

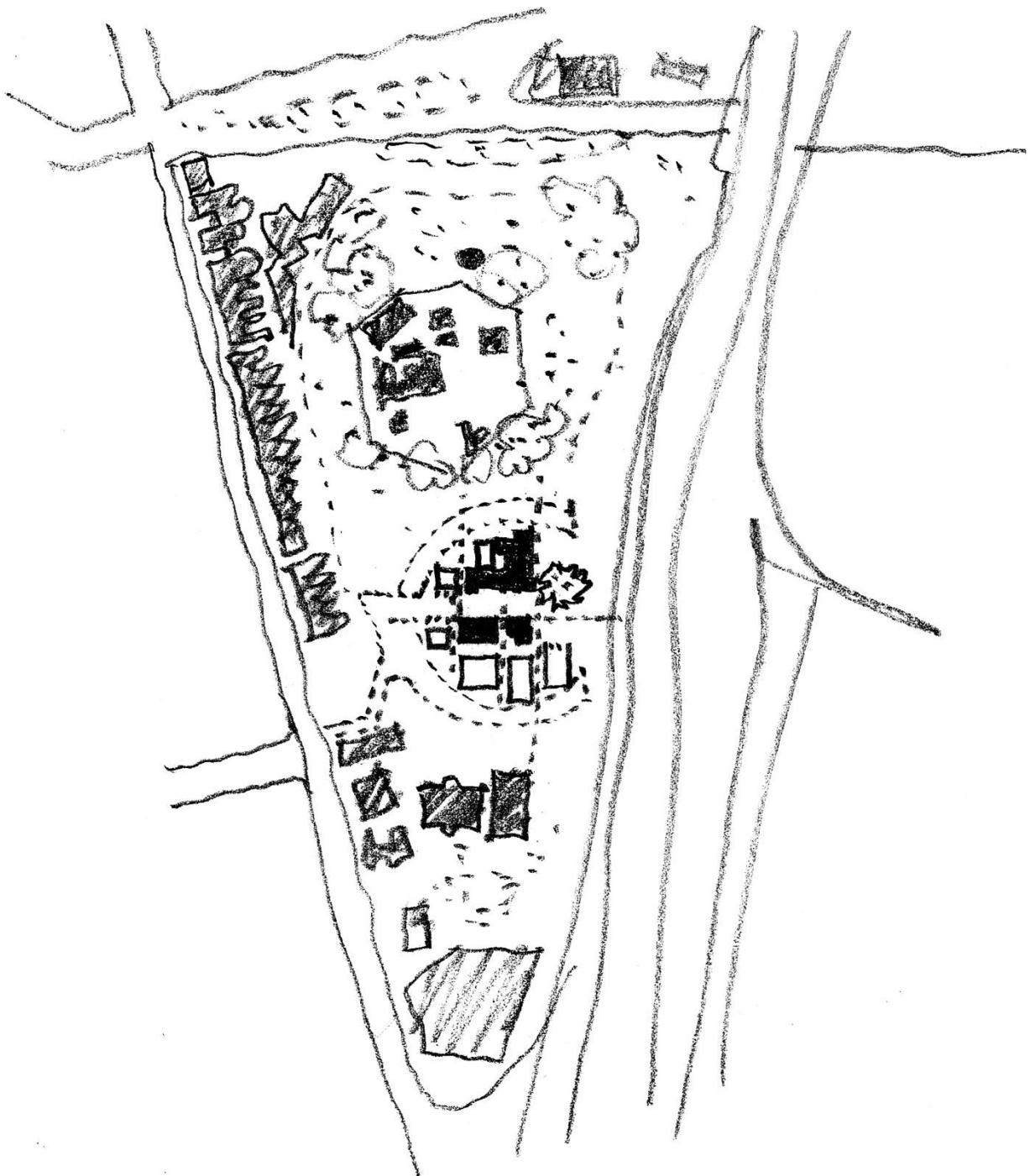
Fort Street Public School Traffic and Transport Response to Submissions

SSD 10340

Prepared by Arup

For School Infrastructure NSW

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Appendices

Appendix A

School Operation diagrams

1 Introduction

The NSW Department of Education has commissioned Arup to develop a Traffic and Transport Assessment for the Fort Street Public School project. The site is located at Observatory Hill in Millers Point and the existing school has been in operation since 1849 making it one of the oldest government schools in Australia.

1.1 Project Description

Approval is sought for the expansion of Fort Street Public School to accommodate a total of 550 primary school students. Specifically:

Site preparation, demolition and excavation

- Site remediation.
- Demolition of the southernmost school building, the garage and storage shed west and east of the Bureau of Meteorology Building (the Met/the Met Building), and the toilet block adjoining the main school building.
- Selective removal of various elements of the main school building, as well as minor and insignificant elements of the Met Building and the Messenger's Cottage to facilitate refurbishment and future use of these buildings.
- Bulk excavation works to facilitate the new southern buildings and onsite detention.
- Tree removal.
- Installation of hydraulic and electrical services.

Land use

- Use of all buildings for the purpose of a school.

Existing buildings

- Retention, refurbishment and extension of the existing Fort Street Public School, including construction of a new roof and rooftop additions.
- Retention and refurbishment of the Met Building and internal alterations and additions.
- Retention and minor alterations and additions to the Messenger's Cottage.

Construction of New buildings

- Construction of one new building on the western part of the site for a staff room.
- Construction of two new, interconnected school buildings on the southern third of the site.
- Construction of a new communal hall and canteen building.

Landscaping

- Retention of the existing large fig tree.
- Landscaping works throughout the site, including construction of a new amphitheatre, new central plaza, and a multi-purpose forecourt.
- Landscaping of roof gardens on top of the new southern buildings and the existing Met Building.

Other works

- Works to the existing entrance road, including alterations to the Bradfield Tunnel Services Building.
- Modifications to existing pick-up / drop-off arrangements.
- Provision of signage zones.
- Installation of on-site detention.

1.2 Scope

This supplementary report has been prepared in addition to the Traffic and Transport Assessment to respond to submissions received regarding this submission through the SSD process.

1.3 Additional reports

Arup submitted a report supporting the development SSD 10340 titled “Fort Street Public School Traffic and Transport Assessment Issue 18 March 2020.” This report will be referred to as “the TTA.”

Arup also prepared a Green Travel Plan in consultation with the school and provides a framework and several Green Travel Plan initiatives that could be implemented to reduce the demand for on-street parking in the streets surrounding the school. This report will be referred to as “the GTP”

Lendlease, who has been appointed as Construction Contractor for the project, also prepared a Construction Management Plan that considers the construction of FSPS.

2 Submissions received

This Transport Response to Submissions has considered the issues raised by agencies during exhibition of SSD 10340. Agency comments received on the TTA are reproduced in this section. The following sections of this report provide responses to the comments. The list of organisations that had traffic and transport relevant comments consisted of:

- Department of Planning Infrastructure & Environment
- City of Sydney Council
- Transport for NSW
- Fort Street Public School P & C
- Millers Point Community Resident Action Group
- Public Submissions

The submissions received have been included in this section, with summary responses provided. These tables also direct to more detailed responses in this document.

Table 1: Department of Planning Industry and the Environment

ID	Comment	Response
3	Provide clarification on whether SIDRA included in the TTA addresses the intersection performance after the development at completion and 10 years following that, and the corresponding student numbers at that future point	SIDRA has considered both the immediate and 10-year future term, where the school attendance remains at 550 students, but the existing traffic is uplifted for 10 years of background traffic growth.
3	Provide updated TTA that assesses parking requirements against relevant Council policies and justify any shortfalls.	Parking is not provided on-site. The Sydney LEP 2012 sets out maximum parking rates which are designed to minimise the provision of parking and encourage public transport use. The minimum parking requirement for the site is zero. The proposed development is therefore consistent with Council's controls.
3	Provide clarification on school bus drop-off and pick-up location.	No school buses are proposed for this school. School excursions are re-presented in Section 3.6.
4	Provide updated truck arrival and departure route maps that are legible, details on estimated construction vehicle movements per day and car parking arrangements for construction personnel.	Provided in Section 4.2, which references the construction pedestrian traffic management plan
4	Consider potential construction impacts in the event of concurrent construction of the school and new cycleway.	This is described in more detail in Section 4.3

Table 2: City of Sydney Council

ID	Comment	Response
10	The Traffic Report, in one scenario, requires a garbage vehicle to make a U-turn within the school playground during a timeslot when school grounds are not being used for play activities, but conflicts with the Operations Statement which advises school grounds will be closed between 3:30pm and 8:30am. Clarification is required.	These activities will be allocated a time slot when the school grounds are not being used for school play activity. The grounds are able to be opened by a waste contractor outside of school operating times and the drop-off / pick-up times to facilitate this access.
11	The proposed vehicle turning circle within the school site and designated DO-PU zones within the school is not supported, due to potential conflict created between vehicles, students, and cyclists. Option that requires three-point turn in playground for garbage truck is not supported, entry and exit for waste collection is to be in a forward direction only. Will result in poor landscape and school play design. City recommends waste collection and DO-PU on Upper Fort St and not within school playground.	Council's concerns regarding DOPU arrangements and waste collection are outlined below. A road safety audit will be completed of this design and the design will respond to the audit items. In Section 3.4.2, entry and exit of the waste vehicle into the school is shown in a forward direction with some manoeuvring required within the school grounds. This will be managed to occur outside of school operating times and the drop-off / pick-up times, when students are not at play in this space. A second option for waste collection where the vehicle reverses into Upper Fort Street from the Observatory Road, is provided for flexibility of arrangements and to separate the truck movements from students.
14	A Traffic Safety Review is required, prior to finalising the proposed traffic calming and management measures.	Noted, a Road Safety Audit will be scheduled for completion during the next design stage.
16	Recommended conditions include: associated roadway and signposting costs borne by developer, at least 5 bike spaces for staff, 30 bike rails for students, EOT facilities (2 showers & 10 lockers), additional submissions required for changes to kerb side conditions; loading and unloading being on site and not obstructing public way, use of mobile cranes and providing a GTP and CTMP.	Noted, a CPTMP and GTP have been prepared for this project. These will be provided to the relevant parties in line with the conditions of consent.

Table 3: Transport for New South Wales

ID	Comment	Response
70	TfNSW requests that the undertaking of a Road Safety Audit (RSA) for the school pick up and drop off area by an independent, TfNSW accredited, road safety auditor be conditioned with subsequent implementation of necessary safety measures.	Noted, a Road Safety Audit will be scheduled for completion during the next design stage.

ID	Comment	Response
71	It is requested that the applicant prepare a draft School Operational Management Plan, in consultation with the Sydney Coordination Office within TfNSW, as part of the applicant's RTS, and be finalised prior to OC. The Plan needs to specify in particular, details of kerbside management at the proposed pick-up and drop-off operation; staggered starting and finishing time classes and management of conflicts between students and cyclists.	Noted, proposed operation of the DOPU area is outlined in Section 3.2 in this RtS with the completion of a full School operation management plan document to be part of the Occupational Certification.

Table 4: National Trust

ID	Comment	Response
79	The Traffic Assessment Report does not assess potential impact and inconvenience of traffic changes on the arrival and departure of vehicles from the Trust Centre.	The National Trust access is not proposed to be impacted by the works at FSPS. This is explained in section 3.5.
80	Traffic Survey undertaken during a "typical school week" did not capture or consider vehicles travelling to the Trust Centre. Additionally, the hourly tube count was undertaken on a week that the Trust's Gallery was closed. The survey does not adequately address traffic counts in the morning peak, and wet weather traffic projections were not based on observed behaviour and only on student surveys.	It is our understanding that the showing of the Salon des Refusés 2019 commenced on the 11 May 2019 as shown in the counts with increased traffic on Watson Road that evening. The count continued until the evening of the 14 May 2019 with peak hour results for Monday and Tuesday similar to the previous week as shown in Table 10 of the TTA. It is therefore considered a typical week's worth of data for the area. Regarding wet weather behaviours, it is often difficult to time surveys with these times and surveys are an industry acceptable method of considering the impact of wet weather on travel patterns.
81	The potential impacts of the new morning peak have not been clearly articulated. The arrival of several community groups who meet regularly at the Trust Centre will coincide with the morning peak resulting in significant increases to the number of cars.	As noted in section 10 of the TTA and Section 3.2 of this RtS, the morning peak is not expected to be the defining peak activity on-site. This is because arrivals are spread across a longer time period. National Trust access is not expected to be disadvantaged by queuing cars in the morning peak.
82	The proposed afternoon school traffic queue is heavily reliant on good behaviour and considerate driving, which will be unfamiliar to irregular school or Trust centre visitors, increasing the risk of a traffic incident. Traffic changes should be accompanied by an education campaign.	Noted, the proposed School Operational Travel Plan post-DA will include the outline for educational marketing materials to be created and distributed by the school.

