



26 May 2021
Ref 19090

Transport for NSW
27 Argyle Street
PARRAMATTA NSW 2151

Attn: Ms Malgy Coman

Dear Malgy,

ST LUKE'S GRAMMAR SCHOOL
PROPOSED SENIOR SCHOOL CAMPUS & SPORTS CENTRE (SSD-10291)
TRAFFIC & PARKING MATTERS
RESPONSE TO SUBMISSIONS

I refer to your letter dated 18 March 2021 (TfNSW Reference: SYD19/00495/06, DPIE Reference: SSD 10291) addressed to DFP Planning Pty Ltd requesting additional information in respect of the abovementioned development proposal.

The following advice is provided in response to your letter.

Vehicular Access to 800 Pittwater Road (new Senior School site)

1. *The queuing analysis undertaken for the proposed pick-up and drop-off activities in the RtS needs to be updated to address the following matters:*
 - *The queuing analysis has not included the vehicles queuing to access the off street car park;*

A separate traffic lane/access route is provided on the driveway to the off-street car park, clear of the drop-off/pick-up bay, as indicated on Figures 12 & 13 below.

In particular, it is noted that:

- there are two entry lanes and one exit lane (existing and proposed) on the driveway off Harbord Road. This can be confirmed by site inspection
- the “red” and “green” cars shown on Figures 12 & 13 below are located within the proposed drop-off/pick-up bays, clear of the car park entry lane
- the “red” cars are actual projected maximum drop-off/pick-up demands, based on the surveys of existing demands extrapolated to the projected increase in enrolments in Stages 2 and 3
- the “green” cars indicate spare capacity within the drop-off/pick-up bays

- the “**yellow**” cars demonstrate that even if these “**yellow**” cars queued on the driveway beyond the drop-off/pick-up bay, they could do so *without* blocking traffic flows in or out of the car park.

Detailed queuing analysis of the drop-off/pick-up bay (see Item 4 under the “Traffic Generation” heading below) has confirmed that the *Senior School* peak drop-off/pick-up demand will be only **2 cars** upon completion of Stage 3, as indicated by the “**red**” cars in the diagrams below.

In any event, it is clear that the proposed drop-off/pick-up facility could accommodate substantially more than the projected peak demands without impeding access to the off-street car parking area in any way.

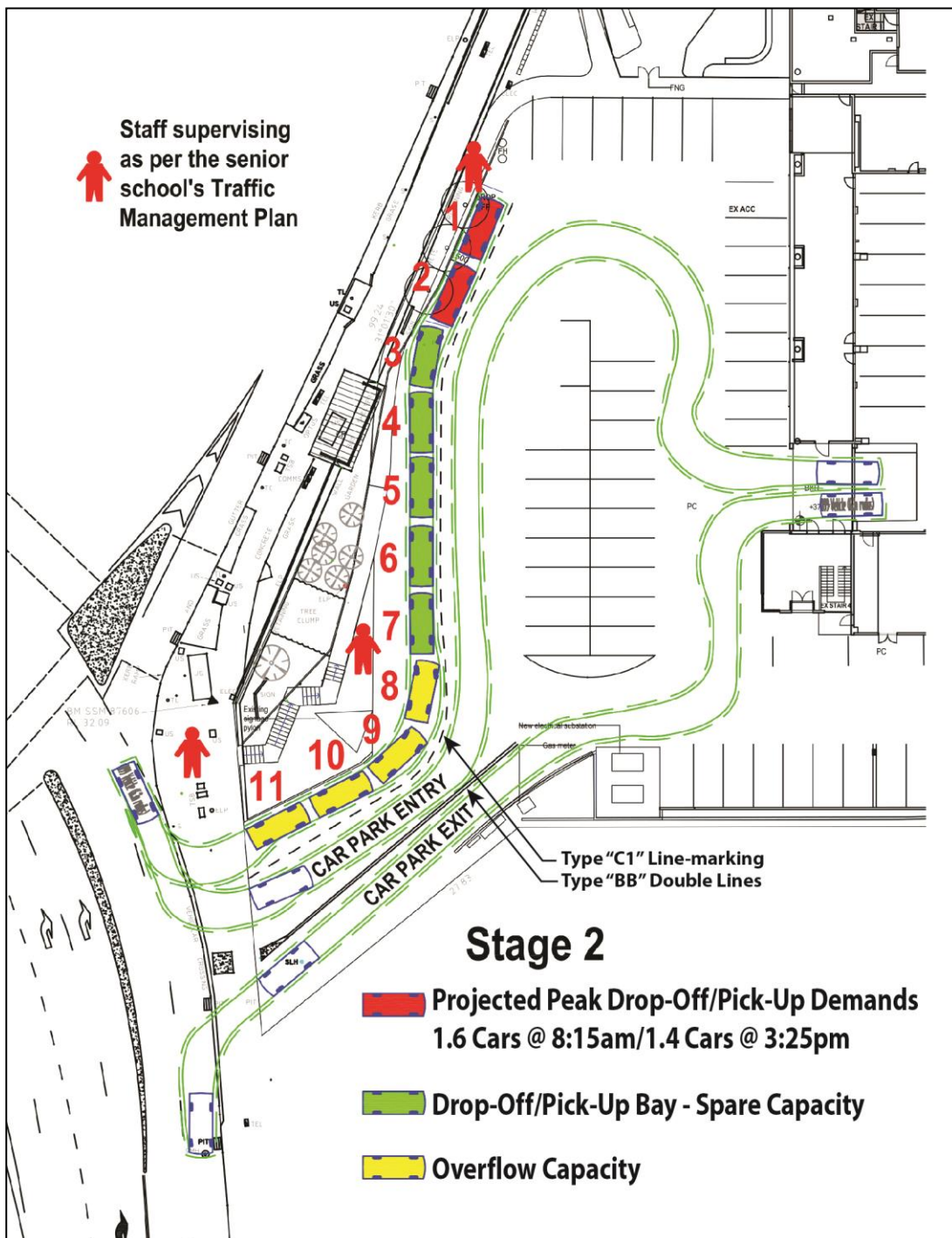


Figure 12 – Proposed Stage 2 *Senior School* Drop-Off/Pick-Up Bay & Car Park Access

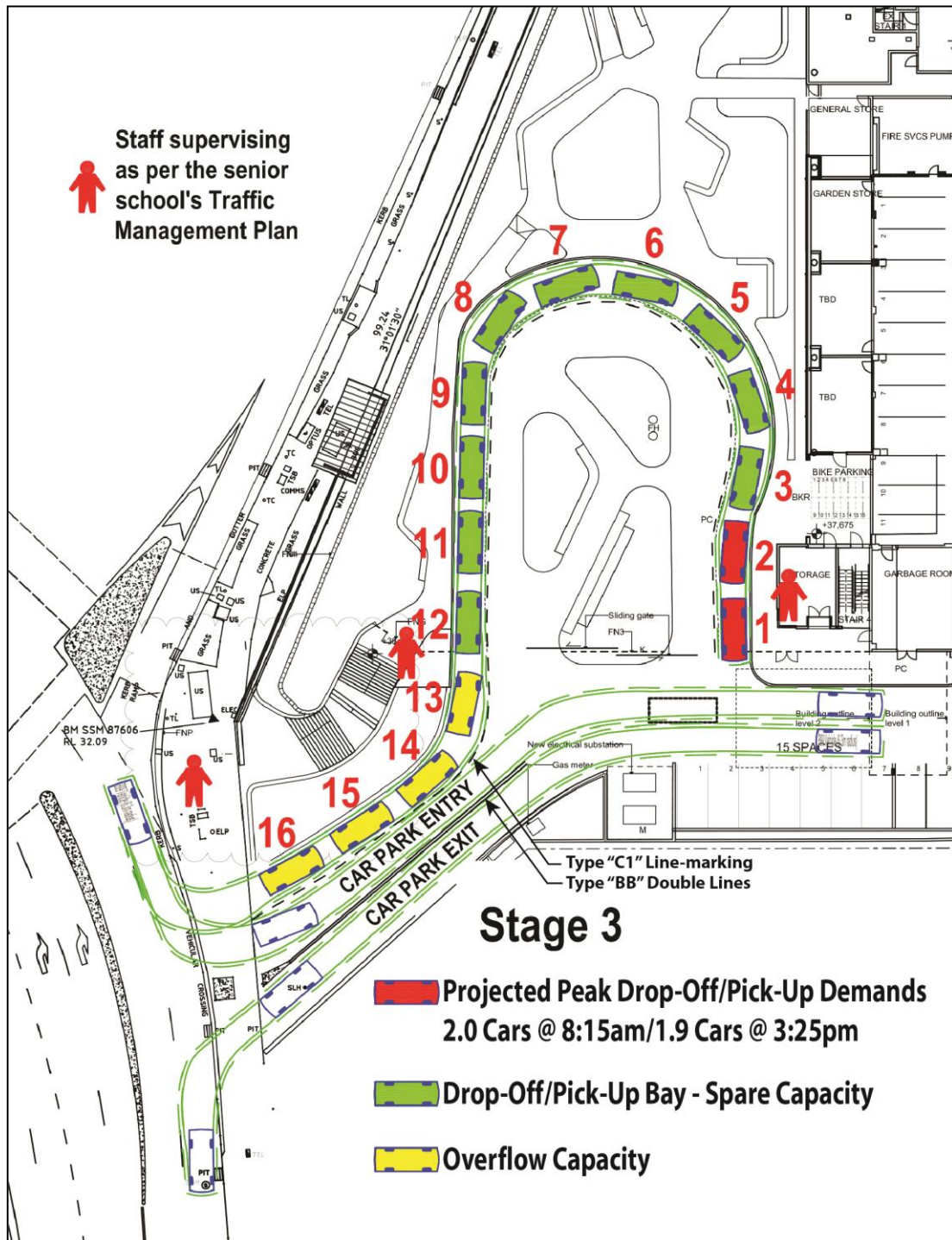


Figure 13 – Proposed Stage 3 Senior School Drop-Off/Pick-Up Bay & Car Park Access

