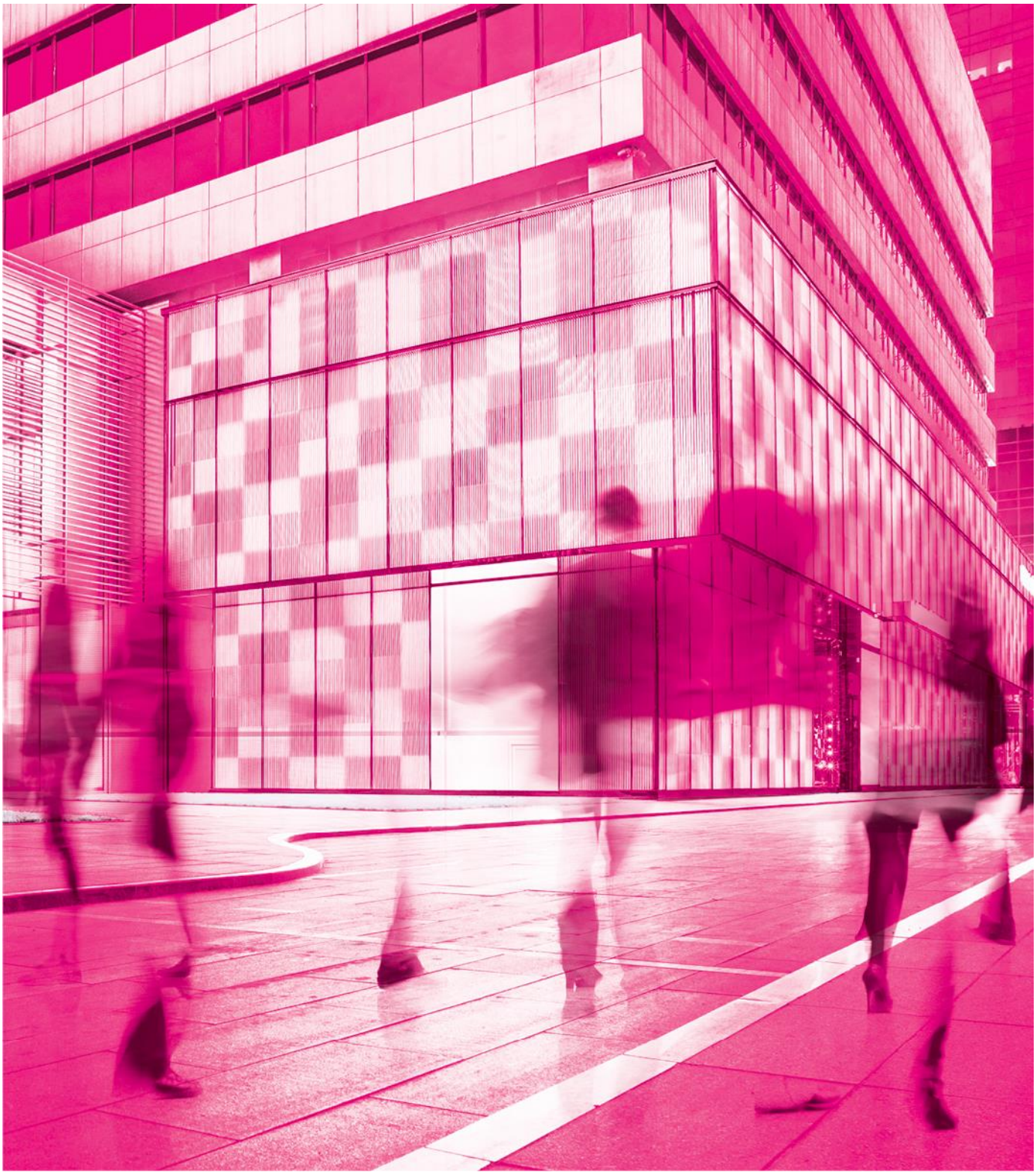

transport and traffic assessment;

New Primary School in Mulgoa Rise

For SINSW

20 August 2021

parking;
traffic;
civil design;
wayfinding;

ptc.

Document Control

New Primary School in Mulgoa Rise, Transport and traffic assessment

Issue	Date	Issue Details	Author	Reviewed	For the attention of
1	05/05/21	Draft	PS/KB	KB/AM/SW	Jack Bruderlin
2	09/08/21	Draft	PS	KB/SW	Matthew Metlege
3	16/08/21	Final	PS	KB/SW	Matthew Metlege
4	20/08/21	Final	PS	KB/SW	Matthew Metlege

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Contents

1. Project Proposal

1.1 Background

ptc. has been engaged by School infrastructure New South Wales (SINSW) to prepare a Transport and Traffic Assessment (TA) report for a development of a new primary school in Mulgoa Rise (the School) at 1-23 Forestwood Drive, Glenmore Park.

The project is proposed to be submitted as a State Significant Development Application (SSDA) to the Department for Planning, Industry and Environment (DPIE). As the proposed site lies within the Penrith City Council local government area, the project has also considered the local controls.

This report sets out the methodology and findings of the study to assess the transport, parking and traffic implications associated with the proposal.

The location of the proposed school is outlined in Figure 1.

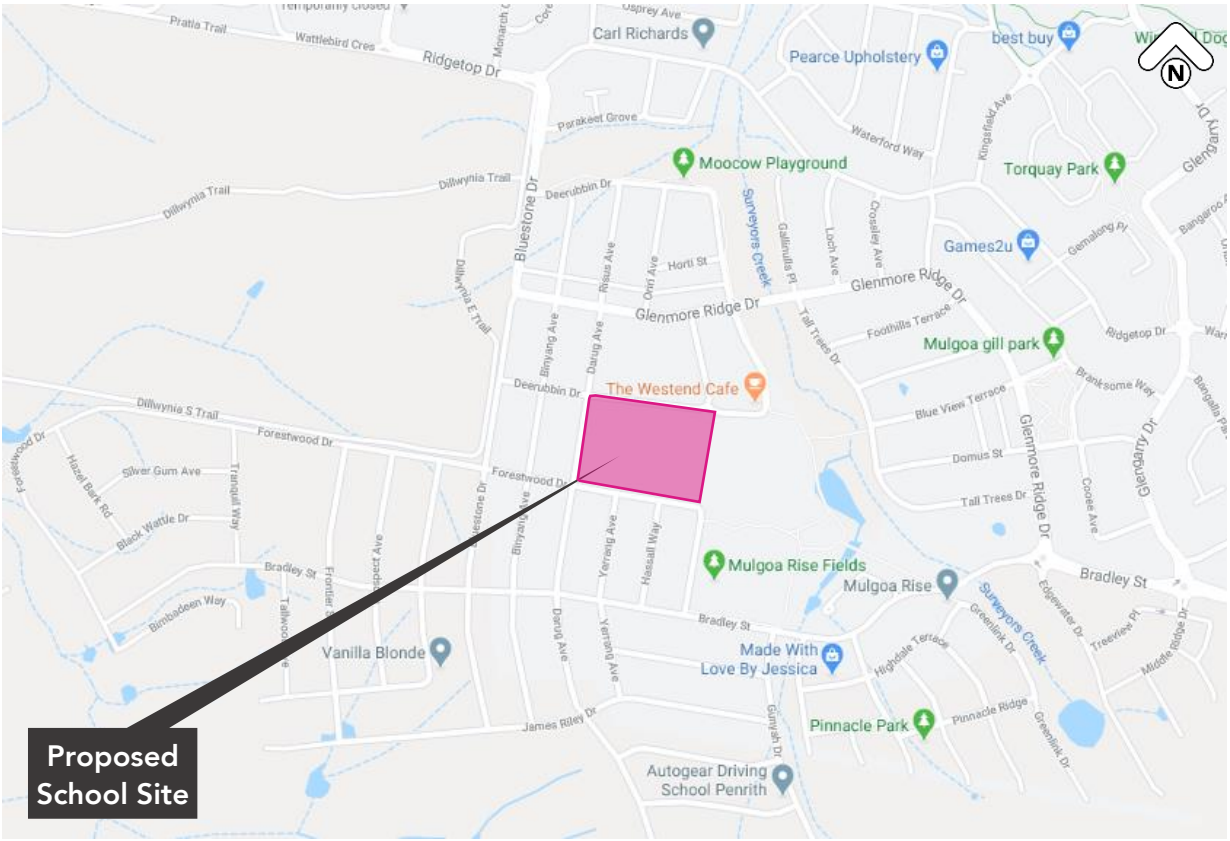


Figure 1 - Site Location (Source: Google Maps)

1.2 Response to SEARs, TfNSW and Council Comments

1.2.1 SEARs Requirements

SEARs Requirement	ptc. Response
Analysis of the existing transport network to at least the existing or proposed enrolment boundary, including:	
• road hierarchy.	Refer to Section 3.4
• pedestrian, cycle and public transport infrastructure.	Refer to Section 3.2 and Section 3.3
• details of current daily and peak hour vehicle movements based on traffic surveys and / or existing traffic studies relevant to the locality.	Refer to Section 7.2
• existing transport operation for 1hr before and after proposed bell times such as span of service, frequency for public transport and school buses, pedestrian phasing for signals.	Refer to Section 3.3.4 for buses, no signals lie within the enrolment catchment
• existing performance levels of nearby intersections utilising appropriate traffic modelling methods (such as SIDRA network modelling), including the Northern Road and Bradley Street intersection.	Refer to Section 7.2, Section 7.3, Section 7.8 and Attachment 5
Details of the proposed development, including:	
• a map of the proposed access which identifies public roads, bus routes, footpaths and cycleways.	Refer to Section 3.1
• pedestrian site access and vehicular access arrangements, including for service and emergency vehicles and loading/unloading, including swept path analysis demonstrating the largest design vehicle entering and leaving the site and moving in each direction through intersections along the proposed transport routes.	Refer to Section 6, Attachment 2 and Student Transport Plan
• pedestrian access arrangement to the adjoining Mulgoa Rise playing fields car park.	Refer to Section 3.2.1
• car and motorcycle parking, bicycle parking and end-of-trip facilities.	Refer to Section 6.3 Section 6.8 and Section 6.9
• drop-off / pick-zone(s) and arrival / departure bus bay (s).	Refer to Section 6.5 and Section 6.7
• pedestrian, public transport or road infrastructure improvements or safety measures.	Refer to Section 5.2
• details of catchment for the school and the likely distribution from the nearby existing public schools.	Refer to Section 2.6

SEARs Requirement	ptc. Response
Analysis of the impacts due to the operation of the proposed development, including:	
• proposed modal split for all users of the development including vehicle, pedestrian, bicycle riders, public transport, school buses and other sustainable modes.	Refer to Section 5.2 and the School Transport Plan
• estimated total daily and peak hour vehicular trip generation.	Refer to Section 7.4
• a clear expansion and justification of the:	
▪ assumed growth rate applied.	Refer to Section 7.7
▪ volume and distribution of proposed trips to be generated.	Refer to Section 7
▪ type and frequency of design vehicles accessing the site.	Refer to Section 6
• details of performance of nearby intersections with the additional traffic generated by the development both at the commencement of operation and in a 10-year time period (using SIDRA network modelling)	Refer to Section 7.8 and Attachment 5
• cumulative traffic impacts from any surrounding approved development(s) including the Planning Proposal for Glenmore Park Stage 3.	Refer to Section 7.5, Section 7.6, Section 7.8 and Attachment 5
• adequacy of pedestrian, bicycle and public transport infrastructure to accommodate the development	Refer to Section 3
• adequacy of car parking and bicycle parking provisions when accessed against the relevant car / bicycle parking codes and standards	Refer to Section 6.3 and Section 6.8
• adequacy of the drop-off / pick-up zone(s) and bus bay(s), including assessment of any related queuing during peak-hour access	Refer to Section 6.5 and Section 6.7
• adequacy of the existing / proposed pedestrian infrastructure to enable convenient and safe access to and from the site of all users.	Refer to Section 3, Section 5.2, Section 6.4, Section 6.5.2 and the School Transport Plan
Measures to ameliorate any adverse traffic and transport impacts due to the development based on the above analysis, including:	
• travel demand management programs to increase sustainable transport (such as a School Transport Plan)	Refer to the School Transport Plan
• arrangements for the Travel Coordinator roles	Refer to the School Transport Plan

SEARs Requirement	ptc. Response
• governance arrangements or relationships with state and local government transport providers to update road safety • infrastructure improvements, including details of timing and method of delivery.	Refer to the School Transport Plan Refer to Section 5.2 and the School Transport Plan
A preliminary school transport plan detailing an operational traffic and access management plan for the site, pedestrian entries, the drop-off / pick-up zone(s) and bus bay(s)	Refer to the School Transport Plan
Analysis of the impacts of the traffic generated during construction of the proposed development, including: • construction vehicle routes, types and volumes. • construction program (duration and milestones). • on-site car parking and access arrangements for construction, emergency and construction worker vehicles. • cumulative impacts associated with other construction activities in the locality (if any). • road safety at identified intersections near the site due to conflicts between construction vehicles and existing traffic in the locality. • measures to mitigate impacts, including to ensure the safety of pedestrian and cyclists during construction.	Refer to the Preliminary Construction Traffic and Pedestrian Management Plan
A preliminary Construction Traffic and Pedestrian Management Plan	Refer to the Preliminary Construction Traffic and Pedestrian Management Plan

1.2.2 TfNSW Comments

TfNSW Requirement	ptc. Response
1. Details of all traffic types and volumes likely to be generated by the proposed redevelopment during construction and operation, including:	
a) Daily and peak traffic movements likely to be generated by the proposed development including the impact on nearby intersections on The Northern Road, and the need/associated funding for upgrading or road improvement works (if required).	Refer to Section 7.4 and Section 7.8
b) Details of the proposed site access and the parking provisions associated with the proposed development including compliance with the requirements of the relevant Australian Standards (ie: turn paths, sight distance requirements, aisle widths, etc.)	Refer to Section 6 and Attachment 2
c) Detailing vehicle circulation, proposed number of car parking spaces and compliance with the appropriate parking codes.	Refer to Section 6.8 and Attachment 2
d) Details of light and heavy vehicle movements (including vehicle type and likely arrival and departure times).	Refer to Section 7.4 and the Preliminary Construction Traffic and Pedestrian Management Plan
e) Swept path diagrams to demonstrate vehicles entering, exiting and manoeuvring throughout the site.	Refer to Attachment 2 and the Preliminary Construction Traffic and Pedestrian Management Plan
f) An assessment of the forecast impacts on traffic volume generated on road safety and capacity of road network including consideration of cumulative traffic impacts at key intersections using SIDRA or similar traffic model as prescribed by TfNSW. The traffic modelling should consider the scenarios of year 2026, 2031, 2036 and the year until the facility cease to operation. These should include, but not be limited to: i. The Northern Road / Bradley Street	Refer to Section 7.4 and Section 7.8
g) Details plan of any proposed road upgrades, infrastructure works or new road required for the development	Refer to Section 5.2
h) To ensure that the above requirements are fully addressed, the cumulative traffic impact of the development on surrounding roads and intersections in the context of any other approved planning proposals and developments in the precinct and surrounds, should be considered. Including the impact on	Refer to Section 7.5 and Section 7.8

TfNSW Requirement	ptc. Response
nearby intersections and the need/associated funding for upgrading or road improvement works (if required)	
i) An assessment of the accessibility and provision of public transport and active transport. TfNSW requires the Environmental Impact Assessment report to address these implications.	Refer to Section 3
j) The preparation of a preliminary Construction Pedestrian and Traffic Management Plan (CPTIMP) to demonstrate the proposed management of the impact in relation to construction traffic addressing the following: i. assessment of cumulative impacts associated with other construction activities (if any); ii. an assessment of road safety at key intersections and locations subject to heavy vehicle construction traffic movements and high pedestrian activity; iii. details of construction program detailing the anticipated construction during and highlighting significant and milestone stages and events during the construction process; iv. details of anticipated peak hour and daily construction vehicle movements to and from the site; v. details of on-site car parking and access arrangements of construction vehicles, construction workers to and from the site; vi. details of temporary cycling and pedestrian access during construction.	Refer to the Preliminary Construction Traffic and Pedestrian Management Plan
2. The detailed traffic impact assessment should address the relevant planning provisions, goals and strategic planning objectives in the following:	
a. Future Transport 2056 and supporting documents	Refer to Section 2.3.1 and Section 2 in general
b. Guide to Traffic Generating Developments 2002 (RTA);	Refer to Section 6 and Section 7
c. TDT 2013/04a Guide to Traffic Generating Developments; and	Refer to Section 6 and Section 7
d. Austroads Guide to Traffic Management Part 12: Traffic Impacts of Developments	Refer to Section 6 and Section 7

TfNSW Requirement	ptc. Response
e. NSW Planning Guidelines for Walking and Cycling	Refer to Section 6.3
3. Plans showing the main access points to the school (where school Children will enter/exit; where cars will enter/exit the school).	Refer to Section 3.1, Section 5.2, Section 6 and the Student Transport Plan
4. There are four existing public schools located within the vicinity of the new public school: a. Regentville Public School b. Glenmore Park Public School c. Surveyors Creek Public School d. Mulgoa Public School Details of the catchment for the new public school and the likely distribution from the existing nearby public schools are to be provided.	Refer to Section 2.5
5. Assessment on length of bus zones to ensure clear pick up / drop off times and determine if school buses will be necessary	Refer to Section 5.2.4 and Section 6.5.1
6. The development should facilitate sustainable modes of transport through travel demand management programs to increase sustainable transport in the form of a Green Travel Plan to be prepared in consultation with Transport for NSW.	Refer to the Student Transport Plan
7. TfNSW requests that any counts undertaken are not within close proximity to the school holidays / long weekend. Counts undertaken within close proximity of these events may not indicate normal traffic conditions. Ideally vehicle counts should be undertaken during a typical day, to include Thursday (or Wednesday) and Friday for the study (not near school / public holidays). This will provide the departments with an accurate understanding of the existing traffic conditions and the actual impact of this development application to the surrounding network. Should the date of the counts be within a week either side of the above events, it will be recommended that new counts are undertaken at more appropriate dates and are to include a breakdown of light and heavy vehicles.	Refer to Section 7.2

1.2.3 Council's Comments

Council's Requirement	ptc. Response
• Traffic generation and impacts on the road network, parking, bus and drop-off / pick-up facilitates, access and pedestrian facilities and safety.	Refer to Section 5.2, Section 6 and Section 7
• Bus and car drop-off / pick-up, waste and service vehicles, staff and visitor parking, accessible parking and bicycle parking / facilities, noting that: o Best development and road safety practice is that all vehicle movements are contained and managed fully within the site. The best practice principle shall be achieved by the development; o If any on-street parking is pursued, then the assessment shall justify this and include the requirements for bus zones with bays / indents, adequate on-street designated 'drop-off / pick-up' zones, intended parking bays and a long drop-off / pick-up parking zone.	Refer to Section 5.2, Section 6 and Attachment 4
• Identification of safe pedestrian routes of travel to and from the school and required facilitates including raised pedestrian / children's crossings, pedestrian refuges, kerb ramps and widening of pathways, traffic calming and 40 km/h school zones and approach treatments. This shall include safe children pedestrian crossing points in the surrounding road network that shall be provided with pedestrian crossing safety treatments for children to cross which may include widened DDA and Council complying footpaths, kerb ramps, traffic calming and pedestrian refuge treatments.	Refer to Section 3.2, Section 5.2 and the School Transport Plan
• Potential pedestrian links to the adjoining Mulgoa Rise playing fields car park.	Refer to Section 3.2.1
• Locating the proposed car park driveway further west along Forestwood Drive to be further clear of potential traffic and pedestrian conflicts with the Mulgoa Rise playing fields car park.	Refer to Section 6.8.3.1 and Attachment 2
• The impact of loss of parking fronting and nearby surrounding residences due to the proposed pedestrian facilities and possible on-street bus and car pick-up / drop-off zones as well as other on-street parking impacts associated with the school.	Refer to Section 6.13
The EIS must demonstrate that access, car parking and manoeuvring details comply with AS 2890, Parts 1, 2 & 6 and relevant provisions of Penrith Development Control Plan 2014. This shall include all heavy vehicle (including buses, waste collection vehicles and service vehicles)	Refer to Section 6.8.3, Section 6.10, Section 6.11, Section 6.12 and Attachment 2

Council's Requirement	ptc. Response
movements through the car parking and pedestrian access areas being in a forward direction. Any undesirable heavy vehicle reversing shall be in a separate, fenced loading and manoeuvring area.	
The EIS shall be supported by turning paths in accordance with AS 2890 clearly demonstrating satisfactory manoeuvring on-site and forward entry and exit to and from public roadways.	Refer to Attachment 2
The proposed car park access off Forestwood Drive shall be located a minimum of 1m clear of the existing kerb inlet pit in this location.	Refer to Section 6.8.3.1 and Attachment 2
The proposed pedestrian facilities fronting the development site including those on Darug Avenue and Deerubin Drive shall be provided as raised thresholds incorporating splitter islands, pram ramps, pedestrian fencing and regulatory signage on both sides of the road and shall include a combined children's crossing / marked foot crossing (zebra) crossing (note that the proposed pedestrian facility on Derrubin Drive has been conditioned as part of the shopping centre development to the north). The proposed pedestrian facility on the Darug Avenue south of Forestwood Drive shall be a pedestrian refuse island at the existing pram ramps. Pedestrian / children's crossings or pedestrian refuges shall be assessed for possible provision in Darug Avenue north of Forestwood Drive, Forestwood Drive east of Darug Avenue and Forestwood Drive west of Parkwood Avenue.	Refer to Section 5.2.2, Section 6.4, Attachment 4 and Attachment 2
If bus zones for drop-off / pick-up are proposed on-street, then bus shelters of suitable size for the school use and to Council's requirements shall be provided at the proposed bus zones and include the existing bus stops on Darug Avenue south of Deerubbin Drive (note that the similar condition has been imposed on the shopping centre development to the north).	Refer to Section 5.2.4 and Section 6.5
Plans of proposed traffic and pedestrian facilities, signage and line marking shall be submitted to Council for approval through Council's Local Traffic Committee. A separate submission for approval and installation process shall be made to TfNSW for the provision of 40 km/hour school zone signage, school zone flashing lights and pavement markings.	Refer to Attachment 4 and Attachment 2
The EIS shall include a Green Travel Plan to encourage staff, students and parents to access the site by walking, cycling and public transport. It is likely that strategies such as 'park and walk' could be realistic for the demographic profile. Locations should be identified where families can park their vehicles close by and walk the rest of the journey.	Refer to the Student Transport Plan

1.3 Purpose of this Report

The purpose of this report is to present considerations relating to the Transport and Traffic Assessment (TA) for the proposed new primary school in Mulgoa Rise project. This report will form part of the State Significant Development Application for the School and will address the following:

Section 1	Introduction and brief description of the proposal, including comments received as part of the SEARs application and references to responses to each individual point.
Section 2	Review of local and state documents and an analysis of their adequacy in the wider context of the proposed development. A high-level gap analysis has been undertaken to determine if any amendments to these plans and programs would benefit the new school.
Section 3	Review of the existing transport networks (pedestrian, cycling, bus and road) and an analysis of their adequacy in the context of the proposed development. A detailed gap analysis has been undertaken to determine what changes within the proposed enrolment catchment would benefit the prospective students.
Section 4	Review of the existing travel patterns within the suburb to determine the behavioural baseline. Analysis of the potential travel demand based on walkability and cyclability.
Section 5	Analysis of school transport scenarios depending on the level of facilities provided in and around the school. This section also provides an overview of proposed infrastructure improvements, which are expected to reduce car dependency.
Section 6	Assessment of the required and proposed parking provisions for all user groups, including waste and emergency vehicles. Design assessment of the vehicular, cycling and pedestrian facilities at the proposed development.
Section 7	Calculation of the traffic impact, which includes the likely trips generated by the proposed development and a cumulative assessment of the surrounding developments.
Section 8	Summary of input provided by various stakeholders and how the project responded.

1.4 Development Proposal

The proposed school development will facilitate a Core 21 school with 18 learning spaces (LS) + 2 support classes, with the selected core facilities at Core 35, for the Hall, Library, Staff facilities and Admin. This will Cater for an initial 414 students.

The school has been master planned to facilitate future expansions up to a full 44 learning spaces + 4 support classes should additional demand materialise.

Future school development, not considered at this time, will complete the build to a Core 35, facilitating future expansion up to 44 learning spaces and 4 support classes.

The new school will provide the surrounding area community access to the school's core facilities - the communal hall, the library and the outdoor sports court. The School will also provide Outside School Hours Care (OSHC) services to assist dual-working families with parents commuting and working long hours.

The construction of the new school is a two-year program for proposed school development only. Planning and Statutory approvals undertaken through 2021, with early works for construction commencing in late 2021 and the main build in 2022. This will see the doors open for students in term 1 2023.

A site plan of the proposed school development in shown in Figure 2.

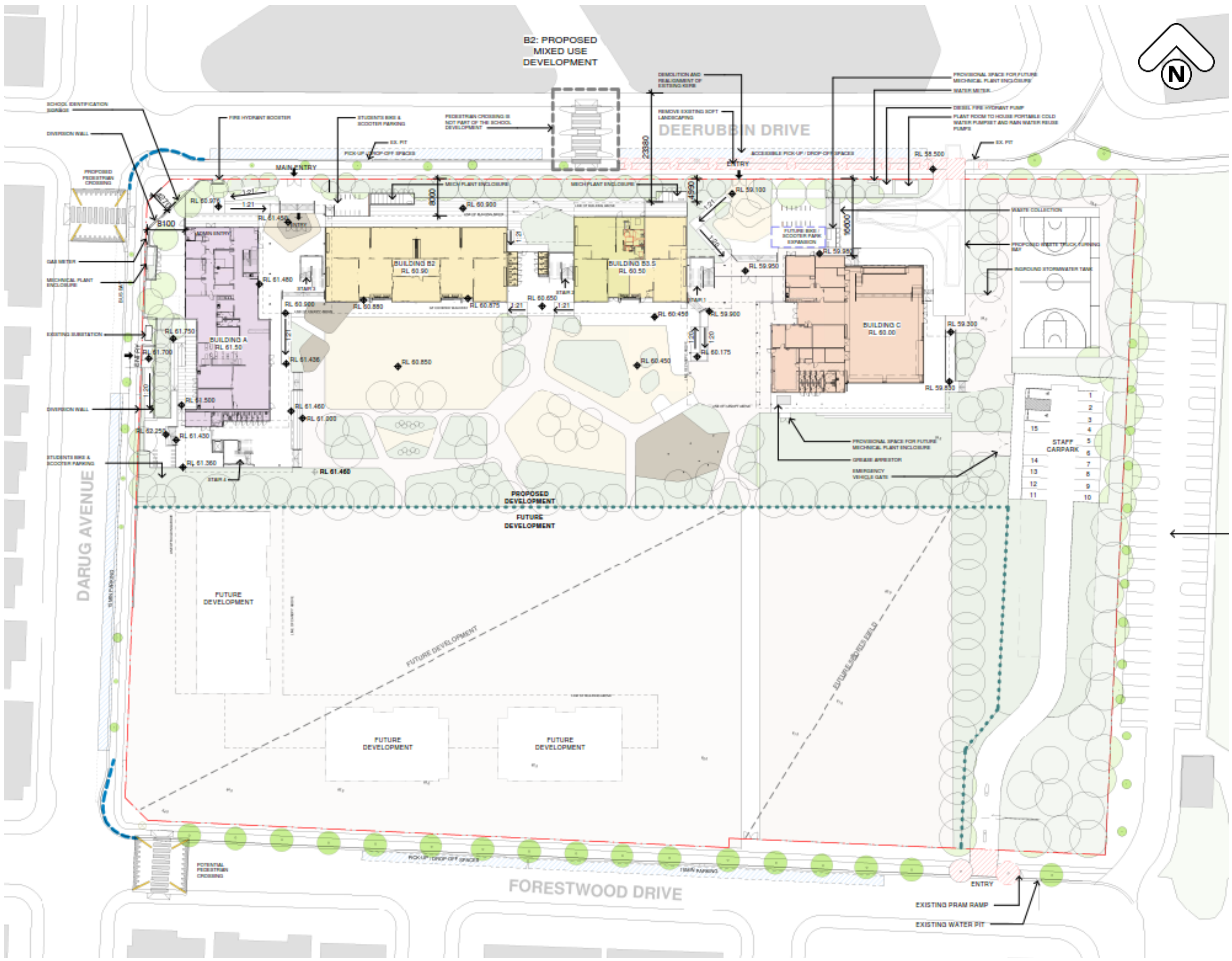


Figure 2 - Development Proposal Site Plan

The School will cater for years K-6, with the following traffic relevant parameters:

- Student capacity: 414
    - 400 students can be accommodated within general home bases
    - 14 students can be accommodated within Support Unit Hub (SUH) bases
- Staff: approximately 27 full time equivalents (FTE)
- OSHC spaces

A plan showing the proposal, including access points, as well as the parking, pick-up & drop-off and bicycle spaces provision is shown in the below figures. More detailed, architectural plans are shown in **Attachment 1**.

The school enrolment catchment is shown in Figure 3.

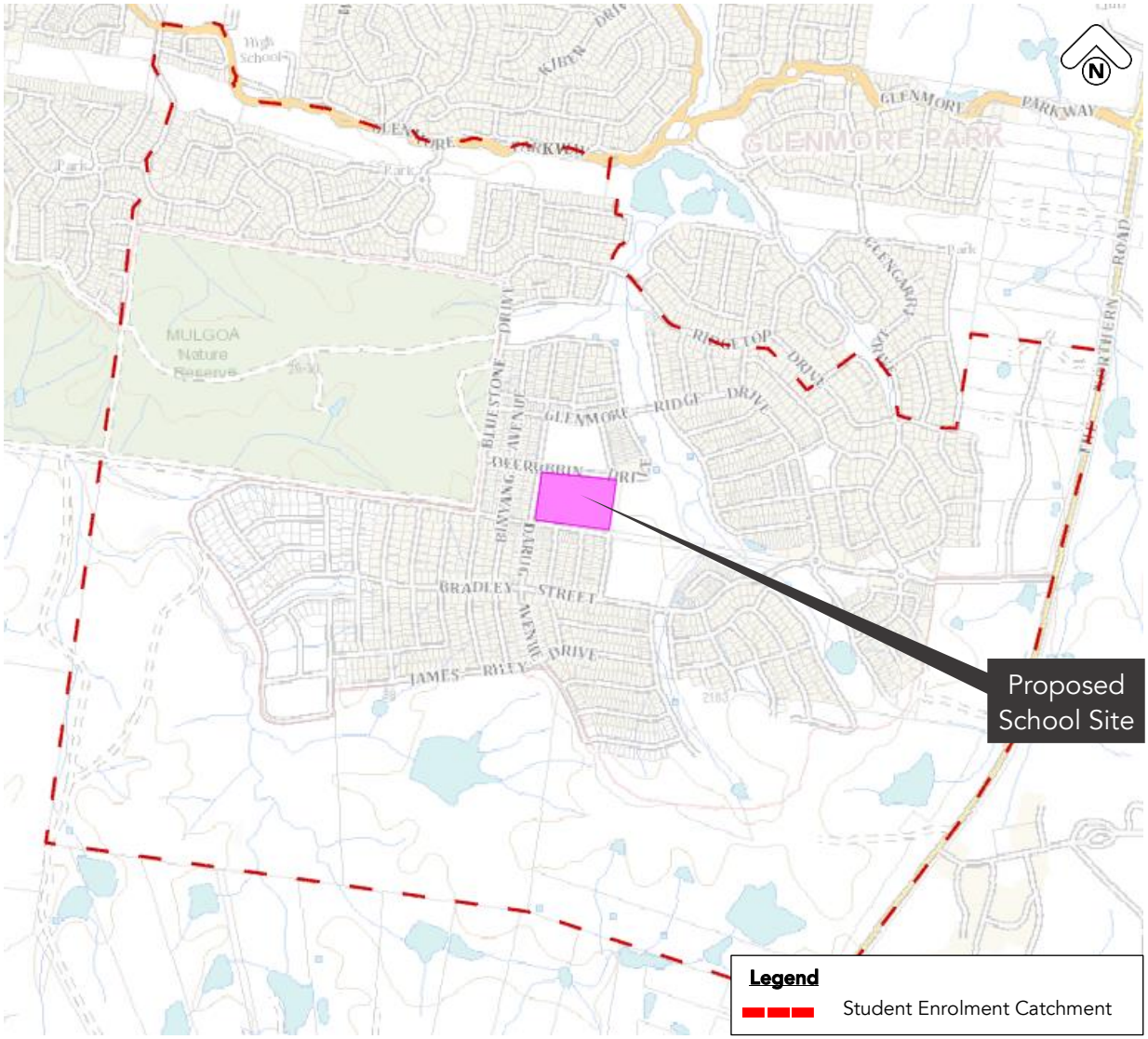


Figure 3 - School Enrolment Catchment

2. Site Context

This section provides an overview and discussion about the suitability of the existing state and local transport plans and identifies any gaps in these plans and strategies in view of the proposed school.

2.1 Site Location

The proposed school site is located at 1-23 Forestwood Drive, Glenmore Park and is identified as Lot 1663 in Deposited Plan 116686. It is located approximately 33 kilometres west of Paramatta CBD.

The site has a frontage to Deerubbin Drive to the north, Forestwood Drive to the south and Darug Avenue to the west. The east of the site is bound by Council's car park.

A mixed-use development has recently been approved north of Deerubbin Drive, which will act as a local town centre. To the east of the school are Council sports grounds with an adjoining car park.

The aerial view of the subject site is shown in Figure 4.

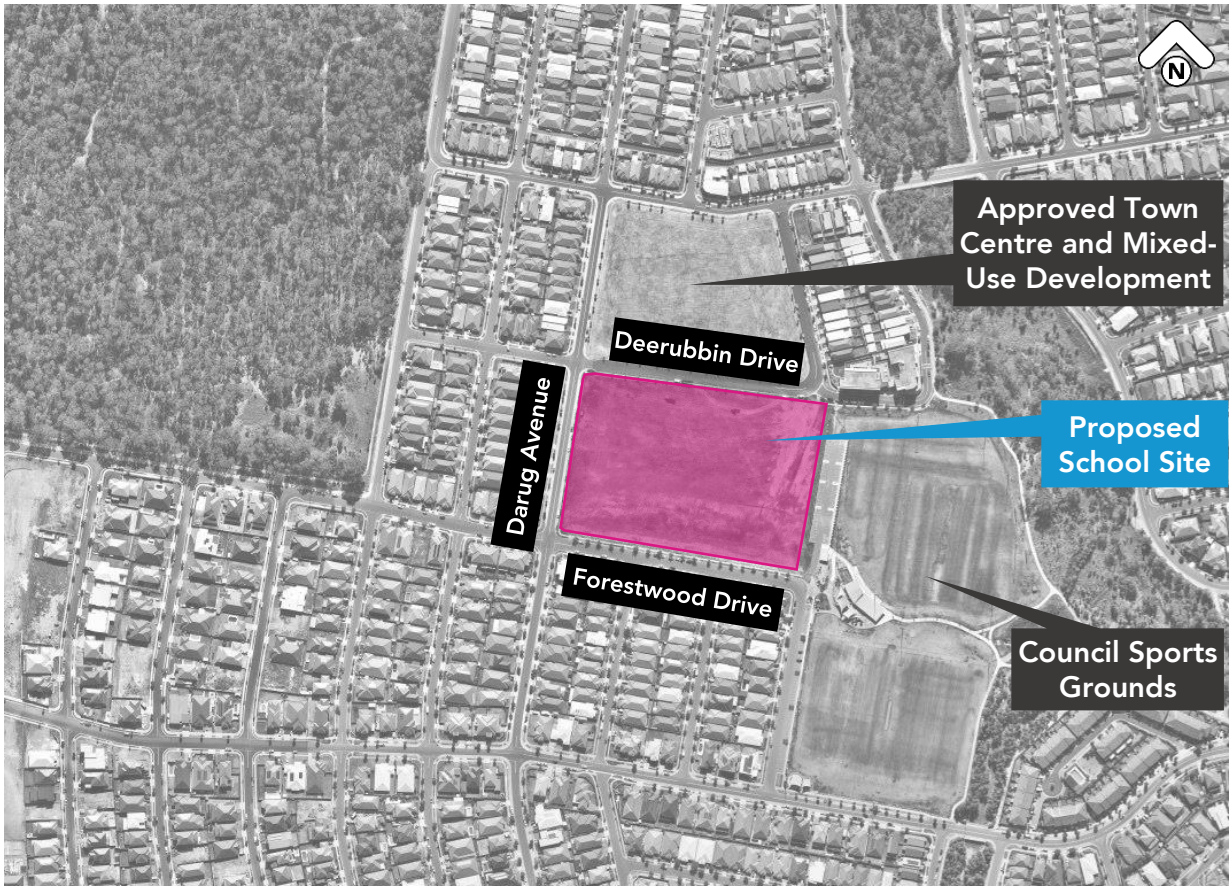


Figure 4 - Aerial View of the Subject Site (Source: Near Map)

2.2 Local Transport Plans

2.2.1 Pedestrian Access and Mobility Studies

Penrith City Council's *Business Paper Ordinary Meeting* dated *2 April 2001* discusses the potential preparation and implementation of the Pedestrian Access and Mobility Plan (PAMP) - Footpath Improvement Program. This report informs Council of findings and recommendations of the Penrith LGA Access and Mobility Plan. The plan prioritises the revised outstanding footpaving projects, based on: - proximity to pedestrian generators; estimated traffic volume; nature of predominant users (young, old, disabled, parents with prams, etc); and evidence of wear. The priority list was prepared to help in the selection of footpaving projects as part of the annual project evaluation and footpath selection process.

It is noted that this document is 20 years old and it appears that the PAMP has not been prepared / implemented.

Although the above document is not strictly relevant for this project, it is recommended that footpath upgrades are part of Council's annual review and maintenance program and that a PAMP for the entire LGA be prepared.

2.2.2 Bicycle Plans

Penrith Accessible Trails Hierarchy Strategy 25 June 2012 (PATHS) project focuses on delivering a plan and strategic links with some localised recreational loops integrated into the Strategy.

The major intention of PATHS project is to enhance the safety of the trails network by planning off-road shared pathway and enhance the safety of the on-road sections by implementing clear line marking and bike lanes in order to benefit all people with diverse abilities who want to use the trails network to access a destination.

PATHS is presented in Figure 9. The project shows potential upgrades of trails within the vicinity of the site, which appear to have been constructed.

No update of this strategy is required.

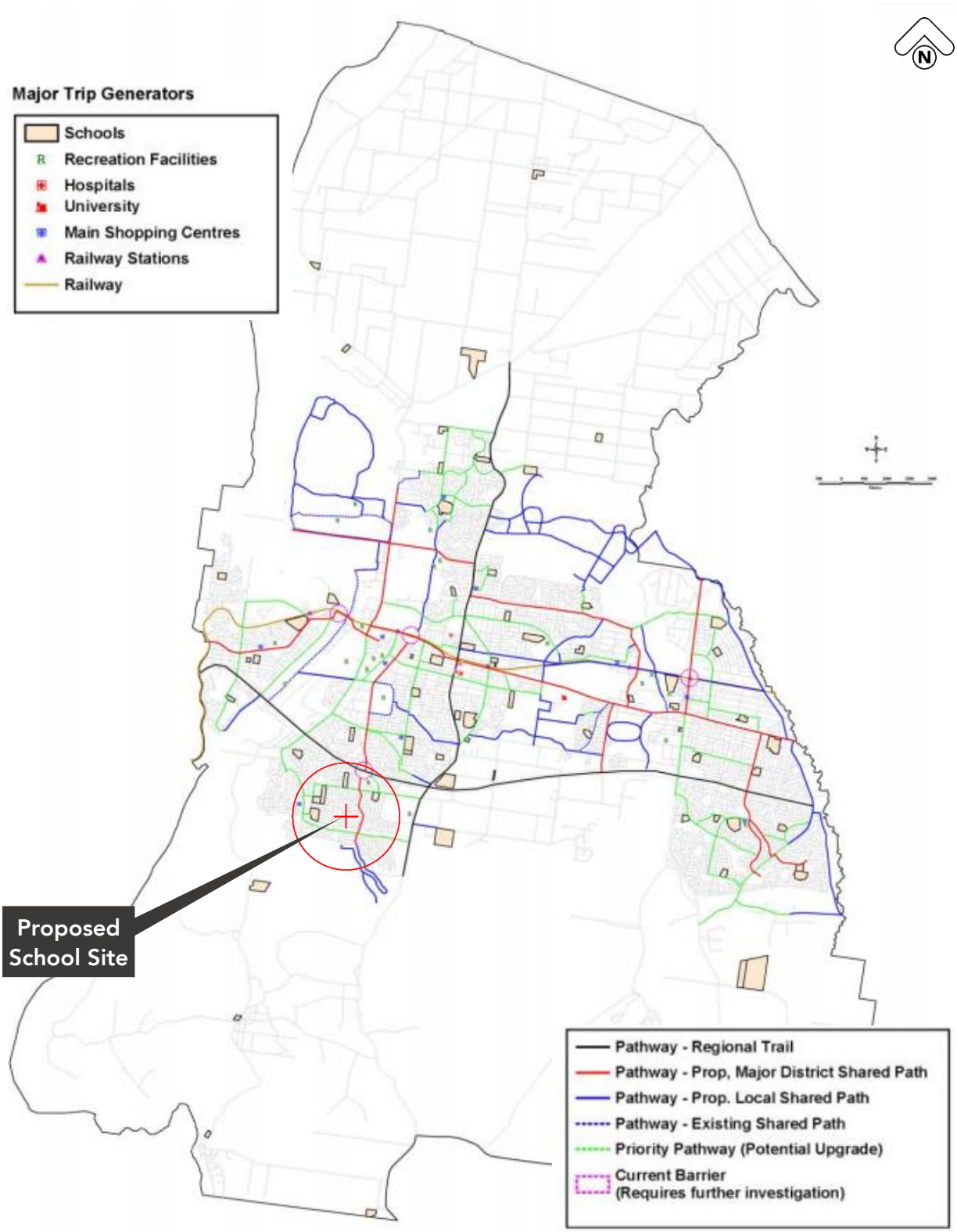


Figure 5 - Penrith Accessible Trails Hierarchy Strategy

2.2.3 Integrated Transport Strategies or TMAPs for the area

Penrith City Council's *Integrated Transport and Land Use Strategy 2008* draft report states that the Penrith Integrated Transport and Land Use Strategy (PITLUS) action plan includes a series of short, medium and long term measures implemented by Council and partnership agencies.

The action plans are city wide including land use planning, road management, active transport, public transport, parking, Travel Demand Management / Educational or Local Action Plan including suburban, rural, Penrith City Centre, St Marys Town Centre, Residential Urban Release Area and Employment Urban Release Area.

The strategy is 13 years old, focuses more on town centres and makes mention of Glenmore Park Stage 2 only as an urban release area; No update to this document is required.

2.2.4 Local Area Traffic Management (LATM) Plans

Penrith City Council's *Integrated Transport and Land Use Strategy 2008* draft report states that in order to reduce the severity and number of accidents occurring in Penrith LGA and improve the overall safety for all road users, it is recommended that the Council implements its Road Safety Plan including the local area traffic management study for crash analysis and speed and volume surveys.

The strategy is 13 years old, focuses more on town centres and makes mention of Glenmore Park Stage 2 only as an urban release area; No update of this document is required.

2.2.5 Parking Management Strategies or Kerb Management Plans

Penrith City Council's Penrith City Centre Car Parking Strategy 2011 outlines actions to improve the access around the City Centre by walking, cycling, public transport and private cars. This strategy provides a framework for future actions and initiatives identified across short, medium and long-term horizons. Managing parking and improving access strategy includes understanding access and transport issues within Penrith, plan for improved access to the City Centre and review car parking provision.

The strategy is already 10 years old and concentrates on the Penrith city centre. Therefore, it is not relevant to the school development.

2.2.6 Mode Specific Transport Plans

No documents have been found relating to Council or localised Green Travel Plans or any active and public transport target initiatives. However, Penrith City Councils *Penrith Development Control Plan 2014* informs that Council seeks to promote and facilitate walking and cycling within transit oriented precincts by establishing and maintaining high levels of amenity, safety and permeability in the urban form. The DCP also encourages bicycle use by providing sufficient number of secure and accessible bicycle parking spaces within new developments. The following is listed regarding cycle facilities:

1. *Cycleways*
    a) *All cycle routes and facilities are to be consistent with the relevant requirements of "Austroads Cycling Aspects of Austroads Guides" and Roads and Maritime Services' "Bicycle Guidelines" including line-marking, signage and logos and Council policies regarding bicycle access.*
    b) *The minimum width of off-street shared cycle and pedestrian pathways is to be 2.5m on local routes with a minimum of 3m on major connector routes.*

c) *Pedestrian and cycle routes and facilities in public spaces are to encourage way finding and be convenient, safe, well lit, clearly defined, functional and accessible to all.*

d) *Shared paths and pedestrian refuge islands are to be designed to be fully accessible by all in terms of access points and gradients, in accordance with Australian Standard 1428:1-4.*

2. *Provision of Bicycle Parking Spaces*

a) *For commercial developments providing employment for 20 people or more, bicycle parking is to be in secure and accessible locations, and provided with weather protection, in accordance with AS2890.3:1993 Bicycle Parking Facilities.*

b) *The following associated facilities are to be provided:*

i) *Change and shower facilities for cyclists are to be conveniently located close to the bicycle storage areas; and*

ii) *Where the building is to be strata-titled, the bicycle storage facilities and shower/change facilities are to be made available to all occupants of the building.*

c) *Applicants should comply with the suggested bicycle parking provision rates for different land use types in the document 'Planning Guidelines for Walking and Cycling' (NSW Government 2004).*

3. *Design of bicycle spaces*

a) *Bicycle parking spaces must:*

i) *Be provided in accordance with AS2890.3:1993 Bicycle Parking Facilities;*

ii) *Be located to provide convenient access from surrounding bicycle routes and main building entrances;*

iii) *Not interfere with reasonable access to doorways, loading areas, access covers, furniture, services and infrastructure; Not cause a hazard; and*

iv) *Be adequately lit during periods of use.*

b) *A bicycle compound or a bicycle locker must:*

i) *Be located to provide convenient access to other bicycle facilities including showers and change rooms;*

ii) *Be fully enclosed;*

iii) *Be able to be locked; and*

iv) *If outside, provide weather protection for the bicycle.*

These principles are in accordance with the *Austroads Guide to Road design Part 6a: Paths for Walking and Cycling*, and therefore no update is required. However, it is noted that many of the older roads do not comply with these newer standards. While it is acknowledged that retrospective construction may be expensive, upgrades to the pedestrian and cycle infrastructure should be considered and undertaken regularly to provide better connectivity.

2.2.7 Public Transport Networks

Penrith City Council's *Local Strategic Planning Statement - March 2020* states that Council has established planning priority to provide a safe, connected and efficient local network supported by frequent public transport options. The document states that the city-shaping infrastructure will connect Penrith with Greater Sydney more easily and quickly. This proposed infrastructure includes:

- *The new North South Rail Link from St Marys to the Western Sydney Aerotropolis (to be operational by the time the airport opens in 2026).*
- *The M9/Outer Sydney Orbital road and freight corridor that connects the south west to the north west (for investigation in the next 10-20 years).*
- *Rapid Bus Connections between Penrith and the Western Sydney International (Nancy-Bird Walton) Airport (for investigation in the next 10 years).*
- *The Western Sydney Freight Line, providing a freight rail connection to Western Sydney*

The plan focuses on development of a public transport connection between Penrith, the Western Sydney Airport and St Mary's in a broader concept and does not facilitate the area in the vicinity of the school site.

2.3 State Transport or Infrastructure Plans

2.3.1 Future Transport 2056

The Greater Sydney City Shaping Network 2056 is aimed to provide high capacity and high frequency services to the metropolitan centres.

This project does not directly affect the existing arrangements, but the potentially improved frequency of trains would serve staff who live within the wider area of Sydney to commute to school.

No amendments are required to this plan.

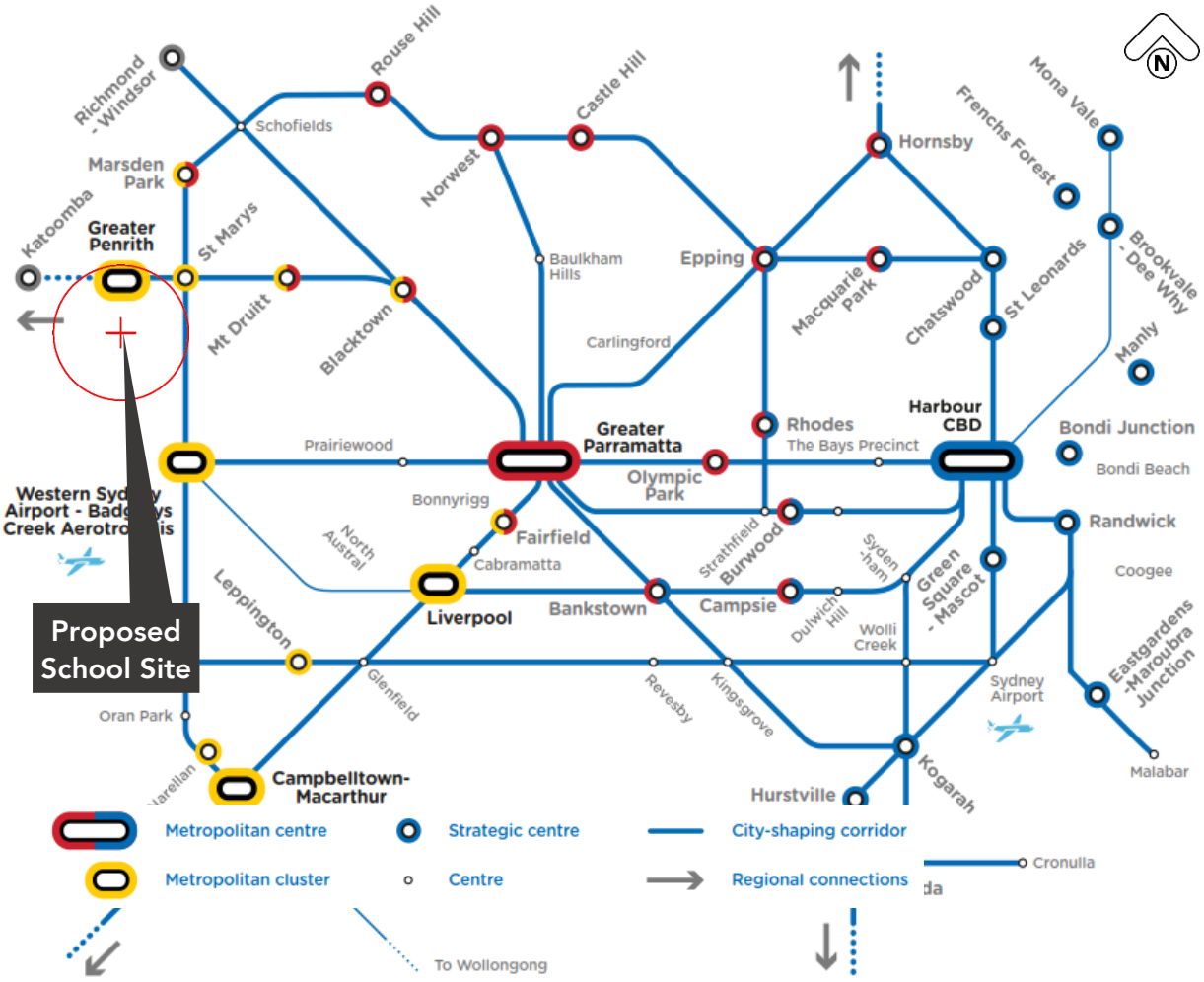


Figure 6 - Greater Sydney Mass transit / train network (visionary) (Source: Future Transport 2056 Strategy)

The Future Transport 2056 Strategy has the vision to construct a safe cycleway network within 10km of Greater Penrith area. This document appears to address a broader vision and is aimed to provide connectivity on a larger scale. This plan, if implemented, may benefit teachers and staff who live outside Glenmore Park.

An update to this strategy is not seen as required, as the majority of students live in a localised area.

Growing Sydney's visionary bicycle network is shown in Figure 9.

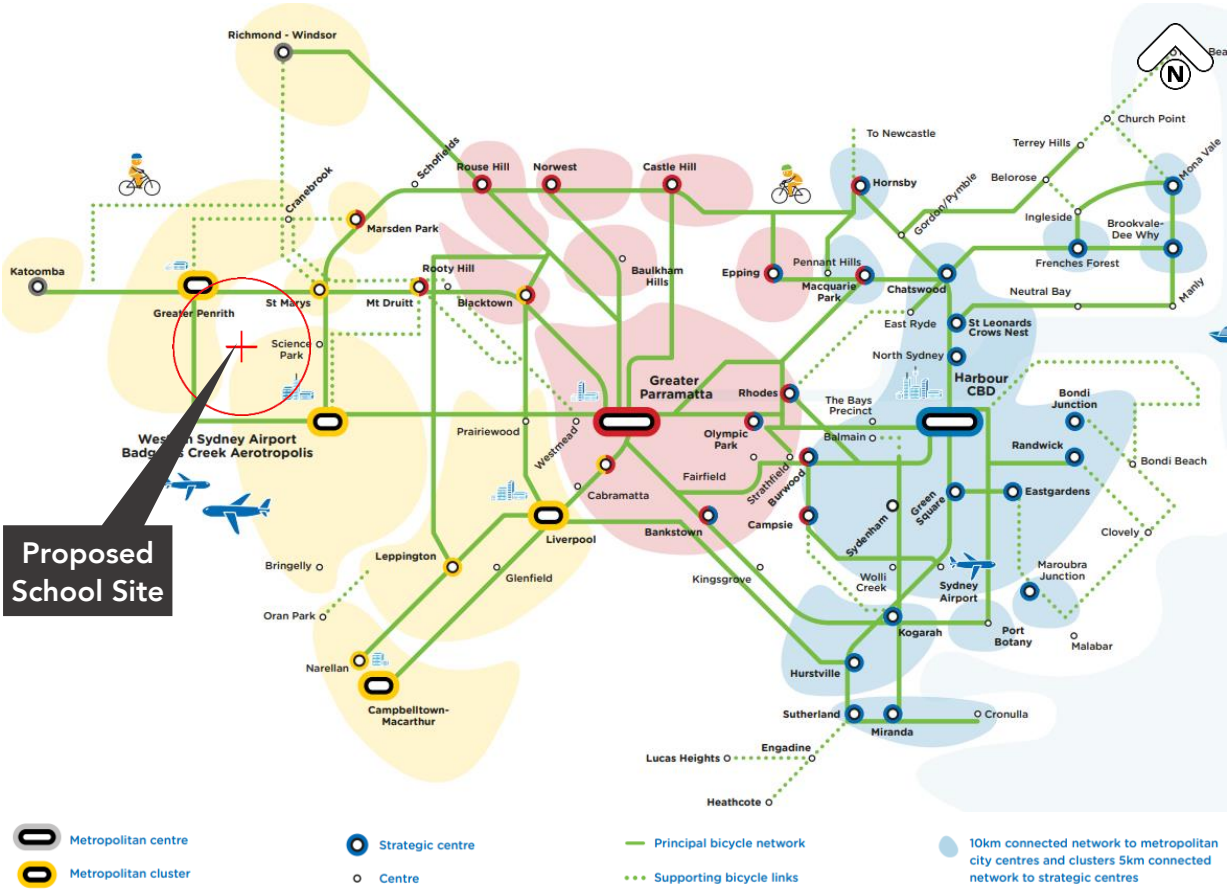


Figure 7 - Growing Sydney's bicycle network (visionary) (Source: Future Transport 2056 Strategy)

2.3.2 Future Western Sydney Corridor – NSW Government

A rail line is proposed between St Mary's and Western Sydney Airport. The updates to transport line and tunnels will improve the north-south connectivity within the western suburbs.

The corridor project will not have a direct impact on the proposed school site, although it may serve potential teachers and staff who live outside Glenmore Park and Penrith.

An update to this strategy is not seen as required, as the majority of students live in a localised area.

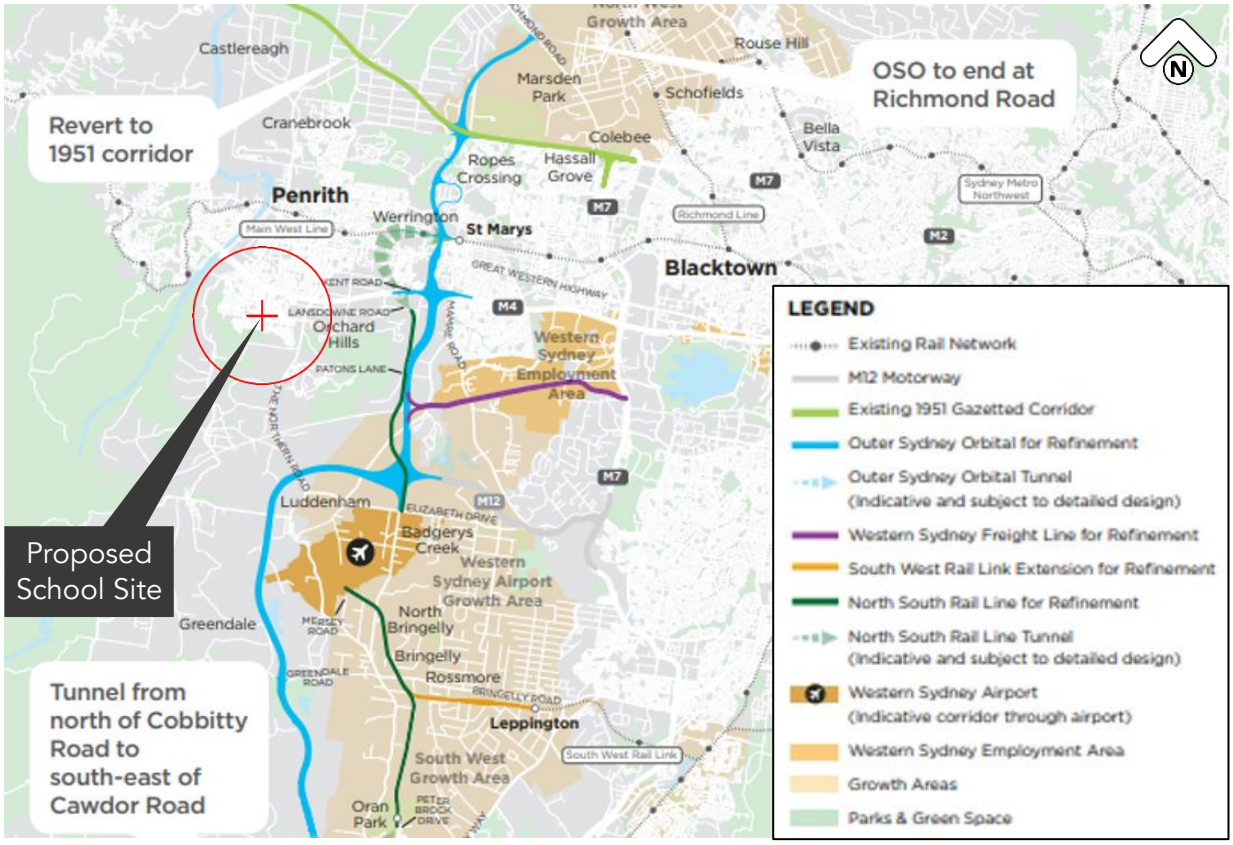


Figure 8 - Future Western Sydney Corridors Map (Source: NSW Government)

2.3.3 Greater Sydney Commission – Western City District Plan

This document states the following regarding improvement of walking and cycling:

'Walking is a fundamental part of the transport system and most journeys start and end with walking. Creating pleasant and safe environments for walking and cycling contribute to great places. Prioritising safe cycling for short trips to centres, transport interchanges and local services such as schools and health services will free capacity for people who need to travel further by road and public transport. Transport for NSW is establishing a bicycle network hierarchy in collaboration with councils. The Principal Bicycle Network will establish high quality, high-priority routes to facilitate safe and direct connections to centres. ***This network will form the transport layer of the Greater Sydney Green Grid. Regional and local routes identified in local government bike plans, will connect to the Principal Bicycle Network to facilitate a seamless and connected network within urban areas.*** *Local streets will connect to these routes to provide door-to-door access for cycling. Secure bicycle parking and end-of-trip facilities should be provided in centres to support cycling throughout the District.'*

While this policy does not address the surroundings of the proposed site per se, it highlights the necessity to connect local areas to the greater bicycle network. This may benefit teachers and staff who live outside Penrith.

