Bungendore High School
Transport Impact Assessment

Stantec

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Prepared by:
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Revision Schedule

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1 Introduction

This Transport Impact Assessment (TIA) has been prepared to support a Review of Environmental Factors (REF) for the NSW Department of Education (DoE) for the construction and operation of the new high school at Bungendore (the activity).

The purpose of the REF is to assess the potential environmental impacts of the activity prescribed by *State Environmental Planning Policy (Transport and Infrastructure) 2021* (T&I SEPP) as "development permitted without consent" on land carried out by or on behalf of a public authority under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The activity is to be undertaken pursuant to Chapter 3, Part 3.4, Section 3.37A of the T&I SEPP.

This document has been prepared in accordance with the *Guidelines for Division 5.1 assessments* (the Guidelines) by the Department of Planning, Housing and Infrastructure (DPHI) as well as the *Addendum Division 5.1 guidelines for schools* and *Addendum October 2024 (Consideration of environmental factors for health services facilities and schools*).

The purpose of this report is to outline the impacts and mitigations to the transport network and encourage sustainable travel to and from school.

1.1 Site Description

The current street address is part of 18 Harp Avenue, Bungendore, NSW, 2621 (the site), and is legally described as part Lot 125 in Deposited Plan 1297613. As shown at Figure 1-1, the proposed school site forms part of a larger lot which is the subject of a proposed residential subdivision.

The site is located within the North Bungendore Precinct (Elm Grove Estate) in Bungendore. As a result of precinct wide rezonings, the surrounding locality is currently transitioning from a semi-rural residential area to an urbanised area with new low density residential development.

The site is zoned R2 Low Density Residential, with all adjoining land also zoned R2 Low Density Residential.

The site has three frontages:

- Approx 500m southern frontage to Birchfield Drive.
- Approx 500m northern frontage to Bridget Avenue.
- Approx 100m eastern frontage to Winyu Rise.

The site is currently cleared of all vegetation and consists of grassland, having been prepared for the purposes of future low density residential development.

Source: Urbis, 2024

Figure 1-1: Aerial photograph of the site

1.2 Proposed Activity Description

The proposed activity is for the construction and operation of a new high school in Bungendore at part 18 Harp Avenue, Bungendore (the **site**). The new high school will accommodate 600 students and 68 staff. The school will provide 26 general learning spaces, and three support learning spaces across two buildings. The buildings will be predominantly three-storeys in height and will include permanent and support teaching spaces, specialist learning hubs, a library, administrative areas and a staff hub.

Additional core facilities are also proposed including a standalone school hall with covered outdoor learning area (**COLA**), a car park, a kiss and drop zone along Birchfield Drive, sports courts and a sports field. The new school also features a single storey building with associated paddocks in the far western portion of the site designed for livestock management and hands-on agricultural learning.

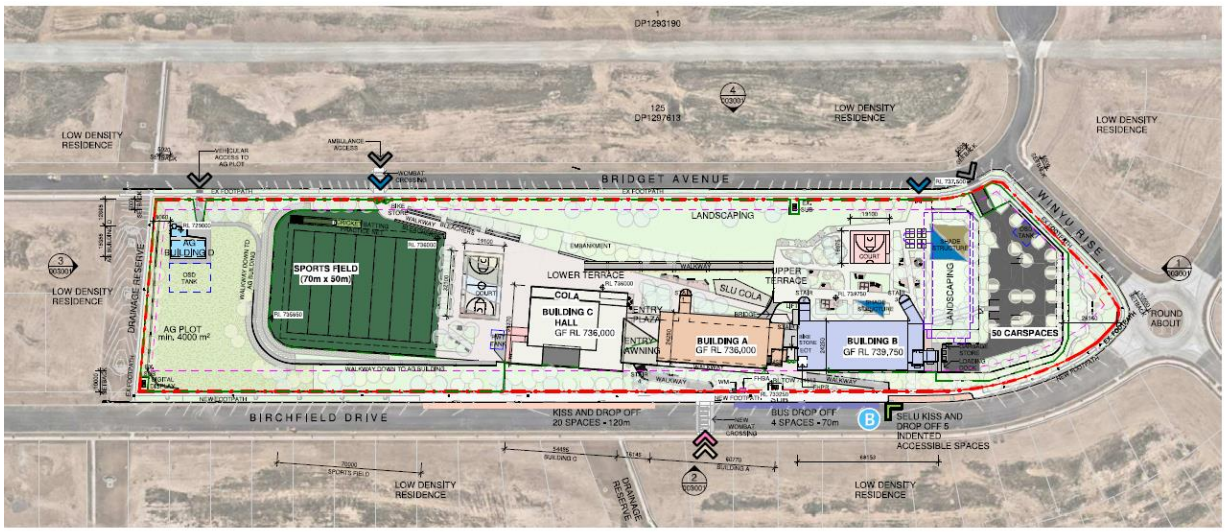
Specifically, the proposal involves the following:

- Building A, a three-storey learning hub accommodating general learning spaces, a special education learning unit (**SELU**), a physical education centre, a performing arts space, and other core facilities including administrative areas, staff hub, library and end of trip facilities.
- Building B, a part three/part four storey learning hub accommodating general learning spaces, specialist workshops for food, textile, wood and metal workshops, as well as visual arts studios, science labs and staff areas.
- Building C, a standalone school hall with COLA.
- Building D, a single-storey agricultural block comprising an animal storage space, a COLA and internal workshop.

- On-site staff car park with 50 spaces with access via Bridget Avenue.
- Kiss and drop zones and bus bays along Birchfield Drive.
- Open play space including a sports courts and sports field.
- Associated utilities and services including a 1000kv padmount substation.
- Main pedestrian entrance to be located off Birchfield Drive.
- Secondary pedestrian access from Bridget Avenue.
- Public domain/off-site works including the removal of street trees.

The design has been masterplanned to allow for an additional future stage. The second stage does not form part of this proposal.

Figure 1-2 provides an extract of the proposed site plan.



Source: NBRS, 2024

Figure 1-2: Site plan

2 Strategic Context

2.1 State Transport Plans

State strategic policies and plans relating to transport for Bungendore High School are provided in Table 2-1.

Table 2-1: State strategic policies and plans

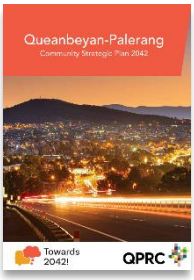
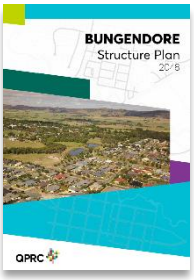
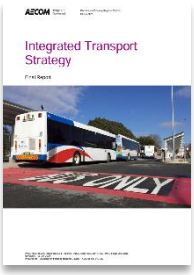
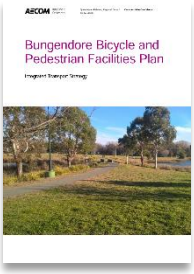
	Description
	**NSW Government Future Transport Strategy 2061** The Future Transport Strategy 2061 (Strategy) was released in 2022 and replaces the Future Transport 2056, published in 2018. It is a 40-year strategy for Sydney and Regional New South Wales (NSW) prepared by Transport for NSW (TfNSW) to achieve. The Strategy details the strategic directions and responses for delivering TfNSW's vision for safe, healthy, sustainable, accessible and integrated passenger and freight journeys in NSW. Regarding schools, a key action included is the provision of safer walking, cycling and public transport access to schools.
	**NSW Government Active Transport Strategy** The "Active Transport Strategy (2022)" sets out the NSW Government's vision to double active transport trips in 20 years. The strategy is built out of the Future Transport and forms the basis for active transport across the state. The plan identifies five focus areas and ambitions, which are supported by short-term (0-5 years) priority moves and deliverable actions. A key action is to provide communities with access to 15-minute neighbourhoods, which provide communities with access to health services, schools, shops, and recreational events within a 15-minute walk or cycle.

2.2 Local Transport Plans

Local strategic policies and plans relating to transport for Bungendore High School are provided in Table 2-2.

Table 2-2: Local strategic policies and plans

Local transport plans	Description
	**QPRC Local Strategic Planning Statement – Towards 2040** The QPRC's LSPS outlines the key visions and planning priorities for the LGA. The LSPS provides a strategic framework for the land use planning within the LGA. Actions relevant to the project include: • Action 4.2.7: Implement the actions relating to the active transport connections identified within the QPRC Integrated Transport Strategy, updated PAMPs and Bicycle Plan. • Action 4.9.1: Implement QPRC Integrated Transport Study. • Action 4.9.2: Ensure new urban release areas and other large subdivisions have a range of transport options available that support safe ease of movement. • Action 4.9.7: Guide land-use planning outcomes to support improved public transport and integrated multi-modal solutions.

Local transport plans	Description
	• Action 4.9.8: Identify transport corridors including active transport for increased development densities while accounting for the protection of freight corridors. • Action 4.9.10: Take action to find solutions for traffic congestion, road safety and heavy vehicle impacts.
	**QPRC Community Strategic Plan - Towards 2042** The QPRC's CSP outlines the long-term vision and aspiration for the LGA, including strategic directions, outcomes, strategies and indicators. strategic outcomes and actions. Relevant to the project, it is important to recognise the following strategic objective: • Strategic objective 4.1: Our transport network and infrastructure is safe, supports a zero emissions target and allows for ease of movement throughout Queanbeyan-Palerang and across the ACT border and region.
	**Bungendore Structure Plan 2018-2048** Bungendore Structure Plan 2018-2048 was prepared to guide the growth and development of Bungendore over the next 30 years. Some key principles of the structure plan include: • Pedestrian and cycling opportunities for all ages should be provided with links across all areas of the town. • Pedestrian links throughout the central business district are to be encouraged. • Development should allow for public transport networks. A number of transport matters, that require further work to ensure integration of services and facilities as the town grows, have been identified as follows: • Implement the Integrated Transport Strategy including identifying a connected and accessible path hierarchy and way finding strategies for active travel. With respect to projected demand for additional dwellings, the structure plan identifies up to 1,400 residential dwellings (3 people per lot) to accommodate for the growth scenario to 2048.
	**QPRC Integrated Transport Strategy** The QPRC Integrated Transport Strategy provides direction for transport within the Queanbeyan-Palerang LGA, including the public transport, cycling and footpath networks and links, heavy vehicle management, future road planning and regional integration with the ACT and the broader NSW.
	**Bungendore Bicycle and Pedestrian Facilities Plan** The Bungendore Bicycle and Pedestrian Facilities Plan, which forms part of QPRC Integrated Transport Strategy, provides a review and direction for active transport facilities within the Bungendore region. Proposed facilities as part of the plan, encompass: • Proposed footpaths and shared paths across the Bungendore town centre and the surrounding residential areas, providing active transport connectivity in both north-south and east-west directions. • Proposed pedestrian refuges to provide safe road crossings at key location: Majara Street adjacent to Bungendore Station, and Turallo Terrace adjacent to proposed shared path network

3 Transport Network

3.1 Walking

Figure 3-1 shows the existing pedestrian network across Bungendore town centre and surrounding residential areas. The pedestrian network is made up of a mix of footpaths and shared paths.

At the Elm Grove Estate residential development where the proposed school site is located, the pedestrian footpath network is well developed with pathways provided on one side of all streets, with strategically located cut-through links to maintain permeability for active travel. Throughout the central and southern areas of Bungendore, pedestrian pathways are provided on at least one side of most streets, with footpaths lining both sides of the streets around Bungendore town centre. Crossing facilities however are not provided within the Elm Grove Estate.

However, pedestrian connectivity between Elm Grove Estate and the other built-up areas of Bungendore (central and southern areas) is currently limited. These pathway gaps are highlighted in Figure 3-1, and are present along Larmer Street, Hyland Drive and McCusker Drive.

As per Council's Bungendore Bicycle and Pedestrian Facilities document, a network of footpaths and shared paths has been developed to provide future enhancements to the active transport network for Bungendore, providing connectivity in both north-south and east-west directions. These proposed pathways are included in Figure 3-1, which aligns with the aforementioned key pathway gaps. These key pathway gaps align with Council's proposed pathways, and are to be delivered by Council.