- The queuing analysis assumes that 70 secs would be adequate to pick up each student. This would only be possible if each student would be ready to be picked up as soon as the vehicle arrived. If some of the students arrive late to the pick up area, cars need to wait longer than 70 secs and block other vehicles to enter the site. This would cause queuing on to public roads; and*

The existing school campus has adopted a *Traffic Management Plan* which intensively manages the afternoon school pick-up to ensure that each *Junior School* student is waiting in the nominated position *before* their vehicle arrives. The arrangement is similar to the managed taxi pick-up arrangement at Sydney Airport, and requires parents' cars to display their family name *label* suspended from the passenger side sun visor so that it can be seen by St Luke's staff. Five

cars are loaded *simultaneously* and waiting students are called to the nominated position at the kerb before their parent's vehicle arrives at the nominated pick-up point. To support this process, the school's Traffic Management Plan requires drivers to:

- move as far forward in the line as possible
- remain in the car at all times
- have the schoolbags in the vehicle, rather than in the boot
- students will enter the car from the passenger side of the vehicle
- when departing drivers must continue in the same direction.

This pick-up arrangement has been successfully used to reduce queues during the *Junior School* pick-up in the Tango Avenue indented bay.

To date this arrangement has not been necessary to manage the *Senior School* pick-up because demand is consistently *less than 2 cars*. This can be confirmed by a site inspection, (noting that *Senior School* students wear a distinctive school uniform reserved for Year 10 to 12 students only).

A similar arrangement could be adopted at the proposed new *Senior School* campus, should the need ever arise.

However experience at the existing school shows that it has not been necessary to date, given that the *Senior School* generates very little traffic activity, and that the traffic activity is widely dispersed over a period of at least 2 hours each morning and afternoon because of the highly variable timetable that applies only to *Senior School* students.

It is therefore proposed to provide staff supervision with 3 staff members (shown as red figures) as illustrated on Figures 12 and 13, consistent with the existing arrangements for the *Senior School* at the existing campus.

The highly variable timetable that applies to *Senior School* students only results in widely dispersed traffic generation because:

- on some days *Senior School* students will have additional classes before/after school, and
- on other days *Senior School* students will have free periods at the beginning and end of the day and may therefore arrive later in the morning and depart earlier in the afternoon.

In short, the *Senior School* generates less traffic and is more widely dispersed than traffic generated by the fixed start and finish times of the younger students in the *Junior School* and *Middle School*.

- ***Parents would arrive to the site and queue at the school gate well before the school opens. This would also cause queuing on to public roads.***

No gates are proposed on the site access driveway. Roller shutters will secure access to the basement car parking area however these shutters are expected to be opened at 5:30am to facilitate the school's swim squad training and the early arrival of *Senior School* students.

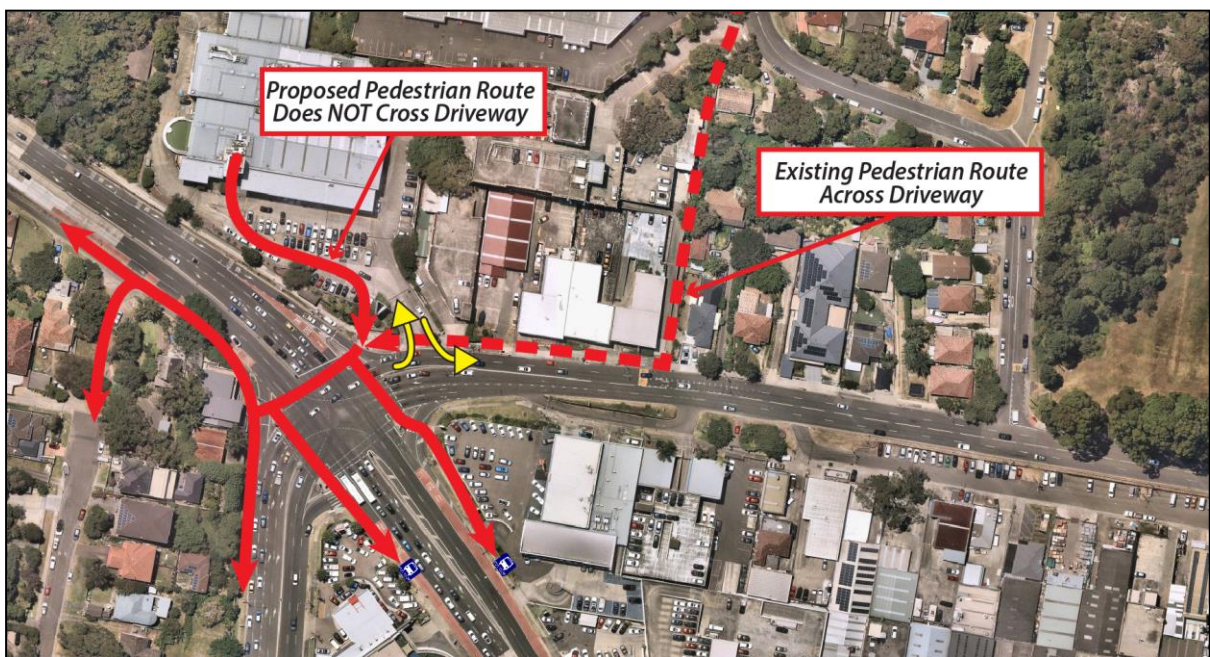
Based on the above, the proposed activities associated with the development would likely cause queuing on public roads and increase pedestrian / vehicle conflicts and cause pedestrian related incidents at the entrance to the school with the increase in pedestrian movements. Vehicle movements need to be either restricted or reduced from this driveway to provide a safer environment for pedestrians as well as vehicles at this location.

As detailed in the previous RTS under the heading *School Operational Management Plan*, pedestrian/vehicle conflicts at the existing driveway will be *reduced*, not increased.

There will be few, if any, pedestrians using the new stairs with an origin/destination to the south of the existing driveway in Harbord Road because the residential catchment in that area is very limited (i.e. 3 houses and 1 apartment building), as that precinct is dominated by industrial uses.

Thus there will be few, if any pedestrians walking across the existing vehicular access driveway in Harbord Road.

This contrasts with the existing arrangement where students currently using the signalised pedestrian crossing and/or the STA or B-line bus services must walk via the existing pedestrian path on the southern side of No. 267 Harbord Road) which links Headland Road to Harbord Road, and have *no alternative* but to walk along the footpath and *across* the existing driveway which is currently used by much higher volumes of traffic as illustrated in the aerial photo below.



New pedestrian route to the signalised pedestrian crossings avoids the need to walk across existing driveway

Thus the proposed *Senior School* will reduce the number of students walking across the existing site access driveway because the new stairs will provide a shorter, more direct access from the new *Senior School* to the signalised pedestrian crossings, without the need to walk across the driveway.

In addition, as advised in the previous RTS, it is agreed that a new *School Traffic Management Plan* shall be prepared for the *Senior School* campus which will include staff supervision in the footpath area at the bottom of the stairs, near the site access driveway and the signalised pedestrian crossing as shown in Figures 12 & 13.

- To reduce the potential queuing concerns raised above TfNSW requests that the submitted plans and documentation are amended so that the Harbord Road vehicular access can only be used by school staff. Student pick up and drop off and student parking facilities are not to be provided on the Senior Campus.***

This is due to the driveway location immediately next the Pittwater Road and Warringah Road signalised intersection. Any overflowing vehicle to Harbord Road will immediately result in significant traffic congestion not only at the signalised intersection but also to the broad road network.

