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NSW Department of Education

New primary school in Worrige

Transport and
Accessibility Impact
Assessment

wsp

April 2026

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New primary school in Worrigee Transport and Accessibility Impact Assessment

NSW Department of Education

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Rev	Date	Details
-	23/12/2025	Draft
A	19/02/2026	Updated Draft
B	03/03/2026	Updated Draft
C	18/03/2026	Final
D	23/04/2026	Updated Final

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WSP acknowledges that every project we work on takes place on First Peoples lands.

We recognise Aboriginal and Torres Strait Islander Peoples as the first scientists and engineers and pay our respects to Elders past and present.

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Executive summary

The NSW Department of Education (DoE) is proposing a new public school in Worrigeer on a site on the corner of Greenwell Point Road, Worrigeer Road and Booligal Road. A Review of Environmental Factors (REF) for the construction and operation of the proposed activity is being prepared under Part 5 of the Environmental Planning and Assessment Act 1979 (EP&A Act) and State Environmental Planning Policy (Transport and Infrastructure) 2021 (TI SEPP). This Transport and Accessibility Impact Assessment (TAIA) has been prepared to accompany the REF.

The proposed activity will accommodate 582 students (including 30 special learning unit (SLU) students). A new public preschool will be constructed on the southeast corner of the site. The new public preschool is subject to a separate planning pathway and environmental assessment. It is expected to be opened before the primary school. The proposed activity includes construction of car parking, waste storage and a loading area, new road and public domain works (including Worrigeer Road) and associated off-site infrastructure works to support the school, including (but not limited to) driveways and pedestrian crossings.

The indicative layout of the proposed activity and the transport elements are shown in Figure ES.1.

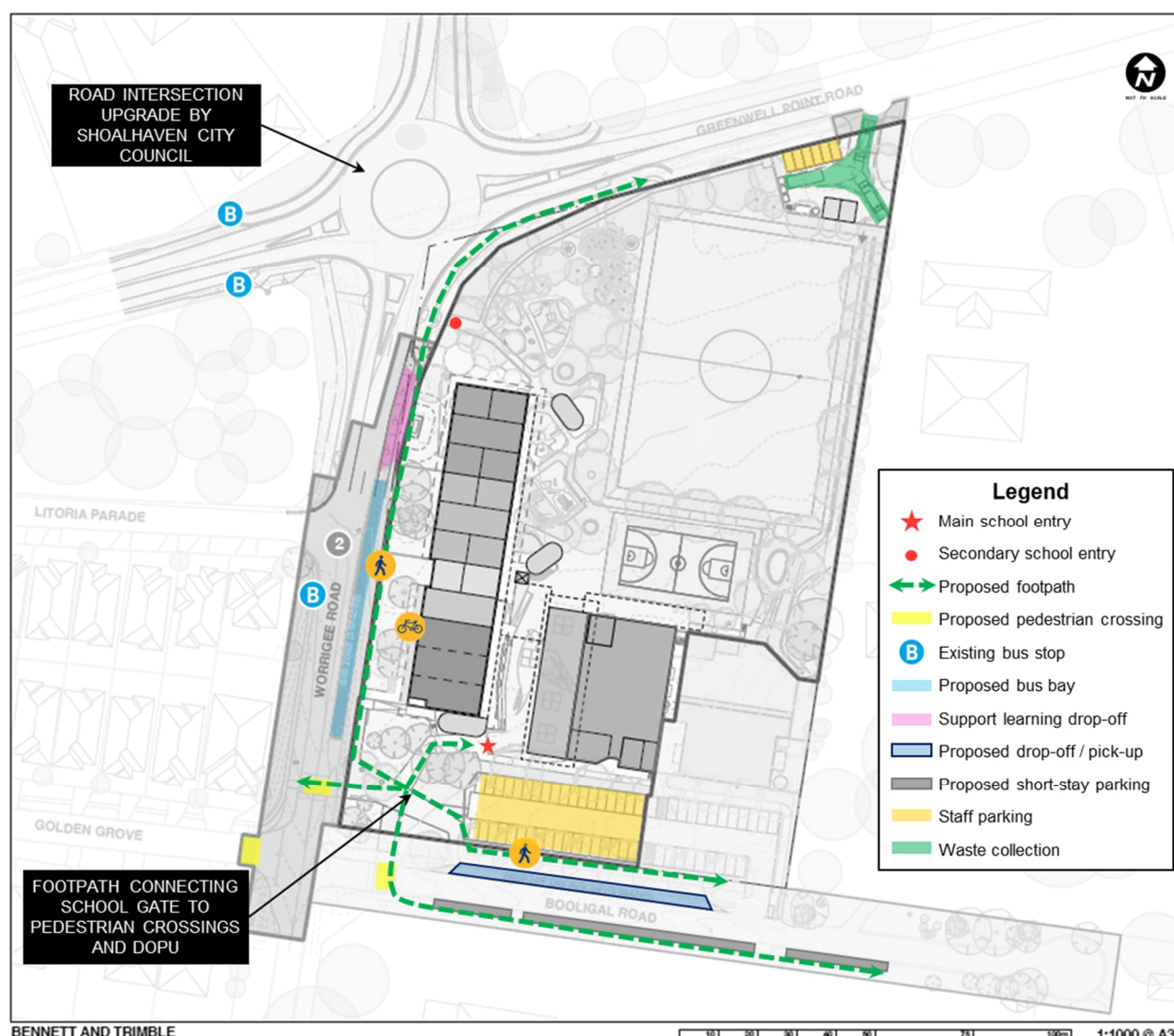


Figure ES.1 Indicative Site Plan with transport elements

Active travel to and from the site will be supported by footpaths and new crossing points. Cyclists will also be supported by a sufficient provision of on-site parking facilities and end-of-trip facilities for staff.

- Two raised pedestrian priority crossings (wombat):
 - On Worrigee Road across the northern approach to the intersection with Golden Grove and Booligal Road
 - On Booligal Road across the eastern approach to the intersection with Golden Grove and Worrigee Road
- One new painted pedestrian crossing (zebra) on Golden Grove across the western approach to the intersection with Worrigee Road and Booligal Road.

New public transport stops are proposed on the east side of Worrigee Road (in front of the school) with space for three buses, which is sufficient capacity for the proposed number of students using the service. Improvements to the facilities at this stop and the existing stops in the area will assist in attracting more students to use the service.

An off-street parking area is provided for staff, with access through the preschool carpark. A waste collection area is proposed at the north end of the site with a new access from Greenwell Point Road. This area also includes some staff parking.

A drop-off / pick-up (DOPU) zone with space for 10 cars will be provided on the north side of Booligal Road. This will be supplemented by short-stay parking on the south side of Booligal Road. An accessible DOPU zone for the SLU classes with three spaces will be provided on Worrigee Road north of the bus stop in front of the school. This car parking has sufficient capacity for the primary school.

The analysis of the Greenwell Point Road / Worrigee Road / Millbank Road intersection (with planned upgrade to a roundabout by Council) and the Worrigee Road / Golden Grove / Booligal Road intersection indicates that the performance will be suitable.

The assessment of the transport and parking impacts of the activity at the new primary school in Worrigee indicates that it will not have a significant effect on the environment, and any minor impacts, where they exist, can be managed.

1 Introduction

This Transport and Accessibility Impact Assessment (TAIA) has been prepared to accompany a Review of Environmental Factors (REF) for the Department of Education (the department) for the construction and operation of a New Primary School in Worrigea (the activity) under Part 5 of the Environmental Planning and Assessment Act 1979 (EP&A Act) and State Environmental Planning Policy (Transport and Infrastructure) 2021 (TI SEPP).

This document has been prepared in accordance with the Guidelines for Division 5.1 assessments (DPHI, December 2025) (the Guidelines). This report examines and takes into account the relevant environmental factors in the Guidelines and Section 170 and Section 171 of the Environmental Planning and Assessment Regulation 2021 (EP&A Regulation).

1.1 Project context

The activity is for the construction and operation of a New Primary School in Worrigea under Chapter 2 and Chapter 3 of TI SEPP comprising :

- permanent classroom building including a support learning unit
- hall
- canteen
- covered outdoor learning area
- library
- administration
- sports field
- waste storage facility
- landscaping
- car parking
- public domain works
- infrastructure upgrades
- a capacity of 582 students (including 30 special learning (SLU) students).

Associated off-site infrastructure works are included to support the school, including (but not limited to) services, public domain works, infrastructure, driveways and pedestrian crossings.

For a detailed project description, refer to the REF prepared by DFP Planning (March 2026).

The proposed activity does not include the new public preschool or roundabout. The new public preschool is subject to a separate planning pathway and environmental assessment. The roundabout at the intersection of Greenwell Point Road / Worrigea Road / Millbank Road is to be delivered by Council. Figure 1.1 shows an indicative site plan and distinguishes the indicative extent of the proposed activity in relation to the new public preschool and roundabout. This TAIA has been prepared for the new primary school with the preschool assumed to be already operational and the intersection upgrade complete.

Based on the identification of potential impacts and an assessment of the nature and extent of the impacts of the proposed activity, it is determined that all potential impacts can be appropriately mitigated to ensure that there is minimal impact on the locality, community and/or the environment.

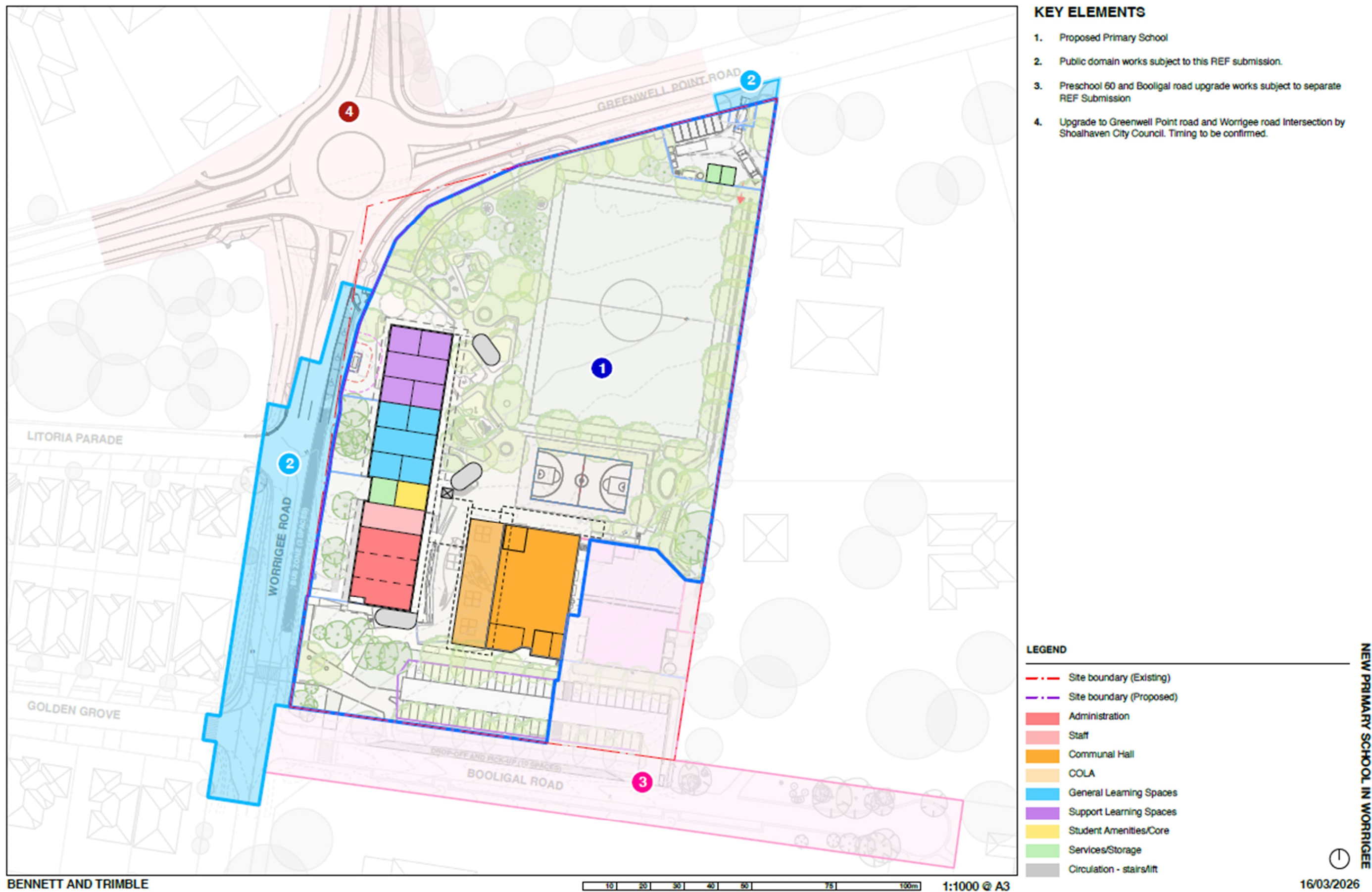


Figure 1.1 Indicative site plan

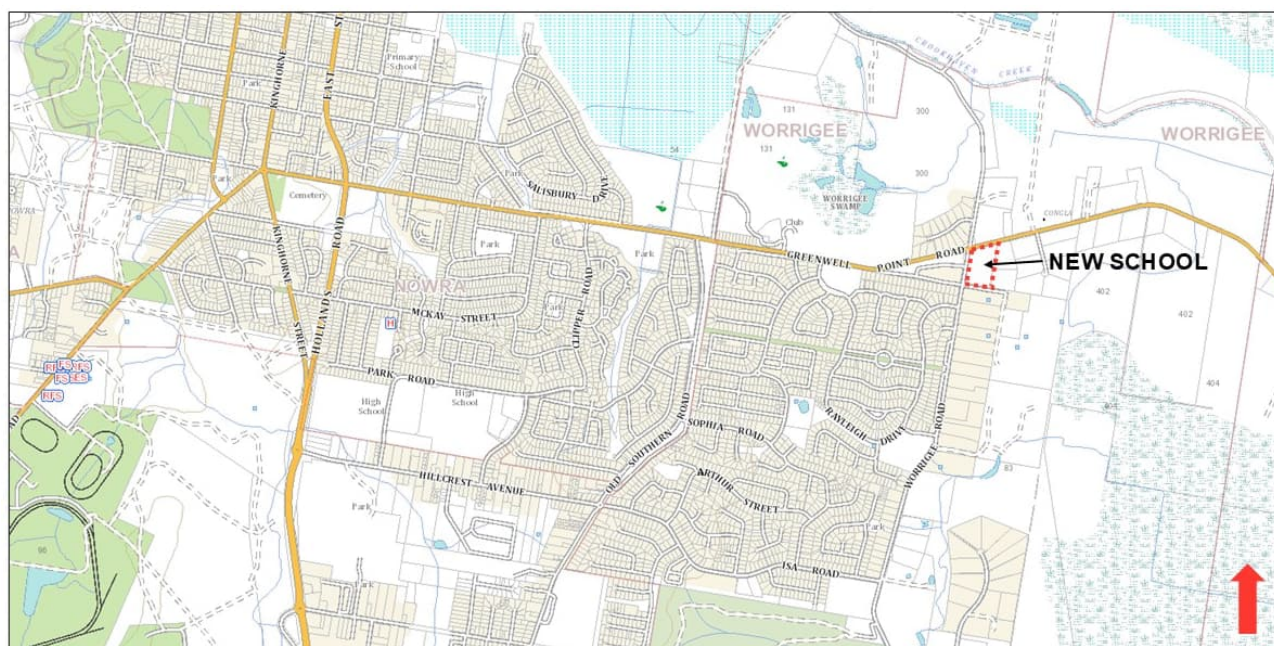
1.2 Site description

The site is known as 9 Worrigee Road, Worrigee. The site has a frontage of 125.23m to Greenwell Point Road, 149.87m to Worrigee Road and 114.89m to Booligal Road (including the preschool frontage). The site is legally described as Lot 1 in Deposited Plan 576975 and is 2 hectares (by title). Off-site works are also proposed in the adjacent road reserves. Figure 1.2 provides an aerial photograph of the site.



Figure 1.2 Aerial photograph

The site is located within the Shoalhaven City Local Government Area and is zoned R5 – Large Lot Residential (minimum 1ha) under the Shoalhaven Local Environmental Plan 2014 (the LEP). Figure 1.3 is a site plan showing the location of the proposed school within its regional context.



Source: Planning Spatial Viewer

Figure 1.3 Location of the proposed new primary school in Worrigee

1.3 Stakeholder engagement

Discussions have commenced between the Department of Education and Shoalhaven City Council regarding the proposed activity. Shoalhaven City Council is in discussions with the Department on the acquisition of land to facilitate the upgrade of the Greenwell Point Road / Worrigee Road / Millbank Road intersection.

A Transport Working Group (TWG) has been established to support the planning of the project. This group includes representatives from Shoalhaven City Council and Transport for NSW. The purpose of the group would be to discuss the proposed transport aspects of the school, including road upgrades, footpaths, pedestrian crossings, bus stops, parking, drop-off and pick-up (DOPU), waste collection, speed limits, etc.

The TWG meeting held its first meeting on Tuesday, 24 February 2026. The discussions and suggestions made at this meeting are summarised below in Table 1.1.

Table 1.1 TWG meeting – transport and parking matters

Item No.	Topic	Matters arising	Response/finding
1	TAIA consultation	Council commented that Guide to Transport Impact Assessment requires early TfNSW consultation	SI agreed that the draft TAIA is to be issued to TWG members to allow inputs.
2	Traffic generation on Booligal Road	Council provided commentary on mode share, traffic generation and spatial constraints, especially on Booligal Road and indicated that it has implications on intersection design and pavements	Travel mode share met Council's expectations (information provided in sections 3.7 and 4.3). However, daily volumes on Booligal Road are potentially higher than Council expected. Peak hour trip generation details and the results of intersection modelling are provided in Section 5.1.
3	Pedestrian infrastructure	Council indicated support for the pedestrian crossing locations. Transport for NSW indicated support for 3m footpath widths. Council advised that elements of the Active Transport Strategy are currently unfunded.	Pedestrian and cycling aspects of the proposed activity are described in section 4.4 and the impacts are discussed in section 5.4. Design aspects of footpaths are described in section 6.1.
4	School speed zones	Transport for NSW is supportive of the implementation of a school speed zone, and confirmed that the developer (the Department) will be responsible for the cost of installing the speed zone, while Transport for NSW will install the associated flashing lights.	Details of the proposed school speed zone are provided in section 4.6.
5	School crossing supervisor	Transport for NSW is supportive of starting the process for the approval of a school crossing supervisor position	Details of the proposed managed crossing are provided in section 4.2 and 4.4.
6	Intersection upgrade	Council confirmed progress in the planning of the upgrade of the intersection of Greenwell Point Road and Worrigee Road to a roundabout.	Council to provide detailed designs for coordination purposes.

1.4 Report objectives

The purpose of this report is to assess the potential traffic and transport impacts from the activity. Specifically, this report has the following objectives:

- **Assess the existing conditions** for all modes of transport in the study area, including active transport (bicycles and pedestrians), public transport (rail services, bus services and point-to-point transport), freight (including restricted access vehicles) and general access vehicles.
- **Outline the existing environment** (road function, classification, and operation) in the study area that is likely to be affected by the construction and operation of the school.
- Assess the school's **impacts on the surrounding road network**.
- **Review the proposed design** for the school layout with regard to vehicle access and parking provision, to ensure that the proposed design is suitable for the anticipated demand and compliant with the relevant standards.
- **Recommend mitigation measures** to manage the identified traffic impacts of the school.

1.5 Structure of the report

- **Section 1: Introduction:** Describes the context of the new primary school Worrigeer within the broader region and outlines the objectives of this report.
- **Section 2: Strategic and local context:** presents a review of relevant plans, strategies and policies for the activity
- **Section 3: Existing transport network:** Examines the existing surrounding transport network, with a focus on connectivity to the proposed school site.
- **Section 4: Proposed activity:** Outlines the activity, highlighting key details including student and staff numbers, parking provision and access arrangements.
- **Section 5: Impact Assessment:** Assesses the impact of the activity on the local traffic environment, on-street parking, public transport and walking and cycling.
- **Section 6: Design considerations:** Assesses the proposed design under the relevant guidance and standards.
- **Section 7: Construction traffic management:** High-level assessment of construction activities on the local traffic environment and on-street parking arrangements.
- **Section 8: Mitigation measures:** Identifies the various mitigation measures that will support the school.
- **Section 9: Conclusions:** Summarises the key findings from the assessment.

1.6 Guidelines and references

- Guide to Transport Impact Assessment (TS 00085 version 1.1 prepared by Transport for NSW)
- AS2890.1:2004 Off-street car parking
- AS2890.2:2018 Off-street commercial vehicle facilities
- AS2890.3:2015 Bicycle parking
- AS2890.6:2022 Off-street parking for people with disabilities
- Austroads Guide to Road Design

- Austroads Guide to Traffic Management
- Transport and Infrastructure State Environmental Planning Policy (SEPP), 2021
- Shoalhaven City Council Development Control Plan (DCP), 2014
- New Nowra Public School Rapid Transport Assessment (prepared by WSP, dated August 2025)
- Walking Space Guide (Transport for NSW, July 2020).
- Cycleway Design Toolbox (Transport for NSW, December 2020).

2 Strategic and local context

2.1 State transport planning

The state planning context relating to school infrastructure transport planning has guided the development of this TAIA and is outlined below.

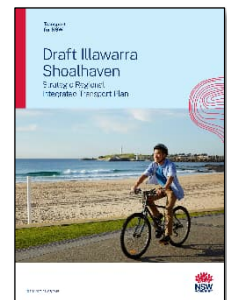
2.1.1 *Future Transport Strategy*

Access to the new primary school in Worrigeer will align with the vision and strategic direction of the *Future Transport Strategy*. Active Transport improvements seek to support safe walkable, access to the school helping to achieve the 15-minute neighbourhood. For students outside of the 15-minute catchment, an attractive public transport alternative will be provided. For students outside of the walking catchment, there should be high quality, reliable public transport options.



2.1.2 *Draft Illawarra Shoalhaven Strategic Regional Integrated Transport Plan*

The Draft Plan considers the community's transport needs now and into the future, guiding the delivery of Transport's services and infrastructure delivery program in alignment with government priorities. A focus of the plan is to expand active transport links for new schools to support growth and encourage sustainable travel choices for school trips. It identifies school students as vulnerable road users and promotes the delivery of footpaths and cycle paths that connect schools to residential areas and key destinations. Similarly, it seeks to expand service coverage and frequency of school bus services to address the current gaps.



2.1.3 *NSW Active Transport Strategy*

Improvements within the school catchment would aim to achieve the ambitions set out in the *NSW Active Transport Strategy*. This includes its vision to create walkable 15-minute neighbourhoods, contributing to the delivery of new cycleways, safe pedestrian and cyclist infrastructure, and doubling the number of children walking or riding to school.

Planning for cycling infrastructure should contribute to the delivery of an integrated cycling network in the area that is safe for all ages and abilities.

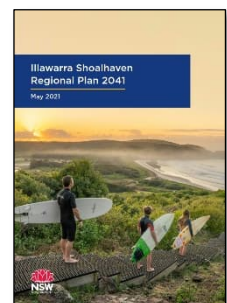


2.1.4 *Illawarra Shoalhaven Regional Plan 2041*

The *Illawarra Shoalhaven Regional Plan 2041* (ISRP) outlines a comprehensive vision for sustainable, resilient, and connected communities within the region. The Plan specifically notes that new schools within the Nowra-Bomaderry area must connect to walking and cycling networks.

This TAIA aims to support the strategies set out in the Plan, by making walking and cycling attractive modes of transport, reducing private motor vehicle use to contribute to Net Zero targets, creating connected and accessible walking and cycling networks, and integrating these networks with public transport facilities.

In addition to catering for the existing students, potential opportunities should consider the area's growth. West Lake Illawarra and Nowra-Bomaderry together have the capacity to provide 37,600 new dwellings. This potential growth would bring a substantial number of students to the school, whereby school facilities and operations should be able to cater for future growth.



2.1.5 Movement and Place Framework (NSW Road Use Space Allocation Policy)

The Policy seeks to consider the needs of all street and road users. Appropriate road space must be allocated adjacent to schools to support sustainable, safe, and comfortable access for students. The principles of Movement and Place Framework have been adopted in the Design of Roads and Streets manual (Transport for NSW, 24 October 2025).

Improvements to accessing the new primary school in Worrigee will prioritise walking and cycling permeability. Improvements will aim to reduce the mode share of private motor vehicles, realise a balance between place and movement, and consider active modes of transport first. Particularly, for those students who are not eligible for the School Student Transport Scheme (STSS) and are therefore expected to have a greater use of walking or cycling to school, it would aim to provide safe and accessible infrastructure.



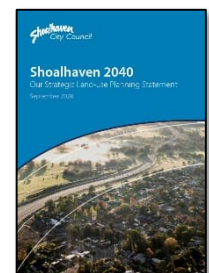
2.2 Shoalhaven City Council transport planning

The local planning context for the Shoalhaven City Council is outlined below. This includes key strategic, statutory and significant projects relating to the access to new primary school in Worrigee.

In addition to guiding the development of this TAIA, future documents should consider and draw on the findings of this report.

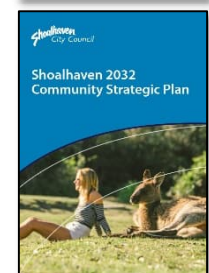
2.2.1 Shoalhaven Local Strategic Planning Statement 2040 (LSPS)

Transport improvements identified in this TAIA seek to support the principles of the LSPS for the Nowra Precinct. Interventions identified consider the new primary school in Worrigee's role in the broader Shoalhaven City context in line with the vision and strategic planning priorities.



2.2.2 Shoalhaven Community Strategic Plan 2032 (CSP)

The Shoalhaven CSP outlines four key themes with underpinning actions for the future. The TAIA will support the action to upgrade roads, cycleways, footpaths, and walkways to increase the number of trips to school or work using public or active transport.

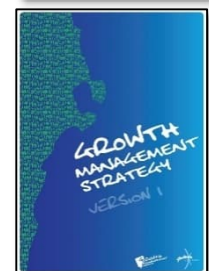


2.2.3 Shoalhaven Growth Management Strategy (GMS)

The GMS sets a framework to manage the significant growth expected in the area. The population is expected to grow by 33,870 by the year 2031, and transport network improvements within and around the catchment need to accommodate this growth. The GMS also has emphasis on sustainability, which will be supported by this TAIA, by the proposal of new footpaths and cycleways having the potential to reduce the school's carbon footprint.

Road safety and congestion is a major priority within the greater Nowra area. The new primary school in Worrigee will prioritise safety by implementing traffic calming, safe crossing points, and designated pick-up/drop-off zones. These will enhance safety for students while also reducing congestion.

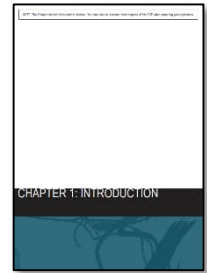
The report notes that Worrigee and West Nowra – within the vicinity of the new school – are attractive to young families, with up to 465 new dwellings projected for Worrigee. This TAIA will support safe connections for students from these new urban release areas to the new school



2.2.4 Shoalhaven Development Control Plan (DCP)

The DCP provides parking rates guidance for schools of 1 parking space per 5 students, a pick up/drop off zone of minimum length sufficient to allow 1 space per 20 students; and a bus zone of minimum length to be sufficient to allow 1 bus space per 75 students. It also states that footpaths should allow for convenient and equitable pedestrian travel in centres. The parking and bus provisions have been assessed based on a first-principles basis and compared to the DCP numbers.

The new primary school in Worrigee will be close to (3 km north of) the Worrigee Urban Release Area (URA). The DCP emphasises appropriate road hierarchy classification, and provisions to be made for cyclists and pedestrians on internal road networks. These goals have been addressed in this TAIA.



2.2.5 East Nowra Sub Arterial Road (ENSA)

Early investigations are currently underway for a link road between Worrigee and Nowra, that would connect to Greenwell Point Road about 1 km west of the proposed school site. This will improve vehicular accessibility and connectivity to the school site from Nowra city centre. It is also likely to reduce congestion on the local road network in Worrigee, making walking and cycling to school safer, which will support the TAIA.

3 Existing transport network

3.1 The site

The new primary school in Worrigeer is to be located at 9 Worrigeer Road. Aerial imagery and site visits confirm that the site is currently being used for residential activity, with some minor agricultural uses visible, such as trees in nettings and greenhouses.

It is surrounded by general residential dwellings on the west extent of Worrigeer Road, and large lot residential zones to the east, south and north-west. The south-west is characterised as a low-density residential area. North of the site, Greenwell Point Road provides access to the suburb of Worrigeer. Nearby primary and secondary schools in the area include Nowra East Public School, Nowra Christian School, Shoalhaven High School and St John the Evangelist Catholic High School.

Located further north-west of the site, Nowra city centre and its extended residential network surrounds the Princes Highway. This area also includes industrial and commercial facilities and is accessible by Greenwell Point Road / Kalandar Street. Land use within the vicinity of the proposed school site is captured in Figure 3.1.

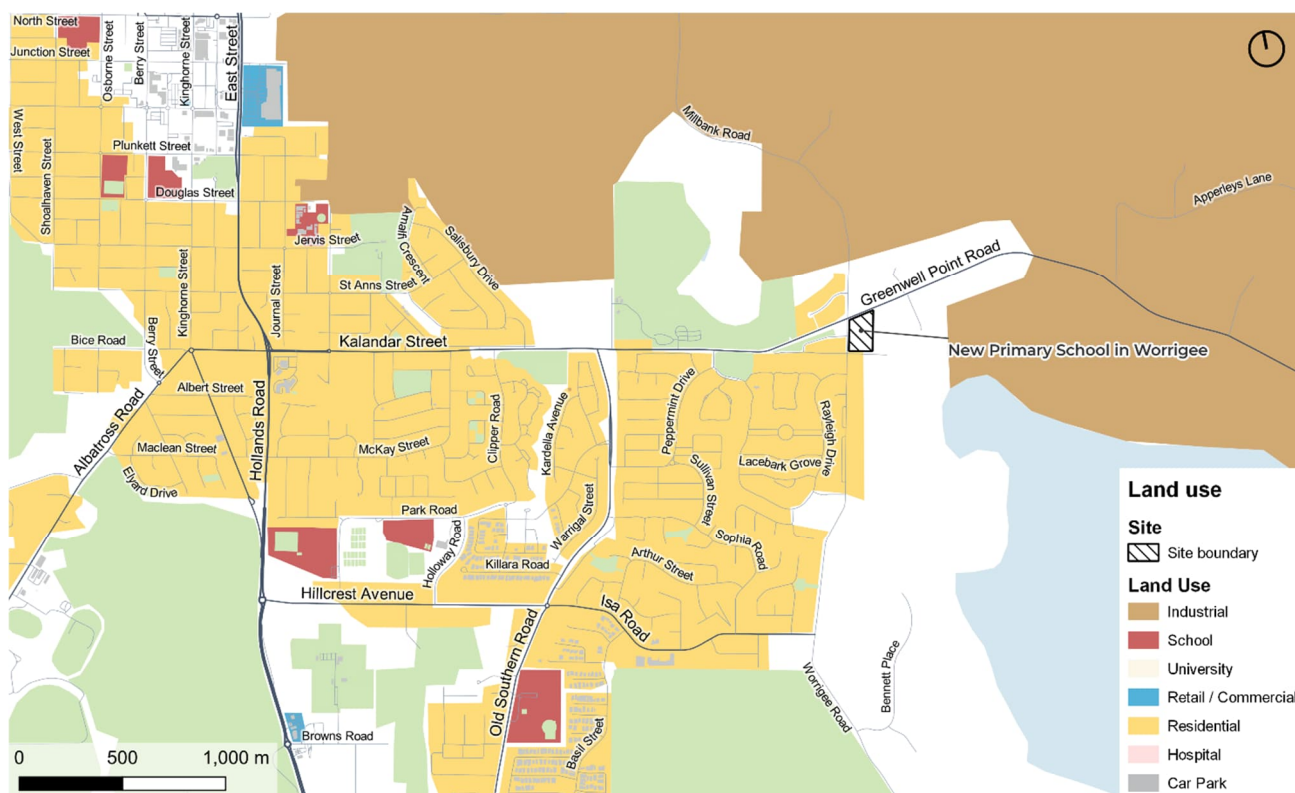


Figure 3.1 New primary school in Worrigeer— site overview and adjacent land uses

3.2 Road network

Key access roads leading to the site are Greenwell Point Road and Worrigeer Road as shown in Figure 3.2. Worrigeer Road runs along the entire extent of the school site's western boundary. Currently, these roads intersect in a priority-controlled intersection. The Shoalhaven City Council Shoalhaven Roads Package, with a \$40 million funding contribution from the Australian Federal Government, includes plans to upgrade this intersection to a roundabout. This project is currently in detailed design with a Review of Environmental Factors (REF) to be prepared. The estimated completion date is the end of September 2027.

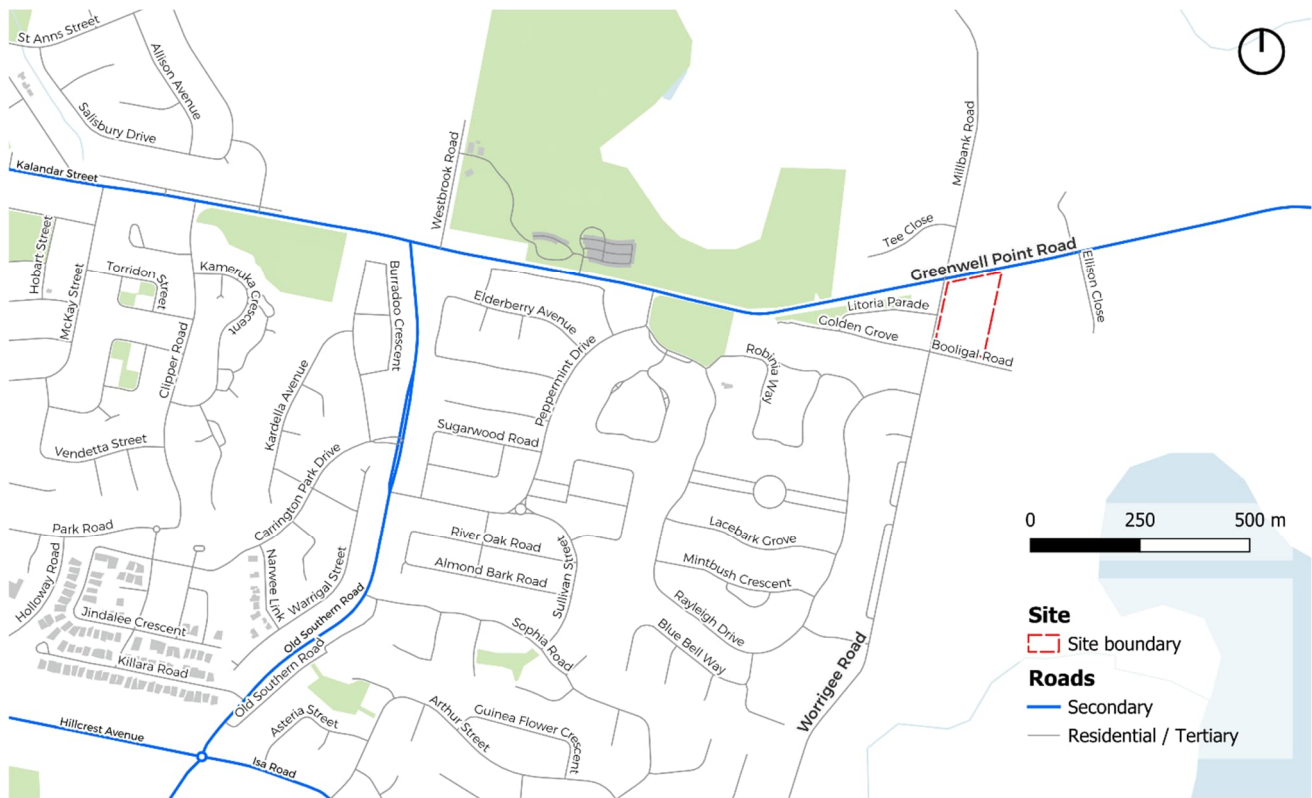


Figure 3.2 Surrounding road network

3.2.1 Greenwell Point Road

Greenwell Point Road is a regional road running along an east-west alignment. It is a two-lane carriageway with one-lane in each direction with approximately 3.3-metre-wide traffic lanes. It is an important link between Nowra and the nearby coastal town of Greenwell Point, 2km to the east of the site. Greenwell Point Road transitions briefly into Kalandar Street (900m long), before connecting to the Princes Highway. This provides key connectivity to Nowra city centre and the wider Nowra-Bomaderry growth area. Greenwell Point Road is paved with unsealed shoulders at the location of the proposed site. There are right turn bays (over 100m long) currently provided into Worrigee Road and Millbank Road.

A 60km/h speed limit applies to Greenwell Point Road at the proposed school site. The posted speed limit increases to 80km/h approximately 600m east of the intersection with Worrigee Road and Millbank Road.

3.2.2 Worrigee Road

Worrigee Road is a local road to Worrigee, which runs along a north-south alignment. It is a two-lane carriageway with one-lane in each direction with approximately 3.3-metre-wide traffic lanes. It is paved with unsealed shoulders. To the south, Worrigee Road runs adjacent to residential areas, mainly to the west. Along this western side, it connects to key roads such as Rayleigh Drive and Isa Road. It has a short section with a footpath between Litoria Parade and Golden Grove.

A speed limit of 60km/hr applies to the entire length of Worrigee Road.

3.3 Active transport

3.3.1 Pedestrian infrastructure

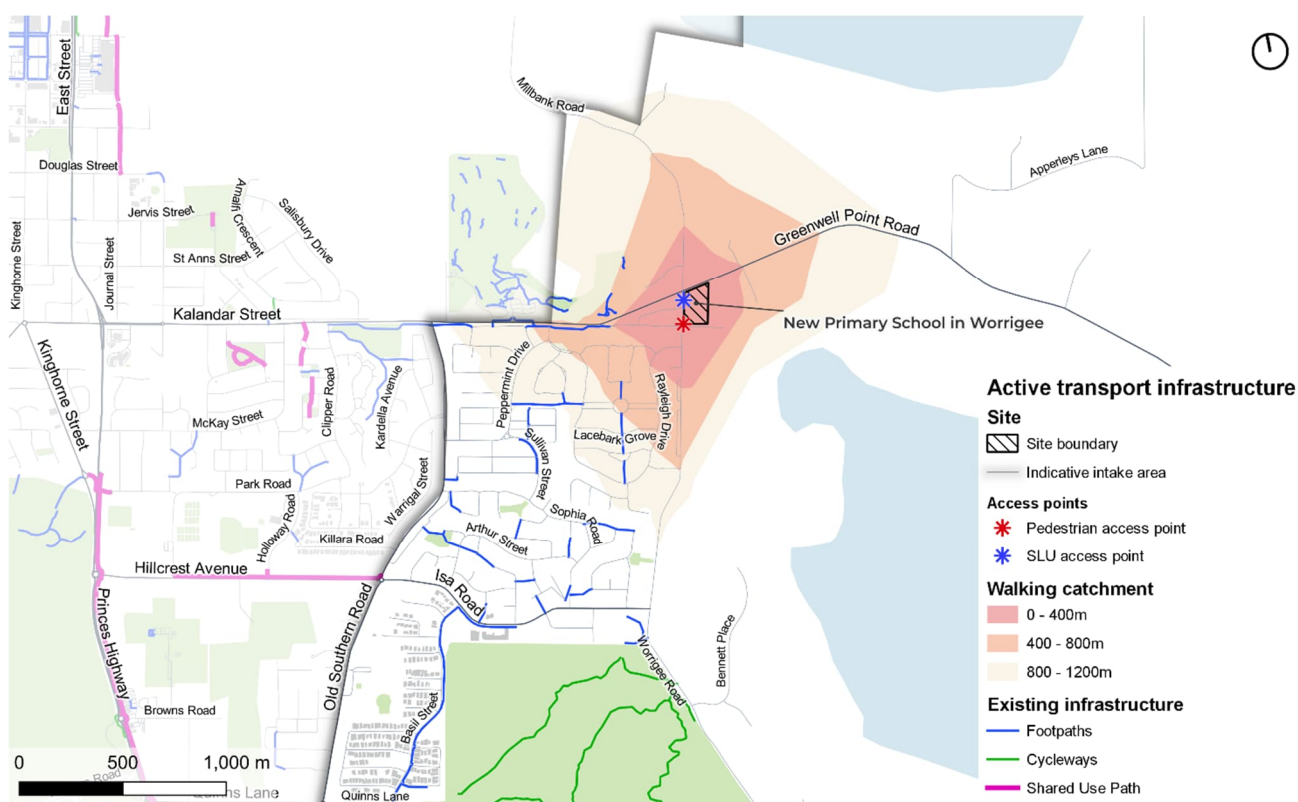
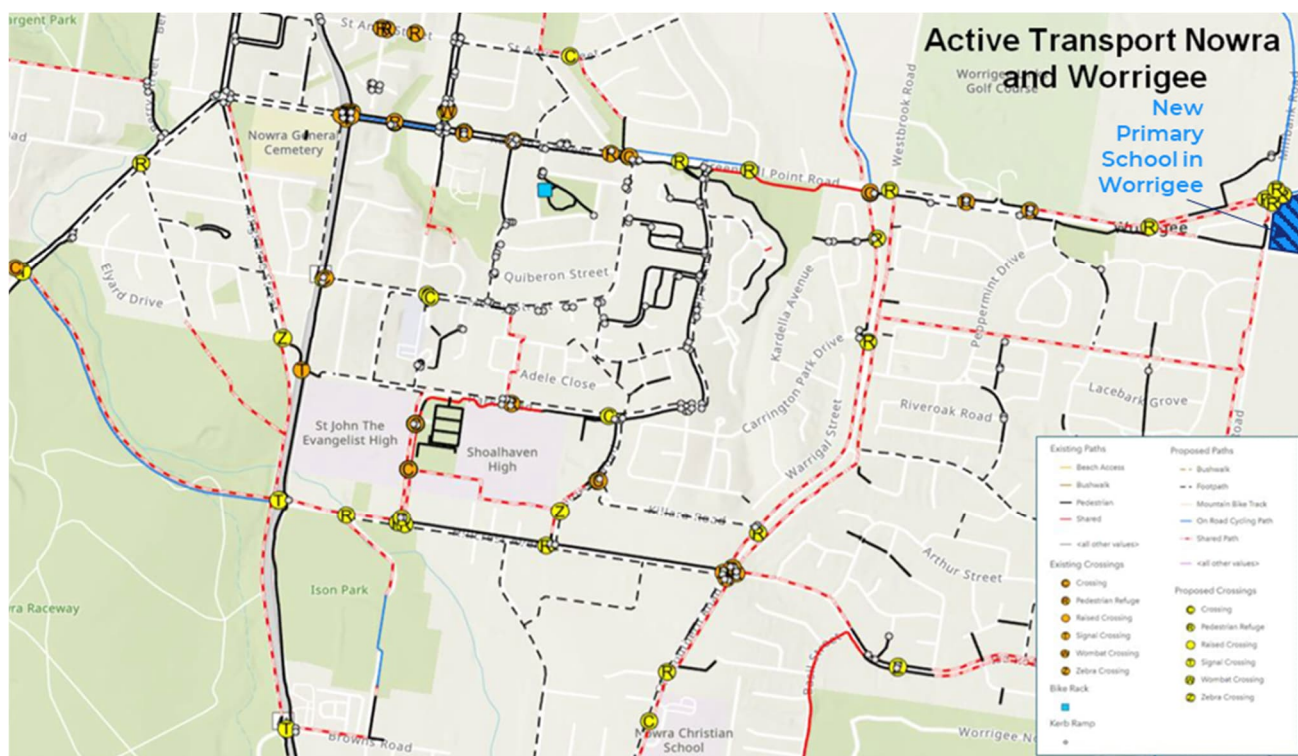


Figure 3.3 Existing active transport infrastructure

Whilst the existing pedestrian infrastructure network provides some connectivity across the local area, there is a distinct lack of footpath links close to the school site and in the surrounding residential areas, as shown in Figure 3.3. There is a short, 1m wide paved footpath along Worrigeer Road in the vicinity of Litoria Parade (not shown on map), associated with the residential development. To the west of the school site there are footpaths along Greenwell Point Road which provide some connectivity between local residential neighbourhoods and Ratcliff Park. However, they do not currently connect to the proposed school site. There are limited footpaths within the residential neighbourhoods to the south of the site.