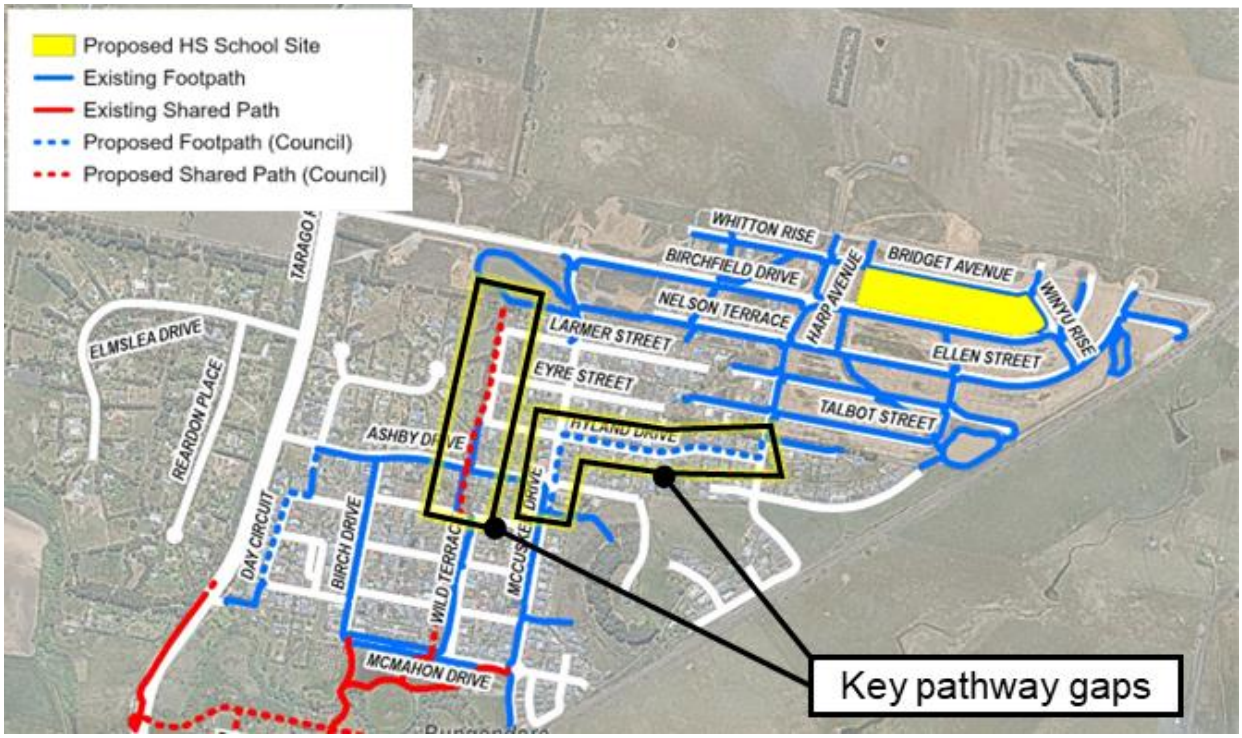


Figure 3-1: Existing and proposed pedestrian network for Bungendore

3.2 Cycling

Figure 3-2 shows the existing cycling network across Bungendore town centre and surrounding residential areas. Cycling infrastructure is generally classified as off-road shared paths which run north-south through the region. On-road cycling routes are provided on Molonglo Street. While cycling pathways exist in various parts of Bungendore, the network is fragmented and lacks consistent connectivity. This includes the lack of existing cycling infrastructure north of McMahon Drive, connecting to the site.

As per Council's Bungendore Bicycle and Pedestrian Facilities, a combination of off-road shared paths and on-road cycle linkages has been proposed to provide a cohesive cycling network across Bungendore with connections in both north-south and east-west directions. These proposed pathways are shown in Figure 3-2.

In addition, it should be noted students cycling to school can utilise footpaths (refer to Figure 3-1) where available as children up to the age of 16 are allowed to cycle on footpaths in NSW.

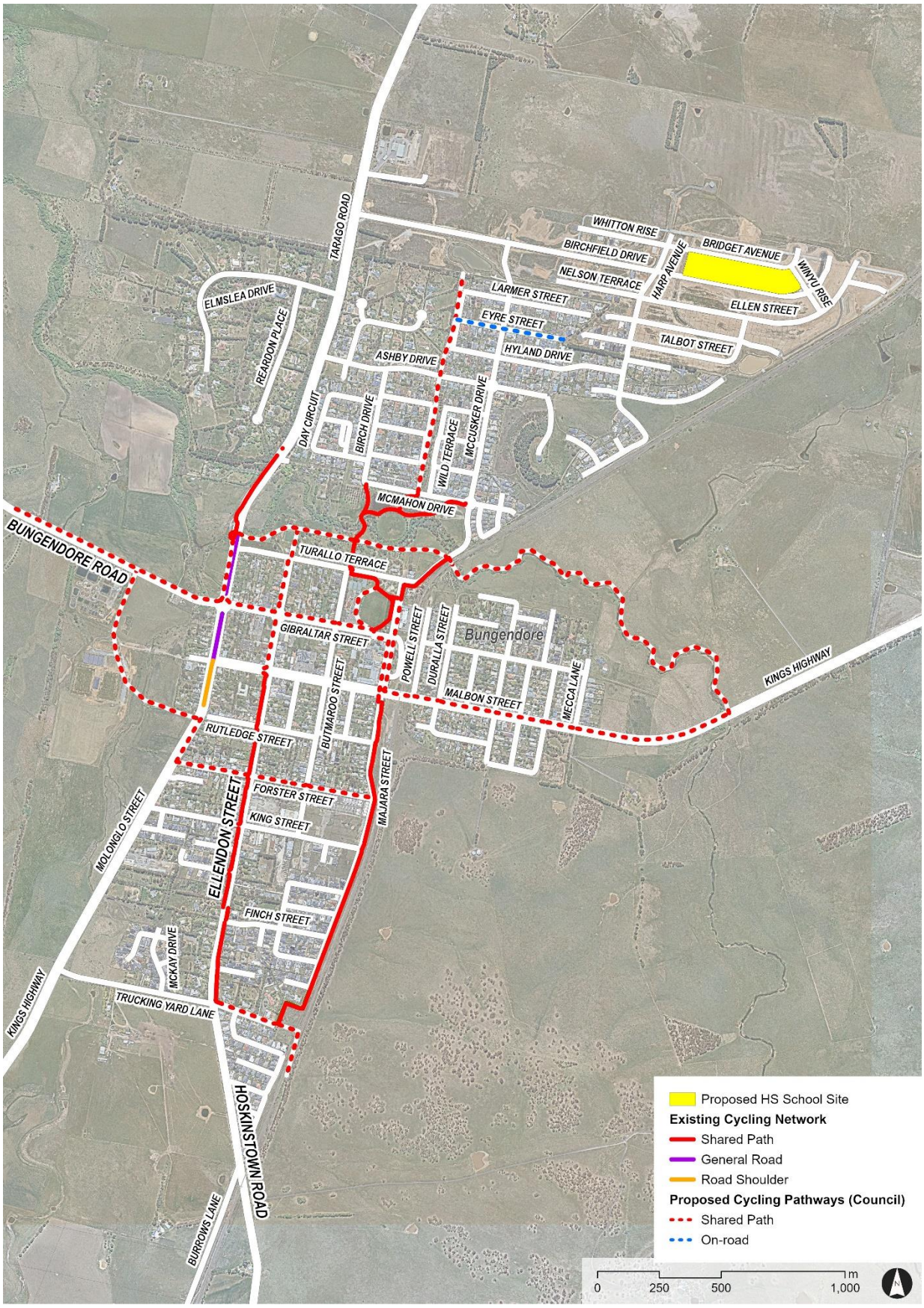


Figure 3-2: Existing cycling network for Bungendore

3.3 Public Transport

The local bus routes that service Bungendore are operated by CDC Canberra. Figure 3-3 shows the public and school bus routes that currently operate in Bungendore. Closest public bus stops to the proposed site are located approximately 1.2km to 2.5km on-path walk away, depending on the bus route. This highlights the need for extensions to the bus network to serve the school site, ensuring bus stops are located within walkable distances to the school site.

Bungendore Train Station is located 2km south-east of the school site. The station is serviced by the regional train and coach network, with three daily services in each direction operating between Sydney and Canberra.

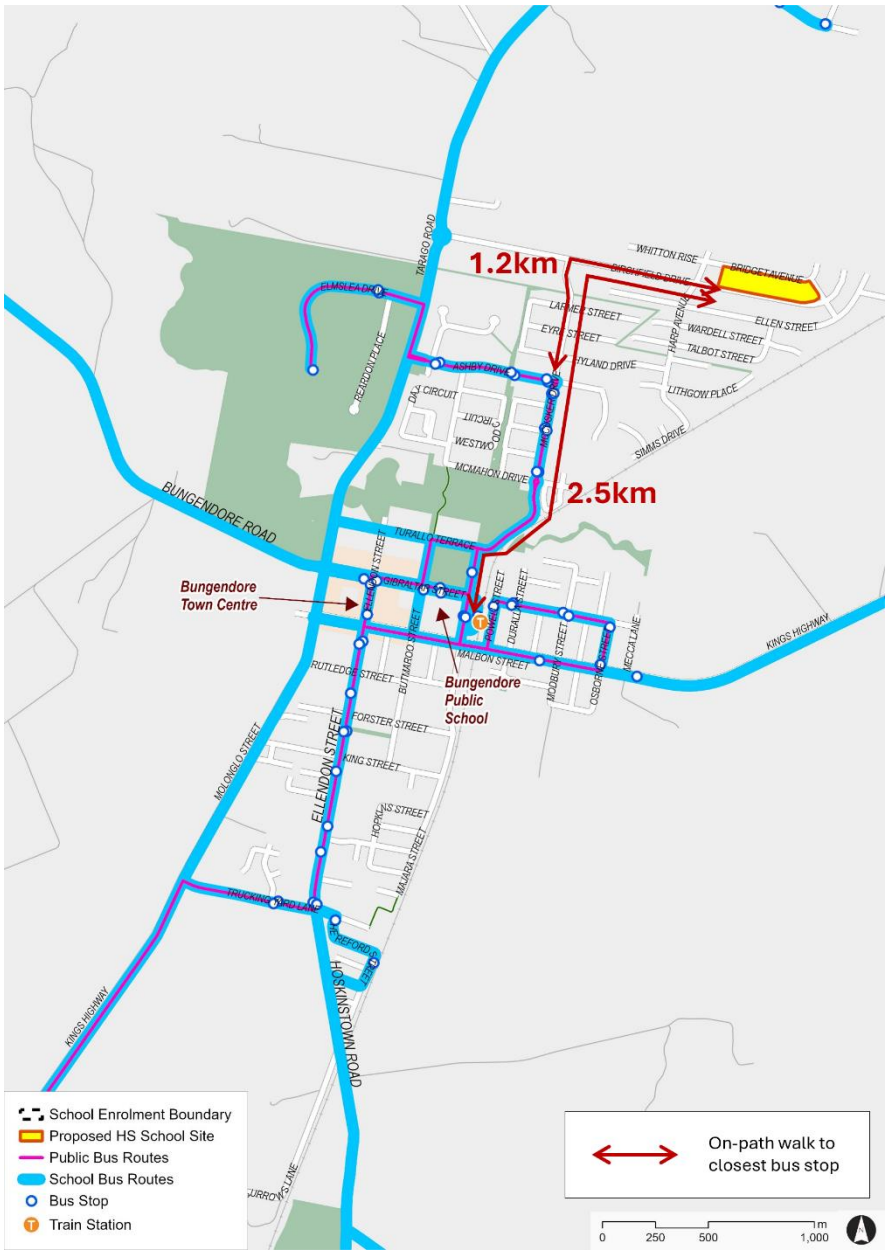


Figure 3-3: Existing bus network for Bungendore

Table 3-1 and Table 3-2 summarises the existing public and school bus routes operating in Bungendore respectively. A review of the arrival and departure times of the bus routes indicate that current schedule timings of bus routes do not align with the school morning and afternoon travel period, necessitating adjustments to fit school bell times.

Table 3-1: Existing public bus routes in Bungendore

Route Number	Route Description	Closest bus stop (Walk distance to bus stop)	AM Arrival Times	PM Departure Times
844	Queanbeyan to/from Bungendore	McCusker Drive and Ashby Drive (1.2km)	From Queanbeyan: • 9:46am	To Queanbeyan: • 2:07pm, 5:07pm
844X	Canberra CBD to/from Bungendore via Russell and Queanbeyan (Express Service)	McCusker Drive and Ashby Drive (1.2km)	To Queanbeyan: • 7:10am	From Queanbeyan: • 5:46pm, 6:46pm

Table 3-2: Existing school bus routes for Bungendore

Route Number	Route Description	Closest bus stop (Walk distance to bus stop)	AM Arrival Times	PM Departure Times
S151	Bungendore Elmslea Estate to Queanbeyan Interchange via Ridgeway Rd	McCusker Dr after Keeffe Pl, Bungendore (1.2km)	7:22am	-
S153	Bungendore Elmslea Estate to Queanbeyan Public	McCusker Dr after Keeffe Pl, Bungendore (1.2km)	7:41am	-
S158	Bungendore Elmslea Estate to Lyneham Primary via Queanbeyan Interchange	Ashby Dr at McCusker Dr, Bungendore (1.2km)	7:38am	-
S166	Queanbeyan East PS to Bungendore via Ridgeway Rd	Ashby Dr at McCusker Dr, Bungendore (1.2km)	-	4:02pm
S177	Rosary Primary to Bungendore Trucking Yard Lane via Elmslea Estate	Ashby Dr at McCusker Dr, Bungendore (1.2km)	-	4:29pm
S226	Elmslea to Queanbeyan Interchange via Bungendore	Ashby Dr at McCusker Dr, Bungendore (1.2km)	7:23am	-
S555	Bungendore to Braidwood via Manar	Bungendore Station, Bungendore (2.5km)	-	4:25pm
S560	Butmaroo to Bungendore	Majara St opp Bungendore Public School, Bungendore (2.5km)	9:00am	-
	Bungendore to Butmaroo	Bungendore Public School, Majara St, Bungendore (2.5km)	-	3:15pm
S561	Widgewa Rd to Bungendore via Hoskinstown	Bungendore Public School, Majara St, Bungendore (2.5km)	9:00am	
	Bungendore to Widgewa Rd via Hoskinstown	Bungendore Public School, Majara St, Bungendore (2.5km)	-	3:13pm

Route Number	Route Description	Closest bus stop (Walk distance to bus stop)	AM Arrival Times	PM Departure Times
S562	Wamboin to Bungendore	Bungendore Public School, Majara St, Bungendore (2.5km)	9:06am-	
	Bungendore to Wamboin	Bungendore Public School, Majara St, Bungendore (2.5km)	-	3:17pm
S563	Mount Fairy to Bungendore	Ashby Dr at McCusker Dr, Bungendore (1.2km)	8:53am-	
	Bungendore to Mount Fairy	McCusker Dr after Keeffe Pl, Bungendore (1.2km)	-	3:18pm
S564	Mulloon to Bungendore	Majara St opp Bungendore Public School, Bungendore (2.5km)	9:00am	-
	Bungendore to Mulloon	Bungendore Public School, Majara St, Bungendore (2.5km)	-	3:15pm

School bus routes within the proposed intake area that do not currently reach the site but can potentially serve as feeder routes that connect students to other bus routes which travel to/ from Bungendore. It should be noted that this is subject to discussions with Transport for NSW Bus Planning team and updated scheduling. These bus routes are outlined in Table 3-3.

