

# school transport plan;

Pacific Brook Christian School,  
Muswellbrook

For Pacific Brook Christian School  
30 September 2021

parking;  
traffic;  
civil design;  
wayfinding;  
**ptc.**

## Document Control

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## Contents

<b>1. Introduction</b>	<b>1</b>
1.1 Summary	1
1.2 Purpose of this Report	2
1.2.1 SEARs Requirements	2
1.3 School Characteristics	3
<b>2. Transport Goals</b>	<b>4</b>
2.1 School Transport Plan Vision and Objectives	4
2.2 Mode Share Targets	4
<b>3. Policies and Procedures</b>	<b>6</b>
3.1 School Access Policy	6
3.1.1 Stage 1	6
3.1.2 Masterplan	7
3.2 Pick-up and Drop-off Arrangement	8
3.3 Staggered Bell Times	11
3.4 Share our Space	11
<b>4. School Transport Operation</b>	<b>12</b>
4.1 Day-to-Day	12
4.1.1 Site Entries	12
4.1.1.1. Initial Stages	12
4.1.1.2. Later Stages	13
4.1.2 Pick-up and Drop-off	14
4.1.3 Buses	16
4.1.4 Parking	18
4.1.5 Deliveries and Service Vehicles	20
4.2 Event Transport Operations	22
4.3 Transport Encouragement Programs	24
4.3.1 Walking	24
4.3.2 Cycling	28
4.3.3 Public Transport	31
4.3.4 Car Share / Car Pooling	33
<b>5. Communication Plan</b>	<b>34</b>
5.1 Channels	34
5.2 Messages	34
5.3 Travel Access Guide	35
<b>6. Data Collection and Monitoring</b>	<b>36</b>
6.1 Data Collection	36
6.2 Program Evaluation	36
6.3 Reporting Findings	36
<b>7. Monitoring and Evaluation</b>	<b>37</b>
Attachment 1 Travel Survey Questions	40

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Attachment 2	STP Guide for the TP Coordinator the School	42
Attachment 3	Traffic Impact Assessment (part)	43
Figure 1	– Site Location (Source: Google Maps)	1
Figure 2	– Initial Stage – School Access Plan	7
Figure 3	– Masterplan – School Access Plan	8
Figure 4	– Initial Stage – Separate Entry / Exit	9
Figure 5	– Masterplan – Combined Entry / Exit	9
Figure 6	– Pedestrian Access – Stage 1	12
Figure 7	– Pedestrian Access – Masterplan	13
Figure 8	– Pick-up and Drop-off – Initial Stage	14
Figure 9	– Pick-up and Drop-off – Later Stages	15
Figure 10	– Bus Access – Stage 1	16
Figure 11	– Bus Access – Later Stages	17
Figure 12	– Car Parking Location and Access – Initial Stage	18
Figure 13	– Car Park Location and Access – Later Stages	19
Figure 14	– Waste and Maintenance Access – Initial Stage	20
Figure 15	– Waste and Maintenance Access – Later Stages	21
Figure 16	– Bus Access – Initial Stage	22
Figure 17	– Bus Access – Later Stages	23
Table 1	– School Transport Target for Students	5
Table 2	– School Transport Target for Staff	5
Table 3	– Queuing assessment for potential future travel characteristics	10
Table 4	– Day-to-Day School Operations	12

# 1. Introduction

## 1.1 Summary

ptc. has been engaged by the Pacific Group of Schools to prepare a School Transport Plan (STP) that is intended to accompany a State Significant Development Application (SSDA) for the new Pacific Brook Christian School (the School) relocated from 96-104 Hill Street, Muswellbrook to 72-74 Maitland Street, Muswellbrook.

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 Maitland Street to the southwest. To the north and west of the site is the Muswellbrook Golf Course, as shown in Figure 1.

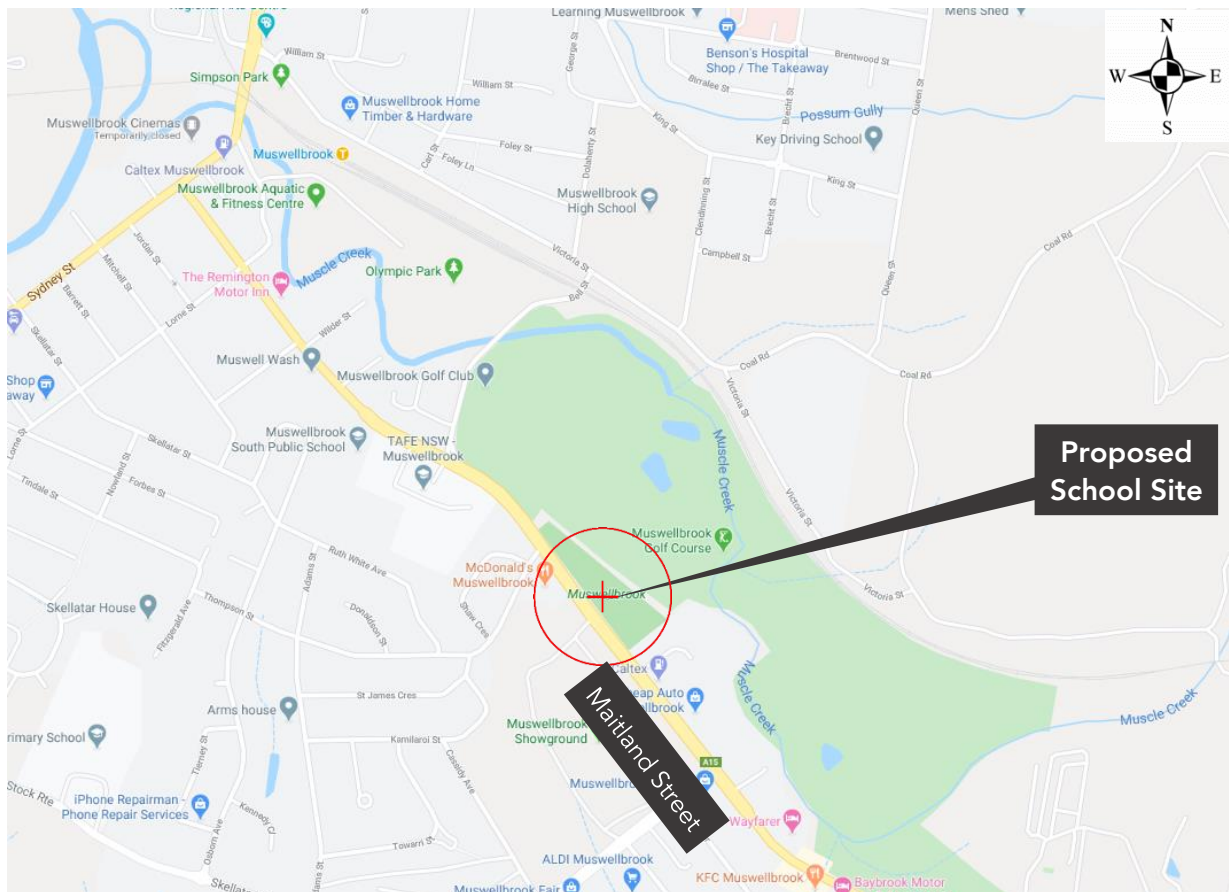


Figure 1 – Site Location (Source: Google Maps)

## 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 School location for Pacific Brook Christian School at Muswellbrook, 26 April 2021 stated in part the following:

#### 6. Transport and Accessibility

- *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 Green Travel Plan / 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

Catering for students between kindergarten and year 12, the school will be developed in stages up to its full capacity at the masterplan stage. In the future, the School is also planning to incorporate a New Hope School for children with autism and moderate intellectual disabilities.

The school will have the following characteristics at Stage 1 and at its full capacity:

#### Stage 1

- Student capacity: 140
- Staff: 16 FTE
- School bell times:
  - Start – 8:50am
  - Finish – 3:10pm
- Before and after school care:
  - Before School Care: 7:30am – 8:50am
  - After School Care: 2:50 – 6:30pm
- Extra-Curricular activities:
  - Monday – Friday: 3:10pm – 6:30pm

#### Masterplan

- Student capacity: 656
- Staff: 65 FTE
- School bell times (TBC at a later stage):
  - Start: 8:35am & 8:50am
  - Finish: 2:55pm & 3:10pm
- Before and after school care:
  - Before School Care: 7:30am – 8:50am
  - After School Care: 2:50 – 6:30pm
- Extra-Curricular activities:
  - Monday – Friday: 3:10pm – 6:30pm

## 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 by the school principal, 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 undertaken as part of the TIA, the following points have been taken into consideration to determine the mode share target:

- Signalisation of Maitland Street / Thompson Street intersection
- Four pedestrian gates off Maitland Street, including one off the Maitland Street / Thompson Street intersection
- Internal footpaths to provide safe access for pedestrians
- Provision of bicycle spaces for 9% of students (12 bicycle spaces for stage 1 and 72 for the masterplan)
- Provision for staff bicycle parking and end of trip facilities
- Provision of a bus stop adjacent to the School site on Maitland Street, seeking amendments to public transport routes and services
- Negotiation with TfNSW to provide an additional bus stop on the opposite side of Maitland Street
- Designated drop-off/pick-up zone within the School site with access via Maitland Street
- Implementation of programs to promote active transport.

- Implementation of staggered bell times at later stages
- Plans for combining the entry and exit driveway at later stages

Based on student numbers living within different areas and the potential travel modes from / to these areas, the proposed overall mode share targets for students are shown in Table 1.

Based on the online survey and infrastructure analysis, the proposed overall mode share targets for staff are shown in Table 2.

The process used to derive these targets is documented in the TIA submitted as part of the SSDA, and the relevant parts are attached in **Attachment 3**.

Table 1 – School Transport Target for Students

Mode Share	Base Case <sup>1</sup>	Future Target
Walking	5%	10%
Cycling and Scooting	-	10%
Public Transport – Bus	34%	50%
Private Vehicles	57%	30%
Carpooling	1%	-
Other	3% (incl. combination of modes)	-

Table 2 – School Transport Target for Staff

Mode Share	Base Case <sup>2</sup>	Future Target
Walking	-	10%
Cycling and Scooting	-	5%
Public Transport – Bus	-	5%
Private Vehicles	100%	80%
Carpooling	-	-
Other	-	-

<sup>1</sup> The base case has been derived based on online surveys. An average of the morning and afternoon existing travel modes have been adopted

<sup>2</sup> The base case has been derived based on online surveys. An average of the morning and afternoon existing travel modes have been adopted

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## 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
- Managed kiss-and-drop
- Parking allocation and location
- Parking management system operations
- School access via pedestrian and vehicular gates

Sub-policies that will be implemented are described in the following sections. Policies will be reviewed annually and if required new one will be added.

### 3.1 School Access Policy

The School has a frontage to Maitland Street towards the southwest.

With the growth of the school, it is planned that the access arrangement will change. Currently the site has two vehicular gates off Maitland Street. The gate towards the north is for entry and the gate towards the south for exit. A drive through area / laneway connects the entry and exit gate.

As discussed in Section 1.3, the school will have several stages of development, of which the first and last are as follows.

#### 3.1.1 Stage 1

In the initial stage, the existing vehicular arrangement will remain, meaning that all vehicles will enter the site via the northern driveway and exit via the southern driveway. The staff car park will be provided adjacent to the entry driveway.

A map showing the access points, car park, pick-up / drop-off areas and the bus stop locations is illustrated in Figure 2. A description of these areas is below.

- In the initial stages, the existing vehicular arrangement will be retained, meaning that all vehicles will enter the site via the northern and exit via southern vehicular driveway (blue arrows).
- The staff and visitor car park will be provided adjacent to the entry driveway (blue area).
- Drop-off / pick-up is proposed to be along the internal laneway (pink line).
- A waste collection area is provided on the east of the buildings, with entry through the northern and exit through the southern driveway (black area and arrows).
- A maintenance area is provided in the north-western corner of the site, with a separate driveway in the northwest, opposite Thompson Street.

- A bus stop is proposed on the eastern side of Maitland Street (orange line), with a direct pedestrian access to the school (green arrow).
- Two pedestrian gates off Maitland Street are proposed (green arrows); one on the northern corner and another adjacent to the existing vehicle entry only driveway. The gate on the northern corner will provide access to the students walking/cycling from the north, west and south. The gate adjacent to the bus stop will provide access to the students travelling by bus and walking/cycling from the east and southeast. All students travelling by private vehicles will access the site from the internal laneway within the site.

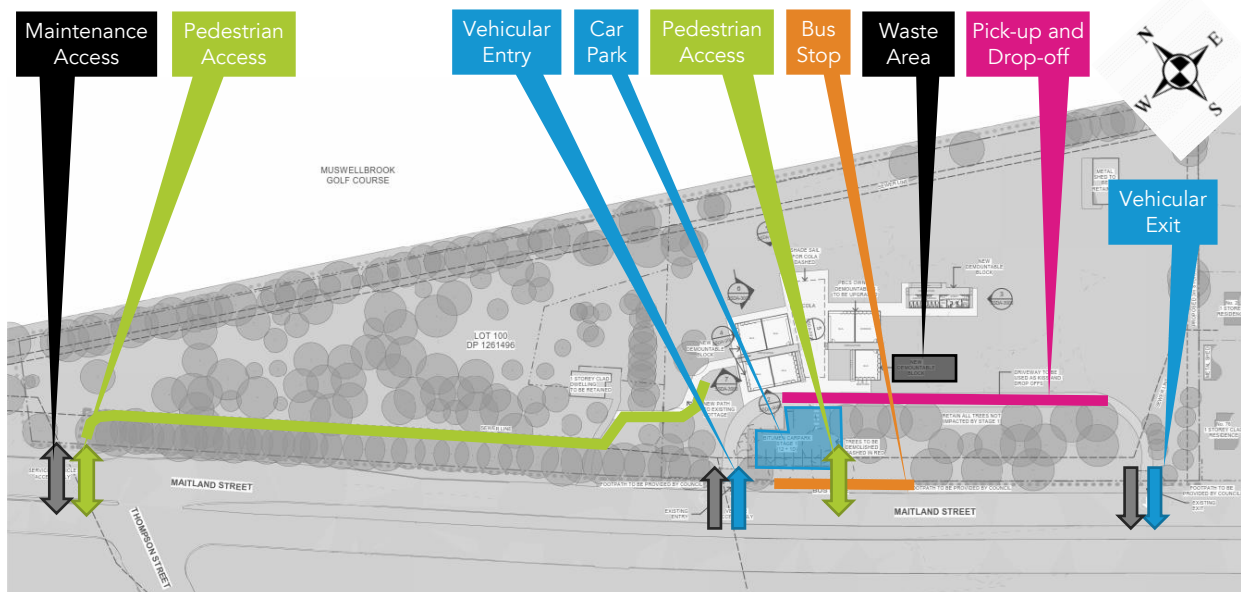


Figure 2 – Initial Stage – School Access Plan

### 3.1.2 Masterplan

A map showing the access points, car parks, pick-up / drop-off areas and the bus stop locations for the masterplan is illustrated in Figure 3. A description of these areas is below.

- Eventually, it is proposed to combine the main vehicular entry / exit in one gate (blue arrow), to enable more queuing length within the given space. In order to achieve this, the southern driveway will be widened.
- Access will be retained at the current entry gate, but will be restricted to waste, service and maintenance vehicles only. These trucks will exit via the combined entry / exit driveway (black individual arrows).
- The driveway on the northwest corner of the site will continue servicing maintenance vehicles only (black double arrow).
- The staff and visitor car park will be expanded and will extend between the existing entry and exit driveway (blue area). All staff will enter and exit the site via southern driveway.
- Drop-off / pick-up is proposed along the internal driveway (pink line) with all vehicles entering the School via the southern driveway, continuing driving through the staff car park then dropping off / picking up students on the internal laneway. Exit will occur via the southern driveway.
- A bus stop, is proposed on the eastern side of Maitland Street (orange line), with a direct pedestrian access to the school (green arrow).

- Four pedestrian gates off Maitland Street are proposed (green arrows); first one on the northern corner, second one adjacent to the existing vehicle entry only driveway, third one (main entrance) adjacent to the proposed bus lane and the fourth one on the southern corner. The gate on the northern corner will provide access to students walking/cycling from the north, west and south. The gate adjacent to the bus stop will provide access to students travelling by bus and after hour students/visitors. The gate on the southern corner will provide access to students walking/cycling from the east and southeast.

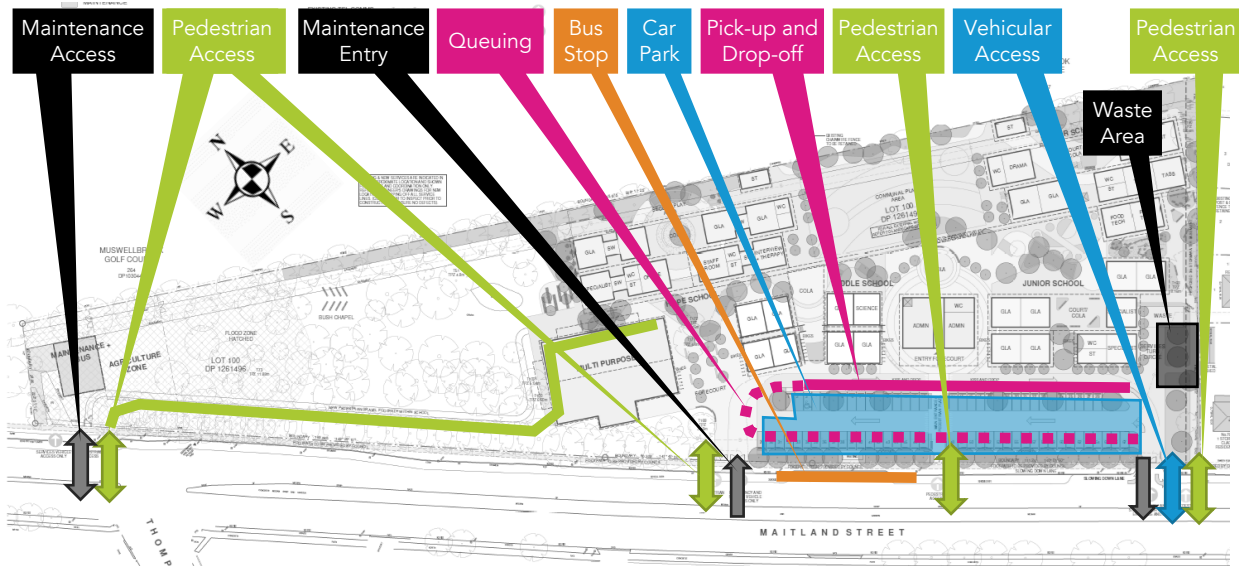


Figure 3 – Masterplan – School Access Plan

### 3.2 Pick-up and Drop-off Arrangement

Kiss and drop will be provided on the internal laneway / driveway within the School site. All vehicles will enter the site via Maitland Street and both the inbound and outbound movements into/from the site will be left in and left out only.

At Stage 1, all vehicles will enter the School via the northern entry driveway, drop-off / pick-up the students within the internal laneway and exit via the southern exit only driveway. This layout results in a capacity of approximately 20 vehicles, refer to Figure 4.

At the Masterplan Stage, all vehicles will enter and exit the site via the southern driveway; An island and line marking will be provided to separate the inbound and outbound lanes. Upon entering the site, all vehicles will drive along the staff car park, drop-off / pick-up the students within the internal laneway and exit the site via the driveway. This results in a capacity of approximately 37 vehicles, refer to Figure 5.

The pick-up and drop-off lane will be restricted to a one-way circulation during both stages.

