Rouse Hill High School Upgrade

Transport Impact Assessment

11/03/2025 **Ref: 300304738**

PREPARED FOR: School Infrastructure NSW **PREPARED BY:** Stantec

Stantec

Revision Schedule

Revision No.	Date	Description	Prepared by	Quality Reviewer	Independent Reviewer	Project Manager Final Approval
A	06/02/2025	Draft	Preet Desai / John Lim	Volker Buhl	Volker Buhl	Volker Buhl
B	18/02/2025	Final	John Lim	Volker Buhl	Volker Buhl	Volker Buhl
C	11/03/2025	Final	John Lim	Volker Buhl	Volker Buhl	Volker Buhl

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1. Introduction

This Rouse Hill High School Transport Impact Assessment has been prepared to accompany a Review of Environmental Factors (REF) for the Department of Education (DoE) for upgrades to Rouse Hill High School (the activity) under Part 5 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and *State Environmental Planning Policy (Transport and Infrastructure) 2021* (SEPP TI).

This document has been prepared in accordance with the *Guidelines for Division 5.1 assessments* (the Guidelines) by the Department of Planning, Housing and Infrastructure.

This report examines and takes into account the relevant environmental factors in the Guidelines and Environmental Planning and Assessment Regulations 2021 under Section 170, Section 171 and Section 171A of the EP&A Regulation as outlined in **Table 1** .

Table 1: Summary of Relevant Section of the Part 5 Guidelines and EP&A Regulation

Regulation / Guideline Section	Requirement	Response	Report Section
Transport and Infrastructure State Environmental Planning Policy 2021. EP&A section 171A	(a1) Impact during construction – such as noise, vibration, traffic, construction vehicle routes, access and parking, pollution/dust, water and stormwater flow, sediment and run off, waste removal, servicing arrangements, bushfire, flooding, contamination, other construction occurring in the area.	Traffic and transport impacts during construction are addressed in Preliminary Construction Traffic Management Plan as per **Appendix A.**	**Appendix A**
	(a2) impact post-construction (including from any development, activity, public-address systems and sirens, signage, events, hours of operation, or out of hours use of facilities, helicopter facilities, emergency facilities) which may include: (vii) traffic and parking impacts, pedestrian and road safety (including pedestrian and cyclist conflict and safety), operation of the surrounding road network, impact on road capacity, including peak hour, intersection performance and any cumulative impact from surrounding approved developments, impacts of potential queuing in drop-off/pick- up zones and bus bays during peak periods, emergency drop-offs, servicing and loading/unloading areas, large vehicles and height clearances, parking arrangements and rates. Consider in the context of availability, frequency, location and convenience of public transport and consequences of parking overflowing into adjoining streets.	Car parking impacts are mitigated as per **Section 4.2.5**.	**Section 4.2.5**
		Pick-up and drop-off zone queuing impacts are mitigated as per **Section 4.2.6.**	**Section 4.2.6**
		Pedestrian and road safety is addressed with the provision of active transport infrastructure, as per planned Council's work in **Section 7** and proposed mitigation measures in **Section 8**.	**Section 7** **Section 8**
		Bus access is provided for as per **Section 4.2.4**.	**Section 4.2.4**
		Other traffic operational activities, such as emergency and service vehicle access are mitigated as per **Section 4.2.7**.	**Section 4.2.7**
	(r5) suitability and safety of drop-off and pick-up areas, including for emergency vehicles, safety and convenience of proposed parking areas and rates, and off-and-on street parking on school/hospital location, vehicle and pedestrian access, internal vehicle and pedestrian areas, provision of servicing, loading/unloading.	Pick-up and drop-off zone demand is detailed in **Section 4.2.6**.	**Section 4.2.6**

1.1 Proposed Activity Description

The proposed activity for the alterations and additions to Rouse Hill High School including:

- Demolition of existing footpaths, stairs, and the relocation of existing seating shelters to the west of Block F;
- Tree removal;
- Construction of a two (2) storey classroom building (known as Building L), comprising ten (10) general learning spaces (GLS), one (1) enhanced Multi-Purpose Space for senior study and 2 Science Labs;
- Construction of new footpaths and a new covered bicycle parking space;
- New emergency vehicle accessway; and
- Landscaping, including the planting of trees.

The proposed activity does not lead to a net increase in school population as it replaces existing demountable teaching spaces with new, permanent teaching spaces. Therefore, it is expected that the activity has no significant impacts on the current/ existing traffic and transport conditions at and around the site.

1.2 Activity Site

The project site is located on Withers Road in Rouse Hill and is legally described as Lot 105 in Deposited Plan (DP) 1108407. Rouse Hill High School is located on the western side of Withers Road.

Figure 1 provides an aerial photograph of the site.

Figure 1: Aerial Photograph

2. School Context

Department of Education (department) is proposing to upgrade Rouse Hill High School. The school opened in 2009 and is located at 240 Withers Road in Rouse Hill, within The Hills Shire Council Local Government Area. The school is a co-educational high school, serving years 7 to 12. The school site is just south of the Bruce Purser Oval and is located approximately 1km east of the Rouse Hill Station. The location of the school site with respect to surrounding land uses and the school intake area is shown in **Figure 2.** The main entrance to the school is located at Bruce Purser Way, which provides pedestrian and vehicle access to the site. Additional pedestrian entries are located on Withers Road and Caballo Street.

The operational details of Rouse Hill High School are summarised in **Table 2** below.

Table 2: School Operational Details

Details	Existing	Projected
Staff Number	105	125(1)
Student Number	As of Term 3 2023, student enrolment was recorded at 1,027 students. The school currently (year 2024) has 1,330 existing students with 45 permanent teaching spaces and 13 temporary demountable.	1,200
Hours of Operation	8:45am-2:57pm	No Change

Notes: (1) Assumed linear increase

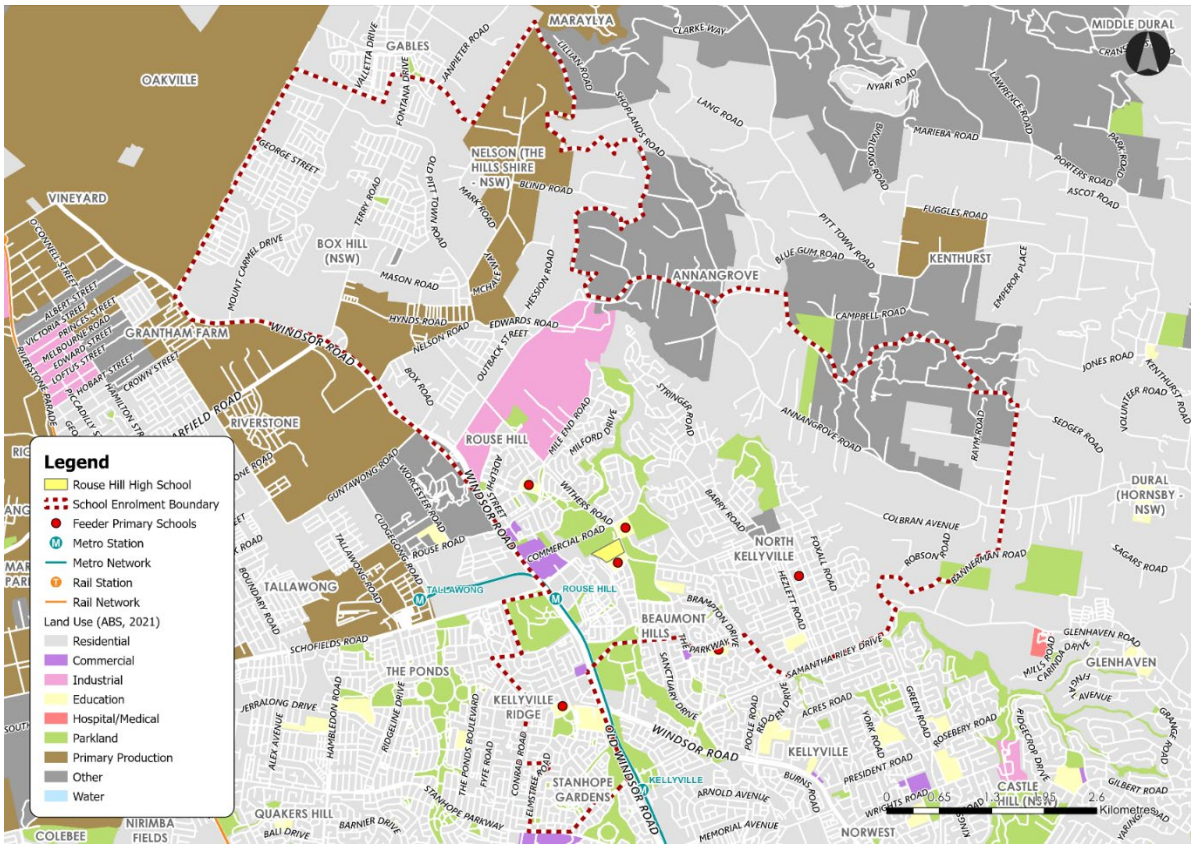

Figure 2: Rouse Hill High School intake area

3. Proposed School Works

The project entails the school upgrade works with additional general learning spaces to accommodate additional 220 students, increasing the school permanent capacity to 1,200 students. It should be noted that the current student enrolment numbers (1,330 students for year 2024) exceed the designated capacity.

The proposed activity for the alterations and additions to Rouse Hill High School, as shown in **Figure 3**, includes the following:

- Demolition of existing footpaths, stairs, and the relocation of existing seating shelters to the west of Block F;
- Tree removal;
- Construction of a two (2) storey classroom building (known as Building L), comprising ten (10) general learning spaces (GLS), one (1) enhanced Multi-Purpose Space for senior study and 2 Science Labs;
- Construction of new footpaths and a new covered bicycle parking space;
- New emergency vehicle accessway; and
- Landscaping, including the planting of trees.

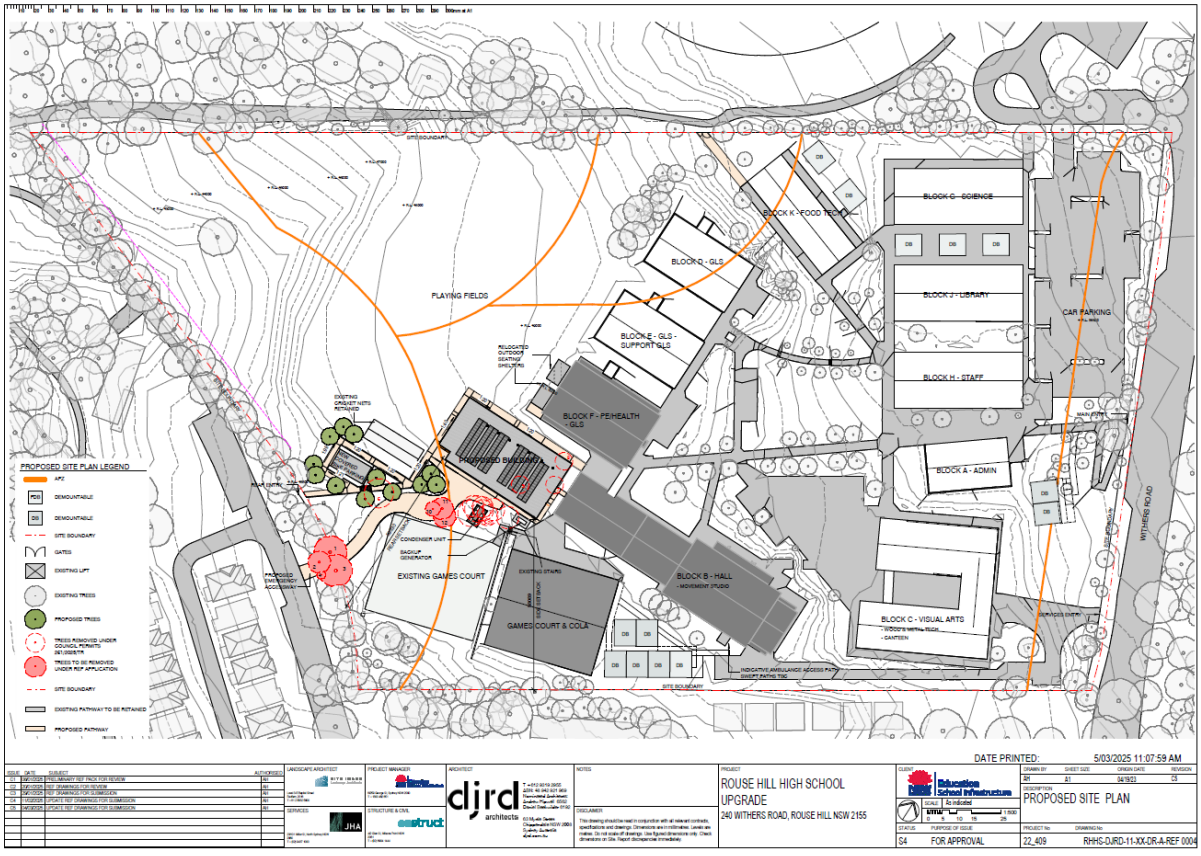

Figure 3: Rouse Hill High School Upgrade Concept Plan

Source: DJRD Architects, 1/10/2024

The following transport operations will occur as a result of the changes to the site layout:

- On-site parking arrangements will remain the same with no additional parking to be provided as part of the school expansion works.
- Additional bicycle parking is to be provided as a result of the expansion works, near the proposed pedestrian entry and internal pathway provided off Caballo Street. The total number of parking units required was analysed as part of this assessment.
- Following an analysis of the current bus bay zones surrounding the school site, no changes have been proposed.
- No changes to kiss-and-drop operations have been proposed as part of an analysis into the existing operations.
- New emergency accessway off Caballo Street, for emergency access only.

