Kyeemagh Public School
School Transport Plan

School Infrastructure NSW
10 June 2021 | Final Report

ARUP

Contents

Introduction

Background

Arup have been engaged by Taylor Construction Group on behalf of School Infrastructure NSW (SINSW) to prepare a School Transport Plan (the 'Plan') to satisfy the relevant conditions of consent for Kyeemagh Public School State Significant Development Application (SSD-9391).

The purpose of the Plan is to support access for students, staff and visitors to the School during operation by providing clear, safe and efficient transport strategies for various facilities located onsite including drop-off and pickup areas, bus zones, pedestrian and cycle access.

Site Location

Kyeemagh Public School (KPS) is located in the Bayside council area as shown in Figure 1 at the corner of Jacobson Avenue and Beehag Street in Kyeemagh. The school is surrounded by low density residential land uses.

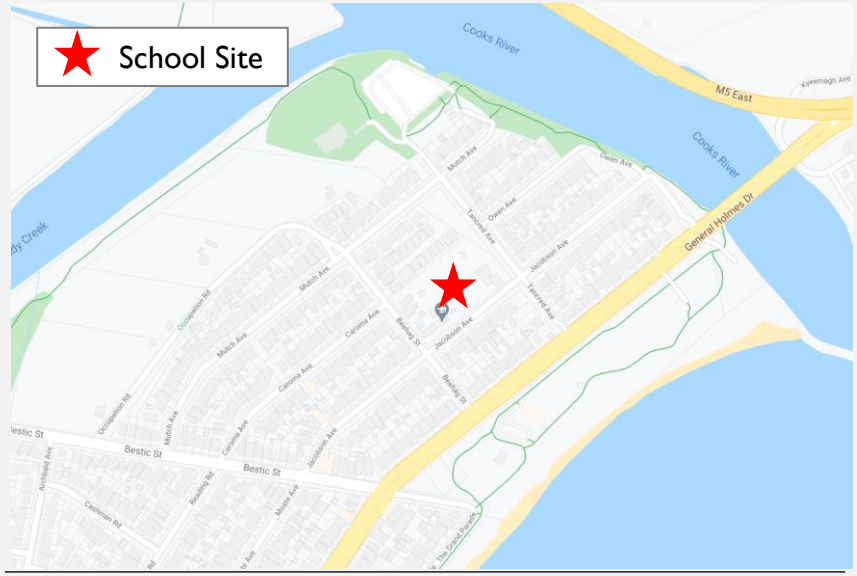

Figure 1: Kyeemagh Public School site

Proposed Development

KPS had previously catered for Kindergarten to Year 2 students with approximately 60 students enrolled. SSD-9391 was approved to develop the school site to accommodate up to 500 K-Year 6 students. This plan considers the access requirements for Stage 1 of the School with up to 100 students, and for Stage 2 with up to 500 students.

The proposed development is shown in Figure 2. The expected works for Stage 1 are outlined below:

- New 2-storey teaching spaces and associated amenities;
- New classrooms; and
- Removal of existing play area and gazebo.

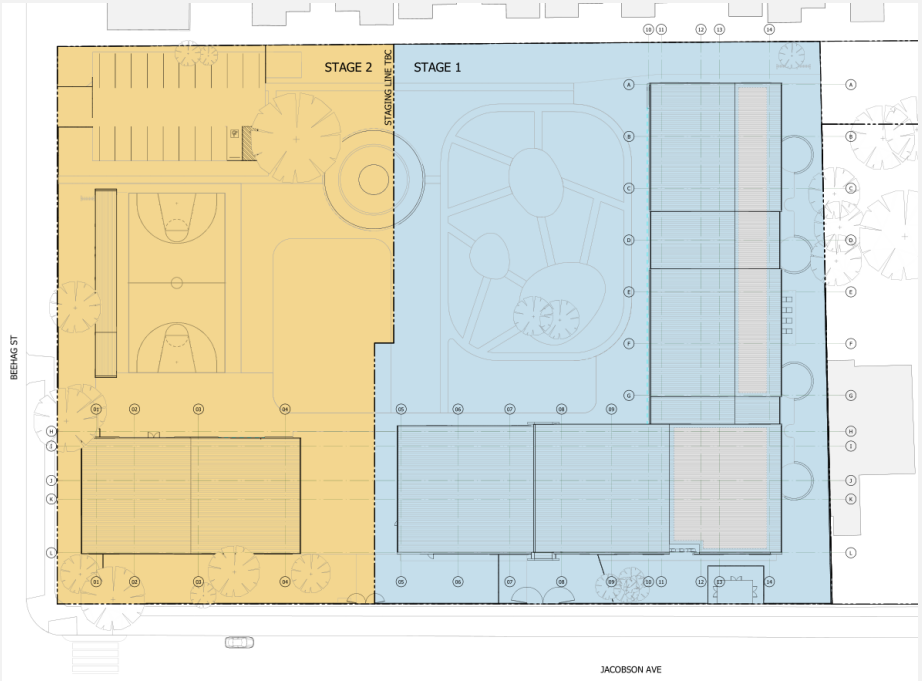

Figure 2: Kyeemagh Public School Staging Plan

Introduction

Conditions of Consent

This school Transport Plan responds specifically to Condition D9 (Green Travel Plan) and D13 (Operational Transport and Access Management Plan) of SSD-9391 with the relevant sections linked in the Table 1 and 2 below.

Table 1: Condition of consent D9 reference

Condition D9 conditions	Report Section
Prior to the commencement of operation, a Green Travel Plan (GTP), must be submitted to the satisfaction of the Planning Secretary to promote the use of active and sustainable transport modes. The plan must:	
(a) Prepared by a suitably qualified traffic consultant in consultation with Bayside Council and Transport for NSW;	Appendix A, Appendix B
(b) identify current employee journey to work patterns including current mode share, trip origin and shift start/finish times. This can be informed by analysis of Australian Bureau of Statistics Census data and/or by conducting a staff travel survey. This information should be used to inform sustainable transport strategies in the GTP;	Section 2, page 11
(c) include Travel Demand Management Strategies in the TDS that considers opportunities to spread or stagger network demand;	Section 5, page 52-53
(d) in-class surveys (or online surveys such as survey monkey) to determine travel mode choice and targets	Section 2, page 11
(e) feedback register for carpooling groups; and	Section 5, page 53
(f) feedback register for all other transport related items (whereby staff, students, parents and carers are able to provide suggestions on ways to promote sustainable transport choice)	Section 5, page 53
(g) include objectives and modes share targets (i.e. Site and land use specific, measurable and achievable and timeframes for implementation) to define the direction and purpose of the GTP;	Section 4, page 50

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Conditions of Consent

Condition D9 conditions	Report Section
(h) include specific tools and actions to help achieve the objectives and mode share targets;	Section 4, 5, pages 50, 52 and 53
(i) include measures to promote and support the implementation of the plan, including financial and human resource requirements, roles and responsibilities for relevant employees involved in the implementation of the GTP; and	Section 7, page 72
(j) include details regarding the methodology and monitoring/review program to measure the effectiveness of the objectives and mode share targets of the GTP, including the frequency of monitoring and the requirement for travel surveys to identify travel behaviours of users of the development.	Section 8, pages 74-75

Table 2: Condition of consent D13 reference

Condition D13 conditions	Report Section
Prior to the commencement of operation, an OTAMP is to be prepared by a suitably qualified person, in consultation with Council and TfNSW, and submitted to the Certifier and a copy provided to the Planning Secretary. The OTAMP must address the following:	Appendix A, Appendix B
(a) detailed pedestrian analysis including the identification of safe route options – to identify the need for management measures such as staggered school start and finish times to ensure students and staff are able to access and leave the Site in a safe and efficient manner during school start and finish;	Section 3, pages 15-40
(b) the location of bicycle spaces and end of trip facilities for staff and students close to the entries from Beehag Street and Tancred Avenue and incorporating lighting and passive surveillance consistent with AS2890.3;	Section 4, page 47 & Section 6, page 62
(c) the location of all car parking spaces on the school campuses and their allocation (i.e. staff, visitor, accessible, emergency, etc.);	Section 4, page 49 & Section 6, page 62
(d) the location and operational management procedures of the pick-up and drop-off parking, including staff management/traffic controller arrangements;	Section 6, page 63-65
(e) the location and operational management procedures for the pick-up and drop-off of students by buses and coaches for excursions and sporting activities, including staff management/traffic controller arrangements;	Section 6, page 66
(f) delivery and services vehicle and bus access and management arrangements;	Section 6, page 69
(g) management of approved access arrangements;	Section 6, page 65
(h) potential traffic impacts on surrounding road networks and mitigation measures to minimise impacts, including measures to mitigate queuing impacts associated with vehicles accessing pick-up and drop-off parking in Jacobson Avenue	Section 5, page 52
(i) car parking arrangements and management associated with the proposed use of school facilities by community members; and	Section 6, page 67
(j) a monitoring and review program.	Section 8, page 74-75

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Report Structure

Section 2 Travel Survey

- Describes the current travel modes used by the school prior to construction. This section will provide an overview of the baseline mode share percentages achieved and outline where these can be improved through the School Transport Plan.

Section 3 Infrastructure Assessment

- Describes the transport networks which surround the school. This includes review of the local pedestrian and cycling network, public transport services and the surrounding road network.

Section 4 Future Travel analysis

- Defines mode share targets which are based on accessibility analysis for students, staff and visitors travelling to school through public or active transport methods.

Section 5 Transport Strategies

- Recommends ways to educate and promote sustainable travel methods for school staff, students, parents and carers.

Section 6 Management Plan for School Facilities

- Outlines how the school facilities such as excursion buses and Kiss and Ride will operate upon opening of the school.

Section 7 School Transport Plan Administration

- Methods of governance for the School Transport Plan by the Travel Plan Coordinator, the school leadership, staff, parents and students. Includes reporting arrangements with TfNSW, bus operators and Council Transport Planner.

Section 8 School Transport Plan Monitoring

- Agreed data collection, reviewing and monitoring, re-evaluation measures adopted by KPS to ensure targets from the Plan can be achieved.

What is a School Transport Plan?

The Plan aims to respond specifically to SSD conditions of consent D9 and D13 through preparation of a School Transport Plan which consists of a Green Travel Plan (GTP) and Operational Transport and Access Management Plan (OTAMP) respectively in the following ways:

- Provide guidance on infrastructure requirements and management measures to relevant authorities such as the NSW Department of Education and School Infrastructure NSW (SINSW);
- Focus on delivering efficient, safe and sustainable access methods to / from schools during the planning, construction and operation of school facilities;
- Developed in line with the TfNSW Travel Plan Toolkit which provides guidance and resources on developing a school transport plan; and

The Plan applies to all people who will use the site after being developed. This includes all school staff, students and visitors who may travel to and use the site.

Introduction

School Transport Plan Objectives

The objectives of the Plan are framed by the Premier's Priorities to:

- ***Deliver local infrastructure*** to promote students to walk, ride and use public transport to reduce the reliance on cars and decrease traffic congestion; and
- ***Tackle childhood obesity*** by encouraging students to increase their daily physical activity through active travel to / from school or partway to school.

Furthermore, the Plan should be guided by the following objectives set by the Premiers Priorities:

- ***Safe*****:** developments should aim to minimise pedestrian and vehicle conflict, ensure schools are accessible and safe for all who attend or visit the school and the identify and implement new transport measures;
- ***Efficient:*** reduce local traffic congestion and parking impacts, outline required infrastructure and operations to be delivered prior to occupancy, communicate relevant transport policies and programs and resolve issues early in the school master planning, schematic design and business case stages;
- ***Sustainable:*** increase the use of sustainable travel modes, minimise dependency on car usage, improve kiss-and-ride provisions and integrate school transport facilities within the surrounding community;
- ***Collaborative:*** identify opportunities to work with state or local government authorities, share travel demand and transport initiatives and engage transport agencies to seek or improve existing transport networks; and
- ***Replicable:*** to understand the processes within relevant policies and programs and to inform government authorities on potential transport / infrastructure requirements.

To create shared value for the school and the community whilst safeguarding the planet, the objectives were also guided by the United Nations Sustainable Development (UNSDGs) in particular the goals related to:

- Goal 3 – Good Health and Well-Being;
- Goal 10 – Reduced Inequalities; and
- Goal 11 – Sustainable Cities and Communities.

Introduction

School Transport Plan Objectives

By considering, reviewing and designing a safer, healthier environment for students; all members of the community benefit at the same time with better means of accessing sustainable modes of travel in the Bayside area.

With these requirements laid out, the objectives of the School Transport Plan have been synthesised to be the following:

- ***Encourage the use of sustainable transport modes*** by promoting walking, cycling and utilising public transport and car sharing rather than single occupant car travel and taxi usage. This generally requires improving people's travel choices by improving access to other modes (e.g. more public transport options, improved mobility for non-car users or greater infrastructure for active transportation). Supportive measures may include reducing convenience for car drivers by minimising parking or maintaining road capacity;
- ***Reduce traffic congestion and air pollution*** to enhance safer and more enjoyable journeys. This is intrinsically linked to encouraging a shift to sustainable modes. It can also be achieved through integrating school transport facilities within the nearby community;
- ***Travel demand management*** to reduce the need for energy intensive travel modes and single occupancy trips by combining journeys that are travelling to towards a common area;
- ***Implement feasible travel options*** for students, staff and other users of the site and encourage travel options that will benefit their health and wellbeing; and
- ***Implement, monitor, evaluate and review measures*** to assess the progress of the School Transport Plan. This can include provision of a register as a way for staff, parents and carers to provide feedback and suggestions for continual improvement of the Plan.

Consultation

The development of this Plan will be undertaken in consultation with the relevant stakeholders outlined below:

- Bayside Council ('Council');
- Transport for New South Wales (TfNSW);
- School Operations; and
- New South Wales (NSW) Department of Education.

Contents

School Travel Survey

Current travel to school

Students completed a travel survey detailing how they travelled to and from school as part of a Traffic Impact Assessment (TIA) undertaken by Cardno in 2019 for the redevelopment of KPS.

The survey results are shown in Figure 3 and Figure 4. Majority of students were driven to school and about 8% of students had car-pooling arrangements with a friend.

Only two students travelled to school in the morning by bus but not in the afternoon. This could indicate afternoon services need to be improved in terms of connectivity and timing. At present, almost 20% of students currently travel to school by active travel.

For staff travelling to school, the 2016 ABS Census reveals private car (77%) is the most common method of travelling to the Kyeemagh SA2 for work. Public transport (12%) and active travel (8%) were the next most common ways of travelling.

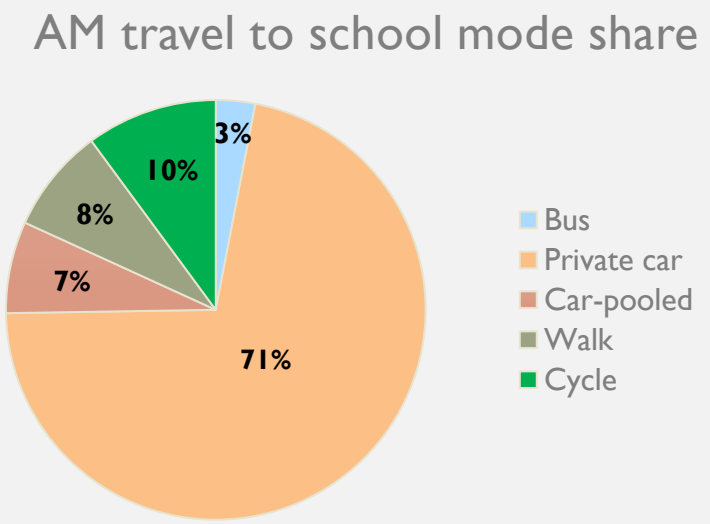

Figure 3: Drop-off mode share (source: Cardno TIA, 2019)

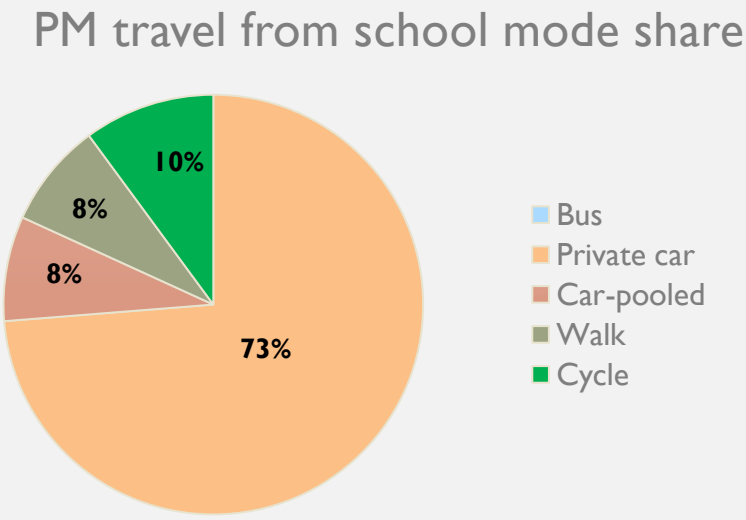

Figure 4: Pick-up mode share (source: Cardno TIA, 2019)

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Active travel infrastructure

Two main off-road routes make up the cycling network in Kyeemagh as shown in Figure 5:

- The Cook Park shared path starts west of Riverine Park, Banksia: this shared path traverses along both sides of Muddy Creek connecting into Tancred Avenue to the north of the school.
- The Grand Parade: a shared path providing a north-south connection to the school via The Grand Parade.

Figure 5: Key cycling routes (Source: RMS Cycleway Finder)

It should be noted that as part of the M6 Stage 1 works, a number of additional pedestrians amenities will be provided which includes:

- A new shared path between Bestic Street to West Botany Street and Bruce Street to the south; and
- A new shared path between Kings Road and Civic Avenue connected by a new pedestrian/ cyclist bridge over President Avenue.

The main roads and local, residentials streets in the Kyeemagh area generally have footpaths on both sides of the road. Some streets surrounding the school however are missing footpaths on one side of the road, as shown on Figure 6, Tancred Avenue and Beehag Street.

Active travel infrastructure

Public domain works associated with the new school has added footpaths and pedestrian crossings as displayed in Figure 6 below. These works are being undertaken as part of the conditions of consent associated with B29, D10, D11 and D12.

