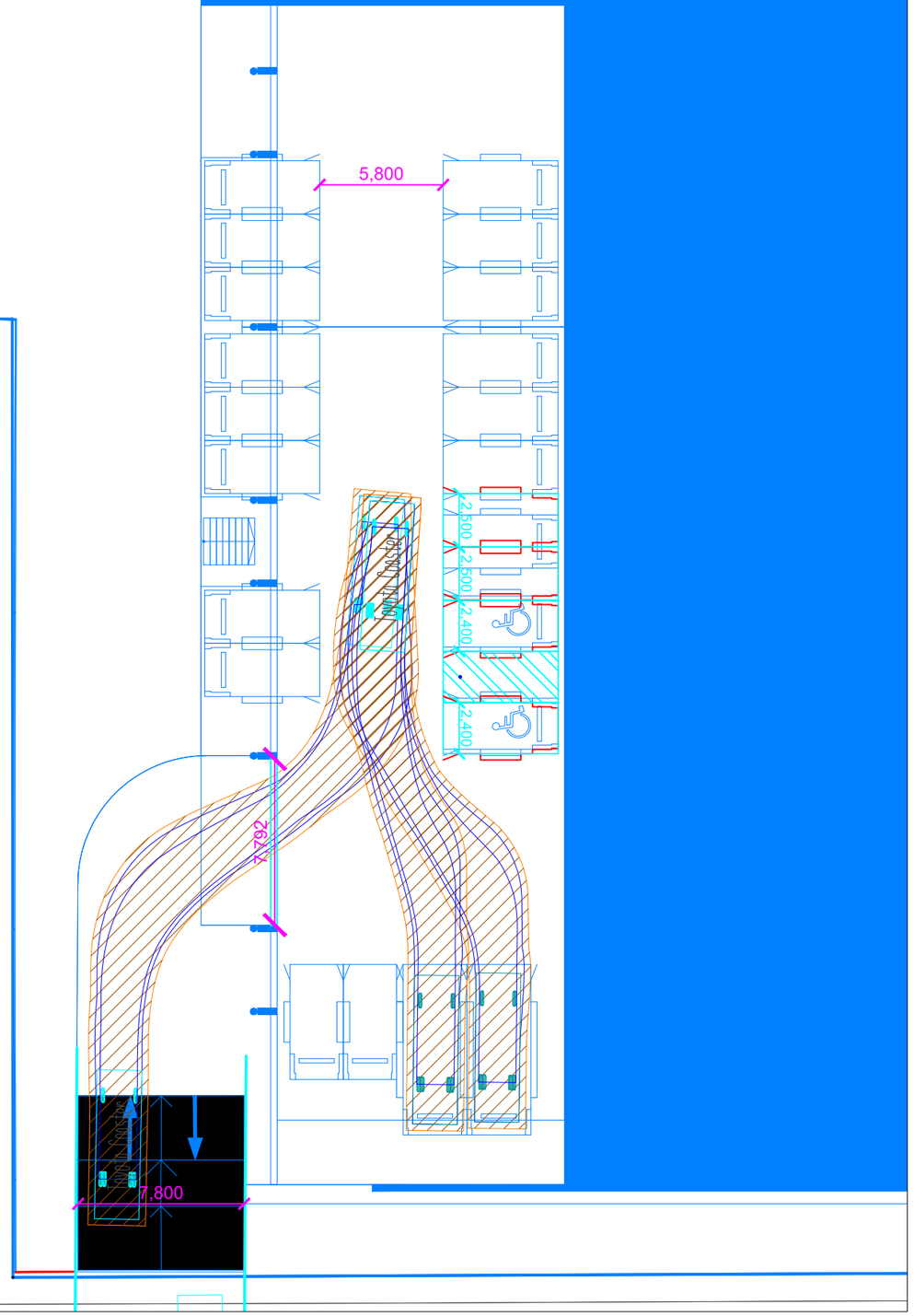
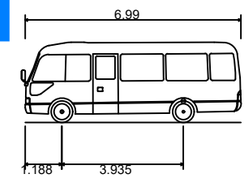