4. Transport Assessment

4.1 Transport Network

4.1.1 Walking

The pedestrian network in the vicinity of the school consists of footpaths and crossings. Pedestrian footpaths are generally provided along all roads surrounding the site. Signalised pedestrian crossings are located at the intersection of Withers Road and Ironbark Ridge Road, southeast of the school, and at the intersection of Withers Road and Commercial Road.

Footpath widths range between 1.2 metres and 2.5 metres. The guidance provided by the Hills Shire Council Footpath Strategy recommends footpaths with a minimum width of 1.5 metres on one side of the road for access streets (serving more than 300 dwellings) and 1.5-metre footpaths on both sides for collector roads (serving more than 1,000 dwellings).

The main entry to the school is located on Bruce Purser Way, which provides pedestrian and vehicle access to the site. Additional pedestrian entries are situated on Withers Road and Caballo Street.

Figure 4 illustrates the school's entry points and the surrounding walking network.

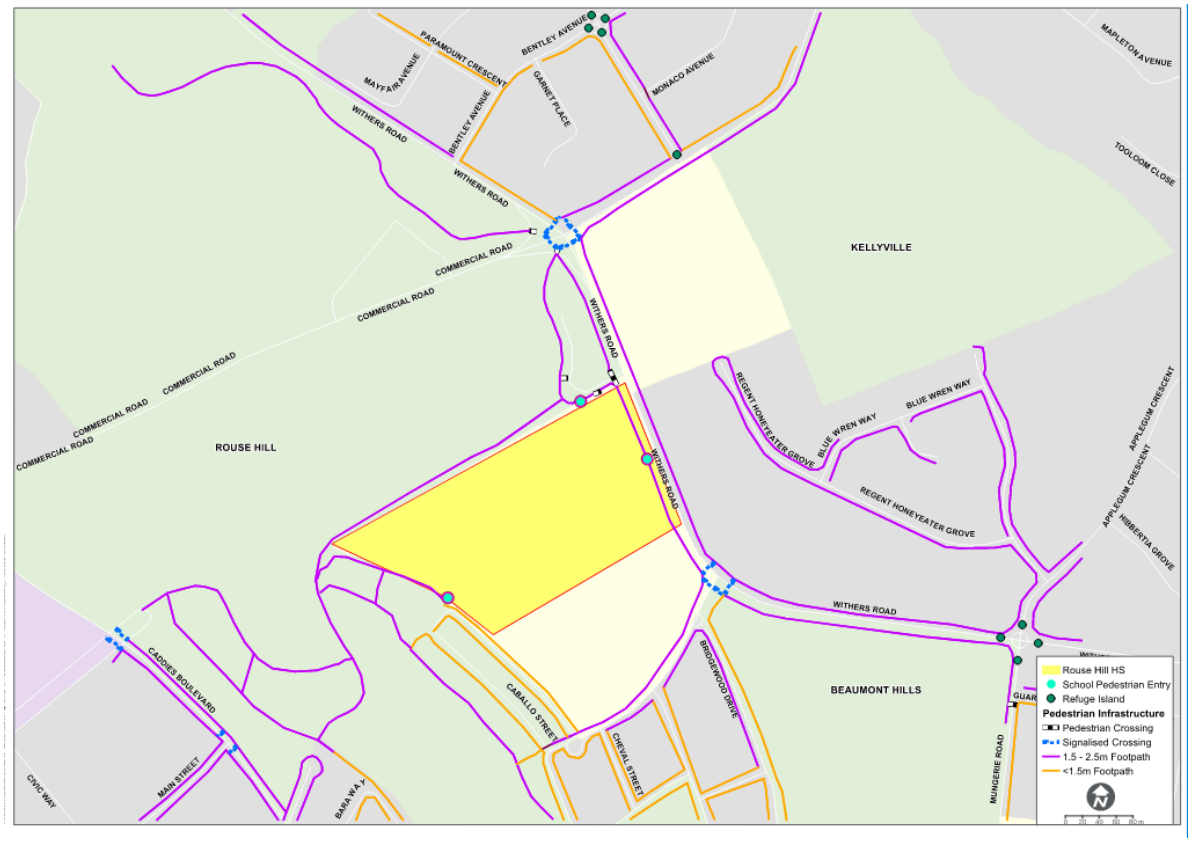

Figure 4: Pedestrian Site Access Points and Surrounding Walking Network

4.1.2 Cycling

Around the school site, off-road shared paths are provided along Withers Road and Ironbark Ridge Road and through the surrounding park reserves such as The Hills Centenary Park Reserve and Bruce Purser Reserve, whereby these paths further connect to the broader cycle network in Rouse Hill, North Kellyville and Beaumont Hills. On-road mixed traffic cycling routes are present along busy roads such as Withers Road, and it should be noted that these may be suitable for more experienced bike riders.

The wider network coverage is shown in **Figure 5** and is categorised by type of cycling infrastructure, as classified by TfNSW.

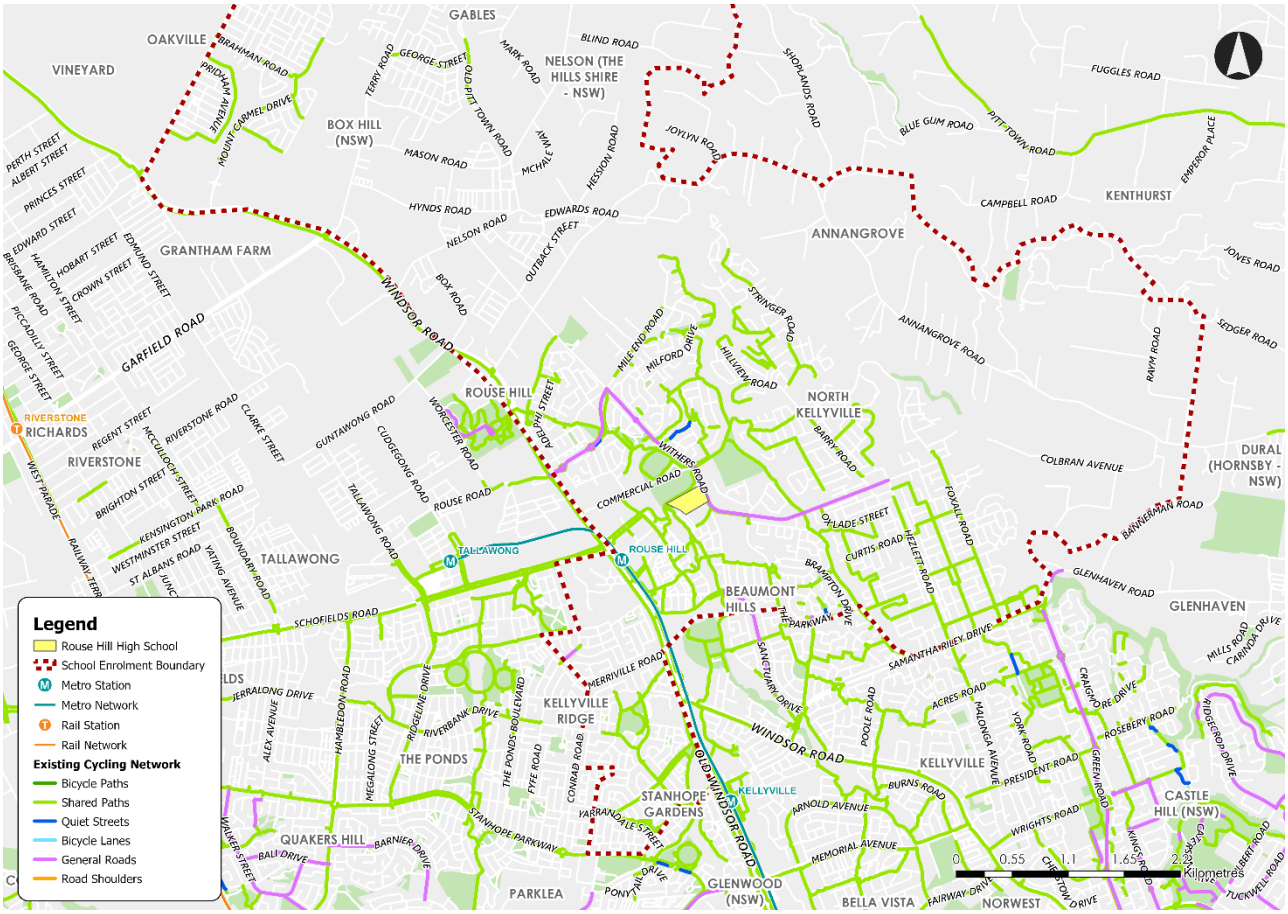

Figure 5: Surrounding Cycling Infrastructure

4.1.3 Train Services

Rouse Hill Metro Station is located within the Rouse Hill Town Centre to the east of the school. The station provides ~services every four to ten minutes between Tallawong and Chatswood (where the metro connects to the Sydney train network). The service information for the station is shown in **Table 3**.

Table 3: Train Services

Direction	Peak frequency	Off-peak frequency	Peak times	Daily service times
To Chatswood	4 minutes	10 minutes	5:55AM – 8:31AM 3:41PM – 6:45PM	4:05AM – 12:05AM
To Tallawong	4 minutes	10 minutes	6:37AM – 9:13AM 4:23PM – 7:27PM	4:47AM – 12:37AM

Source: Transport for NSW

4.1.4 Bus Services

A range of bus routes provide direct access to the school, including public bus services and school bus services. The bus stops serviced by these routes are as follows.

- The Withers Road bus stop on the school side (ID: 2155306) is approximately 80m long, which can accommodate approximately 5 parallel parked buses at any one time. Refer **Figure 6**.
- The Withers Road bus stop opposite the school (ID: 2155307) is approximately 45m long, which can accommodate approximately 3 parallel parked buses at any one time. Refer **Figure 7**.

Figure 6: Bus Stops on Withers Road school side (ID: 2155306)

Figure 7: Bus Stops on Withers Road opposite the school (ID: 2155307)

Figure 8 and **Figure 9** show the public and school bus routes that service the school. A summary of the morning and afternoon bus services are provided in **Table 4** and **Table 5** respectively.

Table 4: Morning Bus Services Summary

Bus Type	Route	Route Name	Arrival/ Departure Times	Time before/after school bell (h:m)	Key origins / destinations	Bus stop location
Rouse Hill High School, Withers Rd (ID: 2155306)						
School Bus	2069	Old Northern Rd before Gilbert Rd to Marian College via William Clarke College	~ 8:18	~ 0:27	Glenhaven, Castle Hill, Kellyville	Withers Road (north-west)
	2067	Conrad Rd after Keirle Rd to Marian College via Kellyville HS	~ 8:18	~ 0:27	Kellyville Ridge	
	3005	Bramton Dr opp Stafford Way to Marian College	~ 8:10	~ 0:35	Beaumont Hills	
Public Bus	633	Pennant Hills via Kellyville & Castle Hill to Rouse Hill		0:11	Pennant Hills, Castle Hill, Kellyville, Beaumont Hills,	
	605	North Kellyville to Rouse Hill Station	8:34	0:11	Kellyville, North Kellyville	
	601	Parramatta to Rouse Hill Station via Hills Showground	8:23, 8:41	0:22, 0:04	Parramatta, Northmead, Castle Hill, Kellyville, North	
	617	Kellyville Station to Rouse Hill	8:40	0:05	Beaumont Hills, Kellyville	
Withers Rd opp Rouse Hill High School (ID: 2155307)						
School Bus	2082	Gables to Ironbark Ridge PS via Box Hill		~ 0:09	Gables, Box Hill	Withers Road (south-east)
	2025	Samantha Riley Dr after Windsor Rd to Kellyville PS via Kellyville Ridge & Rouse Hill	~ 8:16	~ 0:29	Kellyville, Kellyville Ridge	
	3103	Kenthurst to Marian College via Annangrove	~ 8:02	~ 0:43	Kenthurst, Dural, Annangrove	
	3017	Withers Rd after Commercial Rd to Marian College	~ 8:00	~ 0:45	Wellgate Ave	
	2011	Rouse Hill Station to Pacific Hills Christian School	~ 7:27	~ 1:18	Rouse Hill Station	
	2033	Adelphi St after Mile End Rd to Baulkham Hills HS via Castle Hill Station	~ 7:17	~ 1:28	Adelphi St, Mile End Rd	
Public Bus	633	Pennant Hills via Kellyville & Castle Hill to Rouse Hill	8:09, 8:40	0:36, 0:05	Pennant Hills, Castle Hill, Kellyville, Beaumont Hills,	
	605	North Kellyville to Rouse Hill Station	8:10, 8:40	0:35, 0:05	Kellyville, North Kellyville	

