ARUP

NSW Department of Education

New High School for Googong

Transport Assessment

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Job number 297286

Arup Australia Pty Ltd | ABN 76 625 912 665

Arup Australia Pty Ltd
Level 5
151 Clarence Street
Sydney
NSW, 2000
Australia
arup.com

ARUP

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Issue Document Verification with Document ☑

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Executive Summary

This Transport Assessment provides a review of the design and assessment of the traffic, parking and transport impacts of the proposed development of the new high school for Googong. The school is proposed to have a capacity of 700 students and 55 staff.

The transport strategy for the site prioritises active transport and public transport over private vehicle travel for both staff and students. This is consistent with NSW state government policy and the NSW Department of Education's (DOE) ongoing commitment to promote sustainable travel for its schools.

The transport strategy to date has been presented to Colliers, SINSW, Queanbeyan-Palerang Regional Council and Transport for NSW (TfNSW) in three Transport Working Group (TWG) meetings held on 18 October 2023, 3 November 2023 and 31 October 2024. A Preliminary Construction Traffic Management Plan (PCTMP) has been prepared alongside this Transport Assessment.

Key findings of this Transport Assessment are:

- The majority of students (83%) will live within walking or cycling distance of the school, highlighting the potential for a high active transport mode share. Adequate footpath widths and safe crossing facilities will be required to realise this potential.
- Most students in the Googong Township live too close to school to be eligible for free travel under the School Student Transport Scheme (SSTS), however they can apply for a School Term Bus Pass for discounted travel. There is potential to divert existing bus routes in Googong to stop at the high school and to introduce a shuttle bus service for north-eastern neighbourhoods of Googong who live outside walking distance. These public transport improvements are subject to further discussions with TfNSW.
- Traffic modelling based on a desktop assessment of traffic flows near the site indicates that adjacent intersections will operate at or above Level of Service B.

The school will provide measures to encourage sustainable travel through three scenarios with set targets for mode share, as well as formal bicycle parking for staff and students, improved crossings and footpaths.

This activity includes the following:

- Five raised pedestrian crossings on roads adjacent to the school. This includes two crossings on Wellsvale Drive, one on Observer Street, one on Glenrock Drive and one on Harvest Street.
- Footpath widening to support safe pedestrian movements at the Bus Zone and Kiss and Drop locations.
- 17 formal Kiss and Drop spaces located on Glenrock Drive. This is located around 90m away from Observer Street to minimise conflicts at the intersection.
- One car parking space per staff will be provided on-site (55 spaces total) to ensure parking demand is contained on-site. However, staff will be encouraged to walk, cycle, use public transport and carpool where possible.
- Waste collection and servicing will be undertaken within the school boundary, with access via the staff car park driveway off Wellsvale Drive.
- Deliveries to the school will be undertaken within the school boundary, with access via a driveway off Observer Street.

This Transport Assessment determines that the proposed activity will not have a significant effect on the environment. All impacts assessed can be adequately mitigated through recommended measures.

1. Introduction

This Transport Assessment has been prepared by Arup on behalf of the NSW Department of Education (DoE) to inform a Review of Environment Factors (REF) for the proposed construction of a new high school for Googong (the activity) located at 200 Wellsvale Drive, Googong, NSW (the site).

The activity relates to the construction and operation of a new educational establishment to serve the needs of the growing Googong township by accommodating up to 700 students from years 7 – 12. Specifically, the activity includes the following:

- Building A, a three to four-storey building in the northern portion of the site, fronting Glenrock Drive, which will accommodate learning spaces and administrative functions of the school.
- Building B, a three-storey building in the north-west portion of the site, fronting Observer Street, which will accommodate learning spaces and administrative functions of the school.
- Building C, fronting Glenrock Drive, which will accommodate a school hall / gymnasium and canteen.
- Outdoor recreation areas, cricket nets, playing court and playing field.
- Main pedestrian entry established from Glenrock Drive.
- Car park and accessible pedestrian entry from Wellsvale Drive.
- Service entry from Observer Street.
- Associated civil works, earthworks, servicing and landscaping.
- Associated off-site works such as the construction of pedestrian crossings, drop off and pick up bays and a bus stop.
- School identification and wayfinding signage.

The REF describes the activity, documents the examination and consideration of all matters affecting, or are likely to affect, the environment, and details safeguards to be implemented to mitigate impacts.

The Department of Education is the determining authority for the project under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The site is identified in Figure 1 and the activity is shown in Figure 2.

Figure 1. Site Location Plan (Source: Mecone)

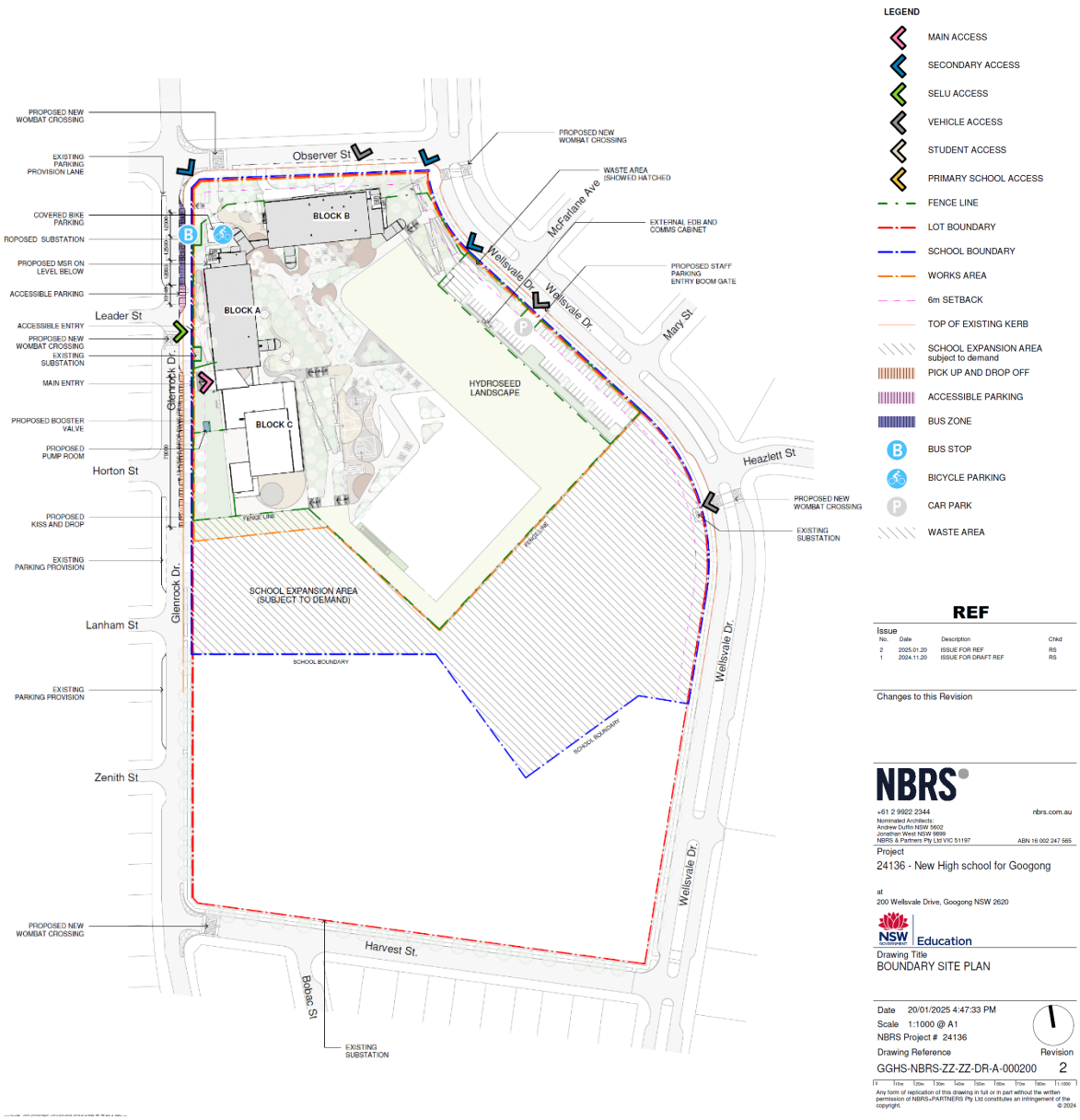


Figure 2. New high school for Googong – indicative Site Plan, subject to detailed design (Source: NBRS, 20/01/2025).

Googong is a new release area within the Queanbeyan-Palerang Local Government Area (LGA), located approximately eight kilometres south of Queanbeyan and 17 kilometres southeast of the Canberra Central Business District (CBD). Googong Reservoir, a significant waterbody, is located approximately 3 kilometres east of the subject site. Canberra Airport is located approximately 12 kilometres north of the subject site.

The site is legally described as Lot 829 in Deposited Plan 1277372. The proposed new high school site within this Lot has an area of approximately 5.84 hectares.

The site is currently zoned as R1 General Residential in the Queanbeyan-Palerang Local Environmental Plan (LEP) 2022 and is located within Neighbourhood 2 of the Googong Masterplan, within the Googong DCP 2010.

The site is surrounded by low-density residential development, recreational areas and a future local centre adjoining the site to the north.

The site is currently vacant with no existing structures and has been cleared of all trees and native vegetation. The site has an approximately 12-metre fall from the southwest corner of the site at RL ~763.550m Australian Height Datum AHD to the northeast at RL ~751.570m AHD.

2. Strategic context

This section reviews the staging and timeline for the school's development, alongside relevant state and local policy documents, including the Queanbeyan-Palerang Regional Council Integrated Transport Strategy, the Googong Development Control Plan (DCP), the Neighbourhood 2 Township Traffic Report, and the Googong Masterplan.

These documents outline the road hierarchy, cross-sections of road designs, as well as proposed public transport routes that service the masterplan area.

2.1 Education rationale and planning pathway

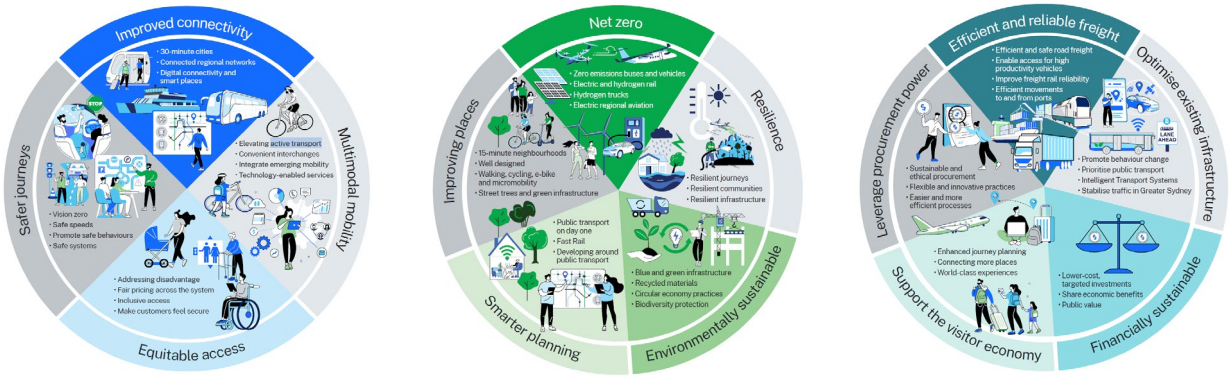
Growth in the NSW region of the Queanbeyan-Palerang anticipates the 2035 population of Googong to be approximately 16,000 people with 5,550 dwellings added to the Urban Release Area. This requires the development of new educational facilities to accommodate the growing population and their families. This includes the recently opened Jerrabomberra High School and future schools in Googong and Bungendore. Googong is currently serviced by the newly completed Googong Public School and one private primary school. The new high school for Googong will be the first public high school to accommodate years 7 – 12 within the township.

The development of the school provides an opportunity to explore placemaking opportunities to strengthen the identity of Googong and surrounding areas. Schools are an important public asset whose facilities are used by the wider community, providing residents with a sense of social place and belonging through delivery of quality social infrastructure.

2.2 Planning context

2.2.1 Future Transport Strategy (Transport for NSW, 2022)

The Future Transport Strategy identifies actions to achieve three strategic outcomes shown in Figure 4.



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Enabling economic activity – Transport will support NSW to achieve its economic potential.

Figure 3. NSW Future Transport Strategy strategic outcomes (Source: Future Transport for NSW, 2022).

The strategy outlines the following objectives relevant to travel to schools:

- Provide safer streets which allow more children to walk or cycle to school
- Improve neighbourhood liveability and reduce road congestion alongside new housing

- Provide new walking connections to schools and safe infrastructure for cycling
- Improve parking provision and management to encourage sustainable travel behaviour

2.2.2 Active Transport Strategy (Transport for NSW, 2022)

The Active Transport Strategy outlines the following walking and cycling objectives:

- Improve safe walking and bike riding options for travel to and from school
- Double the number of children walking or riding to school through behaviour change interventions
- Trial Active Travel to School Program in collaboration with NSW Department of Health and the NSW Department of Education in more than 50 schools by 2028
- Trial behaviour change interventions including campaigns that encourage sustainable mode shift by 2028
- Provide a network of safe walking and cycling routes and low-speed zones in new neighbourhoods which should reach across each school's catchment from its day of opening

The document notes that the Department of Education will work with Transport for NSW and NSW Health to develop an Active and Healthy Travel to Schools Program. The purpose of the Program will be to offer schools a range of free resources, tools and incentives to actively travel to school, including:

- Pilot infrastructure and traffic management initiatives, including temporary restricted vehicle access on roads adjacent to schools
- Ensure safe walking and cycle training is available in schools on an ongoing basis
- Improve safe walking, cycling and public transport access to schools
- Provide active transport end-of trip facilities in schools and educational institutions.

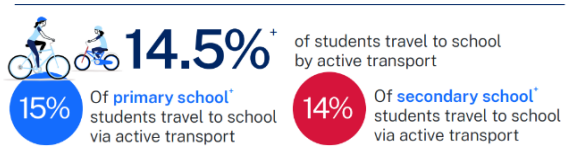


Figure 4. Active Transport Strategy (Source: Active Transport Strategy, Transport for NSW, 2022).

2.2.3 Road User Space Allocation Policy (Transport for NSW, 2024)

The policy outlines mandatory principles for allocating road space to ensure safety, equity, and alignment with movement and place objectives. It applies to all public road reserves, covering proposed, new, and existing classified roads in regional and metropolitan NSW. The policy advises to:

- Give active travel the highest priority when reallocating of road space
- Consider the allocation of space in terms of infrastructure, AM and PM peak school hours, and location.

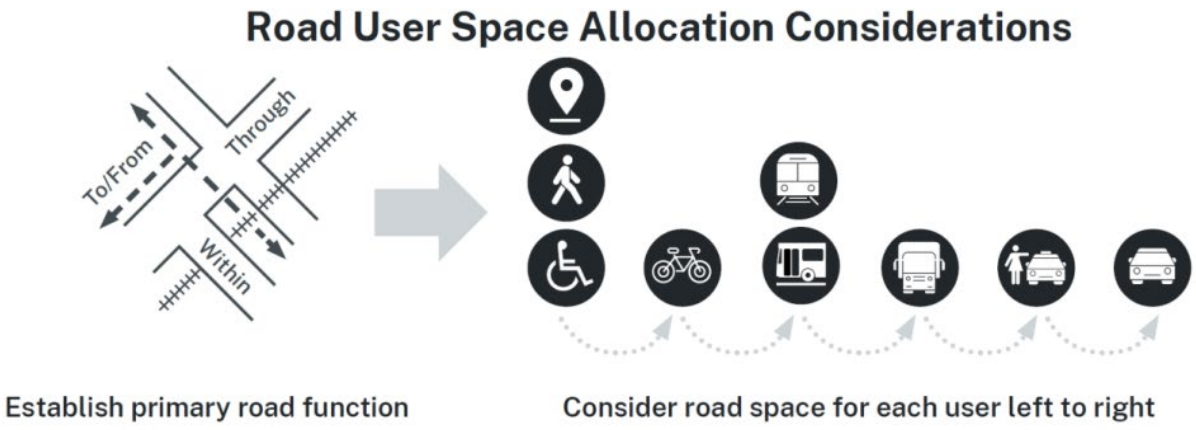


Figure 5. Road User Space Allocation Policy process (Source: CP21000.1, TfNSW 2024).

2.2.4 Movement and Place Framework, (Transport for NSW, 2023)

Movement and Place is a multi-disciplinary, place-based approach to the planning, design, delivery and operation of transport networks. It recognises and seeks to optimise the network of public spaces formed by roads and streets and the spaces they adjoin and impact.

Figure 6. Relative priority of different modes in different street environments (Source: Movement and Place Framework (Transport for NSW, 2023).

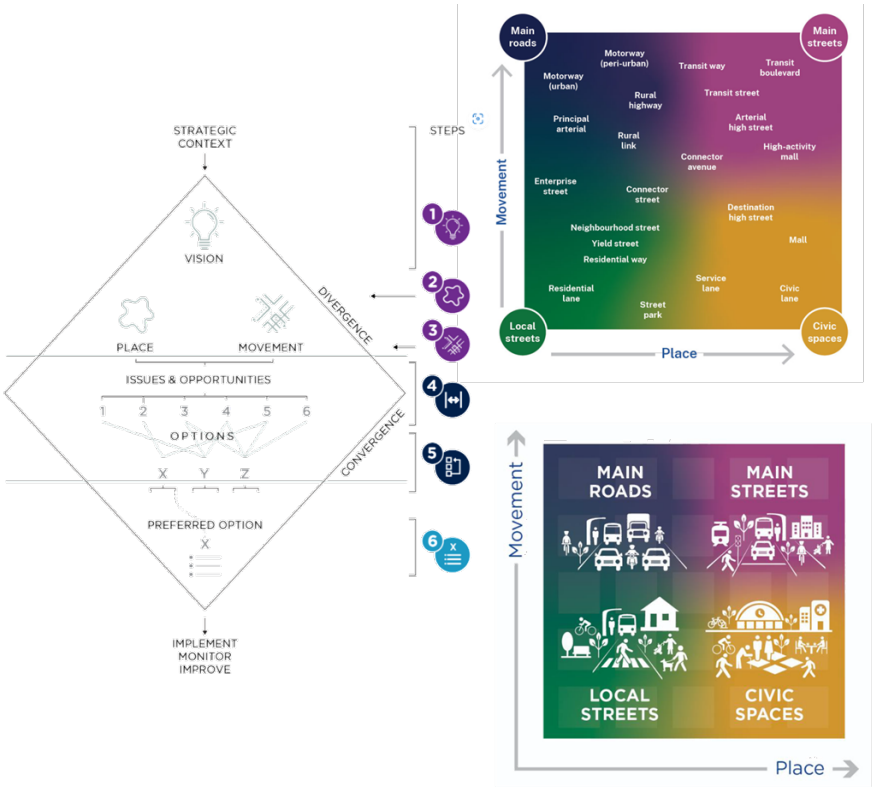


Figure 7. The movement and place process (Left) and classification of streets (Right) Source: Movement and place framework (Transport for NSW, 2023).

2.2.5 Queanbeyan-Palerang Regional Integrated Transport Strategy, (Queanbeyan-Palerang Regional Council, 2020).

The Queanbeyan-Palerang Regional Integrated Transport Strategy documents opportunities and QPRC's commitments for the development of the transport network. It notes that around 8,000 new households are expected in the region, of which more than half will be in Googong.

Documented opportunities and commitments relevant to the new high school for Googong include:

- Duplicate Old Cooma Road from Googong to Ellerton Drive extension shown in Figure 11 (Stage 2 completed in 2020)
- Construct on-road cycling and off-road shared path facilities along Old Cooma Road to improve connectivity between Googong and Queanbeyan (completed in 2020)
- Investigate new bus services and park and ride facilities to service Googong and Jerrabomberra directly into the ACT
- A park and ride facility connecting to Queanbeyan and Canberra should be considered adjacent to the proposed school and the Googong Commons within Neighbourhood 2 (NH2). The car parking for Googong Commons could be largely used by park and ride travellers during the week and recreation users on weekends.
- Improve pedestrian and cyclist crossings especially kerb ramps near schools and child-care centres.
- Provide additional footpaths for children to walk and ride bikes, especially around schools.
- Identify schools as a key target for improvements to pedestrian networks to support children walking and cycling to school.

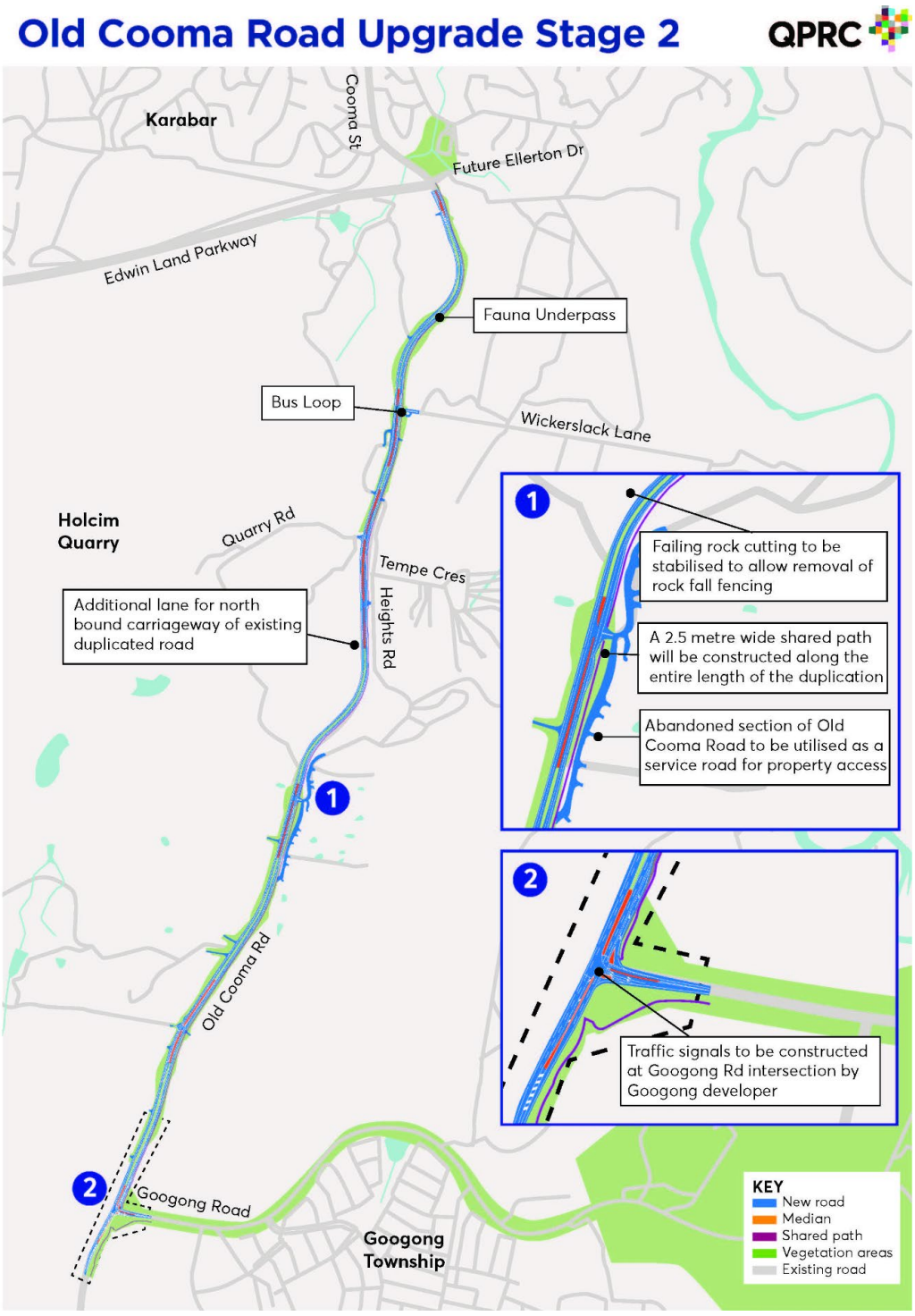


Figure 8. Old Cooma Road Upgrade Stage 2
(Source: Queanbeyan-Palerang regional integrated transport strategy, Queanbeyan-Palerang Regional Council, 2020, https://www.qprc.nsw.gov.au/Major-Works-Projects/COMPLETED-Old-Cooma-Road).

2.2.6 Googong Development Control Plan (DCP) 2010 (Queanbeyan-Palerang Regional Council, 2010)

The Googong township is divided into five neighbourhoods as shown in the Googong master plan. The new high school for Googong is located in Neighbourhood 2 of Googong township. A town centre is planned to the north of the school site which will contribute to local place making but also add to pedestrian and vehicle demand.

Figure 10 shows the master plan with indicative road layout and street types.

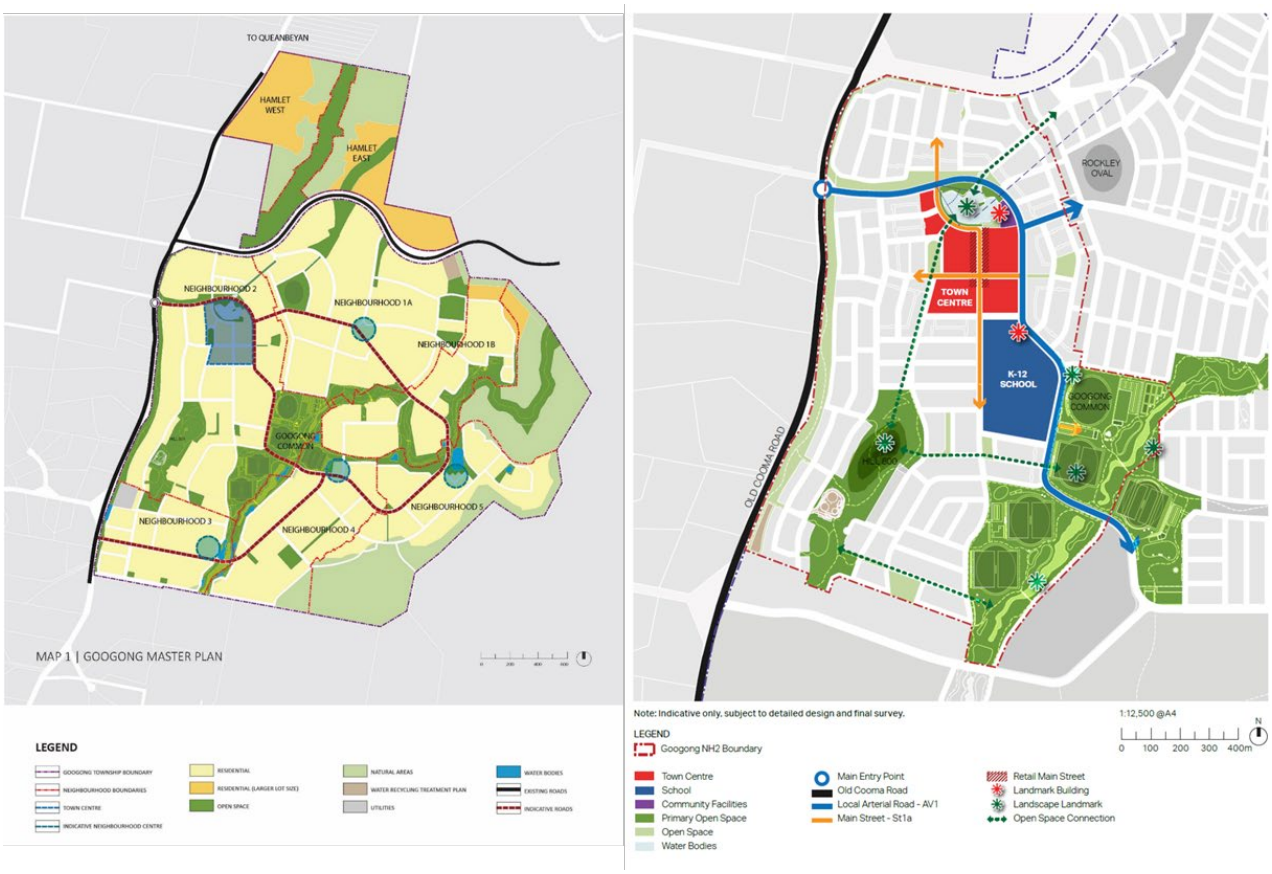


Figure 9. Googong Development Control Plan 2010 (Source: Queanbeyan-Palerang Regional Council, 2010).

The Googong DCP identified the following walking and cycling facilities bordering the site, also shown in Figure 11.

- Four pedestrian crossings at Wellsvale Drive and Glenrock Drive (to date, two pedestrian refuges delivered on Wellsvale Drive, no crossing facilities on Glenrock Drive delivered).
- 2.5-metre shared path on Wellsvale Drive frontage which connects to Googong Common (2-metre width delivered).
- A 2-metre wide footpath along Glenrock Drive (delivered).
- On-road bicycle lane on both sides of Wellsvale Drive connecting to the site (delivered).

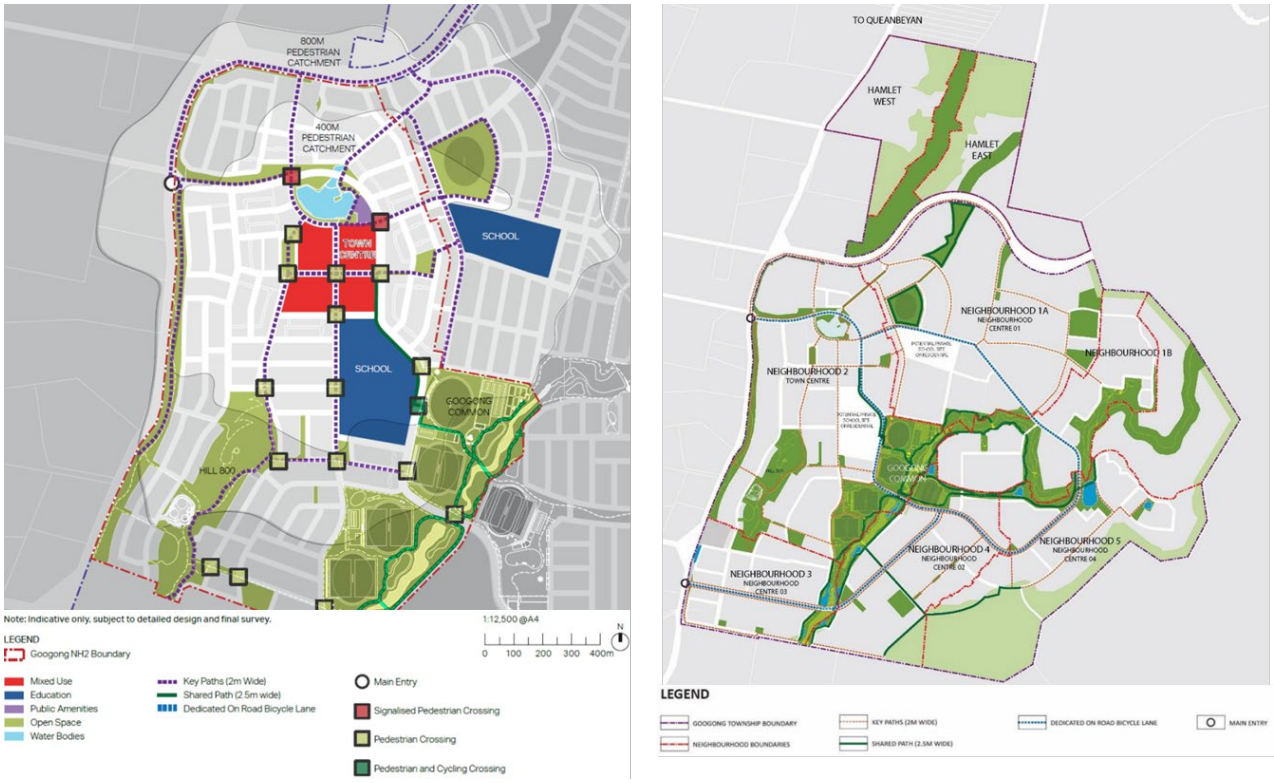


Figure 10. Googong Development Control Plan 2010 pedestrian and cycling facilities (Queanbeyan-Palerang Regional Council, 2010).

The Googong DCP identified the following public transport infrastructure and services:

- A new bus stop at the eastern frontage of the new high school for Googong on Wellsvale Drive.
- Various bus routes connecting to each neighbourhood, as shown in Figure 12.

