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Technical Design Note

Project: P1410 WA St James Kotara South

Subject: School Expansion & ELC - Drop Off / Pick Up

Date: 12th November 2020

Attention: Sandra Hinchey

Further to our recent discussion, we have now discussed this project with David Rynor from City of Newcastle Council and have completed additional traffic and parking surveys to observe the current traffic and parking patterns around St James school in Kotara. My discussion with David Rynor involved discussion on existing parking demands created by the school on the local roads and traffic impacts. Whilst it was accepted that Sidra modelling would not be viable for the location, due to the very specific and short timeframe for the traffic impacts, observation of the traffic was needed so that a qualitive assessment could be made of the potential traffic impacts for the school expansion. This design note should be read in conjunction with the detailed traffic assessment completed previously for this project by Seca Solution and responses to the previous RFI from Council.

Other issues raised by Council are provided below:

1. The report acknowledges following operational issues that cause major/minor delay during current Morning (Drop off) hours but needs to provide expected delays for the future forecast of traffic for:

a) The Impacts of right/left turn from Vista Parade into school site on through traffic in Vista Parade - the report mentions maximum queue length of 3 vehicles on Grayson Avenue. Information about the delay time is required.

b) Extent of queuing and delay time for vehicles in Vista Parade turning right into the school site and the impact of forecasted traffic volumes.

c) With the rise in demand for a number of people parking around the area, the risk to pedestrian movement in the area is a concern and would need to be addressed and possible conflict of pedestrian and vehicular traffic at new driveway location.

2. Impacts of the existing power pole located opposite the proposed driveway – within the clear zone.

3. The parking demand rise to take into account the number of cars parked in St Philip Church.

4. The future proposal relies on the St Philip Church parking area (37 cars), how will this be retained in future. No information provided on discussion with school and Church. In addition, the development application was not lodged over this property.

5. Benefits or otherwise of left in / left /out restriction on the operation of the school access.

6. Possibility to consider the scope of travel demand management by varying the school hours to spread the morning peak.

7. The report mentions the use of a crossing supervisor to better manage the traffic flow in Vista Parade (which is an issue at present). The current children crossing has therefore, been upgraded to a pedestrian crossing and

provision of traffic controller by the school will be required, with approval from Transport NSW. The applicant is required to discuss the proposal directly with TNSW.

Issue 1 (traffic)

David Rynor requested the following additional information to assist with Council 's assessment for the project:

- 3 days of traffic surveys at the intersections at both ends of Vista Parade to determine current operations and observe current delays / congestion / queues.
- 3 days of parking observations on Grayson Avenue, Vista Parade and Princeton Avenue.
- Provide an assessment of the potential impacts on traffic movements associated with the proposed increase in students at the St James site.
- Provide an assessment on the potential impacts on parking demands on-street created by the proposed increase in students at St James.

Seca Solution staff completed traffic and parking surveys in the vicinity of St James school on Wednesday 21st October, Thursday 22nd October and Friday 23rd October 2020. These surveys covered observation of traffic movements at both ends of Vista Parade (and recorded on video camera), traffic movements in the school grounds as well as parking observations on the roads. A summary of the findings is provided below:

- In the morning peak period, the traffic and drop off arrangements work well, mainly due to the fact that parents drop off children at various times and thus there is less of a peak in activity. Children were dropped off over a 20 minute or more period and the surveys shows that this generally works well. Some parents choose to use the drop off zone within the school, whilst others were observed walking with their children into the school. The walkers were a mixture of local parents who can walk all the way to the school and other parents who park off Vista Parade and walk to the school.
- Parents typically park on the most convenient side of the school on Princeton Parade or Grayson Avenue for trips home or on-going trip to work etc. Styx Creek forms a barrier between these two roads and their connection to the main road network is distinct. As such, the surveys would indicate that there are very few parents driving along Vista Parade past the school. This reduces the traffic numbers on this road and improves the operation of the site access.
- For traffic exiting the school, this was a mixture of left and right turns out. An issue for the left turn out was the operation of the adjacent school crossing point – drivers here give pedestrians priority, which then means traffic cannot exit the school as they block back into the driveway. This also blocks traffic heading north-west along Vista Parade, with a near constant flow of pedestrians causing delays and congestion.
- Vista Parade became blocked with traffic trying to turn right into the school, which then caused a queue of 3 cars on Grayson Avenue trying to turn right into Vista Parade, with this happening twice.
- No queues were observed for traffic turning into Vista Parade off Princeton Avenue on any of the days. Delays here are minimal. It would seem that there is a greater catchment of students from the west of the school who access the school via Grayson Avenue.