An update to this strategy is not seen as required, as the majority of students live in a localised area.

2.4 Local Land Use Planning

2.4.1 LEP

The proposed school site is currently a R1 (General Residential) zone, with the surrounds being predominantly R1 and R2 (Low Density Residential). There are large E1 (National Parks and Nature Reserves) and E2 (Environmental Conservation) zones to the west, a large RU2 (Rural Landscape) zone to the south, a B2 (Local Centre) zone to the north and RE1 (Public Recreation) zones within the vicinity of the site. This is presented in Figure 9.

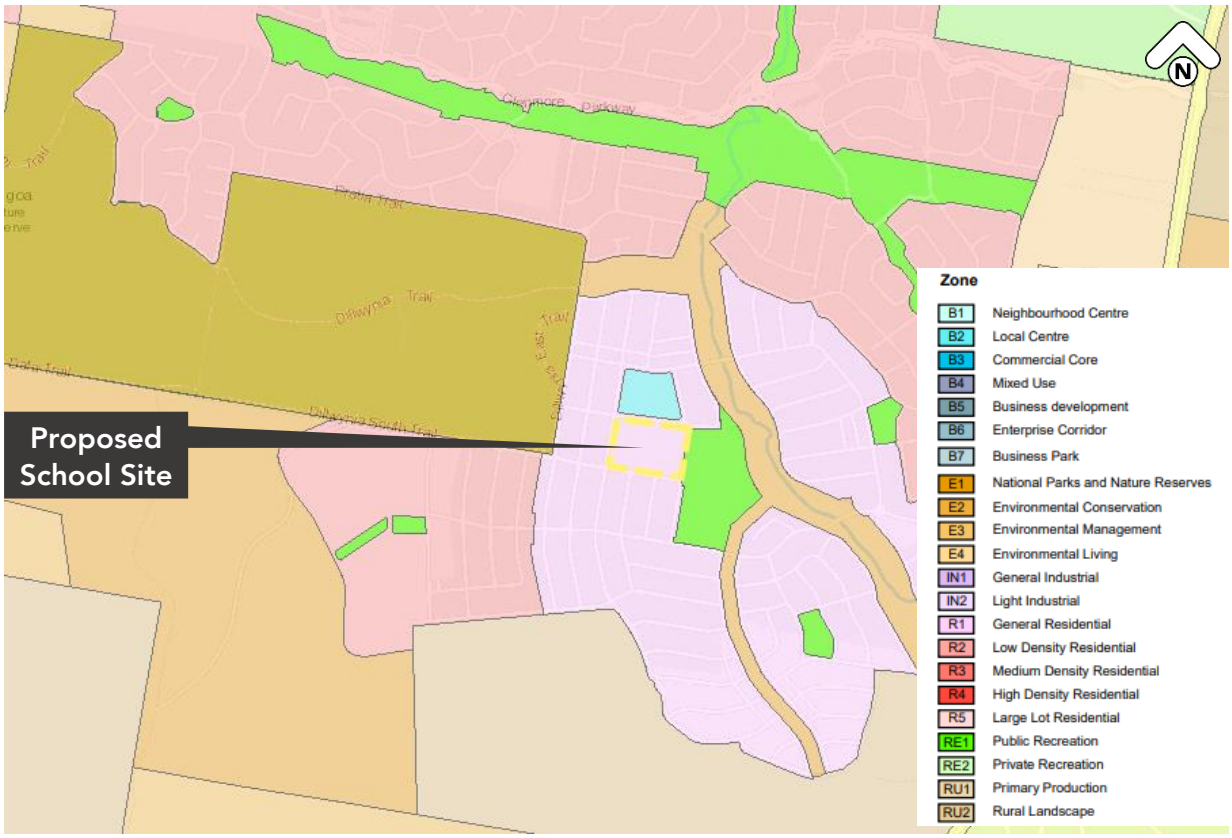


Figure 9 - Local Land Use Map (Source: NSW Planning Viewer)

While the proposed site lies within a residential zoning, it is allocated for an educational facility in Council's documents.

It is noted that the Rural Landscape zone to the south is currently in the stage of a Planning Proposal for redevelopment of this region to a residential area.

2.4.2 Penrith City Council's DCP 2014, Part E7B, Glenmore Park Stage 2 – Pedestrian and Bicycle Network

While this document addresses pedestrian and cycle connectivity, it is noted that there is no direct bicycle link from the west and from the south-west to the proposed school location as shown in black arrows in Figure 10.

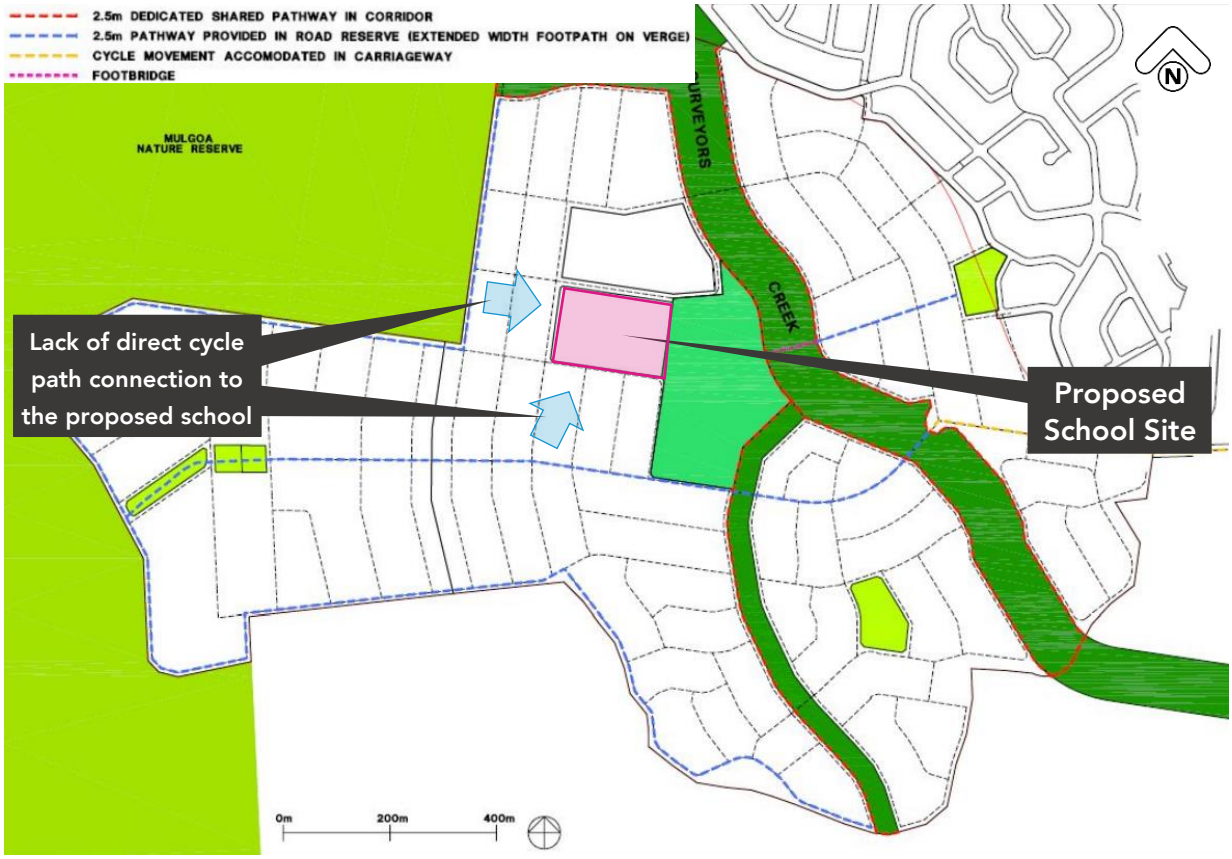


Figure 10 - Pedestrian and Cycle Network (Source: Penrith Council DCP 2014)

2.4.3 Penrith City Council's DCP 2014, Part E7B, Glenmore Park Stage 2 – Public Transport

Public transport principles have generally been addressed in this document. Figure 11 shows the public transport principles near the vicinity of the School; Figure 12 shows the existing public transport facilities and 400m walking catchments from the bus stops. It is noted that only 794 bus services the school site.

Figure 11 - Public Transport Principles (Source: Penrith Council DCP 2014)

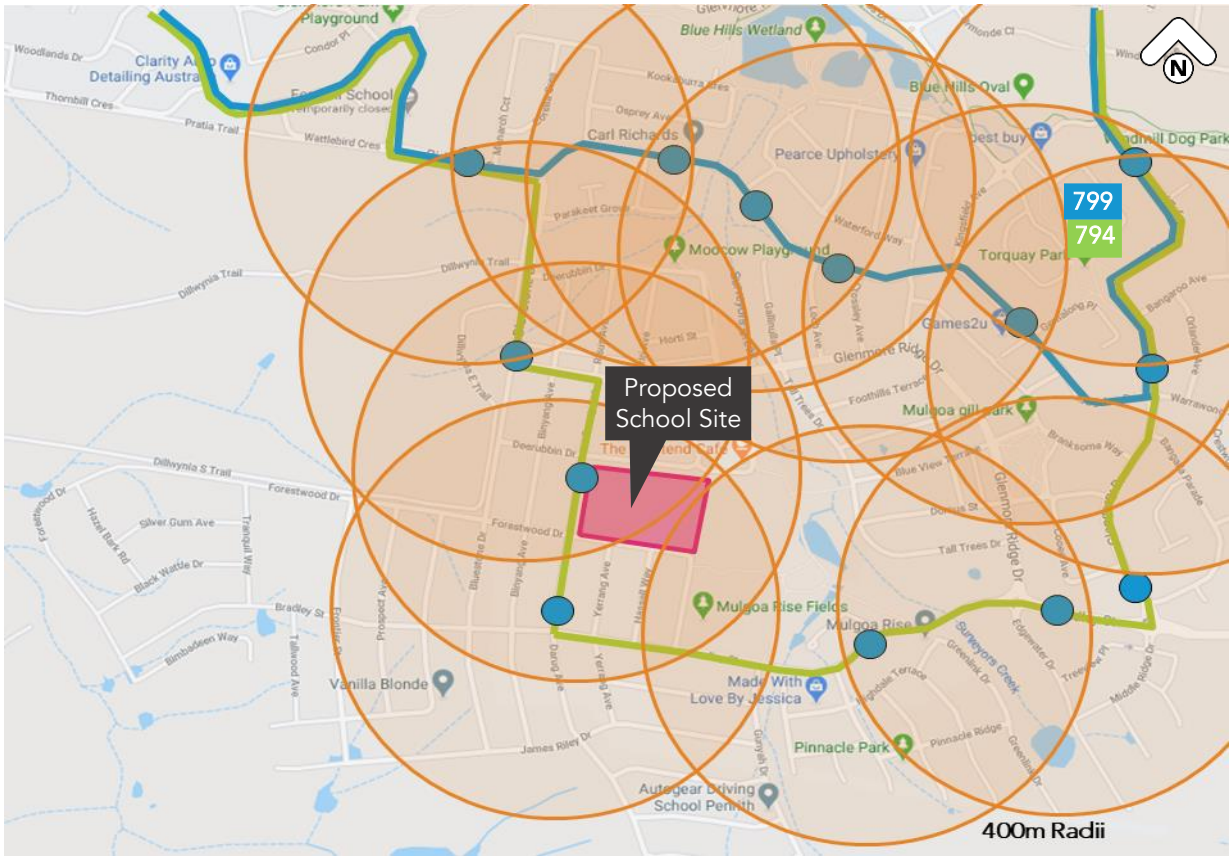


Figure 12 - Existing Public Transport

2.4.4 Open space plans

Penrith City Council's Development Control Plan 2014 states that open space is crucial to the landscape design. Public open spaces should be provided to meet the recreation needs and community facilities. This document also states that open space contributes to the dual use which is for recreation and stormwater drainage.

2.5 Programs

2.5.1 Sustainability Strategy 2015-21

This strategy does not provide any information on sustainability in form of transport modes.

2.5.2 Subsidised School Transport Scheme and School Term Bus Pass

Figure 13 presents the enrolment catchment and the SSTS exclusion zone. Almost the entire school enrolment catchment lies within the SSTS zone, meaning that almost no students are eligible for the free or subsidised school travel pass.

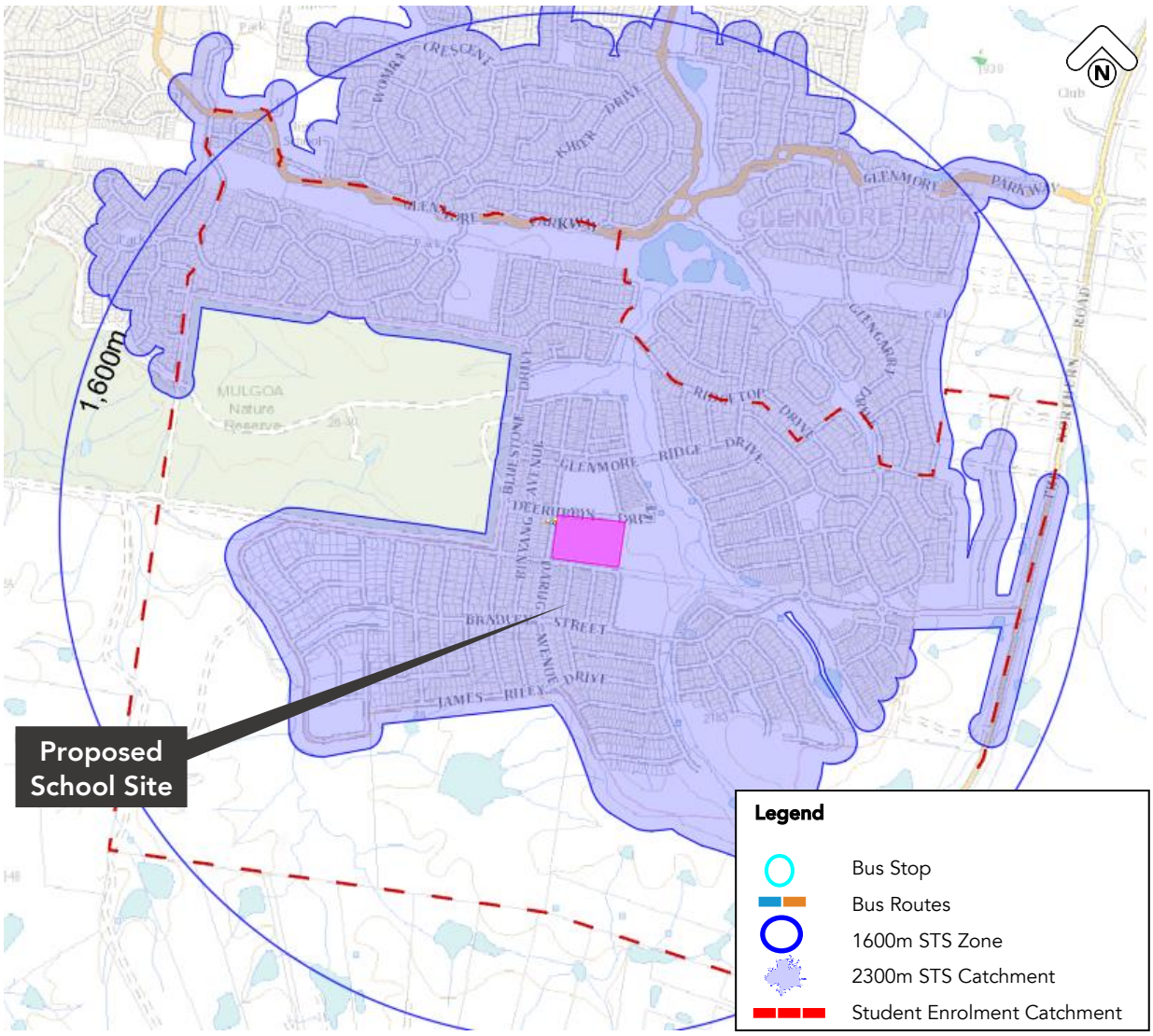


Figure 13 - SSTS Exclusion Zone

2.6 Mixed-Use Development

A mixed-use development has been approved north of Deerubbin Drive at 90-98 Glenmore Ridge Drive, Glenmore Park, opposite the proposed School. A screenshot of the location plan /site plan (Job no: J18429D, DA 1005, Revision C FOR 90-98 prepared by CDARCHITECTS) is shown in Figure 14.

Under the DA19/0348, the development has been conditioned to provide a pedestrian facility on Deerubbin Drive, as shown in Figure 14. However, it is unclear what type of facility will be provided.

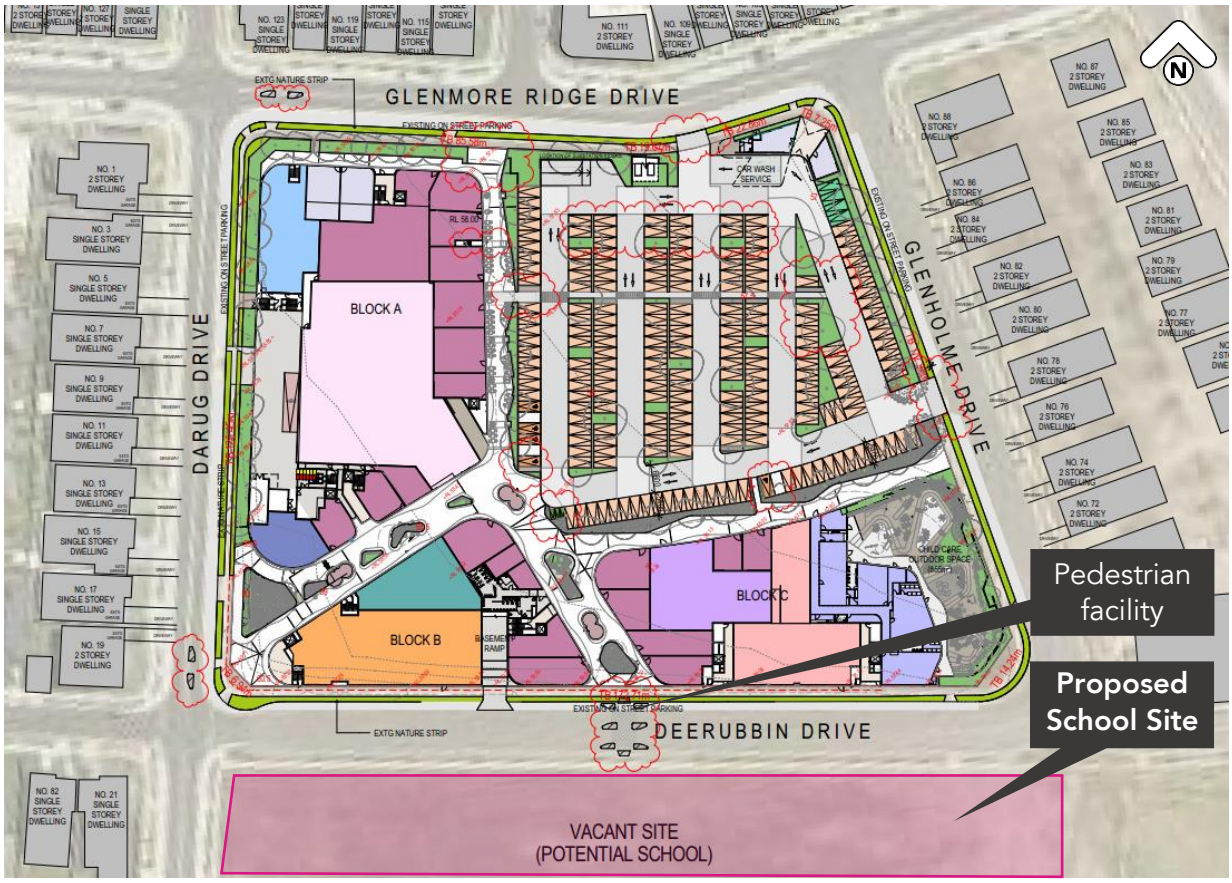


Figure 14 - Site Plan - Mixed Use Development at 90-98 Glenmore Ridge Drive (Source: ADARCHITECTS)

Section 3.6, Document Set ID: 9176045, Version: 1, Version Date: 15/06/2020 from the approved TIA for the mixed-use development states the following:

- *The pedestrian refuge proposed on Deerubbin Drive will align with the southern pedestrian entrance to the site and will also provide for sufficient width for future conversion to a pedestrian crossing. The provision of a pedestrian crossing shall be assessed against the relevant warrants outlines in RMS Australian Standard Supplement – Manual of Uniform Traffic Control Devises 1742 – Part 10 – Pedestrian Control and Protection.*

Condition No. 79 from Document Set ID: 9563715, Version: 1, Version Date: 27/04/2021 from the DA conditions states the following:

e) *Provision of a raised threshold on Deerubbin Drive where the main pedestrian thoroughfare to/from the shopping centre is located. The raised threshold shall incorporate splitter islands, pram ramps and pedestrian fencing on both sides of the road and shall be designed to accommodate a potential zebra crossing in the future.*

Following conversations with Council, it is understood that the mixed-use developer will construct a raised zebra crossing.

It is recommended that a zebra crossing be provided on Deerubbin Dive to facilitate both the School and the approved mixed use development.

2.7 Existing Nearby Public Schools

The Glenmore Park SCG is undergoing significant housing development and population growth resulting from large infrastructure projects (Western Sydney Airport as an example). The increasing number of students have only four schools located on the northern border of the SCG (refer to Figure 15), leaving many students having to travel larger distances to school. With the proposed new school located in Mulgoa Rise, students residing in this developing suburb will live closer to, which will reduce travel times and therefore support the use of active travel i.e. walking and cycling.

The existing catchment areas of nearby schools have been modified to accommodate a new primary school.

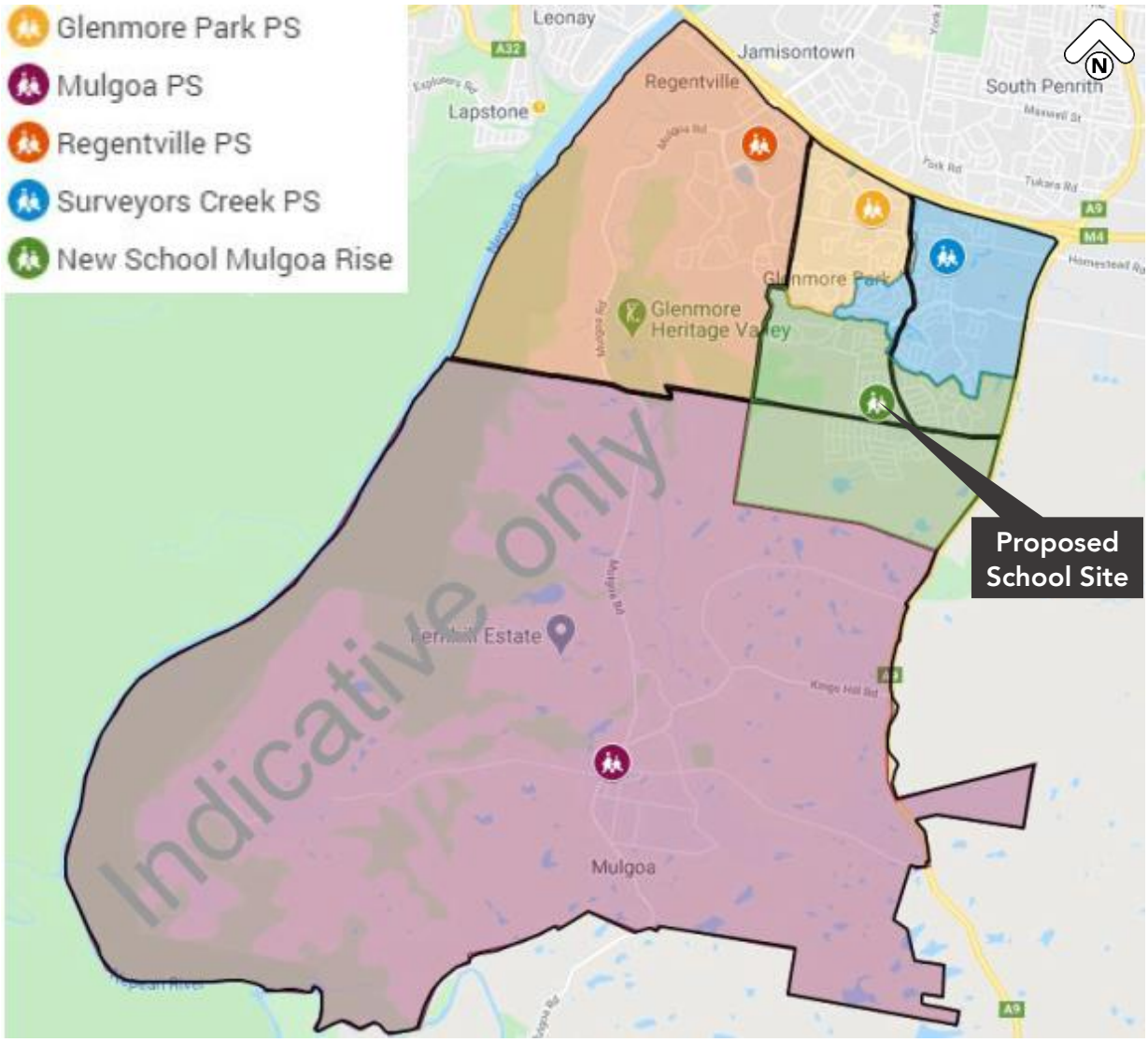


Figure 15 - Nearby Schools (Source: NSW Deparment of Education)

Other schools nearby the proposed new school and the catchment areas are presented in Figure 15. The black lines represent the current catchments of Glenmore Park Public School, Mulgoa Public School, Regentville Public School and Surveyors Creek Public School. The new primary school in Mulgoa Rise shown as a green area would take some students from Glenmore Park Public School, Surveyors Creek Public School and a small portion of Mulgoa Public School. The proposed School will reduce the need for demountable teaching spaces required in the nearby schools.

3. Transport Networks and Operations

3.1 School Access

The school has a frontage to Darug Avenue, Deerubbin Drive and Forestwood Drive.

There are 4 pedestrian and cycling gates: two off Deerubbin Drive in the north, one off Darug Avenue in the west and one off Forestwood Drive in the south.

The car park access is in the southeast of the site off Forestwood Drive, combined with a maintenance and emergency driveway.

Service and waste collection vehicle access is provided on the northeast of the site off Deerubbin Drive.

Bus stops are located on either side of the Darug Avenue carriageway just south of the intersection with Deerubbin Drive.

A map showing the access points, car park, pick-up / drop-off areas, bicycle amenities and the bus stop locations is illustrated in Figure 16.

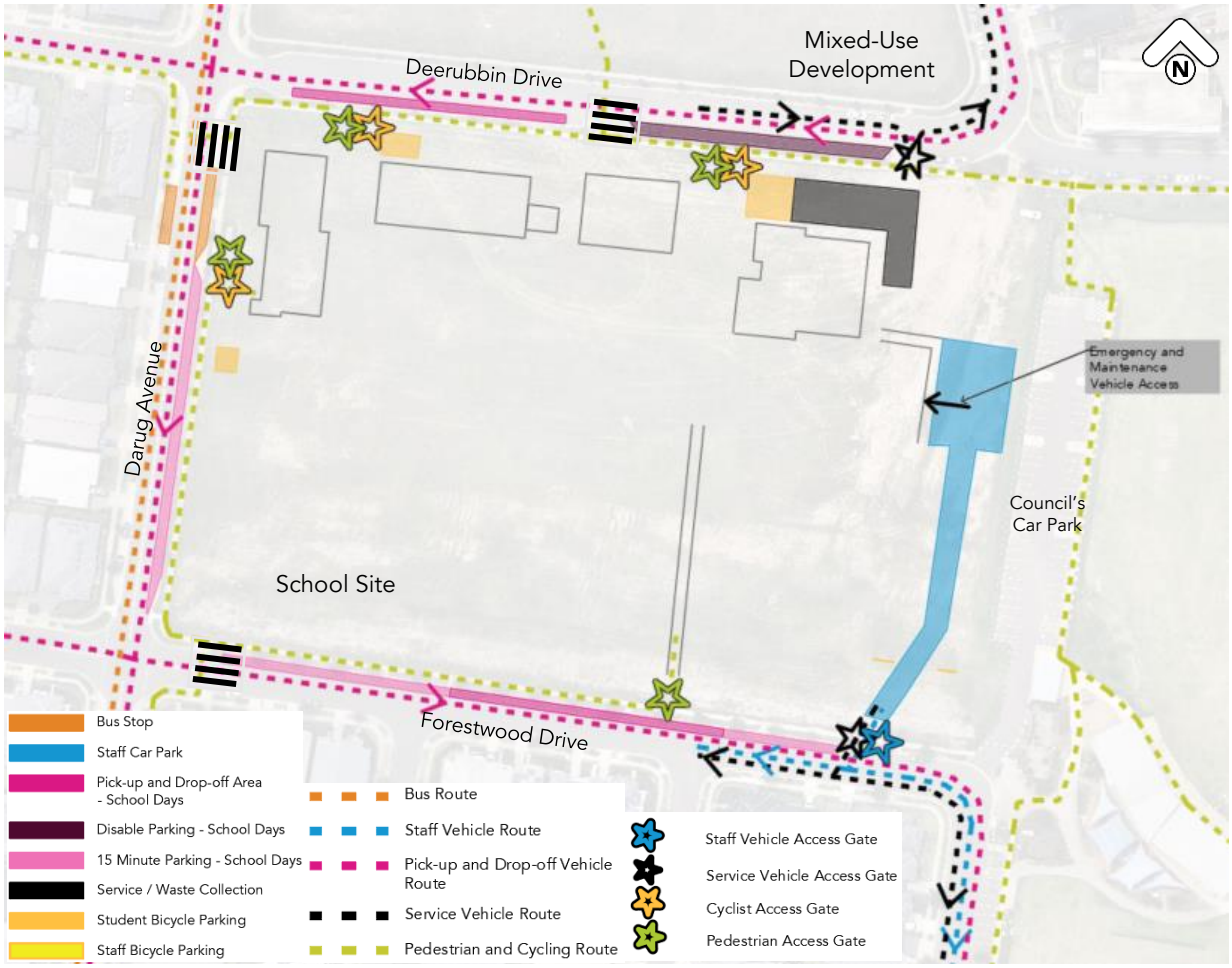


Figure 16 - School Access Plan

3.2 Active Transport

The locality was reviewed for features that would attract active transport trips (walking and cycling), with reference to the NSW Guidelines for Walking and Cycling (2004). The NSW Guidelines to Walking & Cycling (2004) suggests that 400-800m is a comfortable walking distance when considering the distance to public transport, which equals a 5-10 minute walk. A 15 minute walk, or 1.2km distance is seen as acceptable if walking is the only mode of transport.

The comfortable cycling distance is defined by the Guide to be between 800m-1.5km, which equals a 5-10 minute cycle. Distances of up to 2.4km and 3.6km are seen as acceptable if cycling is the only mode of transport for primary and secondary school students, respectively.

The following sections describe the existing pedestrian and cycling infrastructure within the proposed school enrolment catchment. Based on these findings, a gap analysis has been undertaken and ways to improve walkability and cyclability are suggested.

3.2.1 Walking

Walking is a viable transport option for distances at around one kilometre (approximately 15min walk) and is often quicker for short trips door to door. Walking is also the most space efficient mode of transport for short trips and presents the highest benefits. Co-benefits where walking replaces a motorised trip include improved health for the individual, reduced congestion on the road network and reduced noise and emission pollution.

Figure 17 shows the "as crow flies" and the actual 400m, 800m and 1200m walking catchments from the proposed school.

Considering that Glenmore Park has recently undergone major development, pedestrian network in the locality of the proposed school site provides a reasonable level of amenities. Most of the roads within the School catchment have footpaths on both sides of the carriageway; However, some roads towards the north and east lack footpaths on either one or both sides of the road (refer to Figure 18). While it is acknowledged that these areas are residential in nature and traffic volumes are likely to be minor, at least one footpath on one side should be provided.

Pram ramps are generally provided at each end of a footpath; however, there is a lack of formalised crossings within the enrolment catchment of the school, making walking and cycling inconvenient and less safe.

Infrastructure which would benefit the prospective students is shown in Figure 19 and Figure 21.

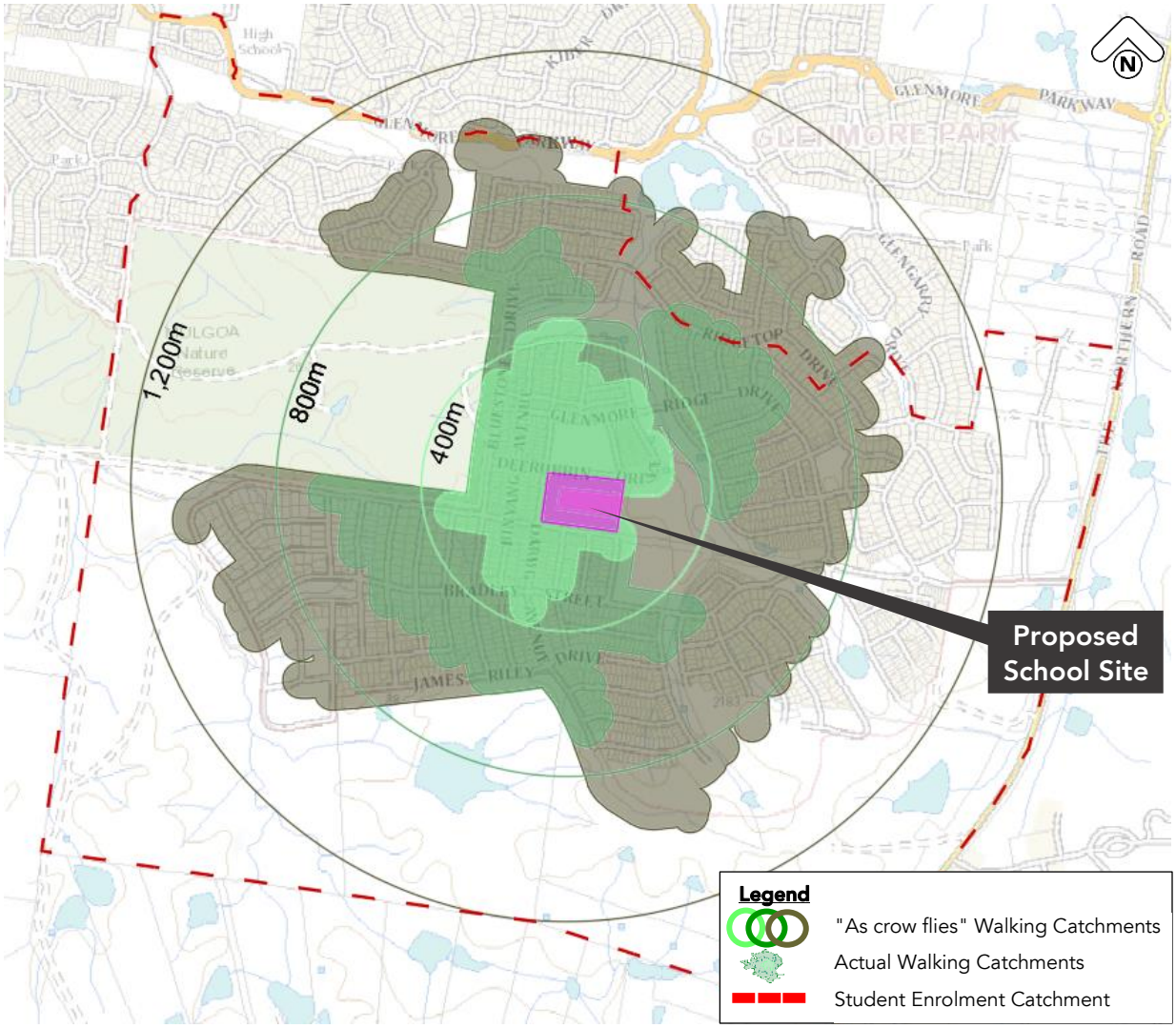


Figure 17 - 400m, 800m and 1200m Walking Catchment

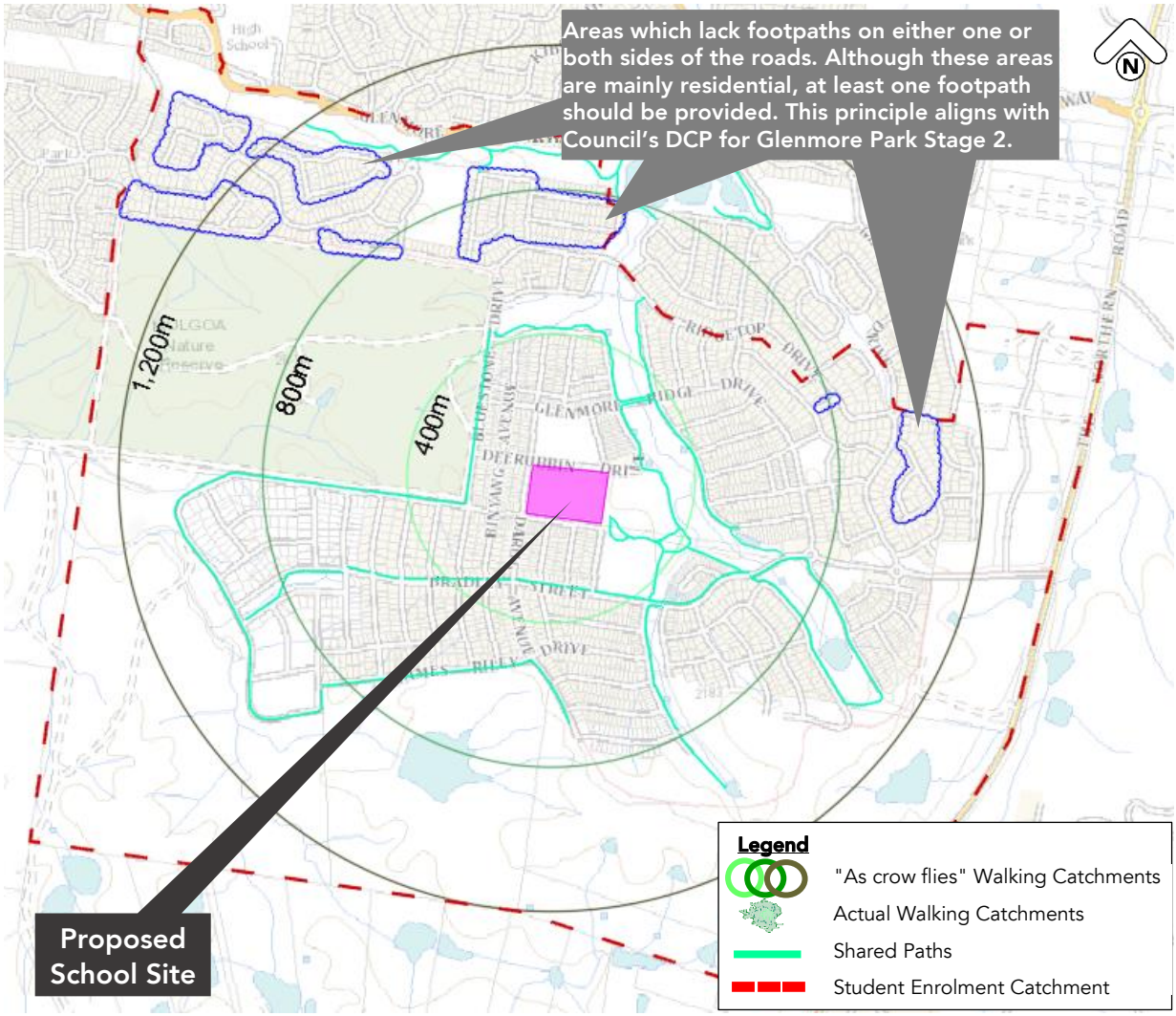


Figure 18 - Pedestrian Infrastructure within School Catchment

As shown in Figure 19, the following pedestrian links would be beneficial to provide better pedestrian connectivity to the school:

- A path between Deerubbin Drive and Parakeet Grove to shorten walking distance and divert the pedestrian link from the main road. This would involve the construction of a pedestrian path across the grassland, which is zoned as Environmental Conservation. While this measure does not provide a significant quantitative improvement in terms of the number of students addressed, it does reduce the walking distance, and, more importantly, it provides a safer passage between the area circled in blue and the school.

Figure 19 - Recommended Pedestrian Paths

Figure 20 - Pedestrian Path between Council Car Park and Deerubbin Drive

Considering the general lack of formal pedestrian crossings within the enrolement catchment, ideally some form of crossings would benefit students wishing to walk or cycle to school. Locations of crossings along the main pedestrian links and across larger roads are shown in Figure 21.

Ideally, all crossings would be constructed as raised zebra crossings; however, an analysis of warrants and swept paths would be required to determine the viability of these measures.

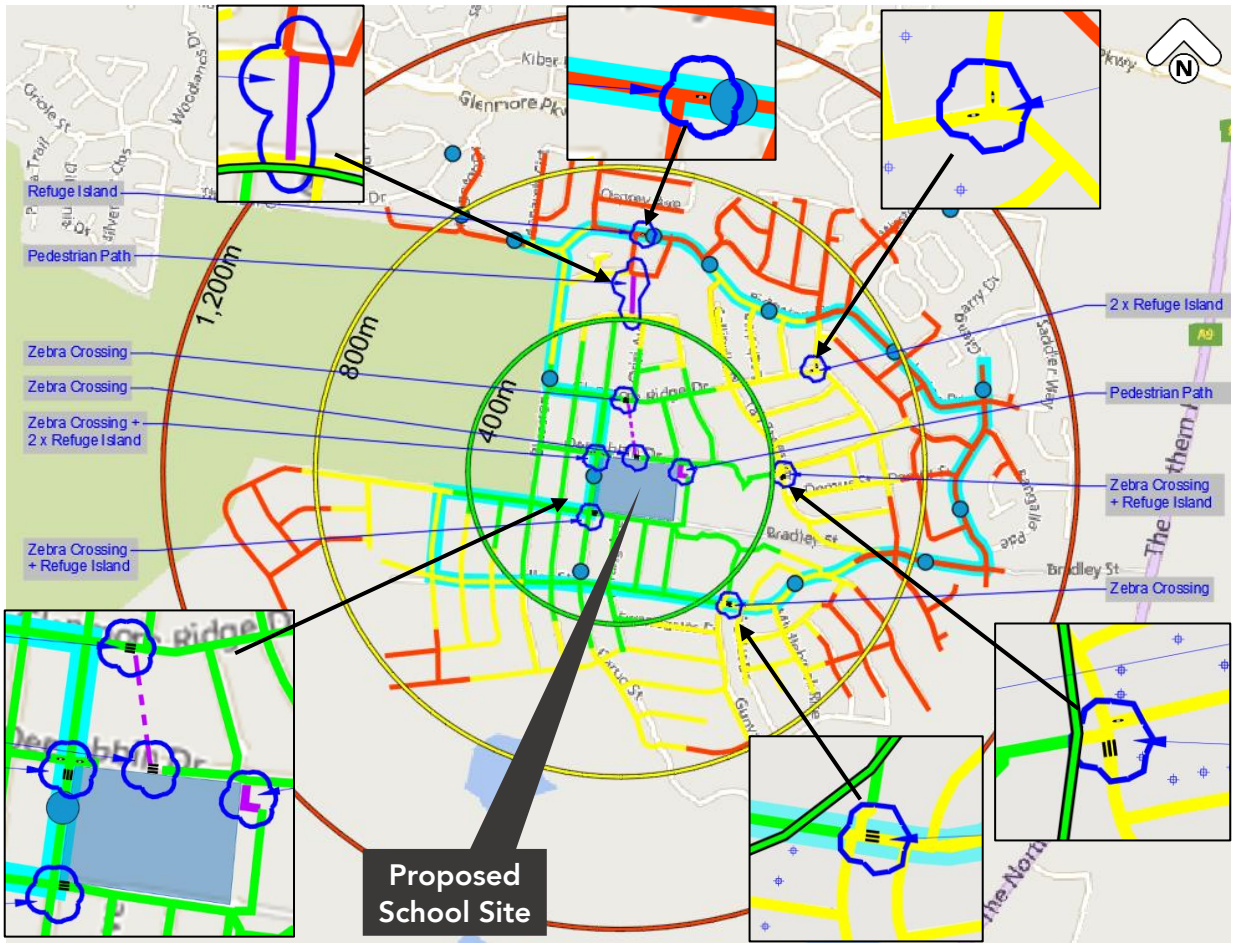


Figure 21 - Recommended Pedestrian Crossings and Infrastructure

3.2.2 Cycling

Two sources have been analysed regarding cycling infrastructure, the Open Data website and Council's DCP.

Based on the Open Data website a limited amount of cycling infrastructure is provided within the enrolment catchment of the proposed school, and some on-road cycling paths and shared paths are provided along the northern boundary of the School catchment (refer to Figure 22). The data does not provide any information on any proposed future bicycle paths in the area.

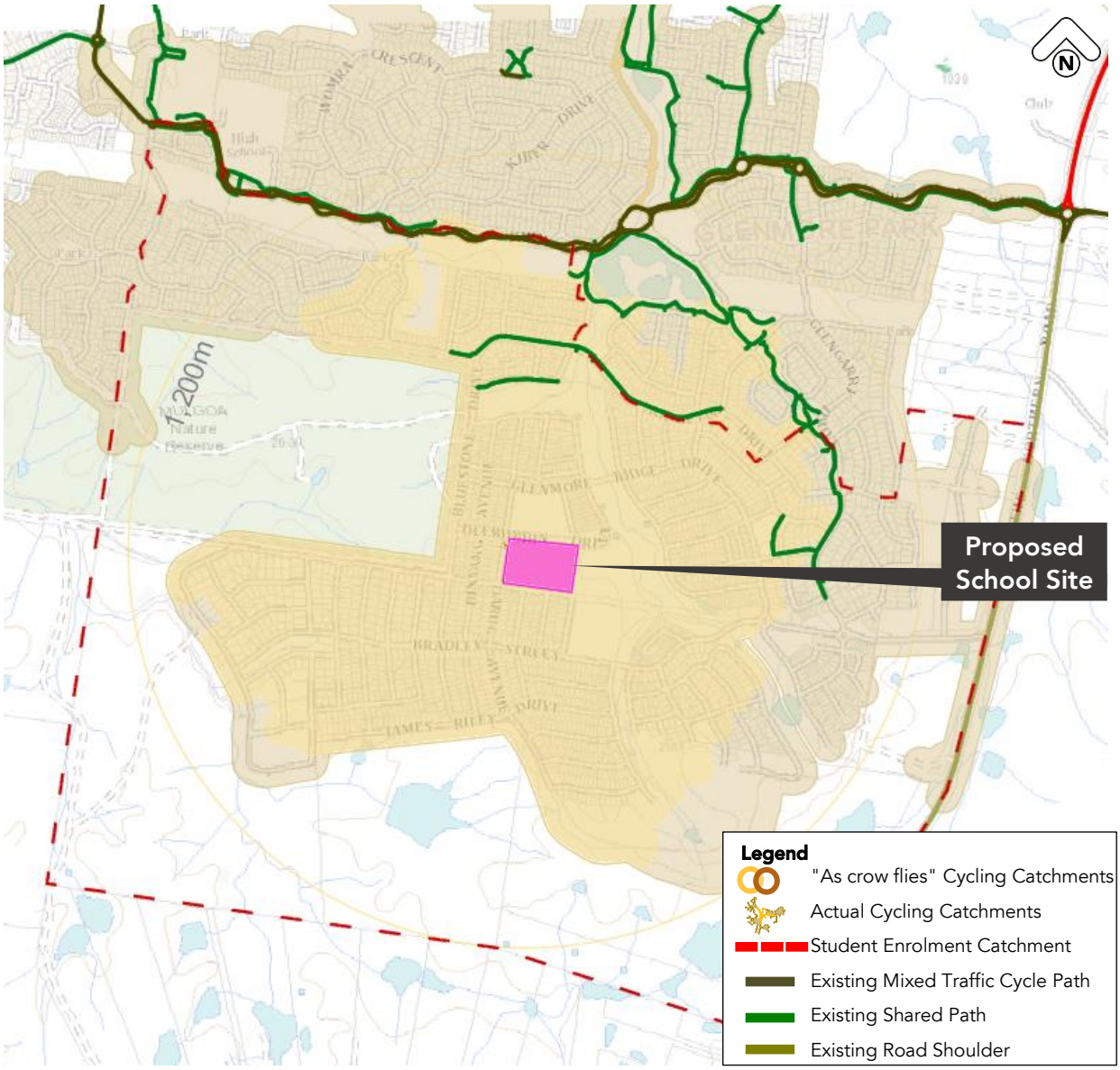


Figure 22 - Existing Cycling Infrastructure

Penrith Council's DCP Part E7B indicates that shared paths would be provided within the vicinity of the school, as shown in Figure 23.

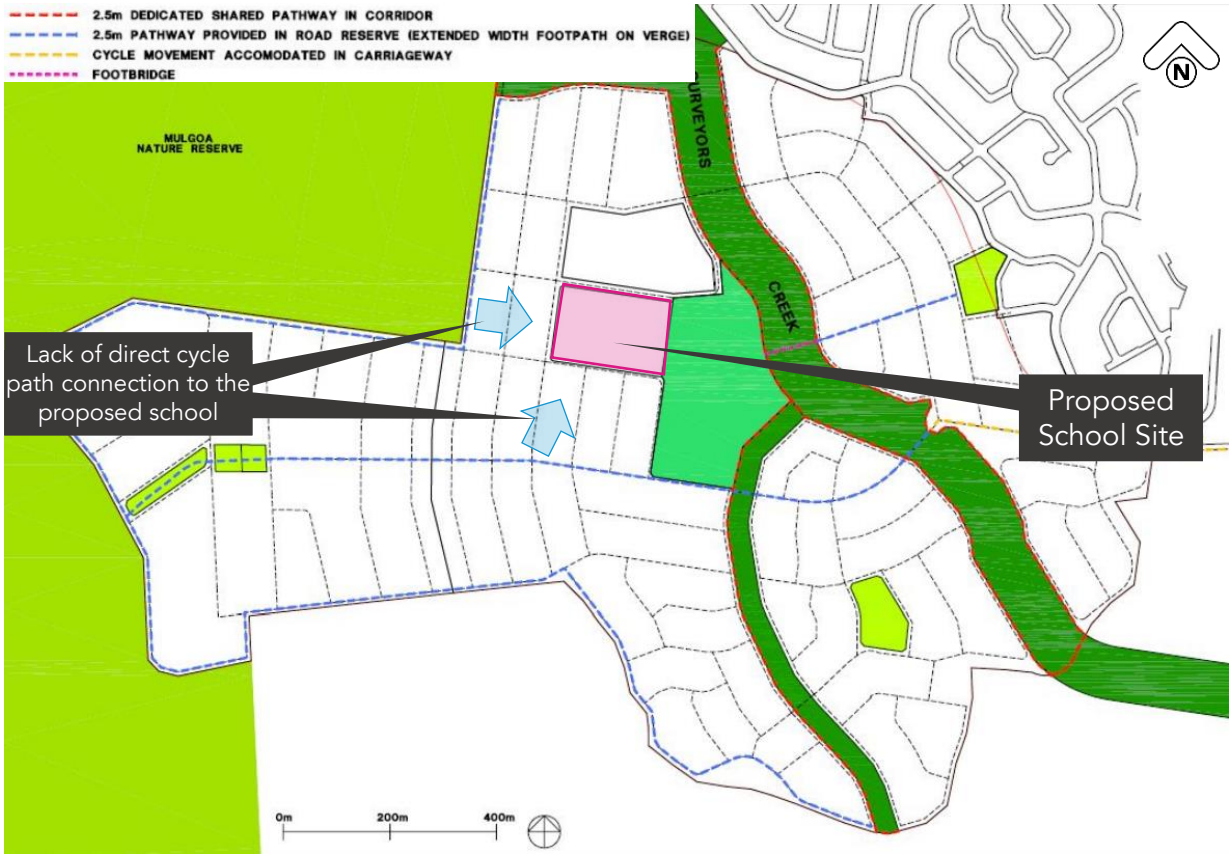


Figure 23 - Pedestrian and Cycle Network (Penrith Council DCP 2014)

Upon review of *nearmap* imagery it is known that shared paths have been provided along major roads, biodiversity corridors and parklands, as per Council's DCP.

Although the shared paths do not directly connect to the school, it is noted that children up to the age of 15 are legally allowed to cycle on footpaths. Nevertheless, an investigation into upgrading some of the footpath into shared paths would not only benefit the school, but also the mixed-use development north of Deerubbin Drive.

3.3 Public Transport

The locality of the site has been assessed in the context of available forms of public transport that may be utilised by prospective staff and students. When defining accessibility, the *NSW Planning Guidelines for Walking & Cycling (2004)* suggests that 400m-800m is a comfortable walking distance to access public transport and local amenities.

3.3.1 Eligibility and Potential Usage

Figure 24 illustrates the SSTS exclusion catchment from the proposed School site, which covers the entire enrolment catchment. This means that none of the prospective School students are eligible for a free or discounted student travel pass.

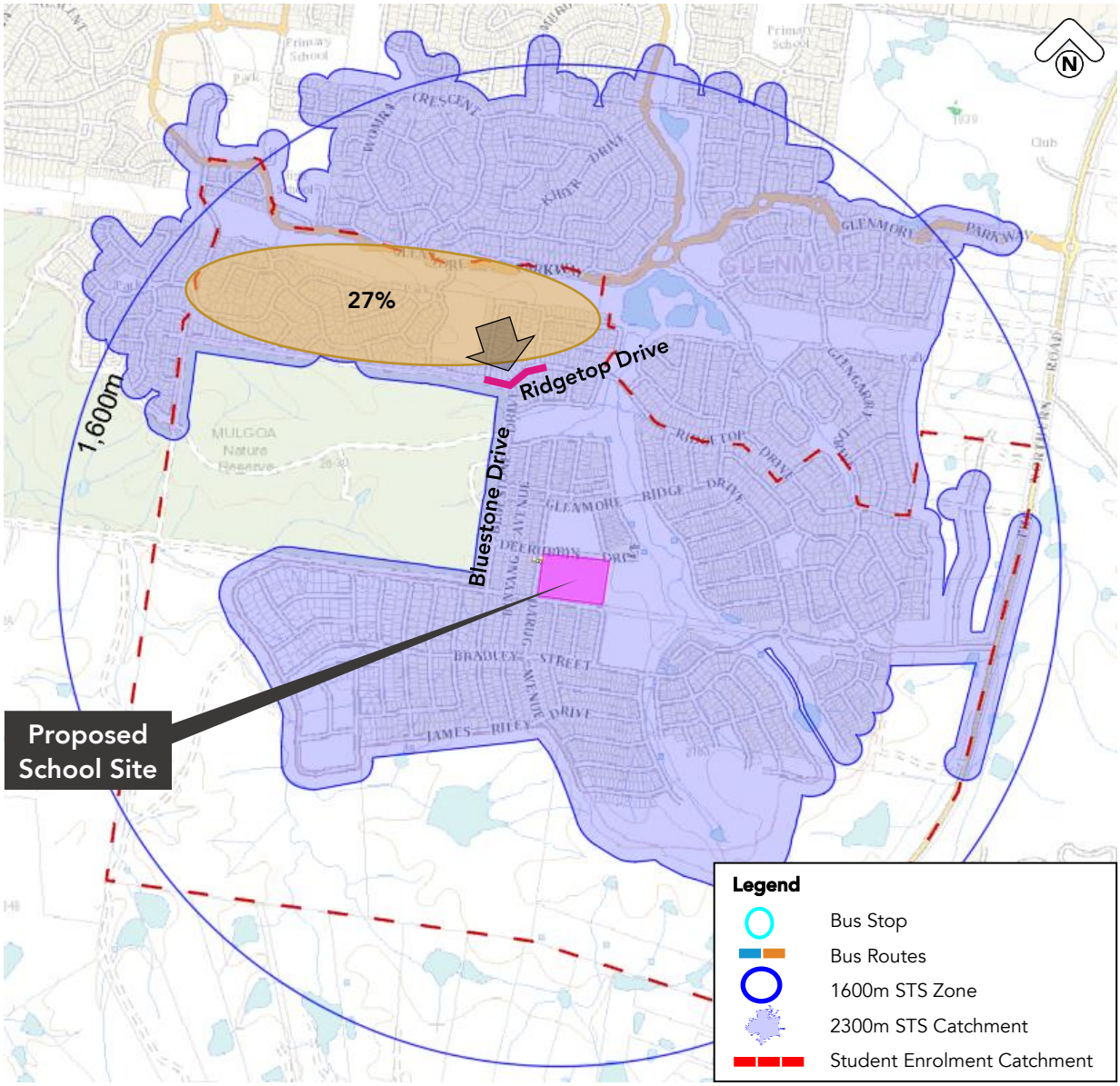


Figure 24 - SSTS Exclusion Zone and Barriers

The area highlighted in orange in Figure 24 represents 27% of students who are more likely to be reliant on either public or private transport. This is because the area is not equipped with footpaths on each side of the carriageways and pedestrian connectivity across Ridgetop Drive (highlighted by the pink line in Figure 24) is not ideal.

For this reason, convenient public transport connectivity would be beneficial for these students.

3.3.2 Existing Bus Network

Figure 25 illustrates public transport options and network available within the enrolment catchment of the school.

Only one bus route provides direct services to the proposed site.