Table 3-3: Existing school bus routes within Bungendore High School intake area which do not currently extend to Bungendore

Route Number	Route Description
S190	Evatt Primary to Murrumbateman via Hall Interchange (Platypus Service)
S202	Murrumbateman Nanima Rd to Belconnen High (Koala Service)
S250	Harrison Public to Sutton Federal Hwy Service Rd and Goolabri Dr via Antill St Interchange
S254	Amaroo Public to Bywong Cnr Federal Hwy and Donnelly Rd via Antill St Interchange
S258	Woolcara Sugarloaf Ridge Rd to Queanbeyan Interchange
S259	St Benedicts Primary to Wamboin Cnr Weeroona Dr and Norton Rd via Antill St Interchange
S260	Campbell High to Collector via Antill St Interchange
S261	Queanbeyan to Wamboin Cnr Norton Rd and Marino Vale Dr
S262	Sutton Primary to Sutton Cnr Federal Hwy Service Rd and Bidges Rd
S263	Gundaroo to Lyneham High via Antill St Interchange
S265	Yass to Gundaroo Shingle Hill Way via Murrumbateman (Cockatoo Service)
S266	Queanbeyan West Public to Captains Flat via Queanbeyan Interchange
S268	Queanbeyan to Woolcara Sugarloaf Ridge Rd
S269	Karabar High to Woolcara Sugarloaf Ridge Rd via Queanbeyan Interchange
S270	North Ainslie Primary to Cnr Doust Rd and Federal Hwy via Antill St Interchange
S271	Maribyrnong Primary to Cnr Norton and Bungendore Rds via Antill St Interchange
S272	Canberra Boys Grammar to Bellmount Forest via Antill St Interchange
S274	Sutton Primary to Lake George Cnr Doust Rd and Federal Hwy
S275	Dickson College to Wamboin Bingley Way via Antill St Interchange
S278	Sutton Tallagandra Lane to Sutton Primary
S572	Captains Flat to Hoskinstown via Rossi
S671	Gunning Public to Bellmount Forest

Route Number	Route Description
S715	Tarago to Collector Rd via Taylors Creek Rd

Figure 3-4 shows the public and school bus routes that currently operate in the Bungendore High School intake area.

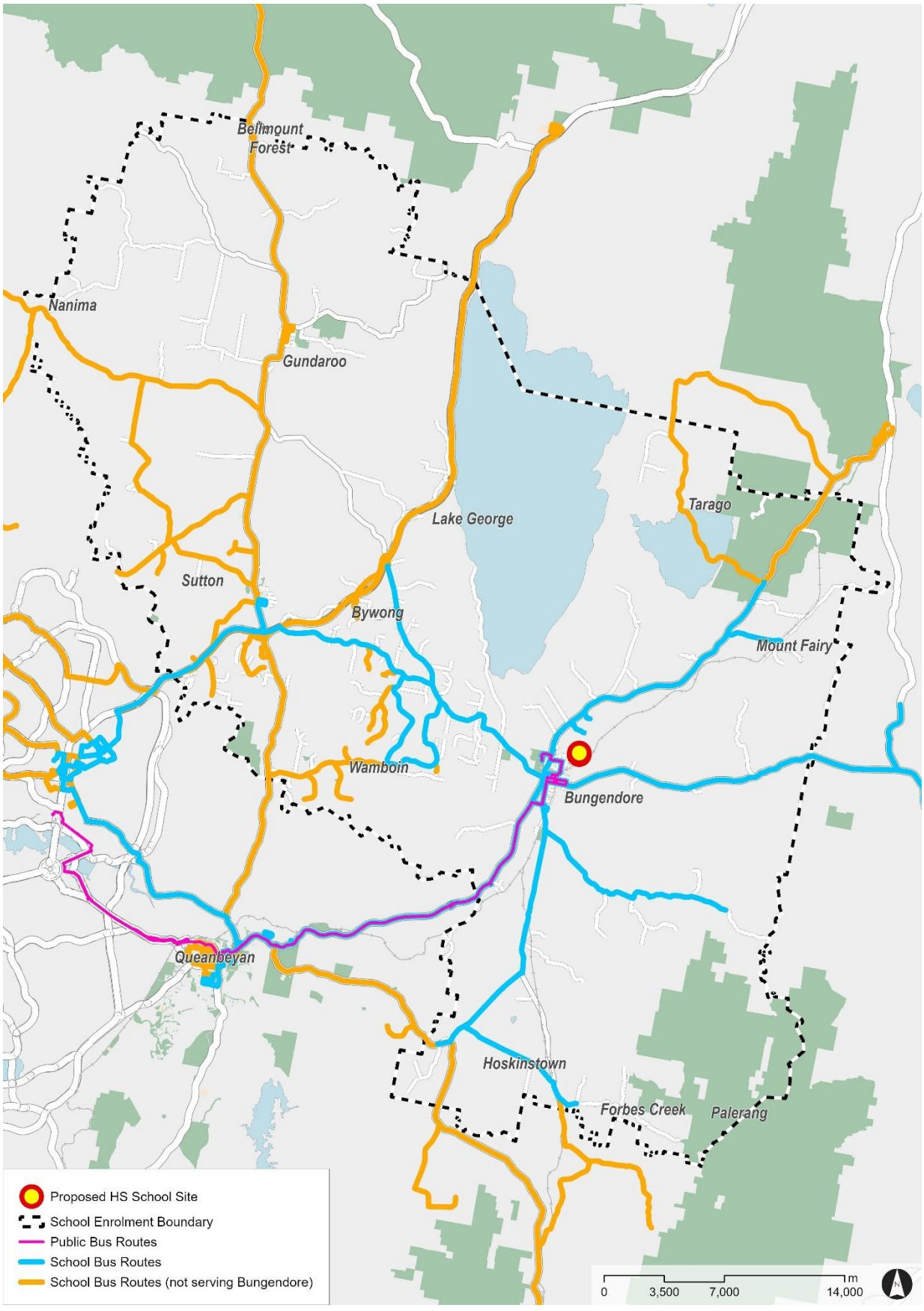


Figure 3-4: Existing public and school bus network for Bungendore High School intake area

3.4 Road network

The proposed school site is bounded by Birchfield Drive, Winyu Rise and Bridget Avenue. Figure 3-5 shows the location of the proposed school site in relation to the surrounding road network, which is described in Table 3-4.

Table 3-4: Road network surrounding the proposed school site

Road	Road Function	Description
Birchfield Drive	Local collector road	Birchfield Drive is a local collector road that runs in an east-west alignment and borders the school site to the south. Kiss-and-drop and bus zones have been proposed along the northern side of the road, fronting the school site. It connects to Tarago Road to the west and has one lane of traffic in each direction with kerbside parking.
Harp Avenue	Local collector road	Harp Avenue is a local collector road running north to south, to the west of the school site. It provides connection to residential areas and Bungendore town centre to the south via Hyland Drive. Extending. It has one traffic lane in each direction.
Bridget Avenue	Local access road	Bridge Avenue is a local access road that is aligned in an east-west direction and borders the school site to the north. It has one lane of traffic in each direction. Vehicular site entry points for on-site carpark and emergency vehicle access are proposed along this road.
Winyu Rise	Local access road	Winyu Rise is a local access road that is aligned in a north-south direction and borders the school site to the east. It has one lane of traffic in each direction.
Tarago Road	Regional arterial road	Tarago Road is a regional arterial road located west of the school site, with a north-south alignment configuration. To the south, it connects to major road corridors such as Kings Highway and Bungendore Road. To the north, it leads to Tarago and continues further to Goulburn. It has one lane of traffic in each direction, with a posted speed limit of 50 km/h which transitions to 80 km/h away as it moves away from built-up areas. Between Kings Highway and Turallo Terrace, kerbside parking is permitted on each side of the road.
Kings Highway	State arterial road	Kings Highway functions as a state arterial road which passes through the centre of Bungendore. It functions as an east-west link for regional travel, with Queanbeyan and Canberra to the west and Braidwood to the east. Within Bungendore, it generally has one lane of traffic in each direction with kerbside parking, with a posted speed limit of 50 km/h which transitions to 100 km/h as it moves away from built-up areas.
Bungendore Road	Regional sub-arterial road	Bungendore Road functions a regional sub-arterial road which extends north-west from Molonglo Street, providing connections to localities such as Bywong and Gundaroo. It has one lane of traffic in each direction, with a posted speed limit of 50 km/h which transitions to 100 km/h away as it moves away from built-up areas.

Figure 3-5: School site location and surrounding road network

4 Travel Patterns and Demand

The following section details the student catchment and demand analysis that was undertaken for different modes of transport (walking, cycling, public transport and private vehicles) to understand future student travel modes. Depersonalised student data and planned dwelling counts have been used to forecast student locations for the 2027 school opening year. This includes the following considerations:

- Depersonalised student data: Existing Bungendore High School students and incoming Year 4 to 6 students from primary schools within Bungendore High School intake area, who will be of high school age by 2027.
- Elm Grove Estate Stage 1 and 2: Residential development with approximately 300 dwellings.
- Projected student population numbers have been further aligned with the 600-student capacity.

Two approaches were considered when assessing student walking and cycling catchments:

- Notional - commonly referred to “as the crow flies”, which measures the direct distance between two points.
- On Path - looks at the ‘actual’ walking distance, accounting for the pedestrian network within the road environment.

4.1 School Intake Catchment

Figure 4-1 depicts the Bungendore High School intake catchment and projected student distribution for 2027 school opening year. The high school enrolment boundary includes the intake areas of the following primary schools:

- Bungendore Public School (whole)
- Sutton Public School (whole)
- Gundaroo Public School (whole)
- Tarago Public School (south-western portion).

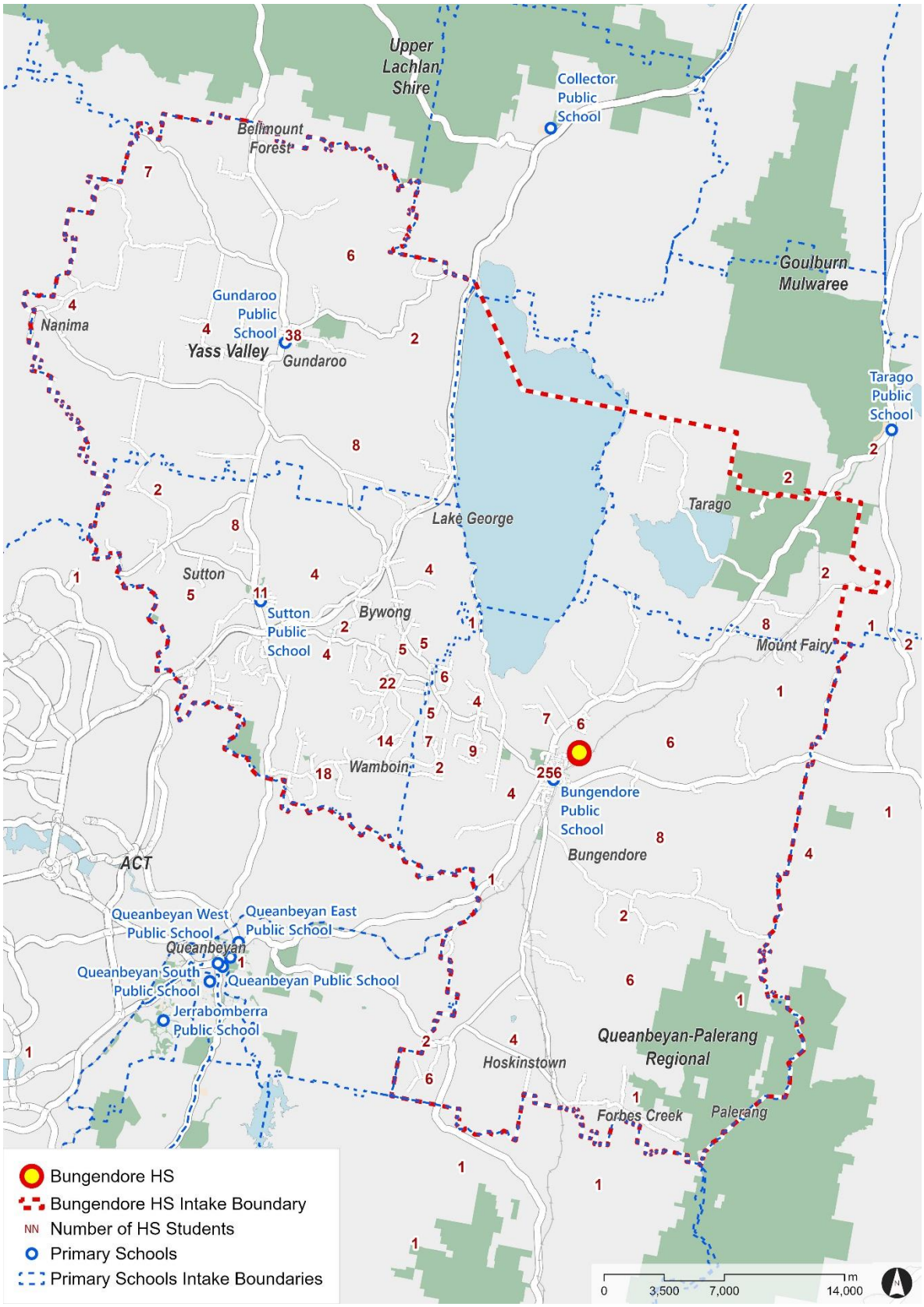


Figure 4-1: Intake catchment and projected student locations for 2027 opening year

4.2 Walking Catchment Coverage

Figure 4-2 shows the extent of the walking catchment bands and projected student locations for the 2027 school opening year. Around 16% of students are projected to live within a 1,600-metre on-path walk or a 20-minute walk of the school site. A summary of the walking catchment analysis is shown in Table 4-1.

