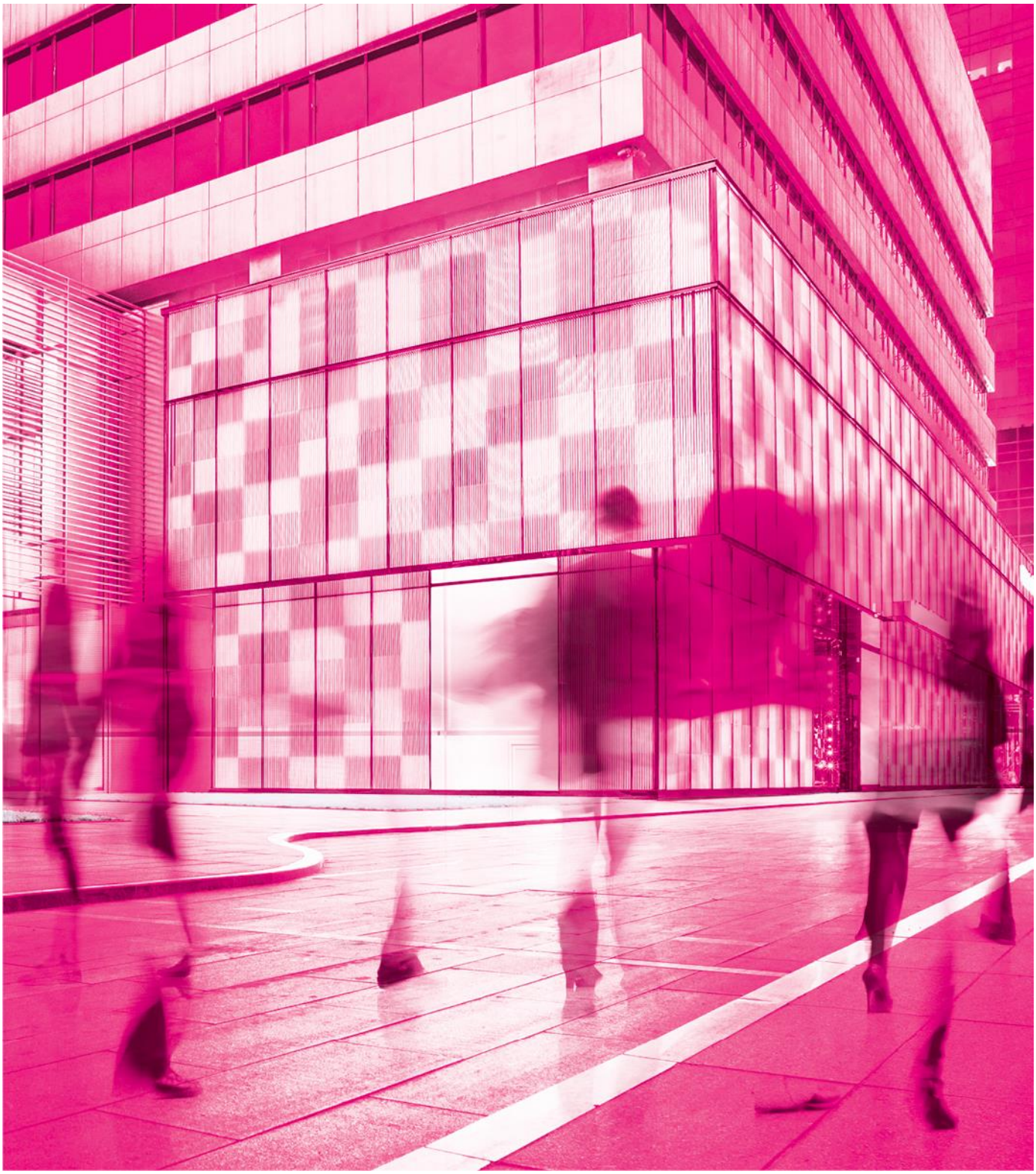

school transport plan

New Primary School in Edmondson Park

For SINSW

26/05/2021

parking;
traffic;
civil design;
wayfinding;

ptc.

Document Control

New Primary School in Edmondson Park, School transport plan

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1 Introduction

1.1 Summary

ptc. has been engaged by Richard Crookes Construction on behalf of School infrastructure New South Wales (SINSW) to prepare a School Transport Plan (STP) that is intended to accompany a State Significant Development Application (SSDA) for the new primary school in Edmondson Park (the School).

The report presents measures to promote active and sustainable transport and sets out the transport, pick-up and drop-off and parking management for daily school operations.

The School has a frontage to Buchan Avenue to the north and Faulkner Way to the west. To the east of the site is vacant land, which will likely be developed as a high school, as shown in Figure 1.

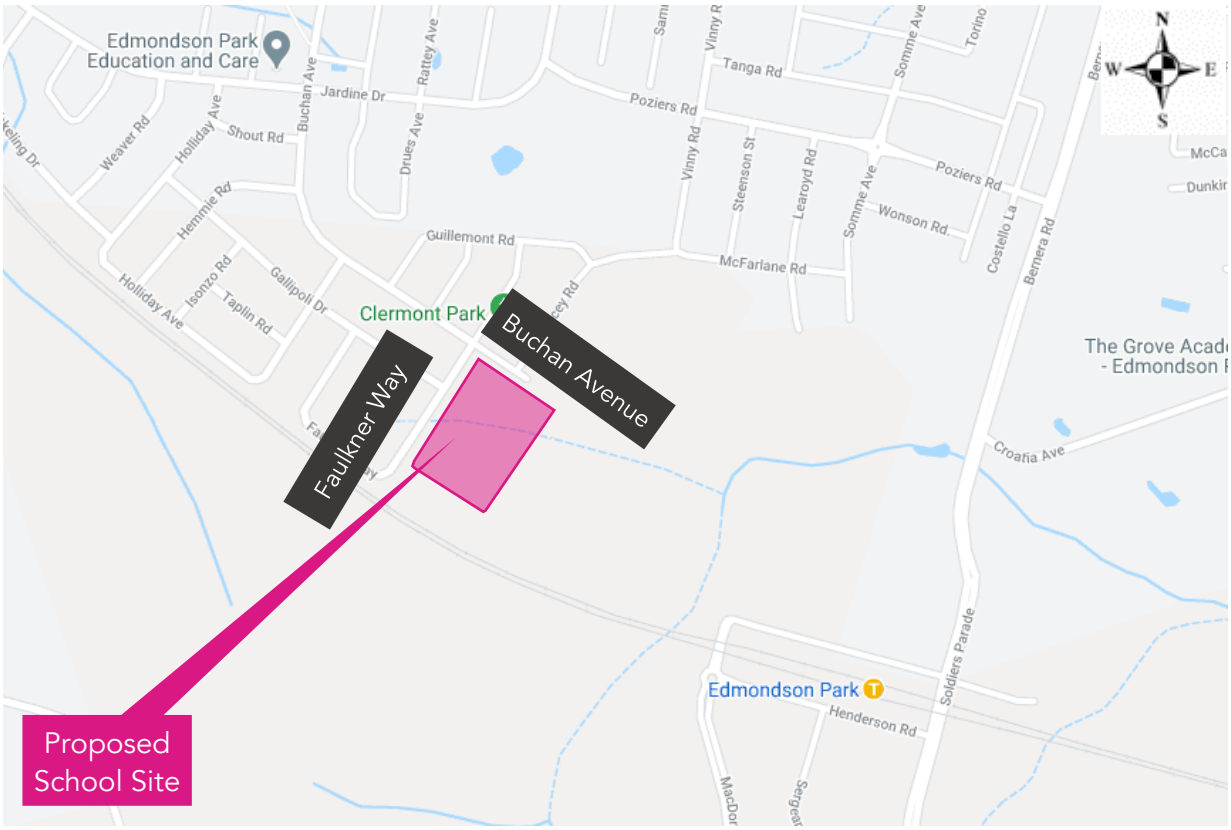


Figure 1: Site Location (Source: Google Maps)

1.2 Purpose of this Report

1.2.1 SEARs Requirements

Key Issue 6, Transport and Accessibility of the Planning Secretary's Environmental Assessment Requirements for the New Primary School at Edmondson Park, 10 December 2020 stated in part the following:

> *Include a transport and accessibility impact assessment, which includes, but is not limited to the following:*
> - *measures to ameliorate any adverse traffic and transport impacts due to the development based on the above analysis, including:*
>   - *travel demand management measures to encourage sustainable transport (such as a School Transport Plan).*
>   - *infrastructure improvements, including details of timing and method of delivery.*
> - *a preliminary operational traffic and access management plan for the site, the drop-off / pick-up zone(s) and bus bay(s).*

This STP responds to these requirements.

1.3 School Characteristics

1.3.1 Overview

- Student capacity: 1,012 including SSU
- A total of 59 staff including:
  - Staff: 46 full time equivalents (FTE)
  - School Administrative and support staff (SASS): 6
  - Executive staff: 7
- School bell times (yet to be confirmed):
  - Start: 8:40am & 9:00am
  - Finish: 2:40pm & 3:00pm
- OOSH provides before and after school as well as vacation care services. The timetable are as follows (yet to be confirmed):
  - Before School: 7:00am-8:50am
  - After School: 2:50pm-6:00pm
  - Vacation Care: 7:00am-6:00pm.

1.3.2 Enrolment Catchment

The proposed student enrolment catchment for the School extends to Camden Valley Way to the north, The Hume Motorway and Maxwells Creek North to the east, and extends just across the railway line to the south and west, as presented in Figure 2.

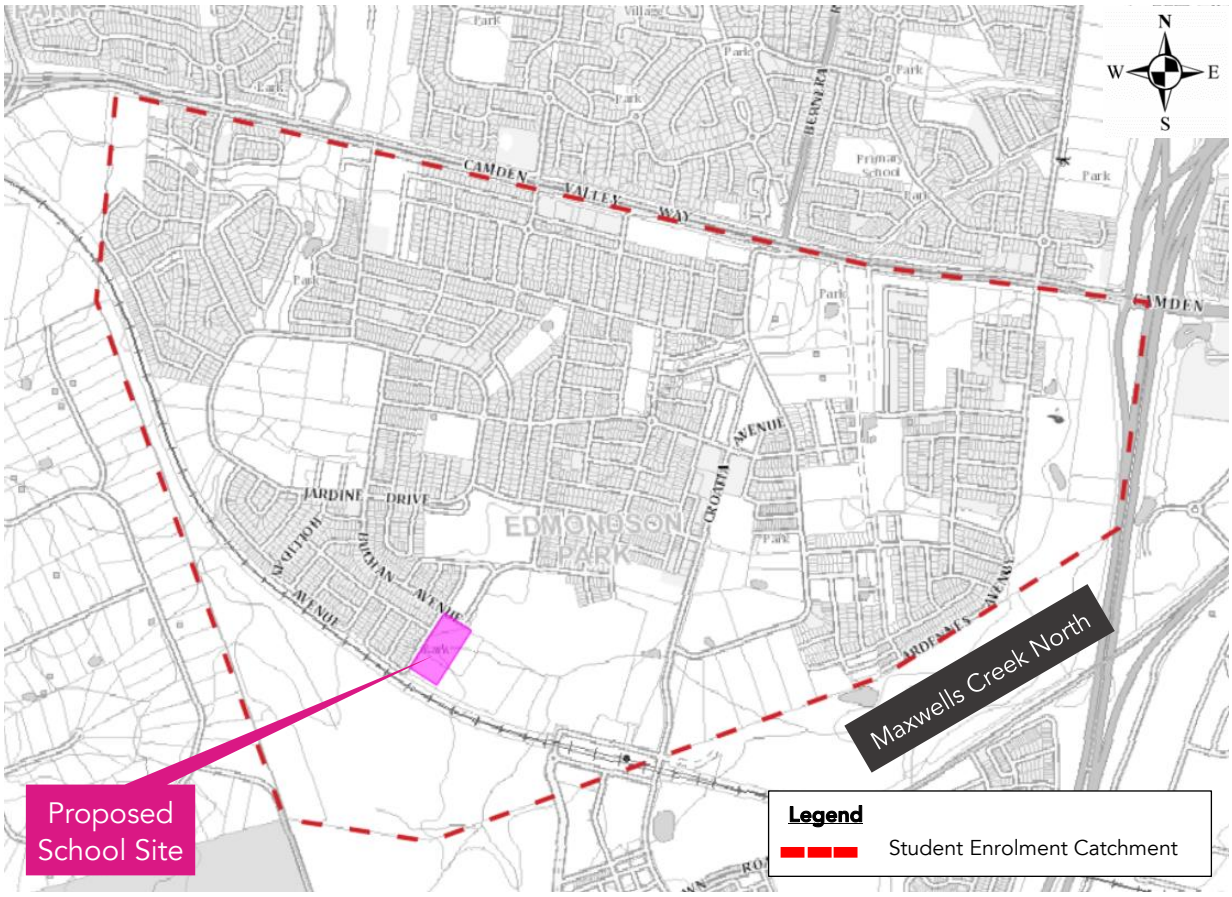


Figure 2: Student Enrolment Catchment

2 Transport Goals

2.1 School Transport Plan Vision and Objectives

The School's vision and objectives identify items for which the school stands and is willing to promote and advocate for.

The objectives shall be reviewed and amended as required once a principal has been appointed, and then reviewed each year. Sample objectives include:

- Proactively identifying and meeting school travel demand safely, efficiently and sustainably.
- Delivering transport infrastructure to meet school travel demand.
- Maximising the use of active and public transport modes to reduce car traffic before and after school day start and end time.
- Ensuring that the road network does not become congested around the school.
- Reaching a high level of active travel to and from school in a safe transport environment.
- Enhancing connectivity with the neighbourhood and community through safe travel to and from school.
- Empowering children and young people to be safe road users now and into the future.
- Meeting the DoE's duty of care for students which extends beyond the school boundary, if there's foreseeable risk of injury or harm to students as they travel to and from school.
- Reducing the administrative burden on a school principal (managing kiss-and-drop behaviour, parent and community complaints, calling bus companies etc) by reducing the time and effort for schools/principals to coordinate and liaise with Council and TfNSW to create a safe and connected transport environment around their school.

2.2 Mode Share Targets

With reference to the analysis in the TTA, a moderate target scenario has been assumed that has the following characteristics:

- Staggered Bell times:
    - Start: 8:40am & 9:00am
    - Finish: 2:40pm & 3:00pm
- Raised zebra crossings at Buchan Avenue and Faulkner Way
- Three pedestrian gates, one off Buchan Avenue and two off Faulkner Way
- Provision for 158 bicycle spaces and 24 scooter spaces for students, which accounts for 16% and 2.5% of students respectively.
- Bus stops on both sides of Buchan Avenue, appropriate shelter facilities, amendments to routes and services.
- Designated drop-off/pick-up zones, associated pedestrian facilities and parking restrictions.
- Implementation of programs to promote active transport.

Due to some infrastructure barriers, the school's enrolment catchment has been divided into three sections as shown in Figure 3. The area shown blue has been divided as students can only use Jardine Drive to access the school. Jardine Drive has a lack of lighting, no formalised pedestrian or cycling facilities and is quite narrow to allow safe passage for students. Majority of students residing in this area will be reliant on private or public transport.

The area shown green is divided by Soldiers Parade and Bernera Road which has limited crossing opportunities. Majority of students residing in this area will be reliant on private or public transport.

The area shown yellow is mostly barrier free, hence higher walking and cycling mode shares can be expected.

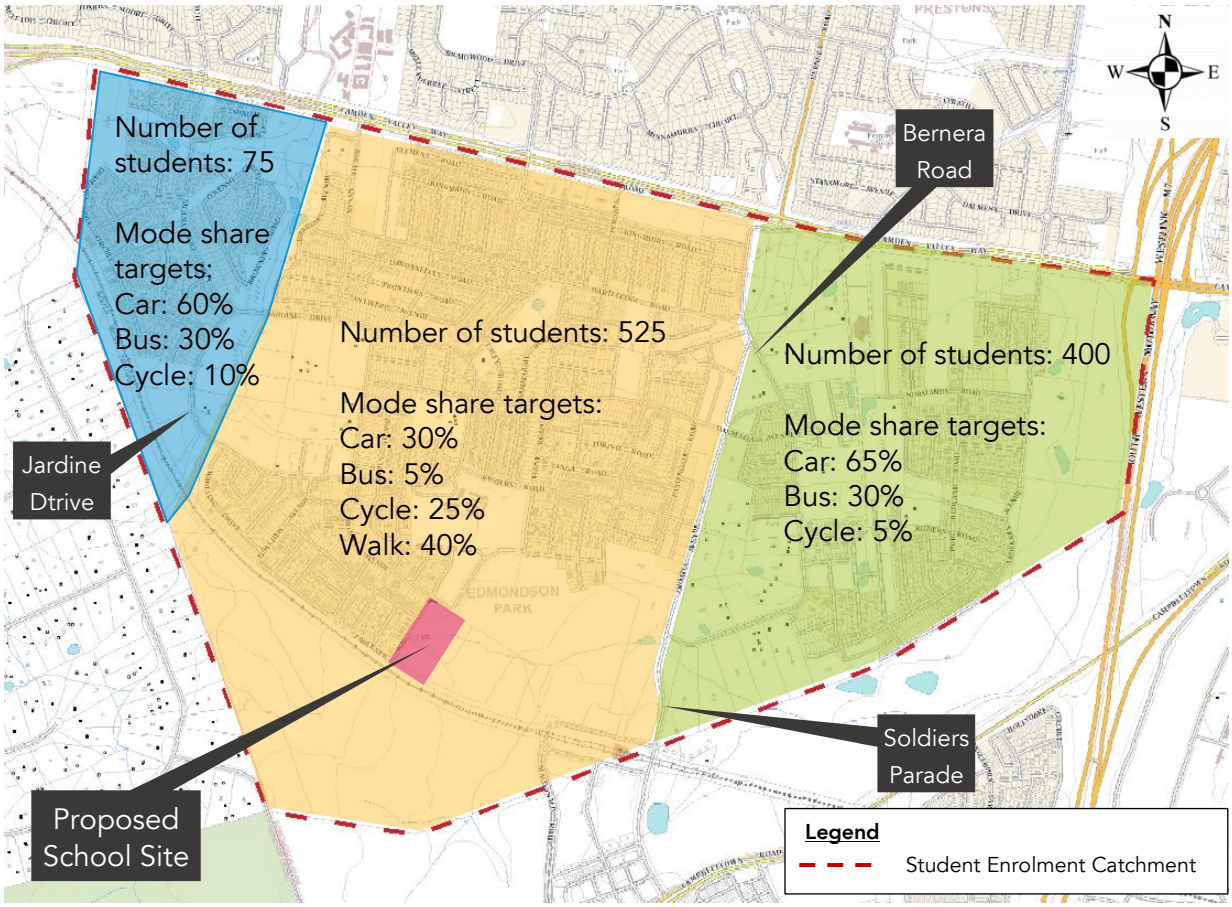


Figure 3: Travel mode targets

Based on predicted student numbers living within each of the three areas and the potential mode share targets in the individual areas, the proposed overall targets for each travel mode are:

- 21% walking
- 16% cycling or scooting
- 17% taking public transport
- 46% driving

The process used to derive the above targets is documented in the TTA submitted as part of the SSDA, and the relevant parts are attached in Attachment 4.

3 Policies and Procedures

Achieving the goals and objectives of this STP must be underpinned by a school sustainable transport policy that effectively communicates transport expectations to increase active and public transport use to school, reduce rates of driving alone and kiss-and-drop to school, meet ESD / 5-star Green Star requirements and manage risks. Components of this policy and its associated procedures should include:

- Prioritisation of multi-modal transport access
- Staggered start / end times
- Multiple kiss-and-drop locations
- Remote kiss-and-drop
- Parking allocation and location
- Parking management system operations
- School access via pedestrian gate, bicycle cage, driveways and parking at arrival / end times, during OOSH, school day and outside hours

Sub-policies that will be implemented are described in the following sections. Additional policies will be considered when a principal has been appointed and will be reviewed annually.

3.1 School Access Policy

The school has a frontage to Buchan Avenue to the north and Faulkner Way to the west. Another frontage road to the south will be constructed by Landcom prior to commencement of the school.

There are 3 pedestrian gates, two off Faulkner Way in the west and one, the main entry, off Buchan Avenue in the north.

Car park access is in the southwest of the site off Faulkner Way, combined with service / waste collection vehicle driveway. A second waste collection access will be provided off the southern road.

Bus stop A, which is currently under construction, is located on the southern side of Buchan Avenue and bus stop B is proposed to be on the northern side of Buchan Avenue in proximity to the main gate of the school.

A map showing the access points, car parks, pick-up / drop-off areas and the bus stop locations is illustrated in Figure 4.

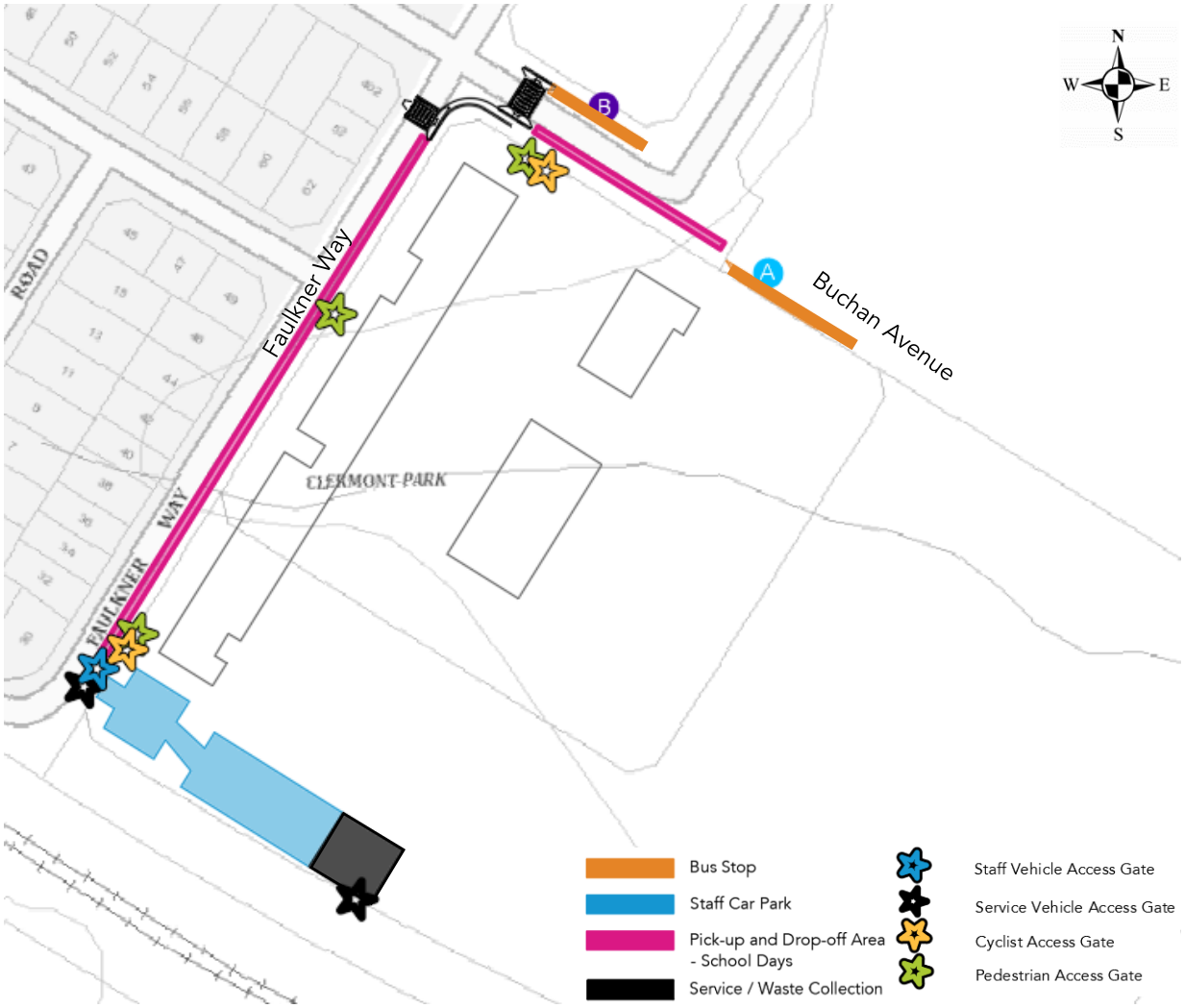


Figure 4: School Access Plan

3.2 Multiple Kiss and Drop Locations

The School has two pick-up and drop-off locations as shown in Figure 4:

- Buchan Avenue, east of the zebra crossing, to west of the bus stop.
- Faulkner Way, south of the zebra crossing to north of the staff vehicle access gate.

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 shall be communicated to parents:

- Those living to the north-east of the school shall pick-up and drop-off along Buchan Avenue (refer to the green lines in Figure 5).
- Those living north and west of the school shall pick-up / drop-off on Faulkner Way (refer to the orange lines in Figure 5). All vehicles will exit via the future south and east roads onto Buchan Avenue (refer to the blue lines in Figure 5).

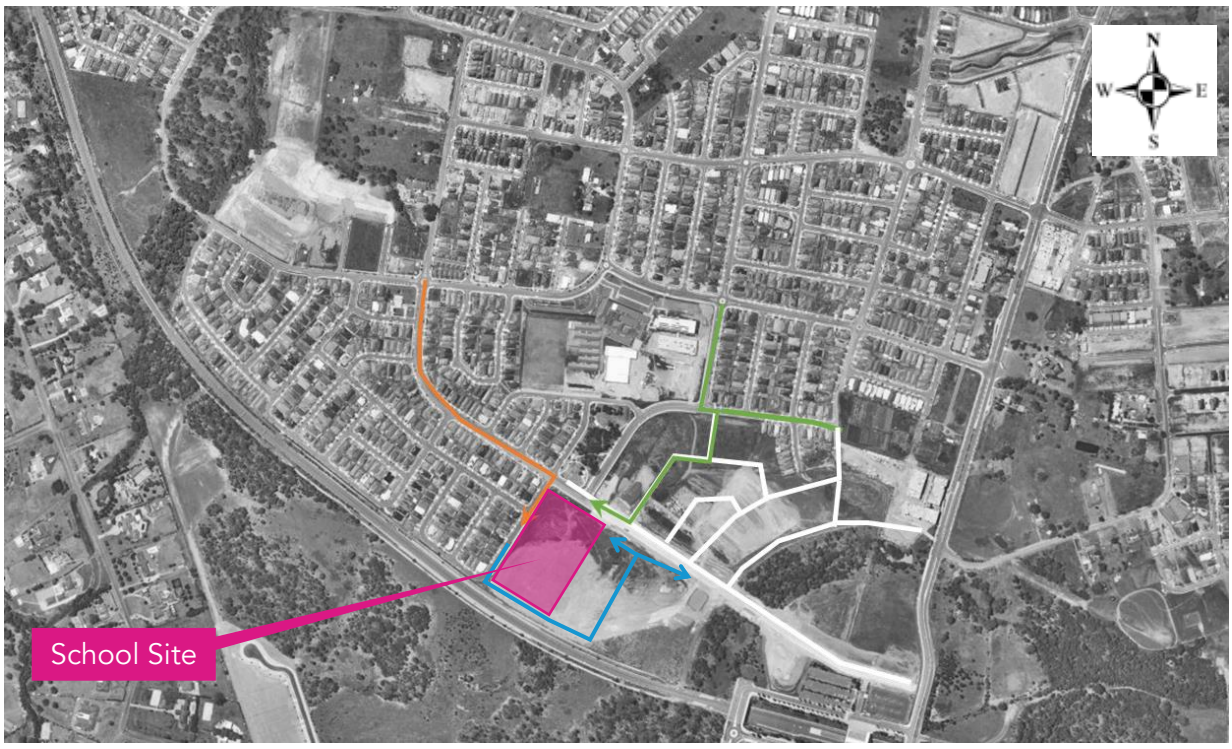


Figure 5: Pick-up and Drop-off Distribution

3.3 Share our Space

The school will afford community access to the school's core facilities—the communal hall, the library and the outdoor sports court.

Share Our Space will be operating at the school during school holiday breaks. Gates will be opened by 8am, and closed from 5pm each day.

The school will have one gate open, and toilets will be closed during Share Our Space.

Upon prior discussions and arrangements with the school Principal, the school car parking facilities may be used for other purposes such as after school performances or community use in the evenings or on the weekends.

Pedestrian access location and quantity may vary depending on the event. However, Buchan Avenue gate will be mostly the main pedestrian access point after hours.

The school caretaker or another person appointed by the Principal will be responsible to unlock and lock gates for events to allow vehicular and pedestrian access. The chosen pedestrian access points will be opened 1 hour prior and locked 1 hour post the event.

Appropriate temporary / permanent signage shall be installed prior to any events to provide guidance for vehicles and pedestrians.

4 School Transport Operation

4.1 Day-to-Day

This section details operational measures required at the school on a day-to-day basis.

Table 1: Day-to-Day School Operations

	On-site	Adjacent to site	Management measures
Site entries, pedestrian and vehicle	**Y**	**N**	**Y**
Pick-up and Drop-off including Assisted School Transport Program	**N**	**Y**	**Y**
Buses	**N**	**Y**	**N**
Parking incl carpool, carshare pod	**Y**	**N**	**Y**
Deliveries and service vehicles	**Y**	**Y**	**Y**

4.1.1 Site Entries

Student groups will be directed to use specific gates according to Section 3.1 so that numbers can be monitored and controlled to avoid congestion on footpaths.

The main gate off Buchan Avenue shall be used by the majority of pedestrians, by all students using public transport and by cyclists who parked their bicycles within the northern area of the school.

The northern gate off Faulkner Way shall be used by SSU students.

The southern gate off Faulkner Way shall be used primarily bay students who are picked-up and dropped-off along Faulkner Way and by cyclists who parked their bicycle within the southern area of the school.

4.1.2 Pick-up and Drop-off

A strategy will be communicated to all parents and carers that allows the efficient use of the Drop-off and Pick-up zones during busy times—at the beginning and end of the school day.

Drivers will be directed to pull into the kerb and remains in control of the vehicle while an identified supervising adult from the school community assists students to exit or enter the vehicle.

Pick-up and drop-off are provided on both frontage roads on the school side. Students can safely utilise the three pedestrian gates from here during pick-up and drop-off times.

The following management measures shall be put in place:

- School caretaker will open the gates between 8:00-9:30am and 2:30-4:00pm for drop-off and pick-up respectively.
- 4 staff members will be present during drop-off and 4-5 staff members will be present during pick-up to assist students.
- In the afternoon, students are to be held back behind the access gates until they are called out. This is to ensure a calm and a more managed process.

- Ideally, a stricter management of the pick-up process will be put in place, where parents / guardians have a name / number card in their vehicle and a staff member calls out the appropriate student. This would reduce the quantity of staff required as well as speed up the process and therefore reduce chances of queuing.
- Parents / guardians are not to exit their vehicles to pick up students in order to by-pass the process.
- Vehicles are not to undertake U-turns across the local roads. This is to increase safety and to reduce potential queuing.

Staff and parents / guardians should be informed at the beginning of each year and receive a mid-year reminder about the correct pick-up and drop-off behaviour.

4.1.3 Buses

Students are most at risk in the minutes after getting off the bus. Therefore, some ways that these risks can be reduced are:

- Adults to meet students directly at the bus stop; Never call children across from the opposite side of the road.
- Wait until the bus has gone, then cross the road at a designated crossing.
- Wait at the bus stop and stand at least one step back from the edge of the road.
- Always wait until the bus has gone, then use zebra crossings to cross.

Students using public buses to travel to school will be dropped off at the bus stop along Buchan Avenue. A staff member will be positioned at the bus stop on school side to oversee the process.

In the afternoon, two staff members will be positioned at the northern gate (Buchan Avenue) and at the bus stop to support students getting onto the correct buses. Students should be grouped within school grounds according to the buses they need to take to enable a smoother process and shorten the time outside of the school gate.

4.1.4 Parking

Drivers must park safely and legally, even if it means walking further to the school gate. Parking signs are planned with children's safety in mind and all vehicles must slow down to 40km/h in the school zone and stay aware of crossings.

Drivers must always park and turn legally around the school and never double park as it puts children at risk.

Manoeuvres such as U-turns and three-point turns are dangerous and should not be made. Parking in the bus zones should not occur and the rear footpath side door should be used to get in and out of the car.

The staff car park is located on the southern boundary within the site, with access via the gate off Faulkner Way. A total of 48 car spaces are proposed in the car park (35 primary school staff, 7 pre-school staff and 6 pre-school student pick-up / drop-off). Staff can enter via footpath adjacent to the car park.

The pre-school car park is freely accessible off Faulkner Way.

The primary and pre-school car park areas are separated by a boom gate.

The location of the facility is shown in Figure 6. The following car park management measures shall be put in place:

- Staff members shall be provided with a swipe card to enable access to the car park.
- Staff shall arrive and depart outside of the pick-up and drop-off peak times to reduce conflicts parents / guardians. Ideally, staff should not travel between 8:00-9:30am and 2:30-4:00pm.
- Staff should be informed of these measures at the beginning of each year and shall be reminded throughout the year as required.