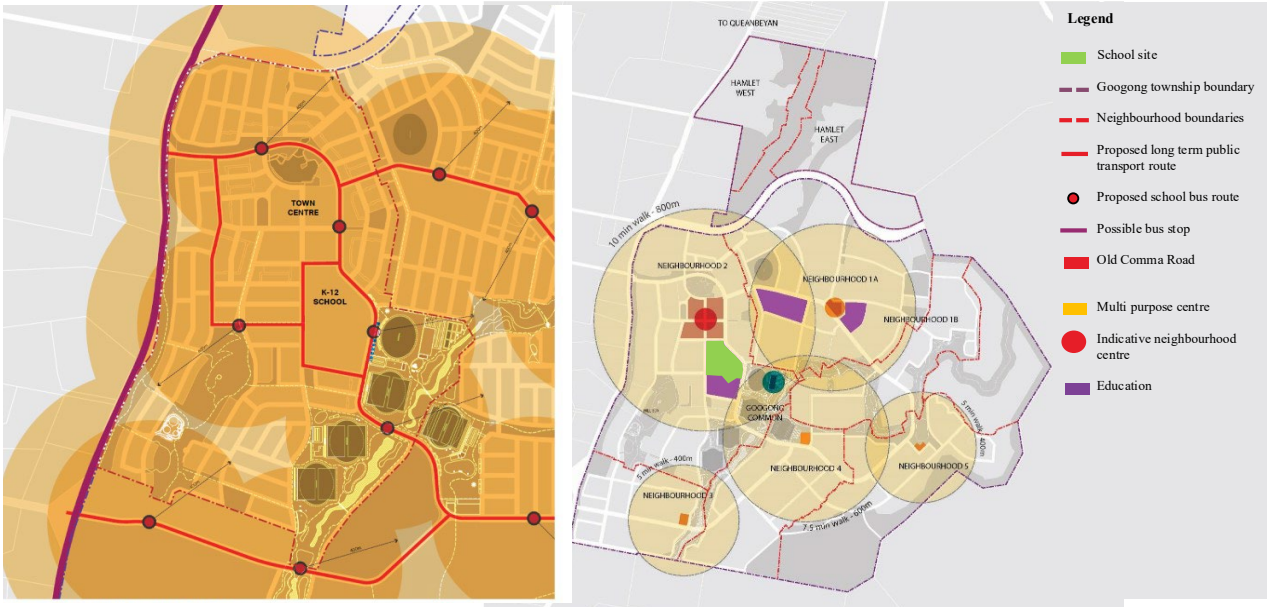


Figure 11. Googong Development Control Plan 2010 public transport and community facilities (Queanbeyan-Palerang Regional Council, 2010)

2.2.7 Googong Neighbourhood 2 Township Traffic Report (Calibre Consulting, 2017)

Figure 15 shows the road hierarchy, carriageway widths and reserve widths of roads surrounding the site. Figure 16 shows the typical cross section of a Street Type One, which includes Observer Street and Glenrock Avenue.

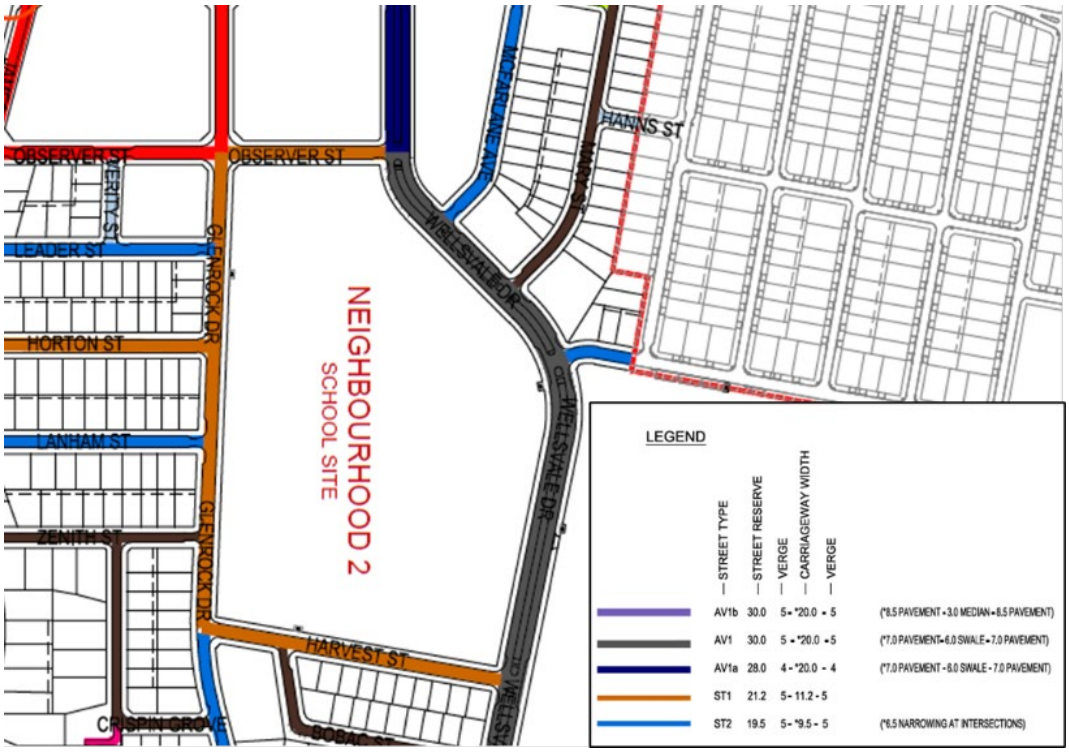


Figure 12. Road hierarchy plan of neighbourhood 2 (Source: Googong Neighbourhood 2 Traffic Report, 2019).

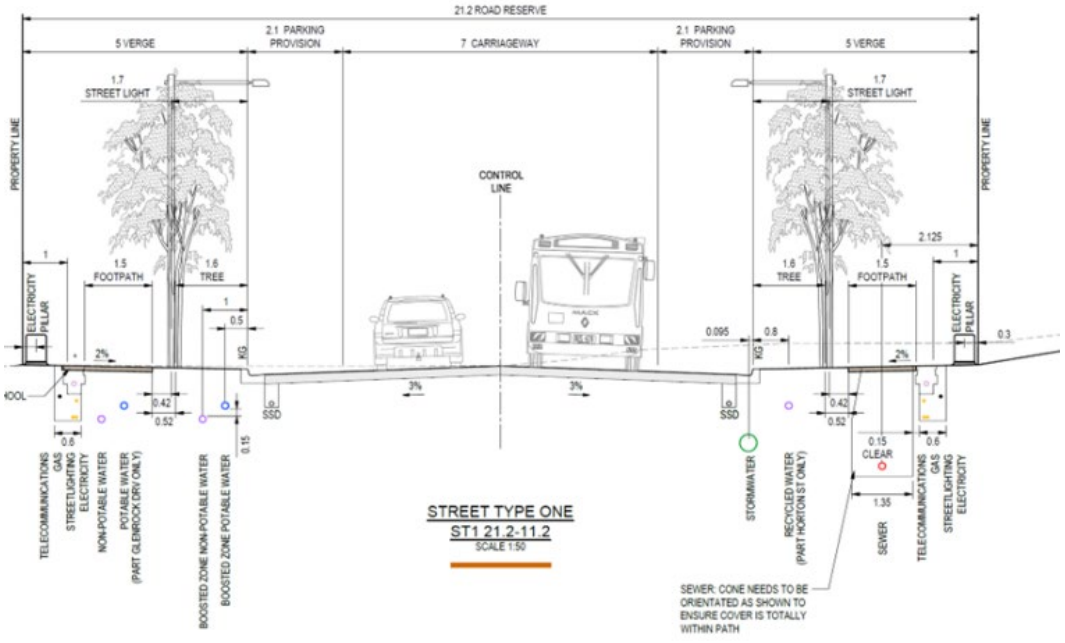


Figure 13. Proposed road section at Observer Street, Glenrock Drive, Harvest Street, and Horton Street (Googong Neighbourhood 2 Traffic Report, 2019).

2.2.8 Googong Masterplan

The masterplan layout in Figure 17 was used to understand the locations of various Neighbourhoods, as well as their staging in terms of development. Neighbourhoods 1 – 3 would be completed by the time the new high school for Googong is in operation.

Figure 14. (Left) Googong Master Plan (Source: PEET & Mirvac), (right) Googong neighbourhood 2 township traffic report (Source: Calibre Consulting, 2017).

2.2.9 Googong High School Rapid Transport Assessment (Arup, August 2024)

The key findings from the Rapid Transport Assessment (RTA) are summarised below.

Walking and cycling

- Footpath on built roads around the school range from 1.5m to 2.0m. On-road cycleways are provided along Wellsvale Drive in both directions.
- The baseline student mode share scenario references Jerrabomberra High School transport plan, as no hands-up survey of Jerrabomberra HS had been conducted at the time.
- Cycling mode share in the 'reach' scenario was set at 20% following TWG feedback and benchmarking against other schools. This was a reduction from 35% previously considered.

Vehicle access and parking

- Throughout the RTA, various locations for the staff car park were explored, including on Observer Street and Wellsvale Drive.
- Various access arrangements to the staff car park on Wellsvale Drive were considered. The driveway was located to avoid vehicle conflict at McFarlane Avenue and preserve the left in / left out driveway access.

Kiss and Drop and bus access

- Kiss and drop located on Glenrock Drive. The bus zone location is pending ongoing consultation between the department, TfNSW and QPRC, but is likely to be on Wellsvale Drive.

3. Existing site context

This section details the road environment of the completed roads around the site and the existing provision for people walking, cycling and using public transport.

3.1 Location Overview

The new high school for Googong would be located in Googong Township, around seven kilometres south of Queanbeyan (Figure 16). There are four nearby high schools that are partly or fully operational.

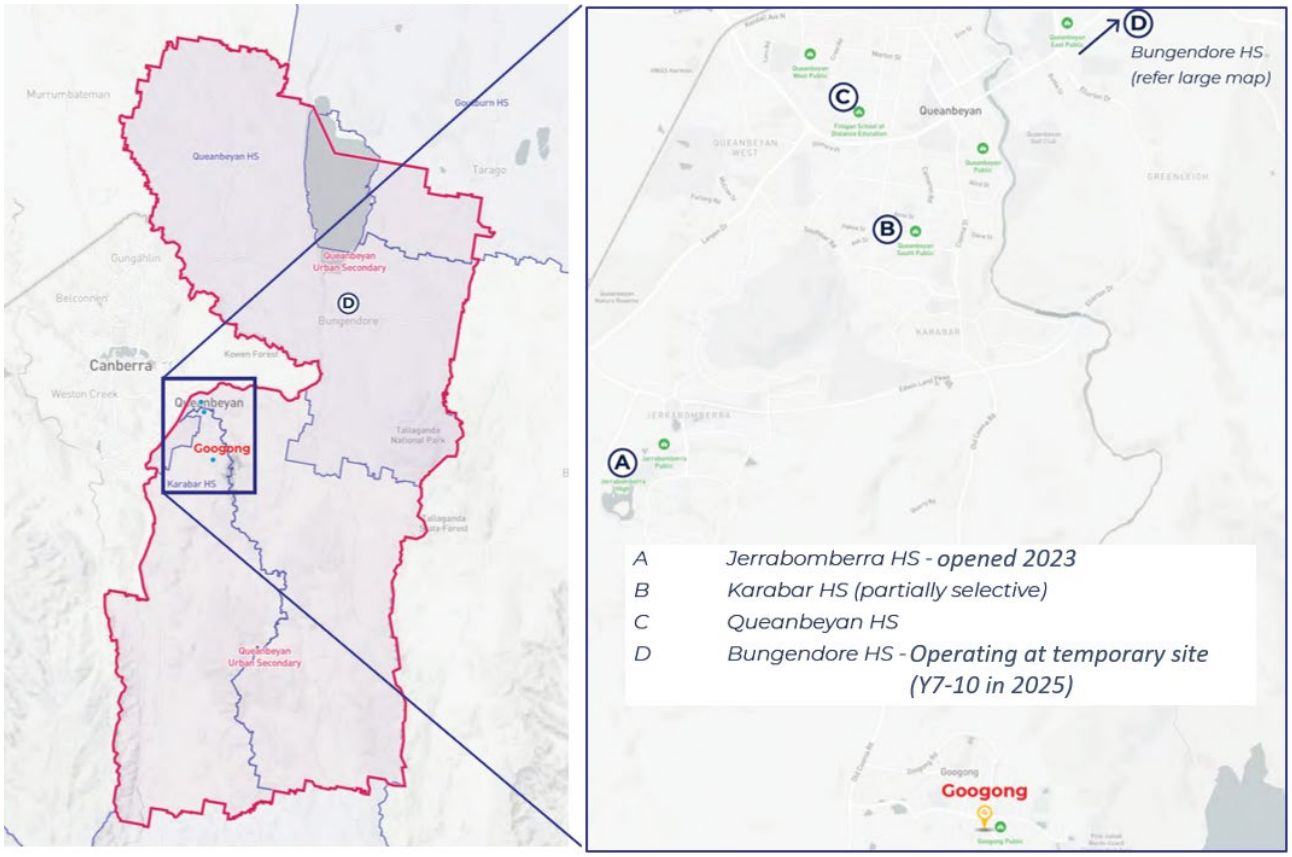


Figure 15. Location of the new high school for Googong and nearby schools

3.2 Active transport – walking environment

The observed walking environment is summarised in Figure 19.

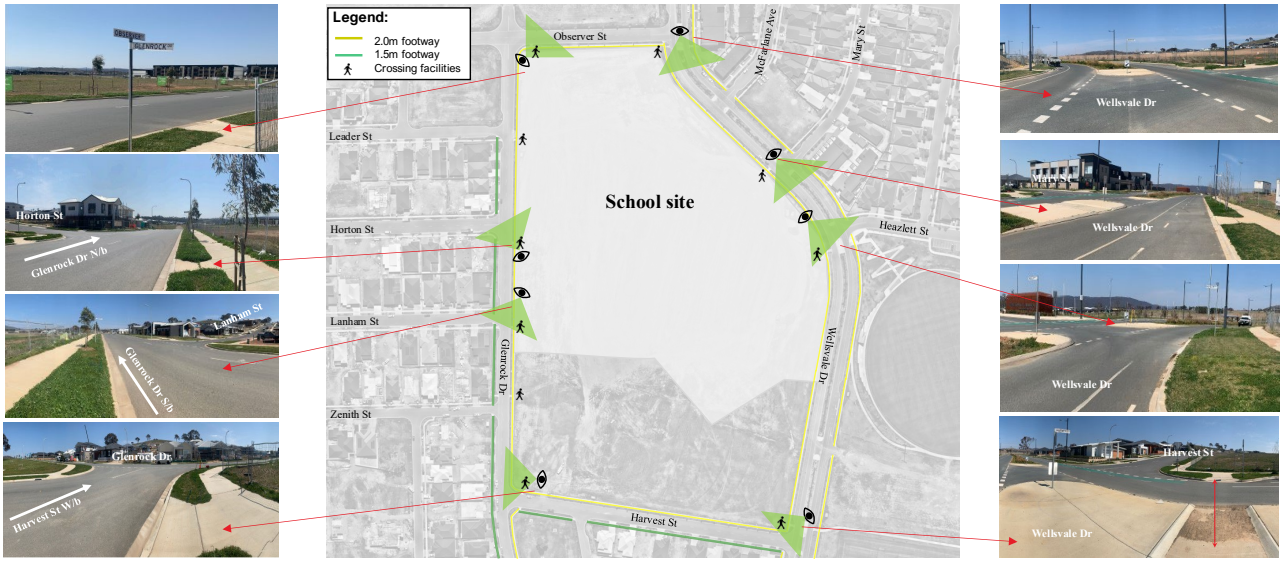


Figure 16. Observed walking environment.

3.3 Active transport – cycling environment

The observed cycling environment is summarised in Figure 20 and consists mainly of on-road bicycle lanes. According to the Cycleway Design Toolbox (TfNSW, 2020), on-road bicycle lanes are not suitable for priority cycling routes.

Children under the age of 16 years are legally permitted to ride on footpaths, and older students may do so if accompanying a child under the age of 16 with adult supervision. In this context, shared paths are preferred as they accommodate both cycling and walking, providing a safer and more accessible option for students.

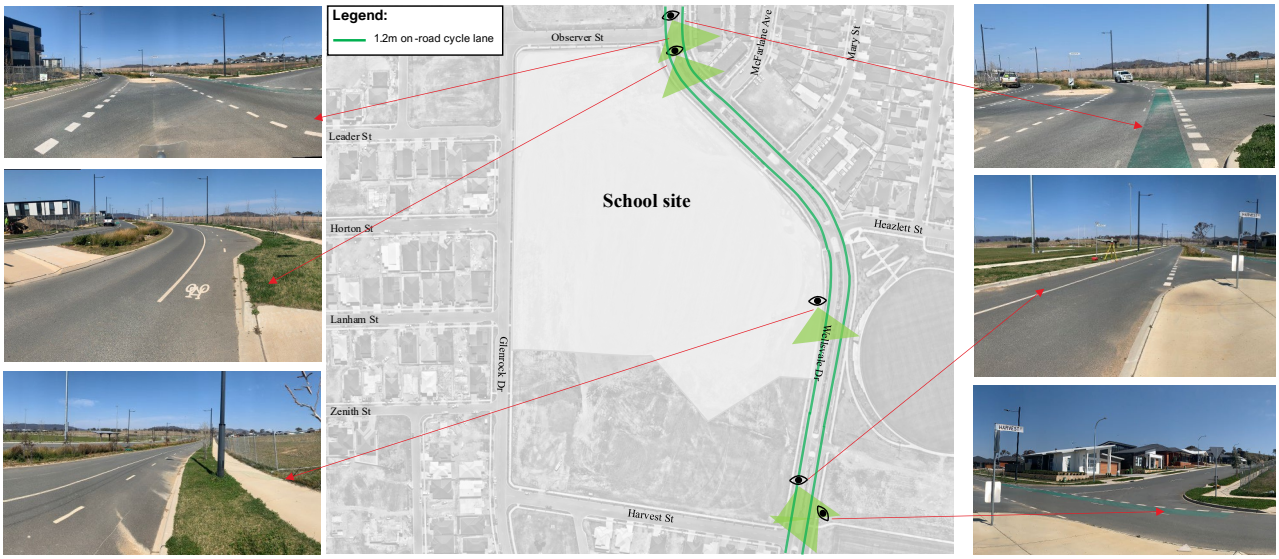


Figure 17. Observed cycling environment.

3.4 Road network

Old Cooma Road is a Regional Road that serves as the main arterial road that connects Googong to Queanbeyan, with a sign posted speed limit of 80km/h. All other roads, including Wellsvale Drive, Observer Street, Glenrock Drive and Harvest Street are local roads with a posted speed limit of 50km/h. The road hierarchy is defined by the Googong DCP in Figure 21, and imagery of key roads is shown in Figure 20.

The kerbside parking on roads surrounding the school is unrestricted at the time of writing (February 2025).

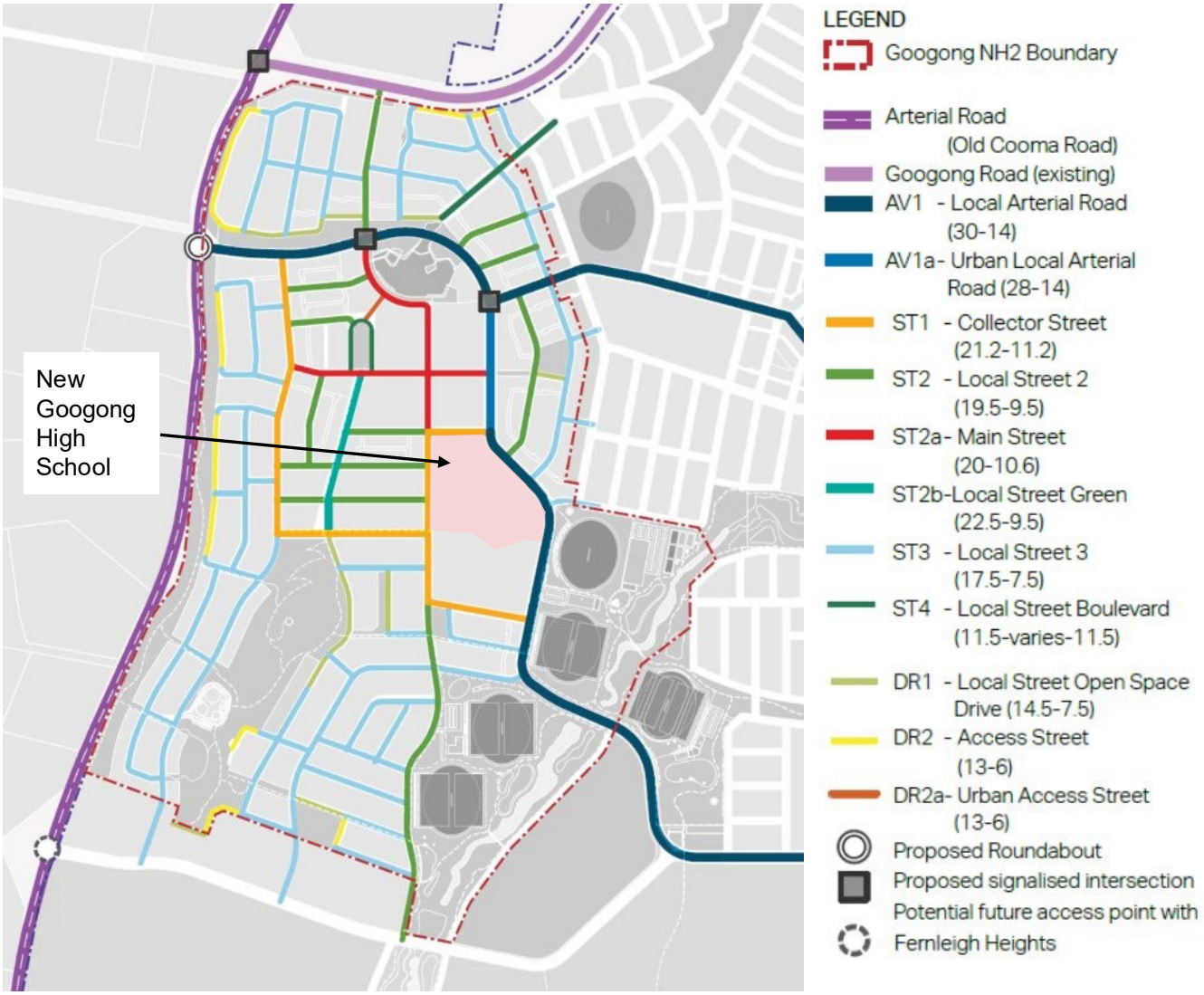


Figure 18. Road hierarchy for Neighbourhood 2 (Source: Googong development control plan 2010 (Queanbeyan-Palerang Regional Council, 2010)

Glenrock Drive (east of school)

Single-lane, two-way local road with on-street parking opportunities

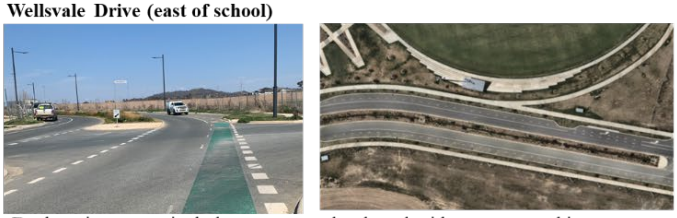
Observer Street (north of school)

Single-lane, two-way local road with on-street parking opportunities

Harvest Street (south of school)

Single-lane, two-way local road with on-street parking opportunities

Wellsvale Drive (east of school)



Dual carriageway, single-lane two-way local road with on-street parking, vegetated median, on-street cycle lanes and turning lanes

Figure 19. Roads surrounding the site.

3.5 Public transport

Googong is serviced by two public bus routes (Route 830 and 840X) and several school bus routes. Recommendations for adjustments to bus routes will form the basis for discussions with TfNSW and are outlined in Section 4.6. Existing school bus routes focus on connecting neighbouring rural suburbs with Googong town centre and the two existing primary schools.

Stopping times for school bus routes in the AM and PM peaks are given in Table 1 and Table 2 respectively.

Bus routes are mapped in Figure 21 and Figure 22.

School bus routes 216 and 217 travel to Googong from Queanbeyan and Jerrabomberra. Outside of the Googong Township itself, they do not service the enrolment area for the new high school for Googong. As such, they have not been considered in the following assessment.

Table 1. Public transport - Bus routes (AM)

Route	Route Description	Service start time	Arrival time at Googong
S229	From Burra to Googong Public School	7:36 am	8:35 am
S212	From Jerrabomberra to The Anglican School Googong	7:19 am	8:11 am
S252	From Royalla to Queanbeyan	7:44 am	8:18 am
S273	From Michelago to Googong	7:33 am	8:18 am
830	Googong to Canberra CBD via Queanbeyan and Karabar	8:32 am	8:32 am
840X	Googong and Jerrabomberra to Canberra CBD	7:57 am	7:57 am

Table 2: Public transport - Bus routes (PM)

Route	Route Description	Departure time from Googong
S230	From Googong Public to Burra via Royalla	3:00 pm
S142	From The Anglican School Googong to Jerrabomberra	3:43 pm
S252	From The Anglican School Googong to Royalla	3:46 am
S273	From The Anglican School Googong to Michelago	3:46 pm
830	Canberra CBD to Googong via Queanbeyan and Karabar	3:25 pm
840X	Canberra CBD to Googong and Jerrabomberra	n/a

Figure 20. Public transport - school services (AM)

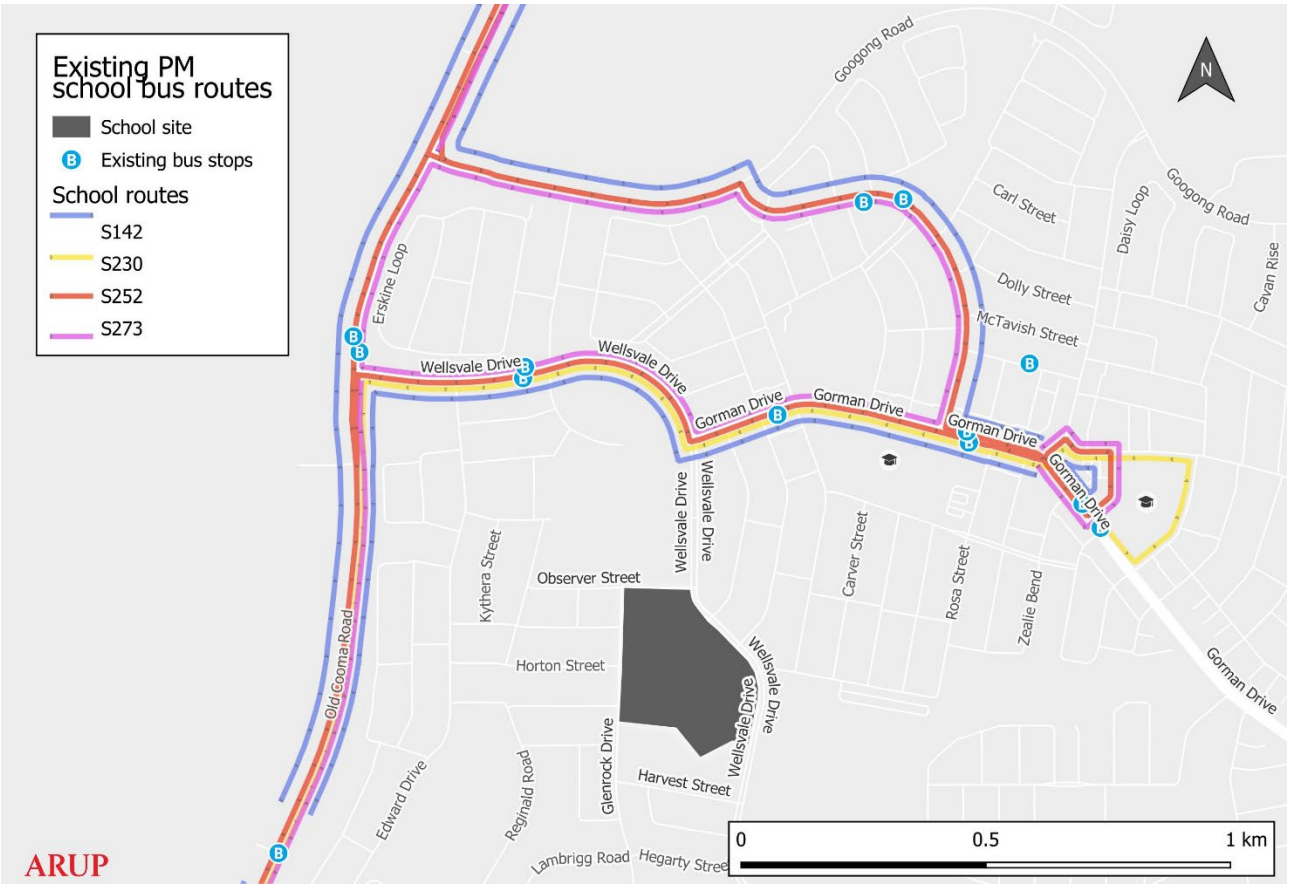


Figure 21: Public transport - school services (PM)

Bus route 830 which travels between Canberra and Googong via Queanbeyan and Route 840X travels between Canberra and Googong via Jerrabomberra. The inbound and outbound routes both travel along Wellsvale Drive onto Gorman Drive and could potentially be rerouted to stop at the proposed bus zone at the new high school for Googong.

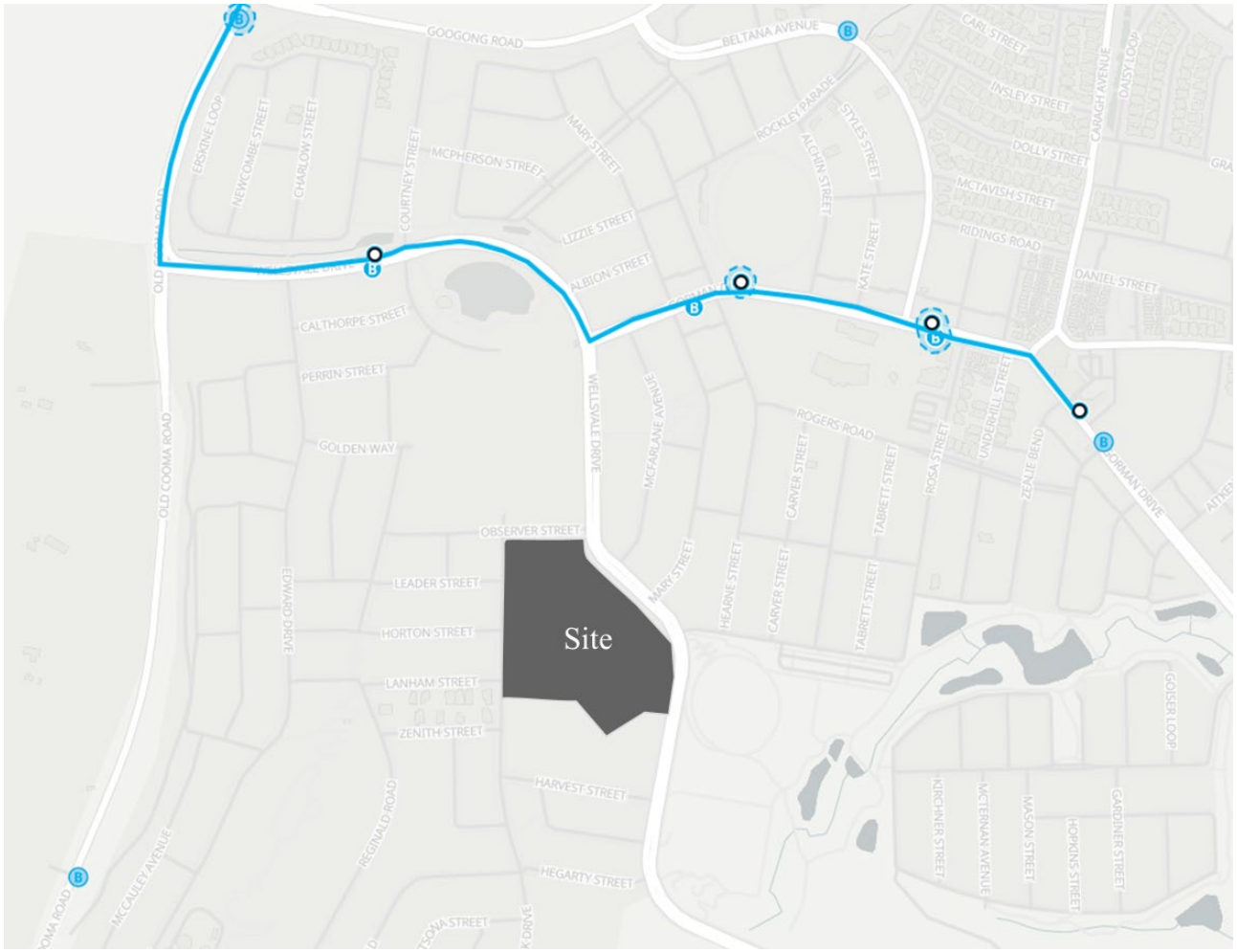


Figure 22 Route 830 and 840X (Base map source: Anytrip)

4. Transport analysis

This section looks at the planned transport network for people walking, cycling, using public transport or reaching the school by private vehicle.

- Section 4.1 sets out the school enrolment area and where students are likely to live.
- Section 4.2 and 4.3 consider the planned active travel network (as defined by the Googong Masterplan) to evaluate the cycling and walking reach from the new high school for Googong. These catchments were then overlaid with the expected home locations of future students to estimate the proportion of students likely to use active travel for school commutes.
- Section 4.4 assesses the current infrastructure on important walking and cycling routes, and highlights new crossings which will be delivered as part of this activity and build on top of the masterplan provisions to ensure students can safely walk and ride to school.
- Section 4.5 considers the catchment of existing bus routes to assess current coverage, identify gaps, and inform future bus planning. These catchment results are used to inform what mode share could be achieved in Scenario 3 'reach'.
- Section 4.6 highlights opportunities and options to improve access to the school by public transport, including how existing school buses could be re-routed to stop at the school, as well as the feasibility of a mini-bus route to provide public transport coverage to areas without current access to bus services.
- Section 4.7 assesses the availability of on-street parking and off-street parking for use by visitors to the school.

Traffic generation and intersection modelling are considered in Section 5 and Section 6 respectively, as they are dependent on the mode share scenarios developed in Section 5.

4.1 School enrolment area

The enrolment area for the new high school for Googong is shown in blue in Figure 24. The catchment extends beyond the Googong Township and includes rural areas such as Burra and Michelago.