Table 4-1: Bungendore High School walking catchment coverage

On-path				Notional			
Catchment band	**Students**	**%**	**Cumulative %**	**Catchment band**	**Students**	**%**	**Cumulative %**
0 - 400m	19	3%	3%	0 - 400m	21	4%	4%
401 - 800m	27	5%	8%	401 - 800m	36	6%	10%
801 - 1,200m	18	3%	11%	801 - 1,200m	38	6%	16%
1,201 - 1,600m	32	5%	16%	1,201 - 1,600m	45	7%	23%
1,601 - 2,000m	27	5%	20%	1,601 - 2,000m	53	9%	32%
2,001 - 2,900m	59	10%	30%	>2,000m	407	68%	100%
>2,900m	419	70%	100%				
Total	**600**	**100%**		**Total**	**600**	**100%**	

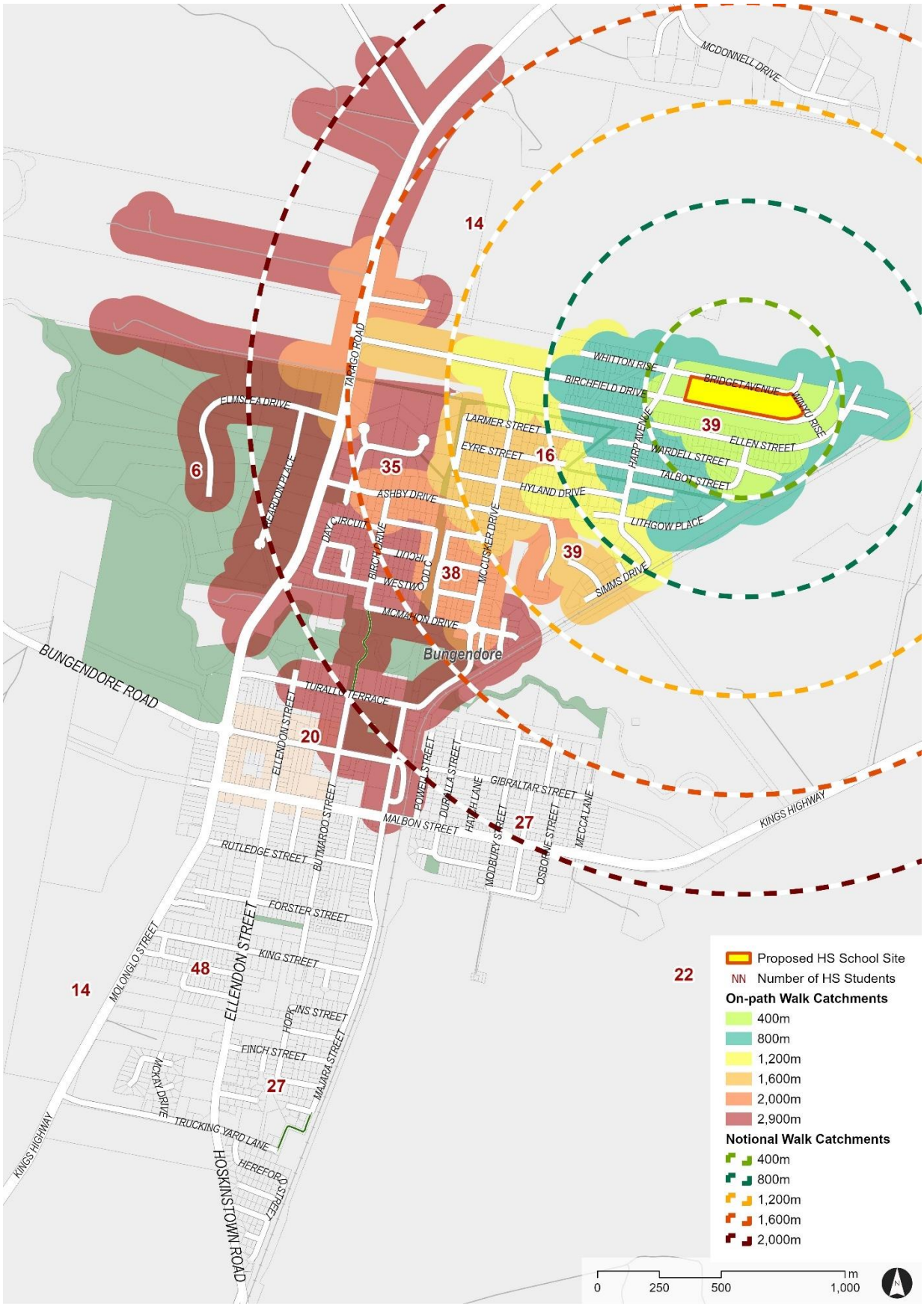


Figure 4-2: Bungendore High School walking catchments

4.3 Cycling Catchment Coverage

Figure 4-3 shows the extent of the cycling catchment bands and projected student locations for the 2027 school opening year. Around 37% of students are projected to live within a 3,600-metre on-path cycle catchment of the school site, which has been considered as the upper limit for reasonable cycling distance for high school students. A summary of the cycling catchment analysis is shown in Table 4-2.

Table 4-2: Bungendore High School cycling catchment coverage

On-path				**Notional**			
Catchment band	**Students**	**%**	**Cumulative %**	**Catchment band**	**Students**	**%**	**Cumulative %**
0 – 1,200m	64	11%	11%	0 – 1,200m	95	16%	16%
1,201 – 2,400m	109	18%	29%	1,201 – 2,400m	129	22%	37%
2,401 – 3,600m	49	8%	37%	2,401 – 3,600m	69	12%	49%
>3,600m	378	63%	100%	>3,600m	306	51%	100%
Total	**600**	**100%**		**Total**	**600**	**100%**	

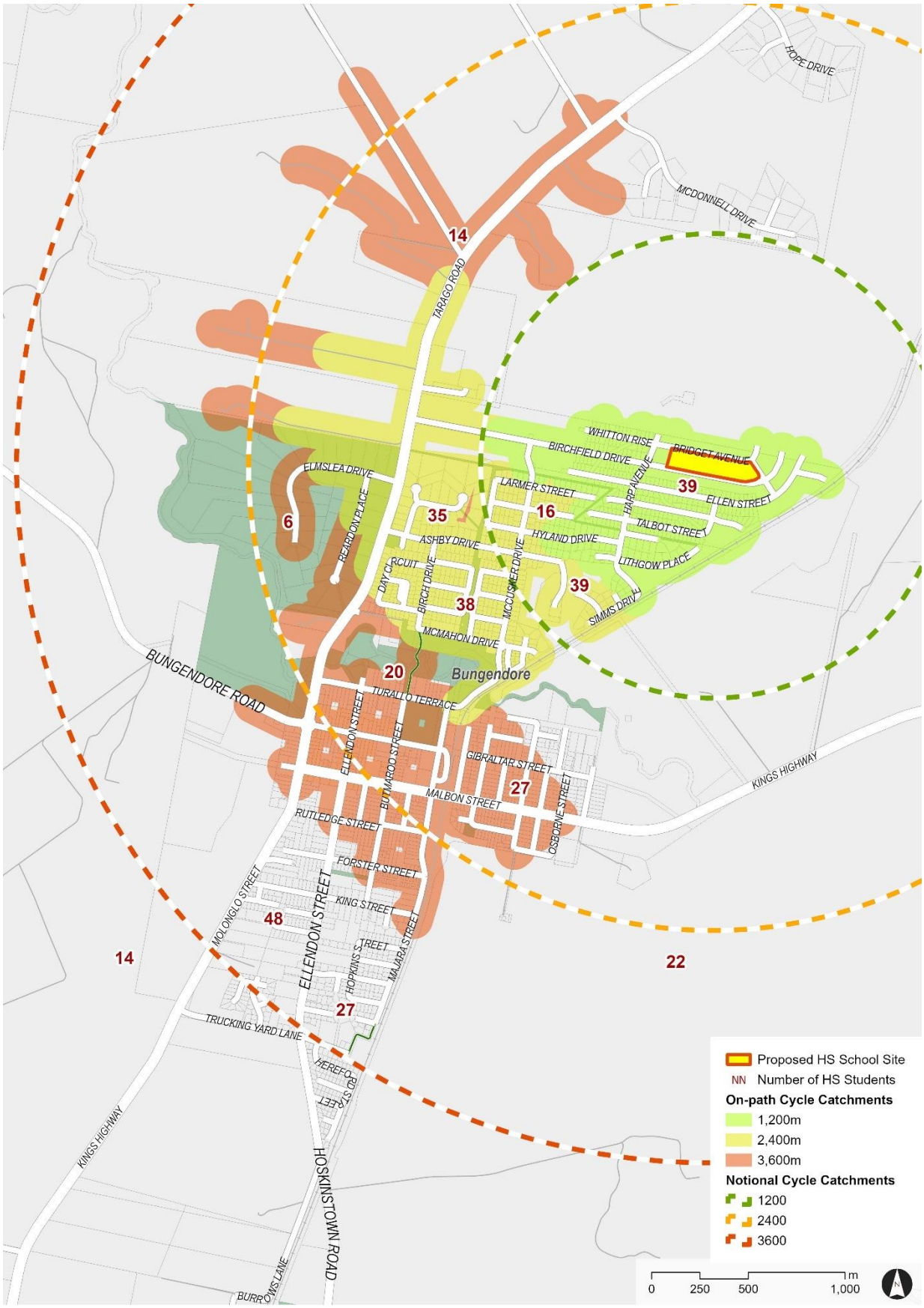


Figure 4-3: Bungendore High School cycling catchments

4.4 Bus Service Coverage

Transport for NSW is responsible for service and timetable planning for all public and school bus services in NSW. Consultation with the bus planning team has been undertaken in November 2024 via a meeting. Key outcomes of this meeting included:

- Stantec presented an analysis of the existing school bus service routes and timetables
- Discussions held on how a potential new bell time for Bungendore High School would require existing school bus services to be adjusted by approximately 15 minutes to cater for the high school students
- Transport for NSW Bus Planning team gave general support for the adjustment to school bus service timing. The bus routes are operating on standalone shifts, meaning that moving the trips earlier should not impact other services.

Figure 4-4 shows the extent of public and school bus services coverage that support Bungendore High School, based on walkable access to bus stops up to an 800 metre notional walk (equivalent to 10-min walk) and projected student locations. Free travel on public transport is available to school students via the School Student Transport Scheme (SSTS), whereby the SSTS is available to Year 7 to 12 students who live outside of a 2,900 metre on path walking distance or a 2,000 metre notional distance to school.

A summary of the bus service catchment analysis for one-seat and two-seat journeys is shown in Table 4-3, and is described as follows:

- One-seat bus journeys' coverage (includes bus routes directly serving Bungendore only)

  34% of students live within an 800 metre walk of a bus stop and eligible for SSTS (beyond 2.9 kilometre on-path walk to school). Overall, 58% of students live within an 800 metre walk of a bus stop.
- One-seat and two-seat bus journeys' coverage (includes both bus routes directly serving Bungendore and feeder bus routes – refer to Section 3.3)

  46% of students live within an 800-m walk of a bus stop and eligible for SSTS (beyond 2.9km on-path walk to school). Overall, 70% of students live within an 800-m walk of a bus stop. It should be noted that the suitability of two-seat bus journeys will rely on the coordination of schedules between connecting bus routes. This is subject to discussions with Transport for NSW Bus Planning team and bus providers.

Table 4-3: Bungendore High School bus services coverage

Student Location	One-seat bus journeys' coverage (bus routes directly serving Bungendore only)		One- and Two-seat bus journeys' coverage (includes feeder bus routes)	
	Number of students	% of total students	Number of students	% of total students
Within 400m walk				
Within 2.9km on-path walk from school (ineligible for SSTS)	118	20%	118	20%
Beyond 2.9km on-path walk from school (eligible for SSTS)	164	27%	205	34%
Total	**282**	**47%**	**322**	**54%**
Within 800m walk				
Within 2.9km on-path walk from school (ineligible for SSTS)	141	24%	141	24%
Beyond 2.9km on-path walk from school (eligible for SSTS)	202	34%	278	46%
Total	**344**	**58%**	**419**	**70%**

The route identified for further school bus route expansion, for continued investigation by Transport for NSW Bus Planning Team is shown in Figure 4-5.