Previous traffic observations at the school have noted the following.

Morning (Drop Off)

- Parents who drop off their children and walk into the school typically park on-street or within St James Church opposite. Most of these vehicles park for longer than 5-10 minutes, reducing the availability of car parking during the peak drop off period. Several parents also park in the school adjacent to the informal drop off area.

- Parents who drop but (rather than park) typically use the informal kiss and drop within the school. There is a high demand for parents entering the school associated with the kiss and drop, particularly in the 20 minutes or so prior to classes commencing.

- A small number of parents exiting the school and turning right onto Vista Parade occasionally position their vehicle towards the centre of the driveway, which prevented an entering vehicle from passing. This further contributed to the delays and congestion on Vista Parade.

- Parents / students were observed to cross the driveway so as to access the existing pedestrian access to the school. Vehicles entering / exiting the school typically give way to these movements, also contributing to delays. Similarly, there are no designated crossings between this pathway and the kiss and drop.

- Operation of the children's crossing is not supervised. Students / parents currently cross Vista Parade upon arriving at the crossing. The arrival of pedestrian can see this crossing used multiple times in a single minute – this was observed during these recent traffic surveys.

Afternoon (Pick Up)

- Parents typically start arriving 25 minutes prior to the school bell. Those who arrive earlier were observed to park within the school (grass area either side of the drop off zone), at St James Church or on Vista Parade. The demands for parking increase gradually until school ends, with these demands spilling over onto Grayson Avenue and Princeton Avenue.

- Parents who park on these surrounding roads were seen to stand at either end of Vista Parade whilst waiting for their children. Similarly, parents who park at St James Church typically waited within this car park.

- Students leaving the school are managed by teaching staff. At the end of the school day, teaching staff were seen walking large groups of students (~30-50 students) from the school to the various waiting areas described above. This also included a group of students who accessed a bus to the east of the school entry.

- During this time the gate at the property boundary was closed, preventing any vehicles from entering or exiting the school. Once these groups of students had departed, this gate was reopened to allow vehicles parked on site to exit.

- In the 10 minutes following the end of the school day, there is a period of increased traffic along Vista Parade associated with parents departing. However, the overall level of delays and congestion during this time are significantly less than the morning drop off.

- More than 10 minutes after school had ended, there was a consistent although relatively low demand for parents entering / exiting the school to collect their children from OOSH.

A and B) Our observation of the traffic is that the intersection of Grayson Avenue and Vista Parade suffers from some delays in the morning drop off period, which is typically due to the near constant pedestrian demand across the marked school crossing on Vista Parade causing traffic to back up to this intersection. In the afternoon pick up period, the delays were negligible here and minor queues of less than 3 were observed on Grayson Avenue.

These delays in the morning and afternoon periods were typically less than 30 seconds, which equates to a level of service of B based upon the RTA Guide to Traffic Generating Development. The traffic turning right into Vista Parade typically is delayed due to the left and through movement on Grayson Avenue southbound that have priority over these movements. The gaps in the southbound traffic movements however for the majority of the time allowed the queued traffic to all turn right at once and clear this right turn queue. There were no queues on Vista Parade blocking this turning movement.

For the traffic turning right into the school, the queue was typically less than 3 cars and the drivers on Vista Parade wait for traffic to exit the driveway prior to turning into the school. The width of the existing driveway cross discourages 2-way traffic movements. The queue for the left turn into the school on Vista Parade was similar. It was also noted that parents using this driveway typically know each other and show each other courtesy to allow for traffic movements to occur in a controlled manner which reduces these delays. These delays for the turning traffic is typically less than 40 seconds indicating a level of service of C based on the RTA Guidelines.

At the intersection of Vista Parade and Princeton Avenue, negligible delays were observed, with the vast majority of turning traffic movements being left turn out Vista Parade and right turns into Vista Parade. With Princeton Avenue being a dead end, there is very little traffic northbound on Princeton Avenue in this location. This would relate to a level of service of A.

The other important issue to note with the traffic, is that the parents park either on Grayson Avenue or Princeton Avenue based on their end destination, which means they do not then travel along Vista Parade. This means the impact on Vista Parade and the intersections at either end is very low in the afternoon pick up period.