	601	Parramatta to Rouse Hill Station via Hills Showground	8:25, 8:40	0:20, 0:05	Parramatta, Northmead, Castle Hill
	617	Kellyville Station to Rouse Hill	8:02, 8:40	0:43, 0:05	Beaumont Hills, Kellyville

Source: TfNSW, 2023

Table 5: Afternoon Bus Services Summary

Bus Type	Route	Route Name	Scheduled Arrival/Departure Times	Time before/after school bell (h:m)	Key origins / destinations	Bus stop location
Rouse Hill High School, Withers Rd (ID: 2155306)						
School Bus	2590	Our Lady of Mercy College to Rouse Hill Station via Kellyville		~ 1:40	Rouse Hill Station	Withers Road (north-west)
	2654	Pacific Hills Christian School to Rouse Hill Station	~ 16:07	~ 1:10	Rouse Hill Station	
	2655	St Madeleines PS Kenthurst to Rouse Hill Station	~ 16:00	~ 1:03	Rouse Hill Station	
	3601	William Clarke College to Conrad Rd before Palace St	~ 15:52	~ 0:55	Rouse Hill Station, Kellyville Ridge	
	2622	Pacific Hills Christian School to Rouse Hill Station via Beaumont Hills	~ 15:55	~ 0:58	Rouse Hill Station	
	2651	Ironbark Ridge PS to Gables via Box Hill	~ 16:28	~ 1:31	Gables, Box Hill	
	2571	Rouse Hill Station, North West Twy (Stop ID 2155457)	~ 15:31	~ 0:34	Rouse Hill Station	
	2599	Our Lady of the Rosary PS to Stanhope Gardens via Rouse Hill Stn	15:28	~ 0:31	North Kellyville, Kellyville Ridge, Stanhope Gardens	
	2600	Ironbark Ridge PS to Box Hill via Gables	15:07	0:10	Gables, Box Hill	
	3617	Rouse Hill HS to Dural PS	15:03	0:06	Annangrove, Kenthurst, Dural	
Public Bus	633	Pennant Hills via Kellyville & Castle Hill to Rouse Hill	15:09	0:12	Pennant Hills, Castle Hill, Kellyville, Beaumont Hills, Rouse Hill Station	
	605	North Kellyville to Rouse Hill Station	15:08	0:11	Kellyville, North Kellyville	
	601	Parramatta to Rouse Hill Station via Hills Showground	3:12	0:15	Parramatta, Northmead, Castle Hill, Kellyville, North Kellyville	
	617	Kellyville Station to Rouse Hill	15:09	0:12	Beaumont Hills, Kellyville	
Withers Rd opp Rouse Hill High School (ID: 2155307)						

School Bus	2557	Our Lady of the Angels PS to Kellyville		~ 0:27	Beaumont Hills, Kellyville	Withers Road (south-east)
	3587	The Hills Grammar to Green Rd opp St Pauls Ave via Marian College	~ 16:10	~ 1:13	Kellyville, North Kellyville, Castle Hill	
	2586	Rouse Hill Anglican College to Castle Hill via Beaumont Hills	~ 16:05	~ 1:08	Beaumont Hills, Kellyville, Castle Hill	
Public Bus	633	Pennant Hills via Kellyville & Castle Hill to Rouse Hill	15:09	0:12	Pennant Hills, Castle Hill, Rouse Hill Station	
	605	North Kellyville to Rouse Hill Station	15:08	0:11	Kellyville, North Kellyville	
	601	Parramatta to Rouse Hill Station via Hills Showground	15:12	0:15	Parramatta, Northmead, Castle Hill,	
	617	Kellyville Station to Rouse Hill	15:09	0:12	Beaumont Hills, Kellyville	

Source: TfNSW, 2023

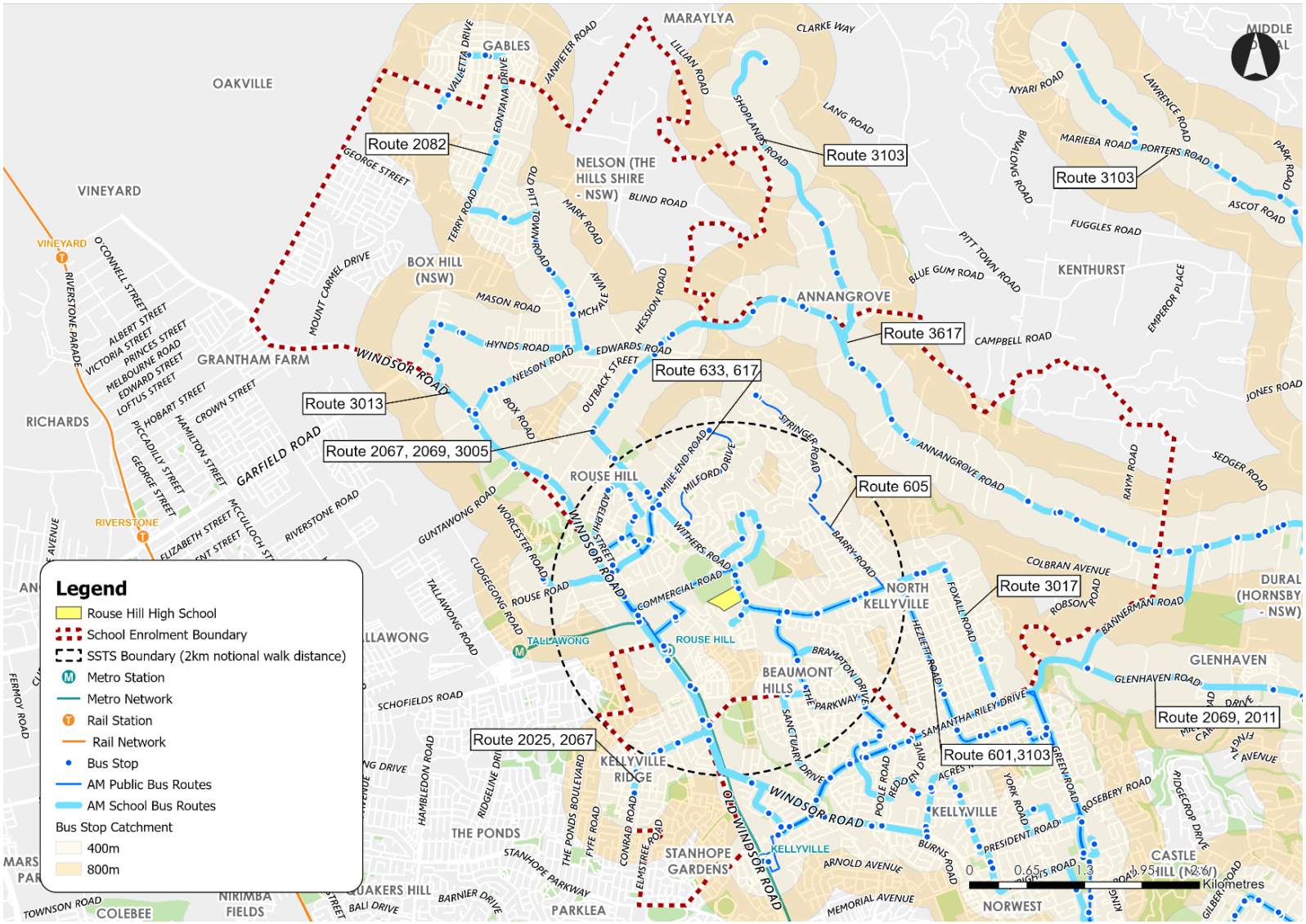

Figure 8: AM Public and School Bus Network

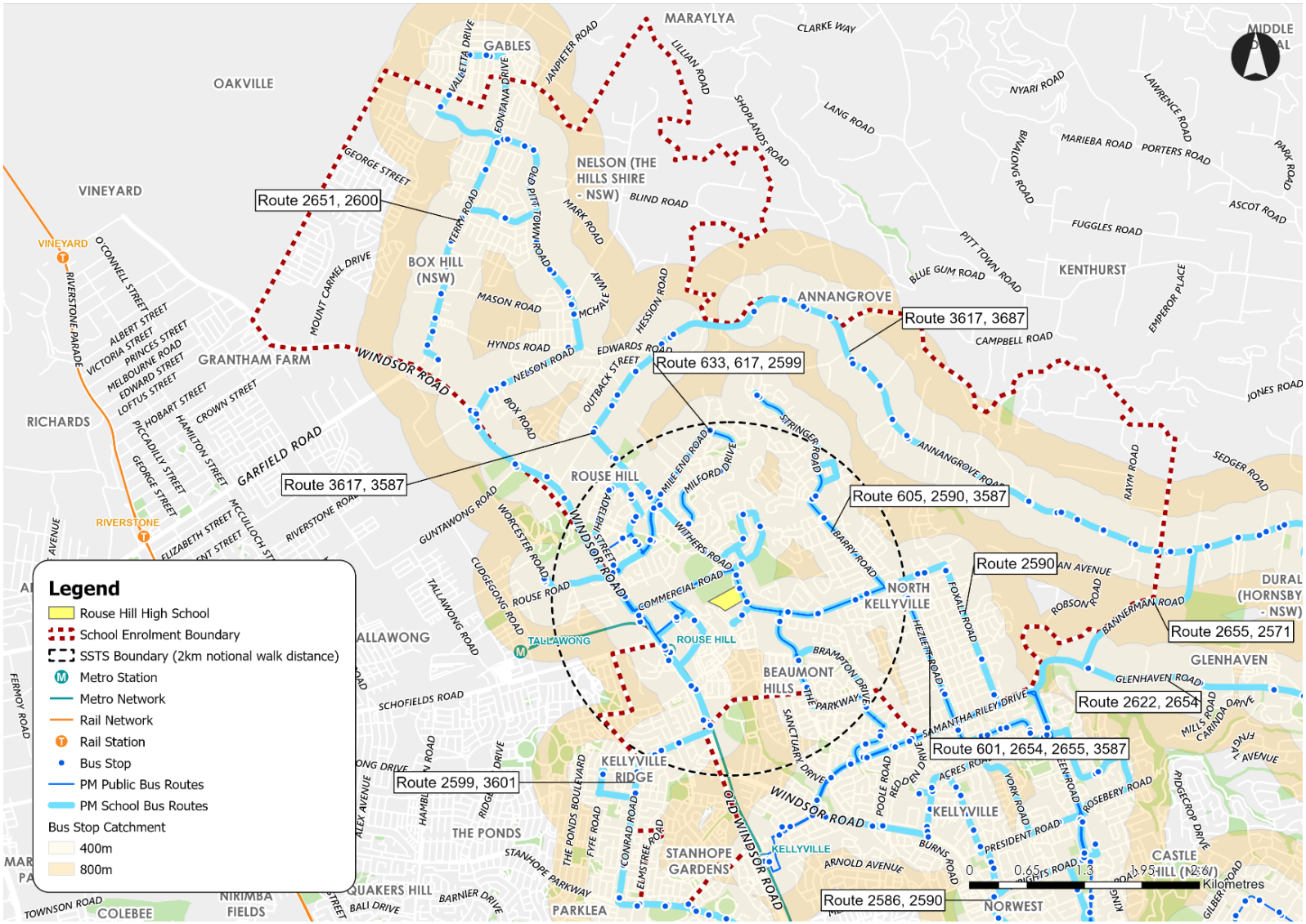

Figure 9: PM Public and School Bus Network

4.1.5 Road Network

The network of roads within the study area supports pedestrians, cyclists, buses, freight, and general traffic. Roads are managed by an administrative framework of state, regional, and local road categories. Classification is based on each road's connectivity and importance to the broader road network. State roads are managed and funded by Transport for NSW, and regional/local roads are managed and funded by Council. Roads that have a high freight task are generally assigned a state road classification. Regional roads perform an intermediate function and due to their network significance, Transport for NSW provides financial assistance to councils for the management of their regional roads. Information on the key roads surrounding the school site is summarised in **Table 6**, with locations shown in **Figure 10**.

Table 6: Summary of Key Roads

Key road	Active transport provisions	Road configuration	Classification	Speed limit (km/h)
Withers Road	Footpaths are provided on both sides of the road. On-road mixed traffic cycle route along this corridor, and an off-road shared path along the southern extent between Commercial Road and Mungerie Road.	Two traffic lanes in each direction. Additional turning lanes are provided at the intersections.	Local	60 (school zones apply)
Bruce Purser Way	There are footpaths on both sides of the road. There are no cycleways.	One traffic lane in each direction. The road leading to Bruce Purser Oval Carpark. Restricted on-street parking available with no parking during 8am-9am and 2pm-4pm school days.	Local	50 (school zones apply)
Caballo Street	There are footpaths provided on both sides of the road. There are no cycleways.	One through lane of traffic in each direction with no centre line making. Unrestricted on-street parking is available.	Local	50 (school zones apply)

Figure 10: Surrounding Road Network

4.1.6 Road Safety

The crash data for the study corridor was sourced from the online TfNSW database. Historical crash data was mapped for the five-year period from 2016 to 2020 (inclusive).