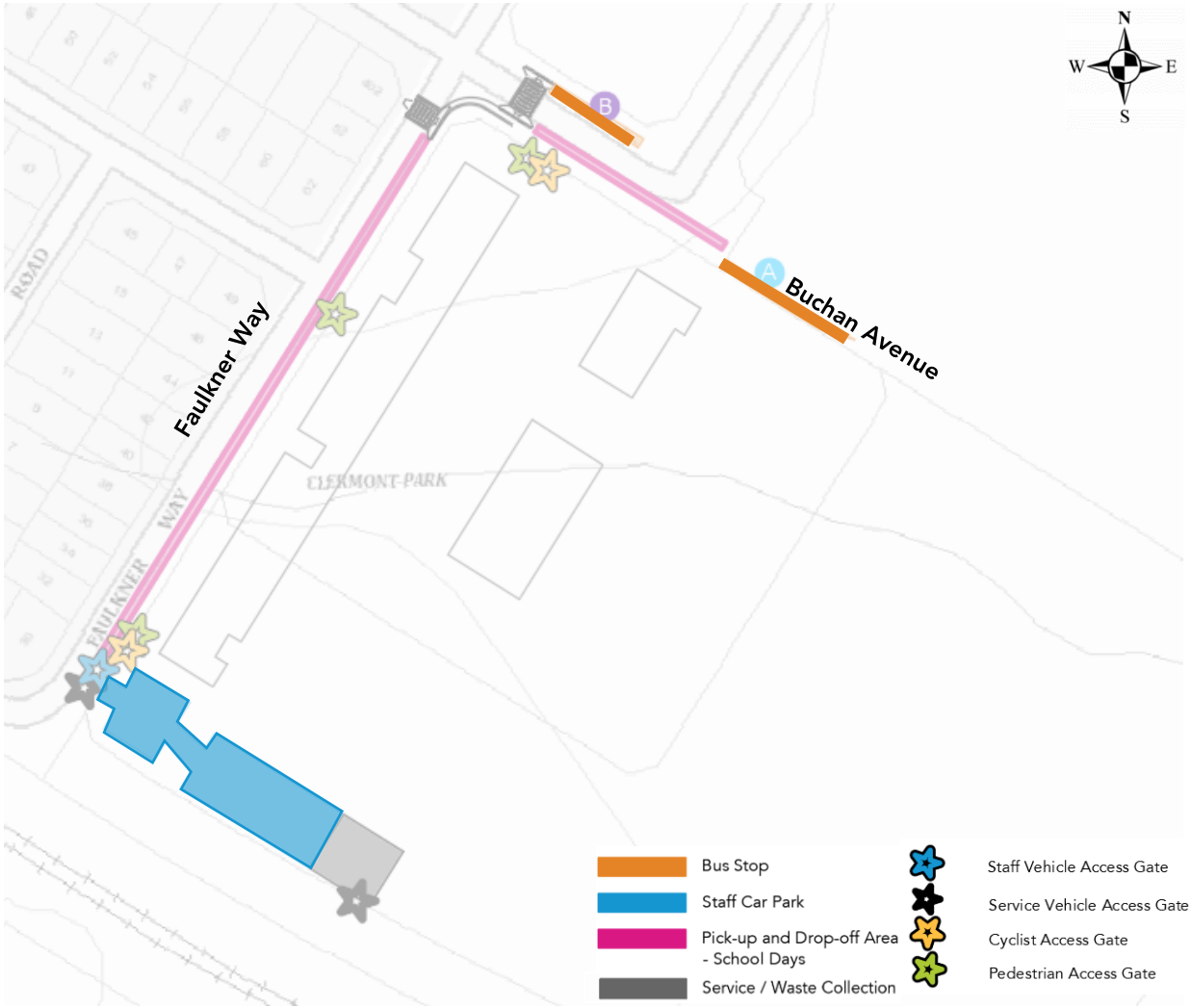


Figure 6: Car Parking Location and Access

4.1.5 Deliveries and Service Vehicles

Waste collection / service vehicle area is located adjacent to the staff car park on the southern end within the site. Depending on the type of vehicle required at the time, this area is accessed via Faulkner Way, the staff car park and exited via the Future South Road, or vice versa, as shown in Figure 7. A manoeuvring area is provided adjacent to the service vehicle area.

The purpose it to provide general waste collection off-road, separated from the general public access. Small / medium deliveries in vans / small trucks will occur on-street by utilising the general parking lanes.

Waste collection and larger truck deliveries shall be provided outside of school and OOSH hours—before 7:00am and/or after 6pm during the week—in order to eliminate potential conflicts between pick-up / drop-off, staff and service vehicles.

Any changes need to be discussed with the School and recorded in this document. Access to the waste storage area will be provided by the School caretaker.

Before 7:00am and/or after 6pm during the week, upon prior arrangement with the School access for large vehicles via Gate 5 will be provided by the School caretaker.

Small deliveries can occur throughout the day, upon prior arrangement with the School. Delivery vehicles can use parking space along the surrounding local roads.

A sign stating delivery hours and a phone number of the School caretaker shall be placed on the Faulkner Way gate. Any larger deliveries shall be booked prior to the delivery.

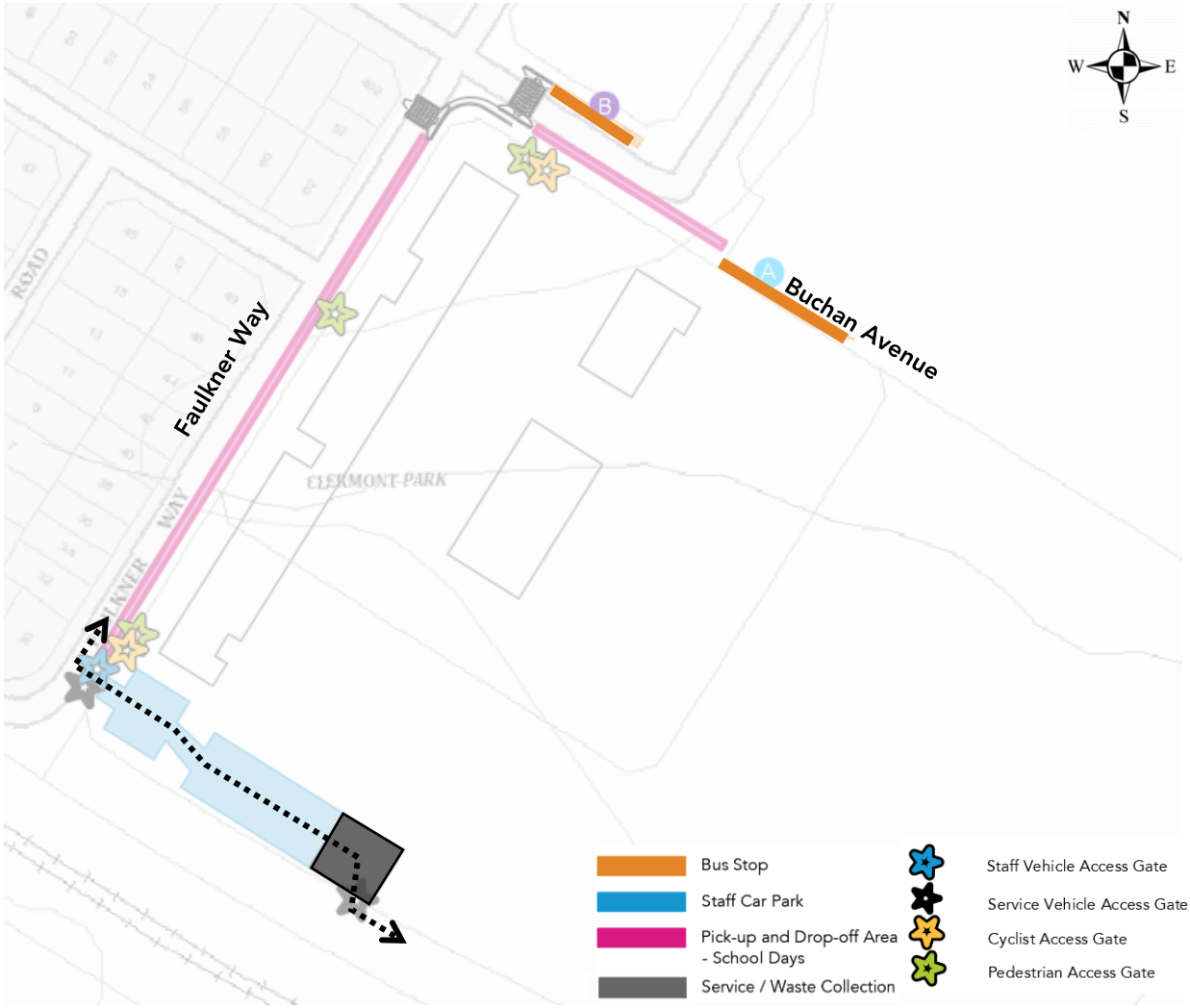


Figure 7: Waste Area Location and Access

4.2 Event Transport Operations

Buses of varying sizes may be used to transport students to and from excursions. The following management measures shall be implemented:

- Buses will arrive at the School 15 minutes prior to student pick-up and depart 5min after the drop-off is completed. This is to eliminate potential conflicts between buses and students. The additional time needs to be considered upon booking of the bus.
- Large buses (more than 22 passengers) will park within the southern bus stop in Buchan Avenue to provide direct access to the school gate. The public bus timetable needs to be considered to ensure that the bus stop is unobstructed throughout the pick-up / drop-off of students.
- Smaller buses (up to 22 passengers) will park in the pick-up and drop-off area along Buchan Avenue.
- At least two staff members will accompany the group of students to ensure that buses have arrived on time and that students board the buses in a good manner.

The transport procedure shall be explained to staff at the beginning of each year and documented in a controlled, easily accessible policy.

4.3 Transport Encouragement Programs

4.3.1 Walking

Short-term Strategy: Road Safety program, current and localised

Why	Allows students to be more informed about any dangers of being a pedestrian and provides ease of mind to parents/carers.
How	Pedestrian safety can be taught during class and reinforced by teachers and parents. Information can also be provided in the 'information pack'. Excursions around the schools could be organised to show potential dangers and ways to behave on a local example.
Who	Teachers and TP Coordinator
When	After completion of the development with reinforcement every 6 months to a year.
Resources	Information pack, brochures, excursions

Short-term Strategy: Education and Environmental programs

Why	Motivates students and staff to use active transport
How	Environmental programs can be toughed at school assembly and information can be provided in the 'information pack'
Who	TP Coordinator, teachers
When	Every 6 months
Resources	Assembly, information pack and brochures

Short-term Strategy: Scooter training

Why	Reaches out to students who would like to participate in scooting
How	Providing courses to teach how to ride a scooter and traffic rules
Who	TP Coordinator, teachers
When	Courses starting twice a year
Resources	Information packs, scooters

Short-term Strategy: Implement scooter parking and wayfinding

Why	To navigate the scooter users and provide safe and secure place to leave their scooters while at school/work.
How	Including additional scooter spaces on an "as required basis" in an easily accessible space with passive surveillance. Provide clear wayfinding signage.
Who	SINSW and TP Coordinator
When	Within the first year of operation and completion of the development and as required in the future
Resources	Directional signage and scooter parking spaces

Short-term Strategy: Provide sufficient storage for bulky goods (for staff)

Why	To provide storage for staff to reduce the requirement of carrying bulky goods home
How	Implementation of storage facilities in a convenient location such as staff or classrooms
Who	SINSW
When	Within the first year of operation and completion of the development
Resources	Storage facilities

Short-term Strategy: Provide options to work at school after school hours (for staff)

Why	To enable staff to start working early and finish late, to avoid carrying work/bulky items home
How	Provide an after-school hour working area, arrange for after hours entry / exit for staff
Who	TP Coordinator and SINSW
When	Upon analysis of the staff work demand
Resources	Working space

Long/Medium-term Strategy: Seek dialogue with Council

Why	To provide a pedestrian crossing across frontage roads, ideally as a raised zebra crossing and a crossing supervisor. This is to create a safe environment for students to cross the frontage roads. (refer to Attachment 4 for recommended upgrades)
How	Meetings and communication via email and phone
Who	TP Coordinator, Steering Committee
When	Discussions should commence immediately
Resources	Discussions

Long/Medium-term Strategy: Seek dialog with Council and TfNSW

Why	To implement comprehensive pedestrian infrastructure within the new school's catchment area, including prioritising pedestrian crossing phasing when a new intersection is implemented at Soldiers Parade (refer to Attachment 4 for recommended upgrades)
How	Meetings and communication via email and phone
Who	TP Coordinator, Steering Committee
When	Discussions should commence immediately and should continue throughout the development of the Edmondson Park area
Resources	Discussions

Long/Medium-term Strategy: Pedometer based programs

Why	To promote active transport and healthy competition
How	Providing a cheap pedometer for each student and recording each student total for a month. Can be introduced as part of September. Can be run on a participation basis for individual students or pedometer based for entire classes / years
Who	Teachers, TP Coordinator
When	For example, during the month of September, but also choosing a different month to the 'classroom competitions' action to encourage students and staff all year round.
Resources	Pedometer and a progress board to tally the progress of each class.

Long/Medium-term Strategy: WWW - Walk and Wheel Wednesday

Why	Promote active transport
How	Announcements through posters and newsletters
Who	Teachers, TP Coordinator
When	One Wednesday per month
Resources	Promotional material

Long/Medium-term Strategy: Classroom competitions

Why	Promote healthy competition between students.
How	Classroom with the most children (can include the teacher) who take sustainable forms of transport will win an incentive. Should be done as a tally over a month as children can decide to take the "greener option". Can also be combined with Strategy: WWW – Walk and Wheel Wednesday and Strategy: Pedometer-based walking competition.
Who	Teachers, TP Coordinator
When	A program will be conducted every 3 to 6 months.
Resources	Information sheets and a progress board to tally the progress of each class.

Long/Medium-term Strategy: Scooter Club (for students)

Why	Motivates students to use active transport more often by offering fun and social activities
How	Regular meetings for excursions on scooters and fun activities to motivate students to use scooters
Who	TP Coordinator, Teachers
When	Weekly
Resources	Excursions, fun activities

Long/Medium-term Strategy: Walking Bus

Why	To motivate students to walk to school
How	Prepare walking bus routes and coordinate with students and parents
Who	TP Coordinator
When	Review the routes every six months
Resources	Student residential data

4.3.2 Cycling

Short-term Strategy: Provide weather protection over a proportion of bicycle spaces

Why	To protect bicycles from weather and therefore, to promote bicycle use
How	Provide roof structure over a proportion of bicycle spaces
Who	TP Coordinator and SINSW
When	Within the first year of operation
Resources	Roof structure

Short-term Strategy: Implement wayfinding

Why	To navigate way to on-site bicycle parking spaces and EOTF
How	Provide clear wayfinding signage
Who	TP Coordinator and SINSW
When	Within the first year of operation
Resources	Directional signage

Short-term Strategy: Road safety program, current and localised

Why	Allows students to be more informed about any dangers of being a cyclist and provides ease of mind to parents/carers.
How	Cycle safety can be taught during class and reinforced by teachers and parents. Information can also be provided in the 'information pack'.
Who	Teachers and TP Coordinator
When	After completion of the development with reinforcement every 6 months to a year.
Resources	Information pack and brochures

Short-term Strategy: Bike training

Why	Reaches out to students who would like to participate in cycling
How	Providing courses to teach how to ride a bike and traffic rules
Who	TP Coordinator
When	Courses starting each term
Resources	Bike activities, some bicycles for those that do not own one yet

Long/Medium-term Strategy: Seek dialogue with Council

Why	To improve and develop existing cycling infrastructure within the Edmondson Park area for primary school children (refer to Attachment 4 for recommended upgrades)
How	Meetings and communication via email and phone
Who	TP Coordinator and Steering Committee
When	Discussions should commence immediately
Resources	Discussions

Long/Medium-term Strategy: Seek dialogue with Council

Why	To ensure that satisfactory cycling infrastructure is provided within the new development areas to enable students to cycle safely to and from school (refer to Attachment 4 for recommended upgrades)
How	Meetings and communication via email and phone
Who	Steering Committee
When	Discussions should commence immediately and should continue throughout the development of the entire Edmondson Park area
Resources	Discussions

Long/Medium-term Strategy: Implement more and secure bike parking

Why	To promote cycling when the demand increases
How	Provide weather protected bike parking
Who	TP Coordinator, SINSW
When	Upon analysis of the yearly cycling demand
Resources	Travel Questionnaire, buke racks

Long/Medium-term Strategy: Implement E-charging stations

Why	To promote the use of electric bicycles
How	Provision of charging stations
Who	SINSW
When	After completion of the development
Resources	Charging stations

Long/Medium-term Strategy: Implement Bike Club (for students)

Why	Motivates people to use active transport more often
How	TP Coordinator should organise regular meetings for excursions on bicycles and fun activities to motivate students to cycle
Who	TP Coordinator
When	Weekly
Resources	Excursions, fun activities

Long/Medium-term Strategy: Buddy Scheme (for students)

Why	Motivates people to use active transport more often
How	TP Coordinator should buddy up students that live close by.
Who	TP Coordinator
When	Sent out every term to accommodate new students, review after 6 months
Resources	Student residential data

Long/Medium-term Strategy: Vouchers from a local bike shop

Why	To promote the use of bicycle and provide a discounted service for students
How	Liaise with local bicycle shops and discuss potential discounts for students
Who	TP Coordinator
When	Every six months
Resources	Promotional brochures and vouchers

Long/Medium-term Strategy: "RideScore" program

Why	To support and enable more children and young people to scoot and ride a bike to school
How	"students will receive a personal sensor (beacon) that is attached to their bicycle or scooter. The school bicycle storage facility is fitted with a Bluetooth reader that detects the signal from the sensor, and immediately sends a notification to the nominated contact that the student has arrived at, or departed the school gate."
Who	TP Coordinator
When	Sent out an invitation every term to accommodate new students and staff
Resources	Personal sensor (beacon) and a Bluetooth reader

4.3.3 Public Transport

Short-term Strategy: Seek dialogue with TfNSW and the local bus operator

Why	To implement additional bus services during the school bell times, so that the connection is convenient for staff, students and parents which would allow staff and students/parents to commute to school via bus instead of private transport
How	Communication with TfNSW and the bus service provider
Who	TP Coordinator
When	After completion of the development, review demand yearly
Resources	Discussions

Short-term Strategy: Seek dialogue with the local bus operator

Why	To provide school buses
How	Discussion with the bus operator
Who	TP Coordinator, Steering Committee
When	After completion of the development
Resources	Discussions

Short-term Strategy: Seek dialogue with the local bus operator and TfNSW

Why	To implement additional bus routes to travel to the major employment areas and railway stations in the nearby suburbs during the school bell times, so that the connection is convenient for parents to commute to work after dropping off / before picking up the students
How	Discussion with the bus operator
Who	TP Coordinator, Steering Committee
When	After completion of the development
Resources	Discussions

Short-term Strategy: Access free / discounted bus passes

Why	To encourage more students to use public transport
How	Issuing a brochure within the 'Information Pack'. The brochure will show 1-seat trip routes and bus stops and explain the process of applying for the free / discounted bus pass
Who	TP Coordinator
When	At the beginning of each year an email or a physical copy should be provided to parents and students. A copy should also be found on the school website
Resources	Brochure

Short-term Strategy: Dynamic and passive timetables on the site

Why	Provides information on approaching buses. Can be used in combination with providing distinct waiting areas for passengers of different buses
How	Provide electronic information boards with life arrival / departure data
Who	TP Coordinator
When	Within the first year of operation
Resources	Electronic boards, travel app (e.g. Trip View)

Long/Medium-term Strategy: Free / discounted travel for teachers

Why	To encourage staff to use public transport over private vehicle
How	Collaboration with TfNSW and / or SINSW
Who	TP Coordinator
When	Commence discussions immediately
Resources	Discussions

Long/Medium-term Strategy: Review demand and provision of public transport

Why	Ensure that public vehicles are sufficient and satisfactory to cater for proposed staff and students
How	Questionnaire mid-year to ask about the satisfaction of public transport provision and seek ideas how the services / availability can be improved. Then, seek discussion with the bus operator and adjust bus services if needed
Who	TP Coordinator
When	Once a year
Resources	Discussions and provision of additional services if and when required

4.3.4 Car Share / Car Pooling

Short-term Strategy: Organise potential carpooling matches

Why	Motivates people who live in close proximity to use carpooling services
How	Analyse residential data and buddy up students and staff
Who	TP Coordinator
When	Sent out once a year to accommodate new students and staff, review after 6 months
Resources	Residential data

5 Communication Plan

5.1 Channels

The school will utilise a combination of communication channels to send different messages to parents. The channel that is used will depend on the type of message and how often the message needs to be repeated. The following channels will be implemented:

- Starter kit – Parents will receive a starter kit at the beginning of each year. This kit will include formal information on transport options to/from the school, including bus route maps and timetables, information on how to obtain an Opal Card, information on appropriate behaviour during pick-up and drop-off etc.
- Schoolbiz Newsletter – to provide up-to-date information on transport and send reminders of programs
- Skoolbag app – as a communication tool. Can be used to individually target students / parents to promote public transport or carpooling options.
- School website – will include comprehensive information on transport options to the school, with focus on active and public transport. Shall be updated every six months or sooner if required
- Facebook Group – as a promotional channel to remind parents of public and active transport options and of transport programs organised by the school
- P&F and P&C meetings – regular meetings with the community to discuss issues and ways to resolve them

5.2 Messages

The school will regularly distribute information using a combination of the above channels to inform parents of the following:

- School start and end times, OOSH start end-times
- Principal's message about transport goals and expectations
- Transport access modes with links for more information
    - BNSW insurance and membership,
    - Discounts e.g. 99 bikes 10% off
    - Road Safety,
    - Signing up for the SSTS and School Term Bus Pass,
    - On-site transport access, incl bicycle / scooter parking areas,
- Correct behaviour at pick-up and drop-off
- How to report transport issues using Send Snap Solve
- Contacting the governance committee

5.3 Travel Access Guide

A Travel Access Guide will be prepared upon commencement of the School; A draft TAG is provided in Attachment 3. The TAG will be distributed on the school website, school inductions (new starters, returning students), print and e-newsletters and will communicate the following:

- Transport policies
- Transport access (footpaths, separated bicycle infrastructure, public transport, local and regional road network)
- Encouragement programs (transport encouragement programs)
- Issue reporting to Send Snap Solve or school transport email address
- Monitor the Transport.JSPS@det.nsw.edu.au email address (or similar) and transmit issues to external stakeholders

Maps showing entries, footpaths, public transport, school bus stops and stations, bus routes and train lines, including transport infrastructure at school (on-site and adjacent-to-site) including:

- Pedestrian scooter parking
- Bicycle parking
- PUMP tracks
- Carpool parking
- Parking management
- End-of-trip facilities (staff)
- Flexible and reconfigurable spaces
- Provision of bubblers and taps to encourage water drinking and less waste

Sample messages for parents / carers:

- Get involved in using active and public transport to school with your student
- Help your student practice the active and public transport they are learning (try for part trip or whole trip)
- Speak to staff and government transport stakeholders about travel to school programs and infrastructure
- Use active and public transport from school drop-off to work
- Report transport issues as the concern arises (e.g. Send Snap Solve app, Council@ email, phone number)
- Improved quality of life (increased healthy lifestyles, wellbeing, physical activity)
- Life-long learning opportunities
    - Transport as a learning and resilience building opportunity
    - Additional learning opportunities
    - Educational opportunities for parents and community
    - Joint/community use for transport programs

6 Data Collection and Monitoring

6.1 Data Collection

To verify travel behaviours and travel demand, the following will be undertaken:

- An online Journey to School survey (e.g., Survey Gizmo) for staff and students, once a year, with questions outlined in Attachment 1.
- Analysis of the transport access and use (audits, program participation rates, counts, observations, hit rate on web- based communication strategies etc).
- Analysis of the transport catchment.

This would assist with developing and reviewing travel planning schemes and how the existing facilities can be improved around the site area and beyond. It would help contribute towards the School's vision to encourage more sustainable modes of transport.

6.2 Program Evaluation

After the data collection from each travel survey, subsequent changes may be made to initiatives or to the targets. The review of the data will consider the following questions:

- Are the targets still realistic? Are they still ambitious? Should they be updated? – existing targes will be compared to the responses obtained from the survey.
- Are there difficulties in achieving particular targets? What are the likely reasons for this? – if there is no or only minor shift in a particular transport mode despite a high potential reach, an analysis of challenges will be undertaken. Subsequent questionnaires may be required to ask more specific questions.
- Are there any gaps with regards to actions? – review of processes, information and marketing will be undertaken to implement any potential improvements. Participation in programs will be analysed, which will be used as a basis for decision of any changes to specific programs are required.
- What is preventing further improvement on mode share and how can this be addressed? – this can vary from additional pedestrian crossings to new bus routes. An analysis of the infrastructure and consultation with authorities will be required.

6.3 Reporting Findings

A report outlining the findings and recommendations will be presented to Council by SINSW and the TP Coordinator after each annual review for a recommended period of five years after the issue of the Occupation Certificate (OC) the school Principal for distribution to SINSW and Council. Agreed changes to the STP or actions resulting from the findings will be implemented in an appropriate and timely manner.

7 Monitoring and Evaluation

The STP does not only outline actions and strategies, but also ensures monitoring and evaluating of those initiatives. This is a crucial part of the travel planning process as it ensures maximum benefits are gained. A review of the mode share and targets will be undertaken after 3 months of day one, term one, followed by yearly tracking and reassessment. There may be cases that new initiatives may need to be implemented or new targets may need to be set if they are exceeded or too ambitious.

The overall success of the STP is dependent on good communication between various entities such as the SINSW, the TP Coordinator, Principal, P&F, P&C, Council and TfNSW. The TP coordinator must ensure all parties including students and staff are well informed about reasons for adopting the plan, promote the benefits and provide information about alternatives and initiatives. It is also important to receive feedback through the annual travel surveys (refer to Attachment 1) to ensure staff, and students and their parents/carers are understanding and realising the benefits.

The ongoing review process will ensure reasons for travelling are considered and understood. Any barriers to changes in their behaviour will be considered as it will help decide for the most effective actions to be identified. This review process is also an opportunity the communicate progress to the school community which can encourage more change from feedback of the results.

To ensure that school community understands the benefits of sustainable travel, key elements to development and implementation must be practiced. These include:

- Communication – It is necessary to explain the reason for adopting the plan and all the benefits. Information on alternatives must also be readily available so it is easier for people to make the change.
- Commitment – The TP coordinator must ensure consistent action to help change established habits. Using communication and the provision of necessary resources impetus for commuters can be provided to switch from using private vehicles.
- Consensus – Broad support is necessary for the introduction of the TP. If it is not received well by the school community the targets will not be achieved.

Progress of the STP will be presented to council by SINSW and TP Coordinator after each annual review for a recommended period of five years after the issue of the Occupation Certificate (OC) and include:

- Number of students and staff
- Details of mode split (annual survey results)
- Progress towards the average mode split stated in the Council's LSPS and the progress towards any new targets
- Success of strategies as listed below, and
- Details of any rectification measures proposed.

A summary of all monitoring and evaluation strategies are presented below:

Strategy: Form an advisory committee involving staff and P&F members

Why	Monitor the progress of the STP
How	Email invitation for expression of interest
Who	TP Coordinator
When	Completion of the redevelopment
Resources	Emails

Strategy: Annual Survey

Why	Monitor, review and evaluate the progress towards the travel mode targets
How	Online surveys to all staff and students. Can be included as part of the information pack.
Who	Steering Committee and TP Coordinator
When	Beginning or end of each year
Resources	Email and letters

Strategy: Regular meetings

Why	Discuss the effectiveness of initiatives
How	In person meeting at a specified location within the school
Who	Steering Committee
When	Every 6 months
Resources	Meeting agenda and action plan

Strategy: Update all noticeboards

Why	Ensuring all information is accurate and up to date for those travelling through active and public transport
How	Updating information on boards
Who	Steering Committee
When	Every month (or more frequently if necessary)
Resources	Information boards

Strategy: Review and update of STP

Why	Evaluate the success of the STP implementation and to add any new objectives.
How	Meetings with advisory committee and SINSW to suggest any changes
Who	TP Coordinator
When	Every year for a 5-year period
Resources	STP objectives, targets and progress checklist

Strategy: Presentation of annual monitoring review results to council

Why	To present to Council the progress of the STP target and objectives
How	Submit monitoring report to Council
Who	TP Coordinator
When	Every year for a 5-year period
Resources	STP objectives, targets and progress checklist.

Attachment 1 Travel Survey Questions

The following questions should be asked at a minimum; Adjustments may be required.

- Are you a staff member, student, or parent / carer of a student?
- How do you generally travel to school and what is the distance of travel?
    - Walk / run
    - Bicycle / scooter
    - Bus; provide number
    - Train; provide number
    - Ferry; provide service
    - Combination of bus and train; provide bus / train number
    - Car (Driver)
    - Car (Passenger)
    - Other _____
- If you drove, how many other students were with you in the car? (students / parents only)
- If you drove, please answer the following:
    - Did you park on site today? If so, where?
    - Did you park on-street? If so, where?
- Were you dropped off by private vehicle? If so, where?
- If you drove / were dropped-ff, what other purpose is the car used for? (e.g. dropping off or collecting children from school/childcare, shopping on the way home, health reasons, worried about safety, convenience etc.)
- What time do you usually arrive at the school in the morning and how long is the trip?
- What time do you leave the school in the afternoon and how long is the trip?
- Which measures would encourage you to walk or ride a bicycle more? If you already walk or ride a bicycle - what measures would you like to see more? (e.g. lower speed roads, more bicycle / helmet storage, shower / change rooms, information on safe routes etc.)
- Which measures would encourage you to use public transport? If you already use public transport, what would you like to see more? (e.g. cheaper public transport, more frequent services, improved waiting area, better connections, information about public transport etc.)
- Have you heard of car share? Do you know where the nearby car share locations are? If yes, would you use it?
- If not, what are the barriers to you using car share to travel to and from the school?

- What would make you consider using car share as a form of transportation? (e.g. free / reduced parking cost, help finding someone to carpool etc.)
- What is the postcode / suburb of your place of residence?
- Do you have any suggestion/recommendations to encourage sustainable modes of transport?

Attachment 2 STP Guide for the TP Coordinator & SINSW

Steering Committee

- The formation of a Steering Committee will be coordinated by the TP Coordinator and SINSW upon opening the redevelopment
- The Steering Committee will assist in the progress and monitoring of the STP; and
- The Committee will ensure the notice board is updated regularly (monthly or when necessary) with up-to-date information on sustainable transport

SINSW / TP Coordinator

- Distribute information on sustainable transport options to students and staff (i.e. Transport Access Guide)
- Contribute to the promotion of car share and carpooling services
- Workshops to implement and modify initiatives on regular basis, and
- Incentives may be issued to students and staff to encourage public transport use (e.g. competition prizes)

Information Pack

- Annual Survey – via URL link
- Transport Access Guide
- Information on platforms/apps including sustainable transport information (i.e. TripView, etc), and
- Information on sustainable transport facilities available on-site and in the vicinity of the site (i.e car share (GoGet), carpool (CoHop), bicycle parking, etc)

Annual Survey

- An initial survey should be done 3 months after completion of the redevelopment to track progress. This can be done through websites such as Survey Gizmo. (https://www.surveygizmo.com/), and
- An annual survey should be conducted by the TP Coordinator to collect information on new travel patterns.

Regular Meetings

- Regular meeting should be held every 6 months involving SINSW, the TP Coordinator and the Advisory Committee members, and
- Sustainable transport is to be discussed including feedback from the initial survey data.

Attachment 3 Travel Access Guide

[Insert school name]

Travel Access Guide

[Insert date/month/year]

Project overview

Insert project description from project page on SINSW website.

Using public transport to get to school

School buses and public buses

- Include route numbers and nearest bus stop locations.
- Include safety tips for local students.

Trains | Ferries | Light Rail

- Include nearest station or wharf locations.
- Include safety tips for local students.

Apply for a School Opal Card | School Term Bus Pass

- Include information about how to apply for any subsidised public transport programs available for students at this school.
- Student code of conduct
- Include information about expectations for students on public transport, for example offering seats to adults, no swearing or fighting, etc.

Message from your Principal

- Insert text from Principal that lets the school community know they are becoming a public transport school.
- Principal message to include relevant safety information.
- Principal message may include their own commitment to public transport.
- Include Principal photo and signature block.

Message from your P&C President

- Insert text from P&C President that outlines their support for becoming a public transport school.
- P&C message may include information about how changing the way you get to school even one day per week can make a 20% difference to local traffic congestion.
- Include P&C President photo and signature block.

Kiss and drop code of conduct

- Reflect anything agreed in the School Transport Plan.
- Ensure consistency with NSW Education's road safety messaging.

For more information contact:

School Infrastructure NSW
Email: schoolinfrastructure@det.nsw.edu.au
Phone: 1300 482 651
www.schoolinfrastructure.nsw.gov.au

NSW GOVERNMENT

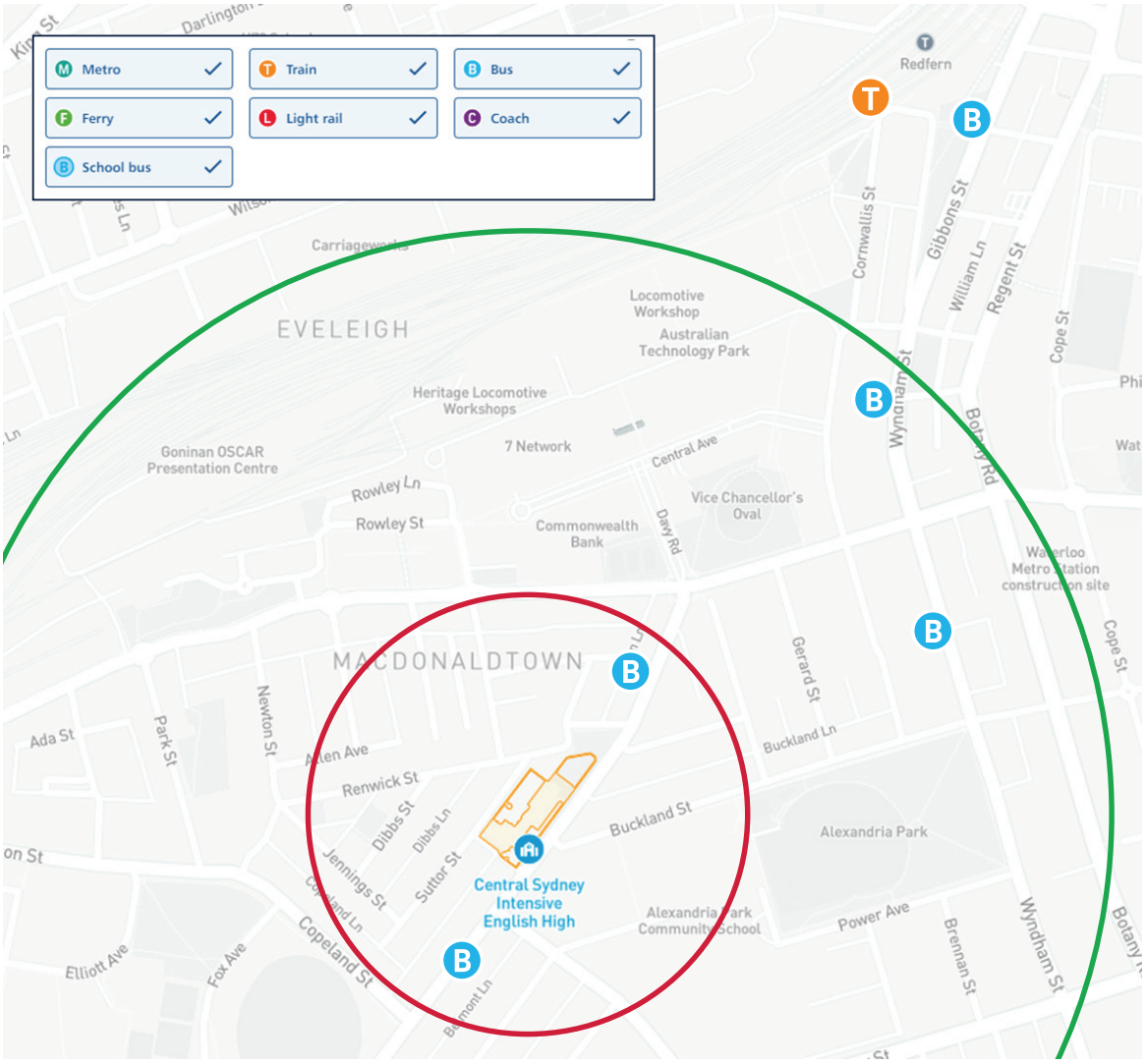
Local map: Public transport

Must be included

- Graphic map of the school, showing all school entry points.
- Use icons to show the nearest bus, train, ferry and light rail stops to the school. Only use Transport for NSW icons for each type of transport.
- Show routes using colours to match the Transport for NSW icon colours, for example, orange for trains, blue for buses.
- Differentiate morning and afternoon stop locations.
- Show the 5, 10, 15, 20+ minute walk to school with single line rings of different colours (not shading).
- Show the walk to school from public transport stops.