When assessing the impact of the increased traffic movements and the potential delays / queues on Vista Parade, the proposed changes to the school access are expected to reduce congestion on Vista Parade in the morning peak compared with the existing access arrangements. This is achieved through the provision of additional queuing within the site for the school drop off, providing capacity for parents to kiss and drop. The length of the kiss and drop zone is approximately 135 metres, which allows for approximately 22 cars to be queued on site. This is approximately twice the size of the existing kiss and drop area. In addition, the new driveway has been designed in accordance with AS2890 and allows for 2-way traffic movements, as opposed to the current driveway which provides a visually constrained access to the school. The relocation of the school access west to Styx Creek also provides for separation between the access driveway with St Phillips Church reducing potential conflicts and delays.

Access to the early learning centre/staff car park shall be restricted to one way clock-wise with controls provided at the entry to ensure that this access is not blocked by vehicles waiting to exit the site.

With the proposed increase in student numbers, traffic flows could increase by approximately 60% over the current numbers. Based on the observations on site, this could increase the delays at the intersection of Grayson Avenue and Vista Parade, however the current delays are very low and clear quickly at this location, with the observed maximum right turn queue into Vista Parade being 3 cars only. It is considered that the level of service could reduce to C from B, which is an acceptable level of service based on the RTA Guide to Traffic Generating Developments.

In the afternoon pick up period, no noticeable traffic delays were observed at this location, as the majority of parents from this end of Vista Parade do not enter Vista Parade, but rather park and then meet their children before walking back to their cars. The level of service would remain consistent with the current observations, which A or B based upon the observed delays / queues here.

For the intersection at Princeton Avenue and Vista Parade, no delays were observed in the morning drop off or afternoon pick up period other than drivers slowing down to negotiate the 90 degree turn. This is due to the negligible traffic flows on Princeton Avenue of the south of Vista Parade. With the current level of service being A, it is considered that this would remain at this level of potentially increase to B, which are well within acceptable limits.

C) With regard to the impact upon pedestrian movements and safety, there is an existing footpath along both sides of Vista Parade to cater for pedestrian movements and a school crossing point. The pedestrian path for students and parents walking into the school will remain in the existing location, away from the new driveway. This will allow for safe pedestrian movements into and through the school away from the vehicle drop off / pick up zone. In the morning, students are dropped off in the school and do not interact with vehicle movements. For the older students who are dropped off on Princeton Avenue, there is no requirement for them to cross any road or the driveway access to the school. For students dropped off on Grayson Avenue, these students can walk along the footpath on Vista Parade and then cross the new driveway to walk into the school via the dedicated walk way. Normal road rules apply at this driveway and drivers must give way to these pedestrians. There is no obstruction to the visibility for drivers entering or exiting the site at this location, with the driveway consistent with the requirements of Figure 3.3 of AS2890 Part 1 (reproduced below). Therefore, it is considered that this driveway shall operate in a safe and appropriate manner.