Queueing analysis indicates that the peak drop-off/pick-up demands will be **2 cars** or less, as indicated by the “**red cars**” as shown on the plans above (see Item 4 under the “Traffic Generation” heading below). By comparison, the drop-off/pick-up bay queuing area will have a total capacity of **11 cars** in Stage 2 and **16 cars** in Stage 3.

In addition, a separate traffic lane on the driveway will provide a separate vehicular access route to the car parking area, *clear* of the drop-off/pick-up bay.

Consideration could be given to providing additional drop-off/pick-up facilities *within* the basement car parking area, comprising an additional 12 drop-off/pick-up spaces near the stairs/lift at the northern end of the basement car parking area as shown on Figures 14 & 15 below.

These additional drop-off/pick-up spaces are located approximately **170m** from the site entry off Harbord Road and would ensure that there were never any scenarios where queuing could extend to Harbord Road.

Parents would have the option of using either the external or internal drop-off/pick-up facilities, however staff supervising the external drop-off/pick-up bay would immediately direct parents to the internal drop-off/pick-up area if all the external “**green car**” spaces were occupied.

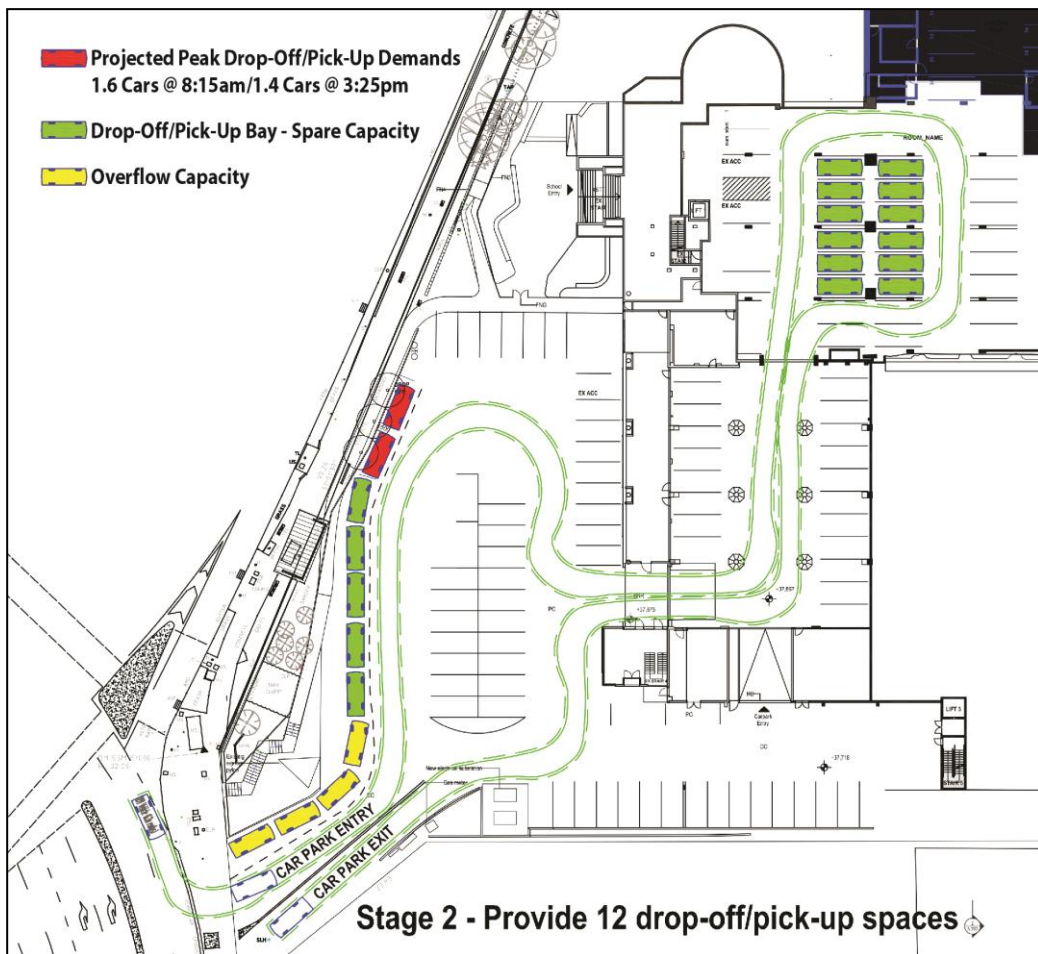


Figure 14 – Proposed Additional Drop-Off/Pick-Up Spaces in Stage 2

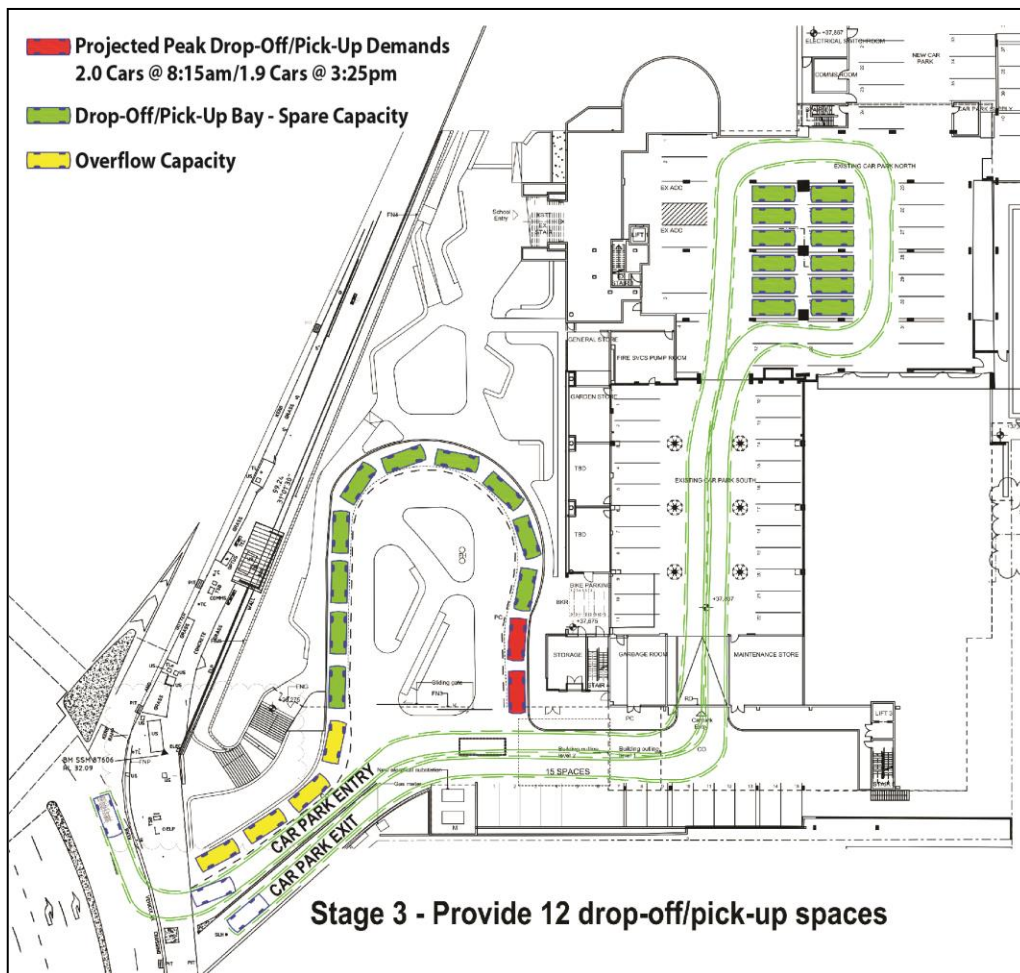


Figure 15 – Proposed Additional Drop-Off/Pick-Up Spaces in Stage 3

Traffic generation

3. ***The RtS did not include the details of bus movements generated by the proposed development and the impact of the increasing bus movements on the nearby road network and existing bus pick up and drop off facilities.***

It is requested that the applicant undertake an impact assessment of existing and future school bus movements likely to be generated by the proposed development and details of improvements required to the bus pick up and drop off facilities.

The results of surveys detailed in the original DA traffic report indicate that the average loading/occupancy of school buses is 21.5 students per bus. Thus there is substantial spare capacity available on the existing school bus services, and it is not envisaged that any additional school bus services will be required.

In addition, as detailed in the previous RTS, *Senior School* students are also expected to increase their usage of the nearby STA bus stops and the B-line bus stops in Dee Why. This increased usage of STA or B-line buses will be widely dispersed and can easily be accommodated by the very large number of STA or B-line bus services available each morning and afternoon, and thus there will not be a need for any additional STA or B-line bus services.

4. The RtS did not address TfNSW's requests of estimating trip generation of each development stage. It is requested that details of trip generation for east development stage, including the traffic generated by the after school hour facility, should be tabulated and provided to TfNSW for review.