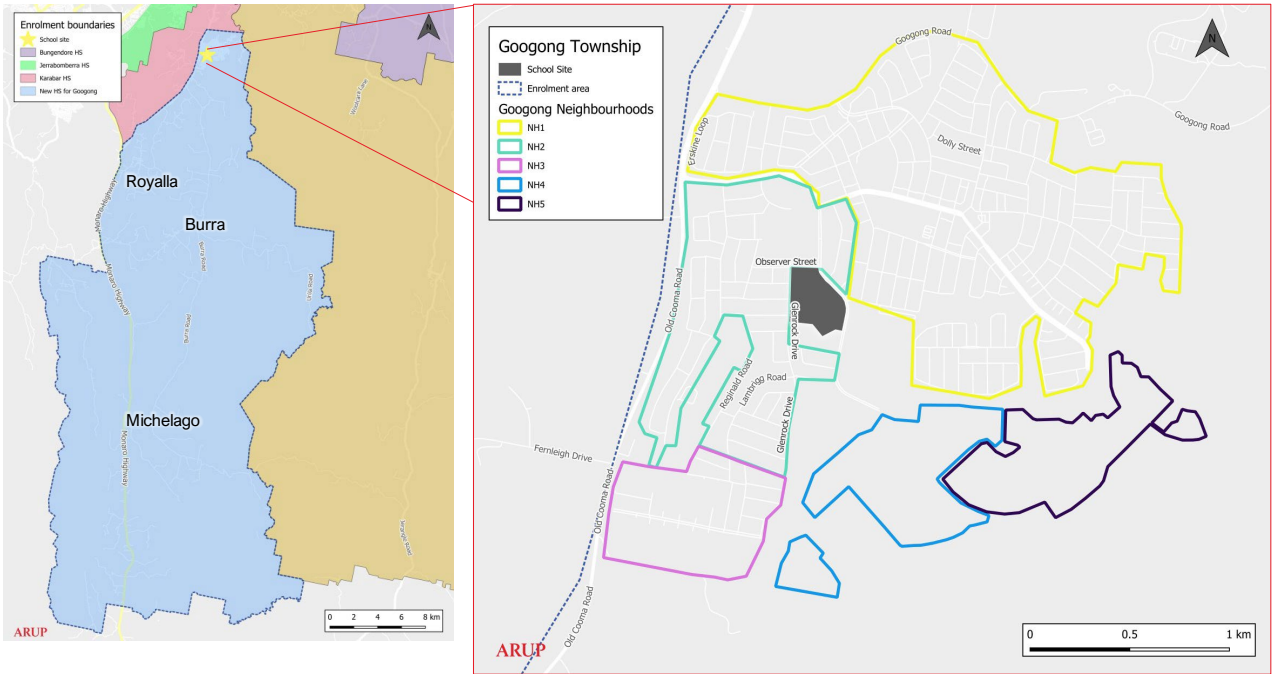


Figure 23. Googong enrolment area boundary (left) and Googong Neighbourhoods (right)

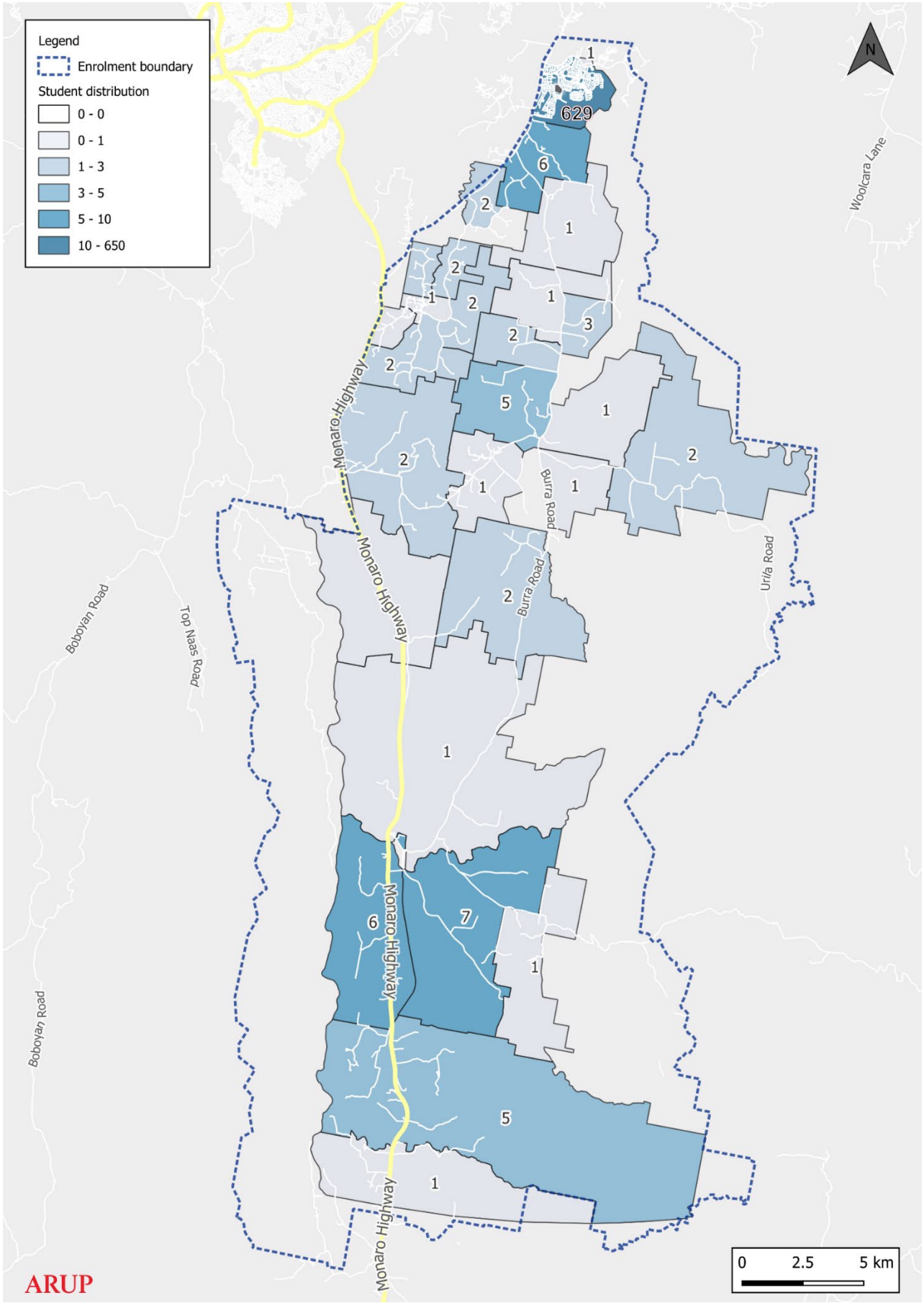


Figure 24. Student distribution map

The expected home locations of future students were extrapolated from the existing enrolment and expected completion timelines of neighbourhoods in Googong Township.

Using 2023 depersonalised enrolment data of students from DoE key assumptions used are:

- The target enrolment capacity is 700 students.
- The opening year for the new high school for Googong is 2027. The QPRC Traffic Officer advised that Neighbourhoods 1, 2 and 3 are expected to be built out by 2027.
- The rural population outside the Googong Township (71 students) is assumed to remain constant at 2023 levels when the school is operating.
- As such, we anticipate that 629 students will live in Neighbourhoods 1, 2 and 3 (see right image in Figure 24).

4.2 Walking catchment

This section considers the number of students that are within walking distance of the new high school for Googong. The 400m, 800m and 1200m catchments are shown below in Figure 25 and the number of students within walking distance is shown in Table 3.

The analysis showed that:

- 47% of the student population will be within a 15-minute walk of the school access point on Glenrock Drive.
- 43% of students are further than a 15-minute walk from the new high school for Googong but less than 2.9km. These students are considered beyond walking distance but are also not eligible for subsidised public transport under the SSTS.

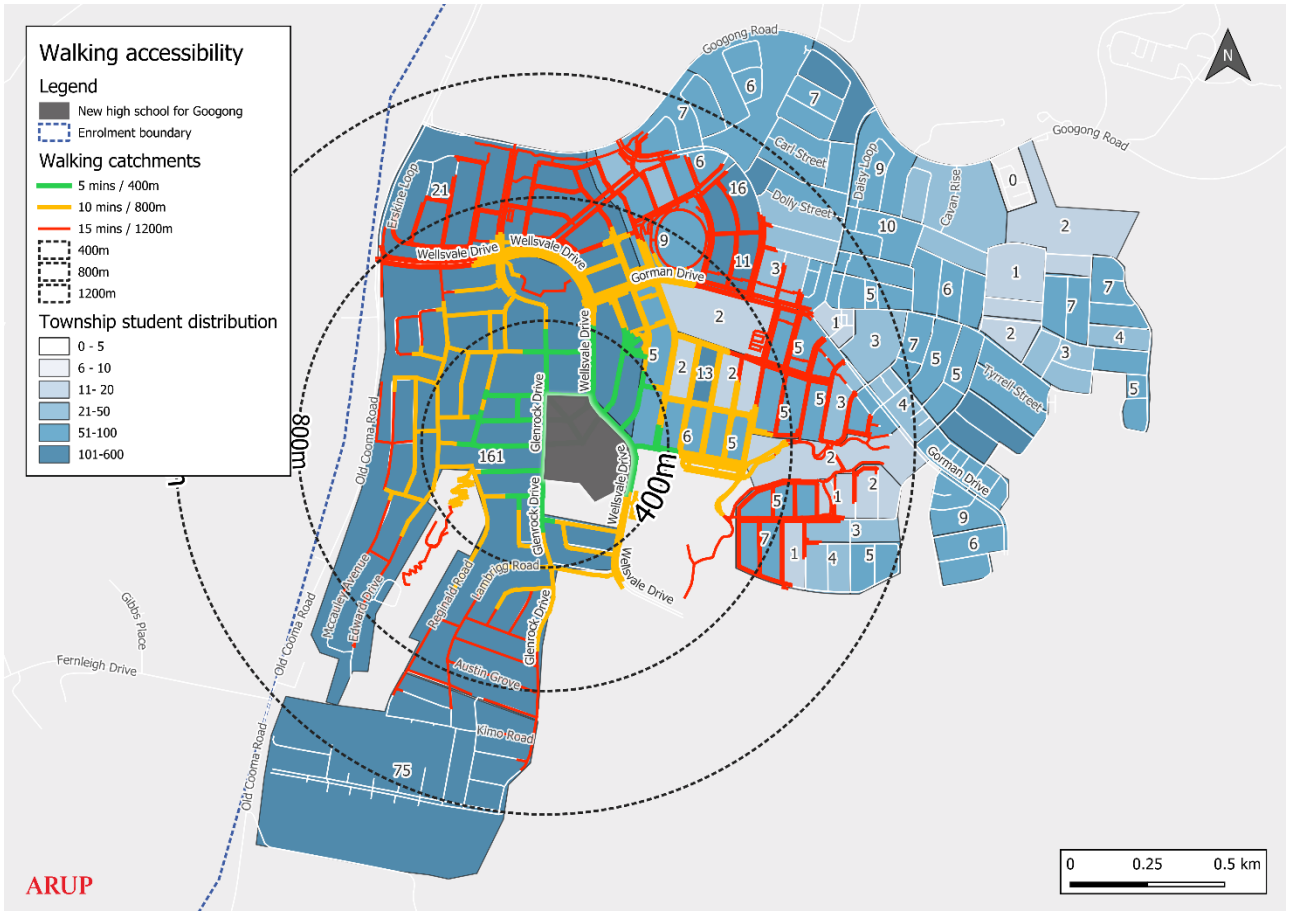


Figure 25. Walking accessibility

Table 3. Walking catchments – number of students

Walking catchments	No. of students	% of students
0 – 400m (5 min)	28	4%
401 – 800m (10 min)	119	17%
801 – 1200m (15 min)	184	26%
Total within 15 min walk	**331**	**47%**

4.3 Cycling catchment

This section considers the number of students within cycling distance of the new high school for Googong. The 2.4-kilometre and 3.6-kilometre catchments are shown below in Figure 26 and the number of students within cycling distance shown in Table 4.

The analysis showed that:

- The 10-minute cycling catchment covers almost the entirety of Googong Township, including the north-east area which is greater than a 15-minute walk from the new high school for Googong. This means most students within Googong Township who are too far away to walk to school can cycle or scoot.
- There are no safe active travel facilities or crossings on Old Cooma Road, which also forms the boundary of the school catchment. Active travel is likely to be contained within the new development without infrastructure improvements.
- 90% of students are expected to live within the 0 – 2.4 kilometre and 0 – 3.6 kilometre cycling distance from the site; these students primarily live to the north-east of Googong Neighbourhood 1 (as seen in Figure 26). While eligible for free travel under the SSTS, these students would rely on cycling or car travel to get to school as there is no current public transport servicing this area.
- 10% of students live beyond 3.6 kilometres. These students live in rural areas, are eligible for free travel under SSTS, and would rely on public transport or car travel to get to school.

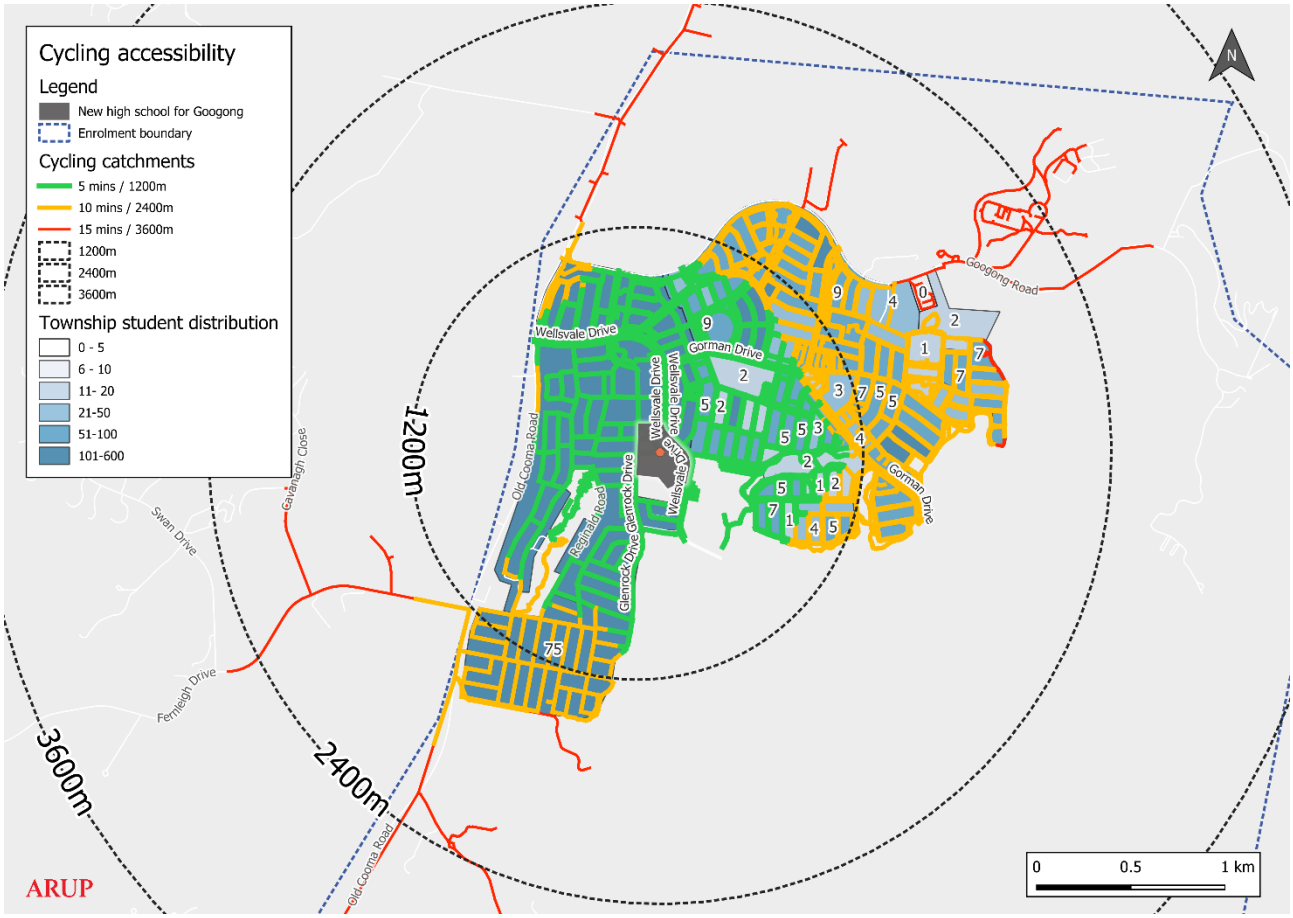


Figure 26. Cycling accessibility.

Table 4. Cycling catchments – number of students

Cycling catchments	No. of students	% of students
1.2km (5 mins)	309	44%
2.4km (10 mins)	629	90%
3.6km (15 mins)	629	90%
Total within 15 min cycle	**629**	**90%**
Beyond 3.6km	71	10%

4.4 Walking and cycling routes

Figure 27 draws on path analysis to illustrate the likely paths that students from Neighbourhoods 1-3 will take when travelling to school upon its opening.

Key findings are:

- Demand is expected to originate to the south, east and north-east of the school where the majority of the development in Neighbourhoods 1-3 will have occurred.
- Many of the shortest routes converge on Glenrock Drive (collector road), Gorman Drive (local arterial road) and Wellsvale Drive (arterial road).

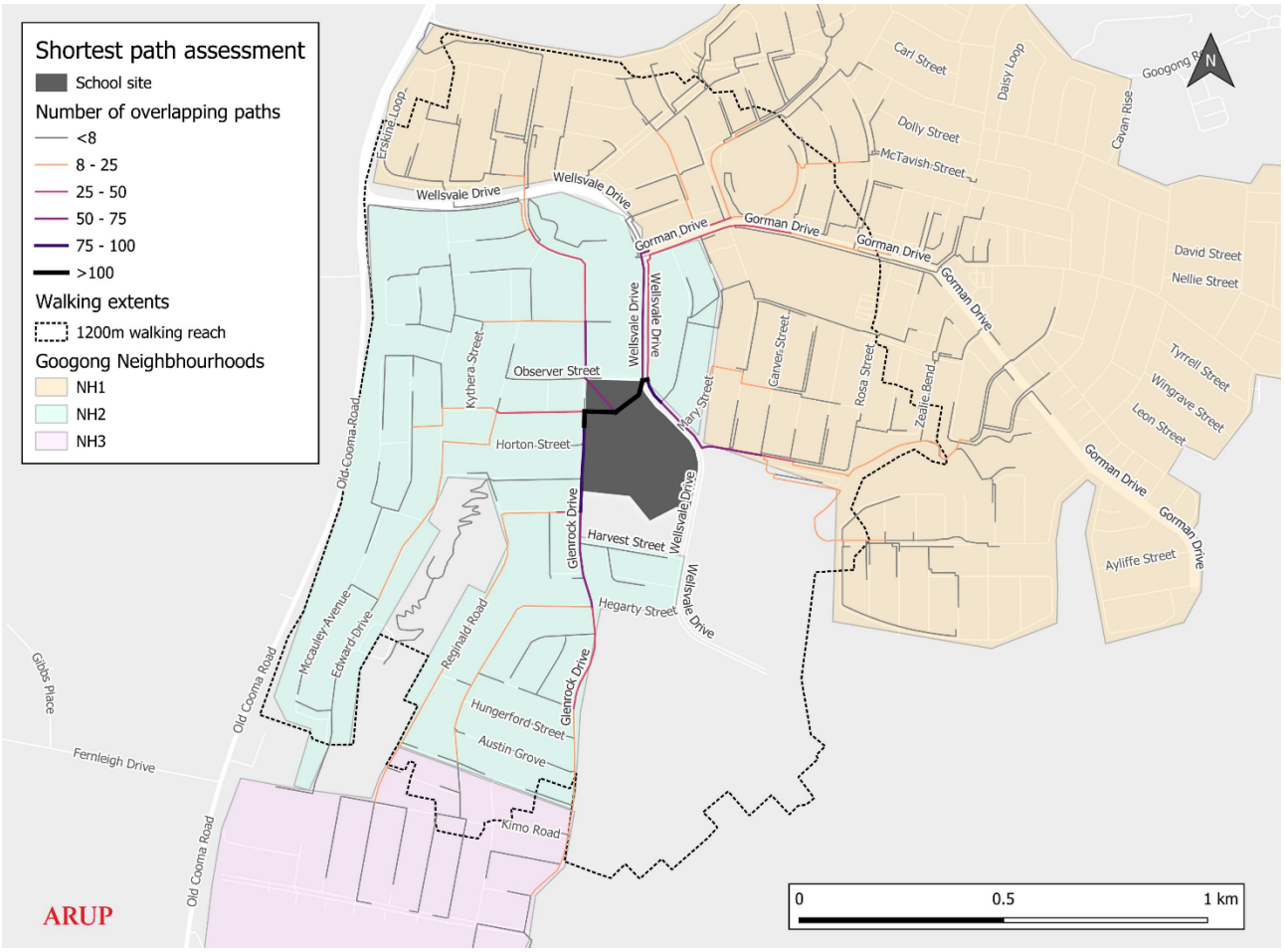


Figure 27. Shortest path assessment.

Results from the shortest path analysis were used to determine the top five walking routes with highest walking demand to the new high school for Googong. These are shown in Figure 28.

Five formal crossing facilities adjacent to school are proposed to be delivered as part of this activity, and have been labelled in pink and identified Figure 28 and in Section 8 – Mitigation Measures.

Other locations where students cross along these routes are on local roads. These generally have short crossing distances and low speeds. As Googong Township develops, community feedback will be valuable to assess where additional safety interventions may be required.

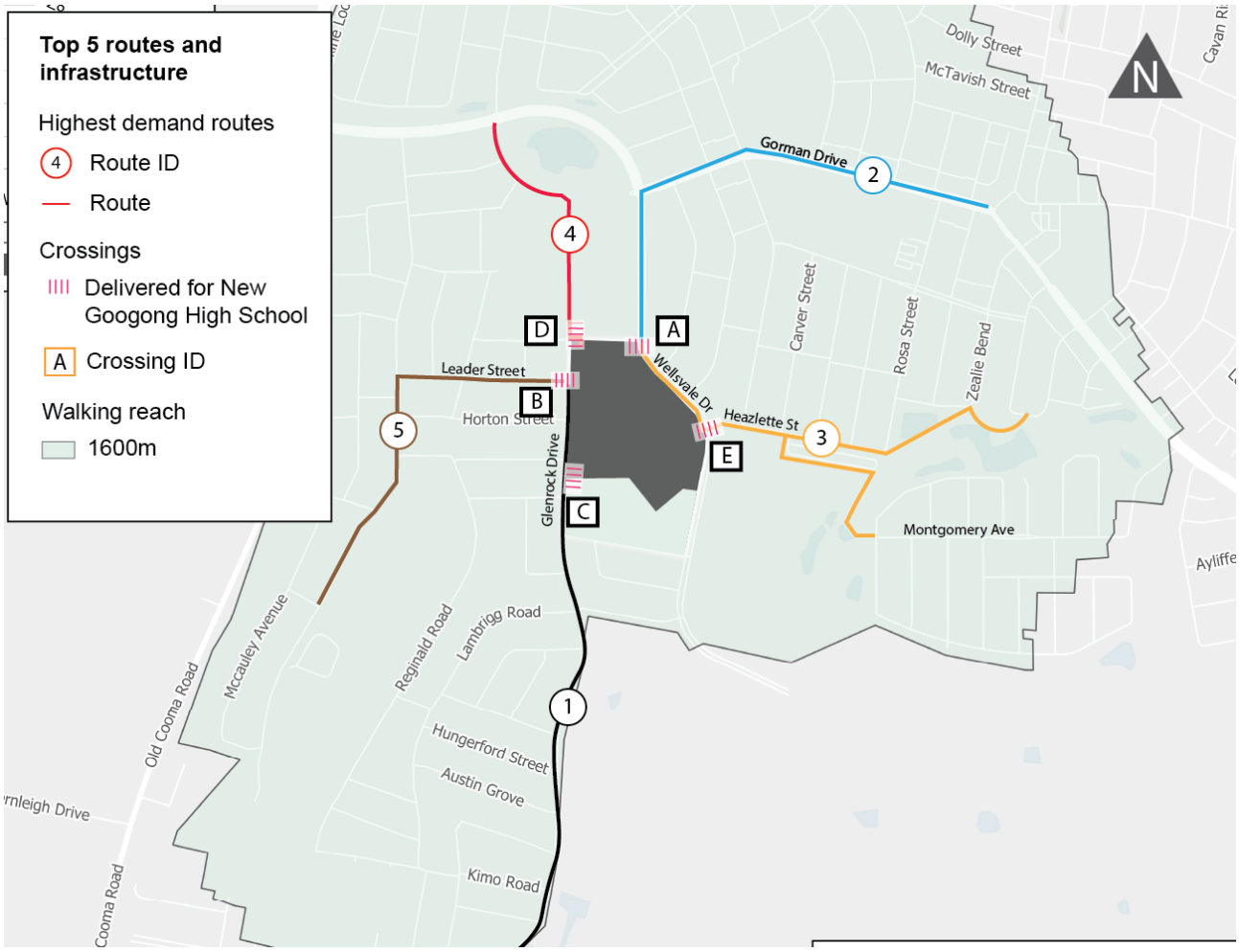


Figure 28. Top five routes by modelled demand

4.4.1 Pathway assessment

The table below identifies the existing path provision, path quality and shading conditions along each of the five shortest walking and cycling routes.

As discussed in Section 3.3, cycling infrastructure in Googong primarily consists of shared paths and on-road bicycle lanes on major roads such as Wellsvale Drive. On-road bicycle lanes are not considered suitable for children, due to potential conflict with vehicles at intersections and alongside parked cars and it is anticipated that most students who cycle would use footpaths.

Table 5. Top 5 shortest routes

Route ID	Significance	Expected demand (students per peak hour)	Number of crossings (minor, major)	Existing infrastructure	Proposed upgrades (refer to Table 6)
1	Connects developments on the south of the site to the school. Type 2 path (Walking Space Guide)	90	1 major road crossing 9 minor road crossings	100% of the 1.3km route has footpaths on at least one side of the street completed, and 70% has footpaths on both sides. Footpath width is generally 1.8m. Pavement is new and surface in good quality. No current shading but young trees have been planted in the verge. No existing or planned cycleways or shared paths along this route.	Upgrade crossing at Glenrock Drive / Harvest Street (Location C)
2	Connects developments on the north-east of the site to the school. Type 2 path (Walking Space Guide)	90	3 major road crossings 3 minor road crossings	100% of the 1km route has footpaths on both sides of the street. Footpath width is generally 1.8m. Pavement is new and surface in good quality. No current shading, but young trees have been planted in the verge. Existing on-road bicycle lane available along both sides of Wellsvale Drive and Gorman Drive.	Upgrade crossing at Wellsvale Drive / Observer Street (Location A)
3	Two potential footpaths along Route 3 capture developments on the east of the site and offer connections between to the school and sports facilities. Type 2 path (Walking Space Guide)	60	1 major road crossing 5 minor road crossings	100% of the 1km route has complete footpaths on both sides of the street. Footpath width is generally 2.3m. Excellent pavement surface quality. 30% of the route has partial shading offered by small trees. Existing on-road bicycle lane available along both sides of Wellsvale Drive.	Upgrade crossing at Wellsvale Drive / Heazlett Street (Location E)

Route ID	Significance	Expected demand (students per peak hour)	Number of crossings (minor, major)	Existing infrastructure	Proposed upgrades (refer to Table 6)
4	Connects neighbourhood centre to the north of the site to the school. Type 2 path (Walking Space Guide)	40	1 major road crossing 2 minor road crossings	Approx. 40% of the 500m route has footpaths on both sides of the street. This is because Glenrock Drive is incomplete but will be completed when future development occurs. Footpath width is generally 1.5m and 2.0m. Completed sections have excellent pavement surface quality. No current shading but young trees have been planted in the verge. No existing or planned cycleways or shared paths along this route.	Upgrade crossing at Observer Street / Glenrock Drive (Location D)
5	Connects developments on the south-west of the site to the school. Type 2 path (Walking Space Guide)	20	1 major road crossing 2 minor road crossings	Length of route is 860m. 100% of the route has footpaths on at least one side of the street completed, and 60% has footpath on both sides. Footpath width is generally 1.5m. No shading is currently available along this route with only sparse availability of young trees planted along the route. Completed sections have excellent pavement surface quality. No existing or planned cycleways or shared paths along this route.	Upgrade crossing at Glenrock Drive / Leader Street (Location B)

4.4.2 Crossing improvements

The table below identifies crossing improvements along each of the five shortest routes. All items would be delivered as part of this activity (see Section 8 – Mitigation Measures). Location names are as per Figure 28.

Table 6. Crossing improvements along the top 5 routes

Location	Expected demand (students per peak hour) (see note)	Actual infrastructure	Recommended infrastructure	Rationale
A - Wellsvale Drive / Observer Street	137	Pedestrian refuge (in road median)	Pedestrian crossing – raised/wombat crossing	The existing refuge does not give priority to pedestrians or slow down vehicle speeds. Local arterial road with high student demand. A raised crossing would improve safety by increasing visibility and calming traffic.
B - Glenrock Drive / Leader Street	69	No crossing infrastructure	Pedestrian crossing – raised/wombat crossing	The crossing opposite the main entrance to the school services the desire line for students living to the west of the school.
C - Harvest Street / Glenrock Drive	67	No crossing infrastructure	Pedestrian crossing – raised/wombat crossing with kerb build out	This is the main route for students living in Neighbourhoods 2 and 3. A formal crossing provides safety and improves connectivity.
D - Observer Street / Glenrock Drive	58	No crossing infrastructure	Pedestrian crossing – raised/wombat crossing with kerb build out	This crossing will facilitate students and residents moving towards Neighbourhood 2 town centre. A raised crossing with kerb build-out would improve pedestrian safety and visibility.
E - Wellsvale Drive / Heazlett Street	56	Pedestrian refuge (in road median)	Pedestrian crossing – raised/wombat crossing	Wellsvale Drive classed as a local arterial road, and a priority crossing would help students navigate safely. This route is a key access point to Brooks Oval and Googong Neighbourhood 1. A raised crossing would enhance safety and pedestrian priority.

Note: *Pedestrian Crossing Guideline (TS 00043:1.0)* suggests a minimum pedestrian demand of 20 pedestrians per hour during two separate one-hour periods on a typical day. Vulnerable pedestrians, such as children or elderly, are counted as two pedestrians each.

4.5 Public transport catchment

Public transport access in rural areas cannot be estimated using the same methods that apply in urban areas. Existing SSTS subscription data will indicate student bus ridership but has not been available for this assessment. Eligibility for SSTS requires high school student to live beyond a 2 kilometre straight-line distance or 2.9 kilometres on path to qualify for free travel.

The analysis showed that:

- 10% of students are projected to be eligible for free public transport travel through the SSTS.
- All students who reside within the Googong Township are ineligible for free travel through the SSTS (as they do not live further than 2 / 2.9 kilometres). These students have the option to purchase a School Term Bus Pass from TfNSW for discounted travel.

Catchments around bus stops are shown in Figure 29 and the proportion of students who live within 2km straight-line of the school site is shown in Table 7.

While Transport for NSW was consulted during the TWG process (see Section 9), detailed information on the future bus network was not yet available.

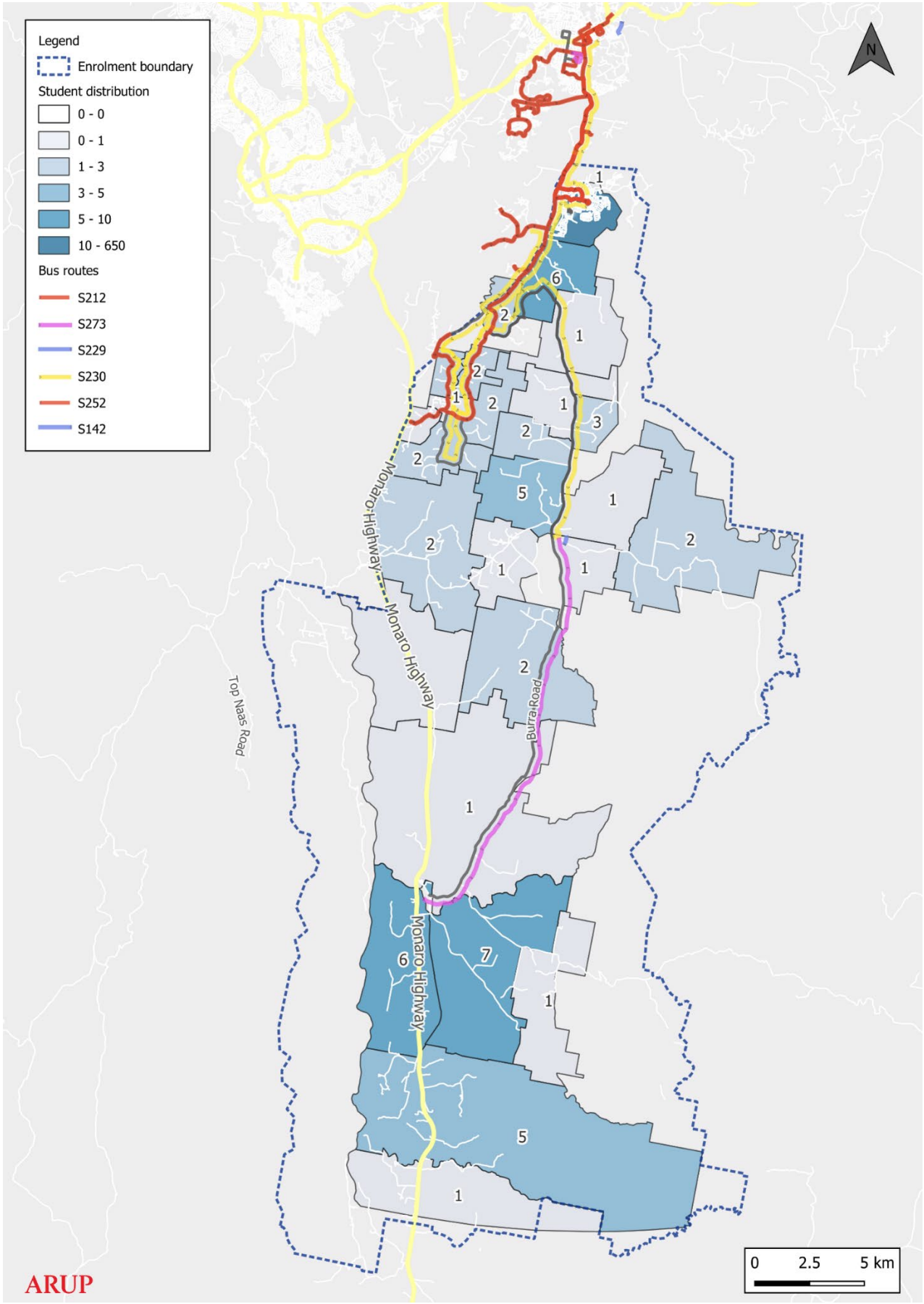


Figure 29. Public transport - bus accessibility.