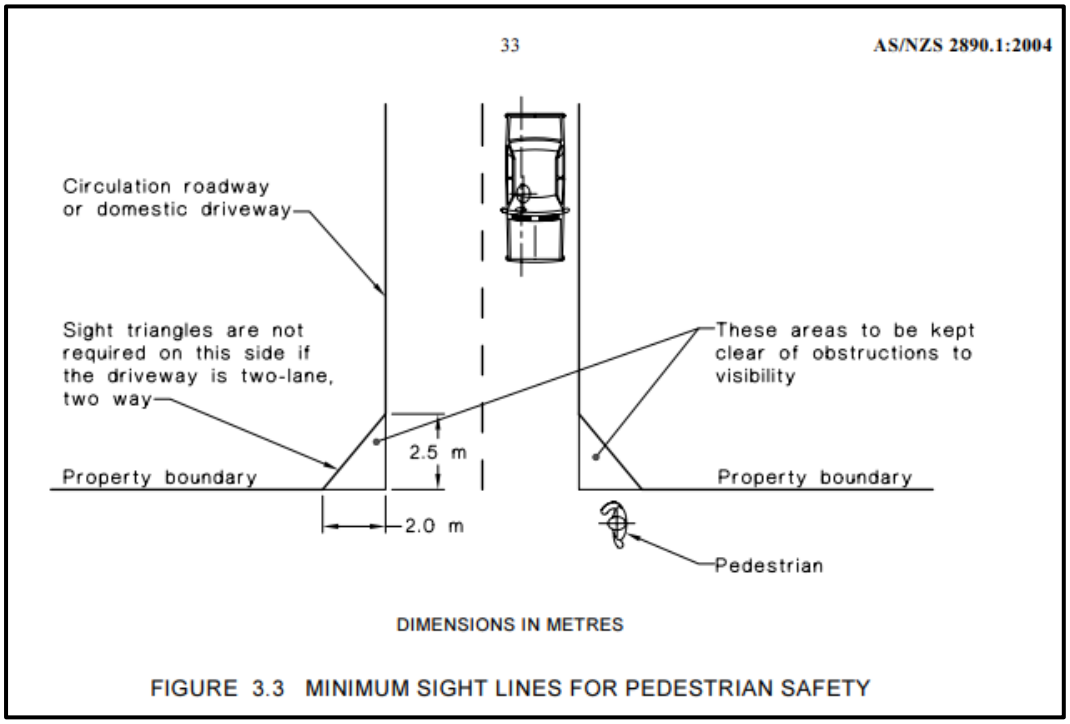

FIGURE 3.3 MINIMUM SIGHT LINES FOR PEDESTRIAN SAFETY

2. **Power pole within the clear zone**

The potential impact of the power pole within the clear zone can be reviewed as part of the detailed design process once the DA has been approved. The assessment of this potential safety issue can be completed in accordance with TfNSW and / or Council guidelines as appropriate. If this assessment determines that the pole needs to be moved, then it can be relocated to the rear of the footpath in this location and shall present no safety hazard in this location.

It is noted that there have been no recorded incidents of traffic accidents on Vista Parade over the standard 5 year reporting timeframe provided by TfNSW. There is a power pole opposite the existing site driveway which has not created any safety concerns or recorded accidents. A review of the pole on site shows that this pole has not been hit by a vehicle.

3. Parking

- **In the morning period**, a number of parents were observed using the car park opposite the school associated with the church. The children and parents then walk into the school via the school crossing. This can be a near constant stream at times, which then causes Vista Parade to become blocked and traffic cannot move or exit the school driveway when turning left out of the school.
- In the morning, there was negligible cars parked on Princeton Avenue, with the majority of parents dropping off their children only in this location and the student then walks along the footpath on Vista Parade into the school. These cars park on Princeton Avenue to both sides of Vista Parade but are there typically for less than 60 seconds. These appear to be older students using this area in this way in the morning.
- In the morning, Grayson Avenue operates in a similar manner, with a number of parents pulling up against the kerb for students to get out of cars and then walk along the verge into Vista Parade and walk into the school. These cars typically pull up for less than 60 seconds with the drivers then pulling away and proceeding along Vista Parade to leave the area.
- Parents were observed pulling up against the kerb in Vista Parade in the vicinity of the 40 km/h school zone in a legal parking area. Typically, half of these cars drop off students who then walk unaccompanied into the school with the balance walking their child into the school.
- **In the afternoon period**, parents arriving early are able to park in the school grounds in the pickup area waiting for their child to arrive.
- Other parents park within the church car park opposite the school with this parking area full. This equates to 37 vehicles.
- Other parents park on Grayson Avenue and Princeton Avenue. On Grayson Avenue, the peak on-street parking demand was observed on the Wednesday, when 19 cars were observed parked on Grayson Avenue south of Vista Parade and 20 north of Vista Parade. These were reasonably evenly split to both sides of the road. On Princeton Avenue there was a peak demand of 28 parked cars, with the majority of these parked on the northern side of Princeton Avenue adjacent to Nesbitt Park or between Vista Parade and Stayton Street. Nine cars were parked on the opposite side of the road between Stayton Street and Vista Parade.
- When the students left the school, teachers walked the children out in groups, with some students waiting for a bus, some walking along Vista Parade towards Grayson Avenue and the balance walking to Princeton Avenue. Parents waited at the corner of Princeton / Vista and Grayson / Vista for their child before walking to their cars and left the area. The vast majority of the traffic leaving the parking spaces on Grayson Avenue and Princeton Avenue do not then travel along Vista Parade.
- On the Thursday and Friday in the PM period, the observed operations were different, in that for the walkers to Grayson Avenue, the teacher walked the children to a meeting point further along Grayson Avenue, on the north-east corner of Nesbitt Park. Parents were seen parked on the western side of Nesbitt Park (19 on Thursday, 27 on the Friday) with less parking demand on Grayson Avenue.
- Both the Thursday and Friday pick up periods worked much better than the Wednesday, due to a large number of parents parking on the western side of Nesbitt Park, which reduced the impacts on Grayson Avenue. This required the teacher to walk further from the school with the students rather than the parents picking up the children at the corner of Vista Parade and Grayson Avenue.