Currently the new footpath through Tancred Reserve and pedestrian refuge on Mutch Avenue have been constructed. Bayside Council have also undertaken additional works to provide a new shared path (2.5m in width) to connect the shared path from Kyeemagh Boat Ramp Reserve to the new pedestrian refuge and footpath at Mutch Avenue and Tancred Avenue respectively. Planned works also include construction of shared paths to connect into the public domain works, circumscribing the school.

Figure 6: Pedestrian infrastructure near the school

Active travel route assessment

This section responds to the condition of consent D13 Clause a), by identifying and reviewing key safe walking routes from the surrounding area to the school.

Three (3) routes were surveyed to evaluate the existing pedestrian and cycling amenities, wayfinding, and accessibility provisions as well as identify where potential improvements could be made.

The three key walking and cycling routes to Kyeemagh Public School are:

- Route 1: Via The Grand Parade starting at President Avenue;
- Route 2: Via Rockdale Station (Bryant Street, Bestic Street, Cook Park shared path, Tancred Avenue); and
- Route 3: Via Cook Park shared path west of Muddy Creek, starting at Eve Street / Brennans Road.

Details related to the routes are shown in Table 3 and the routes are displayed in Figure 7. The Plan will be updated if required in the future to reflect additional walking/ cycling routes as the school grows and as new pedestrian/ cycling amenities are provided to travel to school.

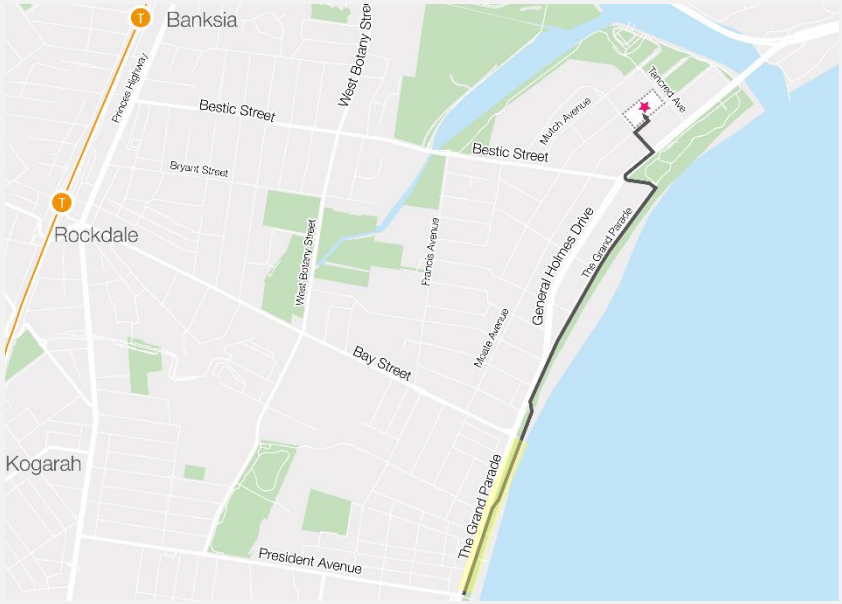
Table 3: Key safe walking routes to school

Route number	Distance to school	Travel time to school
1 – via The Grand Parade	2.4 km	30 minutes walking / 10 minutes cycling
2 – via Rockdale Station	2.9 km	35 minutes walking / 12 minutes cycling
3 – via Cook Park Path	3.2 km	38 minutes walking / 13 minutes cycling

Figure 7: Map of Key safe walking routes to school

Route 1: The Grand Pde, Bestic St, General Holmes Dr, Beehag St

(1) The Grand Parade (President Avenue to Bay Street)



Pedestrian/cycling amenities

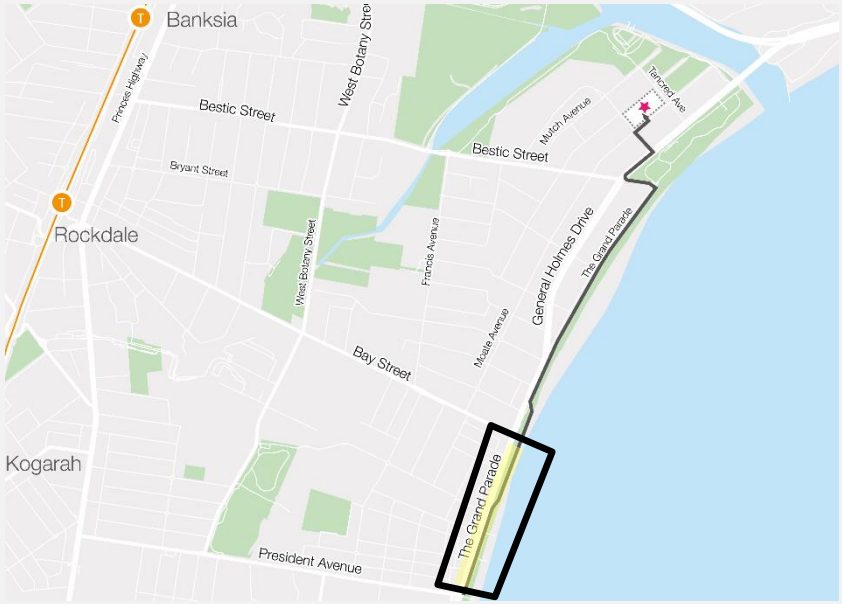
- The Grand Parade section from President Avenue to Bay Street has a flat and wide shared path for pedestrians and cyclists as shown in Figure 8. The footpath condition is good and centreline marking divides the path to help with directional flow. Cyclists and pedestrians can easily pass each other with ease.
- Major intersections along the road are all signalised with pedestrian crossings at all legs except for the southern leg of President Avenue/Grand Parade.
- The longest distance between pedestrian crossing opportunities is 500m.
- Kerb ramps are wide and present at crossings. The rest of the section has a concrete median as a centreline treatment acting as a physical barrier for active users to cross the road as shown in Figure 9.

Figure 8: The Grand Parade shared path

Figure 9: Concrete median on the Grand Parade

Route 1: The Grand Pde, Bestic St, General Holmes Dr, Beehag St

(1) The Grand Parade (President Avenue to Bay Street)



Accessibility

- This route is step free and therefore appropriate for scooters, bikes and people with mobility requirement. There was a part of the section outside Republiq Shisha Bar & Grill, as shown in Figure 10. Bins and poles made the pathway narrow which may obstruct users with restricted mobility.

Wayfinding

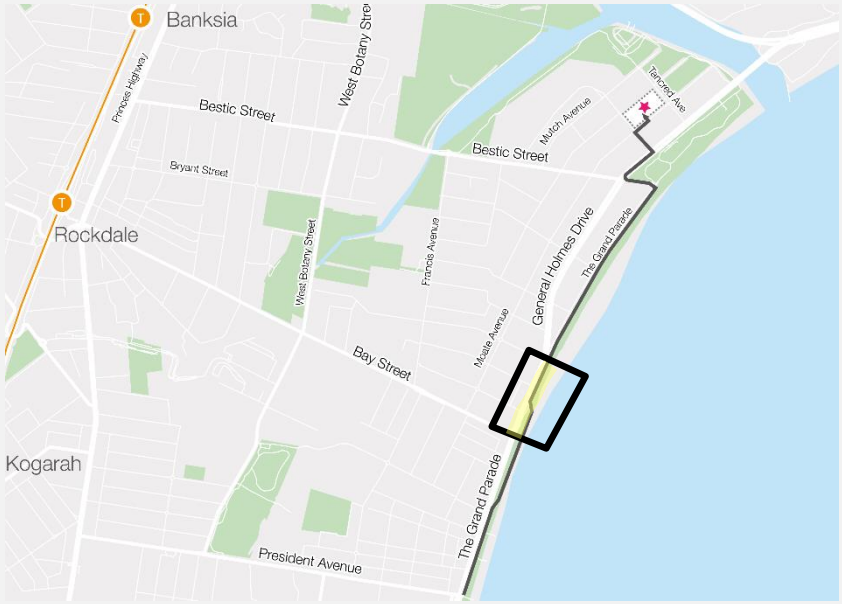
- Wayfinding information map which indicates the location of Kyeemagh as well as a range of amenities and popular locations as displayed in Figure 11.

Figure 10: Grand Avenue passing restaurants

Figure 11: Brighton Le Sands Wayfinding stand on Grand Avenue

Route 1: The Grand Pde, Bestic St, General Holmes Dr, Beehag St

(2) The Grand Parade (Bay Street to Bruce Street)



Pedestrian/cycling amenities

- The Grand Parade section from Bay Street to Bruce Street similarly has a flat and wide shared path for pedestrians and cyclists. The only crossing opportunities is at Bay Street which is a signalised intersection, allowing pedestrians to cross at all legs.
- The section closer to Bruce Street does not have any crossing opportunities due to the land use being primarily residential. Kerb ramps are wide and present at crossings. The strip island alongside the traffic on The Grand Parade acts as a safety barrier to prevent pedestrians informally crossing and interacting with vehicles.

Accessibility

- This route is step free and is therefore appropriate for scooters, bikes and people with mobility issues. Bayside Plaza has a footbridge as shown in Figure 12 which is accessible only by a staircase. There is a signalised intersection within 40 metres from the footbridge, so only a short detour is required for user groups that cannot use stairs.

Wayfinding

- There are wayfinding stands provided regularly throughout the Grand Parade.

Figure 12: Bayside Plaza footbridge

Route 1: The Grand Pde, Bestic St, General Holmes Dr, Beehag St

(3) The Grand Parade (Bruce Street to Bestic Street)

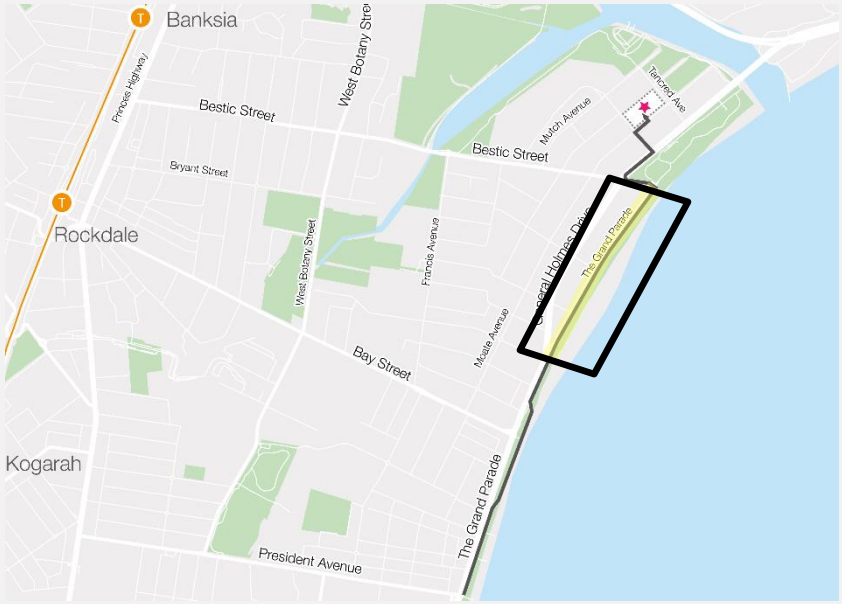


Figure 13: The Grand Parade path

Figure 14: Information map

Pedestrian/cycling amenities

- The section from Bruce Street to Bestic Street has a flat and wide shared path for pedestrians and cyclists, as displayed in Figure 13.
- The footpath condition is good and has a marked centreline to help with directional flow. There are no pedestrian crossing opportunities along this section, however, most traffic has diverted to General Holmes Drive while The Grand Parade becomes a quiet one way local road. It is relatively easy to cross at any point.
- There are also a range of available amenities along the pathway such as bathrooms and cycle racks.

Accessibility

- This route is step free and therefore appropriate for scooters, bikes and people with mobility issues.

Wayfinding

- There is an opportunity to improve the wayfinding stand on this section of the route, shown in Figure 14 by modifying the existing information map to include KPS.

Route 1: The Grand Pde, Bestic St, General Holmes Dr, Beehag St

(4) Bestic Street (The Grand Parade to General Holmes Drive)

Figure 15: Bestic Street footpath

Figure 16: Information map

Pedestrian/cycling amenities

- Bestic Street has a flat pedestrian footpath which is only present on the southern side of the street, as can be seen in Figure 15. The footpath condition is good, however, there is limited shade along the pathway.
- There is a cautionary “Give way to cyclists” sign on the corner of Bestic Street where pedestrians and cyclists would cross from The Grand Parade.

Accessibility

- This route is step free and therefore appropriate for scooters, bikes and people with mobility issues. The eastern side of Bestic Street does not have a footpath directly along the street.

Wayfinding

- There is an information map at the eastern end of the street that indicates locations of local destinations in Kyeemagh as well as a range of amenities as shown in Figure 16.

Route 1: The Grand Pde, Bestic St, General Holmes Dr, Beehag St

(5) General Holmes Drive (Bestic Street to Beehag Street)

Figure 17: Footpath on General Holmes Drive

Pedestrian/cycling amenities

- Major intersections along the road are all signalised with pedestrian crossings at all legs except for the northern leg of General Holmes Drive/Bestic Street. Currently, this missing leg prevents easy pedestrian access between the north and Cook Park and Kyeemagh Kids Playground.
- General Holmes Drive has a flat pedestrian footpath that is in good condition as displayed in Figure 17 There is some obstruction of the footpath which is caused by vehicles parked in residential properties that overlap onto the pathway.

Accessibility

- This route is step free and therefore appropriate for scooters, bikes and people with mobility issues. The southern side of General Holmes Drive does not have a footpath directly along the street.

Wayfinding

- Limited wayfinding was provided as the path is generally used by local residents who are familiar with the area.

Route 1: The Grand Pde, Bestic St, General Holmes Dr, Beehag St

(6) Beehag Street (General Holmes Drive to Jacobson Avenue)

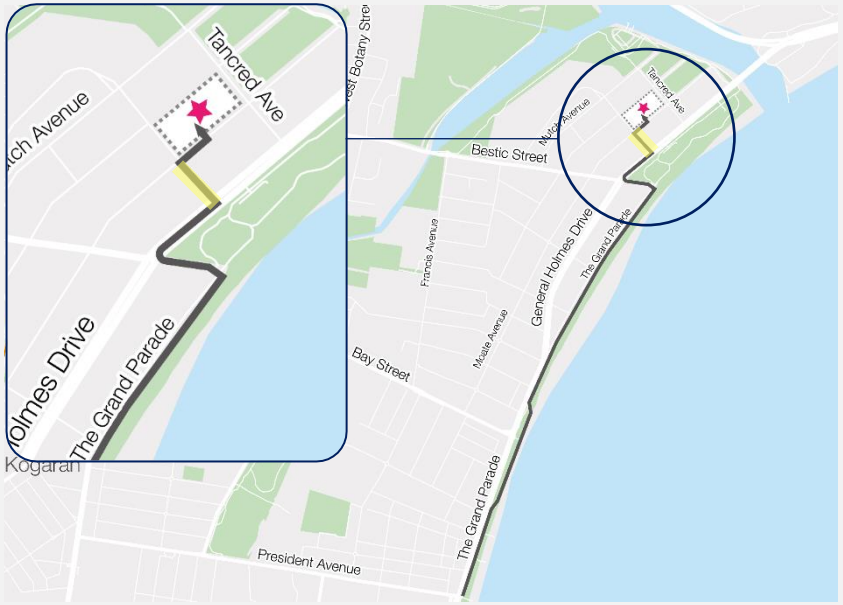


Figure 18: Footpath on Beehag Street

Pedestrian/cycling amenities

- Beehag Street has a flat pedestrian footpath that is in good condition, as shown in Figure 18.

Accessibility

- This route is step free and therefore appropriate for scooters, bikes and people with mobility issues.

Wayfinding

- Limited wayfinding was provided as the path is generally used by local residents who are familiar with the area.

Route 1: The Grand Pde, Bestic St, General Holmes Dr, Beehag St

(7) Jacobson Avenue (Beehag Street to Kyeemagh Public School)

Pedestrian/cycling amenities

- Jacobson Avenue has a flat pathway for pedestrian that is in good condition.
- The footpath on the southern side of Jacobson Avenue near the corner of Tancred Avenue was observed to had a poor quality footpath as shown in Figure 19. This can be attributed to the public domain works occurring near the site and so should not impact students upon the school opening.
- A pedestrian zebra crossing is provided directly outside of KPS, as shown in Figure 20, which allows students to safely cross Jacobson Avenue.

Figure 19: Footpath on the southern side of Jacobson Avenue at the corner of Tancred Avenue

Figure 20: Zebra on Jacobson Avenue

Route 1: The Grand Pde, Bestic St, General Holmes Dr, Beehag St

(7) Jacobson Avenue (Beehag Street to Kyeemagh Public School)

Accessibility

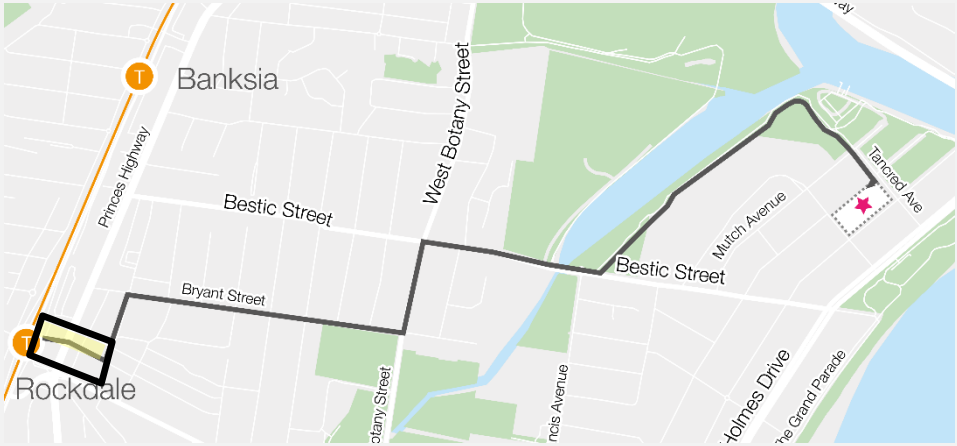
- This route is step free and therefore appropriate for scooters, bikes and people with mobility issues.