Crash Severity

The crash severity is categorised under five classes, which include fatal, serious injury, moderate injury minor/other injuries, and non-casualty tow away.

Table 7 provides a detailed summary of the crashes surrounding the school, with the locations shown in **Figure 12**. Approximately 43% of crashes resulted in a non-casualty, however, there has been one reported fatality at Windsor Road/Schofields Road Intersection.

Table 7: Crash Severity

Degree of Crash	Number of Crash	Percentage
Fatal	1	0.6%
Minor/Other Injury	41	23.3%
Moderate Injury	33	18.8%
Non-casualty (towaway)	77	43.8%
Serious Injury	24	13.6%
Total	176	100.0%

Crash Type

Crash types are classified by the RUM codes that describe the impact of the crashes based on a number of categories and are a standard code to identify the movements involved in a crash. For example, a “right through” type accident (RUM code 30) is classified as an accident between two vehicles traveling in the same direction with one vehicle rear-ending the other vehicle.

Analysis of the RUM codes was undertaken and shows that there were 31 different crash types and approximately 50% of the 176 crashes were captured by three RUM codes. These include rear-end collisions (RUM code 30) and Right Through (RUM code 21) and Left off Carriageway into an object (RUM code 71). A summary of crash types based on RUM codes is presented in **Table 8**.

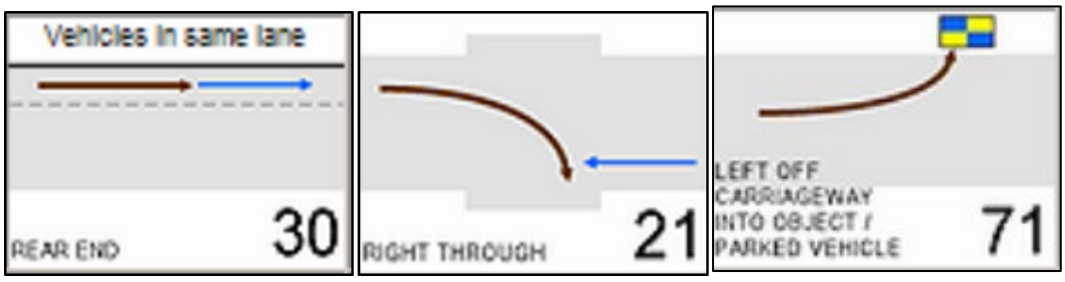

Figure 11: Top RUM Code

Table 8: Crash Type Based on RUM

RUM code	Fatal	Minor/Other Injury	Moderate Injury	Non-casualty (towaway)	Serious Injury	Total	Percentage
30		18	6	20	5	49	27.8%
21	1	4	3	8	6	22	12.5%
71		1	4	10	2	17	9.7%
13		1	3	6	3	13	7.4%
10		4	3	3	1	11	6.3%
81				7		7	4.0%
39		2	1	3		6	3.4%
0		2	2		1	5	2.8%
11		2	1	2		5	2.8%
20			2	2		4	2.3%
34			2	2		4	2.3%
40		1	2	1		4	2.3%
31		1		1	1	3	1.7%
35		1	1		1	3	1.7%
47			1	1	1	3	1.7%
32					2	2	1.1%
33			1	1		2	1.1%
42				2		2	1.1%
49				2		2	1.1%
2					1	1	0.6%
6		1				1	0.6%
16				1		1	0.6%
29				1		1	0.6%
36		1				1	0.6%
62				1		1	0.6%
72				1		1	0.6%
73				1		1	0.6%

74		1				1	0.6%
75			1			1	0.6%
87				1		1	0.6%
91		1				1	0.6%
Total	1	41	33	77	24	176	100.0%

The results indicate that 4% of the crashes were pedestrian crashes (RUM code 00-9). The analysis revealed no crash at the Withers Road/ Bruce Purser Way intersection.

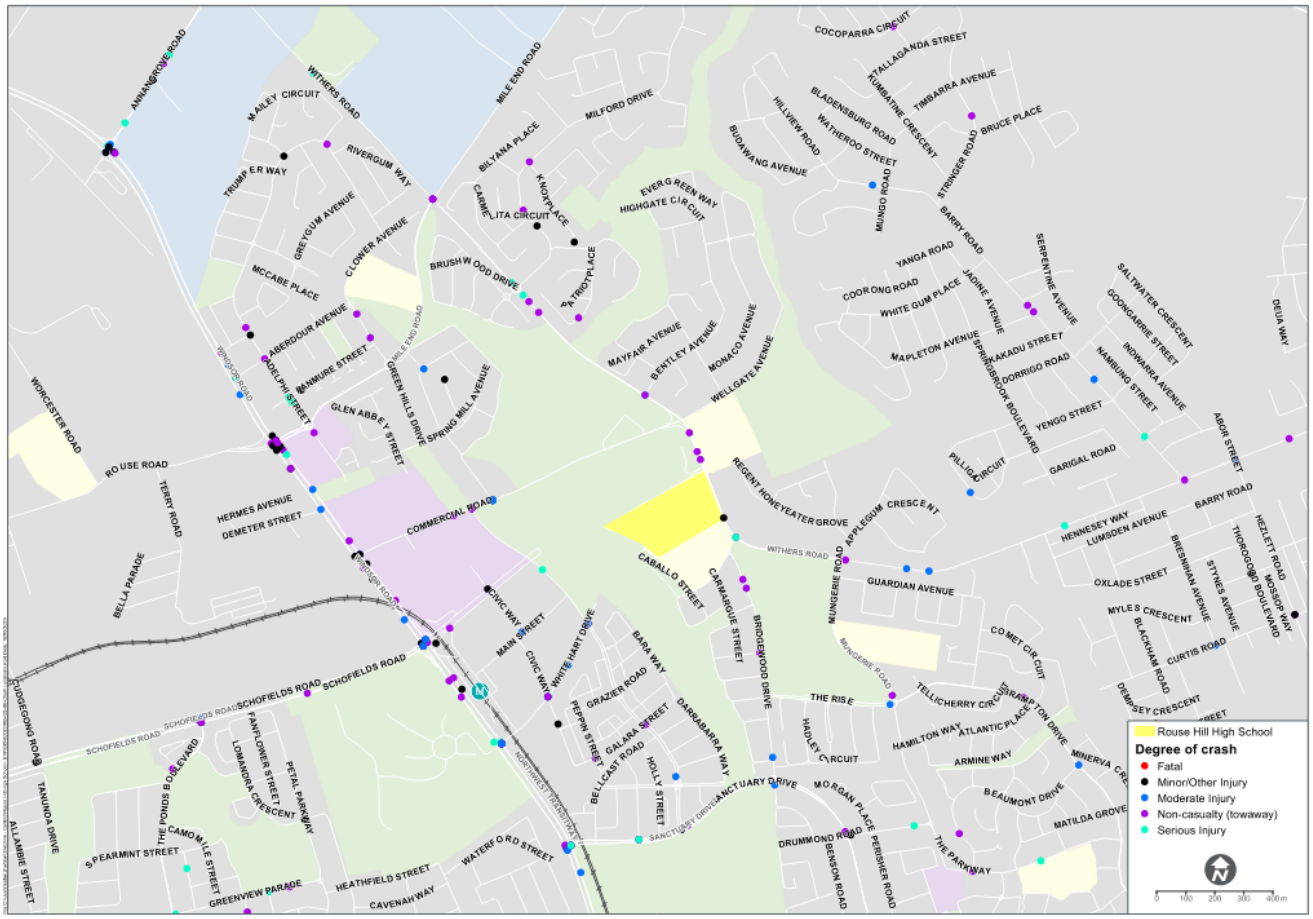

Figure 12: Crash Locations (2016 to 2020)

4.2 School Site Access

4.2.1 Pedestrian Access

The main entrance to the school is located at Bruce Purser Way, which provides pedestrian and vehicle access to the site. Other pedestrian entries are located on Withers Road and Caballo Street.

4.2.2 Bicycle Parking

The school currently has 40 on-site bicycle parking facilities and are shown below in **Figure 13**.

Figure 13: Existing Bicycle Parking

Additional formalised bicycle parking will be provided as part of the site's development. 20 additional covered bicycle parking spaces are being provided in the western area of the school boundary as shown below in **Figure 14**.

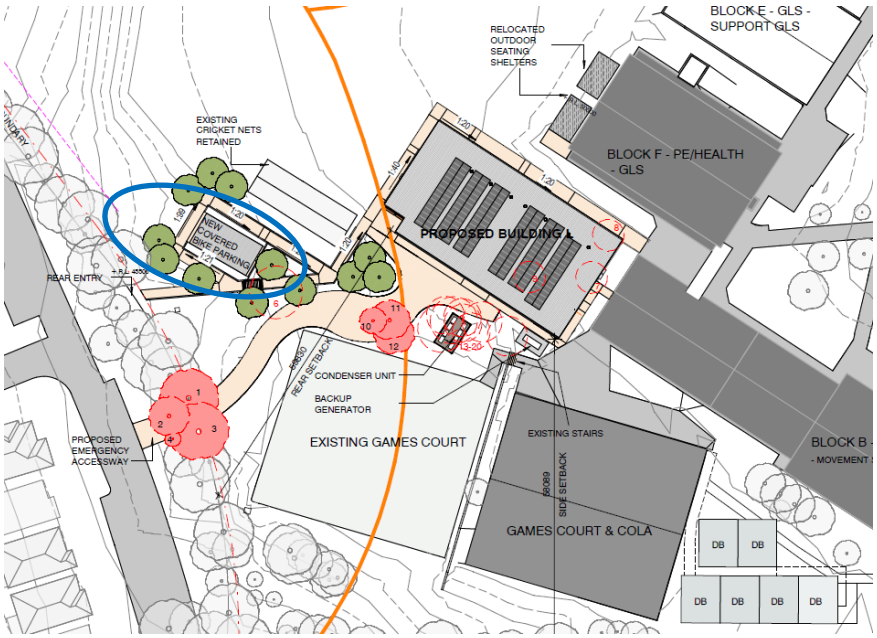

Figure 14: Proposed Additional Bicycle Parking

4.2.3 End-of-trip Facilities

End of trip facilities, such as showers, are provided for staff.

4.2.4 Bus Access

A range of bus routes provides direct access to the school, including public bus services and school bus services. These routes service the bus stops as explained below.

- The Withers Road bus stop on the school side (ID: 2155306) is approximately 80m long, which can accommodate approximately 5 parallel parked buses at any one time.
- The Withers Road bus stop opposite the school (ID: 2155307) is approximately 45m long, which can accommodate approximately 3 parallel parked buses at any one time.

Bus pick-up and drop-off arrangements are to remain the same.

4.2.5 Car Parking

There is an existing off-street car park accessible off Bruce Purser Way as shown in **Figure 15**. The car park contains a total of 95 car parking spaces (exclusive of two disabled parking spaces) and is dedicated for staff. The two accessible parking in the school car park are shown in **Figure 16**.

On-site vehicle parking arrangements will remain the same as they are currently. The current car park layout will remain the same and will not see any change to the number of available spaces for staff. No on-site parking is to be provided for senior students as part of the proposed development.

Figure 15: School Car Parking

Figure 16: Accessible Parking

The school has an agreement with the council that Bruce Purser Reserve parking (**Figure 17**) be used for school purposes. The school has allocated this parking for senior students and any other staff unable to find a spot in the dedicated staff parking area. There are approximately 110 car parking spaces provided at this car park.

Figure 17: Bruce Purser Oval Car Park

The Hills Shire DCP 2012 specifies the following parking rates for an educational establishment:

- 1 staff car parking space per employee
- 1 visitor car parking space per 30 students enrolled.

With the projected staff population of 125 for the year 2026, this results in a total of 125 parking spaces being required for staff. With a designed school capacity of 1200, this results in a total of 40 parking spaces being required for visitor-parking purposes. This presents a total parking requirement of 165 spaces.

Existing parking numbers are presented as follows in **Table 9**, and are sufficient to meet the DCP requirements.

Clause 3.36 of Transport and Infrastructure State Environmental Planning Policy (TISEPP) outlines that the DCP provisions requiring standards/ controls for schools are not applicable. Accordingly, no student car parking is required as per SINSW guideline.

Table 9: Parking Space Capacity Breakdown

Parking Facility	No. of car parking spaces
Staff parking within school site	95 spaces + 2 accessible spaces
Public parking at sports field (School has an agreement to use Bruce Purser reserve public parking)	~110 spaces
Total	**~207 spaces**

4.2.6 School Drop-off and Pick-up Zones

A breakdown of the school kiss-and-drop areas are presented in **Figure 19**, with nine on-street pick-up / drop-off spaces located along Bruce Purser Way as shown in **Figure 18**.

Figure 18: On-street kiss-and-drop zones along Bruce Purser Way

Figure 19: Kiss-and-drop Locations and Capacity Breakdown

As per the site visit, the observed drop-off and pick-up activities surrounding the site are documented as follows:

- The school kiss-and-drop area at Bruce Purser Way is not currently managed. Kiss and drop queues extend past the school car park entrance which is a 'no stopping' area. Queues were observed to extend beyond the Withers Road intersection. Parents dropping off/ waiting for the students in the no-stopping area does not allow traffic to flow and leads to queuing.
- After dropping off students, cars were also observed exiting from Bruce Purser Oval Car Park's left turn-only exit to the north. The car park exit has no right turn allowed; however, right and left turn exit movements are permitted from Bruce Pursey Way onto Withers Road. Vehicles observed to turn right from Bruce Purser Way onto Withers Road create congestion/queues on Bruce Purser Way.