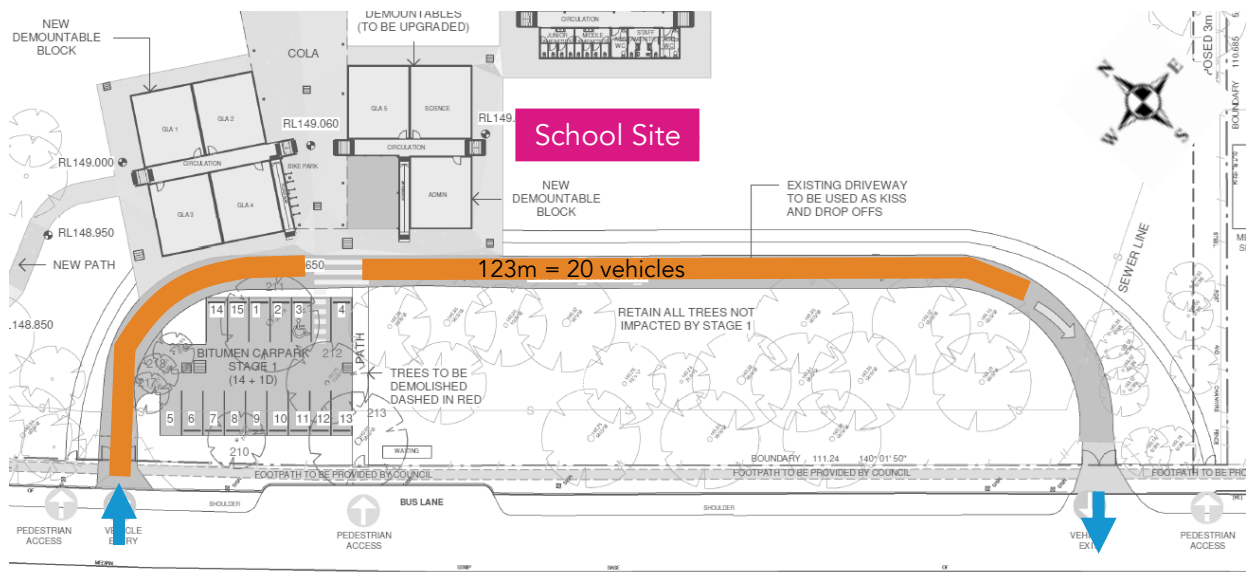


Figure 4 – Initial Stage – Separate Entry / Exit

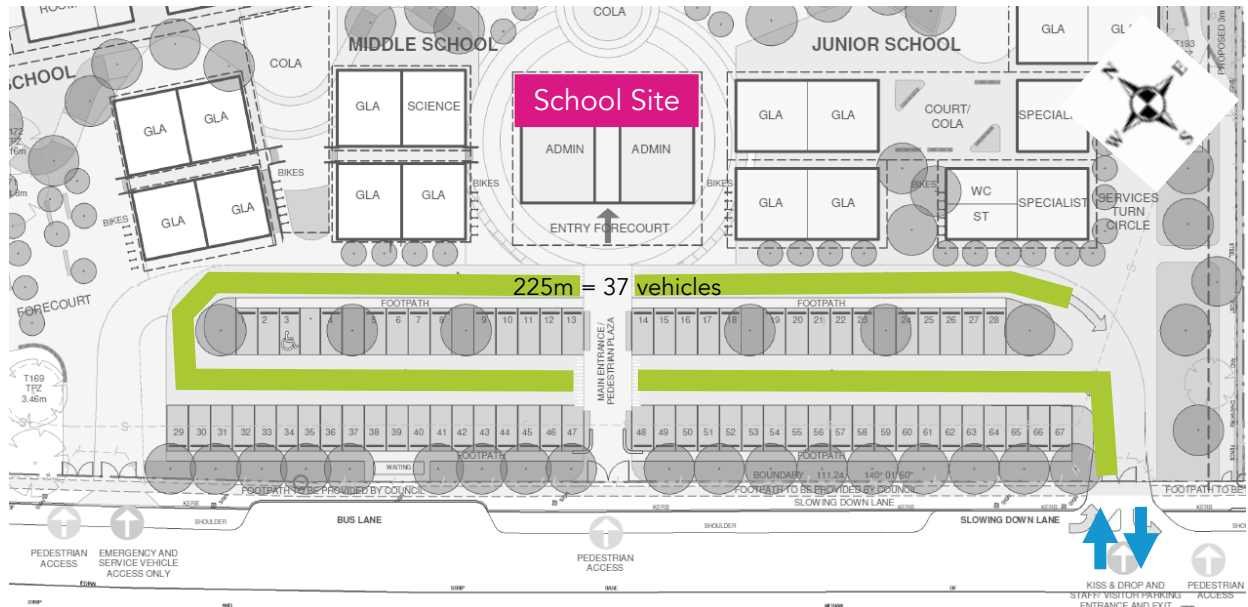


Figure 5 – Masterplan – Combined Entry / Exit

A queuing analysis has been undertaken to demonstrate the ability of the site to contain all traffic generated by the proposal, and to determine required mitigation measures and trigger points. The analysis takes into account a number of scenarios, with varying student numbers, bell times and travel mode shares, as shown in Table 3. It should be noted that the results of this analysis should be revisited with each increase of students to validate the demand.

The colours presented in the table below reference which internal pick-up and drop-off arrangement is required / is acceptable. For scenarios with numbers with an orange background it is assumed that a separate driveway as shown in Figure 4 is sufficient to accommodate the anticipate pick-up and drop-off generation. For scenarios with numbers with a green background it is assumed that the driveway needs to be combined as shown in Figure 5 in order to achieve a longer queuing within the site. Scenarios with numbers with a grey background are not acceptable from a queuing perspective.

Table 3 – Queuing assessment for potential future travel characteristics

		Stage 1				Masterplan	
		140	250	350	450	550	656
<b>Scenario 1a:</b> 1 bell time 100% of students use private transport No before and after school activities							
Number of cars (assumed car occupancy of 1.2 students per car)		117	208	292	375	458	542
Modelled queue length using Poisson distribution	spaces	30	40	50	60	65	80
	metres	180	240	300	360	390	480
<b>Scenario 1b:</b> 1 bell time 70% of students use private transport, 30% walk, cycle or use public transport 10% of students attend before and after school activities							
Number of students driven		88	158	221	284	347	410
Number of cars (assumed car occupancy of 1.2 students per car)		74	131	184	236	289	341
Modelled queue length using Poisson distribution	spaces	20	30	35	45	50	55
	metres	120	180	210	270	300	330
<b>Scenario 2a:</b> 2 bell times 100% of students use private transport No before and after school activities							
Number of students driven per bell time		70	125	175	225	275	325
Number of cars (assumed car occupancy of 1.2 students per car)		58	104	146	188	229	271
Modelled queue length using Poisson distribution	spaces	15	25	30	35	40	45
	metres	90	150	180	210	240	270
<b>Scenario 2b:</b> 2 bell times 70% of students use private transport, 30% walk, cycle or use public transport 10% of students attend before and after school activities							
Number of students driven per bell time		44	79	110	142	173	205
Number of cars (assumed car occupancy of 1.2 students per car)		37	66	92	118	144	171
Modelled queue length using Poisson distribution	spaces	10	15	20	25	30	35
	metres	60	90	120	150	180	210
<b>Scenario 3a:</b> 3 bell times 100% of students use private transport No before and after school activities							
Number of students driven per bell time		47	83	117	150	183	217
Number of cars (assumed car occupancy of 1.2 students per car)		39	69	97	125	153	181
Modelled queue length using Poisson distribution	spaces	10	15	20	25	30	35
	metres	60	90	120	150	180	210
<b>Scenario 3b:</b> 3 bell times 70% of students use private transport, 30% walk, cycle or use public transport 10% of students attend before and after school activities							
Number of students driven per bell time		29	53	74	95	116	137
Number of cars (assumed car occupancy of 1.2 students per car)		25	44	61	79	96	114
Modelled queue length using Poisson distribution	spaces	10	15	15	20	20	25
	metres	60	90	90	120	120	150

### 3.3 Staggered Bell Times

With an increase in student population, the school will implement staggered bell times. How many staggered times and the timing of their implementation will be assessed each year.

It is envisaged that the staggering would occur based on the year groups, see the examples below:

- One bell time: K-12
- Two bell times: K-6 7-12
- Three bell times: K-6 7-9 10-12

The school is to provide care for students who either arrive early in the morning or need to wait for their siblings in the afternoon due to the staggered bell time arrangement.

### 3.4 Share our Space

The school will afford community access to the school's core facilities being the multi-purpose hall.

Share Our Space will be operating at the school during weekends and school holiday breaks. Gates will be opened by 6:30am and closed at 10pm on Mondays to Fridays and open at 8:30am and close at 4pm on Saturdays.

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.



The southern access will be the after hours pedestrian entry for students and visitors.

**4.1.1.2. Later Stages**

At later stages (refer to Figure 7), students arriving / leaving on foot or by bikes from the north or west are to use the northern access, at the Maitland Street / Thompson Street intersection, and use the internal path to access / leave the school buildings.

All students arriving / leaving by buses are to use the southern access and use the internal footpath to access / leave the school buildings.

Students arriving / leaving on foot or by bikes from the south are to use the southern access.

The two middle accesses will be the after hours pedestrian entries for students and visitors.

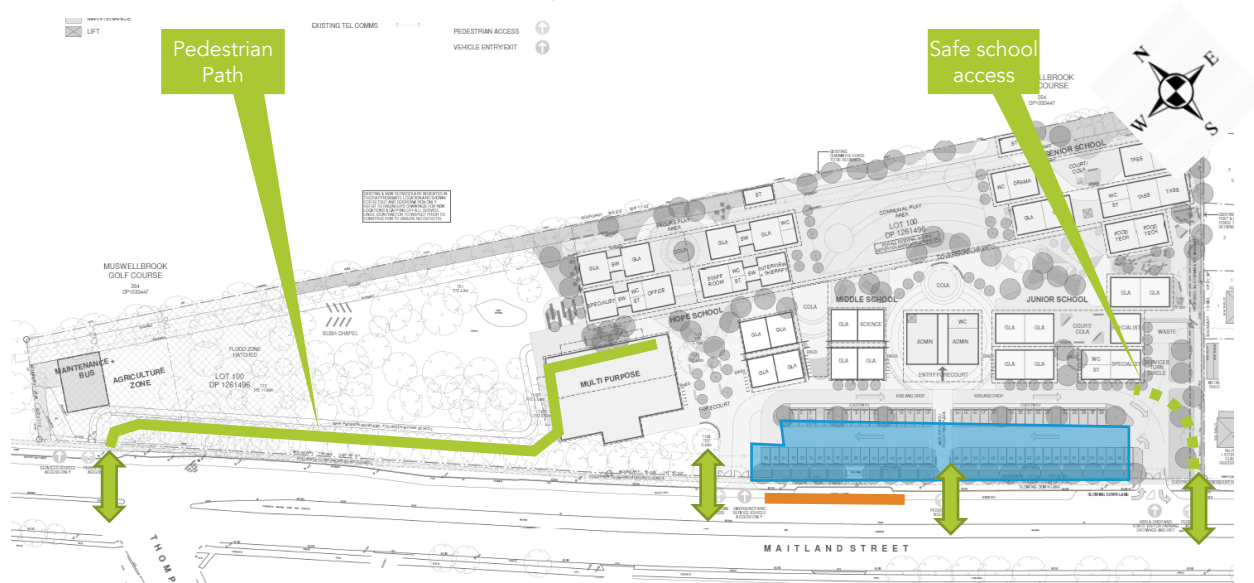


Figure 7 – Pedestrian Access – Masterplan

### 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 zone during the pick-up / drop-off times.

Pick-up and drop-off will be undertaken within the School site in the drive-through area. Drivers must drive safely, give way to pedestrians and not overtake any vehicles.

Zebra crossings is provided in the middle of the car park and the pic-up and drop-off lane with children’s safety in mind and all vehicles must slow down to stay aware of these crossings.

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

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.
- Parents / guardians will be informed to have a name / number card in their vehicle and a staff member will call out the appropriate student. This will 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.
- The pick-up / drop-off aisle will have a one-way circulation and no vehicles are allowed to undertake U-turns or overtake other vehicles. 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.

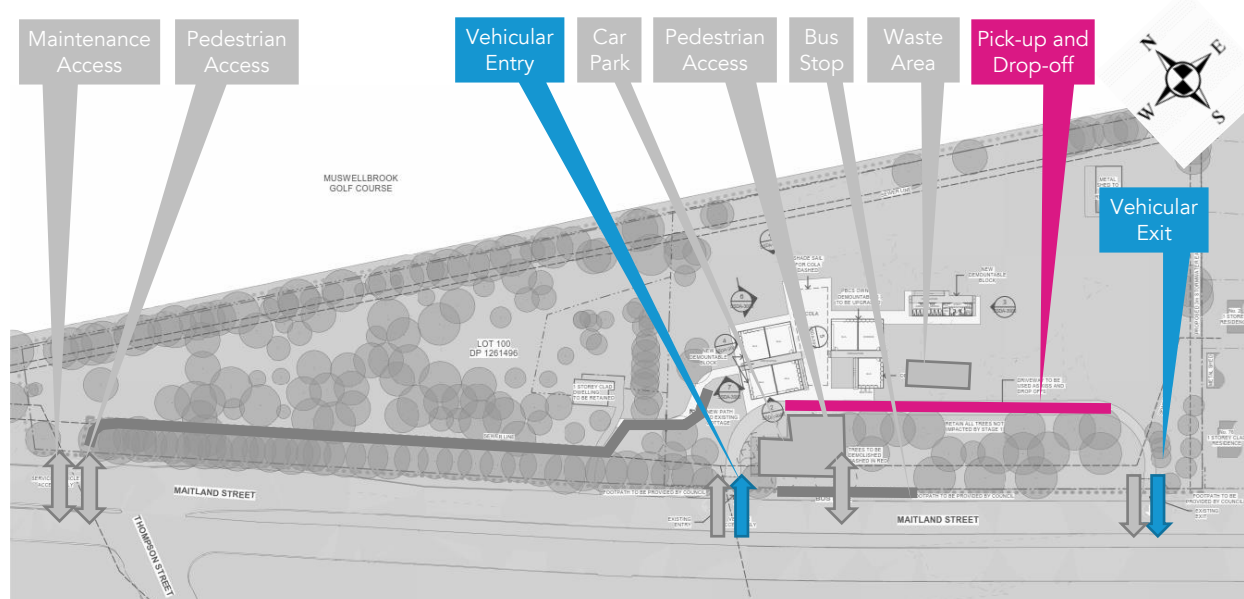


Figure 8 – Pick-up and Drop-off – Initial Stage

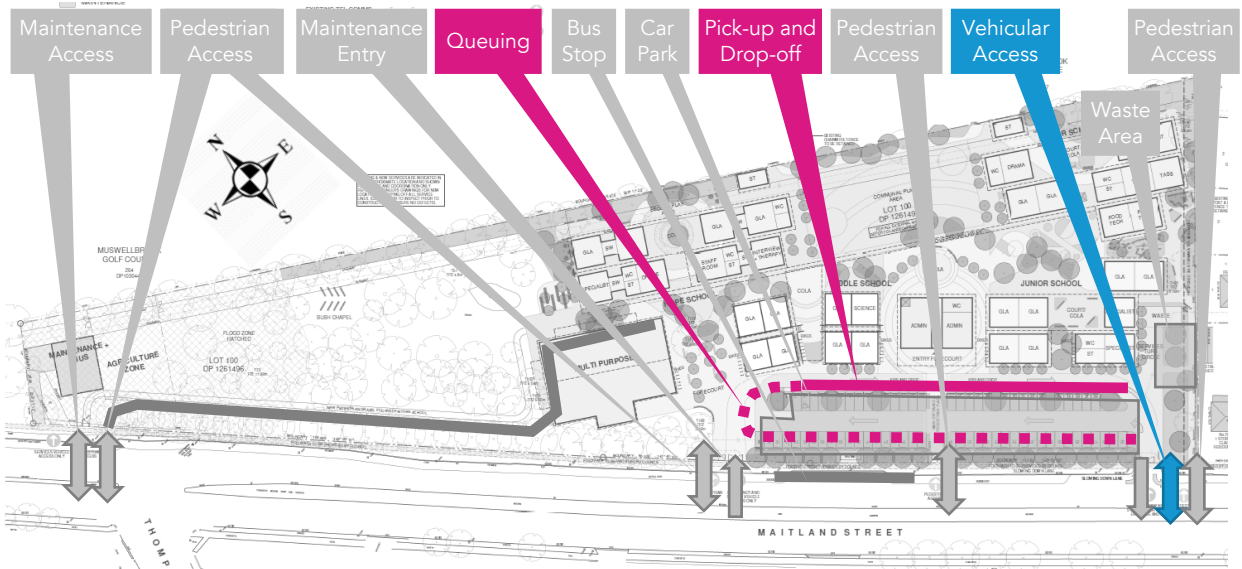


Figure 9 – Pick-up and Drop-off – Later Stages

### 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.
- Enter the school site immediately after getting off the bus.
- Wait at the bus stop and stand at least one step back from the edge of the road.

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

In the afternoon, two staff members will be positioned at the gate adjacent to the bus stop at Maitland Street 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.

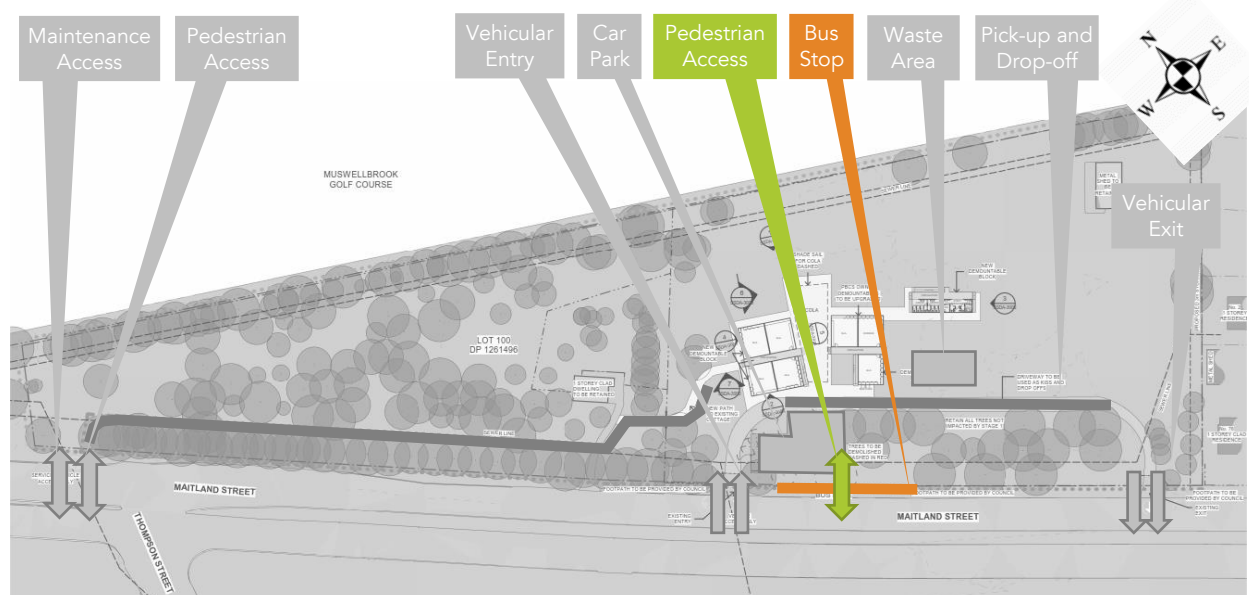


Figure 10 – Bus Access – Stage 1

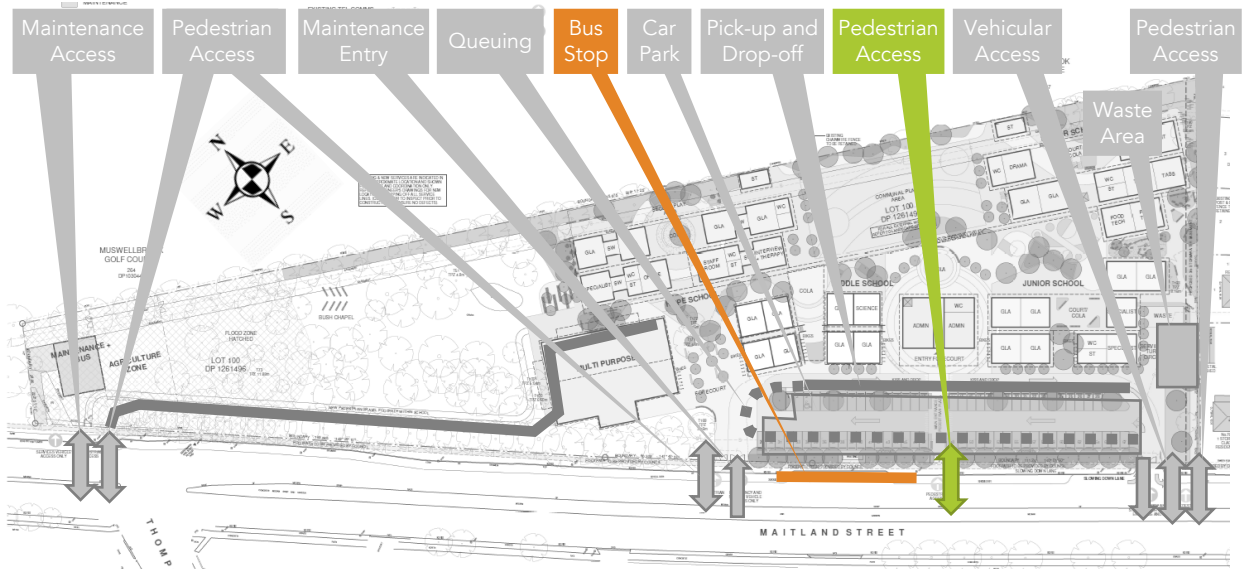


Figure 11 – Bus Access – Later Stages

#### 4.1.4 Parking

School zones are planned with children’s safety in mind and all vehicles must slow down to 40km/h in the school zone.