Wayfinding

- Limited wayfinding was provided as the path is generally used by local residents who are familiar with the area.

Route 2: King St, Market St, Bryant St, Bestic St, Lance Studdert Reserve, Tancred Ave

(8) King Street (Princes Highway to Market Street)



Pedestrian/cycling amenities

- King Street between Princes Highway and Market Street is a shared zone with wide footpaths provided as shown in Figure 21.
- A signalised intersection provides a connection across Princes Highway on the western side, with a pedestrian crossing provided across Market Street to the east as displayed in Figure 22.

Accessibility

- This route is step free therefore appropriate for any pedestrians with mobility issues.

Wayfinding

- There is limited wayfinding as the path is generally used by local residents accessing the local businesses and are familiar with the area.

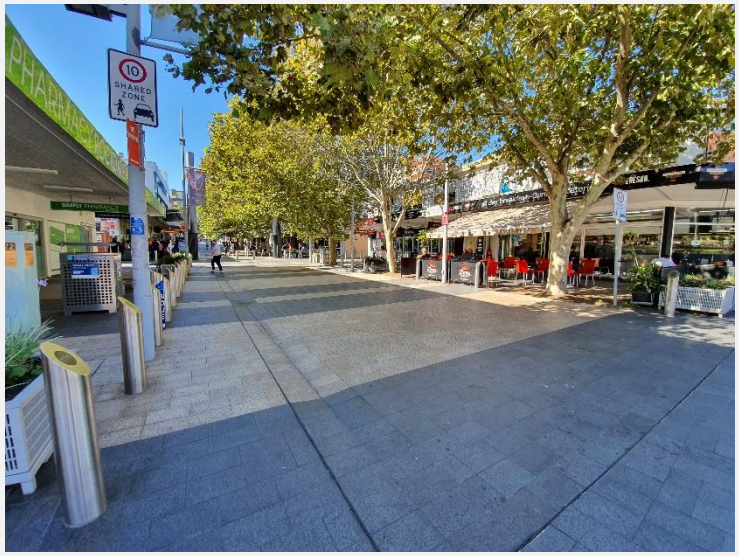


Figure 21: Shared zone on King Street

Figure 22: Pedestrian crossing at King Street/ Market Street intersection

Route 2: King St, Market St, Bryant St, Bestic St, Lance Studdert Reserve, Tancred Ave

(9) Market Street (King Street to Bryant Street)

Pedestrian/cycling amenities

- The eastern side of Market Street is more appropriate for pedestrians as this side minimises interaction with vehicles (does not front the public car park access points) .
- The footpath is wide and generally flat displayed in Figure 23.
- Kerb ramps are provided along the route as the road fronts a number of local access roads as shown in Figure 24.

Accessibility

- This route is step free therefore appropriate for any pedestrians with mobility issues.

Wayfinding

- There is limited wayfinding as the path is generally used by local residents accessing nearby local businesses and are familiar with the area.

Figure 23: Footpath on eastern side of Market St

Figure 24: Kerb ramps on Market Street

Route 2: King St, Market St, Bryant St, Bestic St, Lance Studdert Reserve, Tancred Ave

(10) Bryant Street (Market Street to W Botany Street)

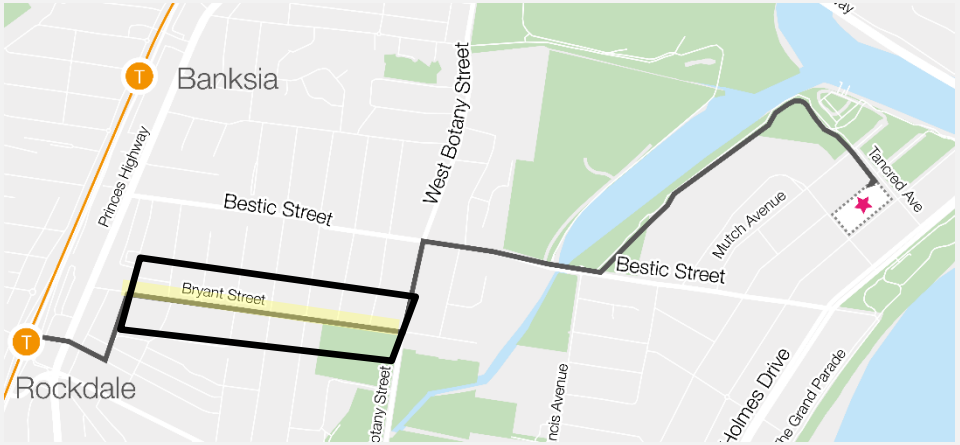


Figure 25: Pedestrian crossing on Bryant St

Pedestrian/cycling amenities

- A number of crossing opportunities are provided along Bryant Street which include a pedestrian crossing to the east of the Bryant Street/ Cameron Street intersection and a pedestrian refuge located at the roundabout at Farr Street as shown in Figure 25.

Accessibility

- The footpath along this road up to Kent Street is slightly sloping, with adequate spacing for pedestrians and cyclists to pass as shown in Figure 26.
- Pedestrians with mobility issues will be able to board bus route 422 on Bryant Street near Market Street which provides a connection up the road to W Botany Street.

Wayfinding

- There is limited wayfinding as the path is generally used by local residents.

Figure 26: Sloping grade on Bryant St near Market St

Route 2: King St, Market St, Bryant St, Bestic St, Lance Studdert Reserve, Tancred Ave

(11) W Botany Street (Bryant Street to Bestic Street)

Pedestrian/cycling amenities

- A signalised intersection to the north provides a connection to Bestic Street. Pedestrians/ cyclists will be able to cross on all legs as displayed in Figure 27.
- Kerb ramps are provided on all sides.
- There is adequate spacing for pedestrians and cyclists to pass on the footpath as shown in Figure 28.

Accessibility

- This route is step free therefore appropriate for any pedestrians with mobility issues.

Wayfinding

- There is limited wayfinding as the path is generally used by local residents accessing the local businesses and are familiar with the area.

Figure 27: Signalised crossing at W Botany St/ Bestic St (source: Google Maps)

Figure 28: Footpath on W Botany Street (source: Google Maps)

Route 2: King St, Market St, Bryant St, Bestic St, Lance Studdert Reserve, Tancred Ave

(12) Bestic Street (W Botany Street to Lance Studdert Reserve)

Pedestrian/cycling amenities

- Pedestrians will be required to travel on the northern side of Bestic Street at the intersection with W Botany Street as no footpath is available on the southern side east of William Street.
- A separated cycleway is provided just east of Bestic St/ Francis Ave intersection which connections into a shared path that traverses through Lance Studdert Reserve as shown in Figure 29. This turn does not provide clear visibility between pedestrians and cyclists who may be turning out of Barton Park potentially posing safety issues.

Accessibility

- This route is step free therefore appropriate for any pedestrians with mobility issues.

Wayfinding

- Directional wayfinding is provided at the entrance to the Lance Studdert Reserve as displayed in Figure 30 to assist cyclists navigating to Brighton Le Sands, Sutherland, the Airport and Sydney City.

Figure 29: Separated cycleway on Bestic Street

Figure 30: Directional signage for cyclists

Route 2: King St, Market St, Bryant St, Bestic St, Lance Studdert Reserve, Tancred Ave

(13) Lance Studdert Reserve

Pedestrian/cycling amenities

- A wide shared path is provided between Bestic Street and Tancred Avenue to the north via Lance Studdert Reserve as shown in Figure 31. Adequate spacing is provided for pedestrians and cyclists to pass each other.
- The path is generally flat throughout the entire route.

Accessibility

- This route is step free therefore appropriate for any pedestrians with mobility issues.

Wayfinding

- A directional sign is provided at the beginning of the shared path for pedestrians navigating to Kyeemagh Boat Ramp to the north.

Figure 31: Shared path along Lance Studdert Reserve with wayfinding

Route 2: King St, Market St, Bryant St, Bestic St, Lance Studdert Reserve, Tancred Ave

(14) Tancred Avenue (Lance Studdert Reserve to KPS)

Figure 32: Missing footpath between Boat Ramp Reserve to Mutch Avenue

Pedestrian/ cycling amenities

- There is currently a missing footpath connecting between the boat ramp reserve to the footpath on the northern side of Mutch Avenue as displayed in Figure 32. This means pedestrians and cyclists will need to share the driveway with vehicles when turning off the cycleway.
- After departing from the Cooks Park shared path at the boat ramp car park, cyclists have to ride on Tancred Avenue for about 60m as there are no footpaths connecting to Mutch Avenue. This could be a safety hazard, as the car park is used for both the hockey centre and boat ramp.
- There is not an existing footpath on the western side of Tancred Avenue which may result in informal crossing from pedestrians and cyclists.

Route 2: King St, Market St, Bryant St, Bestic St, Lance Studdert Reserve, Tancred Ave

(14) Tancred Avenue (Lance Studdert Reserve to KPS)

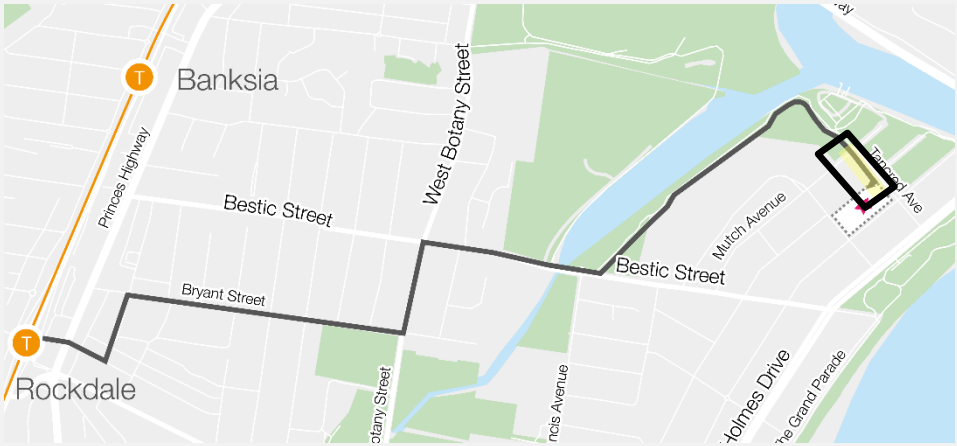


Figure 33: Directional sign on Tancred Avenue and Mutch Avenue

Accessibility

- This route is step free therefore appropriate for any pedestrians with mobility issues.

Wayfinding

- A key section that is missing wayfinding is at Kyeemagh boat ramp car park (where the shared path ends at Tancred Avenue). This is where cyclists travelling to/from the school would join or depart from the shared path through Lance Studdert Reserve.
- A directional signage for KPS can assist pedestrians and cyclists accessing the school as currently wayfinding is only available to navigate to the Kyeemagh Boat Ramp as shown in Figure 33.

Route 3: Eve St, St George Football Stadium, Bestic St

(15) Eve Street (Brennans Road to St George Football stadium)

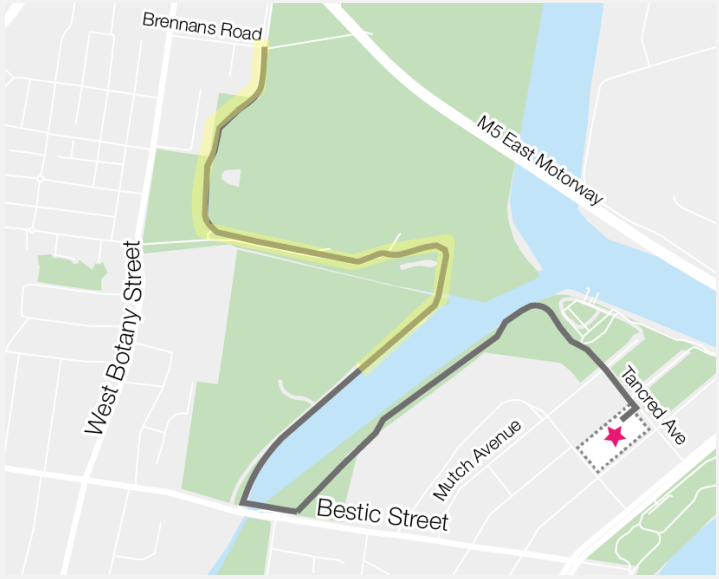


Figure 34: Brennans Road footpath on the southern side

Pedestrian/cycling amenities

- The shared path width along this section is generous, two cyclists can pass each other at the same time.
- The concrete footpath on the north and south side of Brennans Road do not have pram ramps to allow users to cross Eve Street onto the shared path shown in Figure 34. This means active travel users would have to dismount and walk over the grass verge or ride on the main carriageway of Brennans Road.

Accessibility

- The Brennans Road and Eve Street section of the shared path is the only considerably steep part in Route 3. Less experienced cyclists would have to push their bike on the way up the hill and control their speed when descending. Users who are less mobile would have difficulty unassisted.

Route 3: Eve St, St George Football Stadium, Bestic St

(15) Eve Street (Brennans Road to St George Football stadium)

Figure 35: End of Riverine Park accessway

Wayfinding

- While standard shared path signs are present, no wayfinding is provided. This means new users would not be the possible places that they can access via the shared path. Location awareness on this route is vital, as the cycleway for the most part does not have visibility to public roads or familiar locations.
- An example where wayfinding could be provided is along Riverine Park's carpark access road: there are several driveways and a fork in the road as pictured in Figure 35. Clear signage and direction would help guide cyclists to stay on the correct path.
- Pavement marking along parts of this section is faded, however can be improved upon to intuitively guide cyclists. One example is at the end of Riverine Park driving range accessway, shown in Figure 35. It is not immediately clear where the cycleway continues to because the pavement is unmarked and there is no visible signage.

Route 3: Eve St, St George Football Stadium, Bestic St

(16) St George Stadium to Bestic Street

Pedestrian/cycling amenities

- The quality of the road is acceptable, however, there is a section which was flooded during the site visit on a sunny day displayed in Figure 36. This narrow part of road creates a safety hazard for pedestrians and cyclists who must share the narrow part of the road with cars.

Accessibility

- For about 300m along the Barton Park accessway from Bestic Street, the separated shared path ends as shown in Figure 37, requiring active travel users to cycle or walk on the same road as cars.

Figure 36: the north end of the Barton Park accessway

Figure 37: Shared path merging into the Barton Park accessway

Route 3: Eve St, St George Football Stadium, Bestic St

(16) St George Stadium to Bestic Street

Figure 38: Gate on Barton Park accessway, near St George Stadium

Wayfinding

- From Bestic Street, a paved road provides access for cars to Barton Park and St George Stadium. A gate prevents cars proceeding past St George Stadium, while pedestrians and cyclists can continue as pictured in Figure 38. There is no signage along this road to indicate the shared path continues at the end of this road. For unfamiliar riders the gate could make the road appear to be private access only.
- Wayfinding signage would help indicate this is a public route and that it is part of the longer Cook River Cycleway.
- As seen in Figure 37, the shared path turns into the Barton accessway from Bestic Street. There is no additional signage or line marking after this point to indicate that the path is used by cyclists as part of the Cook River Cycleway. Cyclist and pedestrian symbols could be painted on the road to remind vehicles to give caution to active travel users.

Route 3: Eve St, St George Football Stadium, Bestic St

(17) Bestic Street (Barton Park to Lance Studdert Reserve)

Figure 39: Painted bicycle symbol adjacent to the Bestic Street roundabout

Pedestrian/cycling amenities

- The route briefly runs along Bestic Street to cross Muddy Creek before re-joining the Cook Park shared path. This section is 50m in length and there is a shoulder over the bridge to protect users from traffic.
- This corner could be expanded to provide more space and sight distance. Appropriate signage can also be incorporated to warn to slow all users around the blind corner.
- Another pinch point is for cyclists on the pram ramp along Bestic Street at the roundabout, shown in Figure 39. This pram ramp can be reconfigured to be straighter and provide more space for cyclists to more easily navigate.

Route 3: Eve St, St George Football Stadium, Bestic St

(17) Bestic Street (Barton Park to Lance Studdert Reserve)

Figure 40: The shared path and the blind corner turning into Barton Park accessway

Accessibility

- Pictured in Figure 40 there is a blind corner where active travel users sharply turn into/out of Bestic Street. The corner is narrow and visibility is obscured by vegetation. Additionally, pedestrians and cyclists cross the bridge on separate paths to each other, which then merge back together at both ends of the bridge. Less mobile and agile users would have difficulty on this section during busy times.
- There are bollards over the bridge that prevent cyclists but also mobility device users on the continuous pedestrian path. They instead have to ramp down and back up.

Signage and wayfinding

- At Bestic Street, there is no wayfinding to inform cyclist that the Cook Park Path continues north via the Barton Park accessway.
- There are painted bicycle symbols along Bestic Streets (e.g. at the roundabout) to inform vehicles cyclists are present as shown in Figure 39.
- In some sections, the paint on the concrete shared path has become faded, making it difficult other users to know where active travel are likely to cross.

Summary active travel route assessment

This section summarises each active travel route in terms of their safety, ease of wayfinding and equal access from the perspective of students traveling to Kyeemagh Public School.

Route 1 – via The Grand Parade, Bestic Street, General Holmes Drive and Beehag Street

Wayfinding signs with maps are regularly provided along The Grand Parade, however, there were no references to KPS. There are no wayfinding signs to assist students navigating through the last section of the walking route (From Bestic Street to General Holmes Drive, Beehag Street, Jacobson Avenue).

The Grand Parade shared path provides adequate separation between vehicles and pedestrians/ cyclists along the route making it a safe to use, especially for younger students. The route however, requires students to cross and travel along General Holmes Drive, a six lane road meaning younger children may need to be accompanied.

The Grand Parade shared path is wide, flat and step free with pram ramps meaning students cycling and students with mobility needs can also use this route with relative ease.

Route 2 – via Rockdale Station, King Street, Market Street, Bryant Street, Bestic Street, Lance Studdert Reserve and Tancred Avenue

There was no wayfinding signage provided along the majority of the route (King Street to Lance Studdert Reserve). Wayfinding is provided near the entrance of Lance Studdert Reserve however this was primarily to navigate to Kyeemagh Boat Ramp and cycling routes to Brighton Le Sands and Sutherland, highlighting an opportunity to provide additional wayfinding specific to KPS.