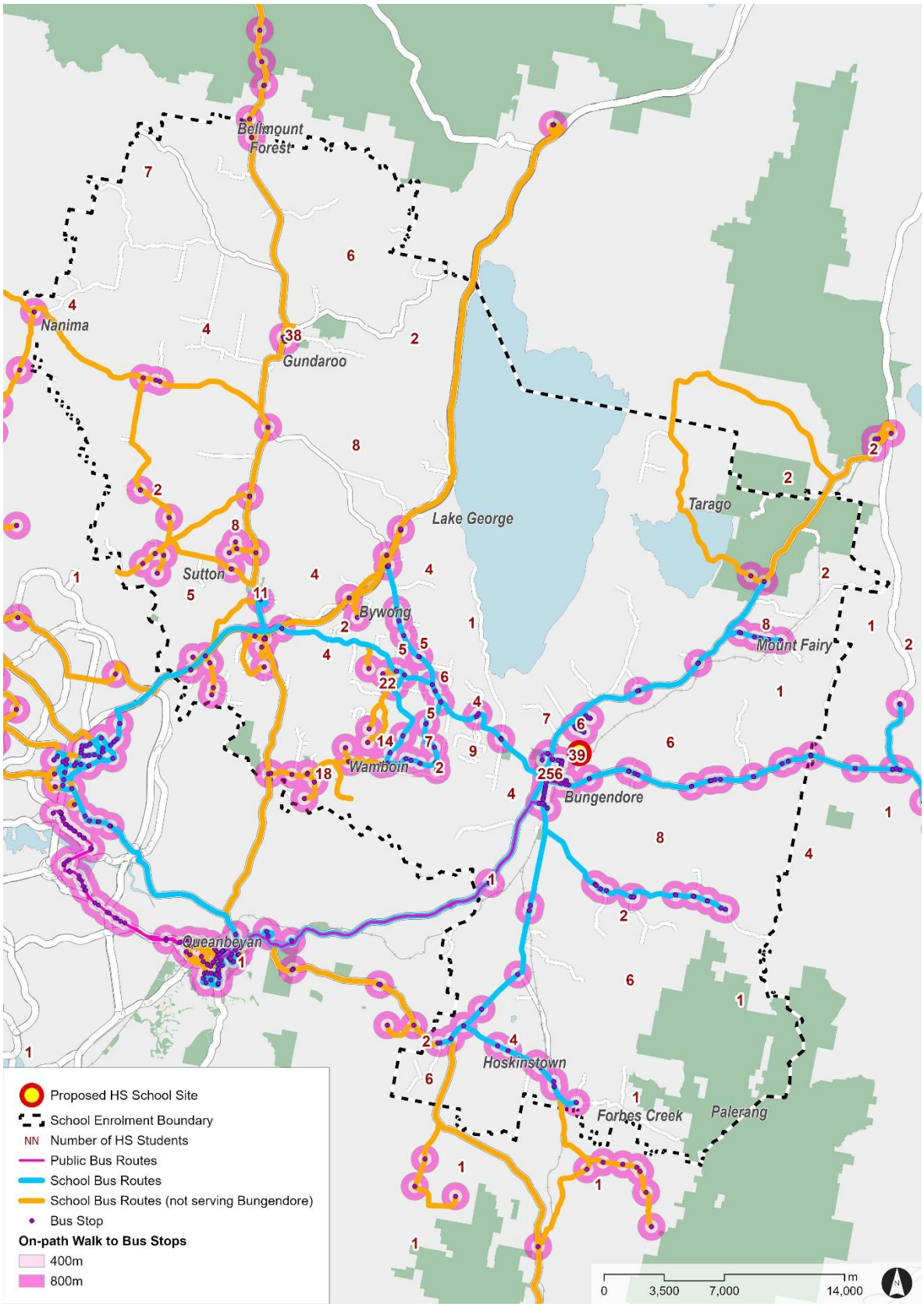


Figure 4-4: Service catchment coverage for bus routes operating within Bungendore High School intake area

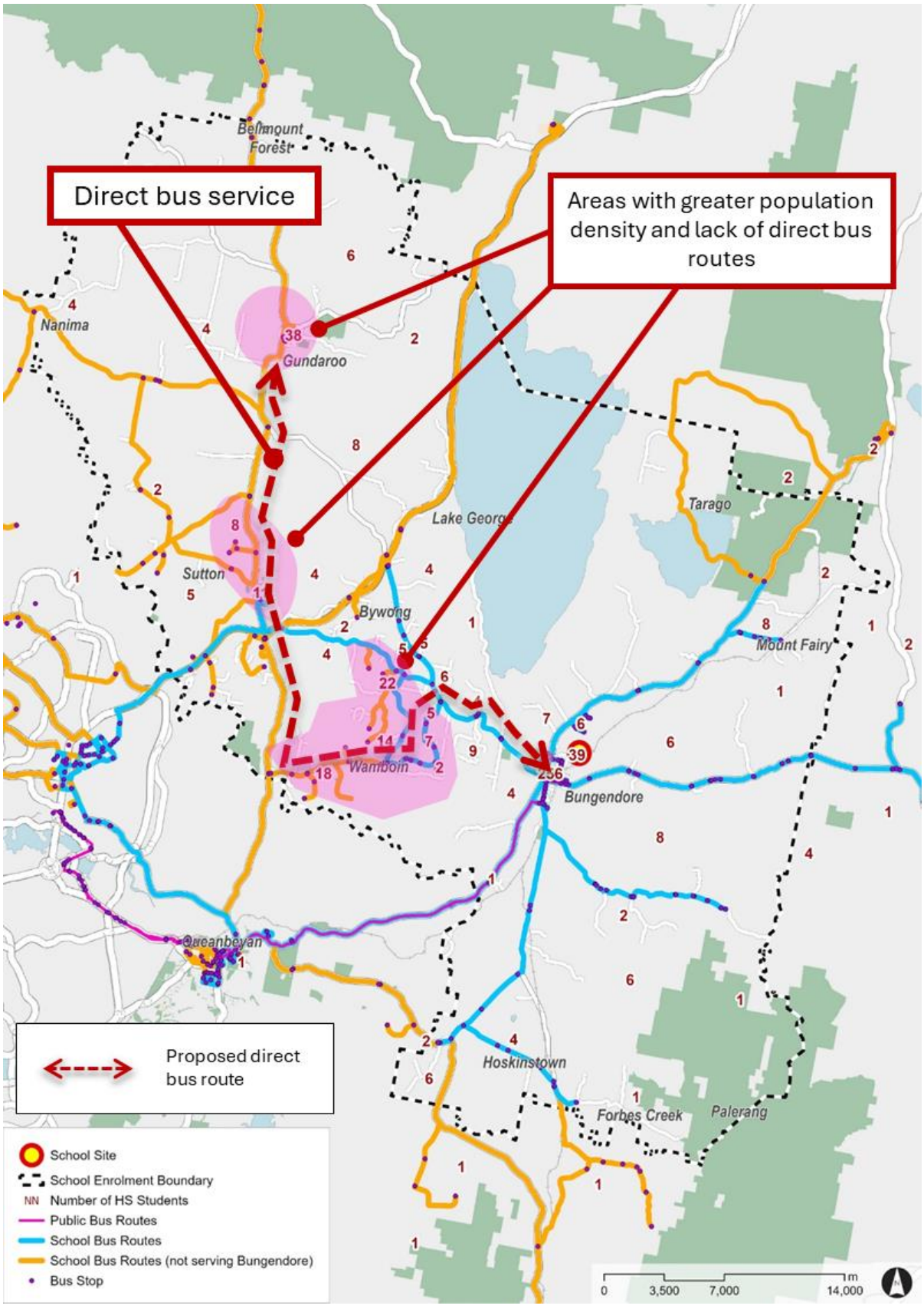


Figure 4-5: Proposed direct bus route

4.5 Private Vehicle Demand

Based on a moderate target mode share for private vehicle at 50% (refer to Section 5.2), 300 out of a total of 600 students are expected to travel to school by private vehicle, resulting in a demand of 250 cars. Note that a student vehicle occupancy rate of 1.2 is considered adequate for accounting for siblings and moderate carpooling.

The impact of the school development traffic on the surrounding Bungendore road network is explored in Table 4-4.

Table 4-4: Bungendore road network impacts

Trips associated with Bungendore High School development	
High school student population	600
Staff population	68
School drop-off period	8am-9am
School pick-up period	3pm-4pm
Student travel – car mode share AM (moderate target)	50%
Student travel – car mode share PM (moderate target)	50%
Student travel – vehicle occupancy (students/veh)	1.2
Staff travel - car mode share	85%
Student trips – AM	250 vehicles
Student trips – PM	250 vehicles
Staff trip – AM	58 vehicles
Staff trips – PM	58 vehicles
Total school related trips – AM	308 vehicles
Total school related trips – PM	308 vehicles

4.5.1 Traffic impact assessment

The *North Bungendore Planning Proposal – Traffic Impact Assessment* developed by Calibre Consulting for Queanbeyan-Palerang Regional Council in 2017, provides an overview of the transport impacts of the North Bungendore Planning Proposal (now known as Elms Grove Estate). Discussions in the report cover:

- Review of potential development yield and determination of vehicle traffic generation.
- Traffic generation and point of access.
- Traffic impacts on nearby existing intersections and proposed intersections
- Potential intersection layout arrangements and adjustment.

The proposed development layout included in the assessment is shown in Figure 4-6. It should be noted that the layout has since been updated, and during the time of the development of the study, no school was planned within the area.

Figure 4-6: Proposed development layout – North Bungendore Planning Proposal – Traffic Impact Assessment (2017)

4.5.1.1 Traffic generation

The traffic generation for the proposed development was calculated using the Palerang Council Development Control Plan (2015), which specifies a traffic generation rate of 7 trips per day per lot. This equates to a traffic generation rate of approximately 0.7 trips per hour during peak hours. Traffic generation assumptions for the residential development is outlined in Figure 4-7.

The AM period peak hour was found to be between 7AM and 8AM, and the PM period peak hour was between 5PM and 6PM.

Peak Hour	Lots	Peak Hour Traffic Generation	Direction of Travel	Split Ratio	Traffic Volumes (veh/hr)
AM	In	72	Tarago Road	90%	65
			McCusker Drive	10%	8
	Out	648	Tarago Road	90%	583
			McCusker Drive	10%	65
PM	In	648	Tarago Road	90%	583
			McCusker Drive	10%	65
	Out	72	Tarago Road	90%	65
			McCusker Drive	10%	8

Figure 4-7: Peak hour traffic generation – North Bungendore Planning Proposal – Traffic Impact Assessment (2017)

4.5.1.2 Residential development network performance

The intersection performance associated with the development is summarised by intersection in Figure 4-8. All modelled intersections show a high level of service of A in both the AM and PM peak periods, except for Tarago Road/ Ashby Drive intersection in the AM peak period, which was modelled to have a level of service of B.

Intersection	Peak Hour	Intersection Type	Maximum Delay (s)	Level of Service	95% Back of Queue (m)
McCusker Drive – Larmer Street	AM	Four way, give way	4.9	A	1.3
McCusker Drive – Eyre Street		Four way, give way	5.2	A	1.9
McCusker Drive – Ashby Drive – Keeffe Pl		Roundabout	5.2	A	2.8
McCusker Drive – McMahon Drive – Donoghoe Pl		Roundabout	8.6	A	1.6
Tarago Road – North Bungendore Road		T intersection	6.4	A	16.8
Tarago Road – Elmslea Drive		T intersection	9.9	A	22.1
Tarago Road – Ashby Drive		T intersection	14.6	B	24.5
Molonglo Street – Turallo Terrace		T intersection	12.6	A	2.8
Molonglo Street – Gibraltar Street – Bungendore Road		Roundabout	16.0	A	63.3
McCusker Drive – Larmer Street	PM	Four way, give way	4.9	A	1.6
McCusker Drive – Eyre Street		Four way, give way	5.3	A	3.2
McCusker Drive – Ashby Drive – Keeffe Pl		Roundabout	7.3	A	3.3
McCusker Drive – McMahon Drive – Donoghoe Pl		Roundabout	8.6	A	2.3
Tarago Road – North Bungendore Road		T intersection	6.4	A	20.2
Tarago Road – Elmslea Drive		T intersection	9.2	A	4.1
Tarago Road – Ashby Drive		T intersection	8.0	A	7.8
Molonglo Street – Turallo Terrace		T intersection	8.9	A	31.9
Molonglo Street – Gibraltar Street – Bungendore Road		Roundabout	17.6	A	43.4

Figure 4-8: Network performance (post development summary) – North Bungendore Planning Proposal – Traffic Impact Assessment (2017)

4.5.1.3 Network performance with Bungendore High School

As stated above, the development area considered within the *North Bungendore Planning Proposal – Traffic Impact Assessment* does not consider the impacts of a high school located on Birchfield Drive (formerly referred to as North Bungendore Road). The proposed high school replaces a portion of residential trips included in the study and adds additional vehicle trips to the network in line with the

results shown in Table 4-4 of this report. For the purpose of this assessment, 40 dwellings are assumed to be removed from the assessment in lieu of the school site. This equates to a removal of 28 vehicle trips in the peak hours ie adopting a rate of 0.7 trips per dwelling in the peak hour used in report Section 4.5.1.1.