Map details

- North is up.
- Include a scale, in metres.
- Emphasise accessible entry points.
- Show steps and stairs that may make entrances harder to access.
- Show bike and scooter parking within the school grounds.
- Include footpaths near the school, on both sides of all roads and near pedestrian crossings.
- Include pedestrian crossings and crossings with signals or Lollipop staff.



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Phone: 1300 482 651
www.schoolinfrastructure.nsw.gov.au

NSW GOVERNMENT

Breakout boxes to fill empty spaces

Something broken on the way to school?

Use the Snap Send Solve app or website to report issues to the people who can fix them.

Things like abandoned trolleys, broken footpaths or water leaks can all be reported in the app.

Download it today from the App Store or Google Play. Or visit **www.snapsendsolve.com**

Discounts, offers or initiatives for students and parents

- Include information about bike insurance, discounts, courses or car share pods, as relevant.

Tap on and tap off every time

Use your School Opal card every time you catch public transport to school.

It tells us how many people are using public transport to help us plan buses, trains and ferries to suit you.

Plan your trip to school

You can plan ahead to make sure you get to school on time!

Visit transport.info or download an app to help:

- Trip View
- Next There

For more information contact:
School Infrastructure NSW
Email: schoolinfrastructure@det.nsw.edu.au
Phone: 1300 482 651
www.schoolinfrastructure.nsw.gov.au

NSW GOVERNMENT

[Insert school name]

Travel Access Guide

[Insert date/month/year]

Project overview

Insert project description from project page on SINSW website.

Active ways to get to school

Walking is an active and healthy way to get to school

- Include safety tips for local students.

Ride your bike

- Include safety tips for local students.

Ride your scooter

- Include safety tips for local students.

Kiss and drop expectations

- Reflect anything agreed in the School Transport Plan.
- Ensure consistency with NSW Education's road safety messaging: https://education.nsw.gov.au/teaching-and-learning/curriculum/learning-across-the-curriculum/road-safety-education/safe-travel

Message from your Principal

- Insert text from Principal that lets the school community know they are becoming an active travel school.
- Principal message to include relevant safety information.
- Principal message may include their own commitment to active travel.
- Include Principal photo and signature block.

Message from your P&C President

- Insert text from P&C President that outlines their support for becoming an active travel school.
- P&C message may include information about how changing the way you get to school even one day per week can make a 20% difference to local traffic congestion.
- Include P&C President photo and signature block.

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www.schoolinfrastructure.nsw.gov.au

NSW GOVERNMENT

Local map: Active Travel

Must be included

- Graphic map of the school, showing all school entry points.
- Emphasise accessible entry points.
- Use icons to show which entry points are most suitable for walking, riding bikes and riding scooters.
- Show the 5, 10, 15, 20+ minute walk to school with single line rings of different colours (not shading).
- Include footpaths near the school, on both sides of all roads and near pedestrian crossings.
- Include pedestrian crossings and crossings with signals or Lollipop staff.
- Include nearby bus stops and bus routes, if relevant.

Map details

- North is up.
- Include a scale, in metres.
- Show bike and scooter parking within the school grounds.
- Show steps and stairs that may make entrances harder to access.

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Discounts, offers or initiatives for students and parents

- Include information about bike insurance, discounts, courses or car share pods, as relevant.

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Phone: 1300 482 651
www.schoolinfrastructure.nsw.gov.au

Attachment 4 Transport and Traffic Assessment (part)

Following is an extract of the relevant sections of the Transport and Traffic Assessment report submitted with the SSDA for the proposed new primary school.

3. 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.

3.1 Site Location

The proposed school site is located in Buchan Avenue in Edmondson Park and is identified as Lot 1 in Deposited Plan 1257105. It is located approximately 43 kilometres southwest of Sydney CBD.

The site has a frontage to Buchan Avenue to the north and Faulkner Way to the west. To the east of the site is vacant land, which will likely be developed as a high school. A railway line is present towards the south; Landcom is currently planning a road to be constructed between the School and the railway line.

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

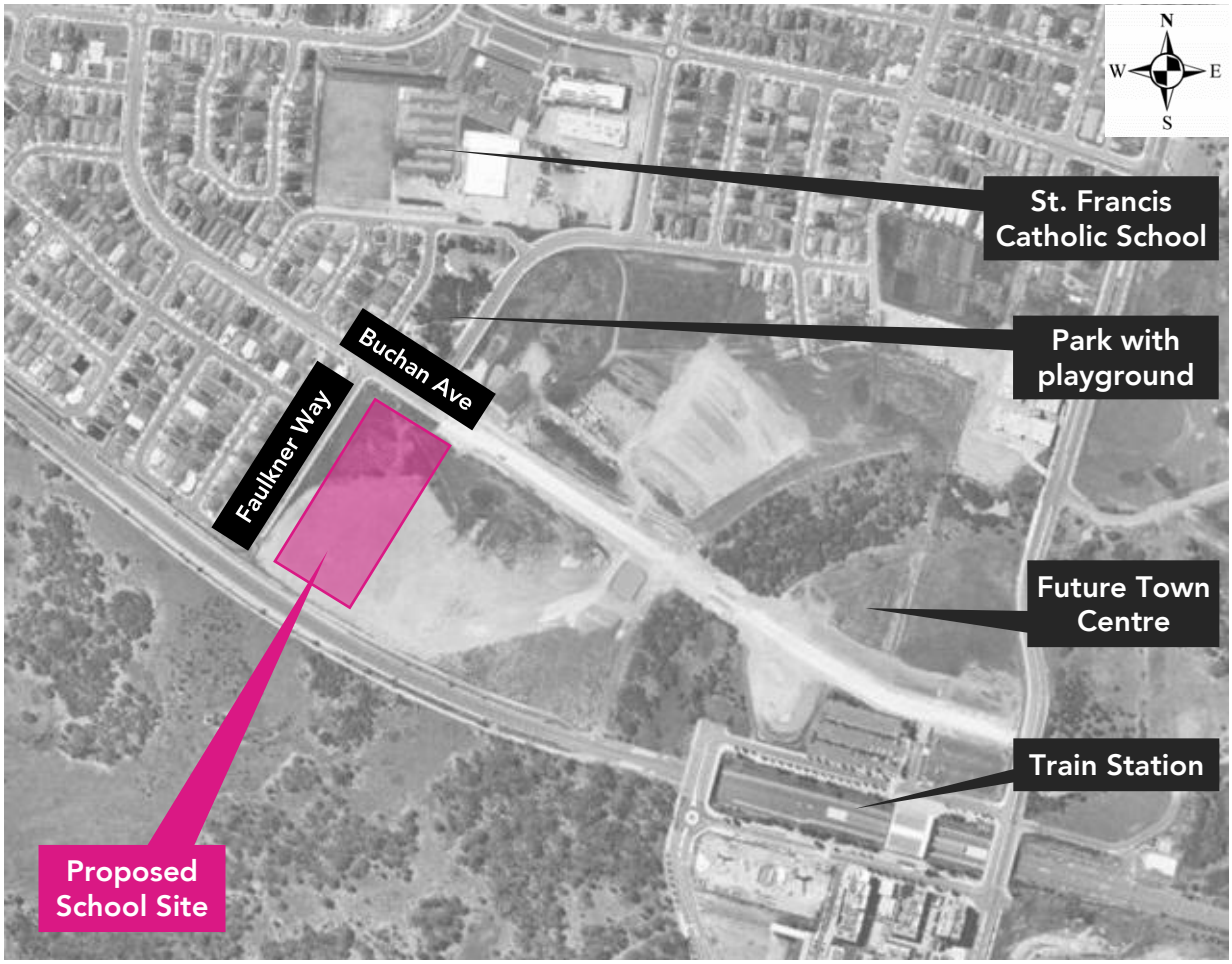

Figure 4 - Aerial View of the Subject Site (Source: Near Map)

3.2 Local Transport Plans

3.2.1 Local Strategic Plan

Connected Liverpool 2040 – Liverpool's Local Strategic Planning Statement (March 2020) is aimed to set Liverpool City Council's strategic planning vision for the next 20 years. This plan lists Liverpool City Council's planning priorities across four areas: connectivity, productivity, liveability and sustainability.

To improve connectivity Council aims for the following:

- *Investigate opportunities for a Western Sydney International Airport terminal interchange with the Northern Line, South-West Rail line and Fifteenth Avenue Smart Transit Corridor; and*
- *Investigate Link to provide direct rail connection from Liverpool City Centre to Sydney CBD via Holsworthy*

The proposed transport improvement initiatives are shown in Figure 5 and Figure 6. The plan focuses on making Liverpool more liveable by providing safe, healthy and inclusive places. The plan also aims on increasing productivity within Liverpool by creating more job opportunities and targets to improve sustainability by protecting the native habitat.

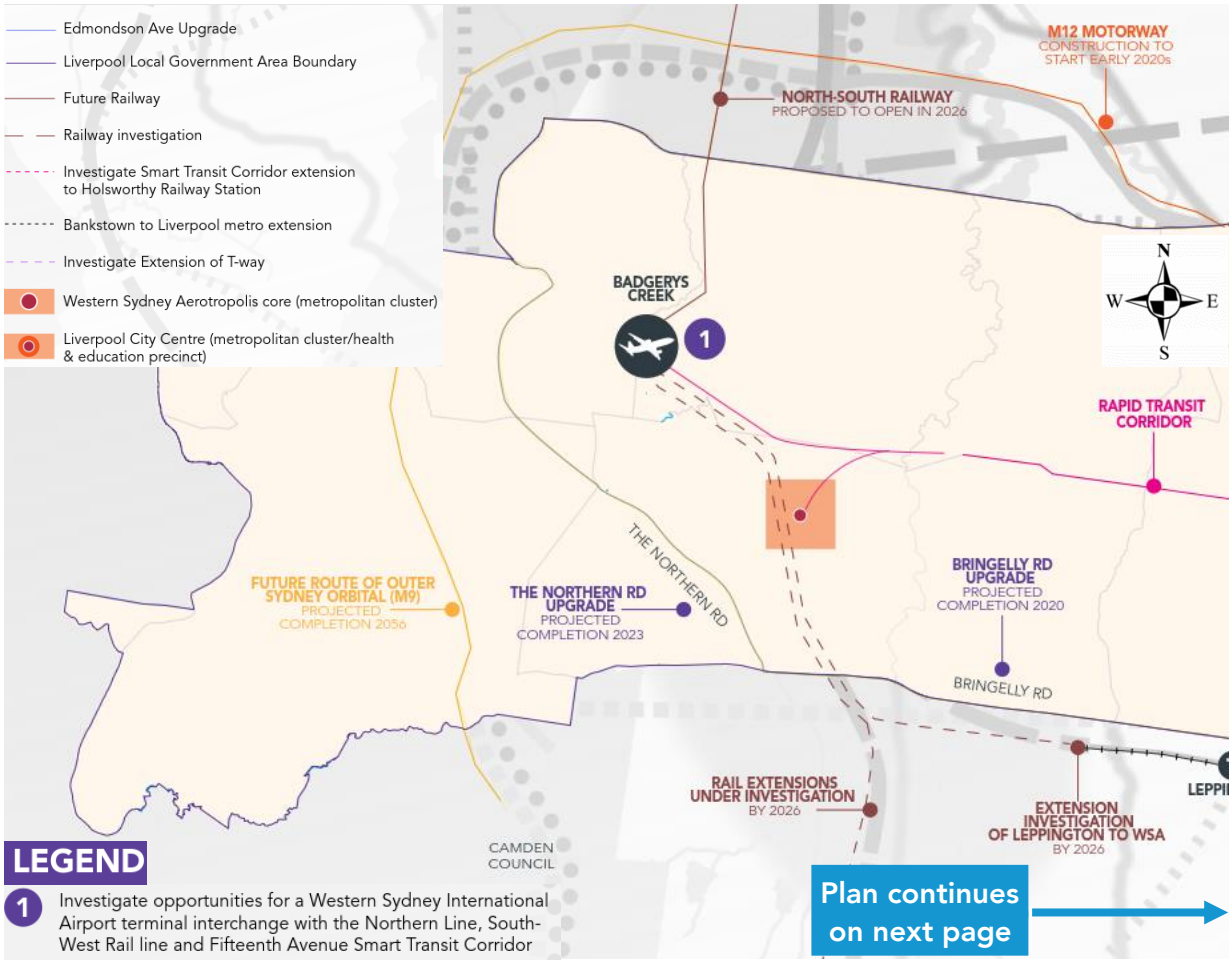

Figure 5 - Local Strategic Plan 1 (*Source: Connected Liverpool 2040 - Liverpool's Local Strategic Planning Statement)*

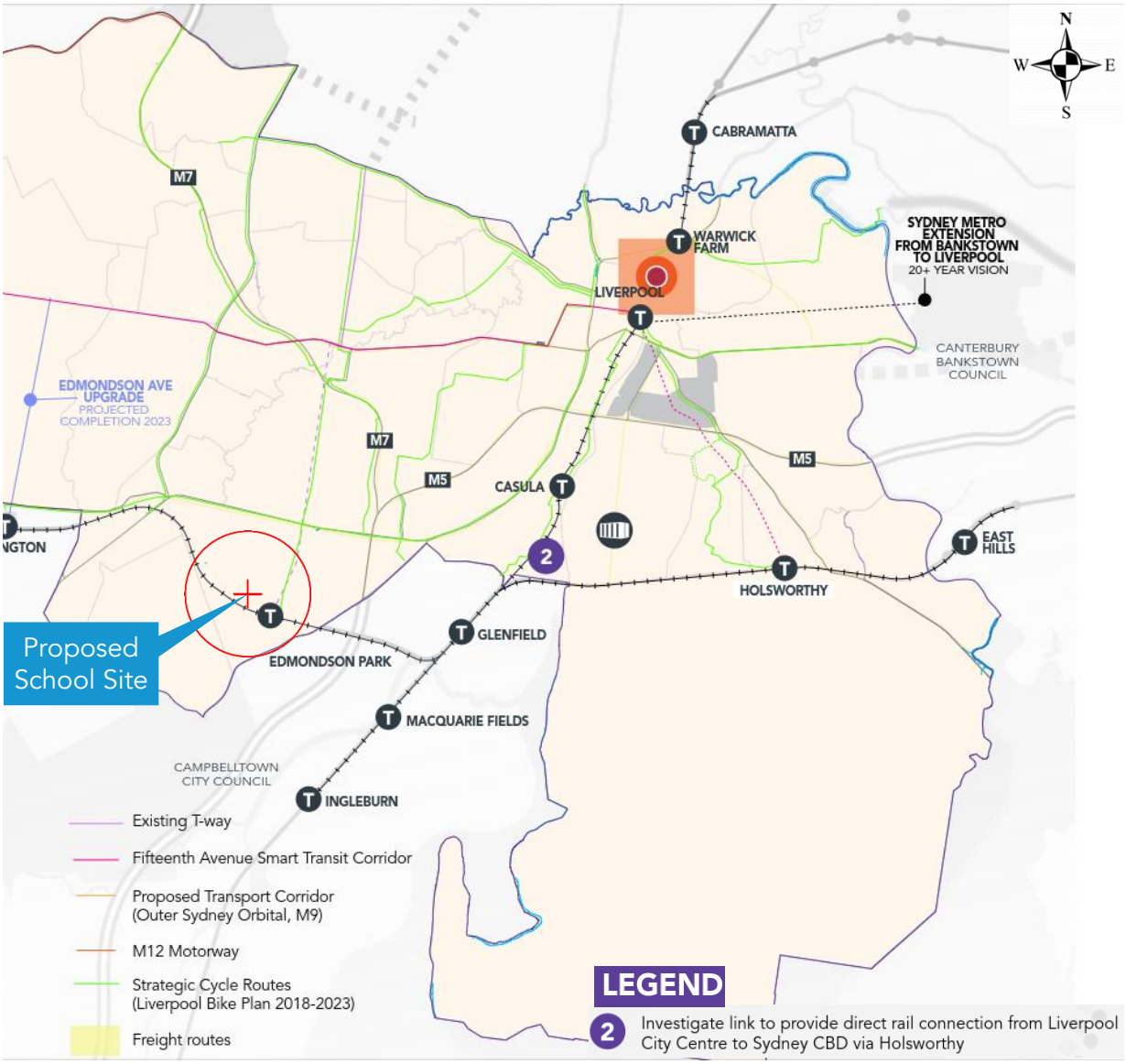

Figure 6 - Local Strategic Plan 2 (*Source: Connected Liverpool 2040 - Liverpool's Local Strategic Planning Statement)*

The strategic cycle route provides connectivity in the north-southbound direction between Edmondson Park train station and the rapid transit corridor which may improve onward journey to work for parents and staff.

The plan focuses on improving the entire Liverpool area. No update to this strategy is needed.

3.2.2 Community Strategic Plan

Our Home Liverpool 2027 – Community Strategic Plan (2017-2027) is a ten year overarching plan that sets direction to Council and stakeholders to work together and provide opportunities to keep Liverpool moving forward. The major directions of this plan are as follows:

- *Creating connection - This direction emphasises the importance of connections within Liverpool to create a harmonious community.*
- *Strengthening and protecting our environment - This direction is about planning high-quality, sustainable urban environments to create a great place to live, work and play.*
- *Generating opportunity - This direction underlines the need for Council to support economic growth, including employment and investment options.*
- *Leading through Collaboration - This direction highlights the importance of a Council proactively leading the community, while continually engaging the community to ensure an aligned vision.*

The document focuses on improving the community in general. No updates to this plan are needed.

3.2.3 Bicycle Plans

Liverpool Bike Plan 2018-2023 is a planning document that outlines the provision of bicycle-related infrastructure and is also a communication strategy designed to promote and increase the rates of cycling in Liverpool.

A major intention of the *Liverpool Bike Plan* project is to provide strategic action plan to improve cycleways and bicycle facilities, identify cycleway routes in the context of key trip generators and to establish a safe, well-connected and easy-to-use cycling environment within the timeframe of the plan and beyond.

Liverpool Bike Plan for Prestons Route is presented in Figure 12. The plan shows existing and proposed bicycle routes within the vicinity of the site, some of which appear to have already been constructed.

The following is noted:

- On-road facilities are not suitable for primary school students. As such, it is recommended to finetune the plan and to promote off-road bicycle paths along major desire lines.
- As marked in blue in Figure 12 a north south link is missing within Edmondson Park, which would benefit the School.

An update of this strategy is recommended.

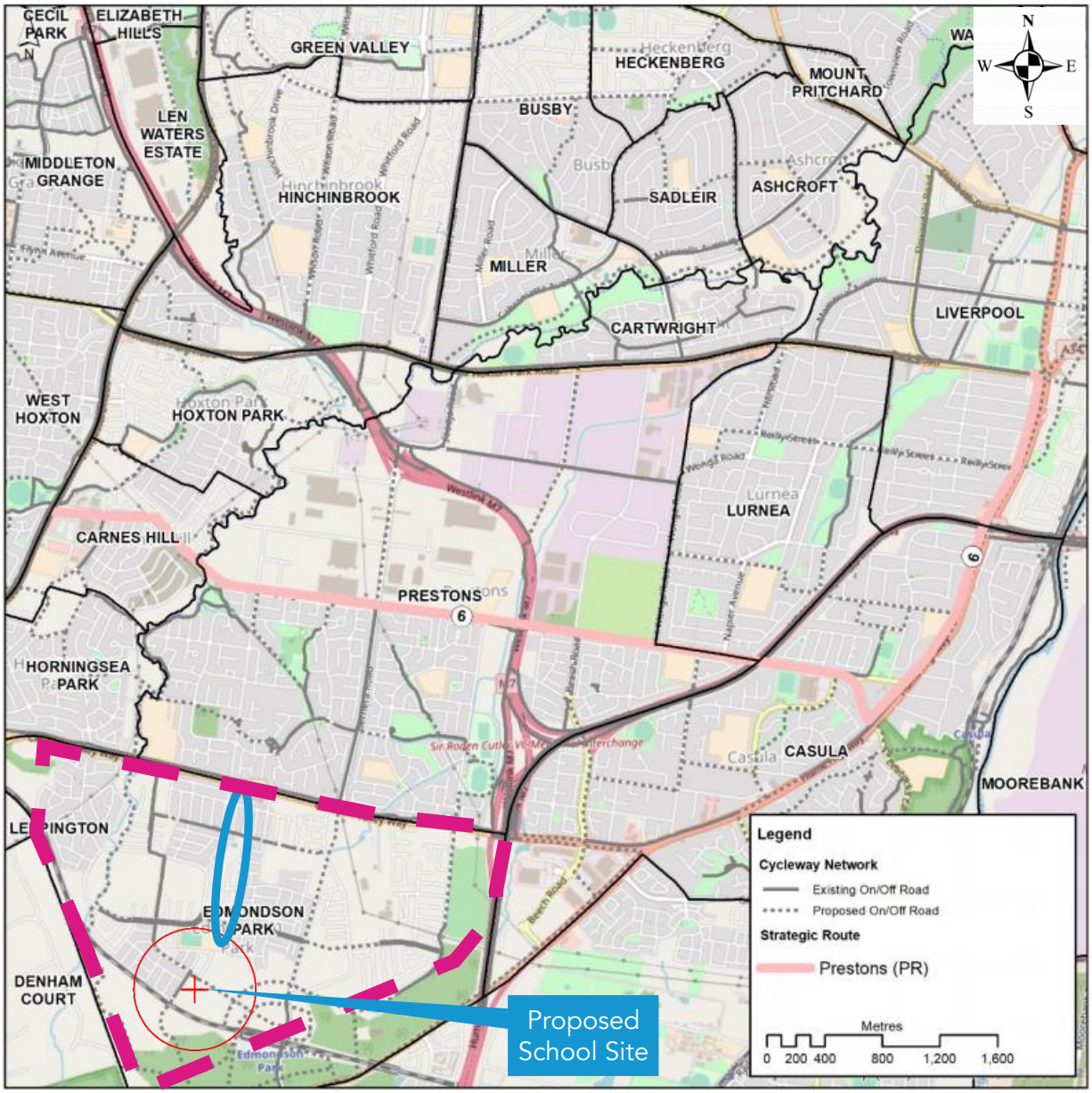

Figure 7 - Liverpool Bike Plan – Prestons Route

3.2.4 Smart Transit Corridor

The *Fifteenth Avenue Smart Transit Corridor (2020)* outlines Liverpool City Council's vision to deliver a place-led transit corridor between Liverpool city centre and the Western Sydney International (Nancy-Bird Walton) Airport (WSIA). *The Fifteenth Avenue Smart Transit (FAST) corridor will support significant growth, improve regional transport connectivity and be guided by the existing landscape and character of South West Sydney*.

The *FAST Corridor* plan is presented in Figure 8 and it shows a transit corridor between Liverpool and Western Sydney Airport. Further south, a parallel railway connection between Liverpool Station and Western Sydney Airport via Edmondson Park is also planned to be provided. The plan aims to provide following transport opportunities:

- *The 19km corridor along Fifteenth Avenue is the most direct route between Liverpool and the Airport and could be prioritised for fast and efficient public transport such as zero-emissions rapid buses, trackless trams, or light rail.*
- *The corridor would accommodate high speed public transport in a landscaped boulevard with low speed urban 'super stops' at centres.*
- *The corridor and stations would prioritise walking, cycling and micro-mobility with off-street cycle paths and promotion of alternative modes of transport such as carsharing.*
- *The corridor must balance speed with the number of stops, low speed areas and loading time at stations.*
- *The public transit corridor would improve Western Sydney's capacity to create a 30 minute city, with accessible jobs in Liverpool city and the Aerotropolis for future residents living along the corridor.*
- *The transit corridor will be low noise and significantly landscaped to cool the area, provide shade for people and strengthen the local ecology.*
- *A significant outcome of the corridor is the place-led approach. The corridor will adopt unique characteristics of the landscape and land uses in the local area. Stations will also serve a double purpose where placemaking opportunities will also be leveraged to create vibrant and community-focused town centres.*

The document provides an improved connectivity in the overall Liverpool area and near the School site. No update of this strategy is needed.

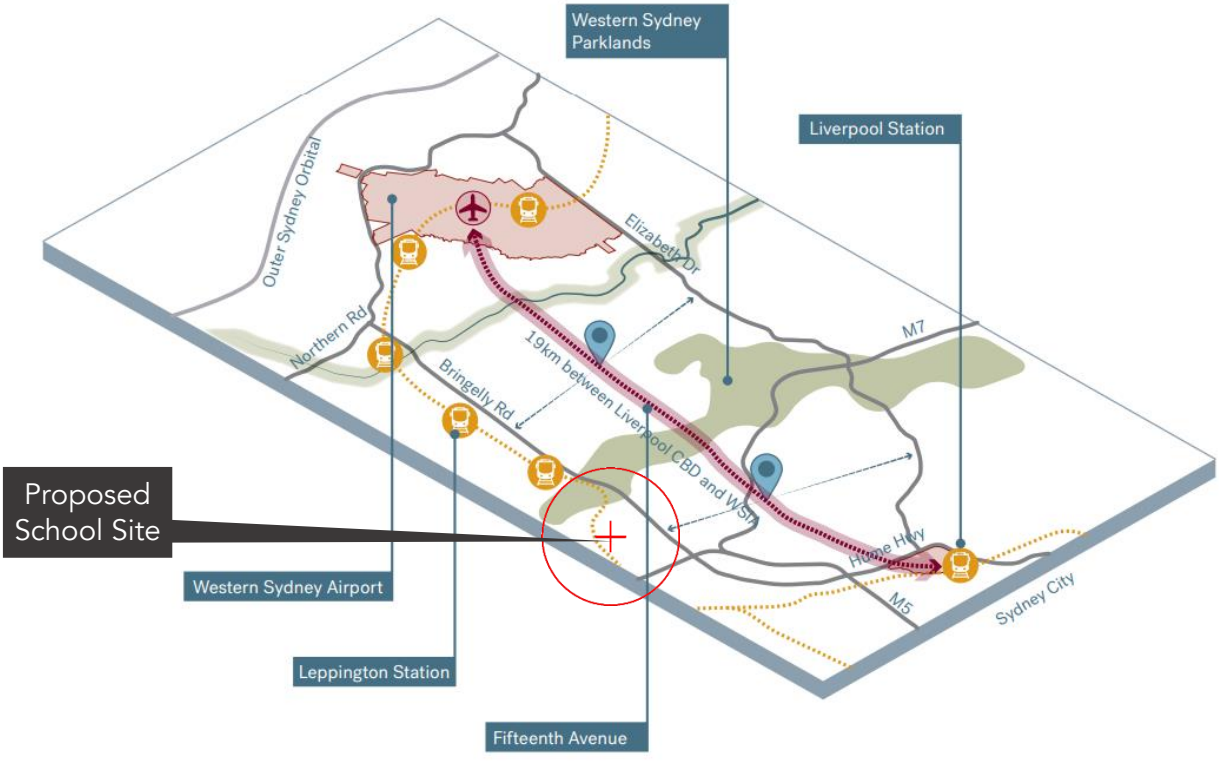

Figure 8 - Fifteen Avenue Smart Transit Corridor (Source: Liverpool City Council)

3.3 State Transport or Infrastructure Plans

3.3.1 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 needed to this plan.

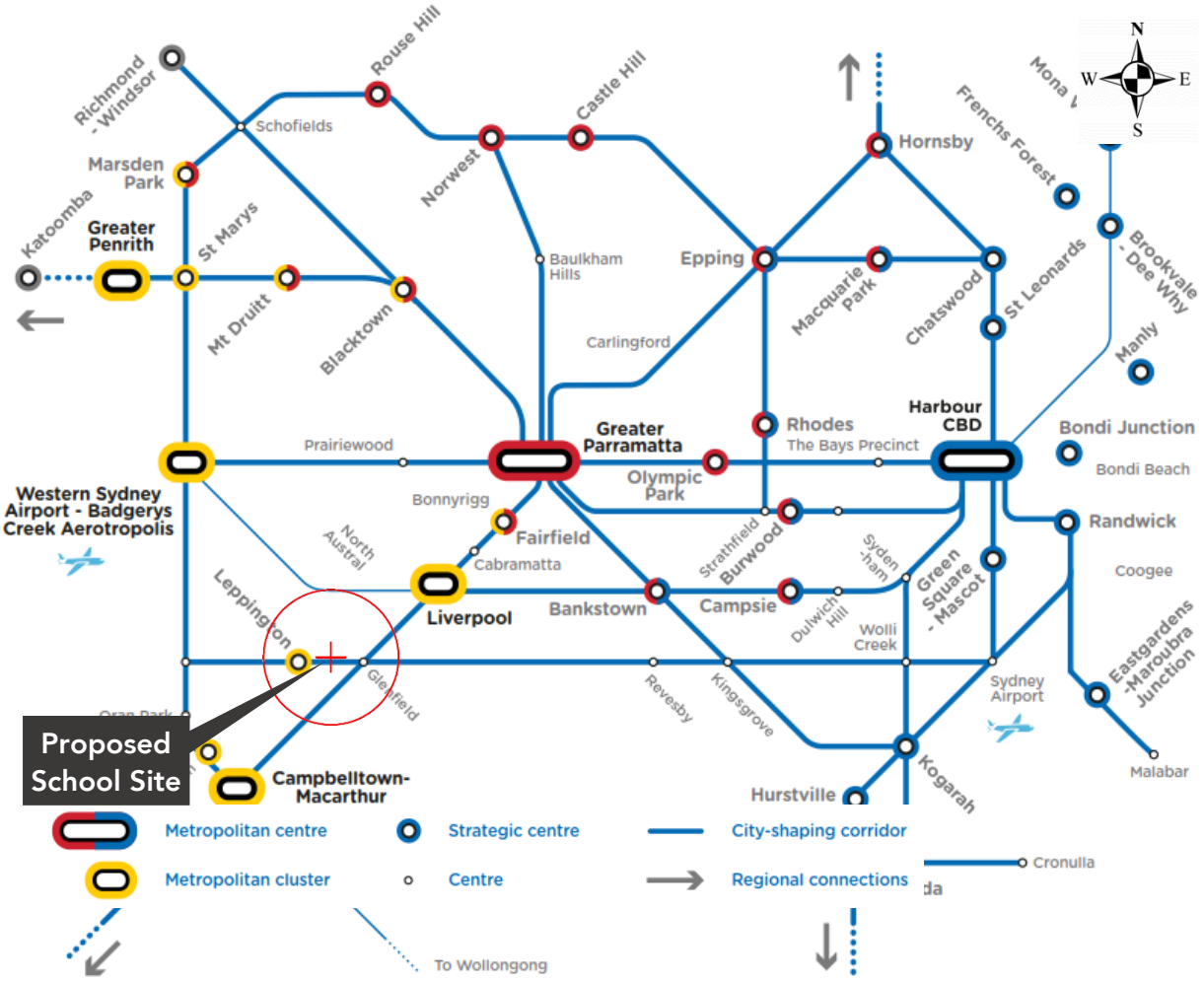

Figure 9 - Greater Sydney Mass transit / train network (visionary) (Source: Future Transport 2056 Strategy)

The Future Transport 2056 Strategy has the vision to construct a safe cycleway network within 10km of Greater Liverpool 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 travel from Leppington or Liverpool.

An update to this strategy is not seen as needed, as the majority of students live in a localised area. However, a local connection to the parallel Liverpool – Campbelltown and Liverpool – Narellan routes would be beneficial for staff.

Growing Sydney's visionary bicycle network is shown in Figure 10.

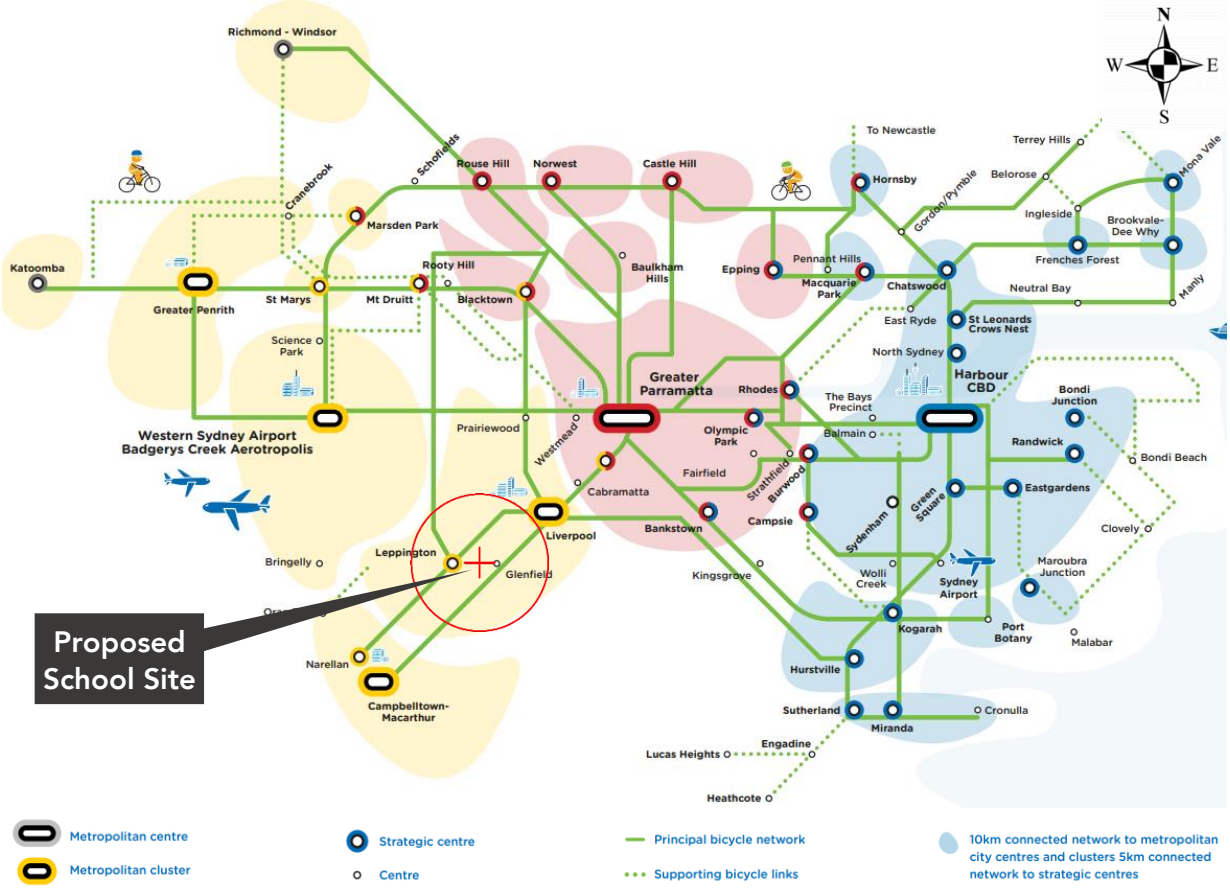

Figure 10 - Growing Sydney's bicycle network (visionary) (Source: Future Transport 2056 Strategy P.119)

3.3.2 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 west outside Edmondson Park.