An analysis is undertaken to assess the capacity of the school kiss-and-drop zones in servicing the demand during the school pick-up / drop-off periods. The assumptions made in calculating the required number of kiss and drop spaces to effectively service the school and analysis outputs are provided in **Table 10**. Results indicate that a total of 20 and 15 kiss-and-drop spaces are required to accommodate the private car mode share under the moderate and reach target scenarios respectively. Taking a conservative approach of adopting the moderate target mode share, this signifies a shortfall of 11 kiss-and-drop spaces and overflow vehicles are expected to use the Bruce Purser Reserve off-street public parking for school pick-up / drop-off purposes.

Table 10: Kiss-and-drop Analysis

Description	
Projected student population (Year 2026)	1,200 students
Dwell time per pick-up/drop-off car	1.5 minute
Pick-up/drop-off period length of time	15 minutes
Assumption of number of students per vehicle	1.3 students
Pick-up/drop-off spaces required for moderate mode share (21% car mode share)	20 spaces, 130 metres
Pick-up/drop-off spaces required for reach mode share (16% car mode share)	15 spaces, 97.5 metres

Recommendations to improve traffic congestion along Bruce Pursey Way during kiss-and-drop operations have been proposed as part of our recommendations for this study (As shown in **Figure 19**). These recommendations include:

- Remote pick-up and drop-off for students can be made available at the adjacent Bruce Purser Reserve off-street car parking. This will provide additional 15 pick-up and drop-off spaces and further ease existing traffic at Bruce Purser Way.

4.2.7 Service/ Emergency Vehicle Area

There is a separate entry via Withers Road for servicing and waste management operations, just south of the Withers Road bus zone as shown in **Figure 20.** It is anticipated that there are no changes to these operations with the site development.

Figure 20: Existing Service Area

A new emergency accessway is being provided from Caballo Street as part of the school upgrade works, as shown in **Figure 21.** The new emergency accessway will result in the loss of one on-street parking space on Caballo Street. Emergency vehicles would access the new emergency accessway via Ironbark Ridge Road and Caballo Street (north). The emergency accessway will be gated and can be signed as 'Emergency Vehicle Access Only'. The emergency vehicle accessway will not interfere with any residential driveways on Caballo Street.

Figure 21: Location of proposed new emergency accessway (approximate)

4.3 Student Distribution

Depersonalised residential data (2023) was provided for the Rouse Hill High School student population by the Department of Education NSW. An overview of student residential locations is shown in **Figure 22**.

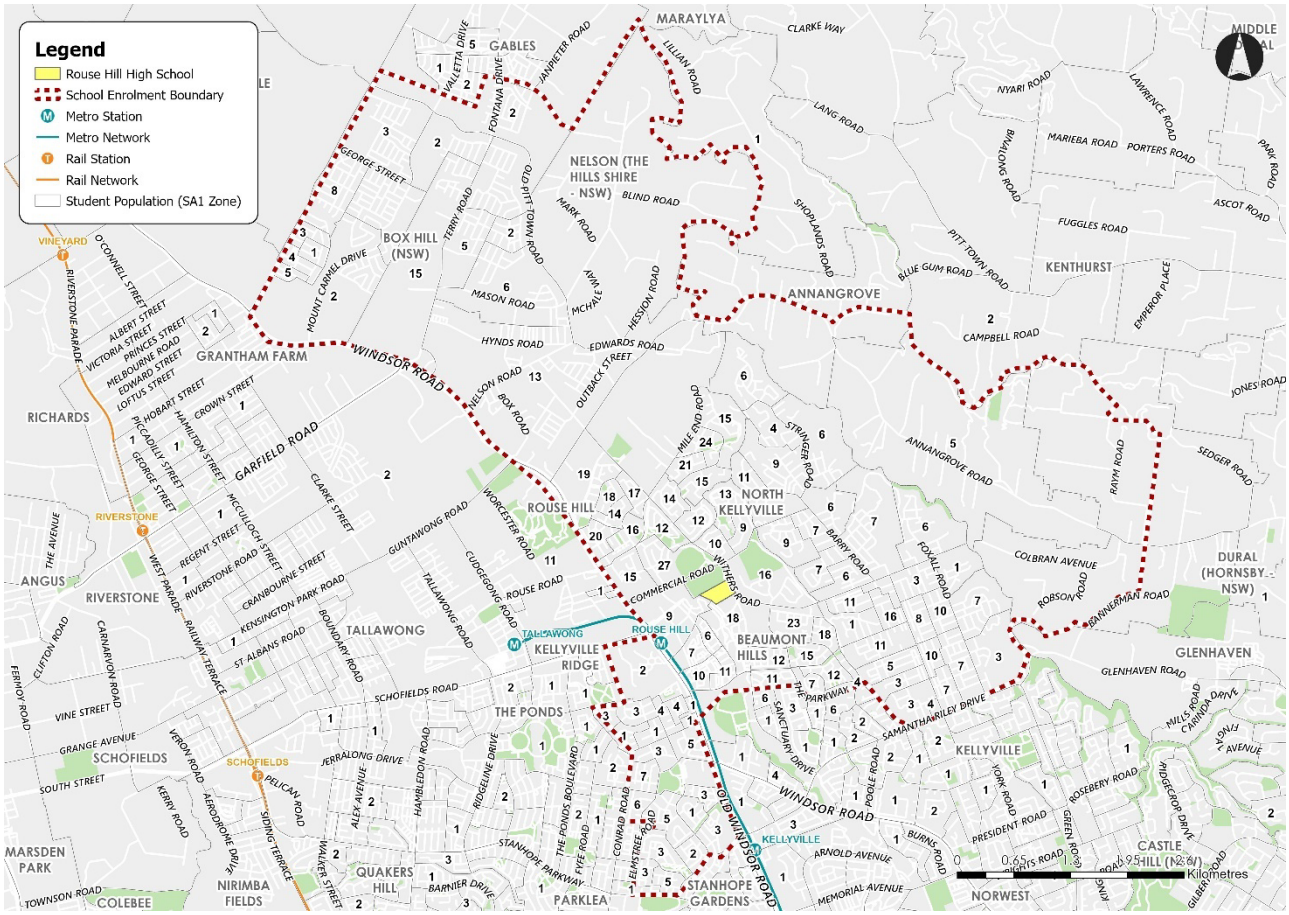

Figure 22: Rouse Hill High School 2023 Student Enrolment Distribution

Using the depersonalised data provided, student accessibility was analysed according to the proximity of students to the school. The summary of student catchments is shown below in **Table 11**.

Table 11: Catchment Analysis of Enrolled Students

Catchment Analysis	Notional (Within crow flies)		Actual (On Path)	
	Number of Students	% of Students	Number of Students	% of Students
1-400m (5-min walk)	11	1%	9	1%
401-800m (10-min walk)	73	7%	53	5%
801-1,200m (15-min walk)	162	16%	105	10%
1,201-2,000m crow flies / 2,900m on path (SSTS Exclusion Zone)	364	35%	509	50%
0-1,200m (5-min cycling)	246	24%	167	16%
1,201-2,400m (10-min cycling)	443	43%	251	24%
2,401-3,600m (15-min cycling)	125	12%	396	39%

Within 400m of public transport stop/station	788 (AM) 800 (PM)	77% (AM) 78% (PM)	-	-
Within 800m of public transport stop/station	857 (AM) 868 (PM)	83% (AM) 85% (PM)	-	-
Students within 400m of public transport stop/station AND outside of a 2,000m crow flies (STSS zone)	257 (AM) 270 (PM)	25% (AM) 26% (PM)	-	-

Source: 2023 Student Depersonalised Data, SINSW

4.4 Transport Catchments

4.4.1 Walking Catchments

Figure 23 shows the on-path walking catchments from the school pedestrian entries in the bands of 400m, 800m, 1,200m and 2,300m.

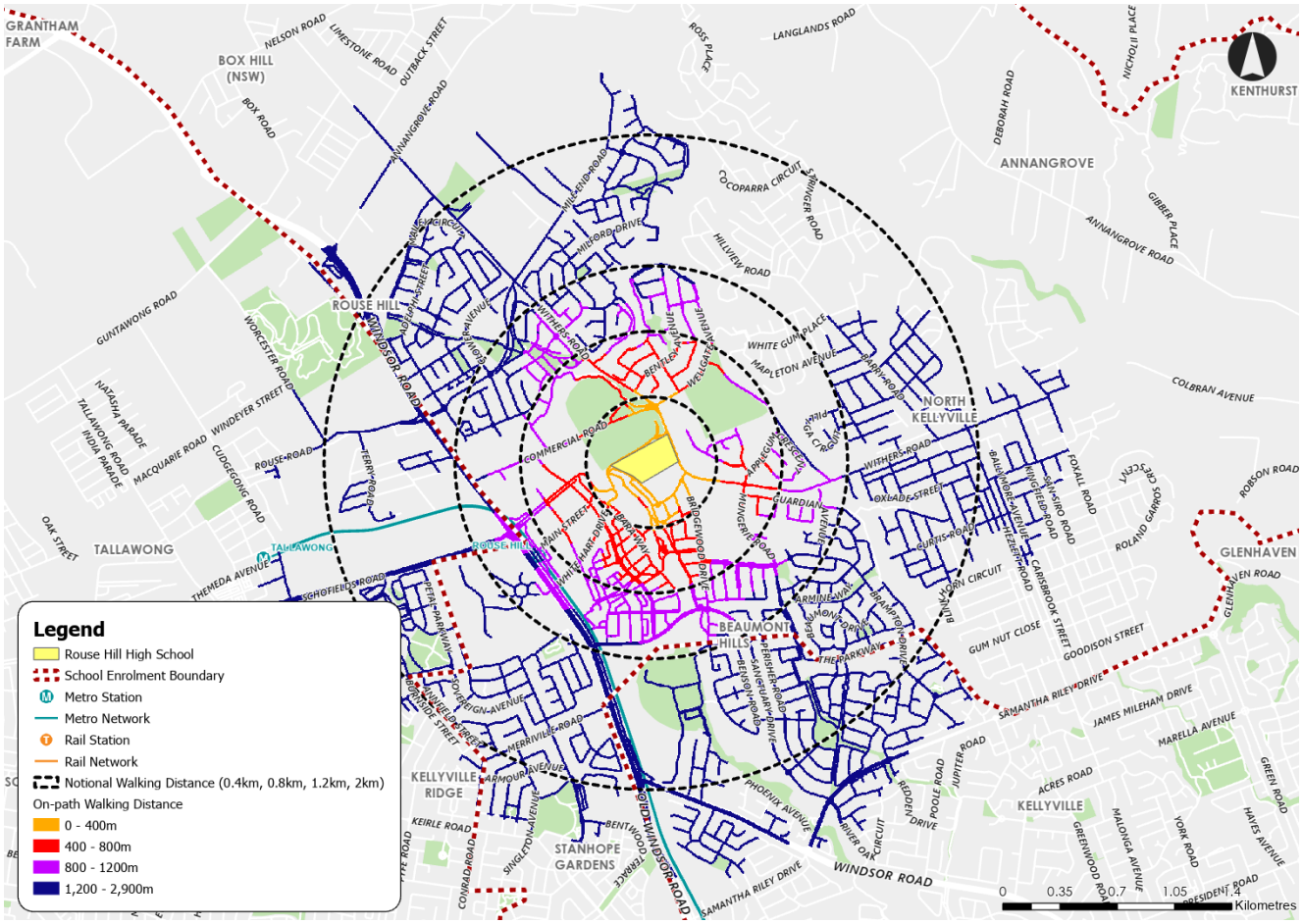

Figure 23: Walking Catchments

The percentages of students across the walking catchment bands are shown in **Table 12.**

Table 12: Summary of Students Living in Walking Catchments

	Notional (within crow flies)			Actual (on- path)		
	No. of Students	% of Students	Cumulative %	No. of Students	% of Students	Cumulative %
0-400m	11	1%	1.1%	9	1%	1%
401-800m	73	7%	8.2%	53	5%	6%
801-1200m	162	15.8%	24.0%	105	10%	16%
1201-2000m crow flies / 2900m on path	364	35.4%	59.4%	509	50%	66%
Outside 2000m crow flies / 2900m on path	417	40.6%	100.0%	351	34%	100%

Source: 2023 Student Depersonalised Data, SINSW

4.4.2 Cycling Catchments

In addition to the pedestrian catchment guidelines described by SINSW, the catchment areas for cycling are analysed in the increments of 1,200m band, as shown in **Figure 24**.