Drivers must park safely and legally within the school site. No parking shall occur along Maitland Street.

All driving manoeuvres must always be legal around the school. 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 southwest within the site, with access via Maitland Street. A total of 15 car spaces are proposed for the initial stage and up to 67 for later stages. Staff can enter the main School area via the zebra crossing within the internal laneway.

The location of the facility is shown in Figure 12. The following car park management measures shall be put in place:

- Staff shall arrive and depart outside of the pick-up and drop-off peak times to reduce conflicts between staff and 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.

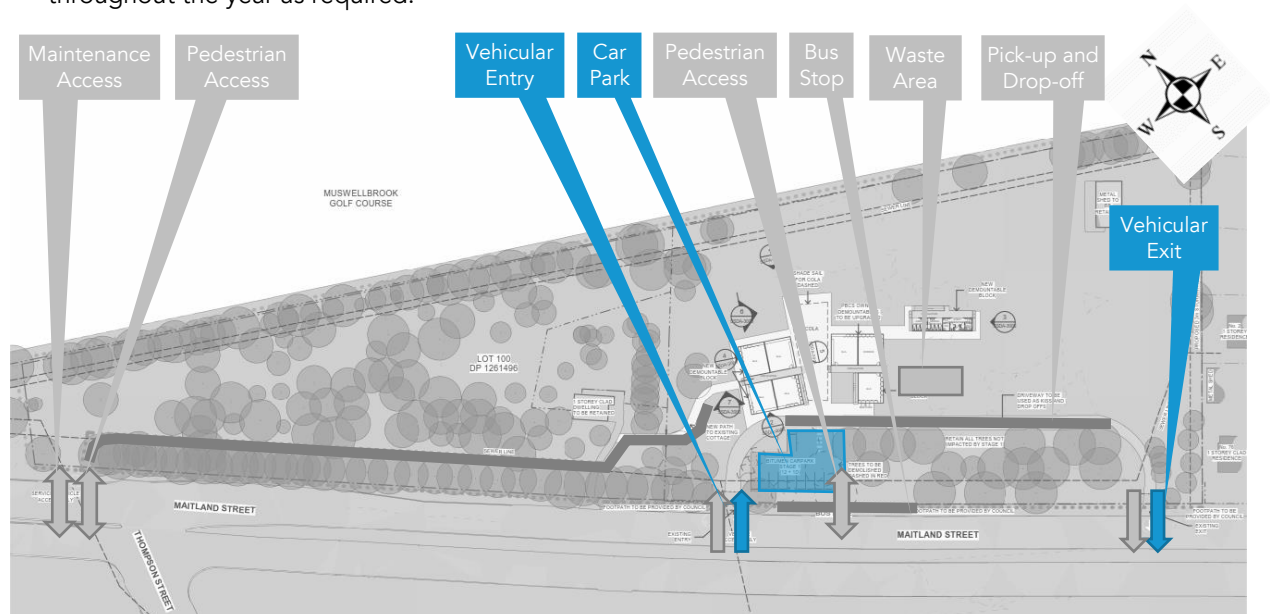


Figure 12 – Car Parking Location and Access – Initial Stage

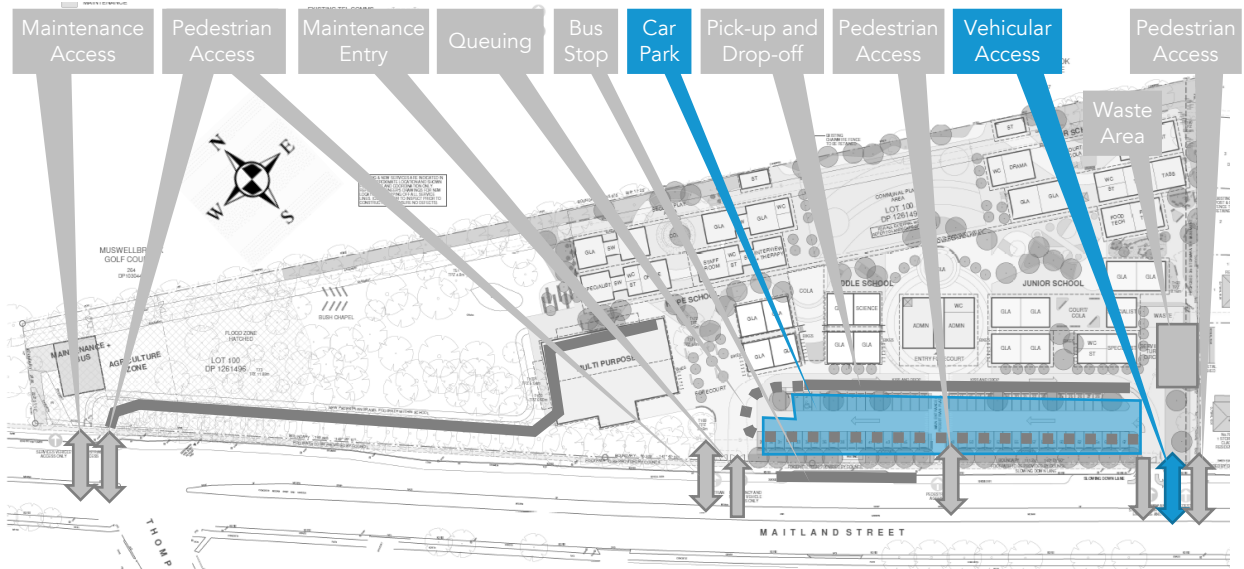


Figure 13 – Car Park Location and Access – Later Stages

#### 4.1.5 Deliveries and Service Vehicles

Waste collection / service vehicle area is located on the southern end of the site. Vehicles can manoeuvre in the area in front of the waste area.

The purpose is to provide general waste collection off-road.

Small deliveries in vans will occur within the car park. Larger truck deliveries and waste collection will occur within the service / waste area.

Waste collection and larger truck deliveries shall be provided outside of school and before and after school care / activities hours, before 7:30am and/or after 6:30 pm 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 7:30am and/or after 6:30pm during the week, upon prior arrangement with the School access for large vehicles will be provided by the School caretaker via the northern vehicular entry in the initial stage and via the middle service access in later stages.

Small deliveries can occur throughout the day, upon prior arrangement with the School. Delivery vehicles can be parked within the car park. Any larger deliveries shall be booked prior to the delivery.

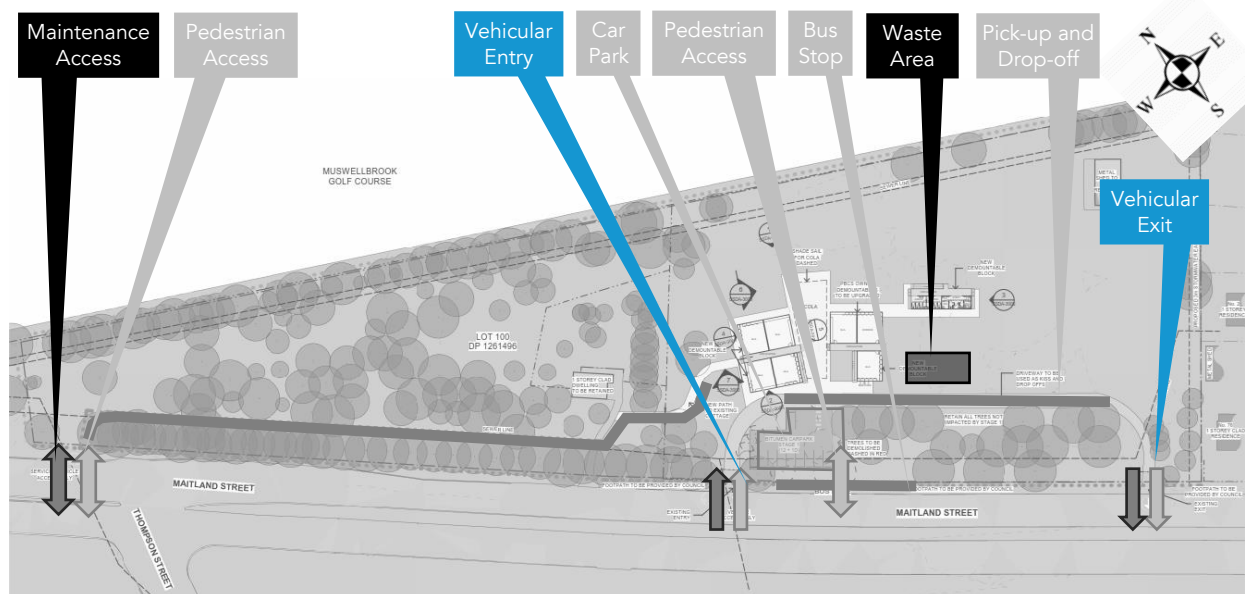


Figure 14 – Waste and Maintenance Access – Initial Stage

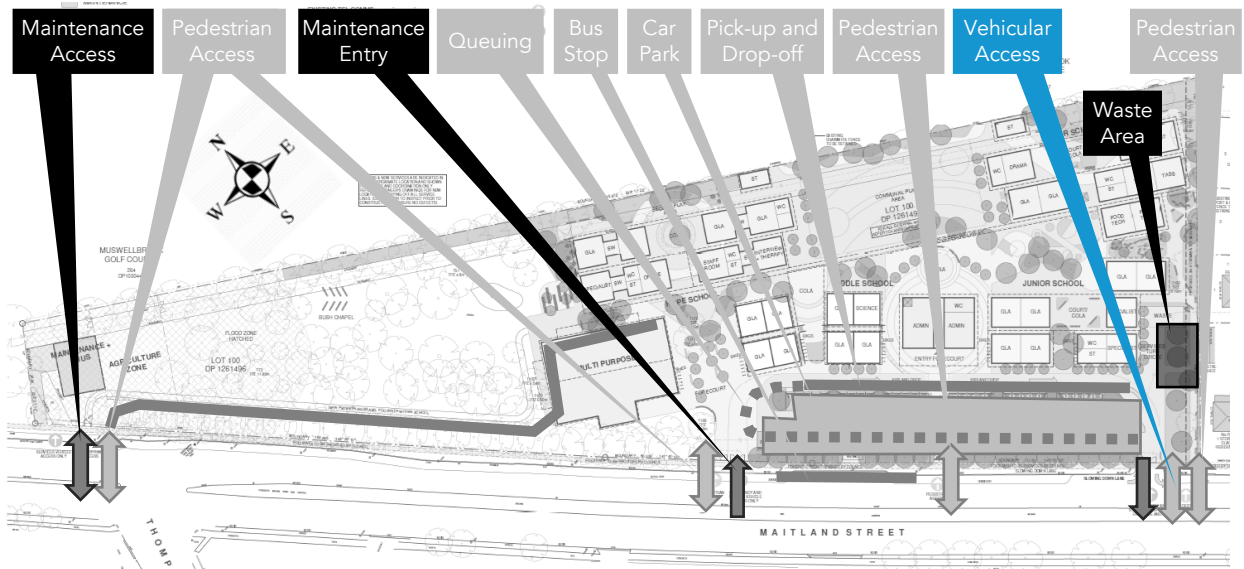


Figure 15 – Waste and Maintenance Access – Later Stages

## 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:

- All buses will park within the bus stop adjacent to the School on Maitland Street to provide direct access to the school gate. The bus stop is able to accommodate 1 bus at a time. The public and school bus timetable needs to be considered to ensure that the bus stop is unobstructed throughout the pick-up / drop-off of students.
- Students will assemble and will be held back at the bus stop entry within the school site. They will walk through the gate only when buses arrived.
- Buses will arrive at the School 5 minutes prior to student pick-up and depart 5min after the drop-off is completed. The additional time needs to be considered upon booking of the bus.
- 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.

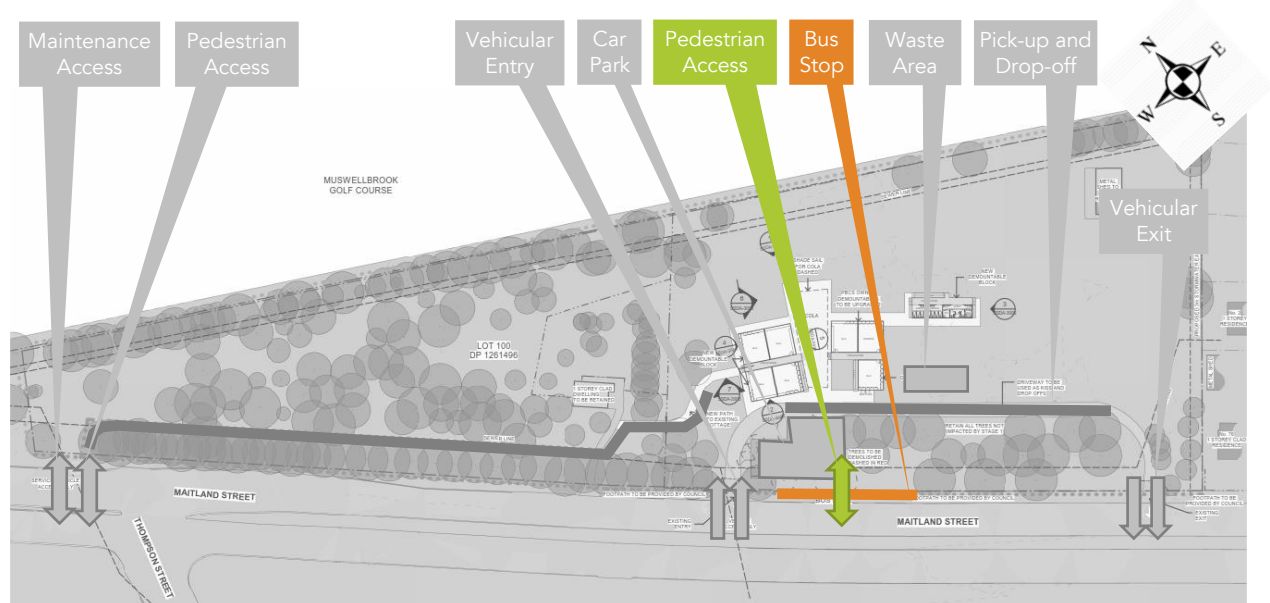


Figure 16 – Bus Access – Initial Stage

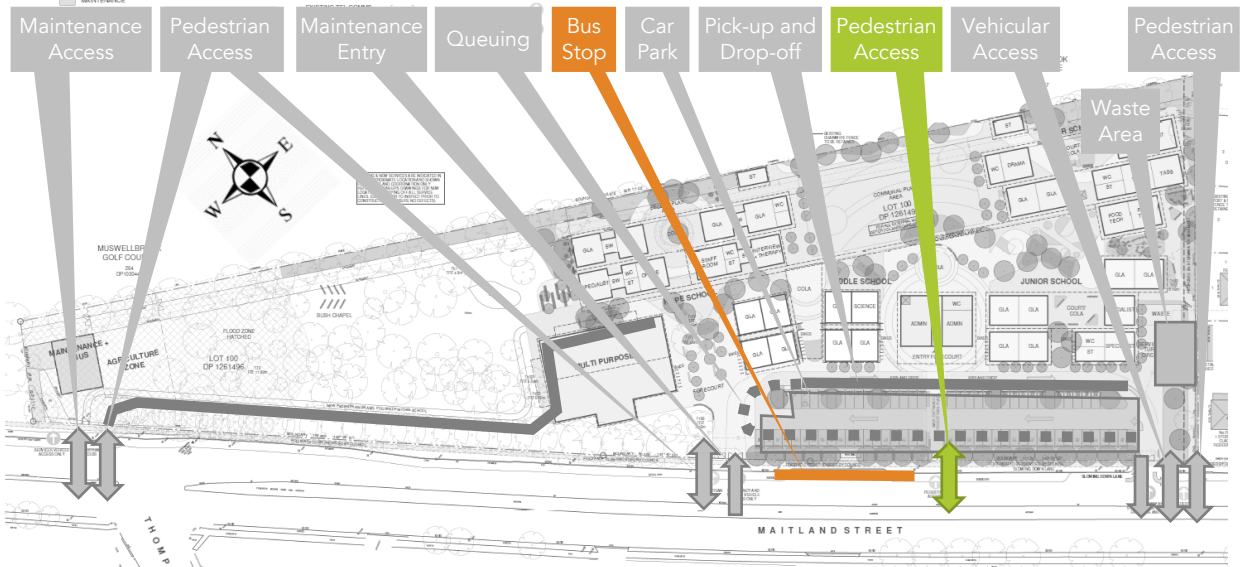


Figure 17 – Bus Access – Later Stages

## 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, external trainers
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	External trainers
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	the School 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: 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.

**Short-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

**Short-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.

**Short-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

**Short-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

**Medium-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	The school
When	Within the first year of operation and completion of the development
Resources	Storage facilities

**Medium-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	The school
When	Upon analysis of the staff work demand
Resources	Working space

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

Why	To prioritise pedestrian crossing phasing during the school peak hours at the Maitland Street / Thompson Street intersection. This is to create a safe environment for students to cross the Maitland Street
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 dialogue with Council**

Why	To implement a pedestrian/cyclist shared path along the northern side of Maitland Street between Thompson Street and the School main pedestrian entry. This is to promote students travelling from west, north and south to walk to school. Refer to <b>Attachment 3</b> for further detail.
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 school master plan
Resources	Discussions

**Medium-term Strategy: Seek dialogue with Council**

Why	To provide pedestrian/cyclist shared path on the northern side of Maitland Street between Bell Street and Thompson Street and a raised zebra crossing across Bell Street near Clifford Street. This is to promote students travelling from north to walk to school. Refer to <b>Attachment 3</b> for further detail.
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 school master plan
Resources	Discussions

**Medium-term Strategy: Seek dialogue with Council**

Why	To provide pedestrian/cyclist shared path on the northern side of Maitland Street between Rutherford Street and the School main entry. This is to promote students travelling from east and southeast to walk to school. Refer to <b>Attachment 3</b> for further detail.
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 school master plan
Resources	Discussions

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

Why	To generally improve the pedestrian/cyclist infrastructure within Muswellbrook to promote students to walk to school. Refer to <b>Attachment 3</b> for further detail.
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 school master plan
Resources	Discussions

### 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 the School
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 the School
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

**Short-term Strategy: Implement Bike Club (for students)**

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

**Short-term Strategy: Buddy Scheme (for students)**

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

**Short-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

**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

**Long/Medium-term Strategy: Seek dialogue with Council**

Why	To improve and develop existing cycling infrastructure within the Muswellbrook area for primary and secondary school children. Refer to <b>Attachment 3</b> 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: Implement more and secure bike parking**

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

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

Why	To promote the use of electric bicycles
How	Provision of charging stations
Who	the School
When	Upon analysis of the yearly demand
Resources	Charging stations

### 4.3.3 Public Transport

#### 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: 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

#### Medium-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 live arrival / departure data
Who	The School
When	Within the first year of operation
Resources	Electronic boards, travel app (e.g. Trip View)

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

Why	To implement public bus services to the major employment areas and Muswellbrook Railway Station 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

**Medium-term Strategy: Seek dialog with Council, TfNSW and bus operators**

Why	To provide bus stop near the School on Maitland Street adjacent to Thomson Street. This is to promote staff and parents to School, home and other work destinations by bus and reduce reliance on car usage. Refer to <b>Attachment 3</b> for more detail.
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 school master plan
Resources	Discussions

**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 the School
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, before and after school care 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. 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](mailto: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

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## 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 targets 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 the School 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 the School and Council. Agreed changes to the STP or actions resulting from the findings will be implemented in an appropriate and timely manner.

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## 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 School, 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 to 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 the School 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, the School principal or representative
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	TP Coordinator
When	Beginning or end of each year
Resources	Email, newsletters preparing parents and students of the upcoming survey

**Strategy: Regular meetings**

Why	Discuss the effectiveness of initiatives
How	In person meeting at a specified location within the school
Who	Steering Committee, TP Coordinator, the School
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	School representative
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 the School 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-off, 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 the School

### Steering Committee

- The formation of a Steering Committee will be coordinated by the TP Coordinator and the School 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

### The School / 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 the School, the TP Coordinator and the Advisory Committee members, and
- Sustainable transport is to be discussed including feedback from the initial survey data.

### **Attachment 3 Traffic Impact Assessment (part)**

Following is an extract of the relevant sections of the Traffic Impact Assessment report submitted with the SSDA for the proposed school.