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

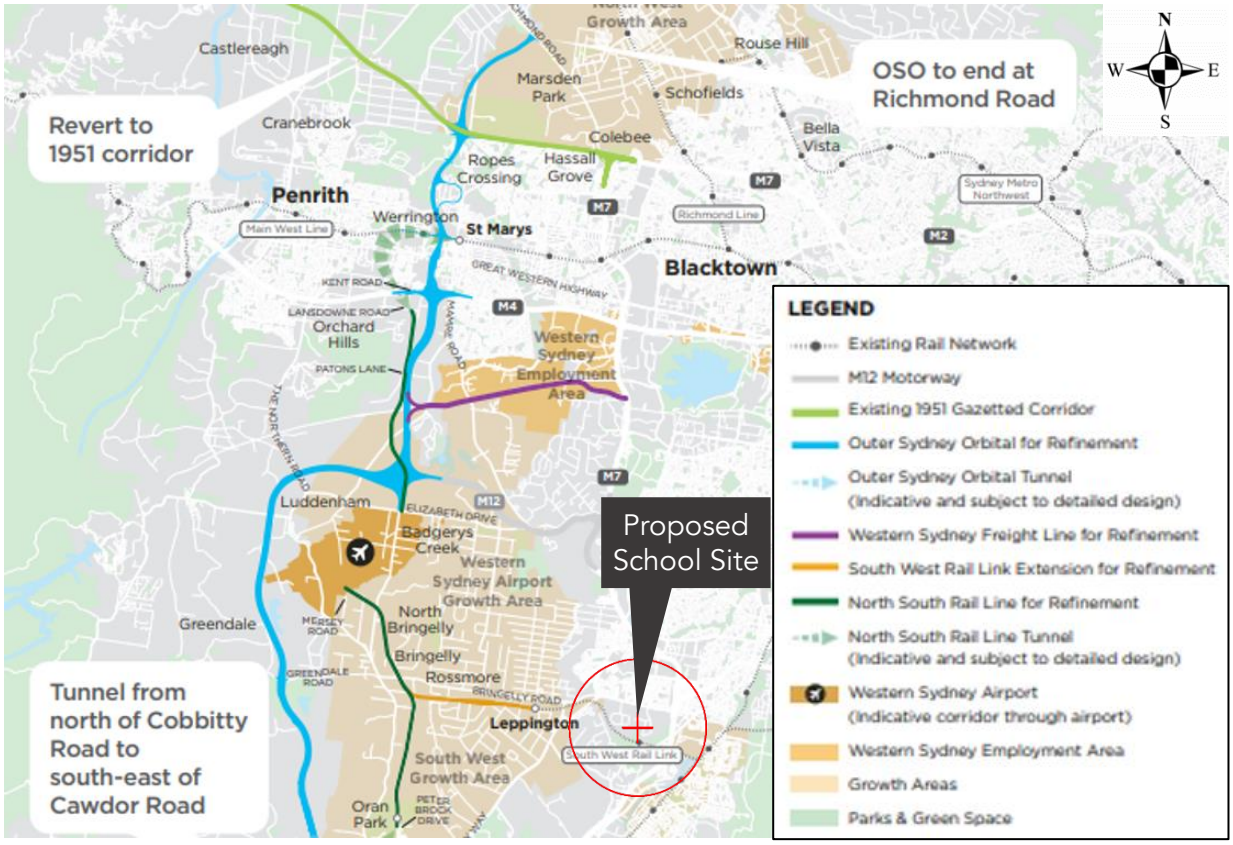

Figure 11 - Future Western Sydney Corridors Map (Source: NSW Government)

3.3.3 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, it highlights the necessity to connect local areas to the greater bicycle network. This may benefit teachers and staff who live outside the Liverpool LGA.

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

3.4 Local Land Use Planning

3.4.1 LEP

The proposed school site is currently zoned R1 (General Residential), where the surrounds are predominantly R1 as well. The site is bound by a railway corridor to the south. South of this railway corridor is a large E1 (National Parks and Nature Reserves) zone. East of the site is a B4 (Mixed Use) and some RE1 (Public Recreation) zones.

A large RE1 (Public Recreation) zone is located to the west, with some E3 (Environmental Management) zones adjacent to them. A B6 (Enterprise Corridor) zone is located along Camden Valley Way.

This is presented in Figure 12.

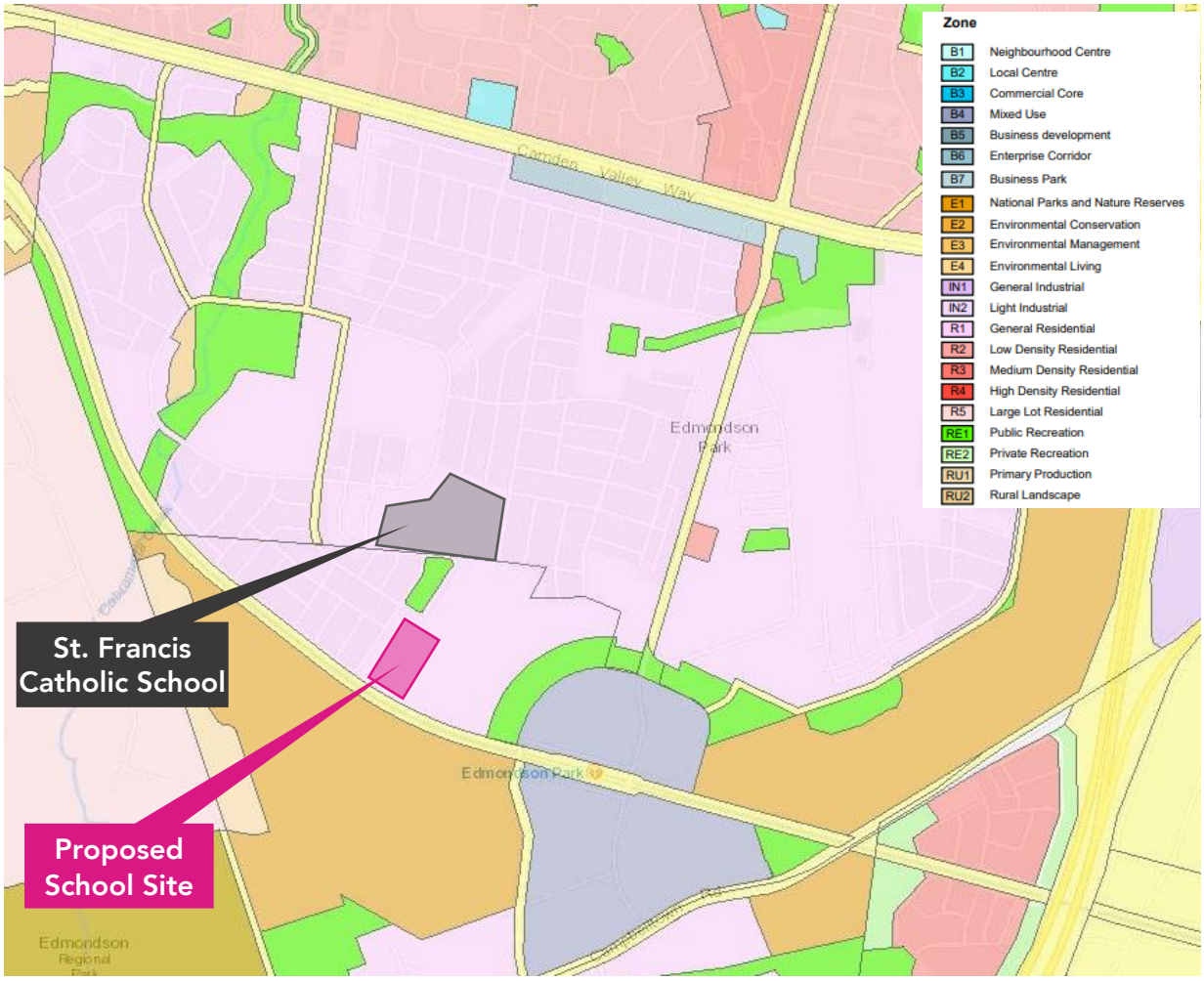

Figure 12 - Local Land Use Map (Source: NSW Planning Viewer)

While the proposed site lies within a residential zoning, it is allocated for an educational facility in Council's documents and the Landcom concept plan (MP10_0118).

It is noted that a catholic K-12 school (St Francis) is located just north of the proposed school. The site to the east is currently being investigated for a potential high school.

3.4.2 Development Control Plans

The Liverpool City Council separated the area around Edmondson Park into two documents – Edmondson Park and Edmondson Park South. The School is located in the southern part of the area, whereas the student enrolment catchment spans both regions of Edmondson Park. Therefore, both documents need to be read in conjunction to address planning requirements. The two plans relevant to the development site include:

- Liverpool Development Control Plan 2008 Part 2.11 – Land Subdivision and Development in Edmondson Park (Liverpool DCP)
- Edmondson Park South Development Control Plan 2012 (Edmondson Park South DCP)

3.4.2.1. Residential Distribution

The proposed school in Edmondson Park is a new school development which anticipates the enrolment of up to 1,012 students in the future. Currently, 346 students live within the school's enrolment catchment area as described in Section 2.4, but are enrolled in other schools. The school would potentially have an initial spare capacity of approximately 650 students.

The proposal also makes provision for a cold shell pre-school, intended to accommodate 40 students, the operation and fit-out of which will be the subject of a separate planning approval process. Further, the pre-school is not covered by the same enrolment catchment as the primary school. Therefore, pre-school students are not included in the mode share analysis.

Edmondson Park still consists of some greenfield areas which are currently being developed into new residential properties. It is assumed that the remainder of the students will be new residents of the upcoming properties.

In order to determine the future student distribution, the locations and density of the new residential developments have been analysed using the Liverpool and Edmondson Park South DCPs.

Figure 13 shows the combined land zonings for developments within the enrolment area from the two DCPs.

Near Maps imagery was used to compare completed developments and those which are yet to be constructed. Following this, using depersonalised student data, the initial 346 enrolments were identified to live in distinct areas. The 666 remainder of potential student enrolments were distributed based on the density of the anticipated developments within each land zone.

Figure 13 highlights the distribution of student enrolment, black numbers being existing enrolments at other schools and red being the overall proposed due to new developments.

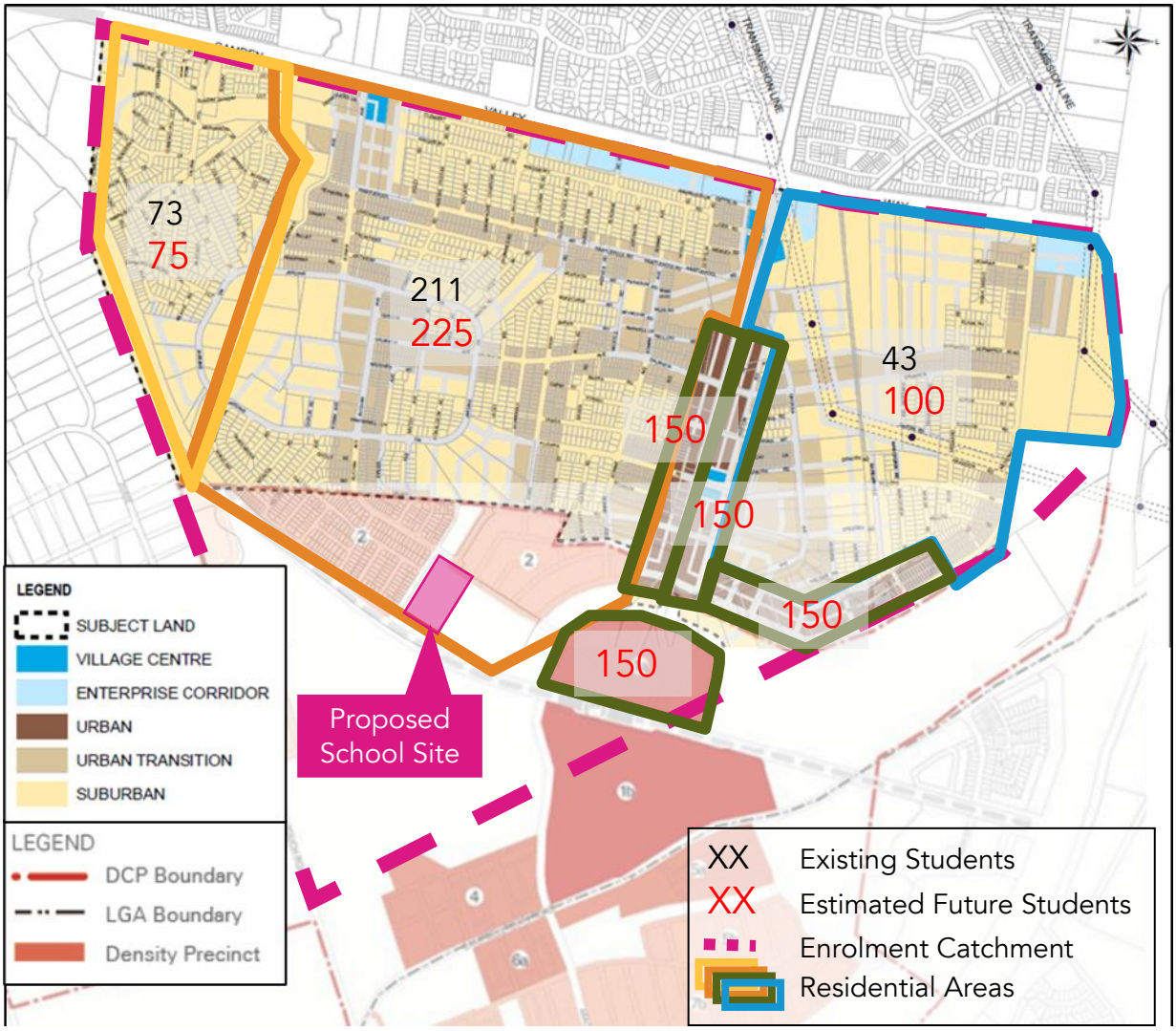

Figure 13 - Residential Areas (Source: Fig 5, Liverpool DCP and Fig 4, Edmonson Park South DCP)

3.4.2.2. Walking and Cycling

Figure 14 shows the bicycle network within Edmondson Park and Edmondson Park South proposed by Council.

The blue circle highlights missing bicycle connectivity along Vinny Road. This route was not part of the precinct's planning according to the DCP; However, it would benefit students living to the north of the school. It is recommended that this be incorporated in Council's local planning to provide better walking and cycling connectivity.

Rynan Avenue was planned and has been constructed to provide an on-street cycle path, which is not acceptable for primary school students. In addition, the orange circled area highlights a gap in connectivity around the corner. The yellow highlighted section has not been constructed yet. An investigation by Council is recommended if this link can be upgraded to an off-road facility in the future.

The orange highlighted section in Buchan Avenue was planned to provide a shared path, but only a footpath was constructed. This is a gap, as students potentially coming from west and north-west have a

less convenient school route. It should be ensured that the remaining section of Buchan Avenue is constructed with a shared path.

A positive upgrade of the planned infrastructure has been found in Bernera Road, where a shared path instead of an on-street bicycle path has been constructed (highlighted in green). This will benefit students living east of the school.

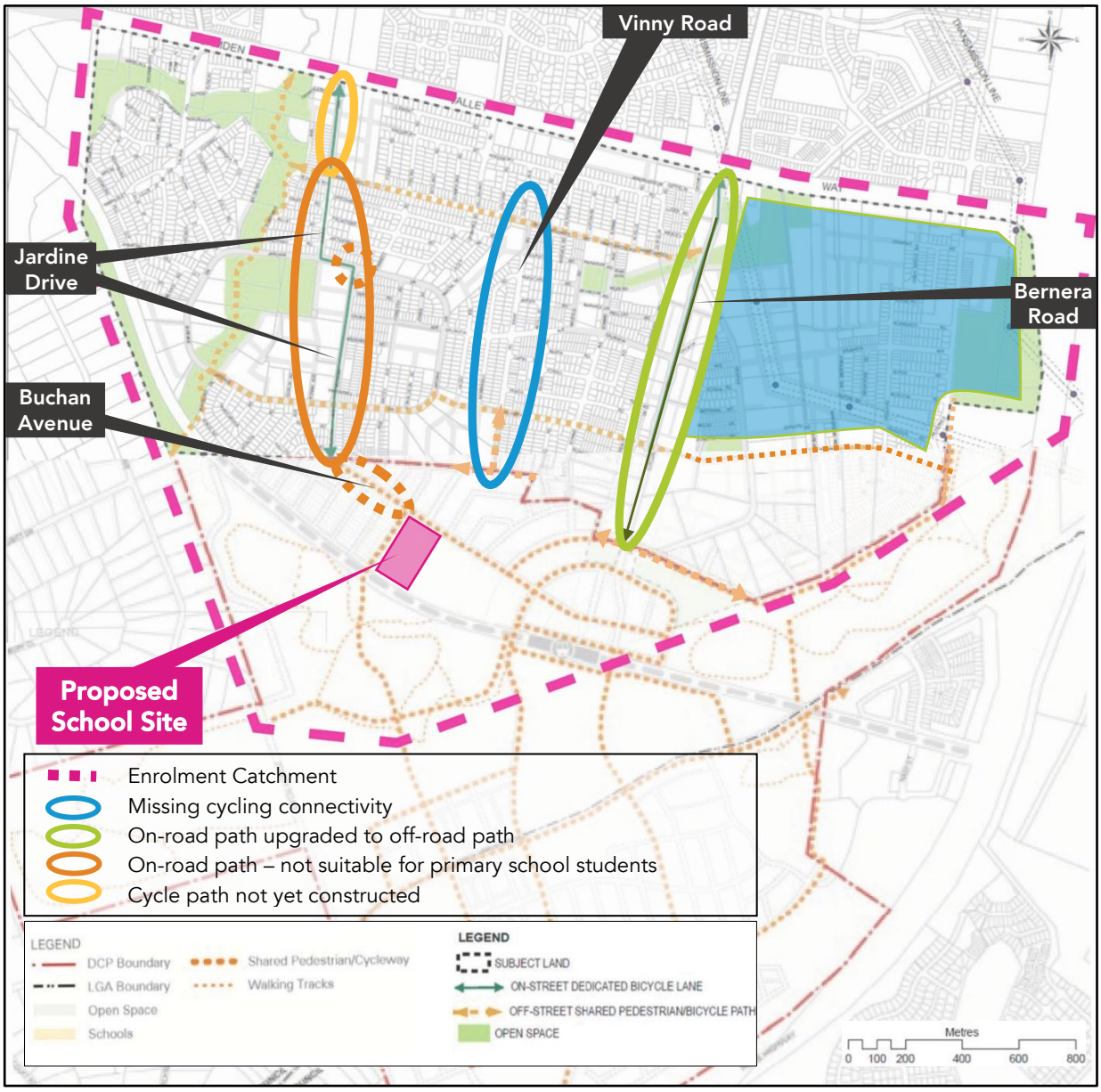

Figure 14 - Bicycle Network (Source: Liverpool DCP 2008, Part 2.11)

3.4.2.3. Bus Routes

Figure 15 shows the proposed bus route coverage within the enrolment catchment.

Buchan Avenue is planned to accommodate buses providing connectivity to the train station. This is convenient, as Buchan Avenue is a frontage road for the school and all buses from the northern area would pass the school.

Bernara Road is likely to be a major barrier for students living to the east; Therefore, the proposed bus route in the blue area will provide a much-needed connection to the school.

The DCP did not plan any bus connectivity in the area highlighted in yellow.

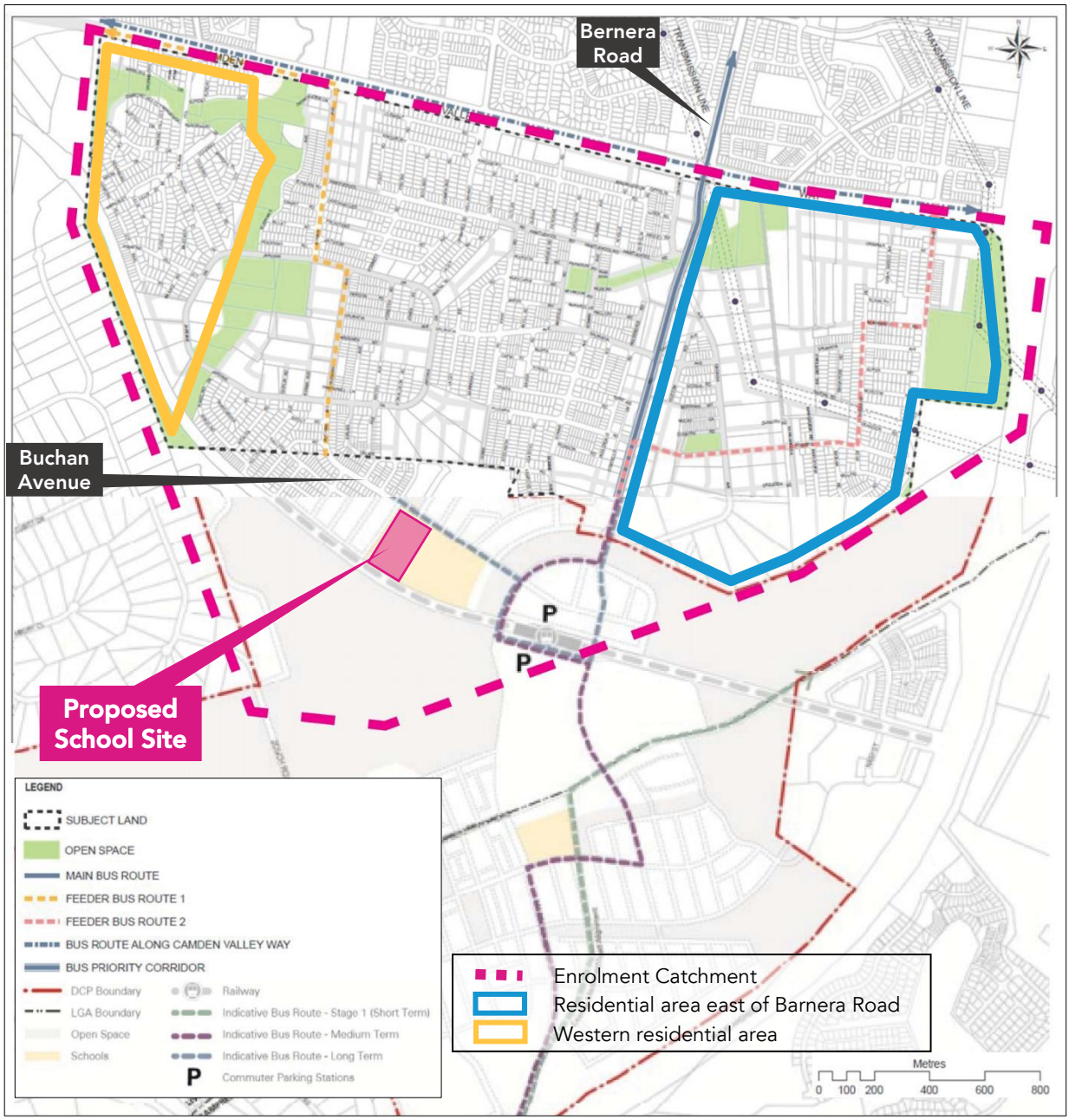

Figure 15 - Public Transport Use Map (Source: Liverpool DCP 2008, Part 2.11 and DCP 2012)

3.4.2.4. Road Hierarchy

The road hierarchy for the proposed School frontage roads is presented in Figure 16.

As shown in Figure 16, Buchan Avenue as a typical collector road should provide a 2.5m wide shared path on one side and 1.2m wide footpath on the other side of the carriageway. Faulkner Way as a typical urban street should provide 1.2m wide footpaths on both sides of the carriageway.

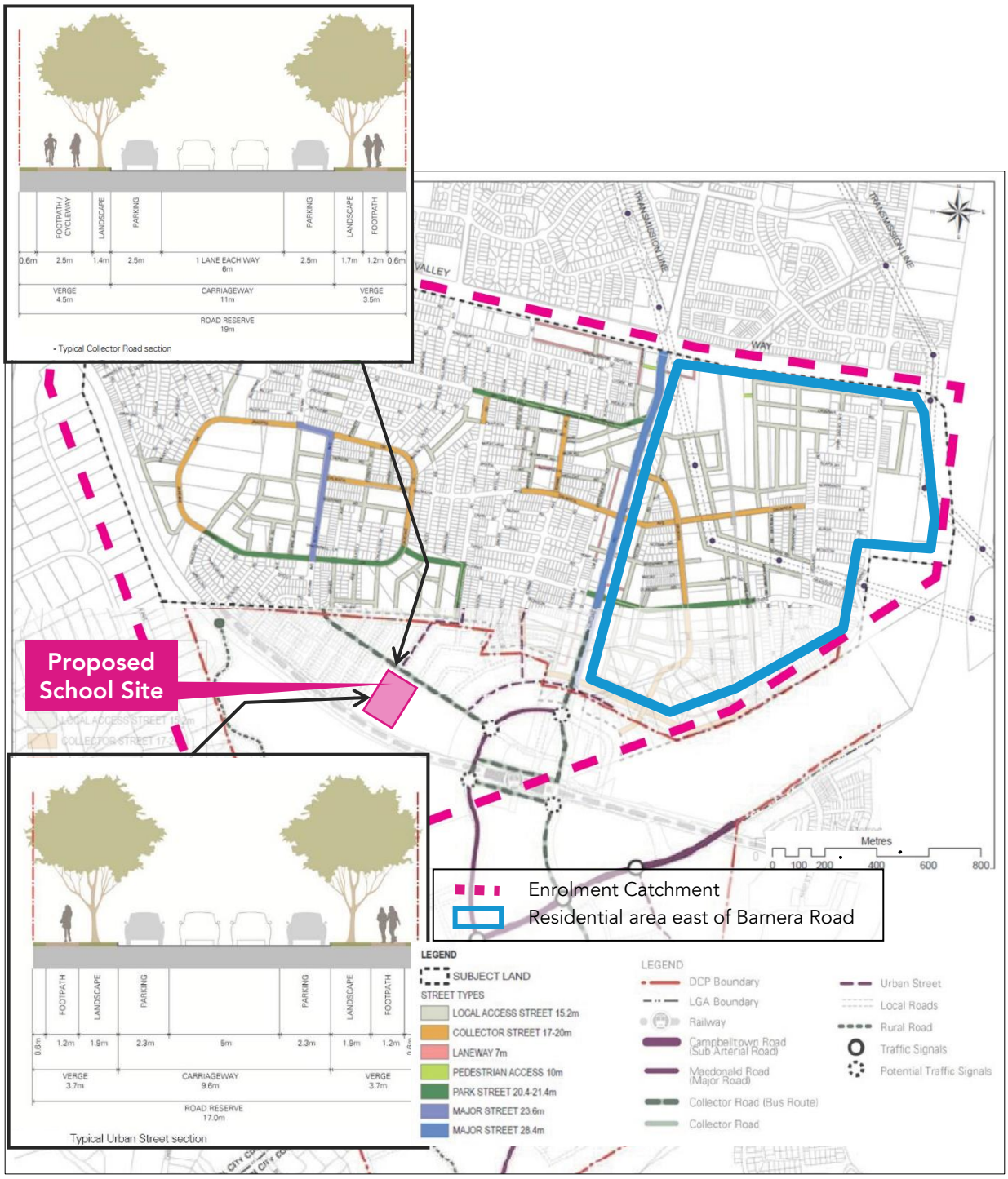

Figure 16 - Road Hierarchy (Source: Liverpool DCP 2008, Part 2.11 and DCP 2012)

Buchan Avenue as a collector road and a bus corridor requires appropriate pedestrian crossings for students to reach the school safely.

The area highlighted in blue in Figure 16 is separated from the school by Bernera Road, which is classified as a major road. Students living within this area would need to cross this road, therefore a safe pedestrian crossing facility prioritising students during school peak periods is required. It is understood that this is currently under investigation by other stakeholders.

Figure 17 shows intersection treatments along Bernera Road, with purple dots representing signalised intersections. It is noted that the pink and green highlighted intersections have not been upgraded yet. The northern intersection is currently a priority controlled three-arm intersection. The intersection further south (future Buchan Avenue / Soldiers Parade) has not been constructed yet, but will be operational upon commencement of the school and will initially allow left-in / left-out movements only.

Upon consultation with Council, it is understood that one of these two intersections will eventually be signalised by other stakeholders. However, a decision on which one has not yet been made.

The preferred intersection is the one circled in pink, as most of the students using it would travel from the north and this intersection provides a shorter route.

The traffic lights will need to incorporate a pedestrian crossing on each approach and ideally provide a longer pedestrian phase time during school peak periods.

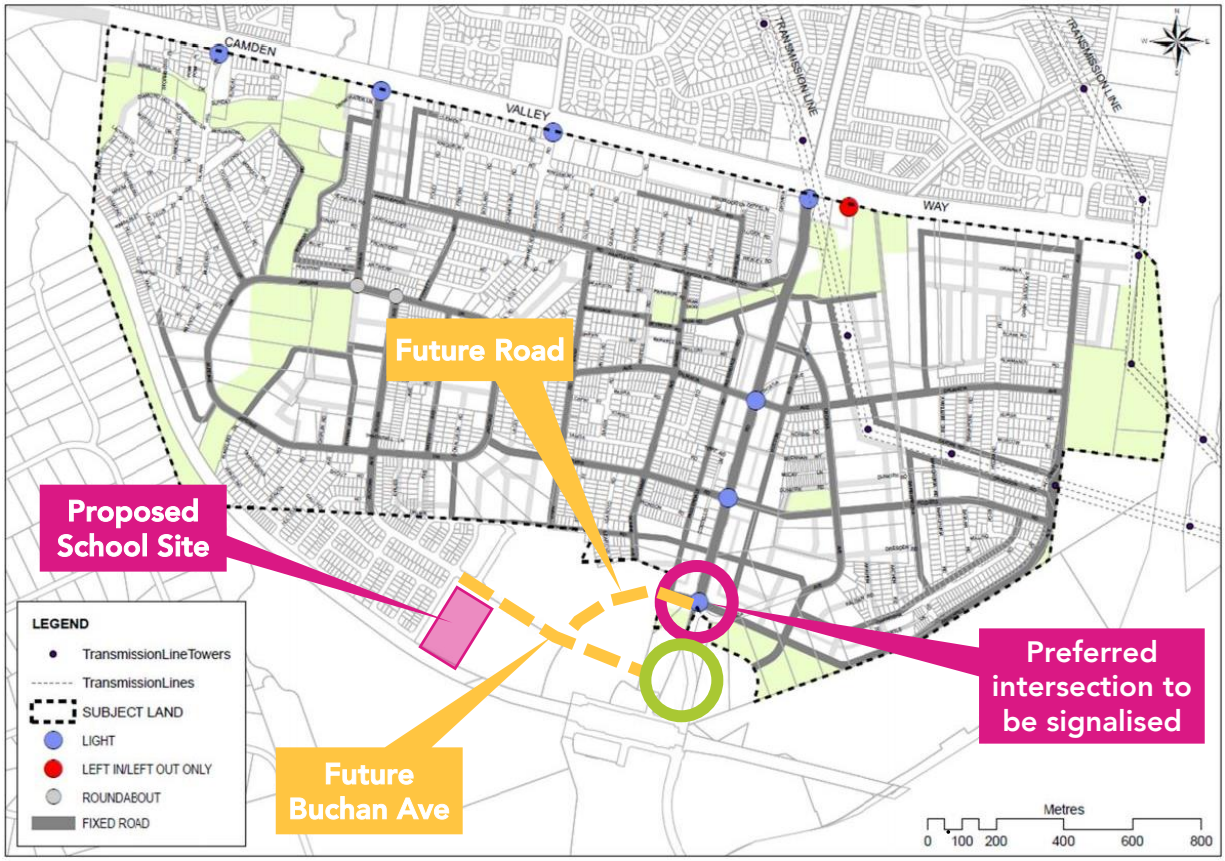

Figure 17 - Fixed Roads, North Zone Edmondson Park (Source: Liverpool DCP 2008, Part 2.11)

3.4.3 Open Space Plans

Open space areas are provided for recreational facilities and are presented in Figure 18.

As marked by the orange line, future pedestrian path with an overpass over the railway corridor is proposed to connect the School and parklands.

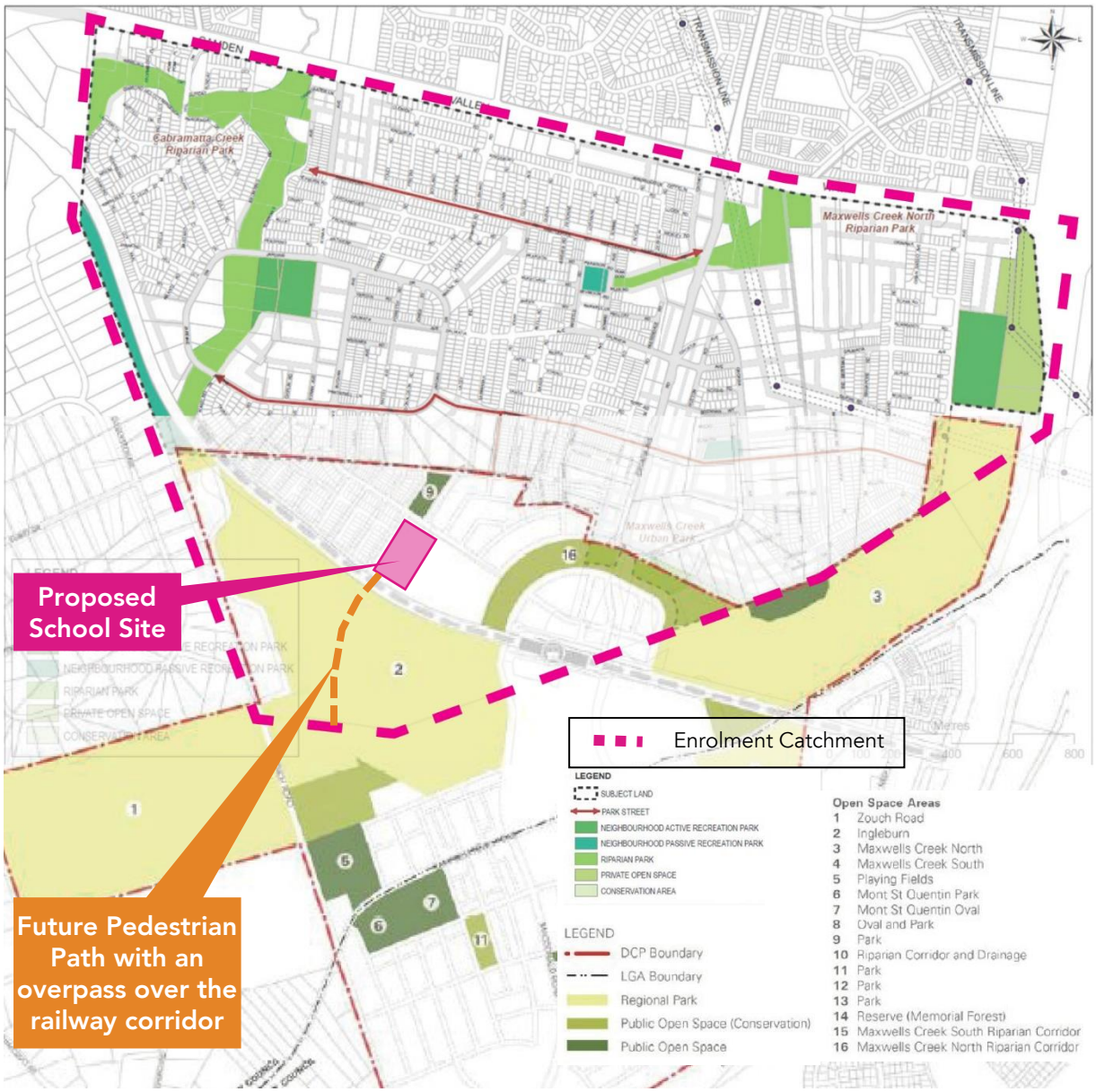

Figure 18 - Open Space Plans (*Source: Liverpool DCP 2008, Part 2.11* and *Edmondson Park South DCP 2012*)

3.5 Programs

3.5.1 Subsidised School Transport Scheme and School Term Bus Pass

Figure 19 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.