Shoalhaven City Council has an Active Transport Strategy that was released in January 2025. It is aimed at increasing journeys completed by active transport and creating networks suitable for peoples of all ages and abilities. Shoalhaven City Council has proposed that the footpaths along Greenwell Point Road are extended east as shared paths as part of this strategy (see Figure 3.4).



Source: Shoalhaven Active Transport Strategy, Appendix C: PAMP Maps (arc traffic + transport, January 2025)

Figure 3.4 Nowra and Worrigeer map from Shoalhaven Active Transport Strategy

3.3.2 Cycling infrastructure

There is currently no formal cycling network, such as designated bike lanes or shared paths within the vicinity of the proposed school site. The shared use cycle and pedestrian paths are shown in Figure 3.3. In NSW, children under the age of 16 years old (and accompanying adults) are permitted to cycle on footpaths. Hence, as dedicated cycling links enable connectivity, a connected footpath network also increases accessibility for primary school-aged students.

As part of the Active Transport Strategy (Shoalhaven City Council), a network is proposed that includes a shared path along a short part of Greenwell Point Road west of the proposed school site, and on-road cycling to the east. A shared path is proposed along most of Worrigeer Road in the vicinity of the school, but this will be opposite the school, not alongside it. These upgrades will provide stronger active transport links from the residential area to the new school. The strategy should be updated to incorporate a safe cycling and pedestrian connection to new primary school in Worrigeer, to provide meaningful cycling opportunities for students.

3.4 Public transport

Existing bus services in the vicinity of the proposed school site are summarised in Table 3.1. Currently, there are eight public bus stops within 400m (5-minute walk) of the site, which are shown in Figure 3.5. These bus stops service a total of seven public and school bus routes periodically during the day, offering connectivity to and from Nowra, Bomaderry, Tomerong, Shoalhaven, and more. The broader local public transport network system is represented in Figure 3.6.

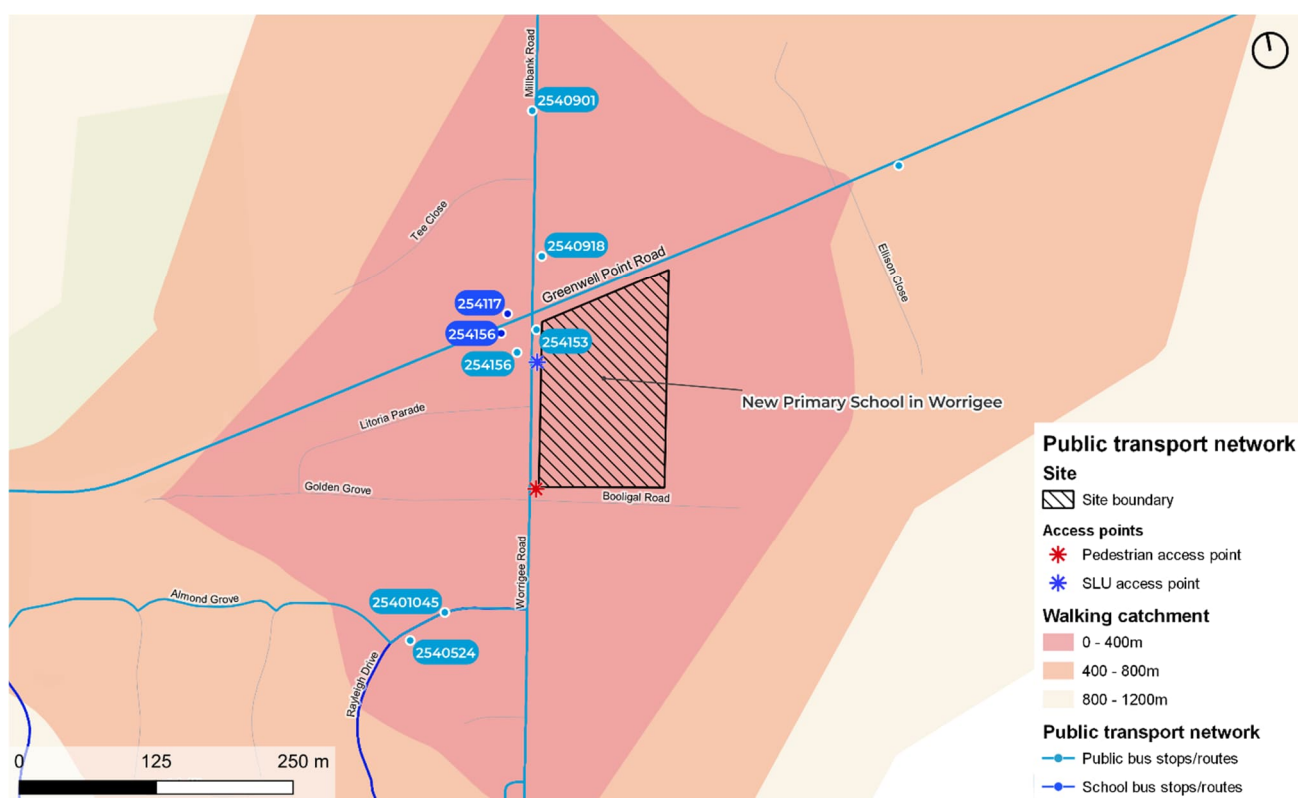


Figure 3.5 Overview of bus routes in the school site surrounding area

Table 3.1 Public transport routes near the proposed school site

Route No.	Route	Inbound buses	Outbound buses	Arrival/Departure time based on current timetable	Further details on bus service
S406	Worrige to Illaroo PS via Nowra Schools	1	1	07:49, 16:05	AM – Services up to 3 schools from previous stops and 4 schools after PM - Services 4 schools from previous stops and up to 3 schools after
S408	Sanctuary Point to Nowra Schools via Basin View	1	0	08:35	Services 4 primary and secondary schools from previous stops and 1 school after
S411	Sanctuary Point to Terara PS via Basin View & Nowra Anglican	1	0	08:54	Services up to 8 schools from previous stops and 1 school after
S420	Nowra to Vincentia Schools	0	1	15:56	Services 4 primary and secondary schools from previous stops
S422	Worrige to Nowra Schools	0	1	15:47	Services up to 5 primary and secondary schools from previous stops and 2 schools after
110	Greenwell Point to Bomaderry Station via Worrige Road & Nowra	1	0	08:08	Public bus, travelling along Greenwell Point Road and Worrige Road

Route No.	Route	Inbound buses	Outbound buses	Arrival/Departure time based on current timetable	Further details on bus service
111	Orient Point to Bomaderry Station via Culburra Beach, Nowra	0	1	15:51	Public bus, travelling along Greenwell Point Road and Worrigeer Road

Source: TfNSW Routes and Timetables

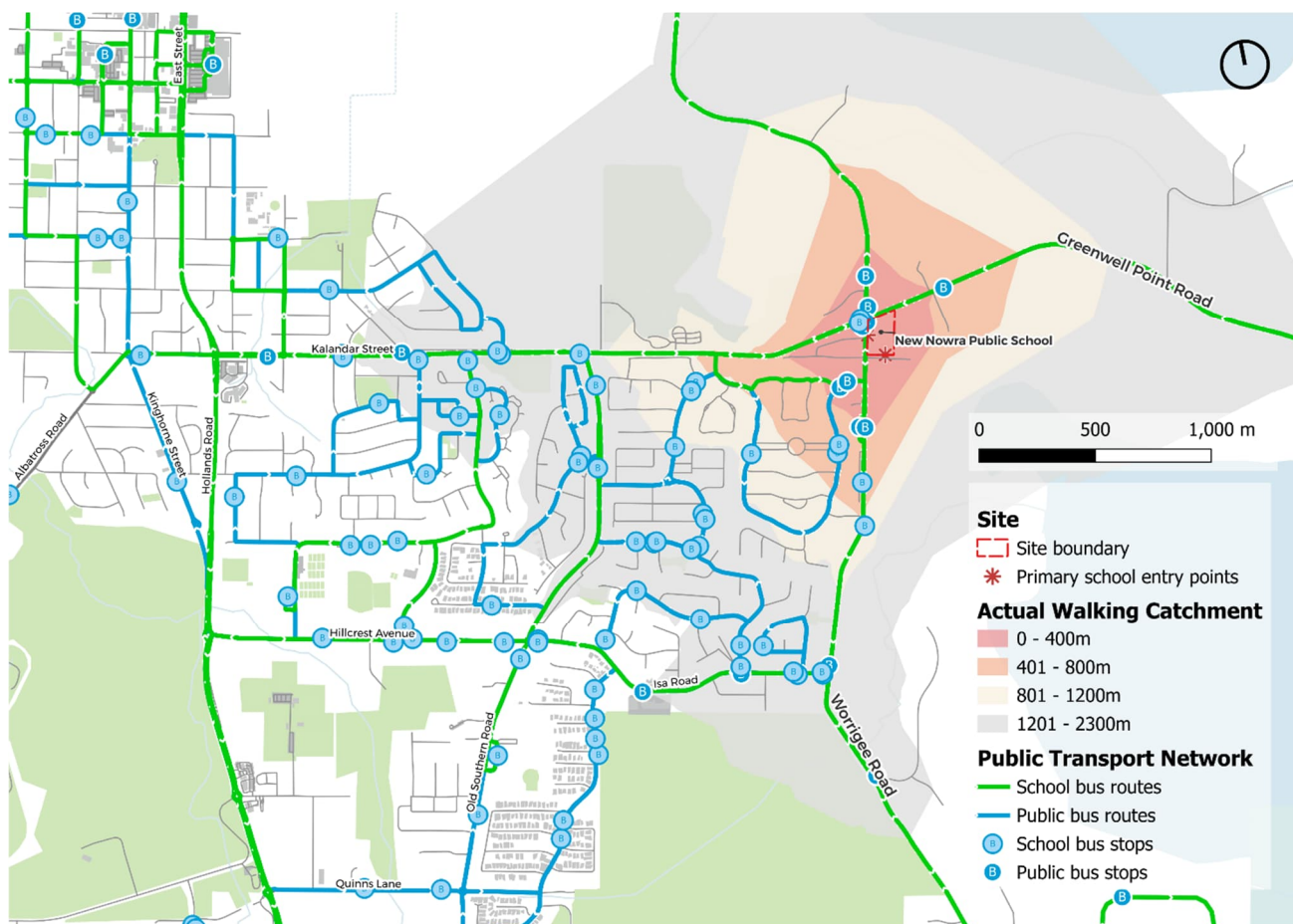


Figure 3.6 Surrounding public transport network

Five school bus services currently operate near the proposed school site. Bus frequency is limited to school opening times, with one service at 07:00 AM and one service after 2:55 PM. These routes serve the neighbouring public primary and high schools, including Nowra East Public School, Shoalhaven High School, Nowra Public School, and Nowra High School.

3.5 Road safety

The road crash history in the vicinity of the new primary school in Worrigeer for the four-year period between 2020-2024 is depicted in Figure 3.7. Three crashes were recorded on Greenwell Point Road, with two resulting in injury. At Greenwell Road/Millbank Road, a cross-traffic intersection crash was recorded during fine daylight conditions which resulted in serious injuries but no fatalities. The second non-casualty incident was recorded at Greenwell Point Road/Worrigeer Road at dusk and fine conditions, whereby the vehicle veered left off the carriageway into an object. An opposing right-through intersection crash, also at the intersection with Worrigeer Road, resulted in minor injury during fine daylight conditions.

One motorcycle crash (off carriageway into an object on the left) was recorded at Worrigee Road/Rayleigh Road during wet, dark conditions, which resulted in serious injury.

Existing low traffic volumes through Worrigee Road and surrounding local roads have contributed to the low crash numbers. This may change as nearby residential development increases. Pedestrian and cyclist collisions were not recorded.

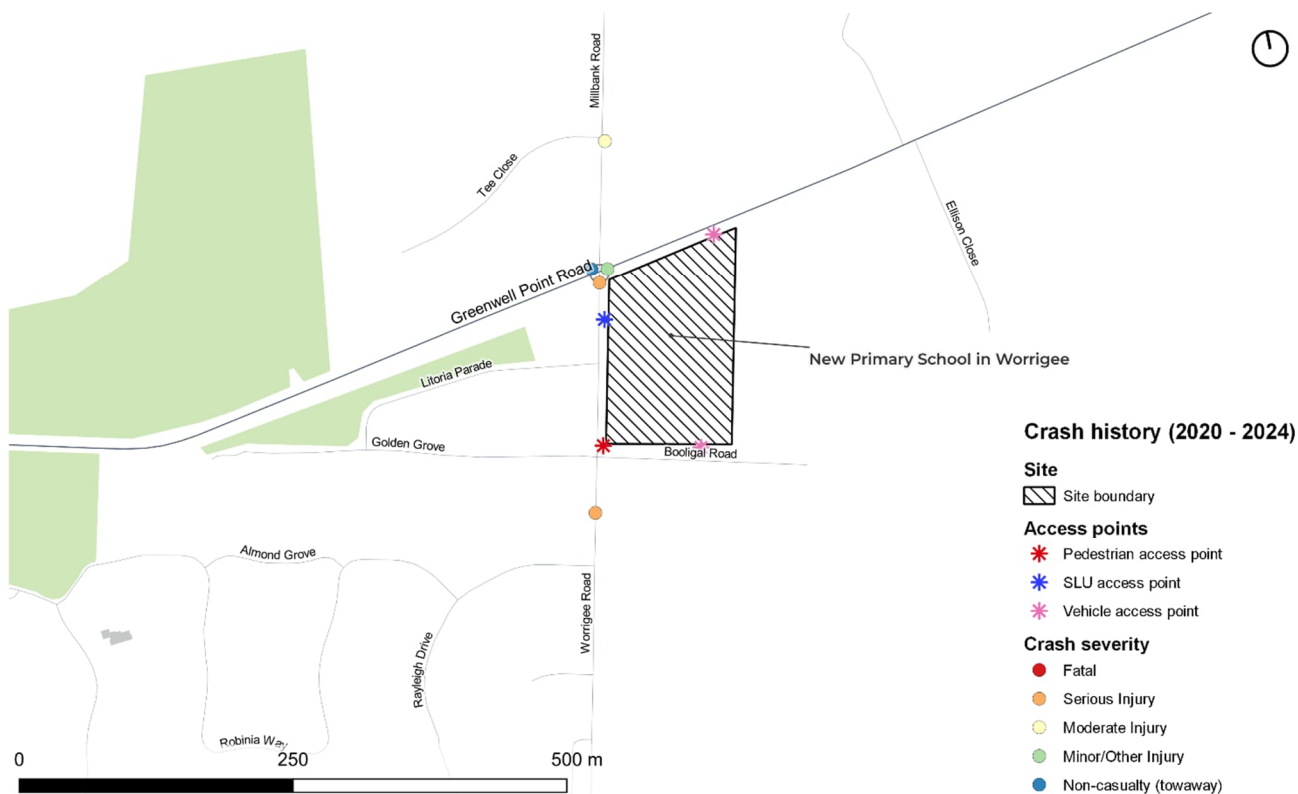
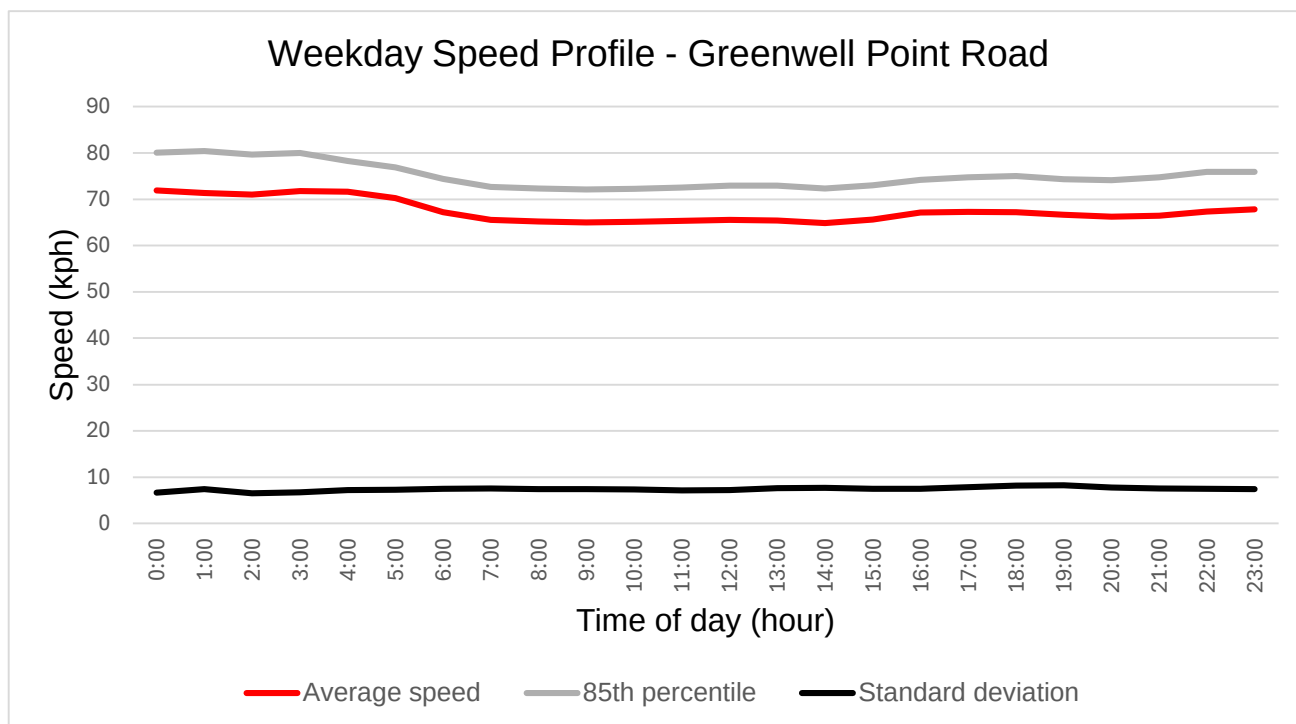


Figure 3.7 Road crashes within the vicinity of the proposed school site (2020-2024)

3.6 Traffic speed

Both Greenwell Point Road and Worrigee Road are signposted as 60 km/h in the vicinity of the site. Other roads in the area have the general speed limit of 50km/h.

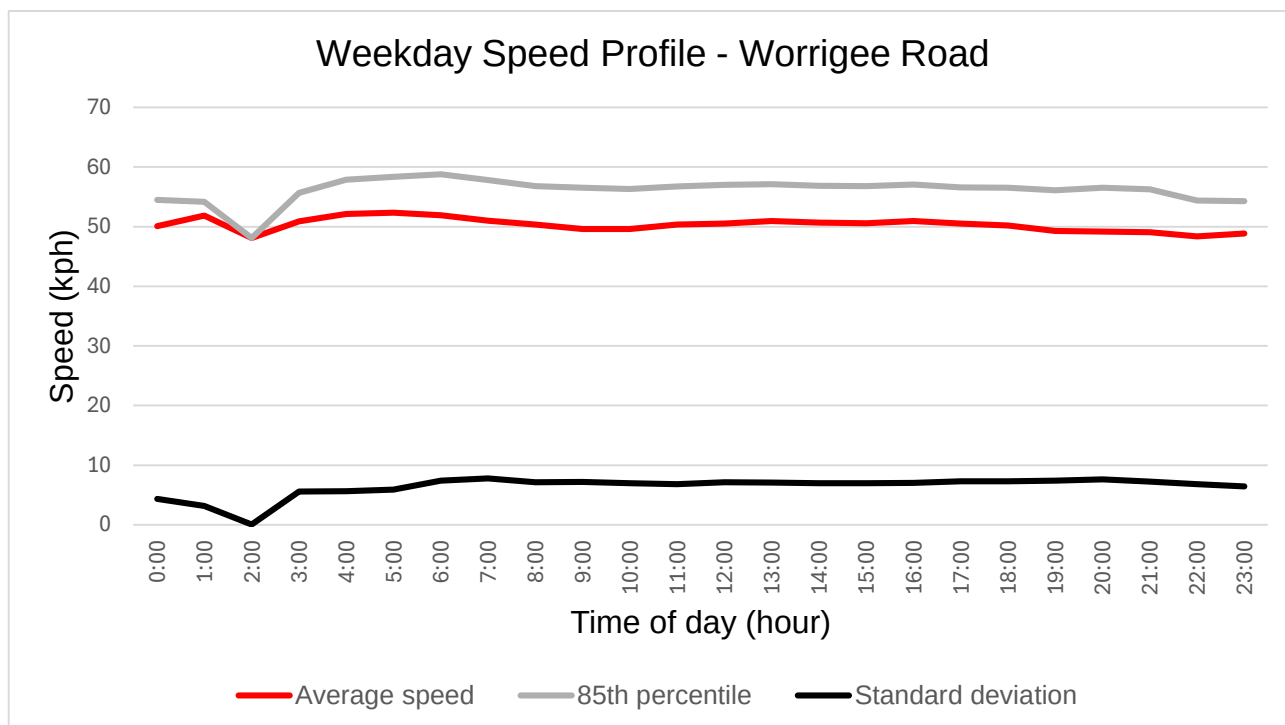
A traffic survey was conducted between Wednesday 19th November to Wednesday 26th November 2025 during the school term. This traffic survey has revealed that both the average speed and the 85th percentile speed along Greenwell Point Road east of Worrigee Road (adjacent to the school site) was higher than the location's posted speed limit of 60 km/hr as shown in Figure 3.8. The speed limit changes from 80 km/h to 60 km/h approximately 440 m east of the intersection with Worrigee Road. However, the survey results suggest that vehicles have not reduced their speed to the slower limit as they pass the school. The planned roundabout at Worrigee Road is expected to further reduce speeds, improving road safety near the school site.



Source: Trans Traffic Survey, 2025

Figure 3.8 Weekday speed profile – Greenwell Point Road east of Worrigee Road

An additional traffic survey was conducted between the same period in November 2025. The traffic survey has revealed that the 85th percentile speed along Worrigee Road north of Golden Grove was below the posted speed limit of 60 km/hr as captured in Figure 3.9.



Source: Trans Traffic Survey, 2025

Figure 3.9 Weekday speed profile – Worrigee Road north of Golden Grove

3.7 Existing transport behaviour at Nowra East Public School

The existing Nowra East Public School is seen as a suitable comparator to observe current school travel behaviour in the Nowra-Bomaderry area. Located approximately 2.75 kilometres west of the proposed school site, Nowra East Public School has approximately 460 students from kindergarten to Year 6. A site visit was conducted on October 29, 2024, to carry out two mode share surveys: a hands-up survey for students and a questionnaire for staff members. These surveys aimed to gain insight into how students and staff travel to and from Nowra East Public School and will be used as a 'Baseline' mode share for the new primary school in Worrigee.

The dwellings in the catchment of the existing Nowra East Public School and the indicative catchment for the new primary school in Worrigee are likely to have similar travel behaviour. However, the position of the two schools relative to their surrounding residences is different. The new primary school in Worrigee has a higher density of dwellings on its west side, and sparser density to the south, north and east. In comparison, Nowra East Public School is surrounded more by dwellings on its west, north and south sides.

3.7.1 Hands-up survey results

A survey of existing travel behaviour at the Nowra East Public School was completed in late October 2024. Students in each class were asked to raise their hand for their mode of travel to school and how they returned home. The results of the survey are summarised in Table 3.2. Of the approximately 460 students, 257 (approximately 68%) completed the survey.

Table 3.2 Nowra East Public School mode share survey

Mode	Percentage of trips		Number of students	
	Morning	Afternoon	Morning	Afternoon
Walk	17.5%	18.1%	45	39
Bicycle/Scooter	10.5%	8.3%	27	18
Public transport	25.7%	19.9%	66	43
Private vehicle	46.3%	53.7%	119	116
Total	100%	100%	257	216

Source: Survey of Nowra East Public School during Term 4, October 2024

The results indicate that there is a change from bus in the morning to car in the afternoon, with the public transport percentage decreasing by about 6 per cent, whilst private vehicle mode share increases by 7 per cent.

3.7.2 Staff questionnaire results

A mode share questionnaire was provided to the staff of Nowra East Public School in late October 2024. It was completed by 50 staff members. The results of the questionnaire are summarised in Table 3.3. They indicate that almost all staff drive to and from Nowra East Public School.

Table 3.3 Nowra East Public School mode share questionnaire

Mode	Percentage of trips	Number of staff
Walk	2%	1
Bicycle/Scooter	0%	0
Public transport	0%	0
Private vehicle	98%	49
Total	100%	50

Source: Questionnaire of Nowra East Public School during Term 4, October 2024

3.8 Traffic volume

Existing traffic conditions were established using surveys conducted between Wednesday 19th November and Wednesday 26th November 2025 – across weeks five and six of Term 4 for nearby public schools. These existing traffic survey results served as inputs to model transport demands and performance for the intersection modelling detailed in Section 5.

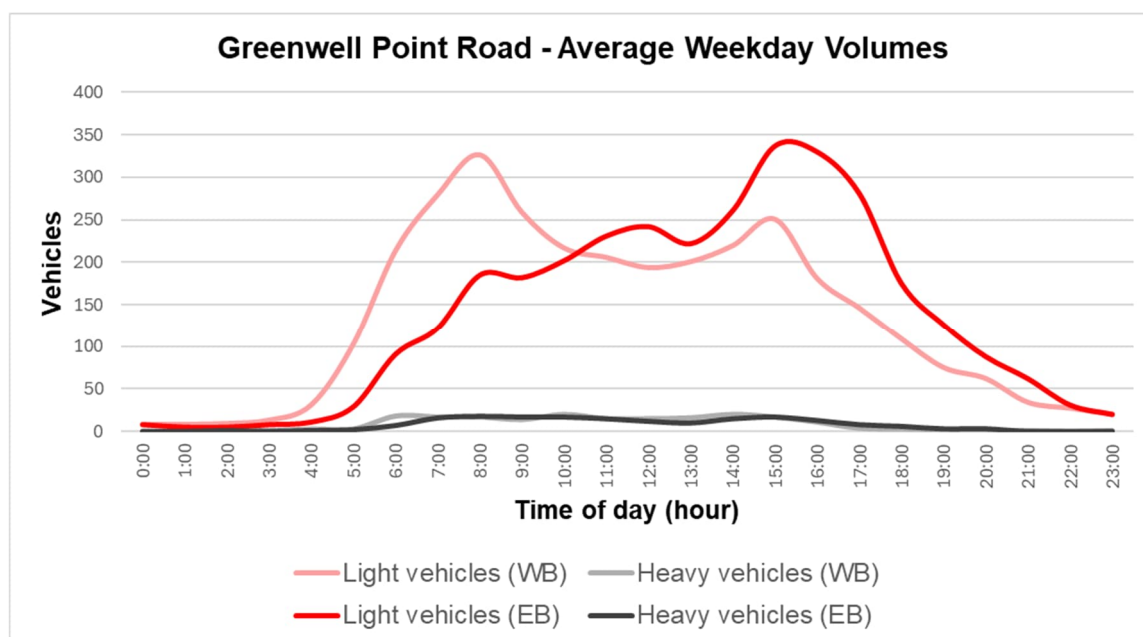
3.8.1 Greenwell Point Road east of Worrigee Road

Greenwell Point Road east of Worrigee Road is a two-way two-lane road. The site of the survey is located approximately 40 metres east of priority-controlled intersection of Greenwell Point Road / Worrigee Road / Millbank Road. The existing AM and PM peak periods were observed to occur between 8.00 AM to 9.00 AM and 2.45 PM to 3.45 PM respectively, coinciding with typical school operating times. Weekday peak volumes and average weekday volumes are summarised in Table 3.4 and Figure 3.10. As displayed in Table 3.4, between 8.00 AM to 9.00 AM, a spike of traffic to approximately 561 vehicles was observed, and between 2.45 PM to 3.45 PM, there was a peak of approximately 635 vehicles. This data reveals that across the recorded time there was greater road use during the PM peak period at Greenwell Point Road east of Worrigee Road, particularly in the eastbound direction.

Table 3.4 Existing peak weekday volumes – Greenwell Point Road east of Worrigee Road

AM Peak – Existing Conditions Greenwell Point Road	PM Peak – Existing Conditions Greenwell Point Road
178 18 3 344 15 3	351 11 4 249 14 6
Light Vehicles Heavy Vehicles Buses vehicles / hour	Light Vehicles Heavy Vehicles Buses vehicles / hour

Source: Trans Traffic Survey, 2025



Source: Trans Traffic Survey, 2025

Figure 3.10 Greenwell Point Road – Average Weekday Volumes

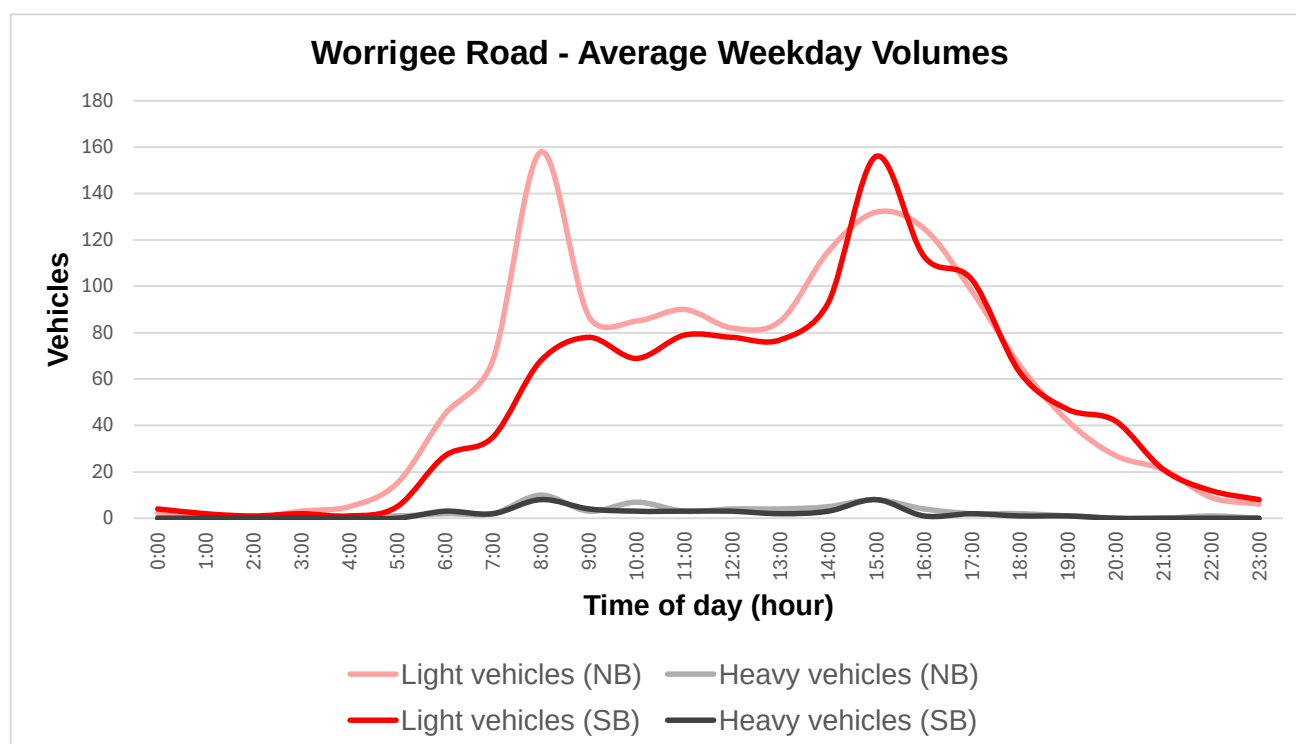
3.8.2 Worrigeer Road north of Golden Grove

Worrigeer Road north of Golden Grove is a two-way two-lane road. The surveyed site is located 30 metres north of the priority-controlled Worrigeer Road / Golden Grove intersection and 40 metres south of the priority-controlled Worrigeer Road / Litoria Parade intersection. The existing AM and PM peak periods for weekdays were observed to occur between 8.00 AM to 9.00 AM and 3.00 PM to 4.00 PM respectively, with peak volumes recorded in Table 3.5. These peak periods coincide with typical school operating times.

Table 3.5 Existing peak weekday volumes – Worrigeer Road north of Golden Grove

AM Peak – Existing Conditions Worrigeer Road	PM Peak – Existing Conditions Worrigeer Road
159 5 7 70 6 4	167 0 6 156 2 3
Light Vehicles Heavy Vehicles Buses vehicles / hour	Light Vehicles Heavy Vehicles Buses vehicles / hour

Source: Trans Traffic Survey, 2025



Source: Trans Traffic Survey, 2025

Figure 3.11 Worrigeer Road – Average Weekday Volumes

3.9 Parking availability

Existing parking is shown in Figure 3.12. Unrestricted kerbside parking is provided on local streets west and north of Worrigea Road. There is no on-street parking available along Greenwell Point Road or Worrigea Road within the vicinity of the proposed school site.



Figure 3.12 Parking provision in the vicinity of the school site

4 Proposed activity

4.1 Overview

The activity is for the construction and operation of the new primary school in Worrigee under Chapter 2 and Chapter 3 of State Environmental Planning Policy (Transport and Infrastructure) 2021 (TI SEPP) comprising 24 classrooms, a support learning unit (including 30 students), hall, canteen, covered outdoor learning area, library, offices, sports field, waste storage, landscaping, car parking, public domain works and infrastructure upgrades, to support 552 students. A 60-space preschool is also proposed on the site under Chapter 3 of TI SEPP and is subject to a separate Review of Environmental Factors (REF) assessment. It is envisaged that the preschool (including road works on Booligal Road) will be delivered prior to the proposed activity. An indicative plan of the proposed activity was shown in Figure 1.1.

The proposed activity will also include the following:

- Staff parking (34 spaces) accessed through combined off-street preschool (20 spaces) (preschool not part of the proposed activity) from Booligal Road
- Waste collection and limited staff parking (6 spaces), accessed from Greenwell Point Road
- Main pedestrian access at the corner of the intersection of Worrigee Road and Booligal Road
- 67 bicycle parking spaces (along the Worrigee Road boundary).

4.2 Transport layout

From a transport perspective, Worrigee Road is proposed to include:

- Footpath on the eastern side of Worrigee Road between Greenwell Point Road and Booligal Road
- Three accessible DOPU spaces for support learning unit (SLU) students
- Indented bus bay with space for three southbound bus stands
- Marked raised (wombat) pedestrian crossing (managed school crossing) north of Golden Grove / Booligal Road.

Booligal Road (delivered as part of the preschool prior to the proposed activity becoming operational) is proposed to include:

- Footpath on both sides of the road from Worrigee Road to the indented parking bays and alongside the school and preschool
- DOPU in an indented bay with 10 car spaces
- Vehicle access to the shared preschool and staff car parking from Booligal Road
- Short-stay parking (17 spaces) on Booligal Road
- Marked raised (wombat) pedestrian crossing east of Worrigee Road
- Turning area at the eastern end.

Greenwell Point Road will have:

- Footpath connecting Worrigee Road to pedestrian refuge at new roundabout.
- Access to waste collection area with 6 staff parking spaces.

4.3 Transport behaviour

Three mode share scenarios ('Baseline', 'Medium' and 'Reach') were developed to target higher mode shares for sustainable travel to and from the school (these are outlined in the School Transport Plan in Appendix B). This assessment is focused on the 'Baseline Scenario' mode share target, as the conservative and more likely scenario at the site's opening.

The 'Baseline' mode share targets for the new primary school in Worrigee are summarised in Figure 4.1. They are based on the current transport mode share observed at the Nowra East Public School and an adjustment to suit local conditions.

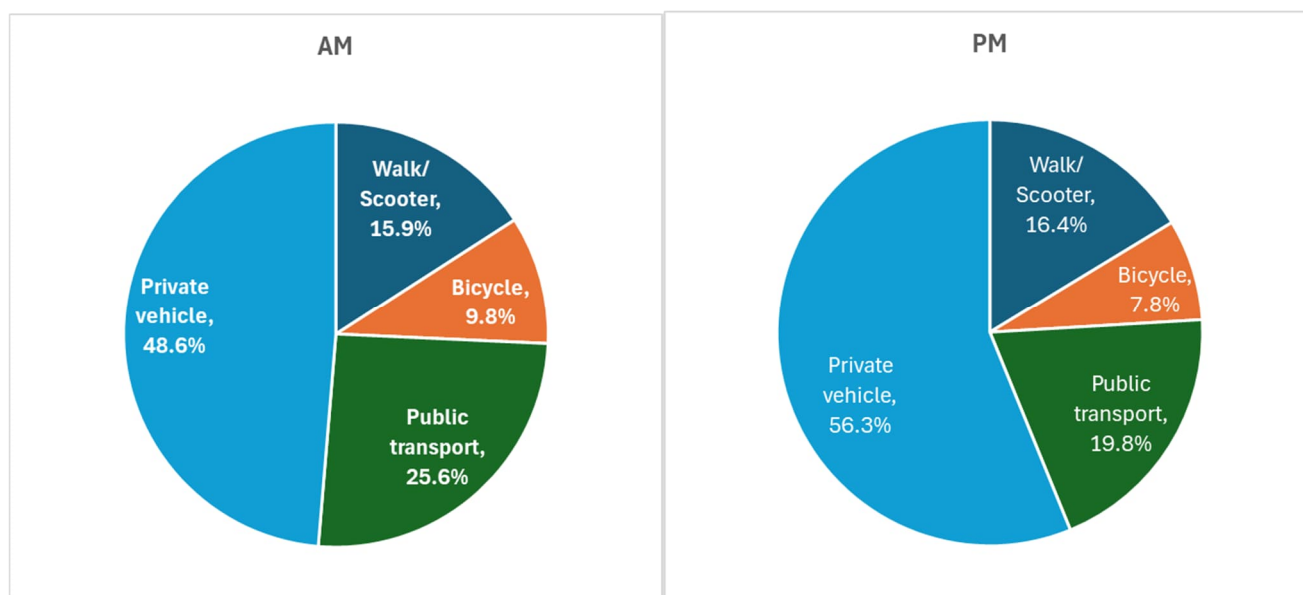


Figure 4.1 Baseline mode share target for the new primary school Worrigee

For staff, it has been assumed that all will drive. However, they will be encouraged to consider using walking, cycling and buses. Bicycle end of trip facilities (shower and lockers) will be provided for staff to facilitate those who do choose to cycle to the school.

4.4 Pedestrian and cyclist access

Pedestrian and cyclist access/egress points to the school are proposed to be provided to the main entry on the corner of Worrigee Road and Booligal Road (see Figure 4.2) overleaf.

New infrastructure is proposed to support pedestrian access to the school site, including:

- 2.0m to 3.0m wide footpath on Worrigee Road from the planned refuge at the Greenwell Point Road roundabout to Booligal Road, and on both sides of Booligal Road
- Two raised pedestrian priority (wombat) crossings:
 - Marked raised (wombat) pedestrian crossing (managed school crossing) north of Golden Grove / Booligal Road.
 - Marked raised (wombat) pedestrian crossing east of Worrigee Road.
- One at-grade painted pedestrian crossing on Golden Grove, west of Worrigee Road.

This new infrastructure will support the existing facilities to allow students to safely access the site by walking and cycling, or when connecting from nearby bus services.

End of trip facilities will be provided on-site to support staff's active travel to and from the site.

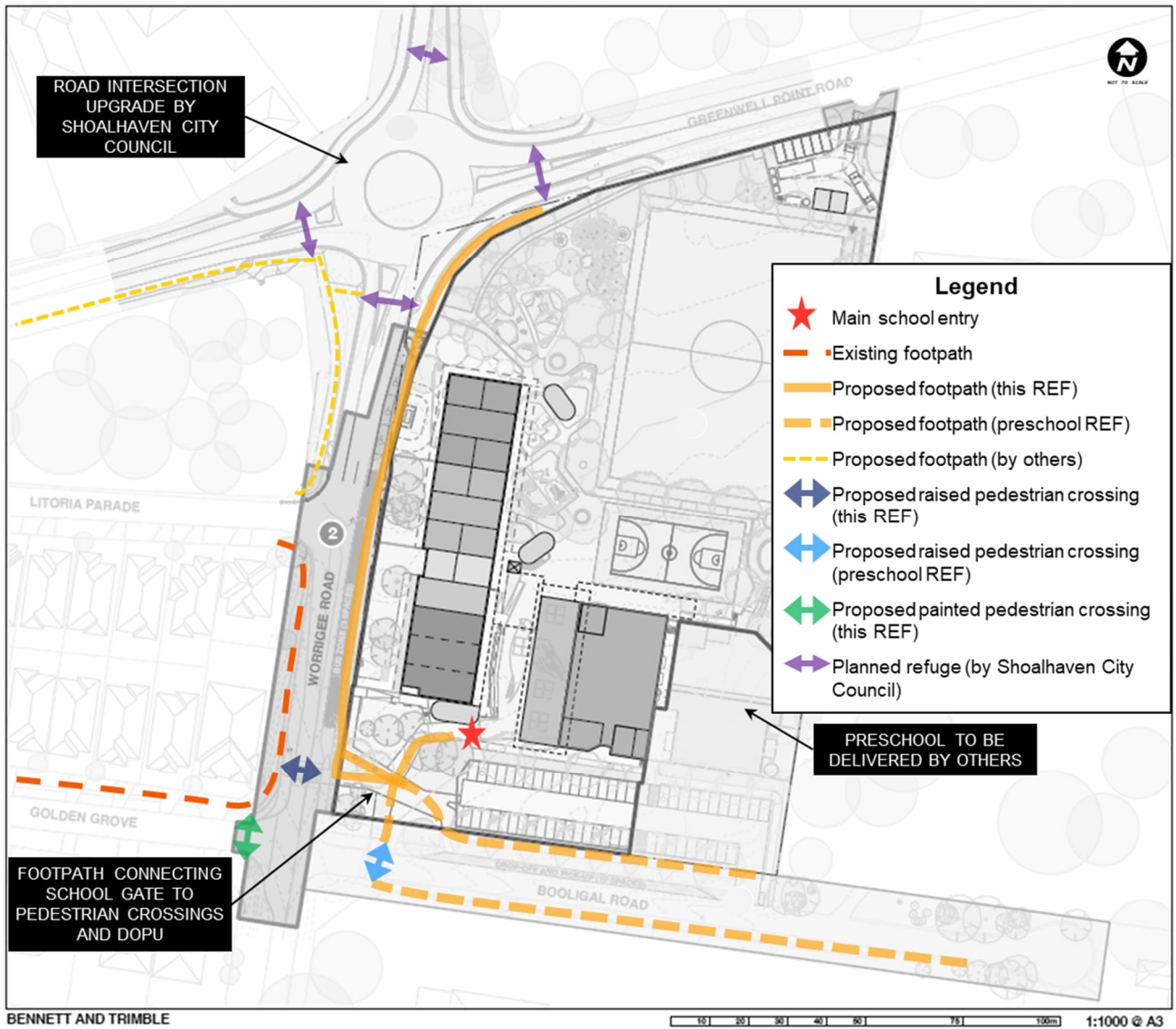


Figure 4.2 Proposed active transport access arrangements

4.5 Vehicular access

Vehicle access, shown in Figure 4.3, is proposed to take advantage of the school's two main road frontages (Worrigee Road and Booligal Road, and minimise access on Greenwell Point Road. This matches the anticipated direction of arrival and departure.