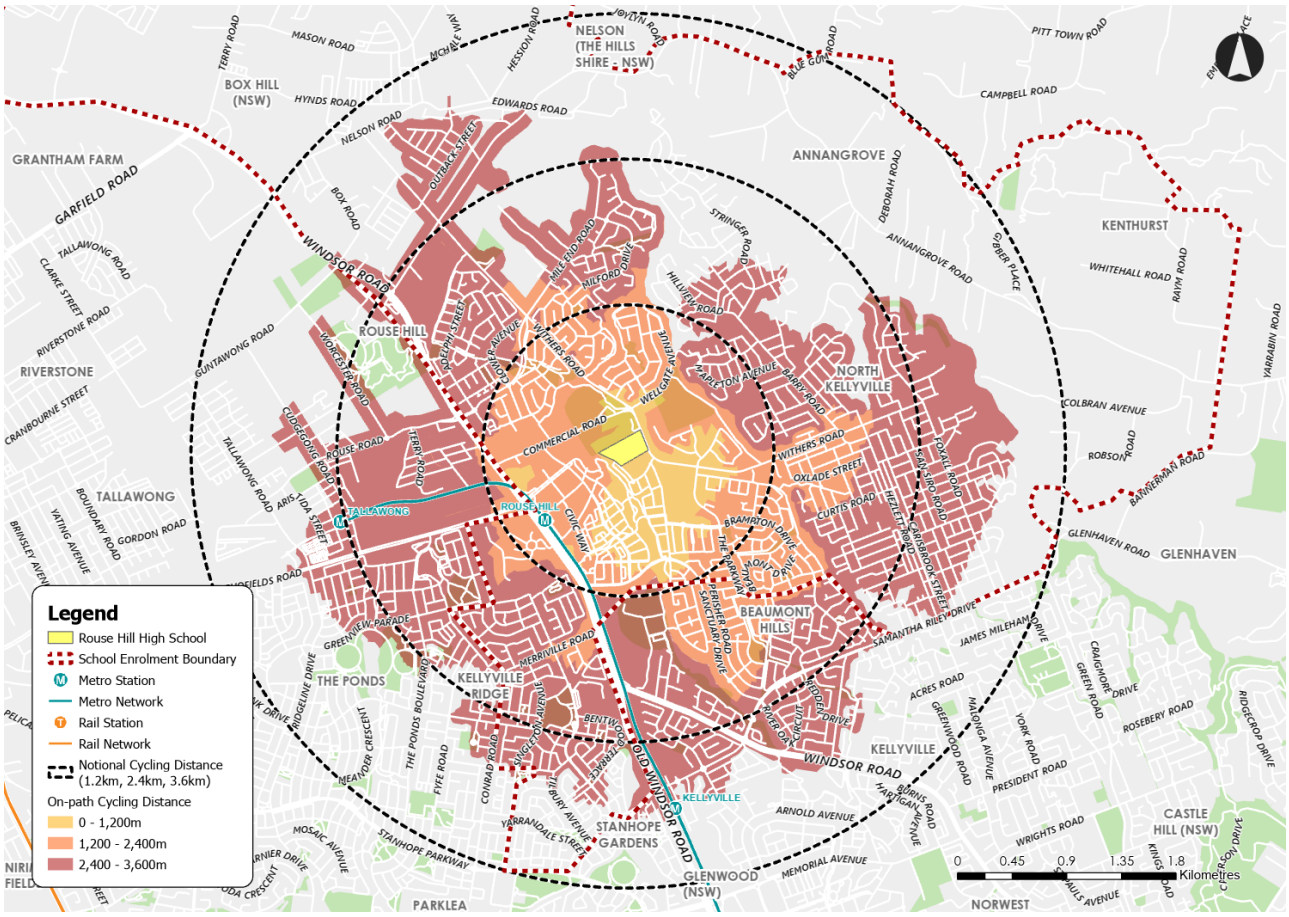

Figure 24: Cycling Catchments

The percentages of students across the cycling catchment bands are shown in **Table 13.**

Table 13: Summary of Students Living in Cycling Catchments

	Notional (within crow flies)			Actual (on path)		
	No. of Students	% of Students	Cumulative %	No. of Students	% of Students	Cumulative %
0-1200m (5 Minutes)	246	24%	24%	167	16%	16%
1201-2400m (10 Minutes)	443	43%	67%	251	24%	40%
2401-3600m (15 Minutes)	125	12%	79%	396	39%	79%
Outside 3,600m (15 Minutes)	213	21%	100%	213	21%	100%

Source: 2023 Student Depersonalised Data, SINSW

4.4.3 Bus Services Catchments

A 400m catchment from bus stops and train stations has been considered as a realistic maximum distance that most students would likely walk from home to a public transport stop. The public transport services catchment analysis is shown in **Table 14**. Refer to **Figure 8** and **Figure 9** for the extent of the public and school bus network coverage that service the school.

Table 14: Public Transport Catchment Analysis

	AM		PM	
	Number of Students	**% of Students**	**Number of Students**	**% of Students**
Students within 400m of bus stop that brings a student closer to school	788	77%	800	78%
Students within 800m of bus stop that brings a student closer to school	857	83%	868	85%
Students outside 2km notional distance	417	41%	417	41%
Students within 400m of a bus stop, outside of a 2km notional distance	257	25%	270	26%

As shown above, the majority (78%) of students live within 400m of public transport stops/stations. However, 25-26% of students are eligible for School Travel Passes and live within 400m of public transport stops/stations.

5. Travel Patterns

The mode share for students travelling to Rouse Hill High School was informed by the survey conducted amongst the students. The survey was undertaken on 4th August 2023 for Year 7 to 10 students and on 28th August 2023 for Year 11 to 12 students, with a total of 763 students completed the survey. This equates to almost 75% of the 2023 student population. The mode shares breakdown is depicted in **Figure 25** and outlined in **Table 15**.

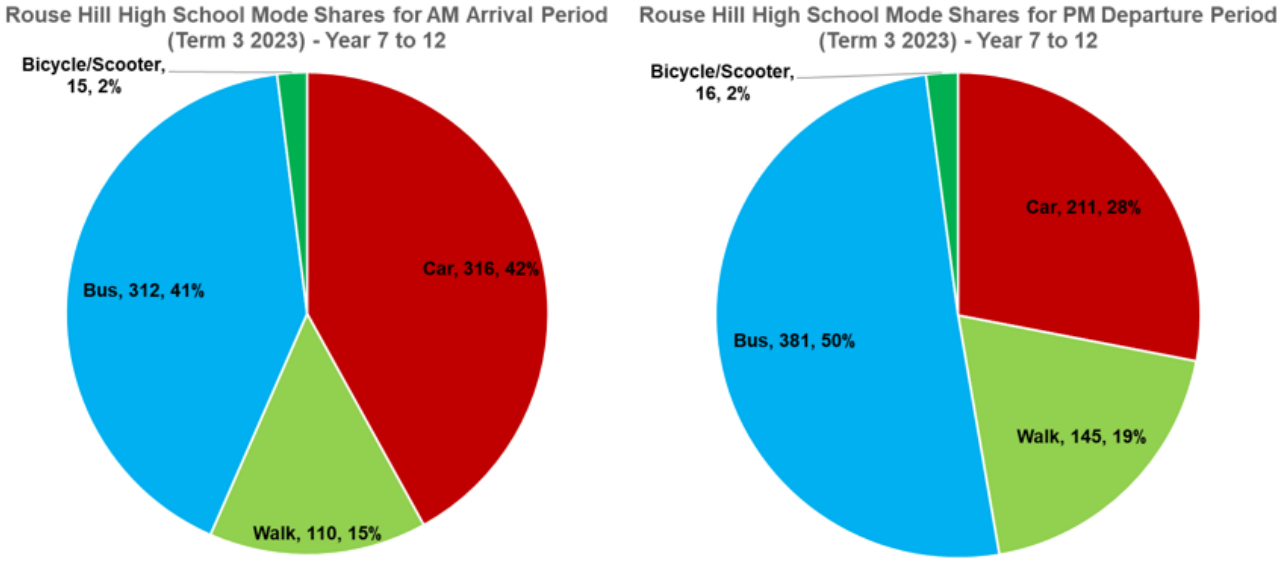

Figure 25: Rouse Hill High School Students' Travel Mode Share for Term 3 2023

Table 15: Rouse Hill High School Mode Share for Term 3 2023

Mode	AM Peak		PM Peak	
	Number of Students	Mode Share	Number of Students	Mode Share
Car	316	41%	211	28%
Walk	110	14%	145	19%
Bus	312	41%	381	50%
Train	9	1%	10	1%
Bicycle/Scooter	13	2%	13	2%

6. Mode Share Targets

The purpose of the School Transport Plan is to determine ways in which a higher proportion of students can sustainably travel to school and relinquish their reliance on private vehicles. To do this, mode share targets have been determined for the school to meet in ensuring a higher proportion of students can sustainably travel to school and relinquish their reliance on private vehicles. It is intended that the school will work toward meeting these targets following the completion of works on site. As part of this analysis, three mode share scenarios are provided:

- Base Case Scenario – The existing mode share as identified by the school travel survey
- Moderate Scenario – transport recommendations enable a shift towards walking, cycling, and catching a bus. This represents an achievable outcome.
- Reach Scenario – Sustainable mode share is maximised, and students are further shifted from private vehicles to buses. This reach scenario represents the maximum achievable outcome.

The first step in developing mode share targets is addressing the discrepancy between the existing AM and PM mode share figures. This discrepancy largely exists because parents/ guardians may choose to drop students off at school in the morning, as it aligns with existing private vehicle trips i.e., going to work, running errands etc. Encouraging students to travel to school using the same mode across both peaks can be made more attractive by providing safe, efficient, and reliable travel options. It is most desirable that students can use one mode in both periods and ultimately reduce reliance on private vehicles. Therefore, mode share targets are not differentiated by time of day. When considering the mode shares a variety of data sources were analysed to determine the outcomes based on distance. This included the residential location of students through depersonalised data, walking and cycling catchments, access to public transport and eligibility to the SSTS scheme, in addition to the kiss-and-drop capacity and bus service availability. The mode share for the three scenarios are provided in **Table 16**, **Table 17**, and **Table 18**.

6.1 Base Case Scenario

Table 16 shows the base case scenario mode share for students, based on the Term 3 2023 student travel survey results detailed in Section 5.

Table 16: Base case mode share scenario

Mode		AM	PM
Walking	%	14%	19%
	no. of students	316	145
Bicycle and other micro-mobility	%	2%	2%
	no. of students	13	13
Public Transport	%	42%	51%
	no. of students	321	391
Private Vehicle	%	41%	28%
	no. of students	316	211

6.2 Moderate Scenario

The moderate scenario builds on the existing mode share (base case) and accounts for transport recommendations and future upgrades to create achievable targets. The considerations made in this regard include:

- A greater proportion of students cycling within the 1,200 – 2,900m catchment bands.
- An increase in student bus patronage over 2,900m catchment through the promotion of the SSTS scheme.
- A small increase in walking as students within a reasonable walking catchment are considered to be walking already.

Table 17: Moderate mode share scenario

Mode		0 to 400m	400 to 800m	800 to 1,200m	1,200 to 1,600m	1,600 to 2,000m	2,000 to 2,900m	Over 2,900m	Total
Walking	%	100%	94%	65%	55%	15%	0%	0%	**21%**
	no. of students	10	47	84	92	23	0	0	255
Bicycle and other micro-mobility	%	0%	0%	0%	13%	10%	5%	0%	**4%**
	no. of students	0	0	0	22	15	11	0	49
Public Transport	%	0%	0%	0%	5%	29%	64%	96%	**54%**
	no. of students	0	0	0	8	45	141	453	647
Private Vehicle	%	0%	6%	25%	22%	61%	31%	4%	**21%**
	no. of students	0	3	45	45	71	68	19	250

Students volumes are based on school designed capacity of 1,200 students

6.3 Target (Reach) Scenario

The reach target scenario builds on the moderate scenario and aims to provide a scenario that represents the maximum achievable outcome. The considerations for this scenario include:

- The majority of students residing within 800m of a bus stop who qualify for free transport services, as per the SSTS, utilise the service.
- An increase in students cycling that reside within the 1,600 – 1,900m catchment of the school.

Table 18: Target (reach) mode share scenario

Mode		0 to 400m	400 to 800m	800 to 1,200m	1,200 to 1,600m	1,600 to 2,000m	2,000 to 2,900m	Over 2,900m	Total
Walking	%	100%	94%	65%	55%	15%	0%	0%	**21%**
	no. of students	10	47	84	100	23	0	0	263
Bicycle and other micro-mobility	%	0%	0%	0%	13%	10%	5%	0%	**4%**
	no. of students	0	0	0	30	23	19	0	72
Public Transport	%	0%	0%	0%	5%	29%	64%	96%	**54%**
	no. of students	0	0	0	8	46	165	453	673
Private Vehicle	%	0%	6%	25%	22%	61%	31%	4%	**21%**
	no. of students	0	3	45	28	62	36	19	192

Students volumes are based on school designed capacity of 1,200 students

6.4 Mode Share Summary

A summary of the target mode shares is outlined below in **Table 19**.