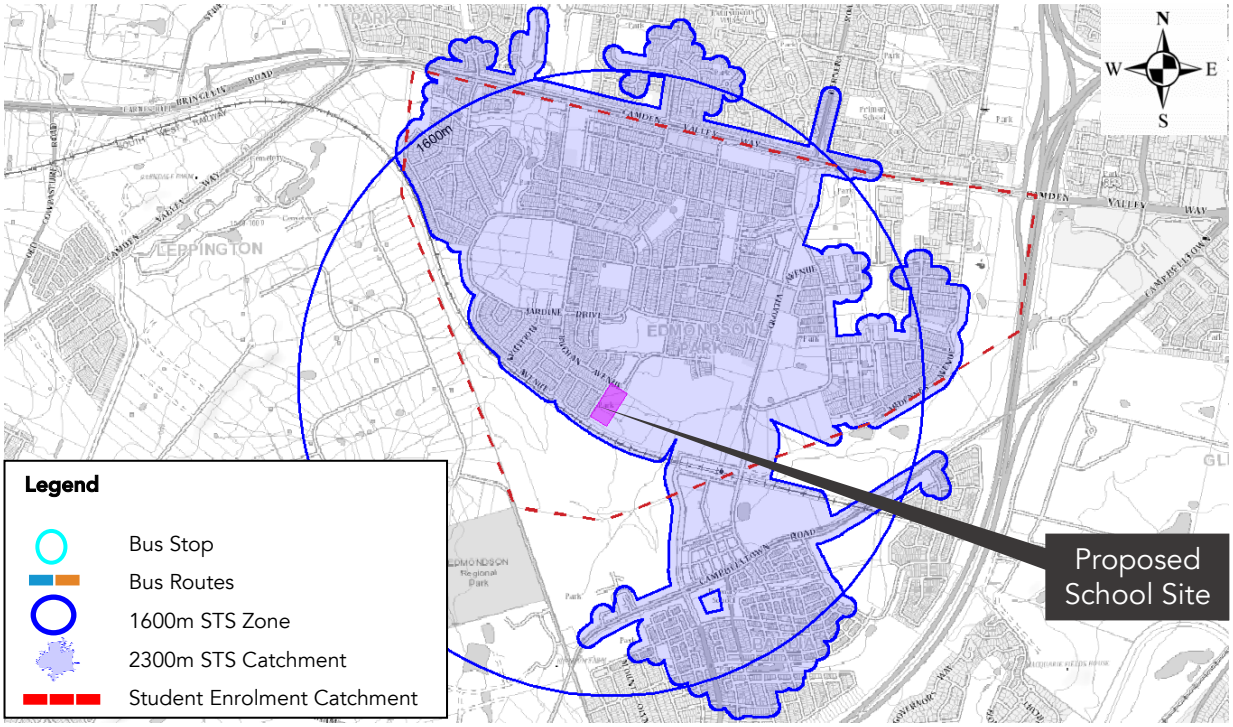

Figure 19 - SSTS Exclusion Zone

3.6 Existing Nearby Public Schools

Existing primary schools near the proposed new School are shown in Figure 20. The green lines show the existing primary schools' enrolment catchments and the pink dotted line represents the proposed new School's catchment.

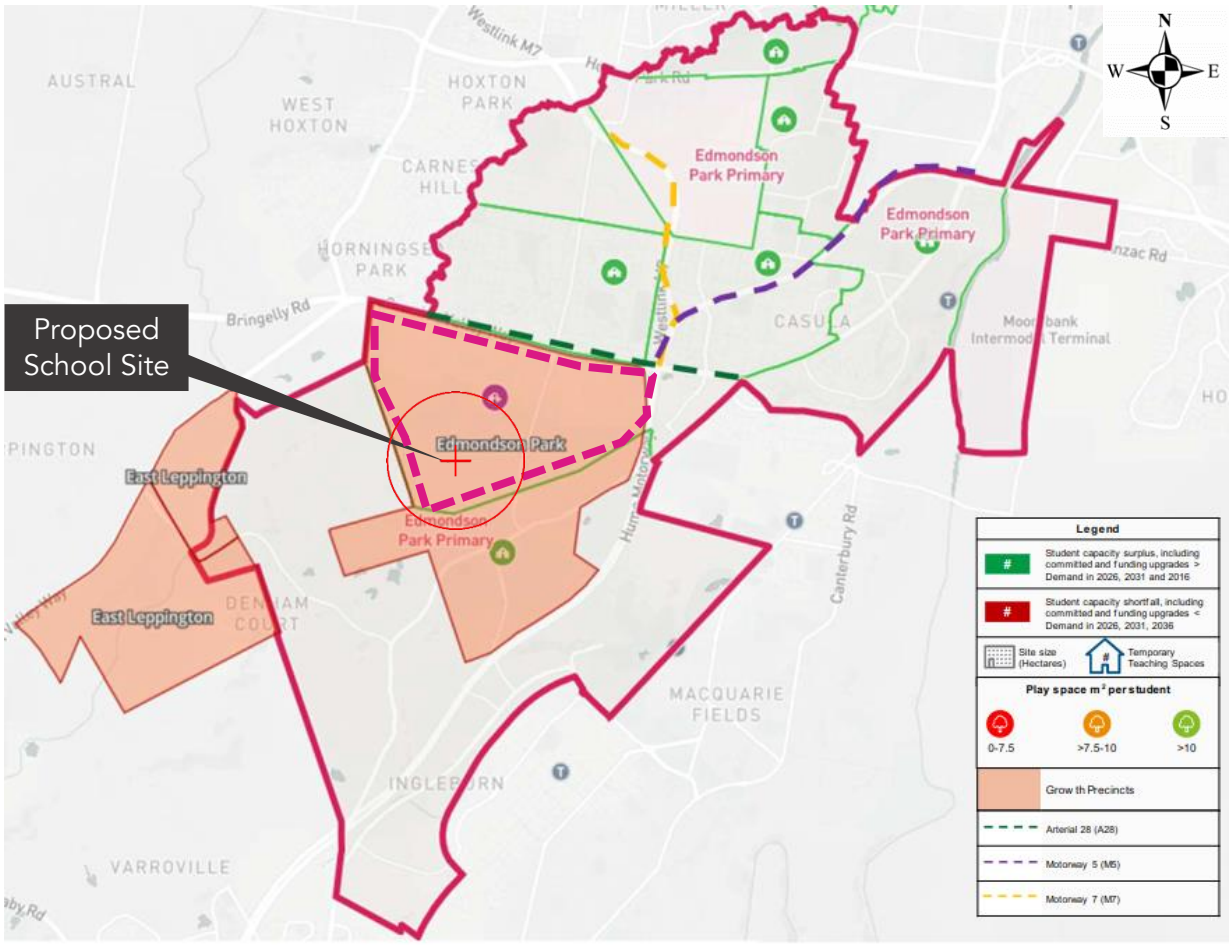

Figure 20 - Nearby Schools (Source: NSW Deparment of Education)

4. Transport Networks and Operations

4.1 School Access

The school has a frontage to Buchan Avenue to the north and Faulkner Way to the west. Another frontage road to the south will be constructed by Landcom prior to commencement of the school.

There are 3 pedestrian gates, two off Faulkner Way in the west and one, the main entry, off Buchan Avenue in the north.

Car park access is in the southwest of the site off Faulkner Way, combined with service / waste collection vehicle driveway. A second waste collection access will be provided off the future South Road.

Bus stops A, which is currently under construction, is located on the southern side of Buchan Avenue and bus stop B is proposed to be on the northern side of Buchan Avenue.

A map showing the access points, car parks, pick-up / drop-off areas and the bus stop locations is illustrated in Figure 21.

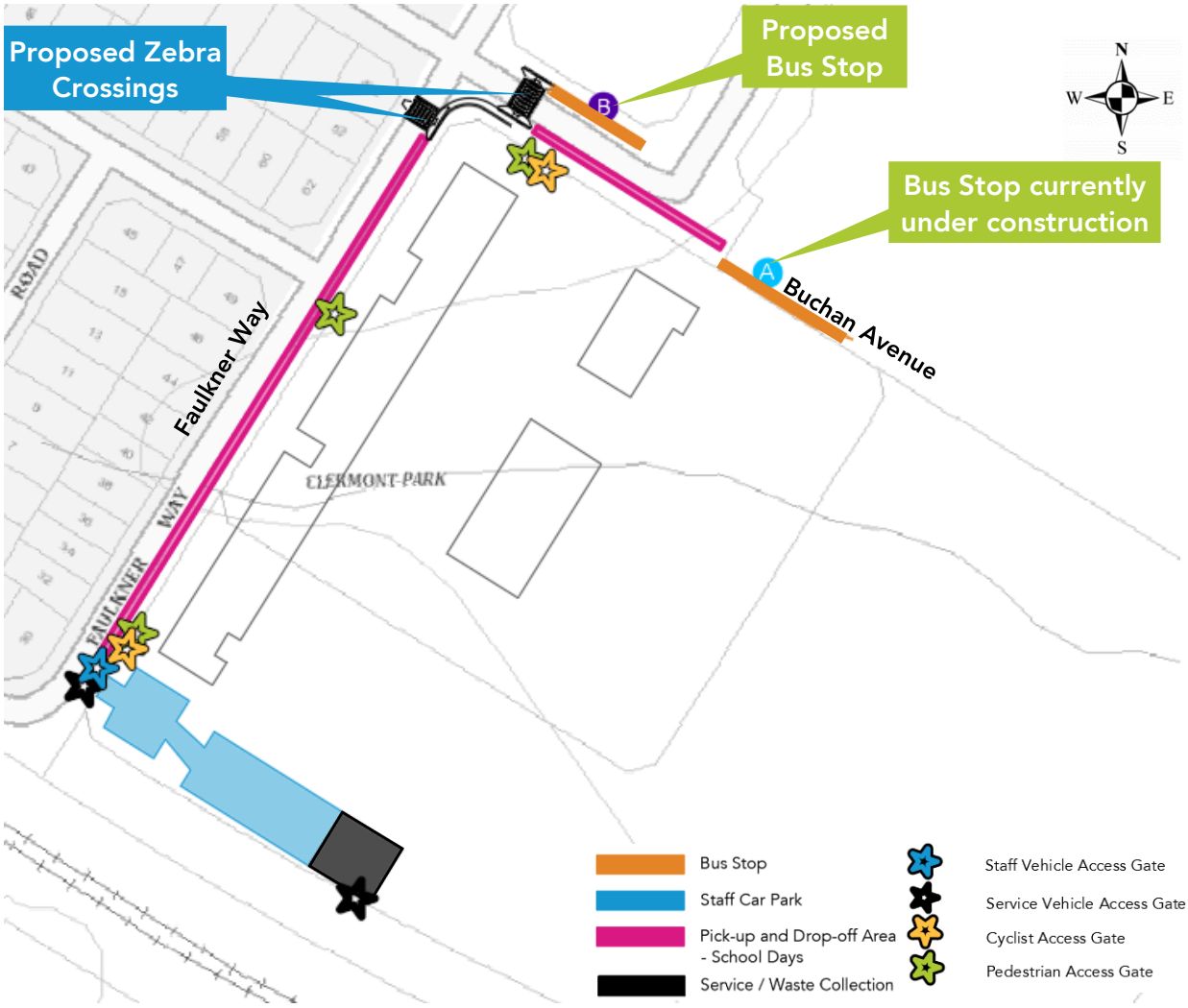

Figure 21 - School Access Plan

4.2 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.

4.2.1 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 22 shows the "as crow flies" and the actual 400m, 800m and 1200m walking catchments from the proposed school. Approximately 40% of the enrolment catchment lies within walking distance.

Figure 22 - 400m, 800m and 1200m Walking Catchment

Considering that Edmondson 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.

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.

A gap analysis of pedestrian infrastructure is provided in Section 4.2.3.

4.2.2 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 23). The data does not provide any information on any proposed future bicycle paths in the area.

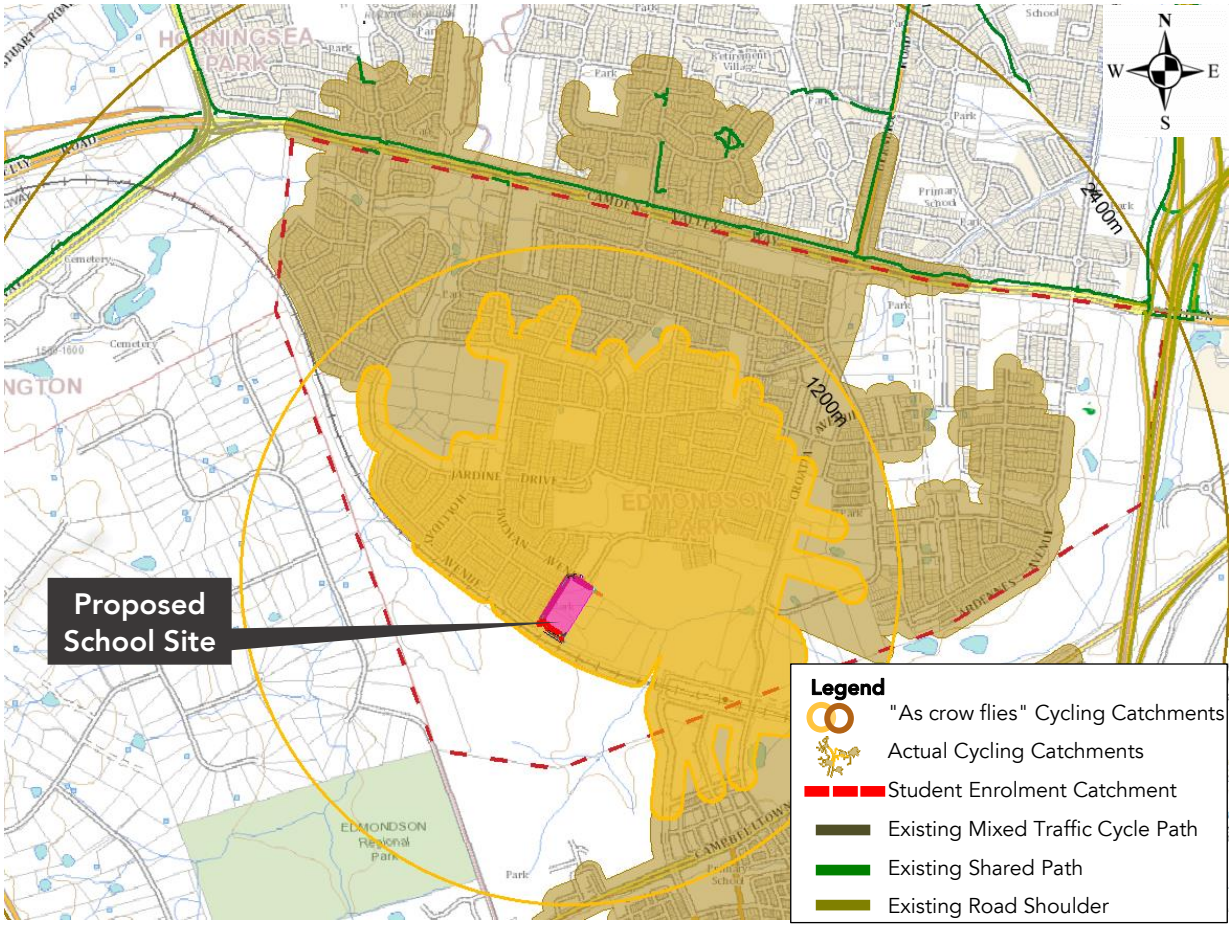

Figure 23 - Existing Cycling Infrastructure

An analysis of the DCP has been undertaken in Section 3.4.2.2, and compared with NearMap imagery most of the areas already constructed provide cycling infrastructure according to the DCP. Only a section on the western end of Buchan Avenue was constructed as a footpath rather than a shared path, which can potentially reduce the convenience of students wanting to cycle to school from the western side.

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 footpaths into shared paths would not only benefit the proposed school, but also other schools in the area and the community in general.

A gap analysis of the existing cycling infrastructure is described in Section 4.2.3, and an analysis of the future infrastructure is presented in Section 4.2.4.

4.2.3 Walking and Cycling Gap Analysis

Based on the analysis of the DCPs and the existing infrastructure, a number of gaps within the walking and cycling infrastructure has been identified, as presented in Figure 24. Enrolment wide improvements to the infrastructure have been suggested, which would benefit the prospective students.

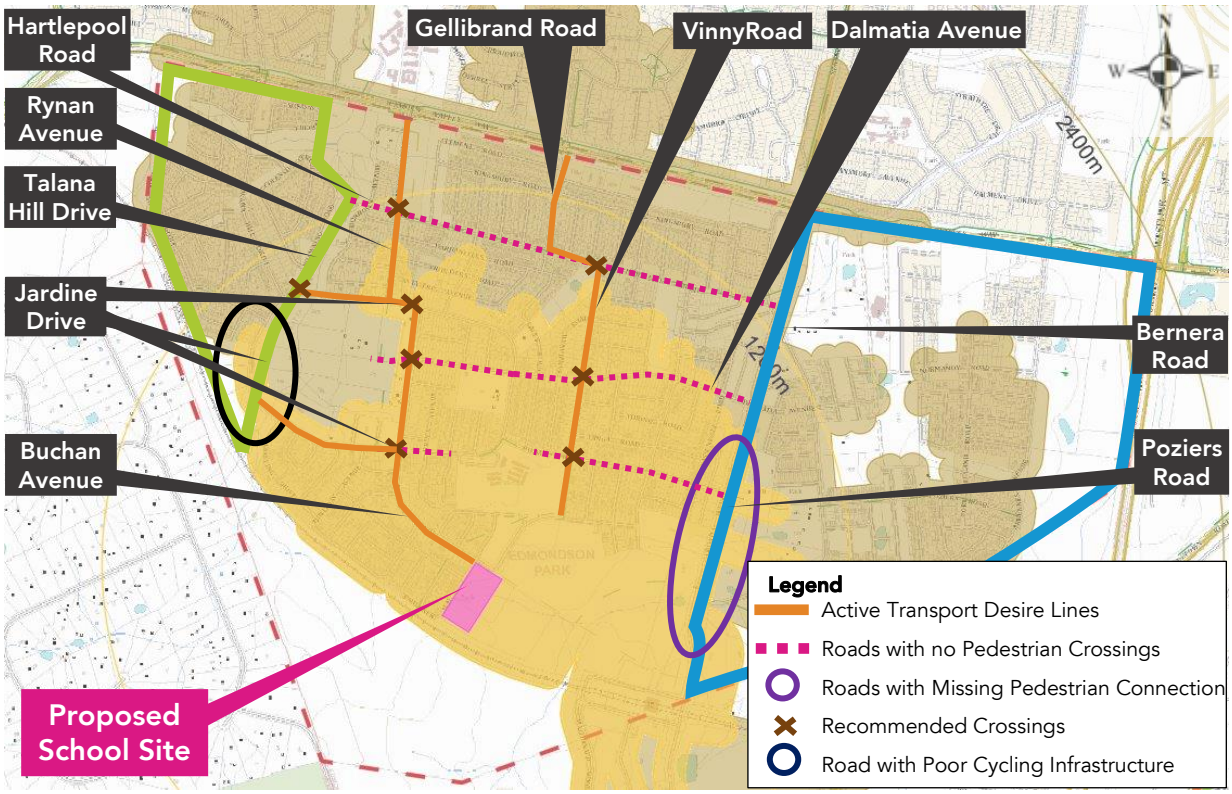

Figure 24 - Walking and Cycling Route and Crossing Network Gaps

Due to the Edmondson Park precinct still undergoing development, there is a lack of safe pedestrian crossings across the southern section of Bernera Road / Soldiers Parade, which makes the area east of Bernera Road as highlighted in blue unsuitable for walking and cycling. Some students may choose to cycle if a safe bicycle connectivity is provided all the way to the school.

As shown in Figure 24 in orange lines, Rynan Avenue / Buchan Avenue and Gellibrand Road / Vinny Road are the desire lines for students walking or cycling from the north, and Jardine Drive is the desire line for students travelling from the west. Pink dotted lines represent road sections along Hartlepool Road, Dalmatia Avenue, Poziers Road and Jardine Drive with no formal pedestrian crossings. Ideally, pedestrian crossings

would be provided at the crossing points between the north-south desire lines and the east-west aligned road at the following intersections, and as marked in Figure 24:

- Rynan Avenue / Hartlepool Road
- Jardine Drive / Buchan Avenue
- Buchan Avenue / Dalmatia Avenue
- Buchan Avenue / Jardine Drive
- Vinny Road / Hartlepool Road
- Vinny Road / Dalmatia Avenue
- Vinny Road / Poziers Road
- Talana Hill Drive / Jardine Drive

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.

The area marked by a black circle in Figure 24 highlights a road section that would be an ideal connection for students living in the western area (highlighted in green in Figure 24); However, it is currently unsuitable to use by primary school students. As shown in Figure 25, there is no formalised pedestrian and cycling infrastructure, the road is only approximately 7m wide, which is too narrow to accommodate 2-lane traffic with bicycle and pedestrian movements, and there appears to be no lighting.

It is understood that this area is subject to flooding and further investigation is underway.

Figure 25 - Jardine Drive view, Diamond Hill Cct towards Wakeling Drive

4.2.4 Future Cycling Infrastructure

Liverpool Development Control Plan 2008, Part 2.11. and *Edmondson Park South, Development Control Plan 2012* indicates that shared paths would be provided within the vicinity of the school, as shown in Figure 26.

Some roads within the vicinity of the site are still under construction. It is important to ensure that shared paths are provided along Buchan Avenue and the future road connecting Buchan Avenue and Bernera Road (as shown in yellow dotted lines in Figure 26). As direct links to the school, these facilities will provide walking and cycling connectivity for students coming from the east and west.

Appropriate crossing opportunities will have to be provided across Bernera Road and Buchan Avenue as highlighted by circles in Figure 26. Ideally, the crossing on Bernera Road (blue circle) would be signalised and provide a pedestrian friendly phase time (longer pedestrian phase time) during school peak periods.

The crossing across Buchan Avenue (pink circle) would ideally be either a raised zebra crossing or a signalised crossing.

As marked in orange dotted line, future shared path with an overpass over the railway corridor is proposed to connect the School and parklands.

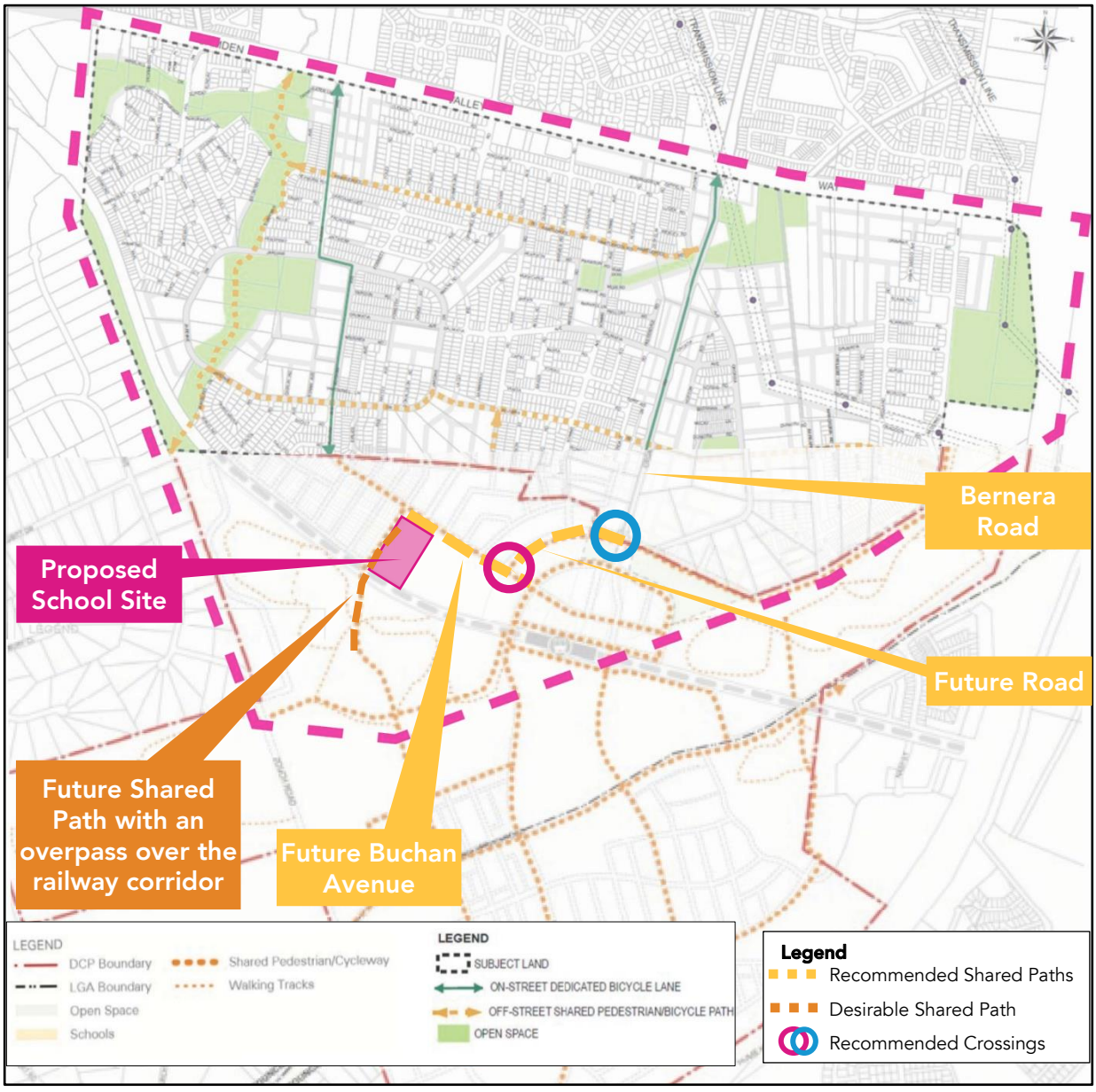

Figure 26 - Recommended Pedestrian and Cycle Connectivity (*Source: Liverpool DCP 2008, Part 2.11 and DCP 2012*)

4.3 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.

4.3.1 Eligibility and Potential Usage

Figure 27 illustrates the SSTS exclusion catchment from the proposed School site, which covers almost the entire enrolment catchment. This means that only 4% of the prospective School students living towards the north-east are eligible for a free or discounted student travel pass.

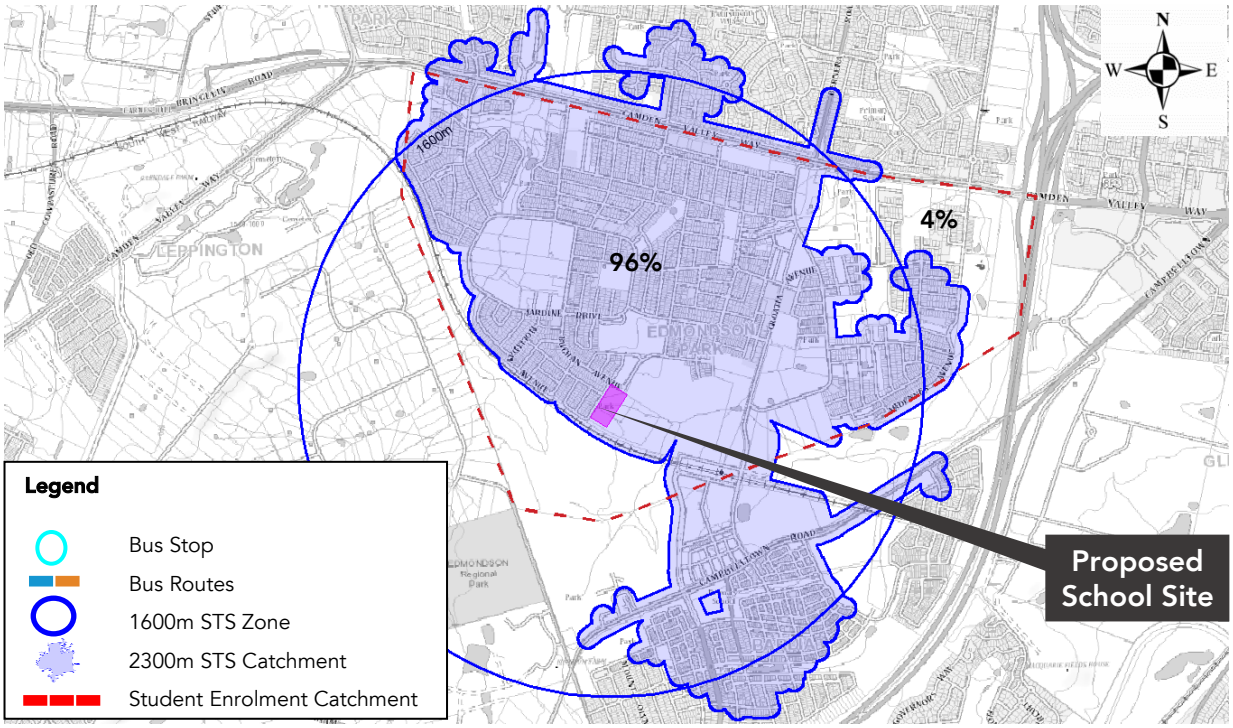

Figure 27 - SSTS Exclusion Zone

Figure 28 presents the SSTS zone and major barriers.

The area highlighted in orange in Figure 28 represents 17% of students who are more likely to be reliant on either public or private transport. This is because the areas lack proper connectivity across Bernara Road and Soldiers Parade on the east and Cabramatta Creek on the west are not ideal from a student safety perspective (refer to the pink line in Figure 28).

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

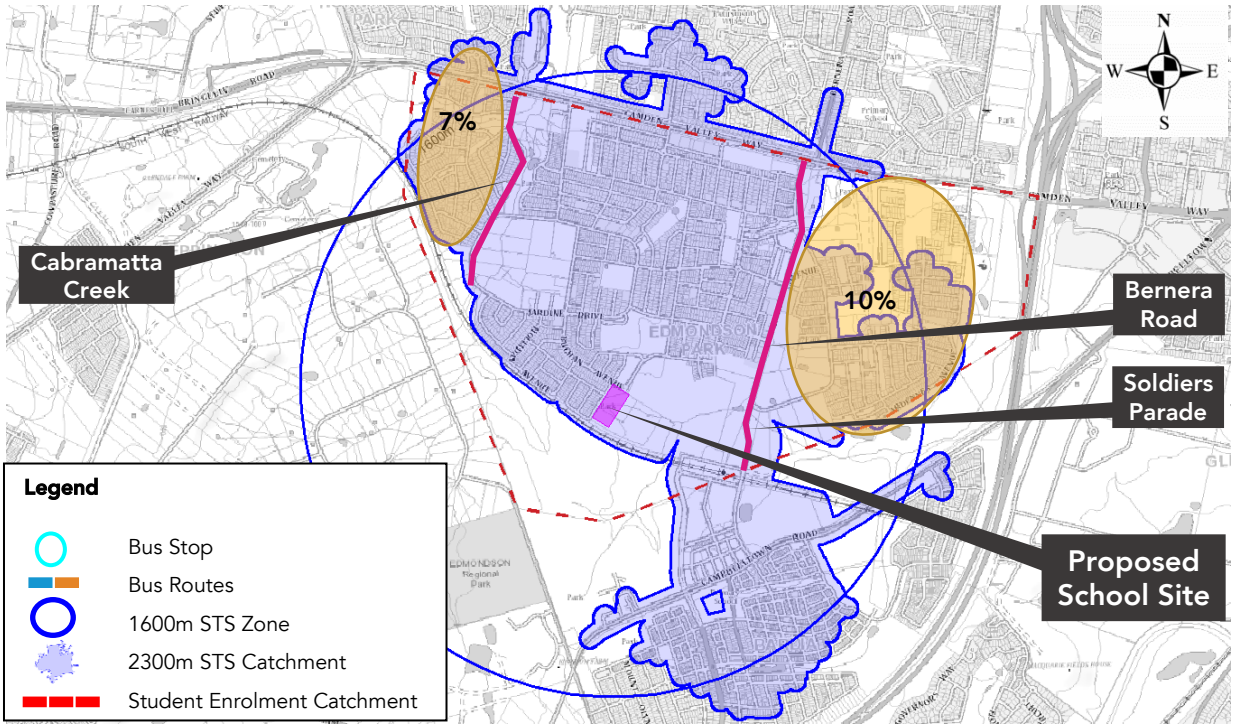

Figure 28 - SSTS Exclusion Zone and Barriers

4.3.2 Bus Network for Students

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.

Public transport services within the enrolment catchment are shown in Figure 29.