The footpaths were generally flat and provided adequate spacing for pedestrians and cyclists to pass, however, along the western end of Bryant Street the path sloped upwards before levelling out near Kent Street. The bus stop located near the Market Street and Bryant Stret intersection (route 422) provides an alternative way for students to travel along Bryant Street to W Botany Street.

Route 3 – via Cook Park Path

There was no wayfinding signage found on this route (Brennans Road / Eve Street to Kyeemagh Boat Ramp), meaning new students would find it difficult to independently navigate riding to school and then back home.

Younger students cycling to school may also have difficulty navigating over the Cook River bridge on Bestic Street as the shared path at that locations narrows and sharply turns the corner leading to limited visibility.

Active travel recommendations

Ensuring that walking and cycling is safe and easy to navigate throughout the whole of the journey is vital in encouraging more students to be healthier and uptake sustainable modes to travel to school. The infrastructure assessment has highlighted a number of issues along key routes, particularly with wayfinding and pinch points which should be addressed in order to support these outcomes. The key infrastructure improvements are outlined below:

Infrastructure improvements

- New footpath connecting the shared path at the boat ramp reserve to Tancred Avenue. It should be noted that a new shared path has recently been constructed to connect Tancred Avenue and the shared path at the Kyeemagh Boat Ramp Reserve; and
- Improve interface at the separated cycleway on Bestic Street bridge overpass to minimise issues with visibility as noted on route 3, section 17. This can be monitored as part of a feedback register for the Plan and discussed with Council Transport Planner as part of the ultimate scenario if issues are to arise.

Wayfinding

- Route 1 via The Grand Parade provides a good precedent how quality active travel wayfinding implemented at regular intervals can support and encourage people to use active travel to connect with local destinations.
- There is the opportunity to provide wayfinding signs at numerous locations along Route 2 and 3 (which currently have none or limited). This will form Council's request to extend the wayfinding template beyond Barton Park which is currently undergoing master planning.
- Bike pavement symbols at the entry of Kyeemagh Boat Ramp and entry of Barton Park roads. This will remind drivers that cyclists and pedestrians use this road as part of a larger shared path route.

Figure 41: Locations of recommended active travel improvements

Public Transport Network

Kyeemagh Public School is serviced by public bus routes 479 and 303. Additionally, school bus services 732S and 769S also serve the school. An overview of the bus services is shown in Table 4.

Table 4: Existing bus routes to KPS

Route Number	Service Type	Route Name
479	Public Bus	Rockdale to Kyeemagh
303	Public Bus	Sans Souci to Redfern
732S	School Service	Rockdale Station to Brighton Public School
769S	School Service	Bay St & Moate Ave, Brighton to Moorefield Girls High

Bus Route 479

Bus route 479 is a loop service connecting between Rockdale and Kyeemagh. There is a bus stop located on Beehag Street directly opposite the school.

The bus service operates from approximately 6am to 7pm on weekdays and 7:30am to 6pm on Saturdays. The service does not currently operate on Sundays or public holidays. On weekdays, Bus 479 operates at a frequency of approximately 2 services per hour in the peak hours and one service per hour outside of the peak hours.

The service takes 10-15 minutes to connect between Rockdale and Kyeemagh Public School. Staff and students are able to interchange at Rockdale to board other bus services or use the T4 Illawarra Line to travel to other parts of Sydney, such as Hurstville or Wolli Creek.

Bus Route 303

Bus Route 303 connects Redfern to/from Sans Souci via Mascot. Staff and student at the school can also access Bus Route 303 from stops on General Holmes Drive. The northbound bus stop on General Holmes Drive is an approximately 2 minute walk from the school. The southbound bus stop requires users to cross General Holmes Drive at the Bestic Street / General Holmes Drive intersection and is an approximately 7 minute walk.

The bus service operates from approximately 6am to 8pm on weekdays, 7:30am to 7:30pm on Satrudays and 8:30am to 7:30pm on Sundays & Public Holidays. On weekdays, Bus 303 operates at a frequency of approximately 2 services per hour in the peak hours and one service per hour outside of the peak hours.

The service takes 10-15 minutes to connect between General Holmes Drive near Kyeemagh Public School and Rocky Point Road at Sans Souci.

Bus Route 732S

Bus Route 732S connects Kyeemagh Public School to Rockdale Station. It has stops on Jacobson Street adjacent to the school. The bus service has one service running before school and one service after school. It only runs on weekdays.

Bus Route 769S

Bus Route 732S connects Kyeemagh Public School to Moorefield Girls High School in Kogarah. It has stops on Jacobson Street adjacent to the school. The bus service has one service running before school and one service after school. It only runs on weekdays.

The public transport network is shown in Figure 42.

Infrastructure Assessment

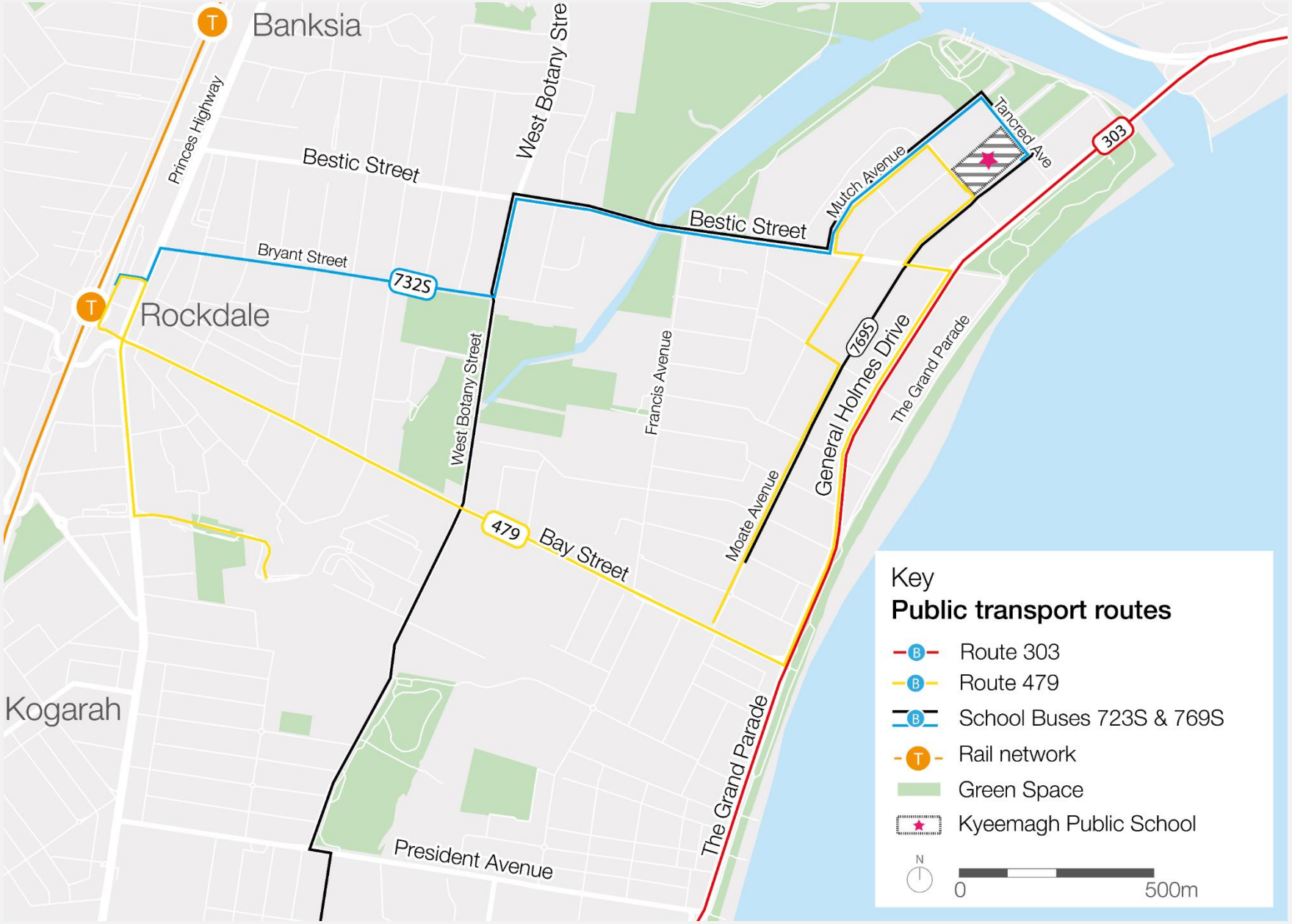


Figure 42: Public Transport Network (departing from KPS after school)

Road Network

KPS is bounded by local streets, with Beehag Street to the south-west and Jacobson Avenue to the south-east;

In the site's wider surrounds, General Holmes Drive is the main arterial road providing a north-south connection with the M5 Motorway in the north and suburbs such as Brighton Le Sands in the south. General Holmes Drive has three lanes in each direction and is an RMS classified state road; and

Bestic Street is a sub-arterial road which serves as the main east-west connection between General Holmes Drive in the east and the Princes Highway in the west. Bestic Street has one to two lanes in each direction and is a Council regional road.

Car Parking

Unrestricted car parking is available on the local streets in the vicinity of the school.

As part of the Cardno TIA, parking surveys were undertaken on the 30th of October 2018 for the KPS Redevelopment. The key findings from the parking surveys were:

- There is spare capacity in the surrounding kerbside parking locations;
- The school frontage parking utilisation reached 44 parking spaces (52%) at 9am and 49 parking spaces at 3:15pm (58%); and
- The western side of Jacobson Avenue reaches a peak occupancy of 12 spaces in the afternoon peak (3:20pm to 3:40pm), with 2 spare spaces available.

Contents

Future Travel Analysis

Methodology

Planning for Kyeemagh Public School is based on the principle of providing safe, sustainable and easy transport for all students. This includes providing high quality alternatives to private vehicles, such as buses and walking to school.

The Kyeemagh Public School Redevelopment Traffic Impact Assessment (TIA) set out a 10 year redevelopment target mode share as shown in Table 5. A catchment analysis has been carried out based on the current anonymised enrolment information in order to confirm the TIA's proposed target mode shares for the redeveloped school.

This catchment analysis supplements the travel demand mode shares by analysing potential students' proximity to the school. The proportion of students living within feasible walking distance or within bus catchments can be calculated and compared to the target mode share.

The catchment analysis may also identify locations where students are beyond walking distances, without access to current bus services and are likely to be driven to school. This helps inform the provision of bus services to support sustainable transport choices, such as where a cluster of students may be located without access to a good public transport alternative.

Table 5: Future 1 to 10 year student travel mode share (source: Cardno TIA, 2019)

Transport Mode	1 Year Target Mode Share	5 Year Target Mode Share	10 Year Target Mode Share
Car	74%	70%	64%
Bus	6%	8%	11%
Walk	10%	12%	15%
Cycle	10%	10%	10%

School Population

The ultimate capacity for the school is expected to be 500 students, which will be an approximate additional 440 students above the previous school size. The age bracket permitted at the school will increase from K-2 to K-6.

It is expected that approximately 27 staff will be required for 500 students (Cardno TIA, 2019). Staff will generally be arriving or leaving early and thus not be accessing the school at the same time as children. Based on this, they have not been included in this catchment analysis.

Walking and Cycling Catchment Analysis

A walking and cycling catchment analysis has been carried out based on the current student body. The analysis included identifying the percentage of potential students who live within the following walking distances to the school:

- 400m/ 5 minute walking distance;
- 800m/ 10 minute walking distance;
- 1200m/ 15 minute walking distance;
- 1600m/ 20 minute walking distance; and
- 2300m walking distance / 1600m straight line (School Student Transport Scheme exclusion zone).

The School Student Transport Scheme (SSTS) grants free travel to school via public transport for primary students living further than 2.3km walking distance or 1.6km straight line distance from school.

The Plan takes into consideration a more realistic walking distance of 1600m / 20 minutes to be the maximum most students would be likely to walk home to and from school, before potentially considering other modes of transport. The catchment extents are shown in Figure 43.

Figure 43: Walking Catchment Extents

Table 6: Walking and Cycling Catchment Analysis

Extent	Cumulative % Within Walking Extent (per extent)
400m (5-min walk)	20%
800m (10-min walk)	32% (+12%)
1200m (15-min walk)	42% (+10%)
1600m (20-min walk)	57% (+15%)
2300m (SSTS exclusion zone)	68% (+11%)

As shown in Table 6, the walking catchment analysis show that 57% of students are within a 20 minute walk to the school. This indicates that the TIA's assumed mode share of 10% each for walking and cycling is achievable and that the walking and cycling target mode shares could be increased in the future based on the success of the transport strategies.

Students are provided 40 bicycle parking spaces as part of Stage 1. This is likely to be adequate to accommodate the current student and staff population at KPS cycling to school. However, as the catchment analysis shows that over half the students are within a walking distance to the school, potentially there could be more demand for active travel modes.

It is recommended that bicycle and scooter usage be monitored. Bicycle parking should be provided in advance of the expected use to encourage more students to ride to school which will assist in achieving the mode share targets.

The current site plan doesn't show where staff can park their bicycles, however it is recommended that staff bicycle bays be separated from student provisions with three lockers provided in proximity to the staff showers.

Public Transport Catchment Analysis

The public transport catchment analysis captures students living outside of a reasonable walking distance, which has been assumed to be greater than 1600m (20 minutes). Additionally, the number of students eligible for the STSS have also been considered, as these students are eligible for free access to public transport to get to school, which may encourage them to use public transport.

A 400m catchment from bus stops and train stations has been considered as a realistic maximum distance that most students would likely walk from home to a public transport stop before potentially considering other modes. The public transport services considered in the catchment analysis are shown in Table 7 and displayed in Figure 44.

Table 7: Public Transport Services

Type	Name
Public Bus	Route 479 - Rockdale to Kyeemagh
Public Bus	Route 303 - Sans Souci to Redfern
School Bus	Route 732S - Rockdale Station to Brighton Public School
School Bus	Route 769S - Bay St & Moate Ave, Brighton to Moorefield Girls High
Train Stations	Rockdale, Banksia, Arncliffe, Wolli Creek, Turrella, Bardwell Park, Bexley North, Kingsgrove, Carlton, Allawah, Hurstville, Penshurst

Figure 44: Public Transport Catchment Extents (departing after school)

Table 8: Public Transport Catchment Extents

Extent	% of Students
Students within 400m of a bus stop	77%
Students within 400m of a bus stop + outside of a 1600m (20 min.) walking distance	19%
Students within 400m of a bus stop + outside of a 2300m walking / 1.6km straight line (STSS zone)	12%
Students within 400m of a train station	11%

As shown in Table 8, the majority (77%) of students live within 400m of a bus stop connecting to the school. However, most of these students are also within 1600m (20 minutes) walking distance and the 2300m SSTS exclusion zone to the school and thus would be more likely to walk to school than to catch a bus (and have to pay for the travel).

The analysis also indicates that 19% of the students live within 400m of a bus stop but too far away to be able to walk to school. Furthermore, 12% of students live within this area but are also eligible for the SSTS free travel. This indicated that the TIA's assumed mode share of 6% for bus travel is achievable and can potentially be increased.

Based on this, it is recommended that the bus target mode share is increased from 6% to 10%, assuming that approximately half the students for whom buses are a convenient transport option will choose to use them.

Analysis of the train catchment outlined that 11% of students also live within 400m of a train station. However, students catching the train would need to interchange on to a bus service at Rockdale to reach the school. For this reason and given the fact that KPS is a primary school, it is considered unlikely that students will choose to catch a train to school.

Off-street parking

During Stage 1, staff will be able to use the unrestricted parking available on the surrounding streets when travelling to and from the school. Upon completion of Stage 2, staff will be able to use the dedicated off-street car park accessible via the vehicle entrance at Beehag Street.

The car park has 18 parking bays and one accessible parking bay. Visitors are expected to use on-street parking to access the school.

Catchment Analysis Summary

There is a need to assess whether the walking and public transport network will provide a mode shift away from private car usage and to increased usage of sustainable transport modes. The coverage of existing public buses, school buses, train stations and the current walking and cycling network were analysed to determine whether students had access to and could travel to school via these transport modes.

Table 9 summarises the catchment analysis undertaken using anonymised student enrolment data for Kyeemagh Public School compared to the one and ten year target mode share from the Cardno TIA. This shows that the targets are achievable even in the ten year term, with potential in the active travel mode share for improvement, especially in consideration of Council's planned major park and pathway improvements near the school.

The key outcomes of the catchment analysis were as follows:

- Majority of students (57%) were shown to be within a reasonable walking distance of 1600m (20 minutes walking time) to the school. Outside of this area, a further 19% of students live within 400m of a bus stop connecting to the school;
- 12% of students live within 400m of a bus stop and are outside of the SSTS zone, meaning they are eligible for free travel;
- 11% of students also live within a 400m distance to a train station, however, these students would be required to interchange at Rockdale and so are considered unlikely to catch the train due to their age; and
- The catchment analysis shows that approximately 75% of students will have access to at least one sustainable mode of transport, defined as walking less than 20 minutes or being within 5 minutes of a bus stop connecting to the school. This indicates that there is sufficient potential to boost the active transport modes, shifting away from reliance on private car usage.

Table 9: Catchment Analysis Summary

Mode	Catchment Analysis	Catchment Results	1 Year Target	10 year Target
Walk & Cycle	Students within a 20 minute walk	57%	20%	25%
Bus	Students outside a 20 minute walk, but who live within 5 minutes of a bus connecting to the school outside the SSTS zone	12%	6%	11%
Car	Remaining are assumed to drive	31%	74%	64%
All	Total	100%	100%	100%

Contents

Transport Strategies

Introduction

Through consultation with SINSW and KPS school executive, the transport strategies outlined in Table 10 have been identified and developed. The aim has been focussed on maximising the target mode for active and sustainable travel to the school. These measures are proposed to be linked to the growth of the school where, as the student cohort grows, more of the outlined measures are implemented, with near term strategies identified in Table 10 and the future .