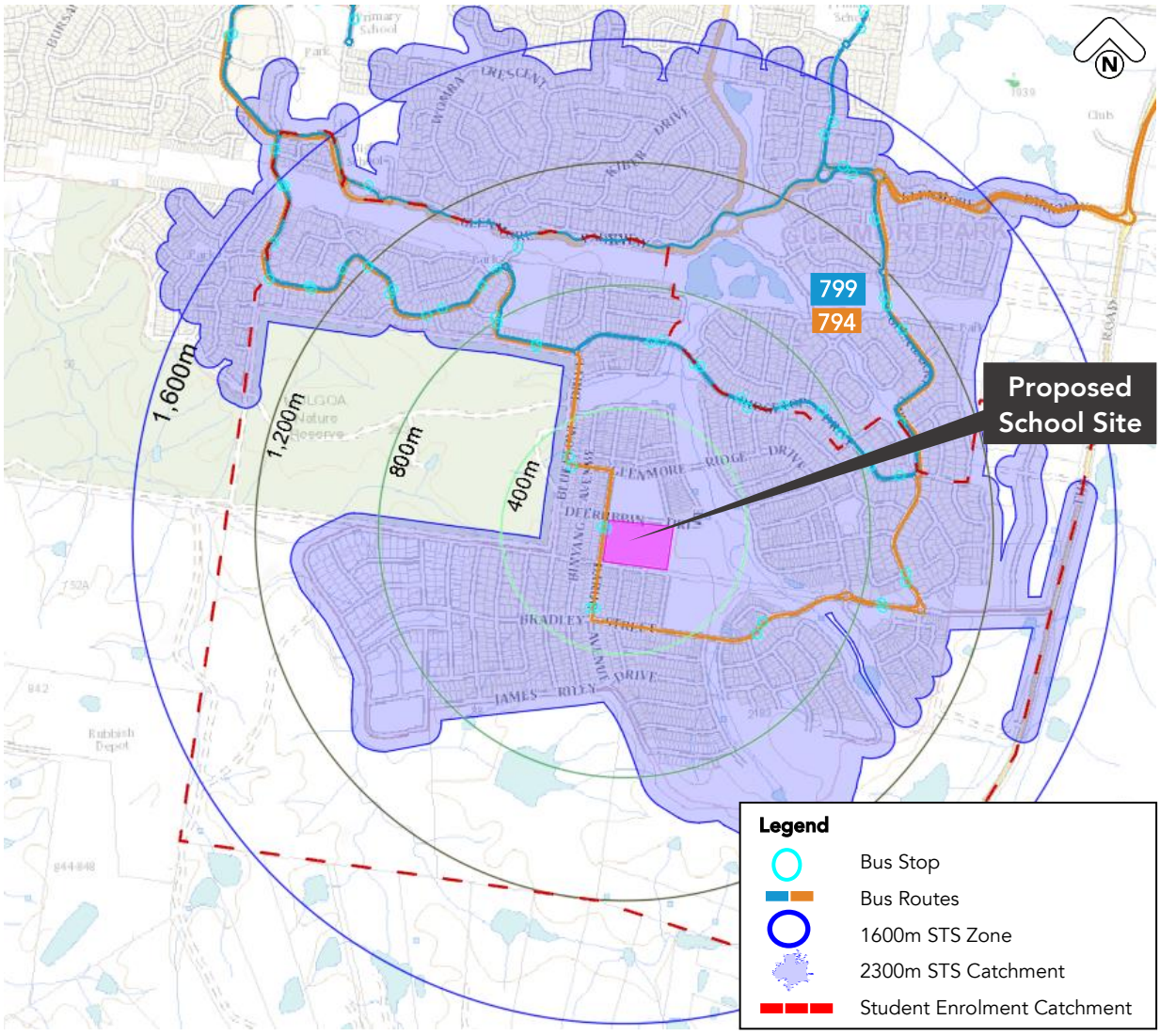


Figure 25 - Public Transport within Enrolment Catchment

For consideration of parent onward journey, Journey to Work data has been analysed. Approximately 26% of residents of the Glenmore Park area travel to Penrith and nearby suburbs for work. 85% of the population residing in Glenmore Park area drive to work, which can be attributed to the area currently being serviced by buses 794 and 799 only, which appear to not provide a conveniently direct route to the employment areas.

It takes approximately 30-40 minutes to travel by bus between the School and Penrith, compared to 15 minutes by car.

It is therefore recommended that more direct bus services be provided to the nearby employment areas i.e., Penrith, South Penrith, Kingswood and St Marys to reduce car usage. Likewise, a direct and convenient bus service to nearby railway stations would also facilitate working population travelling to greater Sydney area by bus and train. The pink arrows in Figure 26 show the recommended direct bus routes to nearby employment areas and railway stations.

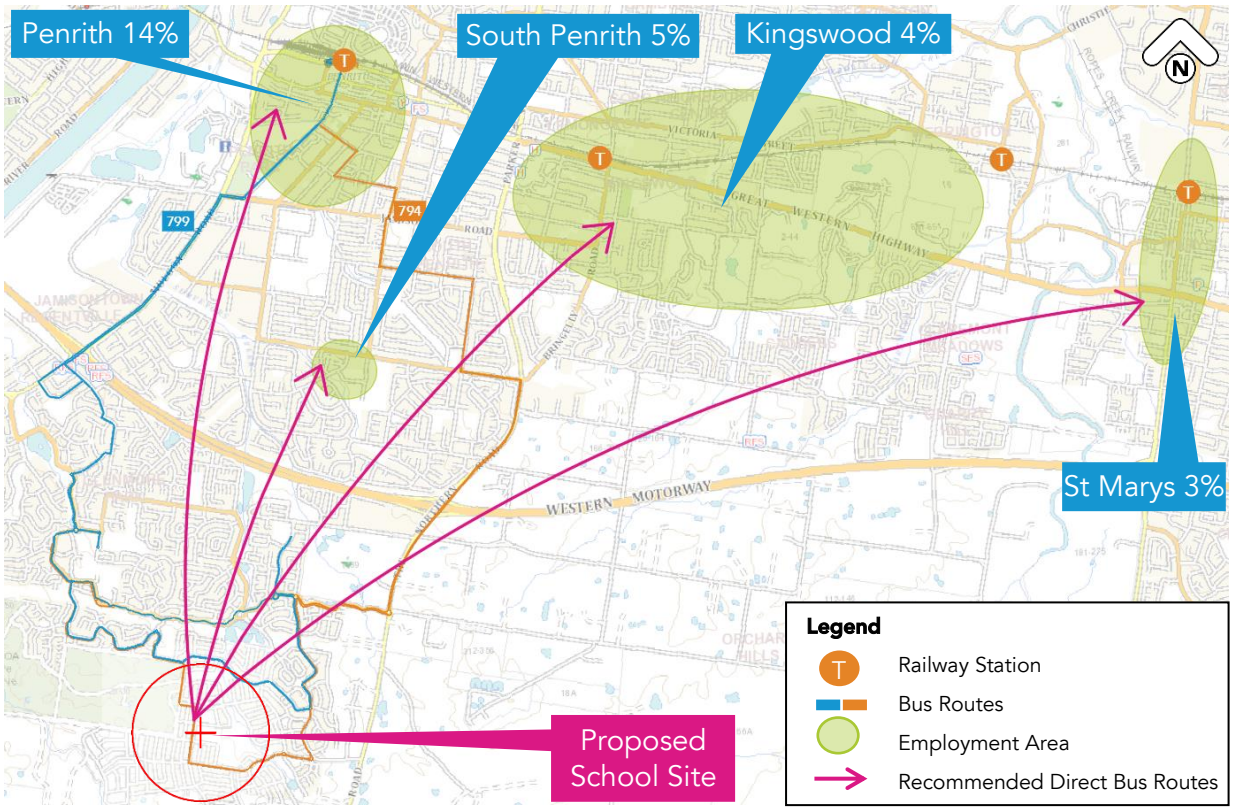


Figure 26 - Recommended Direct Bus Routes

3.3.3 Bus Stops at the School

The closest bus stops and their relation to pedestrian gates of the proposed school are shown in Figure 27.

Currently, there is no pedestrian crossing connecting the school with the bus stop located on the western side of Darug Avenue.

Figure 27 - Nearest Bus Stops

3.3.4 Bus Services

Bus services, including coverage, approximate operation times and frequency during school peak hours are presented in Table 1.

Table 1 - Bus Service Summary (Source: Transport NSW)

Bus Route	Coverage	Bus Stop	Morning Peak	Bus Stop	Afternoon Peak
794	Penrith to Glenmore Park via The Northern Road	A	7:57, 8:35, 9:27	A	14:34, 15:47, 16:17
	Glenmore Park to Penrith via The Northern Road	B	7:51, 8:18, 8:54, 9:42	B	13:46, 15:07, 16:10

Considering potential school bell times at 8:50am in the morning and 2:50pm in the afternoon, the 794 bus timetable does not provide convenient services for students, parents or staff. Additional bus services would be required to provide an attractive alternative mode of transport.

As a way of determining a convenient timetable, the following has been considered:

- In the morning:
    - Students need to arrive at the school bus stop before the morning bell time with sufficient time for offboarding and approaching the school. With a bell time at 8:50am, the buses from both northwest and east should arrive at approximately 8:40am.
    - Parents can either continue on the same bus to go to their employment location or disembark the bus and accompany their child to school. In the latter case, parents need to be able to catch a bus as part of their onward journey following child's drop-off. This means that a bus departing the school needs to be made available approximately 10-15 minutes after the arrival of the first bus.
    - The above is visualised in Figure 28.

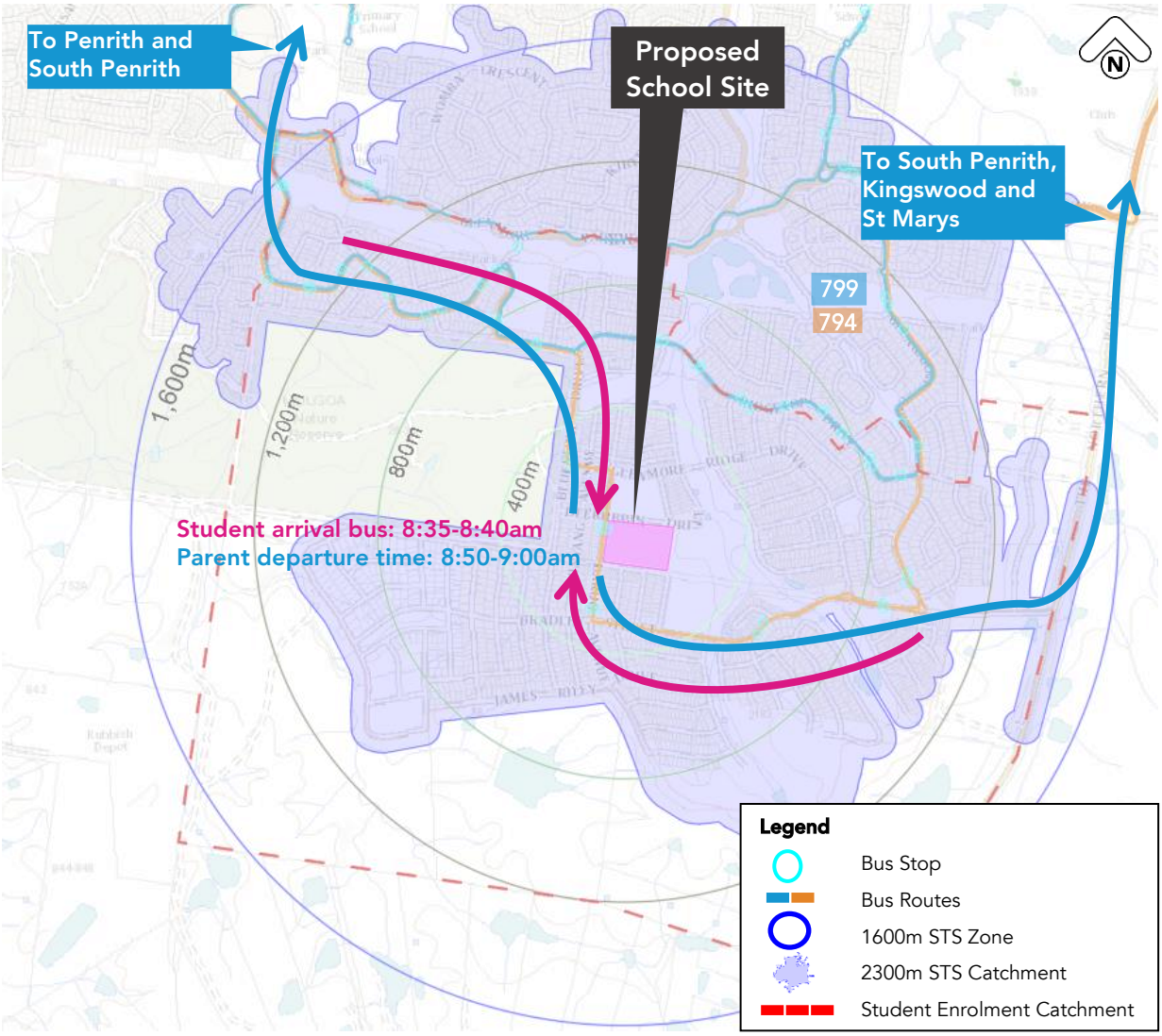


Figure 28 - Proposed Bus Arrival / Departure Times – AM

- In the afternoon:
    - Parents need to be able to arrive at the school prior to or at the bell time.
    - A bus needs to leave the school bus stop with sufficient buffer for students to leave the school, while taking in consideration the age of the prospective students.
    - The above is visualised in Figure 29.

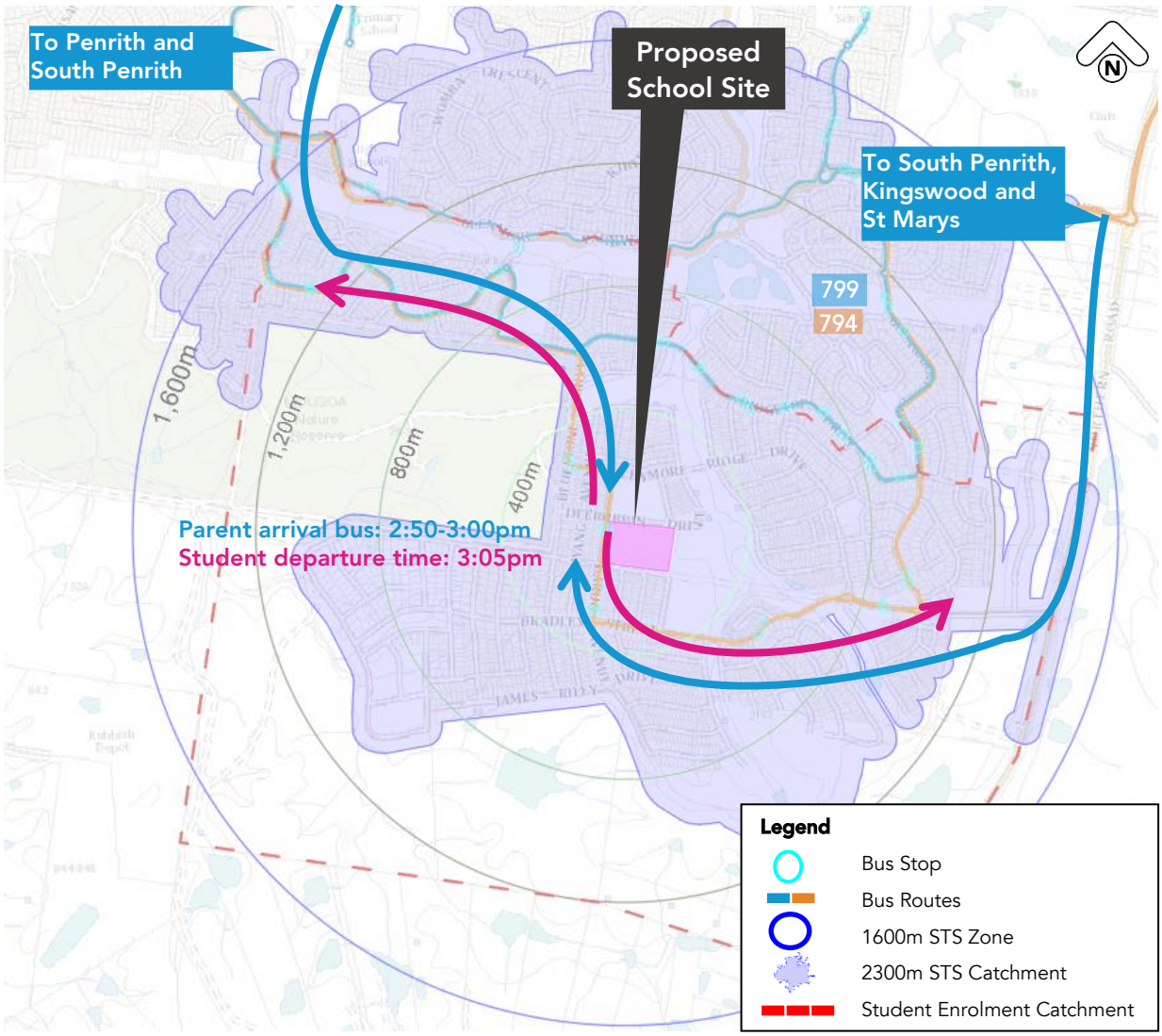


Figure 29 - Proposed Bus Arrival / Departure Times – PM

In addition to the above considerations, additional services should be provided to enable parent onward journey for students attending OSHC.

A recommended bus timetable for an 8:50am and 2:50pm bell times is illustrated in Table 2.

Table 2 - Recommended Bus Services

Coverage	Bus Stop	Morning Peak	Bus Stop	Afternoon Peak
Glenmore Park to / from: Penrith South Penrith Kingswood St Marys	A	**OSHC Services** 7:35-7:40 – arrival bus for students residing east of the school, 7:50-8:00 – departure time for parents who wish to accompany their child to school **School Services** 8:35-8:40 – arrival bus for students residing east of the school, 8:50-9:00 – departure time for parents who wish to accompany their child to school	A	**School Services** 2:50-3:00 – arrival bus for parents, 3:05 – departure bus for students residing northwest of the school **OSHC Services** 3:50-4:00 – arrival bus for parents, 4:05 – departure bus for students residing northwest of the school 4:50-5:00 – arrival bus for parents, 5:05 – departure bus for students residing northwest of the school 5:50-6:00 – arrival bus for parents, 6:05 – departure bus for students residing northwest of the school
	B	**OSHC Services** 7:35-7:40 – arrival bus for students residing northwest of the school, 7:50-8:00 – departure time for parents who wish to accompany their child to school **School Services** 8:35-8:40 – arrival bus for students residing northwest of the school, 8:50-9:00 – departure time for parents who wish to accompany their child to school	B	**School Services** 2:50-3:00 – arrival bus for parents, 3:05 – departure bus for students residing east of the school **OSHC Services** 3:50-4:00 – arrival bus for parents, 4:05 – departure bus for students residing northwest of the school 4:50-5:00 – arrival bus for parents, 5:05 – departure bus for students residing northwest of the school 5:50-6:00 – arrival bus for parents, 6:05 – departure bus for students residing northwest of the school

3.4 Road Network

The subject site is located in the suburb of Glenmore Park and is primary serviced by local roads including Deerubbin Drive to the north, Forestwood Drive to the south and Darug Avenue to the west.

A summary of the State, Regional and Council managed local roads serving the site is presented in Figure 30 and the following tables.

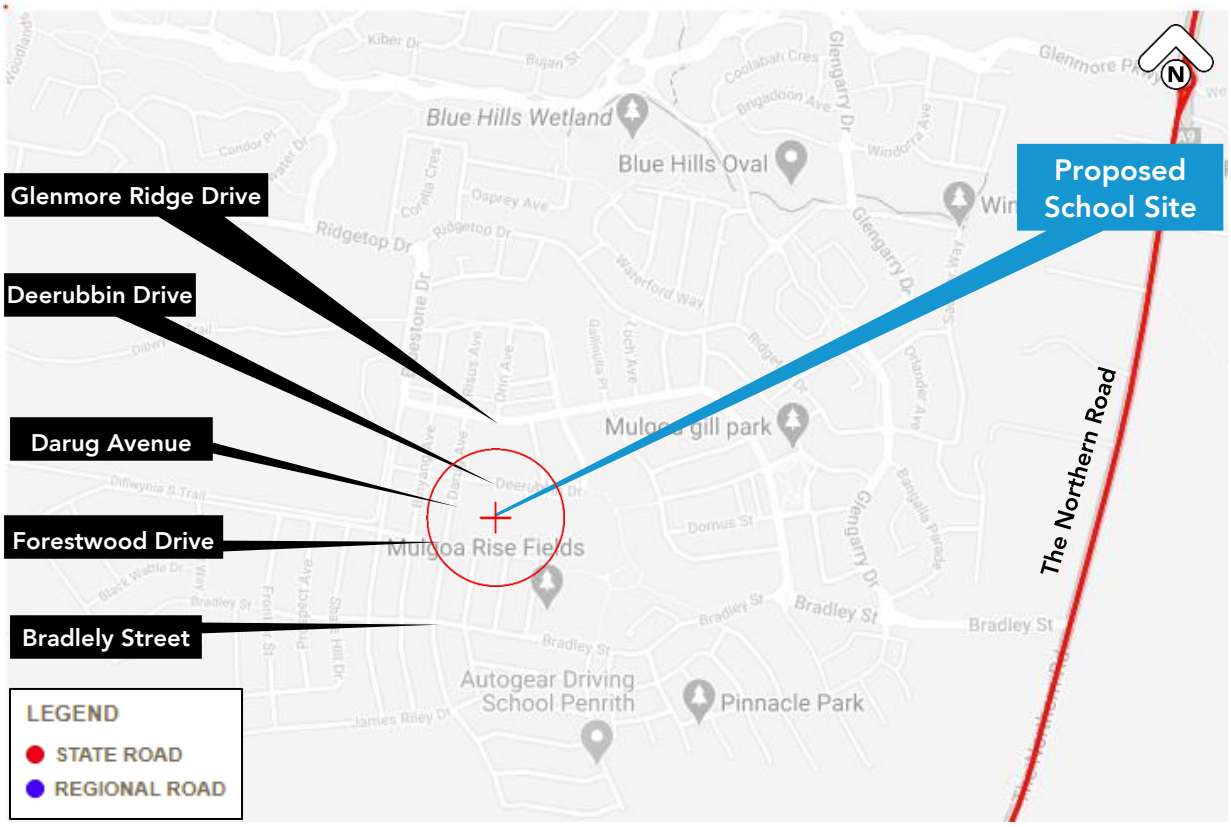


Figure 30 - Surrounding Road Network (Source: RMS Road Hierarchy)

The NSW administrative road hierarchy comprises the following road classifications, which align with the generic road hierarchy as follows:

State Roads - Freeways and Primary Arterials (RMS managed)

Regional Roads - Secondary or Sub Arterials (Council managed, partly funded by the State)

Local Roads - Collector and Local Access Roads (Council managed)

Table 3 - The Northern Road

The Northern Road	
Road Classification	State Road
Alignment	North-South
Number of Lanes	Varies, typically 1 lane in each direction. Road widens to 3 lanes southbound and 2 lanes northbound in the vicinity of the site
Carriageway Type	Undivided
Carriageway Width	Varies, typically 15m in section with 1lane in each direction. Approximately 21m in widest section near the vicinity of the site
Speed Limit	80km/h
School Zone	No
Parking Controls	No parking
Forms Site Frontage	No

Figure 31 - The Northern Road – Southbound towards Bradley Street

Table 4 - Glenmore Ridge Drive

Glenmore Ridge Drive	
Road Classification	Collector Road
Alignment	East-West in the vicinity of the site
Number of Lanes	1 lane in each direction
Carriageway Type	Undivided
Carriageway Width	12m
Speed Limit	50km/h
School Zone	No
Parking Controls	Unrestricted Parking
Forms Site Frontage	No

Figure 32 - Glenmore Ridge Drive – Westbound towards Darug Avenue

Table 5 - Bradley Street

Bradley Street	
Road Classification	Collector Road
Alignment	East - West
Number of Lanes	1 lane in each direction
Carriageway Type	Undivided
Carriageway Width	12m
Speed Limit	50km/h
School Zone	No
Parking Controls	Unrestricted
Forms Site Frontage	No

Figure 33 - Bradley Street – Westbound towards Parkway Avenue

Table 6 - Darug Aveneu

Darug Avenue	
Road Classification	Local Road
Alignment	North - South
Number of Lanes	1 lane in each direction
Carriageway Type	Undivided
Carriageway Width	12m
Speed Limit	50km/h
School Zone	No, but will be in the future
Parking Controls	Unrestricted
Forms Site Frontage	Yes

Figure 34 - Darug Avenue – Southbound towards Forestwood Drive

Table 7 - Deerubbin Drive

Deerubbin Drive	
Road Classification	Local Road
Alignment	East - West
Number of Lanes	1 lane in each direction
Carriageway Type	Undivided
Carriageway Width	12m
Speed Limit	50km/h
School Zone	No, but will be in the future
Parking Controls	Unrestricted
Forms Site Frontage	Yes

Figure 35 - Deerubin Drive – Westbound towards Darug Avenue

Table 8 - Forestwood Drive

Forestwood Drive	
Road Classification	Local Road
Alignment	East - West
Number of Lanes	1 lane in each direction
Carriageway Type	Undivided
Carriageway Width	11m
Speed Limit	50km/h
School Zone	No, but will be in the future
Parking Controls	Unrestricted
Forms Site Frontage	Yes

Figure 36 - Forestwood Drive – Eastbound towards Yerrang Avenue

4. Travel Patterns and Travel Demand

4.1 Transport Base Line

The proposed development is a new school in a still developing suburb, hence no surveys have been undertaken to determine current travel patterns. Therefore, an analysis of the Journey to Work data has been undertaken.

Based on the Australian Bureau of Statistics Journey to Work Data, 85% of people residing in Glenmore Park area drive to work, 11% travel on public transport and 1% use active transport.

Out of all residents travelling from the Glenmore Park area to work, 14% travel to Penrith, 5% to Sydney CBD, 5% to South Penrith, 4% to Kingswood and 3% to St Marys, as visualised in Figure 37.

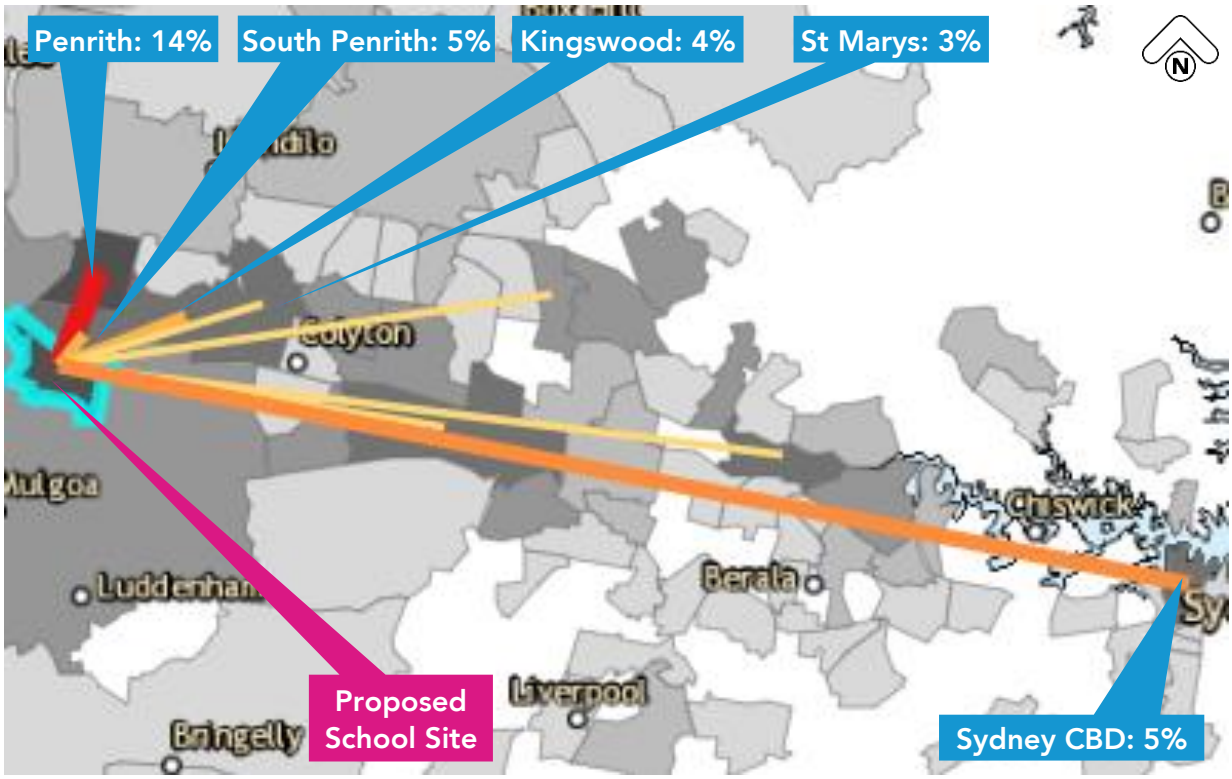


Figure 37 - Journey to Work from Glenmore Park Area

4.2 Potential Achievements

This section presents potential walking, cycling, public transport and car utilisation in an ideal scenario, where everybody would utilise only alternative transport modes.

4.2.1 Walking

"As crow flies" and actual 400 / 800 / 1200m walking catchments are presented in Figure 38.

Within the enrolment catchment, 14% of students reside within the 400m walking catchment, 21% within the 401m - 800m catchment and 40% within the 801m - 1200m catchment.

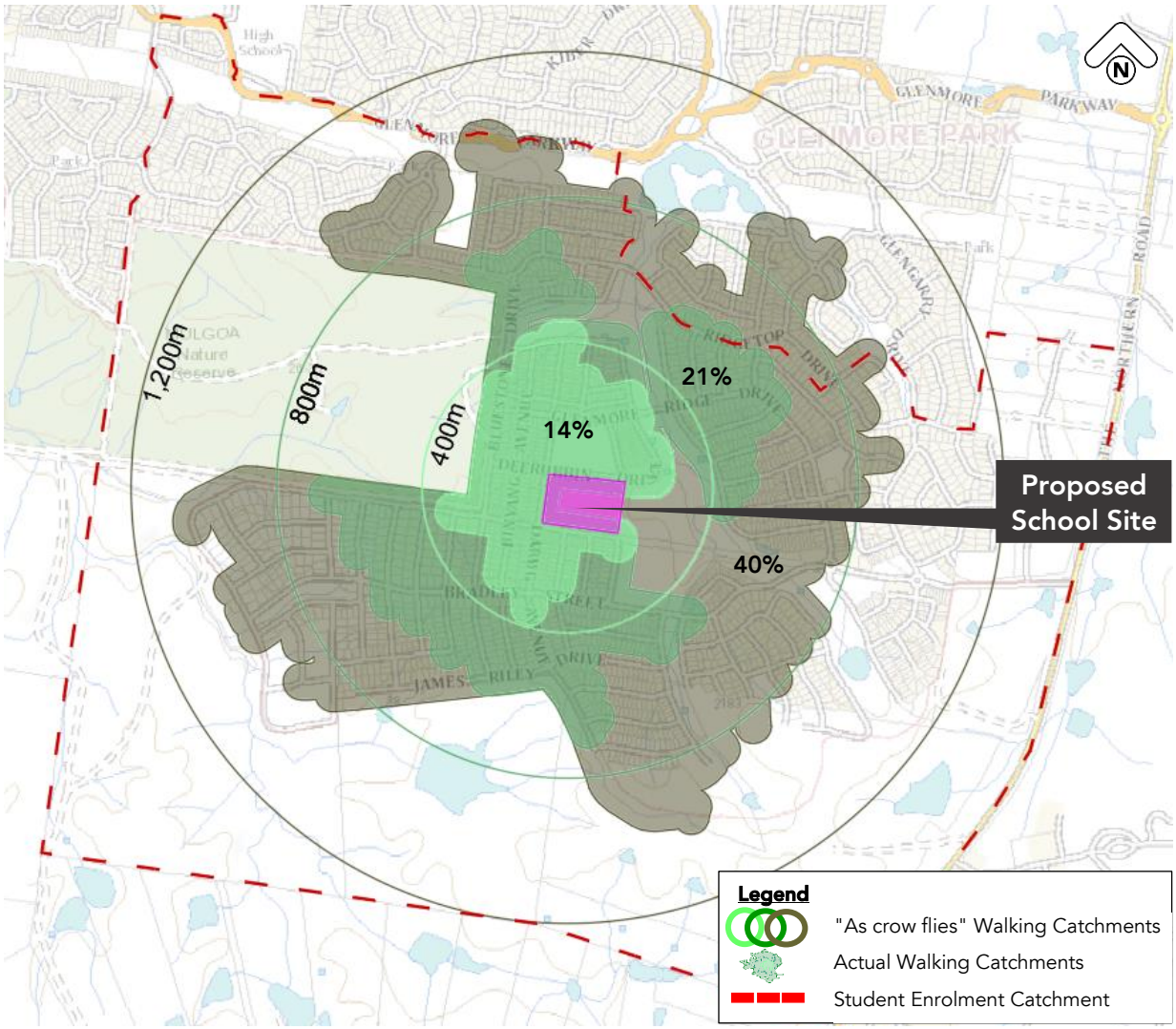


Figure 38 - Walking Catchment and Student Population

4.2.2 Cycling

"As crow flies" and actual 1200m / 2400 cycling catchments are presented in Figure 39.

Within the enrolment catchment, 75% students reside within the 1200m walking / cycling catchment and 25% students reside within the 1201m - 2400m cycling catchment.

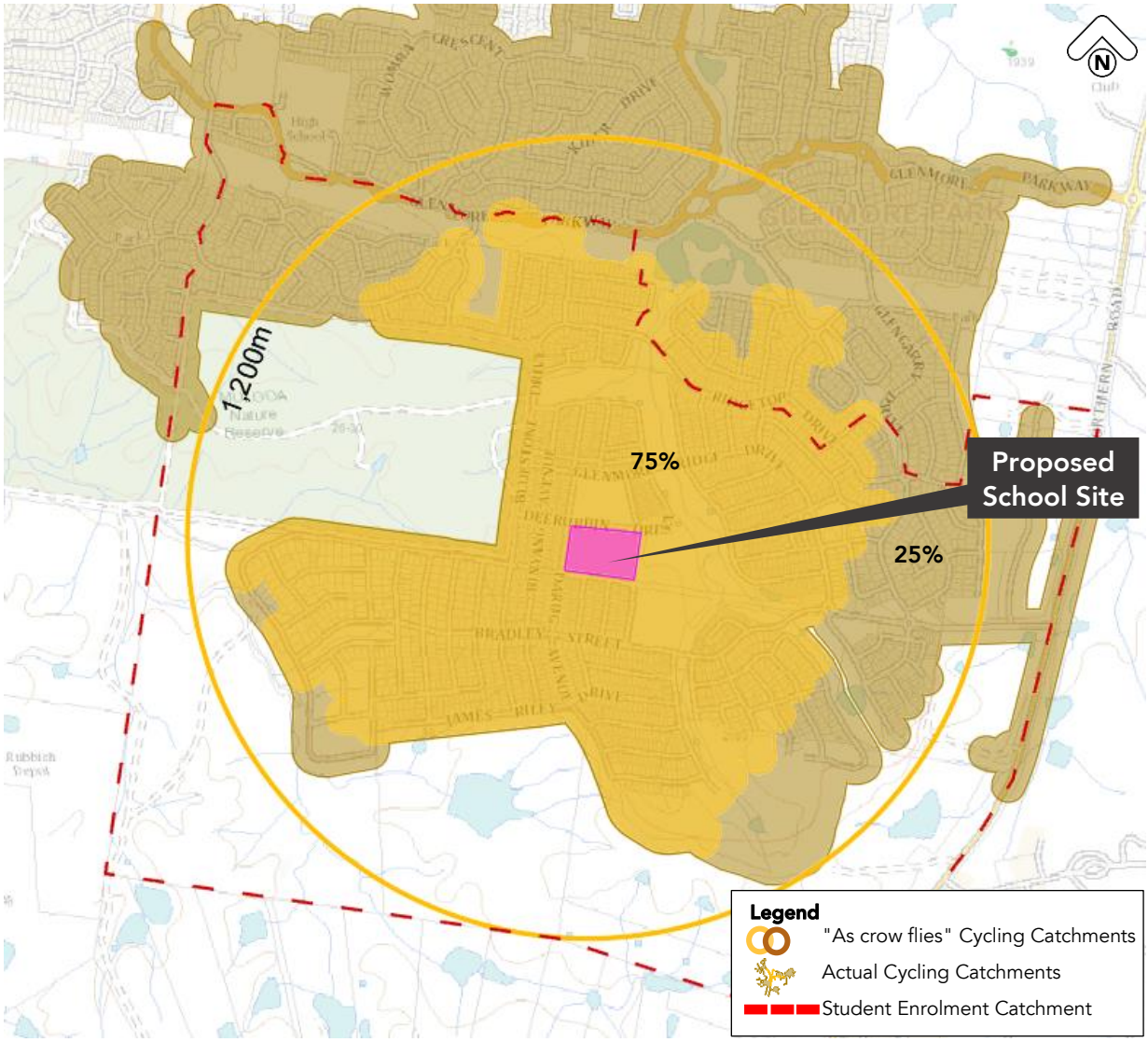


Figure 39 - Cycling Catchment and Student Population

4.2.3 Public Transport

"As crow flies" 1600m and actual 2300m SSTS exclusion zones are presented in Figure 40.

All students live within the SSTS exclusion zone and therefore, no students are eligible for a free or discounted bus pass. However, it is possible that some students may take the bus. Figure 40 shows that 27% of students living north and 27% students living east of the school reside within a 400m walking catchment from bus stops.

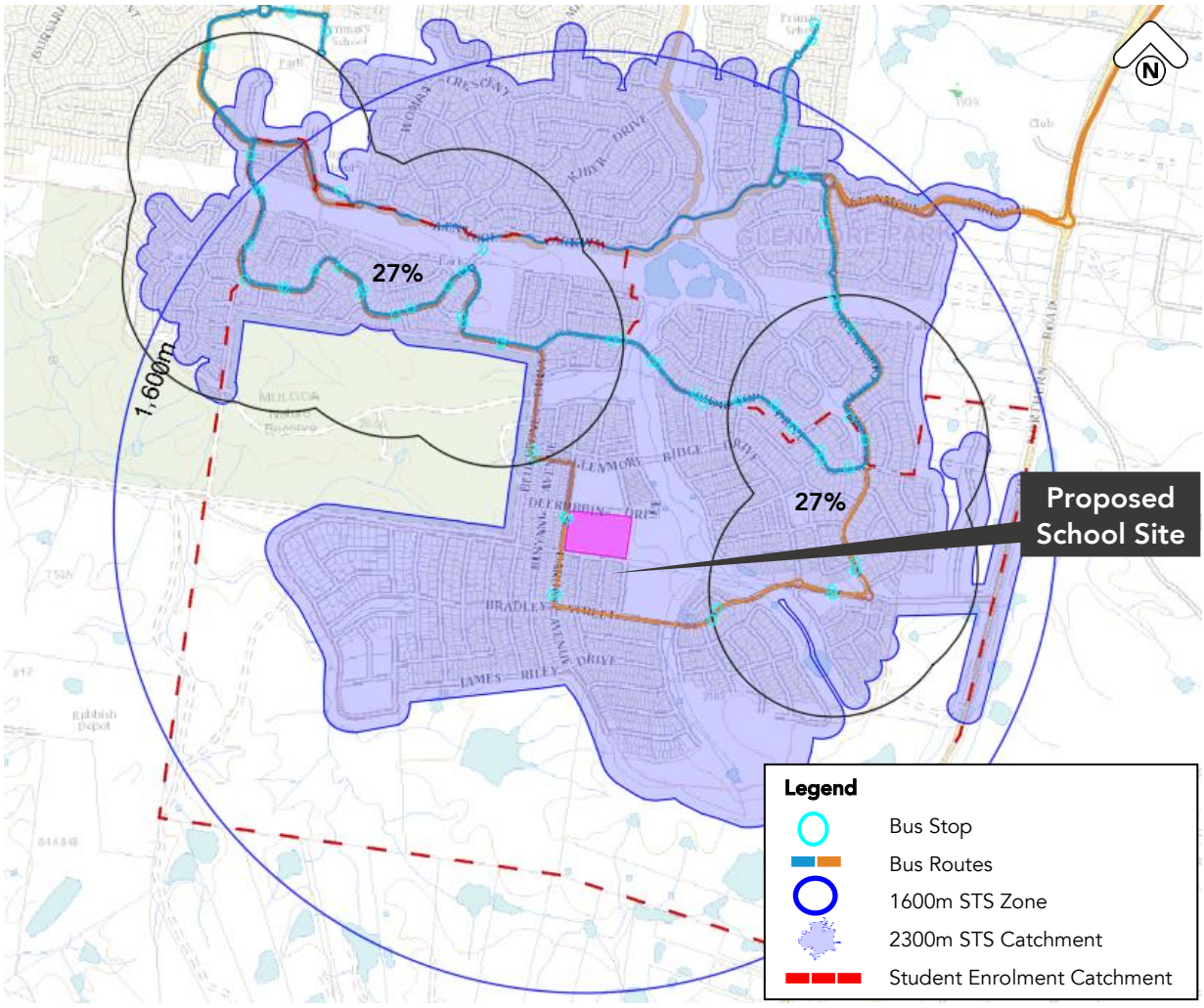


Figure 40 - Public Transport Catchment and Student Population

4.2.4 Summary

Table 9 - Potential Transport Mode

Catchment Analysis	Actual (on path / using road network as a proxy)	
	#	%
1 - 400m (5-min walk)	58	14%
401 - 800m (10-min walk)	87	21%
801 - 1200m (15-min walk)	166	40%
1 - 1200m (Walking)	311	75%
1201 - 2400m (Cycling)	103	25%
1 - 1600m / 2300m (excl. from SSTS Primary)	414	100%
# inside SSTS zone, with PT option	224	54%
OSHC placements	Yet to be decided	
Total student enrolments	**414**	

5. School Transport Scenarios

This section presents a discussion on the required and provided / proposed transport facilities for three different school transport scenarios based on mode share utilisation:

- Base case scenario shows provision requirements for mode share utilisation based on the transport base line discussed in Section 5.1, in which data obtained through Journey to Work was used.
- Moderate / target scenario discusses measures proposed by the project, which are expected to lead to a reduction in car usage and an increase in alternative mode shares compared to the base case scenario.
- Ideal scenario outlines provision requirements for if all students were to use alternative transport modes.

5.1 Base Case Scenario

Considering that the proposed development is for a new school, existing travel characteristic could not be obtained through surveys. Therefore, Journey to Work data was analysed which shows that in the suburb of Glenmore Park 85% of people travel to work by car.

An analysis based on Poisson distribution has been conducted to determine potential provision requirement for pick-up and drop-off for if 85% of students were driven to / from school. The following parameters have been adopted:

- 30 minutes interval for pick-up and drop-off[1] - reflects the peak time interval over which pick-up/drop-off activity occurs for a typical school
- 30 seconds dwell time for drop-off[2]
- 210 seconds dwell time for pick-up[2] - The shorter service time in the AM peak is due to the fact that drop-off activity is usually shorter in duration than the afternoon pick-up activities where parents need to stop temporarily to wait for their child.
- Car occupancy of 1.2 students/car[3] - to determine the number of vehicles travelling to/from the site. This number varies significantly based on school's accessibility and cultural influences, with the occupancy ranging between 1.2 - 2 students per car.

Table 10 shows the pick-up and drop-off space requirement for the base case scenario.

Table 10 - Pick-up and Drop-off Queuing Analysis for Base Case Scenario

Total Number of students	Vehicle Utilisation	Number of students being driven	Car Occupancy	Number of Vehicles Arriving	Poisson Distribution - Modelled No of Spaces (Length)
414	85%	352	1.2	293	50 (300m)

[1] Assumption based on ptc.'s past experience and site observations of school pick-up/drop-off areas.

[2] Approximate dwell time taken for a vehicle to pull into a bay, drop-off or pick-up the student and drive away (based on past experience and observation).

[3] Based on previous travel surveys undertaken at public primary schools

With no improvements to the nearby infrastructure and facilities, the development would likely require 50 car spaces to accommodate the pick-up and drop-off activities.

The School site frontage roads are able to accommodate 64 cars in total as shown in Figure 41.

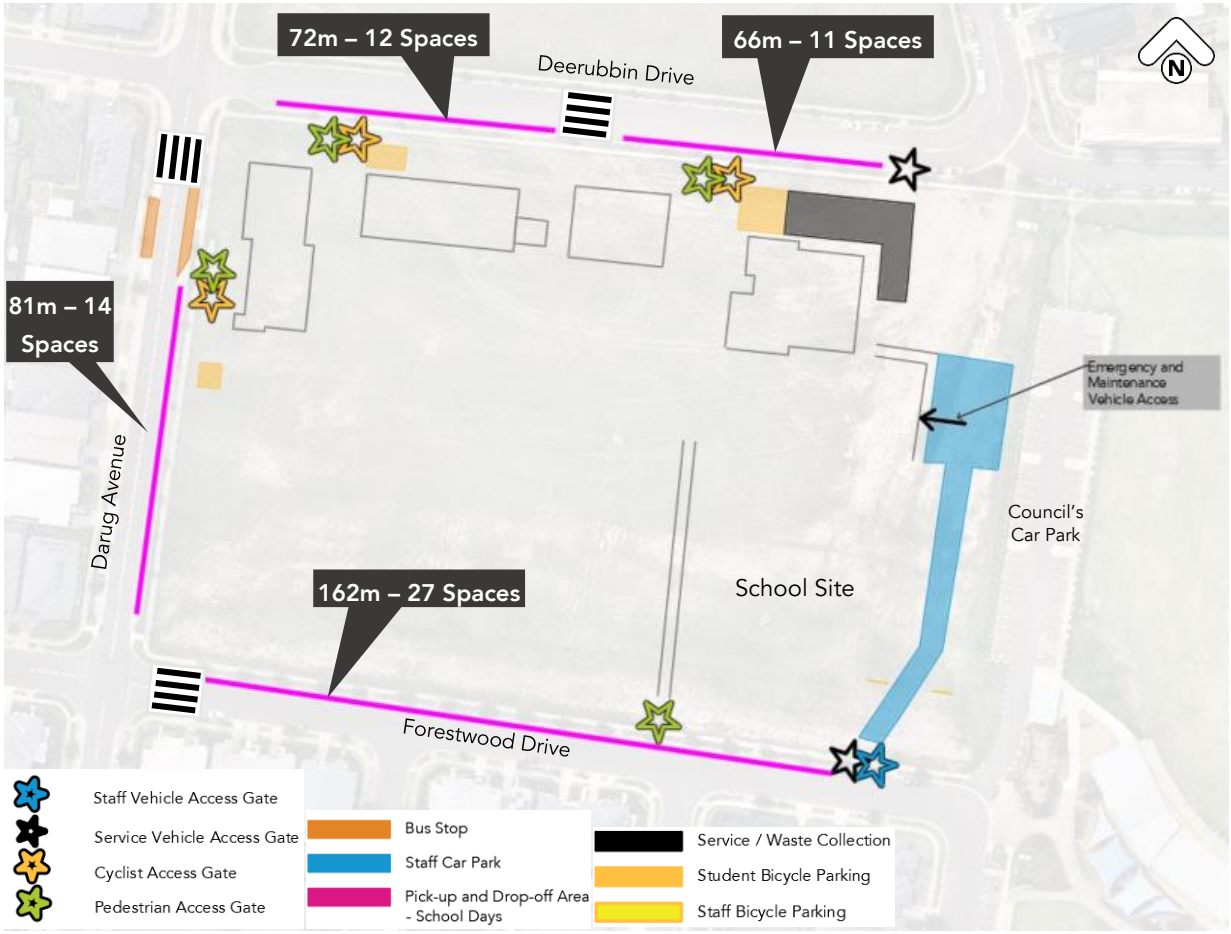


Figure 41 - Pick-up and Drop-off Requirement for Base Case Scenario

5.2 Moderate / Target Scenario

As part of the development of the proposed school various measures have been considered and implemented to enable better active and public transport utilisation.

The proposed site layout and facilities plan of the School is illustrated in Figure 42.

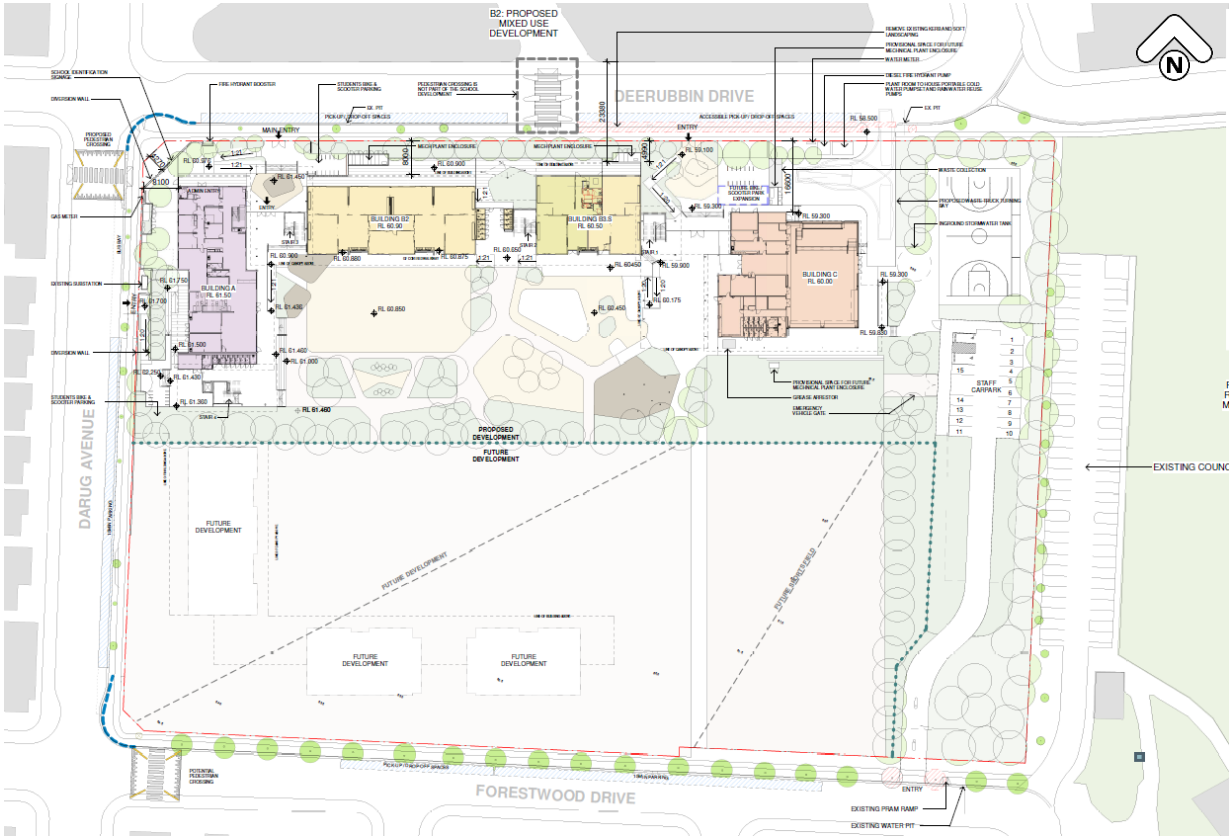


Figure 42 - Development Proposal Site Plan (Source: NBRS)

The physical measures and their potential impact on travel behaviours are discussed in detail in the following sections. Operational measures are discussed in the School Transport Plan.

5.2.1 Bell Times

Ideally, bell times of neighbouring schools would be offset to distribute traffic demand. Therefore, an analysis of the start and finish times of the nearby primary schools has been undertaken and a bell time for the new School has been proposed, as shown in Figure 43.

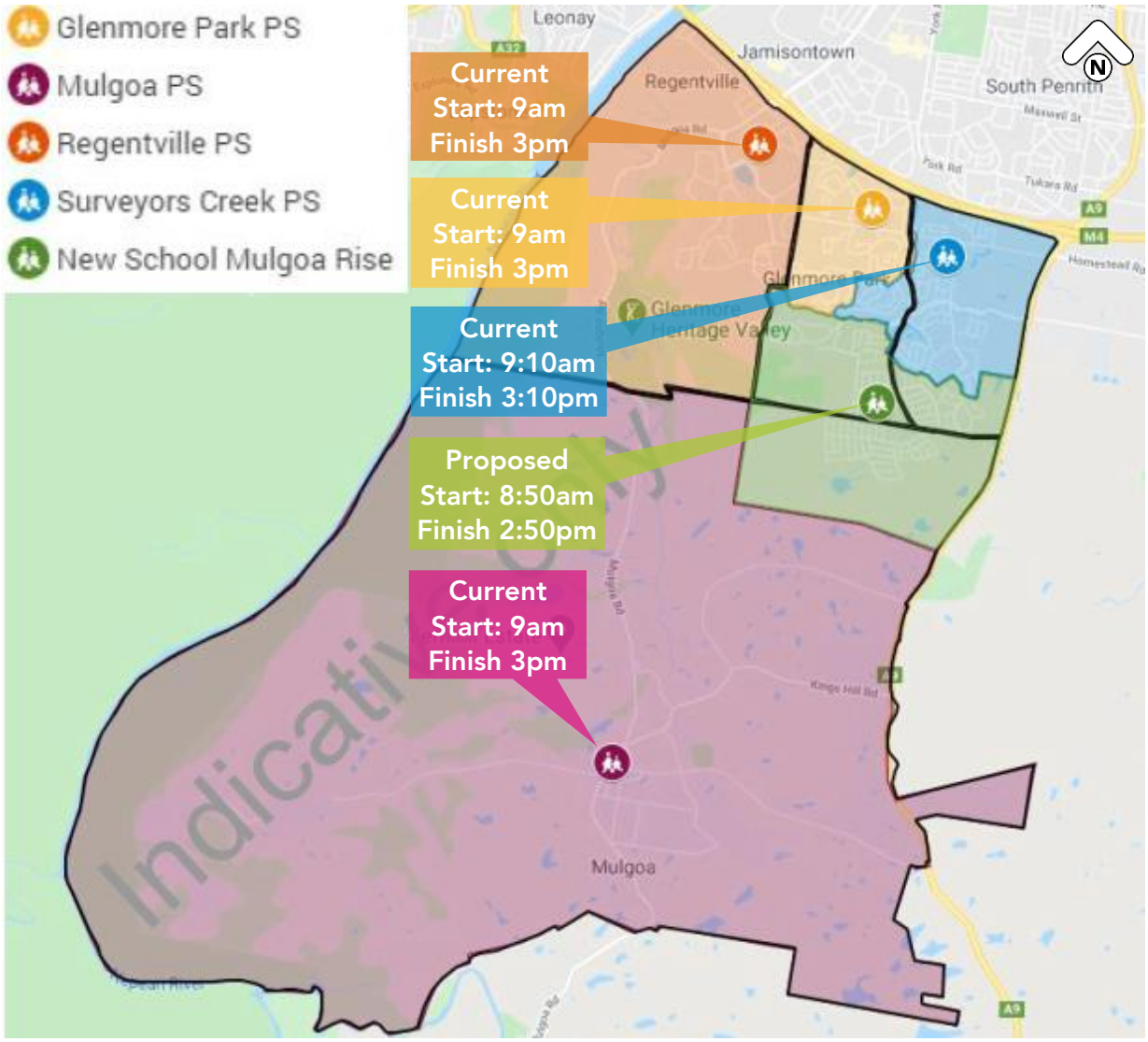


Figure 43 - Existing and Proposed Bell Times

5.2.2 Pedestrian Infrastructure

Zebra crossings on all frontage roads are seen as required to increase student safety. The project is proposing to provide zebra crossings on Darug Avenue and Forestwood Drive while understanding that the mixed-use development will be providing a zebra crossing on Deerubbin Drive. The following considerations have been made:

- Zebra crossings should be provided on all approaches to enable walking and cycling from each direction.
- The northern crossing is aligned with the main access to the mixed-use development to the north of the school, and this is the preferred path for students living north of the school. This is because it is deemed

more convenient and safer for students to walk within a pedestrianised area rather than along a footpath which features access to a loading dock (refer to Figure 44).

- The northern crossing point has already been approved / conditioned as part of the mixed-use development; the type of facility that will be provided is unclear. Ideally, this crossing should be built as a zebra crossing, hence the project is in communication with the developer and Council to ensure that the best possible facility will be provided.
- The western crossing provides access for students and parents to / from the bus stop located on the western side of Darug Avenue and for students residing west and southwest from the school by foot / on bicycles. In addition, the amenity will act as a traffic calming device, which is particularly beneficial along the main road.
- The southern zebra crossing enables access for students coming from the south and southwest. This crossing is required because Forestwood Avenue will be used for pick-up and drop-off and as access to the car park.
- Multiple pedestrian gates have been implemented to provide access for students arriving from all directions.

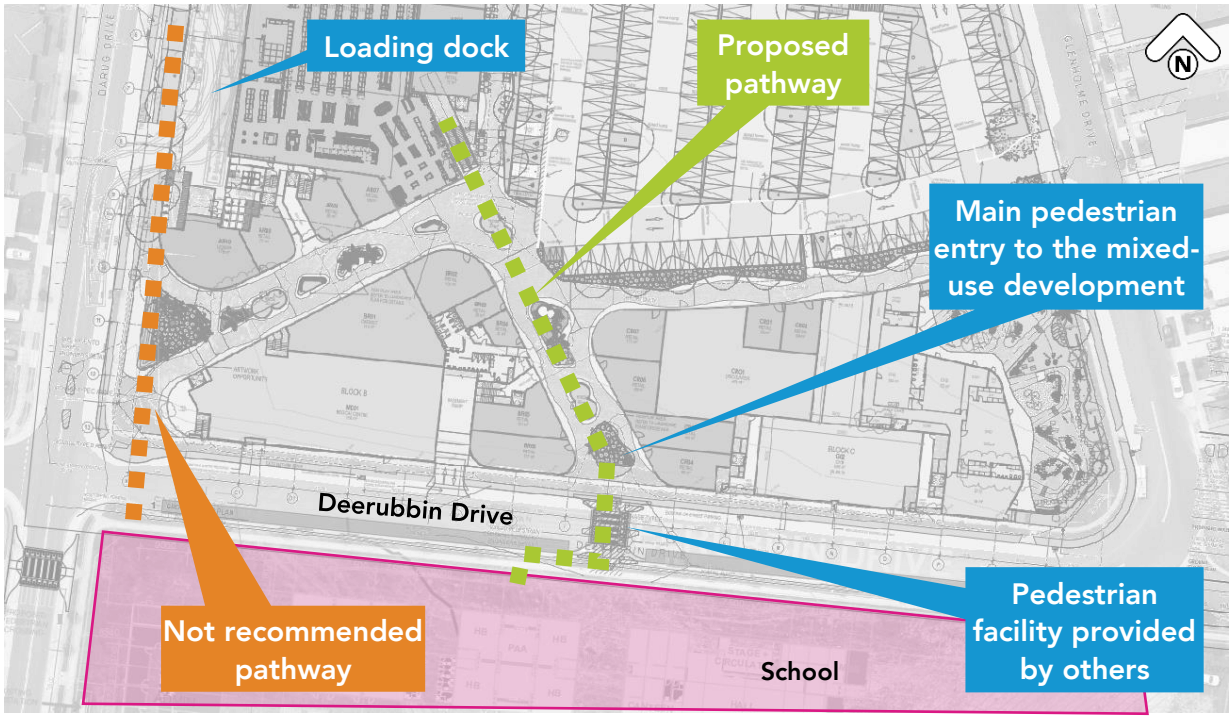


Figure 44 - Northern Crossing – Considerations

5.2.3 Bicycle and End of Trip Facilities

The development proposes to provide 64 bicycle spaces and 80 scooter spaces for students, which accounts for 15.5% and 19.3% of students respectively 9. The racks have been distributed between three access points: the two entries off Deerubbin Avenue and one off Darug Avenue, refer to Figure 45 for the numerical distribution and to Figure 42 for the location.

The site has been designed to allow space for additional bike / scooter spaces for potential demand growth in the future.

The development also proposes to provide enclosed bicycle parking spaces for staff; A shower and a change room are provided in close proximity to the staff room. Lockers are provided within the staff room.

Location	Bike Racks (2 bikes per rack)	Scooter Racks (10 scooter per racks)	Total No of racks
Darug Ave	8 racks	2 racks	10 racks
Deerubbin Drv (Main Entry)	12 racks	4 racks	16 racks
Deerubbin Drv (After Hour Entry)	12 racks	2 racks	14 racks
	32 racks (64 bikes)	**8 racks (80 Scooters)**	**40 racks**

Figure 45 - Bicycle and Scooter Rack Distribution (Source: NBRS Architecture)

5.2.4 Public Transport

As discussed in Section 3.3, the proposed School site is currently serviced by 1 bus route only (794 bus route) and the existing bus timetables do not align with school peaks. It is proposed that additional bus services are provided along the nearby bus stops (bus stop A and B as shown in Figure 46) along Darug Avenue so that parents can accompany their children to School and continue on a bus to their place of work.

As part of improving the potential public transport utilisation by the school community, the project is proposing measures described in the following subsections.

5.2.4.1. Public Transport Facilities

There are two bus stops located along Darug Avenue, as shown in Figure 46. The project is proposing to provide a zebra crossing across Darug Avenue to enable safer access to bus stop A.