Table 7. Public transport catchments - total number of students.

Eligible for free public transport	No. of students	% of students
Within 2km notional distance	627	90%
Beyond 2.9km actual path distance	627	90%

4.6 Public transport opportunities

All opportunities (future public transport services, school routes, mini-bus routes) are subject to TfNSW service planning process, which would typically occur closer to the school opening. Recommendations in this report can help inform initial considerations for that process.

There are three key opportunities to improve public transport access to the new high school for Googong:

1. Divert existing bus services
2. Advocate for proposed masterplan bus route
3. Provide a minibus service to north-eastern neighbourhoods.

Divert existing bus services

Existing school bus routes listed in Section 3.5 and route 830 could be diverted to stop at the new bus zone outside the new high school for Googong (see Figure 30). The bus zone location is pending ongoing consultation between the department, TfNSW and QPRC, but is likely to be on Wellsvale Drive. Should bus timetables remain unchanged, this would impact the route 830 service departing Googong North Village Centre at 8:32am and the service arriving at Googong North Village Centre at 15:25pm.

Diversion of school bus routes would primarily benefit students living in rural areas. Diversion of route 830 would benefit students living in or near Googong North Village Centre.

As Neighbourhood 2 approaches completion, further route planning and timetabling of bus services is expected to occur (Transport for NSW, bus operator). This should consider:

- Aligning the arrival and departure times of existing school bus routes close to start and end bell times, without significantly compromising the operational cost or attractiveness of the service.

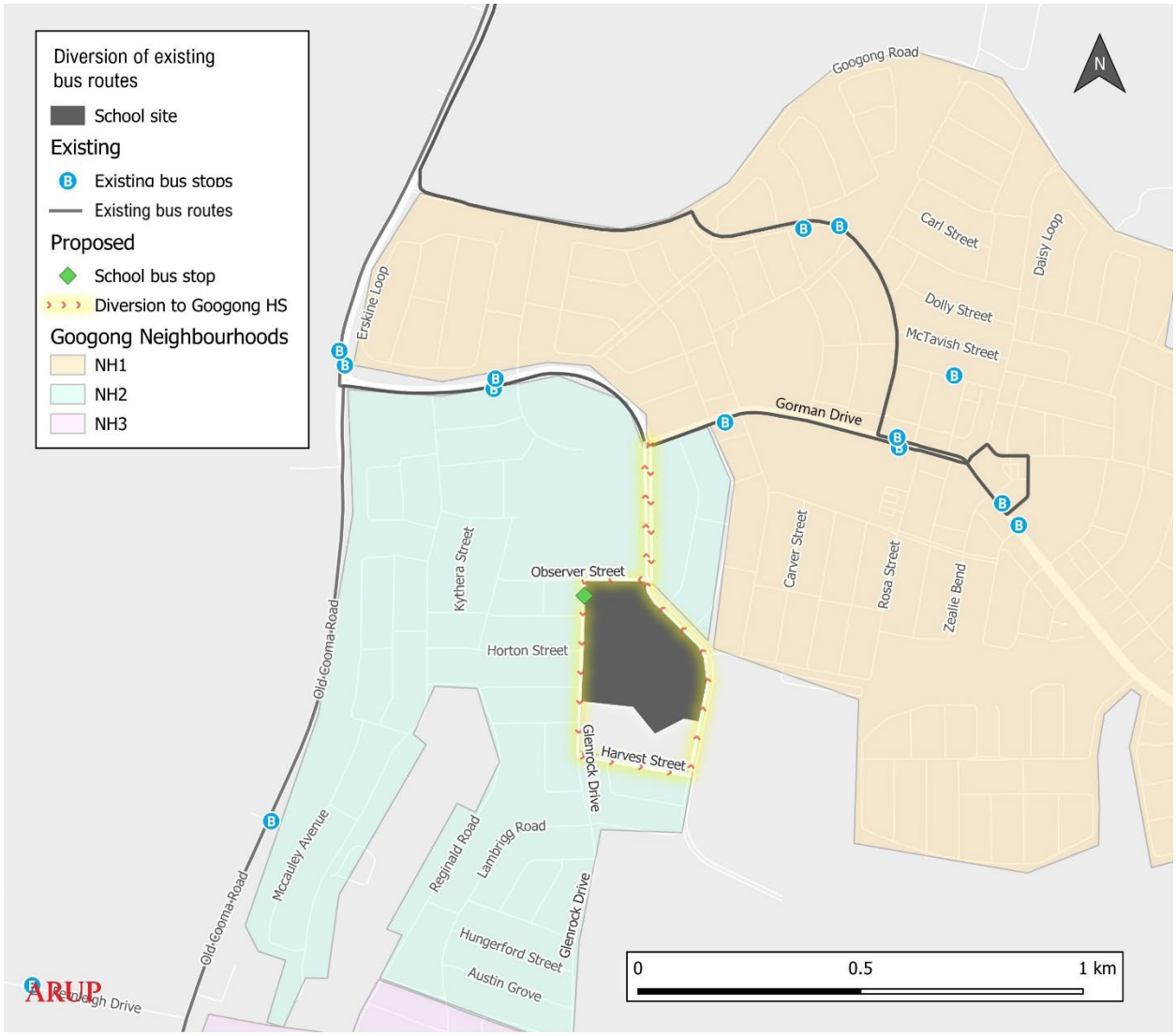


Figure 30. Potential diversion of existing bus services

Masterplan bus route and stops

The full extent of Gorman Drive has been designed to support a bus route that loops around the Googong area. However, it is expected to be completed alongside Neighbourhoods 3-5 and will not be completed prior to Day One of the new high school for Googong.

The location and design of the school bus stop and any necessary works is to be determined in consultation with, and to the satisfaction of:

- Transport for New South Wales' Bus Team, and
- Queanbeyan-Palerang Regional Council

The principle of the proposed bus route was agreed with TfNSW on 19th May 2025 at a TWG meeting. The bus route and stop will be in place prior to Term 1 2027 when the school is opened.

The proposed new roads (highlighted in yellow) and the bus stops suggested in the masterplan would provide public transport options for students living beyond walking distance from the school. This bus route should be considered in future service planning activities.

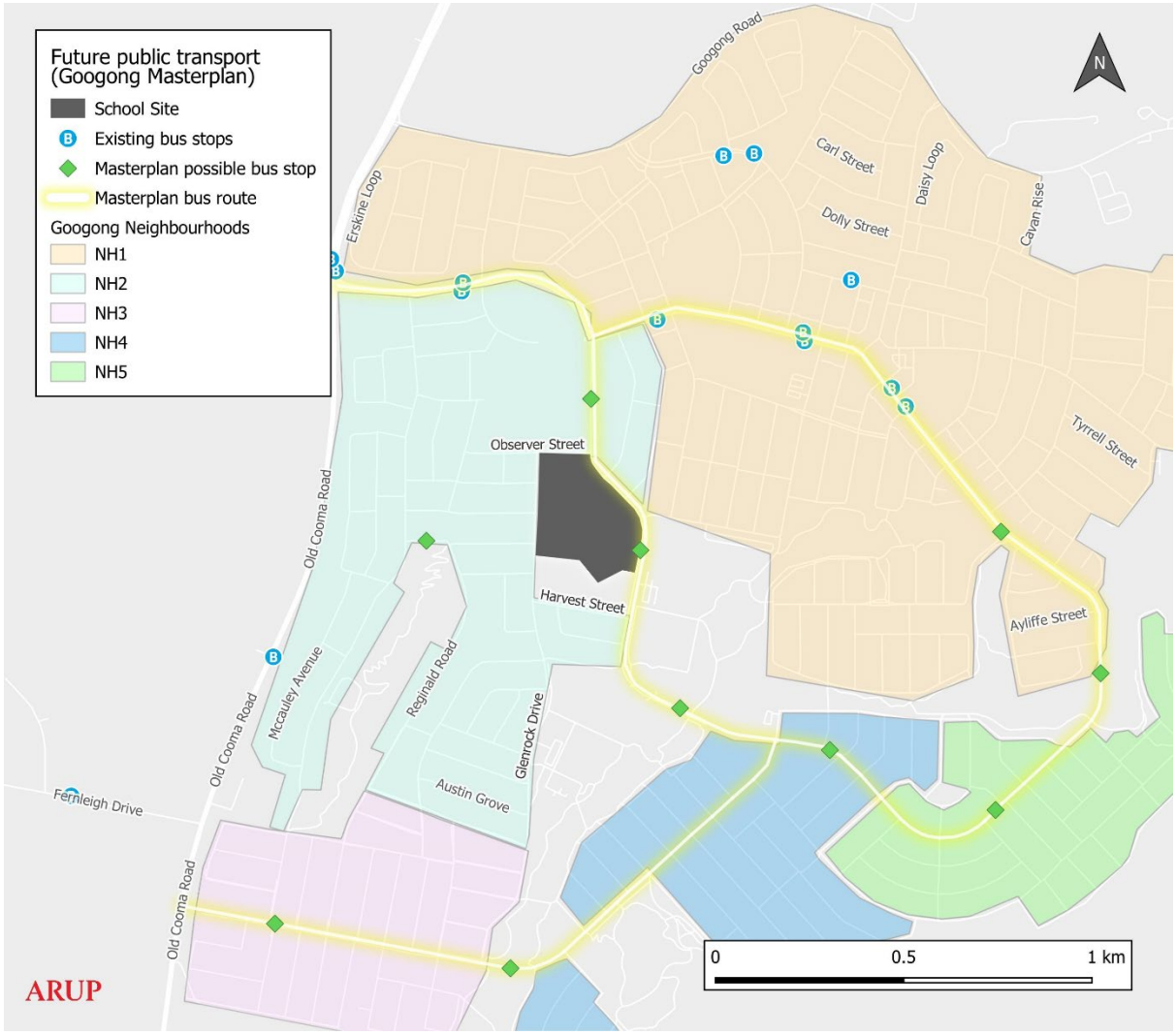


Figure 31. Future public transport (Master Plan bus routes and stops)

North-eastern minibus service

Due to the narrow streets in Neighbourhood 1, regular-length school buses are limited to looping around North Googong town centre, as manoeuvrability constraints and insufficient space prevent them from traveling further east. As a result, a large section of Neighbourhood 1 lacks public transport access.

A 7m mini bus would be able to loop around Duncan Fields to service the area north-east and east of the school. One bus could complete 3 loops in one hour, transporting a maximum of 90 students (~12% of 700 students).

A potential route is shown in Figure 32. Turning paths show that a typical 7m long minibus (seated capacity of 16 to 20 people) shown in Figure 31, may make all the turns on this route.

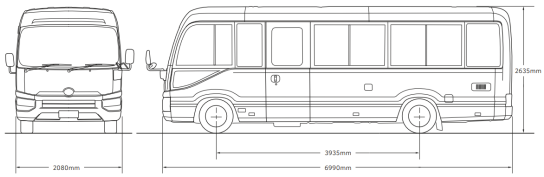


Figure 32 Typical 7m minibus

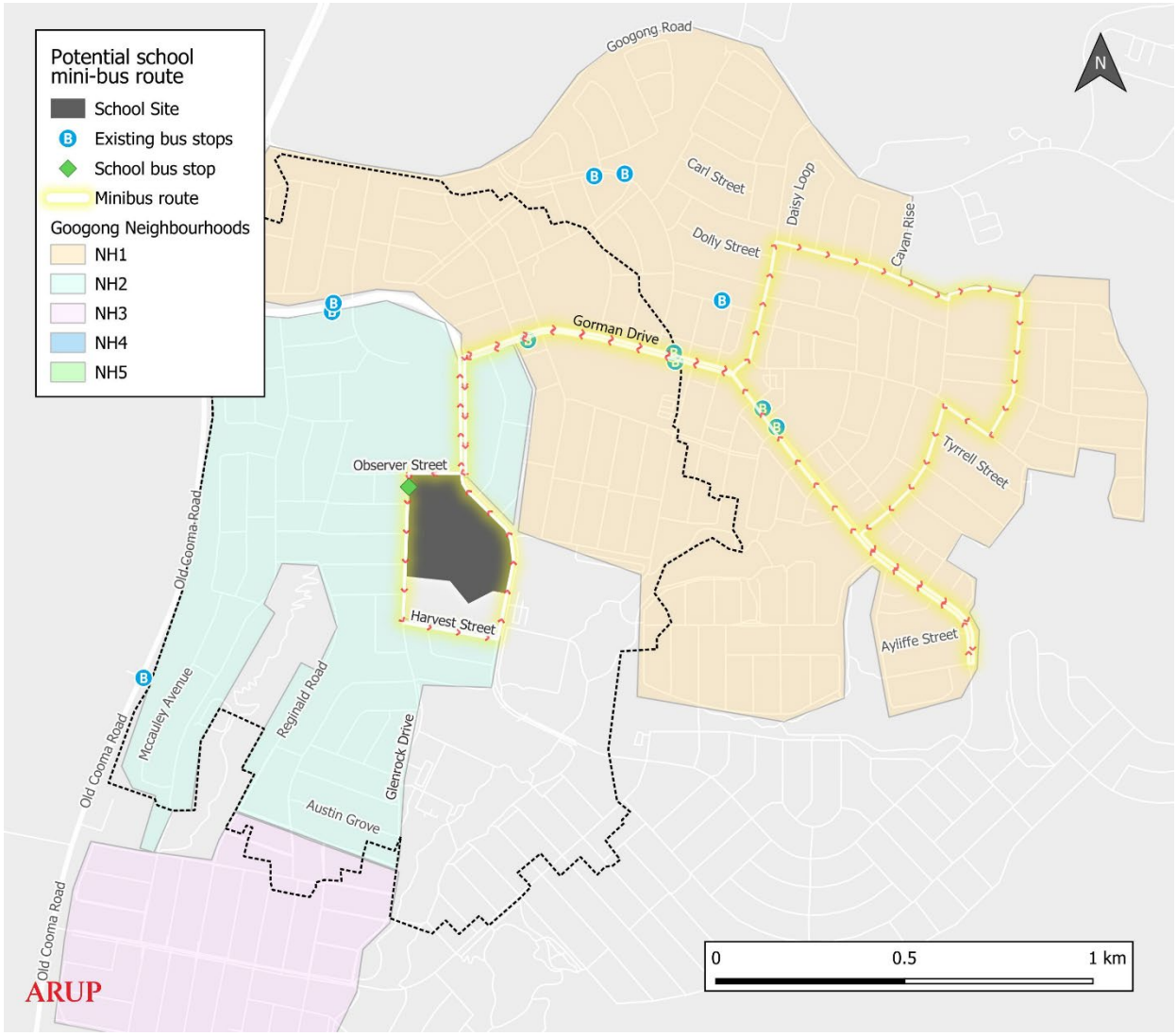


Figure 33. Proposed mini-bus route

4.7 Visitor parking

This section reviews capacity for streets near the new high school for Googong to accommodate school visitor parking. During the RTA, QPRC raised the availability of on-street parking as a potential constraint.

Parking for students and visitors will not be provided on school grounds and they will be encouraged to use alternative modes.

The assessment below finds that sufficient on-street parking capacity is expected to be available during peak visitor demand for the school, minimising the risk of overflow into surrounding streets.

Nearby parking provision

On-street parking in the surrounding streets serves multiple land uses with different demand profiles, including the new high school for Googong, nearby residential developments, and Brooks Oval.

There are three multi-dwelling residential developments within 400 metres of the new high school for Googong on or near Wellsvale Drive. These are shown in Figure 34. Across these three developments, 527 parking spaces were provided. These meet the required parking as set out in Googong DCP 2012. As part of the planning approvals for these three developments, 25 visitor parking spaces for Lot 564 were relegated to on-street parking along their Wellsvale Drive and McFarlane Avenue frontages. Combined, these have capacity for approximately 40 spaces.

Therefore, residential parking demand is expected to be accommodated on-site, reducing the likelihood of overflow into surrounding streets. Peak residential parking activity is expected in the evening and on weekends, outside of school hours, minimising any potential conflict with school-related demand.

In addition, Brooks Oval has 221 on-site parking spaces. Arup note that the adjacent sports field provides parking although the potential to accommodate is subject to planning and liaison with Council.

A site visit conducted in September 2023 confirmed the availability of on-street parking along Wellsvale Drive.

During TWG #3 for the RTA, QPRC suggested that the Kiss and Drop zone on Glenrock Drive be reallocated to short-stay visitor parking when the Kiss and Drop is not operating. However, there is relatively high parking availability near the school and this may present a risk that drivers will overstay parking time limits and disrupt Kiss and Drop operations. As such, it is recommended that visitor parking demand be monitored for 12 months after Day One of school operations to evaluate whether this measure is required. The location of preferred visitor parking locations (including Wellsvale Drive and the western side of Glenrock Drive) should be clearly communicated to parents, carers and other school visitors.

Figure 34. Surrounding sites with significant parking demand

Table 8. Surrounding development total parking provision.

Lot	Total dwellings	Total resident	Total visitor	Total parking
539	13	23	3 on site	26
564	123	215	25 on street	240
566	138	233	28 on site	261
Total	**274**	**471**	**56**	**527**

Residential Flat Buildings and Shop Top Housing	
Number of car spaces (minimum)	1 bed- 1 space 2 bed – 2 spaces 3 bed or more – 2 spaces 1 disabled space for each adaptable dwelling
Visitor parking	3-5 dwellings – 1 space 6-10 dwellings – 2 spaces 11-15 dwellings – 3 spaces For every 5 units thereafter – 1 additional space

Figure 35 Parking rates for residential flat buildings and shop top housing (Source: Googong DCP 2012, Part 7, Table 3)

Parking utilisation at different times of day (Table 9) summarises the expected on-street parking demand. The primary users of on-street parking are expected to be local residents living in single-occupancy dwellings and school visitors. Greatest demand for residential on-street parking is expected to occur in the evenings when residents return home. In contrast, school-related office visits are more evenly spread throughout the morning and day during school and office hours.

Table 9. Anticipated on-street parking demand (developed by Arup)

	7 – 9am	9am – 4pm	4pm – Evening
Residential	Medium	Low	High
School/office visits	Medium	Medium	Low

For large events, such as parent-teacher evenings, parking at Brooks Oval is a reasonable alternative. This would need to be coordinated with the Council to schedule large school events on days without sporting activities (Table 10).

Additionally, the school frontage on Wellsvale Drive can accommodate up to 75 on-street parking spaces (Figure 36).

Parking demand during school hours or full school events is unlikely to overlap with peak residential demand for the on-street parking or parking at Brooks Oval. Coordination with Council will be required if intention is to schedule extracurricular activities necessitating parking usage in facilities such as Brooks Oval.

As such, provision of dedicated visitor parking for the new high school for Googong is not expected to be required.

Table 10. Anticipated on-site parking demand at Brooks Oval (developed by Arup)

	Typical weekday evening	Special school events evening
Sporting activities (weekends and evenings)	High	Low
Parent teacher evening	None	High

Figure 36. Nearby parking availability

5. Travel demand and mode share

This section presents the expected travel demand and mode share targets for students and staff at the new high school for Googong.

5.1 Student mode share

Three mode share scenarios have been developed:

- Scenario 1: Baseline (Do Nothing)
- Scenario 2: 'Medium' active/ public transport mode share
- Scenario 3: 'Reach' active / public transport mode share.

These are described further below. The following sections describe how these targets have been set; using catchment analysis and other locational factors (Section 0) and summarise the selected targets (Section 5.1.2).

Table 11 Description of mode share scenarios

Scenario 1 Baseline (Do Nothing)	Scenario 2 'Medium' active and public transport mode share	Scenario 3 'Reach' active and public transport mode share
Reference made to existing mode share of comparable schools	Inclusion of active transport (e.g. bike bus) and carpool programmes to reduce Kiss and Drop demand Improvement of walking environment, including addition of wombat crossings, complete footpaths along popular routes to provide a safe environment for active travel Introduce local recruitment strategy, travel training and staff recognition programs to encourage use of active and public transport	Encourage parenting community that support children walk and ride to school Provision of enhanced school bus services to further reduce Kiss and Drop demand Behavioural change measures to encourage active transport Car pooling system for staff to reduce car usage Parking management scheme which would discourage the use of single occupant car travel to the site while incentivising employees to travel by alternative modes of transport.

5.1.1 Student mode share benchmarking

Baseline mode share targets were established using a survey conducted at a comparable school – Jerrabomberra High School – in December 2024 as well as other available travel data and active transport catchments.

Jerrabomberra High School Hand-Up Survey

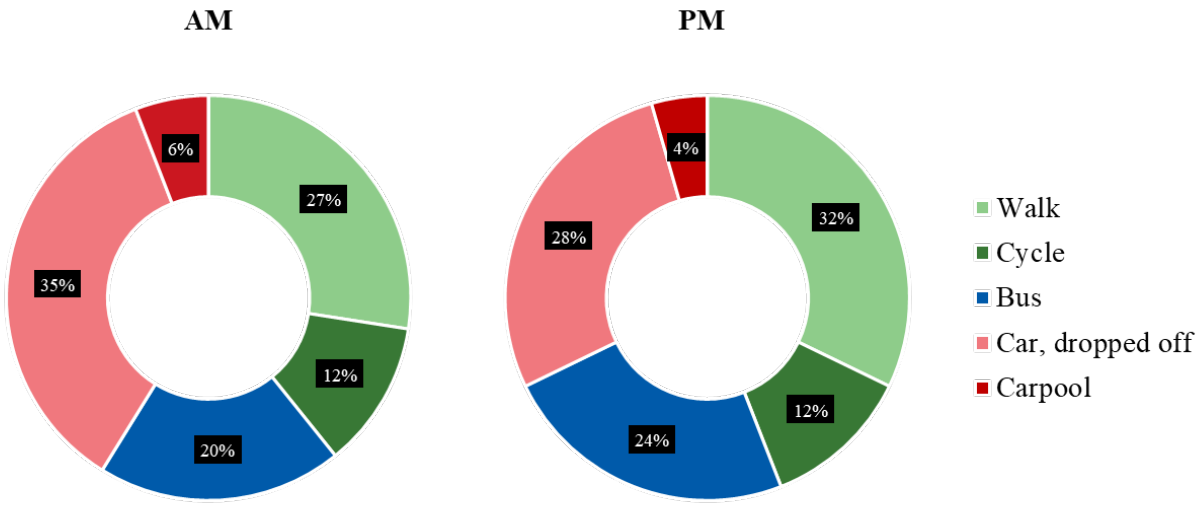


Figure 37. Hands-up survey in December 2024 conducted by Jerrabomberra High School (Arup, 2024).

A 'hands-up' survey was undertaken at Jerrabomberra High School on the week of 2 December 2024. There was around ~86% attendance of full class size which can be considered a good representation of typical conditions. The results reflected Years 7-9 which are the only cohorts operated at the high school in 2024.

The reported bus mode share is quite high, noting that there is one dedicated school bus service in the AM and PM school peak periods that services surrounding residential areas.

Carpooling / car occupancy is low given that only years 7 – 9 were surveyed, this is expected to be greater when the full school population of years 7 – 12 are present. Some students who were dropped off in the AM appear to walk or take the bus back home in the PM.

What this tells us

Older students (years 10 –12) can travel more independently than younger students, and therefore, are more likely to use active transport and public transport. On this basis, the car mode share for all years (Years 7 – 12) are expected to be slightly higher than the survey results. While older students (17+) may choose to drive themselves, these students would not use the Kiss and Drop facility.

Compared to Jerrabomberra, a greater proportion of students at Googong High School live within a 15-minute walk of the school, and walking infrastructure in Googong is generally of a higher standard. In addition, at opening, most students of Googong High School will not have access to a subsidised school bus. As such, Googong High School is expected to have a higher potential walking mode share and lower bus mode share than Jerrabomberra High School.

March 2025

In March 2025 Jerrabomberra High School undertook new hands-up surveys, which showed 41% of students in the AM and 35% of students in the PM travelled by car (14 responses were received). This is similar with the car drive mode share data provided in 2024, which shows that reasonability does not affect those who drive to and from school.

Googong Public School

Mode share data for Googong Public School has been collected across four school terms between 2023 and 2024. The hands up survey results show the car mode share is consistent across these terms in the AM and PM (ranging from 63%-66% in the AM and 55-60% in the PM). This shows seasonality does not affect those who drive to and from school.

Active transport accessibility

The proportion of students within walking distance (0 – 1.2 kilometres) and cycling distance (0 – 3 kilometres) are shown in Figure 41. The images on this graph are an indication of whether cycling or walking might be considered most convenient at each distance.

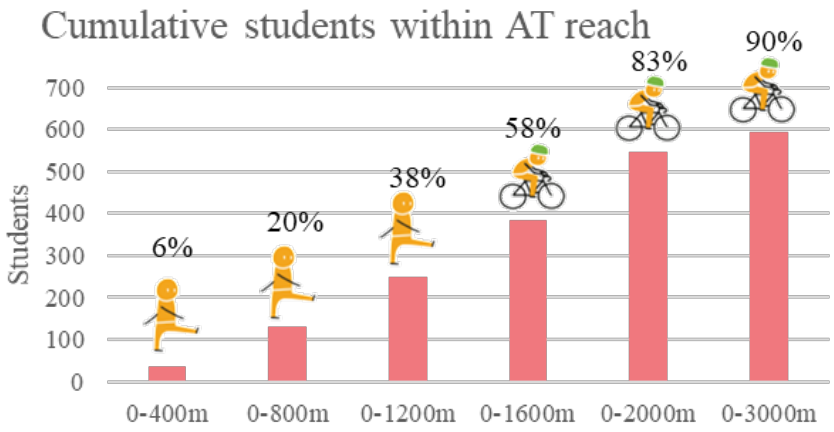


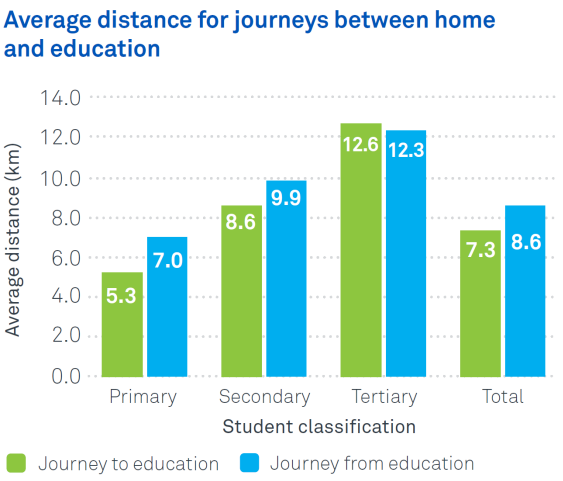
Figure 38. Cumulative students within walking and cycling distance of the new high school for Googong

Travel in the ACT – Queanbeyan Household Travel Survey 2017[1]

Results from the 2017 Household Travel Survey indicated that the region-average distance for a trip to high school was 8–10 kilometres. The most common mode for education trips (all education, including but not limited to high schools) was by car. This included 55% of trips where students were dropped off by car; likely to be primary school and high school students. On average, 15% of students walked or cycled to their place of education.

The new high school for Googong has significant potential to exceed this average, as the majority of future students are located within a 15-minute cycling distance (3 kilometres) of the school.

[1] The 2017 Household Travel Survey has been used in lieu of the 2022 Household Travel Survey as it provides a finer breakdown of distance and mode share for home to education trips.



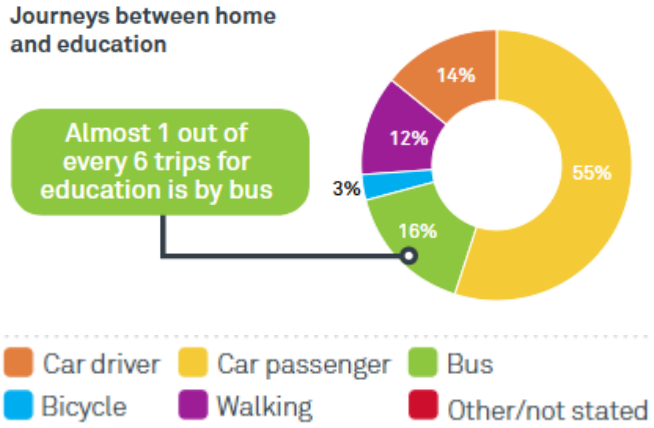


Figure 39. Distance and mode share for education journeys in ACT and Queanbeyan-Palerang Household Travel Survey 2017 (Transport Canberra, 2017).

Benchmarking summary

Rationale for the baseline and 'reach' mode share targets for the new high school for Googong are detailed in Table .

Table 12: Mode share assumptions and rationale used.

Mode	Time period	Jerrabom-berra HS survey results (AM / PM)	New High School for Googong Baseline mode share (AM / PM)	New High School for Googong 'Reach' mode share (AM / PM)	Comparison between Jerrabomberra and Googong	Rationale
Walking	AM	27%	27%	38%	The Jerrabomberra residential area has many through-site links; however, the high school is located in the western corner of the town, with lower walking accessibility compared to Googong.	Most streets in the Googong masterplan are planned to include footpaths, whereas some residential streets in Jerrabomberra lack footpaths. Therefore, the walking mode share in Jerrabomberra has been set as the baseline for Googong. With improvements to crossings and a complete path network, The new high school for Googong is expected to achieve a higher walking mode share in the 'reach' scenario.
	PM	32%	32%	40%		
Cycling	AM	12%	15%	20%	The residential land in Jerrabomberra is slightly more spread out than in Googong. Furthermore, Jerrabomberra is steep in some directions, while Googong is mostly flat.	Cycling in Googong is easier (newer paths, flatter terrain) therefore the baseline mode share has been set higher than the Jerrabomberra survey results. Jerrabomberra High School and Bungendore High School, whose cycling catchment are similar to the new high school for Googong, have set out higher 'reach' cycling mode share targets (35% and 23% respectively) than the Googong RTA. In the last TWG meeting for the RTA, stakeholder feedback was to reduce the 'reach' cycling mode share to 20% (see Section 10 for more details).
	PM	12%	15%	20%		
Bus	AM	20%	10%	20%	Jerrabomberra High School has a dedicated school bus service that covers most of the residential area.	The baseline mode share is based on the existing public transport catchment, consisting of bus services connecting students in rural areas (10%). This assumes that all students

Mode	Time period	Jerrabom-berra HS survey results (AM / PM)	New High School for Googong Baseline mode share (AM / PM)	New High School for Googong 'Reach' mode share (AM / PM)	Comparison between Jerrabomberra and Googong	Rationale
	PM	24%	10%	22%	Googong currently lacks a dedicated service that loops through all the neighbourhoods.	with access to free or subsidised school travel will make use of it. The 'reach' mode share scenario includes a shuttle service looping around the Googong masterplan area (explained in later slides), potentially transporting up to 90 students which would increase the public transport mode share by + 12%.
Car	AM	41%	48%	22%	A conservative mode share assumption has been adopted for the purposes of assessment.	The AM baseline mode share has been set to match the Jerrabomberra High School car mode share (41% inclusive of carpooling and drop off). The PM mode share has been set at 5% lower than the AM baseline mode share; the balance of bus trips has been transferred to car, acknowledging lack of certainty around future provision of bus routes. The 'reach' mode share is calculated based on increases in other modes and the corresponding reduction in car usage.
	PM	32%	43%	18%		

5.1.2 Student mode share scenarios

Figure 42 shows the AM and PM student mode share targets across the baseline, moderate and 'reach' scenarios. The moderate scenario is calculated as an average of the baseline and 'reach' scenarios, based on the rationale presented in Table 12.