ID	Comment	Response
83	The single-lane private National Trust roadway should not become a shared pedestrian road, as the boom gate at the entrance of the Trust will require drivers to reverse the length of the roadway posing safety risks to children, especially those unaccompanied by an adult.	Noted, no changes are proposed to the National Trust roadway.
84	Several perspective drawings indicate vehicle access to the trust terminating at the eastern end of the current carpark, cutting off an existing road that extends around the Trust Centre to the southern side. The proposed cycleway should not impede this road that provides access to the Trust's loading bay.	Noted, this was a drawing error. The scope of this project does not impact this access road and drawings have been amended.

Table 5: Fort Street Public School P & C

ID	Comment	Response
90	The preliminary Construction Management Plan submitted with the application shows the interface of the Site gate 1 adjoining the Cycleway and the Cycleway being fenced by a Class A Hoarding. Refer to page 7 of the Preliminary Construction Management Plan, on the basis that the Cycleway is in operation while the school construction is occurring. This may be problematic.	The timelines for the construction of the Cycleway are unknown, with it unlikely to occur before construction of the school, but consideration is given to potential overlaps in Section 4.1.
92	Concern over cycleway diversion about the safety of pedestrians commuting to work, tourists, residents, and especially children. Will conflict with morning traffic and parents doing school pick-ups and drop-offs.	Initial review of the cycleway diversion has been undertaken and discussed with City of Sydney bicycle and traffic representatives, Bicycle NSW and Roads and Maritime Services. More planning will be required to consider this alternative route which would benefit both projects when the design and construction of the cycleway commences.
93	The 300m long shared pathway along the Western Distributor is a major concern to parents and students. Cyclists are on the same footpath, adjacent to the Western Distributor, as families walking their child to school. This is not mentioned in the Traffic Report nor the Architectural Design statement. Increasing school numbers will increase users of this pathway, especially s primary catchment of school will be from Town hall, Chinatown, Haymarket. The circular off ramp still results in cyclists using this path. Whilst an interim diversion is proposed, there is no clear long term solution that bypasses students. The only way to ensure safety of children is to make Kent Street diversion permanent.	The catchment area of the school includes future residential developments in Barangaroo in addition to developments around Town Hall. The project scope of works for the cycleway include separate pedestrian and cyclist paths for this section from Kent Street along the Western Distributor. This is show in more detail in Section 3.3.

ID	Comment	Response
94	<p>The school entrance is a highly constrained area with all students having to gain entry through just one main entrance, giving rise to major safety and management issues</p> <p>The main entrance to the school remains as the entrance from Upper Fort Street. There is contradicting information in the SSDA about a western bridge being proposed, refer to page 81 of the Architectural Design Statement; the EIS at page 26 makes no reference to a western bridge being part of the application.</p> <p>Western portion of the school is inaccessible by vehicle access due to changes in grades from stairs and ramps. Therefore, the western access bridge may be necessary</p>	<p>The TTA noted that the FSPS is located in a constrained area, and also outlined the changes proposed to facilitate improved access. With these improvements such as the widening of the pinch point at the Upper Fort Street bridge over the Cahill Expressway, operation at the school is improved from the existing situation.</p> <p>The access to the school does not consider a western bridge over the Cahill Expressway, however the design does not preclude the inclusion of a pedestrian bridge in the future.</p>
95	<p>Entrance to the school – concerns regarding the safe manoeuvring of vehicles, young children and parents at the pick-up/drop-off zone. Whilst road is being widened, there is only still one entry at the school. Proposed cul-de-sac U-turn arrangement will result in congestion, sight line issues for children using both side doors and rear boots. A linear drop-off/pick-up option is safer and more efficient.</p>	<p>The school is acknowledged to be in a constrained location; however, the arrangement of the cul-de-sac has been successful at other similarly constrained schools such as Lindfield Learning Village. This operation is shown in more detail in Section 3.2.</p>
96	<p>Concerns over queuing down the Argyle Place, management of crossings and intersections along that route, and broader impacts to surrounding streets. This issue also has to be considered in relation to emergency vehicles accessing FSPS during congestion.</p>	<p>The arrangement is designed to limit the likelihood of queuing in Argyle Place by allowing for 48 cars to queue within Upper Fort Street.</p> <p>Emergency vehicle access is possible using the passing points on Upper Fort Street, with lights and sirens operation where the cars stop moving and the vehicle drives onto the other side of the road.</p>
97	<p>P&C disagrees with untested assumption on page 42 of Traffic Report:</p> <p>In addition, for a 550-student school in this location it could be expected that a wide catchment will continue which favours travel by train, bus and ferry. On this basis, a 25% reduction in car mode has been applied which will be supported by travel demand management strategies and the wider catchment.</p>	<p>Arup has made a reasonable assumption in the TTA on mode share as it is based on current student travel patterns and the potential of the transport strategies developed in the Green Travel Plan.</p>

Table 6: Millers Point Community Resident Action Group (MP CRAG)

ID	Comment	Response
118	<p>Complete the new cycleway prior to commencement of construction work on the school, per Alex Greenwich MP's letter to Andrew Constance. Kent Street is too narrow with parked cars, has too many crossings and will not be able to accommodate cyclists and construction vehicles. Cyclists will be competing with many types of vehicles and existing users of Watson Rd, Argyle Stand Kent St during peak times. Cyclists are likely to travel too fast, ride too slowly up hills, compete with Taxis doing U-turns on Watson Road, compete with wedding groups, pose safety risks at the Watson Road/Argyle Street intersection, compete with pedestrians using the Kent Street/Argyle St crossing, people walking their dogs.</p> <p>An alternate plan is suggested involving the construction of a new cycle way using the current route, a possible temporary diversion through the tunnel at the top of Watson Rd through to Cumberland St and new parking and speed restrictions for Upper Fort St and Watson Rd.</p>	<p>The SHB cycleway project is outside the scope of the FSPS works and on a different timeline and approval process. However, contingencies for interim operation prior to and during the construction period are shown in Section 3.3.</p>
119	<p>Construction vehicle traffic is a concern as it generates noise, dust and additional traffic. Kent Street should not be used as a point of access/egress for construction vehicles. It is rejected and other options for non-residential streets are available. The contractor should be prohibited in its contract to use Kent Street. The road is narrow and the number of trucks per day will increase risk of accidents causing injury and death. Construction vehicles should use Hickson Road, Argyle Street and Watson Road as their travel route. Heavy vehicle temporary parking is an existing issue and all future heavy vehicles should drive straight to their sites and not be allowed to layover on residential streets.</p>	<p>The construction routes shown are indicative and will be developed by the appointed contractor and approved in consultation with authorities when applying for construction certificate. These are shown in Section 4.2.2 and include both Hickson Road and Kent Street as possible routes.</p>
120	<p>Pick-up arrangements suggested by ARUP in the Traffic Report are rejected as they are potentially illegal and will result in increased traffic circulation around local streets. There should be no parking on Watson Road and short-term parking should be provided at the former Argyle Street bus stop.</p>	<p>The drop-off and pick-up arrangements are proposed to be within the school grounds as described in section 3.2 and are legal movements as per NSW Road Rules 2014. Watson Road is used for queuing of vehicles only during these times.</p>

Table 7: Millers Point Community Resident Action Group – Traffic Committee

ID	Comment	Response
127	Safety concerns for people walking to/from work, tourists, residents, children at pick-up/drop-off points and older residents as a result of planned cycleway diversion along Kent Street. Streets will become congested, and bike riders will subsequently move to footpaths causing more safety concerns. Cars exiting Observatory Tower, The Georgia, and Highgate would be unable to see a speeding bike quickly enough to stop. Increased cyclists may also pose risk to Langham Hotel, Fire Station and retail outlets. The diversion will be hard to police and may result in numerous altercations with pedestrians.	The SHB cycleway project is outside the scope of the FSPS works. It is expected that any mitigation as a result of the SHB cycleway project will be undertaken as per a separate process, including all mentioned users.
128	The cycleway must be built before the main work on the school commences, to minimise the duration of the Kent Street diversion.	The SHB cycleway project is outside the scope of the FSPS works and on a separate timeline. The SHB cycleway works program is proposed to be shorter in duration than the FSPS works. See Section 4.3 for more details

Table 8: Late submissions

ID	Comment	Response
L4	The current shared access of pedestrians and cyclists along the footpath leading to the school entrance creates issues of safety for children. This issue has not been adequately addressed in the Development Application proposal.	The SHB cycleway project is outside the scope of the FSPS works. However, the design of the FSPS includes a new access for students to the school that is adjacent to the cycleway path. These are shown in Appendix A.
L5	The FSPSP&T submission proposes the diversion of cyclists along Kent Street to become the permanent cycleway to resolve this issue. However, this is an intolerable solution, as explicated in the submission of the MPRAG. We support the MPRAG and the Honourable Alex Greenwich, Minister for Transport and Roads; that the realignment of the cycleway be undertaken prior to development of the school in place of a temporary diversion that places unacceptable increased safety hazards due to conflict between cyclists, vehicles, and pedestrians, particularly children.	The SHB cycleway project is outside the scope of the FSPS works. However, contingencies for operation during this interim period are shown in Section 3.3. The construction of the FSPS does require diversion of the cycleway if the new SHB cycleway is not completed. This is discussed in Section 4.3, with safe operations a paramount concern.

ID	Comment	Response
L6	<p>Diversion of construction vehicles along a narrow street, such as Kent Street, would markedly increase traffic congestion and noise, dust, and diesel emission pollution for hundreds of residents and businesses, and compromise the safety of road and footpath users. This proposal comes amidst sustained dust and noise pollution from the construction of Barangaroo, particularly for those on the western side of Kent Street, and is unacceptable to the community. The Development Application does not address the serious impacts of increased traffic along this route made up primarily of heavy vehicles.</p>	<p>The construction routes shown are indicative and would be developed by the contractor when applying for construction certificate. These routes are shown in Section 4.2.2 and include both Hickson Road and Kent Street as possible routes. Truck sizing and programmes will be determined with authorities.</p>
L8	<p>There is a valid alternative for Hickson Road to provide a school drop off zone with access to the Agar Steps via lifts installed adjacent to the current High Steps. This would provide access to the school via High Street, Kent Street, and the Agar Steps. It would also provide access for students arriving at the Barangaroo Station when completed in 2024.</p>	<p>The route outlined would indeed be used to access the new Barangaroo Metro Station. A DOPU area on Hickson Road at this location however is not feasible due to the distance from the school making management and safety of students difficult to guarantee. Additionally, Hickson Road's final configuration proposed in the Barangaroo Metro and Central developments mean that a DOPU area located here is not possible.</p>
L18	<p>The submitter would like to object to the proposal to have a temporary cycleway along Kent St Millers Point. This would involve losing many car parking spaces and would cause chaos to busy afternoon traffic in Kent St going towards the Harbour Bridge entry. There is already a premium on parking due to Barangaroo development and Car Share spaces. The City of Sydney have allowed 5000 to live in this street and need to consider their daily movement. If the cyclists went under the highway tunnel and along Cumberland which carries little traffic, it would be much safer. They would have to cross at York St to be right at Kent St Bicycle track towards the Town Hall. There is a possibility of some being able to divert across town.</p>	<p>The SHB cycleway project is outside the scope of the FSPS works.</p> <p>The route identified along Cumberland Street is noted as an alternative route for pedestrians but is not suitable for cyclists due to the need to cross York and Grosvenor Streets and walk the bicycle through the pedestrian area of Cumberland Street, which is about half the diversion route.</p>

3 Access to school

Greater detail on the components of access to the school has been presented in this section. This section builds upon work completed in the TTA and the GTP. These documents should be read in conjunction with this RtS. This section also forms an outline for a School Operational Management Plan that would be completed prior to occupational certificate.