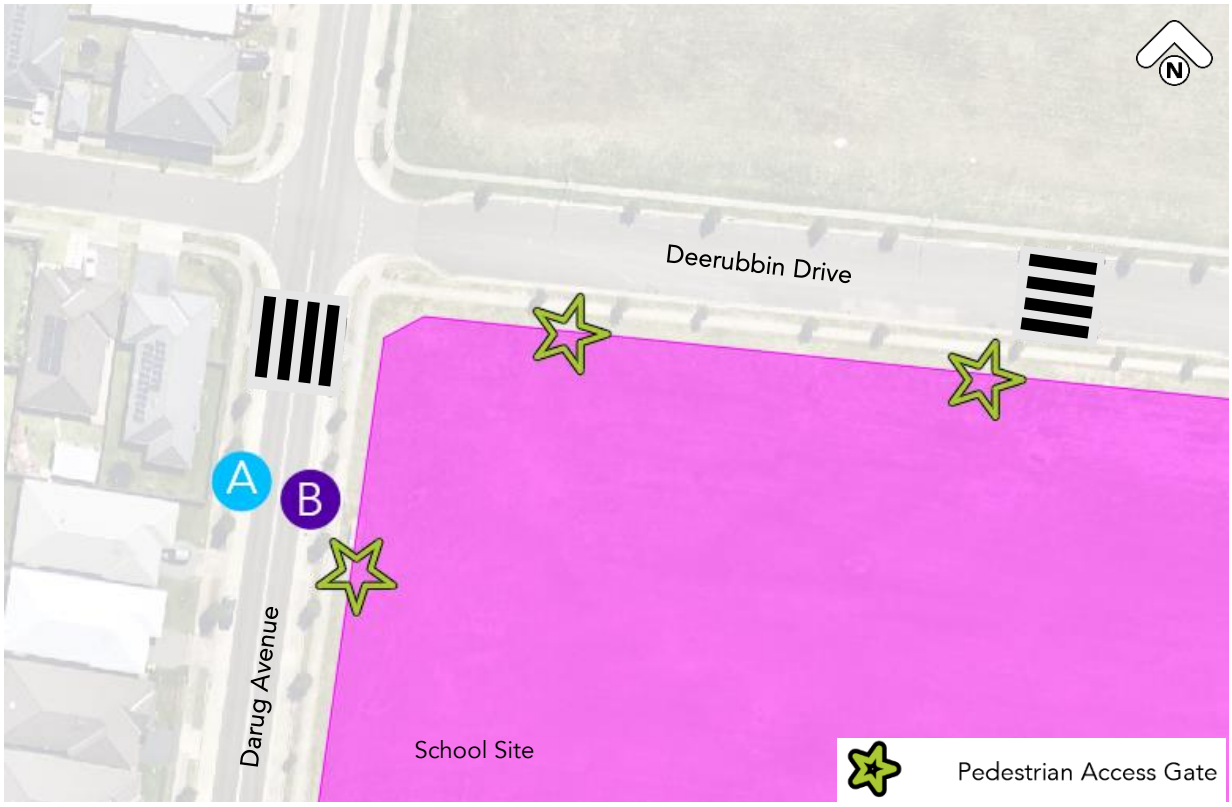


Figure 46 - Nearby Bus Stops

5.2.4.2. Bus Routes and Services

Upon discussion with the Service Planer from TfNSW, it is proposed to amend the bus route 799 to service the school as shown in Figure 47. This will provide additional services for students residing in the black circled area, and additional connectivity for the parent onward journey towards Penrith.

Bus service times will also be amended to suit the proposed bell times at 8:50am and 2:50pm.

It is noted that changes to the bus routes and service times and by offsetting the bell time of this proposed school by 10 minutes in relation to the Regentville PS, the buses will be able to service parents from both schools.

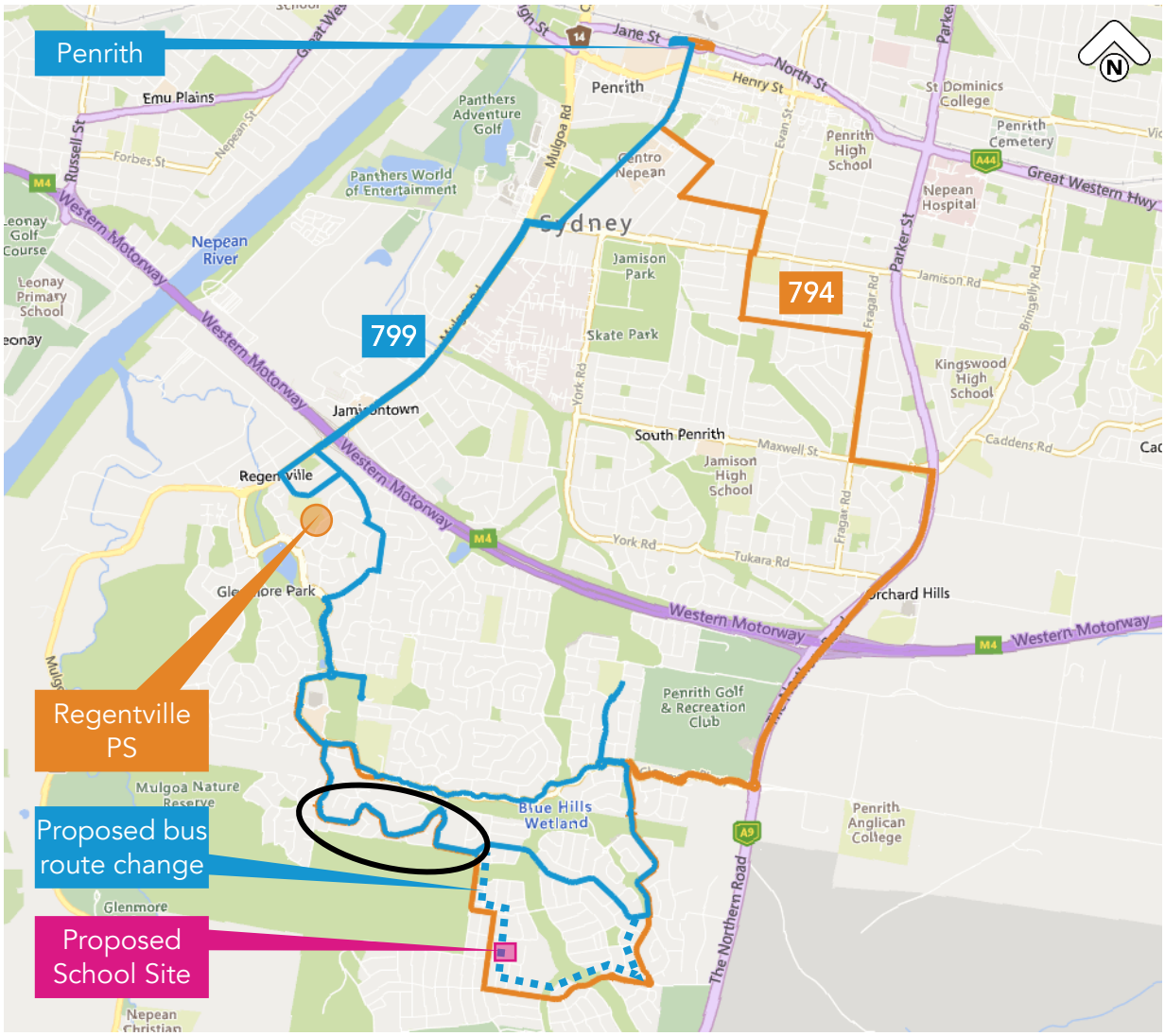


Figure 47 - Proposed Bus Route Change

5.2.5 Pick-up and Drop-off Location

The following considerations have been made regarding the pick-up and drop-off locations:

- It is important to provide convenient and sufficient pick-up and drop-off facilities, as otherwise carers may undertake illegal manoeuvres (double parking for example) or stop across the road of the school, thus making the students cross the road in non-dedicated locations.
- It is not ideal to locate the general pick-up and drop-off along a main road as there would be increased activity along this road, which can potentially lead to conflicts with through traffic and buses.
- It is beneficial to disperse the pick-up and drop-off location to reduce the number of vehicles arriving / leaving at the same time in a concentrated area. Considering the residence of students within the enrolment catchment, the following has been considered:
    - For those living to the north of the school it is proposed to provide the pick-up and drop-off on the northern side of the school along Deerubbin Avenue (refer to the orange lines in Figure 48).
    - For those living south of the school it is more convenient to pick-up / drop-off on the southern side of the school, as otherwise they would need to loop around the mixed-use development or park illegally (refer to the yellow lines in Figure 48).

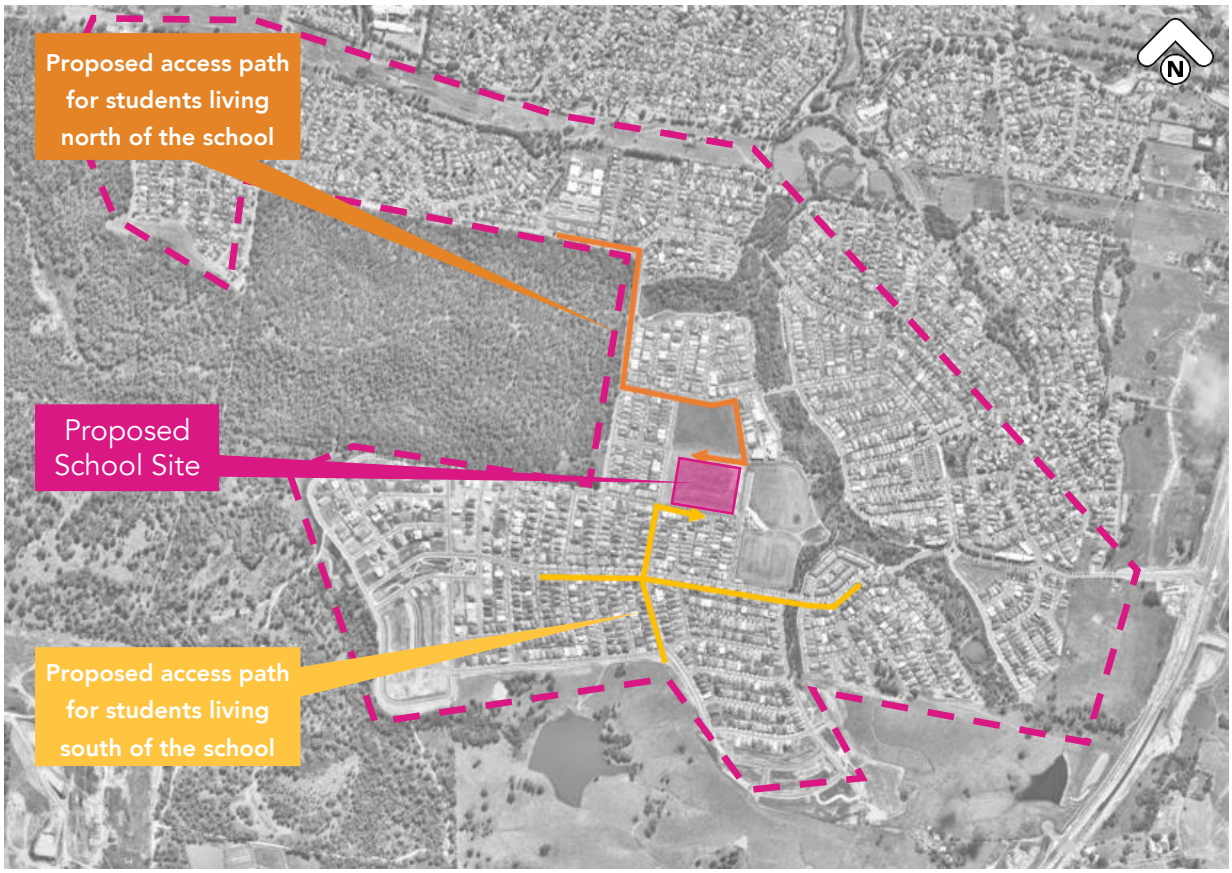


Figure 48 - Pick-up and Drop-off Distribution

- Based on the above considerations, it is proposed to locate the general pick-up and drop-off along Deerubbin Drive west of the zebra crossing and along Forestwood Drive starting at the pedestrian entry gate, as shown in Figure 59.
- The SUH pick-up and drop-off has been located along Deerubbin Drive east of the zebra crossing, directly at the eastern entry gate to provide direct access to the SUH unit.
- The pick-up and drop-off for students attending the SUH units will be constructed in line with the Australian Standards as 3.2m wide parallel accessible parking spaces with pram ramps.
- Gates are generally provided at the front of a pick-up and drop-off lane. This is because parents tend to want to stop as close to an entry as possible. If a gate is located at the end of a pick-up and drop-off lane, parents often do not utilise the entire facility, thus causing congestion and potentially double park.

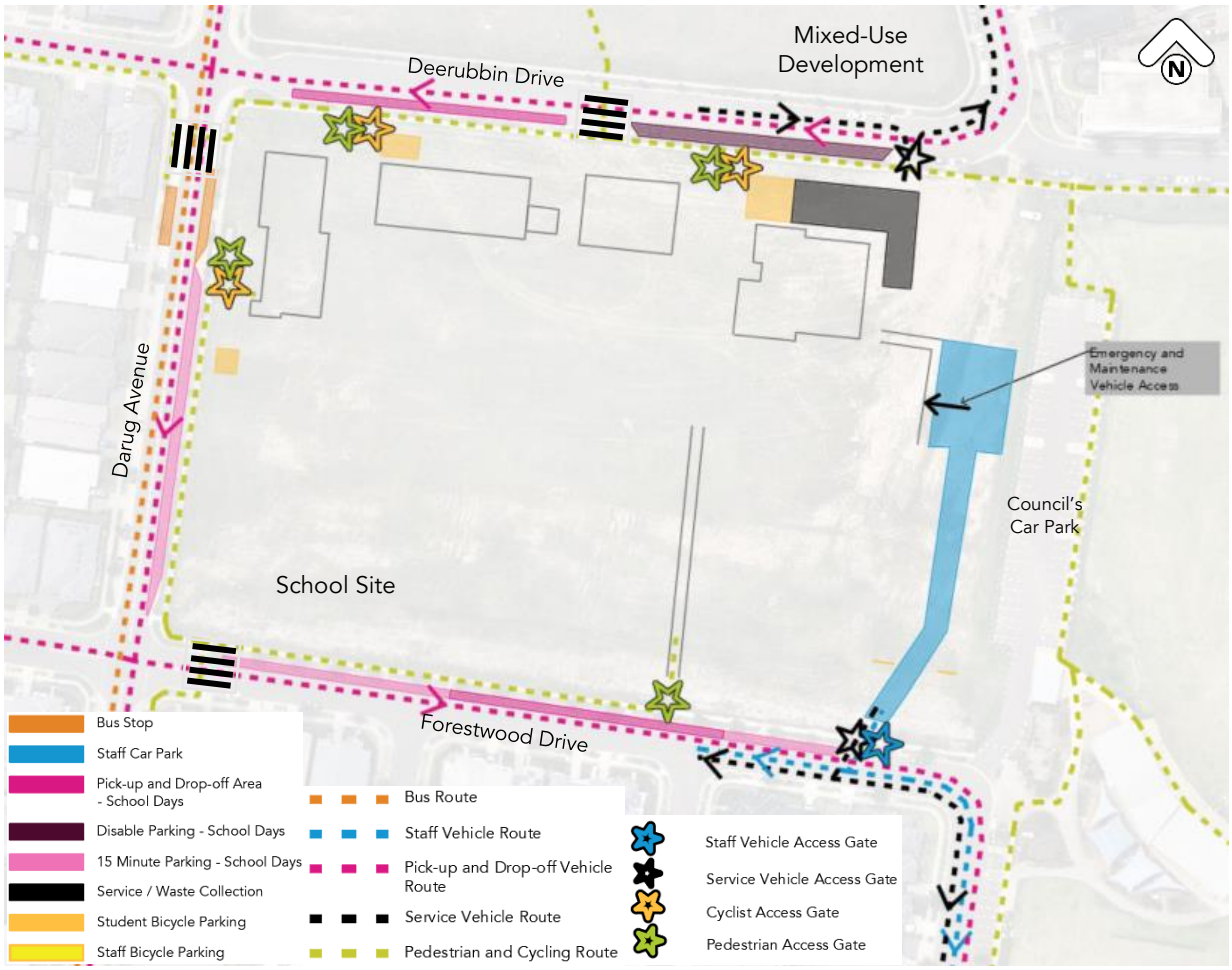


Figure 49 - School Access Plan

5.2.6 Transport Operations, Encouragement Programs and Staffing

In order to achieve higher active and public transport mode share targets, appropriate encouragement programs need to be implemented such as a "Walking Bus", "Walk to School Day", etc. These are further described in the School Transport Plan.

5.2.7 Target Travel Mode

When defining potential travel modes, the following has been taken into consideration:

- Potential achievements discussed in Section 4.2 and gaps discussed in Section 3
- Proposed infrastructure improvements and proposed active and public transport provisions / changes presented in the above sections
- Some parents will choose to drive regardless of the infrastructure and facilities provided. The further the distance between the School and the place of residence, the more likely it is that parents will drive.

The following target travel modes are proposed:

- 15% walking
- 35% cycling or scooting
- 10% taking public transport
- 40% driving

5.2.8 Pick-up and Drop-off Quantity

Based on the proposed target travel mode share and Poisson distribution assumptions made in Section 5.1, the proposed School will likely require the following number of pick-up and drop-off spaces:

Table 11 - Pick-up and Drop-off for Moderate / Target Scenario

Number of students	Vehicle Utilisation	Number of students being driven	Car Occupancy	Number of Vehicles Arriving	Poisson Distribution Modelled No of Spaces (Length)
414	40%	166	1.2	138	24 (144m)

5.3 Ideal Scenario

Based on the travel analysis shown in Section 4.2, 75% of students live within walking and 25% students within cycling catchment. Therefore, in an ideal scenario, all of these students would walk or cycle to school.

In this scenario, up to 200 bike / scooter parking spaces would be required.

No pick-up and drop-off spaces would be required.

50% of students (~200) could benefit from a bus ride; With a bus capacity of approximately 50 passengers and the potential for parents to want to accompany their children, this would require a provision of up to 8 buses.

5.4 Travel Modes – Comparison of Transport Scenarios

A comparison of the three school transport scenarios is shown in Table 12.

Table 12 - School Transport Scenario Comparison

Mode Share	Base Case		Moderate Case				Ideal Case	
	%	#	%		#		%	#
Walking	0.8%	3	15%		62		75%	311
Cycling and Scooting	0.2%	1	35%		144		25%	103
Public Transport – Bus + Train	11.4%	47	10%		41		(~50%)*	(~200)*
Private Vehicles	80.2%	332	33%	40%	137	166	-	-
Carpooling	5.2%	22	7%		29		-	-
Other	2.2%	9	-		-		-	-

* Represents students that could benefit from public transport, aslthough they live within the walking and cycling catchments.

6. Demand and Design Assessment

6.1 Planning Policies

The site is located within Penrith City Council's *Penrith Local Environment Plan 2010*. In establishing the parking provision requirements, reference is made to parking provision rates stipulated in the following planning documents:

- Penrith Development Control Plan 2014 (DCP). Part D5, Section 5.4, Control 3b) stipulates that educational establishments must be designed to ensure:
    - *i) Separate parking areas for staff and parents/students;*
    - *ii) Adequate drop off/pick up zones, separate to bus access; and*
    - *iii) Safe pedestrian access from bus stops and drop off/pick up zones.*
- Road and Maritime Services (RMS) Guide to Trip Generating Developments 2002 (RMS Guide)
- Disability Standards 2010
- Planning Guidelines for Walking and Cycling (NSW Government 2004)
- Blacktown City Council's Blacktown Development Control Plan 2015

The following sections outline the minimum parking requirements and discussions around the proposed school development.

The following sections also present an assessment of the proposed development with reference to the requirements of AS2890.1:2004 (Off-street car parking), AS2890.2:2018 (Off-street commercial vehicle facilities), AS2890.6:2018 (Off-street parking for people with disabilities) and AS2890.3:2015 (Bicycle parking) and industry best practice. This section is to be read in conjunction with the architectural plans provided by NBRS Architecture shown in **Attachment 1.**

6.2 Pedestrian Access

The following considerations have been made:

- Pedestrian access gates are physically separated from vehicular access points, refer to the green stars representing pedestrian gates and the blue and black stars representing vehicular access points in Figure 50.
- There are footpaths on each side of the surrounding roads providing good pedestrian connectivity in the direct vicinity of the school.
- There is an unsealed path between the Council car park and Deerubbin Drive providing connectivity to the east and southeast.
- The project is proposing to provide zebra crossings across each of the three frontage roads. A detailed description on the chosen locations is provided in Section 5.2.2.
- Pedestrian gates, zebra crossing locations and the bus stops are located in close proximity to each other.

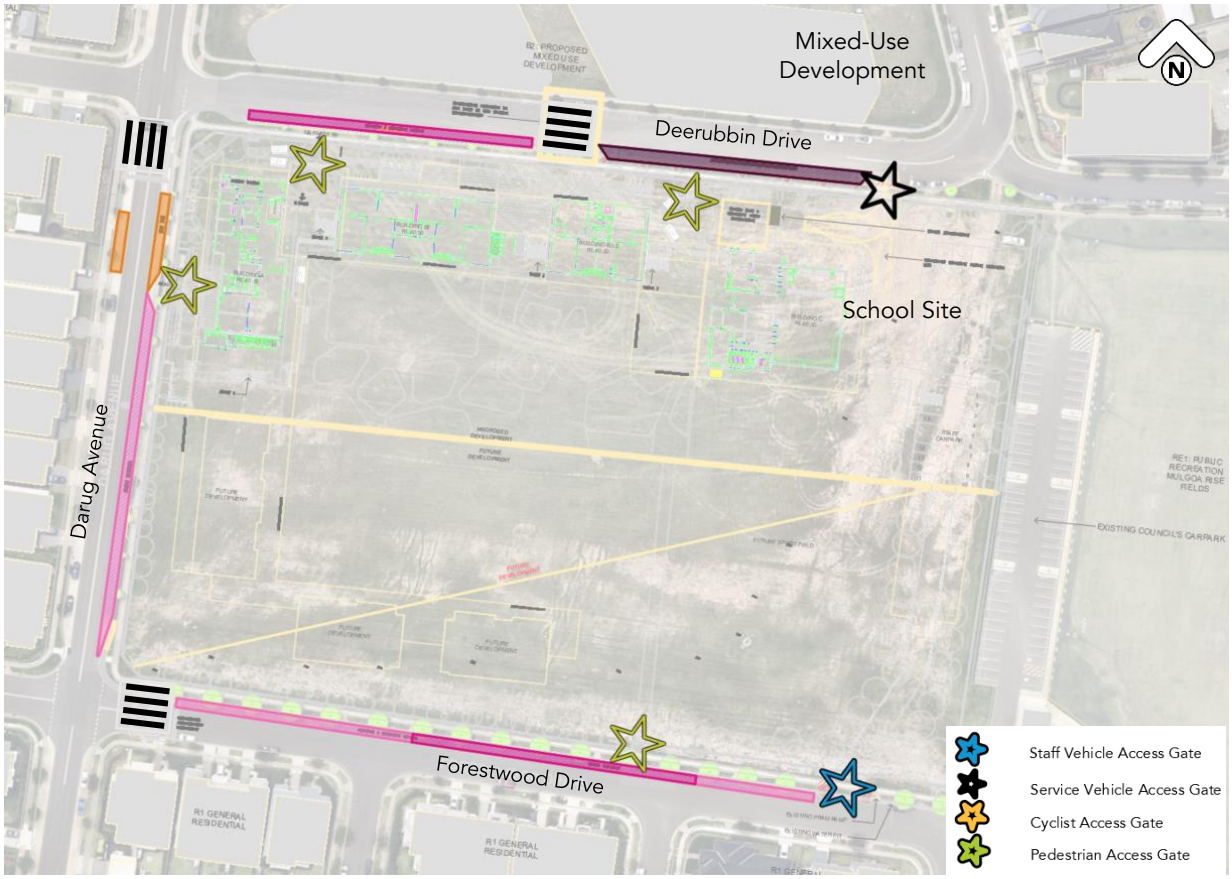


Figure 50 - Pedestrian Access

6.3 Bicycles and Scooters

6.3.1 Demand Assessment

The DCP states that bicycle parking provision rates for different land uses are to be provided in accordance with '*Planning Guidelines for Walking and Cycling (NSW Government 2004)'.* The *NSW Planning Guidelines for Walking & Cycling 2004* outlines the bicycle parking requirement for staff and visitors only. To calculate the bicycle parking requirement for students, reference has been made to *Austroads Guide to Traffic Management Part 11* and NSW Government's *Educational Facilities Standards and Guidelines.*

The bicycle parking requirement and provision for staff, visitors and students at the proposed primary school are summarised in Table 13.

The development proposes to provide 6 bicycle spaces for staff, 64 bicycle spaces for students and visitors and 80 scooter spaces. The development provides significantly more spaces than required as a means to promote active transport.

Table 13 - Bicycle Parking Requirement and Provision

User Group	No. of staff / students	Bicycle Parking Provision Rate	Bicycle Parking Requirement	Bicycle Parking Provided
Planning Guidelines for Walking and Cycling				
Staff	27	1 staff space for 3-5% staff (long-term use)	1 – 2 spaces	6 bike spaces
Visitor		1 visitor space for 5-10% staff (short-term use)	2 – 3 spaces	64 bike spaces 80 scooter spaces 144 spaces
Austroads Guide to Traffic Management				
Student	Approx. 120 students in Year 5 and 6	1 space per 5 students over Year 4 (long-stay)	24 spaces	
Educational Facilities Standards and Guidelines				
Student	Core 21 School		36 spaces	

6.3.2 End of Trip Facilities

The DCP also states that bicycle facilities are to incorporate shower / cubicle for bicycle parking facilities. The lockers, showers and change rooms requirements and provisions according to the rates stated in *NSW Planning Guidelines for Walking & Cycling 2004* are summarised in Table 14,

Table 15 and Table 16 respectively.

Table 14 - Lockers for Staff Requirement and Provision

Staff	Racks	Lockers Provision Rate	Lockers Requirement	Lockers Provided
27	**3**	**1 per 3 racks**	**1**	**Lockers provided within staff room**

Table 15 - Showers Requirement and Provision

Staff	Shower Provision Rate	Showers Requirement	Showers Provided
27	**- 1 for 0-12 staff - 2 (1 male and 1 female) for 13-49 staff - 4 (1 male and 1 female) for 50-149 staff**	**2 (1 male and 1 female)**	**1 staff unisex accessible WC with shower located on L1 of Building A, the Staff Area**

Table 16 - Change Cublicle Requirement and Provision

Staff	Change Rooms Provision Rate	Change Rooms Requirement	Change Rooms Provided
27	**- 2 (1 male and 1 female) for 13-500 staff**	**2 (1 male and 1 female)**	**Changing facilities provided in the unisex accessible WC with shower**

6.3.3 Location

Bicycle spaces have been provided close to entry points as shown in Figure 51, with green stars representing pedestrian gates and circled in yellow are bicycle spaces.

Figure 51 - Bicycle Space Location

6.3.4 Design Assessment

The DCP outlines that bicycle parking facilities are to comply with AS 2890.3:1993. It is therefore proposed to provide staff bicycle spaces in a secured Shared Multi Use storeroom, which may be equipped with bike racks. Bicycle spaces for visitors and students are provided as rails. This arrangement complies with Council's DCP.

Bicycle spaces shall be provided according to the standards, where a parking space envelope has the dimensions of 1.8m x 0.5m and an aisle of 1.5m is provided. As assessment of bicycle parking areas is provided in **Attachment 2**.

Scooter parking will be provided as per Figure 52 or similar.

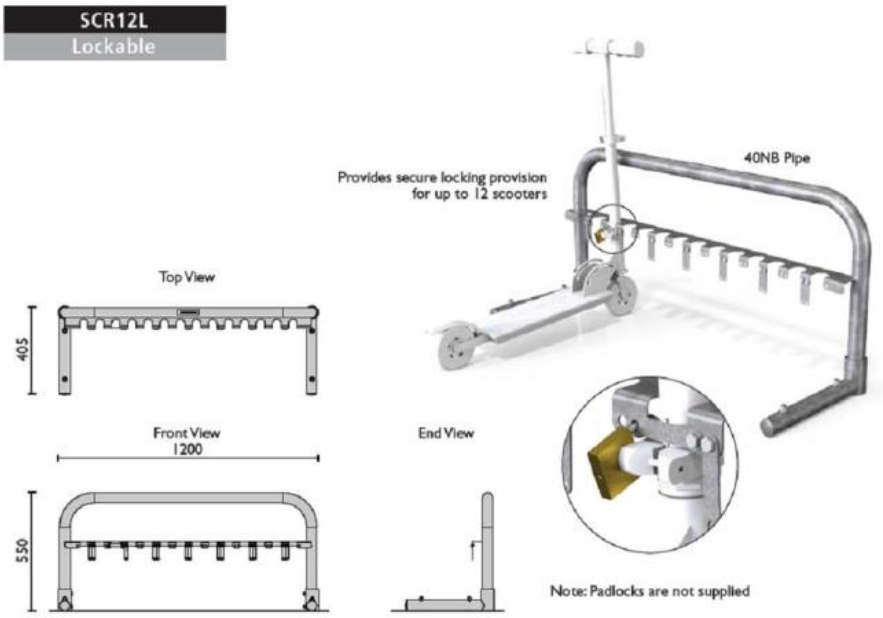


Figure 52 - Scooter Parking

6.4 Zebra crossings

6.4.1 Design

Ideally, all crossings would be raised and constructed with buildouts to prioritise students, reduce the number of lanes students need to cross and act as traffic calming devices. However, it is understood that from a civil design perspective, any raised facilities installed within the surrounding roads will have a negative impact on the 1 in 100 years flood levels. Therefore, alternative arrangements have been investigated, and a discussion on different options is presented in Attachment 3.

The development is proposing to provide an at-grade zebra crossing with fencing used to delineate kerb buildouts, as shown in Figure 53.

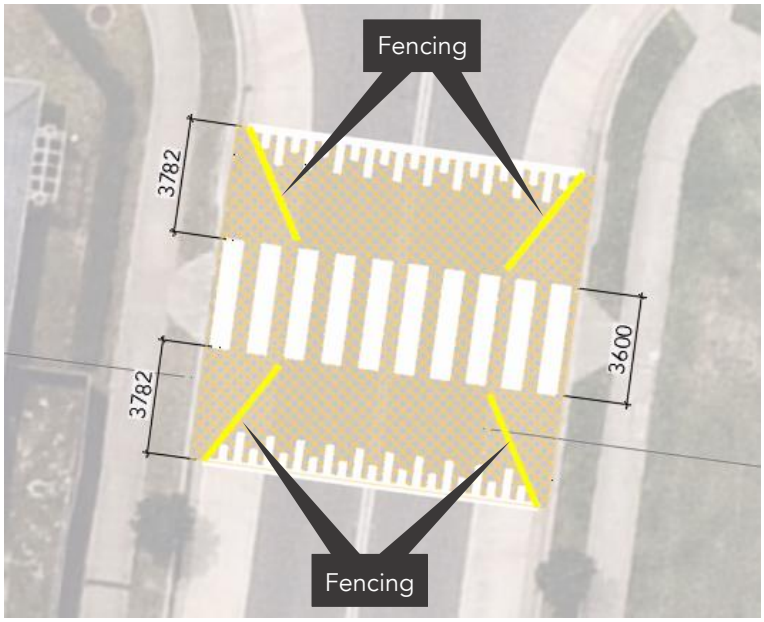


Figure 53 - Proposed at-grade zebra crossing design

Pedestrian fencing is proposed on the south-eastern corner of Deerubbin Drive / Darug Avenue and on the north-eastern corner of the Forestwood Drive / Darug Avenue intersections.

6.4.2 Warrant Assessment

6.4.2.1. Zebra Crossing

RMS *Supplement to Austroads Guide to Traffic Management Part 10 (Supplement AGtTM Part 10): Traffic Control and Communication Devices (2016)* stipulates the conditions for "*Reduced warrant for sites used predominantly by children and by aged or impaired pedestrians*" reads as follows:

> *If the crossing is used predominantly by school children, is not suitable site for a children's crossing and in two counts of one hour duration immediately before and after school hours:-*
>
> *P*[4] *≥ 30*
>
> *AND*
>
> *V*[5] *≥ 200*
>
> *a pedestrian (zebra) crossing may be installed.*
>
> *If at least 50% of pedestrians using the crossing are aged or impaired and for each three one hour periods in a typical day*
>
> *P ≥ 30*
>
> *AND*
>
> *V ≥ 200*
>
> *AND*
>
> *PV ≥ 60,000*
>
> *a pedestrian (zebra) crossing may be installed.*

Discussion:

The proposed pedestrian crossing locations and the existing and development vehicular volumes during the morning and afternoon school peak hours at the frontage roads are presented in Figure 54. The major users utilising the proposed pedestrian crossings along the frontage roads will be the School students and the patrons of the mixed-use development. The proposed number of School students is 414, and therefore, the number of pedestrians immediately before and after school at the proposed zebra crossings is likely to be at least 30 (P≥30). However, it can be seen from Figure 54 that the one hour vehicular flow immediately before and after school hours at the frontage roads are less than 200 vehicles (V≤200), meaning that the proposed zebra crossings do not meet the warrants.

[4] Pedestrian flow

[5] Vehicular flow

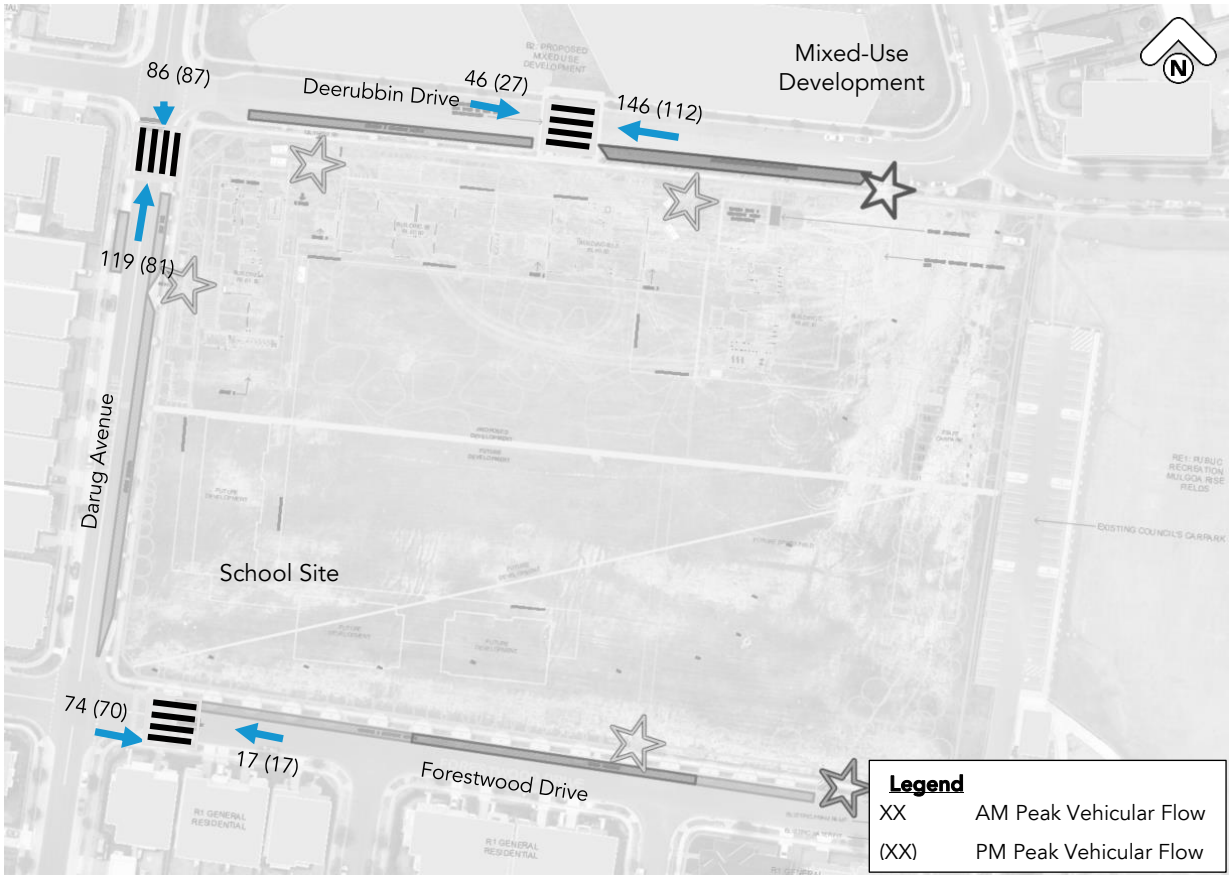


Figure 54 - Vehicular Flows

6.4.2.2. Children's crossing

RMS *Supplement to Austroads Guide to Traffic Management Part 10 (Supplement AGtTM Part 10): Traffic Control and Communication Devices (2016)* stipulates the following requirements for Children's crossing:

> *The crossing is located on local and lightly trafficked roads where in a one hour duration immediately before and after school hours the traffic flow exceeds 50 vehicles per hour in each direction and during the same hour 20 or more children cross the road within 20 m of the proposed crossing location.*

Discussion

As shown in Figure 54 the vehicular volumes along the frontage roads exceed 50 vehicles per hour in each direction for Darug Avenue, but not for Deerubbin Drive and Forestwood Drive. Likewise, as discussed in Section 6.4.2.1, the number of pedestrians immediately before and after school at the proposed zebra crossings is likely to be at least 30 (P≥30). Hence, Darug Avenue meets the warrants for children's crossing and Deerubbin Drive and Forestwood Drive do not.

85th percentile speed of traffic must not exceed 60km/h one hour before or after school hours. Note: In special circumstances where a children's crossing is required on roads where the 85th percentile speed is greater than 60km/h, council may apply to RMS for consideration and approval (Principal Manager or equivalent – Level 4 delegation or above).

Discussion

The proposed frontage roads are expected to be subjected to "School Zone Speed Limit" after the school commencement, meaning that the speed limit of all frontage roads will be 40km/h. Additionally, the length of surrounding roads between each intersection is less than 250m meaning that the speed of vehicles will be reduced upon approaching the intersections and therefore the 85th percentile speed of traffic is anticipated to be less than 60 km/h.

An undertaking from the school principal to arrange the display of the Children Crossing flags or signs during and only during the specified period of operation 8.00am – 9.30am and 2.30pm – 4.00pm and when necessary at other times such as school excursions and school sport days.

Discussion

Children Crossing flags or signs would be posted during specified period of operation and when necessary.

6.4.2.3. Recommendation

As discussed in Sections 6.4.2.1 and 6.4.2.2 all three frontage roads do not meet the warrants for zebra crossing and only Darug Avenue meets the warrant for children's crossing and Deerubbin Drive and Forestwood Drive do not. However, for safety reasons and to promote active transport, it is recommended that zebra crossings be provided on all three frontage roads.

6.4.3 Swept Paths at Zebra Crossings

Kerb buildouts at the proposed zebra crossings will be designed to allow Heavy Rigid Vehicles (HRV) to undertake turn movements. Figure 55 and Figure 56 show an HRV and a B99 vehicle pass one another at the proposed zebra crossings.

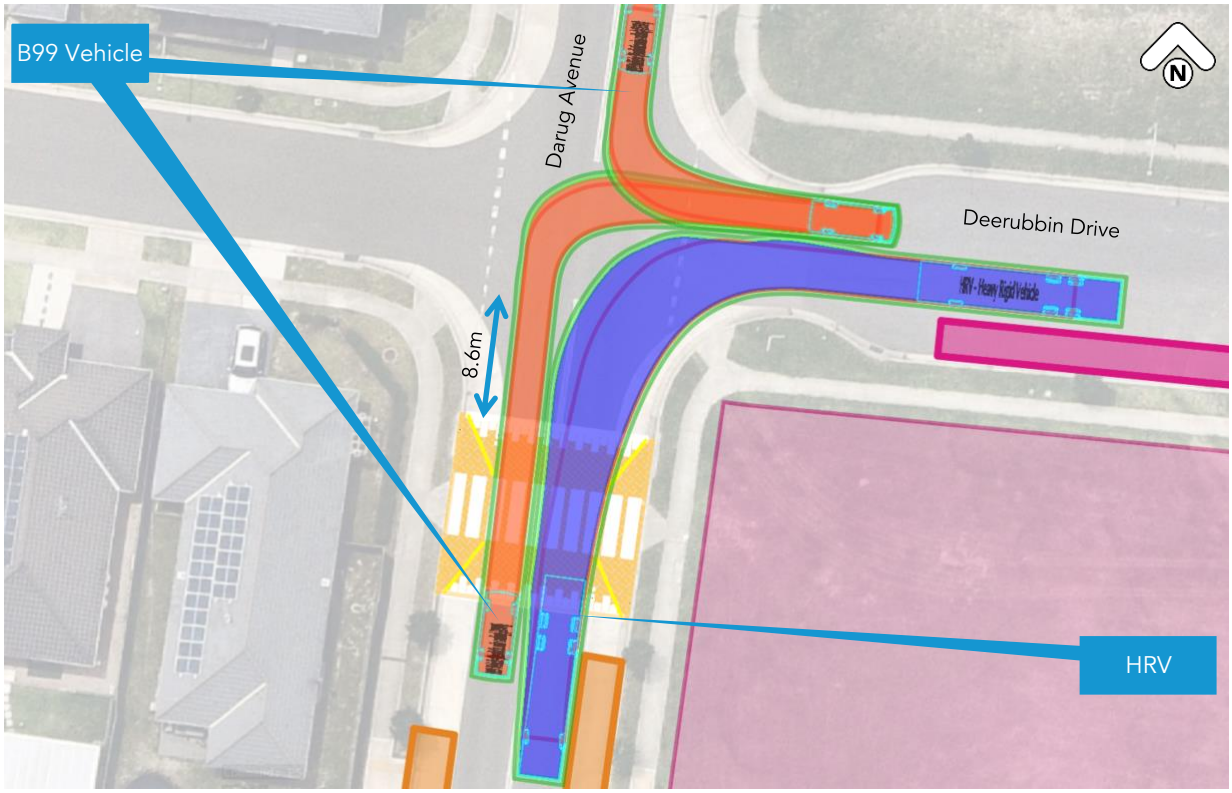


Figure 55 - Swept path assessment at the proposed zebra crossing across Darug Avenue

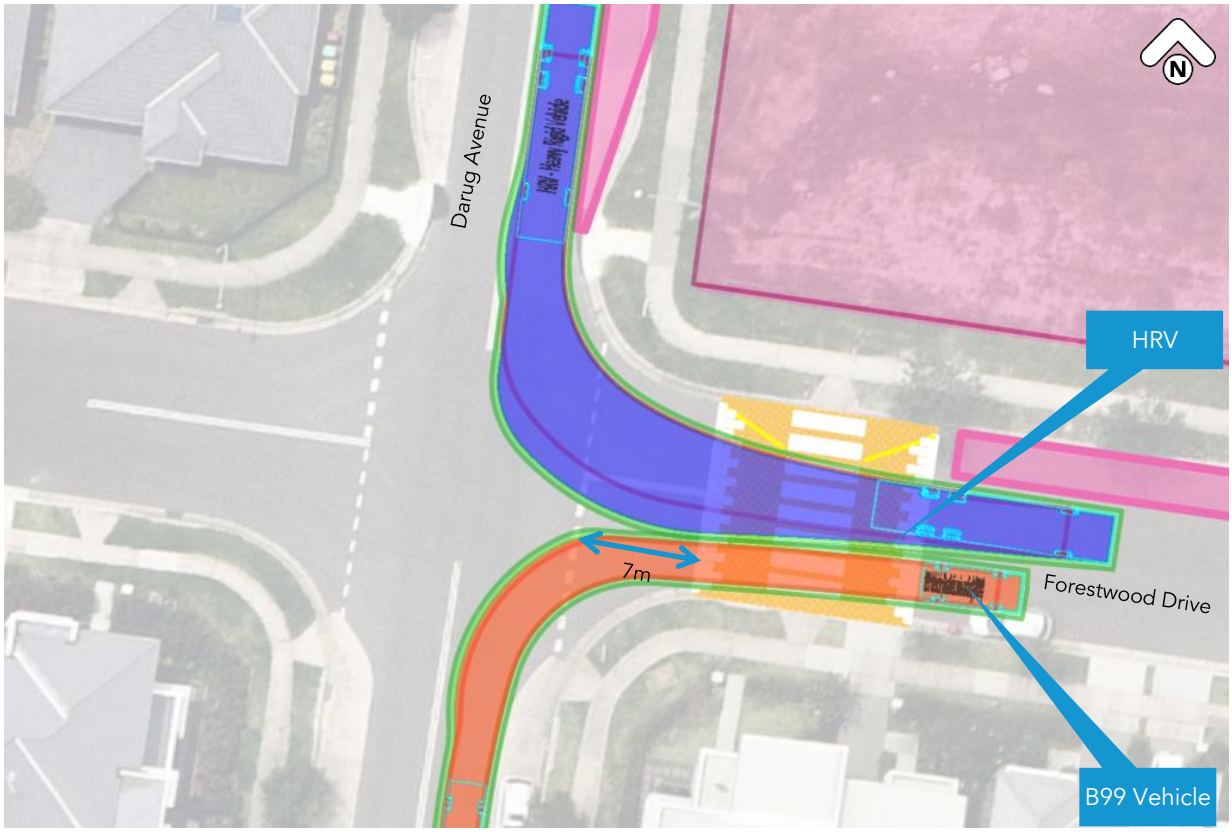


Figure 56 - Swept path assessment at the proposed zebra crossing across Forestwood Drive

6.5 Public Transport

6.5.1 Bus Stop Quantity

There are existing bus stops provided on either side of Darug Avenue, south of the Darug Avenue / Deerubbin Drive intersection. These bus stops may be used by students residing outside of comfortable walking and cycling catchment and by parents for their onward journey to work.

Given the proposed public transport mode share target of 10% (refer to Section 5.2.7), it is anticipated that approximately 40 students will require bus transportation. The bus arrival and departure time is being discussed with the bus operator to be aligned with the student's pick-up and drop-off times and parent's journey to work time as discussed in Section 3.3.4.

6.5.2 Access

As discussed in Section 5.2.4.1, the project is proposing to provide a zebra crossing across Darug Avenue just north of the bus stops to enable students to safely access the bus stop on the western side of the road. This requires the eastern bus stop to be slightly moved in the southbound direction, as described in Section 6.5.3.

6.5.3 Location

The eastern bus stop on Darug Avenue is located adjacent to the proposed School access gate, which is considered optimal.

The bus stop needs to be slightly relocated in the southbound direction due to the proposed zebra crossing, which requires the relocation of the pedestrian holding area and the existing bus stop sign, as shown in Figure 57.

No changes to the western bus stop are required.

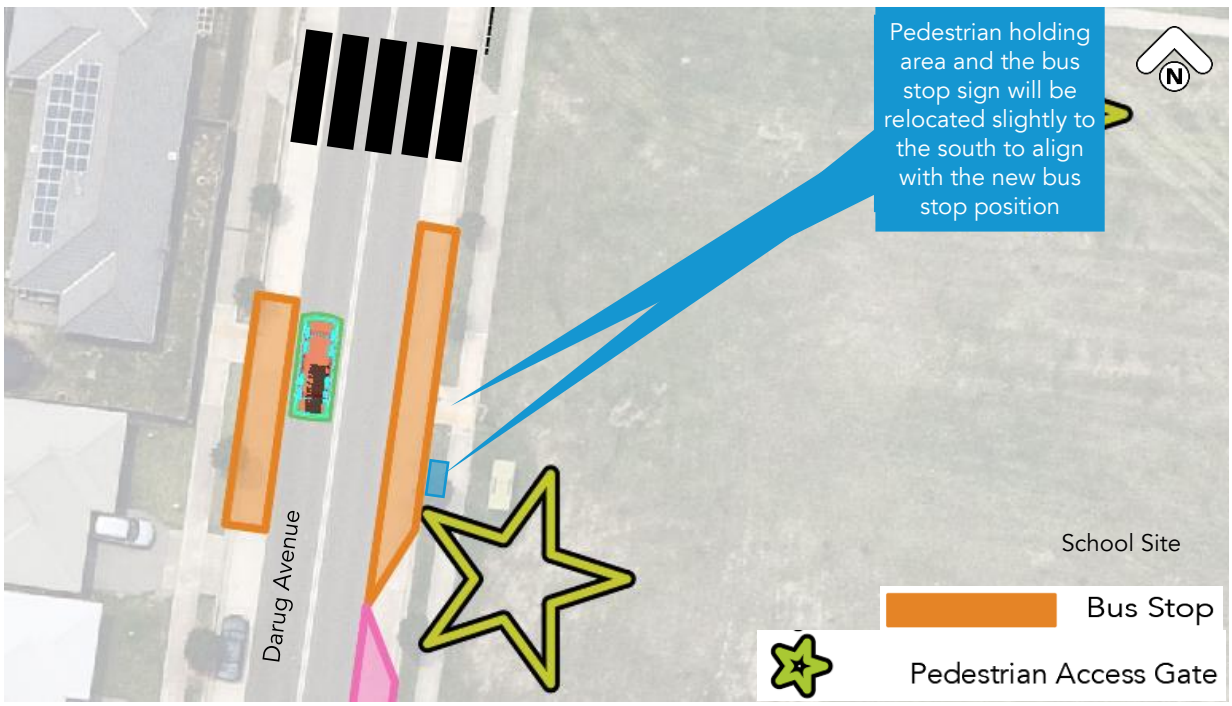


Figure 57 – Pedestrian Holding Area near the Bus Stop

6.5.4 Sight Lines

Sight lines for vehicles approaching the zebra crossing whilst a bus is present at the western bus stop. As shown in Figure 58, the bus does not obstruct the pedestrian sight lines for the oncoming vehicles. Therefore, the location of bus stop is suitable in terms of access and safety.

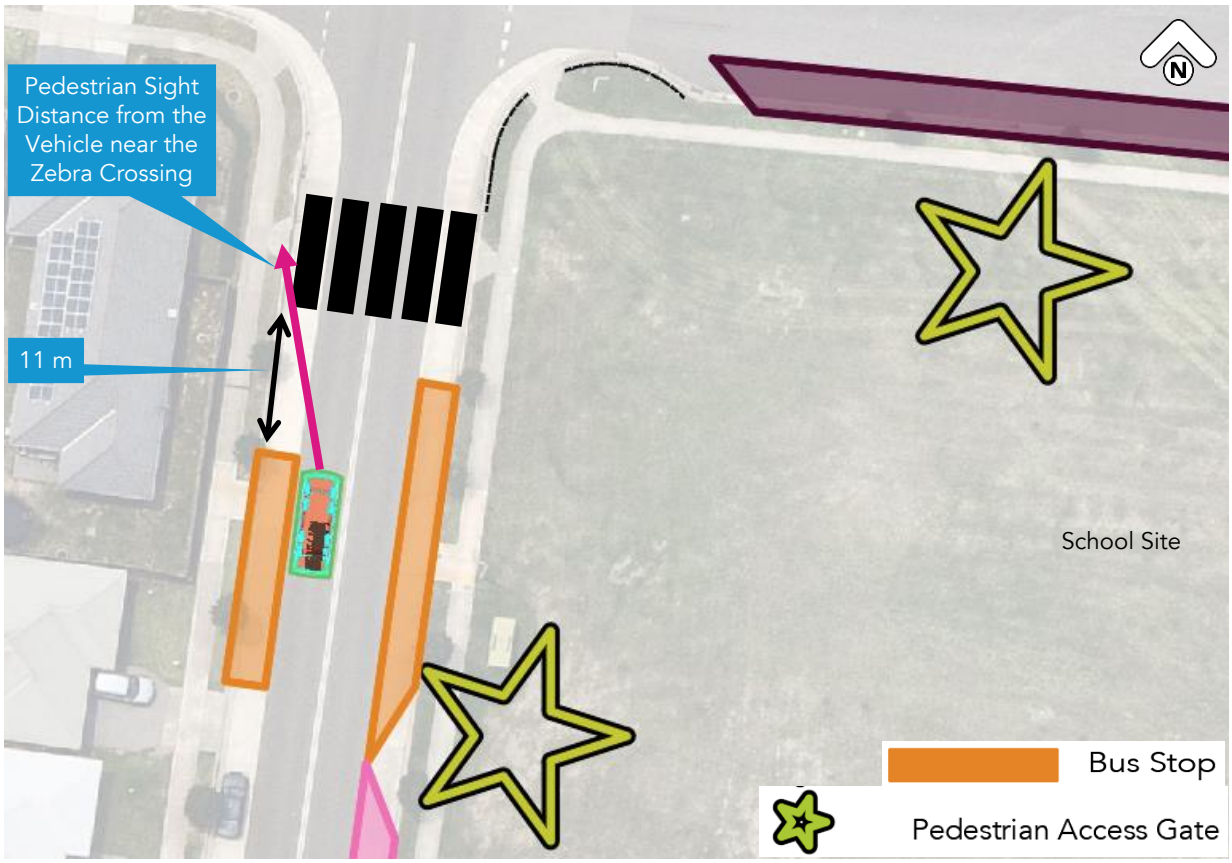


Figure 58 - Bus Stop Location and Pedestrian Sight Line near the Bus Stop

6.6 School Zone

A school zone needs to be established along the frontage and surrounding roads to alert drivers of the change in the speed limit during the main pick-up and drop-off times.

The School Zone is to be implemented according to the requirements of "RTA TD 2003/RS02 Installation of 40km/h School Zones on Multi-lane Roads and High Speed Roads". This involves the installation of appropriate line marking and signage with flashing lights at the beginning / finish of a school zone, approximately 100m from each school access point, refer to the proposed layout in **Attachment 4**.

6.7 Pick up and Drop off

6.7.1 Demand Assessment

The project is committed to implementing appropriate measures to attract the largest possible proportion of students to use active and public transport to commute to and from school. Based on the target travel mode analysis described in Section 5.2.7, the general pick-up and drop-off for the School has been calculated to be at around 40% students. Students attending the SUH component of the school are assumed to be driven by either parents or government taxis with a car occupancy or 3.5 students per car.

The number of required pick-up spaces is calculated using a model based on Poisson distribution, and the analysis is shown in Table 11 in Section 5.2.7. A total of 24 general pick-up and drop-off spaces is required as well as 6 SUH parking spaces.

From **ptc.'s** surveys on other schools and following Council's comments, it is acknowledged that some parents arrive early and take up the pick-up and drop-off areas, which may also take place in the new School. This has been considered when preparing signage and line marking plans and 15 minute parking areas have been defined. Given the above, different pick-up / drop-off activities and the SUH component, the following pick-up / drop-off spaces with different parking restrictions are proposed:

- 12 "Pick-up and Drop-off" spaces during pick-up and drop-off times along Deerubbin Drive and 12 "Pick-up and Drop-off" spaces during pick-up and drop-off times along Forestwood Drive;
- 14 "15min Parking" spaces during pick-up and drop-off times along Darug Avenue and 16 "15min Parking" spaces during pick-up and drop-off times Deerubbin Drive; and
- 8 "Assisted Pick-up and Drop-off" spaces for disabled student along Deerubbin Drive.

All pick-up and drop-off spaces are provided along the frontage as shown in Figure 59. Since the frontage roads can accommodate the pick-up and drop-off requirement, on-site pick-up and drop-off is not considered required. Appropriate signage needs to be implemented for pick-up and drop-off, which is presented in **Attachment 4.**

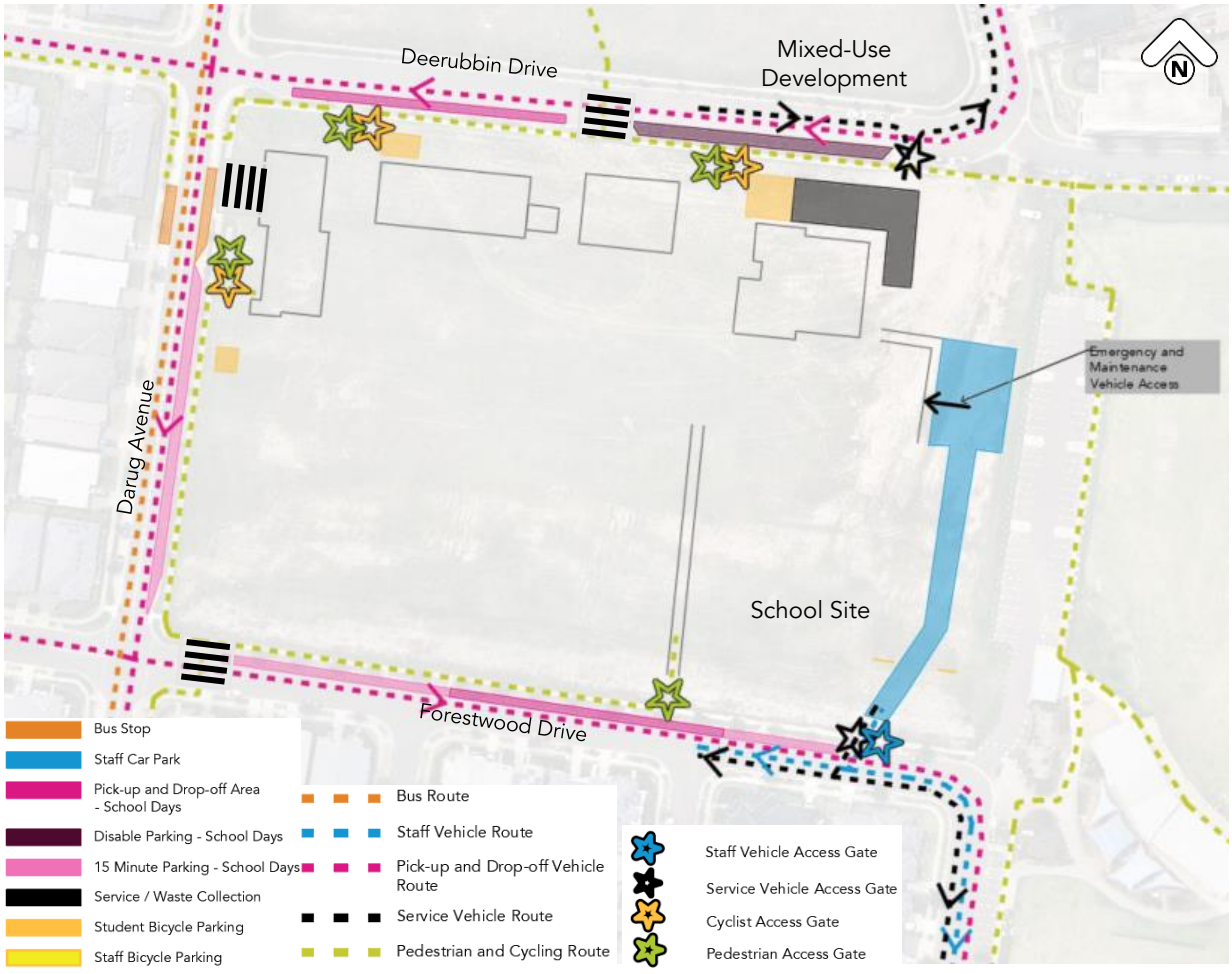


Figure 59 - Proposed Pick-up and Drop-off locations

6.7.2 Design Assessment

The School has a Support Unit Hub component catering for students with mild disabilities. Students attending the SUH component will likely require parking for people with disabilities. Therefore, the pick-up and drop-off requirement and provision are proposed for both general and SUH part of the school.

The on street parallel kerb side car parking arrangements have been assessed against the requirements of AS2890.5:1993. General on-street spaces have been marked to be 2.3m wide and 6m long.

The on street parallel SUH car spaces have been assessed against the requirements of AS2890.6.2009. The spaces shall be 3.2m wide and 7.8m long with 1.6m wide pram ramps which will act as shared area.