## 4. Transport Networks and Operations

### 4.1 Site Access

The site has a frontage to Maitland Street towards the southwest and has three vehicular access points off Maitland Street, as shown in Figure 9. The access towards the north allows a two-way traffic flow, whereas the gates further south provide entry or exit only, with a drive-through lane connecting these gates.

There are no footpaths in the eastern side of the carriageway along the site and no crossings, meaning that the site is currently inaccessible by foot.



Figure 9 – Current access points

### 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 guideline suggests that 400-800m is a comfortable walking distance when considering accessibility 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 area. A gap analysis has been undertaken based on the distance definitions described above, and following this, potential ways to improve walkability and cyclability have been identified.

### 4.2.1 Walking

Walking is a viable transport option for short door to door trips. Walking is also the most space efficient mode of transport 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. However, the likelihood of someone choosing walking as a mode of transport depends on the level of amenities between the origin and destination of the trip.

#### 4.2.1.1. Catchments

Figure 10 shows the “as crow flies” and the actual 400m, 800m and 1200m walking catchments from the proposed school.

A portion of the area south of Maitland Street is covered by the walking catchment. Towards the north, the golf course and the railway line are the main reasons for little walking coverage.



Figure 10 – 400m, 800m and 1200m Walking Catchment

#### 4.2.1.2. Existing Infrastructure and Gap Analysis

Currently, the site is not accessible by foot, which is likely due to the former use of the land as a nursery. Figure 11 shows an overview of the existing pedestrian infrastructure in the vicinity of the site and potential improvements.

Within the immediate vicinity of the proposed School, footpaths are missing on the eastern side of Maitland Street as marked by blue circles in Figure 11.

As discussed in Section 3.4, a signalised intersection is proposed at the Maitland Street / Thompson Street intersection, which will provide pedestrian connectivity to students residing south of the state road.

Roads in the area south of Maitland Street (highlighted in blue) generally provide no footpaths or formalised crossings; However, residential streets in Muswellbrook appear rural with low traffic volumes, meaning that students may be able to use the verges of the roads to walk or cycle.

As marked by the yellow circle in Figure 11, a pedestrian crossing is missing at Bell Street near Clifford Street, which would provide connectivity for students coming from the north.

Ideally, the here discussed pedestrian improvements would be implemented in Council’s annual maintenance schedule, particularly along main routes and across wider, more utilised roads.

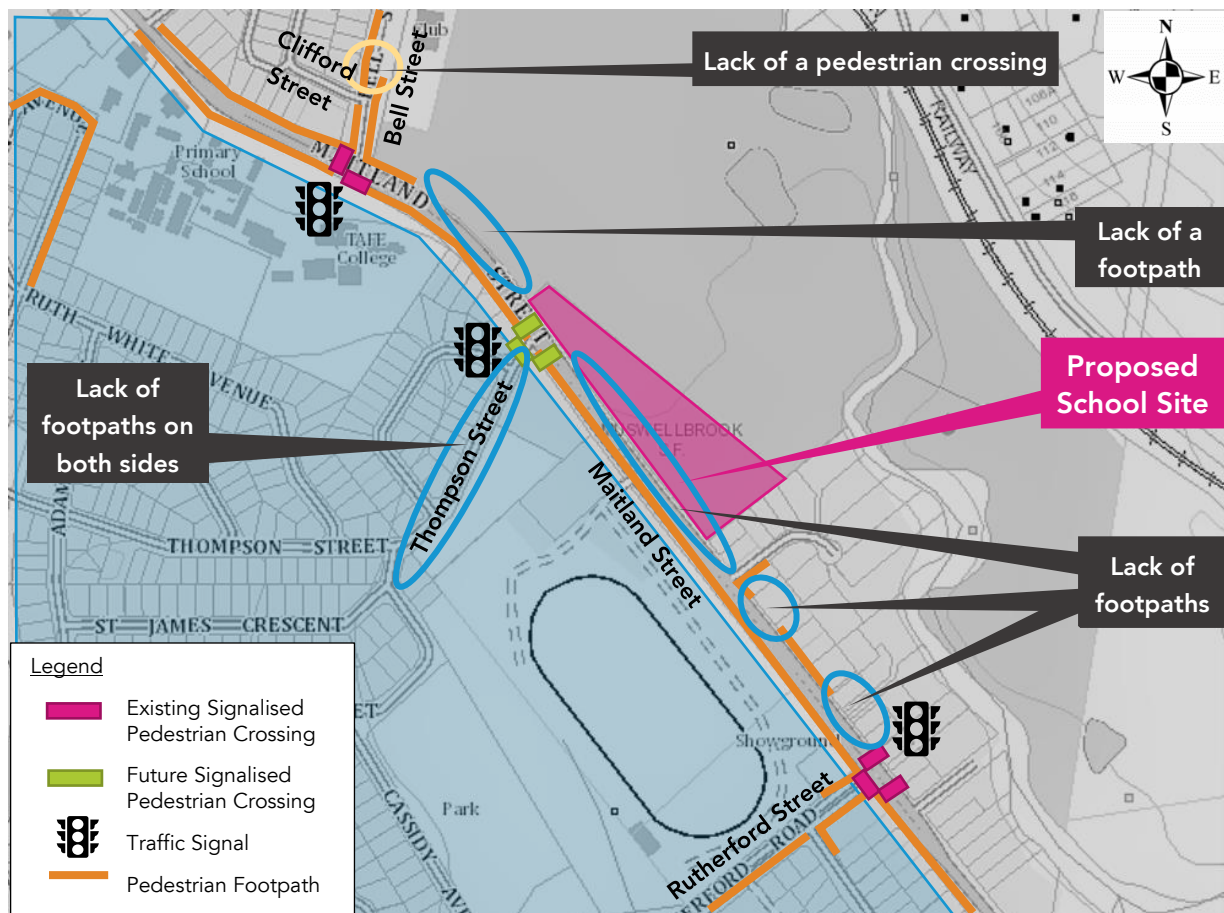


Figure 11 – Surrounding Pedestrian Infrastructure

## 4.2.2 Cycling

### 4.2.2.1. Catchments

The “as crow flies” and actual 1200m, 2400m and 3600m cycling catchments are presented in Figure 12.

For cycling, an up to 2400m catchment is considered suitable for primary school students, and a 3600m catchment for secondary school students.

Almost the entire Muswellbrook area lies within the cycling catchment, meaning that distance wise cycling could be a viable option. Gaps in the existing cycling infrastructure are discussed in the following section.

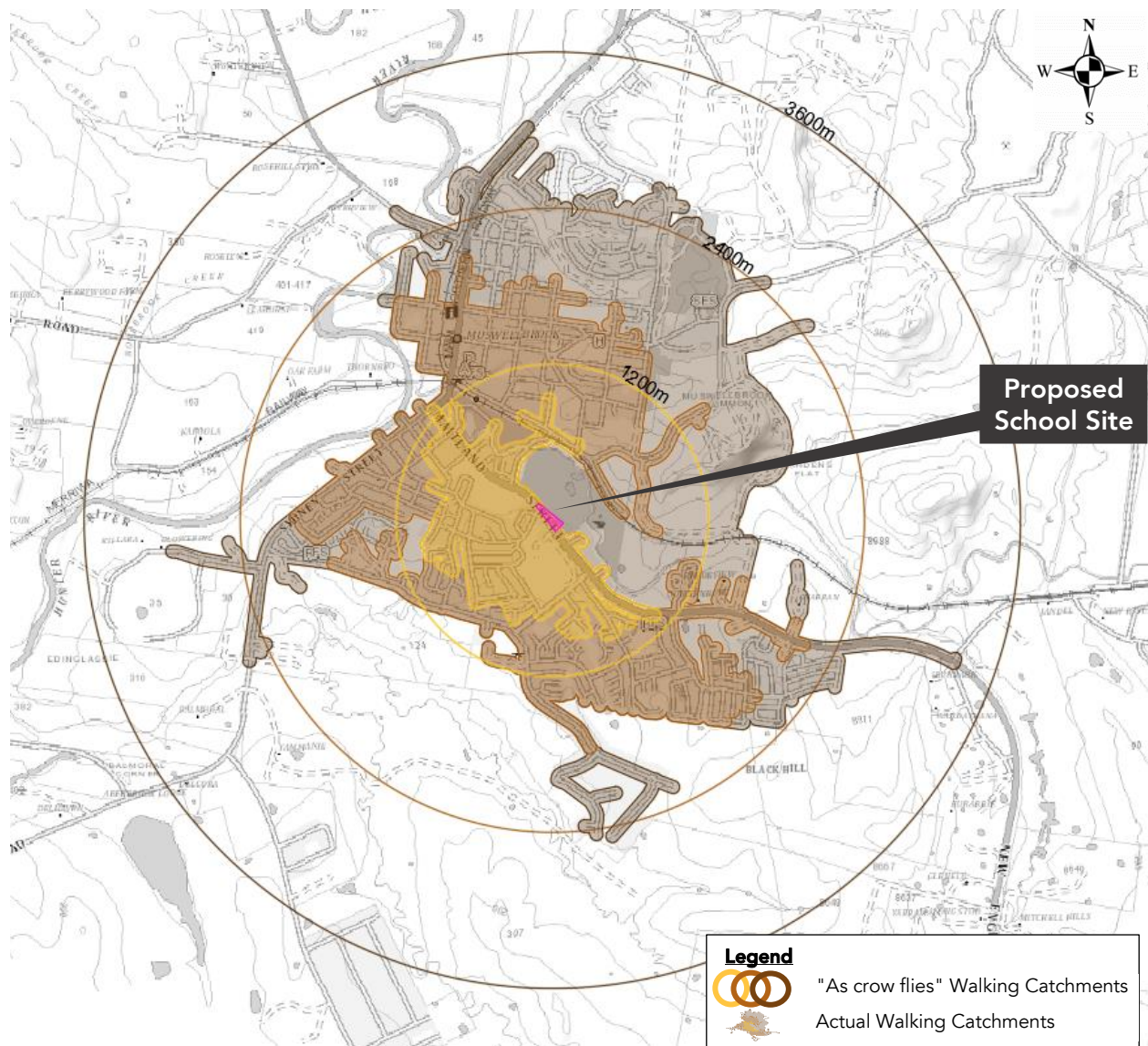


Figure 12 – 1200m, 2400m and 3600m Cycling Catchment

#### 4.2.2.2. Existing Infrastructure and Gap Analysis

The Open Data website has been analysed to determine gaps in the existing and future cycling infrastructure.

Currently, Muswellbrook does not have a comprehensive cycling infrastructure, as shown in Figure 13. Local, residential streets may be acceptable for students to cycle on, but collector and arterial roads would require off-road cycle facilities.

The direct vicinity of the proposed school site is not linked by any safe cycling routes, and the road shoulder on the eastern side of Maitland Street is not an acceptable cycling facility for students.

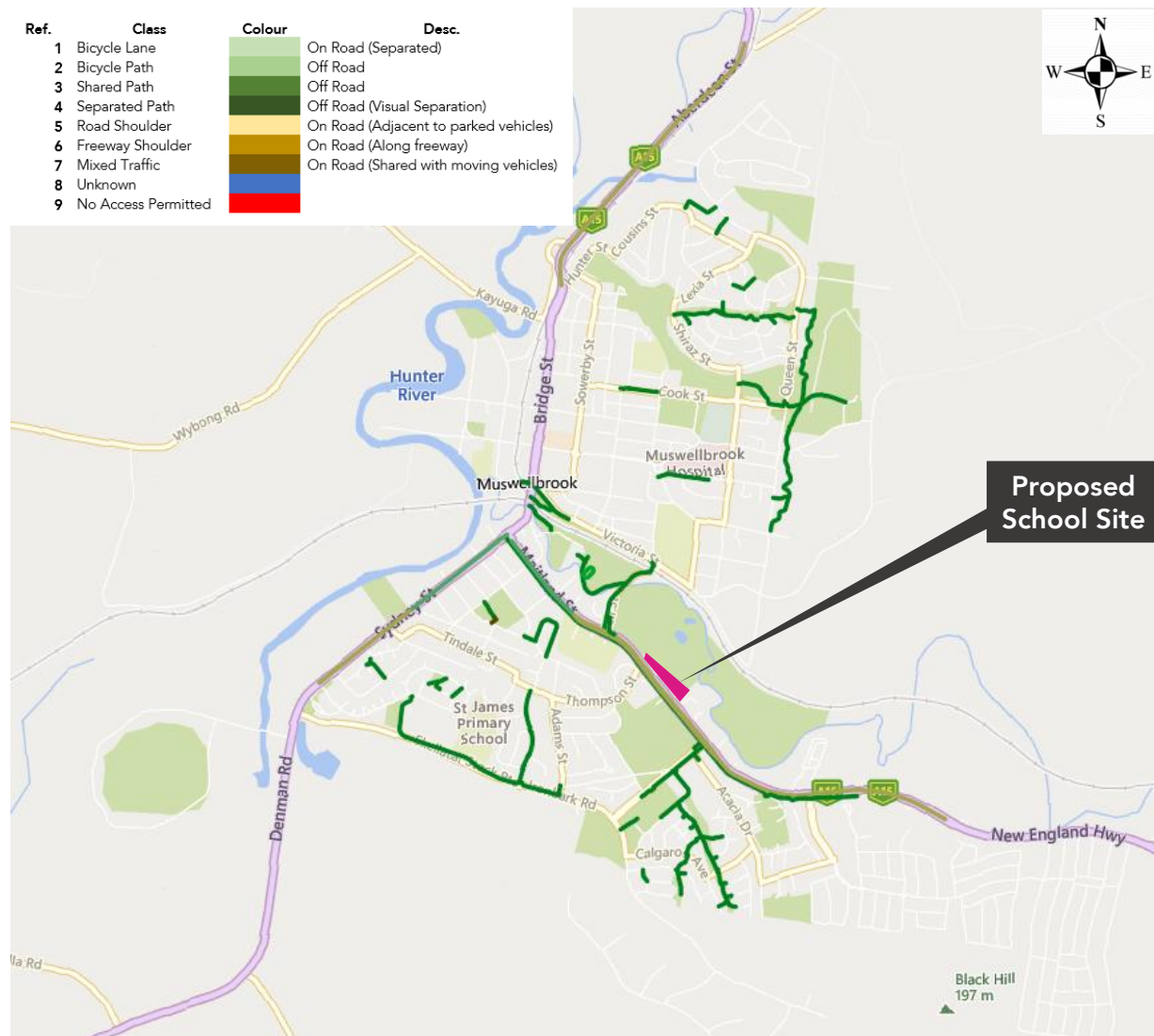


Figure 13 – Existing Bicycle Routes

As shown in Figure 14, there are both on and off-road bicycle routes in planning, many of which would benefit the potential students and staff of the proposed school.

Ideally, planning and delivery of some of these paths would be expedited to provide better cycling connectivity for the prospective students.

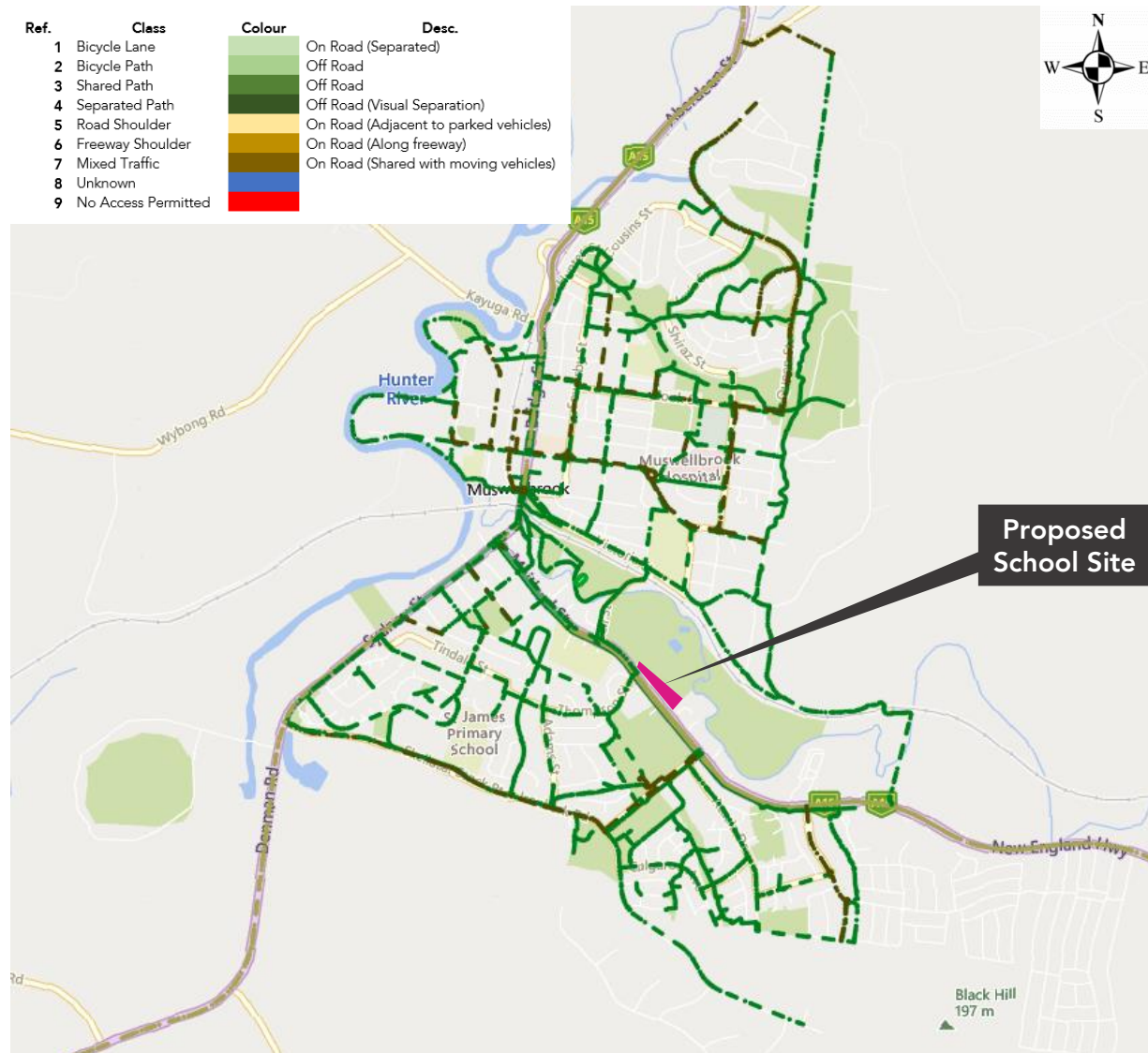


Figure 14 – Proposed Future Bicycle Routes

Based on the analysis of the existing infrastructure, the railway track as shown by the blue line in Figure 15 is a major barrier for walking and cycling towards the north due to the limited connectivity across the railway track. Further, there are gaps in connectivity due to a lack of continuous shared path (see pink circles), a lack of a pedestrian crossing (green cross) and a crossing that could potentially be improved (grey cross). It is therefore assumed that currently students living north of the railway track are more likely to be reliant on either public or private transport.

Regarding connectivity in the southbound direction, as discussed in Section 3.4 there is currently no direct connectivity across Maitland Street, but the Maitland Street / Thompson Street intersection has recently been approved and will be constructed in the near future.

Ideally, shared paths in the area south of Maitland Street would be prioritised, particularly along Thompson Street.