Table 10: Summary of transport strategies to be implemented

Strategy	Target mode	Responsibility	Alignment with Premier Priority Objectives	Alignment with UNSDGs
Encourage new students to walk, cycle, scooter or use public transport when travelling to/from school during orientation periods	Walk, Cycle, Bus	Kyeemagh Public School	• Efficient • Sustainable	• Goal 3 - Good Health & Well-Being • Goal 11 - Sustainable Cities/ Communities
Promote Walk to school day and Ride2School day	Walk, Cycle	Kyeemagh Public School	• Efficient • Sustainable	• Goal 3 - Good Health & Well-Being • Goal 11 - Sustainable Cities/ Communities
Carpooling where the school directs parents to reputable services. Staff will also be encouraged to carpool with other staff living within the same area.	Car	Transport Plan Coordinator	• Safe • Efficient • Sustainable • Collaborative	• Goal 3 - Good Health & Well-Being • Goal 10 - Reduced Inequalities • Goal 11 - Sustainable Cities/ Communities
Bus pooling to pair students for bus travel, where the parents are able to facilitate these connections	Bus	Transport Plan Coordinator and parents	• Safe • Efficient • Sustainable • Collaborative	• Goal 3 - Good Health & Well-Being • Goal 10 - Reduced Inequalities • Goal 11 - Sustainable Cities/ Communities
Students buddy up to sustainably travel	Walk, Cycle, Bus	Transport Plan Coordinators and students	• Safe • Efficient • Collaborative	• Goal 3 - Good Health & Well-Being • Goal 11 - Sustainable Cities/ Communities
Articles on school newsletter to include travel tips for students	Walk, Cycle, Bus	Transport Plan Coordinator	• Efficient • Collaborative	• Goal 3 - Good Health & Well-Being • Goal 10 - Reduced Inequalities • Goal 11 - Sustainable Cities/ Communities
Provision of end of trip facilities at the school	Cycle	Transport Plan Coordinator	• Efficient • Sustainable	• Goal 3 - Good Health & Well-Being • Goal 11 - Sustainable Cities/ Communities

Transport Strategies

Table 11: Summary of transport strategies staged with the increase in the student cohort

Strategy	Target mode	Responsibility	Alignment with Premier Priority Objectives	Alignment with UNSDGs
Develop a register for parents, carers and staff to provide feedback on carpooling schemes and general improvements or issues related to sustainable transport	Bus, Cycle, Walk, Car	Transport Plan Coordinator	• Sustainable • Collaborative • Replicable	• Goal 10 - Reduced Inequalities • Goal 11 - Sustainable Cities/ Communities
Organise bike and scooter education where an outside company runs a bicycle use, maintenance and safety training program with students	Cycle	Transport Plan Coordinator	• Safe • Sustainable • Replicable	• Goal 3 - Good Health & Well-Being • Goal 11 - Sustainable Cities/ Communities
Bike and scooter education and tracking using a tool like RideScore, a free third party run program which tracks student bicycle trips, sending arrival and departure information to parents	Cycle	Transport Plan Coordinator	• Safe • Sustainable • Replicable	• Goal 3 - Good Health & Well-Being • Goal 11 - Sustainable Cities/ Communities

Strategy 1 - Establish a Transport Plan Coordinator role

One or several Transport Plan Coordinator(s) (the 'Coordinator') should be nominated to implement, assess, monitor and review the transport strategies provided within this Plan. This might be a single person who can act as a Coordinator, or a Committee of people who can work together.

The role should be undertaken by enthusiastic and strong communicators who are driven by the opportunity to reshape how people perceive and interact with active transport modes in order to reduce single occupancy car usage.

The successful execution of the Plan will be highly dependent on obtaining the support of school staff, parents and carers. Therefore, the Coordinator should continually promote and raise aware about the Plan's objectives and strategies and where possible, liaise and collaborate with parents, careers and the school to establish a strong support network.

Responsibilities of this role will include:

- Supporting the organisation, management and operation of the Kiss and Ride area. This role will later transfer to school staff;
- Coordinate with Council Transport Planner to discuss potential opportunities for improving footpath, cycling and crossing infrastructure at key walking and cycling routes;
- Liaise with relevant school staff, parents and carers to support the implementation of the School Transport Plan;
- Develop key performance indicators (KPIs).;
- Monitor and assess the effectiveness of the Plan through a travel survey and commissioning of pedestrian camera survey at school entrances;
- Draft short monthly reports to principal and discuss the progress of the School Transport Plan based on KPIs;
- Ensure organised document and package transport plan and material for handover;
- Supervise the school travel activities for two hours in the AM and two hours in the PM peak each day for the first three weeks of school;
- Manage transport plan communications through school newsfeed articles and website;
- Manage RideScore program investigation to increase active travel to and from KPS;
- Organise sustainable travel events such as Walk to School Day, Ride2School Day and the Walking school bus program; and
- Organise student and parent surveys to provide input on sustainable travel methods.
- Developing a feedback register as a platform for parents, carers and staff to express concerns or provide suggestions in terms of promoting sustainable modes of travel.

Strategy 2 – Promote Walking and Cycling

The Plan aims to promote sustainable and active travel to and from KPS within a reasonable distance. Measures which promote sustainable and independent travel for students can result in healthier lifestyles. The programs identified within this section are encouraged to be promoted by parents and carers.

Strategies to promote independent travel for students, along with potential methods, are described in the following sections.

Encourage Students to Participate in Walk and Ride to School Programs

KPS should encourage students to participate in annual school events such as 'Walk Safely to School Day' and 'Ride2School'. The school website news and events feed should advertise the dates of these annual school events three – four weeks prior to ensure students are aware. Dates for nationwide events such as Walk Safely to School Day and Ride2School alternate throughout the year and are provided on official webpages.

The school will register with 'Walk Safely to School Day' to obtain a kit which contains stickers, posters and flyers which can be distributed throughout the school. The link to register is located at: https://www.walk.com.au/WSTSD/register-for-publicity.asp.

To ensure students are aware of the benefits of cycling, KPS will investigate providing bike education programs lead by external coordinators. Bicycle Network is Australia's biggest bike riding organisation which provide bike education programs to schools. The school will enquire about education programs. Enquiry information is available at https://www.bicyclenetwork.com.au/rides-and-events/ride2school/programs/bike-education/.

To further incentivise students to participate in these annual events, a healthy breakfast can also be provided to those who take part in walking or riding to school. Teachers and school staff will be encouraged to participate in these events to lead by example for students.

Advocate weekly walking or cycling plans

Students in class will discuss and plan to dedicate two days a week where they walk or cycle to school. This aims to encourage students to walk or cycle to school twice a week to reduce car pollution and to improve health and fitness.

The coordinator will set up a program where students are provided with a week plan and are given the task to nominate two days a week for walking or cycling to school. An example of a potential weekly plan is provided in Figure 45 below.

Students should then be encouraged to take the plan home to discuss with their families. Reminders on digital devices or personal phone calendars will be set up to further encourage students to align with the scheduled plan. Information of this activity should be sent to parents to explain the aim and objective of the activity.

Figure 45: Potential weekly 'walk to school' day plan

Develop a ‘Travel with a buddy’ program for students above Year 4

Parents will be introduced to a safe forum where other parents can coordinate a travel buddy. Parents will be encouraged to pair up existing students who regularly walk, cycle or travel to school independently with students from different school levels or the same class. It is encouraged that students should be paired up with other students who live nearby each other. Parents would be able to coordinate this through social groups.

Promote a park and walk initiative

Parents will be offered to take part in ‘Park and Walk’ initiative which encourages parents to park away from the school in uncongested areas and walk their children the rest of the way to school. The scheme could also help reduce traffic congestion around the school and gives parents an opportunity to exercise with their children, socialise with other parents and teach their children about road safety and independence.

Mutch Avenue and the kerbside fronting Tancred Avenue reserve have been identified as appropriate location for this initiative. Both locations offer unrestricted parking and are less than a 5 minute walk from the school entrance. The proposed Muddy Creek, Bestic Street Cafe and community gardens area is also a suitable location for this initiative as it provides a shared path alongside the waterside to the school which is quiet and separated from private vehicles.

A map of the area with the marked parking zone and the suggested walking routes should be provided to parents to use.

Advertisements of the ‘Park and Walk’ initiative should be provided to parents by e-mails and website newsfeed along with the benefits of walking to school.

The park and walk locations proposed by the Coordinator will be discussed through consultation with TfNSW and Council Transport Planner, as this initiative could be unattractive to residents.

Advertise cycling and walking events

Advertisements for events such as ‘Walk Safely to School Day’ or ‘Bike2School’ days should be promoted via emails, school website News and Events page or school notice boards.

If the school registers with Walk Safely to School Day, advertisement material can be provided. To register, the school must fill in the provided form at https://www.walk.com.au/WSTSD/register-for-publicity.asp. Advertisement resources for Bike2School are also provided by Bicycle Network at https://www.bicyclenetwork.com.au/rides-and-events/ride2school/ride2school-day/.

KPS will utilise the templates provided by Bicycle Network and resources available as shown in Figure 46. Classroom activities will be organised by teachers under the direction of the Coordinator.

Figure 46: Bicycle Network resources

Upgrade walking and bicycle infrastructure

School Infrastructure NSW, through the Coordinator, will collaborate with TfNSW and other government agencies to provide and implement more walkable and cycle friendly routes around the site.

The transport plan coordinator will engage with Council Transport Planner to assist in improving services to support the development of new footpaths and cycle paths. Furthermore, with the vision of providing a more sustainable transport network, this could aim to meet the needs of the school’s travel demand and active transport targets.

Group meetings with Council Transport Planner, TfNSW and the Coordinator will monitor the plan and discuss potential issues to devise future actions to further promote the Plan.

TfNSW, School Infrastructure and the Council Transport Planner will meet monthly during the earlier establishing period and afterwards the parties can agree on a reasonable consultation strategy. These meetings should be framed to discuss integration with infrastructural improvements in the surrounding area, bus networks, Kiss and Ride facilities, cycling and walking to school.

Strategy 3 – Promote the Use of Public Transport

Shown in Section 4 (Future Travel Analysis), many students live within proximity of a bus service connecting to the school. School students, staff, parents and carers should be encouraged to utilised public transport networks when travelling to and from school as it is more sustainable.

Through providing a multiplicity of travel options, school students and staff may reconsider travel methods and switch from trips taken by car to other modes of transportation which are more sustainable.

Display public transport options on the KPS webpage

Information for sustainable travel methods can be displayed on school home pages for students and staff. Currently, the KPS webpage on Location and Transport (https://kyeemaghin-p.schools.nsw.gov.au/about-our-school/location-and-transport.html) does not include detailed information on public transport routes.

The TfNSW Trip Planning Widget can be implemented on the webpage to encourage parents to plan trips to and from the school via public transport. The widget includes departure times, service, alert information and Opal fare estimates. The Trip Planner widget code can be implemented into the website and is available at https://opendata.transport.nsw.gov.au/dataset/tfnsw-trip-planning-widget

Improve Mode Share Summary

An assessment of existing travel patterns has been conducted within Section 2 of this report. The travel analysis suggests that there will still be several travellers via car. As such, promoting active and public transport modes may be a viable alternative for these travellers. The Transport Plan Coordinator will be responsible for assessing the mode share summaries for individuals travelling to and from KPS.

Strategy 4 – Reduce Single Occupancy Trips

Reducing single occupancy car trips, particularly via private vehicle will support the objective of reducing car dependency. Carpooling aims to limit the amount of single occupancy trips taken via private vehicle. As such, it is recommended that parents and school staff should also be encouraged to change up their behaviour by sharing car trips.

The Coordinator will liaise with the P&C to organise a method for parents to connect with other parents who live in close by or within the same suburb and potentially organise carpool arrangements for their children.

It should be encouraged that parents take turns picking up and dropping off children to and from the school. This will be advertised to have social, cost and environmental benefits. A similar approach can be undertaken to organise a carpooling scheme for school staff.

Carpooling should also be advertised repeatedly in the school newsfeed to maintain exposure to students and parents. Carpooling can also be promoted via the school's intranet and notice boards. The Transport Plan Coordinator can set up these conversations and onboard new staff into this process.

There are a number of free apps currently available which would help organise and operate the carpooling such as Liftango https://www.liftango.com/carpool. Features include the function to create and moderate groups via invitation; this way parent groups can manage the carshare group safely. Operation wise, the app features scheduling, in app chat, live tracking and routing, meaning parents can easily organise and streamline pickups.

Carpooling register

In order to measure the success of carpooling schemes implemented and to provide continual improvements, the Transport Plan Coordinator will set up a carpooling register. This register will act as a platform for both parents and staff to provide feedback and potential suggestions for improvement and can be anonymous to allow users to voice any concerns.

Contents

Management Plan for School Facilities

This section details the vehicle access and management plan for the following school facilities:

- Kiss and Ride;
- Excursion bus;
- Community facilities;
- Out of school hours childcare (OOSH);
- Emergency vehicle access; and
- Deliveries and waste vehicle access.

Figure 47 provides a plan view of the redeveloped school and location of school facilities.

Management Plan for School Facilities

School infrastructure

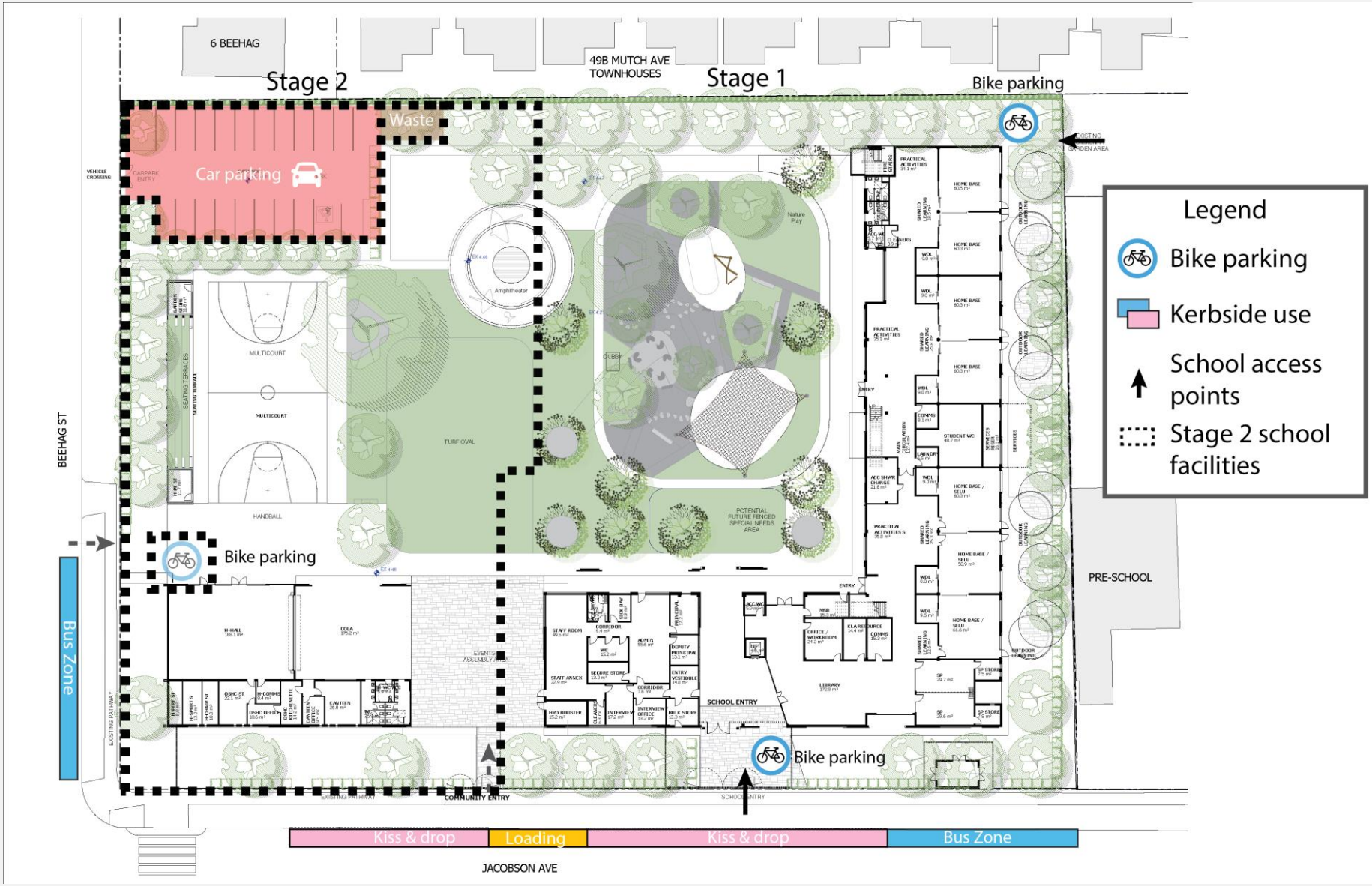


Figure 47: Location of school facilities onsite and surrounding the school

Kiss and Ride

Two main operations will occur at the school – normal hours and out of school hours kiss and ride.

A formalised Kiss and Ride area will be provided adjacent to the school on Jacobson Avenue as part of Stage 1.

This area will be approximately 63m long which can allow approximately 10 cars to park along the kerbside. The bays will not be marked to allow flexibility for mobility impaired students to access any of the parking bays. These students will be able to directly access the school entrance from the kerbside.

The location of the kiss and ride bays are displayed in Figure 48.

Timing

Kiss and ride operations are proposed to occur during the following times:

- Drop-off – 8:00am – 9:30am; and
- Pick-up – 2:30pm – 4:00pm.

Kiss and Ride area

Figure 48: Kiss and Ride drop-off and pick-up bays

Kiss and Ride

Operation management

To manage the Kiss and Ride area the school will do the following :

- Establish a roster for staff to operate and supervise the school entry adjacent to the Kiss and Ride area during peak times: 8:40am – 9:10am (30 minutes before school starts) and 3:10pm – 3:40pm (30 minutes after school ends); and
- Open and close the main gate at the commencement and conclusion of kiss and ride operations.

Kiss and Ride

Parent communication

Parents should be well educated on how the new Kiss and Ride arrangements will work as well as guidance and rules to abide by. This should be clearly communicated before commencement of the school term and continually shared amongst new users of the Kiss and Ride area.

Various resources are available as part of TfNSW Centre for Road Safety “pick-up and drop-off initiative” which includes; template parent letters, brochures for Kiss and Ride safety tips. The Coordinator(s) will be responsible for developing suitable communication materials outlining measures parents can take to facilitate the safety and efficient of the Kiss and Ride area in consultation with the school executive.

The material will be circulated prior to the start of the school term through various channels such as onboarding letters to parents, the school website’s travel page, school newsletter and at the school throughout the school term.