Between baseline and 'reach' cases, there is reduction in car mode share of approximately 30%. This is offset by significant increases in walking and cycling mode share due to both infrastructure improvements and community support programs

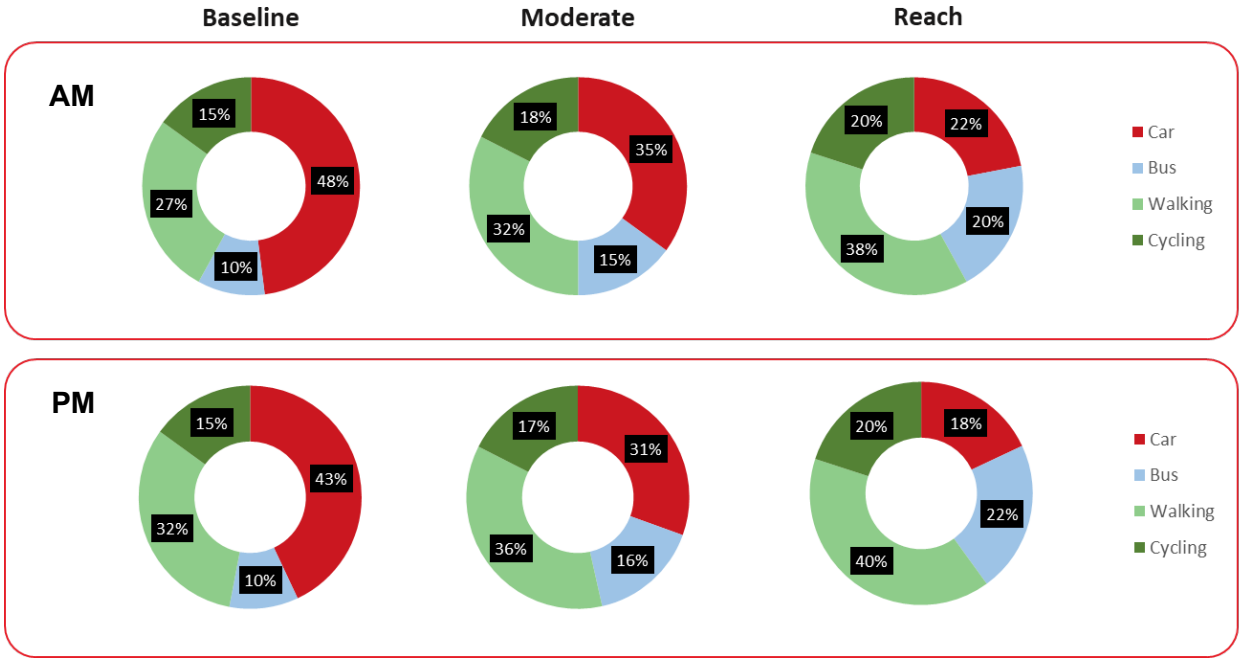


Figure 40. AM and PM mode share targets and scenarios

5.2 Staff mode share

5.2.1 Staff mode share benchmarking

Staff mode share targets are based on 2016 Journey to Work data and a travel survey of Jerrabomberra High School staff undertaken in December 2024.

These were found to be generally comparable, noting that there were higher rates of carpooling for teachers and staff compared with general workplaces. This suggests that carpooling initiatives can be an effective initiative for staff commuting to the new high school for Googong.

Table 13. Comparable mode share using journey to work data and travel survey for Jerrabomberra High School staff (ABS Census, 2016).

Mode	2016 Journey to Work mode	Jerrabomberra High School
Vehicle driver	87%	82%
Carpooled	5%	9%
Public transport	2%	6%
Walking	6%	3%
Bicycle	1%	-
Total	**100%**	**100%**

5.2.2 Staff mode share scenarios

Figure 43 shows the staff mode share targets. The walking, cycling and bus mode shares are based on journey to work data, noting that planning of future bus routes servicing Googong is still underway. The expected vehicle driver and carpool mode share are expected to be similar to the Jerrabomberra HS staff survey.

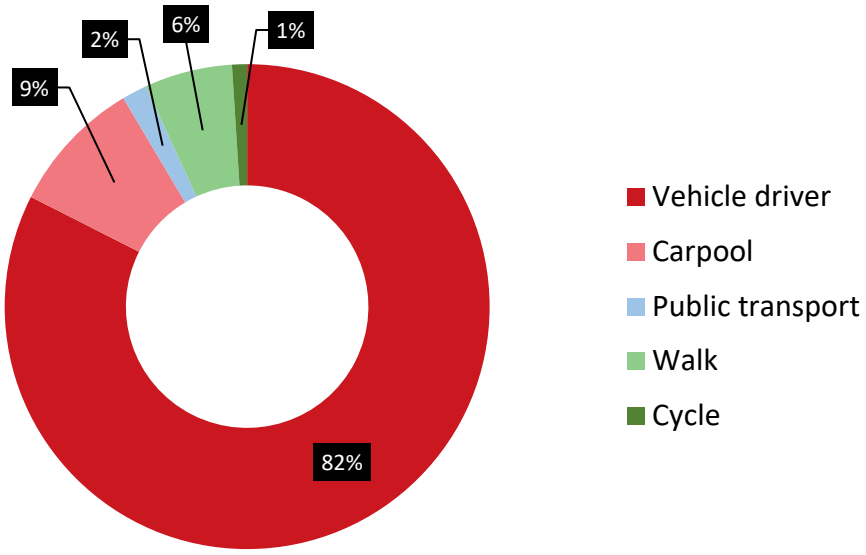


Figure 41 Staff mode share targets for all scenarios.

5.3 Trip generation

The school student and staff population is set out in Table 12.

Table 14. Student enrolment target and staffing requirement for the new high school for Googong (Source: DoE).

Students	Staff	Total
700	55	755

It has been assumed that all staff and students arrive shortly before school starts, and depart shortly after school ends, with peak times set out in Table 15.

Table 15 Peak times for school trips

	AM	PM
Peak 1-hour	08:00 – 09:00	14:30 – 15:30
Peak 30-minutes	08:30 – 09:00 (assuming 09:00 bell time)	2:45 – 15:15 (assuming 15:00 bell time)

However, it should be noted that behaviours would spread the arrival and departure profiles and as such, the assumed profile is relatively conservative. These include:

- Staff beginning work early or leaving work later
- Formal and informal before/after school activities
- Special events such as school excursions.

The trip generation for a typical day is set out in Table 16. This considers a typical school day and it does not explicitly consider other special events such as school concerts, awards evening or school tours which may generate additional trips by parents or carers.

Table 16 Trip generation (all modes)

All trips	AM peak 1hr (08:00 – 09:00)		PM peak 1hr (14:30 – 15:30)		Daily trips	
	In	Out	In	Out	In	Out
Staff	55	0	0	55	55	55
Students	700	0	0	700	700	700
Total	**755**	**0**	**0**	**755**	**755**	**755**

Vehicle trip generation is calculated using the baseline mode share scenarios, which is:

- Students – 48% AM vehicle mode share and 43% PM vehicle mode share. It is assumed that 25 vehicles (9% of AM demand) is generated by students driving (with Provisional P1 licenses), in line with the regional location. An average vehicle occupancy of 1.2 students per vehicle is assumed across both Kiss and Drop and students driving. Kiss and Drop trips generate a vehicle trip both in and out in each peak. This means the total trips recorded differ from those outlined in Table 16.
- Staff – 91% vehicle mode share. This comprises staff that drive or carpool.

Table 17 Vehicle trip generation

Vehicle trips		AM peak 1hr (08:00 – 09:00)		PM peak 1hr (14:30 – 15:30)		Daily trips	
		In	Out	In	Out	In	Out
Staff	Drive self/carpool	50	0	0	50	50	50
Students	Kiss and Drop	255	255	226	226	481	481
	Drive self/carpool	25	0	0	25	25	25
Total		**330**	**255**	**226**	**301**	**555**	**555**

6. Proposed activity

This section outlines the infrastructure provisions and arrangement planned as part of the school development, focusing on active transport facilities, car parking, bike parking and End of Trip (EoT), Kiss and Drop, and site access. Included are explanations of which relevant standards and provision rates were used to calculate the final infrastructure requirements, such as Green Star, Austroads, or mode share targets.

6.1 On-site active transport provision

There are multiple standards available to calculate parking requirements for bicycles and scooters. The selected calculation method and the resulting parking provisions that this activity will deliver are highlighted in green in Table 15 (bicycle and scooter parking) and Table 16 (EoT facilities).

Table 18. Bicycle / e-scooter parking provision rate.

No.	Standard	Provision rate	Spaces
55 staff	Green Star	Parking spaces for 7.5% of staff	5
	Austroads	N/A	-
	Mode share	Bicycle parking based on mode share target 1%	1
700 students	Green Star	Parking spaces for 40% of students (over grade 4)	280
	Austroads	1 per 20 secondary student (5%)	35
	Mode share	Bicycle parking based on Scenario 3 ('Reach') mode share target of 20%	140

Notes:

DCP: No bicycle parking provisions mentioned in either Googong DCP 2010 or Queanbeyan DCP 2012.

Greenstar: Design & As Built v1.3 indicates that secure bike parking for 40% of students over grade 4 should be provided. Secure bicycle parking for 7.5% of total regular staff should be provided

Austroads: Austroads Guide to Traffic Management Part 11 provides a suggested rate of 1 per 20 high school students, however these rates are only examples.

Standards Australia: Bike parking space has been allowed as per Figure B5 in AS2890.3 2015. A U-Rail can accommodate 2 bike spaces. Vertical wall mounted bicycle parking not suitable for student bike parking.

Figure 42 U bike racks provide secure and flexible bike parking for school students (Source: NSW Government)

Table 19. EoT provision rate.

EoT	Standard	Provision rate	Quantity
Locker	Green Star	1 per 1.2 staff bicycle parking	5
	NSW Government	1 per 3 staff bicycle parking	1
Shower	Green Star	4 showers for 50-149	4
	NSW Government	4 unisex showers for 50-149 staff	4

Notes:

NSW Government Planning Guidelines: for Walking & Cycling 2004 Table 3 shows a lower rate of locker provision than Green Star. Shower requirement same as Green Star.

Green Star: Design & As Built v1.3 released in 2019 is a **newer** than NSW guidelines and calls for a higher number of lockers.

6.2 Car parking provision

6.2.1 Kiss and Drop

The estimated Kiss and Drop requirements are set out below in Table 17. Each Kiss and Drop space will be 6.5m long to enable independent manoeuvring in and out of parking spaces. Dwell times are consistent with other schools. Dwell times differ between drop-off and pick-up, as students take longer to locate their parents' (or carers') cars in the afternoon. We note that the assumed dwell time of 2 minutes (in the PM) is relatively conservative given that the age and relative independence of high school students.

A car occupancy rate of 1.2 students per car aligns with site observations completed by PTC consultants[2] for drop-off operations in other schools.

The proposed Kiss and Drop capacity has been designed to accommodate the Baseline scenario. This represents a worst-case demand without significant mode shift towards active travel and public transport. With the implementation of committed measures supporting active transport and the achievement of Moderate to 'Reach' mode share targets, demand for Kiss and Drop spaces is expected to decrease as shown in Figure 45. This approach provides flexibility and sufficient capacity, preventing overflow and queuing caused by Kiss and Drop activity if mode shift occurs more gradually than expected.

Table 20. Kiss and Drop provision.

	AM	PM
Total number of students	700	700
Car mode share based on Scenario 1 Baseline	48%	43%
No of students being driven	336	301
Car occupancy	1.2 students/ car	1.2 students/ car
Dwell time at kerb (conservative estimate for sizing)	1.5 mins (drop-off)	2 mins (pick-up)
Peak window for car arrivals	30 minutes	30 minutes
Number of Kiss and Drop spaces[1]	14 (91m)	17 (111m)
Note: Accessible Kiss and Drop space to be designed as per AS/NZS 2890.6-2009.		

A probabilistic queueing assessment has been undertaken on the Kiss and Drop zone (Section 7.1), with more detailed discussion of the above parameters.

[2] Transport and traffic assessment - New Primary School in Edmondson Park, (ptc consultants, 2021)

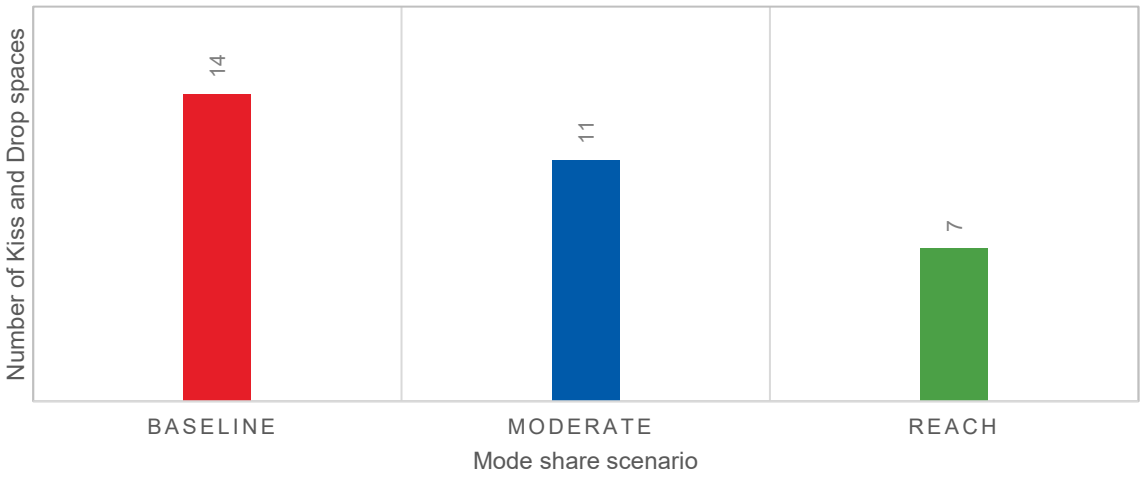


Figure 43: Comparison of Kiss and Drop space requirements depending on mode share target achieved

It is recommended that the Kiss and Drop zone be marked in paint along the kerb to supplement signage and clearly indicate to drivers where they may stop (example shown in Figure 44).

Figure 44 Blue paint along the Kiss and Drop zone reinforces signage at Jerrabomberra Public School (Source: Google Street view)

6.2.2 Car parking

As the Googong DCP does not provide car parking rates for schools, the rate of 1 car parking space per staff was agreed on during a previous Googong RTA TWG meeting. The car parking will be managed to prioritise, for example, with the most convenient parking spaces for those who carpool.

According to National Construction Code (NCC) Section D Part D3, one accessible parking space out of 100 needs to be an accessible space.

No student car parking is proposed as DoE does not provide on-site car parking for students and the staff car parking would be access controlled (requires staff to scan their access fob).

Students with provisional licenses (that is, some Year 12 students) who choose to drive will need to use on-street parking. As assessed in Section 6.2.2, a site visit confirmed the availability of on-street parking, and an analysis of nearby land use indicates that parking demand during school hours is unlikely to overlap with peak residential demand.

Table 21. Car parking provision on-site.

No.	Car parking Rate	Required	Proposed
55 staff	1 space per staff (inc. 2 accessible space)	55	55

6.3 Site access provisions

The figures on the following pages summarise the proposed provision for people walking and cycling (Figure 46) and people driving or using public transport (Figure 47) to the new high school for Googong.

6.3.1 Access provision for people walking and cycling

Wombat crossing with kerb blisters

5 wombat crossings will be delivered as part of this activity.

Kerb blisters are recommended on Harvest St and Observer St to narrow the traffic lanes so that pedestrians are more visible by drivers to enhance safety. Swept paths attached in the Appendix demonstrate car and bus access is not impacted.

All wombat crossings are to be well illuminated with street lighting designed according to AS/NZS1158.4.

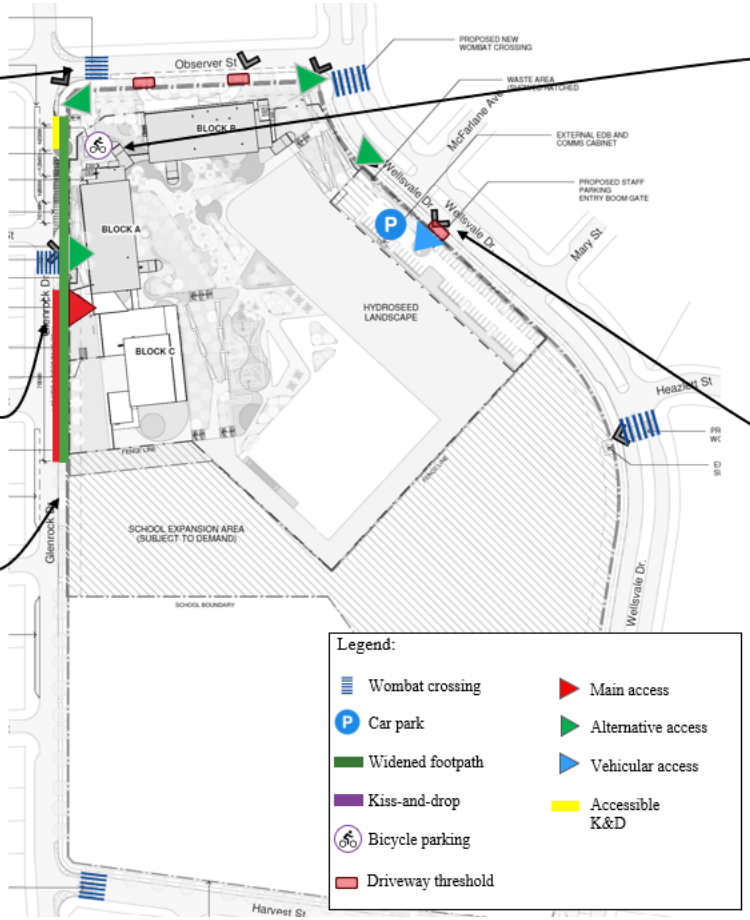
Main access aligned with wombat crossing

The wombat crossing is located close to the main pedestrian access. This allows people to cross easily and safely, but the horizontal deflection means students are directed to slow down before crossing.

Wide footpath

Proposed along the west frontage to increase capacity for pedestrian movement and waiting. Transport for NSW's Walking Space Guide suggests a Type 4 3.9m wide footpath adjacent to schools.

The activity will deliver a 3.9m footpath adjacent to the bus zone, and 4.8m footpath adjacent to kiss and drop.



Bicycle parking

Secure bicycle/ scooter parking for students and staff.

Footprint as per Figure B4 in AS2890.3 2015. Requires approx. 132m^2

140 spaces for students and 5 spaces for staff is proposed as part of this activity.

4 shower and 5 lockers in staff end of trip facilities would be required for staff under Green Star.

Driveway thresholds

Provide continuous footpath/threshold treatments across driveways into the school site at Wellsvale Drive and Observer Street. This design improves safety for students walking, cycling, or scooting by giving clear visual cues to drivers entering carparks about the presence of pedestrians and their right of way. This encourages slower, more cautious vehicle movements.

Layout plan (20/01/25) is conceptual and subject to change.

Figure 45. Pedestrian and cyclist site access and provisions. Layout plan dated 20/01/2025 is conceptual and subject to change

6.3.2 Access provision for people using public transport and driving

Please note that detailed cross sections for Glenrock Drive are provided in the Appendix to this report.

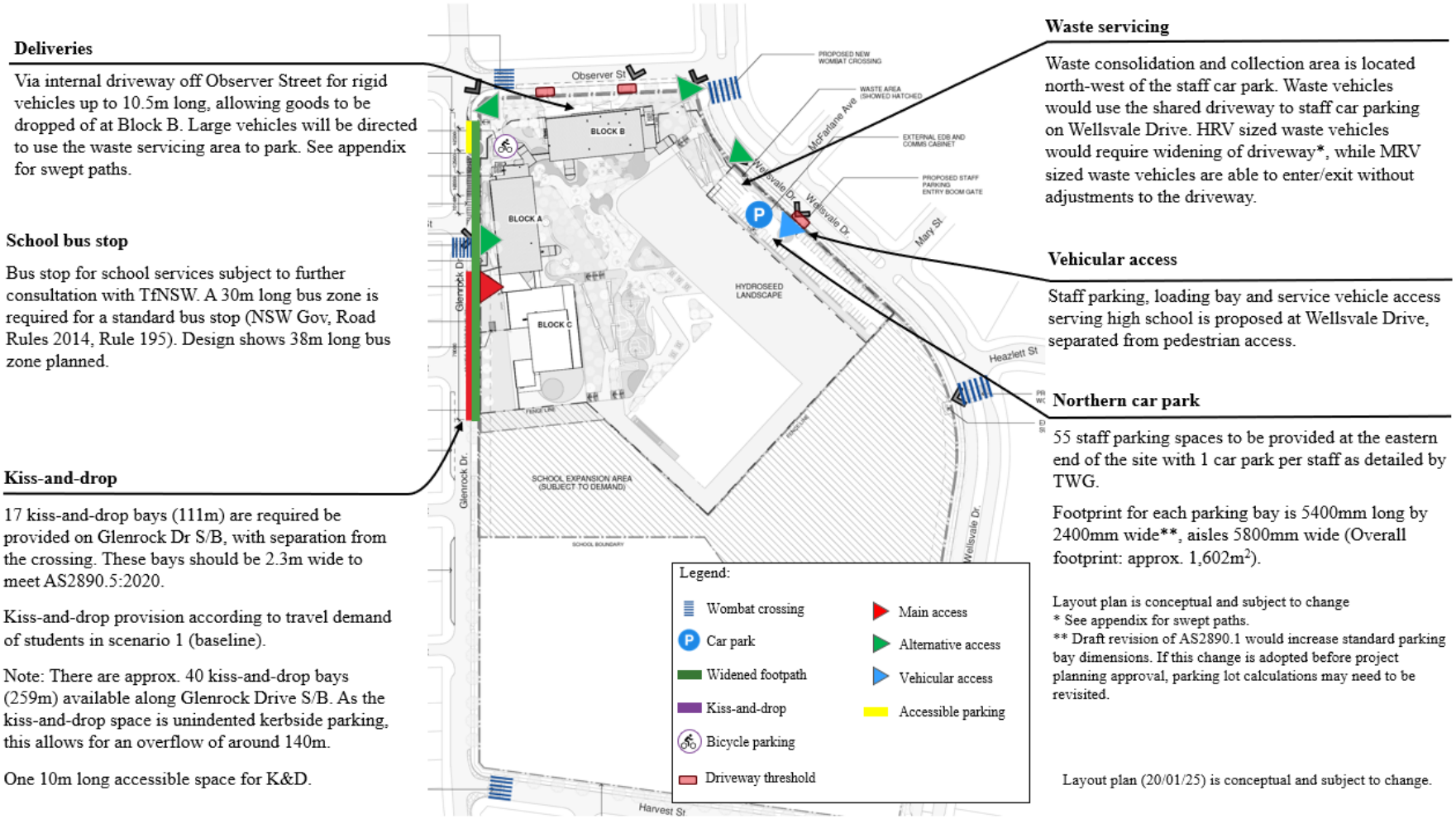


Figure 46. Vehicles and public transport site access and provisions. Layout plan dated 20/01/2025 is conceptual and subject to change.

Staff car park access

The car park entry is located on the northbound lane (western side) of Wellsvale Drive. The staff car park has left-in / left-out access to/from Wellsvale Drive (Figure 48). By locating the car park entry south of the Wellsvale Drive / McFarlane Avenue intersection, it:

- Eliminates potential conflict with turning movements at the Wellsvale Drive / McFarlane Avenue intersection
- Allows all turning movements at McFarlane Avenue to be maintained.

Route diversions will be required to replace the disallowed right-turn movements to/from the car park. These are illustrated in Figure 49 (right image).

- For staff accessing the car park from the north on Wellsvale Drive, this would require a diversion onto Mary Street. This is approximately 250m extra travel distance compared to a right-turn from Wellsvale Drive. Alternatively, they may complete a u-turn at Wellsvale Drive / Mary Street.
- For staff exiting the car park to the south, this would require a diversion via McFarlane Avenue, or via Observer Street, Glenrock Drive and Harvest Street. Either option is approximately 500m extra travel distance compared to a right-turn onto Wellsvale Drive. This would only impact staff that live in Neighbourhoods 4 and 5, noting that these are expected to be complete after Day One of the school operation. Alternatively, they may complete a u-turn at Wellsvale Drive / McFarlane Avenue.

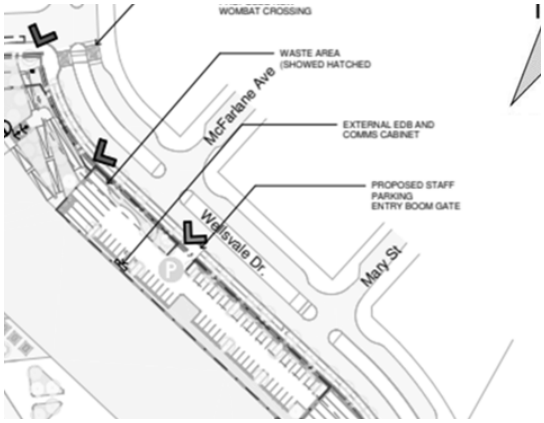


Figure 47 Staff car park access from Wellsvale Drive - extracted from NBRS Site Plan

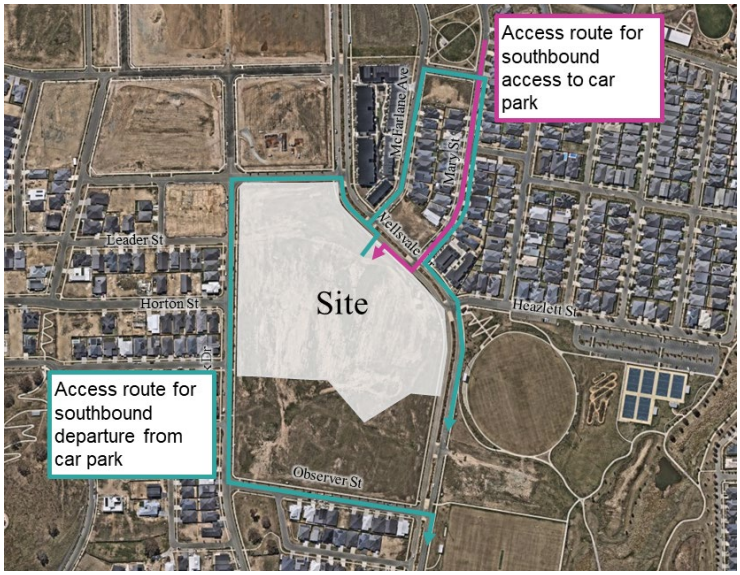


Figure 48 Right image showing alternative routes to replace right-turn access to/from the car park.

Delivery vehicle access

Deliveries to the school are expected to include:

- Twice-yearly deliveries to the woodworking workshop; this has been modelled using a 10.5-metre rigid truck
- Frequent (multiple per week) supermarket deliveries to the canteen; this has been modelled using an 8.8-metres Medium Rigid Vehicle.

The 10.5-metre rigid truck turning path analysis confirms that a left-in, left-out operation is feasible without vehicle wheels leaving the inner site driveway path. Swept paths have been provided in the Appendix.

Waste collection access

Longer HRV vehicles are typically used by council for waste collection. However, a smaller MRV sized waste collection vehicle could be considered if waste collection is undertaken by private contractor (subject to Council approval).

Swept path analysis was conducted for Heavy Rigid Vehicles (HRV, 12.5m) and Medium Rigid Vehicles (MRV, 8.8m) based on the 20/01/25 school site plan. The assessment found that HRV access could be accommodated with a 300mm widening of the car park driveway and that an MRV is capable of completing left-in, left-out movements without any modifications to the driveway. As of January 2025, the site plan includes a wider driveway that can accommodate the left-in movement of an HRV but does not provide sufficient space for a left-out movement without the vehicle encroaching onto the verge. To facilitate left-out movements for HRVs, a widened splay is required at the driveway. Swept path diagrams illustrating this are provided in the Appendix.

Emergency vehicle access

Ambulances and other small emergency vehicles are able to access the site through the northwest corner of the site. The Observer Street driveway can also be used for parking by emergency service vehicles.

Larger NSW Fire Service vehicles would need to park on Observer Street driveway or the Kiss and Drop facility on Glenrock Drive, or the staff car park. The location would depend on the specific nature and location of the emergency. A fire booster is located at the main entry forecourt.

6.4 Proposed construction access route

This section relates to the proposed access route during construction. The functional classification of surrounding roads is shown in Figure 19. Two potential access routes have been considered. These are:

- Option 1: Site access via Observer Street
- Option 2: Site access via Wellsvale Drive opposite McFarlane Avenue.

Both options use Old Cooma Road and Wellsvale Drive. These are both classified as arterial roads.

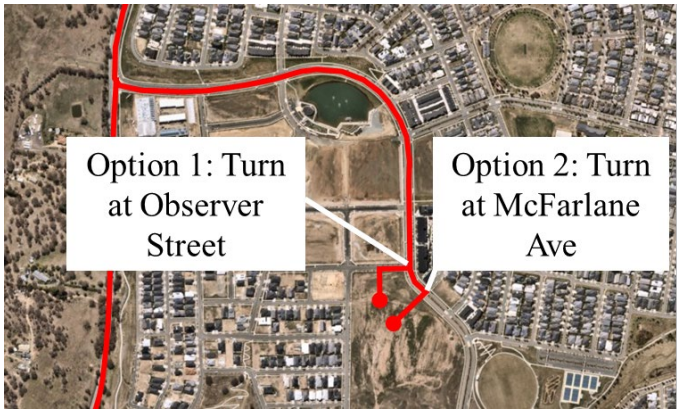


Figure 49. Construction route Options 1 and 2.

Swept path analysis showed that:

- Articulated vehicles can complete a right turn from Wellsvale Drive into Observer Street without issues.
- A right turn from Wellsvale Drive into Site from the median opening adjacent to McFarlane Street is feasible for a heavy rigid vehicle (HRV, 12.5m) but not for articulated vehicles (19m) without mounting the median.

As such, to accommodate articulated vehicles, it is recommended that the construction site entry be located on Observer Street (Option 1). It is noted that proposed construction routes should be considered as part of a S38 application to Council if traffic management of traffic control plans are required, and any proposed permanent traffic control devices and signage should be referred to the Local Traffic Committee for endorsement prior to operation to ensure enforceability.

Swept paths are provided in the Appendix.

7. Cumulative Impact Assessment

Further residential, community, and mixed-use developments in both the immediate and broader vicinity of the school continue to reshape the landscape. The impact of this sustained development on the surrounding transport and traffic network is considered in conjunction with the operation of the proposed school.

This section outlines the cumulative impact of the proposed activity. Impacts listed in this assessment which are addressed by this activity are listed in Table 19. Additional recommendations for broader initiatives (which would be carried out by others) that would also benefit the school and Googong Township are listed in Project recommendations.

Table 22: Description of anticipated impacts of the school project.

Impact	Description
Road network performance at critical intersections reaching capacity.	Kiss and Drop operations at the school are expected to generate 255 vehicle trips in the AM peak and 226 vehicle trips during the PM peak period. Trips for Kiss and Drop activity have been considered as both in and out trips. Additionally, the high car mode share for journey-to-work trips in the LGA indicates that new residential subdivisions will contribute to increased traffic during the morning peak. SIDRA intersection analysis indicates that intersections continued to operate above LOS B on the addition of school trips to background traffic (see Section 7.1). Queues of up to 40m may form on the southern approach to the pedestrian crossing on Wellsvale Drive near Observer Street.
Parking demand	Daily parking demand will primarily be driven by school staff (55 in total) and small demand for visitor parking during the school day. Infrequent school events, such as parent-teacher evenings, are expected to also generate significant additional parking demand in the evenings which are likely to impact nearby streets and off-street uses such as at Brooks Oval.
Queuing at staff car parking entrance	Access to car park is via Wellsvale Drive, some staff travelling from the north travelling southbound on Wellsvale Drive would need to make a diversion or u-turn as described in Section 6.3.2.
Queuing associated with Kiss and Drop	In the AM peak, no significant queuing is anticipated at the Kiss and Drop facility (see Section 7.2) In the PM peak, using Base Case demand of 226 vehicles, a 95th percentile queue of 19 vehicles would impact the upstream intersection of Glenrock Drive / Observer Street. If pick-up times of 1.5 minutes per vehicle (a reduction from 2 minutes) can be achieved, no significant queuing is expected. It is noted that it is likely that some students may be picked up from other locations or following after-school activities. This demand reduction would also mean no significant queueing at the Kiss and Drop would be expected. In a high school environment, both of the above scenarios are considered to be feasible.
Walking and riding safety around school	With most students living close to the school, a high number of students are expected to walk or ride. This poses risks associated with the roadside environment, such as high vehicle speeds and insufficient crossing infrastructure. Students approaching from multiple directions increase the number of conflict points between pedestrians and vehicles, particularly at key intersections and along busy roads. The high level of activity around the school perimeter—including Kiss and Drop zones, school buses, and pedestrian movements—creates a complex environment for drivers.
Limited dedicated school bus routes	No current bus or school service routes pass near the new high school for Googong on Glenrock Drive. Collaboration with TfNSW and nearby schools will be needed to provide appropriate transport options.
Waste truck impact on driveway	Waste truck (12.5m heavy rigid vehicle) likely to mount the kerb when exiting the car park onto Wellsvale Drive.

7.1 Traffic and intersection impacts

A traffic assessment was undertaken in SIDRA (version 9.1) for the AM and PM peak period.

The assessed intersections are shown in Figure 50 and were selected on the basis of the high traffic movements associated with school Kiss and Drop. The type of traffic control at each assessed intersection is described in Table 23.