The trip generation for each development stage is based on surveys undertaken at the existing school. The survey results were then *extrapolated* to identify the projected future drop-offs and pick-ups in Stages 2 and 3.

In effect, the methodology provides a *traffic generation* rate for every 5-minute period between 7am-9am and 2:45pm-4:45pm over a period of 5 consecutive days.

The survey results are summarised in graphic form for the *Junior School*, *Middle School* and *Senior School* in Figures 4, 5 and 6 below respectively.

It is abundantly clear from the survey results that the *Junior School* and to a lesser extent, the *Middle School*, generate the most traffic.

The *Senior School* surveys indicate that it generates the least amount of traffic. This is due to a number of factors including:

- the *Senior School* students are less reliant on their parents for travel to/from school
- the *Senior School* students are more likely to travel independently by walking or public transport
- the arrival and departure of *Senior School* students is much more widely dispersed than either the *Junior* or *Middle Schools* because:
 - *Senior School* students often have additional classes before/after school, and
 - on other days *Senior School* students have free periods at the beginning or end of the school day.
- in short, *Senior School* students are *not* bound by the fixed start and finish times that apply to the *Junior* and *Middle School*, and their arrival is therefore much more widely dispersed.

As requested, the survey data results of the *Senior School* surveys have been tabulated in Annexure 1.

Figure 4: Results of Drop-off & Pick-up Surveys - **Junior School** (364 Students)
(Number of Cars per 5 Minutes)

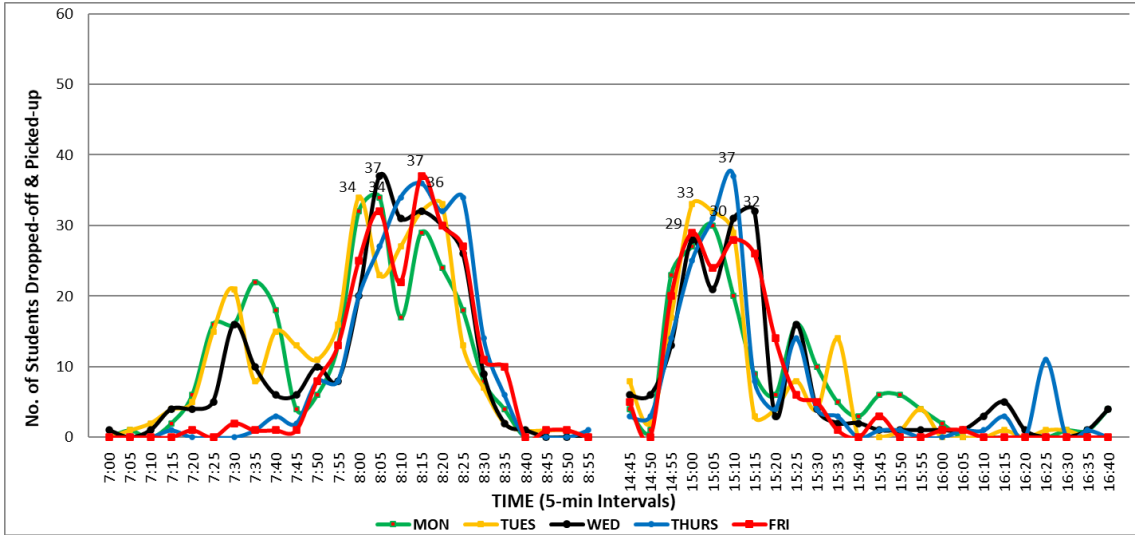


Figure 5: Results of Drop-off & Pick-up Surveys - **Middle School** (355 Students)
(Number of Cars per 5 Minutes)

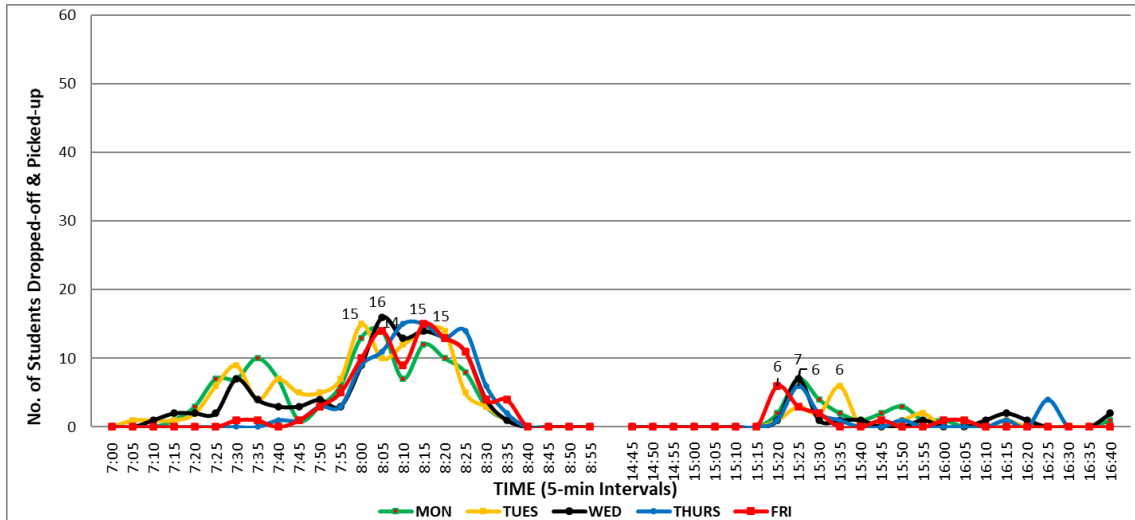
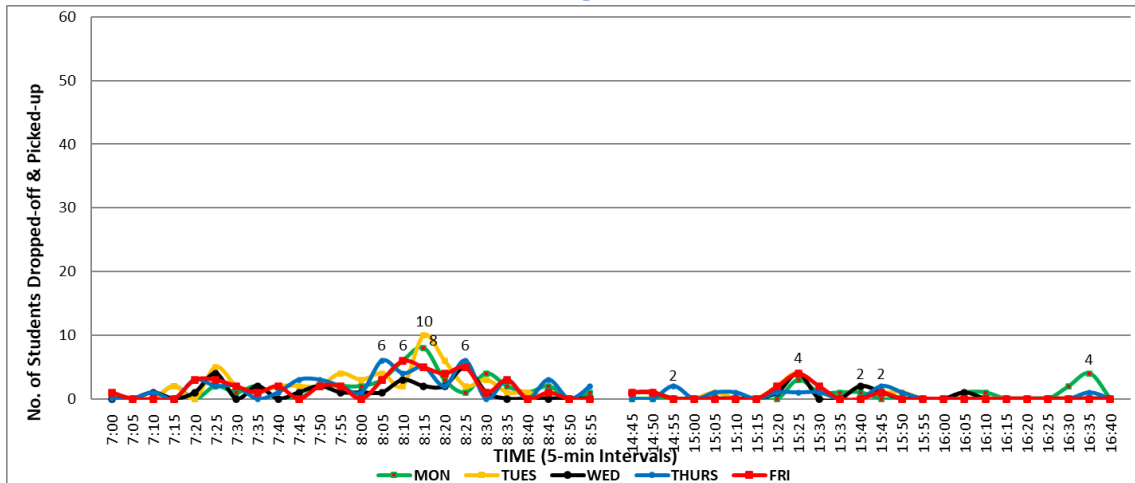


Figure 6: Results of Drop-off & Pick-up Surveys - **Senior School** (303 Students)
(Number of Cars per 5 Minutes)



The survey results were then *extrapolated* on a 5-minute basis to identify the projected future *Senior School* drop-offs and pick-ups in Stages 2 and 3 as illustrated on Figures 8 and 9 below (and also tabulated in Annexure 1).

This methodology provides a *traffic generation* rate for every 5-minute period throughout the drop-off and pick-up times, over a period of 5 consecutive days.