The access to the school has been considered in two phases regarding the completion of the new SHB cycleway, which currently operates on FSPS owned land. These phases are:

- Phase 1 – existing SHB cycleway with Upper Fort Street bridge widened at the pinch point over the Cahill Expressway. The school gate is placed along the line of Upper Fort Street.
- Phase 2 – new SHB cycleway completed and the school gate is now placed north to end at the FSPS boundary

These phases will be referred to when the access to school is affected by these phases.

3.1 Upper Fort Street kerbside control

The TTA presented a possible kerbside arrangement to provide for up to 48 cars queued without impacting on Argyle Street traffic, as shown in Figure 1. This arrangement formalises a school zone for pick-up times along Upper Fort Street for 30 queued vehicles. For the remainder of the day, the existing 2P and 4P parking controls would apply.

Along Watson Road the existing No Parking control is retained along the northern kerb allowing for additional queueing area for 18 vehicles. 2P parking is retained along the southern kerb on Watson Road. It is suggested that 15 minute free parking is provided to permit parents to park for access to the Out of School Hours (OOSH) or at times when the pick-up line is not in operation.

A No Stopping zone occurs midway along Upper Fort Street at the access gate to the incident response area. This zone always acts as a passing zone to allow two-way traffic. A No Stopping zone is also retained at the Watson Road/Upper Fort Street corner associated with the pedestrian crossing. This also allows vehicles to pass in this location when cars are queued waiting in the pick-up line in the afternoon between approximately 2.30pm and 3.00pm.

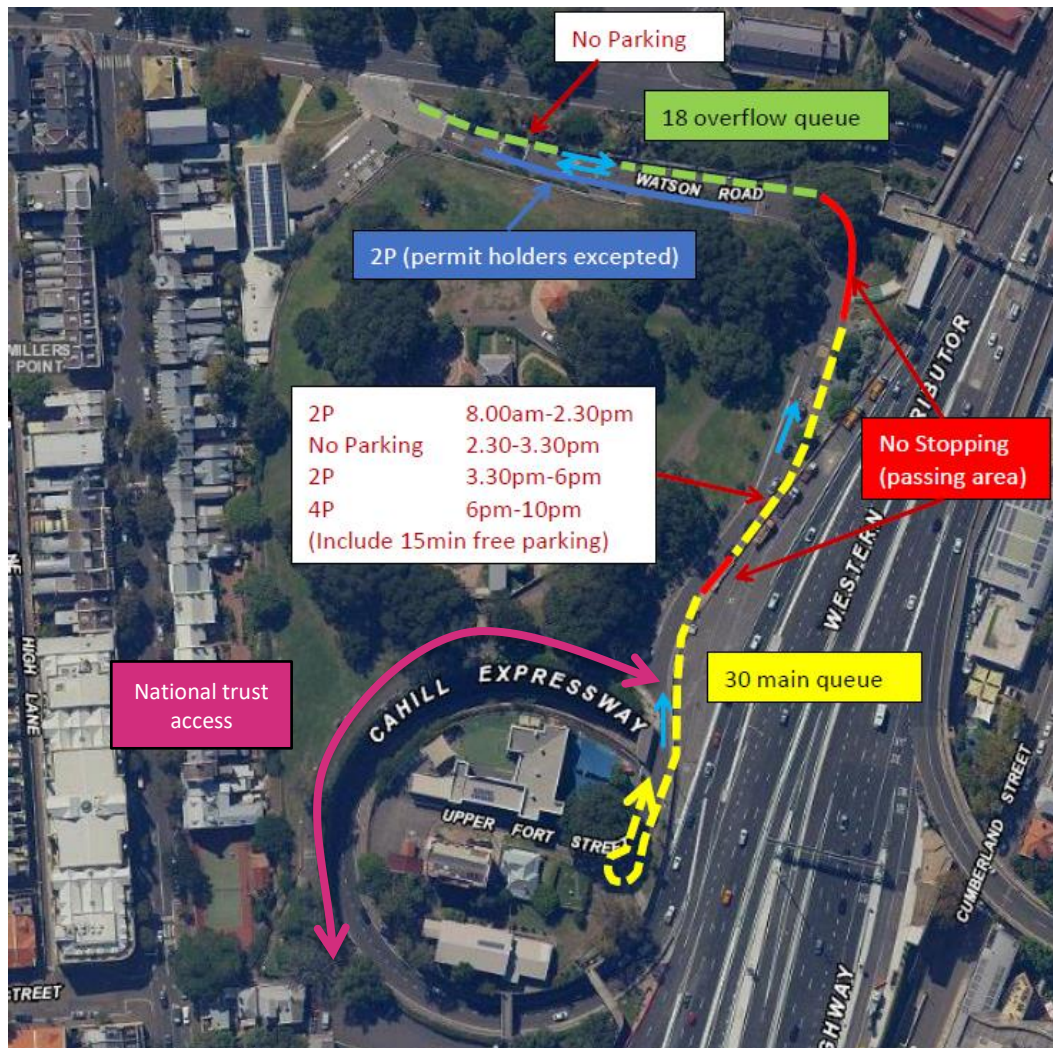


Figure 1: Proposed Fort Street kerbside controls

3.2 Drop off and pickup

At the school, drop-off and pick-up operations occur within the school grounds with a U-turn (single manoeuvre) turnaround provided in the main forecourt of the school. DOPU times are proposed to occur at the following times:

- Drop-off – 8:30am – 9:00am
- Pick-up – 3:00pm – 3:30pm

This playground/DOPU area will be controlled by staff at the changeover times from school play area to vehicle operations. A potential sequence of events for this process is presented below:

- 30 minutes before DOPU – staff will begin to clear the area of children and close access to the playground area
- 0 minutes before DOPU time – staff will open the outer gates
- 0 minutes after DOPU time – staff will close the outer gates

- 2 minutes after DOPU time – playground gates will be opened, and children will be permitted into the area.

During DOPU hours, there is space for about three large cars to safely complete their DOPU manoeuvres as shown in Figure 2. The area for cars will be delineated through pavement types that is continuous from Upper Fort Street. Staff would stand in this area observing parent's cars and directing students to their parent's cars. Students will marshal in the nearby COLAs while waiting for pickup.

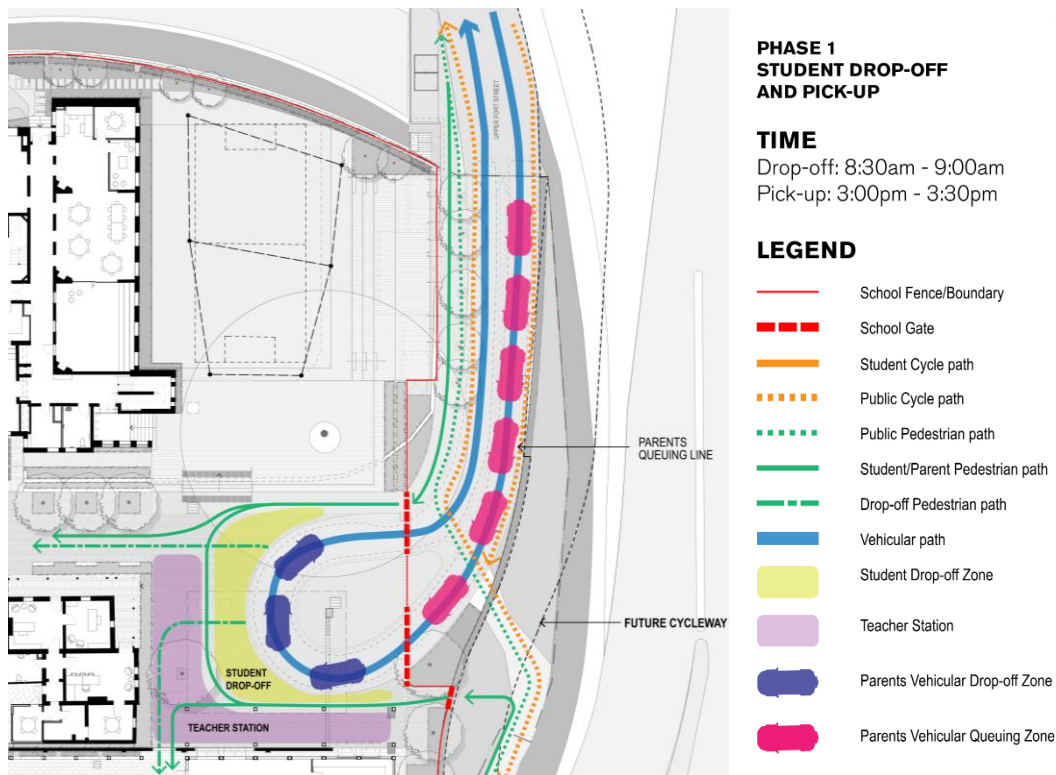


Figure 2: Diagram of DOPU operations during phase 1 with existing cycleway

3.3 Cycleway operation of Upper Fort Street with new school

It is likely that the new school will open before the upgrade to the SHB Cycleway. With increased activity associated with school drop-off and pick-up, interaction between cyclists and cars using Upper Fort Street will need to be considered.

Ultimately, the SHB cycleway is proposed to be widened to provide separated pedestrian and cyclist paths from Kent Street to Upper Fort Street as shown in Figure 3.



Figure 3: Artist's impression of the proposed Sydney Harbour Bridge southern cycleway connection looking north¹

Diagrams showing the school's operation before and after the SHB Cycleway opening are included in Appendix A. These show that the school grounds will be closed off using a gate across the drop-off pick-up loop whilst maintaining access to Upper Fort Street for cyclists. During the morning drop-off and afternoon pick-up periods the gate will be opened to create the vehicle turnaround.

During the morning drop-off period, the cycleway is busiest with morning commuter cyclists. In this period cars are moving along Upper Fort Street and cyclists mix with the traffic flow. During the afternoon pick-up period, cars queue along Upper Fort Street for up to 20 minutes waiting to enter the school. In this period bicycle traffic is significantly lower than in the commuter peaks and cyclists use the western lane of Upper Fort Street for two-way travel.

When the new SHB Cycleway opens, the school grounds will be closed at the property boundary with all cyclist and pedestrian activity using the new facility. A new fence and gate will be installed at the property boundary. During the drop-off and pick-up periods, this gate will be opened. This operation is shown in Figure 4.

¹ <https://www.rms.nsw.gov.au/projects/sydney-harbour-bridge/access-projects/cycleway-access-proposals.html> last accessed 28 May 2020

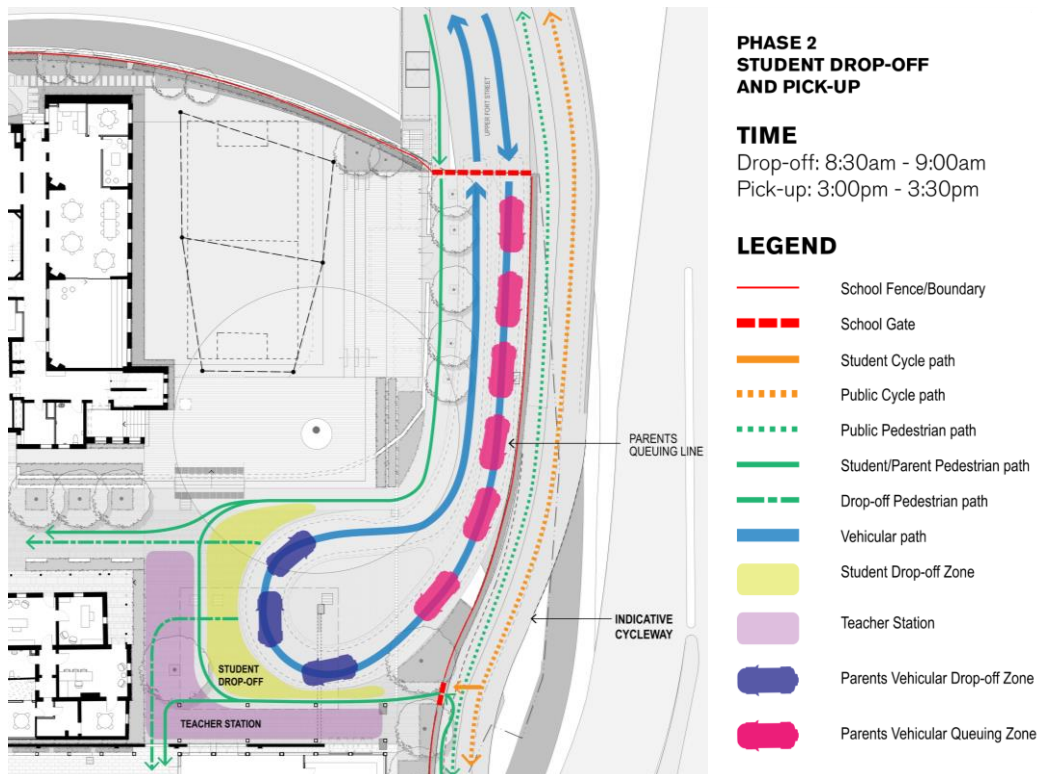


Figure 4: Diagram of DOPU operations during phase 2 – post new SHB cycleway

3.4 Deliveries and Waste Management

3.4.1 Deliveries

All deliveries will enter via Upper Fort Street and use the entry plaza area within the school grounds. These activities will be allocated a time slot when the school is closed to students. This will be scheduled to be outside of school times by the school administrators.