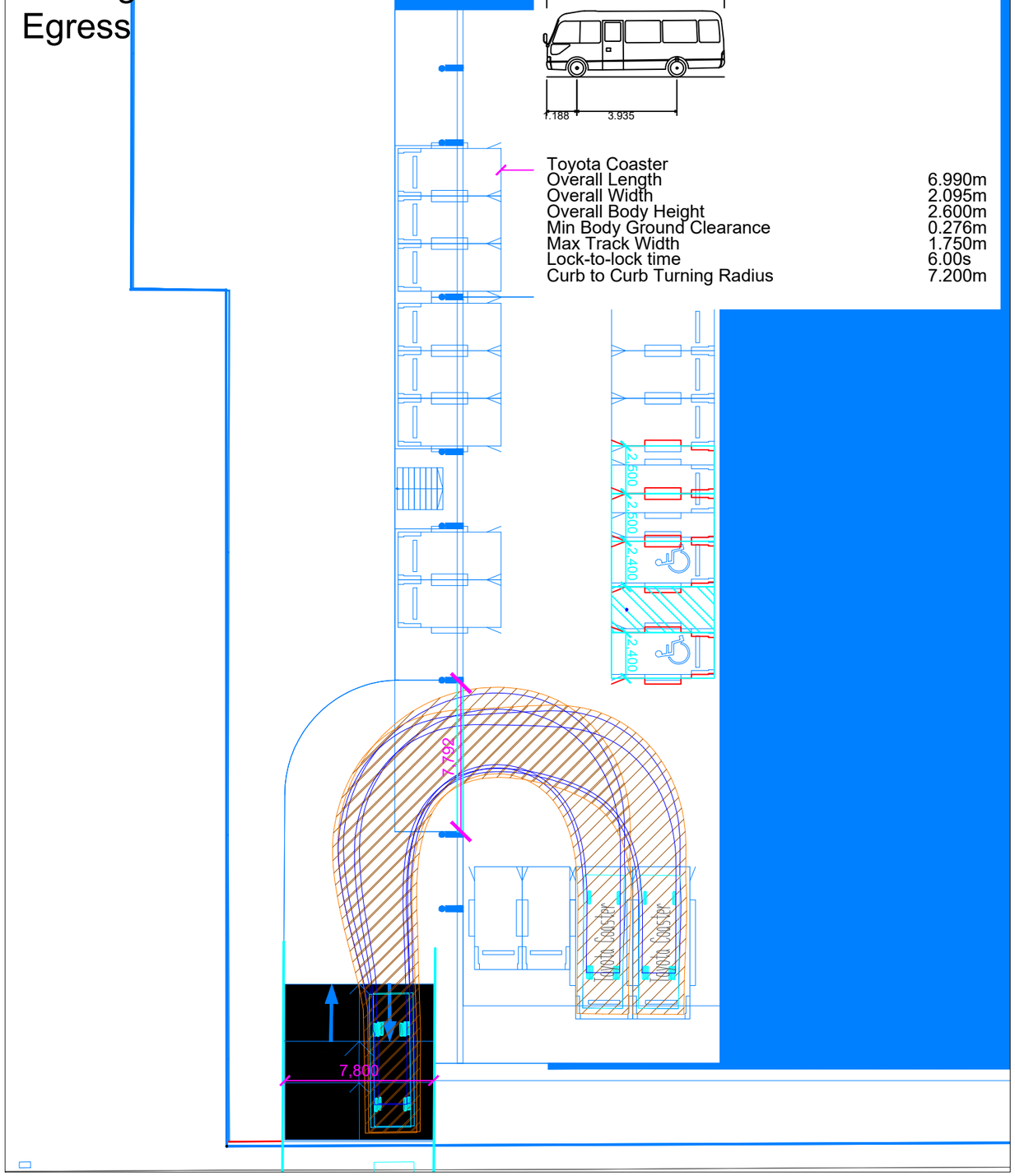
Parking Access