Excursion bus management

Students will be picked up and dropped off along the kerbside on Beehag Street. The route from the bus stop to the school is displayed in Figure 49.

Figure 49: Excursion bus access to KPS

Management Plan for School Facilities

Community use of school facilities

In the school's ultimate configuration, a separate entrance will be provided to the west of the main school entrance for community members to access the school facilities as shown in Figure 50. The community garden will be available for access from Tancred Street as normal.

Stage 2 will include construction of the new school hall and covered outdoor learning area (COLA) towards the southern boundary of the school. The hall, once complete, may be operated outside of standard school hours for community use. Current use of the school facilities for language classes after school will be maintained during construction of Stage 2.

Figure 50: Location of community entrance

Out of school hours childcare (OOSH)

Out of school hours childcare will operate on a regular basis Monday-Friday, between 7:00am – 9:00am and 3:00pm - 6:00pm.

Parents accessing the OOSH facilities can park on the surrounding streets and walk to the main front gate to drop-off or pick-up their child. Parents will also have the option to use the Kiss and Ride area, however it should be noted that this area will function as a 'No Parking' zone meaning parents will not be permitted to park longer than two minutes.

Emergency vehicle access

The hydrant connection point is located adjacent to the school gates on Jacobson Avenue as displayed in Figure 51. Fire trucks accessing this point can use the designated loading bay which is not likely to be used during Kiss and Ride operations.

For occasions a fire truck requires access to the hydrant connection point during Kiss and Ride operations, students will need to managed by school staff along the kerbside, and the school's emergency management procedures will apply.

Similarly, ambulances are able to use the loading bay, which provides direct access to the school grounds via the community entrance. Ambulances can also use on-street parking provisions for non-emergency situations.

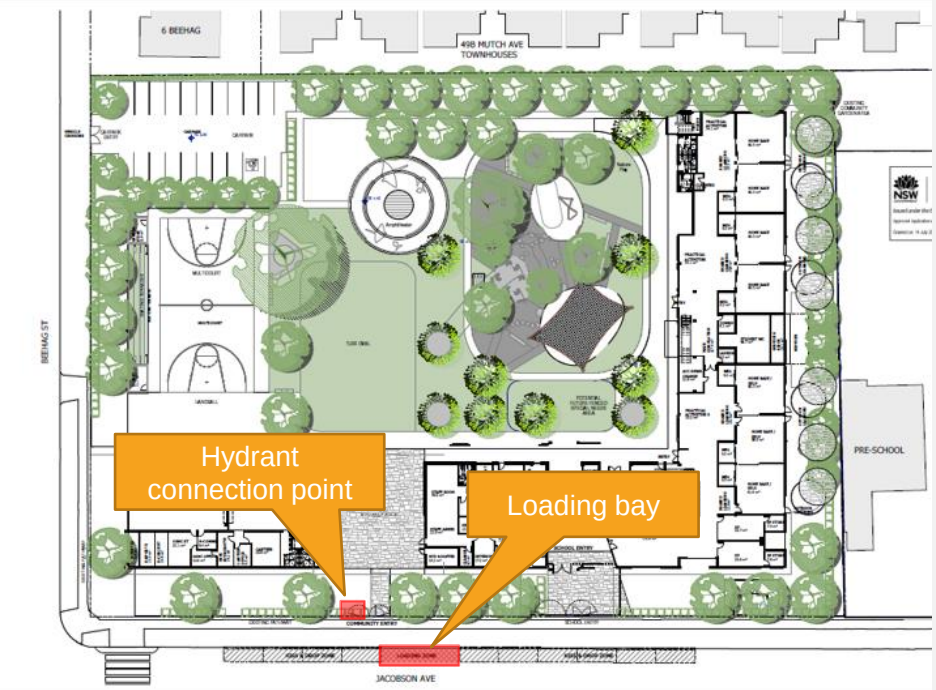


Figure 51: Location of hydrant booster and loading bay on Jacobson Avenue

Deliveries and waste management

The waste recycling collection point is the designated position or area where waste or recyclables are loaded onto the collection vehicle. This area is expected to be constructed as part of Stage 2 as displayed in Figure 53. During Stage 1, wheelie bins will be taken to the kerbside on Jacobson Avenue, with the waste truck collection occurring from the designated loading bay shown in Figure 52.

Figure 52: Stage 1 waste collection point

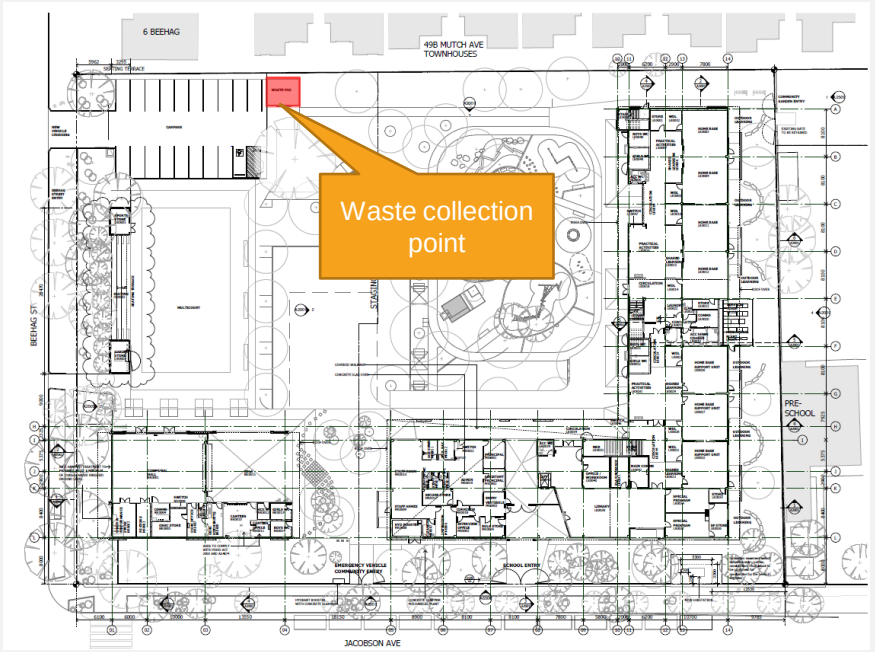


Figure 53: Stage 2 waste collection point

Opening day considerations

During the first few weeks of transition, additional staff will need to be present to help navigate parents to the designated Kiss and Ride location.

Prior to school opening

Communications will be developed, and information sessions will be made available on top of information packs being issued to the families and students covering access. There will be information packs going out addressing how students can travel to school through the various modes.

The resources described in this section of the report are available from Council and TfNSW and can be provided along with school specific information to parents prior to school opening. This will encourage travel to school to be orderly with appropriate travel choices made.

Contents

School Transport Plan Administration

Administration of the Plan involves the maintenance of necessary systems, data and paperwork, consultation and promotion. Senior management support is critical to ensuring the success of any transport plan for several reasons such as to:

- Lead by example;
- Allow budget allocations for the implementation of measures; and
- Give support to changes or development of policy documentation.

Staff induction

To ensure new members of staff are aware of transport arrangements and the overall function of the Plan, all staff members should be made aware of the Plan as part of their induction process. The School Transport Plan section of the induction should provide new starters with the following:

- A brief introduction to the Plan and its purpose;
- Tour of the schools to include visit cycle parking areas and shower and changing facilities; and
- Provision of an information package which including information on incentives to use sustainable means of transport e.g. pool bikes and car/taxi share system.

Community Consultation

To further encourage the adoption and use of the transport plan, the Coordinator will engage the P&C group made up of parents and neighbours to help apply the transport strategies outlined within the Plan.

The Coordinator will also liaise with the Council Transport Planner and TfNSW to resolve infrastructure, training and safety issues as they arise.

Contents

School Transport Plan Monitoring

The Plan is a constantly evolving strategy and its success will rely on ongoing monitoring and review. Although the objectives of the School Transport Plan will remain constant, it may be possible to re-define specific targets over time.

Target setting should aim to reflect a shared goal for continued progress. Assessing the provided targets and identifying whether they are being met will provide opportunities to revaluate, review and redefine targets.

Reviewing Framework

It is recommended that a Transport Plan Coordinator or a travel coordination group be set up to facilitate and manage the implementation and monitoring of the Plan.

It is expected for the Coordinator to meet with the KPS Business Manager (when this role is appointed) monthly to quarterly to discuss operation of the Plan. The objectives provided in the Plan act as measures of success and may be used to identify potential refinements.

The Coordinator will then further engage with the Council Transport Planner to assist in designing and operating services which aim to meet the needs of the school's users and furthermore support the use of active and public transport. These sessions will also be used to determine ways in which to integrate with other relevant major infrastructural improvements planned for the surrounding area and the Bayside Bike Plan. This includes the M6 Stage 1 and participation in the Active Transport Plan Council is currently piloting as the school grows.

This monitoring strategy will aid the Coordinator in the identification of measures to be taken where travel mode targets are not met, parking issues have been identified on neighbouring private land, access ways or the surrounding road network.

This transport plan is meant to be a "**living document**" and updated as required by the travel coordinator to suit the performance of the school against the targets outlined in this plan and amend the transport strategies to suit based on success or not of the strategies. This document will also be updated to reflect any changes to key walking and cycling routes as major infrastructural improvements are undertaken in the future.

Monitoring

The school's Coordinator will be responsible for reviewing and monitoring the application of the Plan. Reviewing and monitoring mechanisms include collecting data from travel patterns from students, staff and visitors for journeys to and from the school.

The recorded data will outline modes of transportation and distance travelled by each mode, from which will provide insights on how people are travelling to and from the school.

Additionally, this will provide insights on how school facilities are being used during peak times and could potentially help identify future demand to accommodate for growth. Data can be collected by a variety of methods, including the following:

- Staff and student travel surveys, in particular, monitoring bicycle and scooter uptake and determine whether footpath upgrades are needed to accommodate changes in cycling volumes;
- Observational surveys to obtain data on pedestrian, scooter and cycling arrivals to school. These surveys can also be undertaken for the Kiss and Ride area to understand potential issues with queuing.
- Feedback through observation of the Kiss and Ride area;
- Meetings, facilitated by the Coordinator, with relevant residential representative groups; and
- Community feedback direct to the school or directed via Bayside Council Transport Planner.

A plan for the monitoring program is outlined in Table 12.

School Transport Plan Monitoring

Table 12: School Transport Plan Monitoring

Monitoring strategy	Monitoring activity	Timeframe
Travel survey	Transport Plan Coordinator to prepare an online survey for staff and students (parents) to fill out on their travel patterns	After the first month of each term for the construction period (finishing January 2022) and twice yearly thereafter
Walking, cycling and scooting arrival data	Transport Plan Coordinator to undertake an observation survey to obtain data on pedestrian, cycling and scooting use to support the travel survey	Once mid-term after the construction completes, yearly thereafter
Observations and notes	Transport Plan Coordinator to conduct site visits of the school's transport systems and report on operations of buses and other issues	Once mid-term after opening and yearly thereafter
Consultation with TfNSW and Bayside Council Transport Planner	Using the travel coordination meetings, the Transport Plan Coordinator should discuss any issues that have been raised to these bodies such as bus demand, parking issues or pedestrian path concerns. In particular with Council, these sessions will also be used to discuss alignment with the Bayside Bike Plan and other planned major infrastructural improvements near the school.	Monthly coordination meetings with TfNSW and Council Transport Planner (held virtually) during the construction stages, quarterly thereafter
Consultation with the Parents and Citizens (P&C) group	Transport Plan Coordinator to organise question and answer (Q&A) events with the P&C to broadcast travel issues and obtain feedback	After the first month of each term for the construction period and twice yearly thereafter
Identify any school parking demand that spills out beyond the Kiss and Ride area	Car parking demand observation surveys (undertaken during and after school hours)	After the first month of each term for the construction period and twice yearly thereafter

Appendix A – Cirriculum Vitae

Michael Cavallaro

Profession
Transport Engineering

Current Position
Senior Engineer

Joined Arup
2007

Years of Experience
14

Qualifications
Bachelor of Engineering (Civil)
Diploma in Engineering Practice, University of Technology, Sydney

MIEAust CPEng

TCIB PTP

TCIB RSP

Professional Associations
Member, Engineers Australia
Member, ULI Toronto

Michael is a Chartered Transport Engineer (Australia) with skills in transport design and pedestrian/traffic safety. He has diverse range of skills in traffic analysis, modelling, concept design. Michael previously worked in Arup's Doha, Qatar, Dubai, United Arab Emirates and Toronto, Canada offices and has returned to Arup's Sydney office. He provides traffic engineering and design development advice on development projects, comfortably liaising with architects, project managers and contractors.

Michael is an accredited Road Safety Professional (RSP) in Canada and a Level 2 Road Safety Auditor in Australia and has completed numerous road safety audits at the design stage, pre-opening and on existing roads. Michael applies this training to all projects where safe design can be implemented.

Michael's skills cover a broad range of projects that stem from his skills in undertaking Traffic Impact Assessments. He has applied these skills on many projects including residential, mixed use, shopping centres, sporting facilities and major road and rail projects. He believes that the impact of such developments is not limited to vehicles. Pedestrians, bicycles and public transport impacts are equally important.

> We must consider the result of the any project or task before commencement. This allows one to produce a tailored output that suits each project and task.

Kyeemagh Public School, Australia

School Infrastructure NSW is upgrading Kyeemagh Public School from a Kindergarten - Year 2 school of about 60 students to a K- Year 6 school with a capacity of 500 students. Michael directed the project to develop a School Transport Plan that summarised the transport facilities available to the school, the schools transport strategies to maximise the active travel options and the school's management strategies for their facilities.

02/2021 – Current

Fort Street Public School, Australia

School Infrastructure NSW are upgrading the Fort Street Public School in the Rocks, with the school population increasing three-fold. Michael is project manager for this project and is responsible for delivering the traffic and transport aspects of this project. This includes design advice on the transport facilities adjacent to the site, developing a school travel plan that outlines sustainable means of travel to school and programs to support

this, and developing a construction pedestrian and traffic management plan.

12/2019 – Current

Fort Street Public School Temporary Accommodation, Australia

School Infrastructure NSW are upgrading the Fort Street Public School in the Rocks and require a temporary accommodation while these upgrades are taking place. Ultimo Public School has recently undergone the same process, using a temporary school within Wentworth Park. FSPS proposes to use these temporary buildings while construction is underway. Michael completed the traffic and transport assessment for the REF amendment which extended the use of the temporary accommodation and considered concurrent operation of FSPS and UPS and the traffic impacts of these.

12/2019 – 06/2020

Lindfield Learning Village, Australia

Working for Schools Infrastructure NSW, Michael is leading the traffic and transportation response to submissions to the application and providing an integrated and connected transport plan for the school looking at modes of travel and accommodating the different users across the site. This State Significant Planning Application (SSDA) with the NSW Department of Planning Industry and Environment is in a constrained location, with limited access and therefore Michael has worked with stakeholders and approval agencies to outline a workable traffic and transport access strategy for the school.

12/2019 – Current

M6 Stage 1 Bid Design, Australia

For this bid design for the new M6 Stage 1 motorway project from Transport for NSW, Michael was the operational traffic technical lead on this project, coordinating a team of modellers using Vissim and providing design advice to the bid design team with a focus of the traffic impacts of any alternate designs. Michael provided advice within the contract requirements and in line with NSW Roads and Maritime Services traffic modelling guidelines.

06/2020 – 11/2020

Sydney Gateway Bid Design, Australia

For this bid design for the new Sydney Gateway motorway project from Transport for NSW, Michael was the operational traffic technical lead engineer on this project, coordinating a small team of modellers using Aimsun and providing design

advice to the bid design team with a focus of the traffic impacts of these alternate designs. Michael provided advice within the contract requirements and in line with NSW Roads and Maritime Services traffic modelling guidelines.

12/2019 – 04/2020

Relief Line South – Traffic Management, Toronto ON

Traffic Management Lead for the tunneling design of the Relief Line South 30% design for Toronto Transit Commission, which consisted of a 7.5km tunnel from downtown Toronto to Pape Station. Michael was responsible for the traffic management of construction activities preparing a construction traffic management plan which detailed site operations for the tunnel related sites including two launch shaft sites. This required strong coordination between disciplines such as geotechnics, architecture and civil engineering on the layouts of these sites and how they would need to be serviced. Michael focussed on provided traffic management solutions that maintained access for all modes of travel, aiming to minimise potential disruption within Toronto's busy core.

01/2019 – 07/2019

Finch West LRT – Safety analysis, Toronto ON

Hazard analysis lead for the $1-billion Finch West LRT extension, which is one of Metrolinx's transit priorities as set out in the regional transportation plan known as 'The Big Move'. Arup is the lead designer for the 11-km line which includes 18 stops and stations and is being delivered under a DBFM model. Other key features include a portal, tunnel and underground station at Keele Street, a below-grade guideway. Michael was responsible for a hazard analysis of road vehicle collisions at stops where hazards were identified, assessed through a risk assessment tool and mitigation were developed. Michael presented this analysis to the stakeholder of FWLRT include Metrolinx and TTC for approval of the mitigations, leading several meetings of consultation to obtain all viewpoints and consider these in the analysis.

03/2019 – 09/2019

Finch West LRT – Vissim Model, Toronto ON

Traffic and Transit Modelling Lead for the $1-billion Finch West LRT extension, which is one of Metrolinx's transit priorities as set out in the regional transportation plan known as 'The Big Move'. Arup is the lead designer for the 11-km line which includes 18 stops and stations and is being delivered under a DBFM model. Other key features include a portal, tunnel and underground station at Keele Street, a below-grade guideway. Michael was responsible for the 30% design Vissim model, balancing good traffic flow and rail operations objectives. He was responsible for liaising with Road, Traffic Signals and Track

designers to coordinate design aspects and report and present results to clients and stakeholders.

04/2018 – 08/2018

Ottawa Confederation Line LRT Bid Design, Ottawa ON

The Ottawa Confederation Line Stage 2 extended the Stage 1 LRT line to the west and east of the city totalling 24km of exclusive right of way LRT. Michael was responsible for the traffic management planning during construction staging of the main civil works of the line at stations and where the design for the LRT proposed changes to the road network. Michael also reviewed the extensive OCTranspo bus network and proposed diversions and changes wherever needed.