3.4.2 Waste Collection

Waste collection will be allocated a time slot when the school is closed to students. This will be scheduled to be outside of school times and DOPU times by the school administrators.

Several routes for waste collection vehicles were explored. The two routes shown in the TTA were presented as these offered entry and exit from Upper Fort Street to Watson Road in a forward direction and to allow for flexibility of collection.

The first route is to drive into Upper Fort Street, through the Phase 2 school gate and through the Phase 1 school gate where the vehicle will complete a three-point turn at the dead end. Then the vehicle will exit the second gate and drive forward to stop at the collection point on Upper Fort Street before exiting the first gate. This is shown in Figure 5.



Figure 5: First route for the 9.25m long Council refuse collection vehicle

For the second route, the collection vehicle will complete a turning manoeuvre before the school gate outside of the site boundary and reverse into the collection point. Then the vehicle will exit driving forward. This is shown in Figure 6.



Figure 6: Optional second route for the 9.25m long Council refuse collection vehicle

The swept path for the vehicle movements is based on a rear loading vehicle for MGBs as specified in Table 9. Please refer to the Operational Waste Management Plan (Arup Oct 2019) for details on waste location and handling on the site. Operation diagrams are included in Appendix A.

Table 9 Rear loading collection vehicle for MGBs

Vehicle Specification	Measurement
Length overall	9.25 m
Width overall	2.6 m
Operational height	4 m
Travel height	3.8 m
Weight (payload)	26 tonnes

3.5 Access to National Trust

The access road to the National Trust is not proposed to be modified by the works at Fort Street Public School. Figure 1, shows that this access road is in use and unchanged. The peak queue occurs over concentrated times and moves quickly once DOPU starts therefore National trust access is not likely to be impacted.

3.6 Excursion bus access

The current arrangement for school excursion bus access will be retained with students being pick-up and dropped off in Argyle Street and using the Watson Road and Upper Fort Street footpaths for access to the school. This is shown in Figure 7.

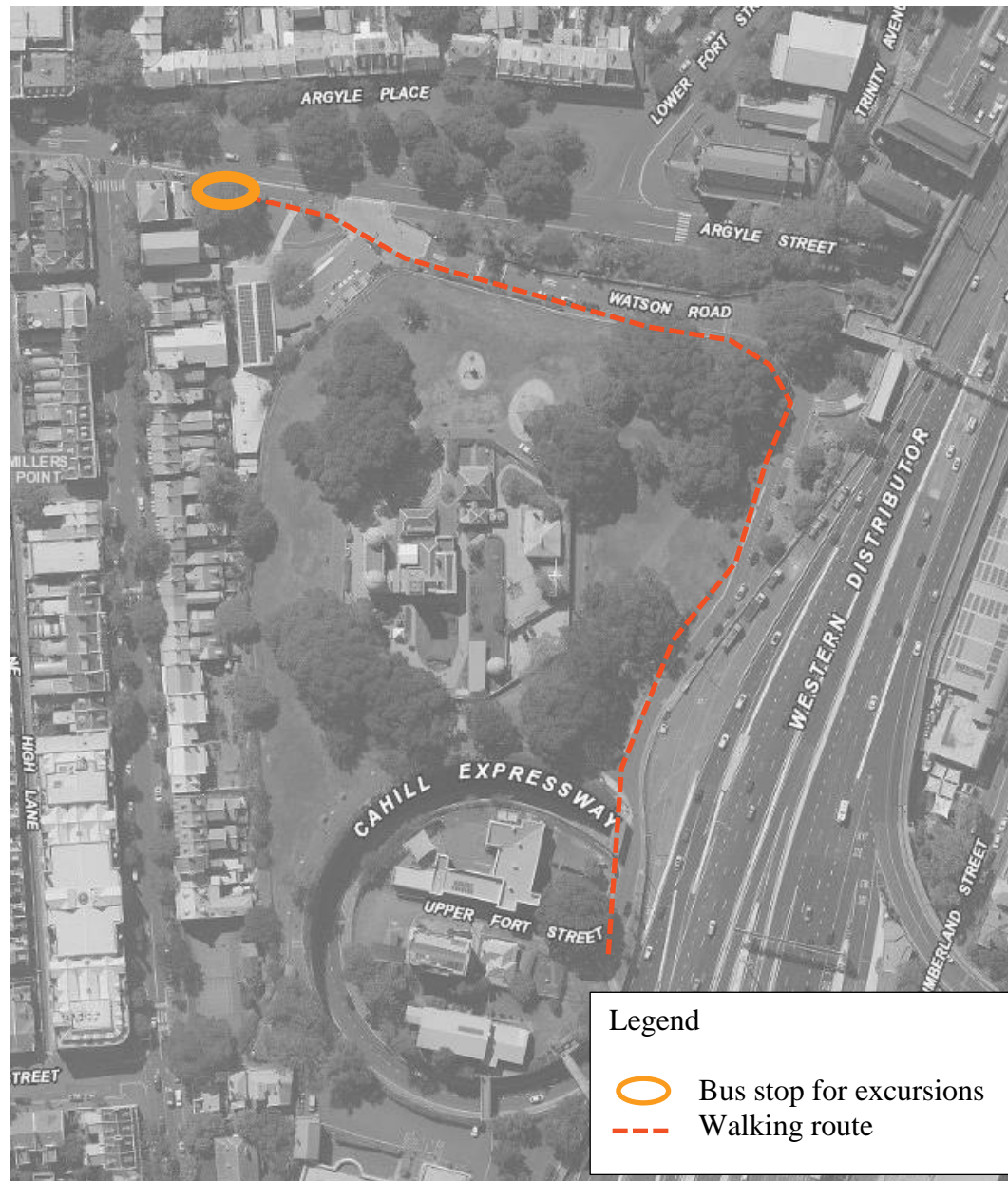


Figure 7: School excursion bus parking

4 Construction

Greater detail on the construction works and access to the school has been presented in this section. This section builds upon work completed in the TTA and the Construction Management Plan by Lendlease. These documents should be read in conjunction with this RtS.

4.1 Staging

The proposed cycleway, shown indicatively in Figure 8, runs along the eastern boundary of the school site and Upper Fort Street. The key impacts during construction will be on traffic flow on Upper Fort Street and maintaining a suitable bicycle diversion route between Kent Street and the Sydney Harbour Bridge.

Funding and timing of these works is still unknown. It is likely that construction work on the Fort Street Public School will proceed ahead of the cycleway works but that there could be a period of concurrent construction. The construction management plans for each project will need to consider this and make allowance for impacts on school traffic and the bicycle route.

The considerations of staging for both projects are presented in this section with potential mitigations to concurrent construction investigated.

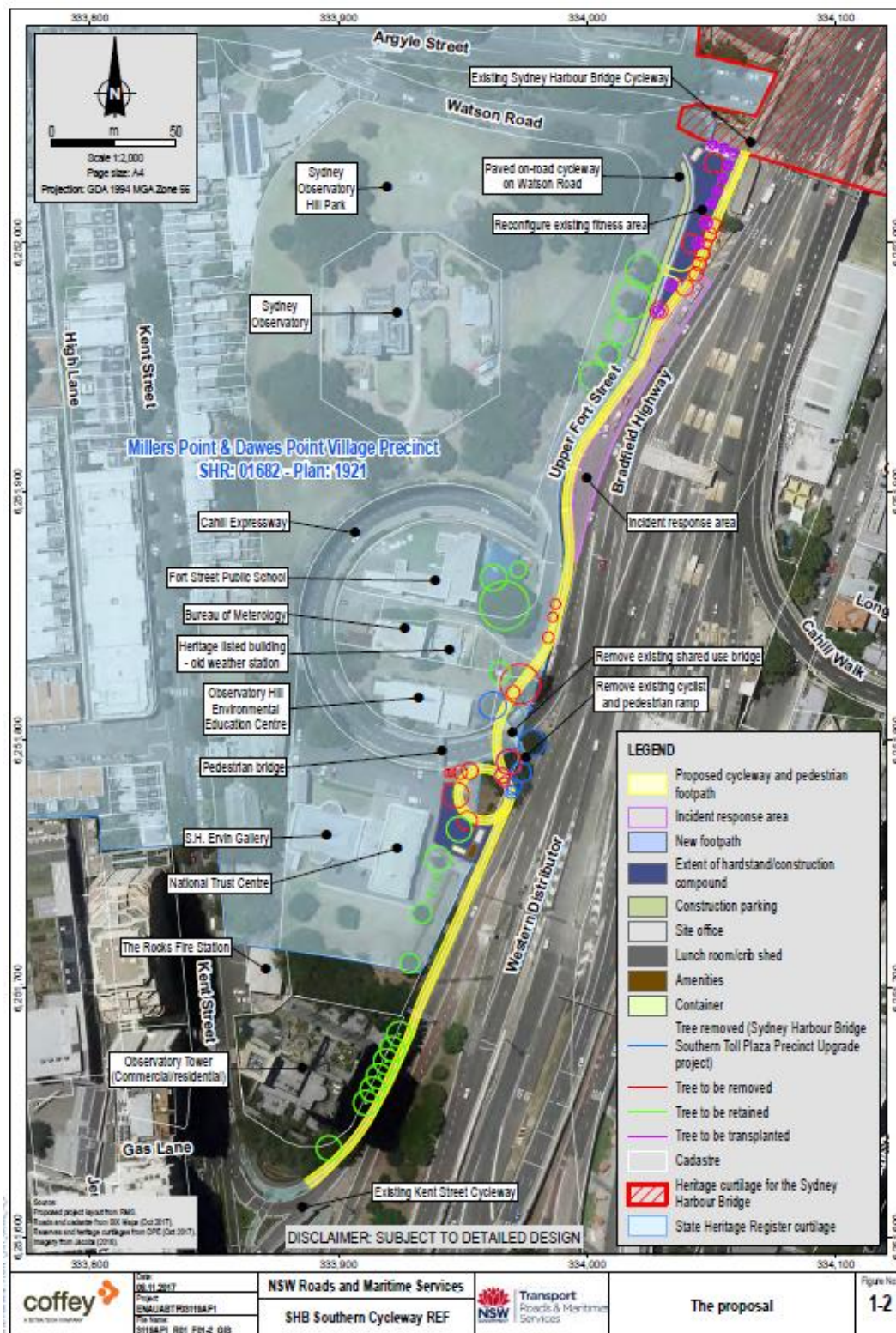


Figure 8: Overall scope of the SHB Southern Cycleway

Source: Sydney Harbour Bridge Southern Cycleway Review of environmental factors, November 2017, Roads and Maritime Services

4.1.1 FSPS

The School will cease operation in late 2020 with all activity relocated to a temporary school. An indicative construction phasing is shown in Table 10 covering a 26-month period with commencement of operations in mid-2023.

Table 10: Indicative construction phasing

Activity	2021				2022				2023
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Site establishment									
Demolition									
Excavation/ Footings									
Structure									
Facade									
Services/ Finishes									
External works									
Commissioning									

4.1.2 SHB cycleway

With an overall construction period of 10 months expected, the duration of works in each precinct is set out in Table 3-5 in the SHD Southern Cycleway REF, Nov 2017.