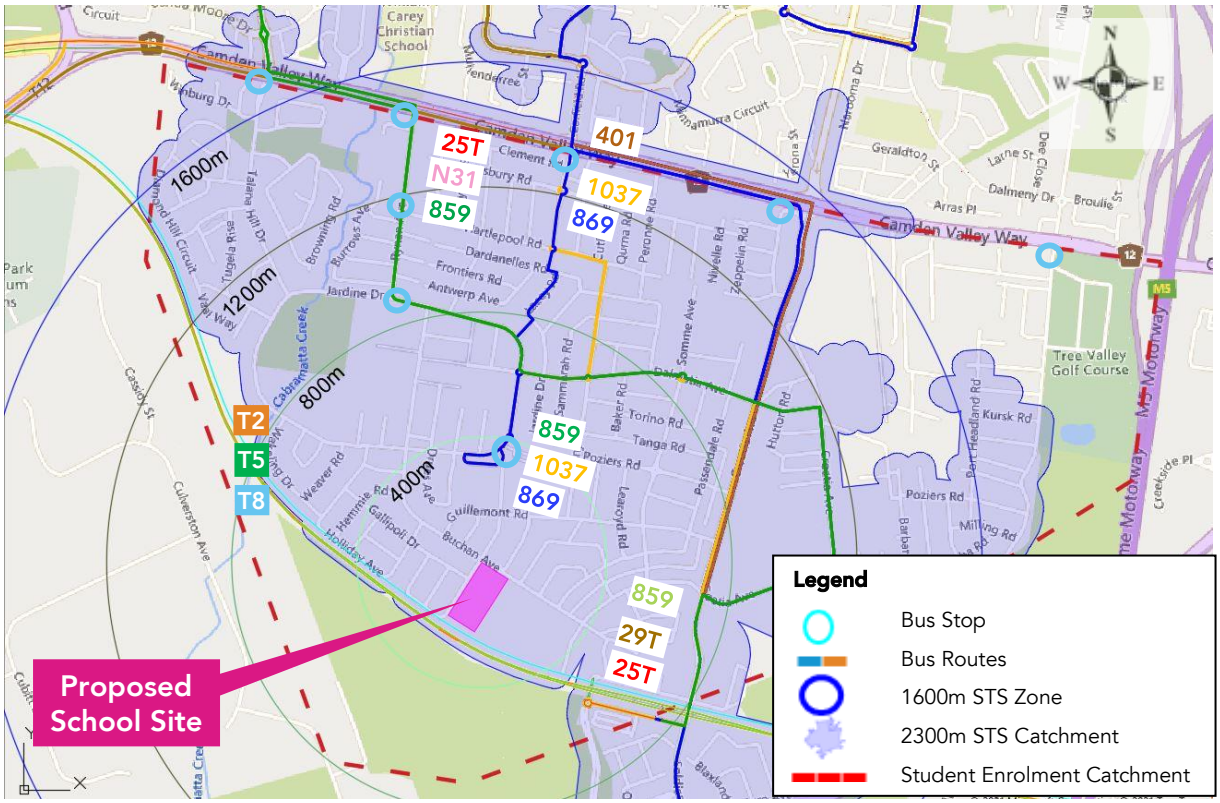

Figure 29 - Public Transport within Enrolment Catchment

It is noted that those areas needing public transport the most, as discussed in 4.3.1, are currently not serviced by any buses. It would therefore be required to change or provide additional services. Proposed and ideal changes are discussed below and shown in Figure 30.

Extend the current bus route from St. Francis Catholic School to continue on and pass the School. This is in accordance with the DCP.

However, the following needs to be considered:

- Buchan Avenue needs to be constructed prior to implementing the bus routes (which is planned to be completed by the end of August 2021).
- Either of the following needs to be provided in order to enable access to Soldiers Parade:
    - The green circled road segment in Figure 30, including signalised intersection treatment, or
    - The Buchan Avenue / Soldiers Parade intersection (circled in orange in Figure 30) needs to allow right turn movements.

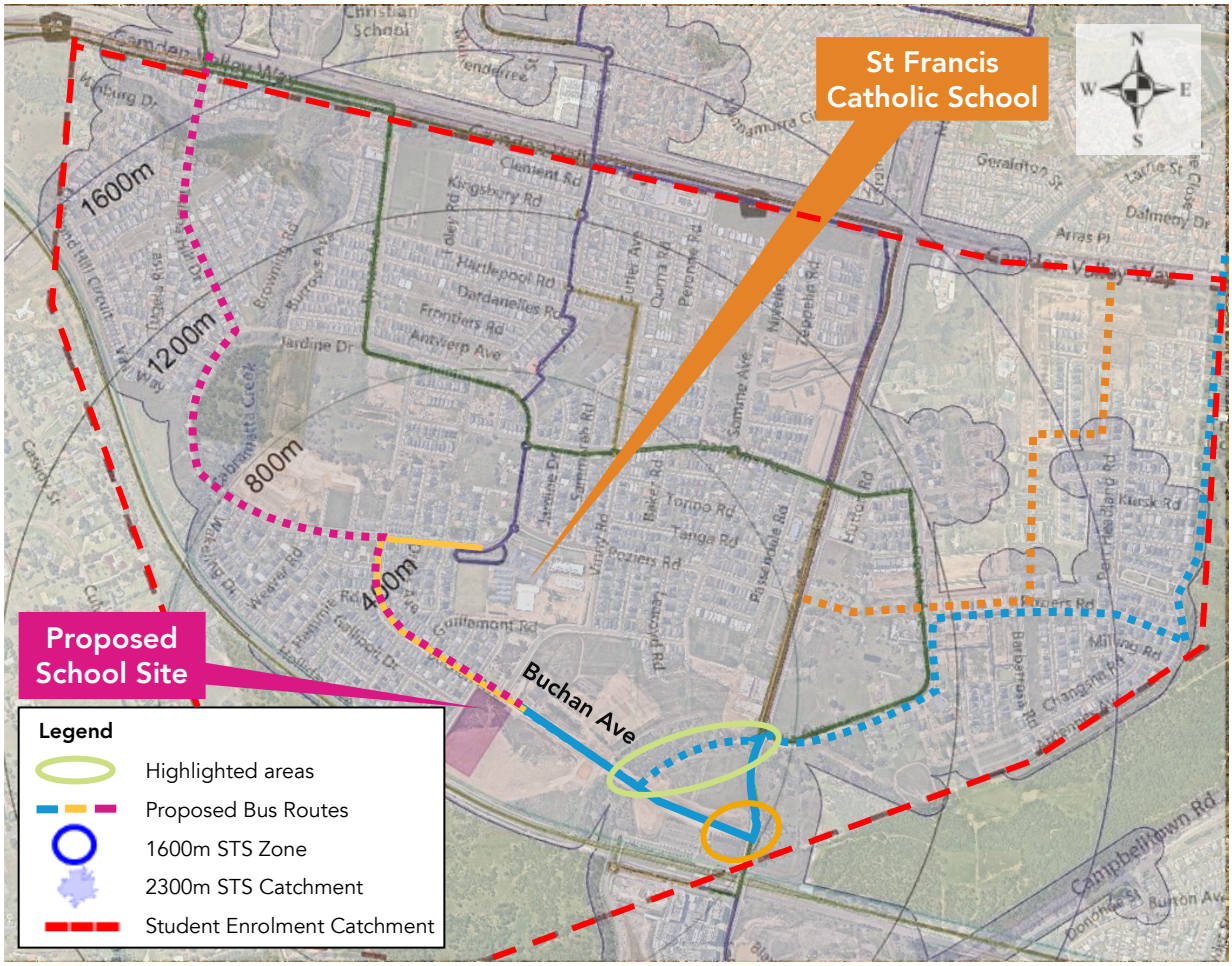

Figure 30 - Proposed bus routes

The blue route would service students living east of Soldiers Parade. It is noted that a route through this area was part of planning incorporated in the DCP. This route is important for the following reasons:

- Students living east of Bernera Road have limited pedestrian and cycling connectivity, hence they are reliant on either public or private transport. A bus route would provide an alternative transport mode to cars.
- The north-eastern area of the enrolment catchment lies outside of the SSTS exclusion zone, meaning that students would be eligible for a free bus pass. Therefore, it is more likely that public transport will be utilised.

The yellow route is a proposed extension of bus routes that currently stop at the St Francis Catholic School. This extension would provide bus connectivity for students living north of the school.

The pink dotted line shows a proposed bus route which would service students from the west of the enrolment catchment. Currently there is a gap in cycling connectivity towards the north-west of the enrolment catchment and the proposed bus route would provide and alternative transport option to driving.

4.3.3 Bus Stops at the School

Currently a bus stop is being constructed by Landcom on the southern side of Buchan Avenue (at the north-east edge of the School). This bus stop services students/parents/staff travelling from the east. Another bus stop needs to be provided on the northern side of Buchan Avenue (across the School) to service students/parents/staff travelling from the west. Different bus stop provision options are mentioned in the following sub sections.

4.3.3.1. Bus Stop Option 1 (Recommended)

As presented in Figure 31, bus stop option 1 can be located on the northern side of Buchan Avenue between Faulkner Way and Lacey Road.

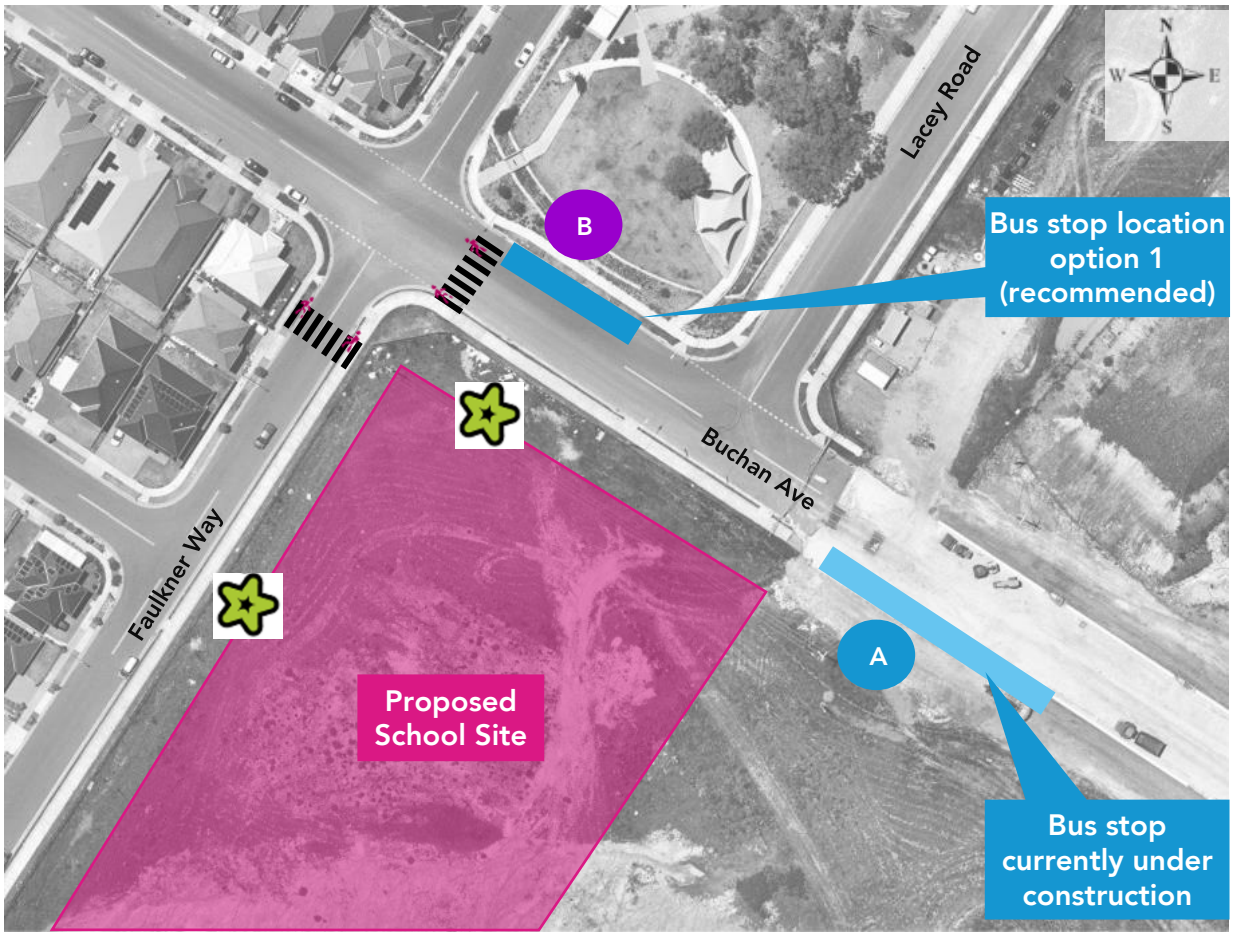

Figure 31 - Bus stop location Option 1 (Recommended)

Following considerations are made for the location of this bus stop:

- Only one bus can be accommodated at this location; however, this can be operationally managed through an appropriate timetable;
- This option prioritises public and school transport use by locating the bus bay as close to the main entry as possible;
- This location option removes the possibility for informal pick-up and drop-off across Buchan Avenue which reduces the possibility of conflict between vehicles and pedestrians and is therefore beneficial.

4.3.3.2. Bus Stop Option 2 and Pedestrian Connectivity Option 1

As presented in Figure 31, in this option the bus stop is located on the northern side of Buchan Avenue east of Lacey Road, and a zebra crossing is located on the eastern arm of Buchan Avenue / Lacey Road intersection.

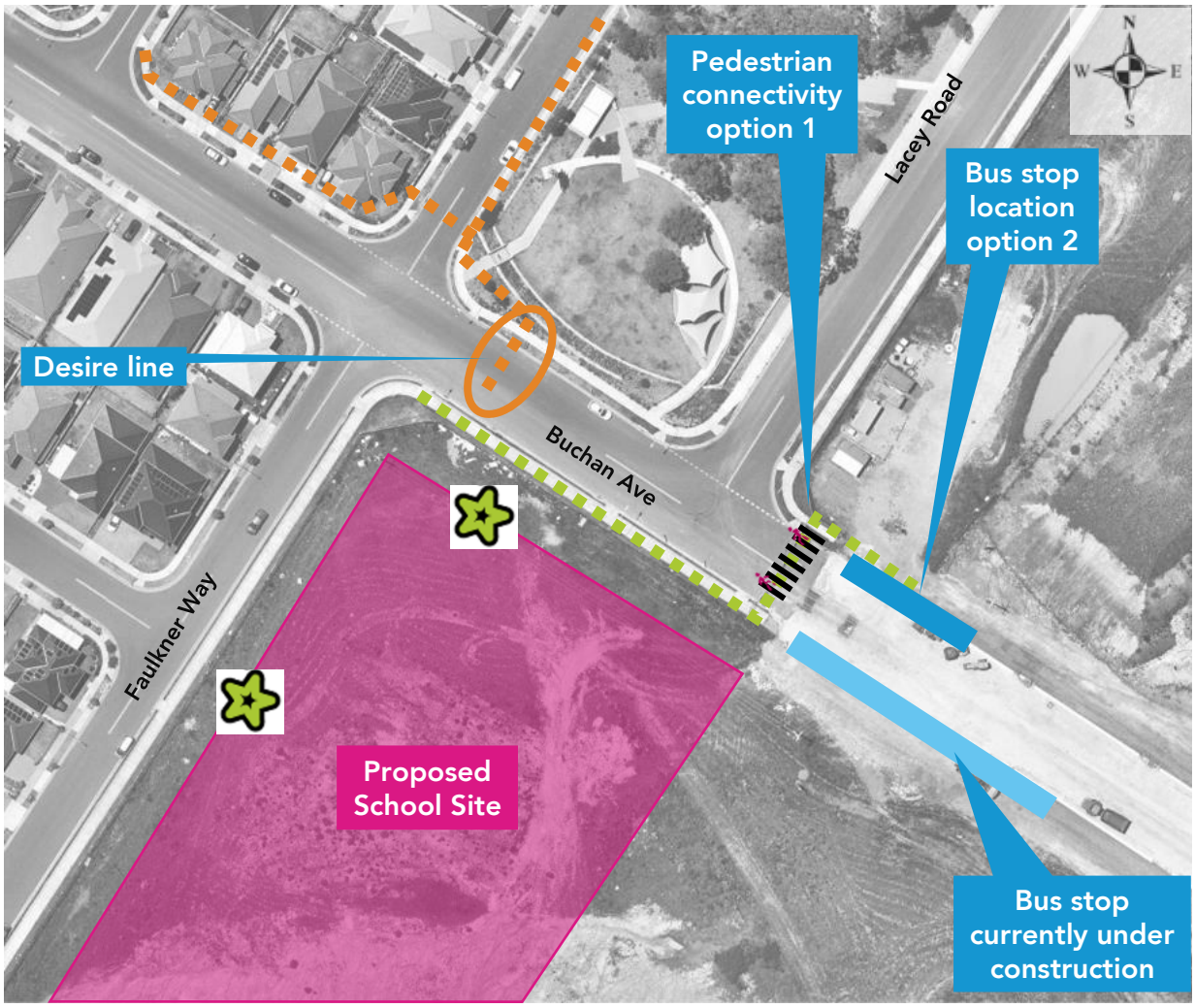

Figure 32 - Bus Stop Option 2 and Pedestrian Connectivity Option 1

Following considerations are made for the location of this bus stop and zebra crossing:

- This option allows separation of traffic, avoiding conflict between students pick-up and drop-off and the bus in between;
- This location creates an informal pick up area on the north side of Buchan Avenue between Faulkner Way and Lacey Road, and therefore, this may create potential conflict;
- The kerb allows for space for more than one bus, which would futureproof the design in the event a secondary school is constructed on the adjoining parcel;
- The zebra crossing does not align with the desire line for students coming from the north and north-west, hence making a pedestrian journey less attractive; and

- Unless the road section across the school entry has "No stopping" restrictions, parents are likely to undertake pick-up and drop-off at this location thus increasing activity and conflicts between vehicles and pedestrians. Even if these restrictions are imposed, policing on an ongoing basis would be required. Alternatively, a kerb build-out could be constructed to reduce the width of the road and therefore to remove a possible parking lane.

4.3.3.3. Bus Stop Option 2 and Pedestrian Connectivity Option 2

As presented in Figure 33, in this option the bus stop is located on the northern side of Buchan Avenue east of Lacey Road, with two zebra crossings. One of the zebra crossings is located on the northern arm of Buchan Avenue / Lacey Road intersection and the other on the eastern arm of Buchan Avenue / Faulkner Way.

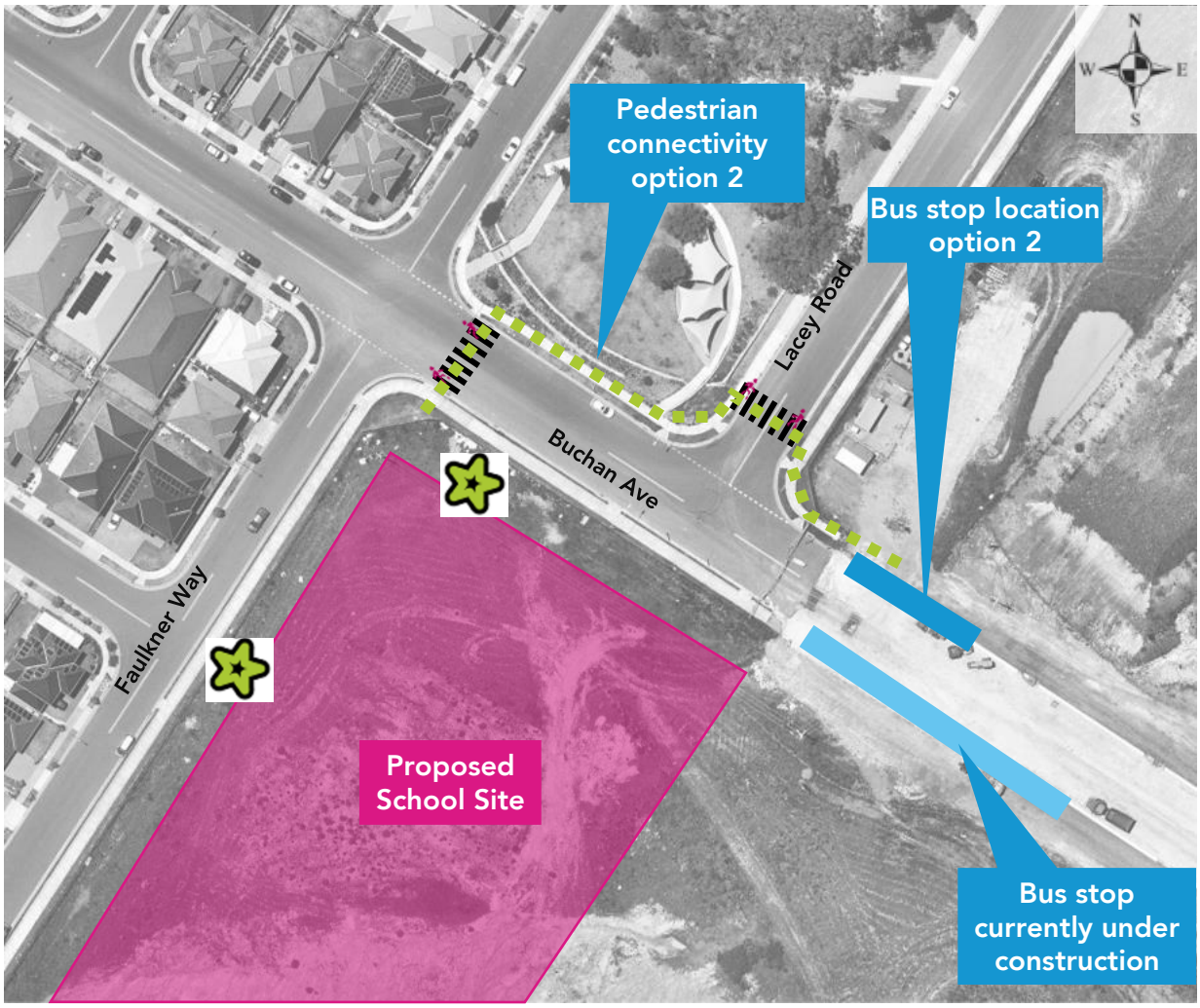

Figure 33 - Bus Stop Option 2 and Pedestrian Connectivity Option 2

The following considerations are made for the location of this bus stop and zebra crossing:

- Students will have to cross two streets while approaching and leaving the school;
- An additional crossing will be required;
- The kerb allows for space for more than one bus, which would futureproof the design in the event a secondary school is constructed on the adjoining parcel, and;

- Unless the curve across the school entry has "No stopping" restrictions parents are likely to undertake pick-up and drop-off at this location thus increasing activity and conflicts between vehicles and pedestrians. Even if these restrictions are imposed, policing on an ongoing basis would be required. Alternatively, a kerb build-out could be constructed to reduce the width of the road and therefore to remove a possible parking lane.

4.3.3.4. Conclusion

Option 1 described in Section 4.3.3.1 is recommended, as the location of the bus stop prioritises public transport use and provides the most direct access to the bus.

Bus arrival times will need to be scheduled such that only one bus services the bus stop at a time.

4.3.4 Connectivity to the Nearest Bus Stop and Train Station

As shown in Figure 34, the school will be located just 780m from the train station, making an onward journey for parents by train a viable option once Buchan Avenue is constructed. The nearest existing bus stop is located at St Francis Catholic College and is in 800 metres distance from the proposed school.

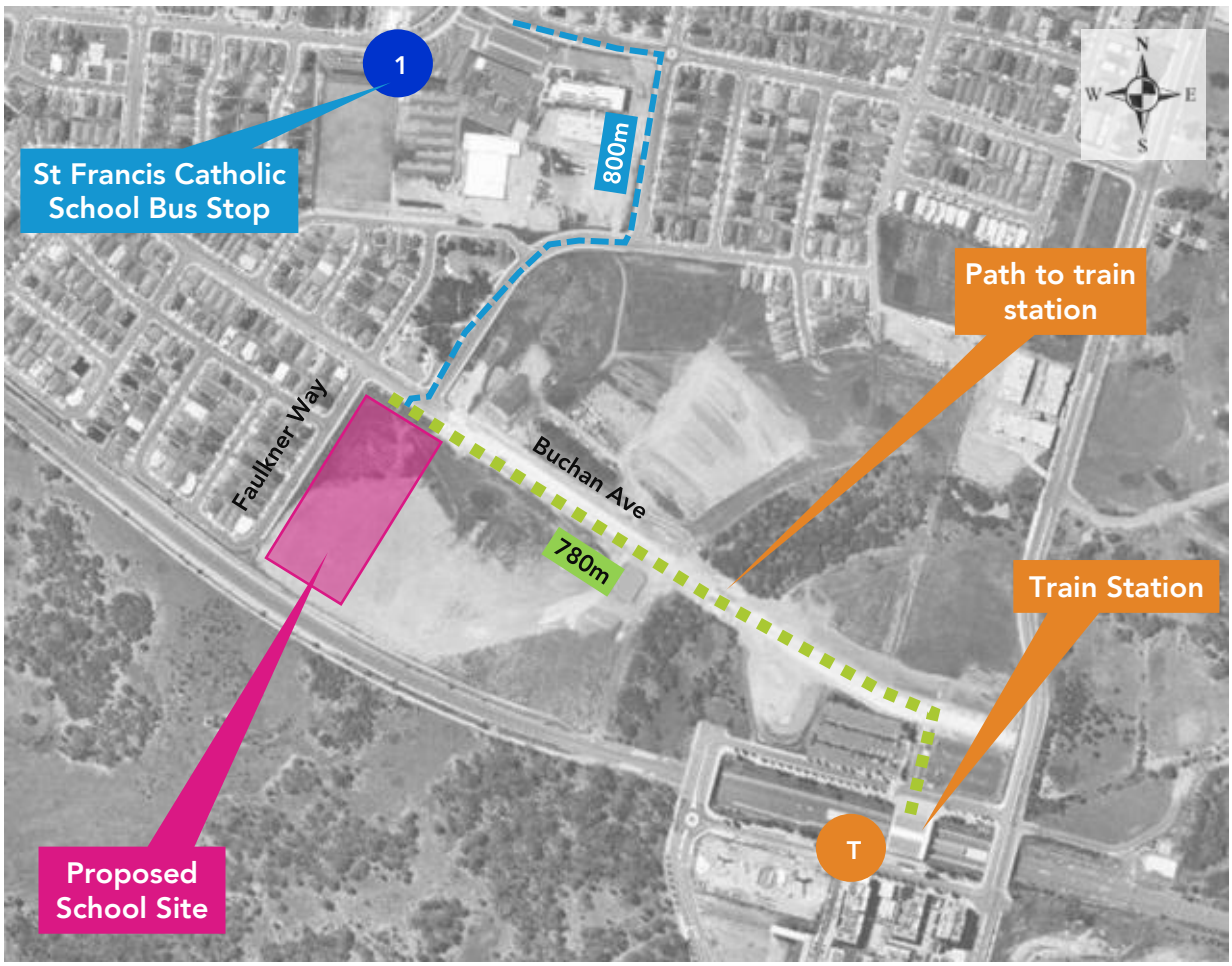

Figure 34 - Aerial View of the Subject Site (Source: Near Map)

4.3.5 Public Transport for Parents

Parent onward journey can be achieved if appropriate public transport infrastructure is provided in the vicinity of the school. Public transport services near the proposed School site including the railway and bus services are shown in Figure 35 and Figure 36.

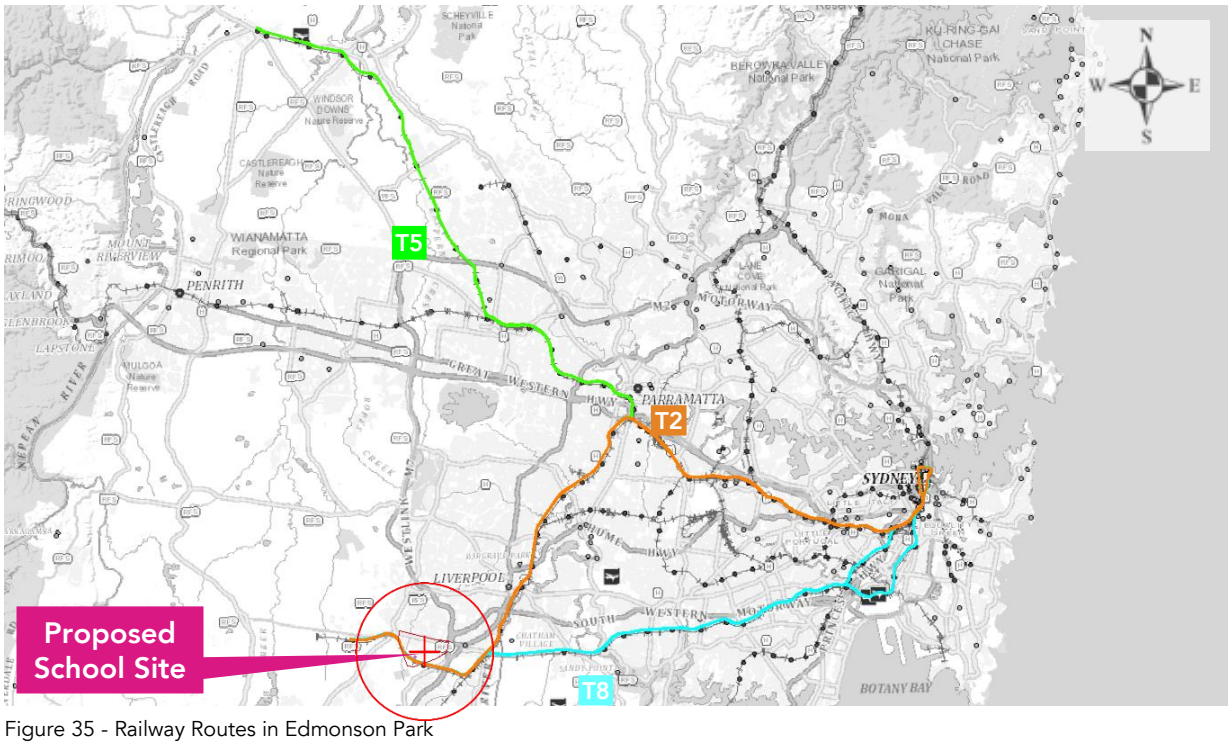

Figure 35 - Railway Routes in Edmonson Park

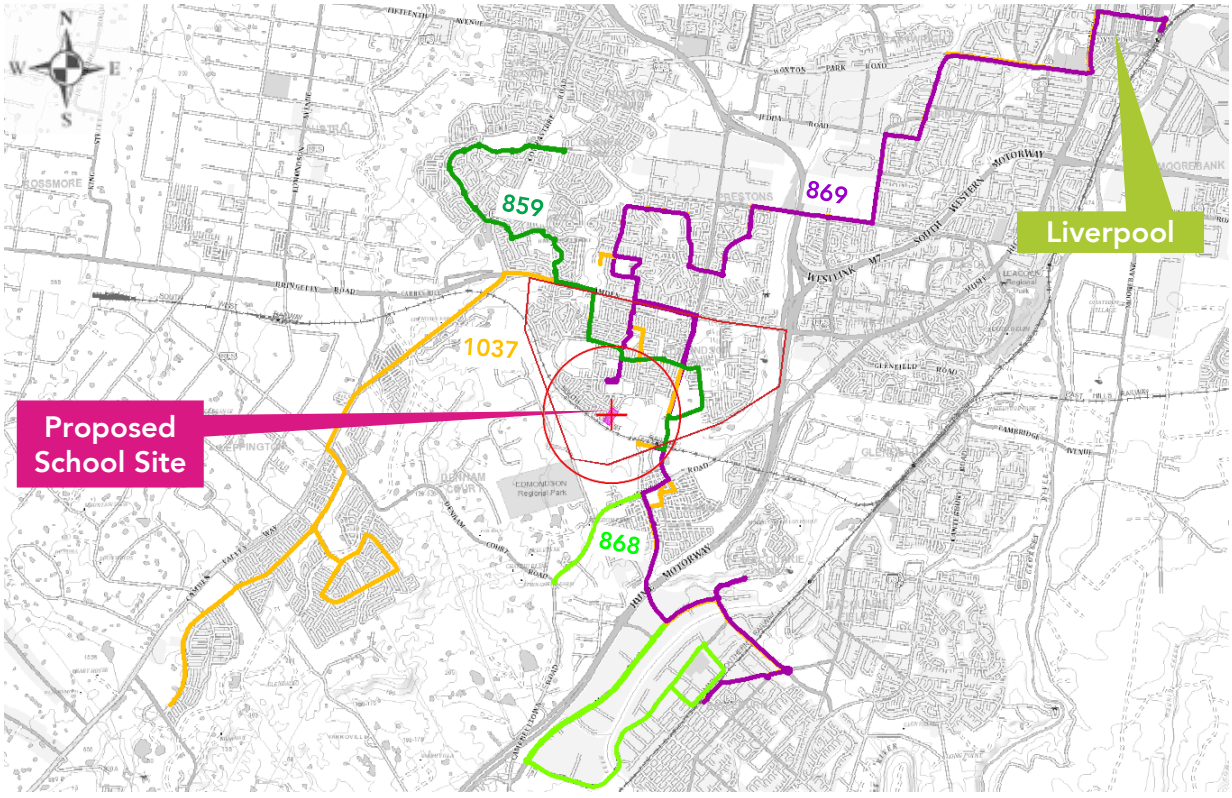

Figure 36 - Public Buses near the proximity of Proposed School Site

The services provided appear sufficient to attract parents to travel to work in any suburb along the railway lines and within the local area, which can be accessed by buses. Appropriate information should be provided to parents to raise the awareness of these transport options.

4.3.6 Bus and Railway Services

The nearest bus stop and railway services, including coverage, approximate operation times and frequency, are summarised in Table 1 and Table 2.

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

Bus Route	Coverage	Bus Stop	Morning Peak	Bus Stop	Afternoon Peak
1037	From: Emerald Hills, Willowdale, Edmondson Park	1	07:40	1	-
4036	To: Prestons, Edmondson Park, Willowdale, Emerald Hills	1	-	1	15:10
869	Liverpool to Ingleburn via Prestons & Edmondson Park	1	07:58	1	14:50
	Ingleburn to Liverpool via Edmondson Park & Prestons	1	08:06	1	14:58, 15:28
859	Edmondson Park Station to Carnes Hill	1	07:52	1	15:17
	Carnes Hill to Edmondson Park Station	1	07:57	1	14:57

Table 2 - Existing Train Services Summary (Source: Transport NSW)

Train	Coverage	Morning Peak	Afternoon Peak
T2	City to Edmondson Park - Merrylands to Edmondson Park	06:02 06:15 06:30 06:45 07:00 07:15 07:30 07:44 07:59 08:17 08:32 08:44 08:59 09:19 09:34 - 07:28 07:40 07:54 07:58 08:09 08:24 08:30 08:40 08:55 08:59 09:10 09:25 09:29	13:49 14:05 14:19 14:34 14:49 15:04 15:19 - 13:57 14:12 14:27 14:42 14:57 15:12
	Edmondson Park to City - Edmondson Park to Merrylands	07:29 07:37 07:46 07:59 08:14 08:29 08:44 08:59 - 07:42 08:08 08:38 09:08 09:38	14:29 14:44 14:59 15:14 15:27 15:44 15:59 16:14 16:29 - 14:38 15:08 15:38 16:08 16:38
T5	Schofields to Edmondson Park - Blacktown to Edmondson Park	08:24 08:54 09:22 09:52 - 07:31 08:07 08:34 09:04 09:32 10:02 10:31	13:51 14:29 14:58 - 14:01 14:43 15:13 15:43 16:13
	Edmondson Park to Blacktown - Edmondson Park to Schofields	08:08 08:38 09:08 09:38 10:08 10:38 - 07:12 07:42	15:08 15:38 16:08 16:38 - 14:08 14:38

A recommended bus timetable for a 8:40am / 9:00am and 2:40pm / 3:00pm bell times is illustrated in Table 3.

Based on the residential assumptions discussed in Section 3.4.2.1 and the infrastructure constraints, the proposed bus routes may require more than one bus to service the number of students. Taking into account the proposed staggered bell times, the proposed bus timetable is shown in Table 3.