Table 23: Description of assessed intersections

ID	Intersection	Traffic Control
1	Observer Street / Glenrock Drive	Priority controlled, Cross-intersection, Wombat crossing on east leg
2	Observer Street / Wellsvale Drive	Priority controlled, T-intersection, Wombat crossing on south leg
3	Wellsvale Drive / Heazlett Street	Priority controlled, T-intersection, Wombat crossing on south leg
4	Harvest Street / Wellsvale Drive	Priority controlled, T-intersection
5	Harvest Street / Glenrock Drive	Priority controlled, T-intersection, Wombat crossing on east leg

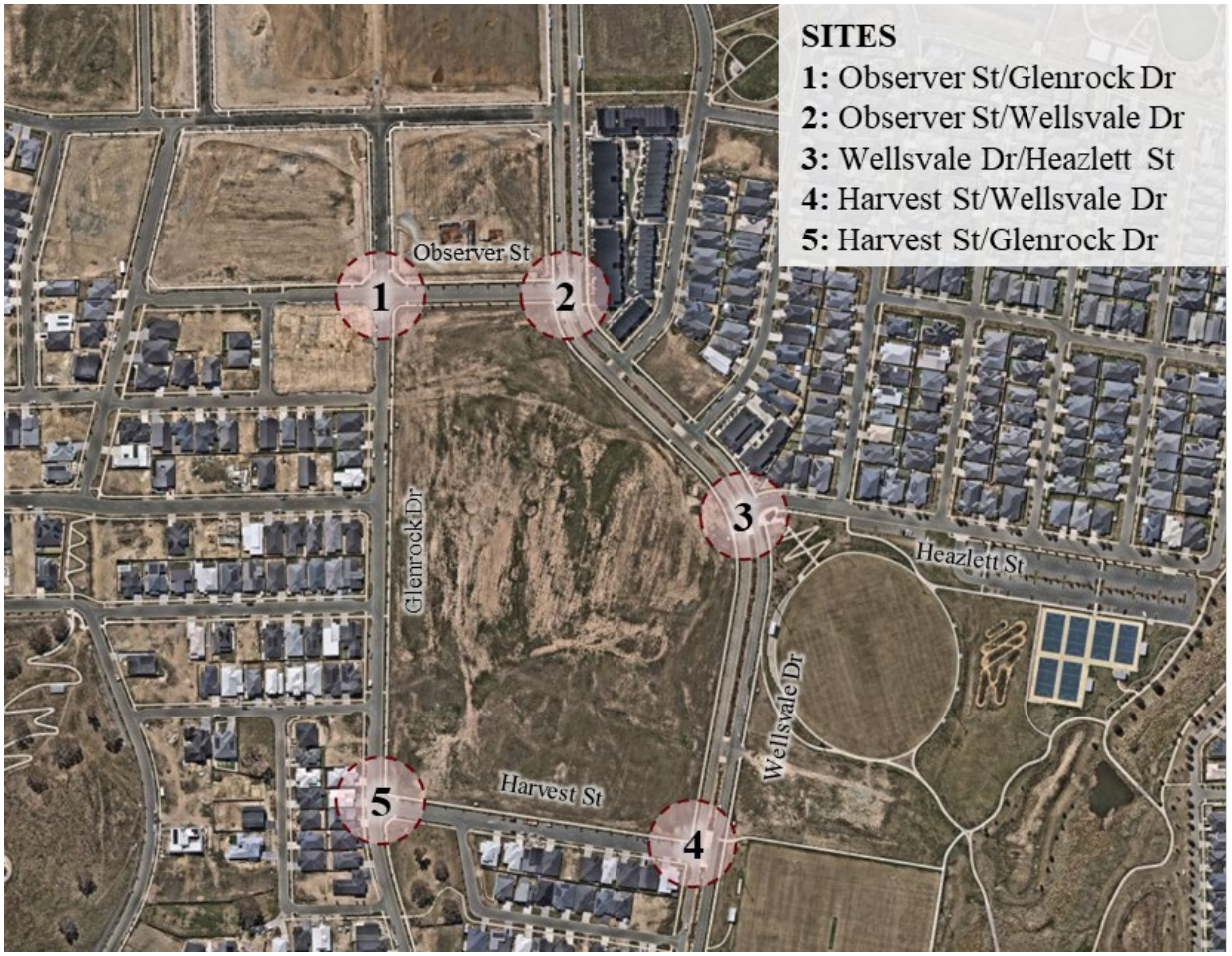


Figure 50. Location of assessed intersections

The input demands have been derived based on a combination of trip generation rates, number of residential dwellings, trips to / from the Town Centre and distribution assumptions. They consider full buildout of Neighbourhoods 1, 2 and 3 in the Googong Masterplan.

The resulting traffic volumes were compared with road link volumes within Googong as reported in Queanbeyan City Council's 2014 report *TRACKS Model South Jerrabomberra and Queanbeyan Traffic Analysis* to validate our traffic volume results. It was found that the overall outbound AM volumes and inbound PM volumes in this SIDRA assessment are higher than those in Queanbeyan City Council's 2014 report, indicating that this SIDRA assessment is more conservative.

Further details of the derivation process and comparison with the TRACKS model volumes can be found in Appendix A.2.

As part of the SIDRA assessment process, a conservative approach was adopted. The key elements of this approach are described below, with further details of model assumptions provided in Appendix A.2A.2.

- Intersection configuration
  - Intersections along Wellsvale Drive have been modelled as a single intersection and do not consider the storage capacity of the wide median. This impacts the modelling results by increasing queues and delays, in particular for right turn movements out from the minor leg as the critical gap acceptance is higher (i.e. must yield to both traffic lanes)
- Vehicle demands
  - For intersection turning movements which did not have any demand associated from the derivation process, a nominal 20 vehicles per hour have been added to account for background and potential construction traffic.
  - The peak flow factor has been adjusted from the default value to 50% to consider the profile of school operations (Kiss & Drop) for all movements. This adjustment assumes that instead of traffic arriving and exiting uniformly across an hour, the demand is concentrated in a 30-minute period. Therefore, all derived hourly demands input into SIDRA are effectively doubled as part of the assessment.
  - While predominantly servicing residential land use, an additional 5% heavy vehicles based on the total light vehicle volumes have been added for the through movements along Wellsvale Drive.
  - For this assessment, the AM peak period likely represents the worse performing peak as the school Kiss & Drop / arrivals generally coincides with commuter trips from 8 to 9 AM. In the PM peak, school dismissal generally occurs around 3-4PM, while commuter peak is 5-6PM. Both peaks have been assessed to determine if there are any issues with localised movements.
- Pedestrian demands
  - Pedestrian demands at four wombat crossings were included in the SIDRA assessment based on estimated volumes in Table 6.

The modelled SIDRA network is shown in Figure 51. The assigned volumes can be found in Figure 63 and Figure 64 in Appendix A.2.1.3.

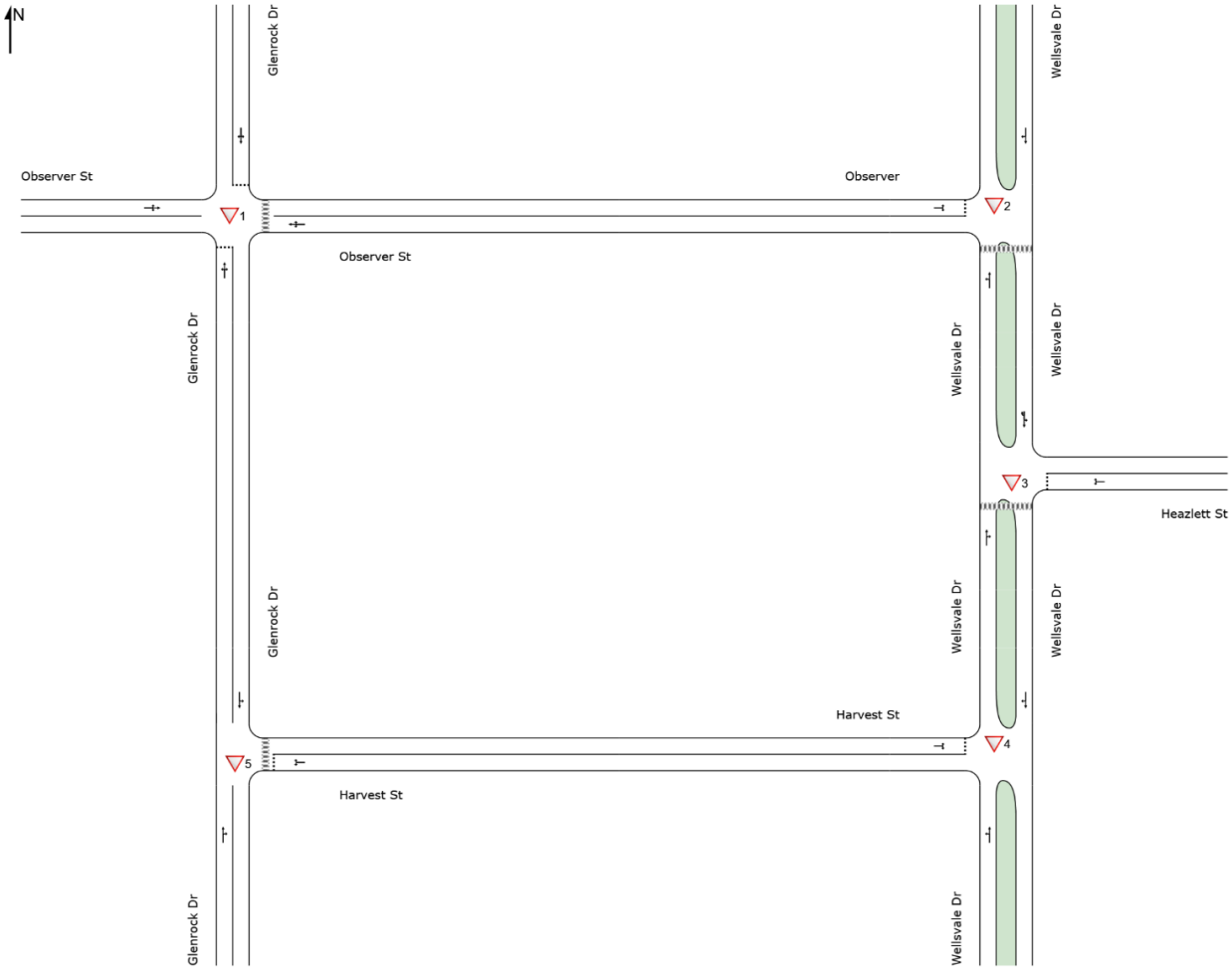


Figure 51: SIDRA modelled network

Assessment Metrics

The adopted intersection traffic performance criteria are described below. These performance criteria are considered industry standard in the absence of project specific requirements and represent a satisfactory functioning intersection.

- A minimum overall intersection Level of Service (LoS) of D for priority-controlled intersections (see Table 24.
- A Degree of Saturation (DoS) of no more than 0.85 for priority-controlled intersections.
- The 95th percentile queue lengths do not extend back to an upstream intersection.

Table 24. Level of Service definitions (Source: HCM 2010)

LoS	Priority Control Delay (s)
A	≤ 10
B	10 < d ≤ 15
C	15 < d ≤ 25
D	25 < d ≤ 35
E	35 < d ≤ 50
F	> 50

Results

A summary of the overall intersection performance results is provided in Table 25. The full results by approach and movement are provided in Appendix A.2.

Table 25. Summary of overall intersection performance

Intersection	LoS* | Avg Delay (seconds)	DoS	Longest 95th percentile queue length (m) | Approach
AM PEAK			
Observer Street / Glenrock Drive	A | 4	0.3	11 | East approach (Observer St)
Observer Street / Wellsvale Drive	A | 4	0.53	35 | South approach (Wellsvale Dr)
Wellsvale Drive / Heazlett Street	A | 4	0.2	5 | East approach (Heazlett St)
Harvest Street / Wellsvale Drive	A | 3	0.10	3 | West approach (Harvest St)
Harvest Street / Glenrock Drive	A | 3	0.12	4 | North approach (Glenrock Dr)
PM PEAK			
Observer Street / Glenrock Drive	A | 4	0.3	5 | East approach (Observer St)
Observer Street / Wellsvale Drive	A | 4	0.54	15 | North approach (Wellsvale Dr)
Wellsvale Drive / Heazlett Street	A | 3	0.19	1 | South approach (Heazlett St)
Harvest Street / Wellsvale Drive	A | 3	0.1	1 | West approach (Harvest St)
Harvest Street / Glenrock Drive	A | 3	0.15	2 | North approach (Glenrock Dr)

* SIDRA does define overall intersection and approach LoS for priority-controlled intersection. Specified LoS based on overall intersection delay.

In summary:

- All intersections in both peaks meet the adopted performance criteria.
- Northbound 95th percentile queues during the AM peak on Wellsvale Drive at Observer Street develop to approximately 40m as a result the high-volume pedestrians using the wombat crossing. The nearest upstream intersection is McFarlane Avenue which located approximately 55m south from Observer Street.
- Based on these outcomes, the intersections (with the wombat crossings) are likely able to accommodate the increased demands associated with the school.

The following should be noted:

- The SIDRA assessment does not consider any queuing / delay associated with Kiss and Drop operations on Glenrock Drive. Based on the analysis in Section 7.1, it is assumed that the proposed number of spaces (see Section 6.2.1) will be sufficient to accommodate the demand and not impact intersection operations.
- The proposed school development will include a wombat crossing across the south leg of the Leader Street / Glenrock Drive intersection. While this intersection has not been included as part of the SIDRA assessment, it can be inferred that based on similar through volumes (~250) across the wombat crossing and lower pedestrian demand (69 versus 137) in comparison to the Observer Street / Wellsvale Drive intersection, the Leader Street / Glenrock Drive intersection will likely perform similarly.

  As mentioned above, the 95th percentiles queues on Wellsvale Drive were approximately 40m in the AM peak and still performed adequately. Based on this and given the Observer Street / Glenrock Drive intersection is 70m north of the Leader Street / Glenrock Drive intersection, the queues / delays associated with the wombat crossing are unlikely to impact the Leader Street / Glenrock intersection. However, it is noted that the delays associated with Kiss and Drop operations on Glenrock Drive will likely be the key driver of performance along the road.

7.2 Queueing impacts at Glenrock Drive Kiss and Drop

The kerbside Kiss and Drop facility is located on the eastern side of Glenrock Drive (adjacent to the school), commencing south of Leader Street. Queue lengths greater than 90 metres (14 vehicles) would impact on the operation of the Glenrock Drive / Observer Street intersection to the north. This assumes that approximately 1 vehicle space is taken up by the pedestrian crossing outside the school gate.

Queuing impacts at the Glenrock Drive Kiss and Drop facility were assessed using a spreadsheet model for a 30-minute Kiss and Drop period.

The Kiss and Drop demands are presented below. In these circumstances, excessive queuing is not anticipated at the Kiss and Drop in either the AM or PM peak.

The Guide to Transport Impact Assessment (2024) provides mode shares for regional secondary schools. In the PM 24% of the mode share is recommended for car driver. As a result the total vehicle arrivals in the PM has been reduced to 197 vehicles.

Table 26 Kiss and Drop demands

	Base AM demands	Base PM demands
Inputs		
Time period (min)	30	30
Total arrivals (veh)	255	197
Service time (min/veh)	1.5	2.0
Number of Kiss and Drop bays	17	17
Outputs		
Utilisation	75%	77%
95th Percentile Queue (veh)	4	5
Probability of queuing (%)	15%	18%
Average queue length (veh)	0.58	0.79
Average time in queue (min/veh)	0.07	0.12
Average time in system (min/veh)	1.57	2.12
Road network impacts	No significant impact anticipated in AM peak.	No significant impact anticipated in PM peak.

8. Mitigation Measures

The mitigation measures outlined in the table below are proposed as part of this activity. This Transport Assessment determines that all impacts assessed can be adequately mitigated through recommended measures.

Table 27: Mitigation measures to anticipated impacts of the school project.

Mitigation	Aspect	Mitigation Measure	Reason for mitigation measure
Footpath improvements	As part of site works	Widened footpath Glenrock Drive and Observer Street to accommodate students walking to/from, the school entrances. The footpath on Glenrock Drive will be widened to 4.8m at the Kiss and Drop area. Threshold treatments (continuous footpath) to be considered where feasible with regard to constructability and levels. These would be provided across staff car park driveway and delivery driveway on Observer Street.	Wider footpaths ensure there is sufficient capacity for students walking and riding to school, preventing spillover onto the kerb or roadway. This is especially critical near high-activity areas, like the Kiss and Drop zone, where safe and efficient movement is essential. Threshold treatments increase driver awareness and encourage giving way to students walking and riding on footpaths around the school.
Crossing improvements	As part of site works	Five raised crossings proposed on Wellsvale Drive, Observer Street and Glenrock Drive connecting to the school block. Kerb blister proposed on Observer Street / Glenrock Drive crossings. All wombat crossings are to be well illuminated with street lighting designed according to AS/NZS1158.4	To address risks related to walking and riding safety around the school by slowing traffic and improving driver awareness of crossing children. Five crossing points have been placed at gate entrances and along natural desire lines to ensure when students cross, a safe option available and convenient to use.
Verge treatments	As part of site works	Incorporate planting/landscaping treatments either side of marked crossing as part of the kerb build out at raised crossings. Reinforce no-stopping requirements on approach to raised crossings by incorporating low-height landscape treatments between the footpath and the carriageway. This would include: 20m the approach to the Wellsvale Drive crossing at Heazlett Street and along the widened kerb after (adjacent to site) 20m on approach to the Observer Street crossing at Glenrock Drive and along the corner kerb after (adjacent to site) 20m on approach to the Wellsvale Drive crossing at Observer Street and along the corner kerb after (adjacent to site). Monitor pedestrian crossing in the first 12 months of school operations for uncontrolled / unsafe crossings.	To direct pedestrians to cross at formal crossings and restrict uncontrolled/unsafe crossing.

Mitigation	Aspect	Mitigation Measure	Reason for mitigation measure
Kiss and Drop	As part of site works	17 Kiss and Drop spaces (111m) has been positioned further south on Glenrock Drive which is more optimal than placing it closer to the Observer Street intersection in the case there is queuing/waiting. Kiss and Drop demand and number of spaces have been adjusted to meet the base case (conservative), to ensure demand can be met. DoE typically provides traffic management personnel on-site during the first week of operation to manage behaviours around Kiss and Drop. A survey of Kiss and Drop operations at Jerrabomberra High School is recommended to validate kerbside pick-up / drop-off times and utilisation of the Kiss and Drop compared to informal pick up locations. The Travel Access Guide and School Transport Plan will be finalised and promoted to students and parents to encourage use of walking, cycling and public transport and encourage safe and efficient Kiss and Drop behaviours.	Enables parents to drop off and pick up students at the designated location. The bus bay is located upstream of the Kiss and Drop, allowing buses to operate independently without being delayed by queuing cars. Monitoring required to validate estimated drop-off time parameter of 1.5 minutes. Promotion of sustainable travel behaviours reduces overall demand for Kiss and Drop facility and reduces the extent and duration of queuing of adjacent intersections.
Staff vehicle parking and queuing	As part of site works	55 car parking spaces will be provided onsite for staff (1 space per staff) which was agreed to in the RTA TWG meeting. Routes to the car park will be included in the School Travel Plan and shared among staff to avoid the need to U-turn on Wellsvale Drive.	To ensure all staff have access to on-site parking without the need to park on-street. To minimise any queueing occurring on Wellsvale Drive and at road junctions to access school site.
Bike Parking and EoT	As part of site works	140 spaces for students calculated based on the ‘reach’ mode share; design of bike racks to be confirmed during design development. 5 spaces for staff (calculated by adopting Green Star requirements to provide bicycle parking for 7.5% of staff). 5 lockers, 4 showers provided for staff, based on Green Start requirements.	Reduce demand for vehicle access by providing, secure cycling storage and EoT facilities. Capacity has been based on the ‘reach’ mode share, allowing the active travel mode share to continue grow as initiatives, monitoring and improvements from the School Travel Plan takes place. Growth in students cycling to school also lessens Kiss and Drop demand and reduces the amount of traffic generated.
School bus zone	As part of site works	The location and design of the school bus stop and any necessary works is to be determined in consultation with, and to the satisfaction of: • Transport for New South Wales’ Bus Team, and • Queanbeyan-Palerang Regional Council.	The bus zone provides the necessary infrastructure to accommodate dedicated school bus routes stopping at the new high school for Googong. Its inclusion supports discussions with TfNSW about re-routing existing services and introducing new routes. This will help achieve the 22% ‘reach’ mode share target for public transport.

Mitigation	Aspect	Mitigation Measure	Reason for mitigation measure
School Travel Plan	Prior to operation	Prior to commencement of operations, a School Transport Plan (STP) must be prepared to the satisfaction of the NSW Department of Education (DoE) Transport Planning team. The STP is to be reviewed on an annual basis and updated (if required) to the satisfaction of the DoE Transport Planning team to ensure active and sustainable travel measures are implemented. The total number of annual reviews required is to be confirmed with TfNSW.	The School Transport Plan set out objectives and strategies to assist in the development of transport goals, policies and procedures for the school. These measures promote the use of sustainable travel modes. Sustainable travel also modes also reduces the amount traffic generated by Kiss and Drop and lessen the amount of traffic in Googong during morning and afternoon weekdays.
Visitor parking (School Travel Plan)	Prior to operation	Within the School Travel specify office visitation to occur in the morning – afternoon period when on-street parking in the neighbourhood is not as full. Prior to school events such as parent-teacher evenings, presentation evenings, communication portals such as apps and social media should be used to promote alternative travel modes to parents and carers and reduce reliance on surrounding parking. These could include carpooling, pick up/drop-off and walking. Monitor and collect parent feedback on demand for school visitor parking outside of school pick up and drop off times for first 12 months of school operation; this should be used to assess whether changes to parking controls in the Kiss and Drop zone are required to cater to demand for school visitor parking during the day.	To reduce traffic congestion and parking overflow during high-demand periods, particularly for large events. This would reduce the disruption by visitor parking on surrounding residents and land uses.
Staff carpark driveway design	Design development	The splay of the staff car park driveway to be reconfirmed during design development.	To ensure that the driveway can safely accommodate waste truck movements exiting the car park onto Wellsvale Drive.

9. Consultation with agencies

The transport strategy to date has been presented to Colliers, SINSW, Queanbeyan-Palerang Regional Council and TfNSW in four Transport Working Group (TWG) meetings:

- TWG 1 – 18 October 2023
- TWG 2 – 3 November 2023
- TWG 3 – 31 October 2024
- TWG 4 – 19 May 2025

Items discussed and the design response are summarised below.

Table 28 Summary of items raised in consultation, and response in the TA

Meeting	Item raised	Response
TWG 1	Traffic calming measures to complement wombat crossings	Added kerb blisters around wombat crossings, providing stopping space for cars clear of intersections.
TWG 1	Maintaining bus access where kerb blisters are used at intersections	Assessed swept paths to for buses travelling anticlockwise around the site and kerb blisters designed to suit.
TWG 1	Proposed changes to bus services	Contacted TfNSW for future public transport service plans, no response to date.
TWG 1	Safe provision of Kiss and Drop	Consideration of drop-off activity on Wellsvale Drive - relocated crossing to align with QPRC masterplan and minimise change to parking on Wellsvale Drive. Decision made to neither discourage nor encourage this behaviour through design. School access will be permitted to allow students to access the bus stop and the crossing to Googong Common. Amending the footpaths and street frontage would appear to endorse this activity on Wellsvale Drive and implicate school responsibility. Parents will be encouraged to use the Glenrock Drive facility, particularly for Primary School children.
TWG 1	Proposed parking provision	Staff parking provisions amended as advised by council – 1 parking space per staff member. Bicycle parking provisions checked against DCP and Green Star requirements.
TWG 1	Mode share scenarios	Weather (both hot and cold) is often cited as a reason to suppress active transport expectations. Experiences from parts of the world with colder weather shows cycling can be a legitimate option in these climates. The provision of safe infrastructure and positive community attitudes to cycling are far more significant factors in determining the propensity for people, particularly women and children, to ride bicycles. This would form part of the important community messaging that will be critical in achieving the target active transport mode share.
TWG 1	Lighting at wombat crossings	Confirmation of Lighting Standards for pedestrian crossings, PX1 is the highest category. Table 3.1 of AS 1158.4 shows PX2 as relevant in this case. Local collector or sub-arterial road (local road - traffic slowed), posted speed limit < 60km/h.

Meeting	Item raised	Response
TWG 2	School enrolment number	School enrolment number increased to 700 students from 660 students in the previous submission.
TWG 2	Staff parking access	New staff parking access arrangement from Wellsvale Drive and note that 62 additional on-street parking spaces are available along Wellsvale Drive northbound.
TWG 2	Updated mode share target	Cycling mode share reduced from 35% to 20% in response to feedback in TWG #1. This was endorsed by attendees. The 15% difference was primarily distributed to Bus and Walking trips, with a +2% increase to car mode share.
TWG 3	Travel demand and mode share	Travel demand and mode share presented by Arup was accepted by all present.
TWG 3	Updated layout	Relocation of driveway/staff car park further west to better separate pedestrian and vehicular movements. Colliers confirmed that lighting for wombat crossings have been considered. QPRC to provide as-built drawings to determine what is involved for an inground service point of view for Glenrock Drive widening. Bus bay location immediately before Kiss and Drop zone may block flow of buses as private vehicles to queue for the Kiss and Drop. CDC Bus requested NBRS design team to explore the option of swapping the bus bay with the Kiss and Drop.
TWG 3	Parking provisions	No student parking to be provided on-site. On-street parking will be used in lieu. Approximately 60 on-street parking spaces are available on surrounding roads. Concern for potential flow-on impacts to wider network of surrounding streets and competition from other developments. Arup performed audit and assessment of busy periods to assess the concern. QPRC advised that complaints have been received at Jerrabomberra High School for not providing visitor parking. Colliers investigating this issue at Jerrabomberra High School and to take into consideration for the new high school for Googong. Colliers will investigate option of short-term parking within the Kiss and Drop zone is possible outside of drop off hours. Left-in, left-out access to staff car park on Wellsvale Drive was agreed. Entry moved further south to avoid being directly opposite McFarlane Avenue.
TWG 4	Proposed route and stop for school bus	TfNSW agreed in principle to the proposed bus route on Wellsvale Drive and Glenrock Drive. TfNSW agreed the bus route and stop would be ready prior to Term 1 2027 when the school opens. The minutes are included in Appendix A5.

Appendix

A.1 Parking calculations

A.1.1 Bicycle parking

Table 29. Bicycle parking – Scenarios

Scenario	Students cycling	Staff cycling	Two-sided rails equivalent
Scenario 1: Baseline	105	5	55
Scenario 2: 'Medium' active / public transport provision	123	5	64
Scenario 3: 'Reach' active or public transport provision	140	5	73

Table 30. Bicycle parking – 4-Star Green Star requirement

4-Star Green Star Requirement	Total	No. cycling	Two-sided rails equivalent
No. of Staff	55	5 (rounded up to nearest 1)	2
No of students	700	280	140

- Greenstar requirement: 7.5% of Staff and 40% of students over grade 4
- Queanbeyan DCP 2012 requirement: parking for schools as per the T&I SEPP 2021. However, there are no parking requirements specified for schools under the T&I SEPP.
- Bicycle parking to be provided based on mode share target.
- End of trip facilities will be provided for staff only

A.1.2 Kiss and Drop

Table 31 Kiss and Drop space assumptions

Component	AM	PM
Vehicle occupancy	1.2 students/ car	1.2 students/ car
Dwelling time per car	1.5 mins (1)	2 mins (2)
Total drop off window	30 mins	30 mins
Drop off bay length	6.5m (3)	6.5m

Table 32 Kiss and Drop space calculations for three scenarios

Scenario	AM		PM	
	Kiss and Drop student demand[(4)]	**No. of bays (m)**	**Kiss and Drop student demand**	**No. of bays (m)**
Scenario 1: Baseline	336	14 (91m)	301	17 (111m)
Scenario 2: 'Medium' active / public transport provision	245	11 (72m)	214	12 (78m)
Scenario 3: 'Reach' active or public transport provision	154	7 (46m)	126	7 (46m)

Note:

(1) Assuming students can walk straight into school, drop-off is quicker than pick-up

(2) Based on Leppington Ed Campus and Condell Park High School PM dwelling time

(4) Each Kiss and Drop space will be 6.5m long, based on similar Kiss and Drop operations at other high schools.

(4) Kiss and Drop student demand refers to the number of students travelling by car in the mode share target.

A.2 Traffic Modelling (SIDRA)

A.2.1.1 Traffic generation

The derived traffic demands are divided into five (5) categories:

- **Layer 1:** Trips to Kiss and Drop. This did not include vehicles associated with students driving themselves.
- **Layer 2:** Trips to/from on-street parking associated with students driving themselves.
- **Layer 3:** Trips from Kiss and Drop following pick-up or drop-off
- **Layer 4:** Background trips generated by Neighbourhoods 1, 2 and 3 within Googong Township. These were derived using rates outlined in Table 5.3 of the Guide to Transport Impact Assessment Version 1.1(TfNSW), 0.83 car trips per dwelling in the AM peak hour for regional low-density developments, which is the predominant residential typology. It was assumed that this traffic would be directed at Googong Town Centre, Queanbeyan or Canberra; that is, to the north of the school. Trips made to other developments, including the aquatic centre were not explicitly considered, but were accounted for using a factor of safety (see Section A2.1.3 SIDRA Modelling).
- **Layer 5:** Staff trips to/from the staff car park on Wellsvale Drive. This assumed that 5% of staff live in Neighbourhoods 2 and 3 and remaining 95% live in Googong North or elsewhere in Queanbeyan or the ACT (i.e. accessing the school from the north).

People living in rural townships outside Googong (such as Burra) were considered in the trips to school, but not as part of background traffic generation.

Table 33 Assumed number of dwellings for background trip generation and apportioning of school student trips

Neighbourhood	Dwellings	Source
Neighbourhood 1 (Googong North)	2,000	Peet[3]
Neighbourhood 2 (Googong Central)	1,800	Peet[4]
Neighbourhood 3 (Googong West)	778	Googong Township Pty Ltd[5] Count of masterplan lots; assumed yield of 100 dwellings per multi-dwelling apartment lot (benchmarked against [6]

Zones were created by their travel route to school, coloured in Figure 52 below. Approximate number of dwellings in each zone were calculated by apportioning the zones area out of the total Neighbourhood area. Rural areas to the south were included within Origin Zone 5 as they are most likely to enter Googong Township via the planned Old Cooma Road / Bunyip Drive intersection in Neighbourhood 3.

[3] https://www.peet.com.au/about-us/news-and-events/googong-unveils-%24143-million-town-centre

[4] https://www.peet.com.au/about-us/news-and-events/googong-unveils-%24143-million-town-centre

[5] https://www.googong.net/news-and-events/news/three-new-neighbourhoods

Figure 52 Zones for traffic distribution

A.2.1.2 Assumed routing

Each layer of traffic generated and their associated movements through the assessed intersections are illustrated from Figure 53 to Figure 62.

For Layer 1 and Layer 2 movements from origin 3 and 4, these represent traffic parking associated with Googong Central. For conservative analysis, it will be assumed 100% of these demands will continue south through the Observer Street / Glenrock Drive intersection (attributed to unavailable parking at Googong Central).

Figure 53. Layer 1 AM: Route to Kiss and Drop (no vehicles associated with Year 12 students)

Figure 54. Layer 1 PM: Route to Kiss and Drop (no vehicles associated with Year 12 students)

Table 34 Layer 1 AM: Vehicle volumes

Origin ID	Route ID	Proportion (if split)	Vehicle Demand (Kiss and Drop)	Split vehicle demand
1	1	100%	126	126
2	2	100%	6	6
3	3	100%	8	8
4	4	100%	4	4
5	5	100%	57	57
6	6	100%	0	0
7	7a	50%	53	27
7	7b	50%	53	27

Table 35 Layer 1 PM - Vehicle volumes

Origin ID	Route ID	Proportion (if split)	Vehicle Demand (Kiss and Drop)	Split vehicle demand
1	1	100%	126	126
2	2	100%	6	6
3	3	100%	8	8
4	4	100%	4	4
5	5	100%	57	57
6	6	100%	0	0
7	7a	50%	53	27
7	7b	50%	53	27

Figure 55. Layer 2 AM: Routes to parking associated with Year 12 students

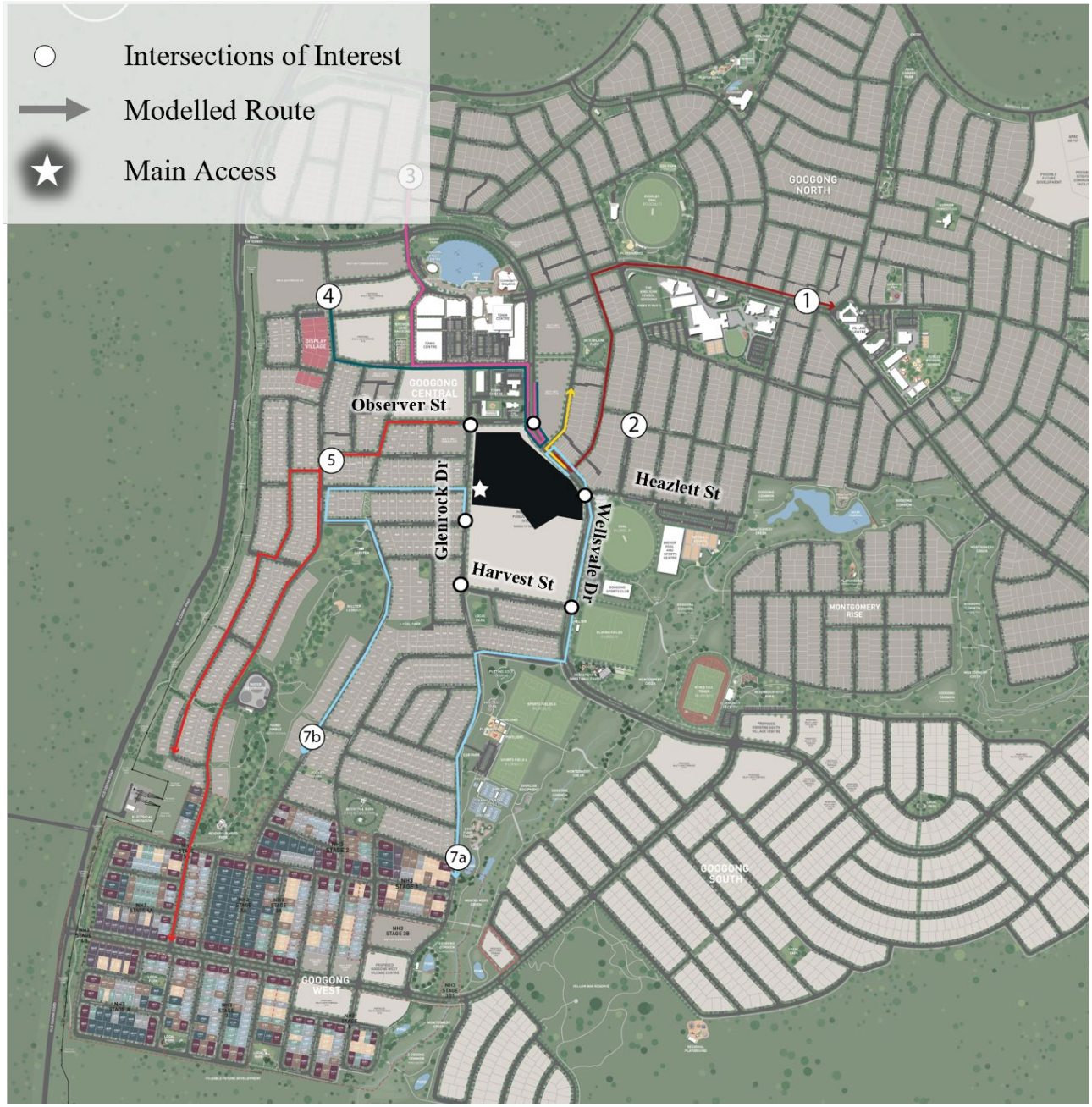


Figure 56. Layer 2 PM: Routes from parking associated with Year 12 students

Table 36 Layer 2 AM - Vehicle volumes

Origin ID	Route ID	Proportion (if split)	Vehicle Demand	Split vehicle demand
1	1	100%	13	13
2	2	100%	1	1
3	3	100%	1	1
4	4	100%	0	0
5	5	100%	6	6
6	6	100%	0	0
7	7a	50%	5	3
7	7b	50%	5	3

Table 37 Layer 2 PM - Vehicle volumes

Origin ID	Route ID	Proportion (if split)	Vehicle Demand	Split vehicle demand
1	1	100%	13	13
2	2	100%	1	1
3	3	100%	1	1
4	4	100%	0	0
5	5	100%	6	6
6	6	100%	0	0
7	7a	50%	5	3
7	7b	50%	5	3

Figure 57. Layer 3 AM: Routes from Kiss and Drop to home (excludes work)

Figure 58. Layer 3 PM: Routes from Kiss and Drop to home (excludes work)

Table 38 Layer 3 AM - Vehicle volumes

Origin ID	Route ID	Proportion (if split)	Vehicle Demand	Split vehicle demand
1	1	100%	63	63
2	2	100%	3	3
3	3	100%	4	4
4	4	100%	2	2
5	5	100%	29	29
6	6	100%	0	0
7	7a	50%	27	14
7	7b	50%	27	13
8	8	100%	127	127

Table 39 Layer 3 PM - Vehicle volumes

Origin ID	Route ID	Proportion (if split)	Vehicle Demand	Split vehicle demand
1	1	100%	63	63
2	2	100%	3	3
3	3	100%	4	4
4	4	100%	2	2
5	5	100%	29	29
6	6	100%	0	0
7	7a	50%	27	14
7	7b	50%	27	13
8	8	100%	0	0

For Layer 4 movement 7A and 7B (see image below) it is assumed that 80% would exit to Old Cooma Road towards the south instead of travelling north on Glenrock Drive. The remaining 20% is evenly distributed between 7A and 7B.