09/2017 – 11/2018

Edmonton Valley Line LRT - Vissim Model, Edmonton AB

Vissim model lead for the Edmonton Valley Line LRT- Stage 1, which will connect the community of Mill Woods in southeast Edmonton to the city's downtown core. Key features of this $1.8 billion, 13km Valley Line include: 11 stops and 1.5km of elevated guideway structure, an elevated station incorporating a transit centre and park & ride, a transfer point to the existing Capital Line and Metro Line LRT at Churchill Square, a tunnel connecting downtown Edmonton to the River Valley, a new river bridge crossing the North Saskatchewan River and an operations and a maintenance facility. Arup is leading the design team providing multidisciplinary engineering services. The project is being procured using a DBFOM and vehicle supply P3 procurement model.

Michael was responsible for reviewing the model outputs and managing the priorities of the modelling process. He worked with modellers offering scenarios and alternative methods to solve client relevant issues. Michael also modelled bicycle lanes in Vissim for five downtown intersections, modelling a two-way bicycle lane interacting with signalised intersections and normal traffic lanes.

10/2016 – 03/2019

Edmonton Valley Line LRT – Traffic Signal Operation Design, Edmonton AB

Traffic signals operations task lead for the Edmonton Valley Line LRT- Stage 1, which will connect the community of Mill Woods in southeast Edmonton to the city's downtown core. Key features of this $1.8 billion, 13km Valley Line include: 11 stops and 1.5km of elevated guideway structure, an elevated station incorporating a transit centre and park & ride, a transfer point to the existing Capital Line and Metro Line LRT at Churchill Square, a tunnel connecting downtown Edmonton to the River

Valley, a new river bridge crossing the North Saskatchewan River and an operations and a maintenance facility. Arup is leading the design team providing multidisciplinary engineering services. The project is being procured using a DBFOM and vehicle supply P3 procurement model.

Michael was responsible for developing the design of the Transit Signal Priority (TSP) operation for the LRT, liaising with the LRT signalling infrastructure team to produce a robust design that allowed for LRT priority when needed but also did not overly impact road traffic. Michael was responsible for writing the operational specification for the traffic signals. This specification also required the development of signal timing plans.

10/2016 – 03/2019

Edmonton Valley Line LRT - Safety, Edmonton AB

Grade Crossing Hazard analysis task lead for the Edmonton Valley Line LRT- Stage 1, which will connect the community of Mill Woods in southeast Edmonton to the city's downtown core. Key features of this $1.8 billion, 13km Valley Line include: 11 stops and 1.5km of elevated guideway structure, an elevated station incorporating a transit centre and park & ride, a transfer point to the existing Capital Line and Metro Line LRT at Churchill Square, a tunnel connecting downtown Edmonton to the River Valley, a new river bridge crossing the North Saskatchewan River and an operations and a maintenance facility. Arup is leading the design team providing multidisciplinary engineering services. The project is being procured using a DBFOM and vehicle supply P3 procurement model.

Michael conducted the Grade Crossing Hazard Analysis, utilising his road safety experience to the review and improve the design at crossings of the LRT. Michael worked with the road designers to work on the best solutions for improving safety for pedestrians at the grade crossings.

10/2016 – 03/2019

Niagara Region GO Rail Station Area Plans, Niagara Region, ON

Deputy project manager for the concept design of four GO stations in the Niagara Region: Grimsby, Beamsville, St Catherines (Mobility Hub) and Niagara Falls. The purpose of the study was to seek planning approvals for the stations. Arup's role was to produce concept designs for the stations in support of secondary plans for the station areas prepared by the lead consultant, Dillon.

Michael led the technical team to delivered four station area plans to concept level. The stations were designed to the local GO Design Requirements Manual and the Regions Transport impact study of the stations. Michael also included green initiatives for

the site, utilising Arup's expertise in green infrastructure to provide a framework document of what could be provided in the parking areas of the station given the specific issues at each site.

12/2016 – 04/2017

North King's Town Secondary Plan TMP, Kingston ON

Michael was deputy project manager for this Transportation Master Plan which informs the Secondary Plan for the North King's Town area, north of downtown Kingston Ontario. The project involved consultation with the public, presenting the study at intermediate stages. Michael worked to present active transportation measures as an alternative to new road infrastructure.

01/2018 - 10/2019

Newtown-Enmore Parking Study, Australia

Traffic consultant for a parking study for the Newtown-Enmore precinct. Scope of Arup services included transport and parking advice and analysis to Marrickville Council for their upcoming parking study. Michael provided traffic engineering advice and GIS maps of parking restrictions for this project.

11/2012 – 05/2013

Macquarie University Study, Australia

A project that dealt with the traffic surrounding Macquarie University and the effects of additional development on the site of the university. Michael was involved in the micro-simulation modelling of North Ryde and Macquarie Park. He was responsible for concept design of and modelling of improvement options to evaluate the impact of future traffic volumes.

04/2012 – 08/2012

Sutherland Hospital Car Park Demand Study, Australia

Michael developed a survey plan for the parking of this hospital. He then assessed the parking survey results to determine potential paid parking arrangements. He then documented and recommended a paid parking strategy and a parking arrangement when the hospital was developed.

03/2012 – 05/2012

UTS Gehry Building, Australia

Michael was the traffic engineer during the design development and tender documentation phase of the UTS Dr Chau Chak School of Business designed by American architect Frank Gehry. The building included a small basement which presented many challenges to Michael and the design team. Flooding issues on Ultimo affected the design of the ramp, which needed to be finessed with the standards to suit. Structure issues with the

complex beams and columns needed for the interesting shape of the building also created issues within the car park which Michael was able to solve, working with both the architect and Arup structural engineers.

08/2011 – 08/2013

Blacktown Mt Druitt Hospital, Australia

Michael developed a contraction traffic management plan for the hospital site that was staged over a period of ten years. Michael reviewed the campus and assigned construction accesses and routes that least disrupted normal hospital operations. Michael also designed the multi storey car park and completed design checks for the ramps, entry and exit.

10/2010 – 09/2013

Road Safety Audits, Australia:

Bunnings Gladesville, Australia

Michael was a team member for two Stage 4 pre-opening road safety audits on two roads, Frank Street and Cressy Road in Gladesville installed to support the new Bunnings Store.

06/2020 - 07/2020

Moruya Bypass Strategic Design, Australia

Michael was a team member on the Stage 1 strategic design audit for the Moruya Bypass. Michael and the team were required to review the potential for several bypass routes, reviewing the potential road safety issues with the alignment and future connections with the surrounding roads.

09/2020 - 03/2021

Lane Cove Road, Lady Game Drive to Yanko Road, Australia

Pennant Hills Road and Marsden Road, Australia

Michael was the driving team member of the audit team for the Stage 3 (Detailed Design) Road Safety Audit of these two Arup Civil designs. Michael worked independently from the Civil design team to complete the audit and present the report with Corrective Action Requests.

03/2012 – 06/2013

Commuter car parks Revesby and Woy Woy, Australia

Michael completed Stage 4 Pre-Opening Road Safety Audits on two commuter car parks built adjacent to railway stations in Revesby and Woy Woy Stations in Sydney. The task was to review the car park before use to note safety concerns.

04/2010 – 04/2011

Malvern Avenue, Australia

Remembrance Avenue, Australia

He also completed detailed design audits of intersection upgrades at Malvern Avenue, Chatswood and Remembrance Avenue, Liverpool, completing the site visits and writing the reports.

Urana Road and Merrylands Road, Australia

Michael was part of the Arup team that performed a Stage 5 (Existing Road) Road Safety Audit of Urana and Jelbart Roads for the RTA and another Stage 5 (Existing Road) audit on Merrylands Road for Holroyd City Council. Michael visited the site and noted poor or hazardous situations. Michael wrote the reports of these two road safety audits which detailed the issues observed.

CF Fairview Mall, Toronto ON

As part of its ongoing program to evolve its suburban shopping centre portfolio to a more urban form that is better integrated with its neighbouring communities, Cadillac Fairview (CF) commissioned Arup to provide services for site development and design, along with transportation planning and engineering, in support of a zoning by-law amendment application. Our services at CF Fairview Mall included contributing to the site design for the intensification of surface parking lots into high-rise residential, office, and hotel towers, designing improvements for pedestrian and cycling access and connectivity, and completing transportation impact and origin-destination studies in support of the planning application.

Michael provided traffic engineering advice as a consultant for this project including concept design of a pickup/drop-off area and a transportation impact study.

03/2018 - 10/2019

CF Masonville Place, London ON

As part of its ongoing program to evolve its suburban shopping centre portfolio to a more urban form that is better integrated with its neighbouring communities, Cadillac Fairview (CF) commissioned Arup to provide services for site development and design, along with transportation planning and engineering, in support of a zoning by-law amendment application. Our services at CF Masonville Place included contributing to the site design for the intensification of surface parking lots into high-rise residential towers, designing improvements for pedestrian and cycling access and connectivity, and completing a transportation impact study in support of the planning application.

Michael provided traffic engineering advice as a consultant for this project including concept design of a pickup/drop-off area and a transportation impact study.

03/2018 - 10/2019

Lusail Stadium, Qatar

Transport Planner for the iconic 2022 world cup stadium in Doha Qatar. Designed by Fosters and Partners, Arup was responsible for all engineering including traffic planning and design. Michael was responsible for the completion and approval of the Transportation Impact Study for this project. This included detailed strategic modelling of the area around the site, and creation of a Vissim model of the event, to model buses providing arrival and drop-off services for the 80,000 spectators.

12/2015 – 04/2016

New Doha Tennis Stadium at Khalifa Sports Park, Qatar

Transport consultant for master plan and concept design of the 52Ha sport park including a 13,000-seat stadium. Michael developed a spreadsheet model for trip generation for various events at the stadium and in the masterplan. He then provided design advice to the architects for the loading bay and car park. Finally, he was a key member of the Traffic Impact Study of the site. Due to the event-based land uses, the typical TIS process was not able to be followed. Michael modified the methodology and process in agreement with Ministry of Transport to define and complete the study.

08/2014 – 08/2016

Jumeirah Central Masterplan, UAE

Michael was heavily involved in the masterplan design and traffic impact study of this 3.8 million sqm GFA development in Dubai. A mixed-use development, Michael led the team completing the traffic impact study for this development and worked with leading experts in Autonomous vehicles and Aerial Gondola's to develop the transport masterplan which has eight modes of travel planned. This also included a centre running extension of the Dubai Tram and links to the existing and proposed extensions to the Dubai Metro. Michael also liaised with developers, master planning architects and utility engineers to develop a workable masterplan that considered all aspects of the design with practicality.

02/2016 – 10/2016

Reem Island Sector 4 Masterplan, UAE

Tamouh Investments were completing the masterplan approvals for Reem Island's Sector 4, located on a 120ha peninsula. Sector 4 will have residential population of around 27,000 people. The master plan embraces principles of walkability and human scale, which is made possible by building on the site's ideal dimensions, future public transport infrastructure—such as metro and LRT—and benefitting from the microclimatic context of cooling sea breezes. Michael provided traffic engineering analysis of the strategic and intersection modelling for this area. He also directed

concept design of the intersections incorporating safe design solutions and road design best practice.

06/2015 – 08/2016

Msheireb Downtown Doha High Level TIS update, Qatar

Msheireb Properties were completing the masterplan approvals for their 750,000sqm development. Michael assisted in the High Level TIS update for an updated land use plan for the Msheireb project. He summarised the changes to land use and oversaw the modelling to provide an easily digestible assessment of the differences in traffic generation of the new land use plan. Michael also used his road design skills to provide high level sketch designs of mitigations for site junctions impacted by planned changes to Msheireb Street.

09/2013 – 07/2014

DohAlive Hotel Traffic Impact Study, Qatar

Michael was responsible for the completion and approval of a Transport Impact Study (TIS) for a 235-room hotel and retail development in a constrained location. Working closely with the architect, Michael managed the parking requirements and trip generation impacts of this development against the proposed provision with limited access opportunities. Michael was responsible for all aspects of the TIS including coordinating strategic modelling; completing junction modelling; design of a mitigation plan for the development and collating this into a cohesive Traffic Impact Study Report.

08/2013 – 08/2015

Thredbo Infrastructure Assessment, Australia

Transport consultant for this infrastructure assessment of an extension to the ski village and resort. Michael provided advice on road sizing and layouts for this ski resort to maintain access for appropriate vehicles in ski season. He was also responsible for the demand estimates for trip generation and assessed the road accesses into the village for the expected additional trips, providing concept designs of intersection improvements.

04/2013 – 08/2013

133 Murry Street, Australia

Traffic consultant for this proposed hotel building with 179 rooms, 12 apartments and only two basement levels. Michael designed the basement parking and loading areas. For the apartments, Michael proposed a mechanical parking system to provide two spaces in the space of one. This work also included a traffic impact assessment of the hotel on the Perth CBD.

11/2012 – 01/2013

478 George Street Sydney Construction Traffic Management, Australia

Michael developed a design for a construction access layby for the redevelopment of a mixed-use tower within Sydney's central business district (CBD). Construction traffic is subject to strict rules about timing and queuing of construction vehicles in the CBD area, so Michael developed a plan to manage the layby through radio communication. The layby occupied the pedestrian path, which was remade to suit the construction traffic and then to be repurposed back to pedestrians. In the meantime, Michael designed a pedestrian route through the building that maintained access for pedestrians and construction vehicles.

08/2012 – 01/2013

Wet'n'Wild Sydney, Australia

Traffic consultant for the new theme park in western Sydney, Wet'n'Wild. Michael provided car park and intersection design advice to civil engineers and liaised with the authorities for approval of the new signalised entry to the site. Michael managed the intersection design team, applying project management skills to ensure efficient completion of the intersection design.

04/2011 – 02/2012

Sydney Ports Road Safety Audit, Australia

Michael organised and completed the road safety audit of the three roads of Port Botany in Sydney. These roads experience high truck volumes throughout the day and the night, making safety a primary concern for Sydney Ports. Michael used best practise road safety audit techniques to report approximately 60 issues of varying levels of severity. The team developed several improvement options that aimed to simplify the readability of the road and encourage safe operations in Sydney's busiest port.

06/2012 – 08/2012

Sydney Ports Corporation Truck Marshalling Area, Australia

Traffic consultant for the development of the truck marshalling facility on Bumborah Point Road to address operational requirements for forecast container trade growth at Port Botany, New South Wales. The parking area was designed for over 45 B-double (25m long) trucks and included a ticketing system to call trucks to the ports. Michael providing traffic engineering input to the concept and detailed design of the site.

10/2011 – 01/2012

Rail Maintenance Facilities in Sydenham and Sutherland, Australia

Lead traffic consultant for this infrastructure led project to re-design two maintenance areas for Railcorp. Michael assessed the

site layouts for suitability and provided advice on the vehicular access needs. Michael consulted with the future operators of these sites to develop the site layout. Michael also let the traffic and transport assessment of these sites for the REF.

02/2013 – 08/2013

DAMAC Akoya Golf Community Traffic Impact Study, UAE

Michael was responsible for the day to day delivery of the traffic impact study for this 4sqkm development south of Sports City in Dubai. The development generated over 10,000 trips in the AM peak and consisted of mainly residential land uses. Michael was responsible for developing the methodology of the study, managing the strategic modelling and the SYNCHRO junction modelling of the study area.

02/2014 – 09/2014

George and York Building, Australia

Transport planner for a high-rise residential building. This building had a very small car park which required the design of car and truck lifts. Michael tested the design of these lifts to determine the sizes needed and tested the layout of the basement so that cars and trucks could execute the required manoeuvres successfully.

04/2010 – 09/2010

Transport Review Reporting, Australia

Arup was commissioned to provide expert traffic and transport review of sensitive project proposals put forward to the Department of Planning. Michael was responsible for the review of a proposal for a >30,000m² increase in retail floor area of Westfield Parramatta, the largest shopping centre in Sydney. Michael reviewed the traffic reports prepared by the proponent and submissions to the Department from local councils, RMS and the general public. He coordinated expert modelling reviews within the Arup team and provided clear advice to the Department on the gravity of issues raised in submissions by the local councils and roads authority.

05/2013 – 08/2013

Newcastle Central GPT, Australia

Michael was responsible for the development of a vehicle trip generation model to simulate the vehicle kilometres travelled (VKT) by shoppers to shopping centres in and around Newcastle. The model was used to assess the total amount of VKT of any given number of shoppers and therefore assess the carbon footprint of the centre.

10/2007 – 12/2007

Netball Central, Australia

Michael provided traffic engineering design advice for the new ramp and car park access from Olympic Boulevard in Sydney Olympic Park. Michael also prepared a Traffic Impact Assessment for submission to the Department of Planning and for review by Sydney Olympic Park Authority (SOPA), which was approved for development.

09/2011 – 06/2012

Newtown-Enmore Parking Study, Australia

Traffic consultant for a parking study for the Newtown-Enmore precinct. Scope of Arup services included transport and parking advice and analysis to Marrickville Council for their upcoming parking study. Michael provided traffic engineering advice and GIS maps of parking restrictions for this project.

11/2012 – 05/2013

RBA Car Park and Loading Area Safety Audits, Australia

Arup completed safety audits similar to Road Safety Audits for all Reserve Bank of Australia facilities across NSW, ACT and Victoria. Michael led the study, coordinating across offices to arrange for the completion of audits in Victoria and undertaking the NSW and ACT audits. Michael then completed audit reports for all 6 sites, making recommendations for improvements to the facilities.

05/2012 – 06/2012

Redfern Waterloo Authority Transport Study, Australia

Michael was involved in preparing GIS maps of the Redfern Waterloo Authority (RWA) summarising all reports completed within the RWA in recent times. This included mapping pedestrian walkability, journey to work, cycleways, buses and intersection levels of service.

06/2010 – 10/2010

Sydney Olympic Park Accessibility Plan, Australia

Michael was the GIS analyst for the accessibility study conducted over the SOPA area. This involved analysing and presenting maps for pedestrian walkability, journey to work, cycleways, bus routes and bus frequencies.

08/2010 – 10/2010

Appendix B – Record of Consultation

Post Approval – Consultation

Consultation needs to be meaningful, done with courtesy and respect and be well documented. These are people/ organisations that we need to be building meaningful relationships with.