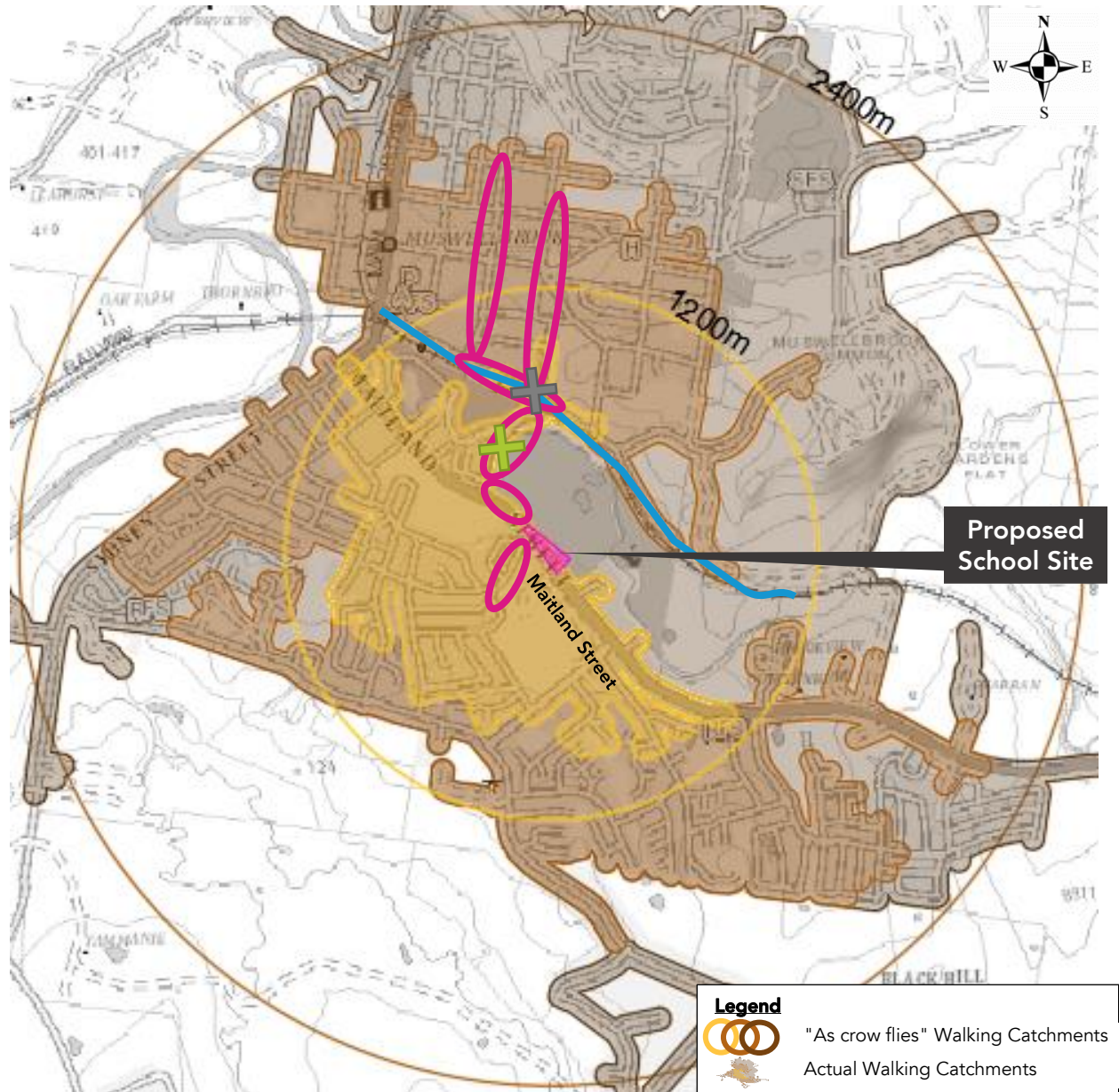


Figure 15 – Cycling Catchment and Barriers

### 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 students, parents and staff. 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 16 presents the SSTS exclusion catchment for the proposed School site. 0% of primary and 45% of secondary students are eligible for the free or discounted student travel pass.

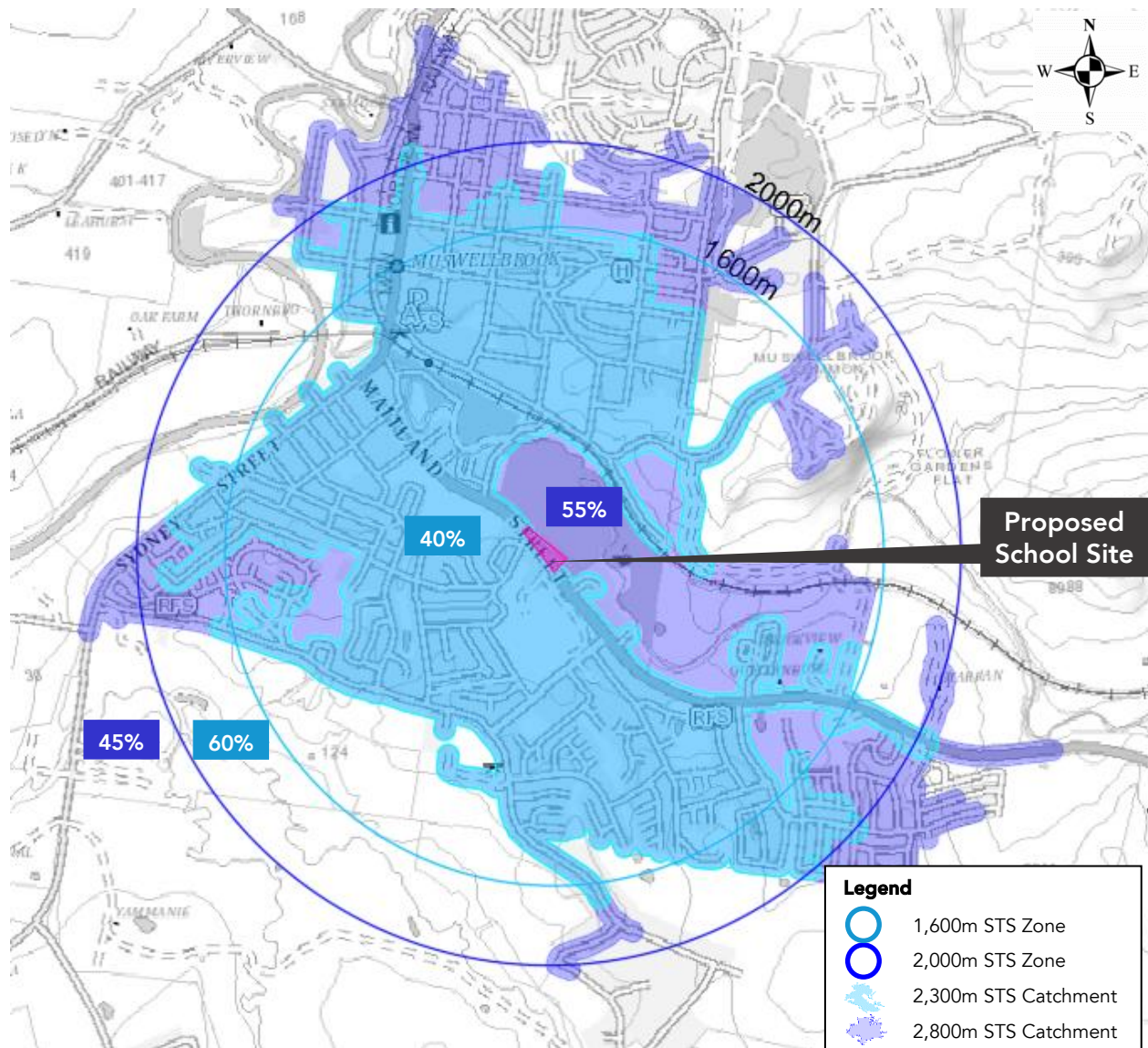


Figure 16 – SSTS Exclusion Zone

Figure 17 presents the SSTS zone and major barriers. The area highlighted in orange represents 33% of students who are more likely to be reliant on either public or private transport. This is because this area lacks proper connectivity across the railway track in the north and is therefore not ideal from a student safety perspective. For this reason, convenient public transport connectivity would be beneficial for these students.

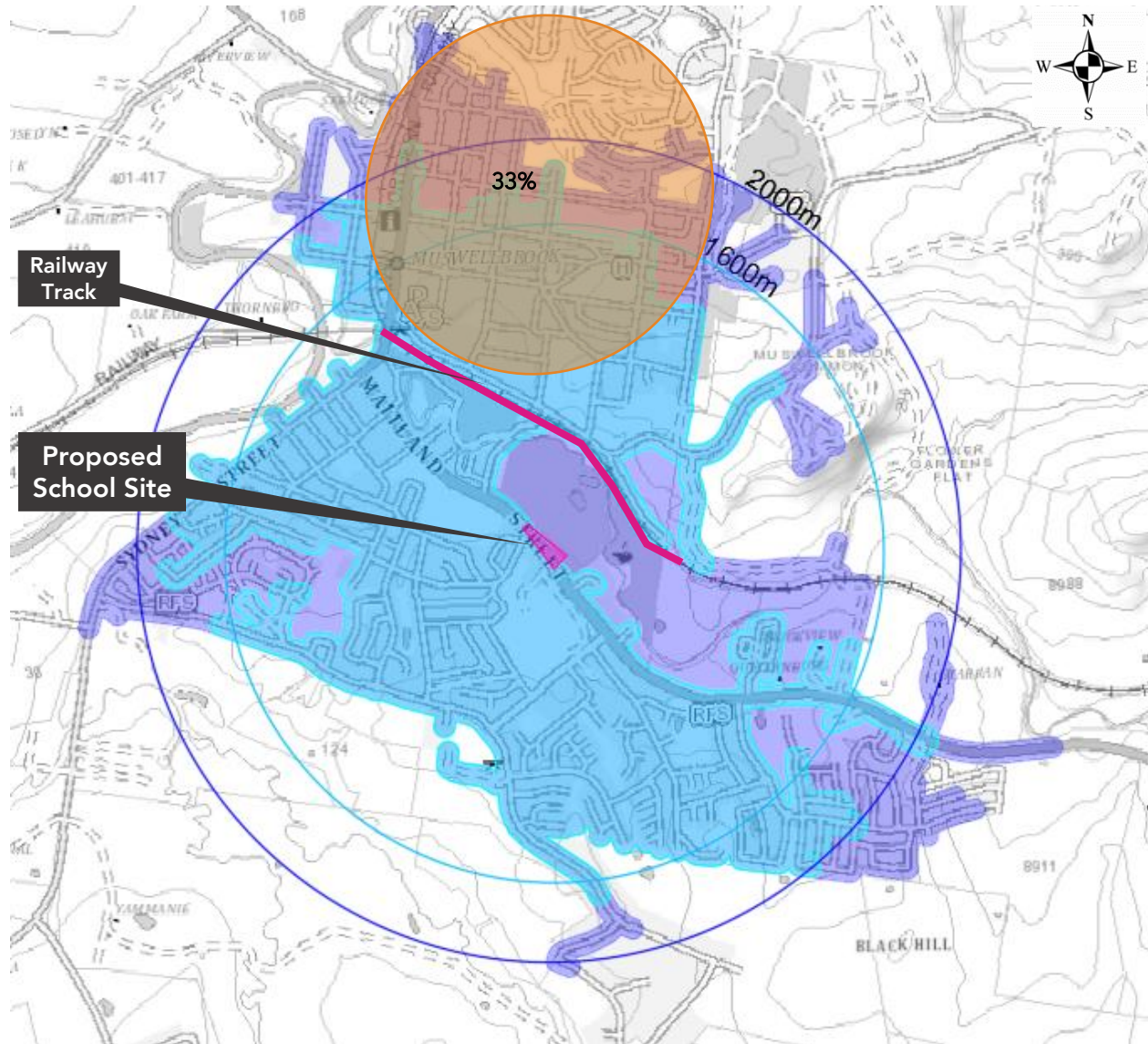


Figure 17 – SSTS Exclusion Zone and Barriers

### 4.3.2 Bus Stops

#### 4.3.2.1. Existing Infrastructure

Figure 18 illustrates the 400m and 800m catchments from the proposed School site, together with public transport facilities available in the vicinity of the site. Details of public transport options and their suitability are outlined in the following sections.

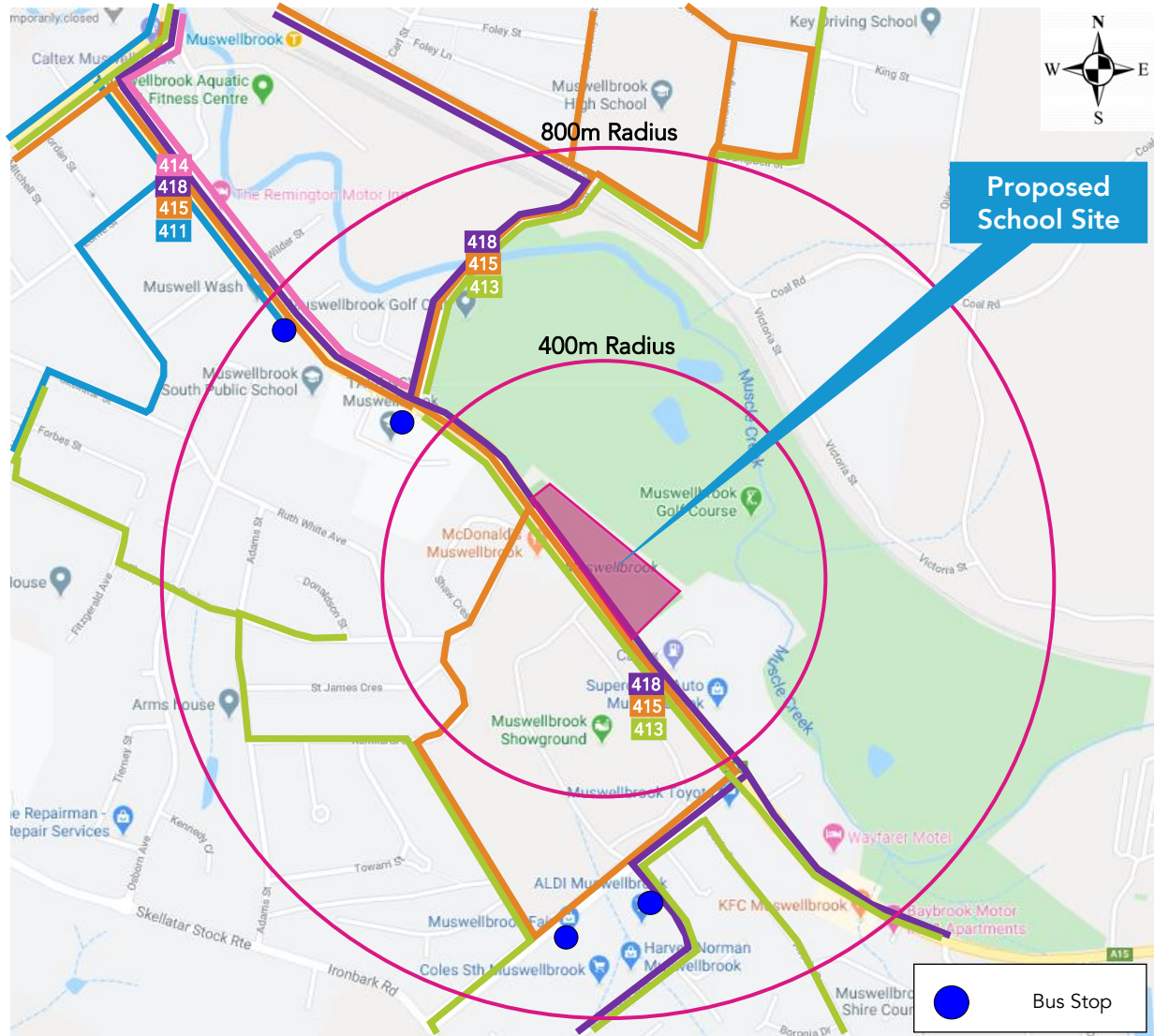


Figure 18 – 400m and 800m Radius of the Subject Site

As shown in Figure 18, there are 4 bus stops within 800m from the proposed school.

It is noted that currently there is a lack of connectivity between any of the bus stops and the site; However, as discussed in Section 3.4, the signalisation of the Maitland Street / Thompson Street intersection has recently been approved and the construction is planned to commence in the near future.

There are potentially 5 services that could be used by staff and students; However the younger the students the less likely it would be for them to utilise this existing infrastructure due to the distance between the bus stops and the school and the requirement to walk along Maitland Street.

#### **4.3.2.2. Potential Future Bus Stops**

Ideally, the school would have a direct access to bus stops; Therefore, an analysis of potential locations has been undertaken as part of this assessment.

The safest option for students would be if a bus stop was positioned directly outside the school, on the eastern carriageway of Maitland Street between the two driveways. Ideally, all buses transporting students would stop at this bus stop, so that students do not need to cross the main road. However, considering that this may not be feasible from a bus route perspective, a second bus stop on the western carriageway of Maitland Street would be beneficial.

Different options were analysed for the bus stop location on the western side of Maitland Street, which are shown in Figure 19 and listed below:

- Option 1 – northwest of Maitland Street / Thompson Street intersection – 75m walking distance from the School Site;
- Option 1 – southwest of Maitland Street / Thompson Street intersection – 130m walking distance from the School Site; and
- Option 3 – northwest of Maitland Street / Rutherford Road intersection – 400m walking distance from the School Site.

Option 1 is seen as the most beneficial location due to its proximity to the secondary school entry. Other locations are unsuitable due to the reasons as illustrated in Figure 19.

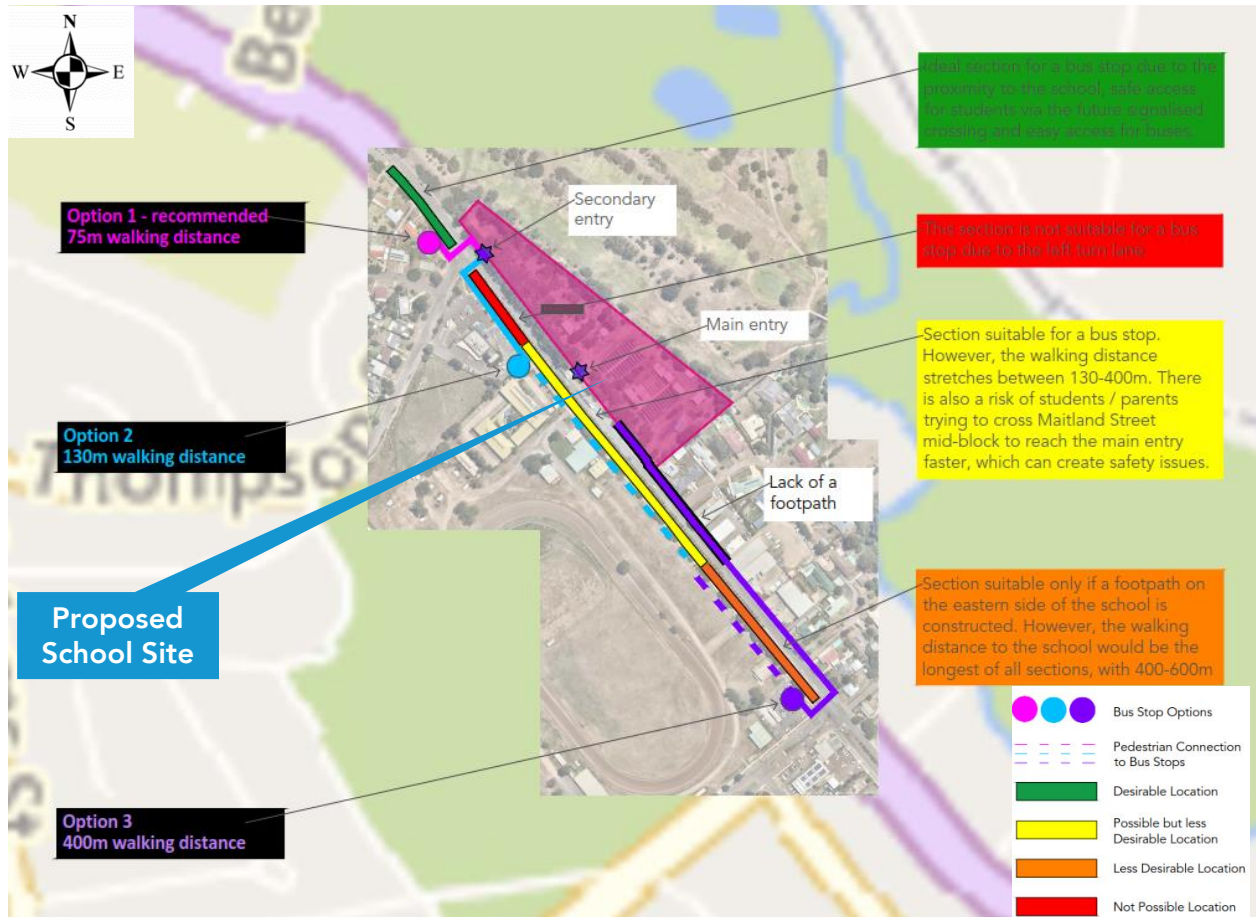


Figure 19 – Bus Stop Location Analysis

The potential locations of future bus stops are shown in Figure 20 and listed below:

- Bus Stop A adjacent to the School on Maitland Street.
- Bus Stop B at Maitland Street west of Thompson Street.