6.8 Car Parking

6.8.1 Guidelines and Statutory Documents

Penrith City Council's DCP (Penrith DCP)
This document does not provide car parking rates for schools; however, *Part C10 Section 10.5.1 Control f)* of the DCP states the following:

> *In the absence of specific requirements relevant to particular developments, the parking requirements in the RTA's "Guide to Traffic Generating Developments" (as updated) and Australian Standard AS 2890.1 and 2 - 2004 should be referred to as a guide. In the absence of all data, the applicant should revert to the use of first principles.*

RMS Guide to Traffic Generating Developments (RMS Guide)
This document does not provide any car parking rates for educational establishments.

Blacktown City Council's DCP 2015 (Blacktown DCP)
Since Penrith DCP and RMS Guide does not provide car parking rates reference has been made to Blacktown DCP which is considered to be comparable.

Part A Section 6 of the Blacktown DCP stipulates the following car parking provision rates for educational establishments:

- 1 space per staff member
- 1 space per 100 students

Educational Facilities Standards and Guidelines (EFSG)
This document does not provide any car parking rates

The Department of Education[6]
The following is stated:

- "A school is not obliged to provide parking on site to anyone at any time."
- "If a school has space available they may offer disabled parking spaces and parking for visitors and staff."

6.8.2 Demand Assessment

6.8.2.1. General Car Parking

The parking requirements and provision for staff are summarised in Table 17.

Table 17 - Car Parking Requirement and Provision

	Minimum Car Parking Provision Rate	Minimum car parking requirement	Car parking provided
27 Staff			17
Blacktown DCP	1 space per staff	27	
DoE	Not obliged to provide parking	0	
415 Students			
Blacktown DCP	1 space per 100 students	4	
DoE	Not obliged to provide parking	0	
Total		27 for staff 4 for students	17

The development application proposes to provide 17 car spaces on site and therefore falls short by 14 car spaces considering the Blacktown DCP.

As a means of discussion, provision of parking spaces on school grounds reduces space that could be used for education or play areas otherwise. On the other hand, if all parking spaces were to be located off site, school staff would need to rely on and share on-street parking. Therefore, a balance between these two considerations needs to be met.

Taking into account the concise enrolment area of the school and the proposed walking, cycling and public transport connectivity to the site, it is considered that parking spaces for students, parents and visitors are not required on site.

It is proposed to provide 17 parking spaces, which accounts for 63% of staff as a means to shift towards alternative transport modes.

[6] https://education.nsw.gov.au/teaching-and-learning/curriculum/learning-across-the-curriculum/road-safety-education/safe-travel/parking-on-school-grounds

It should be noted that the proposed development is a new school with no pre-existing travel behaviours. Therefore, by implementing the School Transport Plan low private car usage can be promoted from commencement of operations.

6.8.2.2. Accessible Car Parking

In regard to the accessible parking, the DCP refers to the parking requirements compliant to *Building Code of Australia* and *Australian Standard 1428 Parts 1 to 4 – Design for Access and Mobility*. Schools are categorised as a Class 9b facility in accordance with Part A3.2 of the BCA (2016). The accessible parking provision requirement for Class 9b buildings are stipulated in Table D3.5 of BCA. The requirement and provisions are summarised in Table 18.

Table 18 - Accessible Car Parking Requirement and Provision

User Group	Total Car Parking Provided	Accessible Car Parking Provision Rate	Accessible Car Parking Requirement	Accessible Car Parking Provided
Class 9b - School	17	1 space for every 100 car parking spaces or part thereof	1	2

The proposed staff car park accommodates a total of 17 car spaces, which results in a minimum requirement for one accessible car parking space. The development proposes to provide 2 accessible space, thereby exceeding the minimum DCP requirement.

6.8.3 Design Assessment

6.8.3.1. Car Park Access

The access to the proposed 17 (Class 1A) at grade staff car park is via Forestwood Drive, a local access road. According to AS 2890.1, it will therefore require a Category 1 (combined entry/exit) driveway with between 3.0m and 5.5m width. In response, the proposed driveway has a minimum width of 6m, which exceeds the standards requirement. The driveway will also be used by maintenance and emergency vehicles.

A swept path assessment demonstrating a B99 and B85 vehicle passing one another as well as in and outbound movements of an ambulance with appropriate clearances are shown in Attachment 2.

In regard to the driveway location, the following has been considered:

- As per Council's advice, the driveway needs to be located 1m away from the water pit.
- Driveways should ideally be separated by approximately 6 meter to avoid conflicts.
- Due to the two previous points, the driveway to the proposed school cannot be located between the water pit and Council's car park driveway, as there is not sufficient width.
- Therefore, the driveway is proposed to be located west of the water pit.
- Directly adjacent to the water pit is a pram ramp. It is considered that this ramp should not be moved, as it is currently located along a pedestrian desire line. If the ramp was moved further west, pedestrians would likely cross outside the pram ramp.

- Therefore, the school car park access 2.5 metres away from pedestrian ramp, metres west of the water pit and approximately 20 metres west from Mulgoa Rise playing fields car park driveway.

6.8.3.2. Car Parking Arrangement

The proposed car park parking arrangements of the at grade car park have been assessed against the requirements of AS2890.1:2004, with reference to Class 1A (employee) facilities. The Class 1A facilities are to provide the following dimensions (90° angle parking):

- Car Spaces: 2.4m x 5.4m
- Aisle Width: 5.8m

All general parking spaces have been individually assessed and found to be at least 2.4m x 5.4m in dimensions, with a minimum aisle width of 5.8m. All spaces meet the clearance requirements (door opening and entry flanges) of the parking space envelope requirements provided in Figure 5.2 of AS2890.1.

The car park shall have a one-way circulation and no turning bay is required.

2 accessible car spaces are each 2.4m wide and 5.4m long and a shared area of the same dimensions is provided. The accessible space shall be provided in accordance to AS 2890.6.

Teachers will access the car park outside the main pick-up and drop-off hours and the school will manage staff access accordingly so as to avoid conflicts with student drop-off / pick-up.

6.8.3.3. Sight Distance

The location of the proposed access driveway is considered appropriate in regard to sight distances. AS2890.1 Clause 3.2.4 stipulates that a roadway with a speed limit of 50 km/h must accommodate a desirable sight distance of 69m or a minimum stopping sight distance of 45m. The proposed driveway meets the vehicle sight distance to the left and right.

The triangular pedestrian sight splays (2.0m x 2.5m) with a maximum height of 1.15m are provided at the driveway as per AS2890.1.

6.9 Motorcycle Parking

The DCP does not stipulate the provision of motorcycle parking and the development does not propose to provide any.

6.10 Waste Collection

In regard to the service vehicles requirement, Penrith City Council's DCP stipulates the following:

- Part C10 Section 10.5.1 Control g) of the DCP outlines that '*Where relevant, development shall provide on-site loading facilities to accommodate the anticipated heavy vehicle demand for the site'*; and
- *Part C10 Section 10.5.1.5s* of the DCP outlines that '*Loading docks associated with the development shall be provided on-site, with all loading and unloading activities occurring on-site'*.

The Penrith City Council's Waste Management Guidelines stipulate that the Council's waste collection vehicle is a Heavy Rigid Vehicle (HRV). Although the school will be serviced by a private contractor, the waster area has been designed to accommodate an up to 12.5m vehicle.

The development proposes a dedicated waste collection area with access off Deerubbin Drive via a 6.8 m wide driveway. In order to minimise the impact of the waste vehicle access onto on-street parking it is proposed that both the entry and exit occur via a right-turn from / into Deerubbin Drive respectively.

The design assessment has shown that an HRV vehicle, which would be the largest anticipated vehicle entering the site, can access the waste area, manoeuvre inside the site and exit in a forward direction, as shown in the design review in Attachment 2. This arrangement is considered to be in accordance with the DCP.

The waste collection vehicle movements will occur during off-peak periods and will not impact the school operation.

6.11 General Deliveries

Other delivery vehicles (courier / parcel deliveries etc.) will utilise the on-street parking along Deerubbin Drive, Darug Avenue and Forestwood Drive. It is noted that the pick-up and drop-off zones along school frontages will have unrestricted parking outside of school hours.

6.12 Emergency Vehicles

Fire trucks will access the site off Deerubbin Drive, where a booster is located.

The car park access has been designed to accommodate a 7m long ambulance. Access from the car park is provided on the western side between bays 14 and 15 where removable bollards will be placed to prohibit the misuse of it. These bollards will be removed at times when an ambulance needs to access the site. The vehicles will undertake a U-turn at the school sports field and exit the site in a forward manner.

Swept paths for an ambulance are shown in Attachment 2.

6.13 Loss of Parking

The proposed zebra crossings along Darug Avenue and Forestwood Drive, the driveway and all associated parking restriction signage will result in a reduction of approximately 10 on-street car parking spaces.

7. Traffic Impact Assessment

When calculating the traffic generation reference has been made to the following guidelines:

- RMS *Guide to Traffic Generating Developments 2002 (Guide 2002)*; and
- RMS *TDT 2013/04a Guide to Traffic Generating Developments (TDT 2013/04a)*.

The following sections present an assessment of the existing traffic activity and future traffic conditions for the proposed development.

7.1 Key Intersections

Key intersections have been determined to access the traffic conditions within the surrounding road network. The key intersections as follows:

- Intersection 1 - Glenmore Ridge Drive and Glenholme Drive – Priority controlled 3-arm intersection;
- Intersection 2 - Glenmore Ridge Drive and Darug Avenue – Priority controlled 4-arm intersection;
- Intersection 3 - Deerubbin Drive and Darug Avenue – Priority controlled 4-arm intersection;
- Intersection 4 - Forestwood Drive and Darug Avenue – Priority controlled 4-arm intersection;
- Intersection 5 - Bradley Street and Parkway Avenue – Priority controlled 3-arm intersection;
- Intersection 6 - Forestwood Drive and Site Access Driveway – Priority controlled 3-arm intersection; and
- Intersection 7 - The Northern Road and Bradley Street – Signalised 4-arm intersection.

These intersections are shown in Figure 60.

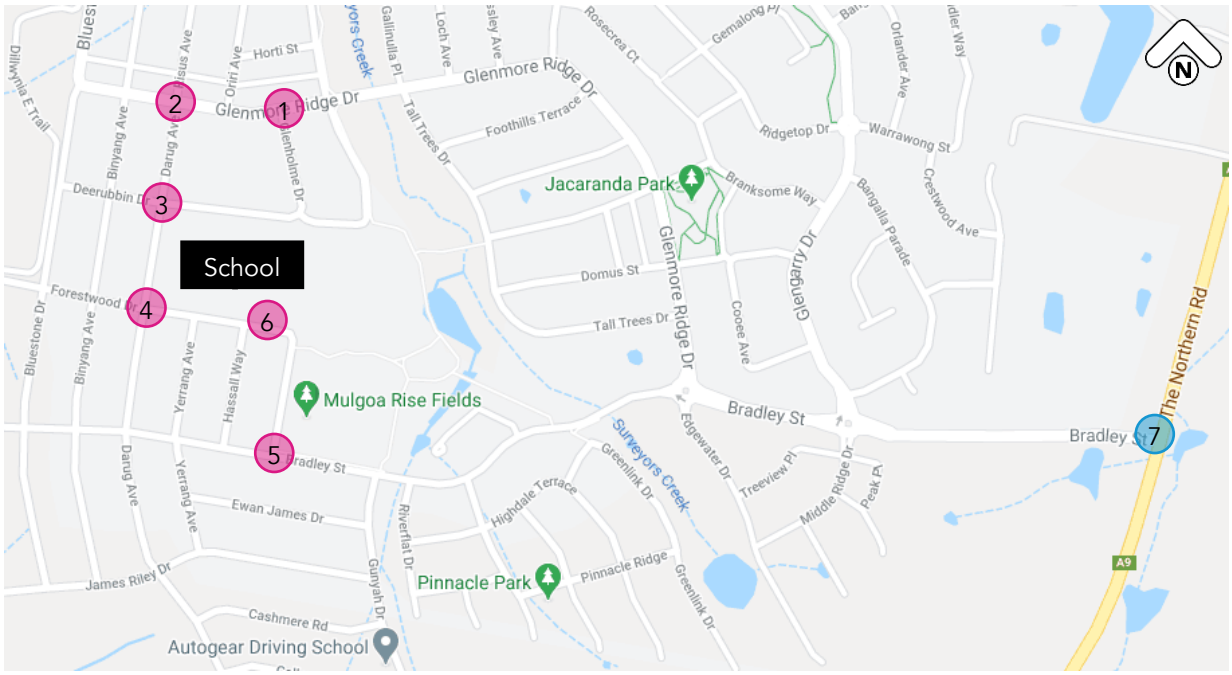


Figure 60 - Key Intersections

7.2 The Northern Road / Bradley Street Intersection

The SEARs are asking to provide "*existing performance levels of nearby intersections utilising appropriate traffic modelling methods (such as SIDRA network modelling), including the Northern Road and Bradley Street intersection.*"

The following considerations have been made:

- Jacobs have undertaken microsimulation modelling and a detailed traffic impact assessment for the upgrade of The Northern Road[7]. This assessment incorporates future developments such as the Western Sydney Airport and the South West and the Western Priority Growth Area, and it also takes into account traffic growth associated with the developments occurring around Glenmore Park. By utilising the inputs from the SFM and STAM, the traffic analysis includes forecast traffic for the proposed development effecting the Bradley Street / The Northern Road intersection.
- The above-described traffic assessment provides outputs for years 2021 and 2031 and the results show that with the upgrades currently under construction, the Bradley Street / The Northern Road intersection will operate at a Level of Service C in both the morning and afternoon for the 2031 scenario.
- Additionally, following development of the microsimulation model, further assessment of Bradley Street / The Northern Road intersection treatment was undertaken using SIDRA intersection modelling, to develop optimised layouts and signal phasing for the final design.
- The proposed traffic related to pick-up and drop-off will not have any effect on the intersection, as it lies outside the proposed enrolment catchment (refer to Figure 61).
  With a conservative assumption that all teachers would drive through this intersection, only 27 additional trips would be generated, and Jacobs' assessment indicates that spare capacity will be available in 2031 (LoS C). The trips for parents that would use this intersection after / before the pick-up / drop-off have already been modelled by Jacobs in their traffic impact assessment for The Northern Road upgrade.
- Further, the Bradley Street / The Northern Road intersection is currently under construction, meaning that any traffic surveys / modelling would not be representative of the future arrangements.

The above points were communicated to TfNSW, and the following response was received by email dated 18 March 2021:

> *… TfNSW has reviewed your justification regarding TfNSW SEARs comments for SIDRA modelling of Bradley Street/The Northern Road and considers this adequately addresses TfNSW initial concerns. Therefore, TfNSW will not require modelling for the intersection of Bradley Street/The Northern Road for this development.*

Therefore, no modelling was undertaken at The Northern Road / Bradley Street intersection.

[7] *The Northern Road Upgrade – Mersey Road to Glenmore Parkway* Prepared for Roads and Maritime Services by Jacobs Australia, Final dated 15 May 2017

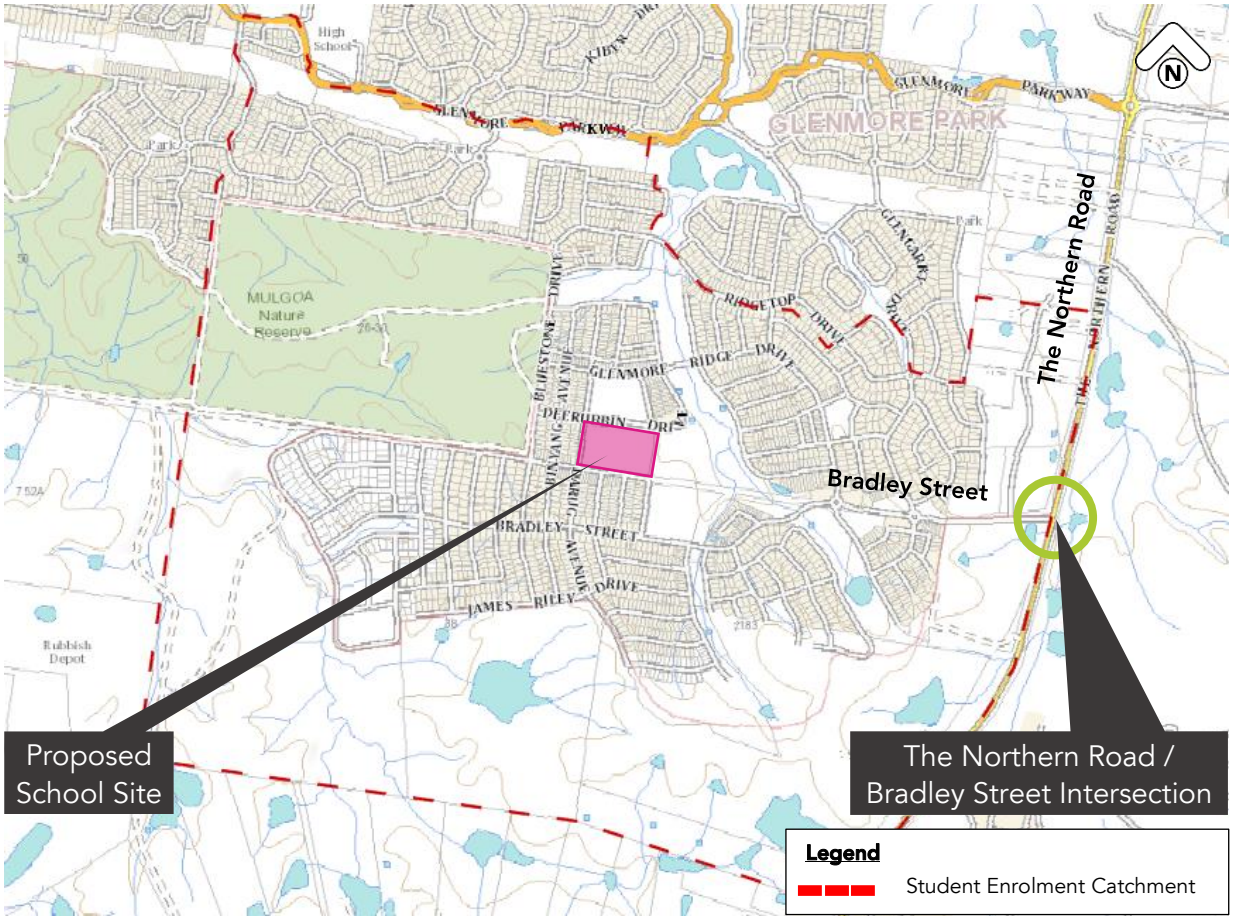


Figure 61 - School Enrolment Catchment in Relation to The Norther Road / Bradley Intersection

7.3 Existing Traffic Conditions

In order to determine the existing traffic conditions within the surrounding road network serving the new School, traffic count surveys were undertaken on Tuesday 16th February 2021 between 7am – 10am and 2pm – 6pm at the key intersections as illustrated in Section 7.1.

Survey data indicates that the peak period for the network is between 7:45am – 8:45am and 4:45am – 5:45am. The network peak during the afternoon does not coincide with a general school peak and therefore, the following peak hours have been adopted for the school peak for the purpose of this report:

- School and Network AM Peak Hour: 7:45am – 8:45am
- School PM Peak Hour: 3:15pm – 4:15pm

Existing traffic volumes at the key intersections during the AM and school PM peak hours are shown in Figure 62 and Figure 63 respectively.

Figure 62 - Existing AM Peak Hour Traffic Volumes

Figure 63 - Existing PM Peak Hour Traffic Volumes

7.4 Proposed Development

7.4.1 Traffic Distribution

7.4.1.1. Students

The proposed development traffic distribution has been estimated based on student residential data. Currently, these students travel to other nearby schools; however, these students are expected to enrol in the proposed School in the future. The following estimation is made for the student trip distribution:

- 30% student travel via Glenmore Ridge Drive East;
- 30% student travel via Glenmore Ridge Drive West;
- 2% student travel via Risus Avenue North;
- 13% student travel via Forestwood Drive West; and
- 25% student travel via Darug Avenue South.

The assumed distribution is presented in Figure 64.

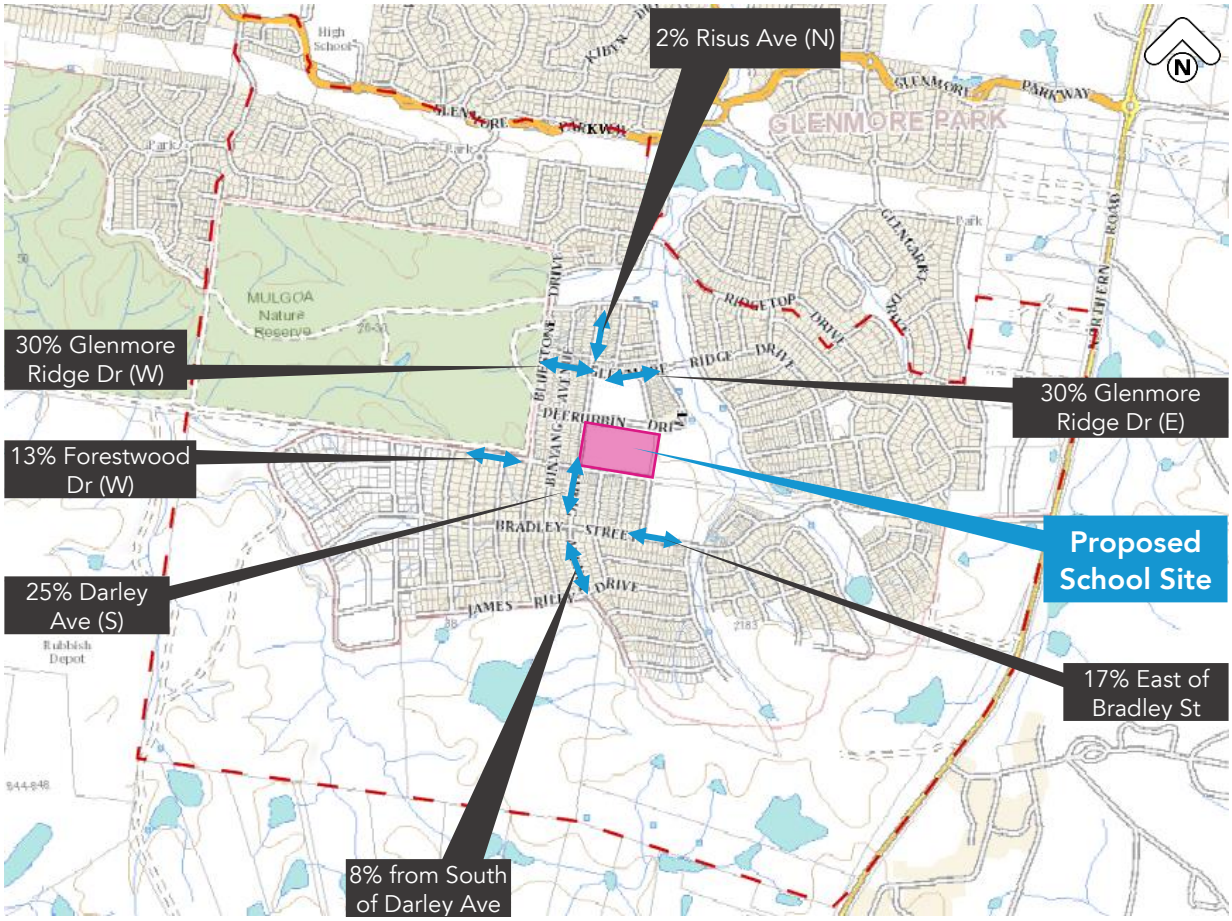


Figure 64 - Estimated Traffic Distribution for Students

7.4.1.2. Staff

Unlike students, staff could travel from the greater Sydney area. Based on the surrounding suburbs, road infrastructure and proximity to the major highways, the following assumptions are made for staff traffic distribution:

- The majority of suburbs are located towards the east of the site. Therefore, it is assumed that 85% of the future staff will travel via The Northern Road followed by Bradley Street and then via Parkway Avenue to reach the staff car park;
- It is estimated that some staff may reside in the suburbs north of the site, such as Penrith, South Penrith etc. Therefore, it is assumed that 10% of staff will travel from the north via Bluestone Drive and then Glenmore Ridge Drive; and
- A few staff may live in the nearby residential areas. Therefore, it is assumed that 5% of staff will travel via Glenmore Ridge Drive East.

All staff are expected to enter the site via the driveway located at Forestwood Drive. The assumed traffic distribution is presented in Figure 65.

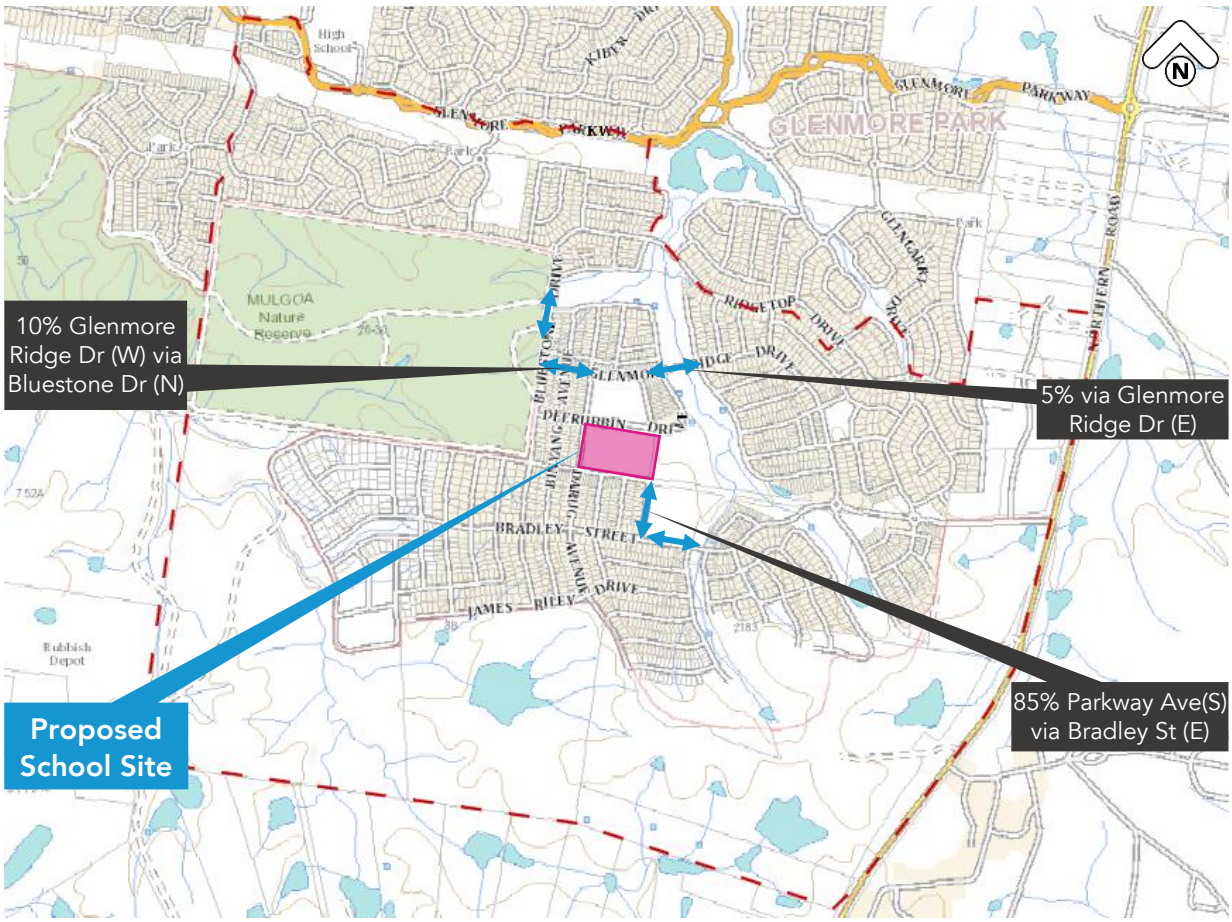


Figure 65 - Estimated Traffic Distribution for Staff

7.4.2 Traffic Volumes

7.4.2.1. Students

The estimated peak hour student traffic generation associated with the pick-up/drop-off activity has been calculated based on the number of vehicles that would transport students for the transport target scenario as described in Section 5.2.8.

As shown in Table 11, it is estimated that the development will generate 138 vehicular trips. This trip generation will be applicable for both the AM and PM peak hours, as it is anticipated that students will utilise the same travel mode to and from school.

Due to the nature of pick-up and drop-off, where vehicles arrive and depart within a short time period, the trips are doubled to 138 inbound and 138 outbound trips.

The number of trips at each intersection has been determined based on the above and the proposed traffic distribution described in Section 7.4.1.1.

The proposed future student traffic volumes are presented in Figure 66 and Figure 67.

7.4.2.2. Staff

The development involves the employment of 27 staff. Although it is expected that staff will generally arrive prior to the arrival of students in the morning and depart following students in the afternoon, a worst-case assessment of the potential staff trip generation has been undertaken.

For conservative reasons, a 1 staff per vehicle ratio has been adopted, therefore 27 vehicles will arrive in the morning school peak and all 27 vehicles will depart in the afternoon school peak. These volumes have been incorporated into the SIDRA traffic model for the post-development scenarios to assess the development traffic activity.

The number of trips at each intersection has been determined based on the above and the proposed traffic distribution described in Section 7.4.1.2.

The proposed future staff traffic volumes are presented in Figure 66 and Figure 67.

7.4.2.3. Summary

The total estimated future student and staff traffic volumes at the key intersections during the AM and PM peak hours are presented in Figure 66 and Figure 67 respectively.

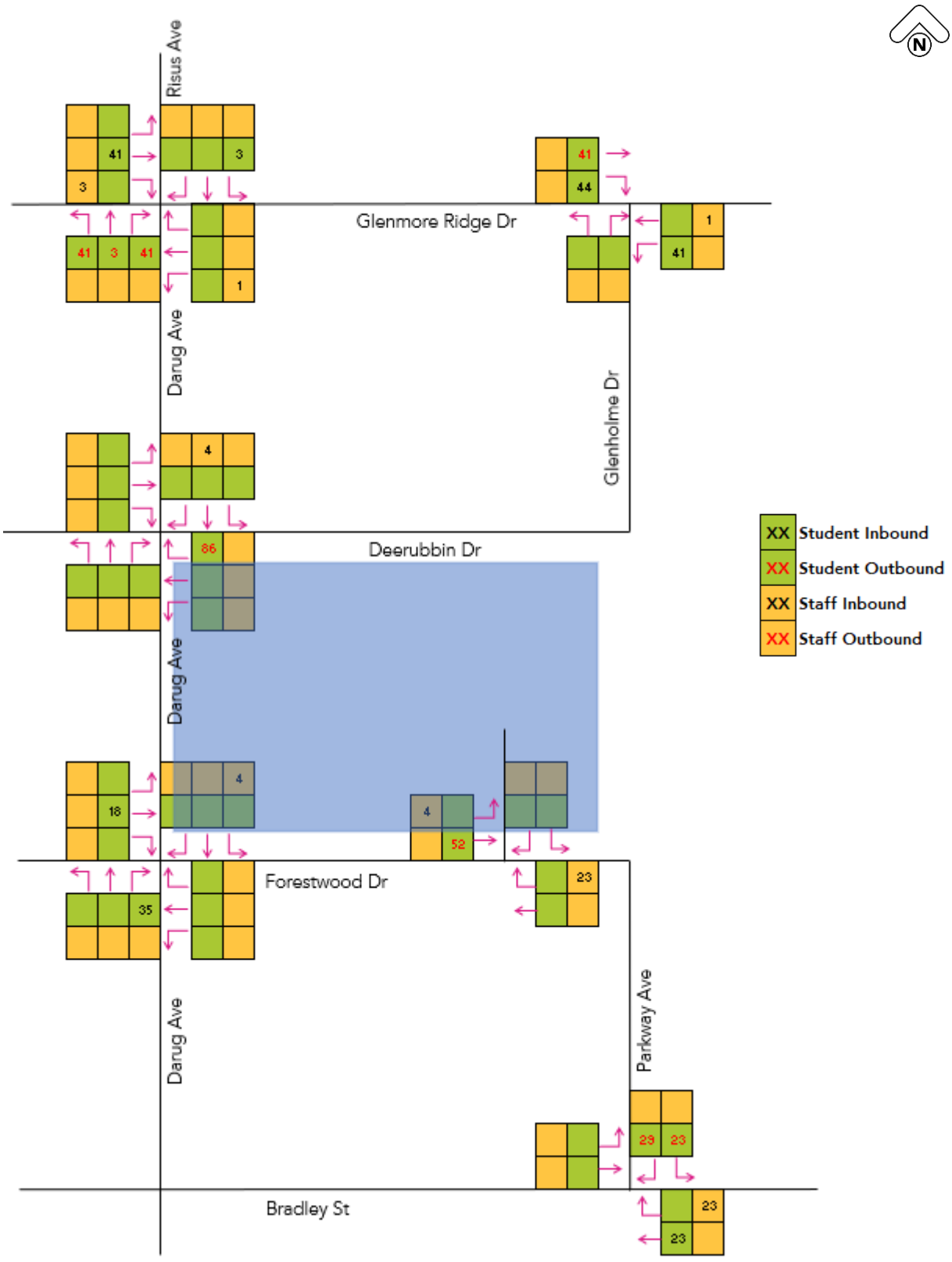


Figure 66 - Development Traffic Volumes for the AM Peak Hour

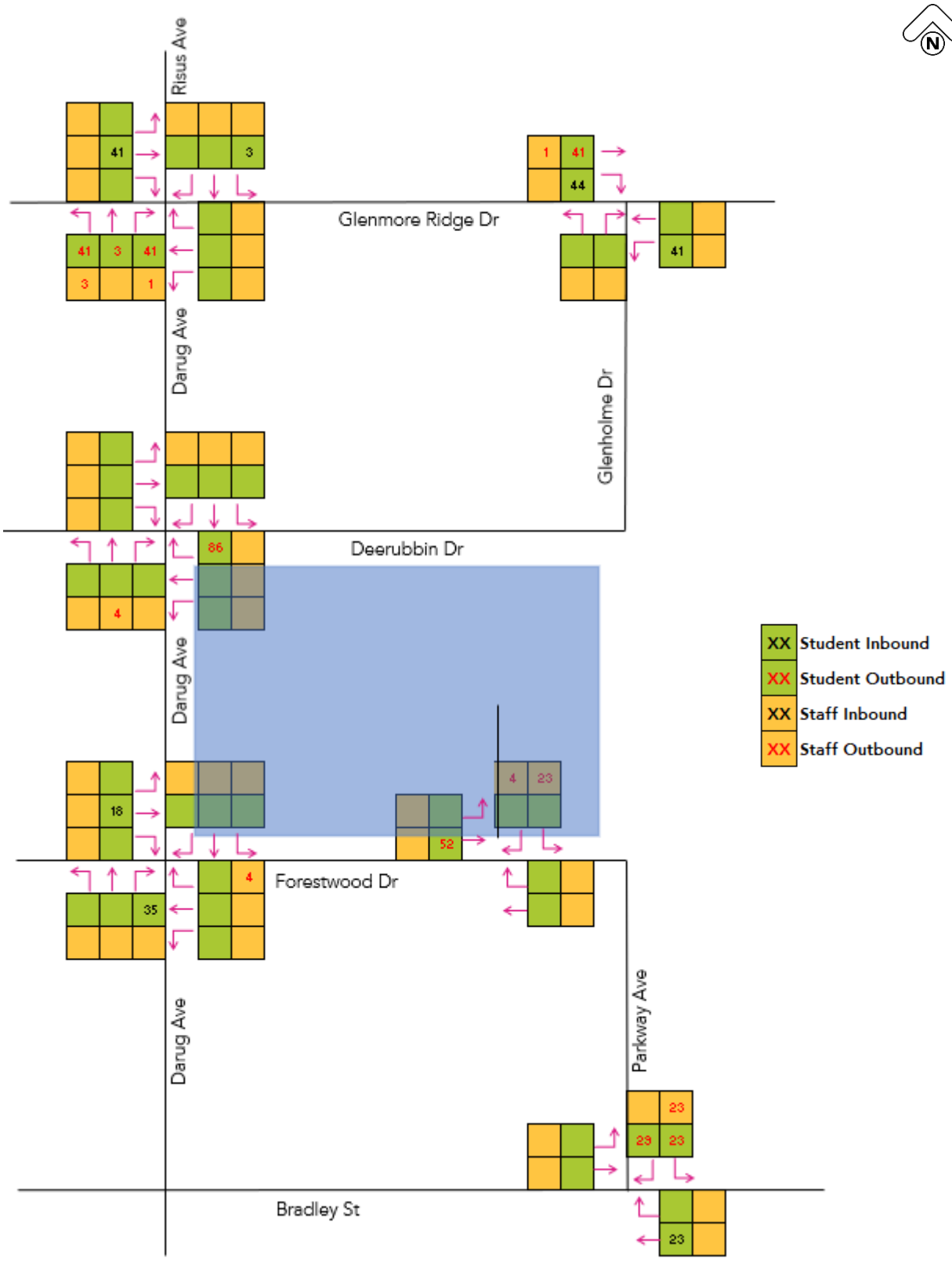


Figure 67 - Development Traffic Volumes for the PM Peak Hour

7.5 Mixed-Use Development

A mixed-use development to the north of the proposed School site has recently been approved by Penrith City Council. For the purpose of this report, it is assumed that the proposed development will be finished and operational before the School opening time in 2023.

An analysis of the Traffic Impact Assessment prepared as part of the development application has been undertaken and it has been found that the traffic calculations refer solely to a PM peak period. Therefore, as a means to undertake a robust assessment for this development, a calculation of trips for the AM and school PM peaks generated by the mixed-use development has been conducted. Reference is made to the following Guidelines and documents:

- RMS *Guide to Traffic Generating Developments 2002 (Guide 2002*);
- RMS *TDT 2013/04a Guide to Traffic Generating Developments (TDT 2013/04a)*; and
- *Revised Traffic Impact Assessment Report* prepared by Mc Laren, 12 June 2020 (Mc Laren's *Traffic Report*)

The mixed-use development traffic generation is calculated and presented in the Table 19.

The mixed-use development traffic distribution in the nearby road networks is set in the Mc Laren's *Traffic Report* for. The residential and non-residential traffic distribution is shown in Figure 68 and Figure 69.

The total estimated traffic volumes for the mixed-use development at key intersections during the AM and school PM peak hours are presented in Figure 70.

Table 19 - Adjacent Mixed-Use Development Estimated Traffic Generation

Land Use	Scale and Traffic Rate for PM Peak taken from Mc Laren Traffic Report for DA 190348		Proposed Traffic Rate for AM Peak	Proposed Traffic Rate for School PM Peak	AM Peak Hour Trips			School PM Peak Hour Trips		
					Tot	IN	OUT	Tot	IN	OUT
Residential										
High Density Dwellings	147 Dwellings	0.41 trips per unit	0.32 trips per unit[8]	NA[9]	47[10]	9	38	0	0	0
Non Residential										
Business Premises	518m2 GLFA	22 trips per 1000m^2 GLFA	22 trips per 1000m^2 GLFA[11]	NA[12]	11[13]	9	2	0	0	0
Child Care Centre	112 Children	0.7 trips per child	0.8 trips per child[14]	0.3 trips per child[15]	90	45	45	34	17	17
Fitness Centre/Gym	638m2 GFA	9 trips per 100m^2 GFA	50% of PM trips[16]	50% of PM trips[17]	29	15	14	29	15	14
Medical Centre	562m2 GLFA	22 trips per 1000m^2 GLFA			6	3	3	6	3	3
Supermarket	1,125m2 GLFA	155 trips per 1000m^2 GLFA			87	44	43	87	44	43
Retail	2,494m2 GLFA	46 trips per 1000m^2 GLFA			57	29	28	57	29	28
				Non Residential Total	269[18]	136	133	213[19]	108	105

[8] The RMS *TDT 2013/04a* notes a range of 0.07-0.32 trips for high density residential dwellings for the AM peak hour. For a conservative assessment, a higher rate of 0.32 trips per unit has been adopted.

[9] The RMS *TDT 2013/04a* and *Guide 2002* do not provide trip generation rates for high density residential dwellings for the School PM peak hour and no significant traffic generation is expected during this period of time.

[10] Residential trip generation is assumed to be 20% in, 80% out for the AM Peak Hour

[11] RMS *Guide 2002* traffic generation rates for general business offices (located on shopping centres) for the Thursday PM peak hour has been adopted for the AM peak hour.

[12] The RMS *TDT 2013/04a* and *Guide 2002* do not provide trip generation rates for business premises for the school PM peak hour and no significant traffic generation is expected during this period of time.

[13] Business premises trip generation is assumed to be 80% in, 20% out for the AM Peak Hour

[14] RMS *Guide 2002* traffic generation rates for childcare centre – long-day care for the AM peak hour has been adopted.

[15] RMS *Guide 2002* traffic generation rates for childcare centre – long-day care for the school PM peak hour has been adopted.

[16] Reference has been made to the Mc Laren's *Traffic Report* for traffic generation. The report provides trip generation rates for the PM Peak Hour only. Since the fitness centres and medical centres develop less trip in the AM peak hour compared to the PM peak hour, 50% of the PM peak hour trip is accounted for the AM peak hour.

[17] Reference has been made to the Mc Laren's *Traffic Report* for traffic generation. The report provides trip generation rates for the PM peak hour only. Since the fitness centres and medical centres develop less trip in the school PM peak hour compared to the PM Peak Hour, 50% of the PM Peak Hour trip is accounted for the school PM peak hour.

[18] All non commercial trip generation except for business premises is assumed to be 50% in and 50% out for the AM peak hour.

[19] All non commercial trip generation is assumed to be 50% in and 50% out for the school PM peak hour

Figure 68 - Residenitial Traffic Distribution (Source: *Revised Traffic Impact Assessment Report*)

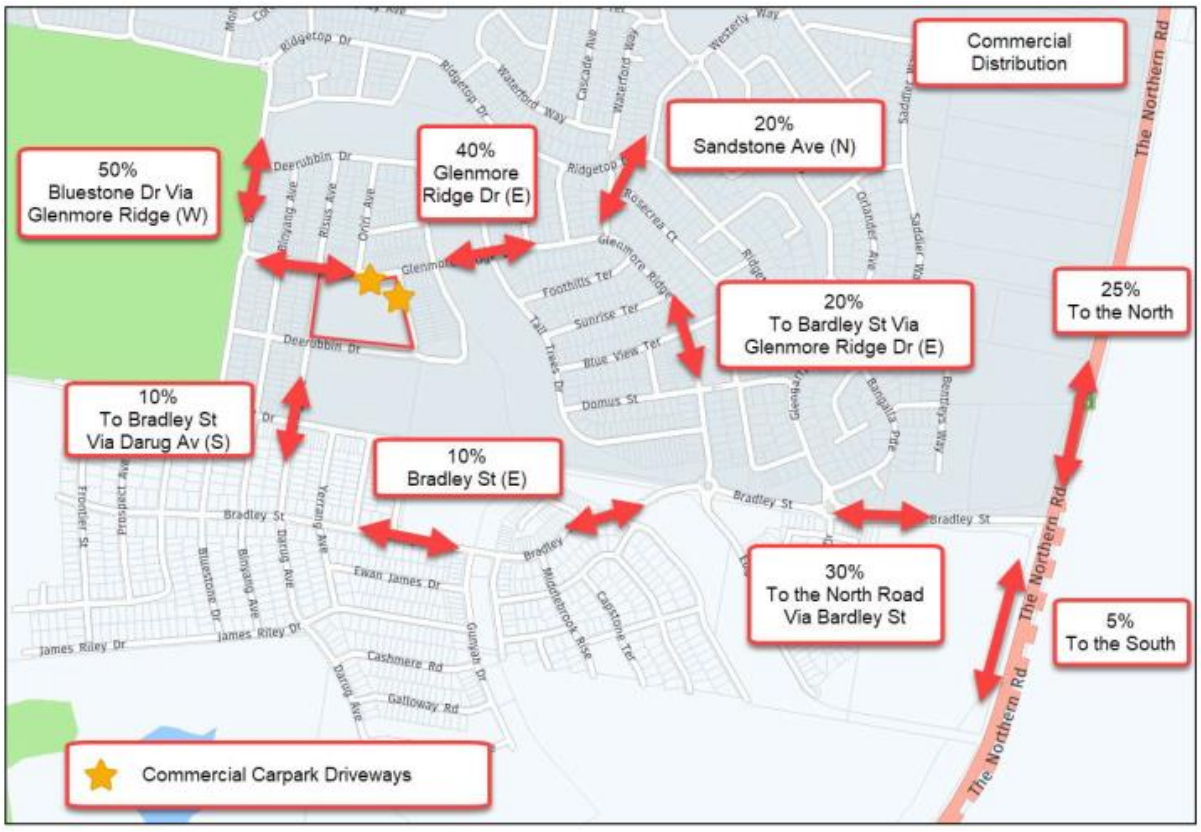


Figure 69 - Non-Residenitial Traffic Distribution (Source: *Revised Traffic Impact Assessment Report*)

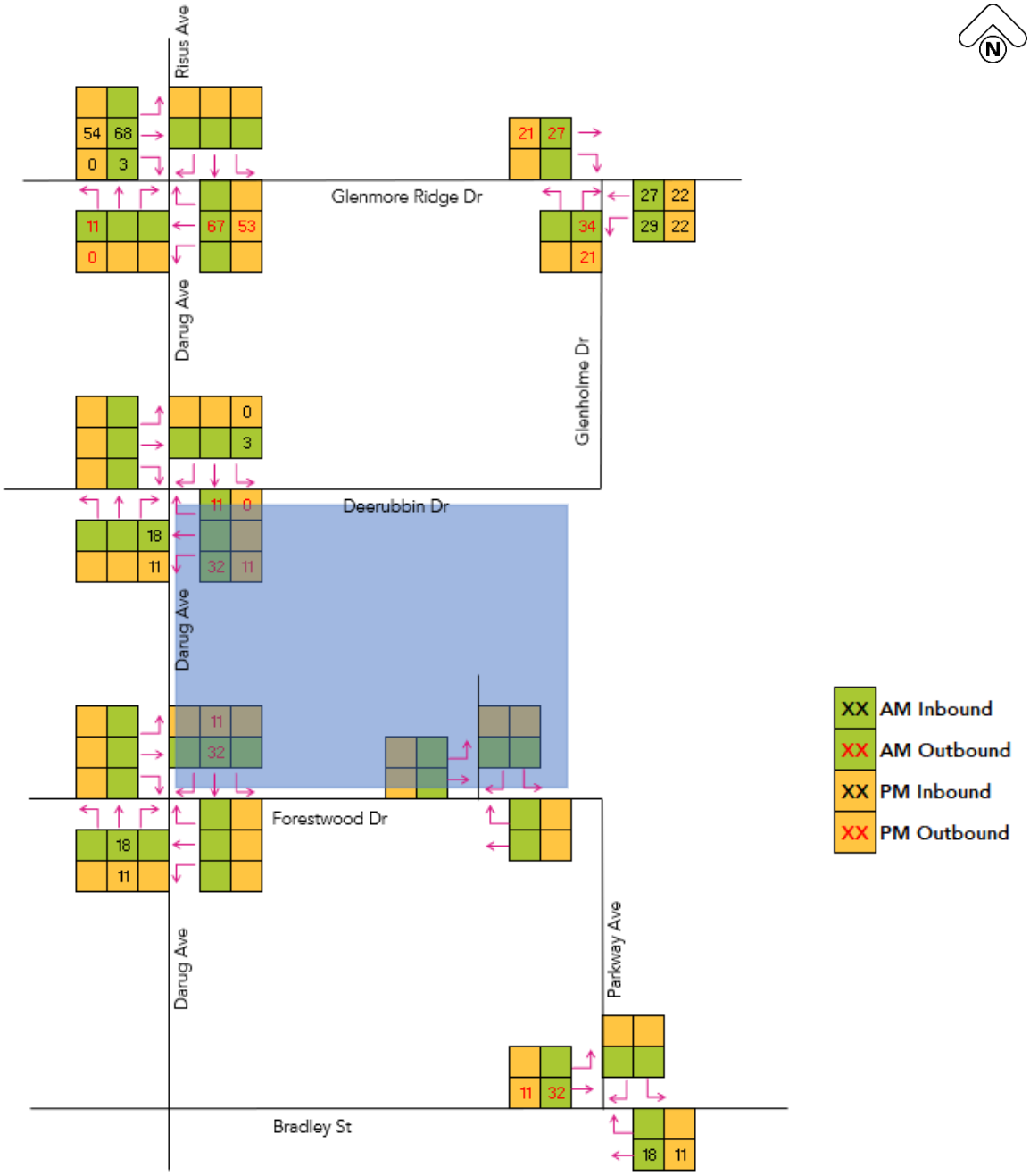


Figure 70 - Mixed Use Development Traffic Distribution

7.6 Glenmore Park 3

The School enrolment catchment extends to a part of the currently investigated Glenmore Park 3 area, as shown in Figure 71.

While it is acknowledged that the blue hatched area will eventually be developed and therefore have an impact on traffic generation, the currently proposed School would not be able to accommodate students residing there. Therefore, the traffic impact related to Glenmore Park 3 is not being assessed at this stage, but will need to be taken into account at the time of the future school expansion.

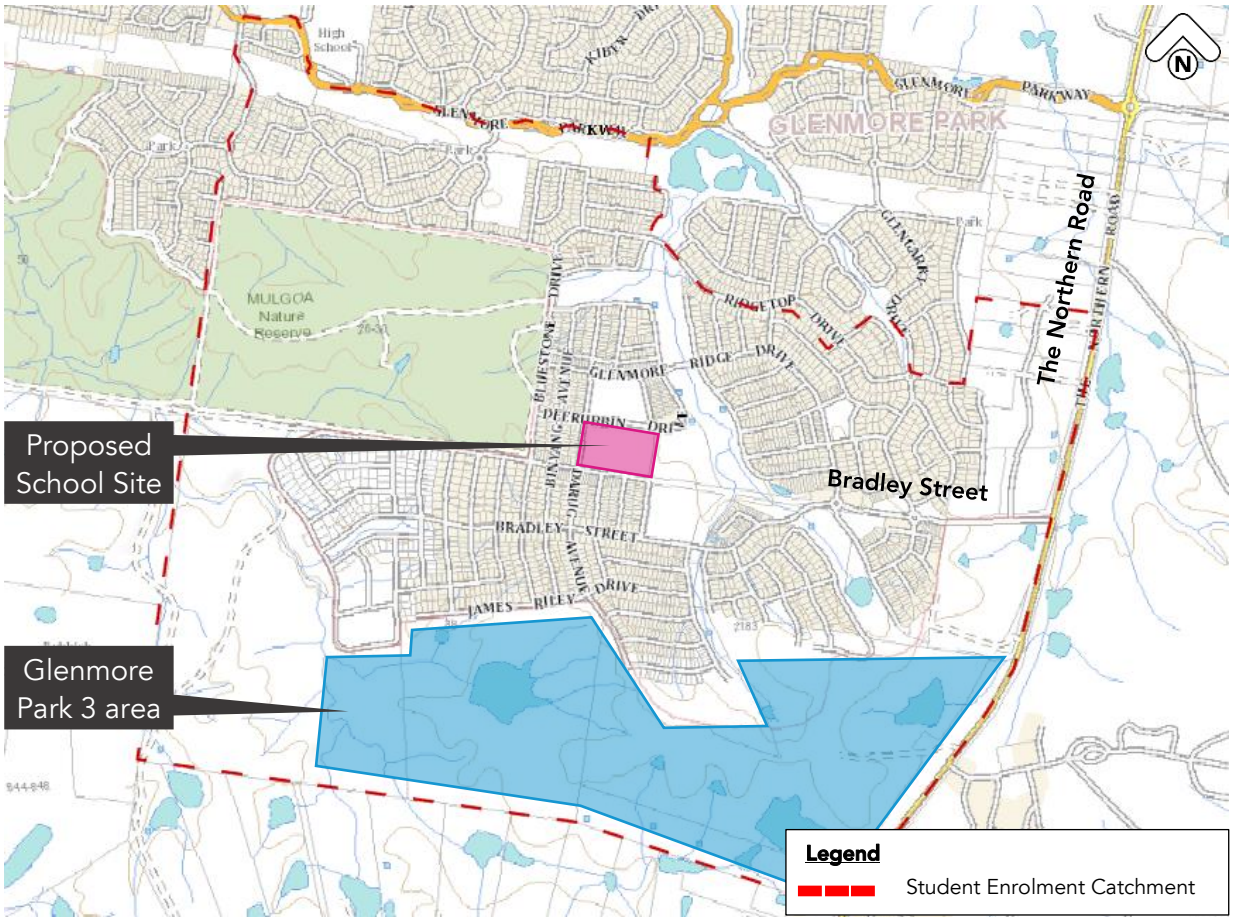


Figure 71 - School Enrolment Catchment in Relation to Glenmore Park 3

7.7 Long-term Background Traffic Growth

In order to determine the long-term background traffic growth, the nearby development areas have been studied. NSW Government *Gateway Determination Report* - IRF 20/3799 shows that a masterplan for Glenmore Park Stage 3 has been prepared, which includes 2558 homes. This masterplan is shown in Figure 72.

Figure 72 - Glenmore Park Stage 3 Masterplan (Source: NSW Government *Gateway Determination Report* - IRF 20/3799)

To calculate traffic impacts of the Glenmore Park Stage 3 on the road networks surrounding the proposed School site, reference is made to *Glenmore Park Extension – Residential Development Planning Proposal – Traffic Impact Assessment* report prepared by The Transport Planning Partnership (TTPP *TIA Report*). The TTPP *TIA Report* estimates the potential traffic volumes for the Glenmore Park Stage 3 masterplan as presented in Figure 73.

Land Use	Yield	Trip Generation Rate		AM Peak Hour Trip Generation		PM Peak Hour Trip Generation	
		AM Peak	PM Peak	Inbound Trips	Outbound Trips	Inbound Trips	Outbound Trips
Low density dwellings	1,934	0.95 trips/ dwelling	0.99 trips/ dwelling	367	1,470	1,532	383
Medium density dwellings	604	0.95 trips/ dwelling	0.99 trips/ dwelling	115	459	478	120
Shop-top Housing	100	0.85 trips/ dwelling	0.85 trips/ dwelling	17	68	68	17
Retail	5,000m² GLFA	0.045 trips/GFA	0.1 trips/GFA	15	15	34	34
School	300 students and 25 staff	-	-	75	50	0	25
Total	-	-	-	**589**	**2,062**	**2,112**	**578**

Figure 73 - Traffic Generation Potential for Glenmore Park Stage 3 Masterplan[20]

Further, the TTPP *TIA Report* estimates the resultant traffic distribution for vehicle trips for years 2026 and 2036. Since the proposed School is scheduled to be operational by 2023, the 2036 trip distribution from the *TIA Report* is considered for the 10-year background growth. The 2036 traffic distribution for residential vehicle trips is shown in Figure 74.

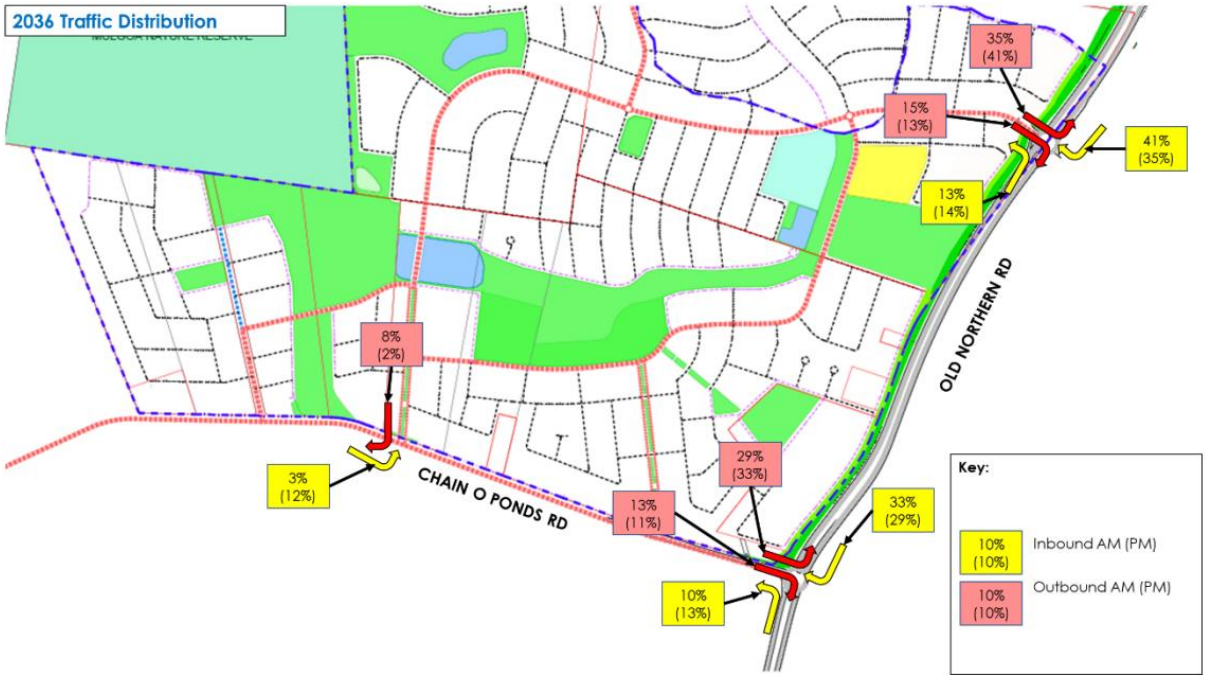


Figure 74 - Resultant Traffic Distribution for Residential Vehilce Trips for Year 2036[18]

[20] (Source: Glenmore Park Extension – Residential Development Planning Proposal – Traffic Impact Assessment report prepared by The Transport Planning Partnership)

As presented in Figure 74, the TTPP *TIA Report* assumes that all vehicles from Glenmore Park Stage 3 area travel via the Old Northern Road or Chain O Ponds Road and no traffic is distributed to the north through Glenmore Park 2 / towards the proposed School area. However, taking into account google maps (see Figure 75), vehicles travelling to Penrith area may either travel via the Old Northern Road or through Glenmore Park 2 / the proposed School area. Therefore, for a conservative assessment it is assumed that 5% of the overall Glenmore Park Stage 3 traffic (refer Figure 73) travels via the proposed School area along Darug Avenue.