Conditions of all consent can require consultation with a range of stakeholders. Consultation in the post approval world needs to be well documented to satisfy the condition requirements.

Examples include Council, service providers (eg. Electricity gas etc.), consult with local bus provider and TfNSW.

Read each condition carefully, any reference to consult triggers consultation.

Typically on State Significant Development, there will be a specific consultation condition as to how this piece can be appropriately addressed.

Consultation is not:

- A token gesture
- Done at the end of the piece of work,
- An email to the relevant stakeholder with no response;
- A meeting with the stakeholder with no meeting minutes.

Consultation is:

- Meaningful
- Done prior to the requirement,
- Captures an outcome,
- Identifies matters resolved,
- Identifies matters unresolved,
- Any disagreements are disclosed; and
- How we are going to address unresolved matters?

How to capture all the relevant details on consultation requirements? Any consultation requirement in a condition is required to be accompanied with the following table:

Post Approval Consultation Record

Identified Party to Consult:	School Executive (Principal of Kyeemagh Public School)
Consultation type:	teleconference
When is consultation required?	Prior to the commencement of operation
Why	SSD-9391, Conditions D9 and D13
When was consultation scheduled/held	Tuesday 25/05/21 and by email 09/06/21
When was consultation held	Tuesday 25/05/21 and by email 09/06/21
Identify persons and positions who were involved	• Rebecca Ferguson (Kyeemagh Public School, Principal) • Aimy Nguyen (ARUP, Transport Engineer) • Colm Carmody (Root Partnerships, Project Manager) • Scott Dobson (Taylor Construction Group, Senior Contract Administrator) • Steve Ziaziaris (Taylor Construction Group, Senior Project Manager)
Provide the details of the consultation	• Introduction to the project and project team. • Presentation of the School Transport Plan (Section 5-8). • Discussion and approval of proposed transport strategies, management of school facilities and monitoring methods in consultation with the school executive.
What specific matters were discussed?	**1. Introduction** • Root Partnerships provided an introduction of the Project Team and the intention of the meeting – agreeing upon the proposed transport and monitoring strategies prior to consultation with Council and Transport for NSW (TfNSW). • School Transport Plan (the 'Plan') has been developed in response to SSD Consent Conditions D9 and D13. **2. School Transport Plan** • ARUP provided a detailed overview of Section 5 – 8 of the Plan. • RF has noted that the school is unable to force parents to shift existing travel modes. ARUP and Root Partnerships have highlighted that the intention of the Plan is to raise aware of the alternative options available from private vehicle and provide ways to support a shift to more sustainable travel modes as the school grows, it is in no ways a stringent plan. **3. Section 5: Transport Strategies** • RF has questioned who is responsible for the transport coordinator role. Noting the role falls outside staff set responsibilities, no additional funding is being provided to the school and the school currently has only six teachers and therefore it is not feasible to put additional onus on staff

	to undertake this role. Root Partnerships have noted this concern and stated it will be raised at a separate meeting with School Infrastructure NSW and the School Executive. • RF has noted that some of the strategies are already being done e.g. Ride2School day. However, a number are unable to be implemented upon opening of the school due to limited resources – perhaps it is something which can be investigated in the future. TCG suggested the transport strategies in the Plan be staged, with strategies requiring more resources investigated as the school grows. ARUP outlined this can be incorporated within the Plan and iterated that the Plan is a living document and can be changed to suit the needs of the school in the future. • RF outlined no issues with carpooling if they are not responsible for running the program. ARUP highlighted that the intention of this strategy is to raise awareness of carpooling as an option. Further details of reputable services are provided in the Plan. • RF noted that strategies requiring bike and scooter education may require further investigation based on the PE curriculum. • RF stated concerns with the walking bus strategy due to issues with liability in the situation a student gets injured whilst travelling to school. **4. Section 6: Management Plan for School Facilities** • RF stated that the school has put in an application to extend the kiss and ride hours as follows – drop-off: 8:00am to 9:30am; and pick-up: 2:30pm to 4:00pm. • RF stated the excursion bus picks up students from the Beehag Street kerbside. • RF stated that community use of school facilities includes Japanese language classes which take place after school on Wednesdays. • TCG clarified that it is the 'hydrant connection point' which is located adjacent to the school perimeter on Jacobson Avenue. • TCG and RF highlighted that waste from the school is quite minimal and so wheelie bins would be appropriate throughout Stage 1 and 2. **5. Section 7: School Transport Plan Administration** • No additional comments from presentation **6. Section 8: School Transport Plan Monitoring** • RF stated that currently there is no KPS Business Manager. • RF raised concerns with monitoring strategies which require commissioning of surveys due to lack of funding. ARUP outlined that this can be modified to observational surveys as RF has said teachers are generally present during kiss and ride operations and are aware of the operation of school facilities.

	• RF and Root Partnerships requested if ARUP can provide a sample travel survey to support the travel survey monitoring strategy. • RF stated that there are currently issues with parking during kiss and ride times due to additional construction vehicles. Therefore, undertaking observational surveys during the construction period may not give an accurate representation of the operation of the school during normal conditions. The revised report following Council and TfNSW comments was shared with the principal for their information.
What matters were resolved?	• Staging of the transport strategies to align with the growth of the school student and staff population. • Car parking demand surveys and transport surveys involving surveillance footage have been modified to observational surveys undertaken by school staff.
What matters are unresolved?	N/A
Any remaining points of disagreement?	• No
How will SINSW address matters not resolved?	N/A

Education
School Infrastructure

Post Approval Consultation Record

Identified Party to Consult:	Transport for New South Wales (TfNSW)
Consultation type:	teleconference
When is consultation required?	Prior to the commencement of operation
Why	SSD-9391, Conditions D9 and D13
When was consultation scheduled/held	Wednesday 02/06/21
When was consultation held	Wednesday 02/06/21
Identify persons and positions who were involved	• James Suprain (TfNSW, Network & Safety Officer) • Benjamin Borger (TfNSW, Network & Safety Officer) • Aimy Nguyen (ARUP, Transport Engineer) • Michael Cavallaro (ARUP, Senior Transport Engineer) • Colm Carmody (Root Partnerships, Project Manager) • Scott Dobson (Taylor Construction Group, Senior Contract Administrator) • Steve Ziaziaris (Taylor Construction Group, Senior Project Manager)
Provide the details of the consultation	• Introduction to the project and project team. • Presentation of the School Transport Plan.
What specific matters were discussed?	**1. Introduction** • ARUP provided an introduction of the Project Team and the intention of the meeting – presentation of the School Transport Plan (the 'Plan'). • School Transport Plan has been developed in response to SSD Consent Conditions D9 and D13 which requires consultation with TfNSW during preparation of the Plan. **2. School Transport Plan** • ARUP provided a detailed overview of Section 1 – 8 of the Plan. **3. Section 3: Infrastructure Assessment** • TfNSW noted that Bestic Street is a Council regional road. Wording will need to be updated in the Plan. • TfNSW stated that any crossing facilities are not to impact the provision of turning lanes near General Holmes Drive. **4. Section 4: Future Travel Analysis** • No additional comments from presentation. **5. Section 5: Transport Strategies** • No additional comments from presentation. **6. Section 6: Management Plan for School Facilities** • TfNSW queried the reasoning behind locating the loading bay in the central part of the kiss and ride area as generally this would be located at the front or end of the area. ARUP has noted that at that location, deliveries, emergency and service vehicles will be able to get direct access to the

	school entrance. It was also noted that deliveries and waste collection will generally not be scheduled during kiss and ride operations as to minimise impacts to students and parents. • TfNSW noted this and suggested the potential to further investigate the relocation of the loading bay with Council in the future. **7. Section 7: School Transport Plan Administration** • No additional comments from presentation. **8. Section 8: School Transport Plan Monitoring** • TfNSW enquired about additional crossing opportunities on Bestic Street which is included in key routes to school. ARUP and TCG highlighted that Council is aware of the importance of Bestic Street and has noted that this was an area of investigation for Council during consultation. • TfNSW queried the current number of students crossing Bestic Street to travel to/from school in order to understand if there is warrant for a crossing. The limited crossing opportunities on Bestic Street acts as a barrier for pedestrians. A potential option is to undertake pedestrian counts. TfNSW has outlined Council is likely to want this data as well. • Root Partnerships outlined that SINSW do not have additional funds to undertake pedestrian counts. • ARUP recommended that the student/ staff travel surveys include a question specifically asking if they cross at Bestic Street. The intention of this will be to quantify the number of students and staff using Bestic Street and if there is a need for a crossing. This data will be made available to TfNSW and Council. **9. Conclusion** • Root Partnerships queried TfNSW if this meeting would close out the TfNSW consultation component of the conditions of consent. • TfNSW provided verbal approval that consultation can be closed out and no further actions were required for the School Transport Plan.
What matters were resolved?	• No matters to be resolved. The intention was to present the Plan to TfNSW as part of the conditions of consent.
What matters are unresolved?	• None
Any remaining points of disagreement?	• No
How will SINSW address matters not resolved?	• N/A

Education
School Infrastructure

Post Approval Consultation Record

Identified Party to Consult:	Bayside Council
Consultation type:	teleconference
When is consultation required?	Prior to the commencement of operation
Why	SSD-9391, Conditions D9 and D13
When was consultation scheduled/held	Meeting Monday 31/05/21. Emails between 04/06/21 and 08/06/21
When was consultation held	Meeting Monday 31/05/21. Emails between 04/06/21 and 08/06/21
Identify persons and positions who were involved	• Robbie Allen (Bayside Council, Transport Planner) • Aimy Nguyen (ARUP, Transport Engineer) • Colm Carmody (Root Partnerships, Project Manager) • Steve Ziaziaris (Taylor Construction Group, Senior Project Manager)
Provide the details of the consultation	• Introduction to the project and project team. • Presentation of the School Transport Plan. • Council provided their comments over email • Arup provided responses to these comments.

What specific matters were discussed?	**1. Introduction**
	• ARUP provided an introduction of the Project Team and the intention of the meeting – presentation of the School Transport Plan (the 'Plan').
	• School Transport Plan has been developed in response to SSD Consent Conditions D9 and D13 which requires consultation with Council during preparation of the Plan.
	2. School Transport Plan
	• ARUP provided a detailed overview of Section 1 – 8 of the Plan.
	3. Section 3: Infrastructure Assessment
	• Council noted the following infrastructural changes to be incorporated into the Plan:
	  • M6 Stage 1 works include provision of a number of additional pedestrian amenities. The figure displaying key cycling routes will need to be updated.
	  • A new shared path has been constructed connecting Kyeemagh Boat Ramp Reserve to Tancred Avenue. The figure displaying pedestrian infrastructure near the school will need to be updated.
	  • The new shared path through Tancred Reserve and new pedestrian refuge on Mutch Avenue have completed construction.
	  • Council will investigate potential opportunities to extend the wayfinding template as part of Barton Park master planning to the key walking/ cycling routes assessed in the Plan.

- Council highlighted the intention for Bestic Street to undergo investigation in regard to potential crossing opportunities in the future.

4. **Section 4: Future Travel Analysis**
   - No additional comments from presentation.
5. **Section 5: Transport Strategies**
   - No additional comments from presentation.
6. **Section 6: Management Plan for School Facilities**
   - Council queried how the kiss and ride area currently operates. TCG outlined that generally parents park along the kerbside to drop-off and pick-up students. Some students also walk home by themselves. With the current school population this will not be an issue, moreover the school is expected to grow organically over the years and therefore the ultimate school population will not be reached for many years.
   - ARUP also noted that if any issues were to arise during operation of the kiss and ride area, this will be captured as part of the monitoring strategy and the Plan changed to suit the needs of the school.
7. **Section 7: School Transport Plan Administration**
   - No additional comments from presentation.
8. **Section 8: School Transport Plan Monitoring**
   - Council noted the intention to work with the school to improve pedestrian/ cycling amenities going forward. This includes integration with infrastructural works in the area and also putting the school forward to participate in the Active Transport Plan which Council is currently piloting with another school in the Bayside area.

Follow up comments and responses (in red) are shown below:

Page 14: AT Infrastructure

- Construction of shared paths (orange dotted line) to circumscribe the school (i.e. a perimeter path on Beehag, Mutch, Tancred, Jacobsen) Noted – update to Figure 6: Pedestrian infrastructure near school to extend dotted lines around the school.

Page 15: Route 2 (Overview)

- Bayside Draft bike plan shows Bestic Street as the preferred path East West Route constructing shared paths in the coming year (as the school catchment doesn't feed too much further south either) Will this catchment change significantly when capacity increases? Currently there is limited information regarding existing use of Bestic Street by students. However, provision of an improved shared path will likely result in more students using this route. The travel survey outlined in the monitoring section can include the question "does your child currently use Bestic Street to travel to school?" to form an understanding of how many students upon opening of the school use Bestic Street in the existing scenario and how

	many students use Bestic Street when the shared paths are provided. - If Route 2's intention is provide an AT route from Rockdale Train Station – it may be worth considering using the Bay Street shared path to Ador Reserve the site of the M6 recreation and shared path works (due for completion later this year). This will provide a shared path from Bay Street – essentially to the front door of the school. Noted - the School Transport Plan is a living document and will be updated in future to include additional walking/ cycling routes to the school. - I understand you've been on site, undertaken an audit and taken pictures. I am happy to leave the routes (1,2,3) as you have otherwise described – noted to be updated in (x) years. I appreciate the work you've put into the audit. Noted. - Aligning with the Bayside Bike Plan should/would be a focus for all our schools in the coming years – noted. The Plan has outlined consultation with Council as one of the key monitoring methods. These sessions will be used to discuss alignment with the Bayside Bike Plan as the school grows and the School Transport Plan will be updated accordingly in the future. Page 32: Council intend to update wayfinding in this area – noted. Page 34-38: Council intend to update wayfinding (and indeed the entire pathway) in this area as part of the Riverine/Barton Park/Muddy Creek upgrade in the coming 24 months – noted. Page 46: Appreciate the detail in this walking catchment map. A useful asset – noted. Page 50: Catchment Analysis Summary – Major park and pathway improvement projects at Riverine Park, Barton Park , Muddy Creek, Bestic Street will make several aspects of the active transport journey much more attractive and efficient in the coming year(s). It would be safe to assume AT mode-share may benefit considerably from these projects. – noted, the School Transport Plan will be updated in the future as these improvements are provided, to reflect additional walking/cycling routes to school. Page 54: School Transport Plan to coordinate with Council Transport Planner – noted we will update text to refer to Council Transport Planner when referring to consultation with Council. Page 56: An idea for a park and walk location could be suggested at the new/proposed Muddy Creek / Bestic Street café and community gardens. It would be a quiet, shared-path walk along the waterside to the school – noted, we will update wording to recommend this as a potential location. Page 63: Will Kiss and Ride be signposted 'No Parking' or 'Kiss and Ride'? What is your preference? The current signage plan consists of "No Parking" (r5-41) during 8:00-9:30 and 2:30-4:0pm, school days and "School Drop-off Pick-up Zone: (r9-303) (Cardno TIA, 2019). The Kiss and Ride area will operate as a "No Parking" in accordance with Australian Road Rules. The signage and line marking plan with these

	signs installed for school times has been approved by Council 19/2/21. Page 75: Is the monitoring timeframe achievable – is there P&C staff willing and able to undertake this? Majority of the monitoring strategies are observational or require minimal resources (free online travel survey). These strategies have been discussed in consultation with the School Principal who has noted that herself and staff already observe and have an understanding of the operation of the school facilities. They also noted that they currently have P&C meetings. However, similar to the transport strategies section, the School will manage their limited resources to achieve what they can and that increases to the monitoring scope will be re-investigated in future and implemented when the school grows in students and staff. - AT Plan will need route adjustment as new paths are constructed in the coming year(s). See Council Transport planner noted, the School Transport Plan will be updated in the future as these improvements are provided to reflect additional walking/cycling routes to school. Q: is there provision for EV charging facilities within the project for staff? Supporting sustainable transport options (non-fossil fuels) could be a theme that I haven't seen otherwise been mentioned as yet. No EV charging facilities are provided as the intention of the Plan is to support walking and cycling to school for staff and therefore the focus will be to provide end-of-trip facilities for staff onsite and improve walking amenities to school. Moreover, in the ultimate scenario, there will be a limited number of parking spaces available in the staff car park and therefore the intention is to reduce the staff parking in the surrounding streets. All-in all, it's a thorough School Transport Plan that appears well thought-out. Congrats. Thank you! Again, the routes may need a revisit in the coming years, but that's for another time. Maybe include a by-note – that the plan be updated with input from Council Transport Planner and the implementation of the Bayside Bike Plan's existing and proposed infrastructure – noted, the plan already noted consultation with Council. We will update the wording to refer to the Council Transport Planner specifically and include framing of discussion sessions around Bayside Bike Plan and proposed infrastructure.
What matters were resolved?	• All matters were resolved. Counicl provided written comments that were responded to and the report was updated accordingly.
What matters are unresolved?	• None

Any remaining points of disagreement?	• No
How will SINSW address matters not resolved?	• N/A

Appendix C – School Travel Survey Template

Student Travel Survey

- Home location
- Year
- How many children in your family attend Kyeemagh Public School? (Tick which year)
- Does your child(ren) attend Out of School Hours care?
- What time does your child(ren) arrive at school?
- On a typical day, how do your child(ren) currently travel to school from home?
- If dropped off by car, how many children of Kyeemagh Public School are in the car?
- If walking to school, does your child(ren) cross Bestic Street?
- What is the reason your child(ren) are not taking public transport or walking?
- As an alternative to dropping off your child(ren) by car, how would you rather your child(ren) travel to school?
- When school ends at 3:10pm, what does your child(ren) do?
- How does your child(ren) travel to your destination after school?
- Would a student Opal travel pass (free public transport travel) influence your child(ren) travel choice?
- Any other comments regarding transport to and from the school?

Staff Travel Survey

- Home location?
- What time do you arrive at school?
- On a typical day, how do you currently travel to school from home?
- If walking to school, do you cross Bestic Street?
- What is the reason for not taking public transport or walking?
- Would you be more inclined to walk / cycle to school on most days if end of trip facilities are provided? Example shower facilities, change rooms and secure bicycle parking.
- What would the next most desirable mode of transport be if you didn't drive?
- Any other comments regarding transport to and from the school?