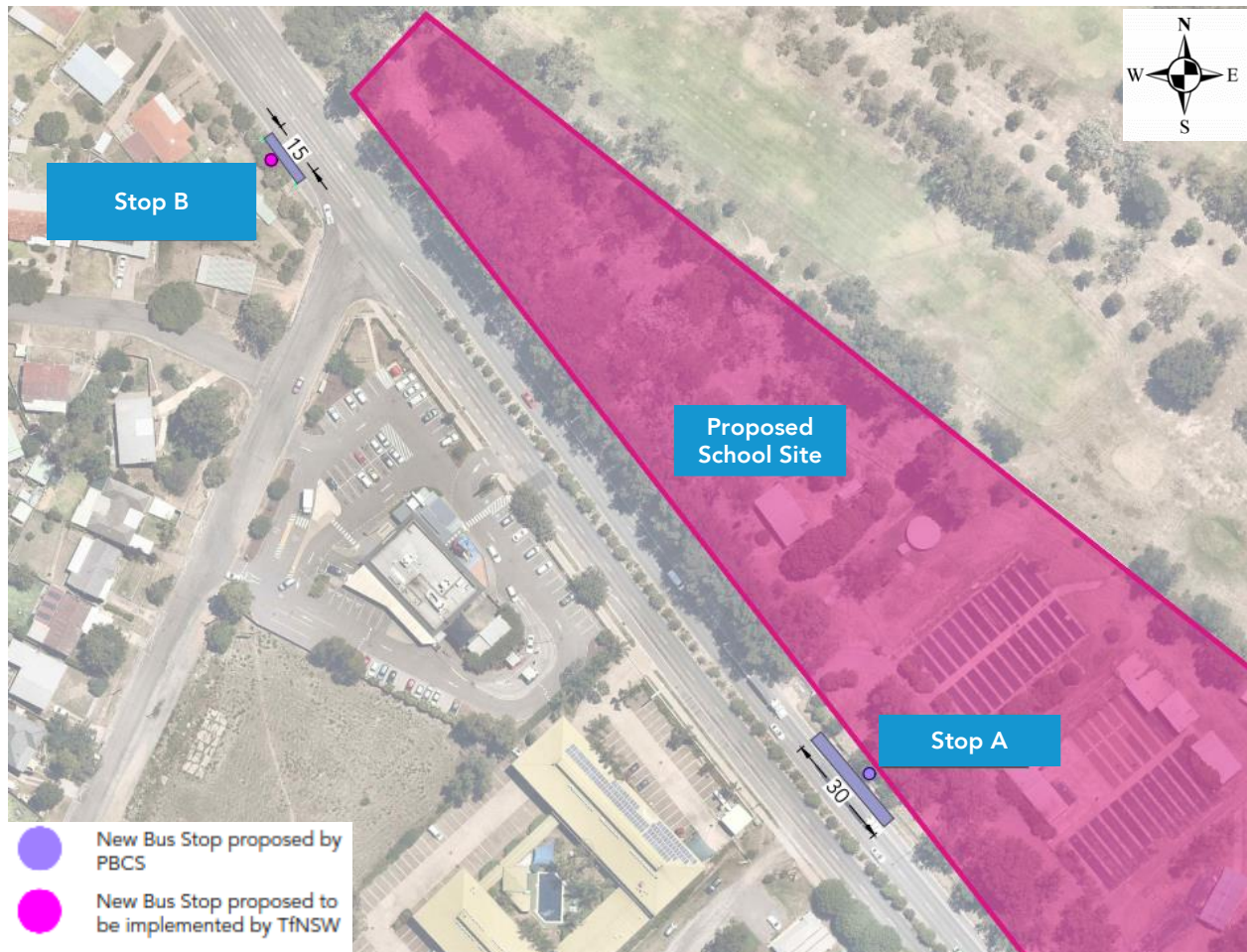


Figure 20 – Proposed Bus Stops

### 4.3.3 Public Buses

#### 4.3.3.1. Public Bus Network

In the broader aspect, Muswellbrook appears to have a good bus coverage, in particular the town centre. However, only three services pass the proposed school: the 413, 415 and 418, connecting only the south-eastern and part of the northern area.

The public bus network within Muswellbrook is shown in Figure 21.

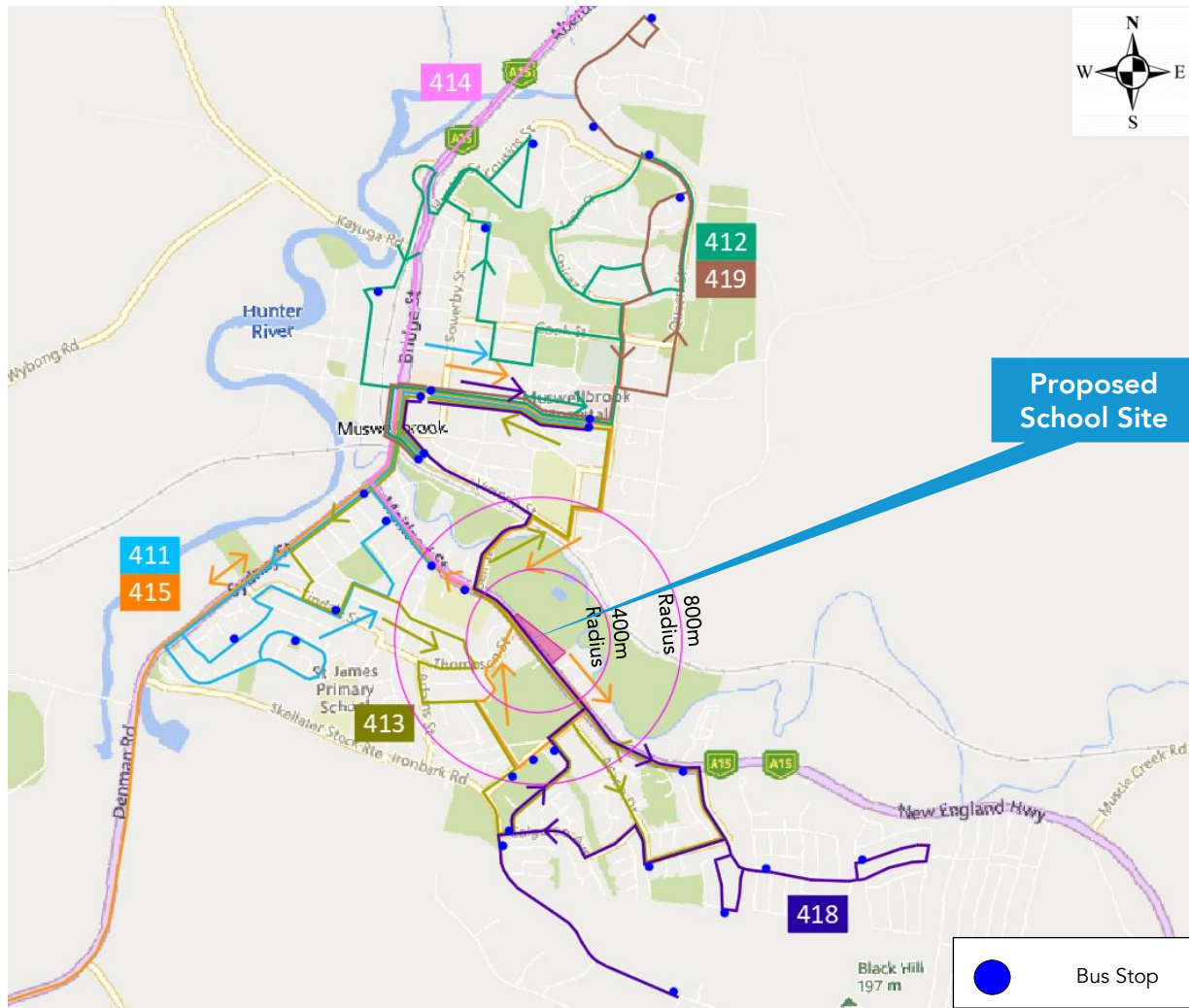


Figure 21 – Bus Route Network within Muswellbrook

### 4.3.3.2. Public Bus Services

The bus services within the 800m walking catchment of the school, including coverage, approximate operation times and frequency, are summarised in the table below.

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

Bus Route	Coverage	Approximate operation time frame and frequency
411	Muswellbrook - Muswellbrook Hospital (Loop Service)	Mon-Fri: 38-87 minutes intervals, between 9:07am and 2:12pm Sat: 38-87 minutes intervals, between 9:07am and 12:45pm
413	Muswellbrook – Highbrook (Loop Service)	Mon-Fri: 36-90 minutes intervals, between 10:05am and 2:54pm Sat: 38-90 minutes intervals, between 10:05am and 12:40pm
414	Muswellbrook – Scone (Loop Service)	Mon-Fri: 55-150 minutes intervals, between 6:50am and 5:55pm Sat - Sun: No services
415	Muswellbrook – Scone (Loop Service)	Mon-Fri: Approximately 4 hours interval, between 8:03am and 12:58pm Sat - Sun: No services
418	Muswellbrook – Eastlinks (Loop Service)	Mon-Fri: 60-130 minutes intervals, between 9:20am and 2:52pm Sat: 60 minutes intervals, between 9:20am and 12:21pm

The development is poorly serviced by bus, with services every 36 minutes to 4 hours throughout the day on weekdays. In addition, most of the buses commence their services after the morning bell time and conclude their services before the afternoon bell time.

Considering the above, the current public bus services are not a reliable or convenient travel mode option for students, parents and staff.

### 4.3.4 School Buses

The current school location is serviced by school buses run by Osborn’s Transport.

The proposed School site location is not currently serviced; However, preliminary discussions with the local bus operator have already commenced and the routes would be reviewed in due course.

As shown in Figure 22, there is a lack of services towards the north of Muswellbrook during the morning. This gap would ideally be closed, given that many of the students residing towards the north would less likely walk or cycle to the new school location.

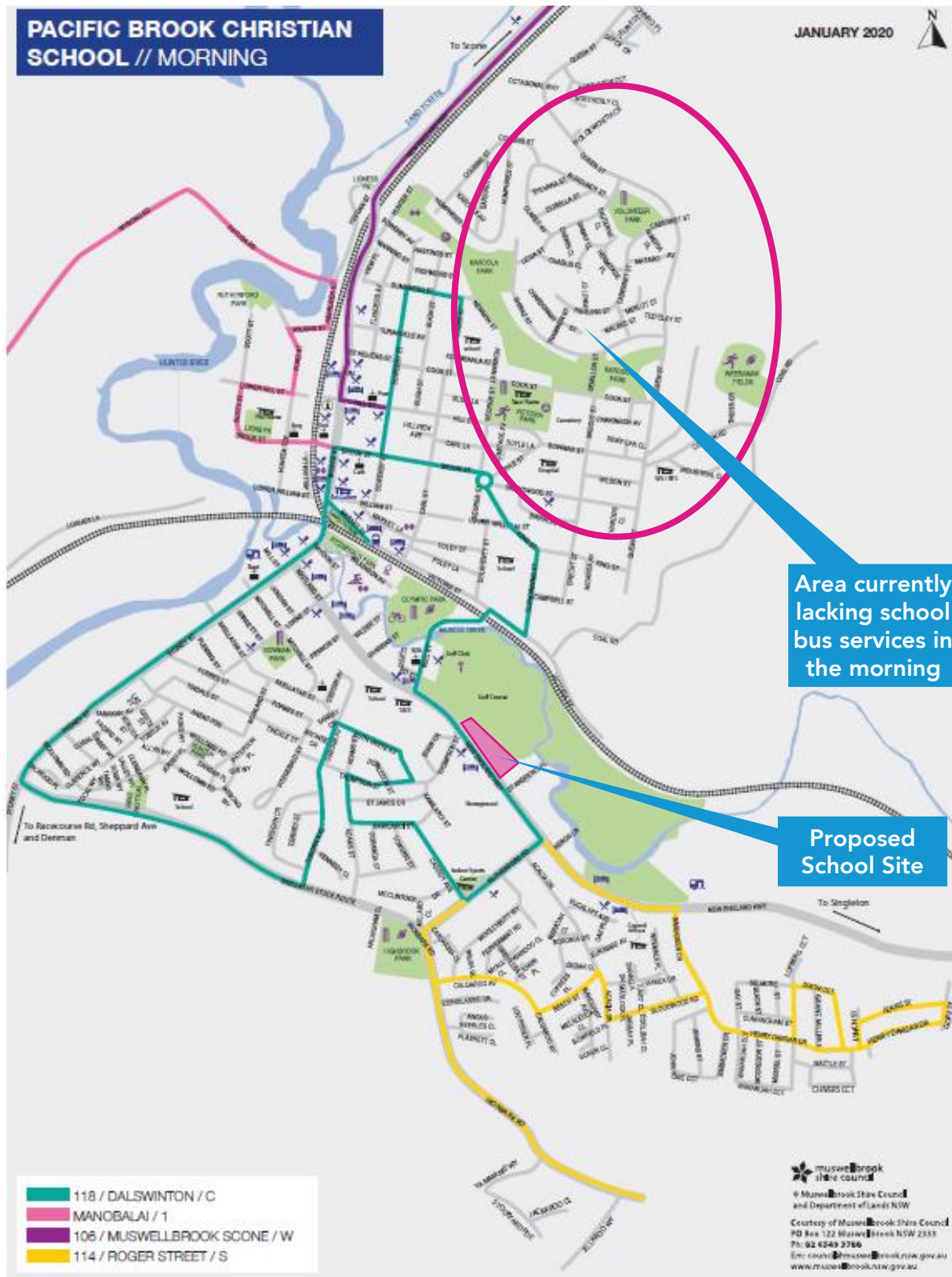


Figure 22 – School Bus Network – AM

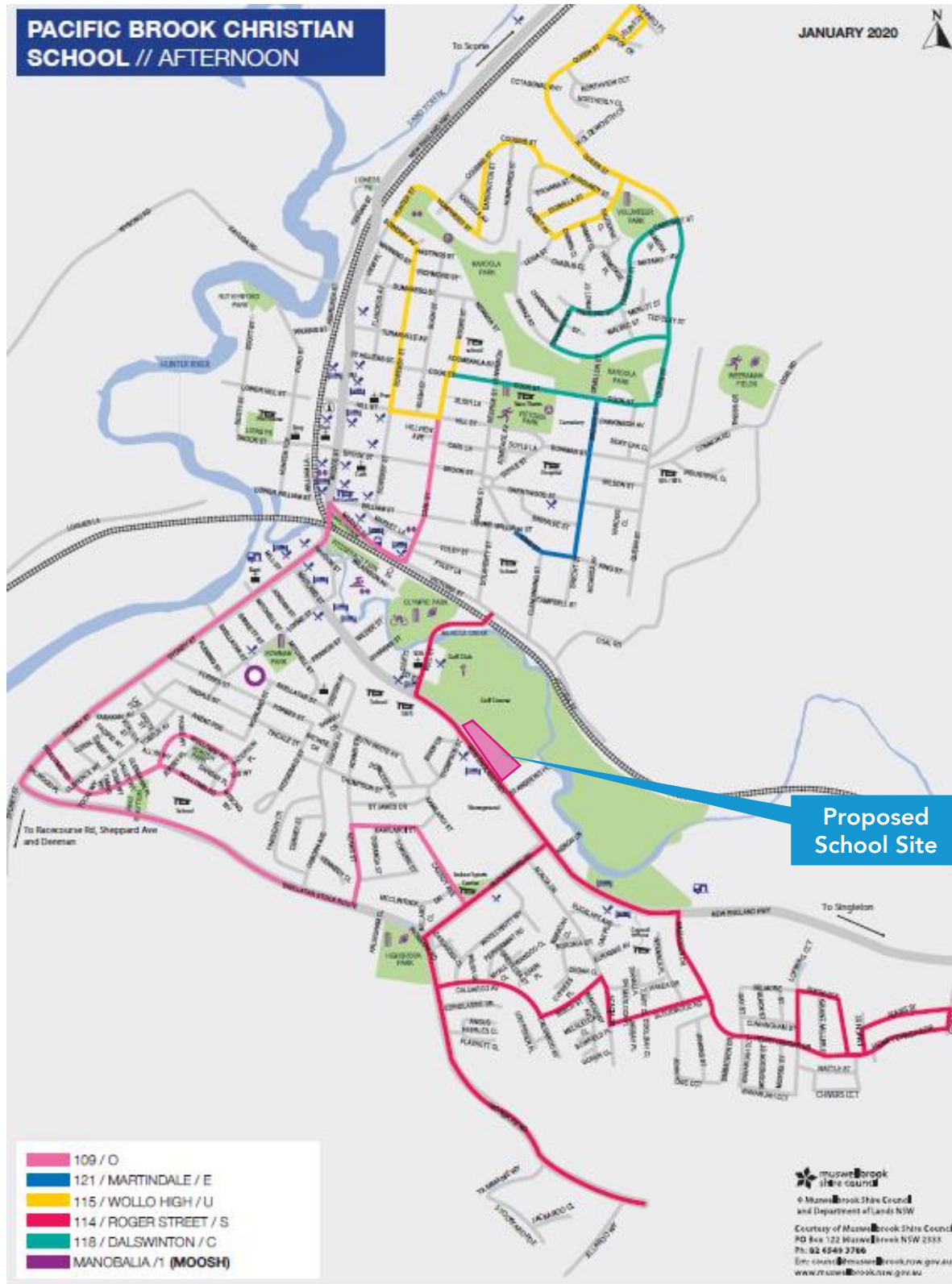


Figure 23 – School Bus Network – PM

#### 4.3.5 Discussion

Muswellbrook has a good bus coverage providing services from within the entire area to the town centre. However, with the view on the proposed school, the services and frequency are limited and many of the buses do not pass the subject site.

Further, the existing bus stops are inconveniently located in relation to the proposed School site.

Therefore, a detailed analysis of the ideal bus stop location and the bus network has been undertaken, following which some potential bus network changes have been proposed to enable staff to use public transport. This analysis is presented in **Attachment 3**.

It is noted that in order to enable students to travel to and from school by bus from commencement of the facility, the school has committed to providing a bus stop on the eastern side of Maitland Street. Further detail on this item is provided in Section 6.5. It is requested that TfNSW implement the bus stop on the western side of Maitland Street.

Further, initial consultation with Osborn's Transport was undertaken in February 2021 to confirm the appropriate process of including a new school location in their service planning. It was suggested that consultation with and approval by TfNSW will be required to undertake this task.

Lastly, it is suggested that the public bus services as illustrated in Figure 21 be extended to the proposed bus stops as per the analysis shown in **Attachment 3**, with additional bus services during, before and after the School bell times to facilitate students, staff and parents. School buses (refer Section 4.3.4) would ideally be planned to drop-off and pick-up students at Bus Stop A during the school hours.

**ptc.** attempted early consultation with TfNSW in February 2021 in regard to the above points, but has not received any response back.

#### 4.4 Road Network

The subject site is located in the suburb of Muswellbrook and is primarily serviced by Maitland Street i.e., a state road.

A summary of the State, Regional and Council managed local roads serving the site is presented in Figure 24 and the following tables.