Table 3-5: Indicative duration of works

Area	Duration	Comments
Site compounds and cycleway detour	3 weeks	<ul style="list-style-type: none"> Requires some temporary works and traffic controls.
Precinct 1 : Harbour Bridge Link and Incident Response Area	About five months	<ul style="list-style-type: none"> Night works required for construction (piling) of retaining wall including demolition of existing wall.
Precinct 2: Incident Response Area and Fort Street Public School	About six months	<ul style="list-style-type: none"> Night works for delivery and installation of precast concrete elements.
Precinct 3: Bridge Crossing and S.H. Ervin Gallery Frontage	About eight months	<ul style="list-style-type: none"> Night works required as demolition of the existing bridge and construction of the new pedestrian and cyclist bridge would require full road closures of the Cahill Expressway.
Precinct 4: National Trust Centre/S.H. Ervin Gallery to Kent Street	About seven months	<ul style="list-style-type: none"> Night works required as works would require full road closures of the Kent Street on-ramp.
Completion works	4 weeks	<ul style="list-style-type: none"> Disestablish site compounds Reinstatement and landscaping Remove cyclist detour

A description of the potential impacts and construction methodology is extracted below from the SHD Southern Cycleway REF, Nov 2017. This summarises the potential impacts of the construction of the cycleway on traffic in the area:

“High traffic volumes on the Cahill Expressway and the large numbers of cyclists and pedestrians using the Sydney Harbour Bridge mean that the construction of the proposal has the potential to impact on network efficiency into the Sydney CBD and North Sydney. Working hours and conditions may also be subject to conditions imposed by Sydney Trains, such as ensuring horizontal clearances and rail shutdown periods.

Significant work would be carried out in the evening and night-time and/or during routine scheduled shutdown periods to minimise access disruption during the day. To reduce impacts on traffic, the proposed working hours for the proposal would involve a combination of day work, night work including work on weekends, and 24-hour continuous work during road closure periods. Working up to five nights a week at regular intervals may be required at various stages of the construction period and would only be undertaken with adequate justification, such as where it is critical for constructability, or required for safety or licence reasons. Where longer road closures are required partial road closures from Friday night to Monday morning would be the preferred methodology. Temporary road closures may be necessary during work periods to allow for safe lane shutdowns.”

The above means that the future Construction Pedestrian and Traffic Management Plan developed for the new SHB cycleway would need to consider the traffic impact and safety of FSPS users under a separate process as part of that project, or the cumulative impacts if construction occurs concurrently.

4.2 FSPS Construction Traffic

This section presents the construction traffic demands and routing following the submission. In particular, the proposed numbers of truck movements and the routes.

4.2.1 Truck movements

Proposed truck types to be used during the works include:

- spoil and excavation removal trucks
- concrete trucks
- large rigid delivery trucks
- semi-trailers for large equipment and plant (subject to access).

It is anticipated that the works will typically generate 25 to 50 vehicles per day. Busiest days during the construction phases are expected to generate up to 50 vehicles per day. On peak days, around 6 vehicles per hour may be anticipated.

Table 11: Daily truck movements per phase

Activity	2021				2022				2023
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Site establishment	15								
Demolition	30								
Excavation/ Footings		30							
Structure			30	30					
Facade					20				
Services/ Finishes					30	30	30		
External works						20	20	20	20
Commissioning									10
Total	45	30	30	30	50	50	50	20	30

4.2.2 Truck access routes

Possible truck approach and departure routes are shown in Figure 9 and Figure 10. These will be focused on the western side of the Sydney CBD utilising Sussex Street and Kent Street. Further development of suitable routes will occur in consultation with the Sydney Coordination Office as the project planning develops.

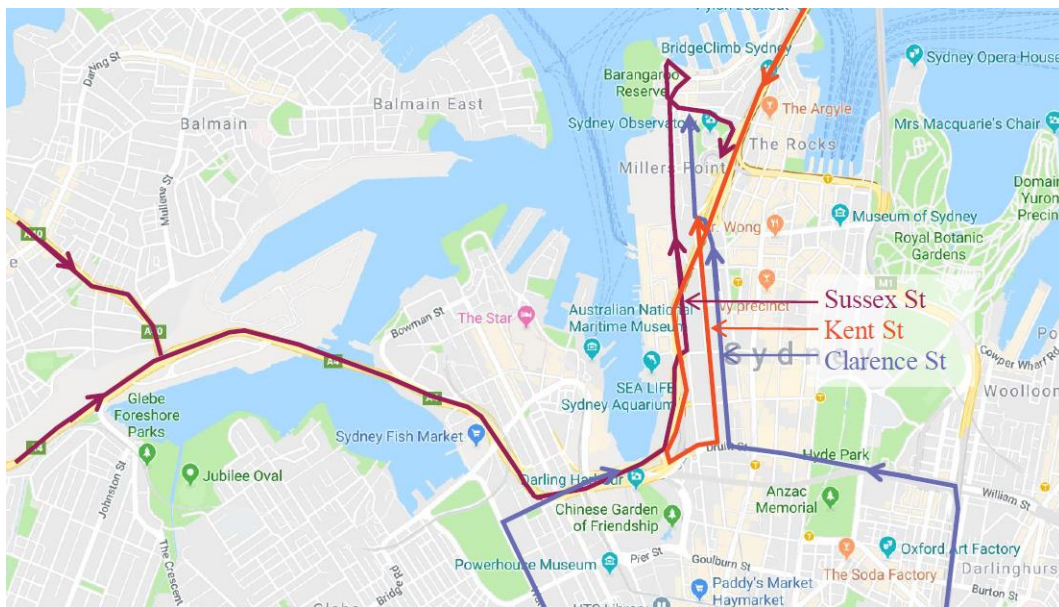


Figure 9: Indicative truck arrival routes

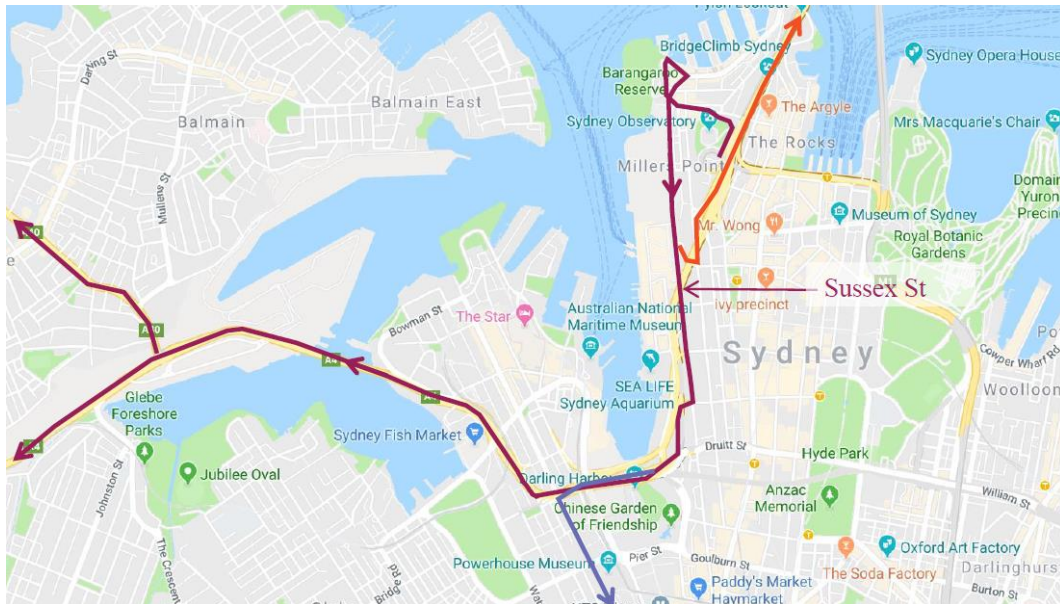


Figure 10: Indicative truck departure routes

4.3 Concurrent construction impacts with cycleway

The construction of the SHB cycleway is likely to occur after the commencement of works at FSPS, however it is possible that they could occur concurrently. Chief among these is the continued diversion of the SHB cycleway. Please note that during the scenario, the school is closed and under construction.

4.3.1 Temporary diversion of the cycleway

The existing cyclist provision from Kent Street cycleway to Sydney Harbour Bridge cycleway would be closed during the construction works for the new cycleway. A cycle detour was proposed in the Environmental Impact Statement for the cycleway, on a route around the site via the temporary ramp on the Sydney Harbour Bridge stairs and would continue onto Watson Road, Argyle Street and Kent Street, connecting to the Kent Street cycleway. The temporary cycle detour would remain until the completion of work in all precincts. This detour would add about 300m to the existing cyclist route from the Upper Fort Street portal towards the Kent Street cycleway via the shared path. The detour would mix cyclists with vehicles and require cyclists to manage their speeds travelling downhill on Watson Road.

Initial review of the routes has been undertaken and discussed with City of Sydney bicycle and traffic representatives, Bicycle NSW and Roads and Maritime Services. More planning will be required to consider this alternative route which would benefit both projects.

There are currently some 2,000 cyclists on a weekday and 1,000 on a weekend day using the SHB Cycleway. The existing cycling facilities in the precinct are shown in Figure 11.

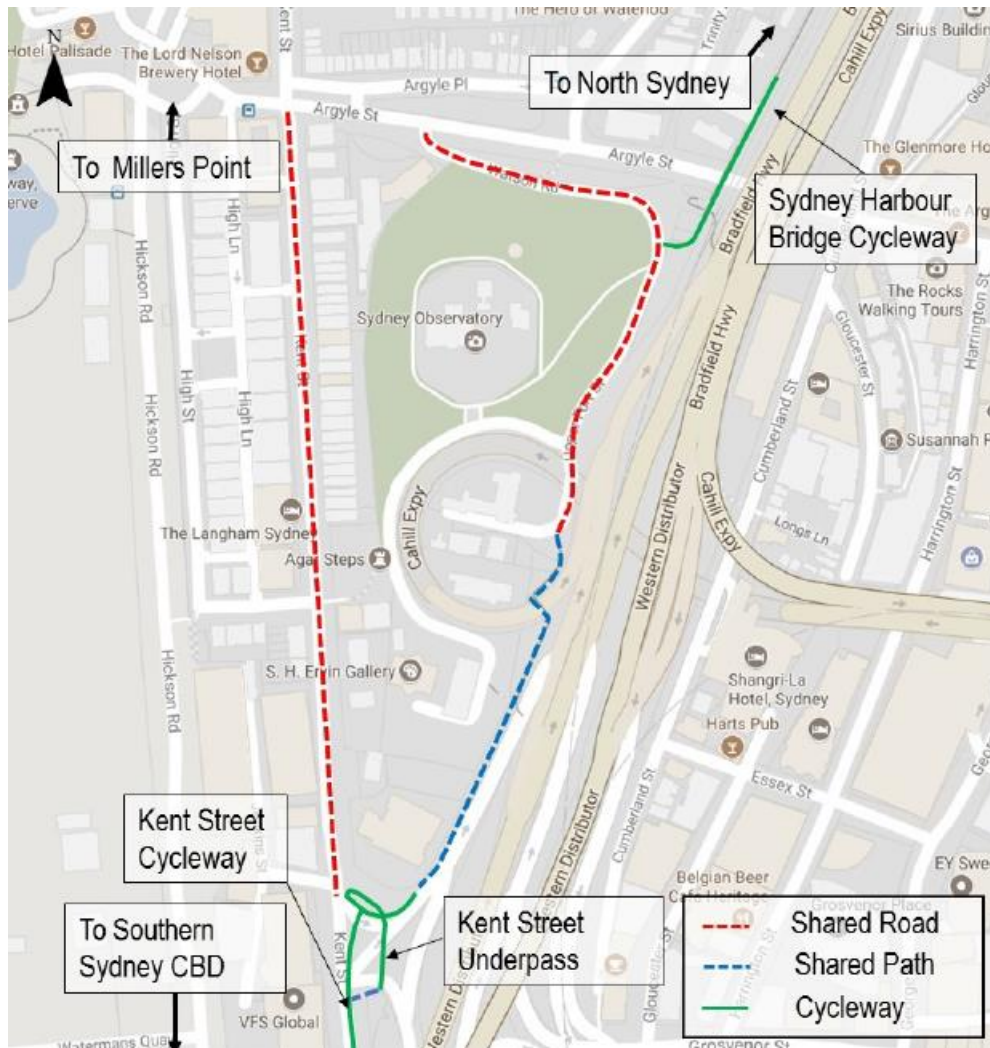


Figure 11: Existing bicycle facilities in the precinct

The existing route is 475m between the Kent Street segregated cycleway and the bridge access. The proposed alternative on-road route via Kent Street – Argyle Street – Watson Rd is 770m long, increasing the distance by about 295m.