Figure 59. Layer 4 AM: Routes from home to work (commuters to Queanbeyan)

Figure 60 Layer 4 PM Routes from work to home (commuters from Queanbeyan)

Table 40 Layer 4 AM - Vehicle volumes

Origin ID	Route ID	Proportion (if split)	Vehicle Demand	Split vehicle demand
2	2a	50%	318	159
2	2b	50%	318	159
4	4	100%	206	206
5	5	100%	546	546
6	6a	80%	105	84
6	6b	20%	105	21
7	7a	50%	799	40
7	7b	50%	799	40

Table 41 Layer 4 PM - Vehicle volumes

Origin ID	Route ID	Proportion (if split)	Vehicle Demand	Split vehicle demand
2	2a	50%	318	159
2	2b	50%	318	159
4	4	100%	206	206
5	5	100%	546	546
6	6a	80%	105	84
6	6b	20%	105	21
7	7a	50%	799	40
7	7b	50%	799	40

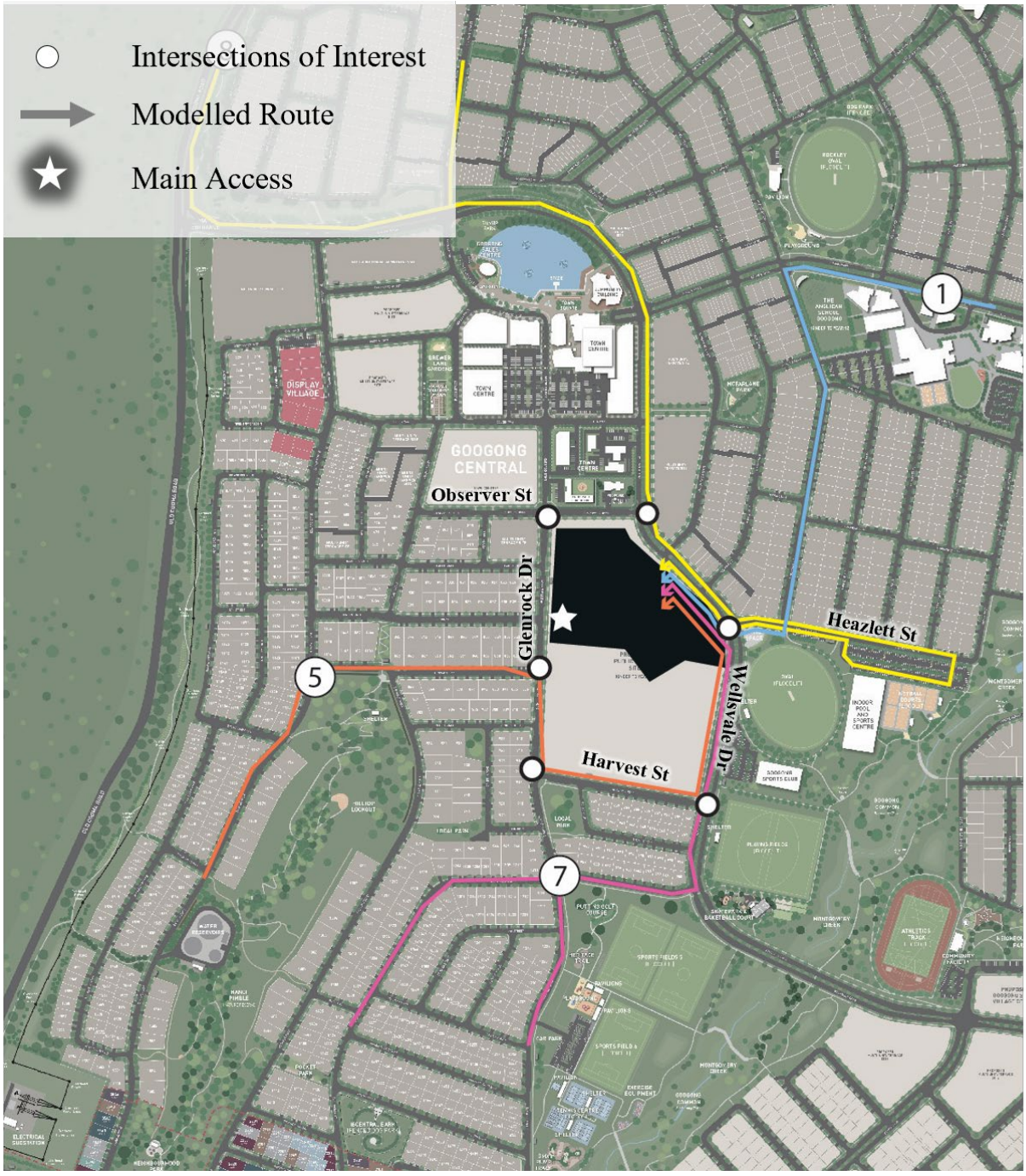


Figure 61. Layer 5 AM: Routes associated with school staff

For Layer 5 movement 8, it is assumed that staff will be able to perform a U-turn at Wellsvale Drive / Heazlett Street to access the Left in / Left out only school carpark.

Figure 62. Layer 5 PM: Routes associated with school staff

Table 42 Layer 5 AM - Vehicle volumes

Origin ID	Route ID	Proportion (if split)	Vehicle Demand	Split vehicle demand
1	1	100%	3	3
2	2	100%	0	0
3	3	100%	0	0
4	4	100%	0	0
5	5	100%	1	1
6	6	100%	0	0
7	7	100%	1	1
8	8	100%	50	50

Table 43 Layer 5 PM - Vehicle volumes

Origin ID	Route ID	Proportion (if split)	Vehicle Demand	Split vehicle demand
1	1	100%	3	3
2	2	100%	0	0
3	3	100%	0	0
4	4	100%	0	0
5	5	100%	1	1
6	6	100%	0	0
7	7	100%	1	1
8	8	100%	50	50

A.2.1.3 SIDRA Modelling

General Information and Assumptions

- SIDRA INTERSECTION 9.1 was the modelling package selected for this assessment. Unless otherwise specified, the default model parameters (e.g. saturation flows and gap acceptance) were adopted for the assessment.
- The assessment was undertaken as a network (as opposed to isolated sites) due to the proximity of each site with respect to each other.
- The intersections on Wellsvale Drive (Observer Street, Heazlett Street and Harvest Street) are currently (and proposed) configured with a wide median opening (approximately 6m). This permits a single vehicle turning from each of the approaches to store in the median which reduces the critical gap acceptance for traffic turning out from the minor road (as only a gap in a single direction would need to be found).
- While this configuration was initially tested in SIDRA, it was determined for a conservative approach, the median storage will not be included as part of the assessment. This removes and storage for right turns into the minor road, while the minor road must find gaps in both directions of traffic.
- All wombat crossings have priority over vehicular movements
- Based on desktop measurements, all general traffic lanes have been modelled with a 5m width.
- While the bicycle lane on Wellsvale Drive has not been included in the SIDRA model, the increase carriageway width has been included as part of the 5m wide general traffic lane.
- The entire modelled network assumes maximum approach and exit speeds of 40 km/h (school zone).

Vehicular Demands

Using the routing decisions shown in the previous section, turning movements for each intersection are generated. As the traffic generation performed is considered high-level, the following assumptions were made as to route choice allocation and approach volume generation:

- Following the combination of all demand layers, some turning movements for the assessed intersections do not have volume. While it is not expected demand for these movements to be significant, for a conservative approach, an additional 20 light vehicles have been applied.
- The derived demands are all light vehicles area as the land use surrounding school is predominantly residential. To account for different traffic composition, it has been assumed that 5% of the light vehicles travelling on Wellsvale Drive in both directions are heavy vehicles. These heavy vehicles are subsequently added onto the light vehicle volume (i.e. total vehicle volume is 105% of initial light vehicle volume).
- Traffic generation assumed full build out of Neighbourhoods 1, 2 and 3 in Googong Township. More details can be found in Appendix A.2.1.1.

Given the context of the project primarily pertains to high school pick-up and drop-off demand; to better model the unique characteristics of this demand the following adjustments have been made to the model:

- A peak flow factor of 50% has been applied to all vehicle demands and effectively doubles the input hourly demands in SIDRA. This aims to simulate a demand profile associated with the majority of school pick up and drop offs occurring within a 30-minute period instead of being spread across full hour interval.
- This adjusted peak flow factor was applied globally to all demand layers. Realistically, this would only be applicable to demand associated with the school (i.e. Kiss and Drop, parking, etc) while background traffic would remain relatively uniform. Therefore, this assumption is considered conservative for the purposes of the assessment.

The turning volumes for the AM and PM peak are shown in Figure 63 and Figure 64 below.

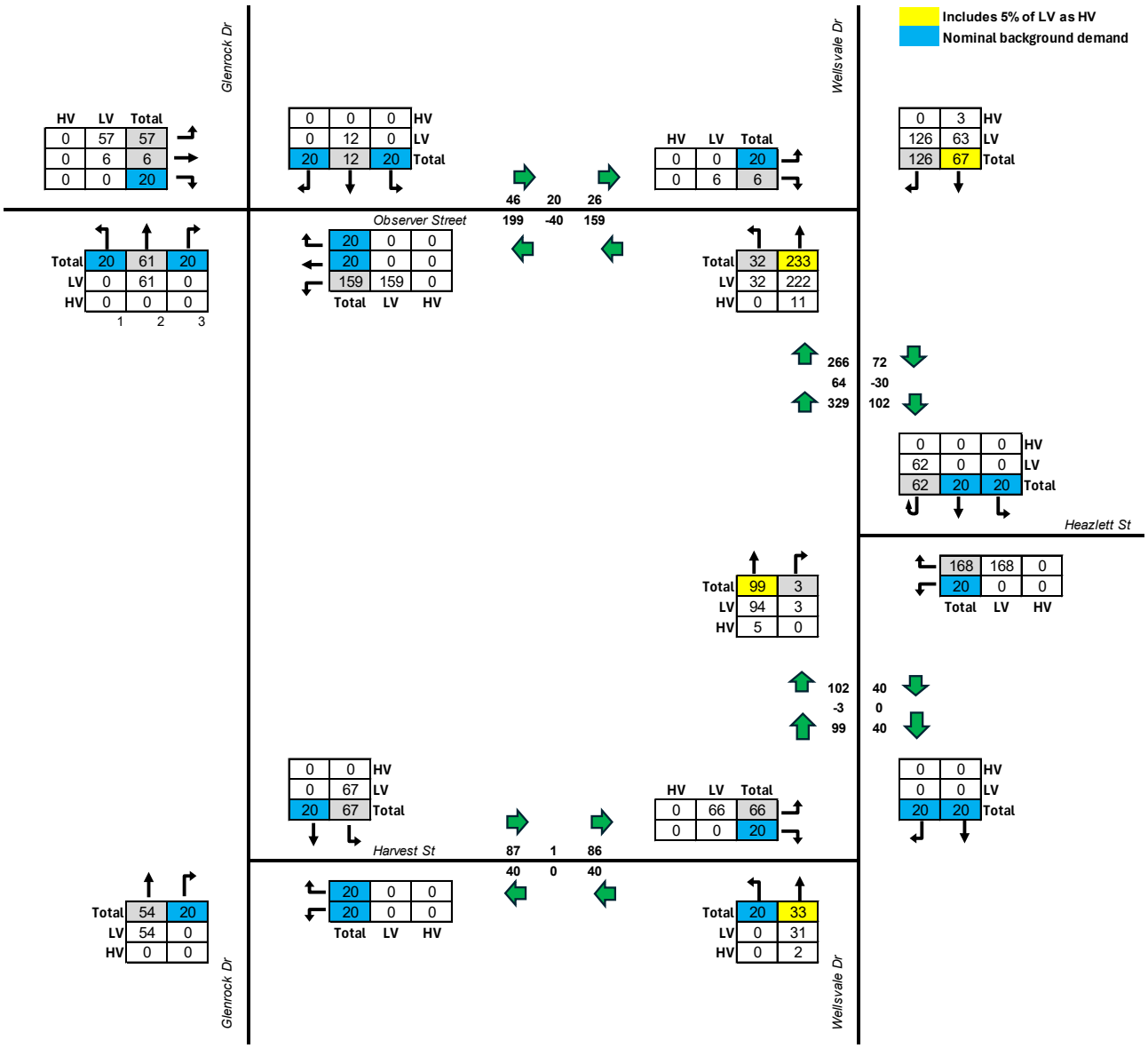


Figure 63. AM Peak Network Turning Movement Diagram

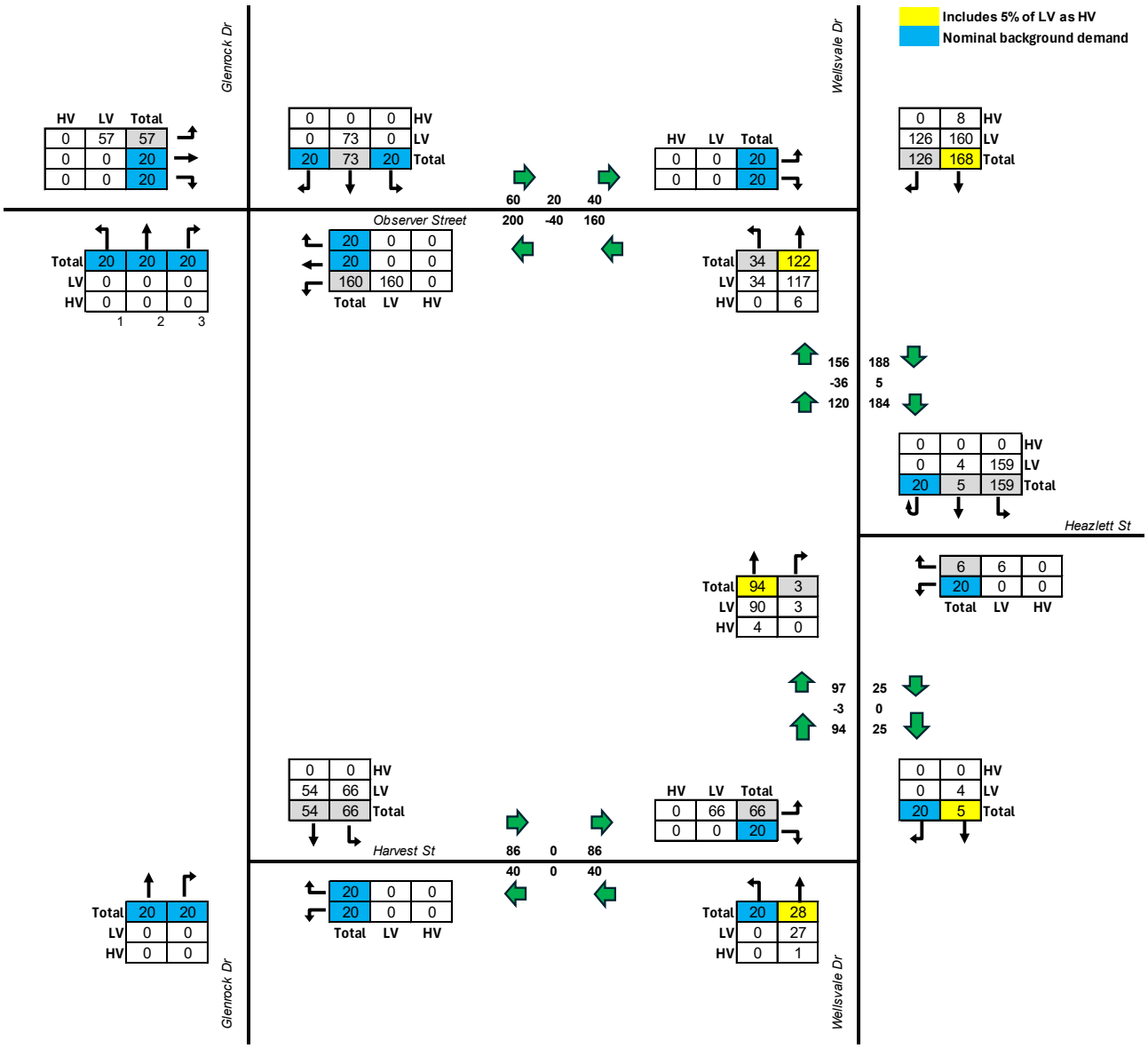


Figure 64. PM Peak Network Turning Movement Diagram

Pedestrian Demand

Using expected demand from Table 6, pedestrian volumes (hourly) were applied at each proposed wombat crossing (see Figure 45). The peak flow factor for these pedestrians remains as the SIDRA default (95%). All vehicular traffic must yield to these pedestrians.

Cycling demand has not been included in the SIDRA assessment.

Detailed results

The SIDRA outputs for each intersection in both peaks are provided below.

A.2.1.4 Traffic comparison with Queanbeyan City Council TRACKS model

Report background

The *Queanbeyan City Council TRACKS Model South Jerrabomberra and Queanbeyan Traffic Analysis 2014* report (attached) is based off a strategic transport model (QCC TRACKS Model of Queanbeyan) reporting on the years 2014, 2016, 2018, 2020, 2022, 2024, 2026 and 2031.

The primary purpose of the report was used to assess the impact of residential and employment growth and effectiveness of major road upgrades across South Jerrabomberra and Queanbeyan.

Road link volumes link volumes outputs across the road network were provided as part of this report, including around the Googong area. These volumes have been extracted and compared with the traffic volumes derived in this SIDRA model to validate calculated traffic volumes.

Land-use

TRACKS 2026 model year was selected as the most comparable to this SIDRA model. It assumes Neighbourhoods 1 – 3 are delivered, aligning most closely with the SIDRA model land-use assumptions. Land use has been compared in Table 44.

The number of dwellings planned in Googong has increased since the 2014 report development. The number of dwellings planned in Neighbourhoods 1 – 3 is 23% higher than accounted for in the TRACKS model. For benchmarking purposes, the TRACKS 2026 model volumes have been factored up to account for this.

The TRACKS 2031 model year has also been included for comparison and represents a full build-out of Googong with approximately 4,875 dwellings completed. This exceeds the number of dwellings anticipated in the SIDRA model (4,578 dwellings).

Note, the most recent development plans for the entire Googong Masterplan area anticipates 6,500 dwellings upon completion, exceeding what has been assumed and tested in the SIDRA model and TRACKS 2031 model. Full build-out of Googong is expected by the late 2030s (as advised by an QPRC officer in 2023) which extends beyond the planning horizon of this report.

Table 44: Comparison of land-use assumptions in 2014 TRACKS model and 2025 SIDRA model developed for the new high school for Googong transport assessment

Model	Established neighbourhoods	Total dwellings	High school students
TRACKS 2026	1 – 3	3,557	400
SIDRA (this report)	1 – 3	4,578	700
TRACKS 2031	1 – 5	4,875	1,600

Road network comparison

The TRACKS model network includes trunk roads only within the Googong subdivision. In the vicinity of the new high school for Googong it includes Wellsvale Drive, Observer Street, Glenrock Drive (south) and Harvest Street. The absence of secondary roads in this model means that volumes on Glenrock Drive and Wellsvale Drive are likely overstated.

As discussed in A2.1.2, the SIDRA model expects that the majority of the background traffic uses Edward Drive instead of Glenrock Drive to connect to Old Cooma Road.

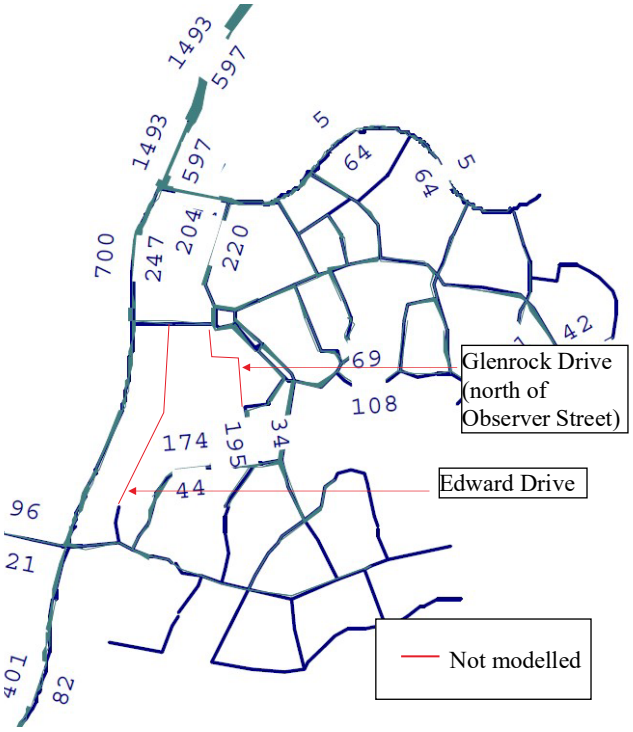


Figure 65: Tracks model road network

TRACKS model volumes

The TRACKS model outputs shown in Figure 66, report the following volumes for Glenrock Drive:

- 195 vehicles traveling northbound during the AM peak hour (8-9am) in the improved 2026 network.
- 193 vehicles traveling[7] southbound during the PM peak hour (5-6pm) in the improved 2026 network.
- 243 vehicles traveling northbound during the AM peak hour (8-9am) in the improved 2031 network
- 220 vehicles traveling southbound during the PM peak hour (5-6pm) in the improved 2031 network

Volume labels are not provided for Wellsvale Drive, however, based on the road link output line thickness in Figure 66 is estimated to have a similar volume and direction to Glenrock Drive.

Combining the 2026 model volumes of Glenrock Drive and Wellsvale Drive and applying a dwelling increase factor of 23%, the total volumes are approximately 480 vehicles traveling northbound in the AM peak and 475 vehicles traveling southbound in the PM peak.

The 2031 model volumes of Glenrock Drive and Wellsvale Drive total to 486 vehicles traveling northbound in the AM peak and 440 vehicles traveling southbound in the PM peak.

[7] Likely southbound, direction of volumes is hard to discern in the QCC 2014 report PDF

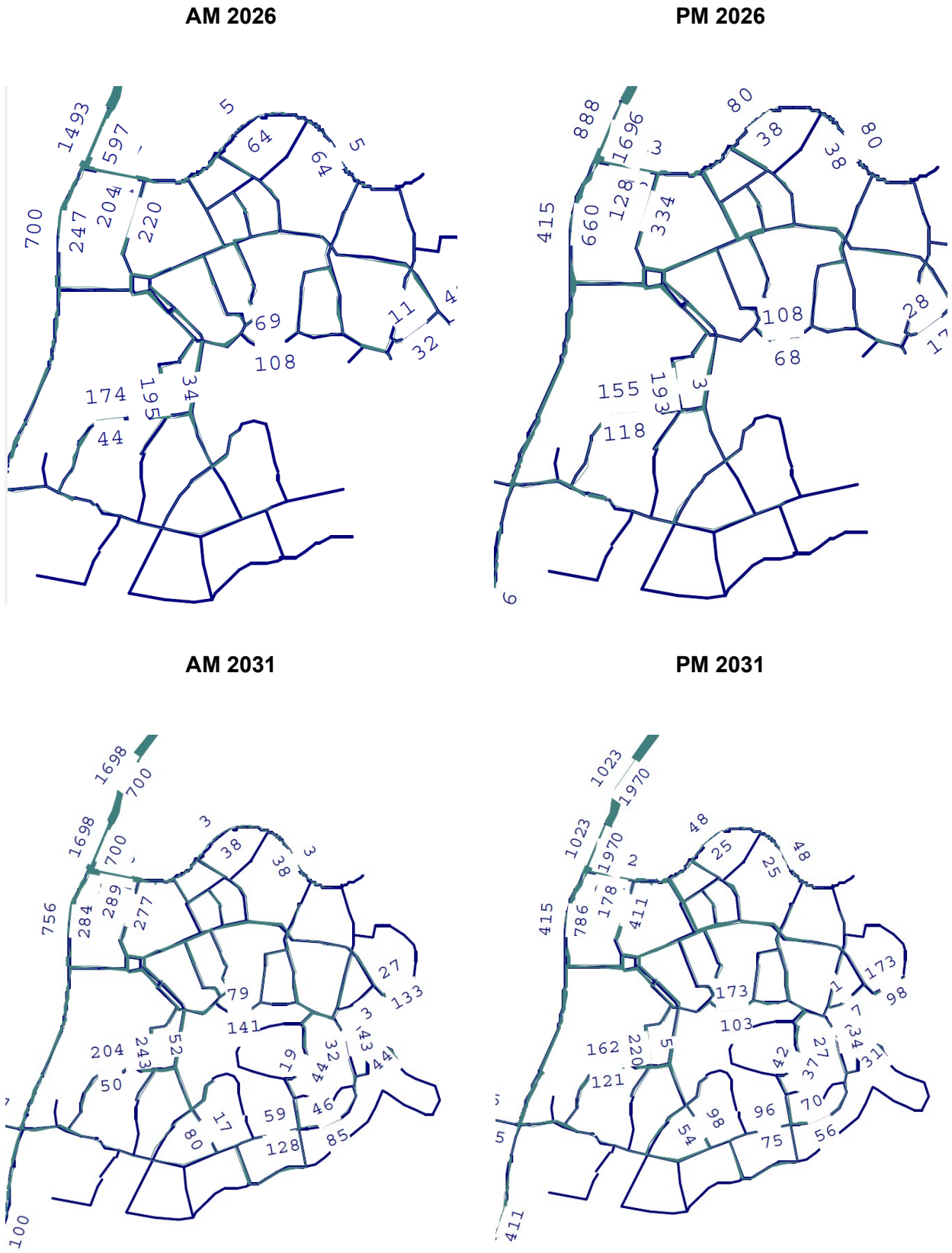


Figure 66: TRACKS road link volumes in 2026 and 2031 AM and PM 1-hr peaks (Source: QCC 2014)

SIDRA model volumes

In comparison, the SIDRA model calculated the following base demand across Glenrock Drive, Wellsvale Drive, and Edward Drive:

- ~1,200 vehicles travelling northbound, of which ~900 vehicles are background traffic in the AM peak hour
- ~1,200 vehicles travelling northbound, of which ~900 vehicles are background traffic in the PM peak hour.

The SIDRA model applies a 50% peak hour factor these vehicle demands, which effectively doubles the calculated peak hour volumes. The final traffic volumes used in the SIDRA model are as follows:

- ~2,400 vehicles travelling northbound, of which ~1800 vehicles are background traffic in the AM peak hour
- ~2,400 vehicles travelling southbound, of which ~1800 vehicles are background traffic in the PM peak hour.

Comparison of model volumes

Volumes for the various models have been visualised in Figure 67 and Figure 68.

It is reasonable to assume that a significant proportion of background commuting traffic would use Edward Drive for quicker access to Old Cooma Road, instead of using Gorman Drive or Wellsvale Drive. Edward Drive is a 2-lane sub arterial road with a similar capacity to Wellsvale Drive.

When comparing the TRACKS 2026 and TRACKS 2031 demand with the SIDRA all traffic demand, the SIDRA model shows approximately 400 additional vehicles in the AM peak and 700 additional vehicles in the PM peak. This is sufficient to account for 300 student shortfall in the TRACKS model, noting that it assumes a smaller high school of 400 students instead of 700 (see Table 44).

When comparing the TRACKS 2026 demand with the SIDRA all traffic demand, the SIDRA model shows approximately 400 additional vehicles in the AM peak and 700 additional vehicles in the PM peak. This is sufficient to account for 300 student shortfall in the TRACKS 2026 model (assumes a smaller high school of 400 students instead of 700). There is no shortfall of high school students in TRACKS 2031 model which assumes 1,600 students.

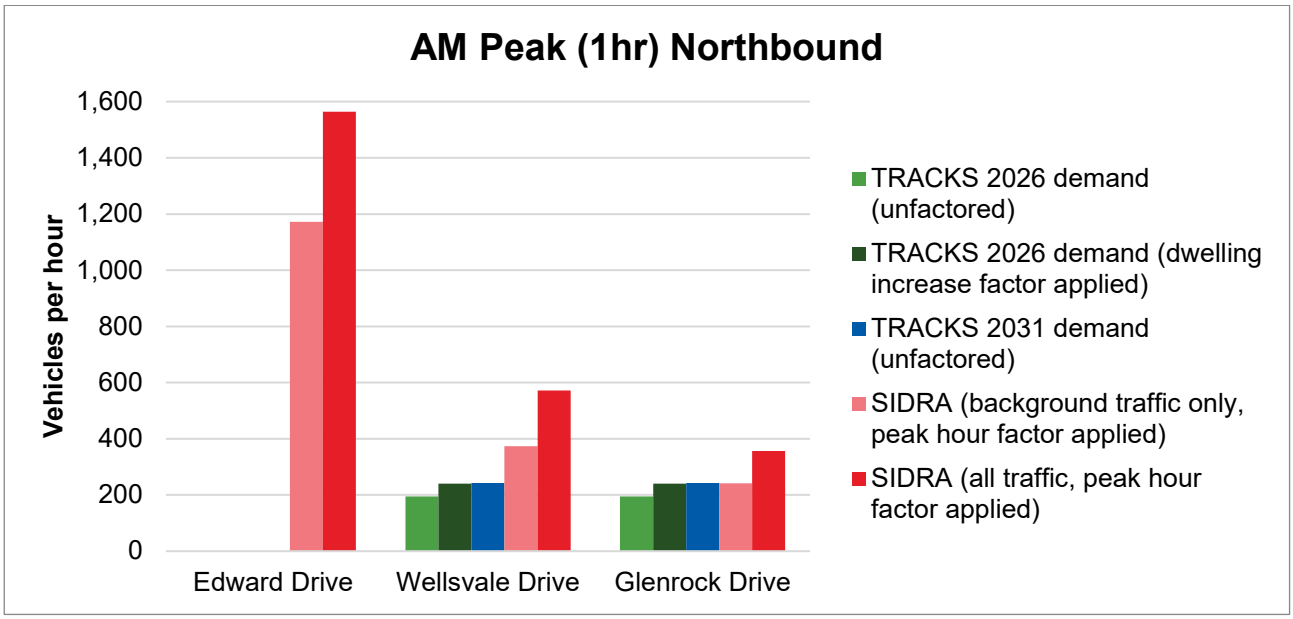


Figure 67: Comparison of model volumes for AM peak, northbound

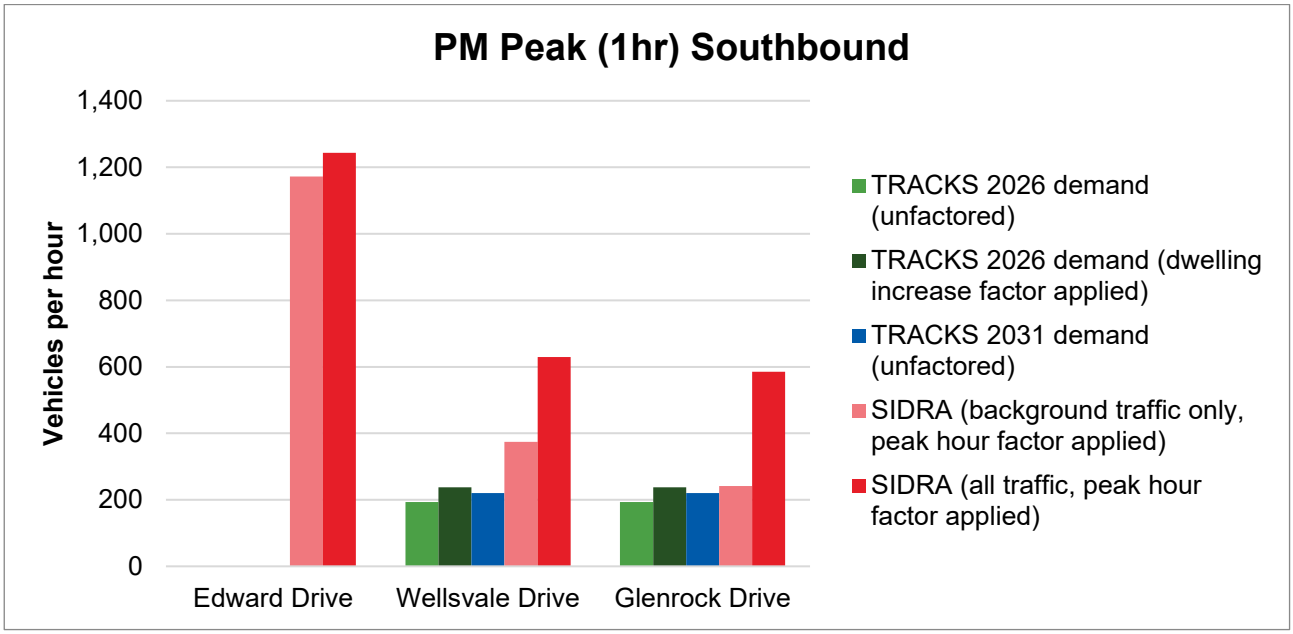


Figure 68: Comparison of model volumes for PM peak, southbound

Conclusion

Land-use assumptions, road network and road link volumes from TRACKS 2026 and 2031 model were compared with those in the SIDRA model.