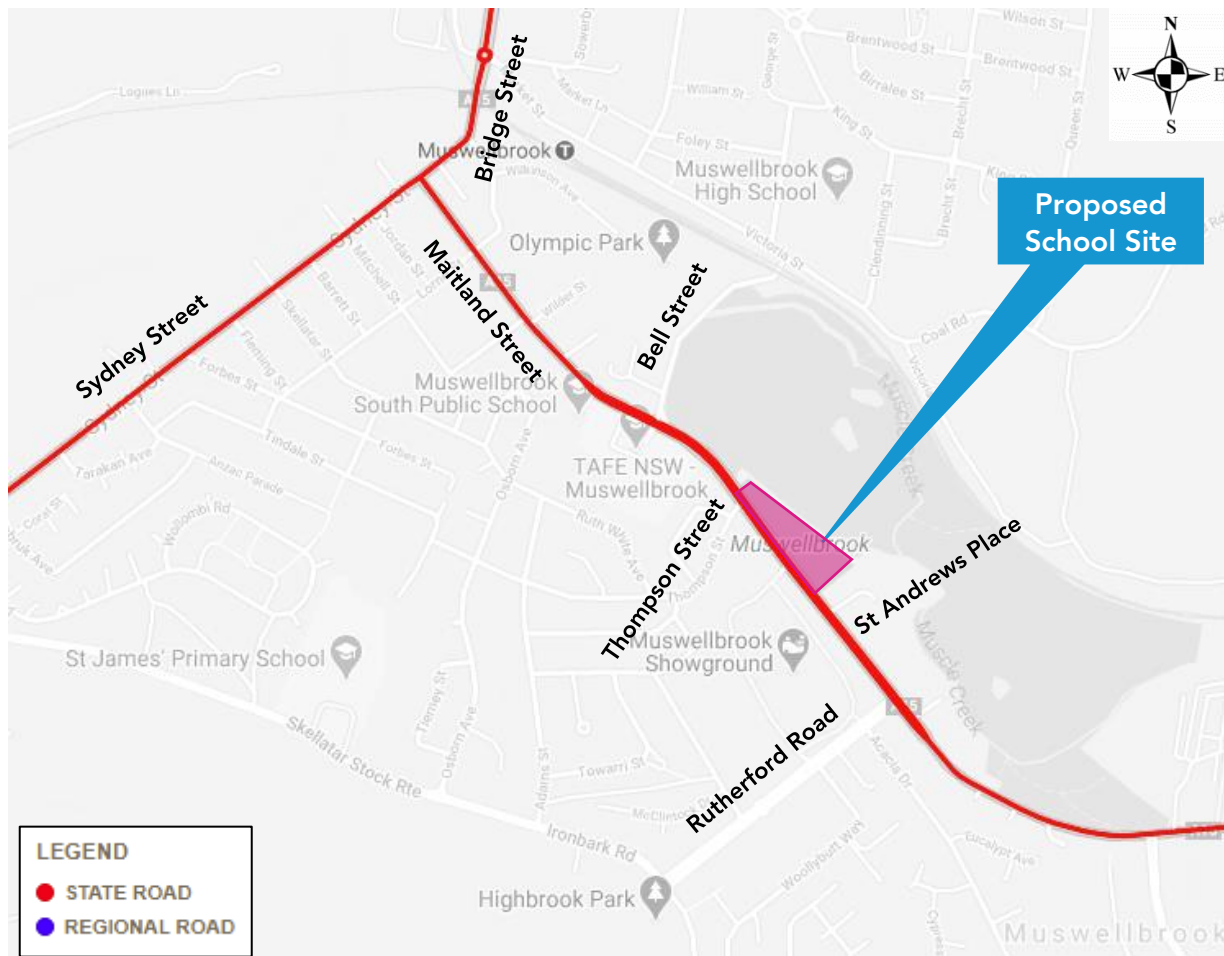


Figure 24 – Surrounding Road Network (Source: RMS Road Hierarchy)

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 (generally TfNSW managed)
- Regional Roads** - Secondary or Sub Arterials (Council managed, partly funded by the State)
- Local Roads** - Collector and Local Access Roads (Council managed)

Table 2 – Maitland Street

<b>Maitland Street</b>	
Road Classification	State Road – Council managed
Alignment	Northeast - Southwest
Number of Lanes	2 lanes in each direction
Carriageway Type	Divided
Carriageway Width	23m
Speed Limit	50km/h
School Zone	No
Parking Controls	Northbound – ‘Loading Zone 7am – 5pm Mon-Fri’ Southbound – no parking restrictions
Forms Site Frontage	Yes



Figure 25 – Maitland Street – Northwestbound towards Thompson Street

Table 3 – Rutherford Road

<b>Rutherford Road</b>	
Road Classification	Local Road
Alignment	Northeast - Southwest
Number of Lanes	1 lane in each direction
Carriageway Type	Divided
Carriageway Width	21m
Speed Limit	50km/h
School Zone	No
Parking Controls	Unrestricted Parking
Forms Site Frontage	No



Figure 26 – Rutherford Road – Southwestbound towards Arcacia Drive

Table 4 – Thompson Street

Thompson Street	
Road Classification	Local Road
Alignment	North - South
Number of Lanes	1 lane in each direction
Carriageway Type	Undivided
Carriageway Width	12m
Speed Limit	50km/h
School Zone	No
Parking Controls	"No Stopping" on eastern side, unrestricted on western side
Forms Site Frontage	No



Figure 27 – Thompson Street – Northbound towards Maitland Street

Table 5 – Bell Street

Bell Street	
Road Classification	Local Road
Alignment	North - South
Number of Lanes	1 lane in each direction
Carriageway Type	Undivided
Carriageway Width	16m
Speed Limit	50km/h
School Zone	Yes
Parking Controls	Unrestricted
Forms Site Frontage	No



Figure 28 – Bell Street – Northbound towards Clifford Street

## 5. Travel Patterns and Travel Demand

The following sections present a review and comparison between an ideal scenario, existing mode share at the School and potential future travel mode share.

### 5.1 Ideal Case / Potential Achievements Based on Catchments

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

#### 5.1.1 Walking

“As crow flies” and actual 400m / 800m / 1200m walking catchments are presented in Figure 29.

Approximately 15% of the students live within the 1200m walking distance.



Figure 29 – Walking Catchment and Student Population

### 5.1.1 Cycling

"As crow flies" and actual 1200m / 2400m / 3600m cycling catchments are presented in Figure 30.

Approximately 15% students reside within the 1200m walking / cycling catchment, 38% of primary school students reside within the 1201m - 2400m cycling catchment and 73% of secondary school students reside within the 1201m - 3600m cycling catchment.

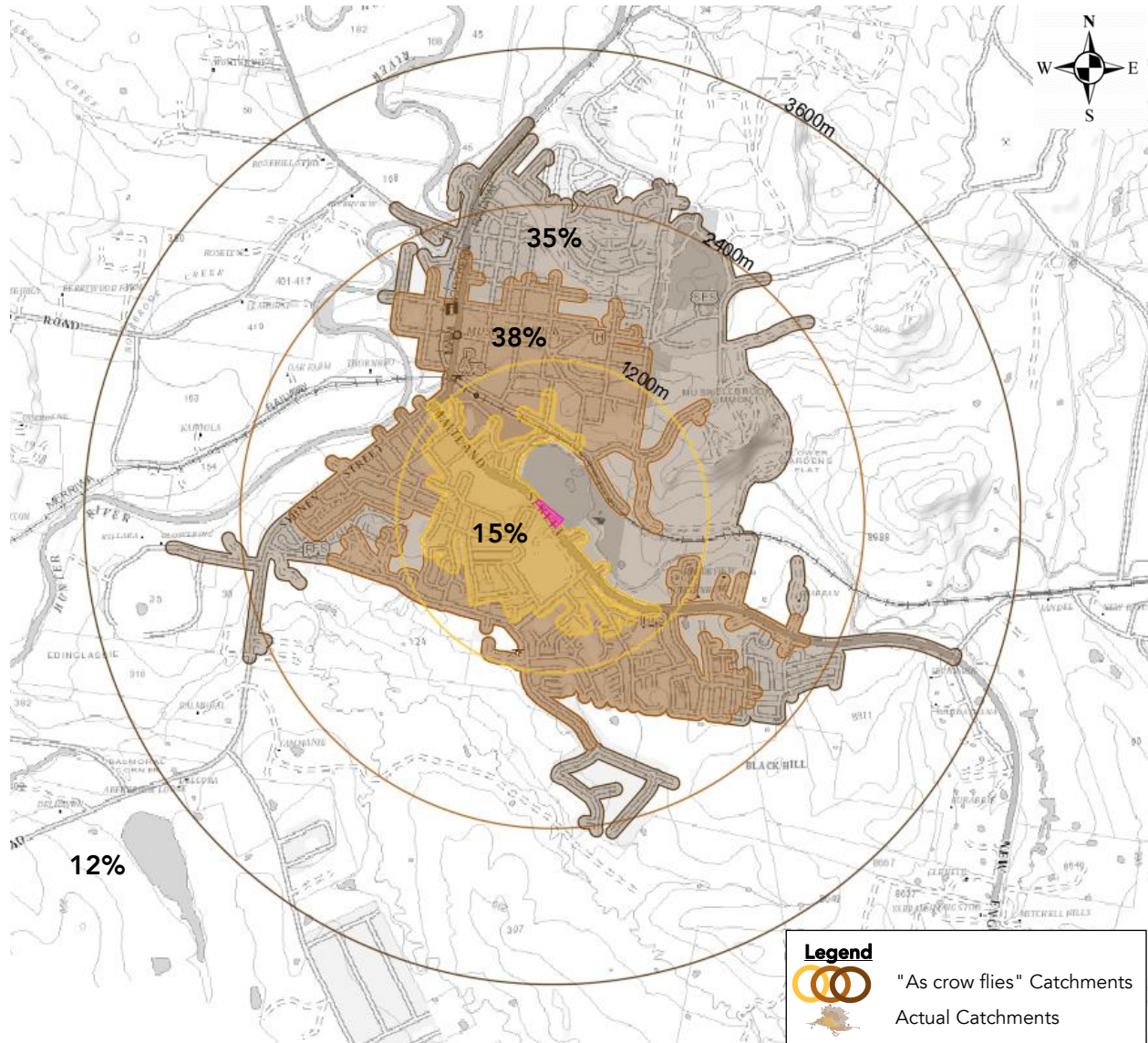


Figure 30 – Cycling Catchment and Student Population

### 5.1.2 Public Transport

“As crow flies” 1,600m and actual 2,300m SSTS exclusion zones for primary school students and “as crow flies” 2,000m and actual 2,800m SSTS exclusion zones for secondary school students are presented in Figure 31.

40% of primary school students and 55% of secondary school students live within the SSTS exclusion zone. Therefore, 60% of primary school students and 45% of secondary school students are eligible for the free or discounted student travel pass.

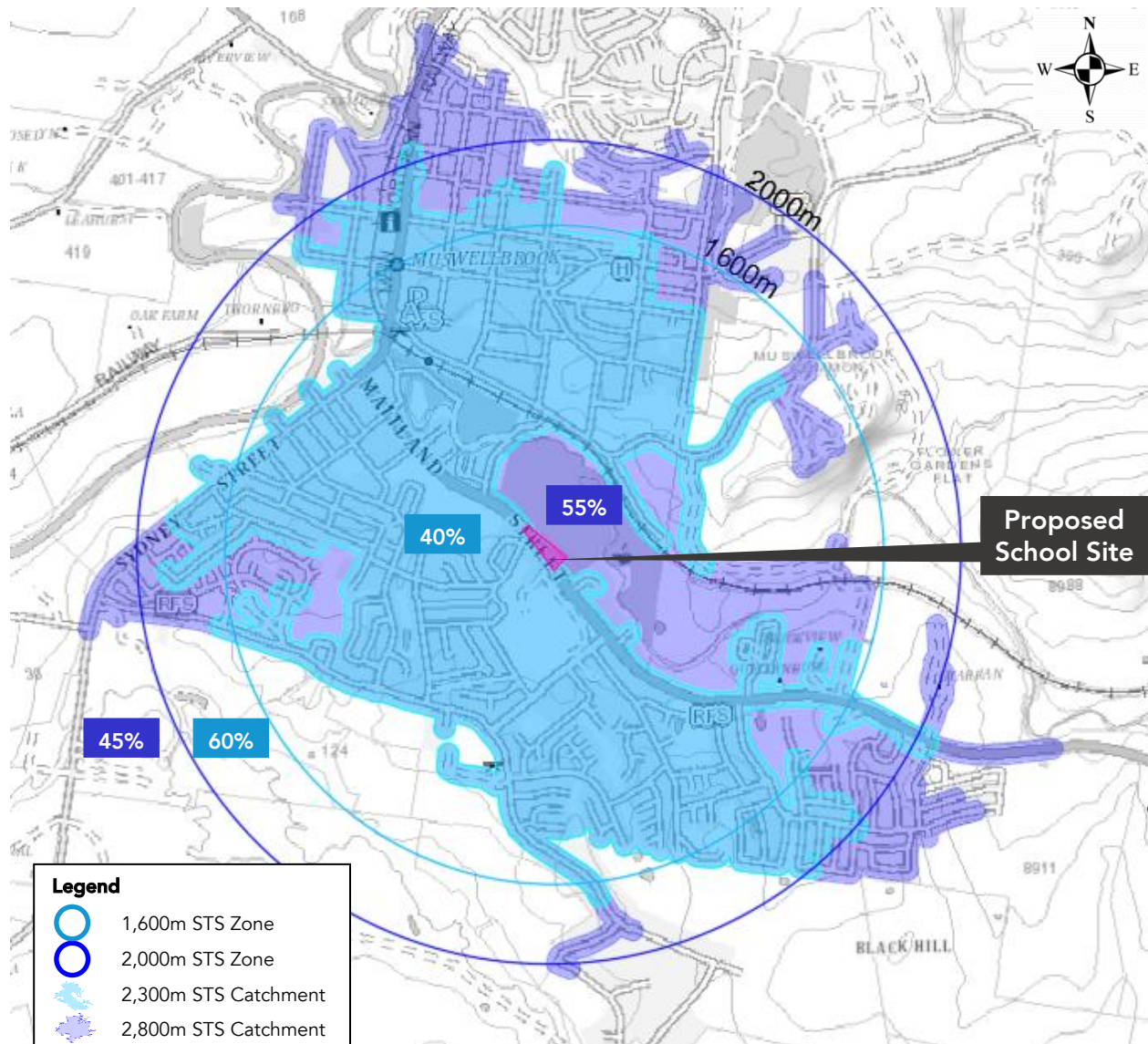


Figure 31 – Public Transport Catchment and Student Population

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## 5.2 Gap Analysis / Potential Target

Due to the School being relocated, no actual data is available to calculate potential mode share. Therefore, in order to undertake an analysis of potential walking, cycling and public transport catchments, the following considerations have been made:

- 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 1.2km distance which equals a 15-minute walk is seen as acceptable if walking is a sole travel mode.
- The comfortable cycling distance is defined by the Guide to be between 800m-1.5km, which equals a 5-10 minute cycle. Distances up to 2.4km and 3.6km are seen as acceptable for primary and secondary school students respectively; and
- Existing infrastructure in the close proximity of the School.

Considering the above, it has been assumed that:

- For approximately 15% students residing in the southwest it is feasible to walk to school.
- For further 42% students residing south of Maitland Street it is feasible to cycle to school.
- Even though 33% students in the north live within walking and cycling catchment, this area lacks proper connectivity across the railway track (refer to the pink line in Figure 32 and Section 4.2) and the existing pedestrian and cycling infrastructure does not support active transport in the northbound direction. For this reason, public transport could be a suitable means of transport for students residing in this area, given appropriate coverage and services.
- The remaining 10% students live outside of the walking and cycling catchment and it is more likely that these students would travel to school on private vehicles.

These assumptions are visualised in Figure 32.

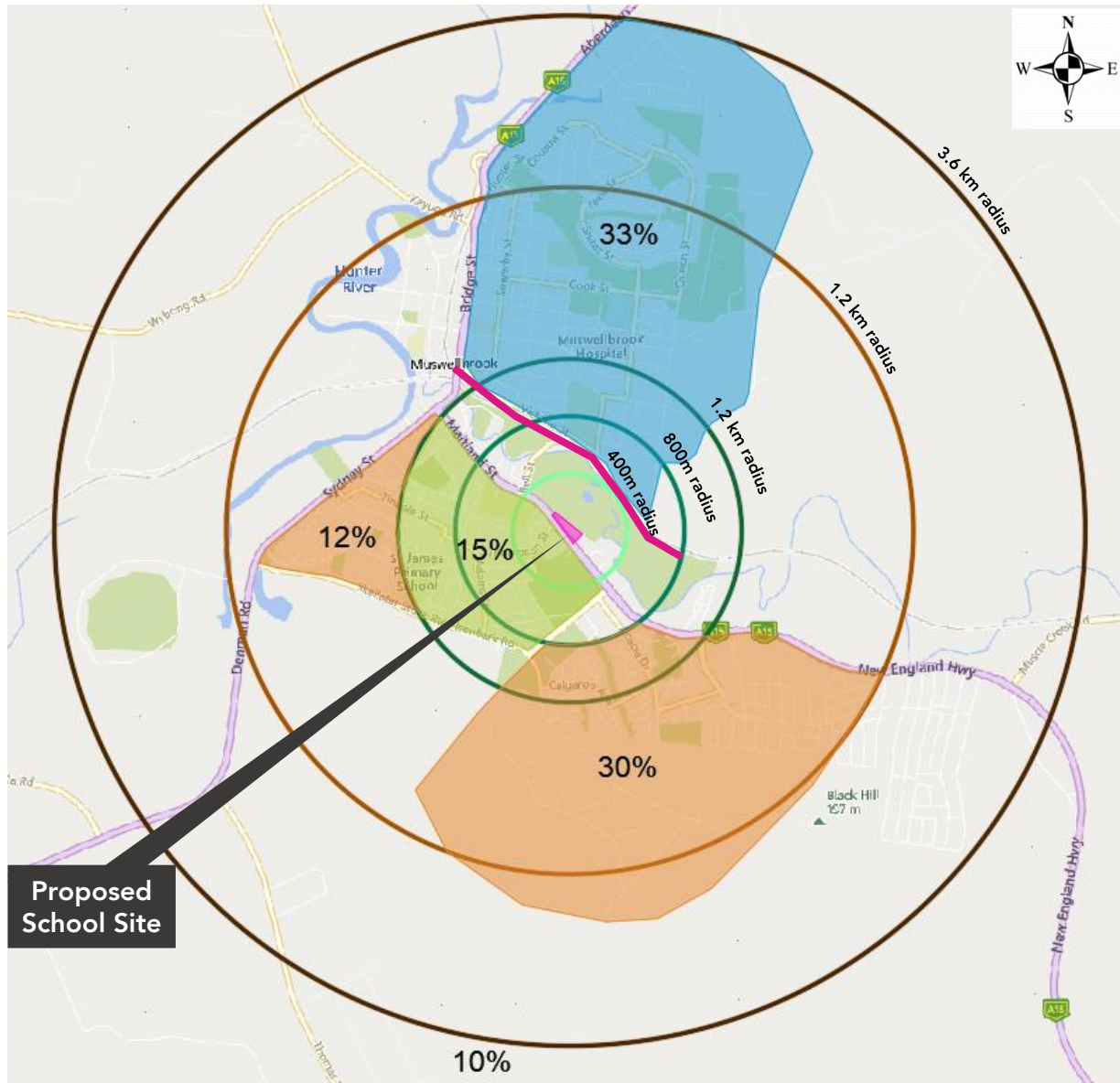


Figure 32 – Walking, Cycling and Public Transport Catchments

### 5.3 Existing Travel Mode Share Based on Travel Surveys – Base Case

An online questionnaire was conducted with students and staff (two separate questionnaires). The objectives of the questionnaire are to identify the existing travel behaviour & transport demand and to assist with the post development forecast for traffic modelling purposes.

The survey was active for three weeks in August 2020, which resulted in a total of 47 (100%) student responses and 10 (100%) staff responses.

The survey results are shown below.

#### 5.3.1 Students

The survey responses collected from the student survey (Kindergarten to Year 6) show the existing travel modes to school on a typical morning comprise predominantly 64% car usage (62% with parents and 2% with other family), followed by bus usage (30%) and then walking (4%), as shown in Figure 33.

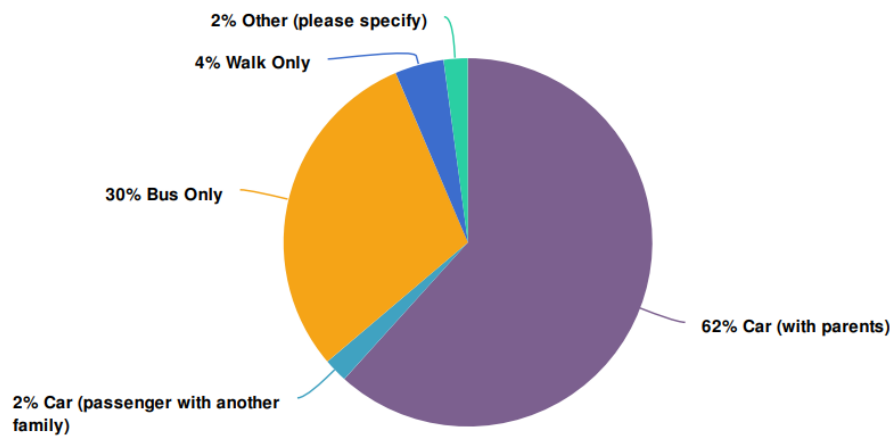


Figure 33 – Surveyed travel mode split for students travelling to school on a typical morning

The factors that contribute the most to a high proportion of parents who drive their children to school is the multi-purpose use of car (e.g., driving to work), followed by safety and lack of convenient bus stop/train station close to home (refer to Figure 34).