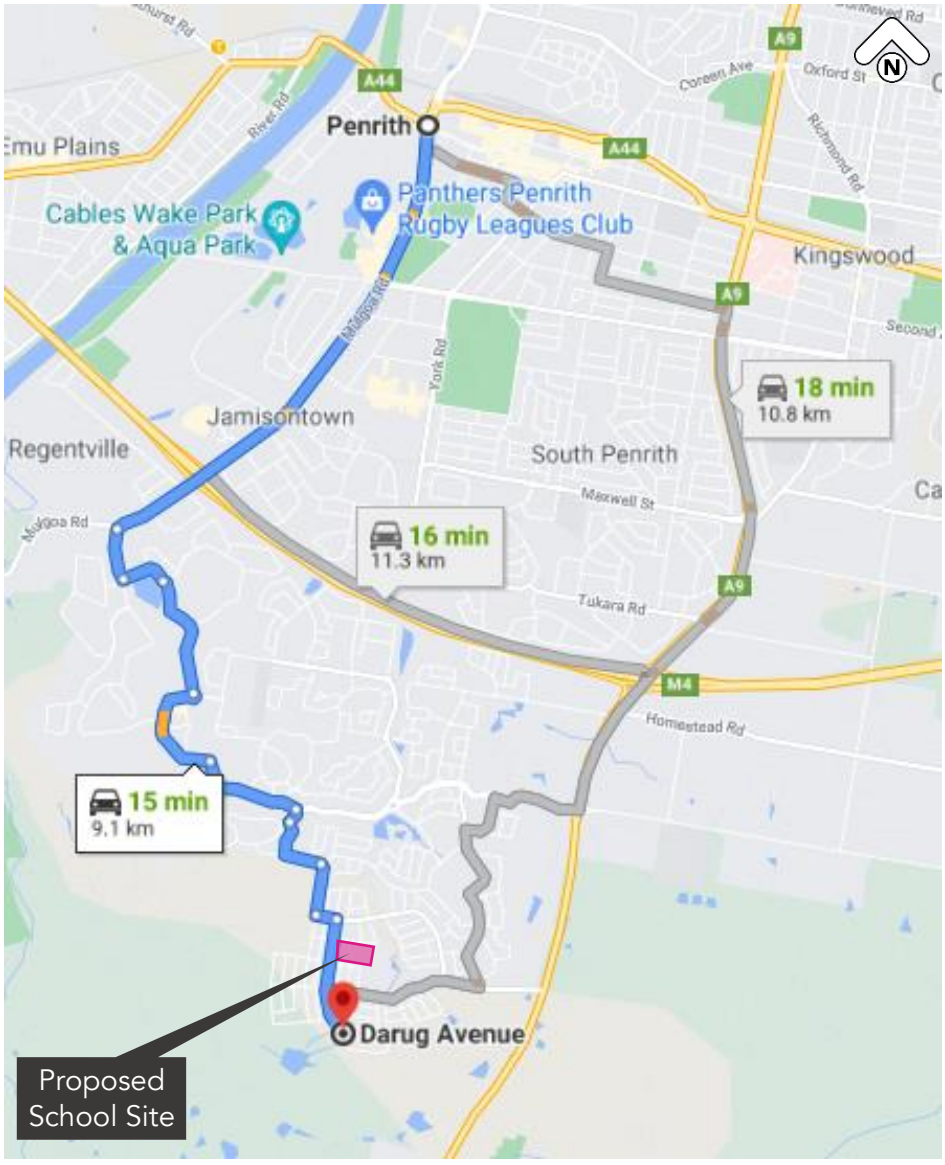


Figure 75 - Vehicle Route to Penrith Area (Source: *Google Maps*)

The total estimated 10 years traffic growth volumes travelling via Darug Avenue during the AM and school PM peak hours are presented in Figure 76.

Figure 76 - Estimated 10 Yrs Traffic Growth Volumes

7.8 SIDRA Modelling

In order to confirm the current and future operation of the intersection, an assessment has been undertaken using the SIDRA modelling software, which presents a range of performance indicators (Level of Service, Average Delay, etc.).

Typically, there are four performance indicators used to summarise the performance of an intersection, being:

- Average Delay – The average delay encountered by all vehicles passing through the intersection. It is often important to review the average delay of each approach as a side road could have a long delay time, while the large free flowing major traffic will provide an overall low average delay.
- Degree of Saturation (DoS) – The total usage of the intersection expressed as a factor of 1 with 1 representing 100% use/saturation (e.g. 0.8=80% saturation).
- 95% Queue lengths (Q95) – is defined to be the queue length in metres that has only a 5-percent probability of being exceeded during the analysis time period. It transforms the average delay into measurable distance units.
- Level of Service (LoS) – This is a categorisation of average delay, intended for simple reference. TfNSW adopts the following bands:

Table 20 - Level of Service Criteria

Level of Service	Average Delay (secs/veh)	Traffic Signals, Roundabout	Give Way & Stop Signs
A	<14	Good operation	
B	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
E	57 to 70	At capacity. At signals, incidents would cause excessive delays. Roundabouts require other control mode	At capacity, requires other control mode
F	>70	Extra capacity required	Extreme delay, major treatment required

For the purpose of SIDRA analysis for this report, all intersections have been coordinated in a network.

7.8.1 Modelling Scenarios

The key intersections have been modelled for the following five scenarios:

- Existing Scenario

  The existing scenario has been modelled with the existing intersection arrangements and with the existing traffic volumes as described in Section 7.3.

  It is noted that currently the car park driveway does not exist. In order to depict the driveway in the model, turning movements into and out of the of the driveway have been turned on with only one vehicle entering and exiting the driveway (required setting).

- Future Base Scenario

  The future base scenario represents the likely traffic volumes at the new School commencement in early 2023. This scenario comprises the existing scenario based on surveyed traffic volumes, plus the additional traffic volumes of the adjacent mixed-use development approved by Penrith City Council, as described in Section 7.5.

  It is noted that currently the car park driveway does not exist. In order to depict the driveway in the model, turning movements into and out of the of the driveway have been turned on with only one vehicle entering and exiting the driveway (required setting).

- Future Base + Development Scenario

  The future development scenario is modelled to simulate traffic conditions at the time of the School's commencement. This scenario includes the future base scenario plus the additional traffic volumes for parents, students and staff as described in Section 7.4.

- Future Base + 10 Years Background Growth Scenario

  This scenario has been modelled with the future base scenario plus the estimated additional traffic growth within the next 10 year period, as described in Section 7.7.

  It is noted that currently the car park driveway does not exist. In order to depict the driveway in the model, turning movements into and out of the of the driveway have been turned on with only one vehicle entering and exiting the driveway (required setting).

- Future Base + 10 Years Background Growth + Development Scenario

  This scenario has been modelled with the future base scenario, the estimated additional traffic growth within the next 10 year period and the additional traffic volumes for parents, students and staff.

7.8.2 SIDRA Results

Table 21 summarises the most relevant SIDRA results for all modelling scenarios with a comparison of the network operation. Full SIDRA results can be found in **Attachment 5**.

Table 21 - SIDRA Modelling Results for pre and post-development

Intersection	Time	Scenario	LoS	Delay (s)[21]	Highest DoS (v/s)	Highest Q95 (m)
Glenmore Ridge Dr / Glenholme Dr	AM Peak	Existing	A	5.2	0.055	0.4
		Future Base (FB)	A	5.5	0.077	1.1
		FB + Development	A	6.1	0.124	2.7
		FB + 10 Yrs Backgr. Growth	A	5.5	0.077	1.1
		FB + 10 Yrs Backgr. Growth + Devel.	A	6.1	0.124	2.7
	PM Peak	Existing	A	5.1	0.049	0.5
		Future Base (FB)	A	5.4	0.073	0.8
		FB + Development	A	5.8	0.109	2.7
		FB + 10 Yrs Backgr. Growth	A	5.4	0.073	0.8
		FB + 10 Yrs Backgr. Growth + Devel.	A	5.8	0.109	2.7
Glenmore Ridge Dr / Darug Ave / Risus Ave	AM Peak	Existing	A	5.9	0.070	2
		Future Base (FB)	A	6.9	0.105	2.4
		FB + Development	A	7.6	0.179	5.2
		FB + 10 Yrs Backgr. Growth	A	7.9	0.162	4.9
		FB + 10 Yrs Backgr. Growth + Devel.	A	8.7	0.258	8.1
	PM Peak	Existing	A	5.8	0.076	2.3
		Future Base (FB)	A	6.4	0.108	2.8
		FB + Development	A	7.1	0.148	4.1
		FB + 10 Yrs Backgr. Growth	A	7.4	0.178	6.3
		FB + 10 Yrs Backgr. Growth + Devel.	A	8.2	0.200	7.0
Darug Ave / Deerubbin Dr	AM Peak	Existing	A	5.3	0.058	0.8
		Future Base (FB)	A	5.5	0.069	1.5
		FB + Development	A	5.6	0.145	3.8
		FB + 10 Yrs Backgr. Growth	A	6.5	0.125	1.8
		FB + 10 Yrs Backgr. Growth + Devel.	A	6.5	0.165	4.3
	PM Peak	Existing	A	5.2	0.039	0.5
		Future Base (FB)	A	5.3	0.044	0.9
		FB + Development	A	5.4	0.116	2.9
		FB + 10 Yrs Backgr. Growth	A	6.1	0.096	1.1
		FB + 10 Yrs Backgr. Growth + Devel.	A	6.3	0.134	3.4

[21] For signalised intersections, the average performance indicators have been reported. It is noted that for priority-controlled intersections, the minor road usually experiences the highest delay whereas the major road experiences zero delay. In light of this, the average performance indicators may not be a suitable method of assessing the performance of an intersection. Therefore, the performance indicators for the worst movement have been reported for priority-controlled intersections.

Intersection	Time	Scenario	LoS	Delay (s)[21]	Highest DoS (v/s)	Highest Q95 (m)
Darug Ave / Forestwood Dr	AM Peak	Existing	A	4.1	0.047	0.4
		Future Base (FB)	A	4.4	0.057	0.4
		FB + Development	A	4.7	0.080	1.6
		FB + 10 Yrs Backgr. Growth	A	5.2	0.113	0.5
		FB + 10 Yrs Backgr. Growth + Devel.	A	5.6	0.136	1.9
	PM Peak	Existing	A	4.1	0.042	0.3
		Future Base (FB)	A	4.2	0.048	0.3
		FB + Development	A	4.5	0.058	1.5
		FB + 10 Yrs Backgr. Growth	A	5.0	0.104	0.4
		FB + 10 Yrs Backgr. Growth + Devel.	A	5.3	0.104	1.8
Bradley St / Parkway Ave	AM Peak	Existing	A	5.4	0.081	0.3
		Future Base (FB)	A	5.7	0.098	0.3
		FB + Development	A	6.0	0.098	1.6
		FB + 10 Yrs Backgr. Growth	A	5.7	0.098	0.3
		FB + 10 Yrs Backgr. Growth + Devel.	A	6.0	0.098	1.6
	PM Peak	Existing	A	5.6	0.107	0.6
		Future Base (FB)	A	5.7	0.113	0.6
		FB + Development	A	6.0	0.125	2.0
		FB + 10 Yrs Backgr. Growth	A	5.7	0.113	0.6
		FB + 10 Yrs Backgr. Growth + Devel.	A	6.0	0.125	2.0
Forestwood Dr / Site Driveway	AM Peak	Existing	A	4.6	0.009	0
		Future Base (FB)	A	4.6	0.009	0
		FB + Development	A	4.9	0.040	0.5
		FB + 10 Yrs Backgr. Growth	A	4.6	0.009	0
		FB + 10 Yrs Backgr. Growth + Devel.	A	4.9	0.040	0.5
	PM Peak	Existing	A	4.7	0.009	0
		Future Base (FB)	A	4.7	0.009	0
		FB + Development	A	4.8	0.038	0.5
		FB + 10 Yrs Backgr. Growth	A	4.7	0.009	0
		FB + 10 Yrs Backgr. Growth + Devel.	A	4.8	0.038	0.5

All key intersections included in the SIDRA model are priority controlled intersections. All turn movements of the key intersections are currently performing with a LoS A for the AM and PM peak hours. Future scenarios do not result in significant changes and the LoS for all turn movements remain the same. Other performance measures increase only marginally for both the AM and PM peaks.

Post-development and in the future, the intersections will operate with at least 74% spare capacity in the peak hours.

Considering the above, the traffic impact at the key intersections as a result of the development is expected to be minor.

8. Collaboration with Stakeholders

8.1 Penrith Council

Letter Dated 25th March 2021

> *A Signage and Line marking Plan is required to be included with SSD materials submitted and would likely include Bus Zone signage, No Parking signage (for kiss & ride), any unrestricted parking fronting site (rationale, if none, to be included in traffic report).*

A line marking and signage plan was prepared and submitted to Council for review prior to SSD submission. The proposed signage takes into consideration the request from Council to provide not only pick-up and drop-off parking restrictions, but also longer-term parking for those parents / carers who may arrive early for pick-up in the afternoon. No concerns to the proposed signage and line marking pans were raised.

> *The approved location of the Deerubbin Drive crossing as approved within Development Consent No. DA19/0348 should be verified and reflected within the plans as progressed. Information relating to this DA is available on the State Governments Sydney Western City Planning Panel website or Council's DA Tracker. Refer to Condition 79 within the SWCPP Assessment Report*
>
> *https://www.planningportal.nsw.gov.au/planning-panel/mixed-use-development-5*
>
> *The design of this crossing should be a raised threshold (wombat) crossing as depicted in plans presented during the meeting.*

The crossing as approved in the DA19/0348 appears to only comprise pedestrian islands, which is not supported nor proposed on grounds of safety for students. Consultation with the developer to the north has been underway to jointly upgrade the proposed to a zebra crossing.
Ideally, all crossings would be raised and constructed with buildouts to prioritise students, reduce the number of lanes students need to cross and act as traffic calming devices. However, it is understood that from a civil design perspective, any raised facilities installed within the surrounding roads will have a negative impact on 1 in 100 years flood levels. Therefore, alternative arrangements have been investigated.

> *Regarding the Darug Ave proposed pedestrian crossing point, Council recommends that the proponent undertake community consultation.*

This will be undertaken in due course.

> *The proposal must also ensure that proposed kerbside blister islands do not unduly impact the effective operation of existing kerb inlet pits.*

This item is being addressed by the civil engineers. However, it is seen as important to reduce the width of the crossing for students. Therefore, alternative blister layouts are being investigated.

Pedestrian fencing adjacent to crossings (to corral peds to crossing point) would be appropriate and should be included on plans.

Pedestrian fencing has been implemented on the south-eastern corner of Darug Avenue / Deerubbin Drive and on the north-eastern corner of Darug Avenue / Forestwood Drive. Refer to Attachment 2.

During the meeting it was suggested that a reliance on Council's car parking may be investigated however as outlined during the meeting, it was considered from a planning and traffic perspective that any development (even a school) should provide sufficient onsite parking to cater for staffing needs without reliance on an adjacent car park which is provided for the community in support of recreational use of adjacent lands. This suggestion would also likely exacerbate on-street congestion resulting in greater competition for available on-street car parking spaces.

Further discussions between Council and the Department of Education will be required. At this stage, the project is proposing to provide parking for 63% of staff.

Council requests a detailed Traffic Report be provided for assessment purposes, even though Council is not the determining authority, as it will assist Council in planning appropriate signage and ancillary works (particularly for adjacent sites) and provides further opportunity for feedback on the SSD. The report should include (but not be limited to) the following:

- *Detail modal share/split and rationale.*
- *Include expected traffic generation (numbers of staff and parents) – percentage of car park coverage for staff accessing the site.*
- *Address parking (onsite and offsite), demonstrating staff car parking requirements and how this is met onsite.*
- *Detail proposed drop off pick up arrangement (signage, timing, etc).*
  Will it operate both morning and afternoon and/or are there alternative arrangements that could work such as allowing longer term parking of an afternoon?
- *Detail proposed pedestrian connections.*
- *Access points/gates (including gate to sporting field, how will this operate).*
- *Include resident consultation results re: proposed Darug Avenue ped crossing in Traffic Report (we can then take it to LTC).*
- *Accessible drop off to comply with clearances/shared zone requirements AS2890.6. and kerb ramp placements for wheelchairs.*
  Must be demonstrated.
- *Waste vehicle swept paths to/from the site, as well as internal manoeuvring swept paths.*

All the above points are covered in this Transport and Traffic Assessment, the School Transport Plan and the Preliminary Construction Traffic and Pedestrian Management Plan.

A request to analyse the sight lines at the zebra crossings was voiced, which has been addressed in Section 6.5.4.

Upon consultation with Council to see if the Council car park can be utilised for staff parking, the following response was received from an asset coordinator via email dated 7th April 2021:

> *… I think there will need to be a higher level discussion to be had between Council and the Dept. of Education in regards to the proposed joint use arrangements of the Council carpark.*

8.2 TfNSW

During the Transport Working Group, the following points were discussed:

- A discussion with the bus operator was held during a Transport Working Group. Ideal options for bus connectivity for the project were presented (refer to Section 3.3), upon which possible changes were discussed. These changes were implemented for the purpose of the target scenario transport mode analysis (refer to 5.2.4).
- It has been voiced that an analysis of zebra crossing warrants needs to be undertaken, which has been addressed in Section 6.4.2.
- A 40% driving mode share can in principle be accepted, if it can be demonstrated that appropriate measures will be implemented to support this. Section 5.2 of this report describes physical and services improvements, whereas the School Transport Plan provides measures and programs that will be implemented upon commencement of the school.

8.3 Mixed Use Development

The mixed-use development has been conditioned to provide pedestrian islands across Deerubbin Drive. While the location is ideal in the context of student safety, the build form is not. Ideally, all crossings surrounding the school would be raised, although some concerns were raised by the civil engineer. Consultation with the developer of the mixed-use development will be undertaken to ensure that the best possible outcome can be achieved while considering the economic impact.

8.4 Other Stakeholders

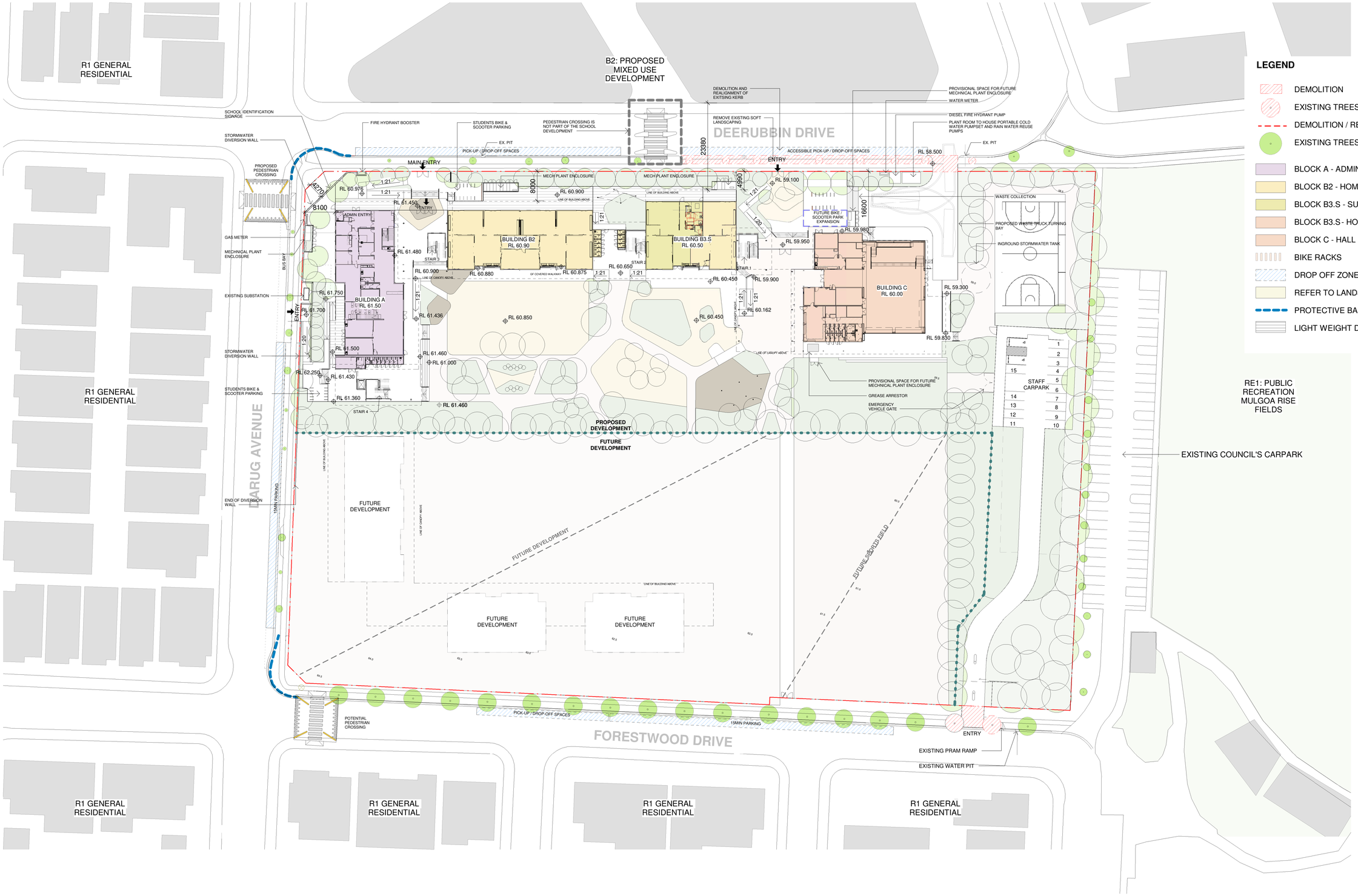
The following advice was received from a civil engineer after a flood model was undertaken:

> *The provision of raised thresholds / blisters along Darug Avenue, Deerubbin Drive and Forestwood Drive will result in additional depth of flooding entering the site and neighbouring properties, and impact on the required building FFLs. It is recommended that alternative traffic calming measures are used.*

From a traffic perspective, all crossings would ideally be raised and constructed with buildouts to prioritise students, reduce the number of lanes students need to cross and act as traffic calming devices. However, it is understood that from a civil design perspective, any raised facilities installed within the surrounding roads will have a negative impact on 1 in 100 years flood levels. Therefore, alternative arrangements have been investigated.

In order to reduce the width of the carriageway, physical obstructions in form of buildouts will be incorporated in the design. The exact design will have a minimal impact on water flow.

Attachment 1 Architectural Plans



LEGEND

- DEMOLITION
- EXISTING TREES TO BE REMOVED
- DEMOLITION / REMOVAL
- EXISTING TREES
- BLOCK A - ADMIN AND LIBRARY
- BLOCK B2 - HOME BASES LEARNING
- BLOCK B3.S - SUPPORT ED. HUB
- BLOCK B3.S - HOME BASES LEARNING
- BLOCK C - HALL
- BIKE RACKS
- DROP OFF ZONE
- REFER TO LANDSCAPE DRAWINGS
- PROTECTIVE BALUSTRADE
- LIGHT WEIGHT DECKING

Issue

No.	Date	Description	Chkd
1	12/04/2021	ISSUE FOR COORDINATION	
2	16/04/2021	SD ISSUE	
3	23/04/2021	ISSUE FOR COORDINATION	
4	04/05/2021	SSDA ISSUE	
5	14/07/2021	FOR INFORMATION	
6	19/07/2021	COORDINATION ISSUE	JL
7	28/07/2021	ISSUE FOR COORDINATION	
8	06/08/2021	SSDA ISSUE	JL
9	11/08/2021	SSDA ISSUE	JL

SSDA ISSUE

RICHARD CROOKES CONSTRUCTIONS

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Drawing Title
SITE PLAN

PRELIMINARY

Project
NEW PRIMARY SCHOOL IN MULGOA RISE
at
1-23 Forestwood drive, Glenmore Park, NSW 2745, Australia
for
SINSW

Architect
NBRSARCHITECTURE.
Sydney
61 2 9922 2344 nbrsarchitecture.com

Nominated Architect:
Andrew Duffin NSW 5602
NBRS & Partners Pty Ltd VIC 51197

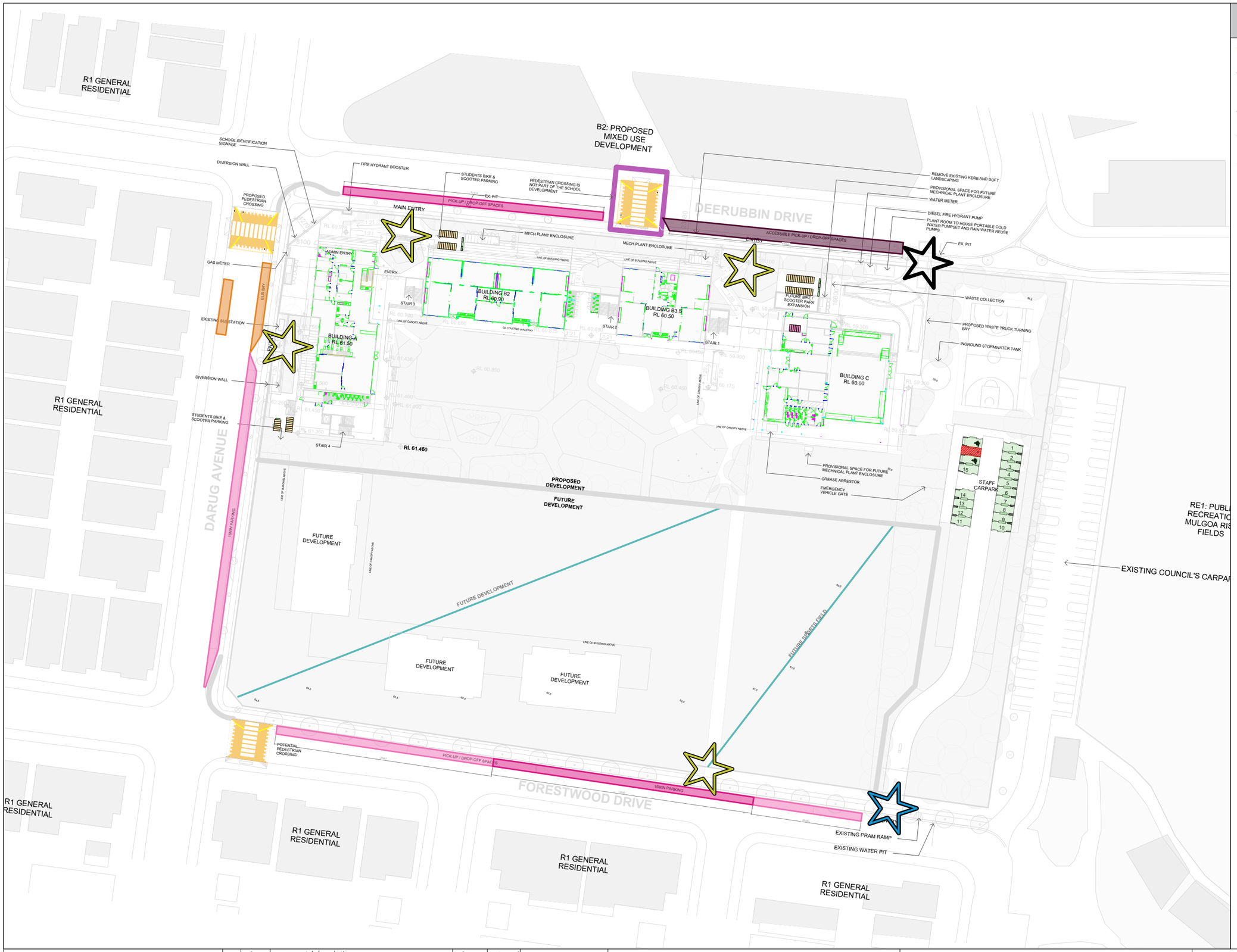
ABN 16 002 247 565

Date 11/08/2021 1:12:21 PM
Scale 1:500 @ A1

Drawing Reference 20415-NBRS-DR-A-SSDA-0110
Revision 9

0 5m 10m 15m 20m 25m 30m 35m 40m 1:500

Attachment 2 Design Review



comments

A3

- Bus Stop
- Pick-up and Drop-off Area - School Days
- Disable Parking - School Days
- 15 Minute Parking - School Days
- Bicycle Parking
- Pedestrian Entry
- Vehicular Entry

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rev	date	comment / description	drawn	reviewed
3	30/07/21	For Information	PS	KB
2	05/05/21	For Information	PS	KB
1	31/03/21	Work In Progress - For Review	PS	KB/SW

project

New Public School In Mulgoa Rise

drawing title

Overview

client	SINSW
drawing #	ptc-001
project #	KB - 2840
scale	1 : 1000

rev 3

Proposed layout

SCHOOL IDENTIFICATION SIGNAGE

DIVERSION WALL

PROPOSED PEDESTRIAN CROSSING

GAS METER

BUS BAY

XISTING SUBSTATION

ENTRY

ADMIN ENTRY

BUILDING A
RL 61.50

RL 60.976

RL 61.750

4270

8100

Recommended layout
To be implemented by others

SSING IS
SCHOOL

SURE

MECH PLANT ENCLOSURE

LINE OF BUILDING ABOVE

Proposed layout

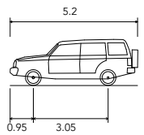
POTENTIAL PEDESTRIAN CROSSING

64.5

comments

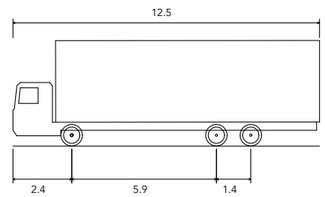
A3

- Bus Stop
- Pick-up and Drop-off Area - School Days
- Disable Parking - School Days
- 15 Minute Parking - School Days
- Bicycle Parking
- Pedestrian Entry
- Vehicular Entry



B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m



HRV - Heavy Rigid Vehicle

Overall Length	12.500m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.417m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m

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3	30/07/21	For Information	PS	KB
2	05/05/21	For Information	PS	KB
1	31/03/21	Work In Progress - For Review	PS	KB/SW

project
New Public School In Mulgoa Rise

drawing title
Pedestrian Crossings

client	SINSW
drawing #	ptc-002
project #	KB - 2840
scale	1 : 250

rev 3

comments

A3

TYPICAL

Please note the following compliance requirements:

Height Clearance: **2.2m** (min) throughout all areas of the car park accessible to vehicles and bicycles.
2.5m above accessible and shared bays **X** wherever access is required for a refuse vehicle (and safety clearance envelope)

Sight Splays: Visibility splays in the form of a **2.5m x 2m** right-angled triangle to be provided (AS2890.1). Ensure design avoids visual obstructions in sight splay (i.e. dense landscaping, tall fencing/walls etc.)

Parking Spaces: The parking envelopes shown, must be kept clear of all physical obstructions, including height clearance reductions. Ensure that grades within the parking module do not exceed 1:20 (1:40 for accessible bays).

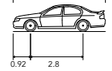
Accessible Spaces: To be designed in accordance with AS2890.6. i.e, standard parking space with adjacent shared bay (2.4m x 5.4m), to be installed as per AS2890.6 requirements (bollard and markings).

Bicycle Parking: Bicycle spaces are to allow for a envelope of 500mm by 1800mm, with an aisle width of 2000mm for locker storage, or 1500mm for racks.

Control Measures: Please note recommended control measures, including line markings, signage, bollards, convex mirrors, lights etc.

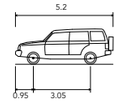
2.4 x 5.4m Car Parking Envelope

2.4 x 5.4m Accesible Shared Bay



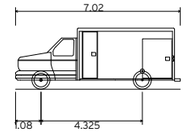
B85 Vehicle (Realistic min radius) (2004)

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



B99 Vehicle (Realistic min radius) (2004)

Overall Length	5.200m
Overall Width	1.940m
Overall Body Height	1.878m
Min Body Ground Clearance	0.272m
Track Width	1.840m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	6.250m



Bariatric Ambulance (2.2m width)

Overall Length	7.020m
Overall Width	2.200m
Overall Body Height	2.600m
Min Body Ground Clearance	0.343m
Track Width	2.200m
Lock-to-lock time	4.00s
Wall to Wall Turning Radius	7.650m

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2	05/05/21	For Information	PS	KB
1	31/03/21	Work In Progress - For Review	PS	KB/SW

project
New Public School In Mulgoa Rise

drawing title
Car Park Design Review
B99 Inbound and B85 Outbound Movement
7m Long Ambulance Inbound and Outbound Movement

client	SINSW
drawing #	ptc-003
project #	KB - 2840
scale	1 : 250

rev 3

WATER METER

DIESEL FIRE HYDRANT PUMP

PLANT ROOM TO HOUSE PORTABLE COLD WATER PUMPSET AND RAIN WATER REUSE PUMPS

HRV - Heavy Rigid Vehicle

-UP / DROP-OFF SPACES

EX. PIT

RL 58.2

E BIKE / R PARK ISION

16600

WASTE COLLECTION

58.5

PROPOSED WASTE TRUCK TURNING BAY

INGROUND STORMWATER TANK

RL 59.300

BUILDING C
RL 60.00

59.0

RL 59.300

comments

A3

TYPICAL

Please note the following compliance requirements:

Height Clearance: **2.2m** (min) throughout all areas of the car park accessible to vehicles and bicycles.
2.5m above accessible and shared bays **X** wherever access is required for a refuse vehicle (and safety clearance envelope)

Sight Splays: Visibility splays in the form of a **2.5m x 2m** right-angled triangle to be provided (AS2890.1). Ensure design avoids visual obstructions in sight splay (i.e. dense landscaping, tall fencing/walls etc.)

Parking Spaces: The parking envelopes shown, must be kept clear of all physical obstructions, including height clearance reductions. Ensure that grades within the parking module do not exceed 1:20 (1:40 for accessible bays).

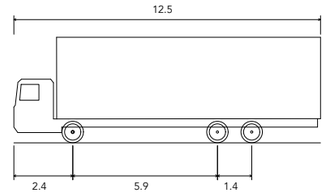
Accessible Spaces: To be designed in accordance with AS2890.6. i.e, standard parking space with adjacent shared bay (2.4m x 5.4m), to be installed as per AS2890.6 requirements (bollard and markings).

Bicycle Parking: Bicycle spaces are to allow for a envelope of 500mm by 1800mm, with an aisle width of 2000mm for locker storage, or 1500mm for racks.

Control Measures: Please note recommended control measures, including line markings, signage, bollards, convex mirrors, lights etc.

2.4 x 5.4m Car Parking Envelope

2.4 x 5.4m Accesible Shared Bay



HRV - Heavy Rigid Vehicle	
Overall Length	12.500m
Overall Width	2.500m
Overall Body Height	4.300m
Min Body Ground Clearance	0.417m
Track Width	2.500m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	12.500m

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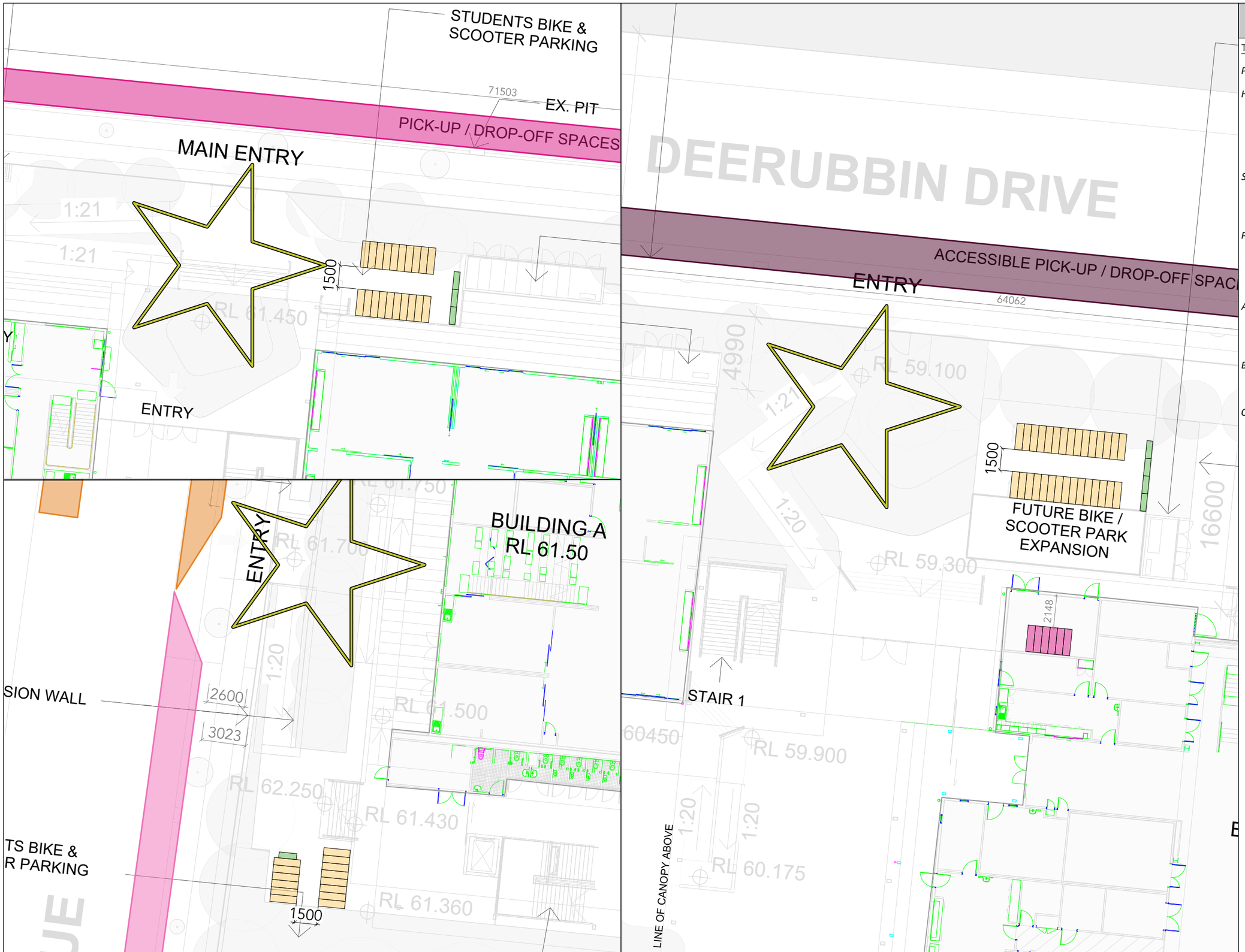
3	30/07/21	For Information	PS	KB
2	05/05/21	For Information	PS	KB
1	31/03/21	Work In Progress - For Review	PS	KB/SW

project
New Public School In Mulgoa Rise

drawing title
Car Park Design Review
Rear In HRV Inbound and Outbound Movement into the Waste Collection Area

client	SINSW
drawing #	ptc-004
project #	KB - 2840
scale	1 : 250

rev 3



comments

A3

TYPICAL

Please note the following compliance requirements:

Height Clearance: **2.2m** (min) throughout all areas of the car park accessible to vehicles and bicycles.
2.5m above accessible and shared bays
X wherever access is required for a refuse vehicle (and safety clearance envelope)

Sight Splays: Visibility splays in the form of a **2.5m x 2m** right-angled triangle to be provided (AS2890.1). Ensure design avoids visual obstructions in sight splay (i.e. dense landscaping, tall fencing/walls etc.)

Parking Spaces: The parking envelopes shown, must be kept clear of all physical obstructions, including height clearance reductions. Ensure that grades within the parking module do not exceed 1:20 (1:40 for accessible bays).

Accessible Spaces: To be designed in accordance with AS2890.6. i.e, standard parking space with adjacent shared bay (2.4m x 5.4m), to be installed as per AS2890.6 requirements (bollard and markings).

Bicycle Parking: Bicycle spaces are to allow for a envelope of 500mm by 1800mm, with an aisle width of 2000mm for locker storage, or 1500mm for racks.

Control Measures: Please note recommended control measures, including line markings, signage, bollards, convex mirrors, lights etc.

- 0.5 x 1.8m Bicycle Parking Envelope for students / visitors
- 0.5 x 1.8m Bicycle Parking Envelope for staff
- 0.45 x 1.2m Scooter Racks
- Bus Stop
- Staff Car Park
- Pick-up and Drop-off Area - School Days
- Disable Parking - School Days
- 15 Minute Parking - School Days
- Service / Waste Collection
- Pedestrian Entry
- Vehicular Entry

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2	05/05/21	For Information	PS	KB
1	31/03/21	Work In Progress - For Review	PS	KB/SW

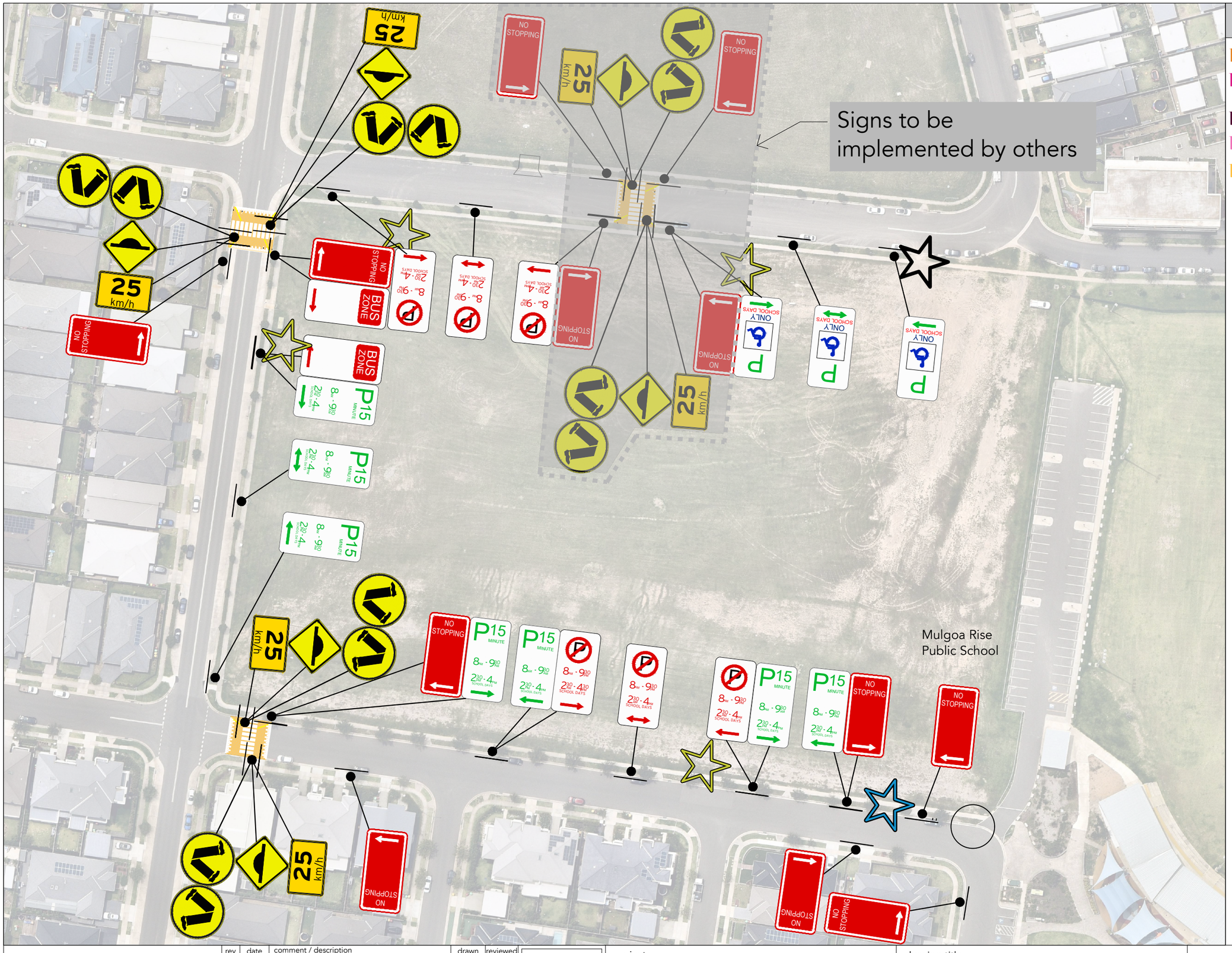
project
New Public School In Mulgoa Rise

drawing title
Bicycle Space Design Review

client	SINSW
drawing #	ptc-006
project #	KB - 2840
scale	1 : 250

rev 3

Attachment 4 Signage and Line Marking Plans



comments

A3

- Bus Stop
- Pick-up and Drop-off Area - School Days
- Disable Parking - School Days
- 15 Minute Parking - School Days
- Bicycle Parking
- Pedestrian Entry
- Vehicular Entry

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3	30/07/21	For Information	PS	KB
2	05/05/21	For Information	PS	KB
1	31/03/21	Work In Progress - For Review	PS	KB/SW

project

New Public School In Mulgoa Rise

drawing title

Parking Signage Plan

client	SINSW
drawing #	ptc-007
project #	KB - 2840
scale	1 : 1000

rev 3

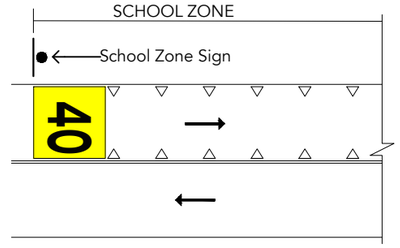
comments

A3

SCHOOL ZONE SIGN

END OF SCHOOL ZONE SIGN

SCHOOL ZONE LINEMARKING



- Bus Stop
- Pick-up and Drop-off Area - School Days
- Disable Parking - School Days
- 15 Minute Parking - School Days
- Bicycle Parking
- Pedestrian Entry
- Vehicular Entry

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rev	date	comment / description	drawn	reviewed
3	30/07/21	For Information	PS	KB
2	05/05/21	For Information	PS	KB
1	31/03/21	Work In Progress - For Review	PS	KB/SW

project
New Public School In Mulgoa Rise

drawing title
School Zone Signage and Line Marking

client	SINSW
drawing #	ptc-008
project #	KB - 2840
scale	1 : 2000

rev 3

Attachment 3 Zebra Crossing Design - Discussion

Ideally, all crossings along school frontage roads would be raised and constructed with buildouts to prioritise students, reduce the number of lanes students need to cross and act as traffic calming devices. It is understood that from a civil design perspective, any raised facilities installed within the surrounding roads will have a negative impact on the 1 in 100 years flood levels. The following depicts the thought process undergone by the project to land on an alternative at-grade solution, which is considered to offer the best possible outcome for students while taking into consideration the advice received from the civil engineering team.

Pedestrian Island

As a means of reducing the width of the carriageway, pedestrian refuge islands were considered, similar to those shown in Figure 77.

Figure 77 – Example of a pedestrian island

The following has been considered:

- Darug Avenue has a width of approximately 12m. With an island of 2m, the remaining lane would be just over 5m wide, as shown in Figure 78. A 5m lane, while from a design perspective technically too narrow, could physically be used by two vehicles next to each other. According to the standards, pedestrian crossings cannot span across two lanes going in one direction due to potential visual obstruction. A reduction of the lane width could be achieved by either of the following:
    - A kerb buildout, which is not recommended in this case on grounds of potential flooding issues
    - Line marking, which is not a physical barrier and therefore not seen as a safe solution.
- The pedestrian island could be widened, but this would impact more on flooding and result in undesired turning movements upon approach of the crossing.
- Additionally, pedestrian islands without kerb buildouts would result in the requirement to locate "No Stopping" signs 50m away from the crossing, refer to Figure 79. This would require the relocation of the bus stop, as currently it is located 11m from the zebra crossing (refer to Figure 80), which would increase the walking distance from the bus to the proposed school.

- Based on the above points, the installation of a pedestrian island is not recommended.

Figure 78 - Pedestrian island sketch at Darug Avenue

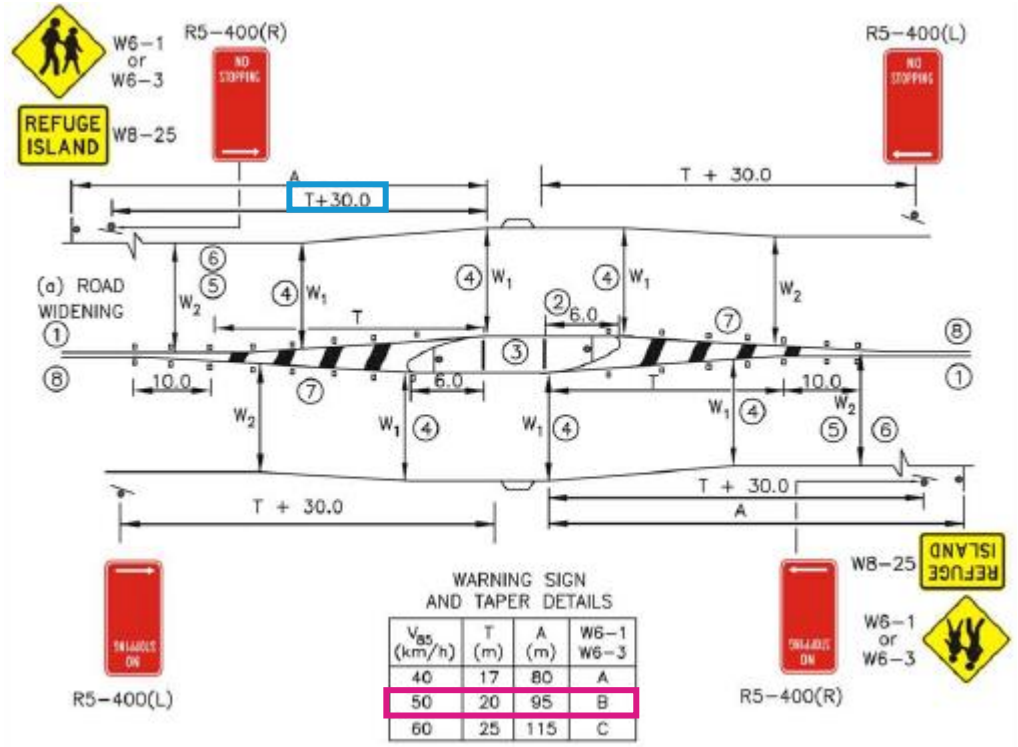

Figure 79 - No stopping signs requirements

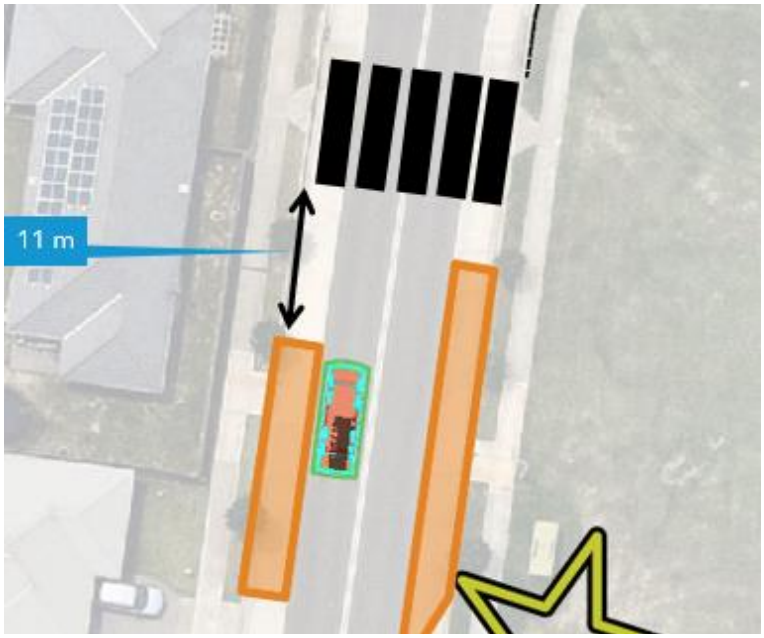

Figure 80 - Current bus stop location

Road surface

As a means of visually signalling a higher pedestrian activity, it has been considered to change the surface of the road at the location of the at-grade zebra crossing, similar to the treatment shown in Figure 81. This is considered a good solution and has been adopted in the proposed design.

Figure 81 - Example of surface change at intersection

Alternative to kerb buildouts

In order to reduce the width of the carriageway while resulting in a minimal impact on potential flooding, it is proposed to replace the kerb buildout with fencing. The following has been considered:

- The fence shall be installed such that it imitates kerb buildouts
- Fencing need to be permeable, so that pedestrians can be seen behind it
- Fencing needs to be impact rated to protect pedestrians in case of a vehicle hitting the fence
- Examples of potential fencing designs are shown in Figure 82. The right figure shows RMS fencing used in NSW.

Figure 82 - Examples of pedestrian fencing

Proposed at-grade zebra crossing design

The proposed zebra crossing design with different paving and fencing instead of kerbs buildouts is shown in Figure 83.