The school's vehicle access has anticipated Shoalhaven City Council's upgrade of the intersection of Greenwell Point Road and Worrigee Road to a roundabout, which is expected to slow down vehicle speeds on Greenwell Point Road and make turns easier.

The proposed school DOPU is located on Booligal Road between Worrigee Road and the preschool carpark access. Additional on-street parking is proposed on Booligal Road southern side to assist parents wishing to walk their children in to class. If the DOPU is full, it is intended that parents/care givers proceed to use the additional on-street parking and walk to collect their child.

The main area of staff parking will share the preschool parking access. This reduces the number of footpath crossovers, improving pedestrian safety. The second area of staff parking will be accessed from Greenwell Point Road. This access will also serve as the waste collection and service vehicle access location.

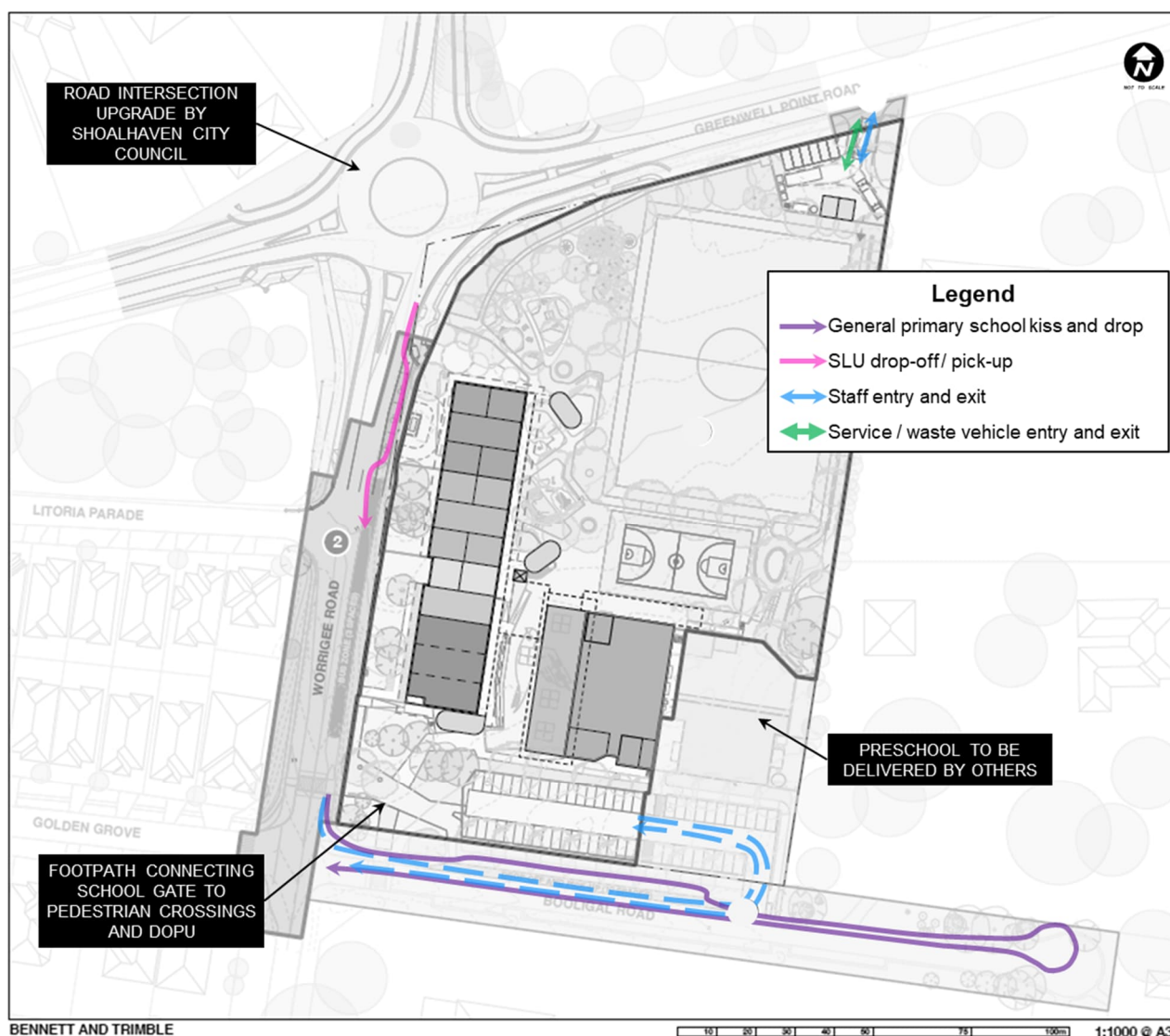


Figure 4.3 Proposed vehicle access arrangements

4.6 Speed zone changes

It is understood that the existing speed limit on Greenwell Point Road will be revised with the planned upgrade of the Worrigeer Road intersection to a roundabout. The observed speeds shown in Figure 3.8 are expected to be reduced by the design of the roundabout.

As a further safety improvement, school speed zones are proposed for Greenwell Point Road, Worrigeer Road and intersecting side streets as part of the activity (see Figure 4.4). Transport for NSW will confirm the speed zones to be applied, and an application is to be made to ensure prompt installation of signage for the school's opening. Notifying the community about speed limit changes is essential to influence driver behaviour in time for the school's opening.

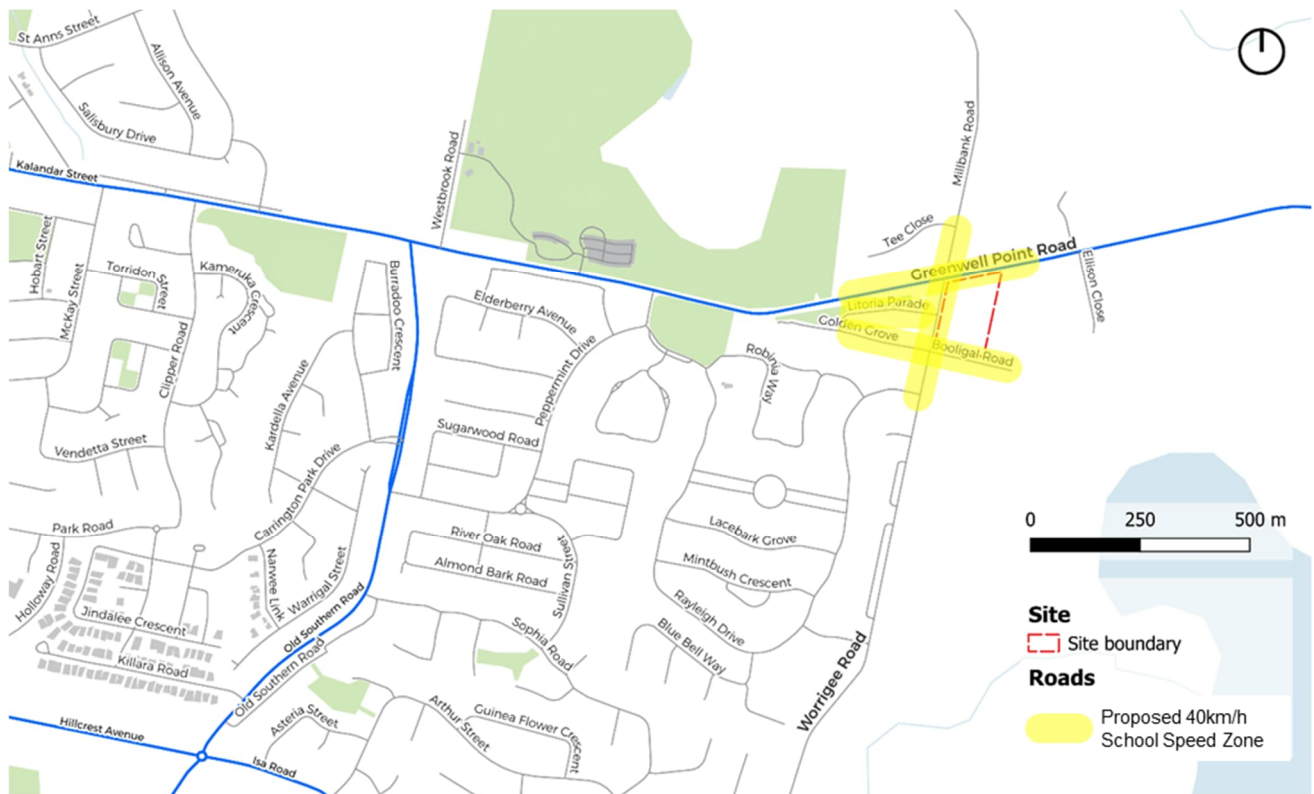


Figure 4.4 Indicative school speed zone

4.7 Parking arrangements

A summary of the parking proposed within the school site is provided in Table 4.1, and shown in Figure 4.5. The number of spaces is based on a first-principles analysis covering the needs of the school. Visitors and short-stay are expected to use the proposed parking on Booligal Road.

Table 4.1 Parking provision

Parking	Proposed
Staff	— 40 spaces (1 per staff member), 34 in the southern (Booligal Road) parking including one accessible space and 6 in the northern (Greenwell Point Road) area
DOPU	— 10 DOPU spaces — 3 accessible SLU spaces
Visiting parents	— 17 short-stay parking spaces on-street on the southern side of Booligal Road
Bicycle parking	— 67 spaces to achieve five Green Star rating, including 3 for staff (7.5% of staff) and 64 for students (40% of students above Grade 4)

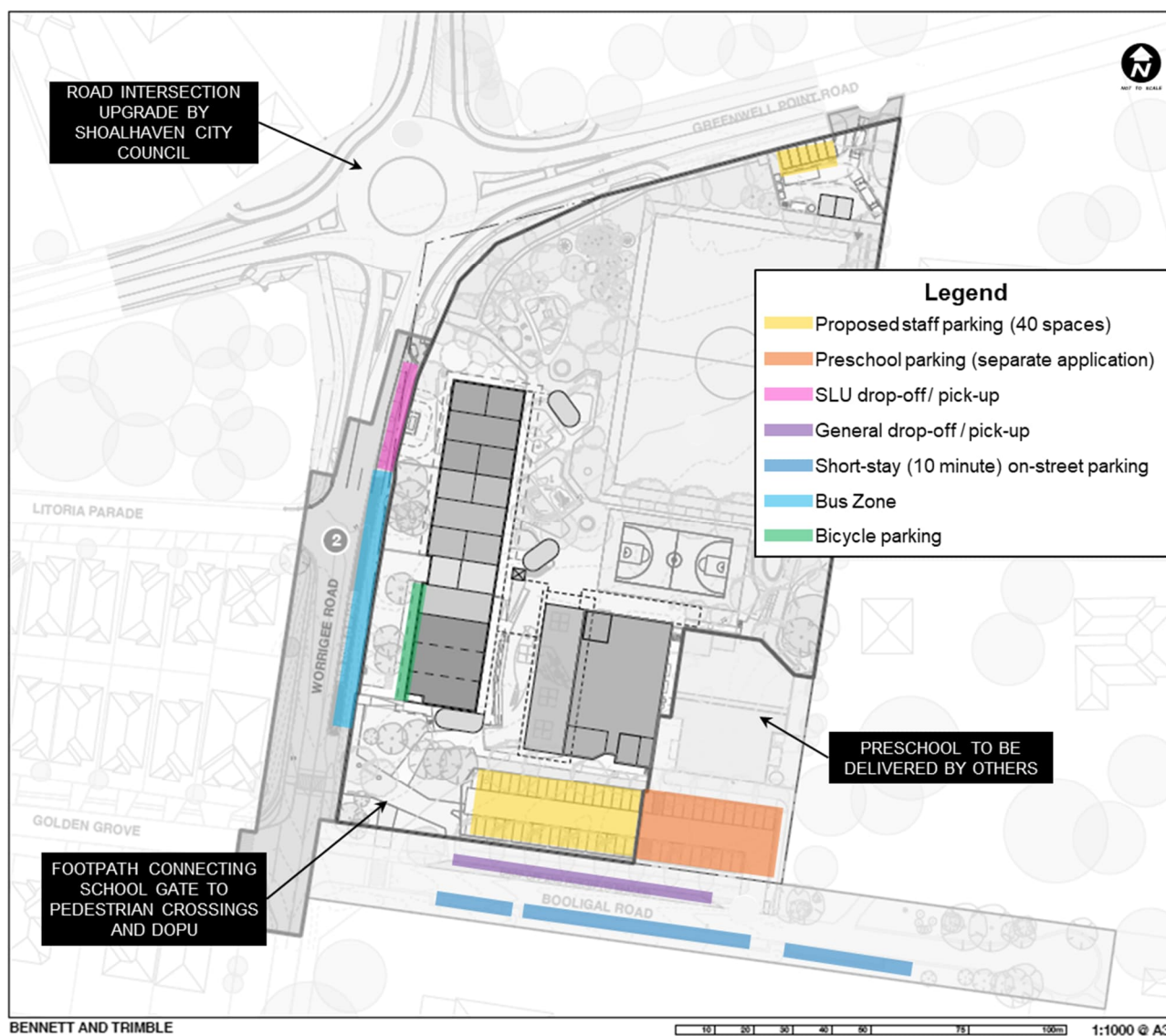


Figure 4.5 Proposed parking arrangements

4.8 Bus bays

A bus bay with space for three buses is proposed on the eastern side of Worrige Road (see Figure 4.6). There are existing stops on the opposite side of Worrige Road and on Greenwell Point Road, west of Worrige Road. In line with 'Baseline' mode share and bus capacities, five bus services would be needed to support student demand for travel to and from school. This is subject to further planning by Transport for NSW. The three proposed bus stands give flexibility for bus servicing with enough capacity and minimal sharing of services.

Coach parking for excursions and special events needs to be accommodated in the bus bay. Coach parking will need to be coordinated with school bus operations to ensure that it does not interfere with these services. Public buses are expected to remain at the current bus stops.

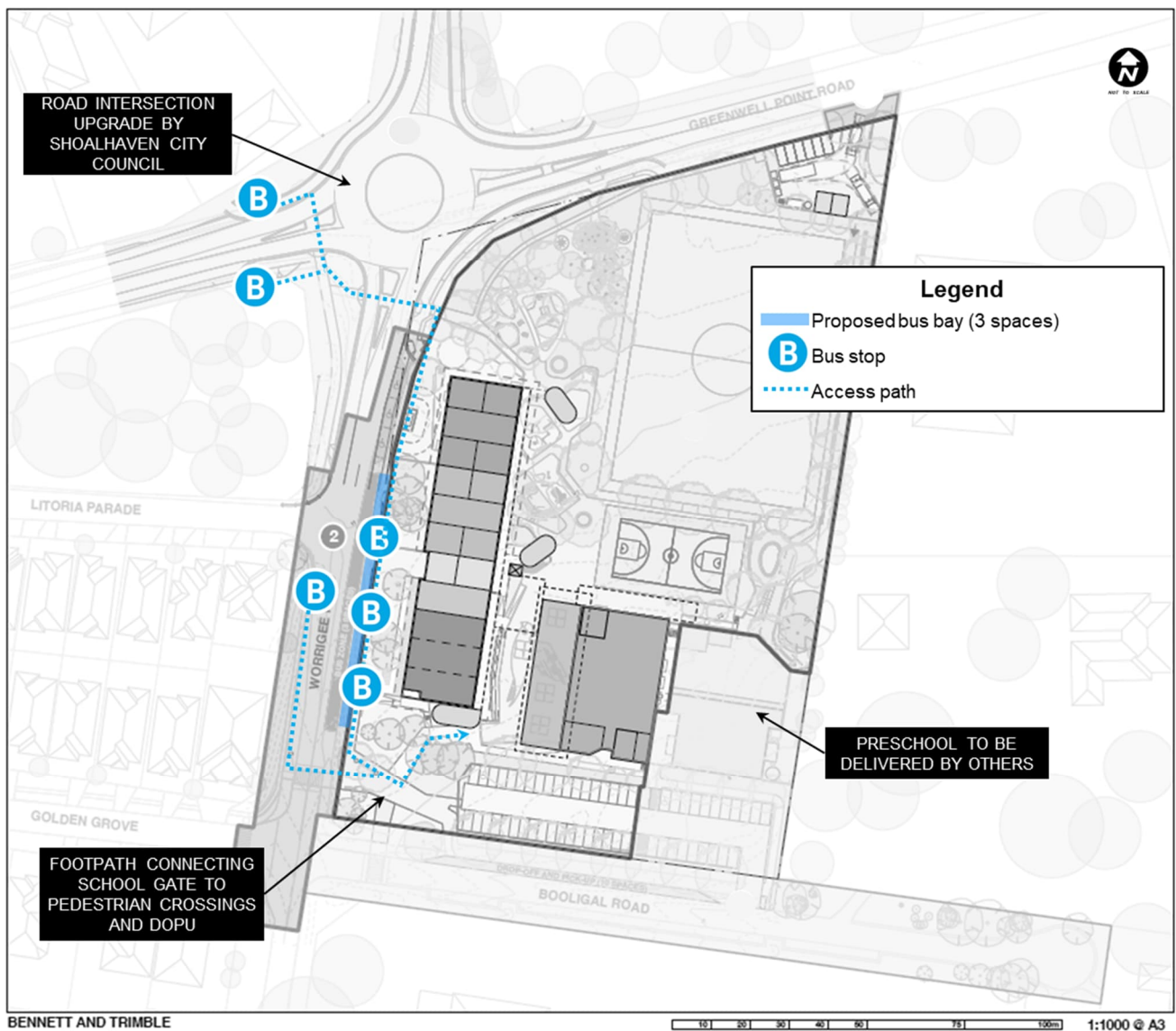


Figure 4.6 Proposed bus stop arrangements

4.9 Servicing, loading and emergency vehicles

Servicing, loading and waste vehicles will access the school site from the Greenwell Point Road access. This area has space for larger vehicles and its use does not conflict with pedestrian movements. Vehicles will enter and leave through the site in a forward movement.

The rear 18.5 metres of the bus zone on Worrigee Road could be signposted as Loading Zone 9:30am to 2:30pm Mon-Fri to allow it to be used for service vehicle access outside of morning and afternoon bus hours. A typical number of 10 deliveries per week is anticipated.

Emergency vehicle access will be facilitated via hardstand within the bus bay, located near the fire booster. Given the infrequent nature of emergency vehicles requiring access to the site, this arrangement is suitable. The multiple bus stops in the area allows flexibility for bus activities in the event that the hardstand is occupied by a fire appliance.

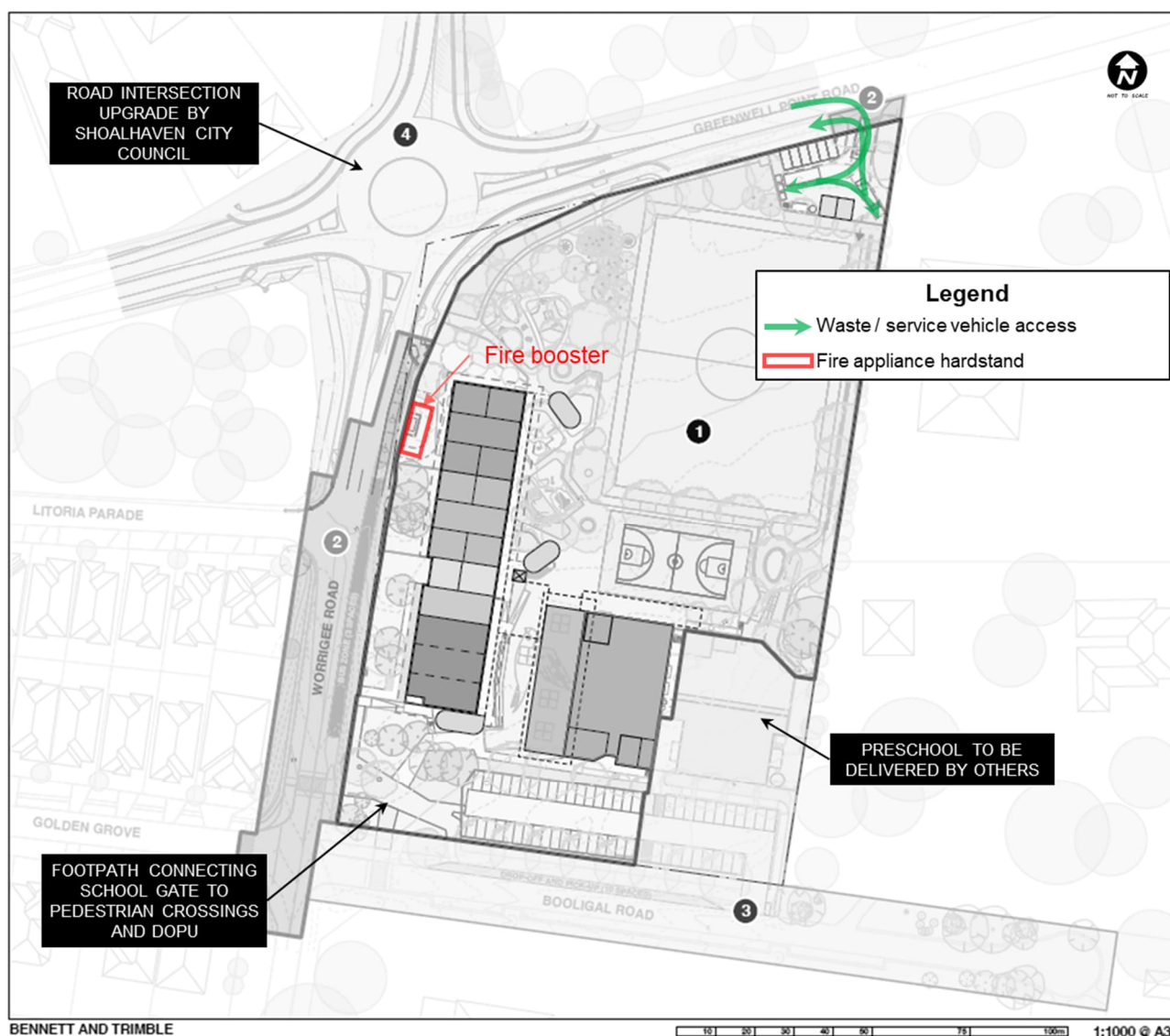


Figure 4.7 Proposed waste, service and emergency vehicle arrangements

5 Impact assessment

5.1 Road network impacts

5.1.1 Traffic generation

Anticipated trip generation for the primary school and preschool was determined utilising the following assumptions:

- **Primary school:** 552 students in 27 classes and 37 FTE staff
- **SLU:** 30 students and 3 FTE staff
- **Preschool:** 60 students and 7 FTE staff
- **Car mode share:** 49 per cent car mode share for the primary school during AM peak and 56 per cent during the PM peak (based on the ‘Baseline’ mode share in section 4.3). 100 per cent car mode share for SLU students and preschool students during both peak periods
- 1.5 students per vehicle trip to account for siblings and friends arriving in the same vehicle
- Primary school, preschool, and SLU staff enter the school slightly before the AM peak (but still included in trip generation to be conservatively high) and depart after the after-school PM peak
- Additional buses (up to 8) will service the primary school, which accommodates the ‘Reach’ (best case – see School Transport Plan in Appendix B) bus mode share (50 students) and a lower bus occupancy of 10 students per bus
- 100 per cent of staff are assumed to drive, with one staff member per vehicle.

Table 5.1 Vehicle traffic generation and sources across AM and PM peaks

Time	Direction	PS students	PS & SLU FTE staff	SLU students	PPS students	PPS staff	Bus	Total (excl. bus)
AM Peak	Inbound	179	40	30	60	7	8	316
	Outbound	179	-	30	60	-	8	269
PM Peak	Inbound	207	-	30	60	-	8	297
	Outbound	207	-	30	60	-	8	297
PM Off-peak	Inbound	-	-	-	-	-	-	-
	Outbound	-	40	-	-	7	-	47

The AM and PM peak trip numbers equate to approximately 0.8 vehicle trips per student. Across a typical school day, the proposed activity is expected to generate approximately 1,350 vehicles per day (trips to a d from school combined).

Out of School Hours (OOSH) care has not been included as this activity typically occurs off-peak, i.e. staff and parents arrive before, and leave after, the regular school peak.

5.1.2 Traffic distribution

The anticipated traffic to be generated by the site has been distributed to the surrounding network. Based on the estimated location of forecasted enrolments across the indicative intake area, the traffic distribution across each leg was determined as per Table 5.2.

To reflect the trip pattern of people from Worrigeer dropping their child at school on their way to work, it was assumed that 40 per cent of parents would arrive from the south and depart to the west (and vice versa in the PM peak). The remaining people would arrive and depart via the same direction.

Table 5.2 Estimated traffic distribution

Direction	Estimated students (general and SLU)			AM peak		PM peak	
	Students	Per cent	Rounded	Arrival	Departure	Arrival	Departure
East	8	1.4%	1.5%	1.5%	1.5%	1.5%	1.5%
North	5	0.9%	1.0%	1.0%	1.0%	1.0%	1.0%
West	124	21.3%	22.5%	22.5%	52.5%	52.5%	22.5%
South	445	76.5%	75.0%	75.0%	45.0%	45.0%	75.0%
Total	582		100.0%	100.0%	100.0%	100.0%	100.0%

The largest impact of vehicles is expected to be on Booligal Road of approximately 1,175 vehicles per day, from DOPU, short stay parking, preschool and the majority of staff parking. As well as visitor trips during the day. The traffic impact on Worrigeer Road will be split as vehicles approach the school from different directions.

5.1.3 Assessment methodology

Intersection modelling assessments were conducted for Greenwell Point Road / Worrigeer Road / Millbank Road and Worrigeer Road / Golden Grove / Booligal Road intersections to assess the impact of traffic at the proposed school site. These assessments were conducted using SIDRA Intersection 10, which is an industry-recognised traffic engineering software that enables intersections to be assessed against key performance parameters including Level of Service (LoS), Degree of Saturation (DoS), average delays and queue lengths.

Degree of Saturation

The Degree of Saturation (DoS) is the ratio of demand flow to capacity and therefore has no unit. As it approaches 1.0, extensive queues and delays could be expected. For a satisfactory situation, DoS should be less than the nominated practical degree of saturation, usually 0.9. The intersection DoS is based on the movement with the highest value.

According to Austroads Guide to Traffic Management (AGMT) Part 3 (2020), in practice, the target degrees of saturation (known as the practical degree of saturation) for signal, roundabout and priority-controlled intersections are 0.90, 0.85 and 0.80 respectively.

Average Vehicle Delay

Average vehicle delay refers to the difference between interrupted and uninterrupted travel times through the intersection and is measured in seconds per vehicle. At signalised intersections, the average intersection delay is usually reported. At roundabouts and priority-controlled intersections, the average delay for the most delayed movement is usually reported.

Level of Service

Level of Service (LoS) is a basic performance measure used to describe the operation of an intersection. Levels of Service range from A (indicating good intersection operation) to F (indicating over-saturated conditions with long delays and queues). At signalised intersections, the LoS criteria are related to average intersection delay (seconds per vehicle). At priority-controlled (give-way and stop control) and roundabout intersections, the LoS is based on the modelled delay (seconds per vehicle) for the most delayed movement.

The TfNSW LoS criteria for intersections, which has been used throughout this assessment, is displayed in Table 5.3.

Table 5.3 Level of Service criteria for intersections

Level of Service	Average delay (seconds per vehicle)	Traffic signals, roundabout	Give-way and stops signs
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity.	Acceptable delays and spare capacity.
C	29 to 42	Satisfactory	Satisfactory, but accident study required.
D	43 to 56	Operating near capacity	Near capacity and accident study required.
E	57 to 70	At capacity. At signals, incidents would cause excessive delays. Roundabouts require other control mode.	At capacity, requires other control mode.
F	Greater than 70	Unsatisfactory with excessive queuing.	Unsatisfactory with excessive queuing; requires other control mode.

Source: *Guide to Transport Impact Assessment (Transport for NSW, 2024) and Guide to Traffic Generating Developments (Roads and Maritime Services, 2002)*

Queue Length

Queue length is measured in metres reflecting the number of vehicles waiting at the stop line and is usually quoted as the 95th percentile back of the queue, which is the value below which 95 per cent of all observed queue lengths fall. It reflects the number of vehicles per traffic lane at the start of the green period when traffic starts moving again after a red signal. The intersection queue length is usually taken from the movement with the longest queue length.

Acceptable intersection performance for priority-controlled intersections is defined as follows:

- LoS D or higher
- Degree of Saturation (DoS) less than or equal to 0.8
- 95th percentile worst back of queue length not encroaching adjacent intersections.

SIDRA models have been run for the 30-minute peak period duration before and after school.

5.1.4 Existing intersection performance

Existing turning movement surveys were conducted on Thursday 20th November 2025. The survey results were used to model the intersection performance. Results are shown in Table 5.4. They indicate good performance at both intersections with minor delays and queuing on Worrigee Road at Greenwell Point Road.

Table 5.4 SIDRA intersection results – pre-development 2025

Site	AM peak period results				PM peak period results			
	DoS	Average Delay (sec/veh)	LoS	95% Queue (m)	DoS	Average Delay (sec/veh)	LoS	95% Queue (m)
Greenwell Point Rd / Worrigee Rd / Millbank Rd	0.38	22.4	B	14 (Worrigee Rd)	0.40	22.2	B	13 (Worrigee Rd)
Worrigee Rd / Golden Grv / Booligal Rd	0.09	6.7	A	< 6m	0.10	6.3	A	< 6m

5.1.5 Future planned intersection upgrade

It is understood from consultation with Shoalhaven City Council, that an upgrade to the intersection of Greenwell Point Road / Worrigee Road / Millbank Road is planned prior to the opening of the proposed activity. The upgrade to a roundabout would improve safety and reduce vehicle speeds, as well as improving intersection performance. The intersection modelling results for the upgraded roundabout are shown in Table 5.5.

Table 5.5 SIDRA intersection results – Greenwell Point Road / Worrigee Road / Millbank Road with existing traffic and planned upgrade to a roundabout

Site	AM peak period results				PM peak period results			
	DoS	Average Delay (sec/veh)	LoS	95% Queue (m)	DoS	Average Delay (sec/veh)	LoS	95% Queue (m)
Greenwell Point Rd / Worrigee Rd / Millbank Rd	0.27	12.4	A	14m (Greenwell Point Rd east)	0.30	13.5	A	16m (Greenwell Point Rd west)

5.1.6 Future without proposed activity

Future traffic volumes were estimated assuming an annual growth in traffic of 2.0 per cent per annum¹. The surveyed traffic volumes were factored up using this growth rate to estimate future traffic volumes in 2028 without the proposed activity. The intersection model results are summarised in Table 5.6. They indicate only very minor increases in average vehicle delay (0.1 seconds) and queue length (1m).

Table 5.6 SIDRA intersection results – future base without proposed activity 2028 (includes preschool)

Site	AM peak period results				PM peak period results			
	DoS	Average Delay (sec/veh)	LoS	95% Queue (m)	DoS	Average Delay (sec/veh)	LoS	95% Queue (m)
Greenwell Point Rd / Worrigee Rd / Millbank Rd*	0.28	12.5	A	15m (Greenwell Point Rd east)	0.32	13.6	A	17m (Greenwell Point Rd west)
Worrigee Rd / Golden Grv / Booligal Rd	0.10	6.8	A	< 6m	0.10	6.4	A	< 6m

Notes Greenwell Point Rd / Worrigee Rd / Millbank Rd upgraded to a roundabout

5.1.7 Future with proposed activity

Future traffic volumes generated by the proposed activity, outlined in section 5.1.1 were added on top of the 2028 base volumes (including the preschool) to estimate the 2028 with proposed activity. Pedestrian volumes at the proposed pedestrian crossings for students and parents arriving and parents leaving (in the AM peak, vice versa in the PM peak) were included. The intersection model results are summarised in Table 5.7.

¹ Estimated based on Transport for NSW traffic data for the Princes Highway, 190m south of Illaroo Road in Bombaderry, which was calculated to have an annual growth of 1.7% per annum between 2007 and 2017.

Table 5.7 SIDRA intersection results – future with proposed activity in 2028 (includes preschool)

Site	AM peak period results				PM peak period results			
	DoS	Average Delay (sec/veh)	LoS	95% Queue (m)	DoS	Average Delay (sec/veh)	LoS	95% Queue (m)
Greenwell Point Rd / Worrigee Rd / Millbank Rd*	0.51	13.4	A	32m (Worrigee Rd)	0.57	16.7	B	40m (Greenwell Point Rd west)
Worrigee Rd / Golden Grv / Booligal Rd	0.78	28.5	C	89m	0.62	18.9	B	48m

Notes Greenwell Point Rd / Worrigee Rd / Millbank Rd upgraded to a roundabout

The results indicate some reduction in traffic performance at the roundabout at Greenwell Point Road / Worrigee Road / Millbank Road. At the intersection of Worrigee Road / Golden Grove / Booligal Road, the increased activity from cars entering and leaving the DOPU and short-stay parking and the pedestrians crossing Booligal Road combine to create a queue of vehicles which would extend back to the preschool / staff parking access in the morning peak and less in the PM peak. However, performance is still equal to or above a satisfactory level of service. This queue can be reduced by encouraging less car use and more travel by walking, cycling and buses by achieving the ‘Medium’ mode share target.

5.2 Parking impacts

The proposed number of parking spaces is based on a first principles estimate of travel demand based on the ‘Baseline’ mode share, which is in turn based on surveyed travel behaviour at nearby Nowra East Primary School.

The proposed number of staff parking spaces at one per staff member caters for anticipated mode share while not prohibiting greater use of walking and cycling.

The required DOPU provision has been determined by considering the adopted ‘Baseline’ mode share target for private vehicles of 56 per cent in the PM peak (233 students), as well as the following key assumptions:

- Average vehicle occupancy of 1.5 students per vehicle for primary school students
- 75 per cent using DOPU, 25 per cent using short-stay parking on Booligal Road
- Typical dwell time of two minutes per car for DOPU and ten minutes per car for short-stay. Note that DOPU signage typically allows for a maximum of two minutes.
- DOPU activities occurring over a 30-minute window with a flat demand profile, allowing for 15 vehicles per space
- Each DOPU bay is 6.5m in length to allow for safe vehicle entry and exit as per AS 2890.5:2020 Section 3.2 Parallel parking.

These considerations yield a DOPU bay requirement of 10 DOPU spaces, which is provided on the north side of Booligal Road.

They also yield a total of 17 short-stay parking spaces, which will be accommodated on the south side of Booligal Road.

The following suggestions are made to minimise the impact of the activity and reduce parking impact:

- Developing the Travel Access Guide (TAG), outlined in the School Transport Plan, to encourage parent pick-up and drop-offs at the designated bay, to minimise the disruptions to on-street parking, and to spread their arrival times to avoid peak demand issues.
- Implementing behaviour change programs (outlined in the School Transport Plan, Appendix B) to encourage a shift to sustainable travel modes.
- Active management of the DOPU area, to ensure vehicles are not arriving early and dwelling beyond 2 minutes.

- If the DOPU area is full, parents are to proceed to the short-stay on-street parking rather than block the road or pedestrian crossing.

Sixty-seven (67) covered bicycle parking spaces will be provided on-site near the public school main entry as depicted in Figure 4.5. These parking spaces will be shared between staff and students. The Shoalhaven DCP requires one bicycle space per 75 students (i.e. 8 bicycle spaces). Based on the anticipated mode share based on Nowra East Public School, the anticipated demand for the 'Baseline' mode share is 54 spaces. However, the targeted Green Star rating (bicycle parking for 7.5 per cent of staff and 40 per cent of Year 5 and Year 6 students) requires 67 spaces.

5.3 Public transport impacts

The 'Baseline' public transport mode share target for students is 26 per cent in the AM peak and 20 per cent in the PM peak (141 and 109 students respectively). The morning number can be accommodated in the proposed three-space bus bay as bus passenger alighting is typically faster than boarding.

This will have a very low impact on demand for public transport in the local area. The approximate demand for bus pick-up and drop-offs has been determined assuming a bus capacity of 58 passengers and an average of 20 passengers per bus, i.e. approximately one-third full.

The results indicate that six bus services would be needed to support student demand for travel to and from school. These numbers can be accommodated with each bus stand being used twice during the PM peak. Over a 30 minute duration, this gives sufficient time for loading and a gap between buses to allow for scheduling and day-to-day fluctuations in arrival time.

The bus stop in front of the school, with three bus spaces, has sufficient capacity for the anticipated number of buses stopping. It can also be used at non-peak times for buses and coaches for travel to sport and excursions. Transport for NSW is the authority responsible for bus planning, which may consider increasing the bus frequency or additional bus routes to be accommodated at the proposed bus bay. This should be monitored once the new school is operational, to ensure that both student demand is met and that there is no queuing at the existing bus bays.

5.4 Active transport impacts

The new primary school in Worrigeer will increase walking and cycling in the local area. The majority of these trips will be children and parents/guardians living nearby; however, students walking the last part of their journeys from bus stops, on-street parking and the DOPU bay will also contribute to this demand. The 'Baseline' mode share for students walking is approximately 16 per cent (equivalent to 90 students) and 9 per cent of students cycling (equivalent to 50 students). With this increase, the infrastructure must support safe access for these students. In addition to the active transport infrastructure upgrades outlined in section 4.4, pedestrian refuges are planned as part of Shoalhaven City Council's upgrade of the intersection of Greenwell Point Road, Worrigeer Road and Millbank Road. These upgrades will support safe access for walking and cycling to the new primary school in Worrigeer.

Additional suggestions include:

- Ensuring that this infrastructure is highly visible through lighting and maintenance - important for achieving safe outcomes in the long term
- Ongoing monitoring by staff members to ensure that both students and drivers are acting safely around the school's local roads, as outlined in the School Transport Plan in Appendix B.

Educational and behaviour change programs, as outlined in the School Transport Plan, to reinforce safe behaviours for walking and cycling to and from school.

5.5 Catchment analysis

Analysis was conducted to determine the existing active and public transport catchments, as well as the primary access routes for walking and cycling. This analysis was undertaken for the proposed enrolment of 552 students. Key findings from this analysis include:

- Around 26 per cent of the forecasted enrolment is within a 15-minute actual walking distance of the school site
- 96 per cent of the expected student population are within a 10-15 minute cycling distance of the high school site, noting that this will be on-road or on footpaths rather than dedicated cycling infrastructure
- Over 36 per cent are eligible for free school bus passes or School Opal cards through the School Student Transport Scheme (SSTS). Most of these students (around 32 per cent of the total) live within 400 m of a bus stop, but around 5 per cent of students live beyond 400 m of a bus stop. Unless additional bus stops are implemented, those students will likely be driven to school.

Table 5.8 Catchment Analysis

Transport mode	Catchment analysis	Notional (straight line distance)		Actual (along the route)	
		#	Per cent	#	Per cent
Walking	0 – 400 m (5-minute walk)	38	7 per cent	19	3 per cent
	401 – 800 m (10-minute walk)	60	11 per cent	49	9 per cent
	801 – 1,200 m (15-minute walk)	146	26 per cent	70	13 per cent
	1,201 – 1,600 m (straight line distance)/ 1,200 – 2,300 m on path (excluded from SSTS)	117	21 per cent	227	41 per cent
	Beyond 1,600 m (straight line distance)/2,300 m on path	191	35 per cent	187	34 per cent
Cycling	0 – 1.2 km (5-minute cycling)	244	44. per cent	138	25 per cent
	1.2 – 2.4 km (10-minute cycling)	203	37 per cent	232	42. per cent
	2.4 – 3.6 km (15-minute cycling)	83	15 per cent	111	20 per cent
	Beyond 3.6 km (15+ minutes)	22	4 per cent	71	12.8 per cent
		#		Per cent	
Public Transport	Students not eligible for SSTS	351		64 per cent	
	Students eligible for SSTS and within 400 m of a bus stop	175		32 per cent (87 per cent of SSTS eligible students)	
	Students eligible for SSTS but not within 400 m of a bus stop	26		45 per cent (13 per cent of SSTS eligible students)	

Source: New Nowra Primary School Rapid Transport Assessment (WSP, August 2025)

5.5.1 Walking catchment analysis

The walking catchment analysis identified the top five walking routes to the school. The results, shown in Figure 5.1, have been used to identify the potential location of pedestrian crossings.



Notes school access points originally completed for two access points shown during the rapid transport assessment. Revised school design has one main access point on the corner of Worrige Road and Golden Grove. These results are interpreted below.

Figure 5.1 Walking catchment analysis with five top walking routes

To the south-west, Routes 3 and 5 with the majority of students, will approach from Rayleigh Drive and Worrige Road to cross at Golden Grove. To the west, Route 3 will also cross Worrige Road at Golden Grove. A small number of students will cross Greenwell Point Road at Worrige Road (Route 4). Route 1 is from a single house to the east on Greenwell Point Road with no planned footpath.