Figure 8: Projected Future **Senior School** Drop-Offs & Pick-Ups in Stage 2 (480 students)
(Number of Cars per 5 Minutes)

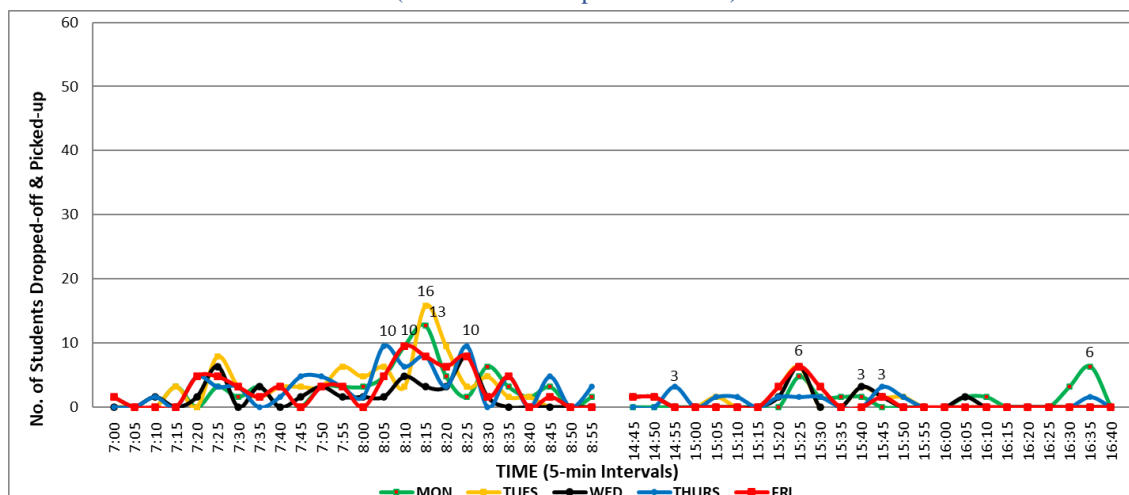
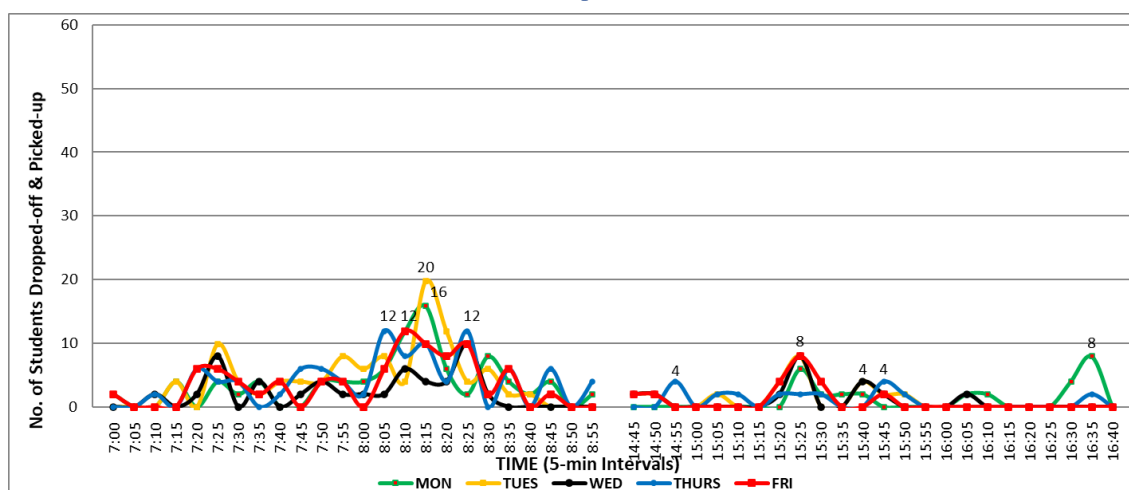


Figure 9: Projected Future **Senior School** Drop-Offs & Pick-Ups in Stage 3 (600 students)
(Number of Cars per 5 Minutes)



An analysis of the drop-off/pick-up survey results of the relocated *Senior School* was then undertaken at 5-minute intervals to determine the number of cars that will be stopped to drop-off or pick-up *Senior School* students at any one time in each 5-minute period based on a drop-off duration of 30 seconds per car in the morning and a pick-up duration of 70 seconds per car in the afternoon as currently occurs in the existing indented bay in Tango Avenue. The duration of the *Senior School* drop-offs and pick-ups can be confirmed by site inspection.

For comparison purposes the results of the existing surveys are summarised in Figure 6A whilst the projected future drop-off and pick-up demands are summarised on Figures 10 & 11 for Stages 2 and 3 respectively. The supporting data for each of the graphs is tabulated in Annexure 2.

5. ***The RtS did not include the traffic modelling result for the scenario of 10 years after completion of Stage 3. The scenario of 10 years after completion of Stage 3 should be included in the traffic impact assessment.***

As detailed in the previous RTS, the Pittwater Road/Warringah Road/Harbord Road intersection currently operates at or near capacity, and there is no potential for growth in traffic flows during peak periods.

Any increase in traffic flows through the intersection could only occur *outside* peak periods, during business hours or after hours, when the new *Senior School* will generate little, if any traffic.

Factoring up or increasing existing peak hour traffic flows through the intersection to simulate a “10 years hence” scenario is therefore impractical and unrealistic.

It is also likely that *reductions* in traffic flows will occur on Pittwater Road “10 years after completion” following completion of the *Northern Beaches Link* tunnel and the upgrade of Wakehurst Parkway to dual carriageways. The upgraded Wakehurst Parkway and the grade-separated intersection with Warringah Road will then provide a superior, high speed alternative route to Pittwater Road for all traffic with an origin or destination anywhere to the north of Narrabeen.

Lastly, as noted in the previous RTS, the proposed *Senior School*:

- will *not* generate any additional traffic during the *morning* peak period than the existing uses of the site, and
- will generate substantially *less* traffic during the *afternoon* peak period than the existing uses of the site as detailed in Table 7 below.

Table 7 - Nett Reduction in Traffic Flows As a Consequence of the Proposed Senior School at 800 Pittwater Road Vehicles Per Hour (vph)						
	AM School Peak Hour			PM School Peak Hour		
	In	Out	Total	In	Out	Total
Existing Commercial Uses	99 vph	91 vph	190 vph	133 vph	118 vph	251 vph
Proposed Senior School Campus	125 vph	63 vph	188 vph	59 vph	77 vph	135 vph
Nett Reduction	+26 vph	-28 vph	-2 vph	-74 vph	-41 vph	-116 vph

Traffic Modelling

6. ***The SIDRA modelling files should be submitted to TfNSW for review.***

There is no change to the SIDRA modelling files previously submitted to TfNSW for review.

Car parking

7. ***Based on the RtS, the existing car park will be reconfigured to provide the required number of car parking spaces for Stages 2 and 3.***

The required number of car parking spaces for Stages 2 and 3 are summarised in Table 8 below, noting that a number of parking spaces provided for Year-12 students would be reduced if the additional drop-off/pick-up spaces indicated on Figures 14 and 15 were adopted.

Table 8 - Existing & Proposed Off-Street Parking 800 Pittwater Road			
	Existing	Stage 2	Stage 3
Radiology Clinic	34 spaces*	n/a	n/a
Fitness First Gym	114 spaces*	n/a	n/a
Officeworks	40 spaces*	40 spaces*	n/a
School Staff	n/a	48 spaces	60 spaces
Visitors & Builders	n/a	28 spaces	5 spaces
Year 12 Students	n/a	15 spaces	25 spaces
TOTAL	182 spaces	131 spaces	90 spaces

* In accordance with DA Consent Conditions for each use

8. *The design of the proposed car parking areas associated with the subject development (including, driveways, grades, turn paths, sight distance requirements in accordance with the relevant Austroads and Australian Standards).*

Agreed.

Construction Pedestrian and Traffic Management

9. *It is noted that the construction working hours are proposed from 7am-6pm Monday to Friday. Construction activities for the expansion of the school are expected to occur while students are on site during the operation of Stage 2.*

It is advised that construction vehicle movements from the development could have the potential to impact on general traffic and bus operations within the vicinity of the School, as well as the safety of pedestrians and cyclists particularly during commuter peak periods and school opening and closing periods.

It is requested that the applicant updates the Construction Pedestrian and Traffic Management Plan (CPTMP) in consultation with TfNSW, prior to the issue of any construction certificate and submit a copy of the final CPTMP to the Council for approval if DPIE agrees for Council to approve the CPTMP.

Agreed.

Green Travel Plan

10. *TfNSW notes the Work Place Travel Plan for staff and students prepared by Varga Traffic Planning as part of the RtS. The Plan includes some measures to encourage mode shift and mode share targets. TfNSW does not consider the proposed measures or mode share targets to be adequate for this development.*

The applicant will need to update the Green Travel Plan in consultation with TfNSW and submit for endorsement of the PCA, at least six (6) months prior to the commencement of operation of the new senior school campus.

Agreed.

Access to School Bus Services

- 11. The RtS states that the approved works from other developments are expected to provide an upgraded pedestrian path between the Senior School and the school bus stops in Headland Road.*

It is requested that the applicant consults with Council to provide adequate footpath facilities between the Senior School and the school bus stops in Headland Road.

Agreed.