Parking Egress



Toyota Coaster	
Overall Length	6.990m
Overall Width	2.095m
Overall Body Height	2.600m
Min Body Ground Clearance	0.276m
Max Track Width	1.750m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	7.200m



Revision notes:

Rev:	Date:	Notes:
r01	19/03/21	SSDA-202000 [01] Overall Plan- Lower Ground Floor North PCYC

For information purposes only - not for construction

Drawn By: M TANGONAN

Client: SI NSW

Project: P1600 Hastings Secondary College Port Macquarie Campus

Drawing Title: PCYC Parking Area Toyota Van Vehicle

Date: 25-Mar-21

Scale @ A3: [scale]

Drawing Number: AG03

asongroup
Suite 5.02, Level 5, 1 Castlereagh Street
Sydney NSW 2000
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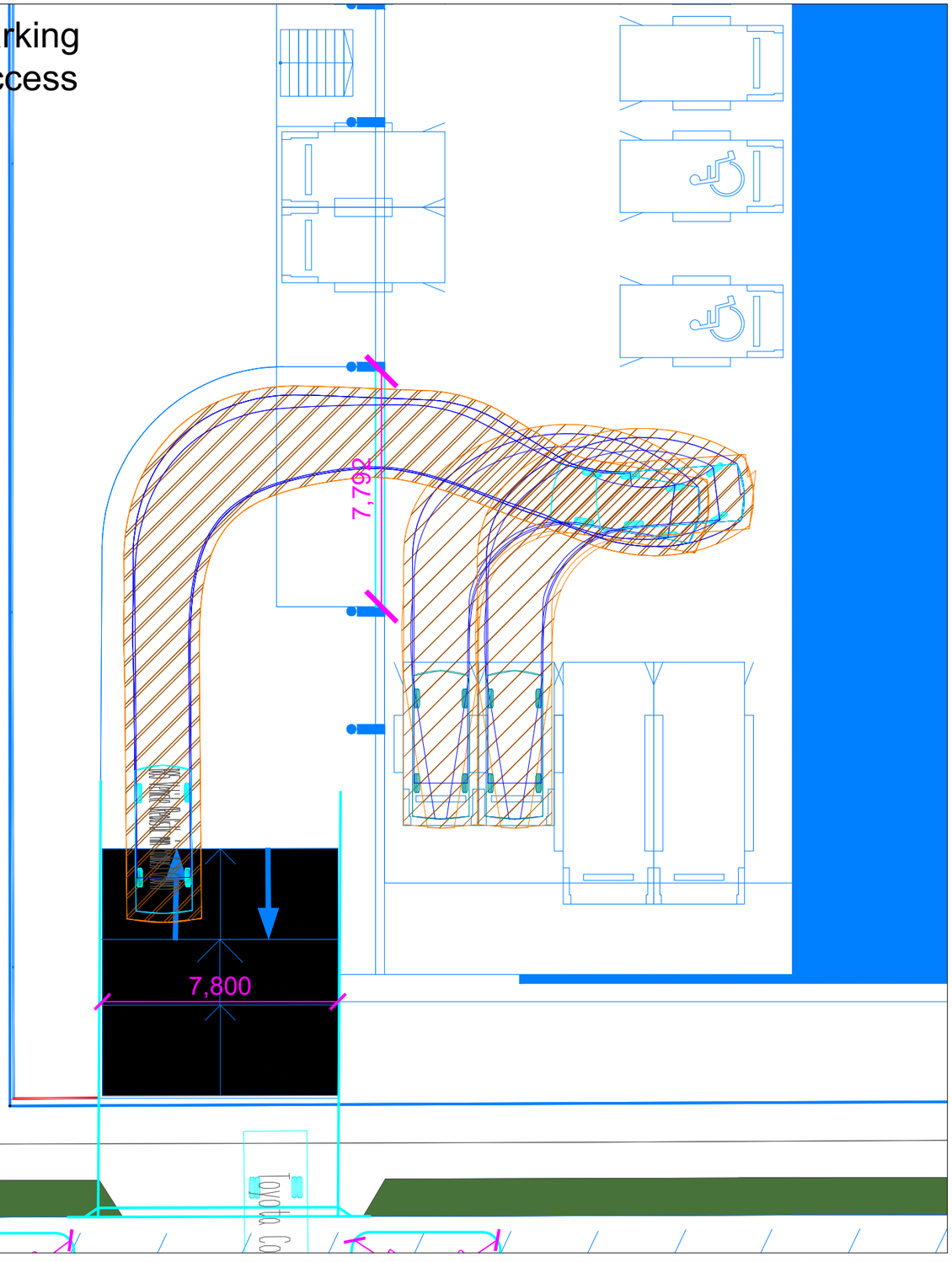