The development trips associated with the high school do not contribute to the network peak period traffic generation because the timing for the school trips does not align with the PM peak period of 5PM to 6PM or AM peak of 7AM to 8AM. 558 total vehicle movements are added to the network between 3PM and 4PM, and 558 total movements are added to the network between 8AM and 9AM.

In order to estimate the North Bungendore background traffic associated with residential development trips outside of peak hours, precinct vehicle trips were analysed for a similar residential development in Lochinvar, NSW, which similarly consists of residential low-density homes. Intersection count surveys were undertaken at the intersection of New England Highway and Terriere Drive on Wednesday 15 February 2023. At this development, it was found that the hour following the AM peak hour (shoulder peak) was 36% of the total peak hour vehicle trips in and out of the area.

The volumes of vehicle trips entering and leaving the Lochinvar precinct in the AM period is shown in Figure 4-9. This portion is appropriate to apply as a reduction factor to traffic generation rates for the North Bungendore development, given the similar context of residential land uses and trip purposes.

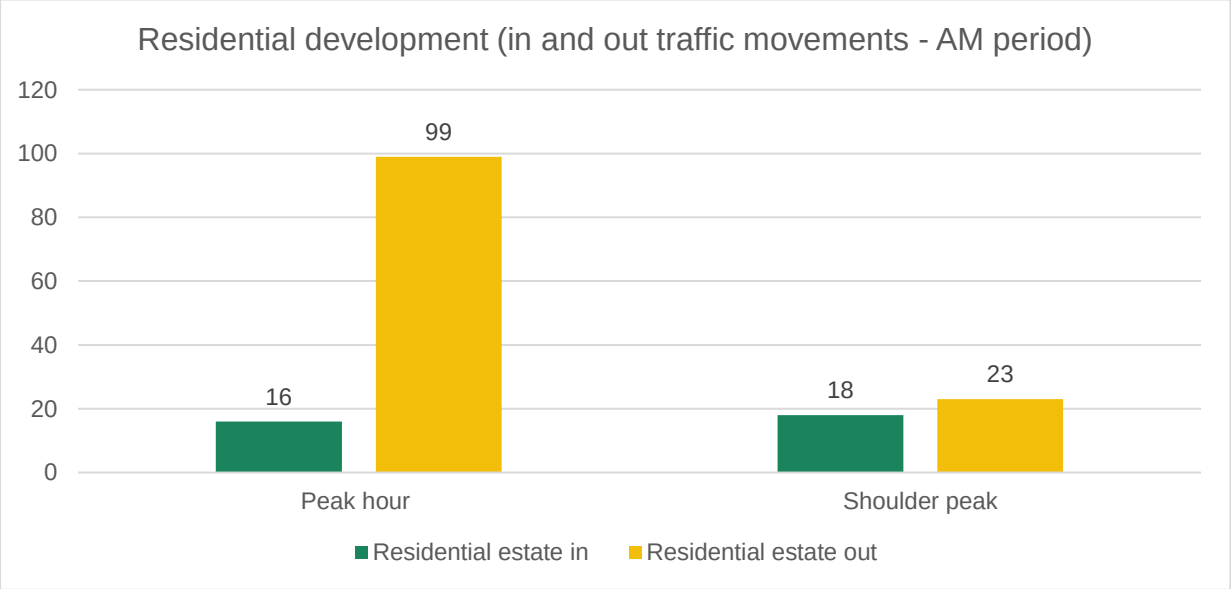


Figure 4-9: Residential development vehicle trips – Lochinvar

4.5.1.4 Moderate mode share

The analysis shows that the addition of the vehicle trips associated with the school (moderate mode share) to the shoulder-peak residential development trips results in a total vehicle movement that is 12% higher than the vehicle volumes that were modelled in the *North Bungendore Planning Proposal – Traffic Impact Assessment*.

The addition of 12% of vehicle movements is not considered to have a significant impact on the network, given that the modelled results for the intersections, particularly those close to the proposed Bungendore High School site, show an exceptionally high performance in terms of average delay and length of queue. Specifically, this includes:

- McCusker Driver/ Larmer Street – average maximum delay was found to be 4.9 seconds and 95th percentile for average queue length was between 1.3m and 1.6m.
- McCusker Drive / Eyre Street – average maximum delay was found to be between 5.2 and 5.3 seconds, and the 95th percentile for average queue length was between 1.9m and 3.2m.
- McCusker Driver / Ashby Drive / Keeffe Place – average maximum delay was found to be between 5.2 and 7.3 seconds, and the 95th percentile for average queue length was between 2.8 and 3.3m.

The results of this analysis are shown in Table 4-5.

Table 4-5: Network trips with Bungendore High School calculation – moderate mode share

Total school related trips AM (in and out of the area)	558
Total school related trips PM (in and out of the area)	558
Number of trips associated with residential development (AM) (with removed 40 dwellings)	693
Number of trips associated with residential development (PM) (with removed 40 dwellings)	693
Shoulder peak number of trips associated wit the residential development (with applied reduction factor) (AM)	247
Shoulder peak number of trips associated wit the residential development (with applied reduction factor) (PM)	247
Addition of trips associated with residential development + school development trips (AM)	805
Addition of trips associated with residential development + school development trips (PM)	805

4.5.1.5 Reach mode share

The reach mode share target includes a higher proportion of students using school buses provided by Transport for NSW. The provision of school buses was supported by the Transport for NSW Bus Planning Team when discussed during Transport Working Group meeting #1. A mode share that lies somewhere between the reach mode share and the moderate mode share is therefore considered achievable. Analysis of vehicle movements associated with the reach mode share is discussed below.

The analysis shows that the addition of the school related trips (reach mode share) to the shoulder-peak residential development trips results in a total vehicle movement in the area that is less than the volumes that were modelled in the *North Bungendore Planning Proposal – Traffic Impact Assessment*. The results of this analysis are shown in

Table 4-6.

This assessment shows that the addition of the school related traffic in the network will result in a level of service equal to or better than the findings of the *North Bungendore Planning Proposal – Traffic Impact Assessment*.

No intersections bounding the school site have been considered in the assessment, however it can be assumed that the high level of service results translate to the intersections of Birchfield Drive with Harp Avenue and Winyu Rise, and Bridget Avenue with Harp Avenue and Winyu Rise.

Table 4-6: Network trips with Bungendore High School calculation – reach mode share

Total school related trips AM (in and out of the area)	408
Total school related trips PM (in and out of the area)	408
Number of trips associated with residential development (AM) (with removed 40 dwellings)	693
Number of trips associated with residential development (PM) (with removed 40 dwellings)	693
Shoulder peak number of trips associated wit the residential development (with applied reduction factor) (AM)	247
Shoulder peak number of trips associated wit the residential development (with applied reduction factor) (PM)	247
Addition of trips associated with residential development + school development trips (AM)	655
Addition of trips associated with residential development + school development trips (PM)	655

The moderate mode share is not expected to significantly impact the modelled performance of the road network. At the same time, the expectation for the mode share on day 1 is somewhere between the moderate and the reach targets. This means the expected traffic volumes are likely to be below the modelled traffic volumes, therefore the level of service achieved in the model will not be worsened by the school.

5 Mode Share Targets

5.1 Benchmark

The existing Bungendore High School mode share measured in November 2024 is shown in Figure 5-1. The results show that active transport is currently between 24% and 29% (higher in the afternoon pick-up period), and bus mode share is around 30%. It should be noted that the site is located more centrally in Bungendore, facilitating students walking and riding.

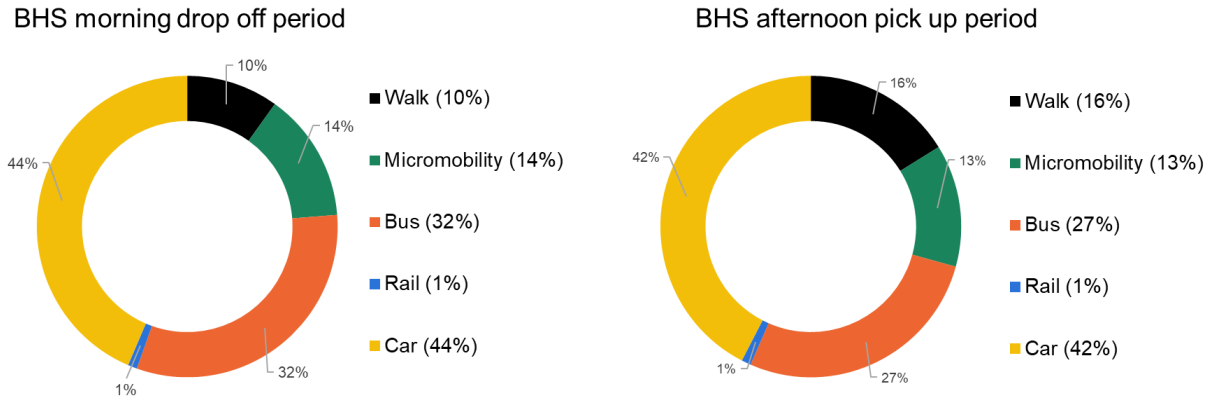


Figure 5-1: Existing Bungendore High School mode share

Mode shares for high schools located within similar contexts to the future Bungendore High School site in NSW ie Irrawang High School, Hunter River High School and Rutherford Technology High School are shown in Figure 5-2. For these schools, high bus mode share was consistently achieved because of good service coverage and frequency. This gives an indication of the bus mode share that can be achieved at Bungendore High School if sufficient service coverage is provided by transport for NSW.

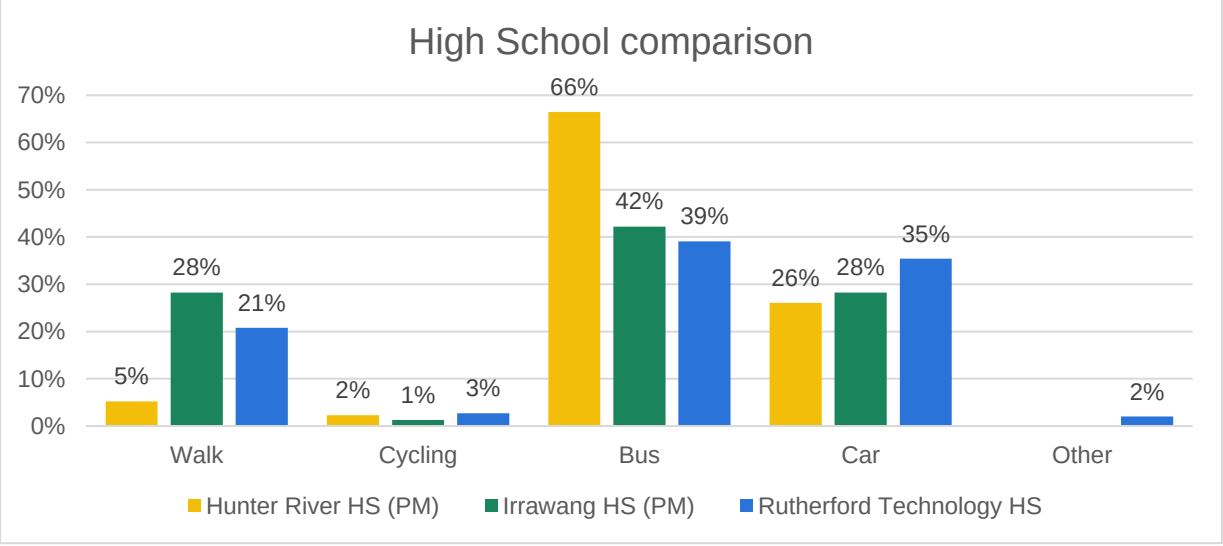


Figure 5-2: Benchmark high schools mode share

5.2 Students

Mode share scenarios for Bungendore High School have been developed based on future student distribution for 2027 school opening year in relation to transport accessibility for walking, cycling, public transport, private vehicle. This includes consideration of distance from school, access to bus services and eligibility to the SSTS scheme.

The mode share scenarios are defined as follows:

- Baseline mode share: Reflects the travel patterns of students at 2027 school opening year without any major interventions in place.
- Moderate target mode share: Implementation of transport infrastructure recommendations to enable a shift towards public transport (bus travel), walking and cycling. This scenario factors in:
    - » Extension of existing public and school buses within Bungendore to arrive/depart near the school
    - » Alignment of schedule timings of feeder school bus routes in outer regions to connect with bus routes serving Bungendore
    - » Provision of a direct bus service to the school
    - » Promotion of bus services.
- Reach target mode share: Sustainable mode share is maximised, minimising the dependence on kiss and drop zone and reducing overall road network congestion during school pick-up and drop-off periods. This scenario factors in:
    - » Continued promotion of bus services
    - » Inclusion of active transport encouragement programs and carpool programs
    - » Implementation of a new school bus route servicing areas with high population density and lacking direct bus service to Bungendore (such as Gundaroo and Sutton).

The mode share scenario results are presented in Table 5-1,

Table 5-2 and Table 5-3.

Note that the mode share targets, particularly for active transport, is subject to change depending on the outcomes of discussions with the school Principal and Transport Working Group.

Table 5-1: Baseline student mode share

Travel mode	No. of students	% of students
Walk	35	6%
Cycle	7	1%
Public transport (Bus)	176	29%
Private vehicle	382	64%
Total	**600**	**100%**

Table 5-2: Moderate target student mode share

Travel mode	No. of students	% of students
Walk	47	8%
Cycle	18	3%
Public transport (Bus)	238	40%
Private vehicle	297	50%
Total	600	100%

Table 5-3: Reach target student mode share

Travel mode	No. of students	% of students
Walk	58	10%
Cycle	30	5%
Public transport (Bus)	300	50%
Private vehicle	212	35%
Total	600	100%

5.3 Staff

A total of 68 full time equivalent staff is forecasted to be employed at Bungendore High School, and all staff is expected to travel to school via private vehicle (private vehicle mode share of 100%).