School Operational Management Plan

- 12. The RtS states that the new School Traffic Management Plan for the Senior School will include staff supervision at the drop off/pick up area and also at footpath area at the bottom of the stairs, near the site access driveway and the signalised pedestrian crossing.*

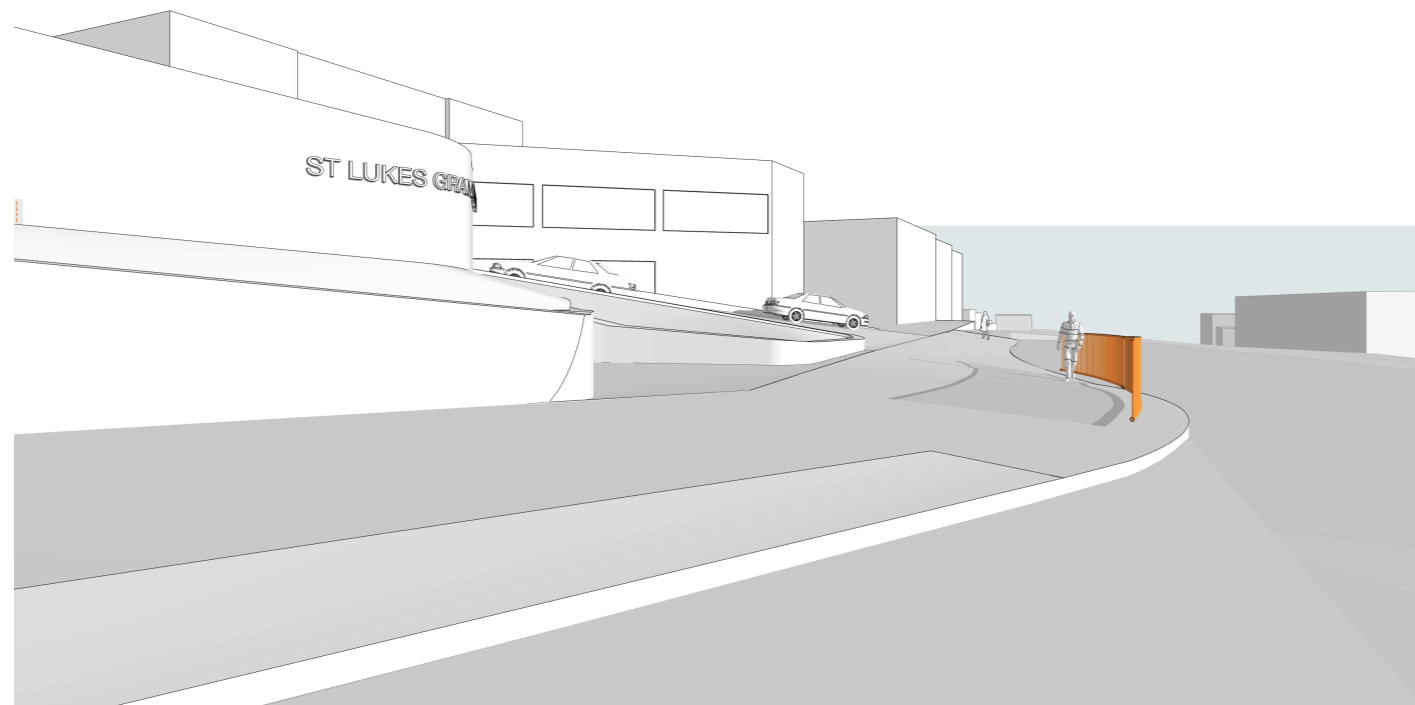
It is requested that the applicant prepares a School Operational Management Plan, in consultation with TfNSW, to manage student movements safely within and in the vicinity of the site and other transport related issues, prior to issue of the occupation certificate.

Agreed.

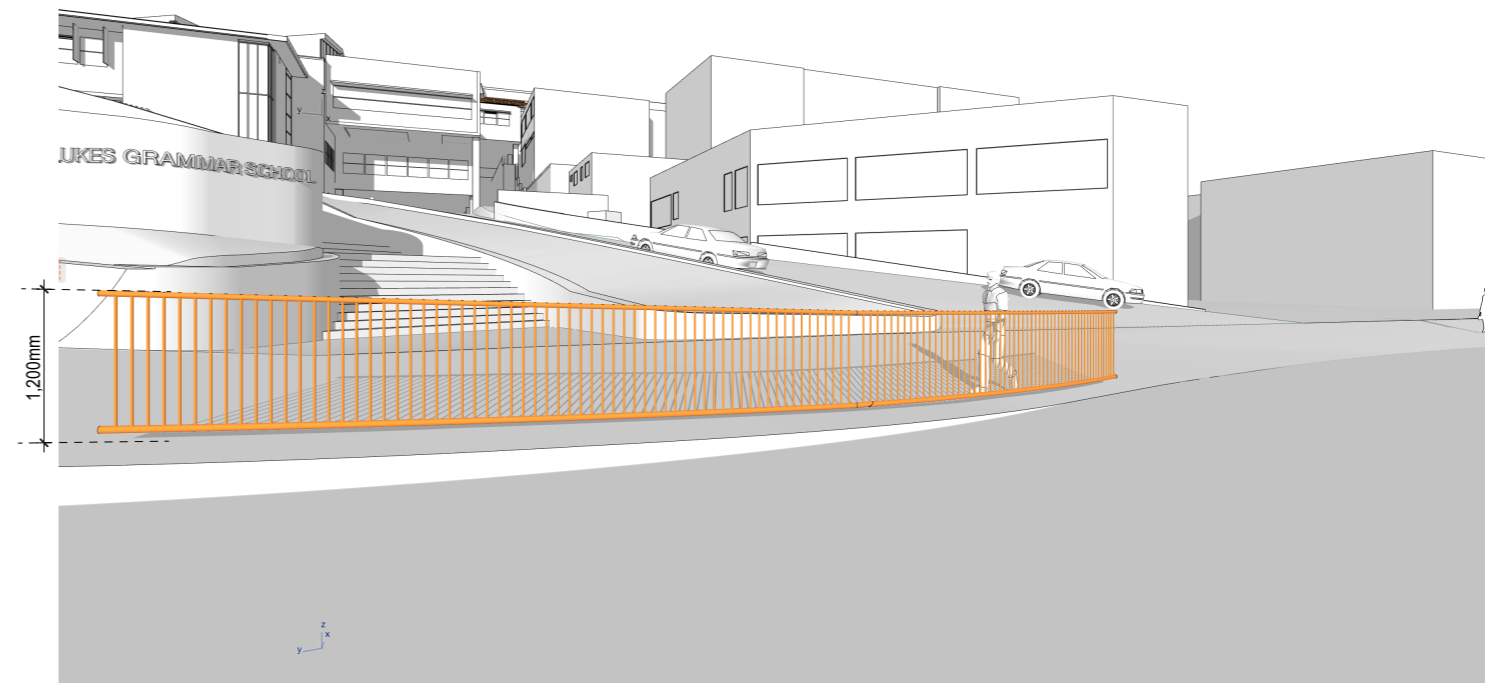
- 13. The RtS states that a pedestrian fence is proposed along the kerb line at the north-east corner of Pittwater Road/Warringah Road intersection.*

TfNSW notes that the provision of a pedestrian fence may obstruct line of sight for vehicle turning left from Pittwater Road and vehicle departing from the driveway. A line of sight assessment should be undertaken for the proposed pedestrian fence.

Agreed. The pedestrian fence shall comprise a TfNSW-approved fence, similar to the T2G concept plan illustrated below.



Pedestrian Fence Line of Sight - approaching from North (from Pittwater Road)



Pedestrian Fence Line of Sight - approaching from West (from Warringah Road)

JOB NUMBER18032

ST. LUKE'S GRAMMAR SCHOOL - NEW SENIOR SCHOOL CAMPUS | SSDA RTS

ARCHITECT:

CLIENT:

TONKIN ZULAIKHA GREER ARCHITECTS
117 RESERVOIR STREET, SURRY HILLS NSW 2010
P (02) 9215 4900

The Anglican Schools Corporation (TASC)

TRAFFIC - PEDESTRIAN FENCE LINE OF SIGHT

NORTH:

SCALE:



RTS-013

date printed 25/5/21

ANNEXURE 1

	EXISTING SENIOR SCHOOL (303 STUDENTS) SURVEY RESULTS DROP-OFF & PICK-UP (SEE FIG 6) (NUMBER OF CARS PER 5-MINUTES)				
Combined					
Time Per	<u>MONDAY</u>	<u>TUESDAY</u>	<u>WEDNESDAY</u>	<u>THURSDAY</u>	<u>FRIDAY</u>
0700 - 0705	1	0	0	0	1
0705 - 0710	0	0	0	0	0
0710 - 0715	0	0	1	1	0
0715 - 0720	2	2	0	0	0
0720 - 0725	0	0	1	3	3
0725 - 0730	2	5	4	2	3
0730 - 0735	1	2	0	2	2
0735 - 0740	2	1	2	0	1
0740 - 0745	0	2	0	1	2
0745 - 0750	0	2	1	3	0
0750 - 0755	2	2	2	3	2
0755 - 0800	2	4	1	2	2
0800 - 0805	2	3	1	1	0
0805 - 0810	3	4	1	6	3
0810 - 0815	6	2	3	4	6
0815 - 0820	8	10	2	5	5
0820 - 0825	3	6	2	2	4
0825 - 0830	1	2	5	6	5
0830 - 0835	4	3	1	0	1
0835 - 0840	2	1	0	3	3
0840 - 0845	1	1	0	0	0
0845 - 0850	2	0	0	3	1
0850 - 0855	0	0	0	0	0
0855 - 0900	1	0	0	2	0
AM TOTAL	45	52	27	49	44
1445 - 1450	0	0	1	0	1
1450 - 1455	0	0	1	0	1
1455 - 1500	0	0	0	2	0
1500 - 1505	0	0	0	0	0
1505 - 1510	0	0	0	1	0
1510 - 1515	0	0	0	1	0
1515 - 1520	0	0	0	0	0
1520 - 1525	0	0	1	1	2
1525 - 1530	3	3	4	1	4
1530 - 1535	1	1	0	1	2
1535 - 1540	1	1	0	0	0
1540 - 1545	1	1	2	0	0
1545 - 1550	0	0	1	2	1
1550 - 1555	0	0	0	1	0
1555 - 1600	0	0	0	0	0
1600 - 1605	0	0	0	0	0
1605 - 1610	1	1	1	0	0
1610 - 1615	1	1	0	0	0
1615 - 1620	0	0	0	0	0
1620 - 1625	0	0	0	0	0
1625 - 1630	0	0	0	0	0
1630 - 1635	2	2	0	0	0
1635 - 1640	4	4	0	1	0
1640 - 1645	0	0	0	0	0
PM TOTAL	14	14	11	11	11

Combined	SENIOR SCHOOL STAGE 2 (480 STUDENTS) EXTRAPOLATED DROP-OFF & PICK-UP (SEE FIG 8) (NUMBER OF CARS PER 5-MINUTES)				
	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
0700 - 0705	2	0	0	0	2
0705 - 0710	0	0	0	0	0
0710 - 0715	0	0	2	2	0
0715 - 0720	3	3	0	0	0
0720 - 0725	0	0	2	5	5
0725 - 0730	3	8	6	3	5
0730 - 0735	2	3	0	3	3
0735 - 0740	3	2	3	0	2
0740 - 0745	0	3	0	2	3
0745 - 0750	0	3	2	5	0
0750 - 0755	3	3	3	5	3
0755 - 0800	3	6	2	3	3
0800 - 0805	3	5	2	2	0
0805 - 0810	5	6	2	10	5
0810 - 0815	10	3	5	6	10
0815 - 0820	13	16	3	8	8
0820 - 0825	5	10	3	3	6
0825 - 0830	2	3	8	10	8
0830 - 0835	6	5	2	0	2
0835 - 0840	3	2	0	5	5
0840 - 0845	2	2	0	0	0
0845 - 0850	3	0	0	5	2
0850 - 0855	0	0	0	0	0
0855 - 0900	2	0	0	3	0
AM TOTAL	73	83	45	80	72
1445 - 1450	0	2	2	0	2
1450 - 1455	0	2	2	0	2
1455 - 1500	0	0	0	3	0
1500 - 1505	0	0	0	0	0
1505 - 1510	0	2	0	2	0
1510 - 1515	0	0	0	2	0
1515 - 1520	0	0	0	0	0
1520 - 1525	0	3	2	2	3
1525 - 1530	5	6	6	2	6
1530 - 1535	2	0	0	2	3
1535 - 1540	2	0	0	0	0
1540 - 1545	2	3	3	0	0
1545 - 1550	0	2	2	3	2
1550 - 1555	0	2	0	2	0
1555 - 1600	0	0	0	0	0
1600 - 1605	0	0	0	0	0
1605 - 1610	2	0	2	0	0
1610 - 1615	2	0	0	0	0
1615 - 1620	0	0	0	0	0
1620 - 1625	0	0	0	0	0
1625 - 1630	0	0	0	0	0
1630 - 1635	3	0	0	0	0
1635 - 1640	6	0	0	2	0
1640 - 1645	0	0	0	0	0
PM TOTAL	24	22	19	20	18

Combined	SENIOR SCHOOL STAGE 3 (600 STUDENTS) EXTRAPOLATED DROP-OFF & PICK-UP (SEE FIG 9) (NUMBER OF CARS PER 5-MINUTES)				
	<u>MONDAY</u>	<u>TUESDAY</u>	<u>WEDNESDAY</u>	<u>THURSDAY</u>	<u>FRIDAY</u>
0700 - 0705	2	0	0	0	2
0705 - 0710	0	0	0	0	0
0710 - 0715	0	0	2	2	0
0715 - 0720	4	4	0	0	0
0720 - 0725	0	0	2	6	6
0725 - 0730	4	10	8	4	6
0730 - 0735	2	4	0	4	4
0735 - 0740	4	2	4	0	2
0740 - 0745	0	4	0	2	4
0745 - 0750	0	4	2	6	0
0750 - 0755	4	4	4	6	4
0755 - 0800	4	8	2	4	4
0800 - 0805	4	6	2	2	0
0805 - 0810	6	8	2	12	6
0810 - 0815	12	4	6	8	12
0815 - 0820	16	20	4	10	10
0820 - 0825	6	12	4	4	8
0825 - 0830	2	4	10	12	10
0830 - 0835	8	6	2	0	2
0835 - 0840	4	2	0	6	6
0840 - 0845	2	2	0	0	0
0845 - 0850	4	0	0	6	2
0850 - 0855	0	0	0	0	0
0855 - 0900	2	0	0	4	0
AM TOTAL	90	100	54	98	88
1445 - 1450	0	2	2	0	2
1450 - 1455	0	2	2	0	2
1455 - 1500	0	0	0	4	0
1500 - 1505	0	0	0	0	0
1505 - 1510	0	2	0	2	0
1510 - 1515	0	0	0	2	0
1515 - 1520	0	0	0	0	0
1520 - 1525	0	4	2	2	4
1525 - 1530	6	8	8	2	8
1530 - 1535	2	0	0	2	4
1535 - 1540	2	0	0	0	0
1540 - 1545	2	4	4	0	0
1545 - 1550	0	2	2	4	2
1550 - 1555	0	2	0	2	0
1555 - 1600	0	0	0	0	0
1600 - 1605	0	0	0	0	0
1605 - 1610	2	0	2	0	0
1610 - 1615	2	0	0	0	0
1615 - 1620	0	0	0	0	0
1620 - 1625	0	0	0	0	0
1625 - 1630	0	0	0	0	0
1630 - 1635	4	0	0	0	0
1635 - 1640	8	0	0	2	0
1640 - 1645	0	0	0	0	0
PM TOTAL	28	26	22	22	22

ANNEXURE 2

	EXISTING SENIOR SCHOOL (303 STUDENTS) DROP-OFF AND PICK-UP (SEE FIG 6A) (NUMBER OF CARS STOPPED IN ANY 5-MINUTE PERIOD)				
Combined					
Time Per	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
0700 - 0705	0.10	0.00	0.00	0.00	0.10
0705 - 0710	0.00	0.00	0.00	0.00	0.00
0710 - 0715	0.00	0.00	0.10	0.10	0.00
0715 - 0720	0.20	0.20	0.00	0.00	0.00
0720 - 0725	0.00	0.00	0.10	0.30	0.30
0725 - 0730	0.20	0.50	0.40	0.20	0.30
0730 - 0735	0.10	0.20	0.00	0.20	0.20
0735 - 0740	0.20	0.10	0.20	0.00	0.10
0740 - 0745	0.00	0.20	0.00	0.10	0.20
0745 - 0750	0.00	0.20	0.10	0.30	0.00
0750 - 0755	0.20	0.20	0.20	0.30	0.20
0755 - 0800	0.20	0.40	0.10	0.20	0.20
0800 - 0805	0.20	0.30	0.10	0.10	0.00
0805 - 0810	0.30	0.40	0.10	0.60	0.30
0810 - 0815	0.60	0.20	0.30	0.40	0.60
0815 - 0820	0.80	1.00	0.20	0.50	0.50
0820 - 0825	0.30	0.60	0.20	0.20	0.40
0825 - 0830	0.10	0.20	0.50	0.60	0.50
0830 - 0835	0.40	0.30	0.10	0.00	0.10
0835 - 0840	0.20	0.10	0.00	0.30	0.30
0840 - 0845	0.10	0.10	0.00	0.00	0.00
0845 - 0850	0.20	0.00	0.00	0.30	0.10
0850 - 0855	0.00	0.00	0.00	0.00	0.00
0855 - 0900	0.10	0.00	0.00	0.20	0.00
1445 - 1450	0.00	0.00	0.23	0.00	0.23
1450 - 1455	0.00	0.00	0.23	0.00	0.23
1455 - 1500	0.00	0.00	0.00	0.47	0.00
1500 - 1505	0.00	0.00	0.00	0.00	0.00
1505 - 1510	0.00	0.00	0.00	0.23	0.00
1510 - 1515	0.00	0.00	0.00	0.23	0.00
1515 - 1520	0.00	0.00	0.00	0.00	0.00
1520 - 1525	0.00	0.00	0.23	0.23	0.47
1525 - 1530	0.70	0.70	0.93	0.23	0.93
1530 - 1535	0.23	0.23	0.00	0.23	0.47
1535 - 1540	0.23	0.23	0.00	0.00	0.00
1540 - 1545	0.23	0.23	0.47	0.00	0.00
1545 - 1550	0.00	0.00	0.23	0.47	0.23
1550 - 1555	0.00	0.00	0.00	0.23	0.00
1555 - 1600	0.00	0.00	0.00	0.00	0.00
1600 - 1605	0.00	0.00	0.00	0.00	0.00
1605 - 1610	0.23	0.23	0.23	0.00	0.00
1610 - 1615	0.23	0.23	0.00	0.00	0.00
1615 - 1620	0.00	0.00	0.00	0.00	0.00
1620 - 1625	0.00	0.00	0.00	0.00	0.00
1625 - 1630	0.00	0.00	0.00	0.00	0.00
1630 - 1635	0.47	0.47	0.00	0.00	0.00
1635 - 1640	0.93	0.93	0.00	0.23	0.00
1640 - 1645	0.00	0.00	0.00	0.00	0.00