The numbers of students potentially crossing at these locations are:

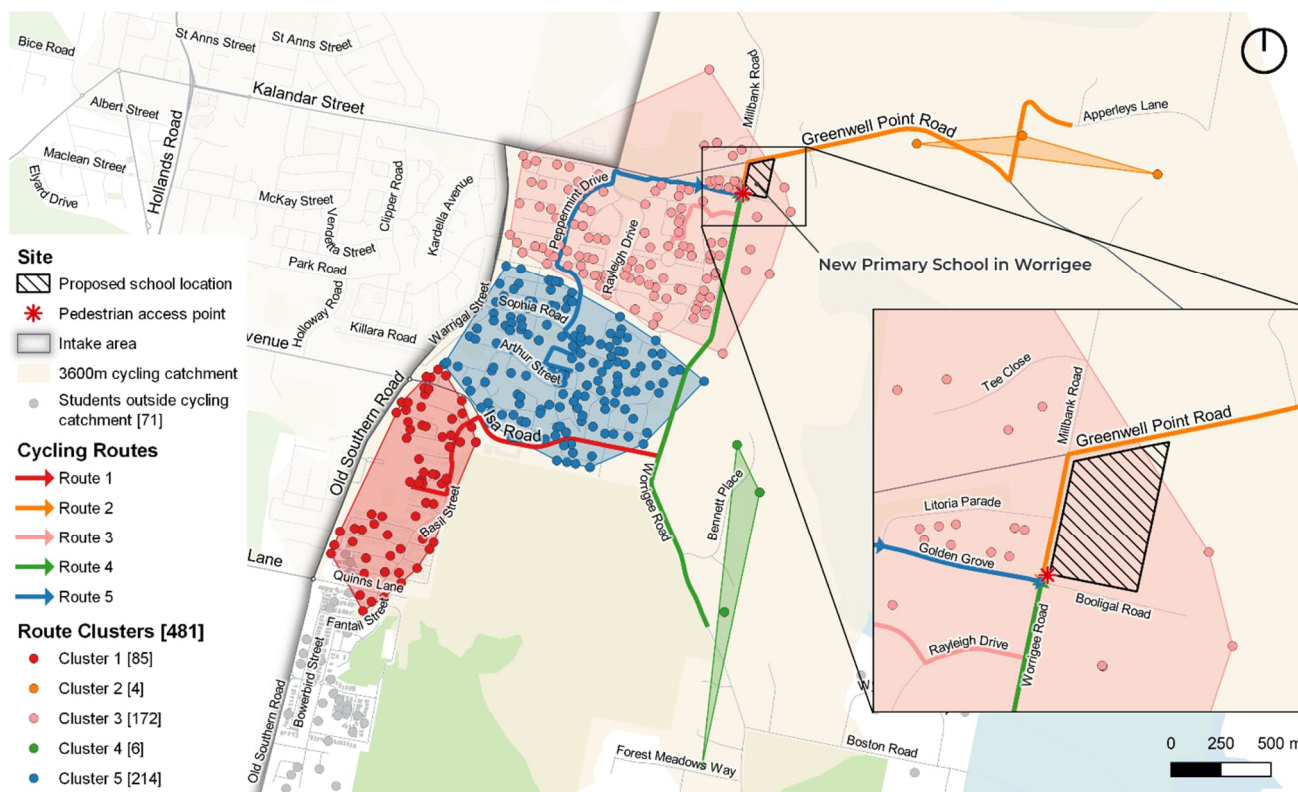
- Routes 3 and 5 crossing Golden Grove at Worrige Road = 99 students
- Routes 2, 3 and 5 crossing Worrige Road at Golden Grove = 130 students
- Route 4 crossing Greenwell Point Road at Worrige Road = 7 students.

Providing improved pedestrian crossings on these routes at major crossing locations offers the opportunity to improve road safety for a large number of students. The following crossing facilities are recommended to improve student pedestrian safety:

- Worrige Road north of Golden Grove – raised and managed marked pedestrian crossing
- Golden Grove west of Worrige Road – raised marked pedestrian crossing
- Greenwell Point Road at Worrige Road and Millbank Road – roundabout refuges to be provided by Council.

5.5.2 Bicycle catchment analysis

The cycling catchment analysis also identified travel along Worrige Road and Golden Grove as the primary cycling routes (see Figure 5.2). As Rayleigh Drive has lower traffic volumes than Worrige Road, it is likely that the majority of students will prefer to use it for as long as possible. The pedestrian crossings proposed for the walking routes will also serve as safe crossing locations for students cycling.



Notes school access points originally completed for two access points shown during the rapid transport assessment. Revised school design has one main access point on the corner of Worrigee Road and Golden Grove..

Figure 5.2 Cycling catchment analysis with five top cycling routes

5.5.3 Bus stop catchment analysis

An analysis of potential students and their proximity to a bus stop assessed how many are eligible for SSTS and how many are within a 400m walk of a bus stop with services to get them to school. This assists in determining barriers for students to use public transport.

Students are generally eligible for SSTS if they live further than a distance of 1.6 km as the crow-flies or 2.3 km via the road and pedestrian network. Students living closer than these distances are encouraged to walk or cycle to school as an alternative to private car travel.

The analysis identified an area in the south of the school catchment, near Old Southern Road, that is outside the SSTS boundary and within 400m of a current bus stop, shown on Figure 5.3. A review of the bus services may be able to connect these 175 students to the school with a new or revised bus service.

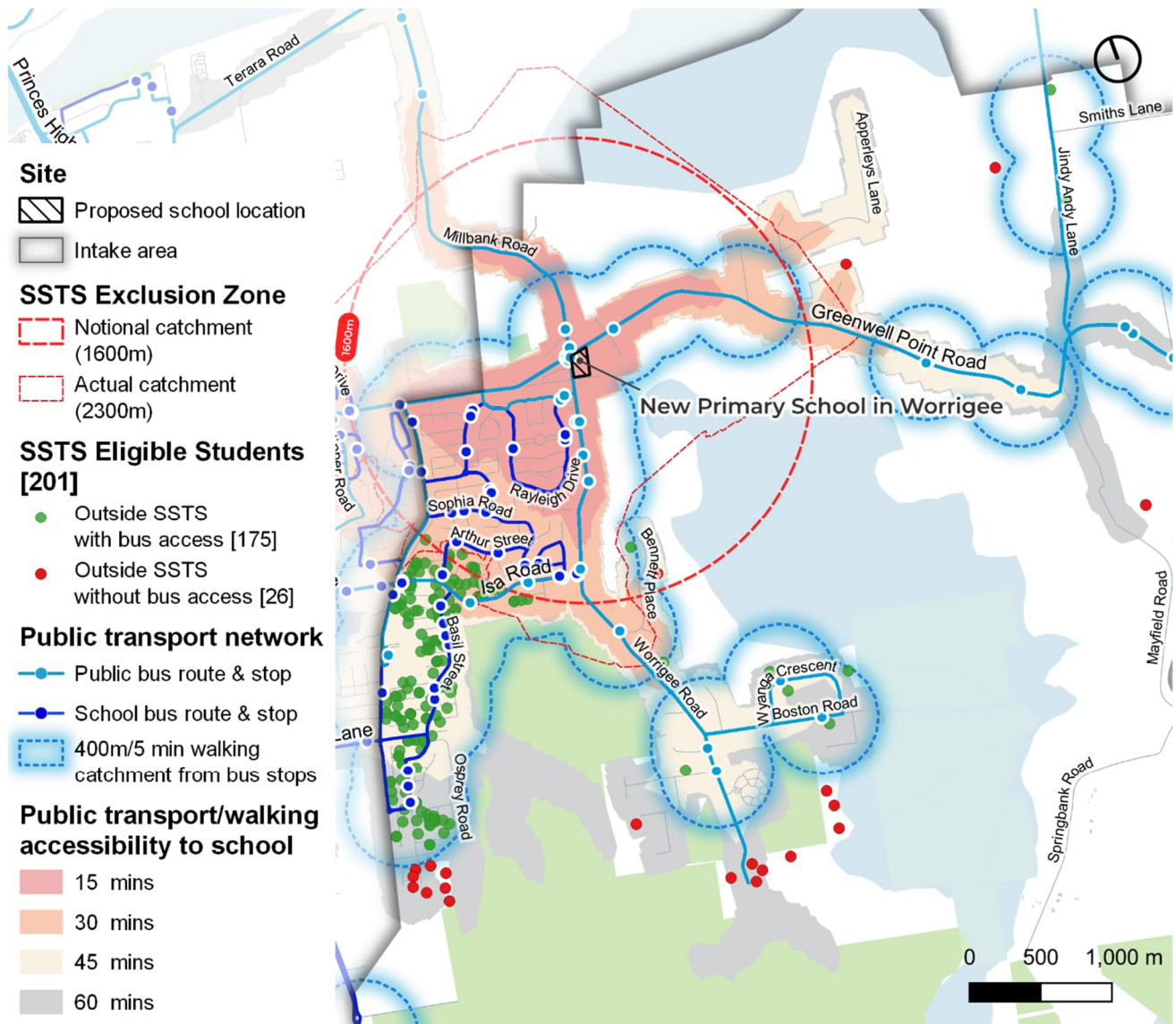


Figure 5.3 Public transport catchment network

6 Design considerations

6.1 Footpath

The proposed pedestrian and cyclist access gates to the school will provide a minimum 3.0 m width, exceeding the minimum standard for pedestrian and cycling access (Type 1 as per the NSW Walking Space Guide). To minimise the impact on trees, the proposed footpath on the eastern side of Worrigee Road in front of the school are a mixture of 2m and 3m wide, with the wider distance provided alongside the bus stop stands. A minimum 3m wide footpath is proposed in areas of higher pedestrian volumes, such as between the pedestrian crossings and the school entry and alongside the pick-up and drop-off bay.

6.2 Car parking

6.2.1 *On-site parking*

The proposed layout has provision for 40 car spaces, including two accessible spaces. Of the car spaces within the car park, the standard spaces are all to have dimensions of 2.4m width by 5.4m length and are to be accessed from an aisle of 6.2m. The access to the parking area is proposed to be through the preschool carpark. The entry is 6m wide. A boom gate will separate the staff and preschool parking. These dimensions all accord with the required dimensions as per AS2890.1:2004.

Swept path analysis has been undertaken for the carpark. The results are included in Appendix C. It indicates that there is sufficient space for a vehicle to enter and park within the staff carpark.

The accessible car space within the proposed staff car park is to be provided at minimum dimensions of 2.4m width by 5.4m length with an adjacent 2.4m wide by 5.4m length shared area. These dimensions all accord with the required dimensions as per AS2890.6:2022.

Based on the above, the car parking spaces have therefore been designed following the relevant standards and are considered satisfactory for the activity.

6.2.2 *DOPU*

The vehicle path to the proposed new primary school will be from Worrigee Road and Booligal Road, providing access to the proposed DOPU, and staff car park.

The REF for the new preschool proposes that a 65m DOPU bay be provided on Booligal Road to be used for this activity, allowing up to 10 standard car spaces. The DOPU bays are to have a minimum dimension of 6.5 metres in length by 2.3 metres in width. These dimensions all accord with the required dimensions as per AS2890.5:2020.

The provision of signage in accordance with Transport for NSW guidance (R9-302n) is required to support operations at this DOPU bay. It is suggested that the DOPU bay facilitates general parking outside of the school pick-up and drop-off periods, to help minimise the impact of the activity on on-street parking.

The three parallel marked accessible DOPU spaces for the SLU are proposed to have a width of 3.2m and length of 7.8m. These dimensions all accord with the required dimensions as per AS2890.6:2022.

Based on the above, the DOPU bay has therefore been designed in accordance with the relevant standards and is considered satisfactory for the activity at this stage of planning. These dimensions can be confirmed in detailed design.

6.3 Bus stop design

A bus bay is proposed along the site's frontage to Worrigee Road, in addition to the existing bus stops in the area. The bus bay is 67 metres long which allows for three 12.5m long buses, 11.5m draw-in, 6m draw-out and 6m between buses to allow for independent operation. The bus bay is 3.0m wide alongside a 3.0m travel lane.

Swept path analysis has been undertaken for a bus entering and leaving the bus bay (shown in Appendix C). It indicates that there is sufficient space for the bus to manoeuvre.

6.4 Loading and waste collection

On-site loading/servicing and waste collections are to be facilitated via the access on Greenwell Point Road. Swept path analysis has been undertaken for the northern carpark and waste collection area. The results are included in Appendix C. It indicates that there is sufficient space for a 10.5m long front-lift waste collection truck to enter, turn around and leave in a forward movement.

On this basis, the proposed loading and waste collection arrangements are considered appropriate.

6.5 Emergency vehicles

Large emergency vehicles (such as fire appliances) will access the site by stopping in front of the school on the Worrigee Road and Booligal Road frontages. Smaller emergency vehicles such as ambulances will be able to use the bus bay, DOPU or staff carpark during emergencies. A hardstand is proposed within the bus bay near the fire booster, as shown in Figure 4.7. Swept path analysis for the 12.5m long bus indicates that there is sufficient space for a 10.0m NSW Fire & Rescue truck as well as an 8.0m RFS Truck (Cat 1).

7 Construction traffic management

This section outlines a high-level approach to construction traffic management at the new school site. It is recommended that a detailed Construction Traffic Management Plan (CTMP) be developed once the construction specifications and methodology are determined. This is included in the Department of Education' standard mitigation measure C1.

7.1 Heavy vehicle access routes

The Princes Highway is the closest road on the approved national 19-m B-double network, which can be used to access Worrigeer Road during construction activities, as depicted in Figure 7.1. To access the new school site, permits approved by the National Heavy Vehicle Regulator (NHVR) will be needed for any vehicles longer than a semi-trailer to utilise Greenwell Point Road and Worrigeer Road during construction activities. The same access arrangements apply for larger construction vehicles (25/26m B-doubles) with general and concessional mass limits (GML and CML).



Source: TfNSW Restricted Access Vehicles (RAV) map, National Heavy Vehicle Regulator (NHVR)

Figure 7.1 Approved 19m and 25/26m B-double routes to be used for construction vehicles

If the roadworks for the upgrade of the intersection of Greenwell Point Road, Worrigeer Road and Millbank Road coincide with the construction of the proposed activity and they prevent the safe passage of construction vehicles, an alternative route is proposed in Figure 7.1. This alternative route would only be used when the proposed access route is unavailable.

7.2 Traffic movements

An indicative estimate of approximately 150 construction workers (maximum) on site is expected at any one time. To estimate the construction vehicle movements to and from the site, the following assumptions have been made:

- Assumed one worker per vehicle (conservative estimate)
- Assumed trip generation of 2.5 trips per person (two-way combined) for light vehicles
- Assumed approximately 20 trucks travelling to and from the site each day.

As such, the predicted construction vehicle movements for 150 workers travelling to and from the site are summarised in Table 7.1.

Table 7.1 Indicative construction traffic movements

Time period	Worker light vehicles		Trucks		All vehicles	
	In	Out	In	Out	In	Out
AM inbound	150	-	2	-	152	-
Day construction hours	38	38	18	18	56	56
PM outbound	-	150	-	2	-	152
Daily	188	188	20	20	208	208

These indicative movement volumes represent preliminary estimates for construction activities and therefore need to be further refined as part of the Constructor's Construction Traffic Management Plan (CTMP).

7.3 Impact on intersection performance

To test the impact on traffic conditions during construction, SIDRA intersection models have been run for the peak hour with construction vehicles. It has been assumed that the preschool would be open during construction of the school. The results shown in Table 7.2 indicate that there would be only minor changes in delay and queuing, with both intersections tested showing good performance.

Table 7.2 SIDRA intersection results – construction

Site	AM peak period results				PM peak period results			
	DoS	Average Delay (sec/veh)	LoS	95% Queue (m)	DoS	Average Delay (sec/veh)	LoS	95% Queue (m)
Greenwell Point Rd / Worrigee Rd / Millbank Rd	0.34	12.8	A	18 (Greenwell Point Rd east)	0.35	14.0	A	19 (Greenwell Point Rd west)
Worrigee Rd / Golden Grv / Booligal Rd	0.18	8.4	A	< 6m	0.24	7.4	A	7m (Booligal Road)

Notes Greenwell Point Rd / Worrigee Rd / Millbank Rd upgraded to roundabout

7.4 Site parking

The CTMP should include a plan for site parking for construction vehicles on the new school site, with access supported from the preschool access from Booligal Road. A secondary construction access could be provided through the proposed Greenwell Point Road gate to the waste collection area. If construction activity restricts the amount of on-site parking, the preferred location for on-street parking is the northern side of Litoria Parade, which has space for approximately 25 vehicles. The CTMP parking plan should reduce the impact on surrounding residents by ensuring that on-street parking is only used when sufficient space is not available within the site of the proposed activity.

The CTMP will need to monitor the parking of vehicles in the area to ensure that parking for the preschool is available at all times and to ensure safety for students and staff.

7.5 Construction traffic management

The CTMP should include a plan for construction vehicle access to the site to minimise the impact of construction activities on the local traffic environment. This will help minimise the safety implications of construction vehicle activities as well as reduce traffic congestion on Greenwell Point Road and along the local streets.

The CTMP should also include a strategy to monitor the impact of construction vehicle and construction worker access to and from the site to ensure safety and minimise congestion and disruption to the traffic environment on Greenwell Point Road and Worrigee Road.

8 Mitigation measures

The Department of Education has standard mitigation measures, some of which cover traffic and access. TA1 (School Transport Plan), TA3 (Pedestrian Access) and TA5 (Implementation of Road Safety Measures) are proposed without modification. Some site specific modifications are proposed to TA2 (Construction Traffic and Pedestrian Management) and TA4 (Design of Road Safety Measures). The modified and bespoke mitigation measures for the proposed new Primary School in Worrigee are shown in Table 8.1. Underlined text indicates a modification from the standard mitigation measure.

Table 8.1 Mitigation measures

MM ID	MM Name	Mitigation Measure	Timing
TA2	Construction Traffic and Pedestrian Management	A Construction Traffic and Pedestrian Management Plan (CTPMP) must be prepared to: a) ensure heavy vehicle movements are safe and minimise disruption to the school and surrounding areas b) outline strategies and measures to manage how construction workers access the site c) <u>Guide heavy vehicle traffic to follow the Construction Vehicle Traffic Route outlined in Section 7.1 of Appendix 2 (Traffic and Accessibility Impact Assessment).</u>	Prior to commencement of Construction
TA4	Design of Road Safety Measures	Transport Working Group (TWG) meetings (<u>including Shoalhaven City Council and Transport for NSW</u>) must be facilitated to finalise the design of road safety measures, including consideration of: a) <u>Two raised pedestrian priority crossings (wombat):</u> — <u>On Worrigee Road across the northern approach to the intersection with Golden Grove and Booligal Road</u> — <u>On Booligal Road across the eastern approach to the intersection with Golden Grove and Worrigee Road (delivered as part of the separate preschool activity)</u> b) <u>One new on-grade painted pedestrian crossings (zebra):</u> — <u>On Golden Grove across the western approach to the intersection with Worrigee Road and Booligal Road</u> c) <u>Request Transport for NSW Implement school zone travel speed restrictions along Greenwell Point Road, Worrigee Road and side streets.</u>	Design

9 Conclusions

The assessment of the transport and parking impacts of the activity at the new primary school in Worrigee indicates that it is not likely to have a significant effect on the environment, and any minor impacts, where they exist, can be managed.

Active travel to and from the site will be supported by the proposed footpaths, as well as providing crossing points at key pedestrian and cyclist desire lines. Cyclists will also be supported by a sufficient provision of on-site parking facilities and end-of-trip facilities for staff.

Public transport stops are/will be in place with sufficient capacity for the proposed number of students using the service. Improvements to the facilities will assist in attracting more students to use the service.

An off-street parking area is provided for staff, with access through the preschool carpark. The DOPU for the school on Booligal Road and the SLU DOPU on Worrigee Road will be supplemented by short-stay parking on Booligal Road. This car park has sufficient capacity for the primary school.

The analysis of the Greenwell Point Road / Worrigee Road / Millbank Road intersection (with planned upgrade to a roundabout by Council) and the Worrigee Road / Golden Grove / Booligal Road intersection indicates that the performance will be suitable.

The School Transport Plan, developed to address the Department of Education' standard mitigation measure TA1 and provided in Appendix B of this report, contains the following strategies to be coordinated by a Travel Plan Coordinator:

- A Travel Access Guide to be implemented through the School Transport Plan.
- Educational and behaviour change programs to encourage a shift to sustainable travel modes and reinforce safe practices for walking and cycling to and from school.
- Monitoring of the operation of the bus services to the school and the bus bay on Worrigee Road with consultation with Transport for NSW to adjust the operation of bus services if required.
- Monitoring of the operation of the drop-off / pick-up and review in accordance with the School Transport Plan.
- Monitoring students and drivers to ensure they are acting safely around the school's local roads.

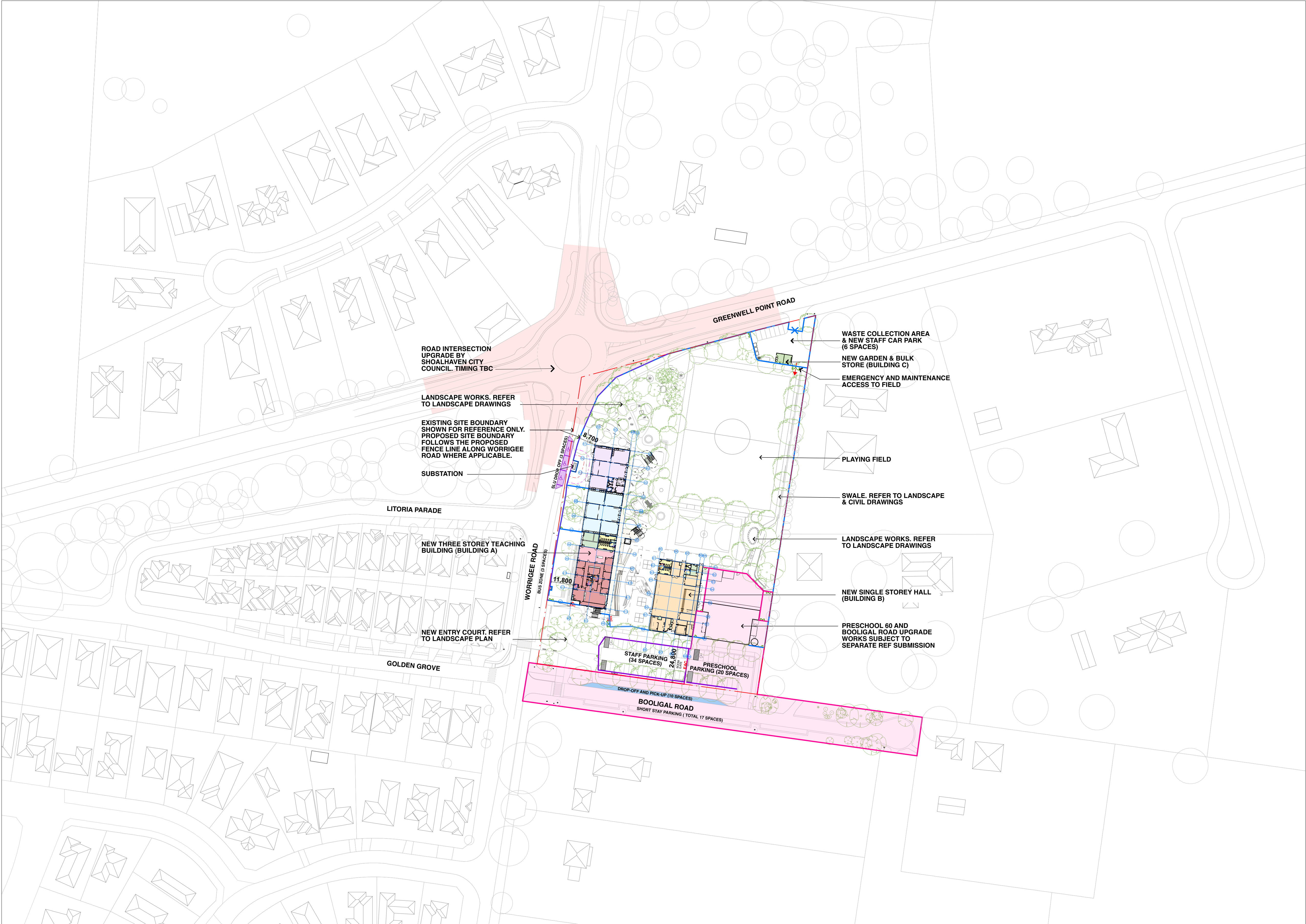
The Construction Traffic Management Plan, developed to address the Department of Education' standard mitigation measure C1 should:

- Monitor the parking of construction vehicles surrounding streets as a strategy to minimise the impact on the community centre and that on weekends when it is required for sporting activities.
- Monitor the impact of construction vehicle and construction worker access to and from the site to ensure safety and minimise congestion and disruption to the traffic environment on Worrigee Road and Booligal Road.

Appendix A

REF Plans





- LEGEND**
- Site Boundary (Existing)
 - Site Boundary (Proposed)
 - Main school entry
 - Secondary entry
 - PreSchool Entry
 - Support Learning entry
 - After hours entries to Hall
 - Secure gates (Manually locked)
 - Secure gates with EAC (Electronic Access Controlled)
 - Secure gates to waste pad
 - Boomgate with EAC (Electronic Access Controlled)
 - Fencing 2150mm high
 - Fencing 1500mm high
 - Fencing 1200mm high
 - Administration
 - Staff
 - Library
 - Communal Hall/ Canteen/ OSHC
 - General Learning Spaces
 - Support Learning Spaces
 - Student Amenities/Core
 - Services/ Storage Unit
 - Existing Trees
 - Proposed Trees

SITE PLAN - GF
1:1000

NORTH

KEY PLAN

Drawing Disclaimer:
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Verify all dimensions on site before commencing work.

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ISSUE		
REV	FOR	DATE
A	REF DRAFT	16/01/2026
B	REF	13/02/2026
C	REF	16/03/2026

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M Bennett No. 8538

PROJECT NAME
NEW PRIMARY SCHOOL IN WORRIGEE

ADDRESS
9 WORRIGEE ROAD
WORRIGEE NSW 2540

PROJECT NUMBER
250702

STATUS
REF

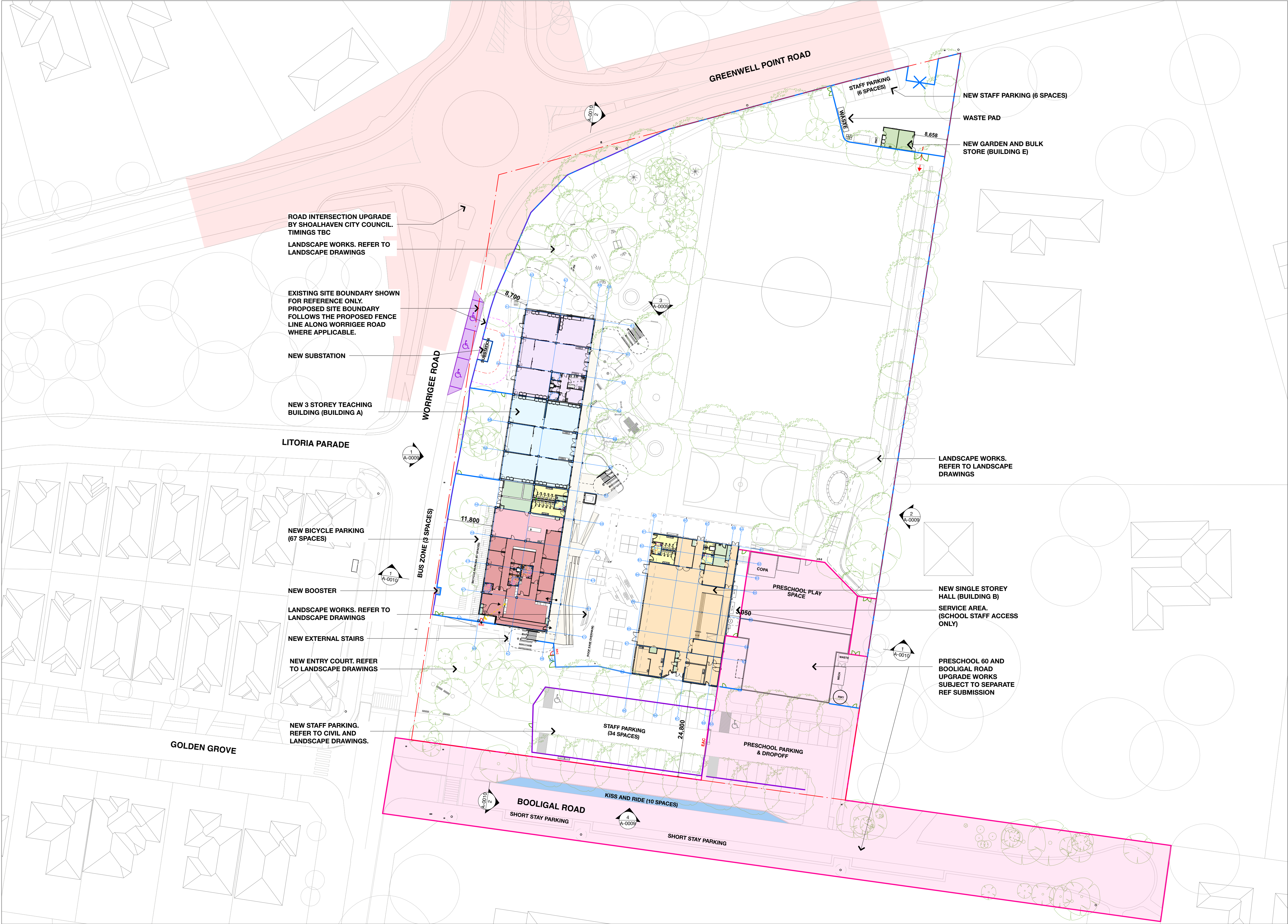
DRAWING TITLE
SITE PLAN - PROPOSED

DRAWING NUMBER
A-0004

REVISION
C

SCALE
1:1000 @ A1

DATE
16/03/2026



- LEGEND**
- Site Boundary (Existing)
 - Site Boundary (Proposed)
 - Main school entry
 - Secondary entry
 - PreSchool Entry
 - Support Learning entry
 - After hours entries to Hall
 - Secure gates (Manually locked)
 - Secure gates with EAC (Electronic Access Controlled)
 - Secure gates to waste pad
 - Boomgate with EAC (Electronic Access Controlled)
 - Fencing 2150mm high
 - Fencing 1500mm high
 - Fencing 1200mm high
 - Administration
 - Staff
 - Library
 - Communal Hall/ Canteen/ OSHC
 - General Learning Spaces
 - Support Learning Spaces
 - Student Amenities/Core
 - Services/ Storage Unit
 - Existing Trees
 - Proposed Trees

1 NORTH KEY PLAN

GROUND 1:500

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Verify all dimensions on site before commencing work.

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REV	FOR	DATE
A	REF DRAFT	16/01/2026
B	REF	13/02/2026
C	REF	16/03/2026

CLIENT
NSW GOVERNMENT
Education
SCHOOL INFRASTRUCTURE

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PROJECT NAME
NEW PRIMARY SCHOOL IN WORRIGEE

ADDRESS
9 WORRIGEE ROAD
WORRIGEE NSW 2540

PROJECT NUMBER
250702

STATUS
REF

DRAWING TITLE
GA PLAN - GROUND FLOOR

DRAWING NUMBER
A-0005

REVISION
C

SCALE
1:500 @ A1

DATE
16/03/2026

Appendix B

School Transport Plan



Department of Education

April 2026

New Primary School in Worrige School Transport Plan

wsp



Question today Imagine tomorrow Create for the future

New Primary School in Worrigeer School Transport Plan

Department of Education

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Rev	Date	Details
A	19 February 2026	Draft submission
B	03 March 2026	Revised Draft
C	17 March 2026	Final
D	23 April 2026	Updated Final

	Name	Date	Signature
Prepared by:	V. Ragipani	23 April 2026	
Reviewed by:	T. van Drempt	23 April 2026	
Approved by:	T. van Drempt	23 April 2026	

WSP acknowledges that every project we work on takes place on First Peoples lands.
We recognise Aboriginal and Torres Strait Islander Peoples as the first scientists and engineers and pay our respects to Elders past and present.

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1 Introduction

This Student Transport Plan (STP) has been prepared by WSP Australia on behalf of Department of Education (DoE) (the Proponent) to assess the potential environmental impacts that could arise from the new school development at 9 Worrigee Road, Worrigee (the site).

The purpose of this School Transport Plan is to provide an overview of the proposed school's transport operations and approach to increasing sustainable transport mode share.

1.1 Project context

The activity is for the construction and operation of a New Primary School in Worrigee under Chapter 2 and Chapter 3 of TI SEPP comprising :

- permanent classroom building including a support learning unit
- hall
- canteen
- covered outdoor learning area
- library
- administration
- sports field
- waste storage facility
- landscaping
- car parking
- public domain works
- infrastructure upgrades
- a capacity of 582 students (including 30 special learning (SLU) students).

Associated off-site infrastructure works are included to support the school, including (but not limited to) services, public domain works, infrastructure, driveways and pedestrian crossings.

For a detailed project description, refer to the REF prepared by DFP Planning (March 2026).

The proposed activity does not include the new public preschool or roundabout. The new public preschool is subject to a separate planning pathway and environmental assessment. The roundabout at the intersection of Greenwell Point Road / Worrigee Road / Millbank Road is to be delivered by Council. Figure 1.1 shows an indicative site plan and distinguishes the indicative extent of the proposed activity in relation to the new public preschool and roundabout. This TAIA has been prepared for the new primary school with the preschool assumed to be already operational and the intersection upgrade complete.

Based on the identification of potential impacts and an assessment of the nature and extent of the impacts of the proposed activity, it is determined that all potential impacts can be appropriately mitigated to ensure that there is minimal impact on the locality, community and/or the environment.

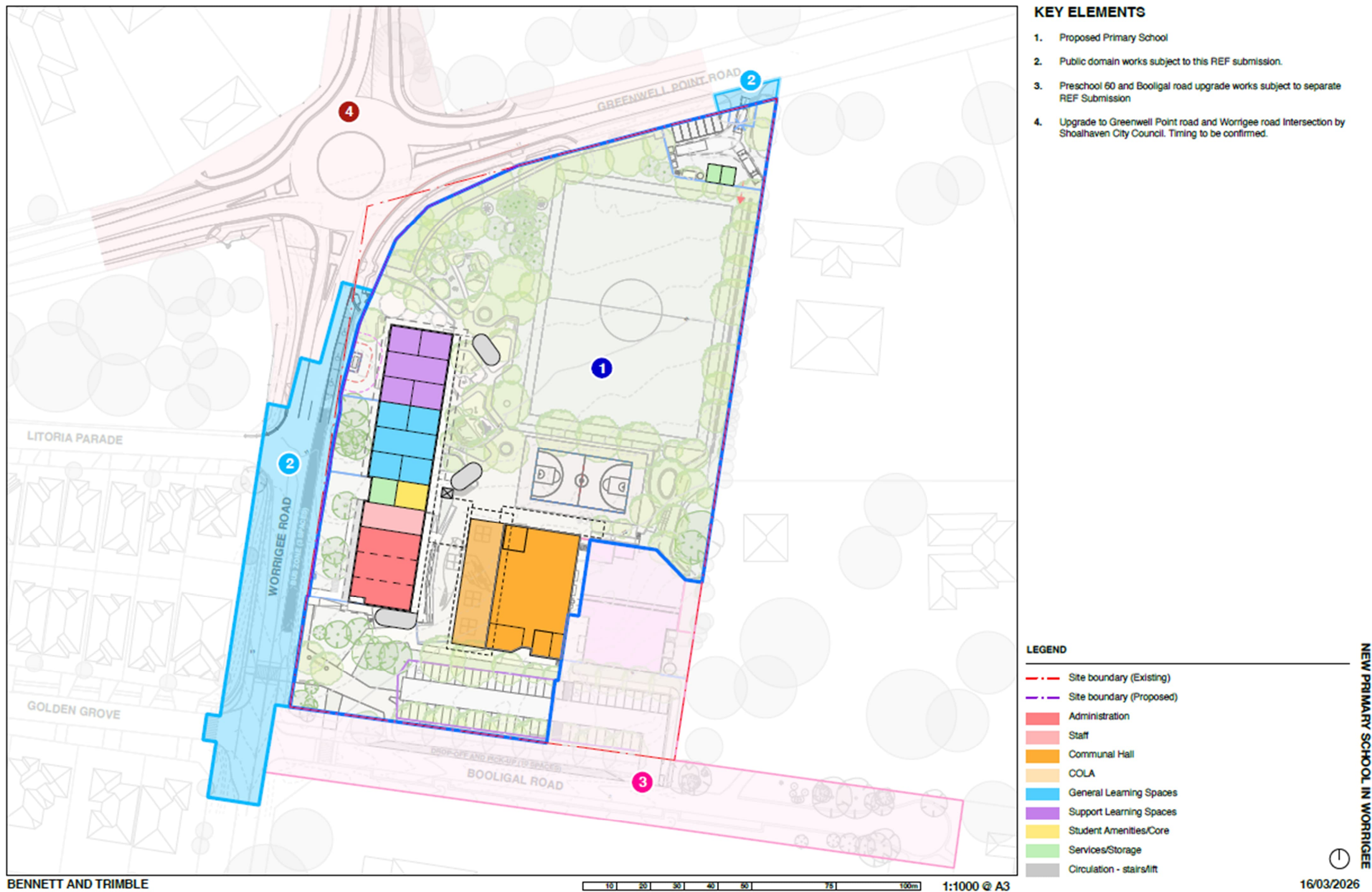


Figure 1.1 Indicative site plan

1.2 Site description

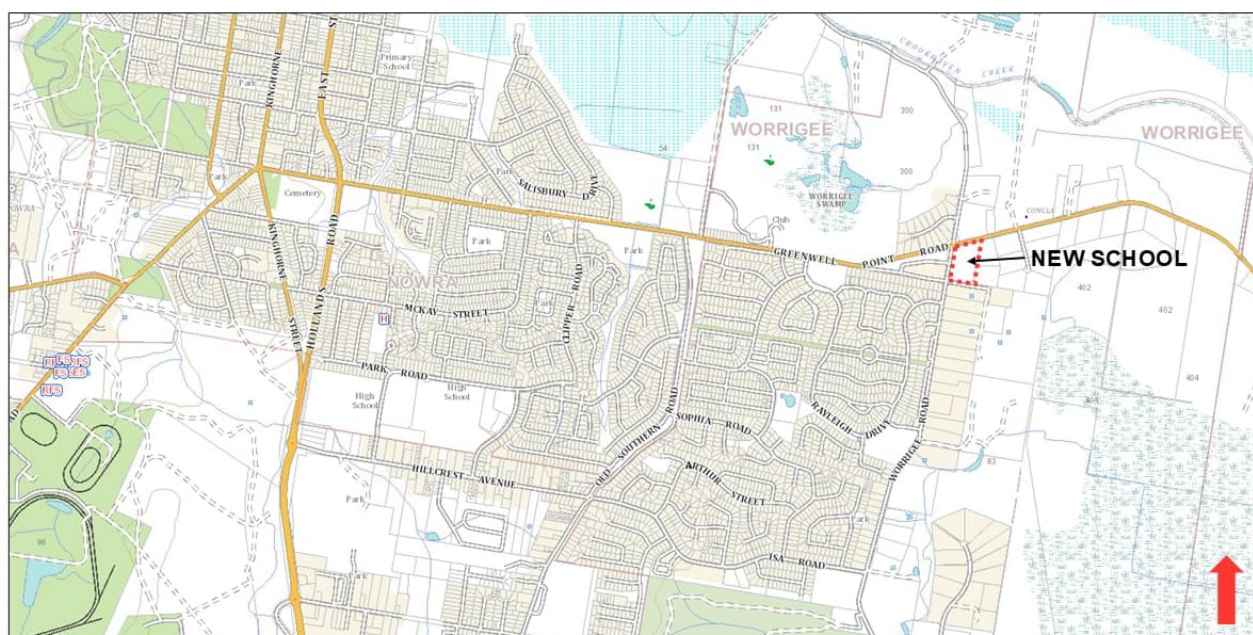
The site is known as 9 Worrigee Road, Worrigee. The site has a frontage of 125.23m to Greenwell Point Road, 149.87m to Worrigee Road and 114.89m to Booligal Road (including the preschool frontage). The site is legally described as Lot 1 in Deposited Plan 576975 and is 2 hectares (by title). Off-site works are also proposed in the adjacent road reserves. Figure 1.2 provides an aerial photograph of the site.



Figure 1.2 Aerial photograph

The site is located within the Shoalhaven City Local Government Area and is zoned R5 – Large Lot Residential (minimum 1ha) under the Shoalhaven Local Environmental Plan 2014 (the LEP).

Figure 1.3 is a site plan showing the location of the proposed school within its regional context.



Source: Planning Spatial Viewer

Figure 1.3 Location of the proposed new primary school in Worrigee

1.3 Transport elements of the activity

The proposed activity will also include the following transport provisions:

- Combined off-street preschool (20 spaces) and primary school staff parking (34 spaces) accessed from Booligal Road
- SLU DOPU bay (3 accessible spaces) along Worrigee Road
- Waste collection and limited staff parking, accessed from Greenwell Point Road
- Main pedestrian access to the intersection of Worrigee Road and Booligal Road
- On-site 67 bicycle parking spaces
- Southbound indented bus bay (3 bus spaces) on Worrigee Road
- 3 marked pedestrian crossings at:
 - Marked raised (wombat) pedestrian crossing (managed school crossing) north of Golden Grove / Booligal Road
 - Marked raised (wombat) pedestrian crossing east of Worrigee Road
 - Marked (zebra) crossing on Golden Grove, west of Worrigee Road

Footpaths along the school frontage will connect the school to the DOPU and bus bays.

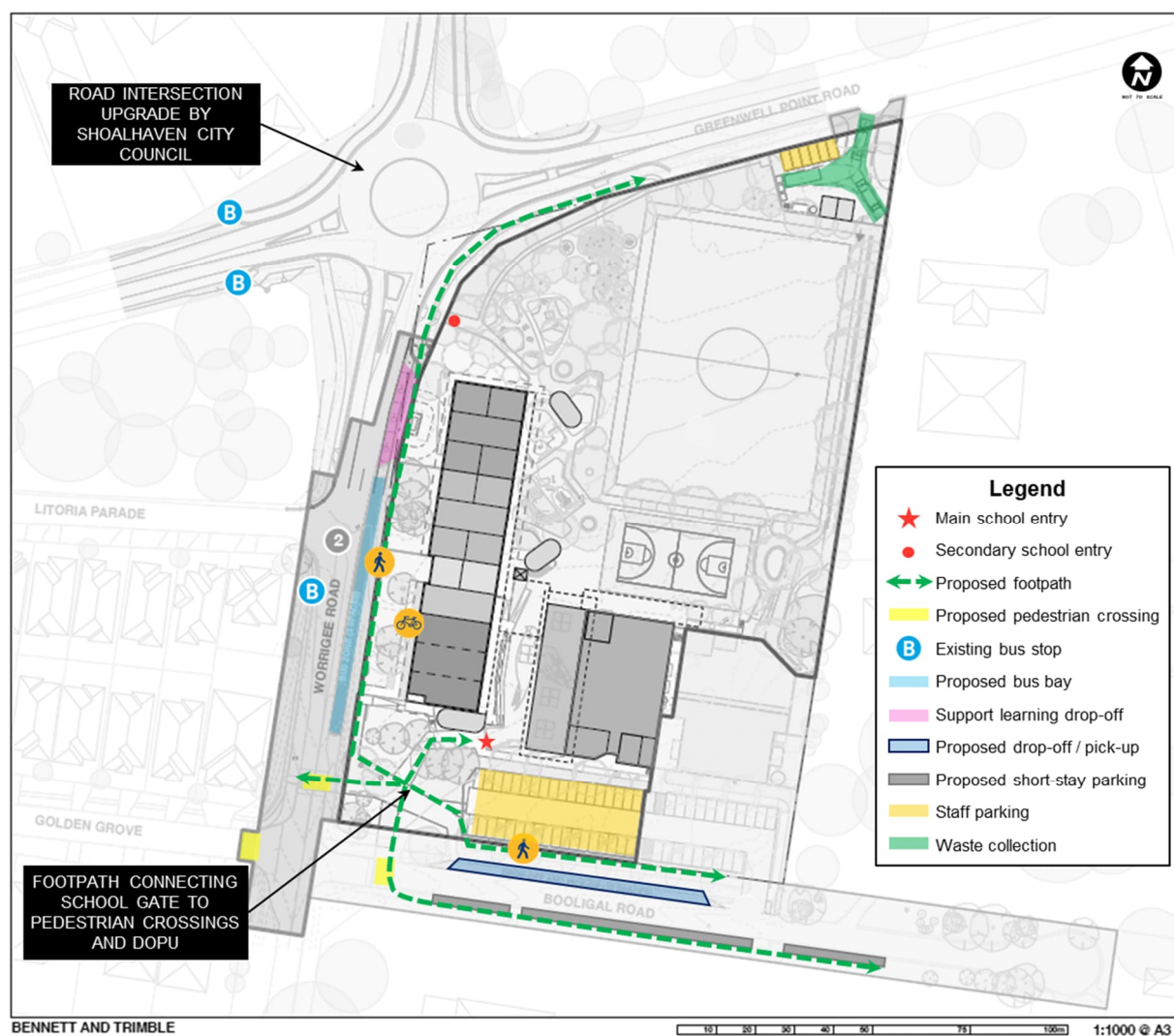


Figure 1.4 Indicative Site Plan with transport elements

1.4 Report Objectives

The purpose of this report is to outline the proposed transport operations for the new primary school in Worrigeer, as well as an approach to encouraging a mode shift to sustainable travel modes (public transport, walking and cycling), for travel to and from the school site.