Internal parking impacts associated with proposed expansion of school.

The proposal allows for the school to increase student numbers from the current number of 385 students to 630 students with a third teaching stream, in response to the growing demands for education. The project also involves the construction of a new Early Learning Centre (ELC) with upto 79 places available with the associated requirement for 22 staff, working across 2 separate shifts.

When reviewing the impact of the proposed expansion, it is important to note that the majority of the impact is created by the morning drop off demands and the afternoon pick up. The ELC centre allows for extended care for students between 6.30 AM and 6.30 PM, with the students generally transferring between this facility and the adjacent St James school or travel on dedicated mini-bus to other schools. The traffic impacts of this centre is outside of the normal drop off / pick up period for the school and therefore has a minor impact and has not been considered further.

Parking for the proposed expansion has been assessed against the Council DCP and is summarised below:

The demands for car parking have been calculated for the site by applying the authority rates above:

Use	Quantity	Spaces Required
St James Primary School		
Staff	49	24.5
Visitors (1/100 students)	630	6.3
Sub-Total		**31**
Early Learning Centre		
Children Attending	79	19.75
Sub-Total		**20**
YMCA Kotara OSCH		
Staff	6	3
Sub-Total		**3**

Applying the authority parking rates, the parking demand associated with St James Primary School is therefore 31 spaces (including staff and visitors). The provision of 30 designated parking spaces for staff together with 7 spaces within the primary school drop off is therefore adequate for the proposed school expansion.

Similarly, the provision of 23 car spaces for the proposed early learning centre is also adequate to support the future demands associated with this use.

No formal car parking is provided for the existing YMCA Kotara OSCH and as there are no changes proposed to the existing operation of this facility, no additional car parking is required. This facility is provided during the hours before and after school and so parking demands can be managed within the shared use of the existing parking facilities. It is noted that the provision of surplus car parking (3 spaces) adjacent to the proposed early learning centre shall be adequate to accommodate the staff car parking demands associated with this facility during the absolute peak demand when all staff are potentially on site.

The two spaces suitable for small buses are suitable to support the demands for bus parking associated with the operation of YMCA Kotara OSCH.

External impacts for parking and traffic associated with the proposed development

As per the Council request, additional surveys have been completed of the existing parking and traffic impacts associated with the school and these have then been extrapolated to assess the potential impacts of the proposed expansion of the school. As per discussion with Council, no formal traffic modelling has been prepared, as the operation of the traffic is unique and cannot be replicated as such with Sidra.

Parking

The survey of the existing external parking demands shows that traffic currently parks on Grayson Avenue, Casey Avenue and Princeton Avenue. The surveys over the 3 days showed the peak demands for this parking as:

Table 1 – Existing observed on-street parking demands

	Drop off period	Pick up period
Church car park	10-15	37
Princeton Avenue	5	28
Grayson Avenue	5	39
Casey Avenue	0	27 (Thursday and Friday only of survey)

Traffic was observed parking on Vista Parade, but these were typically less than 60 seconds, for parents to drop off their children in the in the morning. In the afternoon parents park here with the space allowing for 15 vehicles to park.

The project allows for the student numbers to increase from the current 385 to 630, an increase of 60%. Based on this increase, the projected traffic parking is provided below:

Table 2 – Projected on-street parking demands

	Drop off period	Pick up period
Church car park	20-30	74
Princeton Avenue	8	45
Grayson Avenue	8	62
Casey Avenue	0	43

The church car park is physically limited to 37 spaces and as such the additional demand for 37 spaces would need to park on-street. It is considered that these would be split in a similar pattern to the demands observed on Grayson Avenue and Princetown Avenue in the PM period.

For the parking on Grayson Avenue and Casey Avenue, it was noted that the parking and associated traffic impacts were considerably lower on the Thursday and Friday, when the teachers walked to the north-east corner of Nesbitt Park. With this arrangement, parents parked on Casey Avenue adjacent to the sports pitches and there was a lower demand on Grayson Avenue (31 cars). For the parking area along the western boundary of Nesbitt Park, the length of this 90 degree angle parking is 125 metres, so allowing for 2.7 meters width per car (as informal parking) this provides space for 46 cars to park in this location.