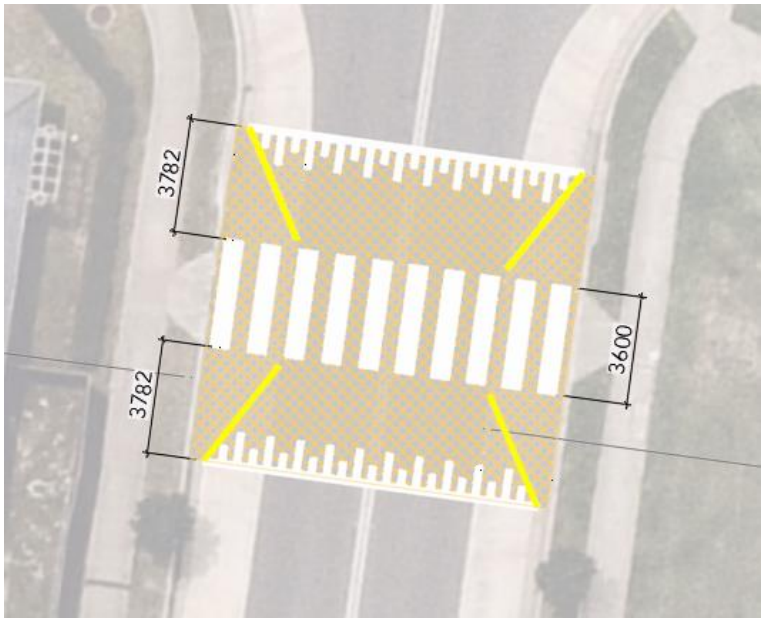

Figure 83 - Proposed at-grade zebra crossing design

Attachment 5 SIDRA Outputs

MOVEMENT SUMMARY

Site: 101 [1a. Glenmore Ridge Dr / Glenholme Dr - Existing AM (Site Folder: A. Existing AM Peak Hour)]

Network: N101 [A. Existing AM Peak Hour (Network Folder: Existing Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Glenholme Drive (South)														
1	L2	9	0.0	9	0.0	0.013	4.8	LOS A	0.0	0.3	0.18	0.51	0.18	43.8
3	R2	7	0.0	7	0.0	0.013	5.2	LOS A	0.0	0.3	0.18	0.51	0.18	45.8
Approach		17	0.0	17	0.0	0.013	5.0	LOS A	0.0	0.3	0.18	0.51	0.18	45.0
East: Glenmore Ridge Drive (East)														
4	L2	2	0.0	2	0.0	0.046	4.6	LOS A	0.0	0.0	0.00	0.01	0.00	49.4
5	T1	87	0.0	87	0.0	0.046	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.8
Approach		89	0.0	89	0.0	0.046	0.1	NA	0.0	0.0	0.00	0.01	0.00	49.8
West: Glenmore Ridge Drive (West)														
11	T1	97	0.0	97	0.0	0.055	0.0	LOS A	0.1	0.4	0.04	0.05	0.04	49.4
12	R2	9	0.0	9	0.0	0.055	4.8	LOS A	0.1	0.4	0.04	0.05	0.04	48.0
Approach		106	0.0	106	0.0	0.055	0.5	NA	0.1	0.4	0.04	0.05	0.04	49.3
All Vehicles		213	0.0	213	0.0	0.055	0.7	NA	0.1	0.4	0.03	0.07	0.03	49.0

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

MOVEMENT SUMMARY

Site: 102 [2a. Glenmore Ridge Dr / Darug Av / Risus Av - Existing AM (Site Folder: A. Existing AM Peak Hour)]

Network: N101 [A. Existing AM Peak Hour (Network Folder: Existing Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	77	6.8	77	6.8	0.070	4.9	LOS A	0.3	2.0	0.18	0.51	0.18	44.2
2	T1	2	0.0	2	0.0	0.070	4.0	LOS A	0.3	2.0	0.18	0.51	0.18	44.4
3	R2	15	0.0	15	0.0	0.070	5.6	LOS A	0.3	2.0	0.18	0.51	0.18	33.7
Approach		94	5.6	94	5.6	0.070	5.0	LOS A	0.3	2.0	0.18	0.51	0.18	43.7
East: Glenmore Ridge Drive (East)														
4	L2	4	0.0	4	0.0	0.049	4.7	LOS A	0.0	0.3	0.03	0.05	0.03	47.3
5	T1	85	0.0	85	0.0	0.049	0.0	LOS A	0.0	0.3	0.03	0.05	0.03	49.4
6	R2	5	0.0	5	0.0	0.049	4.8	LOS A	0.0	0.3	0.03	0.05	0.03	48.0
Approach		95	0.0	95	0.0	0.049	0.5	NA	0.0	0.3	0.03	0.05	0.03	49.3
North: Risus Avenue (North)														
7	L2	4	0.0	4	0.0	0.005	4.8	LOS A	0.0	0.1	0.17	0.50	0.17	44.0
8	T1	1	0.0	1	0.0	0.005	3.9	LOS A	0.0	0.1	0.17	0.50	0.17	44.0
9	R2	1	0.0	1	0.0	0.005	5.9	LOS A	0.0	0.1	0.17	0.50	0.17	46.0
Approach		6	0.0	6	0.0	0.005	4.8	LOS A	0.0	0.1	0.17	0.50	0.17	44.6
West: Glenmore Ridge Drive (East)														
10	L2	1	0.0	1	0.0	0.065	4.8	LOS A	0.2	1.5	0.13	0.17	0.13	48.3
11	T1	80	0.0	80	0.0	0.065	0.1	LOS A	0.2	1.5	0.13	0.17	0.13	47.6
12	R2	36	5.9	36	5.9	0.065	4.9	LOS A	0.2	1.5	0.13	0.17	0.13	47.6
Approach		117	1.8	117	1.8	0.065	1.6	NA	0.2	1.5	0.13	0.17	0.13	47.6
All Vehicles		312	2.4	312	2.4	0.070	2.4	NA	0.3	2.0	0.11	0.24	0.11	46.8

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

MOVEMENT SUMMARY

Site: 103 [3a. Darug Ave / Deerubbin Drive - Existing AM (Site Folder: A. Existing AM Peak Hour)]

Network: N101 [A. Existing AM Peak Hour (Network Folder: Existing Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	1	0.0	1	0.0	0.058	4.7	LOS A	0.1	0.8	0.05	0.10	0.05	48.1
2	T1	87	6.0	87	6.0	0.058	0.0	LOS A	0.1	0.8	0.05	0.10	0.05	45.3
3	R2	19	0.0	19	0.0	0.058	4.7	LOS A	0.1	0.8	0.05	0.10	0.05	47.5
Approach		107	4.9	107	4.9	0.058	0.9	NA	0.1	0.8	0.05	0.10	0.05	46.4
East: Deerubbin Drive (East)														
4	L2	11	0.0	11	0.0	0.014	4.7	LOS A	0.1	0.4	0.12	0.50	0.12	44.3
5	T1	3	0.0	3	0.0	0.014	3.7	LOS A	0.1	0.4	0.12	0.50	0.12	46.6
6	R2	4	0.0	4	0.0	0.014	5.3	LOS A	0.1	0.4	0.12	0.50	0.12	44.3
Approach		18	0.0	18	0.0	0.014	4.6	LOS A	0.1	0.4	0.12	0.50	0.12	44.9
North: Darug Avenue (North)														
7	L2	1	0.0	1	0.0	0.022	4.7	LOS A	0.0	0.1	0.01	0.03	0.01	48.9
8	T1	40	5.3	40	5.3	0.022	0.0	LOS A	0.0	0.1	0.01	0.03	0.01	48.6
9	R2	1	0.0	1	0.0	0.022	4.8	LOS A	0.0	0.1	0.01	0.03	0.01	48.3
Approach		42	5.0	42	5.0	0.022	0.2	NA	0.0	0.1	0.01	0.03	0.01	48.6
West: Deerubbin Drive (West)														
10	L2	1	0.0	1	0.0	0.011	4.8	LOS A	0.0	0.4	0.26	0.48	0.26	43.8
11	T1	6	83.3	6	83.3	0.011	4.9	LOS A	0.0	0.4	0.26	0.48	0.26	45.4
12	R2	2	0.0	2	0.0	0.011	5.3	LOS A	0.0	0.4	0.26	0.48	0.26	43.8
Approach		9	55.6	9	55.6	0.011	5.0	LOS A	0.0	0.4	0.26	0.48	0.26	45.1
All Vehicles		177	7.1	177	7.1	0.058	1.3	NA	0.1	0.8	0.06	0.15	0.06	46.2

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

MOVEMENT SUMMARY

Site: 104 [4a. Darug Ave / Forestwood Drive - Existing AM (Site Folder: A. Existing AM Peak Hour)]

Network: N101 [A. Existing AM Peak Hour (Network Folder: Existing Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	1	0.0	1	0.0	0.047	3.5	LOS A	0.0	0.1	0.00	0.01	0.00	40.1
2	T1	87	6.0	87	6.0	0.047	0.0	LOS A	0.0	0.1	0.00	0.01	0.00	39.9
3	R2	1	0.0	1	0.0	0.047	3.6	LOS A	0.0	0.1	0.00	0.01	0.00	39.9
Approach		89	5.9	89	5.9	0.047	0.1	NA	0.0	0.1	0.00	0.01	0.00	39.9
East: Forestwood Drive (East)														
4	L2	1	0.0	1	0.0	0.018	3.5	LOS A	0.1	0.4	0.21	0.46	0.21	37.7
5	T1	2	0.0	2	0.0	0.018	2.6	LOS A	0.1	0.4	0.21	0.46	0.21	37.7
6	R2	15	0.0	15	0.0	0.018	4.1	LOS A	0.1	0.4	0.21	0.46	0.21	32.2
Approach		18	0.0	18	0.0	0.018	3.9	LOS A	0.1	0.4	0.21	0.46	0.21	34.4
North: Darug Avenue (North)														
7	L2	12	0.0	12	0.0	0.028	3.5	LOS A	0.0	0.2	0.03	0.13	0.03	36.9
8	T1	38	5.6	38	5.6	0.028	0.0	LOS A	0.0	0.2	0.03	0.13	0.03	39.2
9	R2	3	0.0	3	0.0	0.028	3.7	LOS A	0.0	0.2	0.03	0.13	0.03	39.2
Approach		53	4.0	53	4.0	0.028	1.0	NA	0.0	0.2	0.03	0.13	0.03	39.1
West: Forestwood Drive (West)														
10	L2	4	0.0	4	0.0	0.012	3.6	LOS A	0.0	0.3	0.20	0.42	0.20	37.0
11	T1	5	0.0	5	0.0	0.012	2.6	LOS A	0.0	0.3	0.20	0.42	0.20	37.0
12	R2	4	0.0	4	0.0	0.012	4.1	LOS A	0.0	0.3	0.20	0.42	0.20	38.4
Approach		14	0.0	14	0.0	0.012	3.4	LOS A	0.0	0.3	0.20	0.42	0.20	37.7
All Vehicles		174	4.2	174	4.2	0.047	1.0	NA	0.1	0.4	0.05	0.13	0.05	39.1

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

MOVEMENT SUMMARY

Site: 105 [5a. Bradley St / Parkway Ave - Existing AM (Site Folder: A. Existing AM Peak Hour)]

Network: N101 [A. Existing AM Peak Hour (Network Folder: Existing Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Bradley Street (East)														
5	T1	91	10.5	91	10.5	0.053	0.0	LOS A	0.0	0.3	0.03	0.03	0.03	49.7
6	R2	5	0.0	5	0.0	0.053	5.0	LOS A	0.0	0.3	0.03	0.03	0.03	49.4
Approach		96	9.9	96	9.9	0.053	0.3	NA	0.0	0.3	0.03	0.03	0.03	49.7
North: Parkway Avenue (North)														
7	L2	16	0.0	16	0.0	0.012	5.0	LOS A	0.0	0.3	0.24	0.50	0.24	44.6
9	R2	1	0.0	1	0.0	0.012	5.4	LOS A	0.0	0.3	0.24	0.50	0.24	44.3
Approach		17	0.0	17	0.0	0.012	5.0	LOS A	0.0	0.3	0.24	0.50	0.24	44.6
West: Bradley Street (West)														
10	L2	1	0.0	1	0.0	0.081	4.6	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
11	T1	155	2.0	155	2.0	0.081	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		156	2.0	156	2.0	0.081	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.9
All Vehicles		268	4.7	268	4.7	0.081	0.5	NA	0.0	0.3	0.03	0.04	0.03	49.6

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

MOVEMENT SUMMARY

Site: 106 [6a. Forestwood Dr / Site Driveway - Existing AM (Site Folder: A. Existing AM Peak Hour)]

Network: N101 [A. Existing AM Peak Hour (Network Folder: Existing Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Forestwood Drive (East)														
5	T1	5	0.0	5	0.0	0.003	0.0	LOS A	0.0	0.0	0.03	0.09	0.03	47.4
6	R2	1	0.0	1	0.0	0.003	4.6	LOS A	0.0	0.0	0.03	0.09	0.03	47.8
Approach		6	0.0	6	0.0	0.003	0.8	NA	0.0	0.0	0.03	0.09	0.03	47.6
North: School Driveway (North)														
7	L2	1	0.0	1	0.0	0.001	4.6	LOS A	0.0	0.0	0.07	0.52	0.07	44.2
9	R2	1	0.0	1	0.0	0.001	4.6	LOS A	0.0	0.0	0.07	0.52	0.07	44.2
Approach		2	0.0	2	0.0	0.001	4.6	LOS A	0.0	0.0	0.07	0.52	0.07	44.2
West: Forestwood Drive (West)														
10	L2	1	0.0	1	0.0	0.009	4.6	LOS A	0.0	0.0	0.00	0.03	0.00	49.0
11	T1	17	0.0	17	0.0	0.009	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	49.0
Approach		18	0.0	18	0.0	0.009	0.3	NA	0.0	0.0	0.00	0.03	0.00	49.0
All Vehicles		26	0.0	26	0.0	0.009	0.7	NA	0.0	0.0	0.01	0.09	0.01	47.8

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

MOVEMENT SUMMARY

Site: 101 [1b. Glenmore Ridge Dr / Glenholme Dr - Existing PM (Site Folder: B. Existing PM Peak Hour)]

Network: N101 [B. Existing PM Peak Hour (Network Folder: Existing Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Glenholme Drive (South)														
1	L2	5	0.0	5	0.0	0.014	4.8	LOS A	0.0	0.3	0.20	0.52	0.20	43.7
3	R2	12	0.0	12	0.0	0.014	5.1	LOS A	0.0	0.3	0.20	0.52	0.20	45.8
Approach		17	0.0	17	0.0	0.014	5.0	LOS A	0.0	0.3	0.20	0.52	0.20	45.4
East: Glenmore Ridge Drive (East)														
4	L2	8	12.5	8	12.5	0.049	4.7	LOS A	0.0	0.0	0.00	0.05	0.00	49.1
5	T1	86	0.0	86	0.0	0.049	0.0	LOS A	0.0	0.0	0.00	0.05	0.00	49.5
Approach		95	1.1	95	1.1	0.049	0.4	NA	0.0	0.0	0.00	0.05	0.00	49.4
West: Glenmore Ridge Drive (West)														
11	T1	69	0.0	69	0.0	0.043	0.1	LOS A	0.1	0.5	0.07	0.08	0.07	49.1
12	R2	12	9.1	12	9.1	0.043	4.9	LOS A	0.1	0.5	0.07	0.08	0.07	47.4
Approach		81	1.3	81	1.3	0.043	0.8	NA	0.1	0.5	0.07	0.08	0.07	48.8
All Vehicles		193	1.1	193	1.1	0.049	1.0	NA	0.1	0.5	0.04	0.10	0.04	48.6

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

MOVEMENT SUMMARY

Site: 102 [2b. Glenmore Ridge Dr / Darug Av / Risus Av - Existing PM (Site Folder: B. Existing PM Peak Hour)]

Network: N101 [B. Existing PM Peak Hour (Network Folder: Existing Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	52	4.1	52	4.1	0.050	4.8	LOS A	0.2	1.4	0.15	0.51	0.15	44.4
2	T1	5	0.0	5	0.0	0.050	4.0	LOS A	0.2	1.4	0.15	0.51	0.15	44.6
3	R2	11	0.0	11	0.0	0.050	5.6	LOS A	0.2	1.4	0.15	0.51	0.15	34.2
Approach		67	3.1	67	3.1	0.050	4.9	LOS A	0.2	1.4	0.15	0.51	0.15	43.9
East: Glenmore Ridge Drive (East)														
4	L2	13	0.0	13	0.0	0.044	4.6	LOS A	0.0	0.3	0.04	0.12	0.04	44.9
5	T1	66	0.0	66	0.0	0.044	0.0	LOS A	0.0	0.3	0.04	0.12	0.04	48.8
6	R2	6	0.0	6	0.0	0.044	4.8	LOS A	0.0	0.3	0.04	0.12	0.04	47.4
Approach		85	0.0	85	0.0	0.044	1.1	NA	0.0	0.3	0.04	0.12	0.04	48.5
North: Risus Avenue (North)														
7	L2	1	0.0	1	0.0	0.003	4.7	LOS A	0.0	0.1	0.20	0.49	0.20	44.2
8	T1	1	0.0	1	0.0	0.003	4.0	LOS A	0.0	0.1	0.20	0.49	0.20	44.2
9	R2	1	0.0	1	0.0	0.003	5.8	LOS A	0.0	0.1	0.20	0.49	0.20	46.1
Approach		3	0.0	3	0.0	0.003	4.8	LOS A	0.0	0.1	0.20	0.49	0.20	45.1
West: Glenmore Ridge Drive (East)														
10	L2	1	0.0	1	0.0	0.076	4.8	LOS A	0.3	2.3	0.16	0.26	0.16	47.7
11	T1	69	0.0	69	0.0	0.076	0.2	LOS A	0.3	2.3	0.16	0.26	0.16	46.4
12	R2	65	1.6	65	1.6	0.076	4.8	LOS A	0.3	2.3	0.16	0.26	0.16	46.4
Approach		136	0.8	136	0.8	0.076	2.4	NA	0.3	2.3	0.16	0.26	0.16	46.5
All Vehicles		292	1.1	292	1.1	0.076	2.6	NA	0.3	2.3	0.12	0.28	0.12	46.4

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

MOVEMENT SUMMARY

Site: 103 [3b. Darug Ave / Deerubbin Drive - Existing PM (Site Folder: B. Existing PM Peak Hour)]

Network: N101 [B. Existing PM Peak Hour (Network Folder: Existing Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	1	0.0	1	0.0	0.037	4.8	LOS A	0.1	0.5	0.06	0.10	0.06	48.1
2	T1	57	3.7	57	3.7	0.037	0.0	LOS A	0.1	0.5	0.06	0.10	0.06	45.2
3	R2	12	0.0	12	0.0	0.037	4.8	LOS A	0.1	0.5	0.06	0.10	0.06	47.5
Approach		69	3.0	69	3.0	0.037	0.9	NA	0.1	0.5	0.06	0.10	0.06	46.3
East: Deerubbin Drive (East)														
4	L2	8	0.0	8	0.0	0.013	4.8	LOS A	0.0	0.3	0.17	0.51	0.17	43.9
5	T1	1	0.0	1	0.0	0.013	3.7	LOS A	0.0	0.3	0.17	0.51	0.17	46.4
6	R2	6	0.0	6	0.0	0.013	5.2	LOS A	0.0	0.3	0.17	0.51	0.17	43.9
Approach		16	0.0	16	0.0	0.013	4.9	LOS A	0.0	0.3	0.17	0.51	0.17	44.2
North: Darug Avenue (North)														
7	L2	2	0.0	2	0.0	0.039	4.6	LOS A	0.0	0.1	0.01	0.03	0.01	48.9
8	T1	72	1.5	72	1.5	0.039	0.0	LOS A	0.0	0.1	0.01	0.03	0.01	48.6
9	R2	2	0.0	2	0.0	0.039	4.7	LOS A	0.0	0.1	0.01	0.03	0.01	48.3
Approach		76	1.4	76	1.4	0.039	0.3	NA	0.0	0.1	0.01	0.03	0.01	48.6
West: Deerubbin Drive (West)														
10	L2	4	0.0	4	0.0	0.008	4.7	LOS A	0.0	0.2	0.16	0.48	0.16	44.1
11	T1	3	66.7	3	66.7	0.008	4.6	LOS A	0.0	0.2	0.16	0.48	0.16	45.7
12	R2	1	0.0	1	0.0	0.008	5.2	LOS A	0.0	0.2	0.16	0.48	0.16	44.1
Approach		8	25.0	8	25.0	0.008	4.7	LOS A	0.0	0.2	0.16	0.48	0.16	45.0
All Vehicles		169	3.1	169	3.1	0.039	1.2	NA	0.1	0.5	0.06	0.13	0.06	46.4

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

MOVEMENT SUMMARY

Site: 104 [4b. Darug Ave / Forestwood Drive - Existing PM (Site Folder: B. Existing PM Peak Hour)]

Network: N101 [B. Existing PM Peak Hour (Network Folder: Existing Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	3	0.0	3	0.0	0.030	3.5	LOS A	0.0	0.1	0.01	0.03	0.01	40.0
2	T1	53	4.0	53	4.0	0.030	0.0	LOS A	0.0	0.1	0.01	0.03	0.01	39.7
3	R2	1	0.0	1	0.0	0.030	3.7	LOS A	0.0	0.1	0.01	0.03	0.01	39.7
Approach		57	3.7	57	3.7	0.030	0.3	NA	0.0	0.1	0.01	0.03	0.01	39.8
East: Forestwood Drive (East)														
4	L2	2	0.0	2	0.0	0.014	3.6	LOS A	0.0	0.3	0.20	0.46	0.20	37.7
5	T1	1	0.0	1	0.0	0.014	2.5	LOS A	0.0	0.3	0.20	0.46	0.20	37.7
6	R2	12	0.0	12	0.0	0.014	4.1	LOS A	0.0	0.3	0.20	0.46	0.20	32.2
Approach		15	0.0	15	0.0	0.014	3.9	LOS A	0.0	0.3	0.20	0.46	0.20	34.7
North: Darug Avenue (North)														
7	L2	13	0.0	13	0.0	0.042	3.5	LOS A	0.0	0.3	0.03	0.10	0.03	37.5
8	T1	62	1.7	62	1.7	0.042	0.0	LOS A	0.0	0.3	0.03	0.10	0.03	39.4
9	R2	5	0.0	5	0.0	0.042	3.6	LOS A	0.0	0.3	0.03	0.10	0.03	39.4
Approach		80	1.3	80	1.3	0.042	0.8	NA	0.0	0.3	0.03	0.10	0.03	39.3
West: Forestwood Drive (West)														
10	L2	5	0.0	5	0.0	0.008	3.5	LOS A	0.0	0.2	0.15	0.41	0.15	37.2
11	T1	4	0.0	4	0.0	0.008	2.6	LOS A	0.0	0.2	0.15	0.41	0.15	37.2
12	R2	1	0.0	1	0.0	0.008	4.0	LOS A	0.0	0.2	0.15	0.41	0.15	38.5
Approach		11	0.0	11	0.0	0.008	3.2	LOS A	0.0	0.2	0.15	0.41	0.15	37.4
All Vehicles		162	1.9	162	1.9	0.042	1.0	NA	0.0	0.3	0.04	0.13	0.04	39.1

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

MOVEMENT SUMMARY

Site: 105 [5b. Bradley St / Parkway Ave - Existing PM (Site Folder: B. Existing PM Peak Hour)]

Network: N101 [B. Existing PM Peak Hour (Network Folder: Existing Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Bradley Street (East)														
5	T1	189	5.0	189	5.0	0.107	0.0	LOS A	0.1	0.6	0.03	0.03	0.03	49.7
6	R2	12	0.0	12	0.0	0.107	4.9	LOS A	0.1	0.6	0.03	0.03	0.03	49.5
Approach		201	4.7	201	4.7	0.107	0.3	NA	0.1	0.6	0.03	0.03	0.03	49.7
North: Parkway Avenue (North)														
7	L2	12	18.2	12	18.2	0.011	5.0	LOS A	0.0	0.3	0.19	0.50	0.19	44.5
9	R2	2	0.0	2	0.0	0.011	5.6	LOS A	0.0	0.3	0.19	0.50	0.19	44.5
Approach		14	15.4	14	15.4	0.011	5.1	LOS A	0.0	0.3	0.19	0.50	0.19	44.5
West: Bradley Street (West)														
10	L2	2	50.0	2	50.0	0.051	5.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.9
11	T1	93	5.7	93	5.7	0.051	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.9
Approach		95	6.7	95	6.7	0.051	0.1	NA	0.0	0.0	0.00	0.01	0.00	49.9
All Vehicles		309	5.8	309	5.8	0.107	0.5	NA	0.1	0.6	0.03	0.05	0.03	49.6

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

MOVEMENT SUMMARY

Site: 106 [6b. Forestwood Dr / Site Driveway - Existing PM (Site Folder: B. Existing PM Peak Hour)]

Network: N101 [B. Existing PM Peak Hour (Network Folder: Existing Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Forestwood Drive (East)														
5	T1	14	7.7	14	7.7	0.008	0.0	LOS A	0.0	0.0	0.01	0.04	0.01	48.8
6	R2	1	0.0	1	0.0	0.008	4.6	LOS A	0.0	0.0	0.01	0.04	0.01	48.3
Approach		15	7.1	15	7.1	0.008	0.3	NA	0.0	0.0	0.01	0.04	0.01	48.7
North: School Driveway (North)														
7	L2	1	0.0	1	0.0	0.001	4.6	LOS A	0.0	0.0	0.07	0.52	0.07	44.2
9	R2	1	0.0	1	0.0	0.001	4.7	LOS A	0.0	0.0	0.07	0.52	0.07	44.2
Approach		2	0.0	2	0.0	0.001	4.6	LOS A	0.0	0.0	0.07	0.52	0.07	44.2
West: Forestwood Drive (West)														
10	L2	1	0.0	1	0.0	0.009	4.6	LOS A	0.0	0.0	0.00	0.03	0.00	49.0
11	T1	17	0.0	17	0.0	0.009	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	49.0
Approach		18	0.0	18	0.0	0.009	0.3	NA	0.0	0.0	0.00	0.03	0.00	49.0
All Vehicles		35	3.0	35	3.0	0.009	0.6	NA	0.0	0.0	0.01	0.07	0.01	48.2

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

MOVEMENT SUMMARY

Site: 101 [1c. Glenmore Ridge Dr / Glenholme Dr - Future Base AM (Site Folder: C. Future Base AM Peak Hour)]

Network: N101 [C. Future Base AM Peak Hour (Network Folder: Future Base Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Glenholme Drive (South)														
1	L2	9	0.0	9	0.0	0.049	4.9	LOS A	0.2	1.1	0.27	0.56	0.27	43.4
3	R2	43	0.0	43	0.0	0.049	5.5	LOS A	0.2	1.1	0.27	0.56	0.27	45.6
Approach		53	0.0	53	0.0	0.049	5.4	LOS A	0.2	1.1	0.27	0.56	0.27	45.4
East: Glenmore Ridge Drive (East)														
4	L2	33	0.0	33	0.0	0.077	4.6	LOS A	0.0	0.0	0.00	0.12	0.00	48.8
5	T1	116	0.0	116	0.0	0.077	0.0	LOS A	0.0	0.0	0.00	0.12	0.00	48.6
Approach		148	0.0	148	0.0	0.077	1.0	NA	0.0	0.0	0.00	0.12	0.00	48.7
West: Glenmore Ridge Drive (West)														
11	T1	125	0.0	125	0.0	0.070	0.0	LOS A	0.1	0.5	0.04	0.04	0.04	49.5
12	R2	9	0.0	9	0.0	0.070	5.0	LOS A	0.1	0.5	0.04	0.04	0.04	48.1
Approach		135	0.0	135	0.0	0.070	0.4	NA	0.1	0.5	0.04	0.04	0.04	49.4
All Vehicles		336	0.0	336	0.0	0.077	1.5	NA	0.2	1.1	0.06	0.16	0.06	48.2

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

MOVEMENT SUMMARY

Site: 102 [2c. Glenmore Ridge Dr / Darug Av / Risus Av - Future Base AM (Site Folder: C. Future Base AM Peak Hour)]

Network: N101 [C. Future Base AM Peak Hour (Network Folder: Future Base Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	88	6.0	88	6.0	0.085	5.1	LOS A	0.3	2.4	0.27	0.54	0.27	43.9
2	T1	2	0.0	2	0.0	0.085	4.8	LOS A	0.3	2.4	0.27	0.54	0.27	44.2
3	R2	15	0.0	15	0.0	0.085	6.6	LOS A	0.3	2.4	0.27	0.54	0.27	33.1
Approach		105	5.0	105	5.0	0.085	5.3	LOS A	0.3	2.4	0.27	0.54	0.27	43.4
East: Glenmore Ridge Drive (East)														
4	L2	4	0.0	4	0.0	0.085	4.9	LOS A	0.0	0.3	0.02	0.03	0.02	48.3
5	T1	156	0.0	156	0.0	0.085	0.0	LOS A	0.0	0.3	0.02	0.03	0.02	49.6
6	R2	5	0.0	5	0.0	0.085	5.0	LOS A	0.0	0.3	0.02	0.03	0.02	48.2
Approach		165	0.0	165	0.0	0.085	0.3	NA	0.0	0.3	0.02	0.03	0.02	49.6
North: Risus Avenue (North)														
7	L2	4	0.0	4	0.0	0.006	5.0	LOS A	0.0	0.1	0.26	0.51	0.26	43.7
8	T1	1	0.0	1	0.0	0.006	4.6	LOS A	0.0	0.1	0.26	0.51	0.26	43.7
9	R2	1	0.0	1	0.0	0.006	6.9	LOS A	0.0	0.1	0.26	0.51	0.26	45.8
Approach		6	0.0	6	0.0	0.006	5.2	LOS A	0.0	0.1	0.26	0.51	0.26	44.3
West: Glenmore Ridge Drive (East)														
10	L2	1	0.0	1	0.0	0.105	5.1	LOS A	0.3	1.9	0.13	0.12	0.13	48.6
11	T1	152	0.0	152	0.0	0.105	0.2	LOS A	0.3	1.9	0.13	0.12	0.13	48.1
12	R2	39	5.4	39	5.4	0.105	5.2	LOS A	0.3	1.9	0.13	0.12	0.13	48.1
Approach		192	1.1	192	1.1	0.105	1.2	NA	0.3	1.9	0.13	0.12	0.13	48.1
All Vehicles		468	1.6	468	1.6	0.105	1.9	NA	0.3	2.4	0.13	0.19	0.13	47.4

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

MOVEMENT SUMMARY

Site: 103 [3c. Darug Ave / Deerubbin Drive - Future Base AM (Site Folder: C. Future Base AM Peak Hour)]

Network: N101 [C. Future Base AM Peak Hour (Network Folder: Future Base Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	1	0.0	1	0.0	0.069	4.7	LOS A	0.2	1.5	0.08	0.17	0.08	47.5
2	T1	87	6.0	87	6.0	0.069	0.1	LOS A	0.2	1.5	0.08	0.17	0.08	42.8
3	R2	38	0.0	38	0.0	0.069	4.7	LOS A	0.2	1.5	0.08	0.17	0.08	46.8
Approach		126	4.2	126	4.2	0.069	1.5	NA	0.2	1.5	0.08	0.17	0.08	45.4
East: Deerubbin Drive (East)														
4	L2	44	0.0	44	0.0	0.048	4.7	LOS A	0.2	1.3	0.11	0.51	0.11	44.1
5	T1	3	0.0	3	0.0	0.048	3.9	LOS A	0.2	1.3	0.11	0.51	0.11	46.5
6	R2	16	0.0	16	0.0	0.048	5.4	LOS A	0.2	1.3	0.11	0.51	0.11	44.1
Approach		63	0.0	63	0.0	0.048	4.8	LOS A	0.2	1.3	0.11	0.51	0.11	44.3
North: Darug Avenue (North)														
7	L2	4	0.0	4	0.0	0.024	4.6	LOS A	0.0	0.1	0.01	0.06	0.01	48.6
8	T1	40	5.3	40	5.3	0.024	0.0	LOS A	0.0	0.1	0.01	0.06	0.01	47.3
9	R2	1	0.0	1	0.0	0.024	4.8	LOS A	0.0	0.1	0.01	0.06	0.01	48.0
Approach		45	4.7	45	4.7	0.024	0.5	NA	0.0	0.1	0.01	0.06	0.01	47.7
West: Deerubbin Drive (West)														
10	L2	1	0.0	1	0.0	0.011	4.8	LOS A	0.0	0.4	0.28	0.49	0.28	43.7
11	T1	6	83.3	6	83.3	0.011	5.1	LOS A	0.0	0.4	0.28	0.49	0.28	45.3
12	R2	2	0.0	2	0.0	0.011	5.5	LOS A	0.0	0.4	0.28	0.49	0.28	43.7
Approach		9	55.6	9	55.6	0.011	5.2	LOS A	0.0	0.4	0.28	0.49	0.28	45.0
All Vehicles		244	5.2	244	5.2	0.069	2.3	NA	0.2	1.5	0.08	0.25	0.08	45.2

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

MOVEMENT SUMMARY

Site: 104 [4c. Darug Ave / Forestwood Drive - Future Base AM (Site Folder: C. Future Base AM Peak Hour)]

Network: N101 [C. Future Base AM Peak Hour (Network Folder: Future Base Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	1	0.0	1	0.0	0.057	3.5	LOS A	0.0	0.1	0.01	0.01	0.01	40.1
2	T1	106	5.0	106	5.0	0.057	0.0	LOS A	0.0	0.1	0.01	0.01	0.01	39.9
3	R2	1	0.0	1	0.0	0.057	3.7	LOS A	0.0	0.1	0.01	0.01	0.01	39.9
Approach		108	4.9	108	4.9	0.057	0.1	NA	0.0	0.1	0.01	0.01	0.01	39.9
East: Forestwood Drive (East)														
4	L2	1	0.0	1	0.0	0.019	3.6	LOS A	0.1	0.4	0.26	0.48	0.26	37.6
5	T1	2	0.0	2	0.0	0.019	2.8	LOS A	0.1	0.4	0.26	0.48	0.26	37.6
6	R2	15	0.0	15	0.0	0.019	4.4	LOS A	0.1	0.4	0.26	0.48	0.26	31.9
Approach		18	0.0	18	0.0	0.019	4.2	LOS A	0.1	0.4	0.26	0.48	0.26	34.2
North: Darug Avenue (North)														
7	L2	12	0.0	12	0.0	0.045	3.5	LOS A	0.0	0.2	0.02	0.08	0.02	38.0
8	T1	72	2.9	72	2.9	0.045	0.0	LOS A	0.0	0.2	0.02	0.08	0.02	39.5
9	R2	3	0.0	3	0.0	0.045	3.8	LOS A	0.0	0.2	0.02	0.08	0.02	39.5
Approach		86	2.4	86	2.4	0.045	0.6	NA	0.0	0.2	0.02	0.08	0.02	39.5
West: Forestwood Drive (West)														
10	L2	4	0.0	4	0.0	0.012	3.7	LOS A	0.0	0.3	0.24	0.43	0.24	36.9
11	T1	5	0.0	5	0.0	0.012	2.8	LOS A	0.0	0.3	0.24	0.43	0.24	36.9
12	R2	4	0.0	4	0.0	0.012	4.3	LOS A	0.0	0.3	0.24	0.43	0.24	38.4
Approach		14	0.0	14	0.0	0.012	3.5	LOS A	0.0	0.3	0.24	0.43	0.24	37.6
All Vehicles		226	3.3	226	3.3	0.057	0.8	NA	0.1	0.4	0.05	0.10	0.05	39.3

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

MOVEMENT SUMMARY

Site: 105 [5c. Bradley St / Parkway Ave - Future Base AM (Site Folder: C. Future Base AM Peak Hour)]

Network: N101 [C. Future Base AM Peak Hour (Network Folder: Future Base Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Bradley Street (East)														
5	T1	109	8.7	109	8.7	0.062	0.0	LOS A	0.0	0.3	0.03	0.03	0.03	49.7
6	R2	5	0.0	5	0.0	0.062	5.2	LOS A	0.0	0.3	0.03	0.03	0.03	49.5
Approach		115	8.3	115	8.3	0.062	0.3	NA	0.0	0.3	0.03	0.03	0.03	49.7
North: Parkway Avenue (North)														
7	L2	16	0.0	16	0.0	0.012	5.1	LOS A	0.0	0.3	0.27	0.51	0.27	44.5
9	R2	1	0.0	1	0.0	0.012	5.7	LOS A	0.0	0.3	0.27	0.51	0.27	44.2
Approach		17	0.0	17	0.0	0.012	5.1	LOS A	0.0	0.3	0.27	0.51	0.27	44.5
West: Bradley Street (West)														
10	L2	1	0.0	1	0.0	0.098	4.6	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
11	T1	188	1.7	188	1.7	0.098	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		189	1.7	189	1.7	0.098	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.9
All Vehicles		321	3.9	321	3.9	0.098	0.4	NA	0.0	0.3	0.03	0.04	0.03	49.6

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

MOVEMENT SUMMARY

Site: 106 [6c. Forestwood Dr / Site Driveway - Future Base AM (Site Folder: C. Future Base AM Peak Hour)]

Network: N101 [C. Future Base AM Peak Hour (Network Folder: Future Base Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Forestwood Drive (East)														
5	T1	5	0.0	5	0.0	0.003	0.0	LOS A	0.0	0.0	0.03	0.09	0.03	47.4
6	R2	1	0.0	1	0.0	0.003	4.6	LOS A	0.0	0.0	0.03	0.09	0.03	47.8
Approach		6	0.0	6	0.0	0.003	0.8	NA	0.0	0.0	0.03	0.09	0.03	47.6
North: School Driveway (North)														
7	L2	1	0.0	1	0.0	0.001	4.6	LOS A	0.0	0.0	0.07	0.52	0.07	44.2
9	R2	1	0.0	1	0.0	0.001	4.6	LOS A	0.0	0.0	0.07	0.52	0.07	44.2
Approach		2	0.0	2	0.0	0.001	4.6	LOS A	0.0	0.0	0.07	0.52	0.07	44.2
West: Forestwood Drive (West)														
10	L2	1	0.0	1	0.0	0.009	4.6	LOS A	0.0	0.0	0.00	0.03	0.00	49.0
11	T1	17	0.0	17	0.0	0.009	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	49.0
Approach		18	0.0	18	0.0	0.009	0.3	NA	0.0	0.0	0.00	0.03	0.00	49.0
All Vehicles		26	0.0	26	0.0	0.009	0.7	NA	0.0	0.0	0.01	0.09	0.01	47.8

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

MOVEMENT SUMMARY

Site: 106 [6d. Forestwood Dr / Site Driveway - Future Base PM (Site Folder: D. Future Base PM Peak Hour)]

Network: N101 [D. Future Base PM Peak Hour (Network Folder: Future Base Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Forestwood Drive (East)														
5	T1	14	7.7	14	7.7	0.008	0.0	LOS A	0.0	0.0	0.01	0.04	0.01	48.8
6	R2	1	0.0	1	0.0	0.008	4.6	LOS A	0.0	0.0	0.01	0.04	0.01	48.3
Approach		15	7.1	15	7.1	0.008	0.3	NA	0.0	0.0	0.01	0.04	0.01	48.7
North: School Driveway (North)														
7	L2	1	0.0	1	0.0	0.001	4.6	LOS A	0.0	0.0	0.07	0.52	0.07	44.2
9	R2	1	0.0	1	0.0	0.001	4.7	LOS A	0.0	0.0	0.07	0.52	0.07	44.2
Approach		2	0.0	2	0.0	0.001	4.6	LOS A	0.0	0.0	0.07	0.52	0.07	44.2
West: Forestwood Drive (West)														
10	L2	1	0.0	1	0.0	0.009	4.6	LOS A	0.0	0.0	0.00	0.03	0.00	49.0
11	T1	17	0.0	17	0.0	0.009	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	49.0
Approach		18	0.0	18	0.0	0.009	0.3	NA	0.0	0.0	0.00	0.03	0.00	49.0
All Vehicles		35	3.0	35	3.0	0.009	0.6	NA	0.0	0.0	0.01	0.07	0.01	48.2

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

MOVEMENT SUMMARY

Site: 101 [1d. Glenmore Ridge Dr / Glenholme Dr - Future Base PM (Site Folder: D. Future Base PM Peak Hour)]

Network: N101 [D. Future Base PM Peak Hour (Network Folder: Future Base Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Glenholme Drive (South)														
1	L2	5	0.0	5	0.0	0.035	4.9	LOS A	0.1	0.8	0.26	0.55	0.26	43.5
3	R2	34	0.0	34	0.0	0.035	5.4	LOS A	0.1	0.8	0.26	0.55	0.26	45.7
Approach		39	0.0	39	0.0	0.035	5.3	LOS A	0.1	0.8	0.26	0.55	0.26	45.5
East: Glenmore Ridge Drive (East)														
4	L2	32	3.3	32	3.3	0.073	4.6	LOS A	0.0	0.0	0.00	0.12	0.00	48.8
5	T1	109	0.0	109	0.0	0.073	0.0	LOS A	0.0	0.0	0.00	0.12	0.00	48.7
Approach		141	0.7	141	0.7	0.073	1.0	NA	0.0	0.0	0.00	0.12	0.00	48.7
West: Glenmore Ridge Drive (West)														
11	T1	92	0.0	92	0.0	0.055	0.1	LOS A	0.1	0.6	0.07	0.06	0.07	49.2
12	R2	12	9.1	12	9.1	0.055	5.1	LOS A	0.1	0.6	0.07	0.06	0.07	47.6
Approach		103	1.0	103	1.0	0.055	0.6	NA	0.1	0.6	0.07	0.06	0.07	49.0
All Vehicles		283	0.7	283	0.7	0.073	1.5	NA	0.1	0.8	0.06	0.16	0.06	48.2

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

MOVEMENT SUMMARY

Site: 102 [2d. Glenmore Ridge Dr / Darug Av / Risus Av - Future Base PM (Site Folder: D. Future Base PM Peak Hour)]

Network: N101 [D. Future Base PM Peak Hour (Network Folder: Future Base Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	52	4.1	52	4.1	0.054	5.0	LOS A	0.2	1.5	0.23	0.52	0.23	44.2
2	T1	5	0.0	5	0.0	0.054	4.6	LOS A	0.2	1.5	0.23	0.52	0.23	44.4
3	R2	11	0.0	11	0.0	0.054	6.3	LOS A	0.2	1.5	0.23	0.52	0.23	33.5
Approach		67	3.1	67	3.1	0.054	5.1	LOS A	0.2	1.5	0.23	0.52	0.23	43.6
East: Glenmore Ridge Drive (East)														
4	L2	13	0.0	13	0.0	0.073	4.7	LOS A	0.1	0.4	0.03	0.07	0.03	46.6
5	T1	122	0.0	122	0.0	0.073	0.0	LOS A	0.1	0.4	0.03	0.07	0.03	49.2
6	R2	6	0.0	6	0.0	0.073	5.0	LOS A	0.1	0.4	0.03	0.07	0.03	47.8
Approach		141	0.0	141	0.0	0.073	0.7	NA	0.1	0.4	0.03	0.07	0.03	49.1
North: Risus Avenue (North)														
7	L2	1	0.0	1	0.0	0.003	4.9	LOS A	0.0	0.1	0.28	0.51	0.28	43.8
8	T1	1	0.0	1	0.0	0.003	4.5	LOS A	0.0	0.1	0.28	0.51	0.28	43.8
9	R2	1	0.0	1	0.0	0.003	6.4	LOS A	0.0	0.1	0.28	0.51	0.28	45.8
Approach		3	0.0	3	0.0	0.003	5.3	LOS A	0.0	0.1	0.28	0.51	0.28	44.8
West: Glenmore Ridge Drive (East)														
10	L2	1	0.0	1	0.0	0.108	5.0	LOS A	0.4	2.8	0.18	0.19	0.18	48.0
11	T1	126	0.0	126	0.0	0.108	0.2	LOS A	0.4	2.8	0.18	0.19	0.18	47.1
12	R2	65	1.6	65	1.6	0.108	5.0	LOS A	0.4	2.8	0.18	0.19	0.18	47.1
Approach		193	0.5	193	0.5	0.108	1.9	NA	0.4	2.8	0.18	0.19	0.18	47.1
All Vehicles		404	0.8	404	0.8	0.108	2.0	NA	0.4	2.8	0.13	0.21	0.13	47.2

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

MOVEMENT SUMMARY

Site: 103 [3d. Darug Ave / Deerubbin Drive - Future Base PM (Site Folder: D. Future Base PM Peak Hour)]

Network: N101 [D. Future Base PM Peak Hour (Network Folder: Future Base Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	1	0.0	1	0.0	0.044	4.8	LOS A	0.1	0.9	0.10	0.16	0.10	47.4
2	T1	57	3.7	57	3.7	0.044	0.1	LOS A	0.1	0.9	0.10	0.16	0.10	42.7
3	R2	23	0.0	23	0.0	0.044	4.8	LOS A	0.1	0.9	0.10	0.16	0.10	46.8
Approach		81	2.6	81	2.6	0.044	1.5	NA	0.1	0.9	0.10	0.16	0.10	45.3
East: Deerubbin Drive (East)														
4	L2	20	0.0	20	0.0	0.020	4.8	LOS A	0.1	0.5	0.16	0.51	0.16	43.9
5	T1	1	0.0	1	0.0	0.020	3.8	LOS A	0.1	0.5	0.16	0.51	0.16	46.4
6	R2	6	0.0	6	0.0	0.020	5.3	LOS A	0.1	0.5	0.16	0.51	0.16	43.9
Approach		27	0.0	27	0.0	0.020	4.8	LOS A	0.1	0.5	0.16	0.51	0.16	44.1
North: Darug Avenue (North)														
7	L2	2	0.0	2	0.0	0.039	4.6	LOS A	0.0	0.1	0.01	0.03	0.01	48.9
8	T1	72	1.5	72	1.5	0.039	0.0	LOS A	0.0	0.1	0.01	0.03	0.01	48.6
9	R2	2	0.0	2	0.0	0.039	4.7	LOS A	0.0	0.1	0.01	0.03	0.01	48.3
Approach		76	1.4	76	1.4	0.039	0.3	NA	0.0	0.1	0.01	0.03	0.01	48.6
West: Deerubbin Drive (West)														
10	L2	4	0.0	4	0.0	0.008	4.7	LOS A	0.0	0.2	0.16	0.48	0.16	44.1
11	T1	3	66.7	3	66.7	0.008	4.7	LOS A	0.0	0.2	0.16	0.48	0.16	45.7
12	R2	1	0.0	1	0.0	0.008	5.3	LOS A	0.0	0.2	0.16	0.48	0.16	44.1
Approach		8	25.0	8	25.0	0.008	4.8	LOS A	0.0	0.2	0.16	0.48	0.16	45.0
All Vehicles		193	2.7	193	2.7	0.044	1.6	NA	0.1	0.9	0.08	0.17	0.08	45.7

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

MOVEMENT SUMMARY

Site: 104 [4d. Darug Ave / Forestwood Drive - Future Base PM (Site Folder: D. Future Base PM Peak Hour)]

Network: N101 [D. Future Base PM Peak Hour (Network Folder: Future Base Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	3	0.0	3	0.0	0.036	3.5	LOS A	0.0	0.1	0.01	0.03	0.01	40.0
2	T1	64	3.3	64	3.3	0.036	0.0	LOS A	0.0	0.1	0.01	0.03	0.01	39.8
3	R2	1	0.0	1	0.0	0.036	3.7	LOS A	0.0	0.1	0.01	0.03	0.01	39.8
Approach		68	3.1	68	3.1	0.036	0.2	NA	0.0	0.1	0.01	0.03	0.01	39.8
East: Forestwood Drive (East)														
4	L2	2	0.0	2	0.0	0.014	3.6	LOS A	0.0	0.3	0.22	0.46	0.22	37.6
5	T1	1	0.0	1	0.0	0.014	2.6	LOS A	0.0	0.3	0.22	0.46	0.22	37.6
6	R2	12	0.0	12	0.0	0.014	4.2	LOS A	0.0	0.3	0.22	0.46	0.22	32.1
Approach		15	0.0	15	0.0	0.014	4.0	LOS A	0.0	0.3	0.22	0.46	0.22	34.6
North: Darug Avenue (North)														
7	L2	13	0.0	13	0.0	0.048	3.5	LOS A	0.0	0.3	0.03	0.09	0.03	37.8
8	T1	74	1.4	74	1.4	0.048	0.0	LOS A	0.0	0.3	0.03	0.09	0.03	39.5
9	R2	5	0.0	5	0.0	0.048	3.7	LOS A	0.0	0.3	0.03	0.09	0.03	39.4
Approach		92	1.1	92	1.1	0.048	0.7	NA	0.0	0.3	0.03	0.09	0.03	39.4
West: Forestwood Drive (West)														
10	L2	5	0.0	5	0.0	0.008	3.6	LOS A	0.0	0.2	0.16	0.41	0.16	37.2
11	T1	4	0.0	4	0.0	0.008	2.6	LOS A	0.0	0.2	0.16	0.41	0.16	37.2
12	R2	1	0.0	1	0.0	0.008	4.1	LOS A	0.0	0.2	0.16	0.41	0.16	38.5
Approach		11	0.0	11	0.0	0.008	3.3	LOS A	0.0	0.2	0.16	0.41	0.16	37.4
All Vehicles		185	1.7	185	1.7	0.048	0.9	NA	0.0	0.3	0.04	0.12	0.04	39.2

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

MOVEMENT SUMMARY

Site: 105 [5d. Bradley St / Parkway Ave - Future Base PM (Site Folder: D. Future Base PM Peak Hour)]

Network: N101 [D. Future Base PM Peak Hour (Network Folder: Future Base Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Bradley Street (East)														
5	T1	201	4.7	201	4.7	0.113	0.0	LOS A	0.1	0.6	0.03	0.03	0.03	49.7
6	R2	12	0.0	12	0.0	0.113	4.9	LOS A	0.1	0.6	0.03	0.03	0.03	49.5
Approach		213	4.5	213	4.5	0.113	0.3	NA	0.1	0.6	0.03	0.03	0.03	49.7
North: Parkway Avenue (North)														
7	L2	12	18.2	12	18.2	0.011	5.1	LOS A	0.0	0.3	0.20	0.50	0.20	44.4
9	R2	2	0.0	2	0.0	0.011	5.7	LOS A	0.0	0.3	0.20	0.50	0.20	44.4
Approach		14	15.4	14	15.4	0.011	5.2	LOS A	0.0	0.3	0.20	0.50	0.20	44.4
West: Bradley Street (West)														
10	L2	2	50.0	2	50.0	0.056	5.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.9
11	T1	104	5.1	104	5.1	0.056	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.9
Approach		106	5.9	106	5.9	0.056	0.1	NA	0.0	0.0	0.00	0.01	0.00	49.9
All Vehicles		333	5.4	333	5.4	0.113	0.4	NA	0.1	0.6	0.03	0.04	0.03	49.6

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

MOVEMENT SUMMARY

Site: 106 [6e. Forestwood Dr / Site Driveway - Future Base + Dev AM (Site Folder: E. Future Base + Dev AM Peak Hour)]

Network: N101 [E. Future Base + Dev AM Peak Hour (Network Folder: Future Base + Development Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Forestwood Drive (East)														
5	T1	5	0.0	5	0.0	0.017	0.2	LOS A	0.1	0.5	0.17	0.42	0.17	39.1
6	R2	23	0.0	23	0.0	0.017	4.8	LOS A	0.1	0.5	0.17	0.42	0.17	44.9
Approach		28	0.0	28	0.0	0.017	3.9	NA	0.1	0.5	0.17	0.42	0.17	44.5
North: School Driveway (North)														
7	L2	1	0.0	1	0.0	0.002	4.7	LOS A	0.0	0.0	0.16	0.50	0.16	43.9
9	R2	1	0.0	1	0.0	0.002	4.9	LOS A	0.0	0.0	0.16	0.50	0.16	43.9
Approach		2	0.0	2	0.0	0.002	4.8	LOS A	0.0	0.0	0.16	0.50	0.16	43.9
West: Forestwood Drive (West)														
10	L2	5	0.0	5	0.0	0.040	4.6	LOS A	0.0	0.0	0.00	0.04	0.00	49.0
11	T1	72	0.0	72	0.0	0.040	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	48.9
Approach		77	0.0	77	0.0	0.040	0.3	NA	0.0	0.0	0.00	0.04	0.00	48.9
All Vehicles		107	0.0	107	0.0	0.040	1.4	NA	0.1	0.5	0.05	0.15	0.05	46.5

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

MOVEMENT SUMMARY

Site: 101 [1e. Glenmore Ridge Dr / Glenholme Dr - Future Base + Dev AM (Site Folder: E. Future Base + Dev AM Peak Hour)]

Network: N101 [E. Future Base + Dev AM Peak Hour (Network Folder: Future Base + Development Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Glenholme Drive (South)														
1	L2	9	0.0	9	0.0	0.054	4.9	LOS A	0.2	1.2	0.31	0.59	0.31	43.1
3	R2	43	0.0	43	0.0	0.054	6.1	LOS A	0.2	1.2	0.31	0.59	0.31	45.5
Approach		53	0.0	53	0.0	0.054	5.9	LOS A	0.2	1.2	0.31	0.59	0.31	45.2
East: Glenmore Ridge Drive (East)														
4	L2	76	0.0	76	0.0	0.100	4.6	LOS A	0.0	0.0	0.00	0.21	0.00	48.3
5	T1	117	0.0	117	0.0	0.100	0.0	LOS A	0.0	0.0	0.00	0.21	0.00	47.6
Approach		193	0.0	193	0.0	0.100	1.8	NA	0.0	0.0	0.00	0.21	0.00	48.0
West: Glenmore Ridge Drive (West)														
11	T1	168	0.0	168	0.0	0.124	0.3	LOS A	0.4	2.7	0.17	0.14	0.17	48.1
12	R2	56	0.0	56	0.0	0.124	5.2	LOS A	0.4	2.7	0.17	0.14	0.17	46.8
Approach		224	0.0	224	0.0	0.124	1.5	NA	0.4	2.7	0.17	0.14	0.17	47.8
All Vehicles		469	0.0	469	0.0	0.124	2.1	NA	0.4	2.7	0.12	0.22	0.12	47.5

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

MOVEMENT SUMMARY

Site: 102 [2e. Glenmore Ridge Dr / Darug Av / Risus Av - Future Base + Dev AM (Site Folder: E. Future Base + Dev AM Peak Hour)]

Network: N101 [E. Future Base + Dev AM Peak Hour (Network Folder: Future Base + Development Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	132	4.0	132	4.0	0.179	5.2	LOS A	0.7	5.2	0.30	0.57	0.30	43.9
2	T1	5	0.0	5	0.0	0.179	5.3	LOS A	0.7	5.2	0.30	0.57	0.30	44.0
3	R2	58	0.0	58	0.0	0.179	7.2	LOS A	0.7	5.2	0.30	0.57	0.30	32.7
Approach		195	2.7	195	2.7	0.179	5.8	LOS A	0.7	5.2	0.30	0.57	0.30	42.6
East: Glenmore Ridge Drive (East)														
4	L2	5	0.0	5	0.0	0.086	4.9	LOS A	0.0	0.3	0.03	0.03	0.03	48.0
5	T1	156	0.0	156	0.0	0.086	0.0	LOS A	0.0	0.3	0.03	0.03	0.03	49.6
6	R2	5	0.0	5	0.0	0.086	5.2	LOS A	0.0	0.3	0.03	0.03	0.03	48.1
Approach		166	0.0	166	0.0	0.086	0.3	NA	0.0	0.3	0.03	0.03	0.03	49.5
North: Risus Avenue (North)														
7	L2	7	0.0	7	0.0	0.008	5.1	LOS A	0.0	0.2	0.29	0.51	0.29	43.5
8	T1	1	0.0	1	0.0	0.008	4.8	LOS A	0.0	0.2	0.29	0.51	0.29	43.5
9	R2	1	0.0	1	0.0	0.008	7.6	LOS A	0.0	0.2	0.29	0.51	0.29	45.7
Approach		9	0.0	9	0.0	0.008	5.4	LOS A	0.0	0.2	0.29	0.51	0.29	43.9
West: Glenmore Ridge Drive (East)														
10	L2	1	0.0	1	0.0	0.129	5.1	LOS A	0.3	2.2	0.12	0.10	0.12	48.7
11	T1	195	0.0	195	0.0	0.129	0.2	LOS A	0.3	2.2	0.12	0.10	0.12	48.3
12	R2	42	5.0	42	5.0	0.129	5.2	LOS A	0.3	2.2	0.12	0.10	0.12	48.3
Approach		238	0.9	238	0.9	0.129	1.1	NA	0.3	2.2	0.12	0.10	0.12	48.3
All Vehicles		608	1.2	608	1.2	0.179	2.4	NA	0.7	5.2	0.15	0.24	0.15	46.7

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

MOVEMENT SUMMARY

Site: 103 [3e. Darug Ave / Deerubbin Drive - Future Base + Dev AM (Site Folder: E. Future Base + Dev AM Peak Hour)]

Network: N101 [E. Future Base + Dev AM Peak Hour (Network Folder: Future Base + Development Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	1	0.0	1	0.0	0.069	4.7	LOS A	0.2	1.5	0.08	0.17	0.08	47.4
2	T1	87	6.0	87	6.0	0.069	0.1	LOS A	0.2	1.5	0.08	0.17	0.08	42.7
3	R2	38	0.0	38	0.0	0.069	4.7	LOS A	0.2	1.5	0.08	0.17	0.08	46.8
Approach		126	4.2	126	4.2	0.069	1.5	NA	0.2	1.5	0.08	0.17	0.08	45.4
East: Deerubbin Drive (East)														
4	L2	44	0.0	44	0.0	0.145	4.7	LOS A	0.5	3.8	0.18	0.55	0.18	43.7
5	T1	3	0.0	3	0.0	0.145	4.0	LOS A	0.5	3.8	0.18	0.55	0.18	46.3
6	R2	106	0.0	106	0.0	0.145	5.6	LOS A	0.5	3.8	0.18	0.55	0.18	43.7
Approach		154	0.0	154	0.0	0.145	5.3	LOS A	0.5	3.8	0.18	0.55	0.18	43.8
North: Darug Avenue (North)														
7	L2	4	0.0	4	0.0	0.026	4.6	LOS A	0.0	0.1	0.01	0.06	0.01	48.7
8	T1	44	4.8	44	4.8	0.026	0.0	LOS A	0.0	0.1	0.01	0.06	0.01	47.5
9	R2	1	0.0	1	0.0	0.026	4.8	LOS A	0.0	0.1	0.01	0.06	0.01	48.0
Approach		49	4.3	49	4.3	0.026	0.5	NA	0.0	0.1	0.01	0.06	0.01	47.9
West: Deerubbin Drive (West)														
10	L2	1	0.0	1	0.0	0.012	4.8	LOS A	0.0	0.4	0.28	0.49	0.28	43.7
11	T1	6	83.3	6	83.3	0.012	5.2	LOS A	0.0	0.4	0.28	0.49	0.28	45.3
12	R2	2	0.0	2	0.0	0.012	5.6	LOS A	0.0	0.4	0.28	0.49	0.28	43.7
Approach		9	55.6	9	55.6	0.012	5.2	LOS A	0.0	0.4	0.28	0.49	0.28	45.0
All Vehicles		339	3.7	339	3.7	0.145	3.2	NA	0.5	3.8	0.12	0.33	0.12	44.6

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

MOVEMENT SUMMARY

Site: 104 [4e. Darug Ave / Forestwood Drive - Future Base + Dev AM (Site Folder: E. Future Base + Dev AM Peak Hour)]

Network: N101 [E. Future Base + Dev AM Peak Hour (Network Folder: Future Base + Development Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	1	0.0	1	0.0	0.080	3.7	LOS A	0.2	1.6	0.11	0.13	0.11	39.5
2	T1	106	5.0	106	5.0	0.080	0.1	LOS A	0.2	1.6	0.11	0.13	0.11	38.8
3	R2	38	0.0	38	0.0	0.080	3.7	LOS A	0.2	1.6	0.11	0.13	0.11	38.8
Approach		145	3.6	145	3.6	0.080	1.1	NA	0.2	1.6	0.11	0.13	0.11	38.8
East: Forestwood Drive (East)														
4	L2	1	0.0	1	0.0	0.020	3.6	LOS A	0.1	0.5	0.29	0.50	0.29	37.5
5	T1	2	0.0	2	0.0	0.020	3.0	LOS A	0.1	0.5	0.29	0.50	0.29	37.5
6	R2	15	0.0	15	0.0	0.020	4.7	LOS A	0.1	0.5	0.29	0.50	0.29	31.7
Approach		18	0.0	18	0.0	0.020	4.4	LOS A	0.1	0.5	0.29	0.50	0.29	34.0
North: Darug Avenue (North)														
7	L2	16	0.0	16	0.0	0.047	3.5	LOS A	0.0	0.2	0.02	0.10	0.02	37.7
8	T1	72	2.9	72	2.9	0.047	0.0	LOS A	0.0	0.2	0.02	0.10	0.02	39.4
9	R2	3	0.0	3	0.0	0.047	3.8	LOS A	0.0	0.2	0.02	0.10	0.02	39.4
Approach		91	2.3	91	2.3	0.047	0.8	NA	0.0	0.2	0.02	0.10	0.02	39.4
West: Forestwood Drive (West)														
10	L2	4	0.0	4	0.0	0.030	3.7	LOS A	0.1	0.7	0.28	0.44	0.28	37.2
11	T1	24	0.0	24	0.0	0.030	3.0	LOS A	0.1	0.7	0.28	0.44	0.28	37.2
12	R2	4	0.0	4	0.0	0.030	4.6	LOS A	0.1	0.7	0.28	0.44	0.28	38.5
Approach		33	0.0	33	0.0	0.030	3.3	LOS A	0.1	0.7	0.28	0.44	0.28	37.5
All Vehicles		286	2.6	286	2.6	0.080	1.4	NA	0.2	1.6	0.11	0.18	0.11	38.7

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

MOVEMENT SUMMARY

Site: 105 [5e. Bradley St / Parkway Ave - Future Base + Dev AM (Site Folder: E. Future Base + Dev AM Peak Hour)]

Network: N101 [E. Future Base + Dev AM Peak Hour (Network Folder: Future Base + Development Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Bradley Street (East)														
5	T1	134	7.1	134	7.1	0.089	0.2	LOS A	0.2	1.4	0.12	0.10	0.12	49.1
6	R2	27	0.0	27	0.0	0.089	5.2	LOS A	0.2	1.4	0.12	0.10	0.12	48.3
Approach		161	5.9	161	5.9	0.089	1.0	NA	0.2	1.4	0.12	0.10	0.12	49.0
North: Parkway Avenue (North)														
7	L2	40	0.0	40	0.0	0.063	5.1	LOS A	0.2	1.6	0.30	0.56	0.30	44.5
9	R2	32	0.0	32	0.0	0.063	6.0	LOS A	0.2	1.6	0.30	0.56	0.30	44.1
Approach		72	0.0	72	0.0	0.063	5.5	LOS A	0.2	1.6	0.30	0.56	0.30	44.3
West: Bradley Street (West)														
10	L2	1	0.0	1	0.0	0.098	4.6	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
11	T1	188	1.7	188	1.7	0.098	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		189	1.7	189	1.7	0.098	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.9
All Vehicles		422	3.0	422	3.0	0.098	1.3	NA	0.2	1.6	0.10	0.13	0.10	48.8

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

MOVEMENT SUMMARY

Site: 101 [1f. Glenmore Ridge Dr / Glenholme Dr - Future Base + Dev PM (Site Folder: F. Future Base + Dev PM Peak Hour)]

Network: N101 [F. Future Base + Dev PM Peak Hour (Network Folder: Future Base + Development Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Glenholme Drive (South)														
1	L2	5	0.0	5	0.0	0.039	4.9	LOS A	0.1	0.9	0.30	0.58	0.30	43.3
3	R2	34	0.0	34	0.0	0.039	5.8	LOS A	0.1	0.9	0.30	0.58	0.30	45.6
Approach		39	0.0	39	0.0	0.039	5.7	LOS A	0.1	0.9	0.30	0.58	0.30	45.4
East: Glenmore Ridge Drive (East)														
4	L2	75	1.4	75	1.4	0.096	4.6	LOS A	0.0	0.0	0.00	0.22	0.00	48.3
5	T1	109	0.0	109	0.0	0.096	0.0	LOS A	0.0	0.0	0.00	0.22	0.00	47.6
Approach		184	0.6	184	0.6	0.096	1.9	NA	0.0	0.0	0.00	0.22	0.00	48.0
West: Glenmore Ridge Drive (West)														
11	T1	136	0.0	136	0.0	0.109	0.3	LOS A	0.4	2.7	0.19	0.17	0.19	47.8
12	R2	58	1.8	58	1.8	0.109	5.2	LOS A	0.4	2.7	0.19	0.17	0.19	46.4
Approach		194	0.5	194	0.5	0.109	1.8	NA	0.4	2.7	0.19	0.17	0.19	47.4
All Vehicles		417	0.5	417	0.5	0.109	2.2	NA	0.4	2.7	0.12	0.23	0.12	47.4

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

MOVEMENT SUMMARY

Site: 102 [2f. Glenmore Ridge Dr / Darug Av / Risus Av - Future Base + Dev PM (Site Folder: F. Future Base + Dev PM Peak Hour)]

Network: N101 [F. Future Base + Dev PM Peak Hour (Network Folder: Future Base + Development Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	98	2.2	98	2.2	0.148	5.0	LOS A	0.6	4.1	0.26	0.56	0.26	44.0
2	T1	8	0.0	8	0.0	0.148	5.0	LOS A	0.6	4.1	0.26	0.56	0.26	44.1
3	R2	55	0.0	55	0.0	0.148	6.9	LOS A	0.6	4.1	0.26	0.56	0.26	33.0
Approach		161	1.3	161	1.3	0.148	5.6	LOS A	0.6	4.1	0.26	0.56	0.26	42.5
East: Glenmore Ridge Drive (East)														
4	L2	13	0.0	13	0.0	0.073	4.8	LOS A	0.1	0.4	0.04	0.07	0.04	46.5
5	T1	122	0.0	122	0.0	0.073	0.0	LOS A	0.1	0.4	0.04	0.07	0.04	49.2
6	R2	6	0.0	6	0.0	0.073	5.1	LOS A	0.1	0.4	0.04	0.07	0.04	47.8
Approach		141	0.0	141	0.0	0.073	0.7	NA	0.1	0.4	0.04	0.07	0.04	49.0
North: Risus Avenue (North)														
7	L2	4	0.0	4	0.0	0.006	5.0	LOS A	0.0	0.1	0.28	0.51	0.28	43.6
8	T1	1	0.0	1	0.0	0.006	4.7	LOS A	0.0	0.1	0.28	0.51	0.28	43.6
9	R2	1	0.0	1	0.0	0.006	7.1	LOS A	0.0	0.1	0.28	0.51	0.28	45.7
Approach		6	0.0	6	0.0	0.006	5.3	LOS A	0.0	0.1	0.28	0.51	0.28	44.2
West: Glenmore Ridge Drive (East)														
10	L2	1	0.0	1	0.0	0.130	5.0	LOS A	0.4	3.0	0.15	0.16	0.15	48.3
11	T1	169	0.0	169	0.0	0.130	0.2	LOS A	0.4	3.0	0.15	0.16	0.15	47.6
12	R2	65	1.6	65	1.6	0.130	5.0	LOS A	0.4	3.0	0.15	0.16	0.15	47.6
Approach		236	0.4	236	0.4	0.130	1.6	NA	0.4	3.0	0.15	0.16	0.15	47.6
All Vehicles		544	0.6	544	0.6	0.148	2.6	NA	0.6	4.1	0.16	0.26	0.16	46.4

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

MOVEMENT SUMMARY

Site: 103 [3f. Darug Ave / Deerubbin Drive - Future Base + Dev PM (Site Folder: F. Future Base + Dev PM Peak Hour)]