Specifically, this report has the following objectives:

- **Detail the school transport operations plan**, covering site access, operating hours, and transport logistics (including drop-off / pick-up (DOPU), bus bay, and service vehicles).
- Present a feasible strategy to achieve the **sustainable travel mode share targets**.
- Develop a **Communications Plan** and establish methods for **data collection and monitoring** to support ongoing school operations.

1.5 Structure of the Report

- **Section 1: Introduction:** Describes the context of new primary school in Worrigeer within the broader region and outlines the objectives of this report.
- **Section 2: Key findings from the TAIA:** Provides a summary of the key findings from the existing conditions assessment undertaken in the Transport and Access Impact Assessment.
- **Section 3: Proposed school site:** Outlines the proposal, highlighting key details including student and staff numbers, parking provision and access arrangements.
- **Section 4: Guiding policy and mode share targets:** Outlines the policies underpinning the School Travel Plan and the proposed scenario mode share targets. An approach towards demand management for each scenario is also provided in this section.
- **Section 5: School Travel Plan:** Outlines the proposed Implementation Plan and communications strategy to support the initiatives and actions undertaken at the school, to encourage the use of sustainable travel modes.
- **Section 6: School transport operations:** Outlines the proposed transport operations for the school access and parking arrangements.
- **Section 7: Governance Framework:** Outlines the government framework for supporting the implementation plan and activities at the school
- **Section 8: Monitoring and evaluation:** Outlines the proposed approach to data collection, program evaluation and ongoing management of school transport operations.
- **Section 9: Mitigation measures:** Identifies the various mitigation measures that will support the school transport operations.
- **Section 10: Conclusions:** Summarises the key findings from the assessment.

2 Key findings from the TAIA

The location of the proposed new school site is depicted below in Figure 2.1.

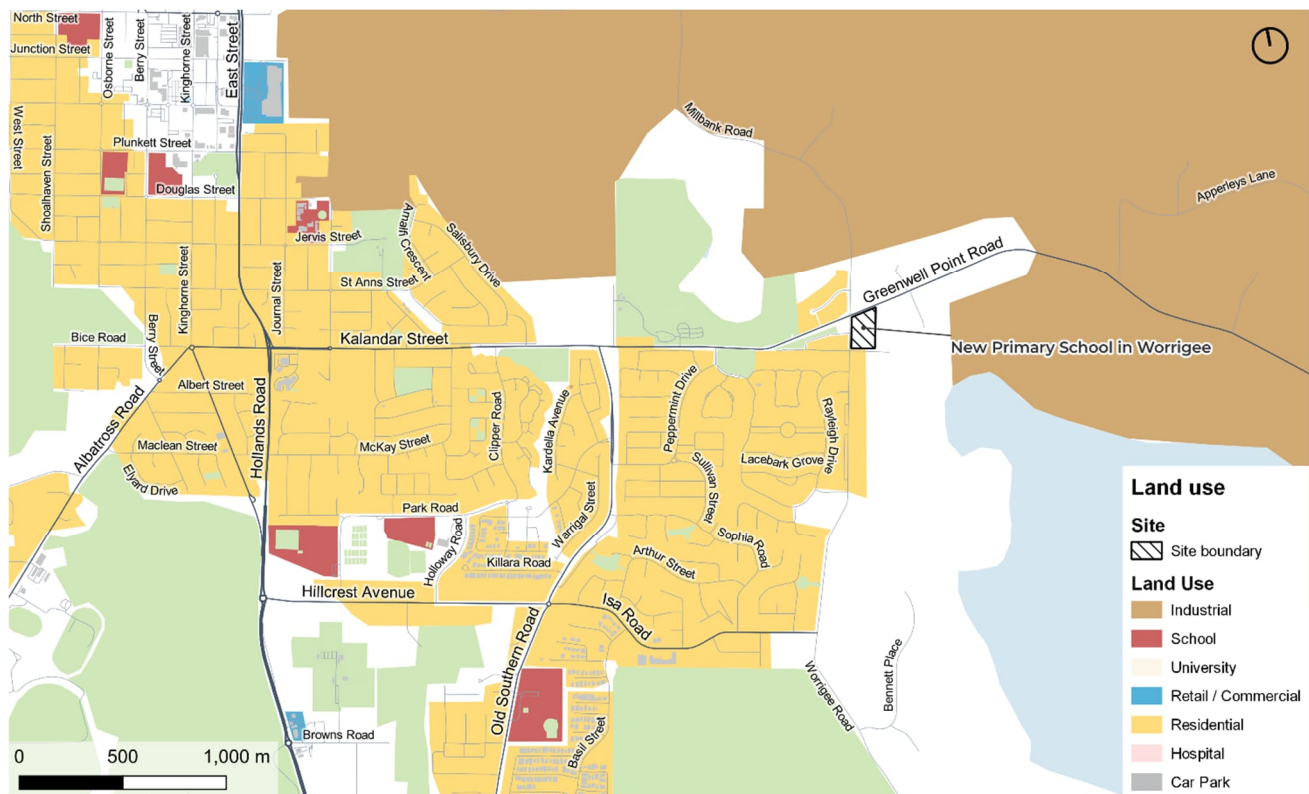


Figure 2.1 New primary school in Worrigeer– site overview and adjacent land uses

As outlined in Section 1, a detailed Transport and Access Impact Assessment (TAIA) has been developed for the new primary school in Worrigeer. This report assesses the existing conditions and outlines recommendations and suggestions to minimise the impact of the new school site and improve road safety. The key findings from this report are summarised in Table 2.1.

Table 2.1 Summary of the findings from the existing conditions assessment

Existing conditions and conclusions	
Road network	Conditions - Key access roads to the school are Greenwell Point Road and Worrigeer Road. These meet at a priority-controlled intersection – Shoalhaven City Council plans to upgrade this to a roundabout. - Greenwell Point Road is a regional road running east-west. It provides key connectivity between the school, Nowra City Centre, and the wider Nowra-Bomaderry growth area. - Worrigeer Road is a local road running north-south to the rural locality of Worrigeer.
	Conclusions The analysis of the Greenwell Point Road / Worrigeer Road / Millbank Road intersection (with planned upgrade to a roundabout by Council) and the Worrigeer Road / Golden Grove / Booligal Road intersection indicates that the performance will be suitable.

Existing conditions and conclusions	
Active transport	Conditions — Lack of footpath links close to the school site and in surrounding residential areas. — Short footpath along Worrigee Road near Litoria Parade. — Some footpaths to the west along Greenwell Point Road linking local neighbourhoods and Ratcliff Park; however, these do not connect to the proposed school site. — No formal cycling network within the vicinity of the proposed school site. However, as children under 16 are permitted to cycle on footpaths, a connected footpath network also increases cycling accessibility to the school. Conclusions — Provide two raised pedestrian (wombat) crossings at the Worrigee Road / Booligal Road intersection: — Raised (wombat) supervised school crossing across Worrigee Road (northern leg of the intersection). — Raised (wombat) crossing across Booligal Road (eastern leg of the intersection). — Provide a painted (zebra) pedestrian crossing across Golden Grove (western leg of the Worrigee Road / Booligal Road intersection). — Provide pedestrian refuge at the planned Worrigee Road/Greenwell Point Road roundabout upgrade (delivered as part of the planned upgrade by Council). — Provide footpaths (ideally 3.0m wide, minimum 2.0m wide) at: — Worrigee Road school frontage from the planned refuge at Greenwell Point Road roundabout to Booligal Road. — Both sides of Booligal Road to connect the main school entry to the DOPU and short stay parking. — Provide onsite bicycle parking for students and staff.
	Conditions — Seven public and school bus services operate at eight bus stops within walking distance (400m) of the new school site. — Five school bus services currently operate near the proposed school site, limited to school operating times. These run to nearby schools including Shoalhaven High School, Nowra Public School, and Nowra High School. Conclusions — Five school bus services are to be provided to support student demand. — Provide a new bus bay along Worrigee Road to accommodate three bus spaces. — Council and Transport for NSW are encouraged to provide bus stop infrastructure at the stop in front of the school before the bus stop becomes operational. — Monitor bus zone operation at the school frontage. The STP includes strategies to monitor the demand on public transport services (monitoring and evaluation specifications outlined in Section 7). — The bus stop is primarily for TfNSW before and after school bus use but may also be used for transport to and from special events and excursions, etc. It is important that this is coordinated with bus timetables to ensure that coach parking does not interfere with bus service operations. — Whilst there are no endorsed plans by TfNSW to update the public transport services in the local area, there should be consultation between the Travel Plan Coordinator to enable Transport for NSW to provide school buses to improve the public transport service offered to students.

Existing conditions and conclusions	
Catchment analysis	Conditions — Around 26 per cent of the forecasted enrolment is within a 15-minute actual walking distance of the school site — 96 per cent of the expected student population are within a 10-15 minute cycling distance of the high school site, noting that this will be on-road or on footpaths rather than dedicated cycling infrastructure — Over 36 per cent are eligible for free school bus passes or School Opal cards through the School Student Transport Scheme (SSTS). Most of these students (around 32 per cent of the total) live within 400 m of a bus stop, but around 5 per cent of students live beyond 400 m of the bus stop. Unless additional bus stops are implemented, those students will likely be driven to school. — Currently, walking, cycling, and public transport routes are reasonably direct, with students anticipated to cross at the Worrigee Road / Booligal Road intersection at the Golden Grove (western leg) and Worrigee Road (northern leg). However, as Raleigh Drive has lower traffic volumes, students will likely prefer to use this path for as long as possible before crossing at the intersection.
Road safety	Conditions — A low number of collisions occurred near the new school site, with three occurring at the Greenwell Point Road / Worrigee Road intersection, of which two resulted in injuries during daytime. These include a cross-traffic intersection crash that resulted in serious injury and a right-through collision with a semi-trailer that resulted in minor injury. An additional motorcycle crash left the carriageway into an object at the Worrigee Road / Rayleigh Road intersection during wet, dark conditions. — No collisions involved a bicycle or a pedestrian. — Existing low traffic volumes through Worrigee Road and surrounding local roads contributed to low crash history. This may change as nearby residential development increases. Conclusions — A school zone should be implemented near the school frontage, which is likely to improve road safety, particularly during the busy pick-up and drop-off periods. — Traffic calming measures along the local road network (e.g. raised pedestrian priority crossings, signage, etc.) will support a safer traffic environment for both students travelling to the new school and residents.
Parking availability	Conditions — Unrestricted kerbside parking is available along Golden Grove, Booligal Road and neighbouring local streets. — The surrounding low-density residential land use means there is low parking demand, with most vehicles parking within residential boundaries. Conclusions — The proposed school includes on-site parking for staff and DOPU, while the on-street parking on Booligal Road (opposite the school frontage) will facilitate visitor parking and short-stay pick-up and drop-off activity. — Adopt the following measures to reduce the impact on the on-street parking: — Developing the Travel Access Guide (TAG) to encourage students to use sustainable modes of travel to and from school. — Implementing the various behaviour change programs set out in this School Transport Plan. — Monitoring and management of the DOPU area at drop-off and pick-up times by the Travel Plan Coordinator to ensure drivers are not dwelling longer than two minutes and don't queue before the end of school hours.

Source: *New Primary School in Worrigee Transport and Accessibility Impact Assessment, 2026*

3 Guiding policy

3.1 Transport objectives and guiding policy

The new primary school in Worrigee aims to prioritise sustainable transport modes to and from school (walking, cycling and public transport) first and foremost. TfNSW's movement hierarchy in their Road User Space Allocation Policy (2021) sets the tone for prioritising active transport above all other modes.



Source: TfNSW, 2021

Figure 3.1 TfNSW's Road User Space Allocation Policy

The new primary school Worrigee aims to achieve this active and public transport prioritisation by improving access in the proposed design, as well as the following measures:

- Mode share targets and scenarios that promote a shift to sustainable travel modes.
- Implementing ongoing educational and behaviour change programs that encourage students to walk and cycle to school.

3.2 Mode share scenarios

Three mode share scenarios have been explored for the new primary school in Worrigee site, as summarised below and in Table 3.1. These mode share scenarios exclude SLU students who typically have unique transport needs and are expected to be driven to school.

- The **'Baseline Scenario'** for travel to the new primary school in Worrigee represents typical student mode splits in neighbouring schools in NSW, with a higher level of private vehicle use (52 per cent), followed by walking (16 per cent), public transport (23 per cent) and cycling (9 per cent). The targets for the baseline scenario have been informed by travel surveys undertaken by the Department of Education at Nowra East Public School, which shares similar demographics and travel behaviours, as no travel surveys were available for this new public school.

It is anticipated that the Baseline Scenario will be achieved from day one (no behavioural change required to support this scenario).

- The **‘Medium Scenario’** reflects a moderate increase in sustainable transport modes compared with the baseline scenario. In this scenario, active travel mode share will increase to 31 per cent (19 per cent walking and 12 per cent cycling), public transport mode share will increase to 24 per cent, and private vehicle use will decrease to 45 per cent (7 per cent decrease).

To encourage an increase in active transport and a reduction in car use, this scenario will require students to actively change the way they would typically travel to school. This will be supported through the application of the Implementation Plan (see Section 4.1), with particular focus on the ‘general’, ‘walking and cycling’ and ‘reducing car use’ measures. Ongoing monitoring and evaluation (see Section 7) will help ensure that the mode share targets are achieved in this scenario.

- The **‘Reach Scenario’** represents the aspirational mode splits for new primary school in Worrigee, specifying an increase in active transport to 33 per cent, an increase in public transport to 27 per cent and a decrease in private vehicle mode share to 40 per cent of the student population.

This scenario will require more significant behavioural change, supported through the application of the implementation plan (Section 4.1) with a focus on all items covered in the plan. Ongoing monitoring and evaluation (see Section 7) will help ensure that the mode share targets are achieved in this scenario.

Table 3.1 Scenario student travel mode share

Mode	Scenario 1 – Baseline		Scenario 2 – Medium (Moderate)		Scenario 3 – Reach (Best Case)	
	Percentage of students	Number of students	Percentage of students	Number of students	Percentage of students	Number of students
Walk	16 per cent	88	19 per cent	105	20 per cent	110
Bicycle	9 per cent	50	12 per cent	66	13 per cent	72
Public transport	23 per cent	127	24 per cent	132	27 per cent	149
Private vehicle	52 per cent	287	45 per cent	248	40 per cent	221
Total	100 per cent	552	100 per cent	552	100 per cent	552

3.3 Scenario demand management

The management of demand for each mode will vary across each scenario and it is important to consider the infrastructure, operations and behaviour change measures that may be required for each. Table 3.2 summarises the different infrastructure, operations and behaviour change programs that may be required to support the target mode share for each scenario at the school site.

Table 3.2 Summary of infrastructure, operations and behaviour change required across all three scenarios (Baseline, Medium and Reach)

Considerations		Baseline Scenario	Medium Scenario	Reach Scenario
Active travel	Walking Infrastructure	- Footpaths connecting the site boundaries to the school with sufficient width to allow for travel in pairs and passing. This will support the students walking, cycling and catching public transport to school across all three scenarios. - Provide two safe raised crossing facilities across Worrigee Road (northern leg) and Booligal Road (eastern leg) at the Worrigee Road / Booligal Road intersection. - Provide a painted pedestrian crossing across Golden Grove (western leg) at the Worrigee Road / Booligal Road intersection. - Promote low-speed environment and implement 40 km/h school zone speed limit for improved road user safety and implement school zone.		
	Cycling Infrastructure	The proposed provision of 67 bicycle parking spaces supports the anticipated cycling demand for the 'Baseline' mode share scenario. This includes 3 spaces for staff.	Additional bicycle parking facilities will need to be provided to support the active travel demand for this scenario. Specifically, at least 75 bicycle parking spaces will be needed for the Medium Scenario, and 97 bicycle parking spaces will be needed for the Reach Scenario.	
	Operations	It is important that staff members actively monitor the proposed raised pedestrian crossing across Worrigee Road and pedestrian access points to the school, to ensure the safety of students. No behavioural change is assumed to be required for the baseline scenario.	It is important that staff members actively monitor the proposed raised pedestrian crossing across Worrigee Road and pedestrian access points to the school, to ensure the safety of students. Some investment in behavioural change programs is required to support a moderate mode shift from private vehicle use to walking and cycling.	It is important that staff members actively monitor the proposed raised pedestrian crossing across Worrigee Road and pedestrian access points to the school, to ensure the safety of students. A larger investment in behavioural change programs is required to support a more significant mode shift from private vehicle use to walking and cycling.

Considerations		Baseline Scenario	Medium Scenario	Reach Scenario
Public transport	Infrastructure	In the baseline scenario, the demand for public transport is 127 students (23 per cent of the total). In the medium and reach scenarios, the demand increases to approximately 132 (24 per cent of students) and 149 (27 per cent of students), respectively. — Provide a minimum of five buses per hour to support public transport demand across all three scenarios. — Provide a 67 metre indented bus bay along Worrigee Road with three bus spaces to accommodate the five bus services. Note that the calculation of the required bus infrastructure assumes an average bus occupancy of 50 per cent and 12.5 metre bus length (refer to the <i>New Primary School in Worrigee Transport and Access Impact Assessment</i>), which could be increased in the future to support the additional demand.		
	Operations	Bus bay operations outlined in Section 5.1.6 are to be adhered to.		
Private vehicles	Infrastructure	In the baseline scenario, it is anticipated that 287 students will be driven to school. An additional 30 SLU students will be driven to school. 40 public school staff members are anticipated to drive to school. To meet this demand, the following combination of DOPU, on-street short stay, onsite staff parking and on-street general parking is to be provided. — 40 onsite staff parking spaces are to be provided, including one accessible space. — 10 DOPU bays are provided on Booligal Road along the school frontage. 230 students are expected to use the DOPU bay, and the remaining are expected to use on-street short stay and general parking. — Three SLU accessible spaces are on Worrigee Road along the school frontage. — 12 short-stay on-street parking spaces on the southern side of Booligal Road. — 10 on-street general parking on the northern and southern sides of Booligal Road. In the medium scenario, it is anticipated that 248 students will be driven to school. In the reach scenario, it is anticipated that 221 students will be driven to school. With the reduced demand, the provided parking provisions are expected to accommodate the medium and reach scenario.		
	Operations	DOPU operations should be undertaken in accordance with the operations outlined in Section 5.1.5. Continuous monitoring of operations is crucial to minimising delays and congestion at the DOPU bays. Visitors are expected to utilise the Booligal Road on-street parking; however, availability is not guaranteed as these spaces are not exclusive to the public school.		

4 School travel plan

4.1 Implementation plan

The following actions have been identified as part of the School Travel Plan to help the school achieve the mode share targets. These identified strategies include the promotion of events and activities to support these targets. Whilst these activities will not significantly alter the way students and staff members travel to and from school, they can support a gradual shift to sustainable modes as well as improved awareness of safety measures for walking and cycling to school.

Table 4.1 Implementation plan measures for the new primary school in Worrigeer

No.	Action / Description	Responsibility	Response
1. General			
1.1	Establish a centralised Travel Plan Coordinator (TPC) who is to take responsibility for the ongoing review and monitoring of this Plan. This person(s) shall also provide direction to staff/parents in relation to specific requirements arising from the Plan. The TPC will facilitate ongoing engagement with the School Working Group (SWG) and the Transport Working Group (TWG).	School	A TPC is to be nominated by the DoE / School to support the ongoing implementation of the School Travel Plan.
1.2	Provide a ‘Travel Welcome Pack’ for newly employed staff, highlighting alternate modes of transport other than the use of a private vehicle.	TPC / School	Travel Welcome Pack to be prepared and provided to all staff members before the start of the Term.
1.3	Ongoing review of the School Transport Plan as a regular item on the agenda of staff/management meetings.	School	The school is responsible for undertaking regularly / periodically.
1.4	Preparation of a Travel Access Guide (TAG) to be provided to staff, students and parents as part of the start of Term materials provided each year. The TAG will outline the access arrangements, public and active transport services and infrastructure, parking arrangements and other key travel details that will inform the way students travel to school.	TPC	The TAG is to be provided to all staff, students and parents at the beginning of the school term each year. The TAG should be updated and reissued to support any changes to bus routes and service times.
2. Walking and Cycling			
2.1	Ride2 Work and Ride2School Day , which provides staff, students and parents an opportunity to participate in the annual event. This	School / TPC	TPC and the school to collaborate to develop messaging to the school community (newsletters, calendar reminders, daily announcements, etc) to

No.	Action / Description	Responsibility	Response
	day features competitions and awards for students and will help introduce cycling into students' travel routines and demonstrate that it is a viable and beneficial way to travel to school.		promote this annual activity and encourage participation.
2.2	Walk Safely to School Day is another annual event that schools can participate in, which encourages students to walk safely to school. This coincides with Walk to Work Day , which staff members can also participate in.	School / TPC	TPC and the school to collaborate in the planning for and marketing to the school community to inform them of this initiative (newsletters, calendar reminders, daily announcements, etc).
2.3	Additional Health Events There are a range of different events that schools can participate in, to encourage safe sustainable travel to school. These include Bike Week and Health and Wellness Fairs. Hosting these events helps inform and encourage staff and students to adopt active modes for travel to and from school.	School / TPC	TPC and the school to collaborate in the planning for and marketing to the school community to inform them of the selected events (newsletters, calendar reminders, daily announcements, etc).
2.4	Provide and maintain safe active transport facilities and access arrangements for travel to and from the school.	School / Department of Education	The Transport and Access Impact Assessment has recommended the provision of safe access facilities and arrangements for walking and cycling to and from the new school. It is the responsibility of the School and the Department of Education to monitor the feasibility and quality of these access facilities, providing routine maintenance and upgrades where necessary.
2.5	Provide sufficient and secure bicycle parking facilities to support the mode share targets and undertake routine maintenance.	School	The proposed bike parking provision has been deemed sufficient to support the anticipated student enrolment. It is the school's responsibility to upgrade this provision as student enrolment increases and to ensure ongoing maintenance of these facilities.
3. Education programs			
3.1	Adapting the curriculum to inform students about road safety awareness. Improving upon the existing student curriculum to educate students on Road Awareness, particularly when it comes to walking or riding independently to school. Liaise with the Road Safety Education page within the NSW Department of Education regarding any updates to the curriculum.	School / TPC	The TPC and the school will review the Road Safety Education information from the NSW Department of Education to identify necessary updates to the school curriculum for educating students on road safety. It is anticipated that this curriculum will vary between year groups and should be tailored accordingly.
3.2	Promoting safe driving by parents and care givers near the school.	School / TPC	The TPC and the school will provide new parents and caregivers with information on how to navigate the

No.	Action / Description	Responsibility	Response
			available parking options along Worrigee Road and Booligal Road. This will include the circulating arrangement, appropriate speeds, guidance on where not to queue and how to react if queuing occurs and where to watch for pedestrians. Provide reminders in school newsletters and for parents of returning students at the start of each year.
4. Public Transport			
4.1	Provide students with information about public transport routes and timetables, e.g. displays around the school and through the TAG.	School / TPC	Prepare the TAG to inform students of the public transport routes for travelling to and from the school. Ongoing updates to the School Transport Plan and TAG to reflect any changes to the public transport network.
4.2	Collaborate with TfNSW to improve public transport services to respond to increased development (e.g. residences) in the surrounding area, as well as supporting the 'Reach' mode share scenario, which will see an increase in public transport demand by approximately 22 students.	TPC / Schools Infrastructure NSW	The TPC and Schools Infrastructure NSW should consult with TfNSW in the case that local development or improvements to public transport mode share for travel to and from the school render the existing public transport provision insufficient to support the demand.
4.3	Undertake a review of any benefits (e.g. tax incentives for Government employees) that will support staff members using public transport.	School / TPC	The TPC and the school are responsible for undertaking a review and informing staff members of the benefits they are entitled to. This could be communicated through newsletters, regular meetings and bulletin boards (up to the school's discretion).
4.4	Develop incentive programs for encouraging students to use public transport to travel to and from school, e.g. rewards schemes.	School / TPC	The TPC and school are responsible for identifying and implementing appropriate incentive programs for public transport travel to and from school.
4.5	Participating in initiatives such as Bus Safety Week , which aims to raise awareness for all road users on the safety rules when walking, riding or driving near buses.	School / TPC	The TPC and the school are responsible for collaborating on and planning for public transport initiatives at the school.
5.0 Reducing Car Use			
5.1	Develop a parking management scheme to discourage single-occupancy trips for staff members driving to and from the school.	School / TPC	Consider this measure if parking management for the on-site car park becomes unnecessary.
5.3	Car-pooling incentives for parents and staff driving to school.	TPC	The TPC and the school are responsible for identifying and implementing appropriate incentive programs for encouraging car-pooling.

4.2 Communications strategy

To effectively implement the actions identified in the Implementation Plan, the following Communications Strategy has been developed. This Strategy outlines the role of the Travel Plan Coordinator (TPC) in relaying the information outlined in the Implementation Plan to the student body, parents and staff members.

Table 4.2 Communications strategy for the new primary school in Worrigee

Description	Communication method	Responsibility
Providing key travel information (e.g. public transport routes, walking and cycling access points, etc) to staff, students and parents. This includes the TAG and other documents that outline the benefits of sustainable transport modes and specify the options available to the school community.	— Welcome packs at the start of the school year and for new staff and students to the school — School website — On school bulletin boards and during morning announcements, where necessary	TPC
Updating staff, students and parents on the planned initiatives outlined in the Implementation Plan, e.g. Ride-To-School Day, Walk-To-School Day, etc. This should take place in the lead-up to the events.	— School website — E-newsletters — On school bulletin boards and during morning announcements — Social media	TPC
Providing information on the availability of student bus passes.	— Welcome packs at the start of the school year and for new staff and students to the school — School website	TPC
Key information on school operations, e.g. DOPU, access and parking arrangements, road safety and school zone operations. Keep the school community up to date on any changes to operations as well as any external factors that might impact operations, e.g. local construction activities.	— Welcome packs at the start of the school year and for new staff and students to the school — School website — E-newsletters — Social media	TPC

The ‘Welcome packs’ outlined in the communications strategy should be provided to new staff and students who join the school. This information should be provided as part of the on-site induction to the school. This welcome pack should include general information about the school, access arrangements, parking and operations, etc, as well as information about the school’s sustainability targets, the TAG and an overview of the initiatives that are planned to occur throughout the school year.

5 School transport operations

5.1 Access Management Plan

The new primary school in Worrigeer is committed to managing pedestrian and vehicle movements both on-site and within the local road network. This coordination aims to meet operational requirements while ensuring student safety and maintaining on-street efficiency.

5.1.1 Key Responsibilities

It is the responsibility of the school to ensure that the following items are actioned:

- Provide comprehensive training to all staff to ensure they can perform their travel management roles (e.g. supervising DOPU operations, leading education programs or school initiatives) effectively. This includes making sure that staff, parents/carers, visitors, and students are well-acquainted with site-specific operations (outlined in the Communications Strategy Section 4.2).
- Understand and fulfil their duty of care obligations as per the relevant state Work Health and Safety legislation.
- Maintain WHS incident logbooks and take appropriate actions to address any reported issues.

5.1.2 School Operating Hours

The new primary school in Worrigeer will be accessible to students, staff and members of the public from approximately 7:00 AM to 6:00 PM on weekdays (to be confirmed after the principal has been appointed). Access outside these operating hours will be restricted. The school bell times will also be confirmed once the principal has been appointed.

5.1.3 Site Access

As outlined in Figure 1.4, students, staff, and visitors to the school will be able to access the site from the main pedestrian access points via Booligal Road and Worrigeer Road. On-site staff parking is accessible via Greenwell Point Road (northern car park) and Booligal Road (southern car park). The southern car park is to be shared with the preschool and includes dedicated staff and pick-up and drop-off spaces.

In addition, it is typical that visitors attending the school will be required to make appointments in advance, whereby the school can inform the visitors on the travel mode choices and iterate at the on-site carpark is dedicated to staff members only.

5.1.4 Pedestrian and cyclist access

Pedestrian and cyclist access points to the school are located via Booligal Road and Worrigeer Road (see Figure 5.1). New infrastructure is proposed to support pedestrian access to the school site, including:

- Marked raised pedestrian (wombat) crossings at the Worrigeer Road / Booligal Road intersection:
 - Worrigeer Road (supervised) at the northern leg of the intersection
 - Booligal Road at the eastern leg of the intersection
- Painted pedestrian (zebra) crossing across Golden Grove at the Worrigeer Road / Booligal Road intersection
- 3.0 wide footpaths on Worrigeer Road from Greenwell Point Road to Booligal Road and Booligal Road
- End of Trip (EoT) facilities will be provided on-site to support staff's active travel to and from the site.

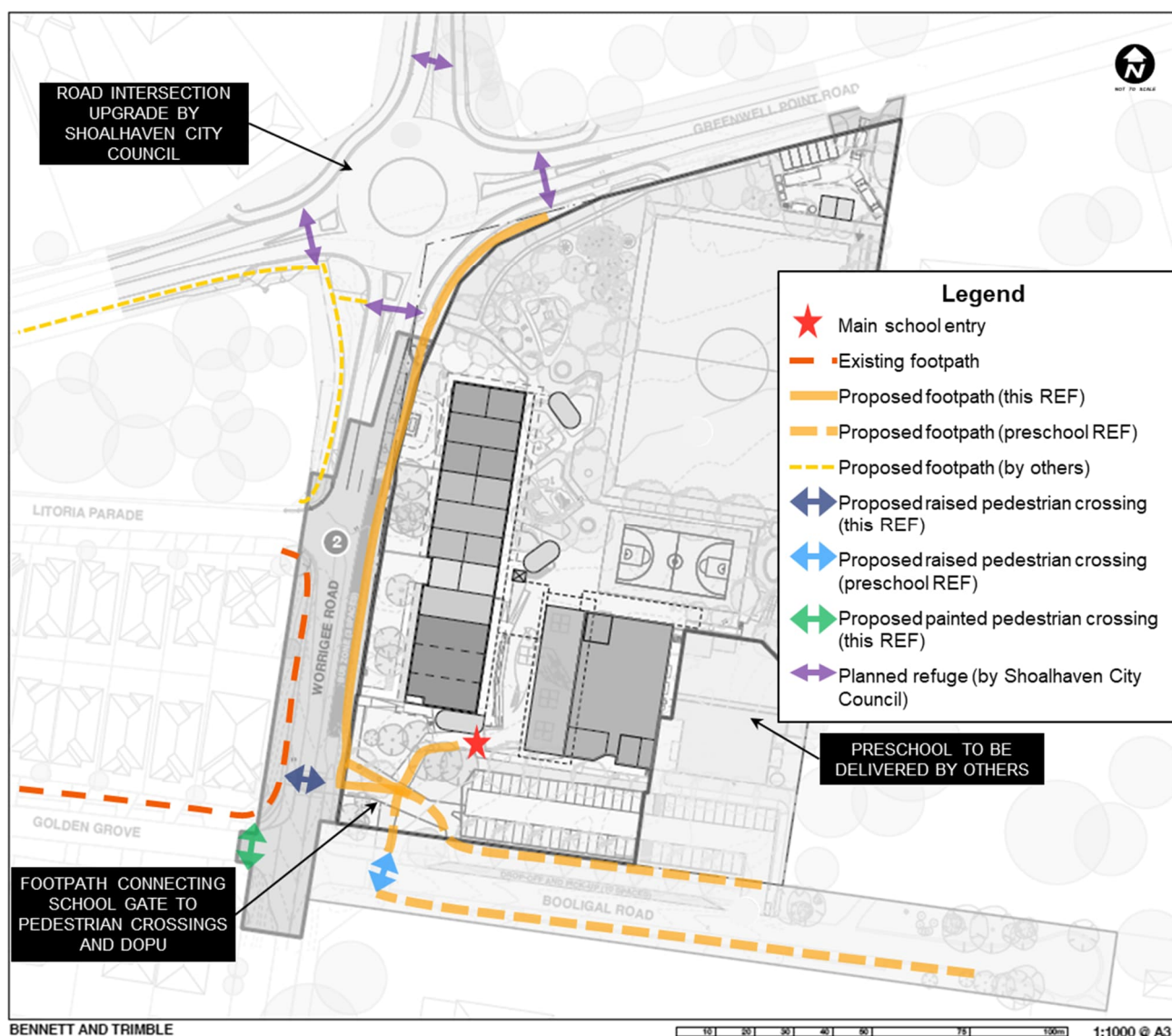


Figure 5.1 Proposed active transport access arrangements

This new infrastructure will support the existing facilities to allow students to safely access the site by walking, cycling, and bus services.

5.1.5 DOPU operations

A combination of DOPU, short stay and general on-street parking will be provided along both sides of Booligal Road. This includes 10 DOPU spaces (northern side), 12 short stay spaces (southern side) and 10 general on-street parking spaces along both sides of Booligal Road. Monitoring and enforcing the required restrictions and access will minimise conflicts and delays. DOPU access arrangements are visualised in Figure 5.2.

The DOPU bay will be signposted as “Student Drop-Off and Pick-Up area” between the hours of 8:00 AM – 9:30 AM and 2:30 – 4:00 PM for drop-off and pick-up, respectively (consistent with NSW school zone operating hours). This will allow the DOPU bay to operate as a no-parking zone, only allowing parents to dwell in the bay for a maximum of two minutes.

Similarly, the short stay bay will be signposted as time-restricted parking between the hours of 8:00 AM – 9:30 AM and 2:30 – 4:00 PM for drop-off and pick-up, respectively (consistent with NSW school zone operating hours). This will allow parents to park for up to 10 minutes and walk their children across Booligal Road and into the school. As outlined in the TAIA, parents are to first occupy the DOPU bays and, when full, proceed to the on-street short stay and general parking on the other side of Booligal Road.

The SLU DOPU bay will provide 3 accessible spaces along Worrigee Road. The accessible spaces will be signposted “Accessible Parking Only” with the wheelchair symbol.

It is important that members of staff monitor the DOPU operations both in the morning and afternoon, to actively minimise any risks of conflicts or delays. This includes enforcing the maximum bay dwell times where necessary and reminding parents not to queue at intersections. Additionally, it is important that parents and students are informed of the parking arrangements before the school year, via the TAG outlined in the Implementation Plan.

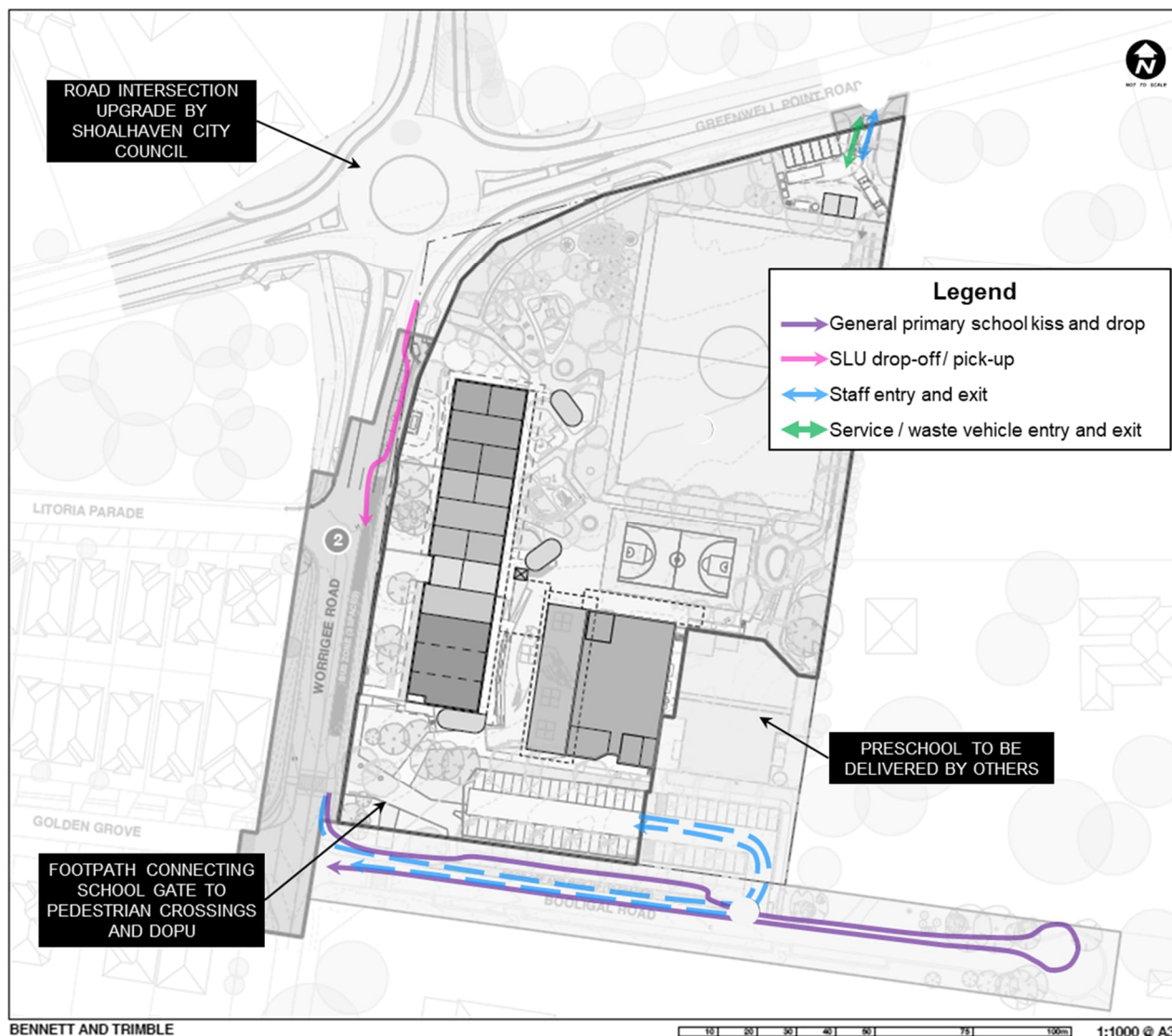


Figure 5.2 Proposed DOPU access arrangements.

5.1.6 Bus bay operations

As outlined in Figure 5.3, a bus bay is to be provided on Worrigee Road in front of the school, facilitating a maximum of three bus spaces. The bus bay will be operational during school morning and afternoon peak periods, to allow students to travel to and from school. The bus bay may also be used by coaches for special events and excursions outside of school morning and afternoon peak periods. It is recommended that a member of staff supervise the bus bay during the drop-off and pick-up periods and for excursions. This measure is in place to ensure that students safely and efficiently embark and disembark from the vehicle, minimising the risk of incidents or congestion.

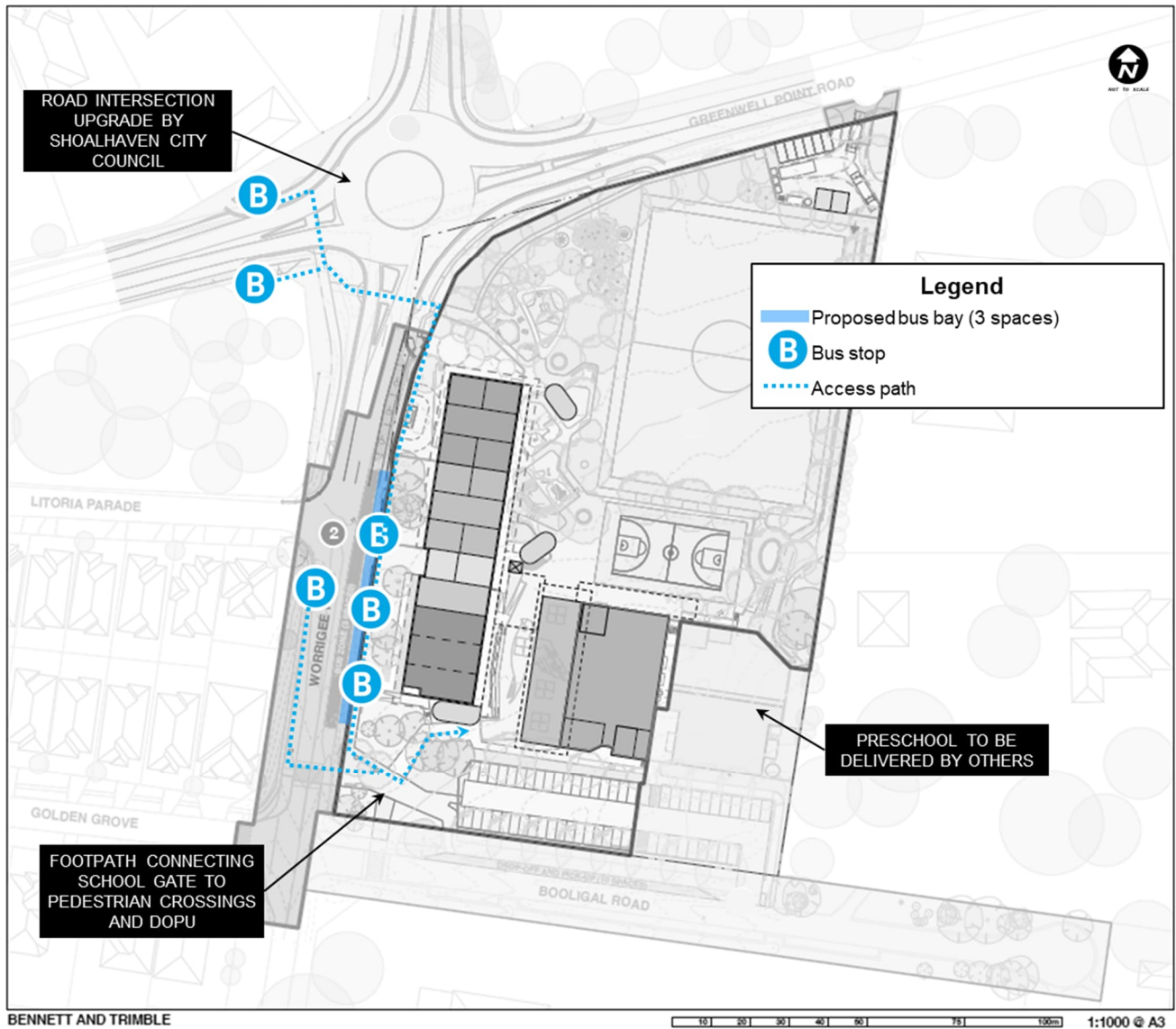


Figure 5.3 Proposed bus stop arrangements

Other existing public bus stops are located on Worrigee Road (opposite the proposed bus bay) and Greenwell Point Road. These bus stops will be operational all day, including during school morning and afternoon peak periods.