For Grayson Avenue, the projected parking demand is 62 vehicles plus 18 associated with the church car park area, giving 80 in total. Allowing for 6 metres per car this equates to 670 metres of kerb side space being occupied. With the teachers walking the children to the north-east corner of Nesbitt Park, there will be a heavy bias towards parking to the south of Vista Parade. Grayson Avenue between Vista Parade and Springfield Avenue provides a total distance of 260 metres for parking. Along the southern side the available distance is approximately 30 parking spaces, whilst on the northern side is approximately 25 parking spaces available. This gives a total of 55 spaces south of Vista Parade. The parking along Casey Avenue also provides 27 parking spaces, which can accommodate the remaining parking demand as well as there being space on Grayson Avenue to the north of Vista Parade.

This parking will utilise the majority of the kerb side parking in this location, this is similar to the existing demands associated with the weekly sporting events on Nesbitt Park, particularly Saturdays during the football season as well as the cricket demands. The parking demands for the football create similar or greater parking demands for 2-3 hours on a Saturday, from around 8.30 through to 11.00. The parking demands on the Saturday are near constant over the 2-3 hours, compared with the temporary parking demands associated with the school pick up, which from observation on site are a peak of around 15 minutes of an afternoon.

On Princeton Avenue, the potential parking demand is 45 cars plus 18 associated with the church parking or 378 metres of kerb. This can all be contained on Princeton Avenue, south of Vista Parade with the school implementing a Traffic Management Plan to encourage parents to park here. There are no driveways on the north-western side of Princeton Avenue and is adjacent to a grass area and Raspberry Gully shared path.

It is noted that the parking demands determined above are considered to be a worse case scean rio. As the school increases and allows for additional streams, there is more potential for shared car trips which would increase the occupancy rate for travel and reduce the additional traffic demands. In addition, Kotara is an increasingly popular suburb for family groups and it is considered that there will be increased scope for students to walk to the school and reduce dependency upon reliance upon private motor vehicles to access the school.

4. On-going availability of the church car park.

Advice from the applicant states that the church car park is under the same land ownership of the school and as such this parking area will remain available for school drop off and pick up activities.

5. Potential impacts of restriction to access for left in and left out only

It is considered that the site access should not be restricted to left in and left out. This would require a central median to be provided, with Austroads Guidelines requiring a minimum width of 1.5 metres. The width of the road reserve in this location would not permit this to occur, with private residences located to both sides of Vista Parade precluding this option.

The provision of a central median would also offer the opportunity for students to cross the road at this location rather than the school crossing location. Whilst a fence could be installed on this central median, this would not stop students or parents crossing here.

Providing a left in / left out restriction would also force drivers to complete a U-turn to accommodate the demands not catered for with the current right turns. It is considered that the drivers would complete these U-turns at the 2 ends of Vista Parade, which would create safety concerns as well as driver confusion / delay.

6. Travel demand management for varying school drop off / pick up times

The options for providing different drop off / pick up times for the students is not considered appropriate, as parents will their drop off all their children at the same time in the morning. If they could not do this then they would need to drop off one child and then potentially leave the school to then return and drop off the second child. This would double the number of trips required for the drop off period.

For the afternoon period, parents would remain parked in and around the school rather than complete 2 separate trips to pick up students. This would therefore create the same parking demands but would mean the cars are potentially parked for longer on the adjacent streets.

7. Discussion with TfNSW for traffic controller for crossing

This discussion can commence with TfNSW as part of the detailed process for the project, once the DA is approved. The development will not be opening immediately upon DA approval and it is expected that there would be a lengthy timeframe for the approval process with TfNSW.

Recommendations

From the survey work completed to support the expansion of St James school, the following are proposed as part of the expansion for the school site:

- Provide a crossing control person to manage the pedestrian movements across Vista Parade. The current free movement of pedestrians means that there can be significant delays for traffic on Vista Parade and for traffic exiting the site accordingly. The provision of a crossing controller would allow pedestrians to be corralled and permitted to cross the road in larger groups, thereby reducing the number of times that drivers stop to let pedestrian cross.
- Provide a management plan to direct parents to park on the western side of Princeton Avenue south of Vista Parade for the afternoon pick up, with children walking to this location under teacher control.
- Provide a management plan to direct parents to park on Casey Avenue adjacent to Nesbitt Park to collect their children. The surveys show that when this was actioned on the Thursday and Friday, the pick up arrangements worked much better than the Wednesday.

In conclusion, it is considered that with the inclusion of the above management for the school operations and specially the critical afternoon pick up activities, the impacts of the school expansion can be accommodated on the local roads with an acceptable impact for the 20 minutes typically associated with the drop off and pick up activities.

Yours sincerely,

Sean Morgan
Director