Network: N101 [F. Future Base + Dev PM Peak Hour (Network Folder: Future Base + Development Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	1	0.0	1	0.0	0.046	4.8	LOS A	0.1	0.9	0.10	0.15	0.10	47.5
2	T1	61	3.4	61	3.4	0.046	0.1	LOS A	0.1	0.9	0.10	0.15	0.10	43.0
3	R2	23	0.0	23	0.0	0.046	4.8	LOS A	0.1	0.9	0.10	0.15	0.10	46.9
Approach		85	2.5	85	2.5	0.046	1.4	NA	0.1	0.9	0.10	0.15	0.10	45.4
East: Deerubbin Drive (East)														
4	L2	20	0.0	20	0.0	0.116	4.8	LOS A	0.4	2.9	0.24	0.55	0.24	43.6
5	T1	1	0.0	1	0.0	0.116	3.9	LOS A	0.4	2.9	0.24	0.55	0.24	46.2
6	R2	97	0.0	97	0.0	0.116	5.4	LOS A	0.4	2.9	0.24	0.55	0.24	43.6
Approach		118	0.0	118	0.0	0.116	5.3	LOS A	0.4	2.9	0.24	0.55	0.24	43.6
North: Darug Avenue (North)														
7	L2	2	0.0	2	0.0	0.039	4.7	LOS A	0.0	0.1	0.01	0.03	0.01	48.9
8	T1	72	1.5	72	1.5	0.039	0.0	LOS A	0.0	0.1	0.01	0.03	0.01	48.6
9	R2	2	0.0	2	0.0	0.039	4.7	LOS A	0.0	0.1	0.01	0.03	0.01	48.3
Approach		76	1.4	76	1.4	0.039	0.3	NA	0.0	0.1	0.01	0.03	0.01	48.6
West: Deerubbin Drive (West)														
10	L2	4	0.0	4	0.0	0.008	4.7	LOS A	0.0	0.2	0.17	0.48	0.17	44.0
11	T1	3	66.7	3	66.7	0.008	4.7	LOS A	0.0	0.2	0.17	0.48	0.17	45.7
12	R2	1	0.0	1	0.0	0.008	5.4	LOS A	0.0	0.2	0.17	0.48	0.17	44.0
Approach		8	25.0	8	25.0	0.008	4.8	LOS A	0.0	0.2	0.17	0.48	0.17	44.9
All Vehicles		287	1.8	287	1.8	0.116	2.8	NA	0.4	2.9	0.13	0.30	0.13	44.7

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

MOVEMENT SUMMARY

Site: 104 [4f. Darug Ave / Forestwood Drive - Future Base + Dev PM (Site Folder: F. Future Base + Dev PM Peak Hour)]

Network: N101 [F. Future Base + Dev PM Peak Hour (Network Folder: Future Base + Development Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	3	0.0	3	0.0	0.058	3.7	LOS A	0.2	1.5	0.14	0.18	0.14	39.3
2	T1	64	3.3	64	3.3	0.058	0.1	LOS A	0.2	1.5	0.14	0.18	0.14	38.4
3	R2	38	0.0	38	0.0	0.058	3.7	LOS A	0.2	1.5	0.14	0.18	0.14	38.4
Approach		105	2.0	105	2.0	0.058	1.5	NA	0.2	1.5	0.14	0.18	0.14	38.4
East: Forestwood Drive (East)														
4	L2	2	0.0	2	0.0	0.020	3.6	LOS A	0.1	0.5	0.25	0.48	0.25	37.6
5	T1	1	0.0	1	0.0	0.020	2.8	LOS A	0.1	0.5	0.25	0.48	0.25	37.5
6	R2	16	0.0	16	0.0	0.020	4.5	LOS A	0.1	0.5	0.25	0.48	0.25	31.8
Approach		19	0.0	19	0.0	0.020	4.3	LOS A	0.1	0.5	0.25	0.48	0.25	34.0
North: Darug Avenue (North)														
7	L2	13	0.0	13	0.0	0.048	3.5	LOS A	0.0	0.3	0.03	0.09	0.03	37.8
8	T1	74	1.4	74	1.4	0.048	0.0	LOS A	0.0	0.3	0.03	0.09	0.03	39.5
9	R2	5	0.0	5	0.0	0.048	3.7	LOS A	0.0	0.3	0.03	0.09	0.03	39.4
Approach		92	1.1	92	1.1	0.048	0.7	NA	0.0	0.3	0.03	0.09	0.03	39.4
West: Forestwood Drive (West)														
10	L2	5	0.0	5	0.0	0.025	3.6	LOS A	0.1	0.6	0.22	0.41	0.22	37.4
11	T1	23	0.0	23	0.0	0.025	2.8	LOS A	0.1	0.6	0.22	0.41	0.22	37.4
12	R2	1	0.0	1	0.0	0.025	4.3	LOS A	0.1	0.6	0.22	0.41	0.22	38.6
Approach		29	0.0	29	0.0	0.025	3.0	LOS A	0.1	0.6	0.22	0.41	0.22	37.5
All Vehicles		245	1.3	245	1.3	0.058	1.6	NA	0.2	1.5	0.12	0.20	0.12	38.5

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

MOVEMENT SUMMARY

Site: 105 [5f. Bradley St / Parkway Ave - Future Base + Dev PM (Site Folder: F. Future Base + Dev PM Peak Hour)]

Network: N101 [F. Future Base + Dev PM Peak Hour (Network Folder: Future Base + Development Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Bradley Street (East)														
5	T1	225	4.2	225	4.2	0.125	0.0	LOS A	0.1	0.6	0.03	0.03	0.03	49.8
6	R2	12	0.0	12	0.0	0.125	4.9	LOS A	0.1	0.6	0.03	0.03	0.03	49.5
Approach		237	4.0	237	4.0	0.125	0.3	NA	0.1	0.6	0.03	0.03	0.03	49.8
North: Parkway Avenue (North)														
7	L2	58	3.6	58	3.6	0.074	4.9	LOS A	0.3	2.0	0.21	0.54	0.21	44.6
9	R2	33	0.0	33	0.0	0.074	6.0	LOS A	0.3	2.0	0.21	0.54	0.21	44.4
Approach		91	2.3	91	2.3	0.074	5.3	LOS A	0.3	2.0	0.21	0.54	0.21	44.6
West: Bradley Street (West)														
10	L2	2	50.0	2	50.0	0.056	5.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.9
11	T1	104	5.1	104	5.1	0.056	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.9
Approach		106	5.9	106	5.9	0.056	0.1	NA	0.0	0.0	0.00	0.01	0.00	49.9
All Vehicles		434	4.1	434	4.1	0.125	1.3	NA	0.3	2.0	0.06	0.13	0.06	48.9

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

MOVEMENT SUMMARY

Site: 106 [6f. Forestwood Dr / Site Driveway - Future Base + Dev PM (Site Folder: F. Future Base + Dev PM Peak Hour)]

Network: N101 [F. Future Base + Dev PM Peak Hour (Network Folder: Future Base + Development Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Forestwood Drive (East)														
5	T1	14	7.7	14	7.7	0.008	0.0	LOS A	0.0	0.0	0.03	0.04	0.03	48.6
6	R2	1	0.0	1	0.0	0.008	4.8	LOS A	0.0	0.0	0.03	0.04	0.03	48.2
Approach		15	7.1	15	7.1	0.008	0.4	NA	0.0	0.0	0.03	0.04	0.03	48.5
North: School Driveway (North)														
7	L2	23	0.0	23	0.0	0.019	4.8	LOS A	0.1	0.5	0.15	0.50	0.15	43.9
9	R2	5	0.0	5	0.0	0.019	4.8	LOS A	0.1	0.5	0.15	0.50	0.15	43.9
Approach		28	0.0	28	0.0	0.019	4.8	LOS A	0.1	0.5	0.15	0.50	0.15	43.9
West: Forestwood Drive (West)														
10	L2	1	0.0	1	0.0	0.038	4.6	LOS A	0.0	0.0	0.00	0.01	0.00	49.2
11	T1	72	0.0	72	0.0	0.038	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.7
Approach		73	0.0	73	0.0	0.038	0.1	NA	0.0	0.0	0.00	0.01	0.00	49.7
All Vehicles		116	0.9	116	0.9	0.038	1.3	NA	0.1	0.5	0.04	0.13	0.04	46.8

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

MOVEMENT SUMMARY

Site: 101 [1g. Glenmore Ridge Dr / Glenholme Dr - Future Base + 10 Yr AM (Site Folder: G. Future Base + 10 Yr AM Peak Hour)]

Network: N101 [Future Base + 10 Yr AM Peak Hour (Network Folder: Future Base + 10 Year Sceanario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Glenholme Drive (South)														
1	L2	9	0.0	9	0.0	0.049	4.9	LOS A	0.2	1.1	0.27	0.56	0.27	43.4
3	R2	43	0.0	43	0.0	0.049	5.5	LOS A	0.2	1.1	0.27	0.56	0.27	45.6
Approach		53	0.0	53	0.0	0.049	5.4	LOS A	0.2	1.1	0.27	0.56	0.27	45.4
East: Glenmore Ridge Drive (East)														
4	L2	33	0.0	33	0.0	0.077	4.6	LOS A	0.0	0.0	0.00	0.12	0.00	48.8
5	T1	116	0.0	116	0.0	0.077	0.0	LOS A	0.0	0.0	0.00	0.12	0.00	48.6
Approach		148	0.0	148	0.0	0.077	1.0	NA	0.0	0.0	0.00	0.12	0.00	48.7
West: Glenmore Ridge Drive (West)														
11	T1	125	0.0	125	0.0	0.070	0.0	LOS A	0.1	0.5	0.04	0.04	0.04	49.5
12	R2	9	0.0	9	0.0	0.070	5.0	LOS A	0.1	0.5	0.04	0.04	0.04	48.1
Approach		135	0.0	135	0.0	0.070	0.4	NA	0.1	0.5	0.04	0.04	0.04	49.4
All Vehicles		336	0.0	336	0.0	0.077	1.5	NA	0.2	1.1	0.06	0.16	0.06	48.2

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

MOVEMENT SUMMARY

Site: 102 [2g. Glenmore Ridge Dr / Darug Av / Risus Av - Future Base + 10 Yr AM (Site Folder: G. Future Base + 10 Yr AM Peak Hour)]

Network: N101 [Future Base + 10 Yr AM Peak Hour (Network Folder: Future Base + 10 Year Sceanario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	197	2.7	197	2.7	0.162	5.1	LOS A	0.7	4.9	0.27	0.54	0.27	44.0
2	T1	2	0.0	2	0.0	0.162	5.1	LOS A	0.7	4.9	0.27	0.54	0.27	44.1
3	R2	15	0.0	15	0.0	0.162	7.0	LOS A	0.7	4.9	0.27	0.54	0.27	33.0
Approach		214	2.5	214	2.5	0.162	5.3	LOS A	0.7	4.9	0.27	0.54	0.27	43.7
East: Glenmore Ridge Drive (East)														
4	L2	4	0.0	4	0.0	0.085	4.9	LOS A	0.0	0.3	0.02	0.03	0.02	48.3
5	T1	156	0.0	156	0.0	0.085	0.0	LOS A	0.0	0.3	0.02	0.03	0.02	49.6
6	R2	5	0.0	5	0.0	0.085	5.0	LOS A	0.0	0.3	0.02	0.03	0.02	48.2
Approach		165	0.0	165	0.0	0.085	0.3	NA	0.0	0.3	0.02	0.03	0.02	49.6
North: Risus Avenue (North)														
7	L2	4	0.0	4	0.0	0.006	5.0	LOS A	0.0	0.1	0.26	0.51	0.26	43.6
8	T1	1	0.0	1	0.0	0.006	4.7	LOS A	0.0	0.1	0.26	0.51	0.26	43.6
9	R2	1	0.0	1	0.0	0.006	7.9	LOS A	0.0	0.1	0.26	0.51	0.26	45.7
Approach		6	0.0	6	0.0	0.006	5.4	LOS A	0.0	0.1	0.26	0.51	0.26	44.2
West: Glenmore Ridge Drive (East)														
10	L2	1	0.0	1	0.0	0.125	5.1	LOS A	0.5	3.2	0.19	0.18	0.19	48.1
11	T1	152	0.0	152	0.0	0.125	0.3	LOS A	0.5	3.2	0.19	0.18	0.19	47.2
12	R2	69	3.0	69	3.0	0.125	5.1	LOS A	0.5	3.2	0.19	0.18	0.19	47.2
Approach		222	0.9	222	0.9	0.125	1.8	NA	0.5	3.2	0.19	0.18	0.19	47.2
All Vehicles		607	1.2	607	1.2	0.162	2.7	NA	0.7	4.9	0.17	0.27	0.17	46.4

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

MOVEMENT SUMMARY

Site: 103 [3g. Darug Ave / Deerubbin Drive - Future Base + 10 Yr AM (Site Folder: G. Future Base + 10 Yr AM Peak Hour)]

Network: N101 [Future Base + 10 Yr AM Peak Hour (Network Folder: Future Base + 10 Year Sceanario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	1	0.0	1	0.0	0.125	4.8	LOS A	0.2	1.8	0.07	0.09	0.07	48.2
2	T1	196	2.7	196	2.7	0.125	0.1	LOS A	0.2	1.8	0.07	0.09	0.07	45.5
3	R2	38	0.0	38	0.0	0.125	4.8	LOS A	0.2	1.8	0.07	0.09	0.07	47.5
Approach		235	2.2	235	2.2	0.125	0.8	NA	0.2	1.8	0.07	0.09	0.07	46.4
East: Deerubbin Drive (East)														
4	L2	44	0.0	44	0.0	0.051	4.8	LOS A	0.2	1.3	0.16	0.52	0.16	43.9
5	T1	3	0.0	3	0.0	0.051	4.5	LOS A	0.2	1.3	0.16	0.52	0.16	46.4
6	R2	16	0.0	16	0.0	0.051	6.3	LOS A	0.2	1.3	0.16	0.52	0.16	43.9
Approach		63	0.0	63	0.0	0.051	5.1	LOS A	0.2	1.3	0.16	0.52	0.16	44.1
North: Darug Avenue (North)														
7	L2	4	0.0	4	0.0	0.039	4.7	LOS A	0.0	0.1	0.01	0.04	0.01	48.8
8	T1	71	3.0	71	3.0	0.039	0.0	LOS A	0.0	0.1	0.01	0.04	0.01	48.3
9	R2	1	0.0	1	0.0	0.039	5.2	LOS A	0.0	0.1	0.01	0.04	0.01	48.2
Approach		76	2.8	76	2.8	0.039	0.3	NA	0.0	0.1	0.01	0.04	0.01	48.4
West: Deerubbin Drive (West)														
10	L2	1	0.0	1	0.0	0.014	5.1	LOS A	0.0	0.5	0.40	0.54	0.40	42.5
11	T1	6	83.3	6	83.3	0.014	6.5	LOS A	0.0	0.5	0.40	0.54	0.40	44.7
12	R2	2	0.0	2	0.0	0.014	6.4	LOS A	0.0	0.5	0.40	0.54	0.40	42.5
Approach		9	55.6	9	55.6	0.014	6.3	LOS A	0.0	0.5	0.40	0.54	0.40	44.3
All Vehicles		383	3.3	383	3.3	0.125	1.6	NA	0.2	1.8	0.08	0.16	0.08	45.8

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

MOVEMENT SUMMARY

Site: 104 [4g. Darug Ave / Forestwood Drive - Future Base + 10 Yr AM (Site Folder: G. Future Base + 10 Yr AM Peak Hour)]

Network: N101 [Future Base + 10 Yr AM Peak Hour (Network Folder: Future Base + 10 Year Sceanario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	1	0.0	1	0.0	0.113	3.6	LOS A	0.0	0.1	0.00	0.01	0.00	44.7
2	T1	215	2.5	215	2.5	0.113	0.0	LOS A	0.0	0.1	0.00	0.01	0.00	49.9
3	R2	1	0.0	1	0.0	0.113	3.8	LOS A	0.0	0.1	0.00	0.01	0.00	49.9
Approach		217	2.4	217	2.4	0.113	0.1	NA	0.0	0.1	0.00	0.01	0.00	49.9
East: Forestwood Drive (East)														
4	L2	1	0.0	1	0.0	0.022	3.7	LOS A	0.1	0.5	0.35	0.53	0.35	37.3
5	T1	2	0.0	2	0.0	0.022	3.4	LOS A	0.1	0.5	0.35	0.53	0.35	37.2
6	R2	15	0.0	15	0.0	0.022	5.2	LOS A	0.1	0.5	0.35	0.53	0.35	31.0
Approach		18	0.0	18	0.0	0.022	4.9	LOS A	0.1	0.5	0.35	0.53	0.35	33.5
North: Darug Avenue (North)														
7	L2	12	0.0	12	0.0	0.061	3.6	LOS A	0.0	0.2	0.03	0.06	0.03	43.1
8	T1	102	2.1	102	2.1	0.061	0.0	LOS A	0.0	0.2	0.03	0.06	0.03	45.3
9	R2	3	0.0	3	0.0	0.061	4.2	LOS A	0.0	0.2	0.03	0.06	0.03	40.6
Approach		117	1.8	117	1.8	0.061	0.5	NA	0.0	0.2	0.03	0.06	0.03	45.1
West: Forestwood Drive (West)														
10	L2	4	0.0	4	0.0	0.014	4.0	LOS A	0.0	0.3	0.34	0.48	0.34	36.6
11	T1	5	0.0	5	0.0	0.014	3.4	LOS A	0.0	0.3	0.34	0.48	0.34	36.6
12	R2	4	0.0	4	0.0	0.014	5.1	LOS A	0.0	0.3	0.34	0.48	0.34	38.2
Approach		14	0.0	14	0.0	0.014	4.1	LOS A	0.0	0.3	0.34	0.48	0.34	37.4
All Vehicles		365	2.0	365	2.0	0.113	0.6	NA	0.1	0.5	0.04	0.07	0.04	46.8

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

MOVEMENT SUMMARY

Site: 105 [5g. Bradley St / Parkway Ave - Future Base + 10 Yr AM (Site Folder: G. Future Base + 10 Yr AM Peak Hour)]

Network: N101 [Future Base + 10 Yr AM Peak Hour (Network Folder: Future Base + 10 Year Sceanario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Bradley Street (East)														
5	T1	109	8.7	109	8.7	0.062	0.0	LOS A	0.0	0.3	0.03	0.03	0.03	49.7
6	R2	5	0.0	5	0.0	0.062	5.2	LOS A	0.0	0.3	0.03	0.03	0.03	49.5
Approach		115	8.3	115	8.3	0.062	0.3	NA	0.0	0.3	0.03	0.03	0.03	49.7
North: Parkway Avenue (North)														
7	L2	16	0.0	16	0.0	0.012	5.1	LOS A	0.0	0.3	0.27	0.51	0.27	44.5
9	R2	1	0.0	1	0.0	0.012	5.7	LOS A	0.0	0.3	0.27	0.51	0.27	44.2
Approach		17	0.0	17	0.0	0.012	5.1	LOS A	0.0	0.3	0.27	0.51	0.27	44.5
West: Bradley Street (West)														
10	L2	1	0.0	1	0.0	0.098	4.6	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
11	T1	188	1.7	188	1.7	0.098	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		189	1.7	189	1.7	0.098	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.9
All Vehicles		321	3.9	321	3.9	0.098	0.4	NA	0.0	0.3	0.03	0.04	0.03	49.6

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

MOVEMENT SUMMARY

Site: 106 [6g. Forestwood Dr / Site Driveway - Future Base + 10 Yr AM (Site Folder: G. Future Base + 10 Yr AM Peak Hour)]

Network: N101 [Future Base + 10 Yr AM Peak Hour (Network Folder: Future Base + 10 Year Sceanario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Forestwood Drive (East)														
5	T1	5	0.0	5	0.0	0.003	0.0	LOS A	0.0	0.0	0.03	0.09	0.03	47.4
6	R2	1	0.0	1	0.0	0.003	4.6	LOS A	0.0	0.0	0.03	0.09	0.03	47.8
Approach		6	0.0	6	0.0	0.003	0.8	NA	0.0	0.0	0.03	0.09	0.03	47.6
North: School Driveway (North)														
7	L2	1	0.0	1	0.0	0.001	4.6	LOS A	0.0	0.0	0.07	0.52	0.07	44.2
9	R2	1	0.0	1	0.0	0.001	4.6	LOS A	0.0	0.0	0.07	0.52	0.07	44.2
Approach		2	0.0	2	0.0	0.001	4.6	LOS A	0.0	0.0	0.07	0.52	0.07	44.2
West: Forestwood Drive (West)														
10	L2	1	0.0	1	0.0	0.009	4.6	LOS A	0.0	0.0	0.00	0.03	0.00	49.0
11	T1	17	0.0	17	0.0	0.009	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	49.0
Approach		18	0.0	18	0.0	0.009	0.3	NA	0.0	0.0	0.00	0.03	0.00	49.0
All Vehicles		26	0.0	26	0.0	0.009	0.7	NA	0.0	0.0	0.01	0.09	0.01	47.8

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

MOVEMENT SUMMARY

Site: 101 [1h. Glenmore Ridge Dr / Glenholme Dr - Future Base + 10 Yr PM (Site Folder: H. Future Base + 10 Yr PM Peak Hour)]

Network: N101 [Future Base + 10 Yr PM Peak Hour (Network Folder: Future Base + 10 Year Sceanario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Glenholme Drive (South)														
1	L2	5	0.0	5	0.0	0.035	4.9	LOS A	0.1	0.8	0.26	0.55	0.26	43.5
3	R2	34	0.0	34	0.0	0.035	5.4	LOS A	0.1	0.8	0.26	0.55	0.26	45.7
Approach		39	0.0	39	0.0	0.035	5.3	LOS A	0.1	0.8	0.26	0.55	0.26	45.5
East: Glenmore Ridge Drive (East)														
4	L2	32	3.3	32	3.3	0.073	4.6	LOS A	0.0	0.0	0.00	0.12	0.00	48.8
5	T1	109	0.0	109	0.0	0.073	0.0	LOS A	0.0	0.0	0.00	0.12	0.00	48.7
Approach		141	0.7	141	0.7	0.073	1.0	NA	0.0	0.0	0.00	0.12	0.00	48.7
West: Glenmore Ridge Drive (West)														
11	T1	92	0.0	92	0.0	0.055	0.1	LOS A	0.1	0.6	0.07	0.06	0.07	49.2
12	R2	12	9.1	12	9.1	0.055	5.1	LOS A	0.1	0.6	0.07	0.06	0.07	47.6
Approach		103	1.0	103	1.0	0.055	0.6	NA	0.1	0.6	0.07	0.06	0.07	49.0
All Vehicles		283	0.7	283	0.7	0.073	1.5	NA	0.1	0.8	0.06	0.16	0.06	48.2

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

MOVEMENT SUMMARY

Site: 102 [2h. Glenmore Ridge Dr / Darug Av / Risus Av - Future Base + 10 Yr PM (Site Folder: H. Future Base + 10 Yr PM Peak Hour)]

Network: N101 [Future Base + 10 Yr PM Peak Hour (Network Folder: Future Base + 10 Year Sceanario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	82	2.6	82	2.6	0.078	5.0	LOS A	0.3	2.2	0.22	0.53	0.22	44.2
2	T1	5	0.0	5	0.0	0.078	5.3	LOS A	0.3	2.2	0.22	0.53	0.22	44.3
3	R2	11	0.0	11	0.0	0.078	7.2	LOS A	0.3	2.2	0.22	0.53	0.22	33.5
Approach		98	2.2	98	2.2	0.078	5.2	LOS A	0.3	2.2	0.22	0.53	0.22	43.8
East: Glenmore Ridge Drive (East)														
4	L2	13	0.0	13	0.0	0.073	4.7	LOS A	0.1	0.4	0.03	0.07	0.03	46.6
5	T1	122	0.0	122	0.0	0.073	0.0	LOS A	0.1	0.4	0.03	0.07	0.03	49.2
6	R2	6	0.0	6	0.0	0.073	5.0	LOS A	0.1	0.4	0.03	0.07	0.03	47.8
Approach		141	0.0	141	0.0	0.073	0.7	NA	0.1	0.4	0.03	0.07	0.03	49.1
North: Risus Avenue (North)														
7	L2	1	0.0	1	0.0	0.004	4.9	LOS A	0.0	0.1	0.30	0.52	0.30	43.2
8	T1	1	0.0	1	0.0	0.004	5.1	LOS A	0.0	0.1	0.30	0.52	0.30	43.2
9	R2	1	0.0	1	0.0	0.004	7.4	LOS A	0.0	0.1	0.30	0.52	0.30	45.5
Approach		3	0.0	3	0.0	0.004	5.8	LOS A	0.0	0.1	0.30	0.52	0.30	44.3
West: Glenmore Ridge Drive (East)														
10	L2	1	0.0	1	0.0	0.178	5.0	LOS A	0.9	6.3	0.25	0.32	0.25	47.2
11	T1	126	0.0	126	0.0	0.178	0.4	LOS A	0.9	6.3	0.25	0.32	0.25	45.5
12	R2	177	0.6	177	0.6	0.178	5.0	LOS A	0.9	6.3	0.25	0.32	0.25	45.5
Approach		304	0.3	304	0.3	0.178	3.1	NA	0.9	6.3	0.25	0.32	0.25	45.5
All Vehicles		546	0.6	546	0.6	0.178	2.9	NA	0.9	6.3	0.19	0.29	0.19	46.1

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

MOVEMENT SUMMARY

Site: 103 [3h. Darug Ave / Deerubbin Drive - Future Base + 10 Yr PM (Site Folder: H. Future Base + 10 Yr PM Peak Hour)]

Network: N101 [Future Base + 10 Yr PM Peak Hour (Network Folder: Future Base + 10 Year Sceanario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	1	0.0	1	0.0	0.061	5.1	LOS A	0.2	1.1	0.14	0.12	0.14	47.7
2	T1	87	2.4	87	2.4	0.061	0.2	LOS A	0.2	1.1	0.14	0.12	0.14	43.6
3	R2	23	0.0	23	0.0	0.061	5.1	LOS A	0.2	1.1	0.14	0.12	0.14	47.0
Approach		112	1.9	112	1.9	0.061	1.3	NA	0.2	1.1	0.14	0.12	0.14	45.4
East: Deerubbin Drive (East)														
4	L2	20	0.0	20	0.0	0.023	5.1	LOS A	0.1	0.6	0.28	0.53	0.28	43.4
5	T1	1	0.0	1	0.0	0.023	4.4	LOS A	0.1	0.6	0.28	0.53	0.28	46.1
6	R2	6	0.0	6	0.0	0.023	6.1	LOS A	0.1	0.6	0.28	0.53	0.28	43.4
Approach		27	0.0	27	0.0	0.023	5.3	LOS A	0.1	0.6	0.28	0.53	0.28	43.6
North: Darug Avenue (North)														
7	L2	2	0.0	2	0.0	0.096	4.7	LOS A	0.0	0.1	0.01	0.01	0.01	49.1
8	T1	183	0.6	183	0.6	0.096	0.0	LOS A	0.0	0.1	0.01	0.01	0.01	49.4
9	R2	2	0.0	2	0.0	0.096	4.8	LOS A	0.0	0.1	0.01	0.01	0.01	48.5
Approach		187	0.6	187	0.6	0.096	0.1	NA	0.0	0.1	0.01	0.01	0.01	49.3
West: Deerubbin Drive (West)														
10	L2	4	0.0	4	0.0	0.009	4.8	LOS A	0.0	0.3	0.22	0.49	0.22	43.6
11	T1	3	66.7	3	66.7	0.009	5.9	LOS A	0.0	0.3	0.22	0.49	0.22	45.5
12	R2	1	0.0	1	0.0	0.009	6.1	LOS A	0.0	0.3	0.22	0.49	0.22	43.6
Approach		8	25.0	8	25.0	0.009	5.4	LOS A	0.0	0.3	0.22	0.49	0.22	44.6
All Vehicles		335	1.6	335	1.6	0.096	1.1	NA	0.2	1.1	0.08	0.10	0.08	46.4

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

MOVEMENT SUMMARY

Site: 104 [4h. Darug Ave / Forestwood Drive - Future Base + 10 Yr PM (Site Folder: H. Future Base + 10 Yr PM Peak Hour)]

Network: N101 [Future Base + 10 Yr PM Peak Hour (Network Folder: Future Base + 10 Year Sceanario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	3	0.0	3	0.0	0.051	3.6	LOS A	0.0	0.1	0.01	0.02	0.01	43.0
2	T1	95	2.2	95	2.2	0.051	0.0	LOS A	0.0	0.1	0.01	0.02	0.01	45.9
3	R2	1	0.0	1	0.0	0.051	4.1	LOS A	0.0	0.1	0.01	0.02	0.01	45.9
Approach		99	2.1	99	2.1	0.051	0.2	NA	0.0	0.1	0.01	0.02	0.01	45.7
East: Forestwood Drive (East)														
4	L2	2	0.0	2	0.0	0.017	3.9	LOS A	0.1	0.4	0.34	0.51	0.34	37.4
5	T1	1	0.0	1	0.0	0.017	3.2	LOS A	0.1	0.4	0.34	0.51	0.34	37.3
6	R2	12	0.0	12	0.0	0.017	5.0	LOS A	0.1	0.4	0.34	0.51	0.34	31.3
Approach		15	0.0	15	0.0	0.017	4.7	LOS A	0.1	0.4	0.34	0.51	0.34	34.1
North: Darug Avenue (North)														
7	L2	13	0.0	13	0.0	0.104	3.5	LOS A	0.0	0.3	0.02	0.04	0.02	49.0
8	T1	185	0.6	185	0.6	0.104	0.0	LOS A	0.0	0.3	0.02	0.04	0.02	51.3
9	R2	5	0.0	5	0.0	0.104	3.8	LOS A	0.0	0.3	0.02	0.04	0.02	41.7
Approach		203	0.5	203	0.5	0.104	0.3	NA	0.0	0.3	0.02	0.04	0.02	50.9
West: Forestwood Drive (West)														
10	L2	5	0.0	5	0.0	0.009	3.7	LOS A	0.0	0.2	0.21	0.43	0.21	37.0
11	T1	4	0.0	4	0.0	0.009	3.3	LOS A	0.0	0.2	0.21	0.43	0.21	37.0
12	R2	1	0.0	1	0.0	0.009	4.9	LOS A	0.0	0.2	0.21	0.43	0.21	38.4
Approach		11	0.0	11	0.0	0.009	3.6	LOS A	0.0	0.2	0.21	0.43	0.21	37.3
All Vehicles		327	1.0	327	1.0	0.104	0.6	NA	0.1	0.4	0.04	0.07	0.04	48.3

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

MOVEMENT SUMMARY

Site: 105 [5h. Bradley St / Parkway Ave - Future Base + 10 Yr PM (Site Folder: H. Future Base + 10 Yr PM Peak Hour)]

Network: N101 [Future Base + 10 Yr PM Peak Hour (Network Folder: Future Base + 10 Year Sceanario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Bradley Street (East)														
5	T1	201	4.7	201	4.7	0.113	0.0	LOS A	0.1	0.6	0.03	0.03	0.03	49.7
6	R2	12	0.0	12	0.0	0.113	4.9	LOS A	0.1	0.6	0.03	0.03	0.03	49.5
Approach		213	4.5	213	4.5	0.113	0.3	NA	0.1	0.6	0.03	0.03	0.03	49.7
North: Parkway Avenue (North)														
7	L2	12	18.2	12	18.2	0.011	5.1	LOS A	0.0	0.3	0.20	0.50	0.20	44.4
9	R2	2	0.0	2	0.0	0.011	5.7	LOS A	0.0	0.3	0.20	0.50	0.20	44.4
Approach		14	15.4	14	15.4	0.011	5.2	LOS A	0.0	0.3	0.20	0.50	0.20	44.4
West: Bradley Street (West)														
10	L2	2	50.0	2	50.0	0.056	5.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.9
11	T1	104	5.1	104	5.1	0.056	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.9
Approach		106	5.9	106	5.9	0.056	0.1	NA	0.0	0.0	0.00	0.01	0.00	49.9
All Vehicles		333	5.4	333	5.4	0.113	0.4	NA	0.1	0.6	0.03	0.04	0.03	49.6

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

MOVEMENT SUMMARY

Site: 106 [6h. Forestwood Dr / Site Driveway - Future Base + 10 Yr PM (Site Folder: H. Future Base + 10 Yr PM Peak Hour)]

Network: N101 [Future Base + 10 Yr PM Peak Hour (Network Folder: Future Base + 10 Year Sceanario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Forestwood Drive (East)														
5	T1	14	7.7	14	7.7	0.008	0.0	LOS A	0.0	0.0	0.01	0.04	0.01	48.8
6	R2	1	0.0	1	0.0	0.008	4.6	LOS A	0.0	0.0	0.01	0.04	0.01	48.3
Approach		15	7.1	15	7.1	0.008	0.3	NA	0.0	0.0	0.01	0.04	0.01	48.7
North: School Driveway (North)														
7	L2	1	0.0	1	0.0	0.001	4.6	LOS A	0.0	0.0	0.07	0.52	0.07	44.2
9	R2	1	0.0	1	0.0	0.001	4.7	LOS A	0.0	0.0	0.07	0.52	0.07	44.2
Approach		2	0.0	2	0.0	0.001	4.6	LOS A	0.0	0.0	0.07	0.52	0.07	44.2
West: Forestwood Drive (West)														
10	L2	1	0.0	1	0.0	0.009	4.6	LOS A	0.0	0.0	0.00	0.03	0.00	49.0
11	T1	17	0.0	17	0.0	0.009	0.0	LOS A	0.0	0.0	0.00	0.03	0.00	49.0
Approach		18	0.0	18	0.0	0.009	0.3	NA	0.0	0.0	0.00	0.03	0.00	49.0
All Vehicles		35	3.0	35	3.0	0.009	0.6	NA	0.0	0.0	0.01	0.07	0.01	48.2

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

MOVEMENT SUMMARY

Site: 101 [1i. Glenmore Ridge Dr / Glenholme Dr - Future Base + 10 Yr + Dev AM (Site Folder: I. Future Base + 10 Yr + Dev AM Peak Hour)]

Network: N101 [I. Future Base + 10 Yr+ Dev AM Peak Hour (Network Folder: Future Base + 10 Year + Development Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Glenholme Drive (South)														
1	L2	9	0.0	9	0.0	0.054	4.9	LOS A	0.2	1.2	0.31	0.59	0.31	43.1
3	R2	43	0.0	43	0.0	0.054	6.1	LOS A	0.2	1.2	0.31	0.59	0.31	45.5
Approach		53	0.0	53	0.0	0.054	5.9	LOS A	0.2	1.2	0.31	0.59	0.31	45.2
East: Glenmore Ridge Drive (East)														
4	L2	76	0.0	76	0.0	0.100	4.6	LOS A	0.0	0.0	0.00	0.21	0.00	48.3
5	T1	117	0.0	117	0.0	0.100	0.0	LOS A	0.0	0.0	0.00	0.21	0.00	47.6
Approach		193	0.0	193	0.0	0.100	1.8	NA	0.0	0.0	0.00	0.21	0.00	48.0
West: Glenmore Ridge Drive (West)														
11	T1	168	0.0	168	0.0	0.124	0.3	LOS A	0.4	2.7	0.17	0.14	0.17	48.1
12	R2	56	0.0	56	0.0	0.124	5.2	LOS A	0.4	2.7	0.17	0.14	0.17	46.8
Approach		224	0.0	224	0.0	0.124	1.5	NA	0.4	2.7	0.17	0.14	0.17	47.8
All Vehicles		469	0.0	469	0.0	0.124	2.1	NA	0.4	2.7	0.12	0.22	0.12	47.5

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

MOVEMENT SUMMARY

Site: 102 [2i. Glenmore Ridge Dr / Darug Av / Risus Av - Future Base +10 Yr + Dev AM (Site Folder: I. Future Base + 10 Yr + Dev AM Peak Hour)]

Network: N101 [I. Future Base + 10 Yr+ Dev AM Peak Hour (Network Folder: Future Base + 10 Year + Development Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	240	2.2	240	2.2	0.258	5.2	LOS A	1.1	8.1	0.31	0.57	0.31	43.9
2	T1	5	0.0	5	0.0	0.258	5.7	LOS A	1.1	8.1	0.31	0.57	0.31	44.0
3	R2	58	0.0	58	0.0	0.258	7.8	LOS A	1.1	8.1	0.31	0.57	0.31	32.7
Approach		303	1.7	303	1.7	0.258	5.7	LOS A	1.1	8.1	0.31	0.57	0.31	43.1
East: Glenmore Ridge Drive (East)														
4	L2	5	0.0	5	0.0	0.086	4.9	LOS A	0.0	0.3	0.03	0.03	0.03	48.0
5	T1	156	0.0	156	0.0	0.086	0.0	LOS A	0.0	0.3	0.03	0.03	0.03	49.6
6	R2	5	0.0	5	0.0	0.086	5.2	LOS A	0.0	0.3	0.03	0.03	0.03	48.1
Approach		166	0.0	166	0.0	0.086	0.3	NA	0.0	0.3	0.03	0.03	0.03	49.5
North: Risus Avenue (North)														
7	L2	7	0.0	7	0.0	0.009	5.1	LOS A	0.0	0.2	0.29	0.52	0.29	43.4
8	T1	1	0.0	1	0.0	0.009	5.0	LOS A	0.0	0.2	0.29	0.52	0.29	43.4
9	R2	1	0.0	1	0.0	0.009	8.7	LOS A	0.0	0.2	0.29	0.52	0.29	45.6
Approach		9	0.0	9	0.0	0.009	5.5	LOS A	0.0	0.2	0.29	0.52	0.29	43.9
West: Glenmore Ridge Drive (East)														
10	L2	1	0.0	1	0.0	0.149	5.1	LOS A	0.5	3.5	0.17	0.15	0.17	48.3
11	T1	195	0.0	195	0.0	0.149	0.2	LOS A	0.5	3.5	0.17	0.15	0.17	47.5
12	R2	73	2.9	73	2.9	0.149	5.2	LOS A	0.5	3.5	0.17	0.15	0.17	47.5
Approach		268	0.8	268	0.8	0.149	1.6	NA	0.5	3.5	0.17	0.15	0.17	47.5
All Vehicles		747	1.0	747	1.0	0.258	3.0	NA	1.1	8.1	0.20	0.30	0.20	46.0

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

MOVEMENT SUMMARY

Site: 103 [3i. Darug Ave / Deerubbin Drive - Future Base +10 Yr + Dev AM (Site Folder: I. Future Base + 10 Yr + Dev AM Peak Hour)]

Network: N101 [I. Future Base + 10 Yr+ Dev AM Peak Hour (Network Folder: Future Base + 10 Year + Development Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	1	0.0	1	0.0	0.125	4.8	LOS A	0.2	1.8	0.07	0.09	0.07	48.2
2	T1	196	2.7	196	2.7	0.125	0.1	LOS A	0.2	1.8	0.07	0.09	0.07	45.5
3	R2	38	0.0	38	0.0	0.125	4.8	LOS A	0.2	1.8	0.07	0.09	0.07	47.5
Approach		235	2.2	235	2.2	0.125	0.8	NA	0.2	1.8	0.07	0.09	0.07	46.4
East: Deerubbin Drive (East)														
4	L2	44	0.0	44	0.0	0.165	4.8	LOS A	0.6	4.3	0.26	0.58	0.26	43.0
5	T1	3	0.0	3	0.0	0.165	4.7	LOS A	0.6	4.3	0.26	0.58	0.26	45.9
6	R2	106	0.0	106	0.0	0.165	6.5	LOS A	0.6	4.3	0.26	0.58	0.26	43.0
Approach		154	0.0	154	0.0	0.165	6.0	LOS A	0.6	4.3	0.26	0.58	0.26	43.1
North: Darug Avenue (North)														
7	L2	4	0.0	4	0.0	0.042	4.7	LOS A	0.0	0.1	0.01	0.04	0.01	48.9
8	T1	75	2.8	75	2.8	0.042	0.0	LOS A	0.0	0.1	0.01	0.04	0.01	48.4
9	R2	1	0.0	1	0.0	0.042	5.2	LOS A	0.0	0.1	0.01	0.04	0.01	48.2
Approach		80	2.6	80	2.6	0.042	0.3	NA	0.0	0.1	0.01	0.04	0.01	48.4
West: Deerubbin Drive (West)														
10	L2	1	0.0	1	0.0	0.014	5.1	LOS A	0.0	0.5	0.40	0.54	0.40	42.5
11	T1	6	83.3	6	83.3	0.014	6.5	LOS A	0.0	0.5	0.40	0.54	0.40	44.7
12	R2	2	0.0	2	0.0	0.014	6.4	LOS A	0.0	0.5	0.40	0.54	0.40	42.5
Approach		9	55.6	9	55.6	0.014	6.3	LOS A	0.0	0.5	0.40	0.54	0.40	44.2
All Vehicles		478	2.6	478	2.6	0.165	2.5	NA	0.6	4.3	0.13	0.25	0.13	44.7

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

MOVEMENT SUMMARY

Site: 104 [4i. Darug Ave / Forestwood Drive - Future Base +10 Yr + Dev AM (Site Folder: I. Future Base + 10 Yr + Dev AM Peak Hour)]

Network: N101 [I. Future Base + 10 Yr+ Dev AM Peak Hour (Network Folder: Future Base + 10 Year + Development Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	1	0.0	1	0.0	0.136	3.8	LOS A	0.3	1.9	0.08	0.08	0.08	43.5
2	T1	215	2.5	215	2.5	0.136	0.1	LOS A	0.3	1.9	0.08	0.08	0.08	47.1
3	R2	38	0.0	38	0.0	0.136	3.9	LOS A	0.3	1.9	0.08	0.08	0.08	47.1
Approach		254	2.1	254	2.1	0.136	0.7	NA	0.3	1.9	0.08	0.08	0.08	47.1
East: Forestwood Drive (East)														
4	L2	1	0.0	1	0.0	0.023	3.7	LOS A	0.1	0.5	0.37	0.55	0.37	37.1
5	T1	2	0.0	2	0.0	0.023	3.6	LOS A	0.1	0.5	0.37	0.55	0.37	37.0
6	R2	15	0.0	15	0.0	0.023	5.6	LOS A	0.1	0.5	0.37	0.55	0.37	30.6
Approach		18	0.0	18	0.0	0.023	5.2	LOS A	0.1	0.5	0.37	0.55	0.37	33.1
North: Darug Avenue (North)														
7	L2	16	0.0	16	0.0	0.063	3.5	LOS A	0.0	0.2	0.03	0.08	0.03	42.6
8	T1	102	2.1	102	2.1	0.063	0.0	LOS A	0.0	0.2	0.03	0.08	0.03	45.1
9	R2	3	0.0	3	0.0	0.063	4.2	LOS A	0.0	0.2	0.03	0.08	0.03	40.5
Approach		121	1.7	121	1.7	0.063	0.6	NA	0.0	0.2	0.03	0.08	0.03	44.9
West: Forestwood Drive (West)														
10	L2	4	0.0	4	0.0	0.035	4.1	LOS A	0.1	0.9	0.38	0.50	0.38	36.8
11	T1	24	0.0	24	0.0	0.035	3.7	LOS A	0.1	0.9	0.38	0.50	0.38	36.8
12	R2	4	0.0	4	0.0	0.035	5.4	LOS A	0.1	0.9	0.38	0.50	0.38	38.3
Approach		33	0.0	33	0.0	0.035	4.0	LOS A	0.1	0.9	0.38	0.50	0.38	37.1
All Vehicles		425	1.7	425	1.7	0.136	1.1	NA	0.3	1.9	0.10	0.13	0.10	45.0

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

MOVEMENT SUMMARY

Site: 105 [5i. Bradley St / Parkway Ave - Future Base + 10 Yr + Dev AM (Site Folder: I. Future Base + 10 Yr + Dev AM Peak Hour)]

Network: N101 [I. Future Base + 10 Yr+ Dev AM Peak Hour (Network Folder: Future Base + 10 Year + Development Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Bradley Street (East)														
5	T1	134	7.1	134	7.1	0.089	0.2	LOS A	0.2	1.4	0.12	0.10	0.12	49.1
6	R2	27	0.0	27	0.0	0.089	5.2	LOS A	0.2	1.4	0.12	0.10	0.12	48.3
Approach		161	5.9	161	5.9	0.089	1.0	NA	0.2	1.4	0.12	0.10	0.12	49.0
North: Parkway Avenue (North)														
7	L2	40	0.0	40	0.0	0.063	5.1	LOS A	0.2	1.6	0.30	0.56	0.30	44.5
9	R2	32	0.0	32	0.0	0.063	6.0	LOS A	0.2	1.6	0.30	0.56	0.30	44.1
Approach		72	0.0	72	0.0	0.063	5.5	LOS A	0.2	1.6	0.30	0.56	0.30	44.3
West: Bradley Street (West)														
10	L2	1	0.0	1	0.0	0.098	4.6	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
11	T1	188	1.7	188	1.7	0.098	0.0	LOS A	0.0	0.0	0.00	0.00	0.00	49.9
Approach		189	1.7	189	1.7	0.098	0.1	NA	0.0	0.0	0.00	0.00	0.00	49.9
All Vehicles		422	3.0	422	3.0	0.098	1.3	NA	0.2	1.6	0.10	0.13	0.10	48.8

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

MOVEMENT SUMMARY

Site: 106 [6i. Forestwood Dr / Site Driveway - Future Base + 10 Yr + Dev AM (Site Folder: I. Future Base + 10 Yr + Dev AM Peak Hour)]

Network: N101 [I. Future Base + 10 Yr+ Dev AM Peak Hour (Network Folder: Future Base + 10 Year + Development Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Forestwood Drive (East)														
5	T1	5	0.0	5	0.0	0.017	0.2	LOS A	0.1	0.5	0.17	0.42	0.17	39.1
6	R2	23	0.0	23	0.0	0.017	4.8	LOS A	0.1	0.5	0.17	0.42	0.17	44.9
Approach		28	0.0	28	0.0	0.017	3.9	NA	0.1	0.5	0.17	0.42	0.17	44.5
North: School Driveway (North)														
7	L2	1	0.0	1	0.0	0.002	4.7	LOS A	0.0	0.0	0.16	0.50	0.16	43.9
9	R2	1	0.0	1	0.0	0.002	4.9	LOS A	0.0	0.0	0.16	0.50	0.16	43.9
Approach		2	0.0	2	0.0	0.002	4.8	LOS A	0.0	0.0	0.16	0.50	0.16	43.9
West: Forestwood Drive (West)														
10	L2	5	0.0	5	0.0	0.040	4.6	LOS A	0.0	0.0	0.00	0.04	0.00	49.0
11	T1	72	0.0	72	0.0	0.040	0.0	LOS A	0.0	0.0	0.00	0.04	0.00	48.9
Approach		77	0.0	77	0.0	0.040	0.3	NA	0.0	0.0	0.00	0.04	0.00	48.9
All Vehicles		107	0.0	107	0.0	0.040	1.4	NA	0.1	0.5	0.05	0.15	0.05	46.5

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

MOVEMENT SUMMARY

Site: 101 [1j. Glenmore Ridge Dr / Glenholme Dr - Future Base + 10 Yr + Dev PM (Site Folder: J. Future Base + 10 Yr + Dev PM Peak Hour)]

Network: N101 [J. Future Base + 10 Yr + Dev PM Peak Hour (Network Folder: Future Base + 10 Year + Development Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Glenholme Drive (South)														
1	L2	5	0.0	5	0.0	0.039	4.9	LOS A	0.1	0.9	0.30	0.58	0.30	43.3
3	R2	34	0.0	34	0.0	0.039	5.8	LOS A	0.1	0.9	0.30	0.58	0.30	45.6
Approach		39	0.0	39	0.0	0.039	5.7	LOS A	0.1	0.9	0.30	0.58	0.30	45.4
East: Glenmore Ridge Drive (East)														
4	L2	75	1.4	75	1.4	0.096	4.6	LOS A	0.0	0.0	0.00	0.22	0.00	48.3
5	T1	109	0.0	109	0.0	0.096	0.0	LOS A	0.0	0.0	0.00	0.22	0.00	47.6
Approach		184	0.6	184	0.6	0.096	1.9	NA	0.0	0.0	0.00	0.22	0.00	48.0
West: Glenmore Ridge Drive (West)														
11	T1	136	0.0	136	0.0	0.109	0.3	LOS A	0.4	2.7	0.19	0.17	0.19	47.8
12	R2	58	1.8	58	1.8	0.109	5.2	LOS A	0.4	2.7	0.19	0.17	0.19	46.4
Approach		194	0.5	194	0.5	0.109	1.8	NA	0.4	2.7	0.19	0.17	0.19	47.4
All Vehicles		417	0.5	417	0.5	0.109	2.2	NA	0.4	2.7	0.12	0.23	0.12	47.4

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

MOVEMENT SUMMARY

Site: 102 [2j. Glenmore Ridge Dr / Darug Av / Risus Av - Future Base + 10 Yr + Dev PM (Site Folder: J. Future Base + 10 Yr + Dev PM Peak Hour)]

Network: N101 [J. Future Base + 10 Yr + Dev PM Peak Hour (Network Folder: Future Base + 10 Year + Development Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	128	1.6	128	1.6	0.181	5.0	LOS A	0.7	5.1	0.26	0.56	0.26	43.8
2	T1	8	0.0	8	0.0	0.181	5.9	LOS A	0.7	5.1	0.26	0.56	0.26	43.9
3	R2	55	0.0	55	0.0	0.181	7.9	LOS A	0.7	5.1	0.26	0.56	0.26	32.5
Approach		192	1.1	192	1.1	0.181	5.9	LOS A	0.7	5.1	0.26	0.56	0.26	42.6
East: Glenmore Ridge Drive (East)														
4	L2	13	0.0	13	0.0	0.073	4.8	LOS A	0.1	0.4	0.04	0.07	0.04	46.5
5	T1	122	0.0	122	0.0	0.073	0.0	LOS A	0.1	0.4	0.04	0.07	0.04	49.2
6	R2	6	0.0	6	0.0	0.073	5.1	LOS A	0.1	0.4	0.04	0.07	0.04	47.8
Approach		141	0.0	141	0.0	0.073	0.7	NA	0.1	0.4	0.04	0.07	0.04	49.0
North: Risus Avenue (North)														
7	L2	4	0.0	4	0.0	0.006	5.0	LOS A	0.0	0.2	0.29	0.52	0.29	43.4
8	T1	1	0.0	1	0.0	0.006	5.3	LOS A	0.0	0.2	0.29	0.52	0.29	43.4
9	R2	1	0.0	1	0.0	0.006	8.2	LOS A	0.0	0.2	0.29	0.52	0.29	45.6
Approach		6	0.0	6	0.0	0.006	5.6	LOS A	0.0	0.2	0.29	0.52	0.29	44.0
West: Glenmore Ridge Drive (East)														
10	L2	1	0.0	1	0.0	0.200	5.1	LOS A	1.0	7.0	0.24	0.28	0.24	47.4
11	T1	169	0.0	169	0.0	0.200	0.4	LOS A	1.0	7.0	0.24	0.28	0.24	45.9
12	R2	177	0.6	177	0.6	0.200	5.1	LOS A	1.0	7.0	0.24	0.28	0.24	45.9
Approach		347	0.3	347	0.3	0.200	2.8	NA	1.0	7.0	0.24	0.28	0.24	45.9
All Vehicles		686	0.5	686	0.5	0.200	3.2	NA	1.0	7.0	0.21	0.32	0.21	45.6

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

MOVEMENT SUMMARY

Site: 103 [3j. Darug Ave / Deerubbin Drive - Future Base + 10 Yr + Dev PM (Site Folder: J. Future Base + 10 Yr + Dev PM Peak Hour)]

Network: N101 [J. Future Base + 10 Yr + Dev PM Peak Hour (Network Folder: Future Base + 10 Year + Development Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	1	0.0	1	0.0	0.063	5.1	LOS A	0.2	1.1	0.13	0.12	0.13	47.7
2	T1	92	2.3	92	2.3	0.063	0.2	LOS A	0.2	1.1	0.13	0.12	0.13	43.8
3	R2	23	0.0	23	0.0	0.063	5.1	LOS A	0.2	1.1	0.13	0.12	0.13	47.1
Approach		116	1.8	116	1.8	0.063	1.2	NA	0.2	1.1	0.13	0.12	0.13	45.5
East: Deerubbin Drive (East)														
4	L2	20	0.0	20	0.0	0.134	5.2	LOS A	0.5	3.4	0.36	0.62	0.36	42.9
5	T1	1	0.0	1	0.0	0.134	4.6	LOS A	0.5	3.4	0.36	0.62	0.36	45.8
6	R2	97	0.0	97	0.0	0.134	6.3	LOS A	0.5	3.4	0.36	0.62	0.36	42.9
Approach		118	0.0	118	0.0	0.134	6.1	LOS A	0.5	3.4	0.36	0.62	0.36	42.9
North: Darug Avenue (North)														
7	L2	2	0.0	2	0.0	0.096	4.7	LOS A	0.0	0.1	0.01	0.01	0.01	49.1
8	T1	183	0.6	183	0.6	0.096	0.0	LOS A	0.0	0.1	0.01	0.01	0.01	49.4
9	R2	2	0.0	2	0.0	0.096	4.9	LOS A	0.0	0.1	0.01	0.01	0.01	48.5
Approach		187	0.6	187	0.6	0.096	0.1	NA	0.0	0.1	0.01	0.01	0.01	49.3
West: Deerubbin Drive (West)														
10	L2	4	0.0	4	0.0	0.009	4.8	LOS A	0.0	0.3	0.23	0.49	0.23	43.6
11	T1	3	66.7	3	66.7	0.009	5.9	LOS A	0.0	0.3	0.23	0.49	0.23	45.5
12	R2	1	0.0	1	0.0	0.009	6.1	LOS A	0.0	0.3	0.23	0.49	0.23	43.6
Approach		8	25.0	8	25.0	0.009	5.4	LOS A	0.0	0.3	0.23	0.49	0.23	44.6
All Vehicles		429	1.2	429	1.2	0.134	2.2	NA	0.5	3.4	0.14	0.22	0.14	45.0

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

MOVEMENT SUMMARY

Site: 104 [4j. Darug Ave / Forestwood Drive - Future Base + 10 Yr + Dev PM (Site Folder: J. Future Base + 10 Yr + Dev PM Peak Hour)]

Network: N101 [J. Future Base + 10 Yr + Dev PM Peak Hour (Network Folder: Future Base + 10 Year + Development Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
South: Darug Avenue (South)														
1	L2	3	0.0	3	0.0	0.076	4.0	LOS A	0.3	1.8	0.19	0.15	0.19	41.3
2	T1	95	2.2	95	2.2	0.076	0.3	LOS A	0.3	1.8	0.19	0.15	0.19	42.4
3	R2	38	0.0	38	0.0	0.076	4.1	LOS A	0.3	1.8	0.19	0.15	0.19	42.4
Approach		136	1.6	136	1.6	0.076	1.4	NA	0.3	1.8	0.19	0.15	0.19	42.3
East: Forestwood Drive (East)														
4	L2	2	0.0	2	0.0	0.023	3.9	LOS A	0.1	0.5	0.37	0.54	0.37	37.2
5	T1	1	0.0	1	0.0	0.023	3.4	LOS A	0.1	0.5	0.37	0.54	0.37	37.1
6	R2	16	0.0	16	0.0	0.023	5.3	LOS A	0.1	0.5	0.37	0.54	0.37	30.8
Approach		19	0.0	19	0.0	0.023	5.1	LOS A	0.1	0.5	0.37	0.54	0.37	33.2
North: Darug Avenue (North)														
7	L2	13	0.0	13	0.0	0.104	3.5	LOS A	0.0	0.3	0.02	0.04	0.02	49.0
8	T1	185	0.6	185	0.6	0.104	0.0	LOS A	0.0	0.3	0.02	0.04	0.02	51.3
9	R2	5	0.0	5	0.0	0.104	3.8	LOS A	0.0	0.3	0.02	0.04	0.02	41.7
Approach		203	0.5	203	0.5	0.104	0.3	NA	0.0	0.3	0.02	0.04	0.02	50.9
West: Forestwood Drive (West)														
10	L2	5	0.0	5	0.0	0.029	3.7	LOS A	0.1	0.7	0.29	0.45	0.29	37.1
11	T1	23	0.0	23	0.0	0.029	3.5	LOS A	0.1	0.7	0.29	0.45	0.29	37.1
12	R2	1	0.0	1	0.0	0.029	5.1	LOS A	0.1	0.7	0.29	0.45	0.29	38.5
Approach		29	0.0	29	0.0	0.029	3.6	LOS A	0.1	0.7	0.29	0.45	0.29	37.2
All Vehicles		387	0.8	387	0.8	0.104	1.2	NA	0.3	1.8	0.12	0.14	0.12	46.1

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

MOVEMENT SUMMARY

Site: 105 [5j. Bradley St / Parkway Ave - Future Base + 10 Yr + Dev PM (Site Folder: J. Future Base + 10 Yr + Dev PM Peak Hour)]

Network: N101 [J. Future Base + 10 Yr + Dev PM Peak Hour (Network Folder: Future Base + 10 Year + Development Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Bradley Street (East)														
5	T1	225	4.2	225	4.2	0.125	0.0	LOS A	0.1	0.6	0.03	0.03	0.03	49.8
6	R2	12	0.0	12	0.0	0.125	4.9	LOS A	0.1	0.6	0.03	0.03	0.03	49.5
Approach		237	4.0	237	4.0	0.125	0.3	NA	0.1	0.6	0.03	0.03	0.03	49.8
North: Parkway Avenue (North)														
7	L2	58	3.6	58	3.6	0.074	4.9	LOS A	0.3	2.0	0.21	0.54	0.21	44.6
9	R2	33	0.0	33	0.0	0.074	6.0	LOS A	0.3	2.0	0.21	0.54	0.21	44.4
Approach		91	2.3	91	2.3	0.074	5.3	LOS A	0.3	2.0	0.21	0.54	0.21	44.6
West: Bradley Street (West)														
10	L2	2	50.0	2	50.0	0.056	5.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.9
11	T1	104	5.1	104	5.1	0.056	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.9
Approach		106	5.9	106	5.9	0.056	0.1	NA	0.0	0.0	0.00	0.01	0.00	49.9
All Vehicles		434	4.1	434	4.1	0.125	1.3	NA	0.3	2.0	0.06	0.13	0.06	48.9

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

MOVEMENT SUMMARY

Site: 106 [6j. Forestwood Dr / Site Driveway - Future Base + 10 Yr + Dev PM (Site Folder: J. Future Base + 10 Yr + Dev PM Peak Hour)]

Network: N101 [J. Future Base + 10 Yr + Dev PM Peak Hour (Network Folder: Future Base + 10 Year + Development Scenario)]

New Site
Site Category: (None)
Give-Way (Two-Way)

Vehicle Movement Performance

Mov ID	Turn	DEMAND FLOWS [Total veh/h	HV] %	ARRIVAL FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] m	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed km/h
East: Forestwood Drive (East)														
5	T1	14	7.7	14	7.7	0.008	0.0	LOS A	0.0	0.0	0.03	0.04	0.03	48.6
6	R2	1	0.0	1	0.0	0.008	4.8	LOS A	0.0	0.0	0.03	0.04	0.03	48.2
Approach		15	7.1	15	7.1	0.008	0.4	NA	0.0	0.0	0.03	0.04	0.03	48.5
North: School Driveway (North)														
7	L2	23	0.0	23	0.0	0.019	4.8	LOS A	0.1	0.5	0.15	0.50	0.15	43.9
9	R2	5	0.0	5	0.0	0.019	4.8	LOS A	0.1	0.5	0.15	0.50	0.15	43.9
Approach		28	0.0	28	0.0	0.019	4.8	LOS A	0.1	0.5	0.15	0.50	0.15	43.9
West: Forestwood Drive (West)														
10	L2	1	0.0	1	0.0	0.038	4.6	LOS A	0.0	0.0	0.00	0.01	0.00	49.2
11	T1	72	0.0	72	0.0	0.038	0.0	LOS A	0.0	0.0	0.00	0.01	0.00	49.7
Approach		73	0.0	73	0.0	0.038	0.1	NA	0.0	0.0	0.00	0.01	0.00	49.7
All Vehicles		116	0.9	116	0.9	0.038	1.3	NA	0.1	0.5	0.04	0.13	0.04	46.8

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