Mode share targets define the desired method of access to the school site in enabling a shift towards walking, cycling and public transport. Staff mode share targets and rationale for each mode are outlined below in Table 5-4.

Table 5-4: Staff Mode Share Targets Breakdown

Mode	Number of staff	Percent of staff	Rationale
Walk	0	0%	• Bungendore future development area is proposed to be low-density residential, with low chance of staff living within 400 metres of the site.
Cycling	3	5%	• Provision of end of trip facilities will encourage staff to ride to work from Bungendore.
Public transport	0	0%	• Existing and proposed public transport networks are considered disconnected and inefficient for staff to choose bus and/or train travel.
Car, as driver	58	85%	• Majority of staff will choose private vehicle as their mode of travel due to convenience and variability in time of travel.
Car, as carpool passenger	6	10%	• Staff who live close together or on the way to the site will choose to carpool together.
Total	**68**	**100%**	

6 Site Access Arrangements

Figure 6-1 presents a masterplan for the new Bungendore High School and shows the transport facilities within and surrounding the school site. The on-site and surrounding transport facilities are discussed in Sections 6.1 to 6.7.

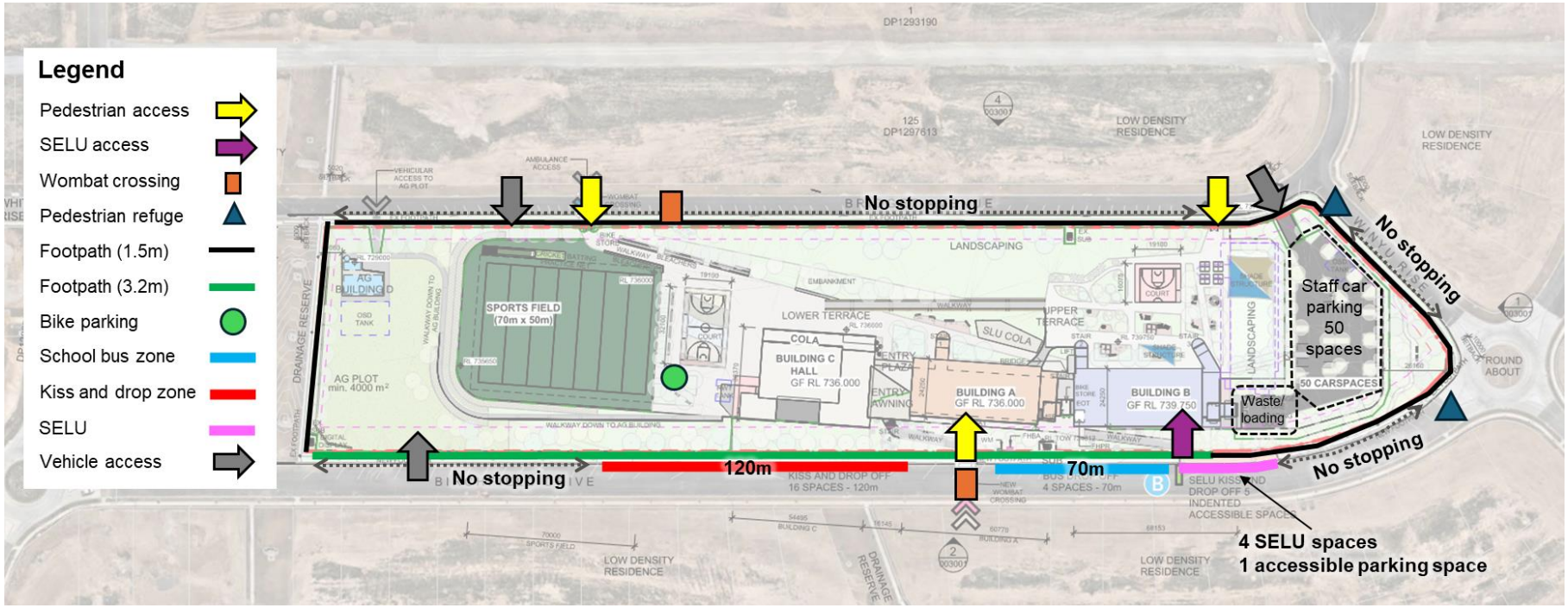


Figure 6-1: Bungendore High School masterplan

6.1 Pedestrian Access

Pedestrian access to the school is available at northern and southern school frontages, as shown in Figure 6-1. Four pedestrian access points are proposed for the school site, including:

- Main entrance on Birchfield Drive, providing convenient access to proposed bus zone and kiss-and-drop zone
- Accessible entrance (step-free access) on Birchfield Drive, close to accessible pick-up/ drop-off zone
- Secondary entrances (2x) on Bridget Avenue, located at each end of the school frontage.

Supporting infrastructure such as wombat crossings are proposed in proximity to the main entrance on Birchfield Drive and secondary entrance on Bridget Avenue located towards the north-west end of the school site.

6.2 Bicycle/ Scooter Access and Parking

As cycling is permitted in NSW on footpaths for students up to the age of 16, most students can access the school from all sides using the surrounding pedestrian and cycling networks.

The Palerang Development Control Plan 2015 specifies that bicycle parking be considered in all development, however specific parking provision rates are not provided. Bicycle parking requirements based on forecasted demands, aligning with the mode share targets, are outlined in Table 6-1.

Table 6-1: Bicycle parking requirement based on forecasted demand (reach target mode share)

Description	
Number of students	600
Student - Reach target cycling mode share (Refer Section 5.1)	5%
Number of staff	68
Staff – Target cycling mode share (Refer Section 5.3)	5%
Total bicycle parking requirements	34 spaces (30 student parking + 4 staff parking)

The school masterplan (refer to Figure 6-1) shows bicycle storage area proposed to be provided on school site adjacent to the sports courts, with access via the north-west pedestrian entry.

6.3 End of Trip Facilities

End of trip facilities (e.g. showers and lockers) are crucial for supporting sustainable commuting choices (e.g. cycling to work for staff). End of trip facilities provision requirements are not specified in the Palerang Development Control Plan 2015. Two shower facilities have been proposed in alignment with Green Star requirements. This is proposed within Building A (refer to Figure 6-1) adjacent to the staff and administration area.

6.4 Bus Access

A school bus zone is proposed on the northern side of Birchfield Drive, within proximity to the school main pedestrian entrance.

The bus zone is located such that it is 'downstream' of the wombat crossing, meaning that students who are using the crossing are not exposed to the forward motion of the bus when it leaves the bus zone. This provides a greater safety outcome for students.

Appendix A illustrates the swept path assessment for bus movement along Birchfield Drive. The assessment confirms that Birchfield Drive can accommodate buses, demonstrating sufficient manoeuvring space for turns and navigation along the roadway.

6.4.1 School Bus zone

Based on reach target mode share outlined in Section 5.1, analysis was undertaken to determine the number of bus spaces required to service the school. Assumptions used in this calculation are outlined in Table 6-2 and encompass:

- Dwell time per bus as 5 minutes
- Each bus bay to service 4 buses over a 20-minute period
- School bus services are expected to service other public schools in the Queanbeyan region. As such, up to 40% of the total bus capacity is assumed to be allocated for students from Bungendore High School.

This results in a total of 4 bus pick-up/ drop off spaces are required, with a total bus zone length of 70 metres.

Table 6-2: School bus zone requirement

Description	
Number of students enrolled	600 students
Reach target bus mode share for students (Refer Section 5.1)	50%
Bus service demand	300 students
Bus passenger capacity	60 passengers
Bus occupancy rate by Bungendore HS students*	40%
Number of buses required	5 buses
Bus dwell time per pick up	5 mins
Service drop-off and pick-up period	20 mins
Bus space capacity (per drop-off and pick-up period)	4 buses
Bus zone space required	4 spaces
Bus zone length required	70m
Bus zone width	3.1m (as per the Transport for NSW Bus Infrastructure Guide)

6.5 Service Vehicle Access

Vehicular access to the school is provided via entry points on Bridget Avenue and Birchfield Drive, as shown in Figure 6-1. On Bridget Avenue, vehicular access points are provided at each end of the school frontage, whereby the north-east entry provides access to staff-only car park and north-west entry provides access for emergency vehicles through the sports field. On Birchfield Drive, a vehicular entry is proposed at the western end of the school frontage, which provides access to AG Plot.

6.5.1 Waste and Delivery

A servicing area for refuse collection and loading is located on site and is accessible via the vehicular entry to the staff carpark from Bridget Avenue. Swept path assessment for the waste and loading area access is shown in *Figure 6-2* and *Figure 6-3*.