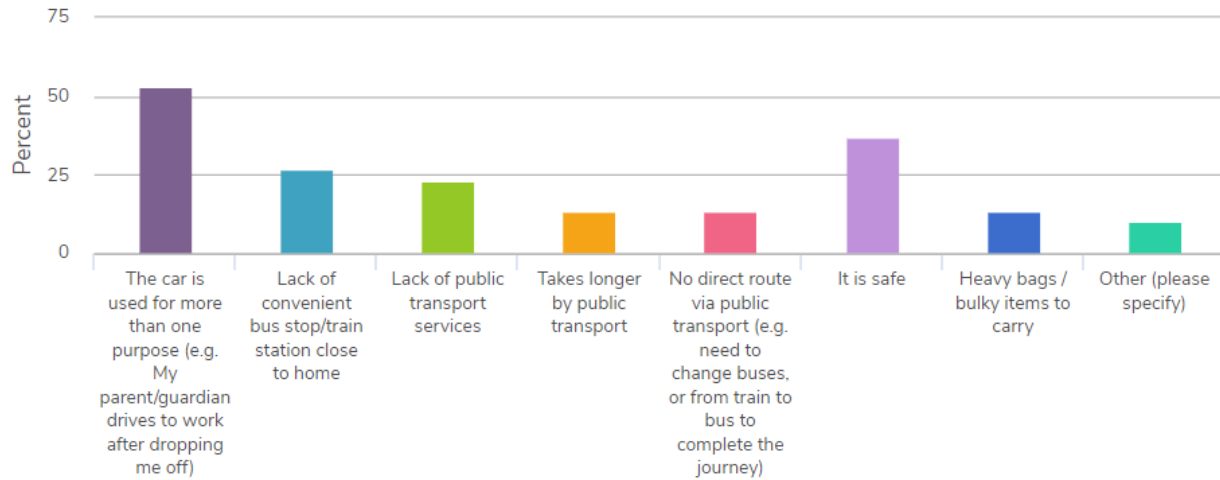
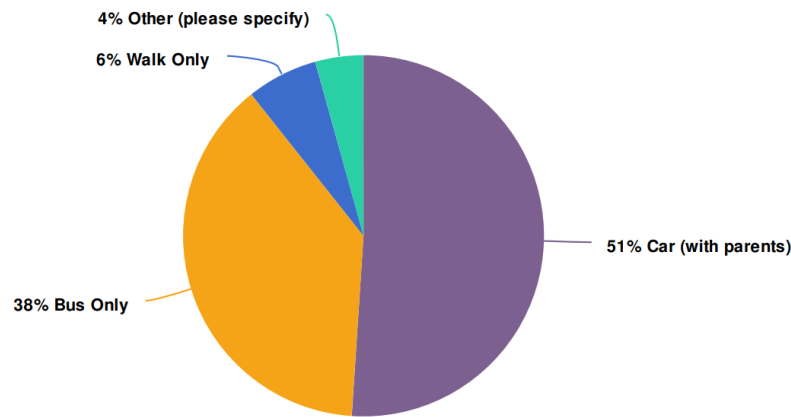


Figure 34 – Typical Reasons for Parents Travelling to School by Car in a typical morning

Surveyed travel mode split for students travelling from school on a typical afternoon is shown in Figure 35. In the afternoon, car usage is still predominant (51%); however, the car usage is reduced by 13%\*, while the bus usage increases by 8%\* and walking increases by 2%\*.



\*Compared to the morning mode share

Figure 35 – Surveyed travel mode split for students travelling from school on a typical afternoon

The factors that contribute the most to a high proportion of parents picking their children up from school by car is safety, followed by the multi-purpose use of car (e.g., driving somewhere else), and a lack of public transport services and convenient bus stop/train station close to home (refer to Figure 36).

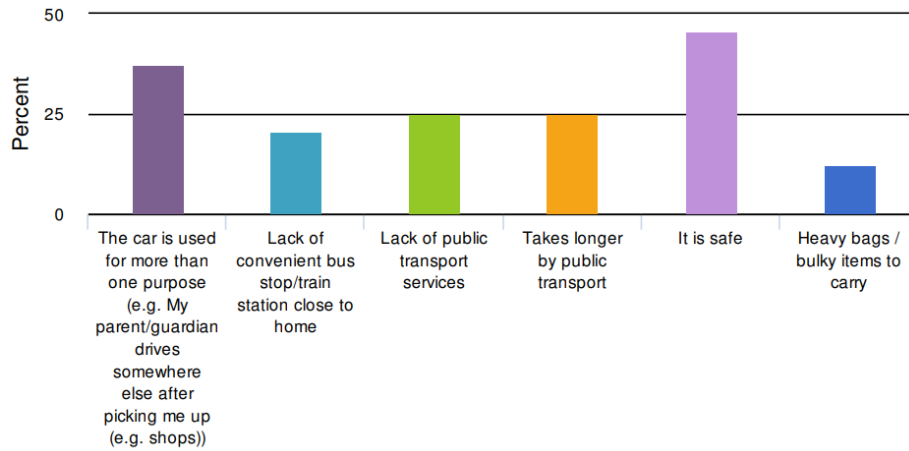


Figure 36 – Typical Reasons for Parents Travelling to School by Car on a typical afternoon

From the survey results, it is found that some cars include more than one student attending the school. Based on the data provided, a weighted car occupancy has been calculated which is 1.62 and 1.71 in the morning and afternoon respectively.

In the morning, out of the students who travel by car, 53% are dropped-off and not accompanied to school, 23% are accompanied to school and 27% are sometimes accompanied to school.

In the afternoon, out of the students who travel by car, all students are picked-up by parents from inside the school.

### 5.3.2 Staff

Regarding the travel mode survey for school staff, the results indicate that all staff travel to and from the school by car as driver.

The factors which contribute to all staff driving include the lack of public transport services, the need to carry heavy bags and bulky items (e.g., files and papers), lack of convenient bus stop/train station close to home, as well as the increased journey time associated with travelling by public transport (refer to Figure 37).

This is a good indicator for staff being inclined to use public transport, if the services were convenient.

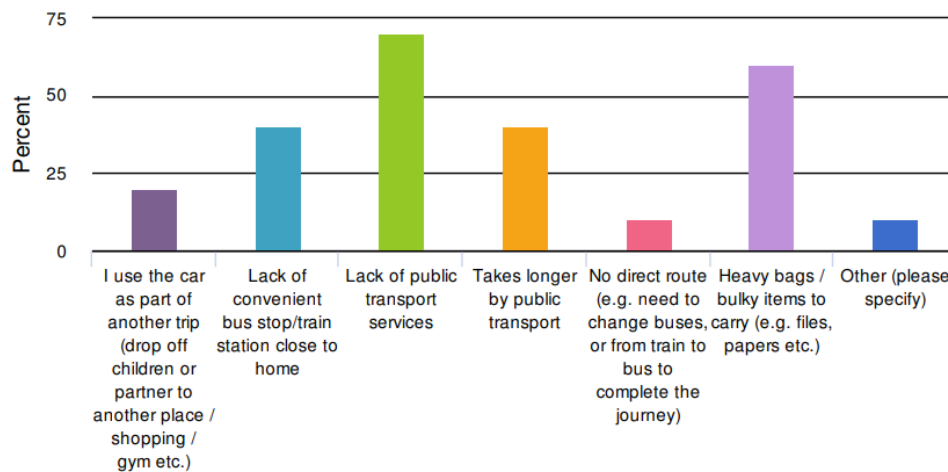


Figure 37 – Typical Reasons for Staff Travelling to School by Car

The survey data indicates that out of all staff, the maximum attendance on a day is 90% and the minimum attendance is 50%. Out of the total staff who attend the school, most of them attend for the whole day.

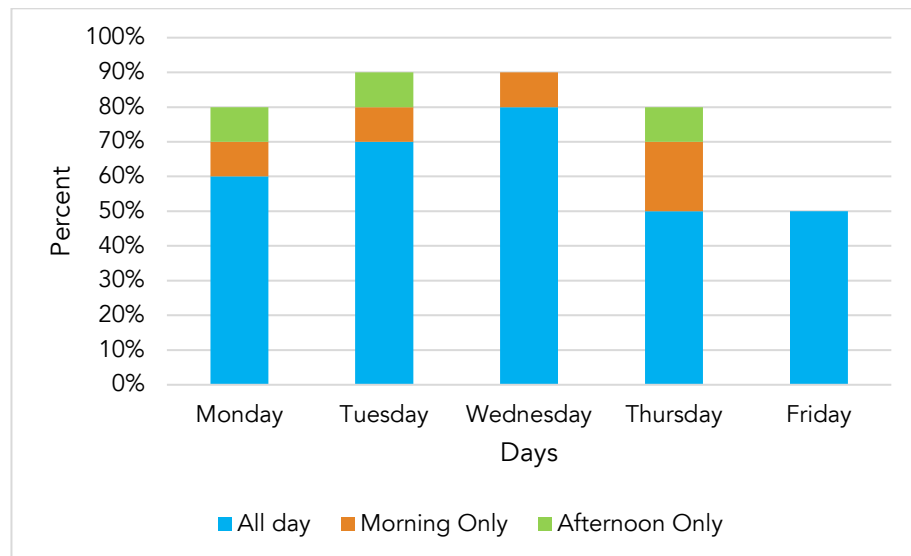


Figure 38 – Staff Attendance on a typical week

## 5.4 Potential Travel Mode Share Based on Travel Surveys

The proposal is to relocate the School to a new site within the Muswellbrook area, hence the existing travel modes determined through the online surveys as discussed in Section 5.1 may not be representative of the potential future travel behaviour. Therefore, the survey included questions asking about the likelihood (between “very likely” and “not likely”) that a particular transport mode will be chosen at the new location; This is to determine how inclined students / parents / staff would be to walk, cycle or use public transport in the future. The results of these questions are presented below.

### 5.4.1 Students

The survey results for the new site location indicate the following (also refer to Figure 39):

- Approximately 51% of students are likely or very likely to choose a car as a means of transport to the new site location, and 28% students are neutral about it.

*51% of students wanting to use the car aligns with the current car usage in the afternoon*

- Approximately 13% of students are likely or very likely to travel as a passenger with another family and 13% students are neutral about it.
- If public bus services and bus stops are provided within a 5-minute walking distance to home/school, approximately 51% students would be likely or very likely to travel on public buses. 17% of students have a neutral opinion.

*Currently, approximately 35% of students use public transport, meaning that there is potential to increase this mode share if facilities / services are improved*

- If school bus services and bus stops are provided within 5 minutes walking distance to home/school, approximately 70% students are likely or very likely to travel on private school buses. 17% students have a neutral opinion.

*The significant difference between the likelihood to use public and private buses may imply that there are safety concerns on public buses. This would align with the main reason why parents currently drive their children to and from school (refer to Figure 36)*

*Further investigation into ways to improve the perceived safety feeling would be beneficial*

- If safe infrastructure and parking/storage facilities are provided, approximately 21% of students are likely or very likely to use scooter or cycle to school. 15% students have a neutral opinion.

*This relatively low likelihood to use rideables may be related to the poor cycling infrastructure within Muswellbrook.*

- If safe infrastructure and satisfactory connectivity are provided 53% of students are likely or very likely to walk to school. 30% students have a neutral opinion.

This is a very positive trend

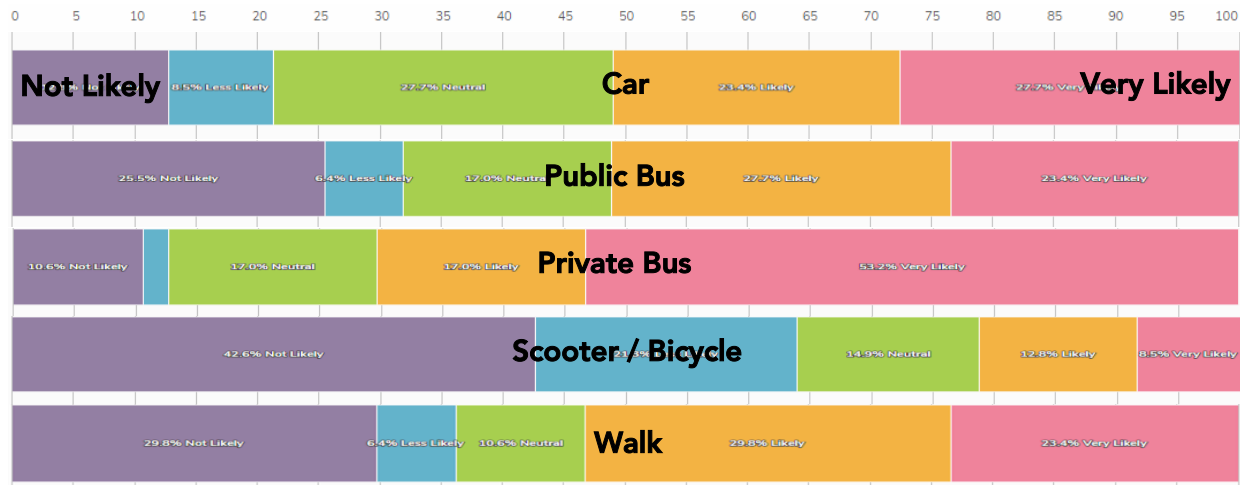


Figure 39 – Potential Travel Mode Share Based on Travel Surveys - Students

### 5.4.2 Staff

The survey results for the new site location show the following:

- 80% of staff are likely or very likely to choose a car as a means of transport to the new site location. Only 10% of staff have a neutral opinion about travelling to school as a passenger.

*This is a strong indication that staff are unlikely to change their travel mode; However, there is a potential to attract 20% of staff to use alternative transport modes*

- The vast majority of the staff are less or not likely to use public bus as a means of transport, even if bus stop is located within 5 minutes walking distance to home/school.
- Approximately 20% of staff are likely to use private school buses as a means of transport if bus stop is located within 5 minutes walking distance to home/school. 10% staff have a neutral opinion.

*This indicates that some staff would be inclined to use a bus to travel to and from school. It would be beneficial to determine what are the main concerns*

- Approximately 20% of staff are likely to use a scooter or cycle to school if safe infrastructure and parking/storage facilities are provided.
- Approximately 50% of staff are likely to walk to school if safe infrastructure and satisfactory connectivity are provided. 10% staff have a neutral opinion.
  - *This is a very positive trend*

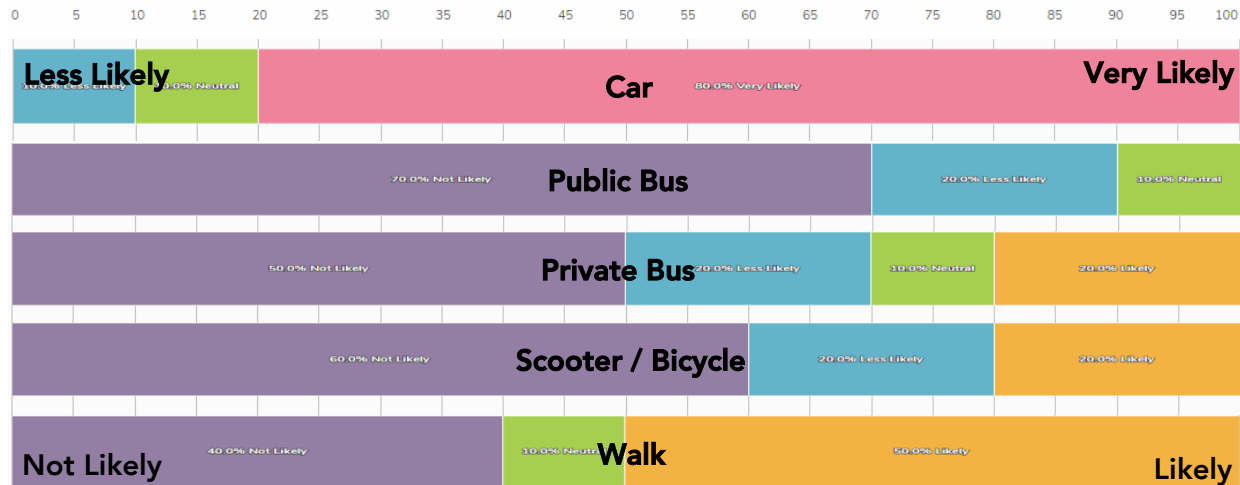


Figure 40 – Potential Travel Mode Share Based on Travel Surveys - Staff

## 5.5 Travel Modes Summary and Future Target Discussion

Future transport targets can be developed by analysing a variety of different targets, such as those set by the local Council or similar comparable sites. In this case, future travel targets have been developed based on the travel behaviour determined from online surveys and understanding the infrastructure and gaps within the vicinity of the proposed School site.

### 5.5.1 Students

The following considerations have been made to determine the future transport target for students:

- Based on travel surveys it is understood that currently 5%<sup>1</sup> (refer Section 5.3.1) of students walk to the current School site and approximately 53% (refer Section 5.4.1) of students may walk to the proposed School site if adequate pedestrian infrastructures and connectivity are provided. Based on walking catchments (refer Section 5.2 and Section 5.1), 15% of students live within walking catchment. However, it is not certain that all students within the walking catchment would walk to School, and therefore, a future walking target of 10% has been adopted.
- According to travel surveys, currently no students cycle or scoot, but 21% students feel positive about it if safe infrastructure and parking are provided. The analysis of potential catchments (refer Section 5.2) shows that distance wise it is possible for 42% students to cycle or scoot to school. However, as discussed in Section 4.2.1.2, the lack of active transport infrastructures near the School may not make it safe or possible for all students residing south of Maitland Street to cycle or scoot. Therefore, a future cycling and scooting target of 10% has been adopted.
- Based on travel surveys, currently 34%<sup>2</sup> students use public transport. An analysis on potential target shows that approximately 33% students living in the north are likely to rely on buses. As discussed in

<sup>1</sup> An average of morning and afternoon travel mode

<sup>2</sup> An average of morning and afternoon travel mode

Section 4.3, the School is proposing to provide a bus stops at the School on Maitland Street. An analysis of potential additional bus stops and bus network improvements has been undertaken and discussions with TfNSW and bus operators are underway to determine if bus stops could be added and specific bus routes extended. Further, the school will promote public transport by implementing the School Transport Plan and providing a Transport Assess Guide. Considering the above, a public transport target of 50% has been adopted.

- Travel surveys shows that currently 58%<sup>3</sup> students use private vehicles to travel and approximately 51% students have indicated that they will continue driving to the proposed school in the future. Based on existing and proposed infrastructure developments, it may be possible to reduce the car usage to 10% (refer Section 5.2); however, it may not be practical. Therefore, a car usage target of 30% has been adopted.

A comparison and summary of all transport scenarios for students is shown in Table 6.

Table 6 – School Transport Scenarios Comparison and Summary for Students

Mode Share	Ideal Case	Potential Target	Existing Base Case <sup>4</sup>	Potential Travel based on Surveys <sup>5</sup>	Target
Walking	15%	15%	5%	~53%	10%
Cycling and Scooting	73%	42%	-	~21%	10%
Public Transport – Bus	(~53% <sup>6</sup> )	33%	34%	~61%	50%
Private Vehicles	-	10%	57%	~51%	30%
Carpooling	-	-	1%	~13%	-
Other	-	-	3% (incl. combination of modes)	-	-

<sup>3</sup> An average of morning and afternoon travel mode

<sup>4</sup> Based on online student surveys, an average of morning and afternoon existing travel mode has been adopted for the base case travel analysis

<sup>5</sup> This travel mode based on responses to “How likely are you to choose the following travel modes [e.g., walking, cycling etc.] at the new school location?”. The percentages represent the “likely” and “very likely” responses, and therefore, the travel mode share does not add up to a 100%.

<sup>6</sup> Average SSTS catchment for primary and secondary school students

### 5.5.2 Staff

The following considerations have been made to determine the future transport targets for staff:

- Travel surveys show that currently all staff drive to the existing School site; However, 20% of staff indicated that they are likely to choose an alternative transport mode to the new School site. As the School will promote alternative transport modes and some staff are positive about using these modes, car usage of 80% is targeted.
- Based on travel surveys it is understood tht currently no staff walk to the existing School site; However, approximately 50% (refer Section 5.4.1) of staff indicated that they may walk to the new School site if adequate pedestrian infrastructure and connectivity are provided. Given the car usage discussed above,, a target of 10% has been adopted.
- According to travel surveys, currently no staff cycle or scoot. However, 20% are positive about cycling and scooting if safe infrastructure and parking are provided. Therefore, a future cycling and scooting target of 5% has been adopted.
- Based on travel surveys, currently no staff use public transport, but 20% indicated that they are positive about using buses if services are provided within a 5-minute walking distance from home / school. Therefore, a future public transport target of 5% has been adopted.

A comparison and summary of all transport scenarios for students is shown in Table 7.

Table 7 – School Transport Scenarios Comparison and Summary for Saff

Mode Share	Existing Base Case	Potential Travel based on Surveys <sup>7</sup>	Target
Walking	-	~50%	10%
Cycling and Scooting	-	~20%	5%
Public Transport – Bus	-	~20%	5%
Private Vehicles	100%	~80%	80%
Carpooling	-	-	-
Other	-	-	-

<sup>7</sup> This travel mode based on responses to “How likely are you to choose the following travel modes [e.g., walking, cycling etc.] at the new school location?”. The percentages represent the “likely” and “very likely” responses, and therefore, the travel mode share does not add up to a 100%.