5.1.7 Servicing and emergency vehicle operations

As shown in Figure 5.4, service vehicles will access the school site from the Greenwell Point Road staff car park. Waste collection and deliveries will take place outside of school peak times (typically between 5:00 and 7:30 AM) to avoid any conflict with staff during school hours. Emergency vehicles will access the school via the bus bay on Worrigee Road. The bus bay is fitted with a fire appliance hardstand and is located near the fire booster. Multiple nearby bus stops can accommodate displaced buses when the hardstand is occupied by an emergency vehicle.

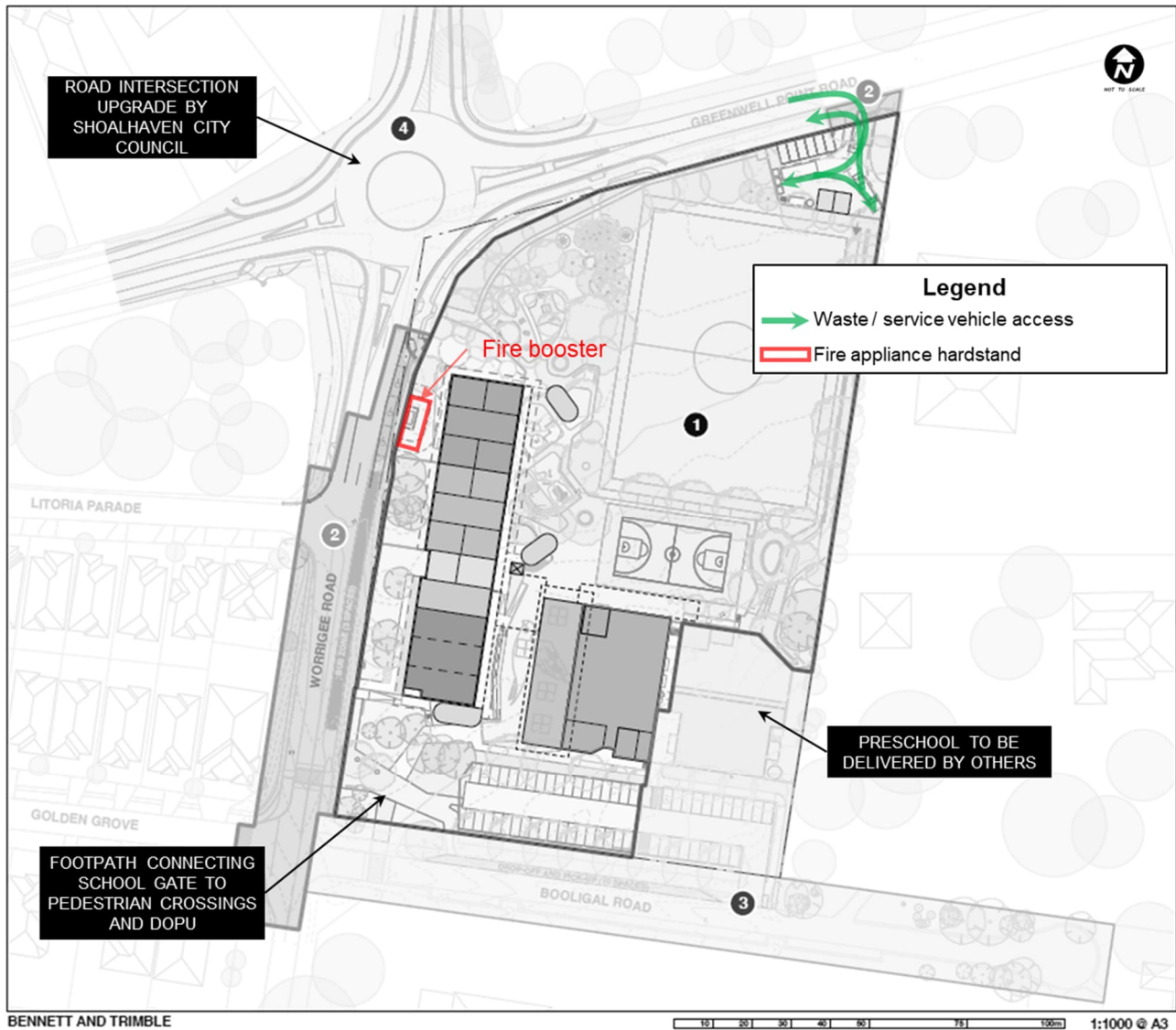


Figure 5.4 Servicing, loading and emergency vehicle access arrangements

5.1.8 Special event operations

For any major events held outside regular school hours (such as fetes, sports events, carnivals, community gatherings in the school hall, church meetings, etc.), a specific Event Traffic Management Plan must be created to handle traffic and parking concerns. It is important that this plan considers the changes to parking demand, particularly with respect to bus bay usage. It is important that coaches accessing the school for special events are coordinated with the existing public and school bus services, to ensure that the demand at the bus bay does not exceed the capacity.

6 Governance framework

To effectively manage the School Transport Plan, a Travel Plan Coordinator (TPC) will be appointed. This individual will be responsible for:

- Engagement with the School Working Group (SWG) and the Transport Working Group (TWG) regularly to discuss any challenges that may arise
- Implementing and promoting the actions outlined in the School Transport Plan and the Implementation Plan
- Monitoring the Plan's effectiveness and ensuring its ongoing maintenance as outlined in the Monitoring and Evaluation Plan Section 7
- Providing transport-related advice to staff, management, and visitors as needed
- Coordinating with external parties such as the Council, public transport providers, and car share operators regarding Travel Plan matters.

This role does not necessarily require a full-time commitment but should be clearly defined within the key responsibilities of the building management team.

7 Monitoring and evaluation plan

7.1 School Travel Plan Maintenance

The School Travel Plan should be kept up to date to reflect relevant changes. Some of the key areas that may require update include:

- Changes in the active and public transport networks in the surrounding area
- Progress tracking against the proposed travel mode share scenario targets
- Analysis of the data and information collected during the school's operations throughout the year, to identify any issues or challenges that need to be resolved to support the school's operations and achievement of mode share targets. This may include updating the travel mode share targets to better reflect what occurs at the school.

Updates to the School Travel Plan are tracked through revisions and document control, to ensure that the changes made to the plan are traceable.

7.2 Monitoring and review actions

The following ongoing monitoring and review actions will support the long-term adequacy of the strategies outlined in the School Travel Plan:

- Reviewing the depersonalised student data from the Department of Education once the student enrolments have been confirmed. Complete GIS analysis and compare it with the previous results and recommendations.
 - Undertake travel mode surveys to determine student mode share for travel to and from school. This will validate the Baseline, Medium and Reach scenario mode share targets and identify any updates required to better reflect the travel behaviour of the enrolled students.
 - Undertake counts and physical surveys to assess the adequacy of the existing transport infrastructure for supporting access to and from the school, as well as the adequacy of the on-site infrastructure (e.g. parking). This includes monitoring performance at the nearby intersection and local road network and identifying any measures that may be needed to improve operations.
 - Review data on participation in active travel programs implemented at the school.
 - Engage with the community to receive feedback on school operations and ideas for strategies that may improve travel in the local area.
-

7.3 Travel Mode Survey

There are several options for undertaking the student travel mode survey, including a hands-up survey and an online survey. These surveys are undertaken to understand the number of students driving, walking, cycling and catching public transport to and from school. Other areas addressed during this survey include DOPU and on-street parking usage (for students who are driven to school).

Staff members also participate in online surveys and are asked to provide the following key information:

- Suburb and postcode of where they normally live
- Travel mode to and from school, and the reason for using this mode.

7.4 Complaints handling

The school will create a spreadsheet for handling complaints, and anyone wishing to file a complaint will be asked to send it to the school's general email address. All complaints received will be recorded in the School's Complaints Register.

The school's administrative staff will monitor the emails and coordinate with the principal and TPC to address the complaints. Any actions taken will be documented in the Complaints Register.

During the first year of operations, the DoE communications team will manage all complaint handling. In the second year, this responsibility will be transferred to the school's staff.

8 Behaviour change measures

Scenario demand management

- To support the achievement of the ‘Medium’ and ‘Reach’ mode share scenarios, it is important that the behaviour change programs outlined in the Implementation Plan are carried out to differing degrees.
- Achieving the ‘Reach Scenario’ public transport mode share may require increases in service provision and frequency to support the increased demand (an additional 22 students). To support this scenario, ongoing collaboration between the TPC and TfNSW will be required to monitor the sufficiency of the existing public transport network.
- To achieve the ‘Reach’ Scenario, approximately 31 additional bicycle parking spaces will need to be provided on-site to support the increased student and staff demand. Futureproofing the design, e.g. setting aside available space for future bicycle parking, is recommended to support the achievement of these scenario targets.

School transport operations

- Ongoing monitoring of the DOPU demand and bay provision will support the resilience of DOPU operations in the long term.
- The proposed bus bays are primarily for TfNSW use but may also be used for transport to and from special events and excursions, etc. It is important that this is coordinated with bus timetables to ensure that coach parking does not interfere with bus service operations.
- It is recommended that a member of staff monitors the bus bay during peak periods (pick-up/drop-off and school excursions) to ensure students’ safety and to minimise the risk of congestion at the bay.
- Ensure that waste collection and deliveries take place outside of the school peak times to avoid conflict with pedestrians and cyclists during the drop-off and pick-up periods.
- Major events held outside regular school hours will require an Event Traffic Management Plan to minimise the impact on the local traffic environment and on-street parking conditions.

Monitoring and evaluation

- Undertaking regular monitoring and evaluation of data collected once the school is operational will support adaptation to change in the local traffic environment, anticipated student and staff mode splits, actual operations of the DOPU, bus bays and access arrangements. It is recommended to initiate this approximately 12 months after opening, once the school operations are fully established and have been refined. It is also recommended that this be led by the TPC with assistance from other staff if/as required.

9 Conclusions

The School Travel Plan sets out the plan for the ongoing management of travel to and from school, as well as operations and initiatives to support sustainable travel mode share. The Implementation Plan supports the achievement of the 'Baseline', 'Medium' and 'Reach' mode share scenarios, through ongoing initiatives and actions that will encourage the increased use of sustainable modes from Baseline to Reach. A review of the scenario demand management notes that the current proposal does not support the 'Medium' and 'Reach' scenario mode share targets for cycling, and that increased on-site cycling parking would be needed to achieve these targets. However, it is recommended that the TPC monitor demand for these modes across the first year, to gauge both the adequacy of the design and the likely achievement of these mode share scenarios.

The Access Management Plan outlines the operations for access arrangements to the school. It is recommended that ongoing monitoring and evaluation of data is undertaken by the TPC and that this School Travel Plan is kept up-to-date to reflect any changes to the local environment and school operations.

Appendix C

Swept path analysis



This architectural site plan illustrates a building complex with various rooms and outdoor spaces. The plan includes a large rectangular building with a central courtyard, a smaller building to the right, and a large outdoor area with a circular feature. Key areas are labeled as follows:

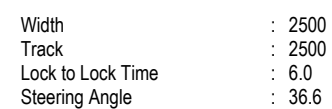
- INGRESS**: Located at the top left of the plan.
- STATION (TBC)**: Located at the top center of the plan.
- T (TBC)**: Located at the top right of the plan.
- OSTER & MP ROOM (C)**: Located at the top right of the plan.
- WORRIGEE ROAD**: A road running horizontally across the middle of the plan.
- BUS ZONE (3 SPACES)**: A designated area for buses, located below Worrigee Road.
- BICYCLE PARKING**: A designated area for bicycles, located below the bus zone.
- 12250**: A numerical label, likely a lot or site number, located near the bicycle parking area.
- 11,200**: A numerical label, likely a lot or site number, located near the bottom right of the plan.

The plan also shows various rooms and spaces within the buildings, including:

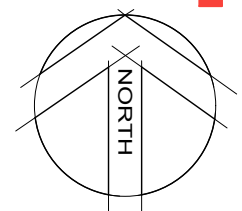
- RECEPTION**: Located in the top right building.
- OFFICE**: Located in the top right building.
- CONFERENCE**: Located in the top right building.
- STORAGE**: Located in the top right building.
- RESTROOM**: Located in the top right building.
- LOUNGE**: Located in the top right building.
- SECURITY**: Located in the top right building.
- CLERICAL / PRINTING**: Located in the top right building.
- SECURE AREA**: Located in the top right building.
- INTERVIEW**: Located in the top right building.
- DEBATE**: Located in the top right building.
- RECEPTION**: Located in the top right building.
- OFFICE**: Located in the top right building.
- CONFERENCE**: Located in the top right building.
- STORAGE**: Located in the top right building.
- RESTROOM**: Located in the top right building.
- LOUNGE**: Located in the top right building.
- SECURITY**: Located in the top right building.
- CLERICAL / PRINTING**: Located in the top right building.
- SECURE AREA**: Located in the top right building.
- INTERVIEW**: Located in the top right building.
- DEBATE**: Located in the top right building.

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AUSTROADS B85CAR

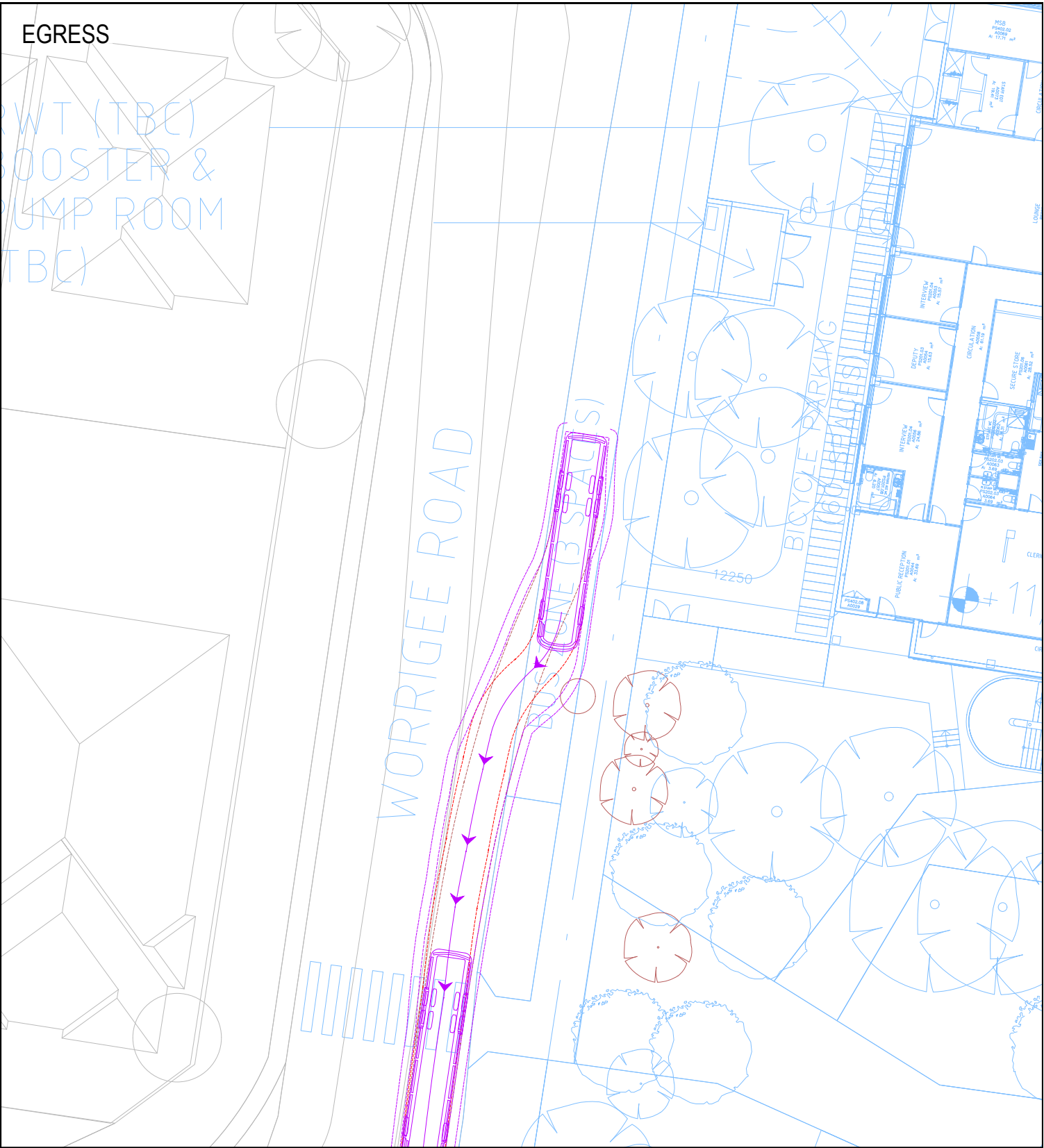


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SCALE 1:300 @A3



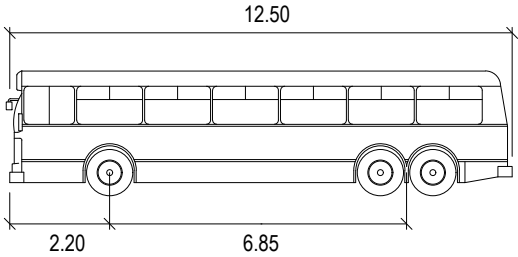
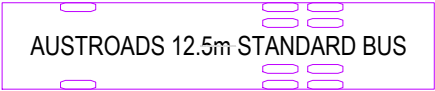
INGRESS

EGRESS



VEHICLE LEGEND

- 12.5m BUS 500mm CLEARANCE
- 12.5m BUS OVERHANG
- 12.5m BUS FRONT WHEEL LINE
- 12.5m BUS REAR WHEEL LINE
- 12.5m BUS CENTRELINE

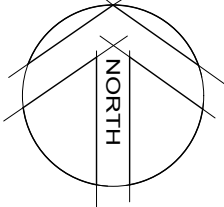
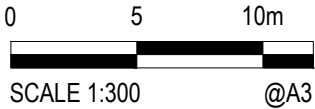


BUS	meters
Width	: 2.50
Track	: 2.50
Lock to Lock Time	: 6.0
Steering Angle	: 36.6

PS222457 SK002

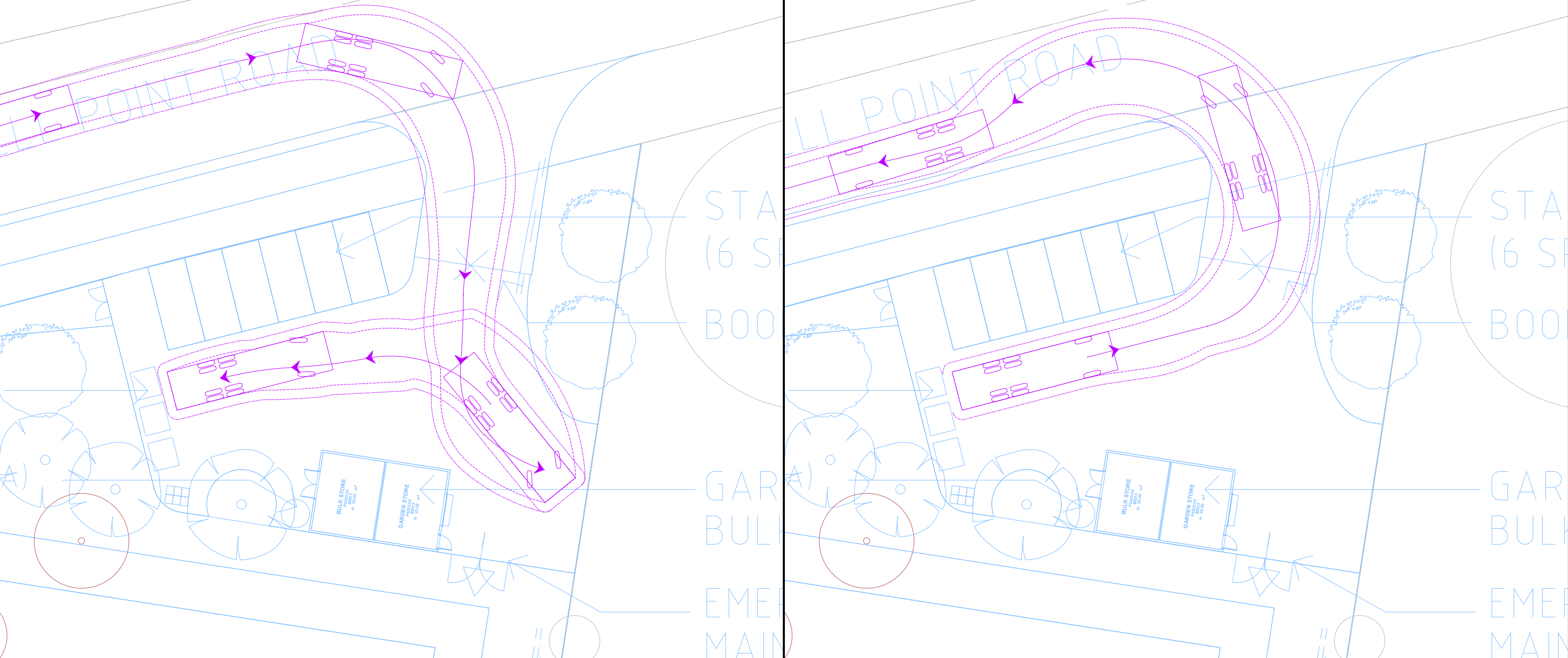
AUSTROADS 12.5M STANDARD BUS
SWEPT PATH DIAGRAMS

M.H. 22.12.2025



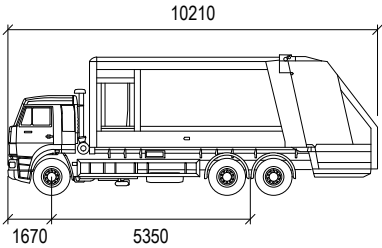
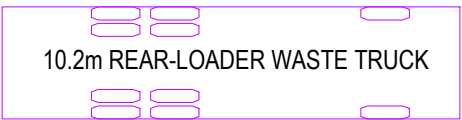
INGRESS - FORWARDS ENTRY FROM WEST

EGRESS - FORWARDS EXIT TO WEST



VEHICLE LEGEND

- REAR-LOADER 600mm CLEARANCE
- REAR-LOADER OVERHANG
- REAR-LOADER CENTRELINE



Dennis Eagle 6x4 Garbage Truck

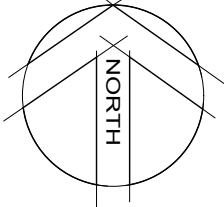
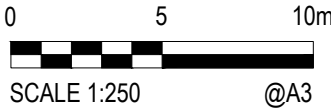
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Track	: 2500
Lock to Lock Time	: 6.0
Steering Angle	: 33.3

PS222457 SK003

WASTE COLLECTION - 10.2M REAR-LOADER

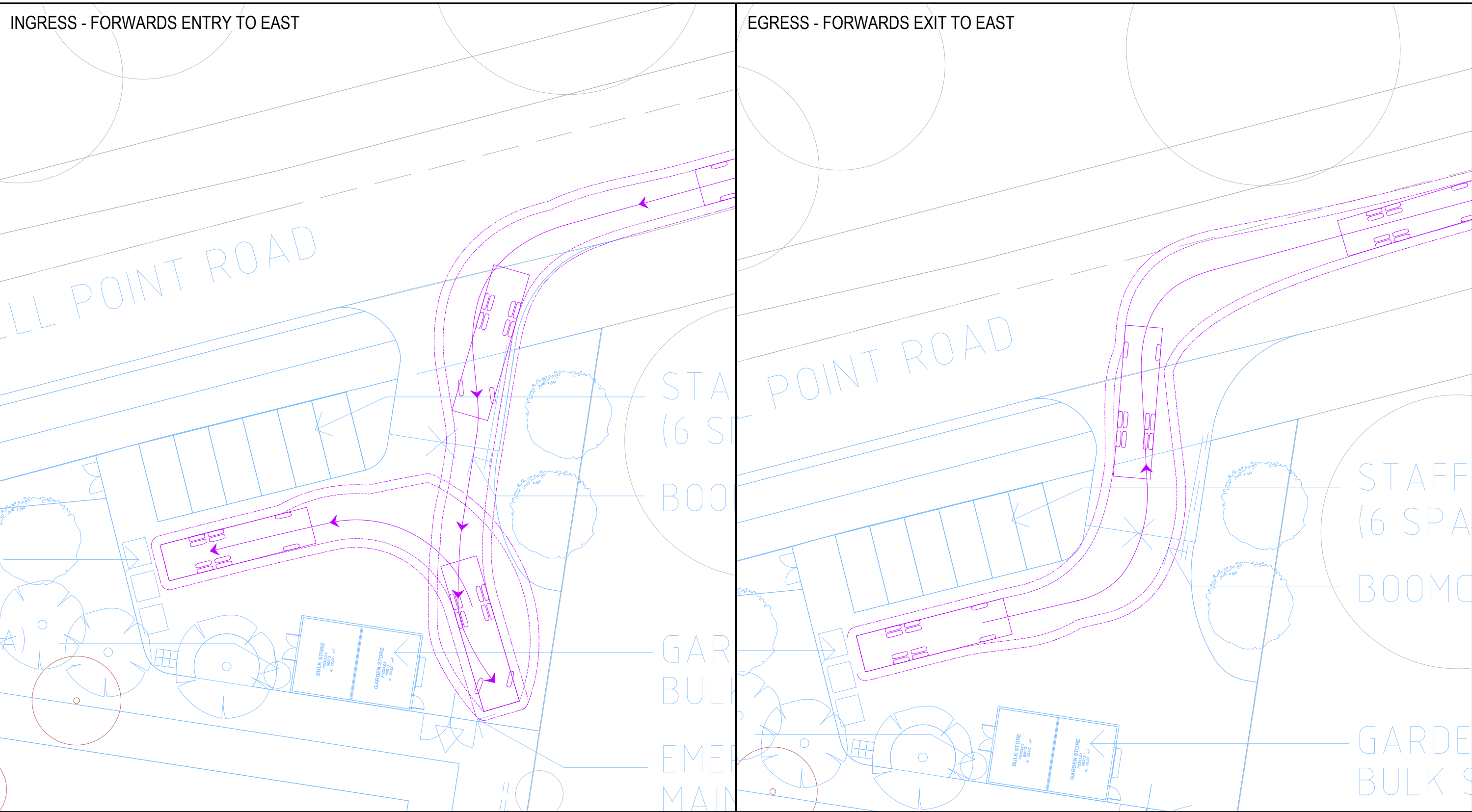
SWEPT PATH DIAGRAMS 01

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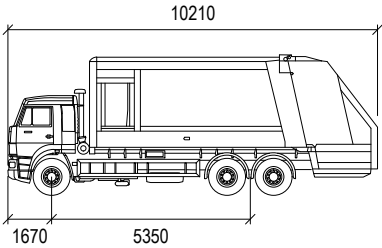
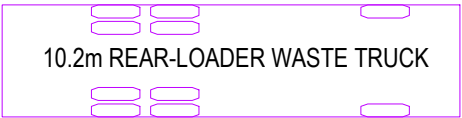
INGRESS - FORWARDS ENTRY TO EAST

EGRESS - FORWARDS EXIT TO EAST



VEHICLE LEGEND

- REAR-LOADER 600mm CLEARANCE
- REAR-LOADER OVERHANG
- REAR-LOADER CENTRELINE

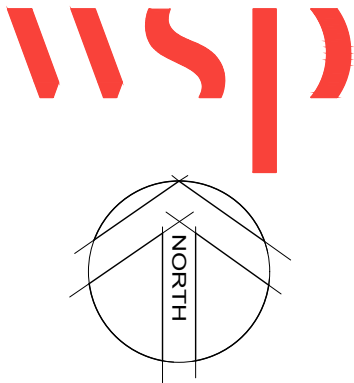


Dennis Eagle 6x4 Garbage Truck

Width	: 2500
Track	: 2500
Lock to Lock Time	: 6.0
Steering Angle	: 33.3

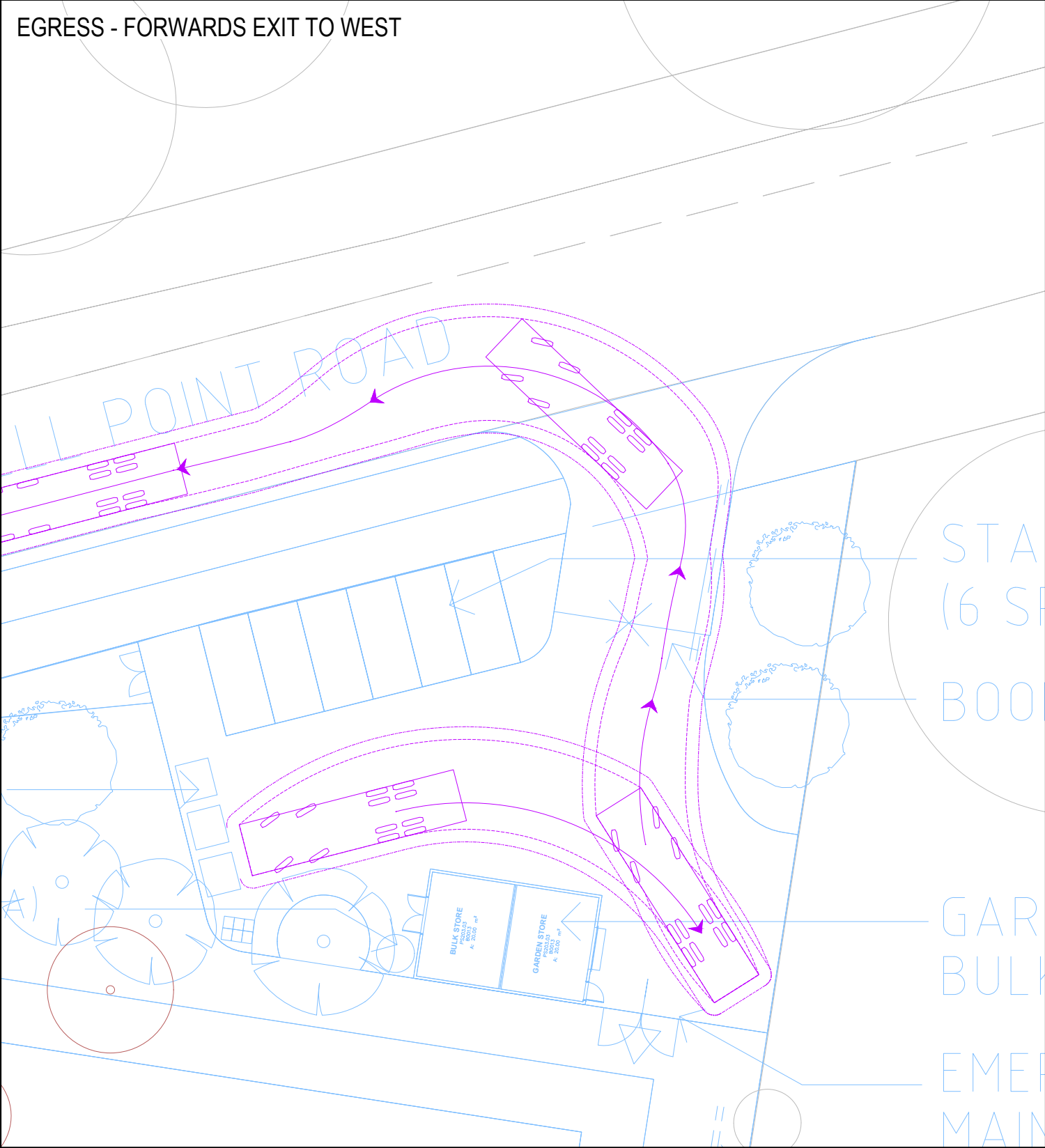
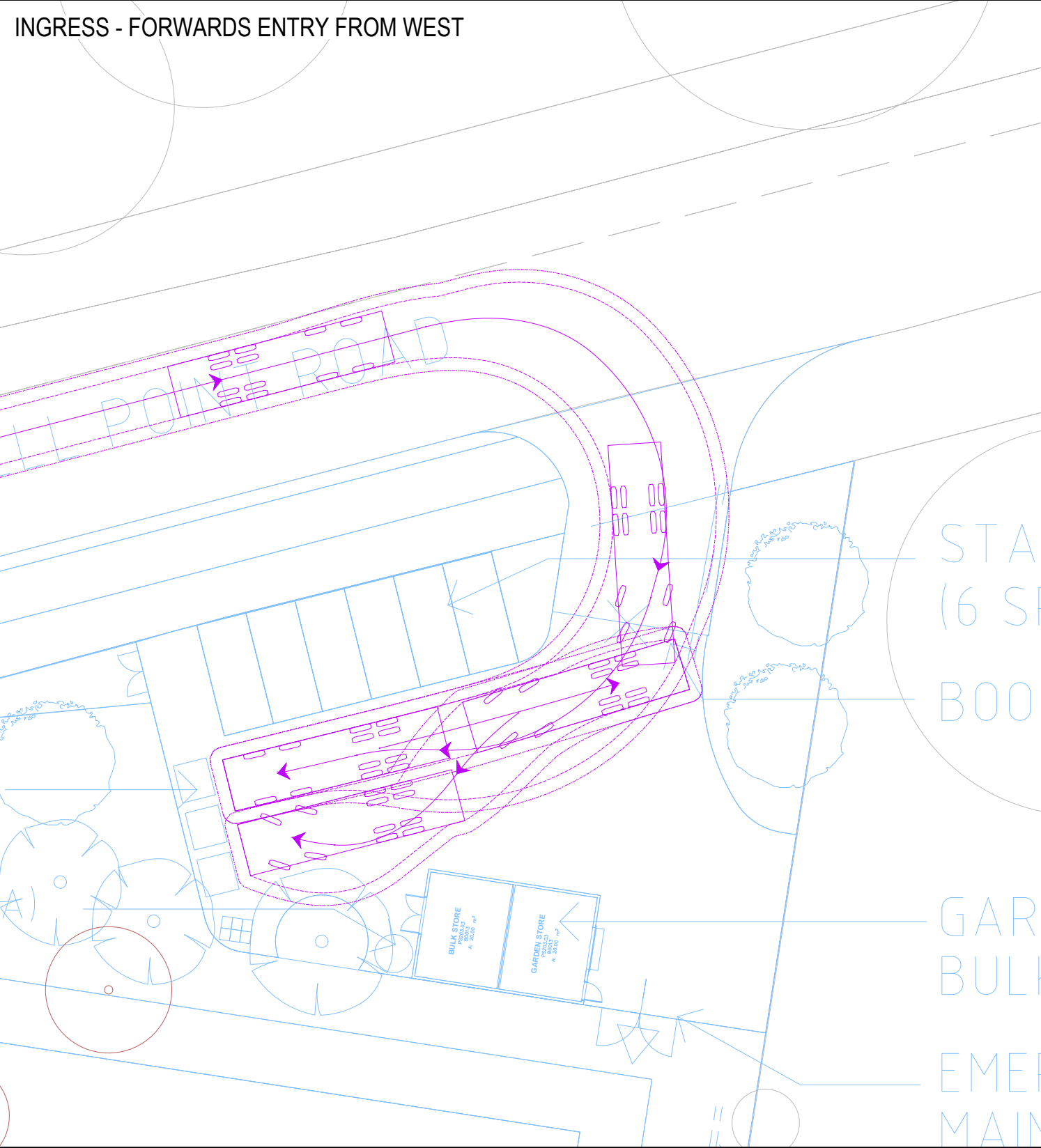
PS222457 SK004

WASTE COLLECTION - 10.2M REAR-LOADER
SWEEP PATH DIAGRAMS 02
M.H. 22.12.2025



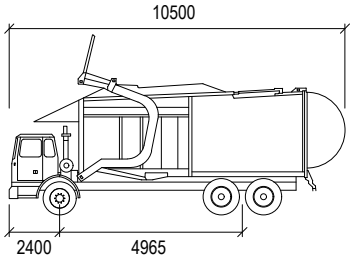
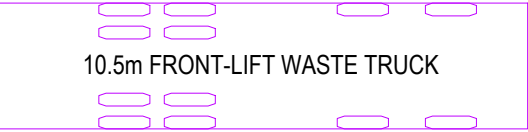
INGRESS - FORWARDS ENTRY FROM WEST

EGRESS - FORWARDS EXIT TO WEST



VEHICLE LEGEND

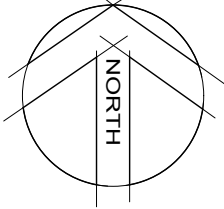
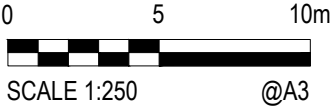
- FRONT-LIFT 600mm CLEARANCE
- FRONT-LIFT OVERHANG
- FRONT-LIFT CENTRELINE



10.5m BINGO FRONT-LIFT WASTE TRUCK

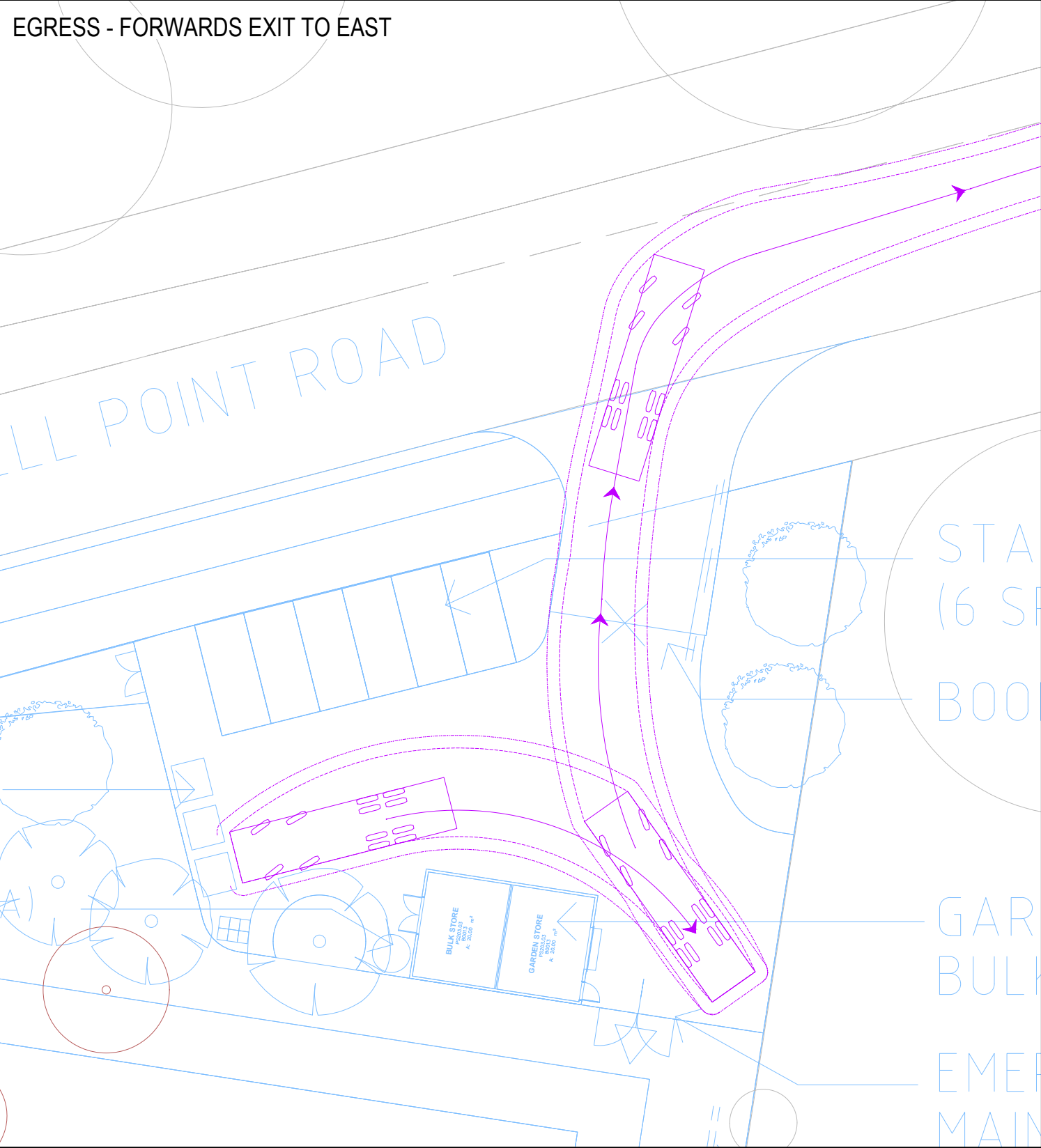
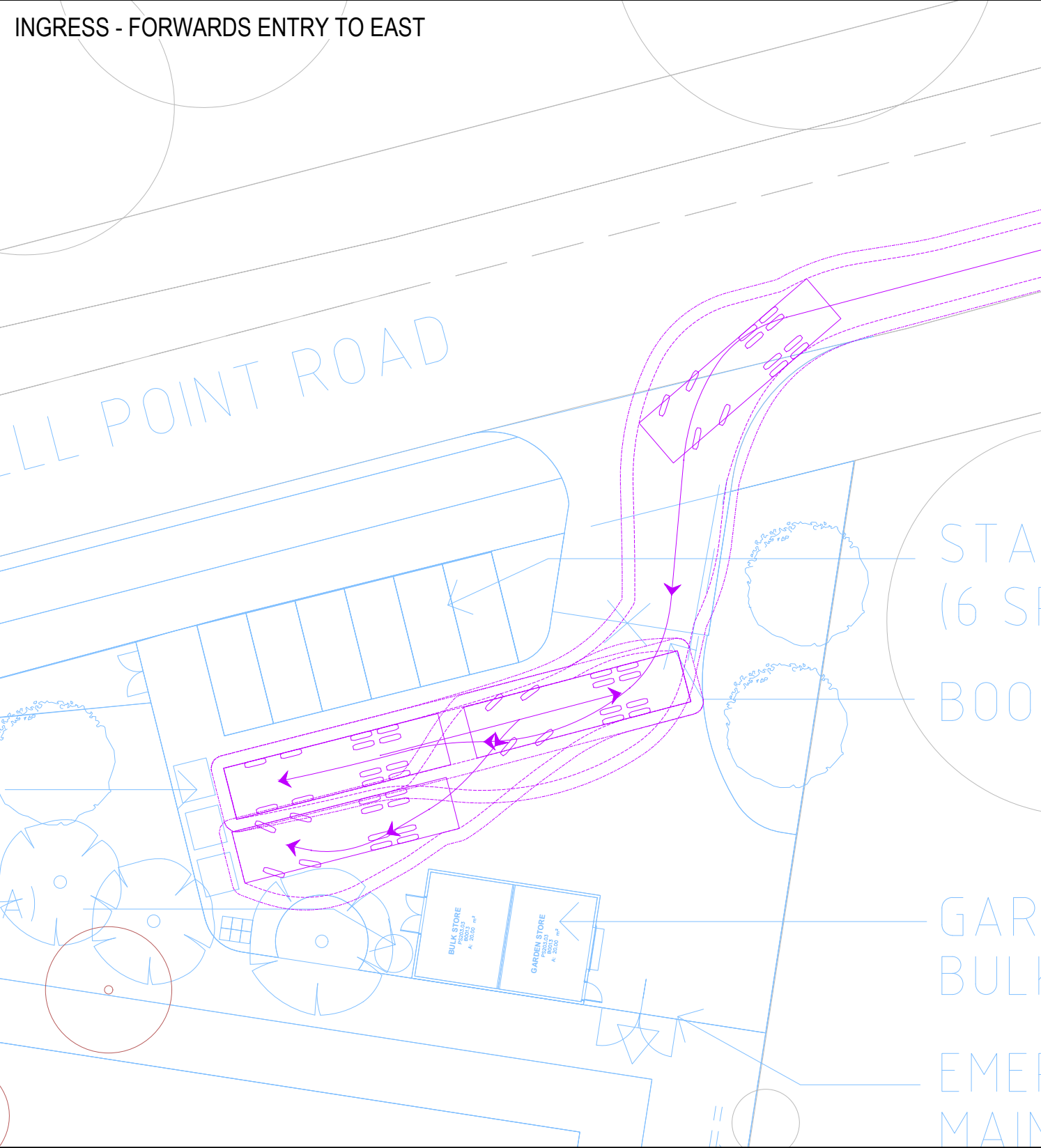
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Track	: 2500
Lock to Lock Time	: 6.0
Steering Angle	: 30.0