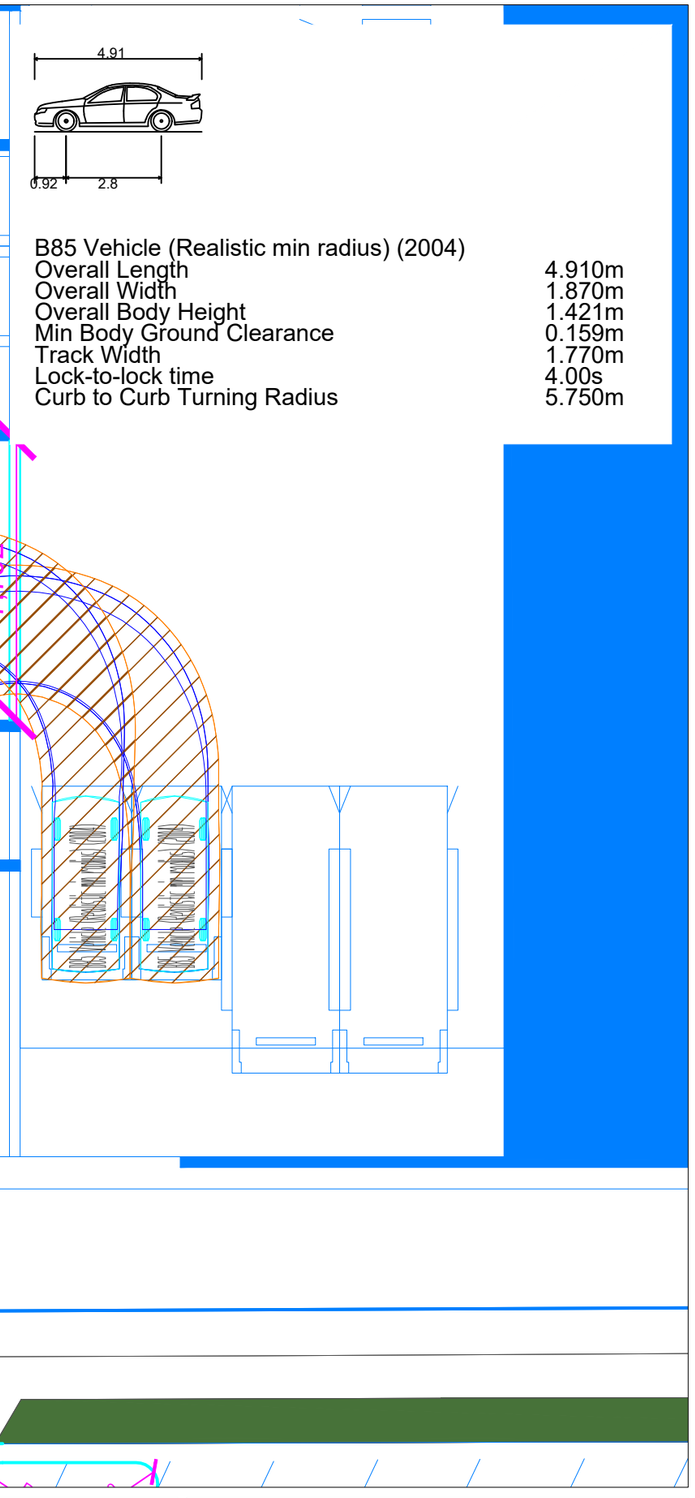
Parking Access



Parking Egress



B85 Vehicle (Realistic min radius) (2004)

Overall Length	4.910m
Overall Width	1.870m
Overall Body Height	1.421m
Min Body Ground Clearance	0.159m
Track Width	1.770m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	5.750m

Revision notes:

Rev:	Date:	Notes:
r01	19/03/21	SSDA-202000 [01] Overall Plan- Lower Ground Floor North PCYC

For information purposes only - not for construction

Drawn By: M TANGONAN

Client: SI NSW

Project: P1600 Hastings Secondary College Port Macquarie Campus

Drawing Title: PCYC Parking Area B85 Vehicle

Date: 25-Mar-21

Scale @ A3: [scale]

Drawing Number: AG04

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