Table 19: Student Mode Share Target Summary

Mode	Existing Baseline Mode share	Moderate Mode share Targets	Reach Mode share Targets
Walking	19%	21% (↑ 2%)	22% (↑ 3%)
Cycling	2%	4% (↑ 2%)	6% (↑ 4%)
Public Transport	51%	54% (↑ 3%)	56% (↑ 5%)
Private Vehicles	28%	21% (↓7%)	16% (↓ 12%)

7. Planned Works by Council

Table 20 detailed a series of planned works to be undertaken by Council, which are of relevance to school access, with locations referenced in **Figure 26**.

Table 20: Planned Works by Council

ID	Mode	Type	Description	Expected completion timeframe	Outcome
P1	Walking and cycling	Pathway	Withers Road will be upgraded to 4 lanes on the east and north sides. The upgrade includes new pedestrian pathways and cycleways, which will connect to the surrounding existing cycle network.	Short term	Improves pedestrian and cycling connectivity along Withers Road.
P2	Walking and cycling	Crossing	Pedestrian crossing at Greenhill Drive and Caddies Creek.	Short term	Improves crossing opportunities at Commercial Road.
		Pathway, crossing	An upgrade to the north-west portion of Commercial Road with lane width changes, cycleways, pedestrian underpasses and a bridge across Caddies Creek.	Long term	
P3	Walking and cycling	Pathway	A pathway which connects the existing pathway along Smalls Creek to the housing to the east.	Medium term	Improves accessibility to housing to the Smalls Creek from Withers Road.
P4	Walking	Safety	Provide median pedestrian fencing/ physical barrier (approx. 250m) across Withers Road to direct pedestrians to safe crossing points at Ironbark Ridge Road and Withers Road signalised intersections.	Short Term	Direct pedestrians to safe crossing points at Ironbark Ridge Road and Withers Road signalised intersections.

Figure 26: Locations of Planned Works by Council

8. Mitigation Measures

No mitigation measures are required as part of the activity.

9. Conclusion

Planned public domain works, to be undertaken by Council, serve to ensure pedestrian safety and accessibility to the school. These works include new pedestrian crossings, new pathways, and median pedestrian fencing on Withers Road to guide pedestrians to designated safe crossing points. It is noted that Department of Education is funding the median pedestrian fencing. Refer to Section 7 for details on these planned public domain works.

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

Appendix A Preliminary Construction Traffic Management Plan

Stantec

Memo

To:	NSW Department of Education	From:	Volker Buhl
Project/File:	Rouse Hill High School Upgrade	Date:	25 February 2025

Reference: Preliminary CTMP

1 Introduction

1.1 Project Site

NSW Department of Education (DoE) is proposing to upgrade Rouse Hill High School. The school opened in 2009 and is located at 240 Withers Road, Rouse Hill, within the Hills Shire Council Local Government Area. Rouse Hill High School is a co-education high school, serving years 7-12. The school site is just south of the Bruce Purser Oval and is located approximately 1km east of the Rouse Hill Station. The location of the school site with respect to surrounding land uses is shown in **Figure 1.1.** The main entrance to the school is located at Bruce Purser Way, which provides pedestrian and vehicle access to the site. Another pedestrian entry is located on Withers Road and Caballo Street.

Figure 1-1: Project site location

1.2 Purpose of this report

The following Preliminary Construction Traffic Management Plan (CTMP) is a high level and strategic plan to ensure that traffic is safely managed during the demolition, excavation, and construction phases of the project. The next sections outline specific inputs for the school site, however, must be viewed in conjunction with the detailed construction traffic management plan upon engagement of a contractor.

1.2.1 Objectives

The primary objectives of the CTMP include the following:

- To identify the need for adequate and compliant traffic management requirements within the vicinity of the school
- To ensure continuous, safe and efficient movement of traffic for both the general public and construction vehicles
- Establishment of a safe pedestrian environment around the site
- To inform the Contractor and set the ground rules for managing construction traffic associated with the site.

The overall principles of traffic management during the construction activity include:

- Provide an appropriate and convenient environment for pedestrians
- Minimise the impact on pedestrian movements
- Maintain appropriate capacity for pedestrians at all times on footpaths around the site
- Maintain appropriate public transport access
- Maintain current levels of parking within the precinct
- Maintain permanent access to/ from the hospital accesses for emergency services
- Restrict construction vehicle movements to designated routes to/ from the site
- Manage and control construction vehicle activity around the site
- Minimise impacts to general traffic in the vicinity of the site.

2 Construction Traffic Management Plan

2.1 Description of construction activities

The project involves the upgrade with the addition of 11 new general learning spaces to accommodate permanent capacity of 1,200 students. It should be noted that the current student enrolment numbers at the school exceed the designed capacity.

The proposed upgrades are shown in Figure 2-1 and include the following:

- Learning Spaces:
  - 11 x GLS
  - 2 x Science labs
- Landscaped areas:
  - 20 covered bicycle parking spaces
  - New secondary entry gate and CCTV on Caballo Street

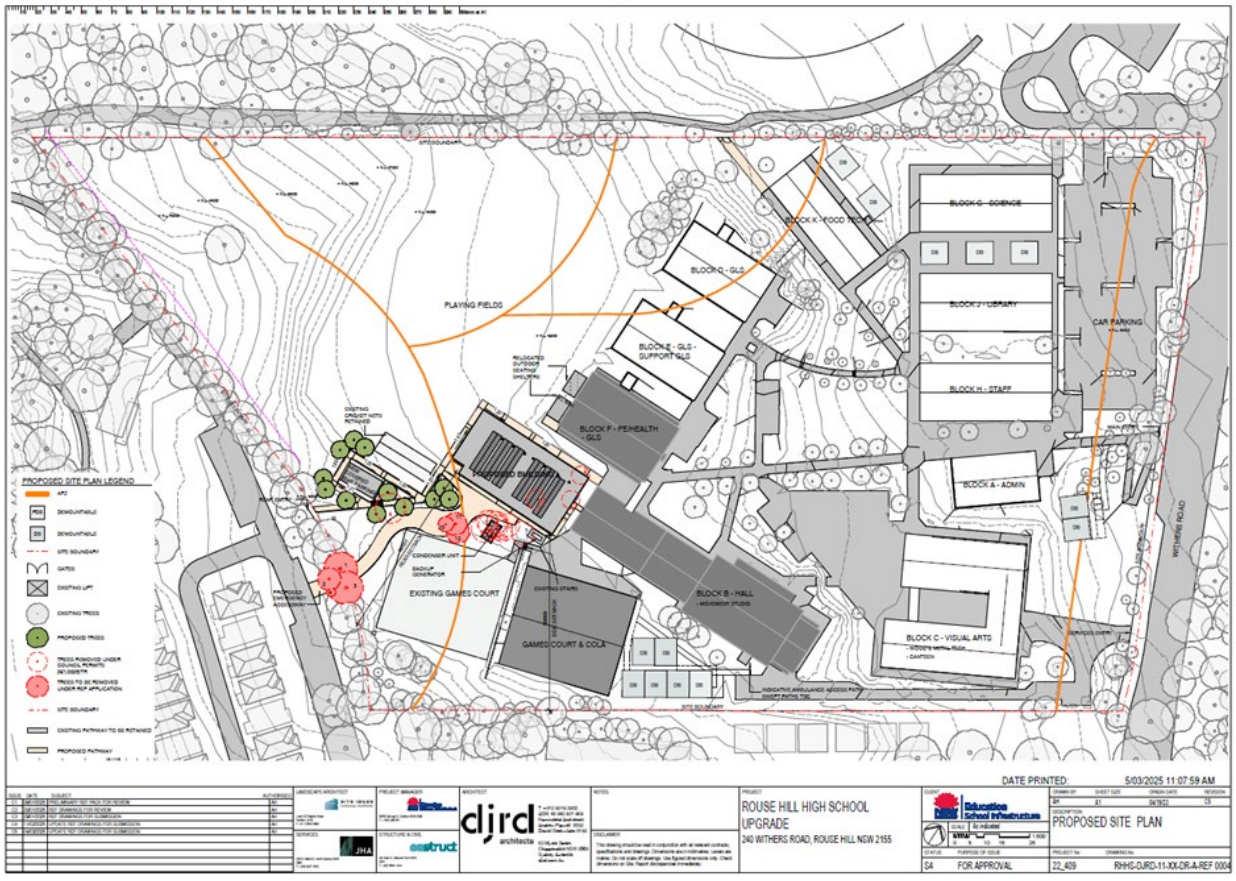

Figure 2-1: Rouse Hill High School Upgrade Concept Plan

Source: DJRD Architects, 1/10/2024

2.2 Work hours

It is anticipated that work associated with the development will generally be carried out between the following hours of construction:

- Monday to Friday (other than public holidays) (7:00am to 5:00pm)
- Saturday (8:00am to 4:00pm)
- Sunday/ public holiday (no work).

In addition to regular work hours, there will be occasions where specific out-of-hours work is required. The contractor will be responsible for instructing and controlling all sub-contractors regarding the hours of work. Any work conducted outside of the approved construction hours would be subject to specific prior approval from Council.

2.3 Construction worker parking and traffic

Given the site's proximity to bus services on Withers Road and Commercial Road and to Rouse Hill Station, workers should be encouraged to use public transport services to and from the site, where practical. During site induction, workers should be informed of the existing bus and rail networks servicing the site. Appropriate arrangements should be made for any equipment/ tool storage and drop-off requirements.

Any construction worker arrivals and departures by vehicle would typically be outside of road network peak hours and as such, are unlikely to impact the surrounding road network. The Principal Contractor would be required to outline a schedule of worker start and finish times and demonstrate that this does not have any significant impact on local traffic activity. It is also expected that the Principal Contractor would be required to implement measures to reduce worker car travel, such as shuttle buses from key transport nodes or designated remote pick-up points as necessary. The use of public transport should be prioritised and travel information be provided to construction workers.

Whilst there will be no specific provision of parking for construction workers on site, it is noted that construction workers may be able to utilise the carpark (12 spaces including one accessible) situated on Caballo Street near the BBQ area on weekdays, as shown in **Figure 2-2**. This parking, if needed can be used by construction workers upon agreement between the Principal Contractor, Council and school.

Figure 2-2: Caballo Street car park location

2.4 Construction traffic volumes

The site will have various types of construction vehicles accessing the site. The largest standard construction vehicles regularly accessing the site would include 12.5-metre heavy rigid vehicles. It is likely that a limited number of larger special-purpose vehicles (e.g. floats for plant and equipment, large mobile cranes) will be required, however, these would be subject to a separate oversize and over-mass application process, with an analysis of the specific vehicle access and manoeuvring requirements.

2.5 Site Access and Construction vehicle routes

As part of the detailed CTMP, a traffic guidance scheme (formerly a traffic control plan) will be prepared in accordance with the principles of the Transport for NSW Traffic Control at Work Sites manual. The traffic guidance scheme (TGS) would primarily show where “Truck” signs would be located at specific locations (such as uncontrolled intersections) along the approved truck routes to warn other road users of the increase in construction vehicle movements.

Generally, construction vehicles will have origins and destinations from a wide variety of locations throughout Sydney. However, all construction vehicles will be restricted to the State and Regional Road network where practicable. It is expected that vehicles will approach the site from Windsor Road, Commercial Road and Withers Road to reach the relevant access point on Caballo Street via Ironbark Ridge Road.

Construction vehicles should be advised to follow the routes as shown in **Figure 2-3**. No queueing or marshalling of construction vehicles will be permitted on public roads.

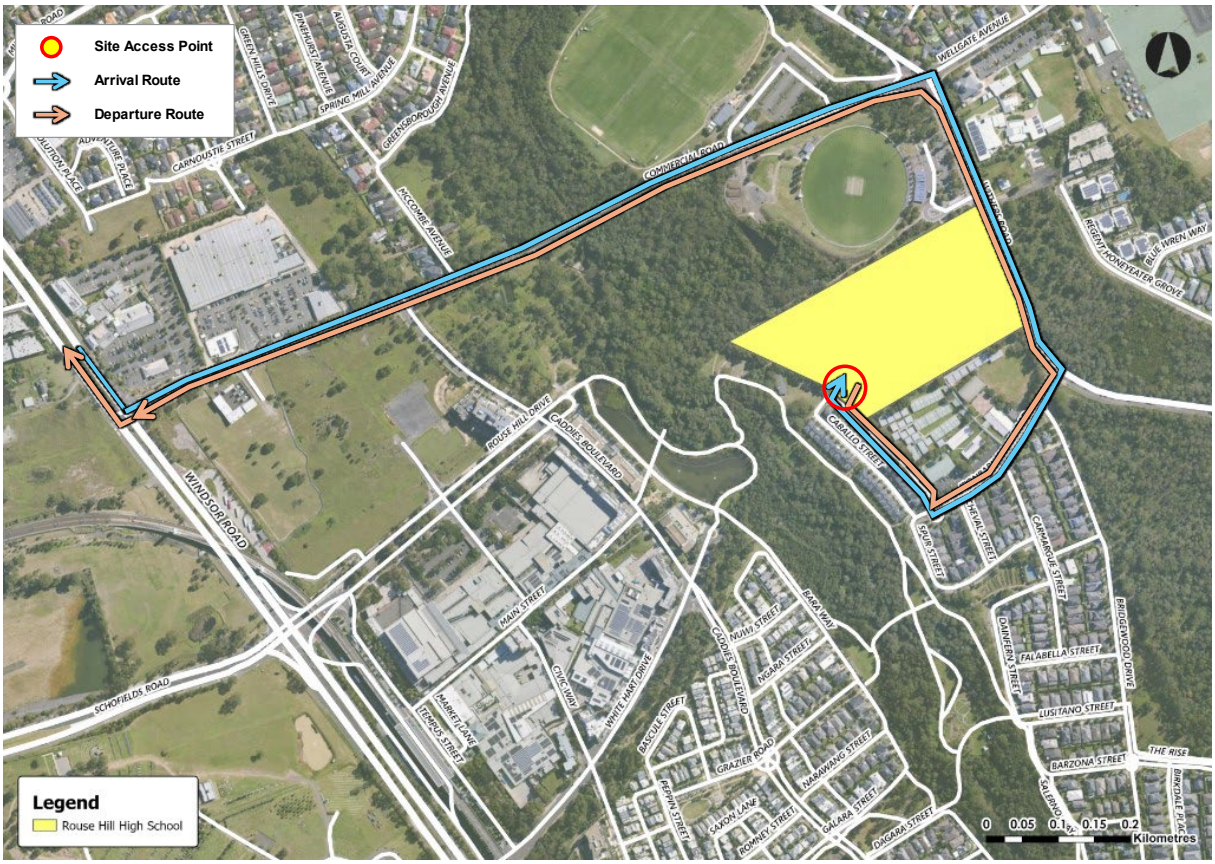

Figure 2-3: Construction vehicle routes

2.6 On-street work zones

No works zones are proposed at this stage, however, may change subject to the proposed methodology of the appointed contractor.