The potential cycleway diversion route and facility types are shown in Figure 12. Kent Street is already a shared traffic cycle facility with logos marked in the traffic lane and traffic calming devices along the route.

The key issue to address will be the safety of cyclists traversing Argyle Street as shown in Figure 13. Additional bicycle signage and ground markings may be needed in this section of the route.

Discussion with Transport for NSW will determine whether there are opportunities in the vicinity of the SHB incident response area for interim bicycle route diversion.

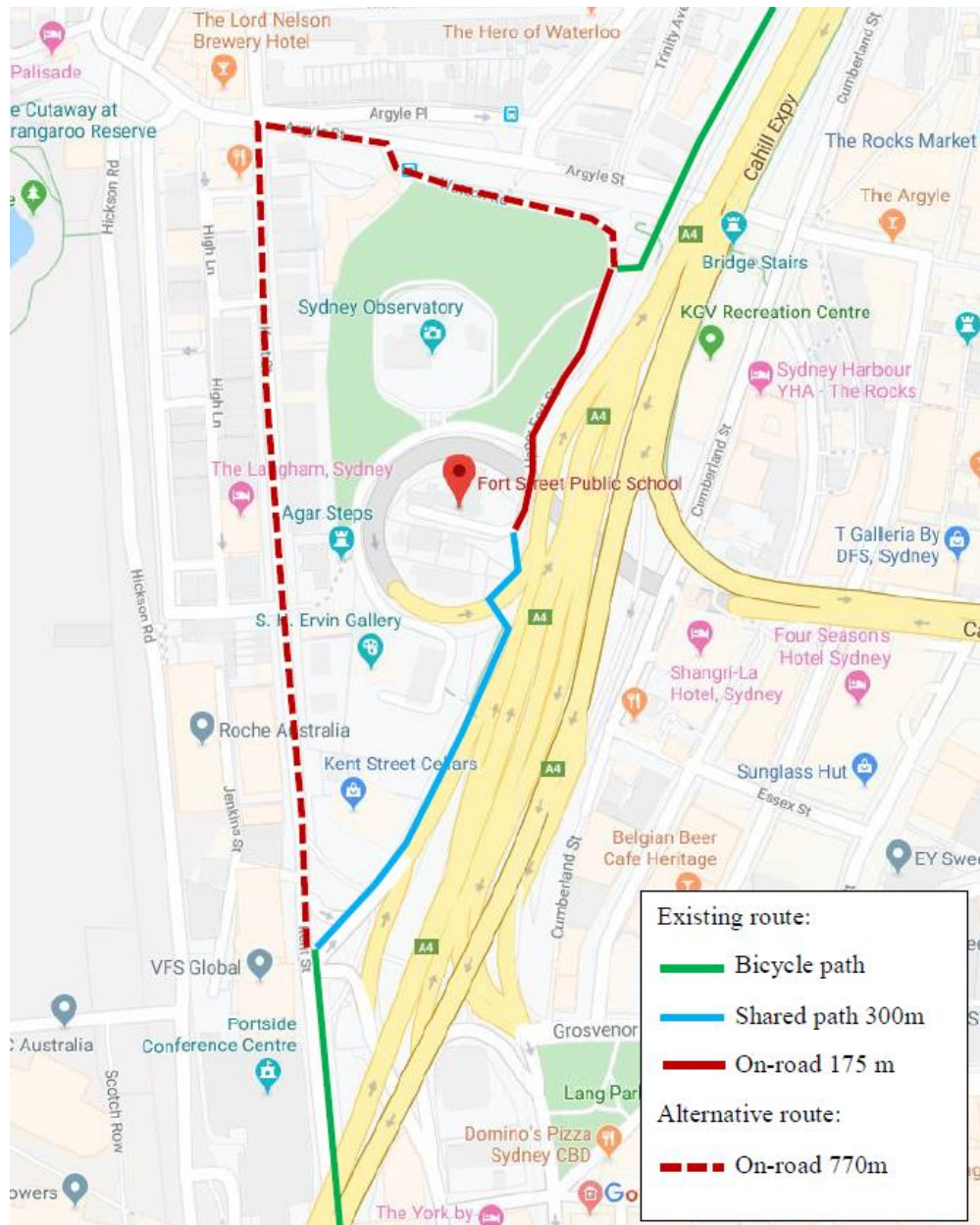


Figure 12: Potential cycleway diversion route

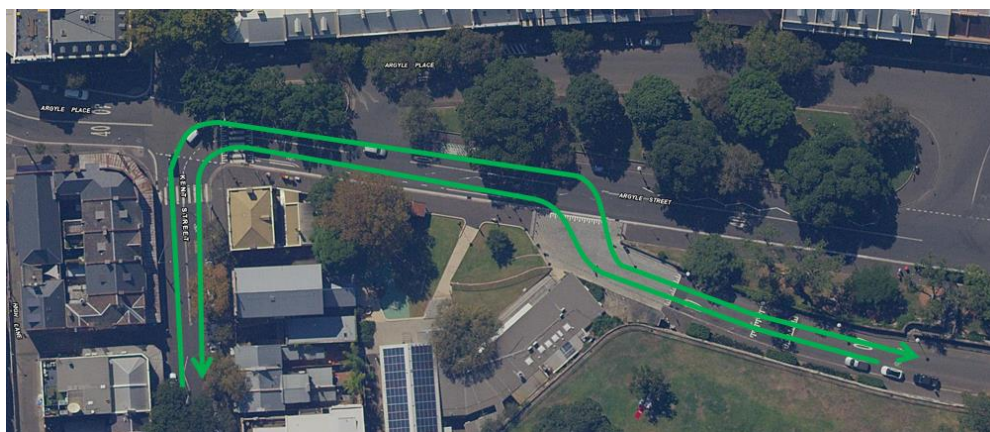


Figure 13: Argyle Street route

4.3.2 Interim drop-off/pick-up arrangements prior to completion of the cycleway

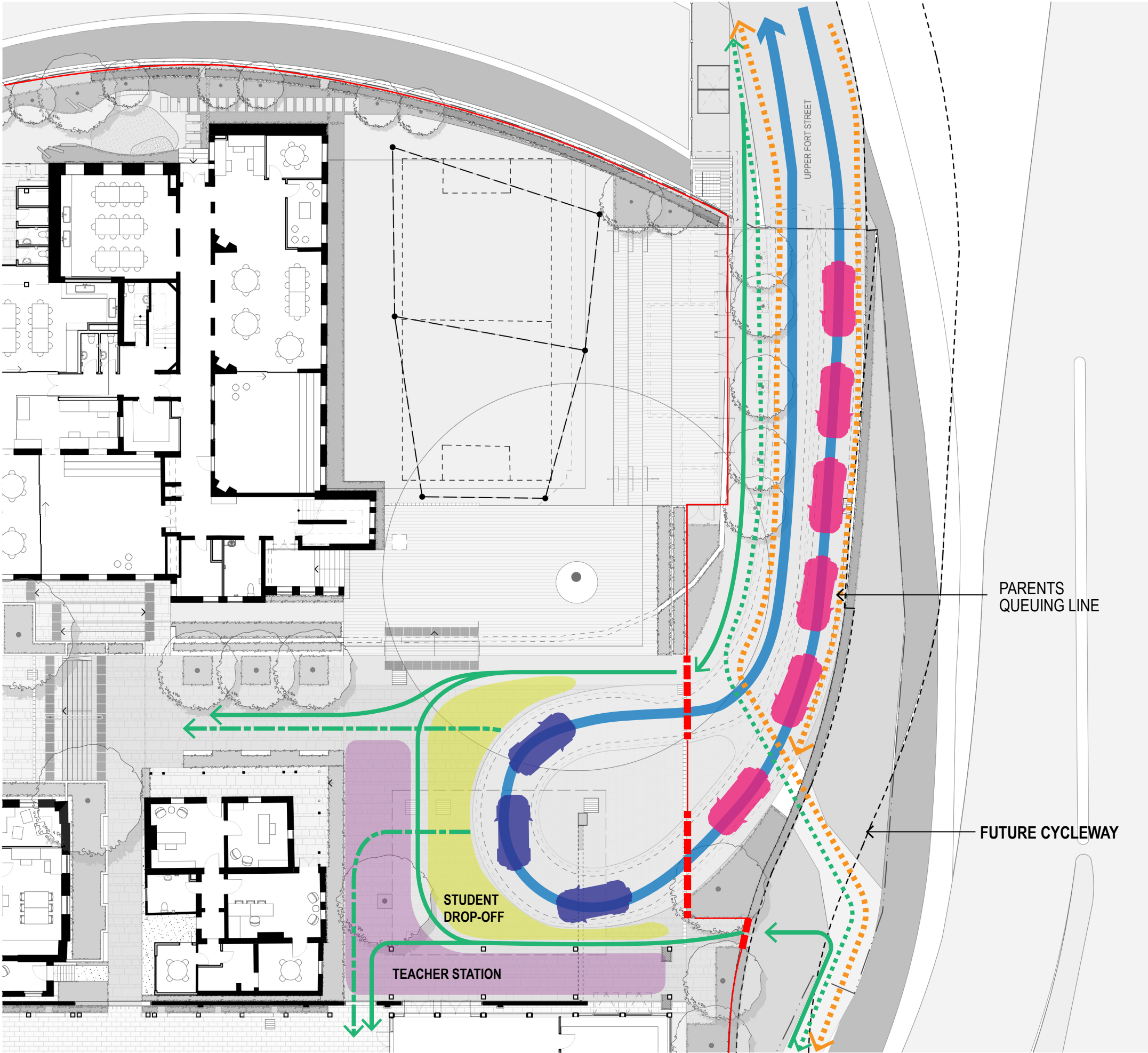
Should the cycleway be under construction at a period when the new school opens, alternative arrangements for management of the school drop-off and pick-up activity by car will be needed. This could include timed construction activity to avoid these periods and temporary relocation of the car activity to the Observatory Hill roundabout to avoid the cycleway construction works.

This alternative drop-off arrangement was discussed in Section 10.11 the TTA, where it was considered for long term operation. This option was discounted as it required changes to the kerb and parkland to facilitate DOPU operations without impacting on the National Trust access.

Ultimately, in this scenario, it will be the responsibility of the SHB cycleway contractor to mitigate the impacts of the construction of the cycleway on the FSPS in a Construction Pedestrian and Traffic Management Plan.