It was found that the TRACKS model network includes trunk roads only within the Googong subdivision. In contrast, the SIDRA model expects the majority of the background commuting traffic to use Edward Drive instead of Glenrock Drive to connect to Old Cooma Road.

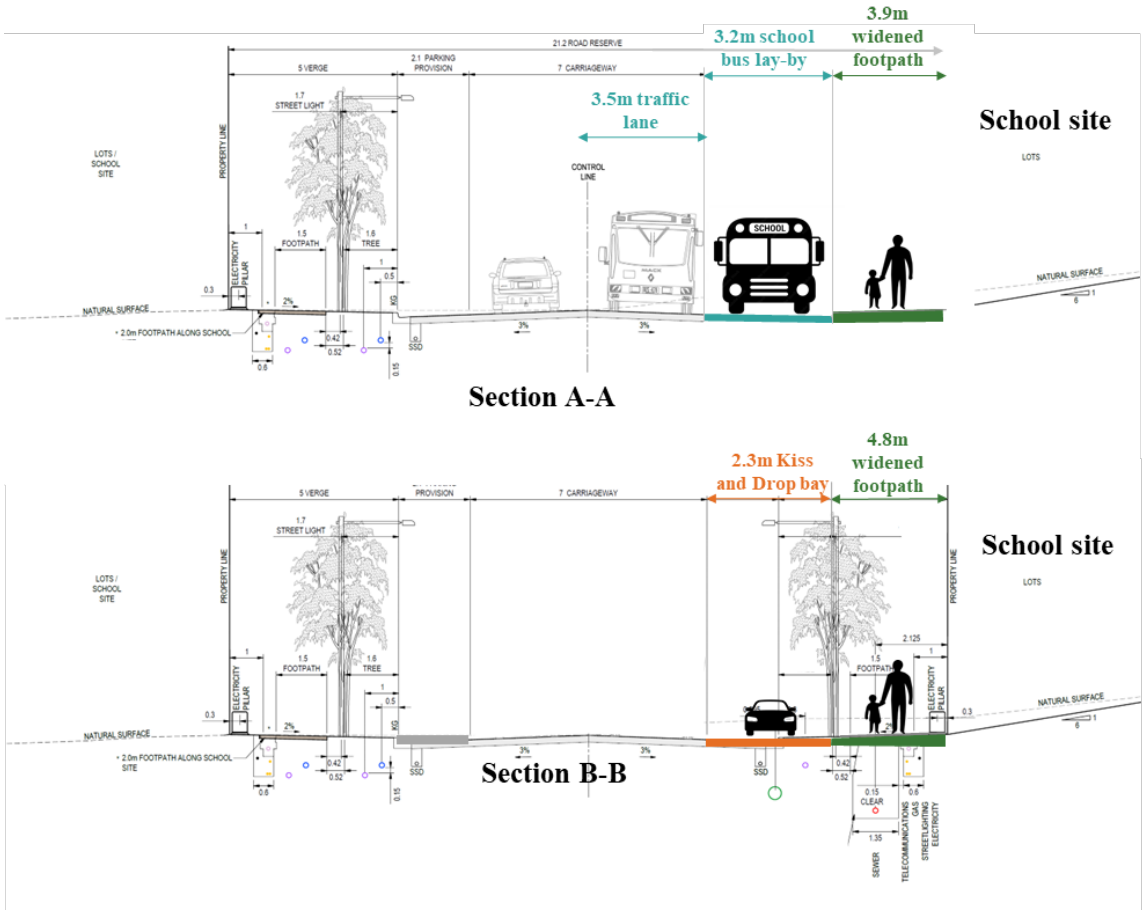
When Edward Drive is included, the SIDRA model's estimated northbound volumes in the AM and southbound volumes in the PM exceed what was modelled in TRACKS 2026 (and factored up to account for the difference in residential land use) and TRACKS 2031 models.

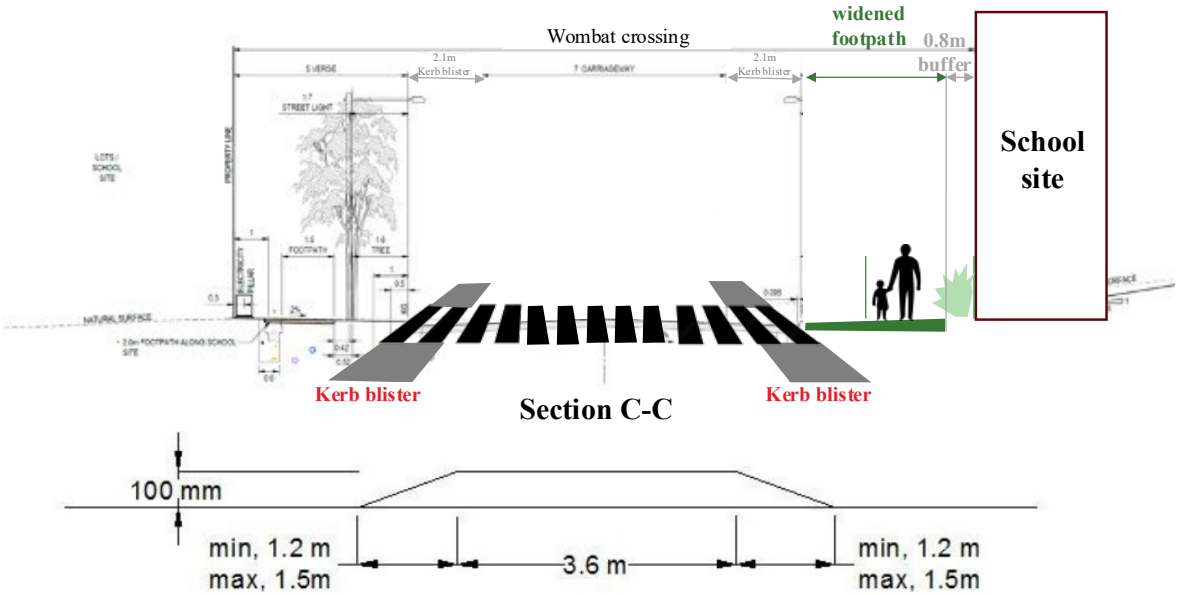
As such, the traffic volumes modelled in SIDRA match or exceed the TRACKS volumes. Given the SIDRA model results deemed intersection performance acceptable, it can be inferred that using the lower traffic volumes projected by the TRACKS models would similarly demonstrate acceptable intersection performance in the assessed scenario.

A.2.1.5 Queanbeyan City Council TRACKS Model South Jerrabomberra and Queanbeyan Traffic Analysis 2014 (excerpt)

A.3 Layout of Glenrock Drive

The main school entry is located on Glenrock Drive, as well as the bus stop and Kiss and Drop. The figures below provide further detail on the proposed cross-section of Glenrock Drive. The bus zone location is pending ongoing consultation between the department, TfNSW and QPRC, but is likely to be on Wellsvale Drive.





Typical wombat crossing section

Figure 69. Sections A-A, B-B and C-C on Glenrock Drive

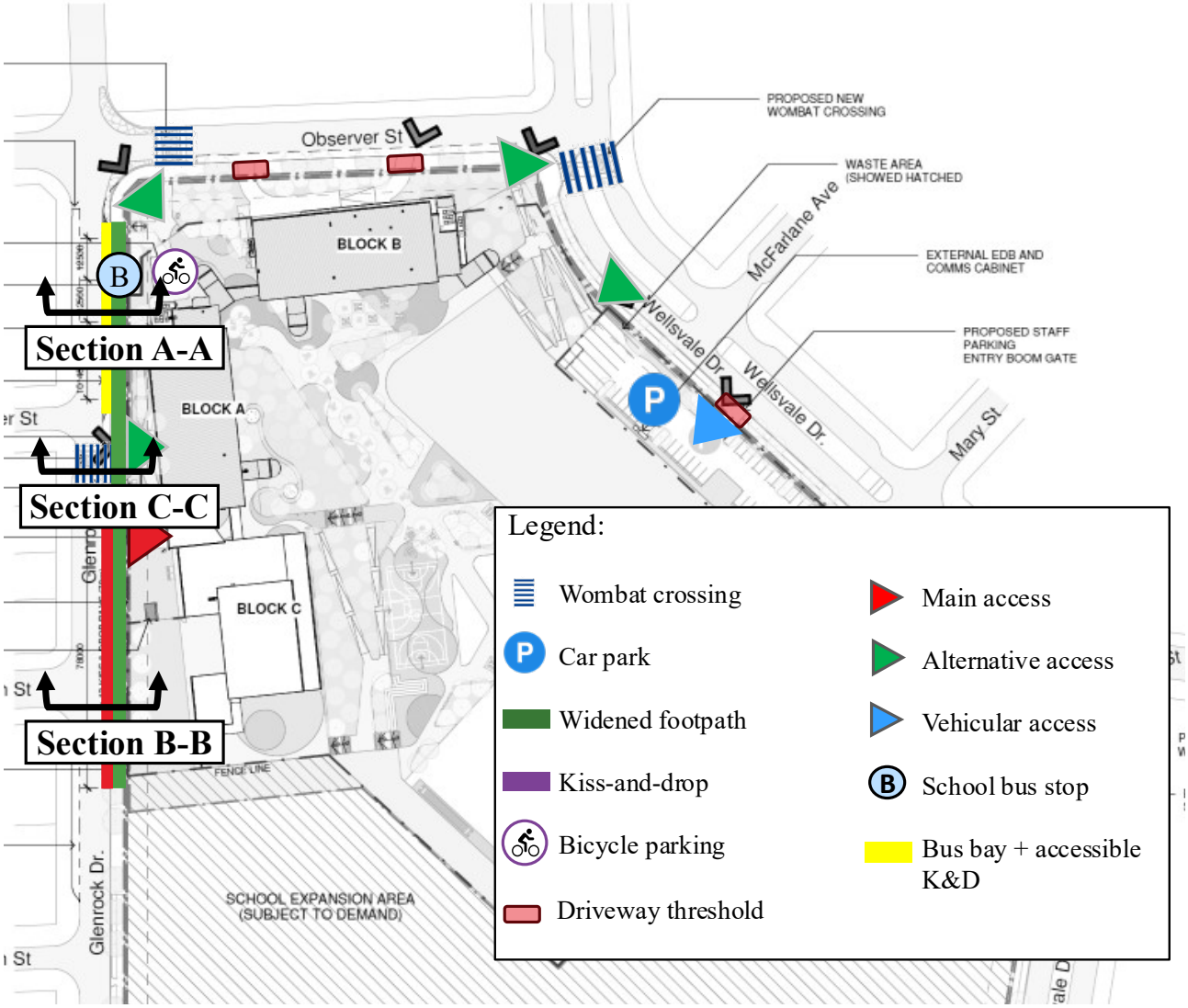


Figure 70. Location of road sections A-A, B-B and C-C on Glenrock Drive

A.3.1 Kiss and Drop zone

- Layout plan has designed the Kiss and Drop zone to be 2.3m wide as per standards (AS2890.5 – On-Street Parking, Section 3.2, Figure 3.1)
- DDA parallel parking bay is located at bus bay, which is wider, to meet design requirements (AS2890.5 – On-Street Parking, Section 4.5, Figure 4.3).

A.3.2 Traffic lane

According to NSW Movement and Place – Design of Roads and Streets, traffic lanes for buses or where bus routes are planned should be minimum 3.2m wide where possible for signposted speeds up to and including 50kmh, or minimum 3.5m wide where possible for signposted speeds at 60km/h and above.

A.3.3 Bus bay

According to TfNSW Guidelines for Public Transport Capable Infrastructure, minimum width of 3.0 metres where the kerb side lane operates as a parking lane, to allow for bus stops and allow the bus to move out of the through traffic lane. The bus zone location is pending ongoing consultation between the department, TfNSW and QPRC, but is likely to be on Wellsvale Drive.

A.4 Swept paths

A.4.1 Waste

Swept paths for the HRV left-out movement shown below demonstrate that the car park modifications that would be required to accommodate a heavy rigid vehicle i.e. driveway splay. Waste collection by a medium rigid vehicle can be accommodated without modifications to the car park.

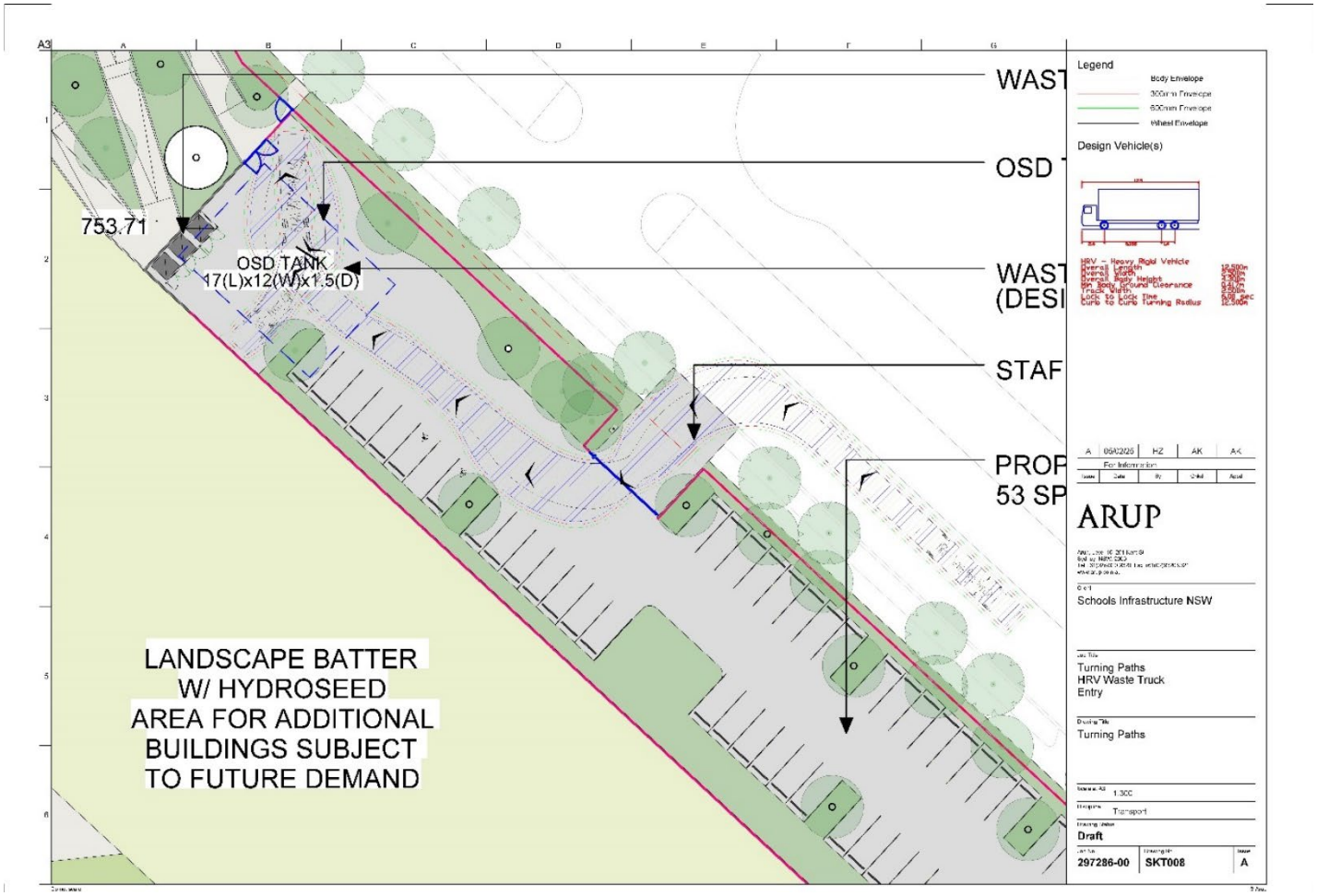


Figure 71 HRV swept path for waste vehicle entering car park on Wellsvale Drive

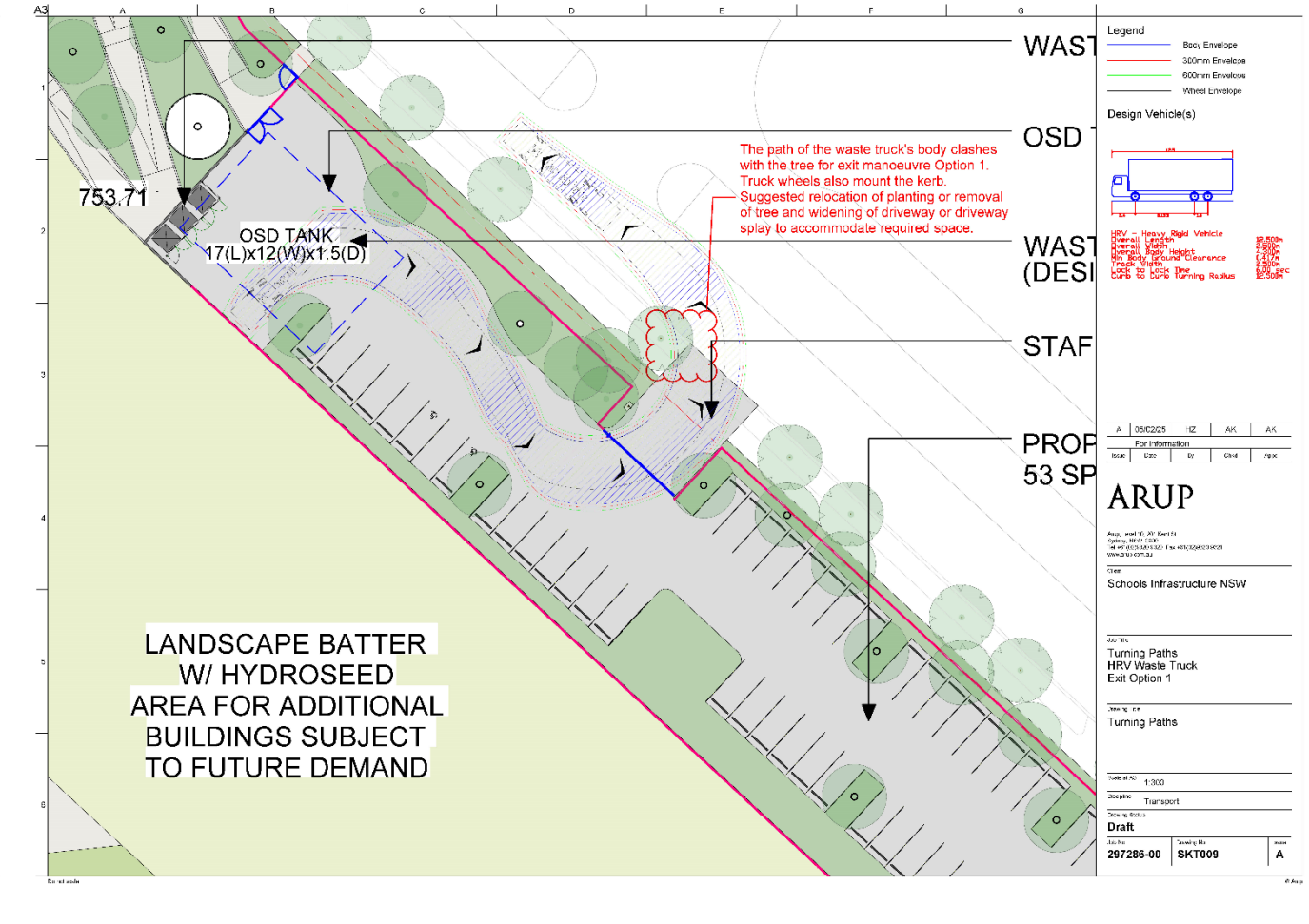


Figure 72 HRV swept path for waste vehicle exiting car park on Wellsvale Drive

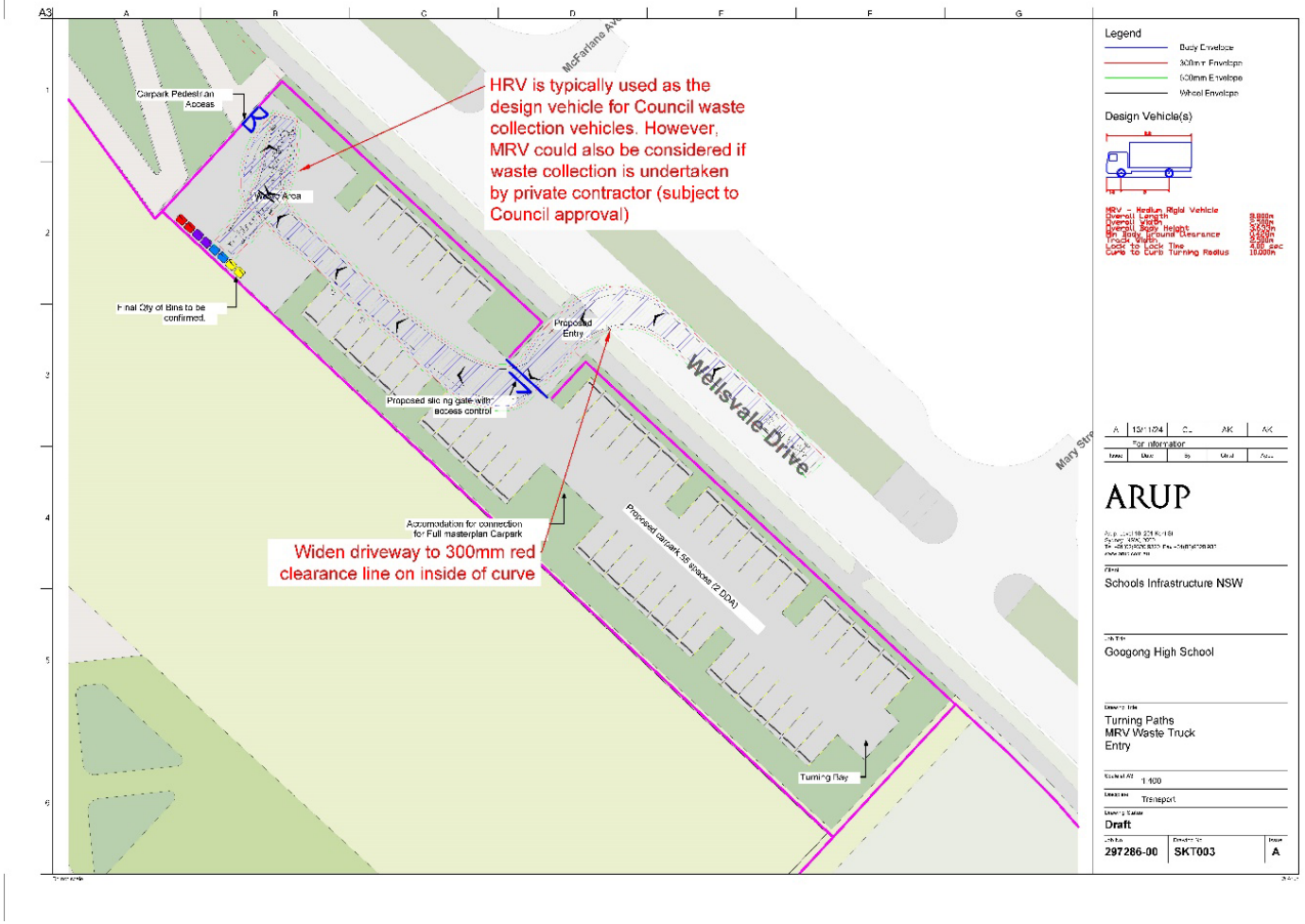


Figure 73: MRV swept path for waste vehicle entering car park on Wellsvale Drive

Figure 74: MRV swept path for waste vehicle exiting car park on Wellsvale Drive

A.4.2 Bus and car swept paths

Turning paths for a B99 car and a 12.5m bus have been analysed to evaluate their manoeuvrability around the school site. The turning paths show that wombat crossings with kerb blisters on Observer Street and Harvest Street can accommodate these vehicles without veering into the other lane. The bus zone location is pending ongoing consultation between the department, TfNSW and QPRC, but is likely to be on Wellsvale Drive.

Figure 75. Proposed activity turning paths for 12.5 bus and B99 at Observer Street/ Glenrock Drive intersection

Figure 76. Examples of wombat crossings with kerb blisters in NSW.

Figure 77.Turning paths for 12.5 bus and B99 at Harvest Street / Glenrock drive intersection (left) Wellsvale Drive / Observer Street intersection (top right) Wellsvale Drive / Harvest Street intersection (bottom right)

A.4.3 Delivery access swept paths

A.4.4 Construction access swept paths

Option 1: Site access via Observer Street

Heavy rigid vehicles and articulated vehicles are able to easily navigate the right turn from Wellsvale Drive onto Observer Street. Entry into site is made through a left turn from Observer Street.

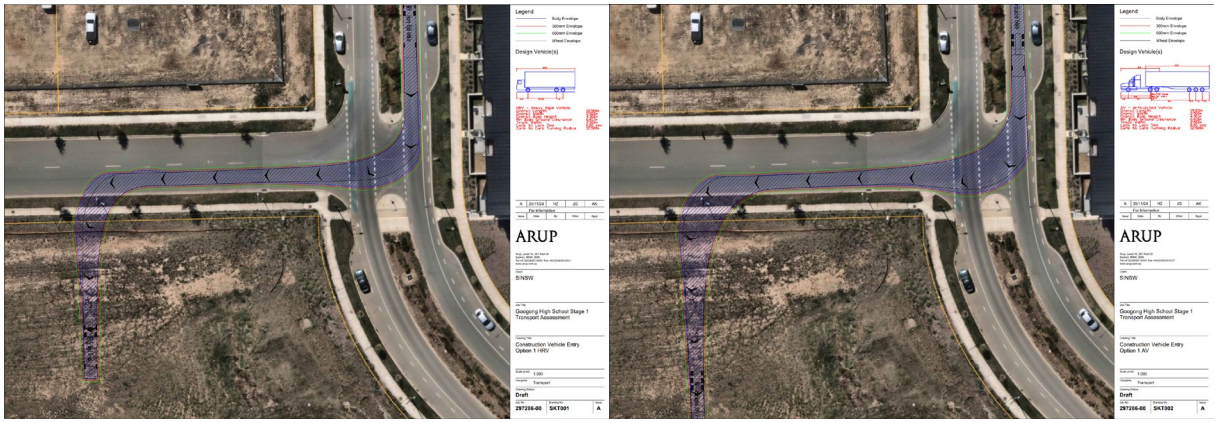


Figure 78. Construction vehicle entry Option 1 HRV and AV.

Option 2: Site access via Wellsvale Drive opposite McFarlane Avenue

The size limit of vehicles that can be accommodated by the road network for Option 2 is the 12.5m long heavy rigid vehicle. Articulated vehicles are unable to perform the right turn from Wellsvale Drive onto Site without mounting the median. Entry into site is made through a right turn from Wellsvale Drive.

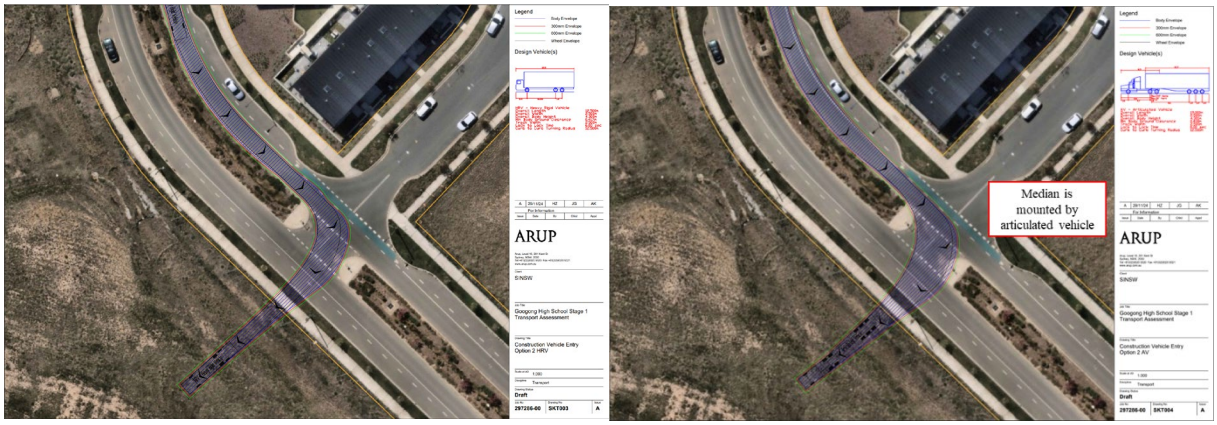


Figure 79. Construction vehicle entry Option 2 HRV and AV.

A.5 TWG 4 Meeting Minutes

Googong High School Bus Consultation

Date	19 May 2025		
Time	15:00 – 16:00		
Venue	Microsoft Teams		
Chairperson	Wendy Zheng		
Invitees	Wendy Zheng	WZ	Arup
	Bryony Dalton	BD	Arup
	Anna Paul	AP	TfNSW – Development services team
	Salma Cook	SC	TfNSW – Commercial manager for southern region
	Santi Botross	SB	SINSW – Project manager
	Jack Bruderlin	JB	SINSW – Project director
	Sarah Davis	SD	SINSW – Planning team
	Lachlan Woods	LW	TfSW – Bus service regional team
	Silvie Pappas	SP	Colliers
	Zara Gander	ZG	Colliers
	John Stalley	JS	Colliers
	Chelsea Balzan	CB	Colliers
	Ryan Southwell	RS	NBRS

		Responsible/ Due Date
1.	**Introduction**	
1.1	WZ started the round of introductions	-
1.2	WZ summarised the location of the proposed bus stop and route on Glenrock Drive in the Googong RTA and TA on the eastern side of the school. WZ stated that because the Googong Development areas beyond stage 3 are not fully developed or connected, issues with the levels and safety issues with having accessed away from collector roads, the bus stop and route was placed on Glenrock Drive. WZ detailed TfNSW's desire to have bus stop location on Wellsvale Drive to align with future bus plans	-
2.	**TfNSW comments**	
2.1	LW said the school bus could be routed as shown via Wellsvale Drive and Glenrock Drive and questioned if the roads could accommodate buses. WZ confirmed swept paths were provided in the transport documents which prove buses can be accommodated on local roads.	-

		Responsible/ Due Date
2.2	LW queried if the orientation of the school was up for discussion but JB confirmed it was just the bus bay. LW queried how pedestrians first and last mile would be accommodated and JB confirmed there were multiple access points. SY described these three access points using the plan on screen. LW confirmed Observer/ Wellsvale Drive access work would well with the proposed bus stop. WZ confirmed in the DCP there are road designs at the current retail centre only and LW stated development is not completed yet in this vicinity. LW confirmed the bus can route around the school from either direction.	-
2.3	AP queried next steps and JB confirmed a part 5 assessment. Anna said she wanted to comment on bus stop location but SD said the project has already gone through exhibition and the next steps will make updates to REF and will not go out for additional comments. JB confirmed there would be a further review of the bus option as a development consent. LW confirmed they would locate a bus stop close to the Observer Street entrance and it would be ready for 2027 Term 1 when Googong High School opens.	-
3.	**Close out and next steps**	
3.1	SY confirmed another TWG will be set up before the contractors are brought on.	SY, date TBC
3.2	WZ concluded that all questions had been answered and a more detailed discussion will be set up later on about how the buses will route in Googong.	WZ, date TBC