It is noted that some roads are still under construction; the finalisation date of all roads and intersection treatments is unknown at the time of writing. Therefore, the below proposed timetable assumes an anti-clockwise route servicing only the northern side of Buchan Avenue. Which could be implemented straight away. Upon completion of all roads within the precinct, an optimised bus route network should be established utilising the bus stop on the southern side of Buchan as well.

Table 3 - Recommended Bus Services

Coverage	Bus Stop	Morning Peak	Bus Stop	Afternoon Peak
New Primary School in Edmondson Park to / from: East of Soldiers Parade, West of Cabramatta Creek	B	**OOSH Services** 6:50 6:55 7:50 7:55 **Bell Time 1 (8:40)** 8:21 8:23 8:25 **Bell Time 2 (9:00)** 8:41 8:43 8:45	B	**Bell Time 1 (2:40)** 2:50 2:52 2:54 **Bell Time 2 (3:00)** 3:10 3:12 3:14 **OOSH Services** 4:00 4:05 5:00 5:05 6:00 6:05
	A	Shall be utilised upon completion of road network.	A	Shall be utilised upon completion of road network.

4.4 Road Network

The subject site is located in the suburb of Edmondson Park and is primary serviced by local roads including Buchan Avenue to the North, Faulkner Way to the west and future extension of road to the south-east.

A summary of the State, Regional and Council managed local roads serving the site is presented in Figure 37 and the following tables.

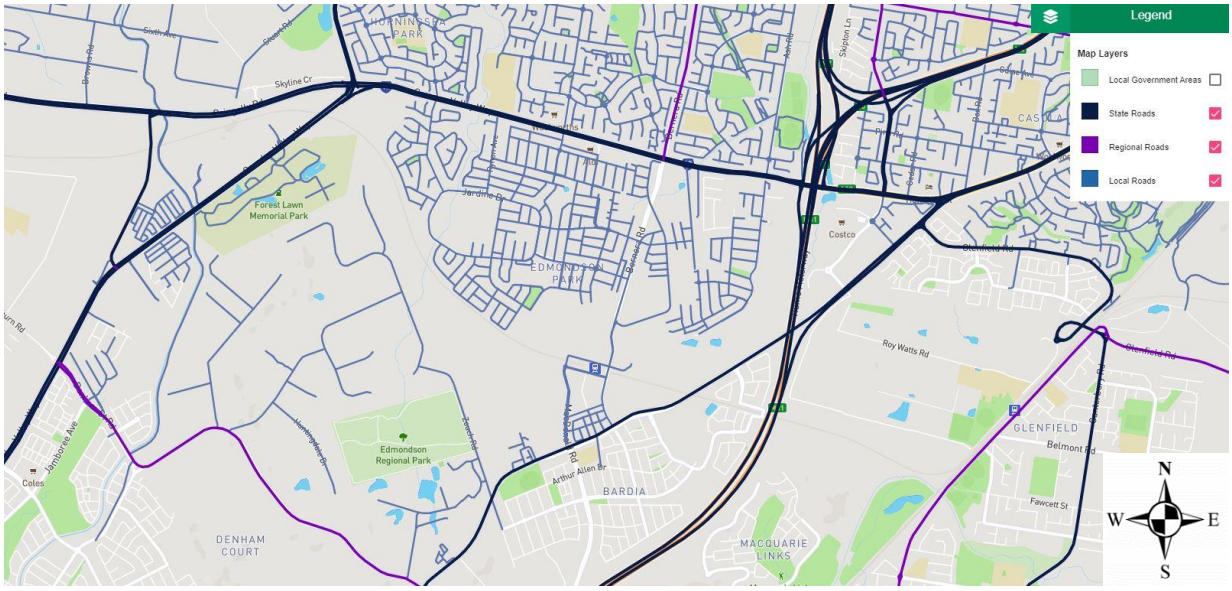

Figure 37 - Surrounding Road Network (Source: RMS Road Hierarchy)

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)

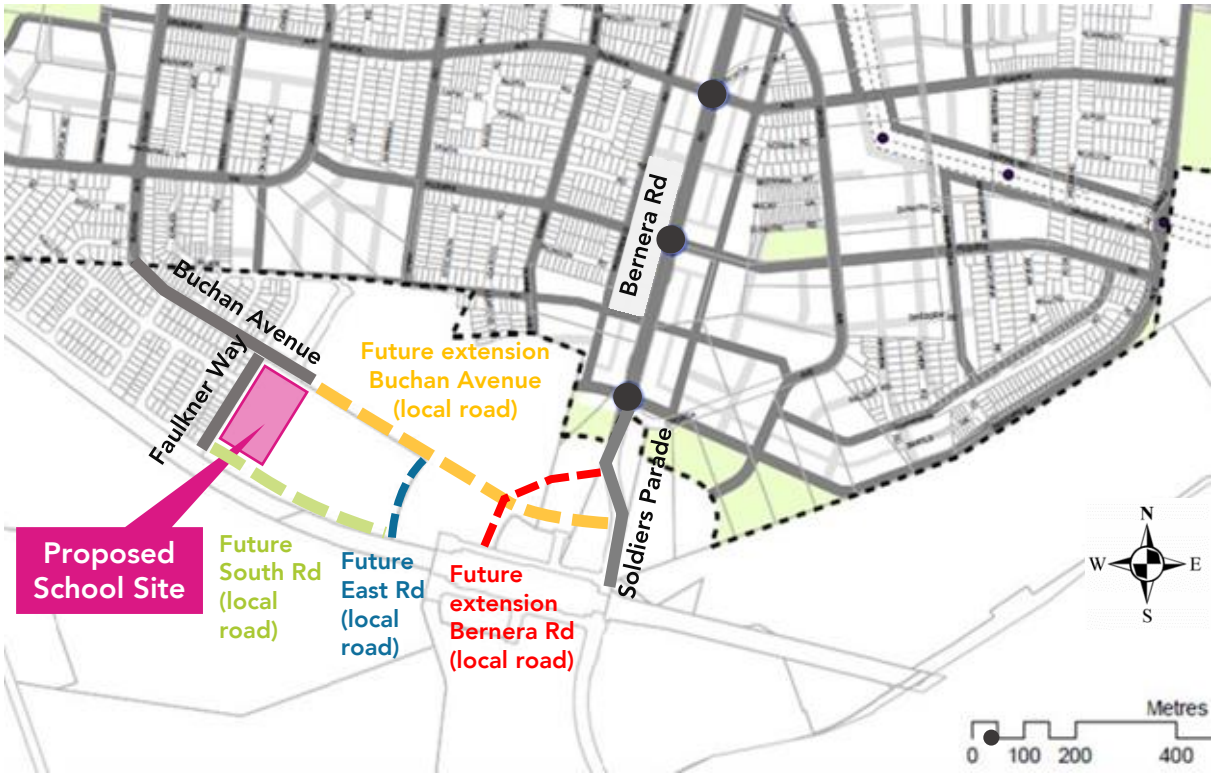

Figure 38 - Future Road Network surrounding the school

Table 4 - Buchan Avenue

Buchan Avenue	
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	15m in section with 1lane in each direction with on road bicycle way.
Speed Limit	50km/h
School Zone	No, but will be in future
Parking Controls	Unrestricted
Forms Site Frontage	Yes

Figure 39 - Buchan Avenue – Westbound towards Faulkner Way

Table 5 - Faulkner Way

Faulkner Way	
Road Classification	Local Road
Alignment	North - South in the vicinity of the site
Number of Lanes	1 lane in each direction
Carriageway Type	Undivided
Carriageway Width	9.6m
Speed Limit	50km/h
School Zone	No, but will be in future
Parking Controls	Unrestricted Parking
Forms Site Frontage	Yes

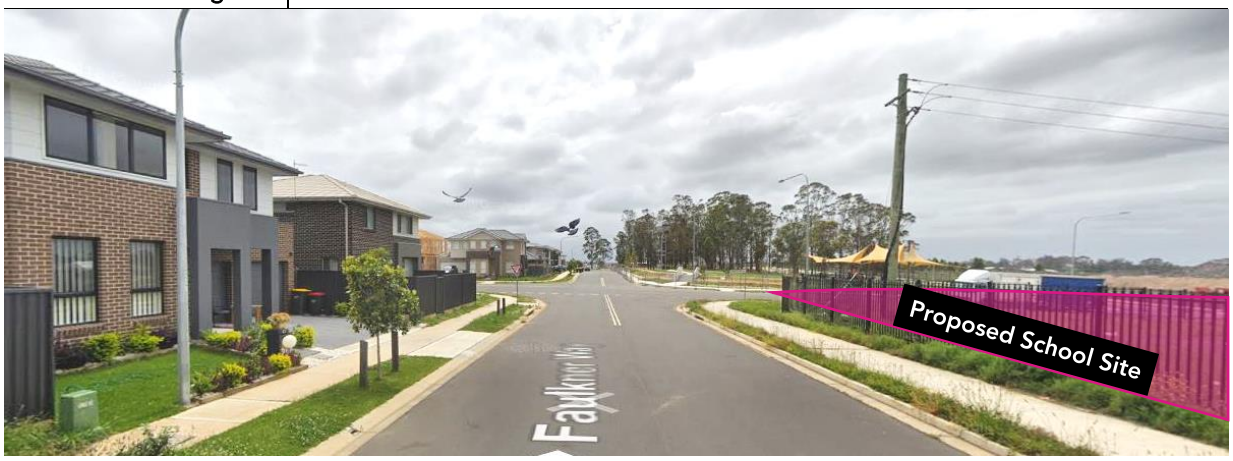

Figure 40 - Faulkner Way – Northbound towards Buchan Avenue

Table 6 - Bernera Rd

Bernera Rd	
Road Classification	Collector Road
Alignment	North - South
Number of Lanes	Varies from a dual carriage road to 1 lane in each direction
Carriageway Type	Divided
Carriageway Width	18.5m
Speed Limit	60km/h
School Zone	No
Parking Controls	Combination of "No stopping" and "Bus zone"
Forms Site Frontage	No

Figure 41 - Bernard Road – Northbound towards Poziers Rd

Table 7 - Soldiers Parade

Soldiers Parade	
Road Classification	Collector Road
Alignment	North - South
Number of Lanes	Varies from a dual carriage road to 1 lane in each direction
Carriageway Type	Divided within the vicinity of the site
Carriageway Width	16m – 21m
Speed Limit	60km/h
School Zone	No
Parking Controls	Restricted
Forms Site Frontage	No

Figure 42 - Soldiers Parade – Southbound towards Campbelltown Road

Table 8 - The South and East Road

The South-East Road	
Road Classification	Local Road
Alignment	East – West in the vicinity of the site & North – South when extending to further east
Number of Lanes	1 lane in each direction
Carriageway Type	Undivided
Carriageway Width	9.6m
Speed Limit	50km/h
School Zone	No, but will be in future
Parking Controls	Unrestricted
Forms Site Frontage	Yes

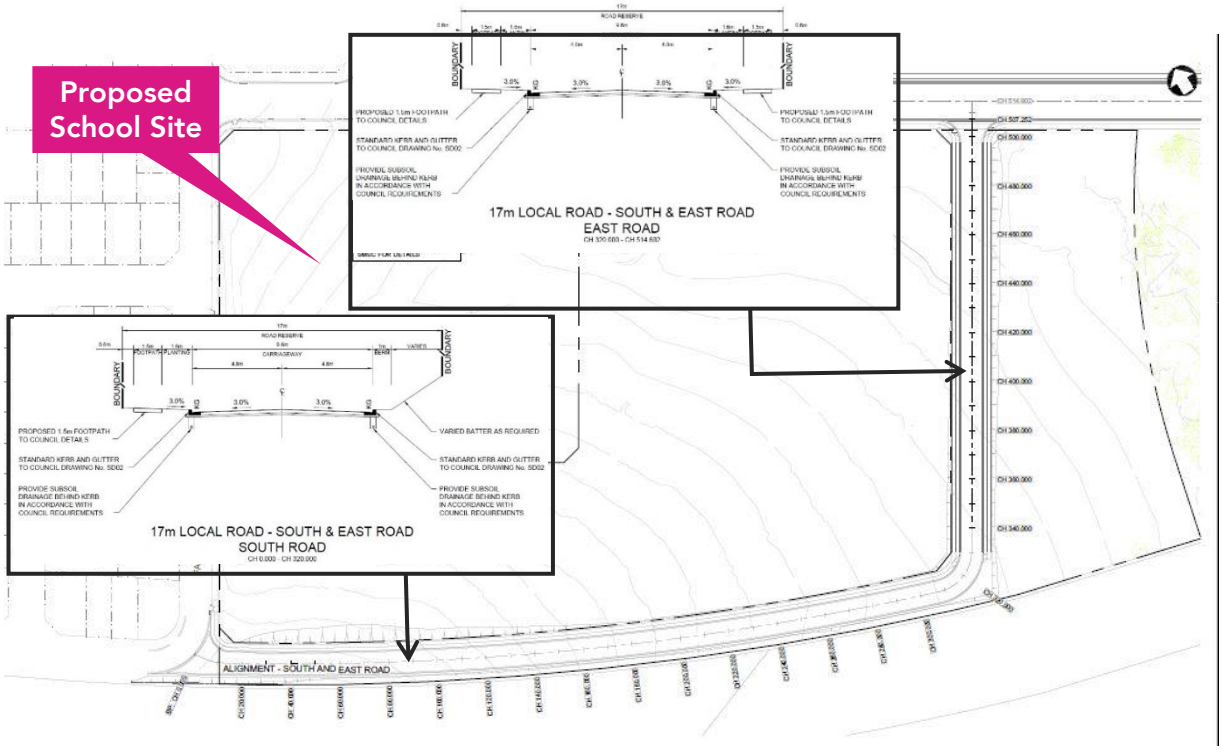

Figure 43 - The South-East Road – Faulkner Way towards Parkway Avenue

5. Travel Patterns and Travel Demand

5.1 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, 76.5% of people residing in Edmondson Park area drive to work, 14.4% travel on public transport and 1% use active transport. It is noted that this data is based on 2016 census, at which time much of the infrastructure was not provided. It is likely that with a connectivity to the train station, the mode share by public transport is likely to have increased.

Out of all residents travelling from the Edmondson Park area to work by car, 10% travel within Edmondson Park, 7.9% to Liverpool, 4% work at no fixed address, 3% to Chipping Norton and 2.7% to Casula, as visualised in Figure 44.

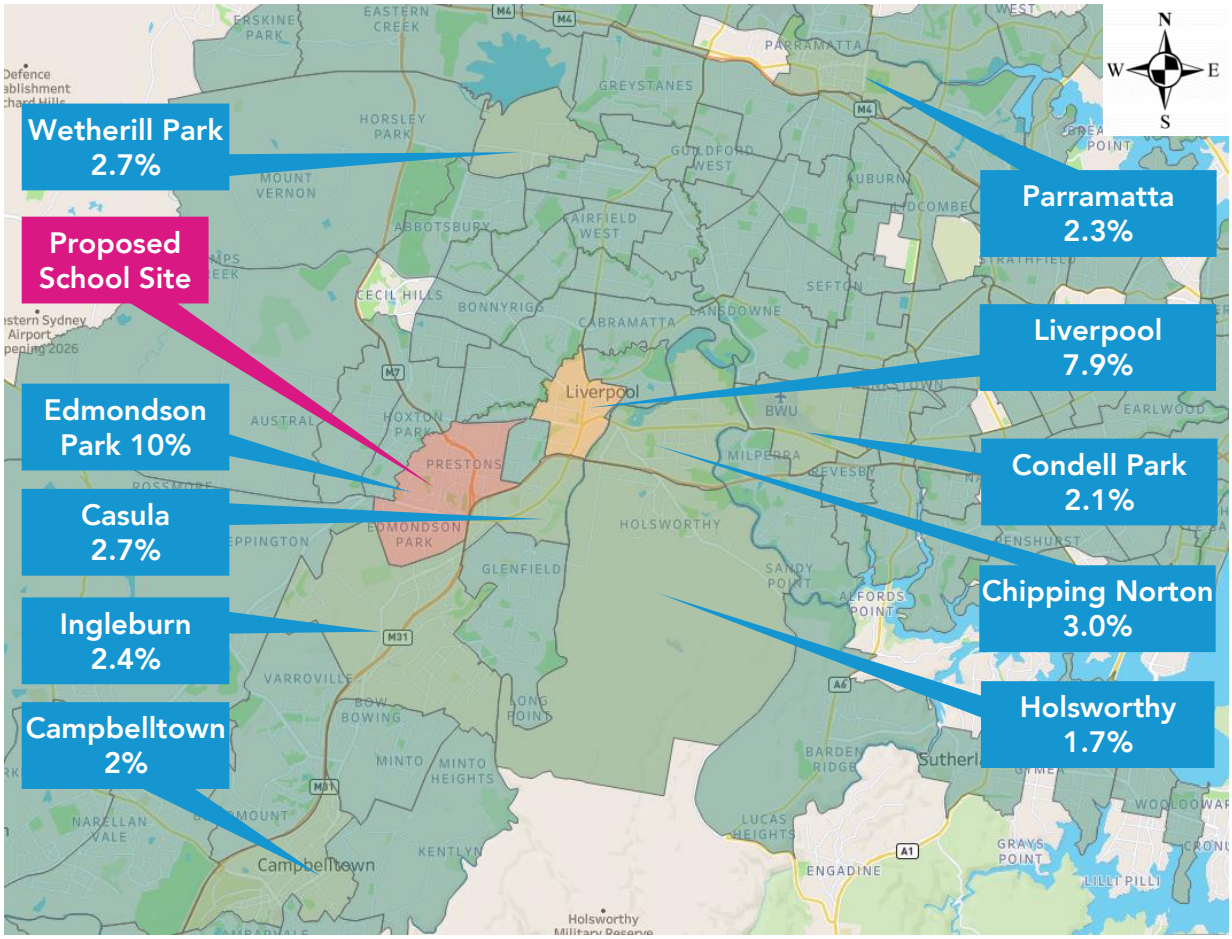

Figure 44 - Journey to Work from Edmondson Park Area

5.2 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.

5.2.1 Walking

"As crow flies" and actual 400 / 800 / 1200m walking catchments are presented in Figure 45.

Within the enrolment catchment, 8% of students reside within the 400m walking catchment, 18% within the 401m - 800m catchment and 16% within the 801m - 1200m catchment.

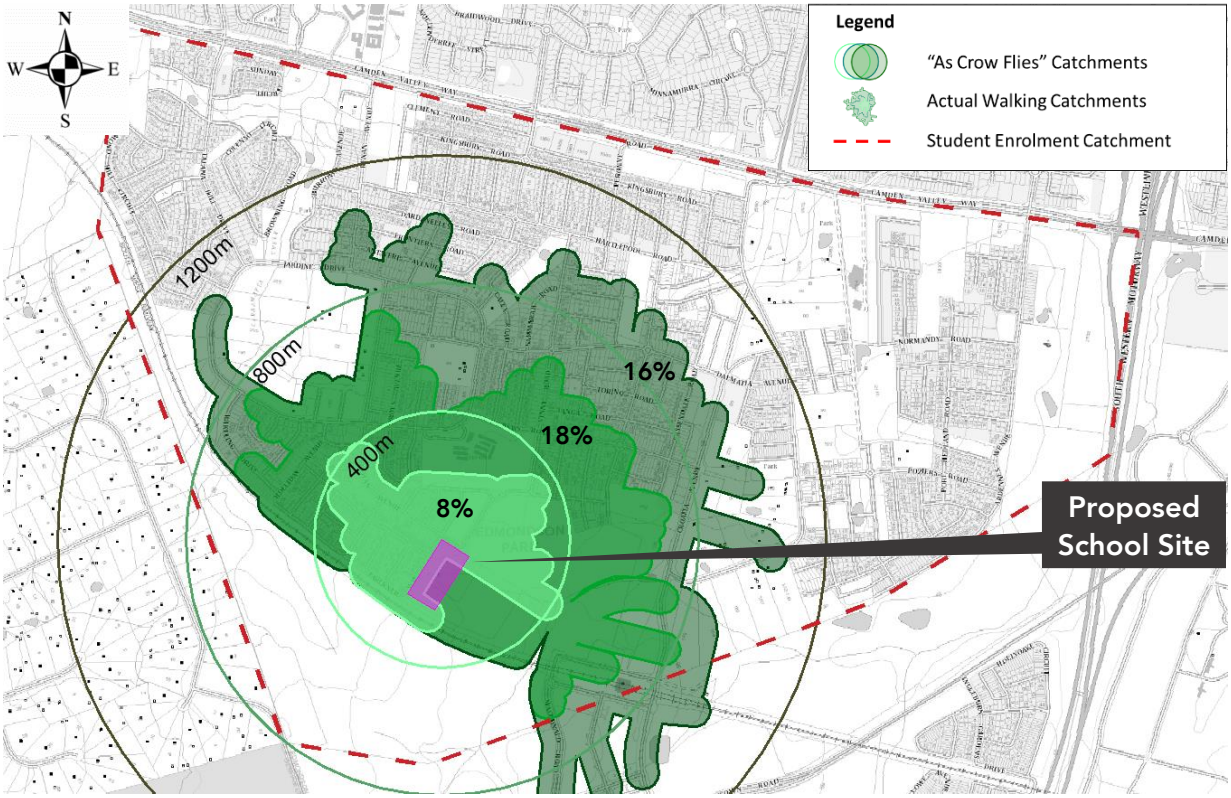

Figure 45 - Walking Catchment and Student Population

5.2.2 Cycling

"As crow flies" and actual 1200m / 2400 cycling catchments are presented in Figure 46.

Within the enrolment catchment, 42% students reside within the 1200m walking / cycling catchment and 52% students reside within the 1201m - 2400m cycling catchment. 6% of student are located outside the cycling catchment.

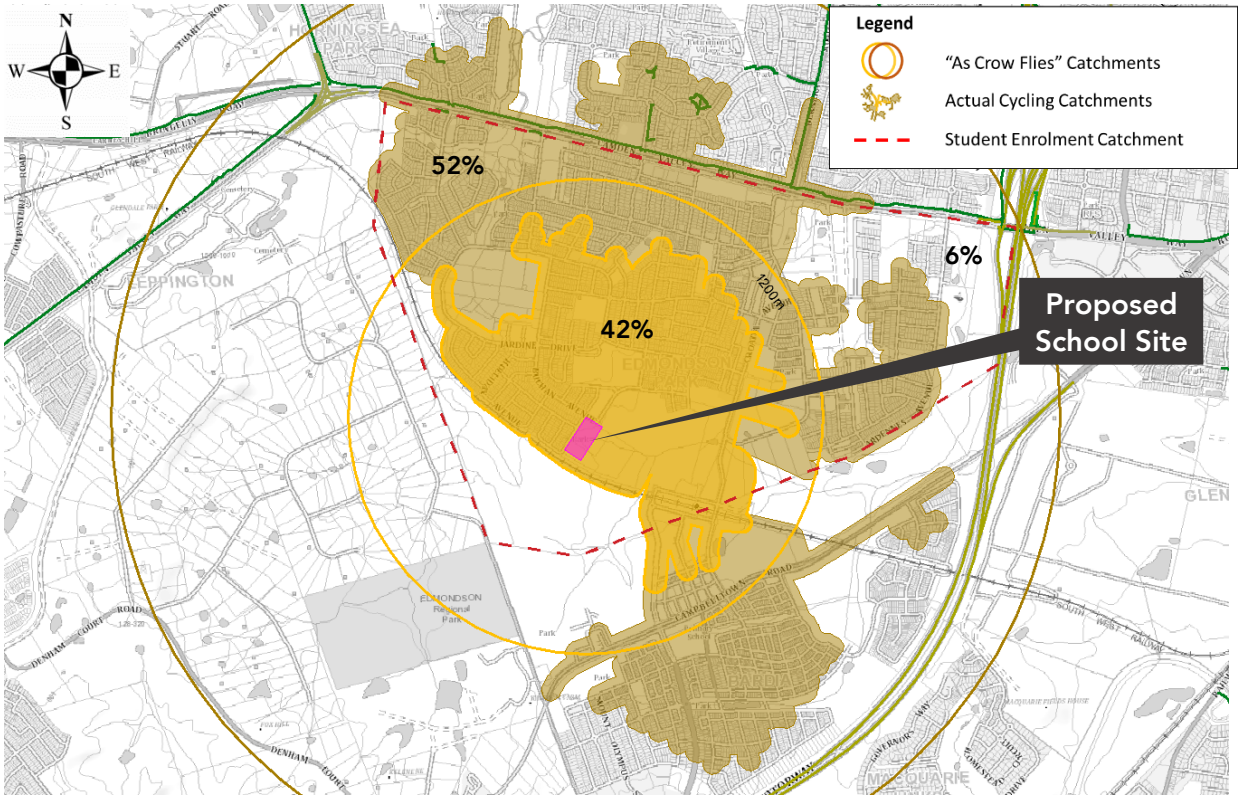

Figure 46 - Cycling Catchment and Student Population

5.2.3 Public Transport

"As crow flies" 1600m and actual 2300m SSTS exclusion zones are presented in Figure 47.

95% of students live within the SSTS exclusion zone and therefore, only 5% of students are eligible for a free or discounted bus pass. However, it is possible that some students may take the bus. Analysis of the depersonalised data shows that 52% of students reside within a 400m walk of an existing bus stop. The proposed bus routes will require the addition of some bus stop infrastructure. By using the indicative bus stops as shown in Figure 47, an additional 40% on the east and 8% on the west of the student enrolment catchment are within 400m from a bus stops.

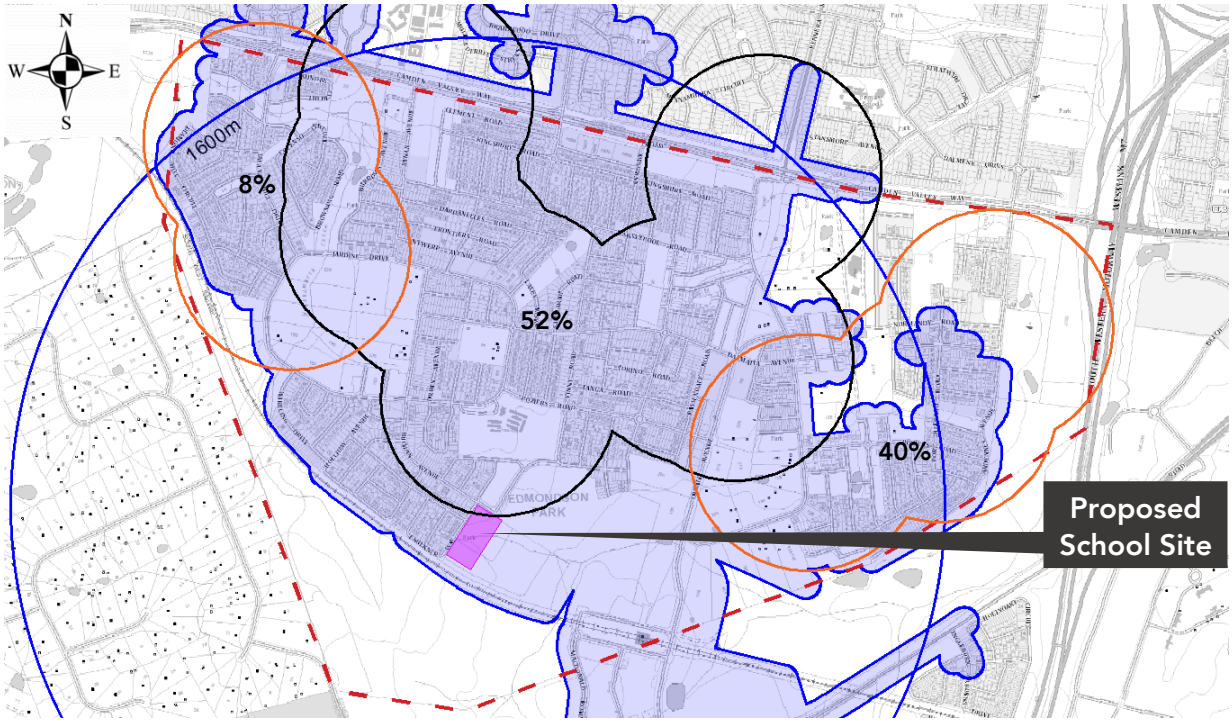

Figure 47 - Public Transport Catchment and Student Population

5.2.4 Summary

A summary of the potential mode share achievements for the primary school students are shown in Table 9. The 40 pre-school students are not part of this assessment, as the enrolment catchment does not overlap with the primary school's catchment. Further, the pre-school facility will be operated separately to the primary school.

Table 9 - Potential Transport Mode Share

Catchment Analysis	Actual (on path / using road network as a proxy)	
	#	%
1 - 400m (5-min walk)	80	8%
401 - 800m (10-min walk)	180	18%
801 - 1200m (15-min walk)	160	16%
1 - 1200m (Walking)	*420*	*42%*
1201 - 2400m (Cycling)	*520*	*52%*
1 - 1600m / 2300m (excl. from SSTS Primary)	950	95%
# inside SSTS zone, with PT option	480	48%
OOSH placements	Yet to be decided	
Total primary student enrolments	1,012	

6. 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.

6.1 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 Edmondson Park 76.5% 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 76.5% 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)
1,012	76.2%	771	1.2	643	>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

Using Poisson distribution, it was calculated that the number of spaces required to achieve a 95%ile queue of 0 vehicles, more than 50 spaces are required which equates to 300m. This is not achievable along the frontages of the site as shown in Figure 48.

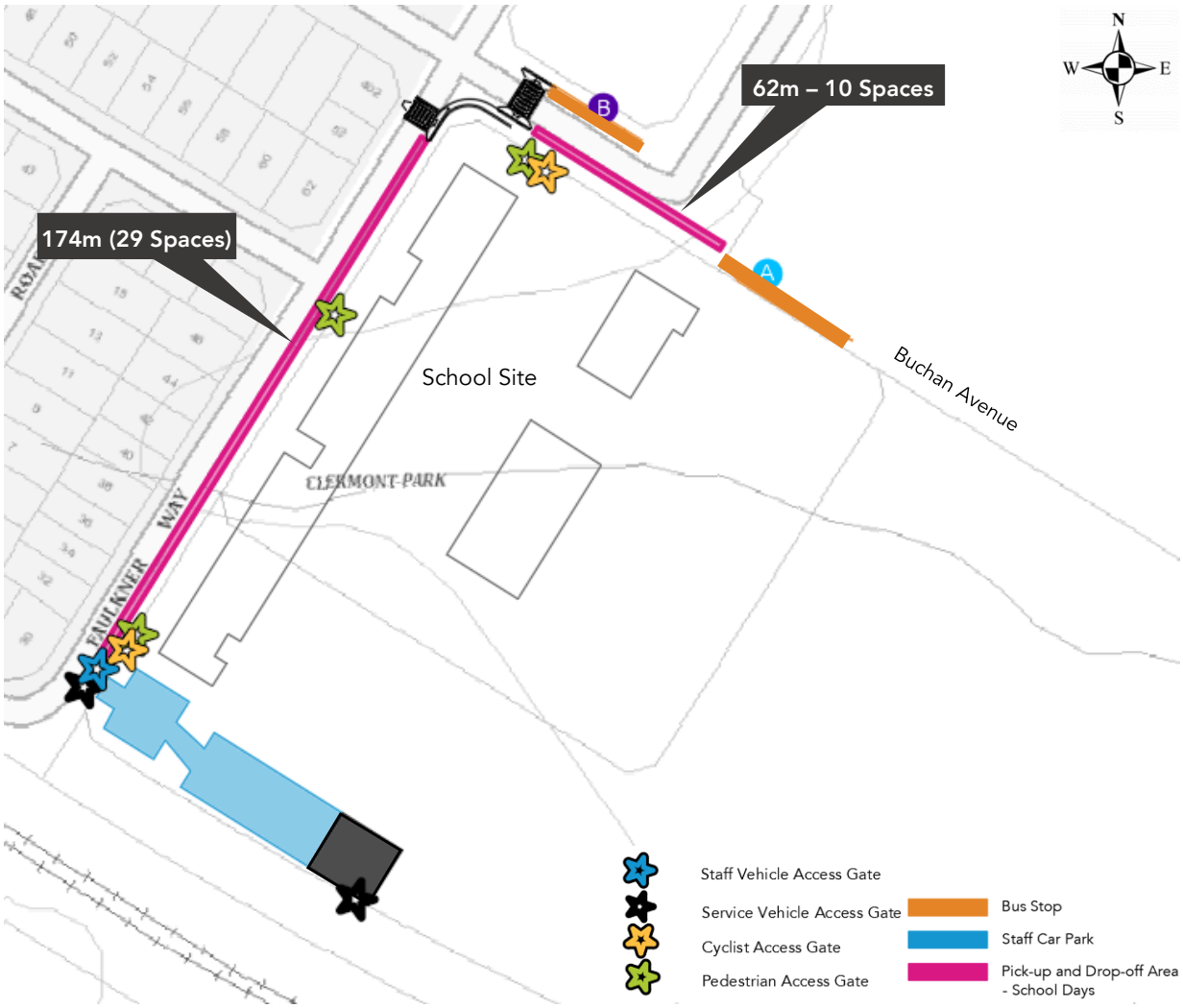

Figure 48 - Pick-up and Drop-off Requirement for Base Case Scenario

6.2 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 49.

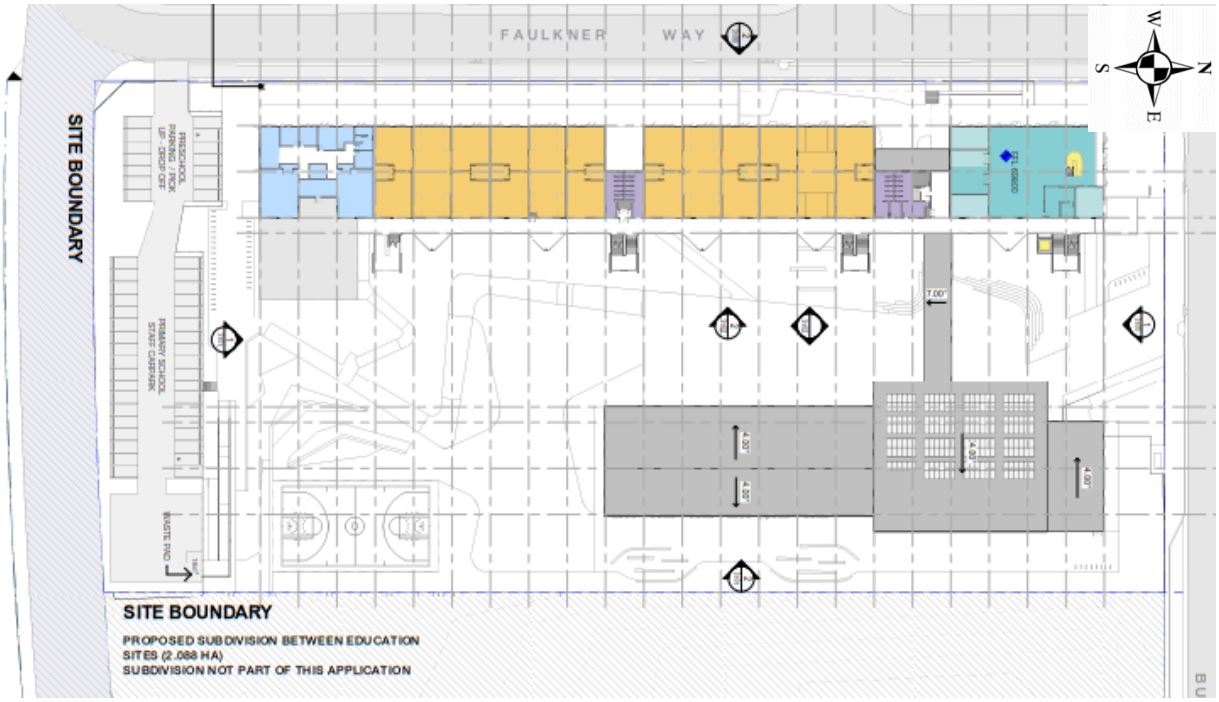

Figure 49 - Development Proposal Site Plan (Source: TKD Architects)

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

6.2.1 Bell Times

To meet the transport demand of students attending the school it is proposed to implement two bell times. By offsetting bell times by 20 minutes, less buses are required to collect students and the pick-up and drop-off facilities can be alleviated from large queues.