Appendix A

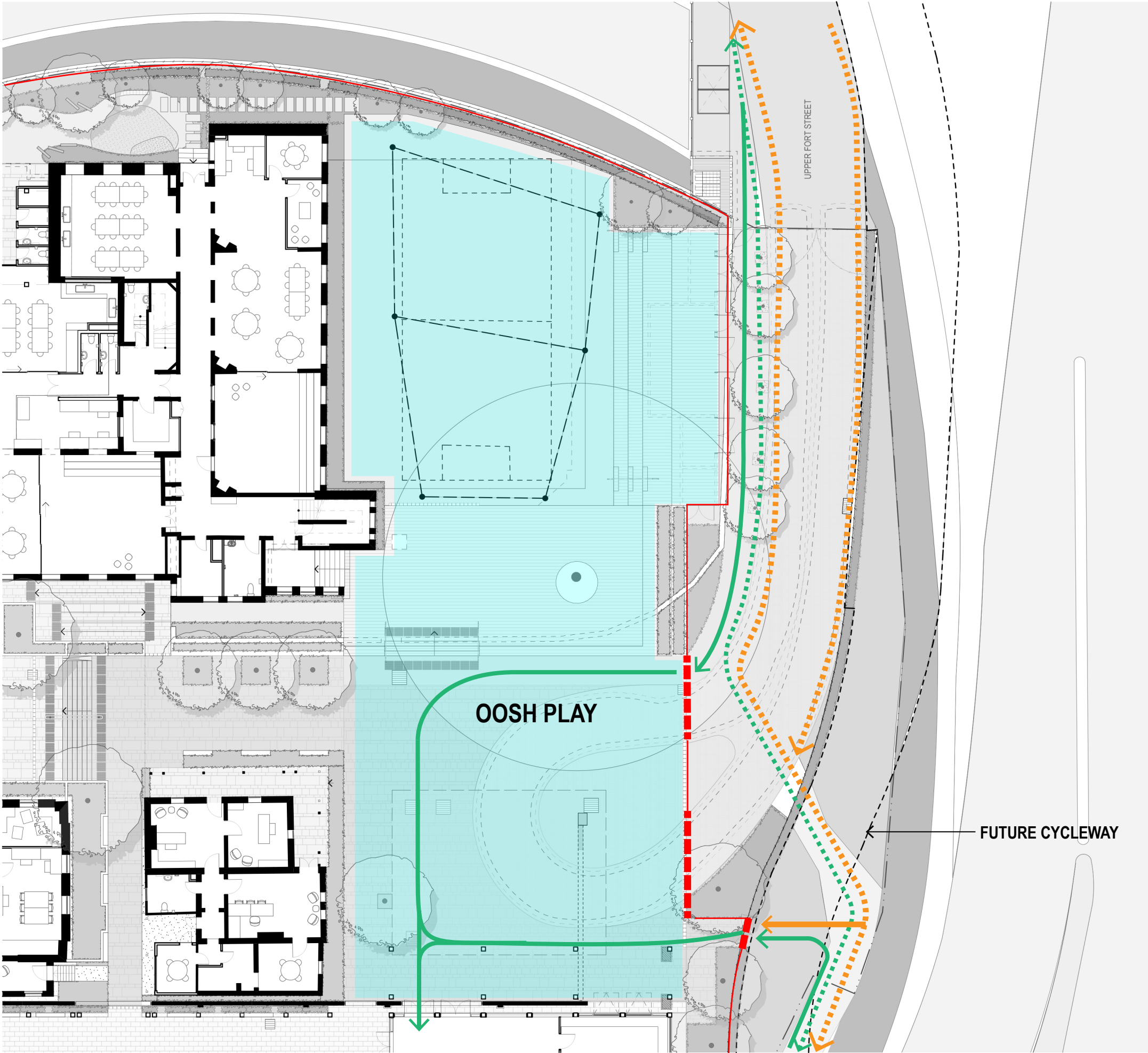
School Operation diagrams



**PHASE 1
STUDENT DROP-OFF
AND PICK-UP**

TIME
Drop-off: 8:30am - 9:00am
Pick-up: 3:00pm - 3:30pm

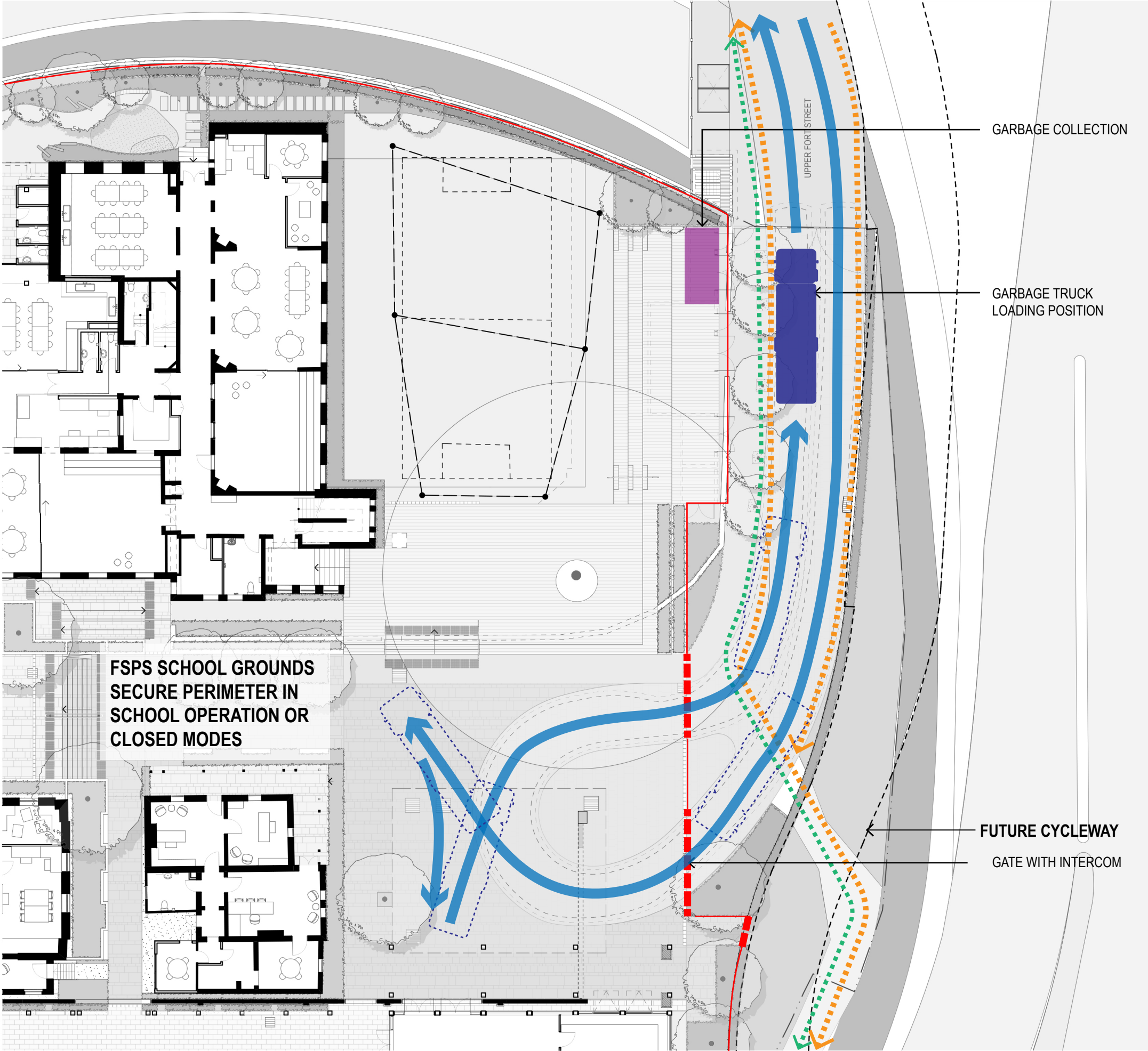
- LEGEND**
- School Fence/Boundary
 - School Gate
 - Student Cycle path
 - Public Cycle path
 - Public Pedestrian path
 - Student/Parent Pedestrian path
 - Drop-off Pedestrian path
 - Vehicular path
 - Student Drop-off Zone
 - Teacher Station
 - Parents Vehicular Drop-off Zone
 - Parents Vehicular Queuing Zone



**PHASE 1
OUTSIDE OF SCHOOL HOURS
(OOSH)**

TIME
Drop-off: 7:00am - 8:30am
Pick-up: 3:30pm - 6:00pm

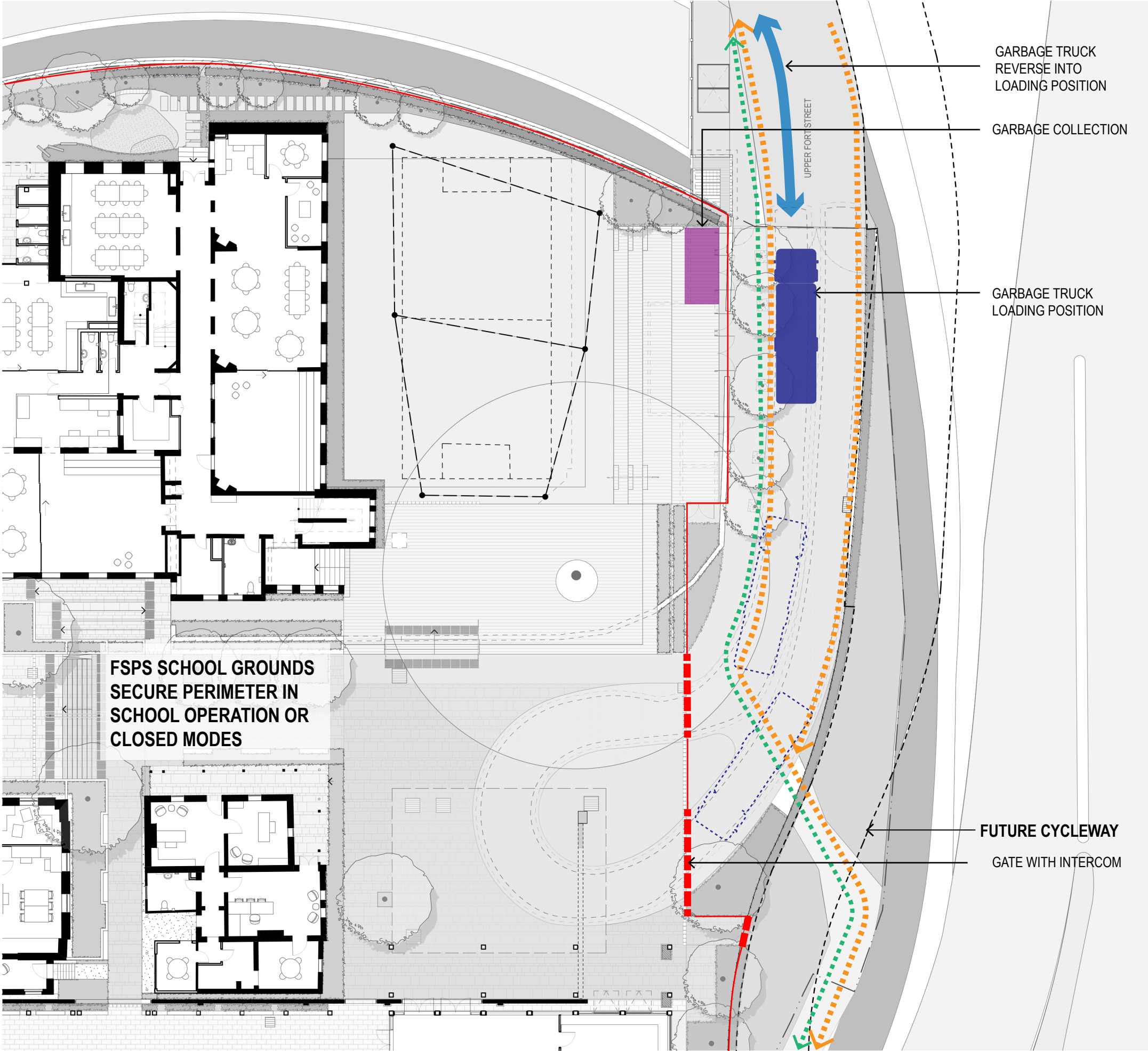
- LEGEND**
- School Fence/Boundary
 - School Gate
 - Public Cycle path
 - Student Cycle path
 - Public Pedestrian path
 - Student/Parent Pedestrian path