PS222457 SK005
WASTE COLLECTION - 10.5M FRONT-LIFT
SWEEP PATH DIAGRAMS 01
M.H. 22.12.2025



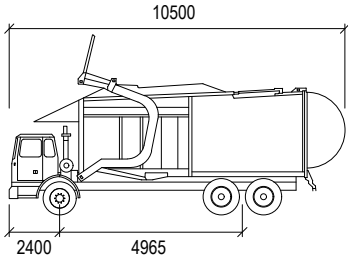
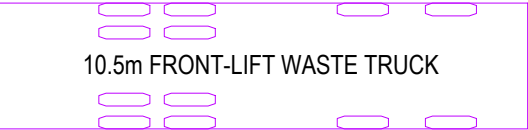
INGRESS - FORWARDS ENTRY TO EAST

EGRESS - FORWARDS EXIT TO EAST



VEHICLE LEGEND

- FRONT-LIFT 600mm CLEARANCE
- FRONT-LIFT OVERHANG
- FRONT-LIFT CENTRELINE

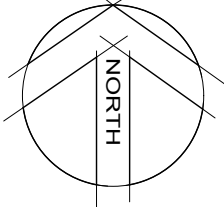


10.5m BINGO FRONT-LIFT WASTE TRUCK

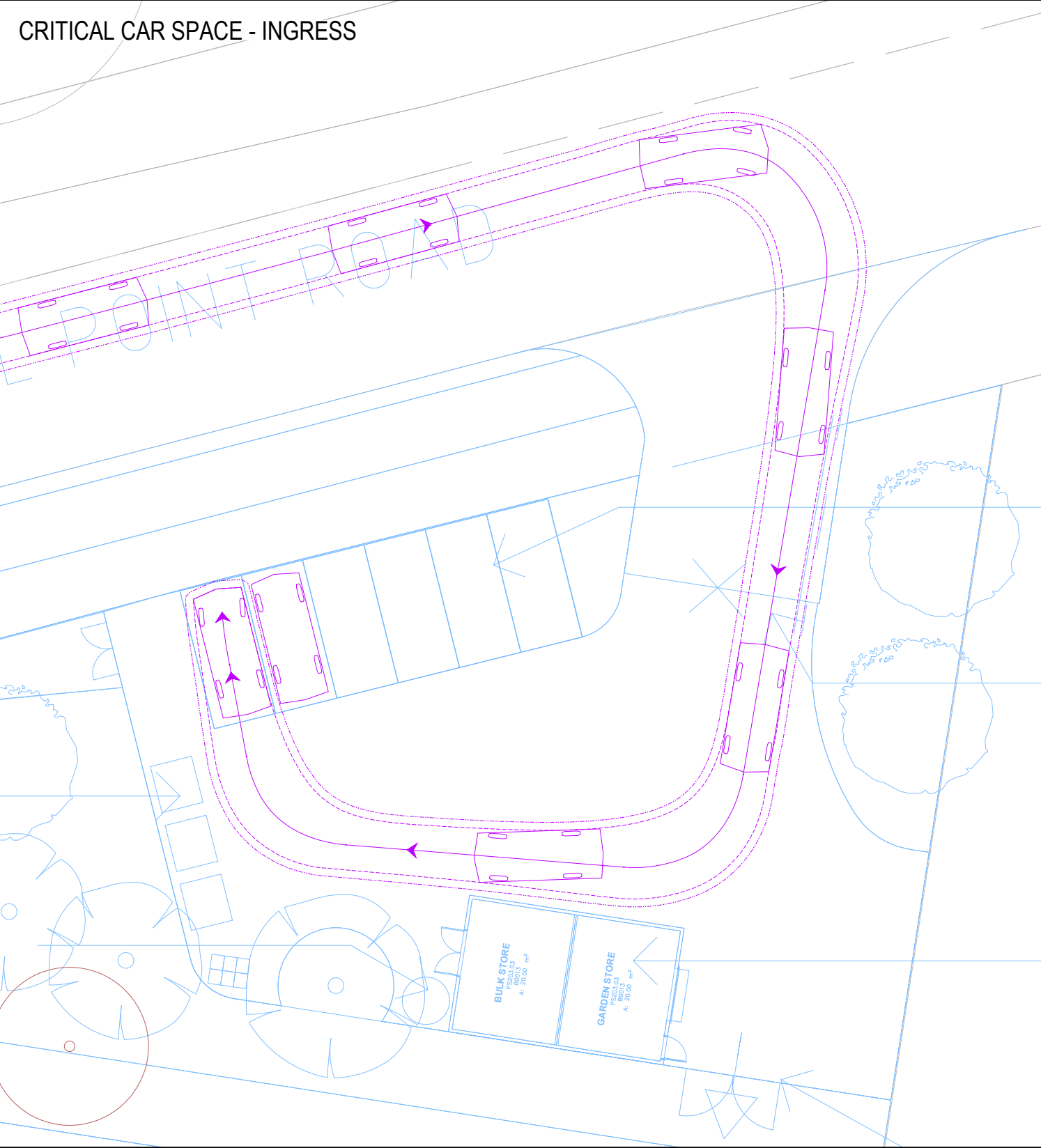
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Lock to Lock Time	: 6.0
Steering Angle	: 30.0

PS222457 SK006

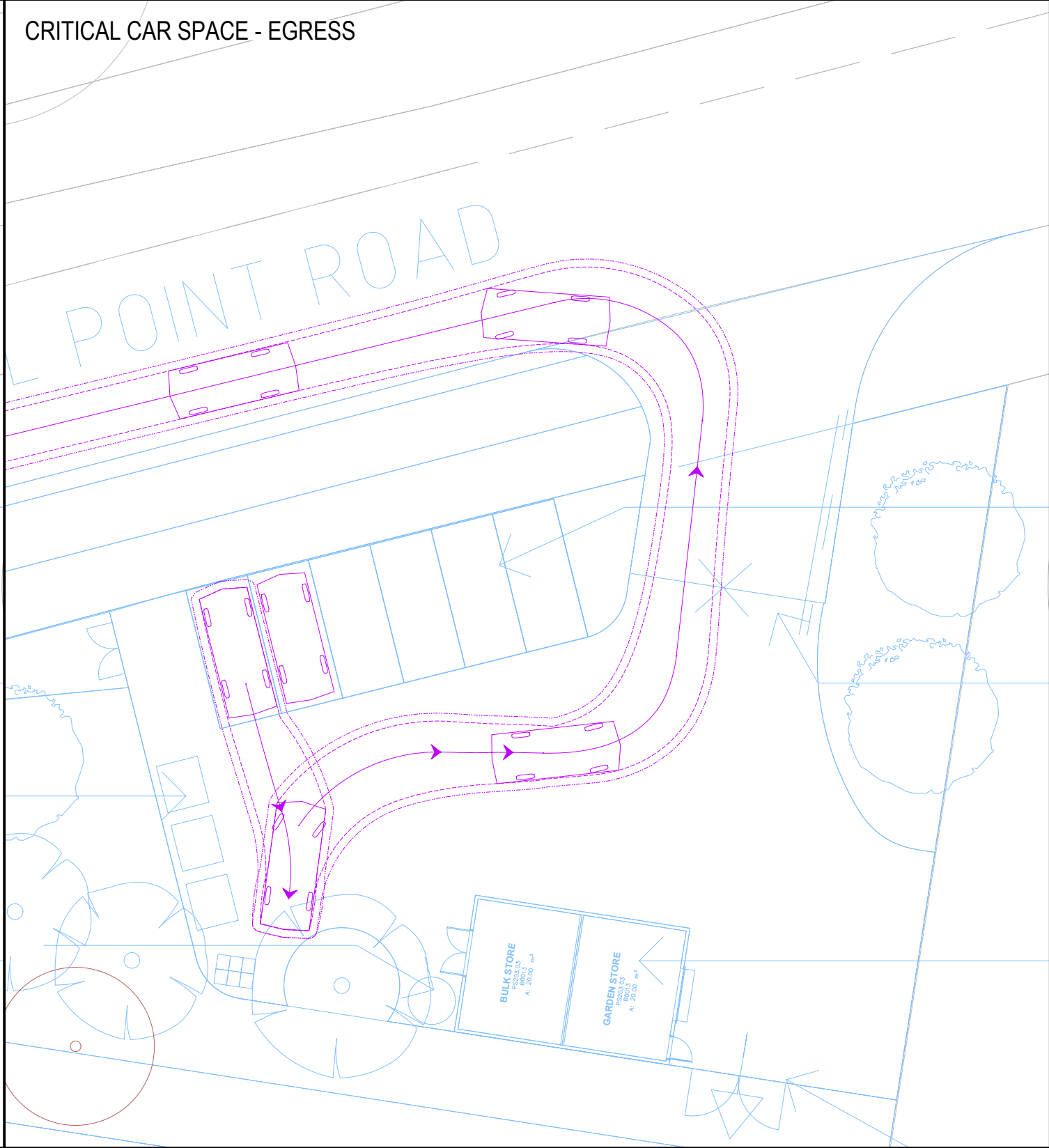
WASTE COLLECTION - 10.5M FRONT-LIFT
SWEPT PATH DIAGRAMS 02
M.H. 22.12.2025



CRITICAL CAR SPACE - INGRESS

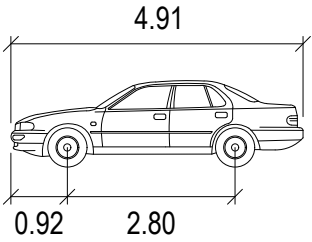
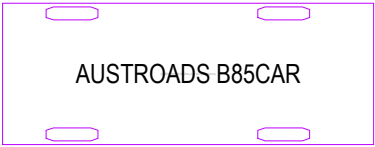


CRITICAL CAR SPACE - EGRESS



VEHICLE LEGEND

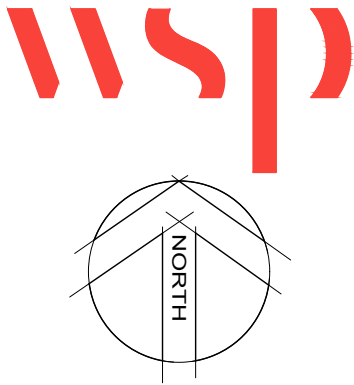
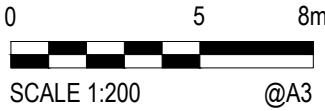
- B85CAR 300mm CLEARANCE
- B85CAR OVERHANG
- B85CAR CENTRELINE



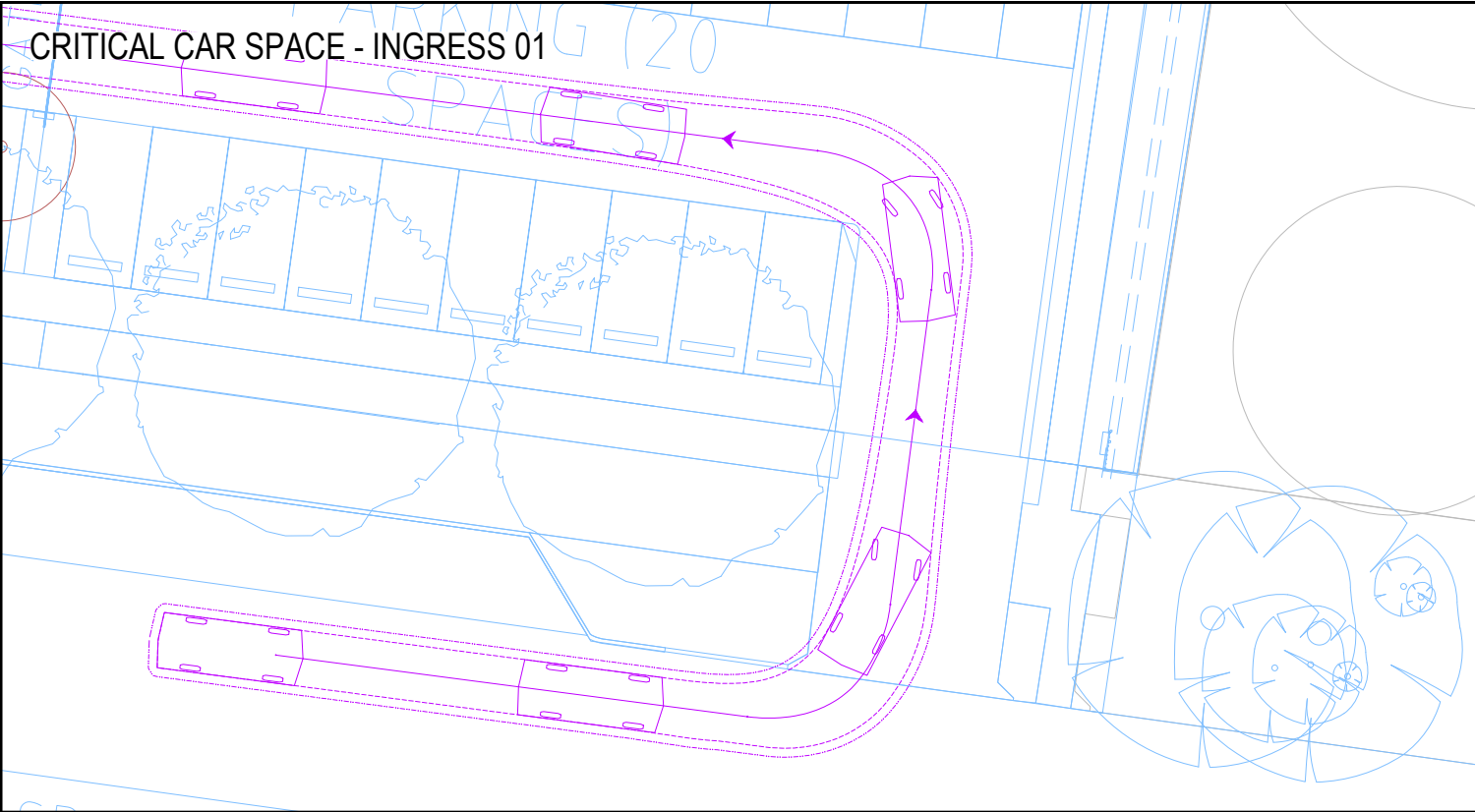
B85	metres
Width	: 1.87
Track	: 1.77
Lock to Lock Time	: 6.0
Steering Angle	: 34.0

PS222457 SK007

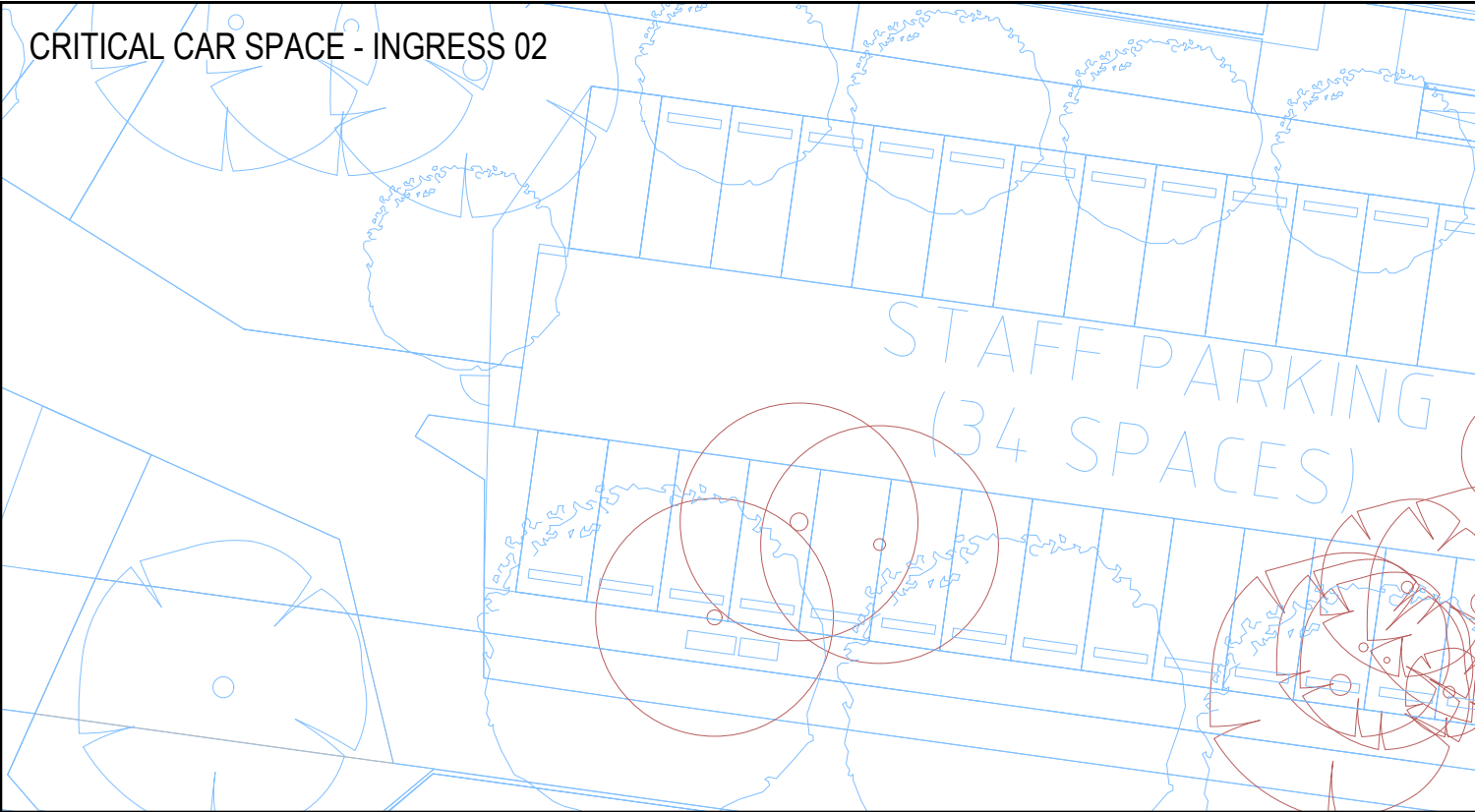
AUSTROADS B85 DESIGN VEHICLE
NORTH-EAST CAR PARK - SWEEP PATH DIAGRAMS
M.H. 22.12.2025



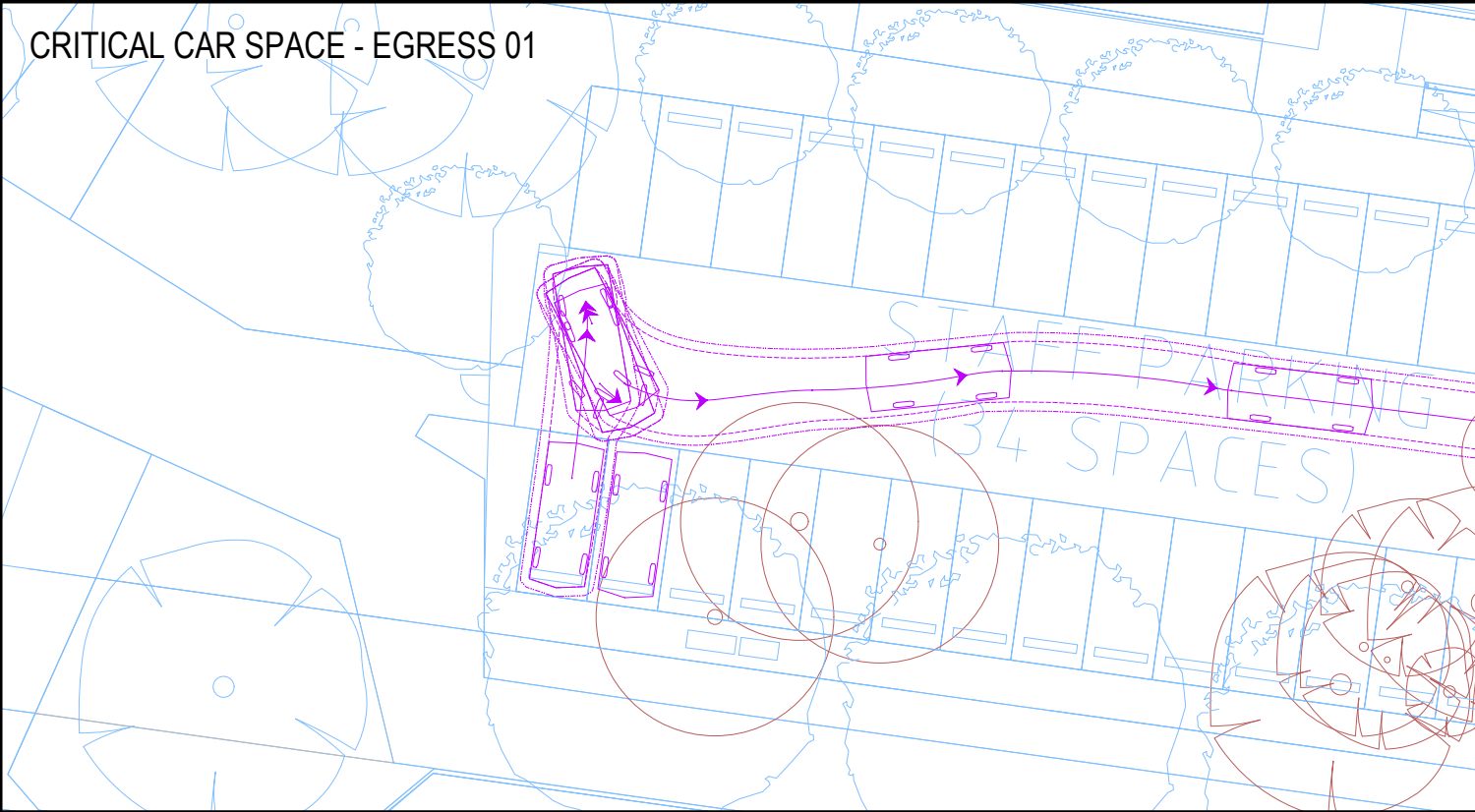
CRITICAL CAR SPACE - INGRESS 01



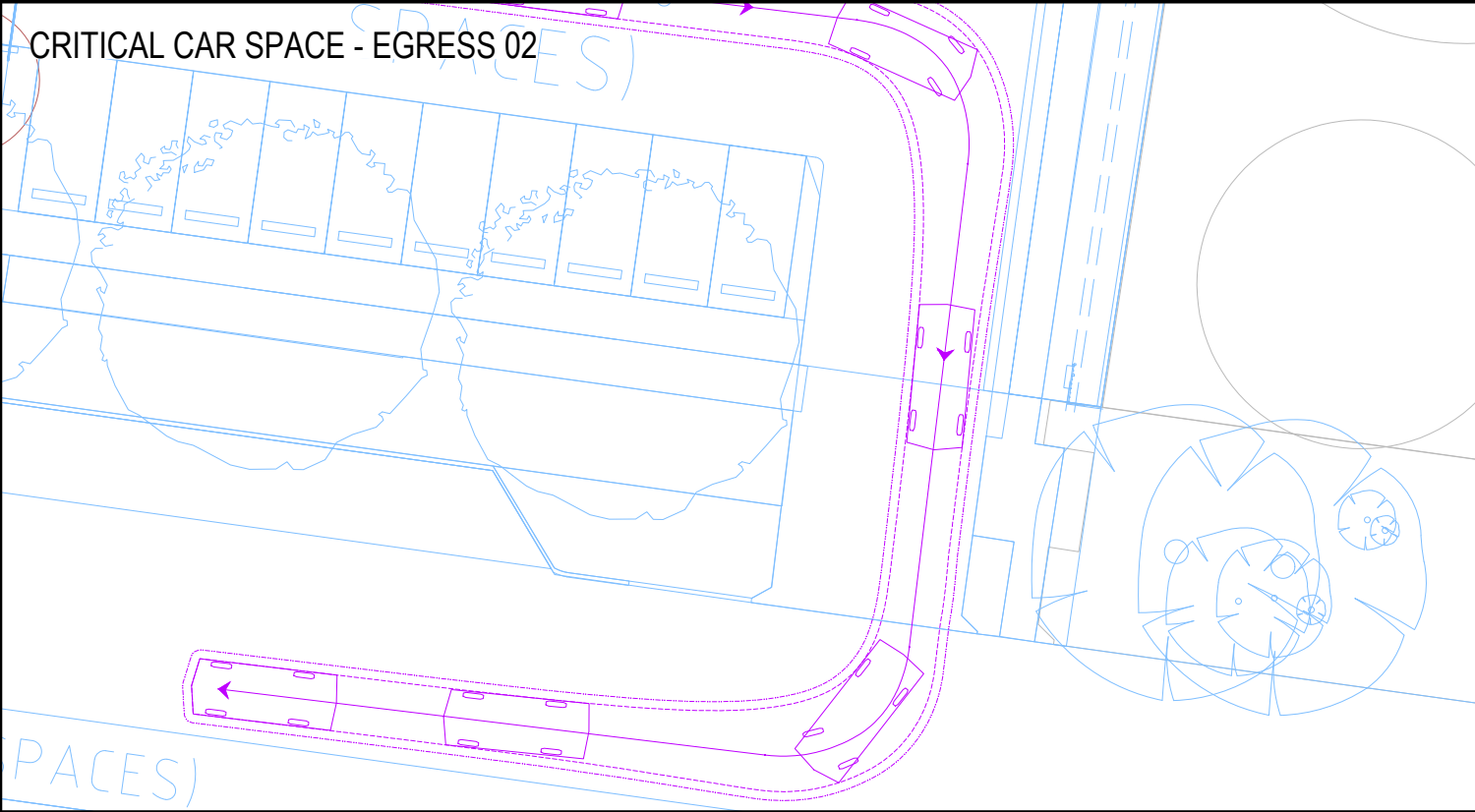
CRITICAL CAR SPACE - INGRESS 02



CRITICAL CAR SPACE - EGRESS 01

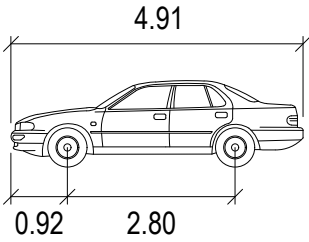
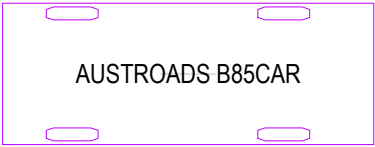


CRITICAL CAR SPACE - EGRESS 02



VEHICLE LEGEND

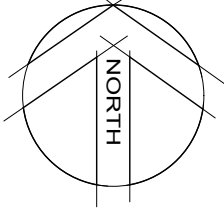
- B85CAR 300mm CLEARANCE
- B85CAR OVERHANG
- B85CAR CENTRELINE

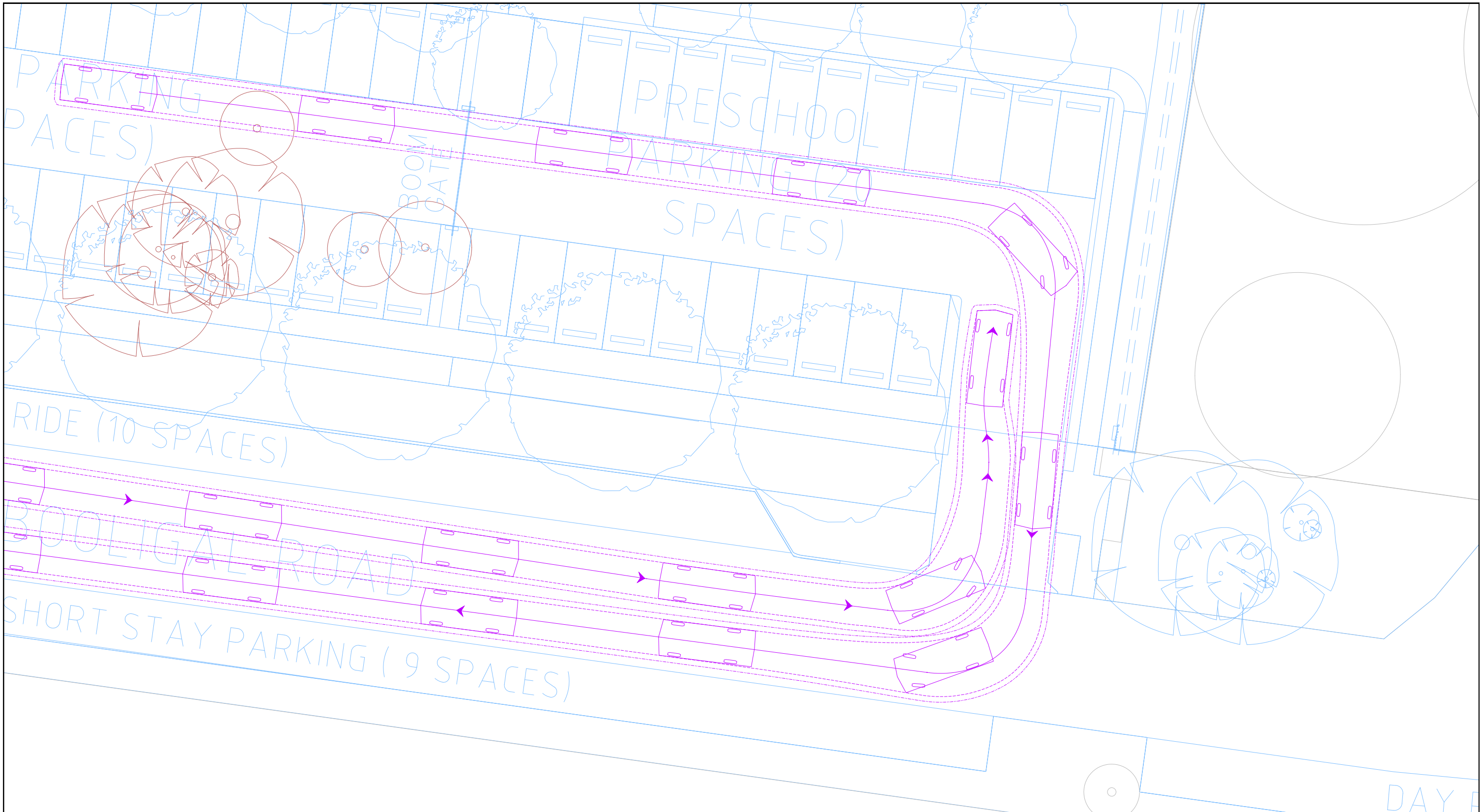


B85	metres
Width	: 1.87
Track	: 1.77
Lock to Lock Time	: 6.0
Steering Angle	: 34.0

PS222457 SK008

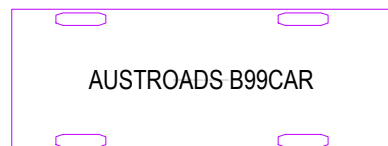
AUSTROADS B85 DESIGN VEHICLE
SOUTHERN CAR PARK - SWEEP PATH DIAGRAM
M.H. 22.12.2025





VEHICLE LEGEND

-  B99CAR 300mm CLEARANCE
-  B99CAR OVERHANG
-  B99CAR CENTRELINE

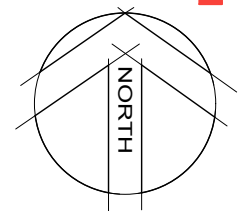
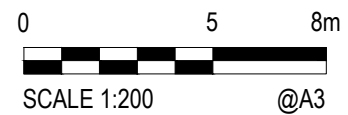


B99

	meters
Width	: 1.94
Track	: 1.84
Lock to Lock Time	: 6.00
Steering Angle	: 33.50

PS222457 SK009

AUSTROADS B99 DESIGN VEHICLE
SOUTHERN CAR PARK - TWO-WAY PASSING
M.H. 22.12.2025



Appendix D

SIDRA Intersection Analysis



D1 Pre-development 2025

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total	HV]	[Total	HV]				[Veh.	Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worrigee Rd (S)															
1	L2	All MCs	44	13.6	44	13.6	0.058	9.0	LOS A	0.2	1.6	0.41	0.90	0.41	44.0
2	T1	All MCs	94	4.3	94	4.3	0.383	17.9	LOS B	1.8	13.6	0.73	1.08	0.97	20.1
3	R2	All MCs	40	10.0	40	10.0	0.383	20.4	LOS B	1.8	13.6	0.73	1.08	0.97	31.3
Approach			178	7.9	178	7.9	0.383	16.3	LOS B	1.8	13.6	0.65	1.03	0.83	29.2
East: Greenwell Point Rd (E)															
4	L2	All MCs	30	13.3	30	13.3	0.183	7.2	LOS A	0.0	0.0	0.00	0.06	0.00	63.5
5	T1	All MCs	306	4.6	306	4.6	0.183	0.0	LOS A	0.0	0.0	0.00	0.06	0.00	78.1
6	R2	All MCs	30	6.7	30	6.7	0.021	7.5	LOS A	0.1	0.7	0.32	0.60	0.32	45.7
Approach			366	5.5	366	5.5	0.183	1.2	NA	0.1	0.7	0.03	0.10	0.03	74.5
North: Millbank Rd (N)															
7	L2	All MCs	10	20.0	10	20.0	0.188	9.7	LOS A	0.7	5.2	0.66	0.96	0.66	30.3
8	T1	All MCs	26	7.7	26	7.7	0.188	16.9	LOS B	0.7	5.2	0.66	0.96	0.66	18.8
9	R2	All MCs	26	7.7	26	7.7	0.188	22.4	LOS B	0.7	5.2	0.66	0.96	0.66	35.8
Approach			62	9.7	62	9.7	0.188	18.0	LOS B	0.7	5.2	0.66	0.96	0.66	29.1
West: Greenwell Point Rd (W)															
10	L2	All MCs	60	10.0	60	10.0	0.121	7.1	LOS A	0.0	0.0	0.00	0.19	0.00	44.6
11	T1	All MCs	150	10.7	150	10.7	0.121	0.0	LOS A	0.0	0.0	0.00	0.19	0.00	74.4
12	R2	All MCs	24	16.7	24	16.7	0.021	8.4	LOS A	0.1	0.7	0.42	0.62	0.42	47.2
Approach			234	11.1	234	11.1	0.121	2.7	NA	0.1	0.7	0.04	0.23	0.04	62.8
All Vehicles			840	7.9	840	7.9	0.383	6.1	NA	1.8	13.6	0.21	0.40	0.25	56.7

Figure D.1 SIDRA intersection results – Greenwell Point Rd / Worrigee Rd / Millbank Rd pre-development with existing traffic during the AM peak 2025

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total	HV]	[Total	HV]				[Veh.	Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worrigee Road (S)															
1	L2	All MCs	2	0.0	2	0.0	0.093	5.6	LOS A	0.0	0.1	0.01	0.02	0.01	47.8
2	T1	All MCs	164	7.3	164	7.3	0.093	0.0	LOS A	0.0	0.1	0.01	0.02	0.01	58.4
3	R2	All MCs	2	0.0	2	0.0	0.093	5.5	LOS A	0.0	0.1	0.01	0.02	0.01	47.1
Approach			168	7.1	168	7.1	0.093	0.1	NA	0.0	0.1	0.01	0.02	0.01	57.9
East: Booligal Rd (E)															
4	L2	All MCs	2	0.0	2	0.0	0.008	4.8	LOS A	0.0	0.2	0.27	0.51	0.27	34.7
5	T1	All MCs	2	0.0	2	0.0	0.008	4.2	LOS A	0.0	0.2	0.27	0.51	0.27	37.9
6	R2	All MCs	4	0.0	4	0.0	0.008	5.8	LOS A	0.0	0.2	0.27	0.51	0.27	33.8
Approach			8	0.0	8	0.0	0.008	5.2	LOS A	0.0	0.2	0.27	0.51	0.27	35.2
North: Worrigee Road (N)															
7	L2	All MCs	2	0.0	2	0.0	0.051	5.8	LOS A	0.0	0.3	0.05	0.06	0.05	42.3
8	T1	All MCs	78	12.8	78	12.8	0.051	0.1	LOS A	0.0	0.3	0.05	0.06	0.05	47.4
9	R2	All MCs	4	50.0	4	50.0	0.051	5.9	LOS A	0.0	0.3	0.05	0.06	0.05	40.2
Approach			84	14.3	84	14.3	0.051	0.5	NA	0.0	0.3	0.05	0.06	0.05	46.6
West: Golden Gr (W)															
10	L2	All MCs	8	25.0	8	25.0	0.017	5.4	LOS A	0.1	0.5	0.31	0.53	0.31	25.2
11	T1	All MCs	2	0.0	2	0.0	0.017	4.2	LOS A	0.1	0.5	0.31	0.53	0.31	37.6
12	R2	All MCs	6	33.3	6	33.3	0.017	6.7	LOS A	0.1	0.5	0.31	0.53	0.31	32.7
Approach			16	25.0	16	25.0	0.017	5.8	LOS A	0.1	0.5	0.31	0.53	0.31	29.2
All Vehicles			276	10.1	276	10.1	0.093	0.7	NA	0.1	0.5	0.04	0.08	0.04	48.7

Figure D.2 SIDRA intersection results – Worrigee Rd / Golden Grv / Booligal Rd pre-development with existing traffic during the AM peak 2025

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV]		Arrival Flows [Total HV]		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue [Veh. Dist]		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worrigee Rd (S)															
1	L2	All MCs	40	0.0	40	0.0	0.041	7.7	LOS A	0.1	1.0	0.31	0.87	0.31	47.0
2	T1	All MCs	34	5.9	34	5.9	0.395	18.9	LOS B	1.8	13.2	0.76	1.08	1.02	19.2
3	R2	All MCs	86	2.3	86	2.3	0.395	21.5	LOS B	1.8	13.2	0.76	1.08	1.02	31.0
Approach			160	2.5	160	2.5	0.395	17.5	LOS B	1.8	13.2	0.65	1.03	0.84	32.4
East: Greenwell Point Rd (E)															
4	L2	All MCs	48	8.3	48	8.3	0.136	7.1	LOS A	0.0	0.0	0.00	0.13	0.00	61.5
5	T1	All MCs	196	7.1	196	7.1	0.136	0.0	LOS A	0.0	0.0	0.00	0.13	0.00	76.2
6	R2	All MCs	28	14.3	28	14.3	0.023	8.0	LOS A	0.1	0.8	0.40	0.62	0.40	44.1
Approach			272	8.1	272	8.1	0.136	2.1	NA	0.1	0.8	0.04	0.18	0.04	70.7
North: Millbank Rd (N)															
7	L2	All MCs	18	11.1	18	11.1	0.313	11.4	LOS A	1.4	10.1	0.68	1.04	0.83	32.2
8	T1	All MCs	62	0.0	62	0.0	0.313	17.8	LOS B	1.4	10.1	0.68	1.04	0.83	19.8
9	R2	All MCs	36	5.6	36	5.6	0.313	22.2	LOS B	1.4	10.1	0.68	1.04	0.83	36.4
Approach			116	3.4	116	3.4	0.313	18.2	LOS B	1.4	10.1	0.68	1.04	0.83	28.3
West: Greenwell Point Rd (W)															
10	L2	All MCs	36	11.1	36	11.1	0.165	7.1	LOS A	0.0	0.0	0.00	0.08	0.00	50.2
11	T1	All MCs	266	5.3	266	5.3	0.165	0.1	LOS A	0.0	0.0	0.00	0.08	0.00	77.4
12	R2	All MCs	58	3.4	58	3.4	0.042	7.7	LOS A	0.2	1.3	0.35	0.61	0.35	49.1
Approach			360	5.6	360	5.6	0.165	2.0	NA	0.2	1.3	0.06	0.17	0.06	69.7
All Vehicles			908	5.5	908	5.5	0.395	6.8	NA	1.8	13.2	0.24	0.43	0.29	56.2

Figure D.3 SIDRA intersection results – Greenwell Point Rd / Worrigee Rd / Millbank Rd pre-development with existing traffic during the PM peak 2025

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total	HV]	[Total	HV]				[Veh.	Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worrigee Road (S)															
1	L2	All MCs	4	0.0	4	0.0	0.095	5.9	LOS A	0.1	0.5	0.03	0.05	0.03	44.3
2	T1	All MCs	164	3.7	164	3.7	0.095	0.0	LOS A	0.1	0.5	0.03	0.05	0.03	50.5
3	R2	All MCs	6	33.3	6	33.3	0.095	6.0	LOS A	0.1	0.5	0.03	0.05	0.03	43.0
Approach			174	4.6	174	4.6	0.095	0.4	NA	0.1	0.5	0.03	0.05	0.03	49.8
East: Booligal Rd (E)															
4	L2	All MCs	4	50.0	4	50.0	0.011	5.7	LOS A	0.0	0.3	0.33	0.53	0.33	32.7
5	T1	All MCs	2	0.0	2	0.0	0.011	4.5	LOS A	0.0	0.3	0.33	0.53	0.33	37.5
6	R2	All MCs	4	0.0	4	0.0	0.011	6.3	LOS A	0.0	0.3	0.33	0.53	0.33	33.4
Approach			10	20.0	10	20.0	0.011	5.7	LOS A	0.0	0.3	0.33	0.53	0.33	34.1
North: Worrigee Road (N)															
7	L2	All MCs	2	0.0	2	0.0	0.088	5.6	LOS A	0.1	0.4	0.04	0.05	0.04	44.0
8	T1	All MCs	154	3.9	154	3.9	0.088	0.0	LOS A	0.1	0.4	0.04	0.05	0.04	50.8
9	R2	All MCs	8	0.0	8	0.0	0.088	5.6	LOS A	0.1	0.4	0.04	0.05	0.04	43.4
Approach			164	3.7	164	3.7	0.088	0.4	NA	0.1	0.4	0.04	0.05	0.04	50.0
West: Golden Gr (W)															
10	L2	All MCs	6	0.0	6	0.0	0.009	5.0	LOS A	0.0	0.2	0.30	0.51	0.30	26.1
11	T1	All MCs	2	0.0	2	0.0	0.009	4.5	LOS A	0.0	0.2	0.30	0.51	0.30	38.3
12	R2	All MCs	2	0.0	2	0.0	0.009	6.3	LOS A	0.0	0.2	0.30	0.51	0.30	34.8
Approach			10	0.0	10	0.0	0.009	5.2	LOS A	0.0	0.2	0.30	0.51	0.30	30.0
All Vehicles			358	4.5	358	4.5	0.095	0.7	NA	0.1	0.5	0.05	0.08	0.05	47.5