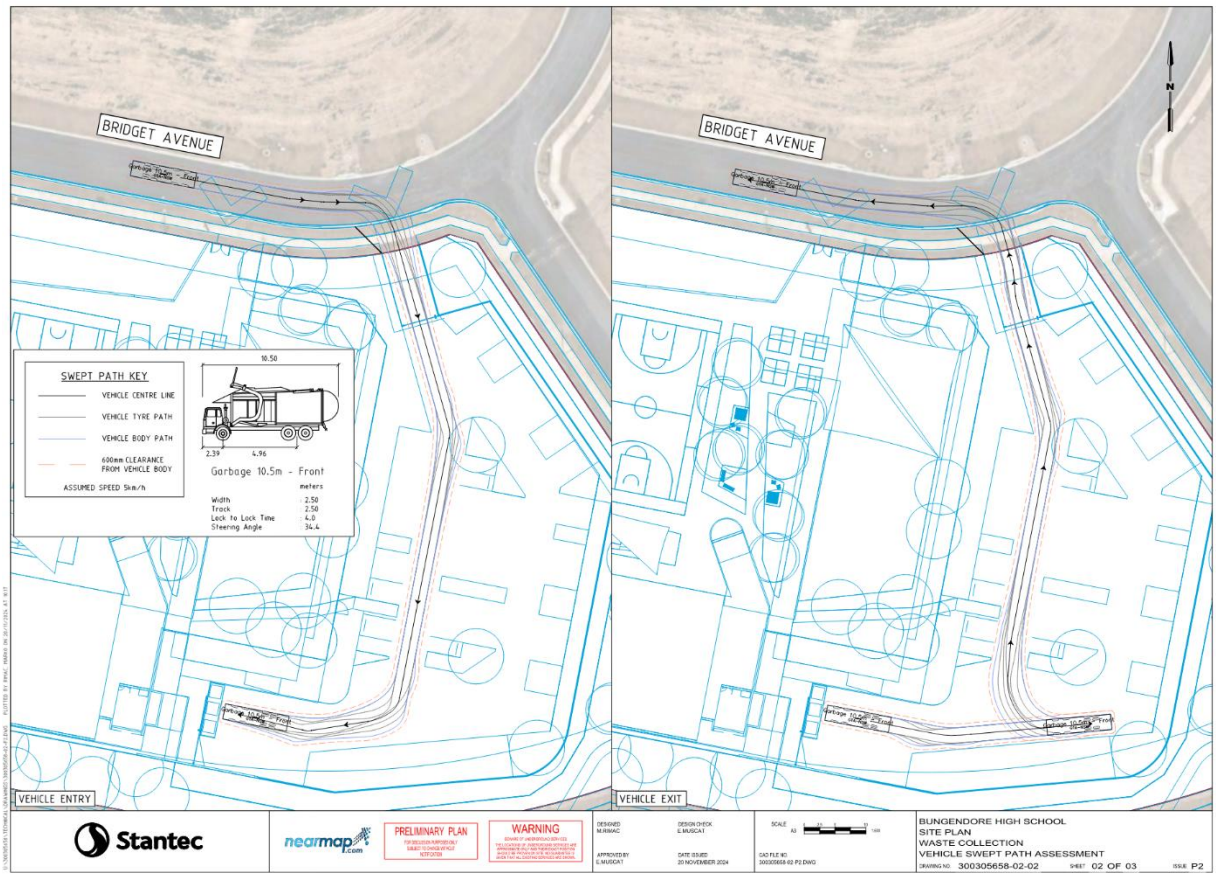


Figure 6-2: Waste vehicle swept path

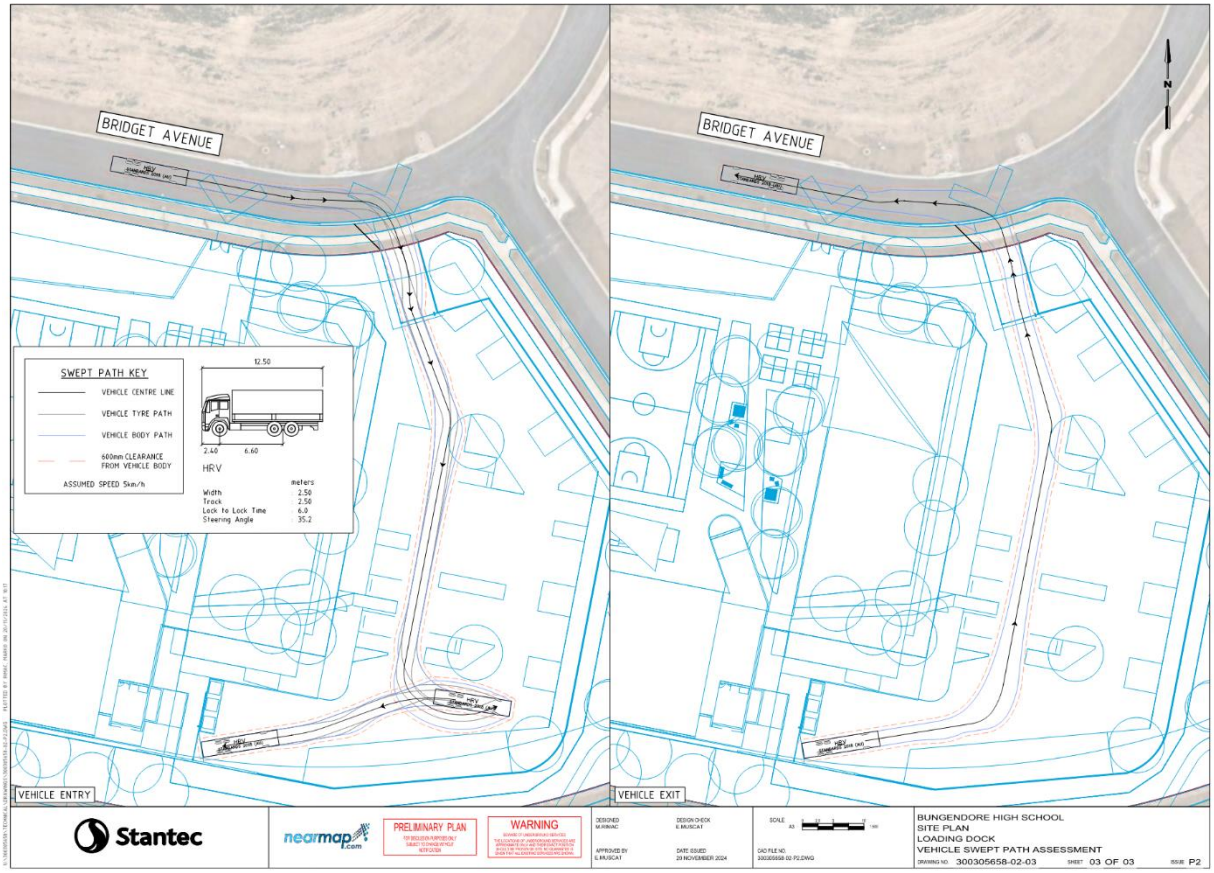


Figure 6-3: Delivery vehicle swept path

Waste truck operations are expected to occur entirely outside of primary school operation time.

Swept path assessment for the waste vehicle (size = 2500 (W) x 8800 (L)) shows that trucks will be able to traverse the roundabout at the intersections of Birchfield Drive with Winyu Rise and Harp Avenue, is included in **Appendix A**.

6.5.2 Emergency Vehicle Access

Emergency vehicle access is proposed on Bridget Avenue, adjacent to the sports field.

6.6 Car Parking

The Palerang Development Control Plan 2015 does not specify a parking rates for development.

As per the staff target mode share shown in **Section 5.3**, there is a demand for 58 parking spaces to cater for high school staff. On-site car parking for staff is located at the eastern end of the school site, accessed via Bridget Avenue, with a total of 50 car spaces being provided in the school masterplan (refer to **Figure 6-1**). The additional 8 parking spaces are proposed to be captured in the surrounding street network. Given that the proposed surrounding land uses is predominantly low-density residential homes, there will be ample space for 8 additional staff to park. Council did not object to this off-street parking provision when discussed in the Transport Working Group Meeting (2 December 2024). Refer to Appendix B.

During Transport Working Group Meeting #1, Council stated that accessible parking is to be provided for the site. The project is providing one on-street accessible parking space adjacent to the SELU pick-up and drop-off spaces on Birchfield Drive. Refer to Figure 6-1.

6.7 Pick-up/ Drop-off

The assumptions made in calculating the required number of kiss and drop spaces to service the subject school with a total enrolment of 600 students are provided in Table 6-3. The reach target mode share (outlined in Section 5.2), and a car occupancy of 1.2 students per vehicle have been employed. This results in a total of 12 kiss and drop spaces required and 72 metres of kiss and drop kerbside zoning required.

Table 6-3: Kiss and drop requirement

Description	
Number of students enrolled	600 students
Reach target mode share for students travelling via private vehicle	35%
Number of students using private vehicle	212
Dwell time per pickup / drop off	1 min
Pick up / drop off length of time	15 mins
25-minute capacity per K&D car space	15 vehicles
Assumption of students per vehicle	1.2 students per vehicle
Number of vehicles picking up and dropping off	175 vehicles
Number of K&D spaces required	12 spaces
Metres of K&D required	72m

During Transport Working Group Meeting #1, Council stated a preference for a longer kiss and drop zone in alignment with the high private vehicle dependence and queueing that is observed and reported at Jerrabomberra High School in the Queanbeyan-Palerang LGA. A kiss and drop zone of 120 metres is therefore included as part of the project. This can cater for 20 pick-up and drop-off spaces.

The SELU pick-up and drop-off zone is proposed on Birchfield Drive, east of the bus zone, catering for 4 accessible parking spaces as shown in Figure 6-1. Note that one on-street accessible parking space is also provided in addition to the 4 spaces for visitors, as explained in Section 6.6.

7 Mitigation measures

Table 7-1 details a series of mitigation measures to support sustainable and safe access to the school site and minimising impact on the surrounding transport network.

Table 7-1: Mitigation measures

Mitigation number	Aspect	Location	Mitigation measure	Reason for mitigation measure	Responsible party	Student demand served
1	Walking and cycling	Birchfield Drive and Bridge Avenue	Provide two wombat crossings, one on Birchfield Drive and one on Bridget Avenue	Provides a prioritised pedestrian crossing and ensure safe walking access for students. The provision of a raised threshold further acts as a traffic calming intervention in slowing down vehicle speeds.	DoE	194 students
2	Walking and cycling	Birchfield Drive / Winyu Rise roundabout and Bridget Avenue / Winyu Rise roundabout	Provide formalised refuge crossings with barrier kerb	Ensures safer crossing for pedestrians with formalised waiting space at the refuge island, for east-west crossing movements	DoE	16 students
3	Walking and cycling	Birchfield Drive, Vinyu Rise and Bridget Avenue	Provide missing footpaths within the immediate vicinity of the school site on Birchfield Drive, Vinyu Rise and Bridget Avenue. • School frontage: 3.2m wide footpath as per Walking Space Guide Type 3 Footpath (Local footpath – High activity) • Non-school frontage: 1.5m wide footpath	Ensures walking and cycling access for students to the school site in all directions.	DoE	194 students
4	Cycling	School site	Provide secure sheltered bicycle storage areas (up to a total of 34 bicycle parking spaces) close to the school gates on	Student and staff bicycle parking spaces based on forecasted demand as per mode share targets.	DoE	-

Mitigation number	Aspect	Location	Mitigation measure	Reason for mitigation measure	Responsible party	Student demand served
			Birchfield Drive (main entrance) and Bridget Avenue.			
5	Public transport	Birchfield Drive	Provide a bus zone along Birchfield Drive (on the school side) for four standard 12.5m buses and coaches for excursions, with a total length of 70m. The location of the proposed bus zone is downstream of the wombat crossing. Arrival of buses to be staggered to manage bus demand during the peak hours.	Bus zone requirement based on forecasted demand as per mode share targets, ensuring efficiency of drop-off / pick-up operation.	DoE	-
6	Public transport	-	Continue conversations with Transport for NSW Bus Planning Team to better align existing school bus services with adjusted school bell times. This includes a proposed route connecting from Gundaroo, Sutton and Wamboin (refer Figure 4-5).	The placement of bus stops in proximity to school site reduces walk distances and promote bus usage. Coordination with bus schedules to align with school bell times.	DoE	-
7	Private vehicle	Birchfield Drive	Kiss and drop zone (120m) and accessible kiss and drop (4 spaces). along school frontage on Birchfield Drive. Refer to mitigation measure #9 regarding additional public visitor accessible parking space.	Kiss and drop zone length (120m) is based on advice from QPRC to provide additional capacity in alignment with observations made at Jerrabomberra High School.	DoE	-
8	Private vehicle	School site	Provide staff parking within the school site (50 spaces). No on-site parking is to be provided for students.	To reduce overspill of staff parking onto surrounding residential streets.	DoE	-
9	Private vehicle	Birchfield Drive	Provide one accessible parking space on Birchfield Drive for use by parents/ guardians/ visitors to the school.	To promote accessibility and inclusion, and in alignment with advice from QPRC.	DoE	-
10	Operations	-	Within the first 12 months of operation, appoint a School Travel Coordinator and establish a School Transport Committee.	To address operational and safety concerns at the school site.	DoE	-
11	Operations	-	Develop and distribute the Travel Access Guide to the school community prior to the school opening.	To inform the community on the travel choices available for the school site, as well as pick-up and drop-off procedures.	DoE	-

Mitigation number	Aspect	Location	Mitigation measure	Reason for mitigation measure	Responsible party	Student demand served
12	Operations	-	A School Transport Plan must be prepared to the satisfaction of the DoE Transport Planning Team.	To address ongoing operational and safety concerns at the school site.	DoE	-
13	Operations	-	The School Transport Plan is to be reviewed on an annual basis for the first two years and updated (if required) to the satisfaction of the DoE Transport Planning team to ensure active and sustainable travel measures are implemented.	To address ongoing operational and safety concerns at the school site.	DoE	-
14	Signs and linemarkings	School site	Prior to the commencement of operation, all required School Zone signage, speed management signage and associated pavement markings must be installed, inspected by TfNSW and handed over to TfNSW.	To ensure safe operations of roads around the site.	DoE	-

7.1 Evaluation of Environmental Impacts and conclusion

Potential impacts can be appropriately mitigated or managed to ensure that there is minimal impact on the locality, community and/or the environment.

The following existing issues are addressed by the mitigation measures:

- Lack of crossing facilities in the road network surrounding the school site
- Gaps in the walking network in the road network surrounding the school site.

The following is addressed by the development activity:

- Ability for students to use sustainable modes of travel ie by providing bike parking
- Ability for students to safely access school bus services ie by providing school bus zone on Birchfield Drive and improving coverage and services
- Ensuring safe and efficient operation of the school kiss and drop zone
- Ensuring that students and visitors with mobility issues can safely and efficiently access the school site
- Ensuring that a mechanism is in place for ongoing review and update of the School Transport Plan.

Appendices

Appendix A Swept path assessment

Appendix B Transport Working Group meeting minutes

Meeting Notes

Bungendore High School Transport Working Group

Project:	Bungendore High School
Date/Time:	2 December 2024 / 11:30am
Location:	Online
Next Meeting:	January 2025

Present

Jack Bruderlin	School Infrastructure NSW
Tom Kennedy	School Infrastructure NSW
Russell Humble	School Infrastructure NSW
Santi Botross	School Infrastructure NSW
Mel Lausz	Transport for NSW
Salma Cook	Transport for NSW
Josh Tang	Transport for NSW
Andrew Palmer	Queanbeyan-Palerang Regional Council
Amul Gaire	Queanbeyan-Palerang Regional Council
Jacky Woolhouse	Queanbeyan-Palerang Regional Council
Hamd Abro	Queanbeyan-Palerang Regional Council
Norman Johnston	Colliers

Distribution

Attendees and Apologies

Minutes

Item:	Action:
Stantec is to send Andrew Palmer the slide pack, including the request for further information on the proposed active transport routes for Bungendore.	Stantec to send slide pack. Andrew to enquire within Council.
Stantec and SINSW to continue conversations with Transport for NSW about bus scheduling to suit the needs of Bungendore Schools. Transport for NSW was generally supportive of the need provide school bus services to cater for the opening year of operation.	SINSW, Stantec and TfNSW.

Item:	Action:
As seen in Jerrabomberra, schools in the area have high dependence on private vehicles. Length of kiss and drop zone is to be increased.	SINSW and Stantec to address.
Accessible parking provision to be considered for the school.	SINSW and Stantec to address.
Stantec presented the staff numbers (68 staff) as well as the on-site staff parking provision of 50 spaces. Both Transport for NSW and Council did not raise any concern for the availability of on-site parking for the site.	-
Stantec presented the provision for special education learning unit (SELU) pick-up and drop-off (4 spaces on Birchfield Drive). Both Transport for NSW and Council did not raise any concern with the capacity of the SELU.	-
It was established that due to topographical constraints and the location of the school buildings, Birchfield Drive is considered the most appropriate location for kiss and drop and bus zone. Due to the width of Bridget Avenue, “no stopping” restriction is recommended on the southern side of Bridget Avenue adjacent to the school.	-
It is preferred that the bus zone is separated from the kiss and drop zone on different streets.	SINSW and Stantec to consider.
Location of school bus zone, kiss and drop and wombat crossing to be reconsidered. Wombat crossing should not be downstream of the bus zone.	SINSW and Stantec to address.
All wombat crossings are to be built with appropriate lighting.	SINSW to address.

Meeting adjourned time – 12:30pm

Foregoing Statement

Yours sincerely,

Stantec Australia Pty Ltd

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Stantec is a global leader in sustainable architecture, engineering, and environmental consulting. The diverse perspectives of our partners and interested parties drive us to think beyond what's previously been done on critical issues like climate change, digital transformation, and future-proofing our cities and infrastructure. We innovate at the intersection of community, creativity, and client relationships to advance communities everywhere, so that together we can redefine what's possible.