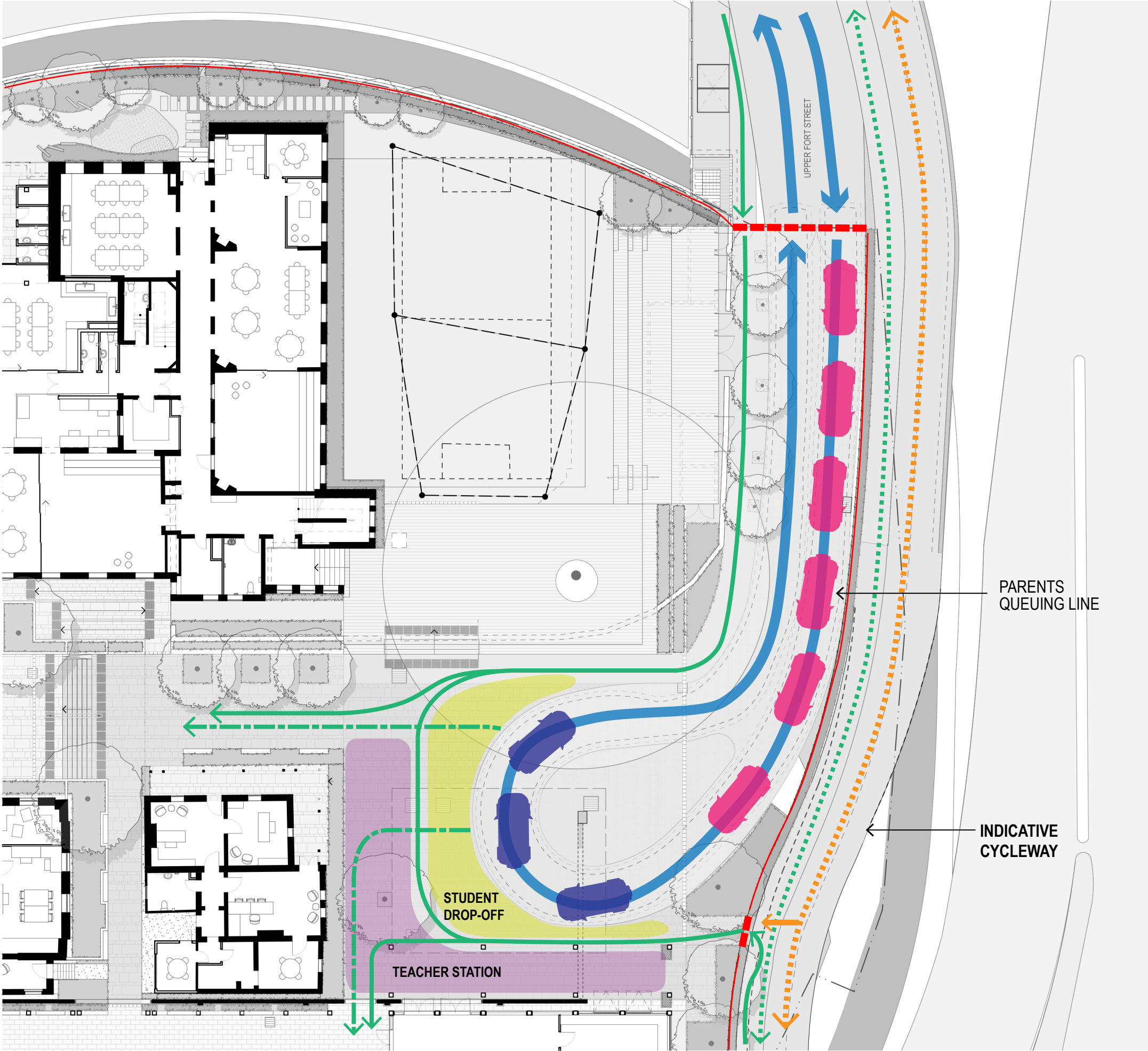


**PHASE 1
SCHOOL OPERATION,
CLOSED MODE
AND GARBAGE LOADING
SWEPT PATH OPTION 1
TIME**

Outside School: 6:00pm - 7:00am
School Operation: 9:00am - 3:00pm

- LEGEND**
- School Fence/Boundary
 - School Gate
 - Student Cycle path
 - Public Cycle path
 - Public Pedestrian path
 - Student/Parent Pedestrian path
 - Drop-off Pedestrian path
 - Vehicular path
 - Garbage Collection
 - Garbage Truck Loading Position
 - Garbage Truck - Indicative Path of travel

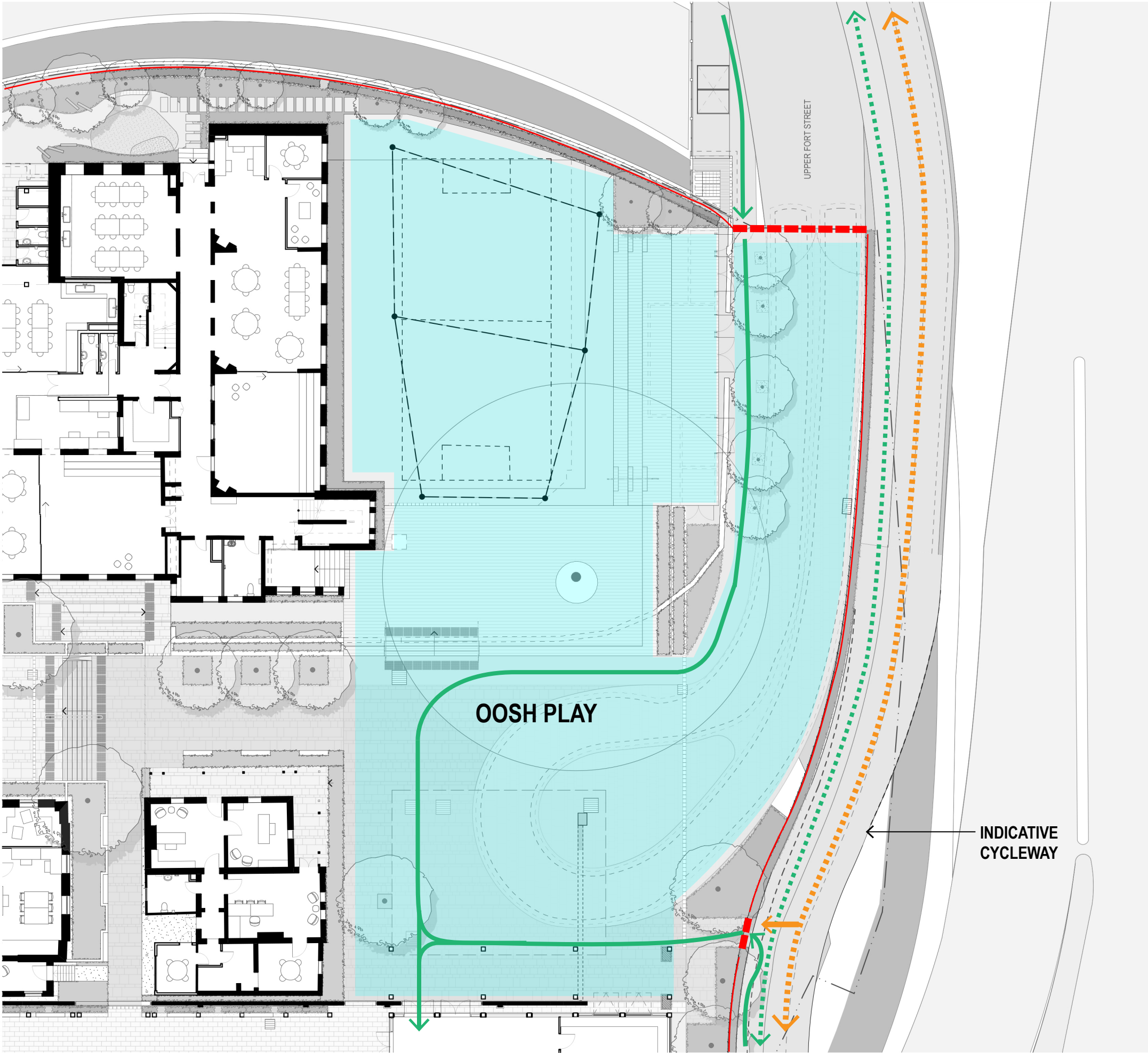




**PHASE 2
STUDENT DROP-OFF
AND PICK-UP**

TIME
Drop-off: 8:30am - 9:00am
Pick-up: 3:00pm - 3:30pm

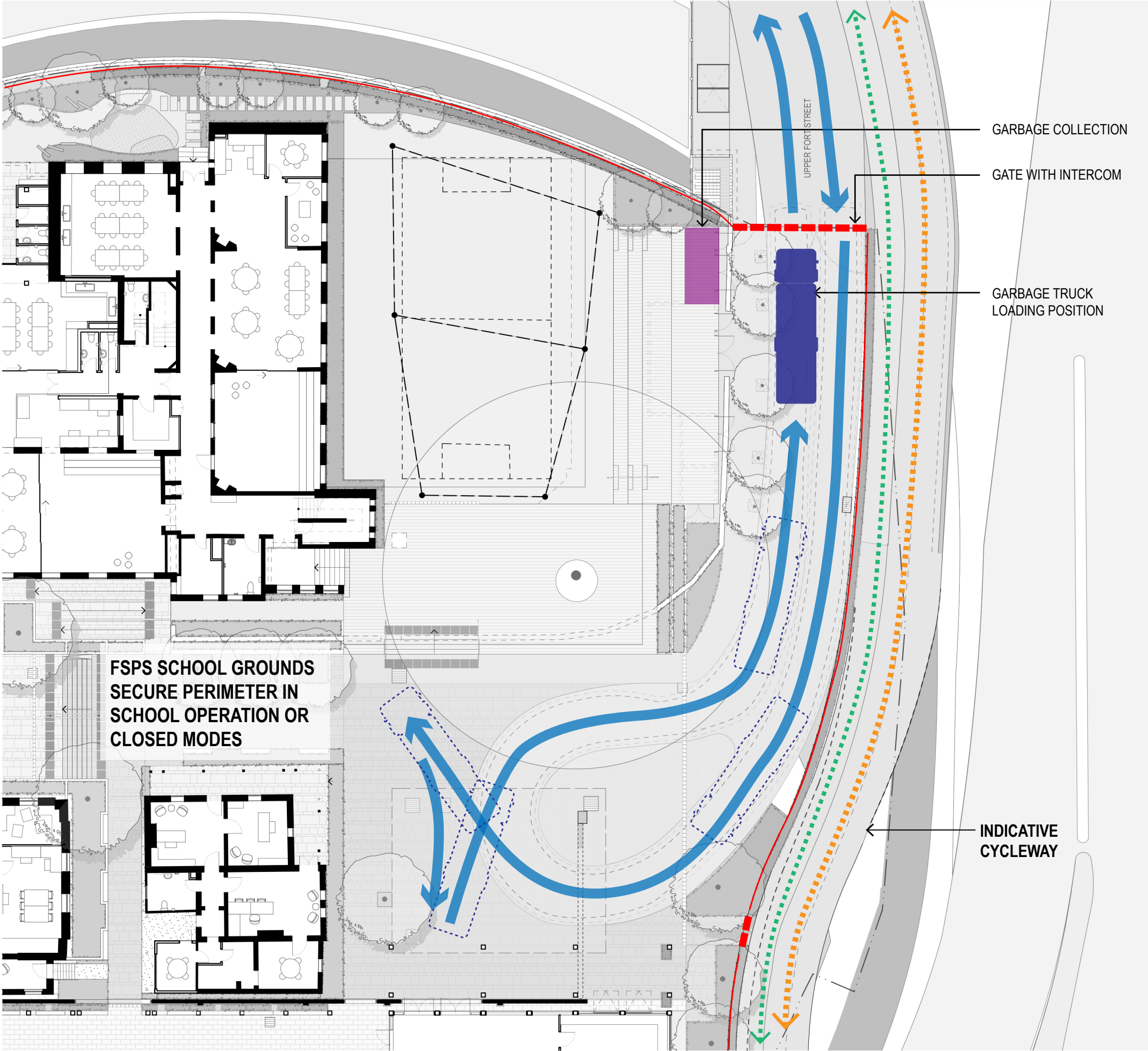
- LEGEND**
- School Fence/Boundary
 - School Gate
 - Student Cycle path
 - Public Cycle path
 - Public Pedestrian path
 - Student/Parent Pedestrian path
 - Drop-off Pedestrian path
 - Vehicular path
 - Student Drop-off Zone
 - Teacher Station
 - Parents Vehicular Drop-off Zone
 - Parents Vehicular Queuing Zone



**PHASE 2
OUTSIDE OF SCHOOL HOURS
(OOSH)**

TIME
Drop-off: 7:00am - 8:30am
Pick-up: 3:30pm - 6:00pm

- LEGEND**
- School Fence/Boundary
 - School Gate
 - Public Cycle path
 - Student Cycle path
 - Public Pedestrian path
 - Student/Parent Pedestrian path



**PHASE 2
SCHOOL OPERATION,
CLOSED MODE
AND GARBAGE LOADING
SWEPT PATH OPTION 1
TIME**

Outside School: 6:00pm - 7:00am
School Operation: 9:00am - 3:00pm

LEGEND

- School Fence/Boundary
- School Gate
- Student Cycle path
- Public Cycle path
- Public Pedestrian path
- Student/Parent Pedestrian path
- Drop-off Pedestrian path
- Vehicular path
- Garbage Collection
- Garbage Truck Loading Position
- Garbage Truck - Indicative Path of travel