Figure D.4 SIDRA intersection results – Worrigee Rd / Golden Grv / Booligal Rd pre-development with existing traffic during the PM peak 2025

D2 With intersection upgrade 2025

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV]		Arrival Flows [Total HV]		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue [Veh. Dist]		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worrigee Rd (S)															
1	L2	All MCs	44	13.6	44	13.6	0.189	5.5	LOS A	1.2	8.7	0.59	0.60	0.59	48.8
2	T1	All MCs	94	4.3	94	4.3	0.189	5.7	LOS A	1.2	8.7	0.59	0.60	0.59	26.6
3	R2	All MCs	40	10.0	40	10.0	0.189	10.2	LOS A	1.2	8.7	0.59	0.60	0.59	43.1
3u	U	All MCs	2	0.0	2	0.0	0.189	12.1	LOS A	1.2	8.7	0.59	0.60	0.59	28.1
Approach			180	7.8	180	7.8	0.189	6.7	LOS A	1.2	8.7	0.59	0.60	0.59	36.7
East: Greenwell Point Rd (E)															
4	L2	All MCs	30	13.3	30	13.3	0.272	6.3	LOS A	1.9	14.0	0.31	0.50	0.31	48.7
5	T1	All MCs	306	4.6	306	4.6	0.272	7.0	LOS A	1.9	14.0	0.31	0.50	0.31	58.0
6	R2	All MCs	30	6.7	30	6.7	0.272	11.6	LOS A	1.9	14.0	0.31	0.50	0.31	35.3
6u	U	All MCs	2	0.0	2	0.0	0.272	11.5	LOS A	1.9	14.0	0.31	0.50	0.31	51.6
Approach			368	5.4	368	5.4	0.272	7.3	LOS A	1.9	14.0	0.31	0.50	0.31	55.5
North: Millbank Rd (N)															
7	L2	All MCs	10	20.0	10	20.0	0.060	5.5	LOS A	0.3	2.6	0.44	0.56	0.44	42.6
8	T1	All MCs	26	7.7	26	7.7	0.060	5.5	LOS A	0.3	2.6	0.44	0.56	0.44	32.8
9	R2	All MCs	26	7.7	26	7.7	0.060	10.2	LOS A	0.3	2.6	0.44	0.56	0.44	47.9
9u	U	All MCs	2	0.0	2	0.0	0.060	12.2	LOS A	0.3	2.6	0.44	0.56	0.44	28.1
Approach			64	9.4	64	9.4	0.060	7.6	LOS A	0.3	2.6	0.44	0.56	0.44	41.9
West: Greenwell Point Rd (W)															
10	L2	All MCs	60	10.0	60	10.0	0.210	6.9	LOS A	1.4	10.6	0.45	0.55	0.45	51.3
11	T1	All MCs	150	10.7	150	10.7	0.210	7.7	LOS A	1.4	10.6	0.45	0.55	0.45	56.0
12	R2	All MCs	24	16.7	24	16.7	0.210	12.4	LOS A	1.4	10.6	0.45	0.55	0.45	49.8
12u	U	All MCs	2	0.0	2	0.0	0.210	12.0	LOS A	1.4	10.6	0.45	0.55	0.45	53.6
Approach			236	11.0	236	11.0	0.210	8.0	LOS A	1.4	10.6	0.45	0.55	0.45	54.4
All Vehicles			848	7.8	848	7.8	0.272	7.4	LOS A	1.9	14.0	0.42	0.54	0.42	51.2

Figure D.5 SIDRA intersection results – Greenwell Point Rd / Worrigee Rd / Millbank Rd with existing traffic and planned upgrade to a roundabout during the AM peak 2025

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total	HV]	[Total	HV]				[Veh.	Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worrigee Rd (S)															
1	L2	All MCs	40	0.0	40	0.0	0.151	4.4	LOS A	0.9	6.6	0.51	0.60	0.51	49.3
2	T1	All MCs	34	5.9	34	5.9	0.151	5.0	LOS A	0.9	6.6	0.51	0.60	0.51	23.3
3	R2	All MCs	86	2.3	86	2.3	0.151	9.3	LOS A	0.9	6.6	0.51	0.60	0.51	44.2
3u	U	All MCs	2	0.0	2	0.0	0.151	11.4	LOS A	0.9	6.6	0.51	0.60	0.51	28.1
Approach			162	2.5	162	2.5	0.151	7.2	LOS A	0.9	6.6	0.51	0.60	0.51	41.1
East: Greenwell Point Rd (E)															
4	L2	All MCs	48	8.3	48	8.3	0.234	6.8	LOS A	1.6	11.6	0.43	0.54	0.43	47.4
5	T1	All MCs	196	7.1	196	7.1	0.234	7.5	LOS A	1.6	11.6	0.43	0.54	0.43	56.3
6	R2	All MCs	28	14.3	28	14.3	0.234	12.3	LOS A	1.6	11.6	0.43	0.54	0.43	34.4
6u	U	All MCs	2	0.0	2	0.0	0.234	12.0	LOS A	1.6	11.6	0.43	0.54	0.43	50.6
Approach			274	8.0	274	8.0	0.234	7.9	LOS A	1.6	11.6	0.43	0.54	0.43	52.8
North: Millbank Rd (N)															
7	L2	All MCs	18	11.1	18	11.1	0.126	6.7	LOS A	0.8	5.5	0.60	0.62	0.60	43.2
8	T1	All MCs	62	0.0	62	0.0	0.126	6.7	LOS A	0.8	5.5	0.60	0.62	0.60	31.8
9	R2	All MCs	36	5.6	36	5.6	0.126	11.5	LOS A	0.8	5.5	0.60	0.62	0.60	46.4
9u	U	All MCs	2	0.0	2	0.0	0.126	13.5	LOS A	0.8	5.5	0.60	0.62	0.60	27.4
Approach			118	3.4	118	3.4	0.126	8.3	LOS A	0.8	5.5	0.60	0.62	0.60	39.7
West: Greenwell Point Rd (W)															
10	L2	All MCs	36	11.1	36	11.1	0.298	6.9	LOS A	2.1	15.6	0.44	0.54	0.44	51.1
11	T1	All MCs	266	5.3	266	5.3	0.298	7.5	LOS A	2.1	15.6	0.44	0.54	0.44	56.7
12	R2	All MCs	58	3.4	58	3.4	0.298	12.1	LOS A	2.1	15.6	0.44	0.54	0.44	50.0
12u	U	All MCs	2	0.0	2	0.0	0.298	12.0	LOS A	2.1	15.6	0.44	0.54	0.44	53.5
Approach			362	5.5	362	5.5	0.298	8.2	LOS A	2.1	15.6	0.44	0.54	0.44	55.3
All Vehicles			916	5.5	916	5.5	0.298	7.9	LOS A	2.1	15.6	0.47	0.56	0.47	50.8

Figure D.6 SIDRA intersection results – Greenwell Point Rd / Worrigee Rd / Millbank Rd with existing traffic and planned upgrade to a roundabout during the PM peak 2025

D3 Future base without proposed activity 2028

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total	HV]	[Total	HV]				[Veh.	Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worrigee Rd (S)															
1	L2	All MCs	46	13.0	46	13.0	0.204	5.6	LOS A	1.3	9.5	0.61	0.61	0.61	48.5
2	T1	All MCs	98	4.1	98	4.1	0.204	5.8	LOS A	1.3	9.5	0.61	0.61	0.61	26.4
3	R2	All MCs	46	8.7	46	8.7	0.204	10.3	LOS A	1.3	9.5	0.61	0.61	0.61	43.1
3u	U	All MCs	2	0.0	2	0.0	0.204	12.2	LOS A	1.3	9.5	0.61	0.61	0.61	27.9
Approach			192	7.3	192	7.3	0.204	6.9	LOS A	1.3	9.5	0.61	0.61	0.61	36.7
East: Greenwell Point Rd (E)															
4	L2	All MCs	32	12.5	32	12.5	0.284	6.3	LOS A	2.0	14.8	0.32	0.50	0.32	48.7
5	T1	All MCs	322	4.3	322	4.3	0.284	7.0	LOS A	2.0	14.8	0.32	0.50	0.32	58.0
6	R2	All MCs	30	6.7	30	6.7	0.284	11.6	LOS A	2.0	14.8	0.32	0.50	0.32	35.3
6u	U	All MCs	2	0.0	2	0.0	0.284	11.5	LOS A	2.0	14.8	0.32	0.50	0.32	51.6
Approach			386	5.2	386	5.2	0.284	7.3	LOS A	2.0	14.8	0.32	0.50	0.32	55.6
North: Millbank Rd (N)															
7	L2	All MCs	10	20.0	10	20.0	0.061	5.6	LOS A	0.3	2.6	0.46	0.57	0.46	42.5
8	T1	All MCs	26	7.7	26	7.7	0.061	5.6	LOS A	0.3	2.6	0.46	0.57	0.46	32.7
9	R2	All MCs	26	7.7	26	7.7	0.061	10.3	LOS A	0.3	2.6	0.46	0.57	0.46	47.8
9u	U	All MCs	2	0.0	2	0.0	0.061	12.2	LOS A	0.3	2.6	0.46	0.57	0.46	28.0
Approach			64	9.4	64	9.4	0.061	7.7	LOS A	0.3	2.6	0.46	0.57	0.46	41.8
West: Greenwell Point Rd (W)															
10	L2	All MCs	62	9.7	62	9.7	0.221	6.9	LOS A	1.5	11.2	0.46	0.55	0.46	51.2
11	T1	All MCs	158	10.1	158	10.1	0.221	7.8	LOS A	1.5	11.2	0.46	0.55	0.46	56.0
12	R2	All MCs	24	16.7	24	16.7	0.221	12.5	LOS A	1.5	11.2	0.46	0.55	0.46	49.8
12u	U	All MCs	2	0.0	2	0.0	0.221	12.1	LOS A	1.5	11.2	0.46	0.55	0.46	53.6
Approach			246	10.6	246	10.6	0.221	8.0	LOS A	1.5	11.2	0.46	0.55	0.46	54.5
All Vehicles			888	7.4	888	7.4	0.284	7.5	LOS A	2.0	14.8	0.43	0.54	0.43	51.2

Figure D.7 SIDRA intersection results – Greenwell Point Rd / Worrigee Rd / Millbank Rd future base without proposed activity during the AM peak 2028

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total	HV]	[Total	HV]				[Veh.	Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worrigee Road (S)															
1	L2	All MCs	2	0.0	2	0.0	0.097	5.6	LOS A	0.0	0.1	0.01	0.02	0.01	47.8
2	T1	All MCs	172	7.0	172	7.0	0.097	0.0	LOS A	0.0	0.1	0.01	0.02	0.01	58.4
3	R2	All MCs	2	0.0	2	0.0	0.097	5.5	LOS A	0.0	0.1	0.01	0.02	0.01	47.1
Approach			176	6.8	176	6.8	0.097	0.1	NA	0.0	0.1	0.01	0.02	0.01	57.9
East: Booligal Rd (E)															
4	L2	All MCs	2	0.0	2	0.0	0.008	4.8	LOS A	0.0	0.2	0.28	0.51	0.28	34.6
5	T1	All MCs	2	0.0	2	0.0	0.008	4.2	LOS A	0.0	0.2	0.28	0.51	0.28	37.8
6	R2	All MCs	4	0.0	4	0.0	0.008	5.9	LOS A	0.0	0.2	0.28	0.51	0.28	33.7
Approach			8	0.0	8	0.0	0.008	5.2	LOS A	0.0	0.2	0.28	0.51	0.28	35.1
North: Worrigee Road (N)															
7	L2	All MCs	2	0.0	2	0.0	0.053	5.9	LOS A	0.0	0.3	0.05	0.06	0.05	42.2
8	T1	All MCs	82	12.2	82	12.2	0.053	0.1	LOS A	0.0	0.3	0.05	0.06	0.05	47.2
9	R2	All MCs	4	50.0	4	50.0	0.053	5.9	LOS A	0.0	0.3	0.05	0.06	0.05	40.1
Approach			88	13.6	88	13.6	0.053	0.5	NA	0.0	0.3	0.05	0.06	0.05	46.4
West: Golden Gr (W)															
10	L2	All MCs	8	25.0	8	25.0	0.017	5.5	LOS A	0.1	0.5	0.32	0.54	0.32	25.1
11	T1	All MCs	2	0.0	2	0.0	0.017	4.2	LOS A	0.1	0.5	0.32	0.54	0.32	37.5
12	R2	All MCs	6	33.3	6	33.3	0.017	6.8	LOS A	0.1	0.5	0.32	0.54	0.32	32.6
Approach			16	25.0	16	25.0	0.017	5.8	LOS A	0.1	0.5	0.32	0.54	0.32	29.2
All Vehicles			288	9.7	288	9.7	0.097	0.7	NA	0.1	0.5	0.04	0.07	0.04	48.8

Figure D.8 SIDRA intersection results – Worrigee Rd / Golden Grv / Booligal Rd future base without proposed activity during the AM peak 2028

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total	HV]	[Total	HV]				[Veh.	Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worrigee Rd (S)															
1	L2	All MCs	42	0.0	42	0.0	0.162	4.5	LOS A	1.0	7.2	0.52	0.60	0.52	49.2
2	T1	All MCs	36	5.6	36	5.6	0.162	5.1	LOS A	1.0	7.2	0.52	0.60	0.52	23.2
3	R2	All MCs	92	2.2	92	2.2	0.162	9.4	LOS A	1.0	7.2	0.52	0.60	0.52	44.1
3u	U	All MCs	2	0.0	2	0.0	0.162	11.5	LOS A	1.0	7.2	0.52	0.60	0.52	27.9
Approach			172	2.3	172	2.3	0.162	7.3	LOS A	1.0	7.2	0.52	0.60	0.52	41.0
East: Greenwell Point Rd (E)															
4	L2	All MCs	50	8.0	50	8.0	0.247	6.9	LOS A	1.7	12.4	0.44	0.54	0.44	47.3
5	T1	All MCs	206	6.8	206	6.8	0.247	7.6	LOS A	1.7	12.4	0.44	0.54	0.44	56.4
6	R2	All MCs	30	13.3	30	13.3	0.247	12.3	LOS A	1.7	12.4	0.44	0.54	0.44	34.4
6u	U	All MCs	2	0.0	2	0.0	0.247	12.0	LOS A	1.7	12.4	0.44	0.54	0.44	50.5
Approach			288	7.6	288	7.6	0.247	8.0	LOS A	1.7	12.4	0.44	0.54	0.44	52.8
North: Millbank Rd (N)															
7	L2	All MCs	18	11.1	18	11.1	0.133	6.9	LOS A	0.8	5.9	0.62	0.63	0.62	43.0
8	T1	All MCs	66	0.0	66	0.0	0.133	6.9	LOS A	0.8	5.9	0.62	0.63	0.62	31.7
9	R2	All MCs	36	5.6	36	5.6	0.133	11.7	LOS A	0.8	5.9	0.62	0.63	0.62	46.3
9u	U	All MCs	2	0.0	2	0.0	0.133	13.6	LOS A	0.8	5.9	0.62	0.63	0.62	27.4
Approach			122	3.3	122	3.3	0.133	8.4	LOS A	0.8	5.9	0.62	0.63	0.62	39.3
West: Greenwell Point Rd (W)															
10	L2	All MCs	38	10.5	38	10.5	0.317	7.0	LOS A	2.3	16.9	0.47	0.55	0.47	51.0
11	T1	All MCs	282	5.0	282	5.0	0.317	7.6	LOS A	2.3	16.9	0.47	0.55	0.47	56.6
12	R2	All MCs	60	3.3	60	3.3	0.317	12.2	LOS A	2.3	16.9	0.47	0.55	0.47	49.8
12u	U	All MCs	2	0.0	2	0.0	0.317	12.1	LOS A	2.3	16.9	0.47	0.55	0.47	53.4
Approach			382	5.2	382	5.2	0.317	8.3	LOS A	2.3	16.9	0.47	0.55	0.47	55.2
All Vehicles			964	5.2	964	5.2	0.317	8.0	LOS A	2.3	16.9	0.49	0.57	0.49	50.7

Figure D.9 SIDRA intersection results – Greenwell Point Rd / Worrigee Rd / Millbank Rd future base without proposed activity during the PM peak 2028

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total	HV]	[Total	HV]				[Veh.	Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worrigee Road (S)															
1	L2	All MCs	4	0.0	4	0.0	0.100	6.0	LOS A	0.1	0.5	0.03	0.05	0.03	44.3
2	T1	All MCs	174	3.4	174	3.4	0.100	0.0	LOS A	0.1	0.5	0.03	0.05	0.03	50.4
3	R2	All MCs	6	33.3	6	33.3	0.100	6.0	LOS A	0.1	0.5	0.03	0.05	0.03	43.0
Approach			184	4.3	184	4.3	0.100	0.4	NA	0.1	0.5	0.03	0.05	0.03	49.7
East: Booligal Rd (E)															
4	L2	All MCs	4	50.0	4	50.0	0.011	5.8	LOS A	0.0	0.3	0.34	0.53	0.34	32.6
5	T1	All MCs	2	0.0	2	0.0	0.011	4.6	LOS A	0.0	0.3	0.34	0.53	0.34	37.4
6	R2	All MCs	4	0.0	4	0.0	0.011	6.4	LOS A	0.0	0.3	0.34	0.53	0.34	33.3
Approach			10	20.0	10	20.0	0.011	5.8	LOS A	0.0	0.3	0.34	0.53	0.34	34.0
North: Worrigee Road (N)															
7	L2	All MCs	2	0.0	2	0.0	0.093	5.6	LOS A	0.1	0.4	0.04	0.05	0.04	43.9
8	T1	All MCs	162	3.7	162	3.7	0.093	0.0	LOS A	0.1	0.4	0.04	0.05	0.04	50.5
9	R2	All MCs	8	0.0	8	0.0	0.093	5.6	LOS A	0.1	0.4	0.04	0.05	0.04	43.3
Approach			172	3.5	172	3.5	0.093	0.4	NA	0.1	0.4	0.04	0.05	0.04	49.8
West: Golden Gr (W)															
10	L2	All MCs	6	0.0	6	0.0	0.009	5.1	LOS A	0.0	0.2	0.31	0.51	0.31	26.1
11	T1	All MCs	2	0.0	2	0.0	0.009	4.6	LOS A	0.0	0.2	0.31	0.51	0.31	38.2
12	R2	All MCs	2	0.0	2	0.0	0.009	6.4	LOS A	0.0	0.2	0.31	0.51	0.31	34.7
Approach			10	0.0	10	0.0	0.009	5.2	LOS A	0.0	0.2	0.31	0.51	0.31	29.9
All Vehicles			376	4.3	376	4.3	0.100	0.6	NA	0.1	0.5	0.05	0.08	0.05	47.5

Figure D.10 SIDRA intersection results – Worrigee Rd / Golden Grv / Booligal Rd future base without proposed activity during the PM peak 2028

D4 Construction with pre-school activity 2027

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total	HV]	[Total	HV]				[Veh.	Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worrigee Rd (S)															
1	L2	All MCs	81	7.8	81	7.8	0.243	5.6	LOS A	1.6	11.8	0.64	0.61	0.64	49.5
2	T1	All MCs	101	3.1	101	3.1	0.243	5.9	LOS A	1.6	11.8	0.64	0.61	0.64	26.5
3	R2	All MCs	43	7.3	43	7.3	0.243	10.4	LOS A	1.6	11.8	0.64	0.61	0.64	43.7
3u	U	All MCs	1	0.0	1	0.0	0.243	12.4	LOS A	1.6	11.8	0.64	0.61	0.64	28.1
Approach			226	5.6	226	5.6	0.243	6.7	LOS A	1.6	11.8	0.64	0.61	0.64	39.1
East: Greenwell Point Rd (E)															
4	L2	All MCs	36	11.8	36	11.8	0.337	7.2	LOS A	2.4	17.8	0.49	0.54	0.49	47.0
5	T1	All MCs	332	3.8	332	3.8	0.337	7.7	LOS A	2.4	17.8	0.49	0.54	0.49	56.9
6	R2	All MCs	32	6.7	32	6.7	0.337	12.4	LOS A	2.4	17.8	0.49	0.54	0.49	34.5
6u	U	All MCs	1	0.0	1	0.0	0.337	12.2	LOS A	2.4	17.8	0.49	0.54	0.49	50.4
Approach			400	4.7	400	4.7	0.337	8.1	LOS A	2.4	17.8	0.49	0.54	0.49	54.4
North: Millbank Rd (N)															
7	L2	All MCs	11	20.0	11	20.0	0.068	6.3	LOS A	0.4	2.9	0.54	0.60	0.54	42.0
8	T1	All MCs	28	3.7	28	3.7	0.068	6.2	LOS A	0.4	2.9	0.54	0.60	0.54	32.0
9	R2	All MCs	26	4.0	26	4.0	0.068	10.8	LOS A	0.4	2.9	0.54	0.60	0.54	47.6
9u	U	All MCs	1	0.0	1	0.0	0.068	12.8	LOS A	0.4	2.9	0.54	0.60	0.54	27.6
Approach			66	6.3	66	6.3	0.068	8.1	LOS A	0.4	2.9	0.54	0.60	0.54	41.4
West: Greenwell Point Rd (W)															
10	L2	All MCs	64	9.8	64	9.8	0.307	7.0	LOS A	2.2	16.7	0.49	0.58	0.49	49.7
11	T1	All MCs	164	10.9	164	10.9	0.307	7.9	LOS A	2.2	16.7	0.49	0.58	0.49	54.6
12	R2	All MCs	124	3.4	124	3.4	0.307	12.2	LOS A	2.2	16.7	0.49	0.58	0.49	48.5
12u	U	All MCs	1	0.0	1	0.0	0.307	12.2	LOS A	2.2	16.7	0.49	0.58	0.49	52.5
Approach			354	8.0	354	8.0	0.307	9.3	LOS A	2.2	16.7	0.49	0.58	0.49	51.9
All Vehicles			1046	6.1	1046	6.1	0.337	8.2	LOS A	2.4	17.8	0.53	0.57	0.53	50.2

Figure D.11 SIDRA intersection results – Greenwell Point Rd / Worrigee Rd / Millbank Rd construction with pre-school activity during the AM peak 2027

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total	HV]	[Total	HV]				[Veh.	Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worrigee Road (S)															
1	L2	All MCs	1	0.0	1	0.0	0.181	6.3	LOS A	0.8	5.7	0.26	0.34	0.26	40.1
2	T1	All MCs	177	6.5	177	6.5	0.181	0.4	LOS A	0.8	5.7	0.26	0.34	0.26	42.4
3	R2	All MCs	126	0.8	126	0.8	0.181	6.2	LOS A	0.8	5.7	0.26	0.34	0.26	39.6
Approach			304	4.2	304	4.2	0.181	2.8	NA	0.8	5.7	0.26	0.34	0.26	40.8
East: Booligal Rd (E)															
4	L2	All MCs	29	0.0	29	0.0	0.076	4.8	LOS A	0.3	1.9	0.31	0.55	0.31	32.3
5	T1	All MCs	1	0.0	1	0.0	0.076	5.4	LOS A	0.3	1.9	0.31	0.55	0.31	35.7
6	R2	All MCs	38	0.0	38	0.0	0.076	7.4	LOS A	0.3	1.9	0.31	0.55	0.31	31.4
Approach			68	0.0	68	0.0	0.076	6.2	LOS A	0.3	1.9	0.31	0.55	0.31	31.9
North: Worrigee Road (N)															
7	L2	All MCs	105	1.0	105	1.0	0.108	5.2	LOS A	0.0	0.3	0.02	0.33	0.02	40.1
8	T1	All MCs	84	11.2	84	11.2	0.108	0.0	LOS A	0.0	0.3	0.02	0.33	0.02	43.2
9	R2	All MCs	3	33.3	3	33.3	0.108	5.5	LOS A	0.0	0.3	0.02	0.33	0.02	38.7
Approach			193	6.0	193	6.0	0.108	2.9	NA	0.0	0.3	0.02	0.33	0.02	41.1
West: Golden Gr (W)															
10	L2	All MCs	4	25.0	4	25.0	0.011	5.5	LOS A	0.0	0.3	0.37	0.54	0.37	24.3
11	T1	All MCs	1	0.0	1	0.0	0.011	5.5	LOS A	0.0	0.3	0.37	0.54	0.37	36.1
12	R2	All MCs	3	33.3	3	33.3	0.011	8.4	LOS A	0.0	0.3	0.37	0.54	0.37	31.2
Approach			8	25.0	8	25.0	0.011	6.6	LOS A	0.0	0.3	0.37	0.54	0.37	28.1
All Vehicles			574	4.6	574	4.6	0.181	3.3	NA	0.8	5.7	0.19	0.36	0.19	39.0

Figure D.12 SIDRA intersection results – Worrigee Rd / Golden Grv / Booligal Rd construction with pre-school activity during the AM peak 2027

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total	HV]	[Total	HV]				[Veh.	Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worrigee Rd (S)															
1	L2	All MCs	141	0.7	141	0.7	0.261	4.7	LOS A	1.8	12.4	0.56	0.59	0.56	50.2
2	T1	All MCs	38	2.8	38	2.8	0.261	5.2	LOS A	1.8	12.4	0.56	0.59	0.56	25.0
3	R2	All MCs	97	1.1	97	1.1	0.261	9.6	LOS A	1.8	12.4	0.56	0.59	0.56	45.2
3u	U	All MCs	1	0.0	1	0.0	0.261	11.7	LOS A	1.8	12.4	0.56	0.59	0.56	28.4
Approach			277	1.1	277	1.1	0.261	6.5	LOS A	1.8	12.4	0.56	0.59	0.56	45.4
East: Greenwell Point Rd (E)															
4	L2	All MCs	53	6.0	53	6.0	0.263	7.1	LOS A	1.8	13.1	0.48	0.56	0.48	46.8
5	T1	All MCs	212	6.5	212	6.5	0.263	7.9	LOS A	1.8	13.1	0.48	0.56	0.48	56.1
6	R2	All MCs	31	13.8	31	13.8	0.263	12.6	LOS A	1.8	13.1	0.48	0.56	0.48	34.2
6u	U	All MCs	1	0.0	1	0.0	0.263	12.3	LOS A	1.8	13.1	0.48	0.56	0.48	50.2
Approach			296	7.1	296	7.1	0.263	8.2	LOS A	1.8	13.1	0.48	0.56	0.48	52.5
North: Millbank Rd (N)															
7	L2	All MCs	19	11.1	19	11.1	0.142	7.3	LOS A	0.9	6.3	0.65	0.64	0.65	42.8
8	T1	All MCs	68	0.0	68	0.0	0.142	7.2	LOS A	0.9	6.3	0.65	0.64	0.65	31.4
9	R2	All MCs	37	2.9	37	2.9	0.142	11.9	LOS A	0.9	6.3	0.65	0.64	0.65	46.7
9u	U	All MCs	1	0.0	1	0.0	0.142	14.0	LOS A	0.9	6.3	0.65	0.64	0.65	27.2
Approach			125	2.5	125	2.5	0.142	8.7	LOS A	0.9	6.3	0.65	0.64	0.65	39.3
West: Greenwell Point Rd (W)															
10	L2	All MCs	39	10.8	39	10.8	0.351	7.0	LOS A	2.7	19.3	0.49	0.56	0.49	50.5
11	T1	All MCs	288	4.4	288	4.4	0.351	7.6	LOS A	2.7	19.3	0.49	0.56	0.49	56.3
12	R2	All MCs	96	2.2	96	2.2	0.351	12.2	LOS A	2.7	19.3	0.49	0.56	0.49	49.4
12u	U	All MCs	1	0.0	1	0.0	0.351	12.1	LOS A	2.7	19.3	0.49	0.56	0.49	53.1
Approach			424	4.5	424	4.5	0.351	8.6	LOS A	2.7	19.3	0.49	0.56	0.49	54.5
All Vehicles			1122	4.1	1122	4.1	0.351	8.0	LOS A	2.7	19.3	0.52	0.57	0.52	50.7

Figure D.13 SIDRA intersection results – Greenwell Point Rd / Worrigee Rd / Millbank Rd construction with pre-school activity during the PM peak 2027

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total	HV]	[Total	HV]				[Veh.	Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worrigee Road (S)															
1	L2	All MCs	4	0.0	4	0.0	0.120	6.2	LOS A	0.2	1.8	0.12	0.16	0.12	42.4
2	T1	All MCs	179	3.5	179	3.5	0.120	0.2	LOS A	0.2	1.8	0.12	0.16	0.12	46.6
3	R2	All MCs	33	3.2	33	3.2	0.120	6.2	LOS A	0.2	1.8	0.12	0.16	0.12	41.7
Approach			216	3.4	216	3.4	0.120	1.2	NA	0.2	1.8	0.12	0.16	0.12	45.3
East: Booligal Rd (E)															
4	L2	All MCs	122	1.7	122	1.7	0.238	5.2	LOS A	1.0	7.0	0.39	0.59	0.39	33.3
5	T1	All MCs	1	0.0	1	0.0	0.238	5.5	LOS A	1.0	7.0	0.39	0.59	0.39	36.7
6	R2	All MCs	107	1.0	107	1.0	0.238	7.5	LOS A	1.0	7.0	0.39	0.59	0.39	32.5
Approach			231	1.4	231	1.4	0.238	6.3	LOS A	1.0	7.0	0.39	0.59	0.39	33.0
North: Worrigee Road (N)															
7	L2	All MCs	36	0.0	36	0.0	0.113	5.3	LOS A	0.1	0.6	0.04	0.14	0.04	42.1
8	T1	All MCs	166	3.2	166	3.2	0.113	0.0	LOS A	0.1	0.6	0.04	0.14	0.04	46.9
9	R2	All MCs	8	0.0	8	0.0	0.113	5.7	LOS A	0.1	0.6	0.04	0.14	0.04	41.5
Approach			211	2.5	211	2.5	0.113	1.2	NA	0.1	0.6	0.04	0.14	0.04	45.4
West: Golden Gr (W)															
10	L2	All MCs	6	0.0	6	0.0	0.007	5.1	LOS A	0.0	0.2	0.31	0.51	0.31	26.0
11	T1	All MCs	1	0.0	1	0.0	0.007	5.0	LOS A	0.0	0.2	0.31	0.51	0.31	38.1
12	R2	All MCs	1	0.0	1	0.0	0.007	7.4	LOS A	0.0	0.2	0.31	0.51	0.31	34.6
Approach			8	0.0	8	0.0	0.007	5.3	LOS A	0.0	0.2	0.31	0.51	0.31	28.4
All Vehicles			665	2.4	665	2.4	0.238	3.0	NA	1.0	7.0	0.19	0.31	0.19	38.7

Figure D.14 SIDRA intersection results – Worrigee Rd / Golden Grv / Booligal Rd construction with pre-school activity during the PM peak 2027

D5 Future with proposed activity in 2028

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV]		Arrival Flows [Total HV]		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue [Veh. Dist]		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worrigee Rd (S)															
1	L2	All MCs	302	3.3	302	3.3	0.514	6.4	LOS A	4.4	31.6	0.78	0.67	0.80	49.9
2	T1	All MCs	104	3.8	104	3.8	0.514	6.9	LOS A	4.4	31.6	0.78	0.67	0.80	26.3
3	R2	All MCs	50	8.0	50	8.0	0.514	11.4	LOS A	4.4	31.6	0.78	0.67	0.80	43.7
3u	U	All MCs	28	0.0	28	0.0	0.514	13.3	LOS A	4.4	31.6	0.78	0.67	0.80	27.7
Approach			484	3.7	484	3.7	0.514	7.4	LOS A	4.4	31.6	0.78	0.67	0.80	44.0
East: Greenwell Point Rd (E)															
4	L2	All MCs	40	10.0	40	10.0	0.373	8.0	LOS A	2.7	20.0	0.61	0.59	0.61	45.9
5	T1	All MCs	322	4.3	322	4.3	0.373	8.6	LOS A	2.7	20.0	0.61	0.59	0.61	55.8
6	R2	All MCs	30	6.7	30	6.7	0.373	13.3	LOS A	2.7	20.0	0.61	0.59	0.61	33.9
6u	U	All MCs	2	0.0	2	0.0	0.373	13.0	LOS A	2.7	20.0	0.61	0.59	0.61	49.6
Approach			394	5.1	394	5.1	0.373	8.9	LOS A	2.7	20.0	0.61	0.59	0.61	53.3
North: Millbank Rd (N)															
7	L2	All MCs	10	20.0	10	20.0	0.080	7.0	LOS A	0.5	3.6	0.61	0.63	0.61	41.3
8	T1	All MCs	32	6.2	32	6.2	0.080	6.9	LOS A	0.5	3.6	0.61	0.63	0.61	31.2
9	R2	All MCs	26	7.7	26	7.7	0.080	11.6	LOS A	0.5	3.6	0.61	0.63	0.61	46.5
9u	U	All MCs	2	0.0	2	0.0	0.080	13.4	LOS A	0.5	3.6	0.61	0.63	0.61	27.1
Approach			70	8.6	70	8.6	0.080	8.8	LOS A	0.5	3.6	0.61	0.63	0.61	39.8
West: Greenwell Point Rd (W)															
10	L2	All MCs	62	9.7	62	9.7	0.371	7.4	LOS A	2.9	21.8	0.58	0.61	0.58	48.7
11	T1	All MCs	158	10.1	158	10.1	0.371	8.2	LOS A	2.9	21.8	0.58	0.61	0.58	53.8
12	R2	All MCs	182	8.8	182	8.8	0.371	12.7	LOS A	2.9	21.8	0.58	0.61	0.58	47.3
12u	U	All MCs	2	0.0	2	0.0	0.371	12.5	LOS A	2.9	21.8	0.58	0.61	0.58	51.7
Approach			404	9.4	404	9.4	0.371	10.1	LOS A	2.9	21.8	0.58	0.61	0.58	50.5
All Vehicles			1352	6.1	1352	6.1	0.514	8.7	LOS A	4.4	31.6	0.66	0.63	0.67	49.1

Figure D.15 SIDRA intersection results – Greenwell Point Rd / Worrigee Rd / Millbank Rd future with proposed activity during the AM peak 2028

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total	HV]	[Total	HV]				[Veh.	Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worrigee Road (S)															
1	L2	All MCs	2	0.0	2	0.0	0.389	6.9	LOS A	2.3	16.6	0.46	0.54	0.46	37.2
2	T1	All MCs	204	7.8	204	7.8	0.389	1.3	LOS A	2.3	16.6	0.46	0.54	0.46	37.3
3	R2	All MCs	380	0.0	380	0.0	0.389	6.9	LOS A	2.3	16.6	0.46	0.54	0.46	36.7
Approach			586	2.7	586	2.7	0.389	4.9	NA	2.3	16.6	0.46	0.54	0.46	36.9
East: Booligal Rd (E)															
4	L2	All MCs	190	0.0	190	0.0	0.784	14.1	LOS A	12.7	88.8	0.93	1.19	2.19	28.3
5	T1	All MCs	2	0.0	2	0.0	0.784	23.7	LOS B	12.7	88.8	0.93	1.19	2.19	32.0
6	R2	All MCs	266	0.0	266	0.0	0.784	28.5	LOS C	12.7	88.8	0.93	1.19	2.19	27.6
Approach			458	0.0	458	0.0	0.784	22.5	LOS B	12.7	88.8	0.93	1.19	2.19	27.9
North: Worrigee Road (N)															
7	L2	All MCs	160	0.0	160	0.0	0.165	5.2	LOS A	0.1	0.5	0.02	0.34	0.02	39.2
8	T1	All MCs	122	18.0	122	18.0	0.165	0.0	LOS A	0.1	0.5	0.02	0.34	0.02	41.5
9	R2	All MCs	4	50.0	4	50.0	0.165	5.7	LOS A	0.1	0.5	0.02	0.34	0.02	37.8
Approach			286	8.4	286	8.4	0.165	3.0	NA	0.1	0.5	0.02	0.34	0.02	39.9
West: Golden Gr (W)															
10	L2	All MCs	8	25.0	8	25.0	0.038	5.6	LOS A	0.1	1.0	0.56	0.63	0.56	21.2
11	T1	All MCs	2	0.0	2	0.0	0.038	9.1	LOS A	0.1	1.0	0.56	0.63	0.56	31.2
12	R2	All MCs	6	33.3	6	33.3	0.038	18.7	LOS B	0.1	1.0	0.56	0.63	0.56	26.5
Approach			16	25.0	16	25.0	0.038	11.0	LOS A	0.1	1.0	0.56	0.63	0.56	24.2
All Vehicles			1346	3.3	1346	3.3	0.784	10.6	NA	12.7	88.8	0.53	0.72	0.96	33.1

Figure D.16 SIDRA intersection results – Worrigee Rd / Golden Grv / Booligal Rd future with proposed activity during the AM peak 2028

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows		Arrival Flows		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			[Total	HV]	[Total	HV]				[Veh.	Dist]				
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worrigee Rd (S)															
1	L2	All MCs	166	2.4	166	2.4	0.323	4.8	LOS A	2.4	16.9	0.61	0.60	0.61	49.9
2	T1	All MCs	42	4.8	42	4.8	0.323	5.3	LOS A	2.4	16.9	0.61	0.60	0.61	23.3
3	R2	All MCs	100	2.0	100	2.0	0.323	9.7	LOS A	2.4	16.9	0.61	0.60	0.61	44.9
3u	U	All MCs	28	0.0	28	0.0	0.323	11.8	LOS A	2.4	16.9	0.61	0.60	0.61	28.3
Approach			336	2.4	336	2.4	0.323	6.9	LOS A	2.4	16.9	0.61	0.60	0.61	44.0
East: Greenwell Point Rd (E)															
4	L2	All MCs	58	6.9	58	6.9	0.356	9.6	LOS A	2.5	18.8	0.75	0.69	0.75	43.5
5	T1	All MCs	206	6.8	206	6.8	0.356	10.3	LOS A	2.5	18.8	0.75	0.69	0.75	53.3
6	R2	All MCs	30	13.3	30	13.3	0.356	15.2	LOS B	2.5	18.8	0.75	0.69	0.75	32.6
6u	U	All MCs	2	0.0	2	0.0	0.356	14.6	LOS B	2.5	18.8	0.75	0.69	0.75	47.8
Approach			296	7.4	296	7.4	0.356	10.7	LOS A	2.5	18.8	0.75	0.69	0.75	49.7
North: Millbank Rd (N)															
7	L2	All MCs	18	11.1	18	11.1	0.203	10.3	LOS A	1.4	10.2	0.84	0.74	0.84	40.3
8	T1	All MCs	72	0.0	72	0.0	0.203	10.0	LOS A	1.4	10.2	0.84	0.74	0.84	28.7
9	R2	All MCs	36	5.6	36	5.6	0.203	14.9	LOS B	1.4	10.2	0.84	0.74	0.84	43.7
9u	U	All MCs	2	0.0	2	0.0	0.203	16.7	LOS B	1.4	10.2	0.84	0.74	0.84	25.5
Approach			128	3.1	128	3.1	0.203	11.5	LOS A	1.4	10.2	0.84	0.74	0.84	36.1
West: Greenwell Point Rd (W)															
10	L2	All MCs	38	10.5	38	10.5	0.574	7.8	LOS A	5.5	40.1	0.67	0.61	0.67	48.2
11	T1	All MCs	282	5.0	282	5.0	0.574	8.4	LOS A	5.5	40.1	0.67	0.61	0.67	54.0
12	R2	All MCs	354	4.0	354	4.0	0.574	12.9	LOS A	5.5	40.1	0.67	0.61	0.67	46.9
12u	U	All MCs	2	0.0	2	0.0	0.574	12.8	LOS A	5.5	40.1	0.67	0.61	0.67	51.3
Approach			676	4.7	676	4.7	0.574	10.7	LOS A	5.5	40.1	0.67	0.61	0.67	50.4
All Vehicles			1436	4.6	1436	4.6	0.574	9.9	LOS A	5.5	40.1	0.69	0.63	0.69	47.9

Figure D.17 SIDRA intersection results – Greenwell Point Rd / Worrigee Rd / Millbank Rd future with proposed activity during the PM peak 2028

Vehicle Movement Performance															
Mov ID	Turn	Mov Class	Demand Flows [Total HV]		Arrival Flows [Total HV]		Deg. Satn	Aver. Delay	Level of Service	95% Back Of Queue [Veh. Dist]		Prop. Qued	Eff. Stop Rate	Number of Cycles to Depart	Aver. Speed
			veh/h	%	veh/h	%	v/c	sec		veh	m				km/h
South: Worrigee Road (S)															
1	L2	All MCs	4	0.0	4	0.0	0.317	8.1	LOS A	1.8	12.7	0.53	0.61	0.54	36.3
2	T1	All MCs	204	4.9	204	4.9	0.317	2.1	LOS A	1.8	12.7	0.53	0.61	0.54	35.9
3	R2	All MCs	218	0.9	218	0.9	0.317	8.0	LOS A	1.8	12.7	0.53	0.61	0.54	35.8
Approach			426	2.8	426	2.8	0.317	5.2	NA	1.8	12.7	0.53	0.61	0.54	35.8
East: Booligal Rd (E)															
4	L2	All MCs	360	0.6	360	0.6	0.620	8.4	LOS A	6.8	47.7	0.68	0.86	1.13	31.3
5	T1	All MCs	2	0.0	2	0.0	0.620	15.0	LOS B	6.8	47.7	0.68	0.86	1.13	34.8
6	R2	All MCs	154	0.0	154	0.0	0.620	18.9	LOS B	6.8	47.7	0.68	0.86	1.13	30.5
Approach			516	0.4	516	0.4	0.620	11.5	LOS A	6.8	47.7	0.68	0.86	1.13	31.1
North: Worrigee Road (N)															
7	L2	All MCs	296	0.0	296	0.0	0.277	5.2	LOS A	0.1	0.7	0.02	0.36	0.02	40.2
8	T1	All MCs	200	9.0	200	9.0	0.277	0.0	LOS A	0.1	0.7	0.02	0.36	0.02	43.2
9	R2	All MCs	8	0.0	8	0.0	0.277	5.5	LOS A	0.1	0.7	0.02	0.36	0.02	39.6
Approach			504	3.6	504	3.6	0.277	3.1	NA	0.1	0.7	0.02	0.36	0.02	41.0
West: Golden Gr (W)															
10	L2	All MCs	6	0.0	6	0.0	0.015	5.2	LOS A	0.0	0.3	0.47	0.55	0.47	23.7
11	T1	All MCs	2	0.0	2	0.0	0.015	9.4	LOS A	0.0	0.3	0.47	0.55	0.47	34.6
12	R2	All MCs	2	0.0	2	0.0	0.015	13.0	LOS A	0.0	0.3	0.47	0.55	0.47	30.8
Approach			10	0.0	10	0.0	0.015	7.6	LOS A	0.0	0.3	0.47	0.55	0.47	27.1
All Vehicles			1456	2.2	1456	2.2	0.620	6.7	NA	6.8	47.7	0.40	0.61	0.57	35.0

Figure D.18 SIDRA intersection results – Worrigee Rd / Golden Grv / Booligal Rd future with proposed activity during the PM peak 2028