	SENIOR SCHOOL STAGE 2 (480 STUDENTS) EXTRAPOLATED DROP-OFF AND PICK-UP (SEE FIG 10) (NUMBER OF CARS STOPPED IN ANY 5-MINUTE PERIOD)				
Combined					
Time Per	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
0700 - 0705	0.20	0.00	0.00	0.00	0.20
0705 - 0710	0.00	0.00	0.00	0.00	0.00
0710 - 0715	0.00	0.00	0.20	0.20	0.00
0715 - 0720	0.30	0.30	0.00	0.00	0.00
0720 - 0725	0.00	0.00	0.20	0.50	0.50
0725 - 0730	0.30	0.80	0.60	0.30	0.50
0730 - 0735	0.20	0.30	0.00	0.30	0.30
0735 - 0740	0.30	0.20	0.30	0.00	0.20
0740 - 0745	0.00	0.30	0.00	0.20	0.30
0745 - 0750	0.00	0.30	0.20	0.50	0.00
0750 - 0755	0.30	0.30	0.30	0.50	0.30
0755 - 0800	0.30	0.60	0.20	0.30	0.30
0800 - 0805	0.30	0.50	0.20	0.20	0.00
0805 - 0810	0.50	0.60	0.20	1.00	0.50
0810 - 0815	1.00	0.30	0.50	0.60	1.00
0815 - 0820	1.30	1.60	0.30	0.80	0.80
0820 - 0825	0.50	1.00	0.30	0.30	0.60
0825 - 0830	0.20	0.30	0.80	1.00	0.80
0830 - 0835	0.60	0.50	0.20	0.00	0.20
0835 - 0840	0.30	0.20	0.00	0.50	0.50
0840 - 0845	0.20	0.20	0.00	0.00	0.00
0845 - 0850	0.30	0.00	0.00	0.50	0.20
0850 - 0855	0.00	0.00	0.00	0.00	0.00
0855 - 0900	0.20	0.00	0.00	0.30	0.00
1445 - 1450	0.00	0.47	0.47	0.00	0.47
1450 - 1455	0.00	0.47	0.47	0.00	0.47
1455 - 1500	0.00	0.00	0.00	0.70	0.00
1500 - 1505	0.00	0.00	0.00	0.00	0.00
1505 - 1510	0.00	0.47	0.00	0.47	0.00
1510 - 1515	0.00	0.00	0.00	0.47	0.00
1515 - 1520	0.00	0.00	0.00	0.00	0.00
1520 - 1525	0.00	0.70	0.47	0.47	0.70
1525 - 1530	1.17	1.40	1.40	0.47	1.40
1530 - 1535	0.47	0.00	0.00	0.47	0.70
1535 - 1540	0.47	0.00	0.00	0.00	0.00
1540 - 1545	0.47	0.70	0.70	0.00	0.00
1545 - 1550	0.00	0.47	0.47	0.70	0.47
1550 - 1555	0.00	0.47	0.00	0.47	0.00
1555 - 1600	0.00	0.00	0.00	0.00	0.00
1600 - 1605	0.00	0.00	0.00	0.00	0.00
1605 - 1610	0.47	0.00	0.47	0.00	0.00
1610 - 1615	0.47	0.00	0.00	0.00	0.00
1615 - 1620	0.00	0.00	0.00	0.00	0.00
1620 - 1625	0.00	0.00	0.00	0.00	0.00
1625 - 1630	0.00	0.00	0.00	0.00	0.00
1630 - 1635	0.70	0.00	0.00	0.00	0.00
1635 - 1640	1.40	0.00	0.00	0.47	0.00
1640 - 1645	0.00	0.00	0.00	0.00	0.00

	SENIOR SCHOOL STAGE 3 (600 STUDENTS)				
	EXTRAPOLATED DROP-OFF AND PICK-UP (SEE FIG 11)				
Combined	(NUMBER OF CARS STOPPED IN ANY 5-MINUTE PERIOD)				
Time Per	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
0700 - 0705	0.20	0.00	0.00	0.00	0.20
0705 - 0710	0.00	0.00	0.00	0.00	0.00
0710 - 0715	0.00	0.00	0.20	0.20	0.00
0715 - 0720	0.40	0.40	0.00	0.00	0.00
0720 - 0725	0.00	0.00	0.20	0.60	0.60
0725 - 0730	0.40	1.00	0.80	0.40	0.60
0730 - 0735	0.20	0.40	0.00	0.40	0.40
0735 - 0740	0.40	0.20	0.40	0.00	0.20
0740 - 0745	0.00	0.40	0.00	0.20	0.40
0745 - 0750	0.00	0.40	0.20	0.60	0.00
0750 - 0755	0.40	0.40	0.40	0.60	0.40
0755 - 0800	0.40	0.80	0.20	0.40	0.40
0800 - 0805	0.40	0.60	0.20	0.20	0.00
0805 - 0810	0.60	0.80	0.20	1.20	0.60
0810 - 0815	1.20	0.40	0.60	0.80	1.20
0815 - 0820	1.60	2.00	0.40	1.00	1.00
0820 - 0825	0.60	1.20	0.40	0.40	0.80
0825 - 0830	0.20	0.40	1.00	1.20	1.00
0830 - 0835	0.80	0.60	0.20	0.00	0.20
0835 - 0840	0.40	0.20	0.00	0.60	0.60
0840 - 0845	0.20	0.20	0.00	0.00	0.00
0845 - 0850	0.40	0.00	0.00	0.60	0.20
0850 - 0855	0.00	0.00	0.00	0.00	0.00
0855 - 0900	0.20	0.00	0.00	0.40	0.00
1445 - 1450	0.00	0.47	0.47	0.00	0.47
1450 - 1455	0.00	0.47	0.47	0.00	0.47
1455 - 1500	0.00	0.00	0.00	0.93	0.00
1500 - 1505	0.00	0.00	0.00	0.00	0.00
1505 - 1510	0.00	0.47	0.00	0.47	0.00
1510 - 1515	0.00	0.00	0.00	0.47	0.00
1515 - 1520	0.00	0.00	0.00	0.00	0.00
1520 - 1525	0.00	0.93	0.47	0.47	0.93
1525 - 1530	1.40	1.87	1.87	0.47	1.87
1530 - 1535	0.47	0.00	0.00	0.47	0.93
1535 - 1540	0.47	0.00	0.00	0.00	0.00
1540 - 1545	0.47	0.93	0.93	0.00	0.00
1545 - 1550	0.00	0.47	0.47	0.93	0.47
1550 - 1555	0.00	0.47	0.00	0.47	0.00
1555 - 1600	0.00	0.00	0.00	0.00	0.00
1600 - 1605	0.00	0.00	0.00	0.00	0.00
1605 - 1610	0.47	0.00	0.47	0.00	0.00
1610 - 1615	0.47	0.00	0.00	0.00	0.00
1615 - 1620	0.00	0.00	0.00	0.00	0.00
1620 - 1625	0.00	0.00	0.00	0.00	0.00
1625 - 1630	0.00	0.00	0.00	0.00	0.00
1630 - 1635	0.93	0.00	0.00	0.00	0.00
1635 - 1640	1.87	0.00	0.00	0.47	0.00
1640 - 1645	0.00	0.00	0.00	0.00	0.00