2.7 Traffic guidance scheme

Detailed information for work site operations is contained in the Traffic Control at Work Sites manual version 6.0 (Transport for NSW, 2020). The control of traffic at work sites must be undertaken with reference to WorkCover requirements and any other Workplace Health and Safety manuals.

The Principal Contractor will be required to provide TGSs for the proposed works which will generally consider the following:

- Construction vehicle activity, including the loading/ unloading of trucks to be conducted within the work site.
- Pedestrians and all passing vehicles will maintain priority.
- A clear definition of the work site boundary is to be provided by the erection of site fencing and/ or A and B Class hoardings around the site boundaries.
- All construction vehicle activity will be minimised during peak periods, where possible

2.8 Pedestrian and cyclist management

During the construction period, pedestrian and cyclist movements are to be maintained as much as possible. Where works require the closure of an existing pedestrian route, a suitable alternative is to be provided. Class A hoarding/ ATF fencing would be provided between pedestrian paths and any work site. Where overhead works are occurring, B-Class hoarding will be provided where pedestrian movement is being maintained. It is not expected that cyclist or pedestrian routes would be majorly impacted by the proposed construction works.

Where pedestrian or cyclist routes are affected, accredited traffic controllers will be provided to manage the impact and minimise conflict between vehicles and pedestrians or cyclists.

2.9 Public transport

Given the infrequent heavy vehicle movements associated with the construction works, the overall impact on existing public transport services on Commercial Road and Withers Road is expected to be negligible. This includes the impact on the identified local area bus services.

2.10 Traffic movements in adjoining areas

Figure 2-4, Figure 2-5 and Figure 2-6 illustrate the swept path assessment for heavy vehicle movements along Caballo Street and Ironbark Ridge Road. The assessment confirms that both Caballo Street and Ironbark Ridge Road can accommodate heavy vehicles, demonstrating sufficient manoeuvring space for turns and navigation along the roadway. Traffic management measures are required to minimise impact of construction vehicle access along these streets and the associated disruption to local residents.

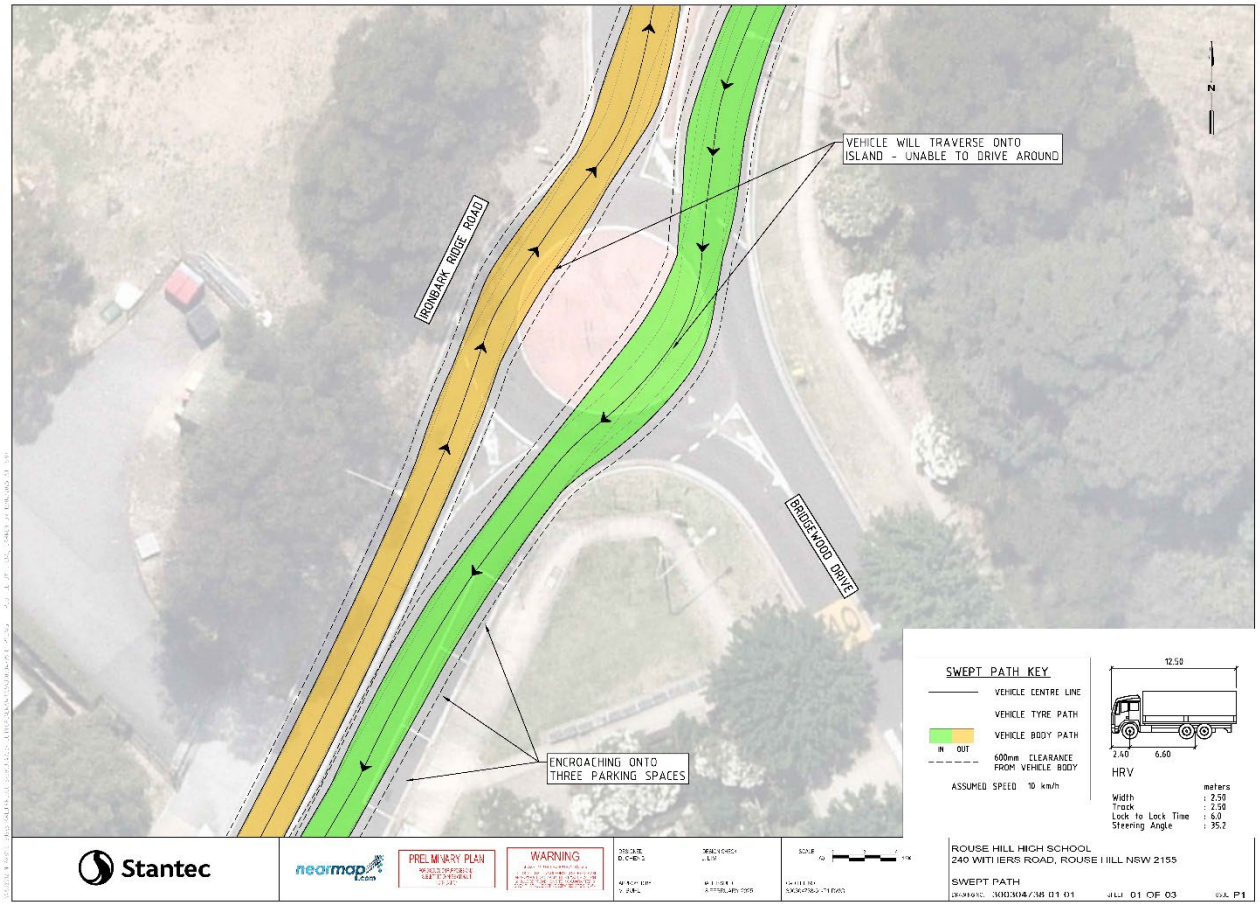

Figure 2-4: Construction heavy vehicle swept paths at Ironbark Ridge Road / Bridgewood Drive roundabout

Reference: Preliminary CTMP

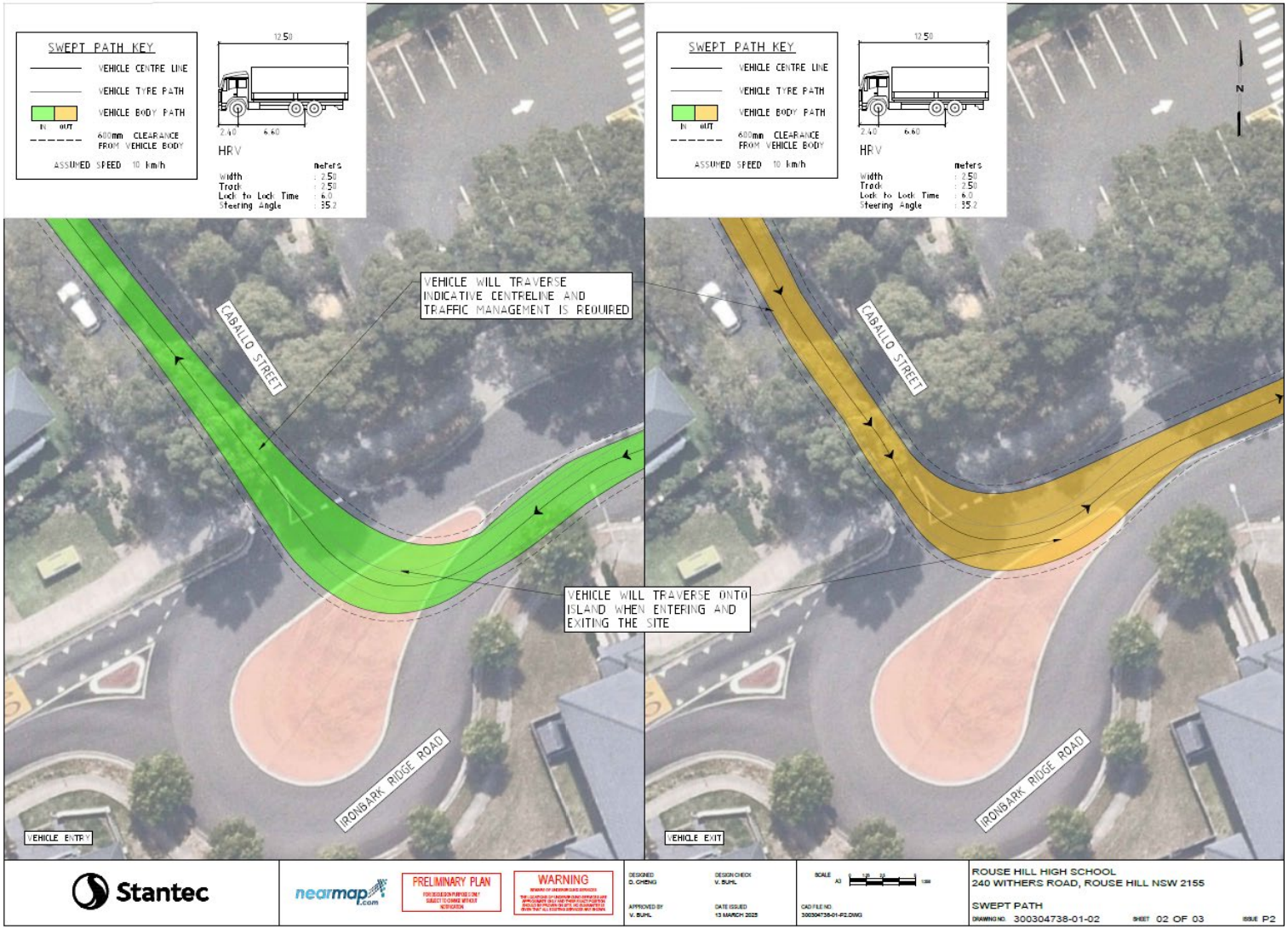

Figure 2-5: Construction heavy vehicle swept paths at Ironbark Ridge Road intersections with Caballo Street (east)

Figure 2-6: Construction heavy vehicle swept paths at construction site access point

3 Mitigation measures

The following table outlines mitigation measures to potential issues during construction activities.

Issue	Mitigation measure
No construction worker parking accommodated on site	Construction workers should be guided where appropriate parking is available around the site on induction, and also be encouraged to use public transport services. During site induction, workers should be informed of the existing bus and train routes servicing the site. Appropriate arrangements should be made for any equipment/ tool storage and drop-off requirements.
Construction workers arriving by vehicle	The Principal Contractor would be required to outline a schedule of worker start and finish times and demonstrate that this does not have any significant impact on local traffic activity. It is also expected that the Principal Contractor would be required to implement measures to reduce worker car travel, such as shuttle buses from key transport nodes or designated remote pick-up points as necessary.
Addition of construction related vehicles to the local transport network	Construction vehicles are advised to follow specified routes (see **Figure 2-3**). The Principal Contractor will be required to provide TGSs for the proposed works (see **Section 2.7**).
Obstructions to pedestrian and cyclist movements	Where pedestrian or cyclist routes are affected, accredited traffic controllers will be provided to manage the impact and minimise conflict between vehicles and pedestrians or cyclists.
Impact of construction vehicle access on local streets and associated disruptions to surrounding residents	Where possible, it is expected that construction heavy vehicle movements along Ironbark Ridge Road and Caballo Street will occur outside of school operating hours, early morning and evening hours (e.g. before 7:00am and after 6:00pm) and weekends. Traffic management measures (e.g. deployment of traffic controllers) will be provided along Ironbark Ridge Road, including intersection with Caballo Street, to manage construction heavy vehicle movements.

Sincerely yours,

Stantec Australia Pty Ltd

Volker Buhl
Senior Principal Transportation Planner
Volker.buhl@stantec.com