6.2.2 Pedestrian Infrastructure

The project is proposing to provide raised zebra crossings on two frontage roads of the school i.e., across Buchan Avenue and Faulkner Way. The following considerations have been made:

- All crossings will be raised and constructed with buildouts to prioritise students, reduce the number of lanes students need to cross and act as traffic calming devices.
- The northern crossing will provide access for students and parents walking and cycling to / from the northern residential developments and will also directly serve Bus Stop B (refer to Figure 50). In addition, the raised amenity will act as a traffic calming device, which is particularly beneficial before the pick-up and drop-off located on Buchan Avenue.
- The western crossing provides access for students and parents to / from the western side of Faulkner Way. In addition, the raised amenity will act as a traffic calming device, which is particularly beneficial

before the pick-up and drop-off located on Faulkner Way. The crossing is proposed to be located on the northern section of Faulkner Way as it will serve a desire line with greater pedestrian usage.

- The buildouts of the two pedestrian crossings will be connected along the south-eastern corner of Buchan Avenue and Faulkner Way to minimise the footprint of the intersection. This will serve as a traffic calming device and provide a larger pedestrian facility.
- Multiple pedestrian gates have been implemented to provide access for students arriving from all directions and at both pick-up and drop-off lanes.

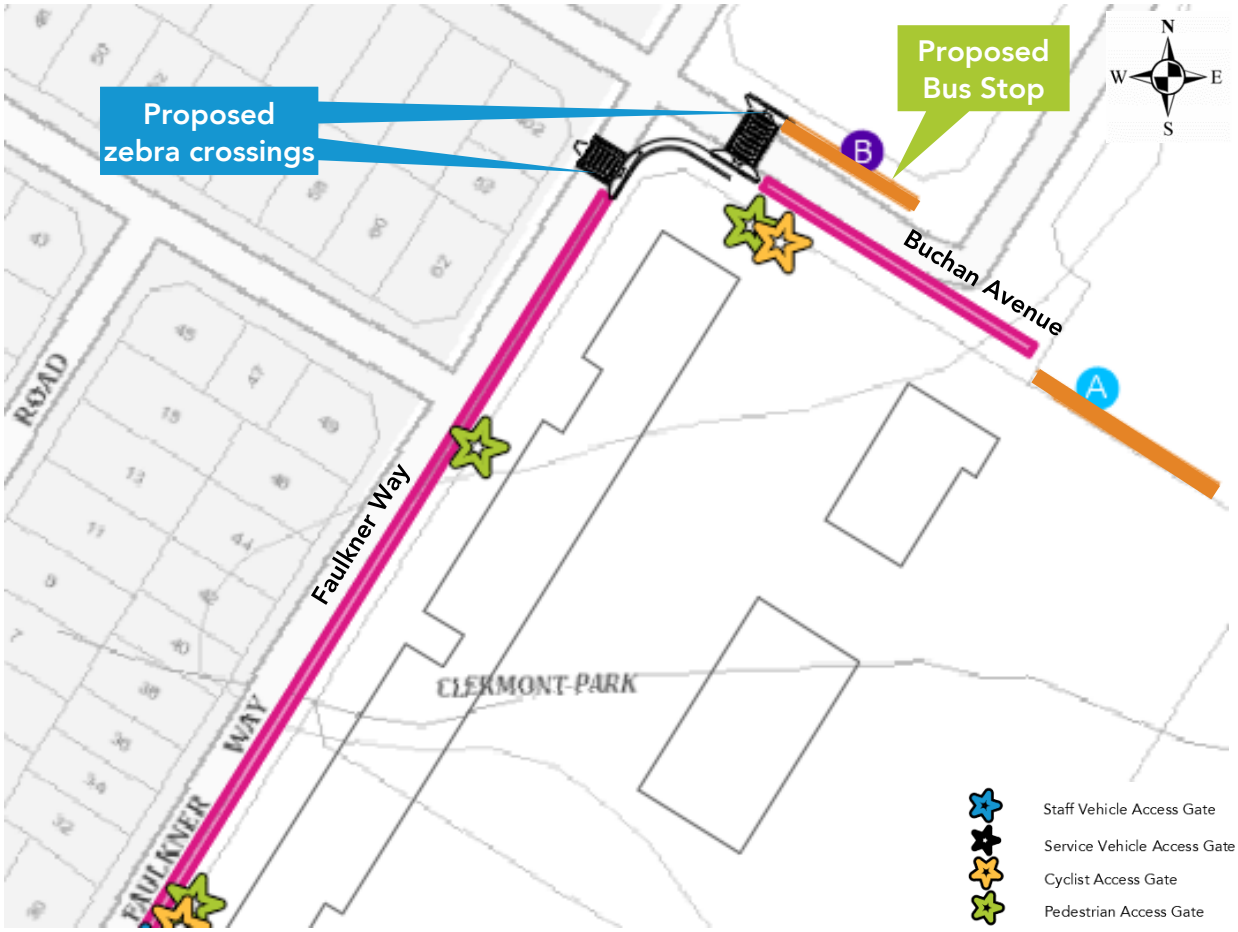

Figure 50 - Northern Crossing – Considerations

6.2.3 Bicycle and End of Trip Facilities

The development proposes to provide 158 bicycle and 24 scooter spaces for students, which accounts for 18% of students. The racks have been distributed between two access points: the southern entry off Faulkner Way and the main entry off Buchan Avenue, refer to Figure 51 for the location.

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.

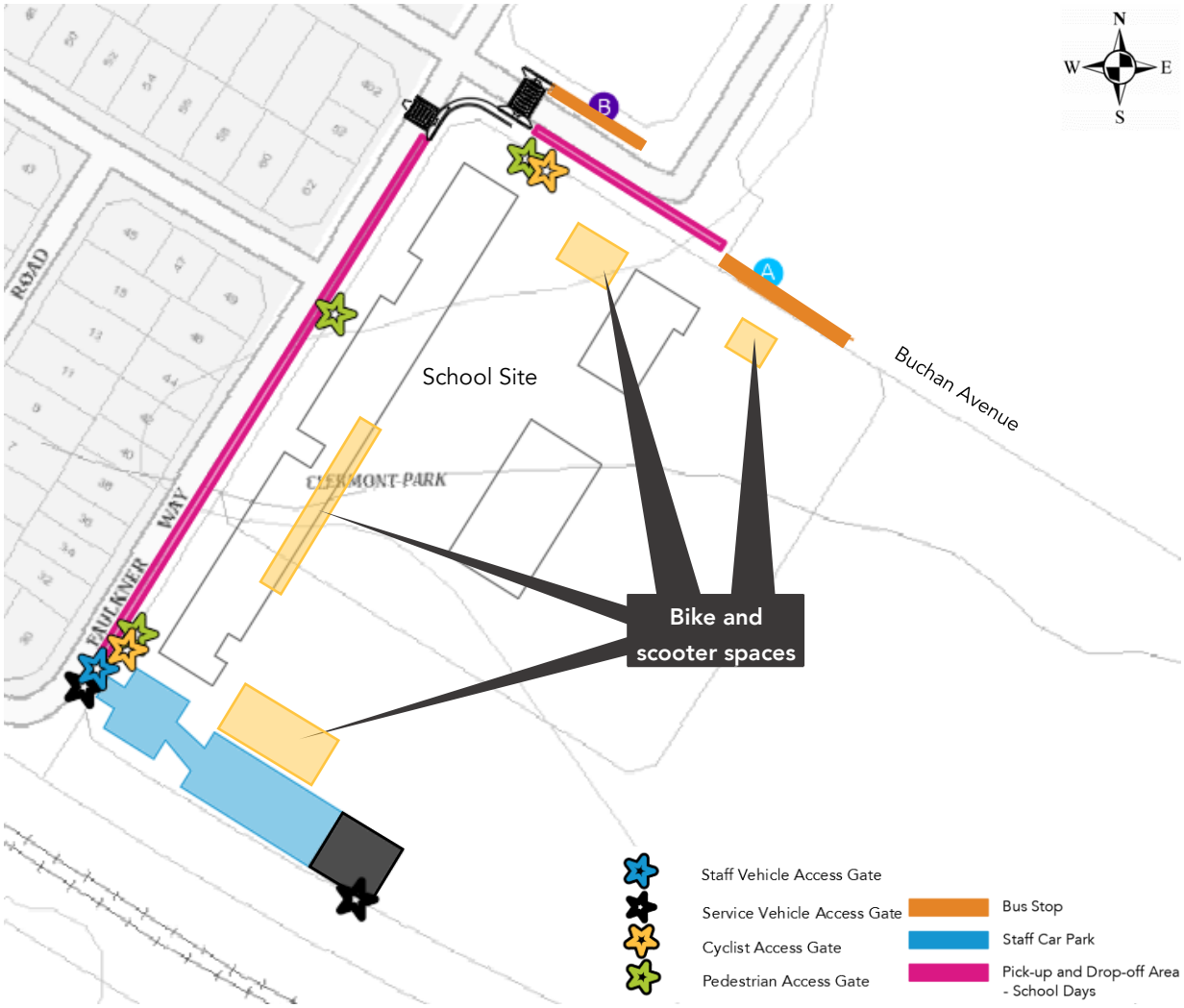

Figure 51 - Bicycle and Scooter Rack Distribution

6.2.4 Public Transport

As discussed in Section 4.3.6, the proposed School site only has 3 bus routes (103, 859, 869) which are within the 400m catchment. It is proposed that additional bus services are provided along the nearby bus stops (bus stop A and B as shown in Figure 50) along Buchan 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.

6.2.4.1. Facilities

There is one bus stop currently under construction on the southern side of Buchan Avenue. The project is proposing to provide an additional bus stop on the northern side of Buchan Avenue with a zebra crossing to enable safer access to bus stop B, as shown in Figure 52.

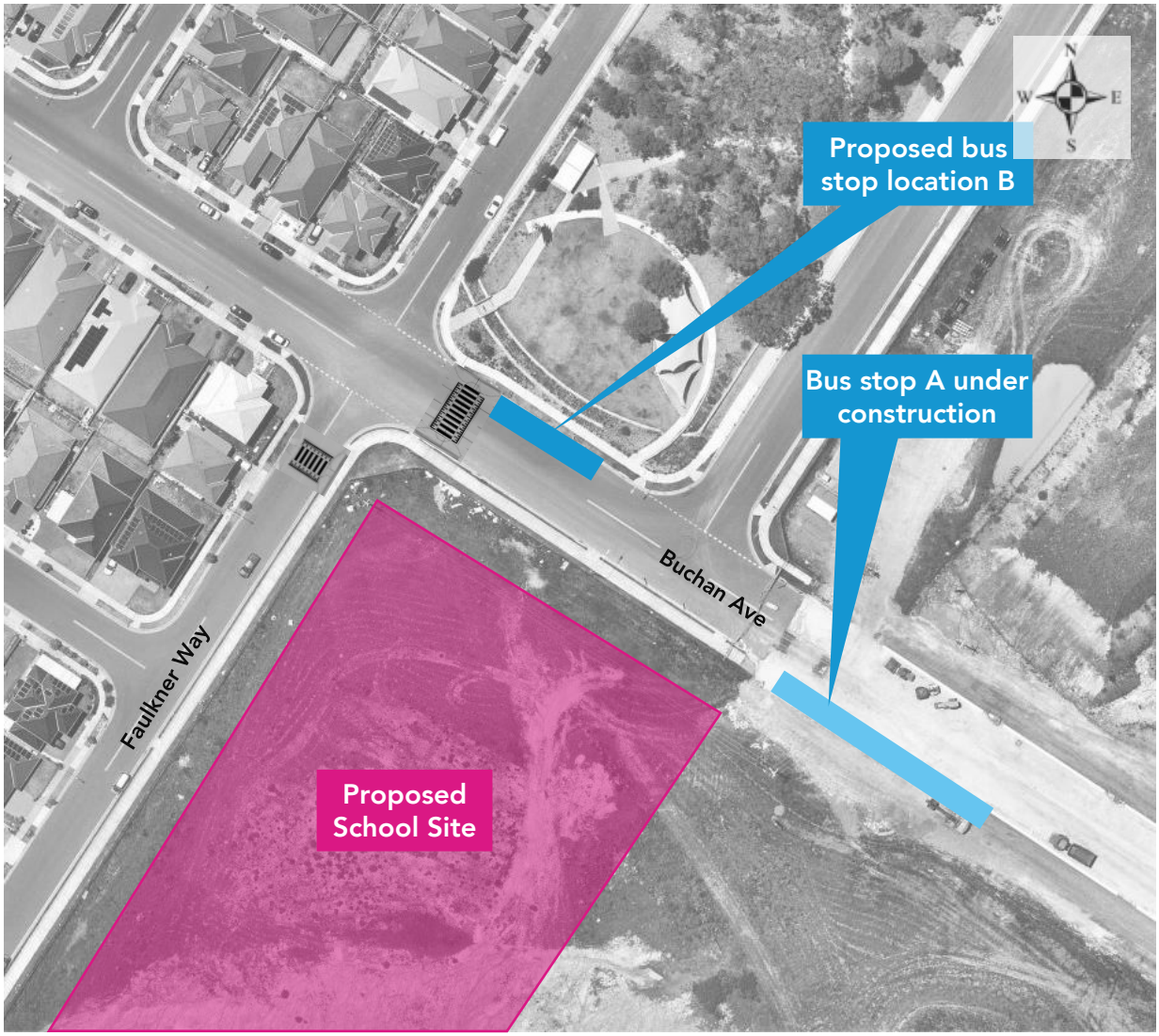

Figure 52 - Bus stop facilities

6.2.4.2. Bus Routes and Services

Upon discussion with the Service Planner from TfNSW, two of the proposed bus routes covering the eastern and western areas are to be considered for implementation with some minor amendments to suit the existing road and bus infrastructure. It is noted that the road infrastructure in Edmondson Park has not been fully constructed yet. Adjustments to the bus routes will be required upon completion of road and intersection work. The following is a potential option for the bus routes.

Both bus routes and shown in Figure 53 will drop children off and can also be used by parents to access Edmondson Park Station where they can use the existing train services to reach Liverpool or the City using the T2 and T8 train lines as discussed in Section 4.3.

It is proposed to provide a regular bus route that will coincide with the staggered bell times.

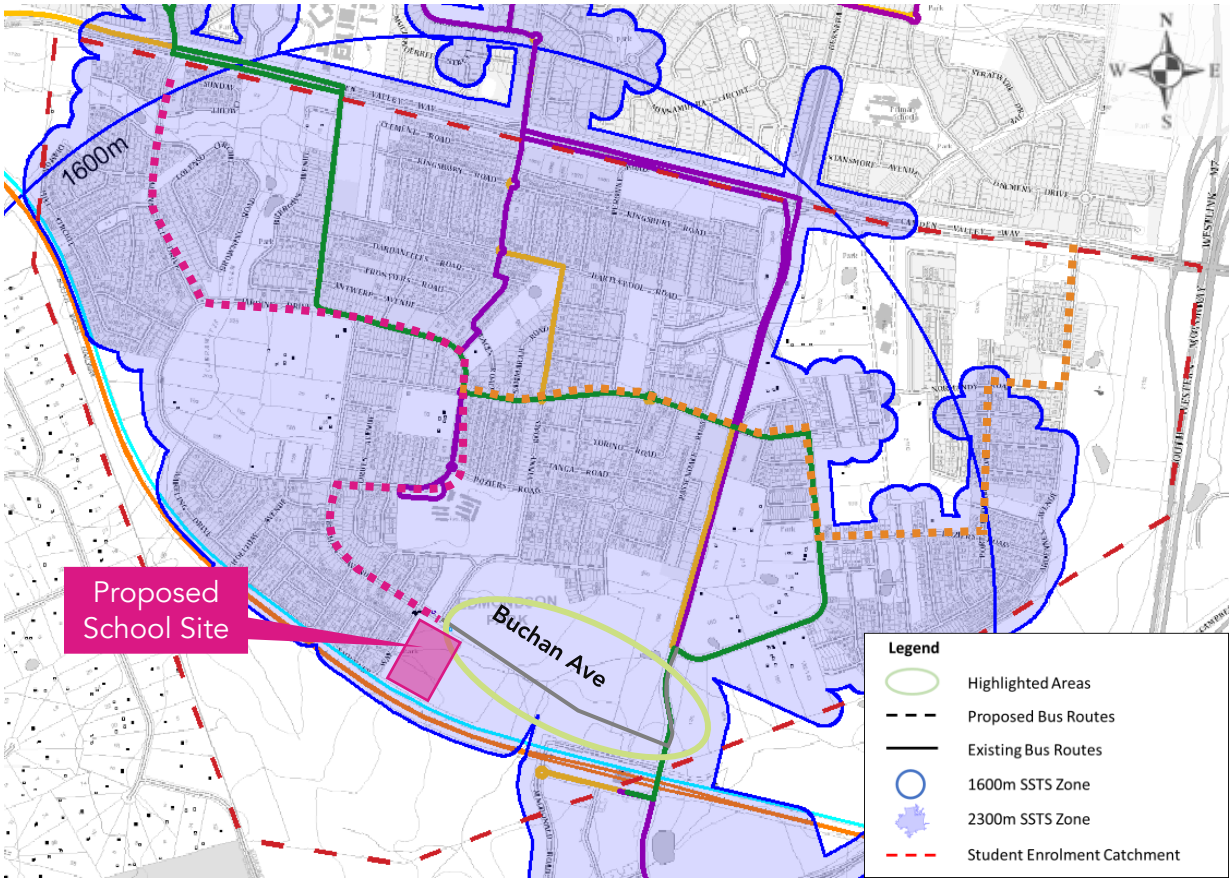

Figure 53 - Proposed bus route

6.2.5 Pick-up and Drop-off Location

The following considerations have been made regarding 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 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-east of the school it is proposed to provide the pick-up and drop-off along Buchan Avenue (refer to the orange lines in Figure 54).
    - For those living north and west of the school it is more convenient to pick-up / drop-off on Faulkner Way as drivers would need to perform a U-turn to get on the right side of Buchan Avenue (refer to the green lines in Figure 54).
    - All vehicles will exit via the future south and east roads onto Buchan Avenue (refer to the blue lines in Figure 54).

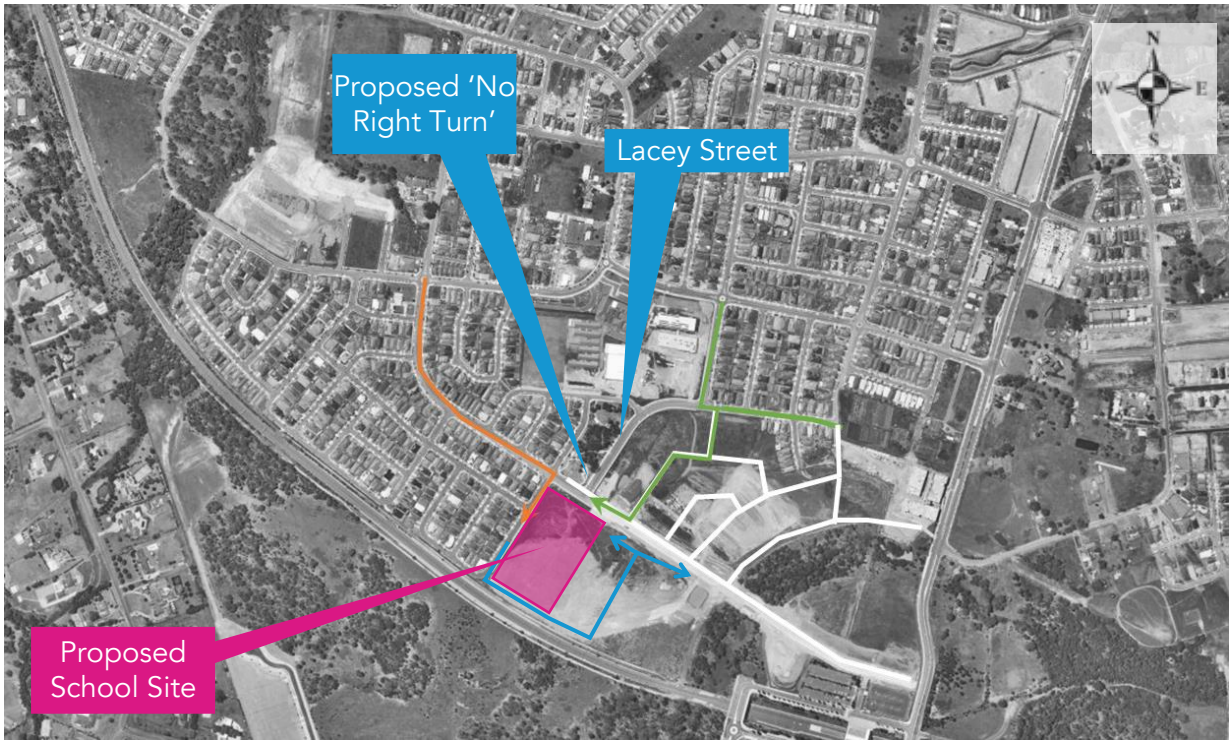

Figure 54 - Pick-up and Drop-off Distribution

- The Lacey Street and Buchan Avenue intersection is a potential conflict point when vehicles turn right from Lacey Street, they may be within a blind spot of the parents who exit the pick-up and drop-off. Upon completion of the adjacent roads east of Lacey Street, a 'No Right Turn' restriction is recommended to be implemented at the intersection, either during school peak hours only or permanently. An example of the conflict point and the mitigation measure is shown in Figure 55.

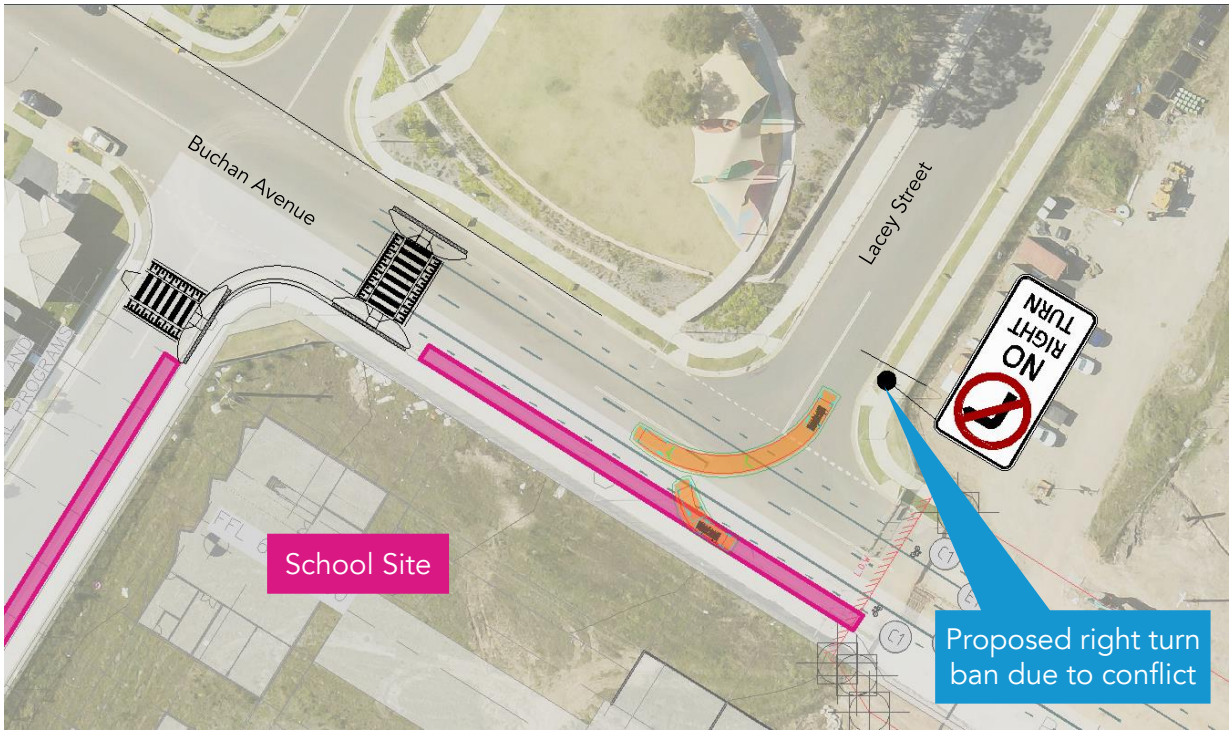

Figure 55 - Conflict point at Lacey Street and Buchan Avenue Intersection

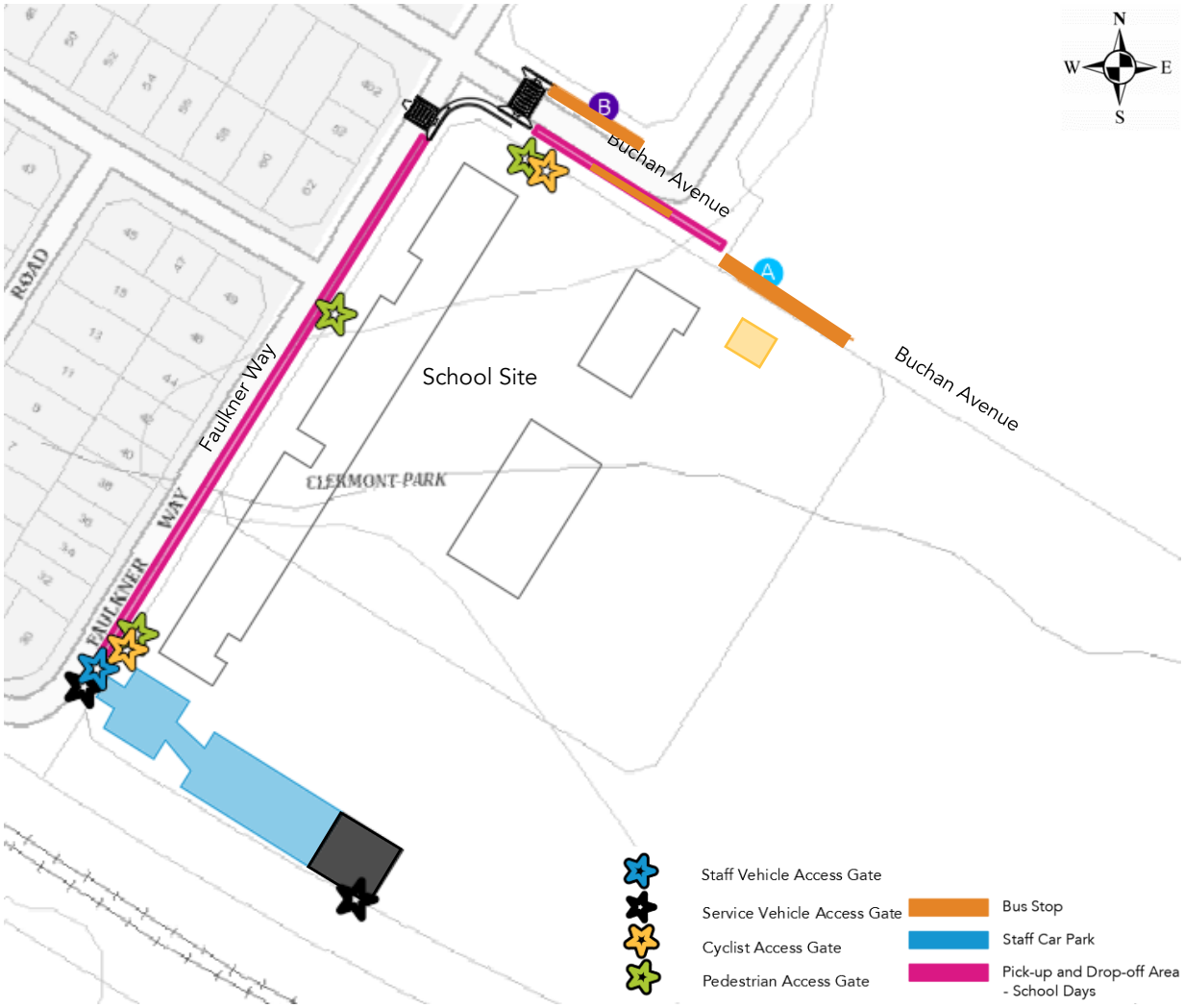

Figure 56 - School Access Plan

6.2.6 Transport Operations, Encouragement Programs and Staffing

In order to achieve the proposed 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.

6.2.7 Target Travel Mode

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

- Potential achievements discussed in Section 5.2
- 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 infrastructure barriers which may cause students and parents in different areas within the catchment to choose different modes of transport.

Due to the infrastructure barriers, the school's enrolment catchment has been divided into three sections as shown in Figure 57. The area shown blue has been divided as students can only use Jardine Drive to access the school. As discussed in Section 4.2, Jardine Drive has a lack of lighting, no formalised pedestrian or cycling facilities and is quite narrow to allow safe passage for students. The area shown green on the other hand is divided by Soldiers Parade and Bernera Road which has limited crossing opportunities.

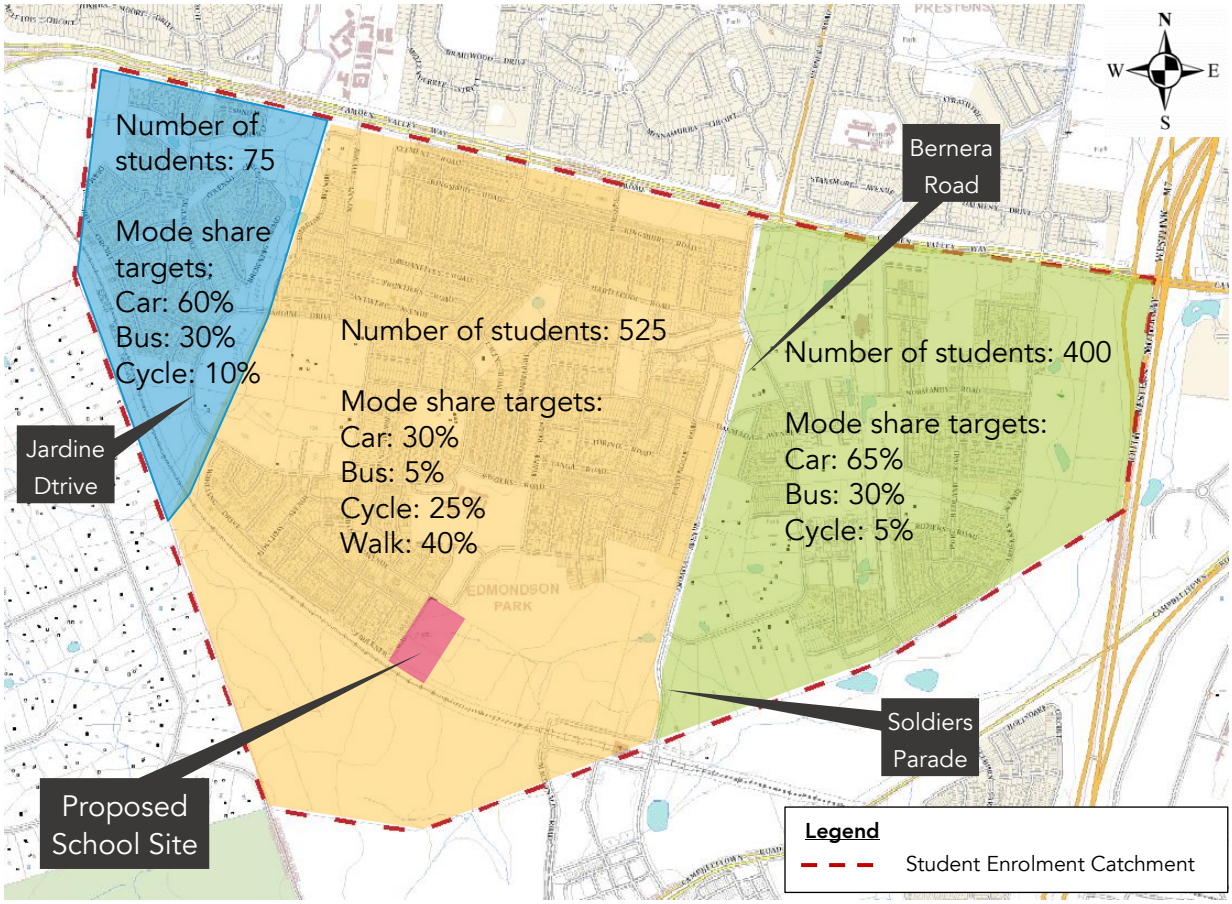

Figure 57 - Travel mode targets

Based on predicted student numbers living within each of the three areas and the potential mode share targets in the individual areas, the proposed overall targets for each travel mode are:

- 21% walking
- 16% cycling or scooting
- 17% taking public transport
- 46% driving

6.2.8 Pick-up and Drop-off Quantity

Based on the proposed target travel modes and Poisson distribution assumptions made in Section 6.1, 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	Number of vehicles per bell time	Poisson Distribution Modelled No of Spaces (Length)
1,012	46%	466	1.2	388	194	35 (210m)

6.3 Ideal Scenario

Based on the travel analysis shown in Section 5.2, 42% of students live within the walking catchment and 52% of students live within the cycling catchment. Therefore, in an ideal (but potentially unrealistic) scenario, near all of these students would walk or cycle to school.

In this scenario, 520 bike parking spaces would be required.

In an ideal scenario where all students utilise public and active transport, no students would need to travel by private vehicles and therefore, no pick-up and drop-off spaces would be required.

Up to 47% (~470) of students could benefit from the existing bus routes. Additionally, 29% (~290) of students who live in areas where there are active transport barriers to reach the school, they would benefit from the proposed bus routes. 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 per bell time.

6.4 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	0.9%	9	21%		210		42%	420
Cycling and Scooting	0.3%	3	16%		160		52%	520
Public Transport – Bus + Train	3.8%	38	17%		170		(~76%)	(~760)
Private Vehicles	76.5%	765	38%	46%	380	460	-	-
Carpooling	7.2%	72	8%		80		-	-
Other	11.3%	120	-		-		-	-