

Department of Education
Traffic and Transport Assessment
William Stimson Public School

Rev B | 16 August 2017

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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1 Introduction

Arup was commissioned by JDH Architects on behalf of the NSW Department of Education, to develop a Traffic and Transport Assessment for the proposed expansion of William Stimson Public School.

William Stimson Public School has a current enrolment of 562 students. The proposed upgrade provides added learning areas to cater for an additional 92 students and an additional four staff. The project aims to meet 15% of the required student population growth within the Bonnyrigg Cluster for the next 15 years.

The school currently has 33 teaching staff and 8 non-teaching staff.

1.1 Study area

William Stimson Public School is located in Wetherill Park, with the frontage along Lily Street.

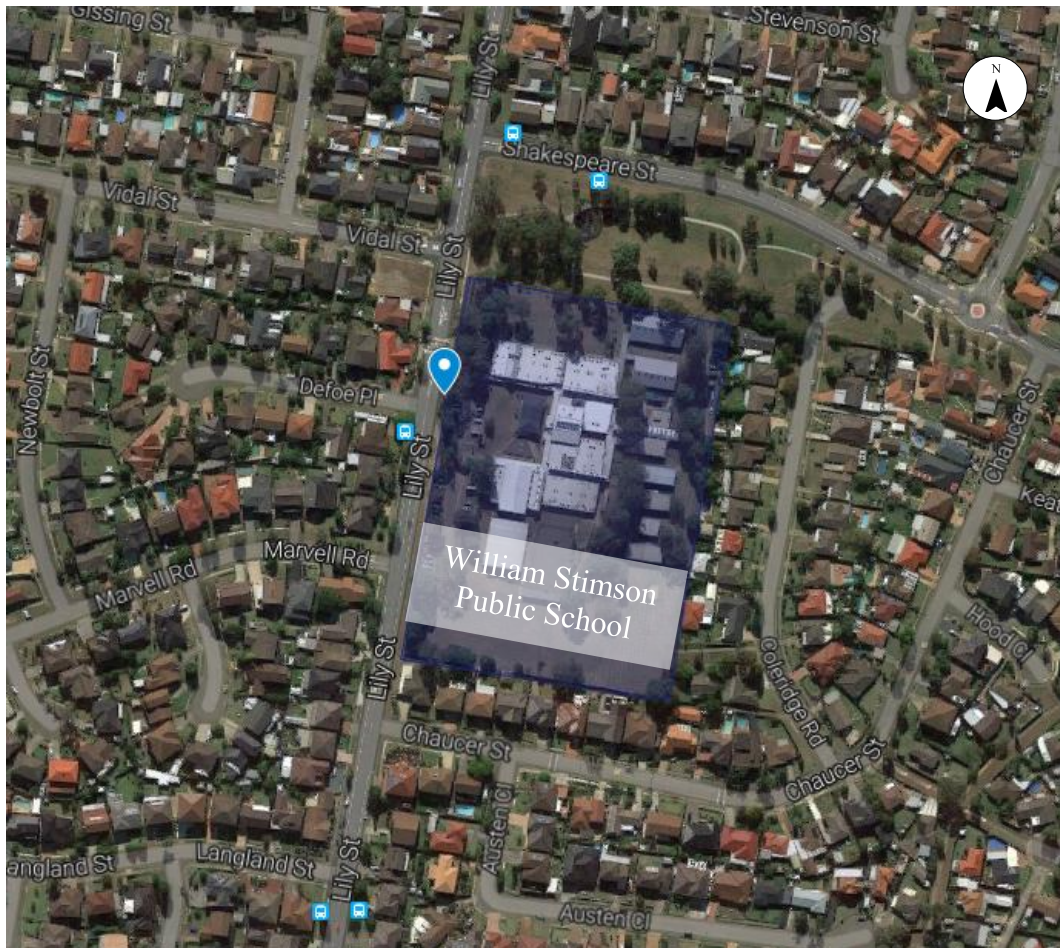


Figure 1: William Stimson Public School site location

2 Existing Conditions

This section examines the existing conditions in terms of transport infrastructure around the site.

2.1 Road classifications

All roads with which the school has a frontage are local (non-classified) roads. Of this local road network, Lily Street has a key function as a connector for two classified roads (The Horsley Drive and Polding Street / Prairie Vale Road). The main pedestrian entrance to the school is located along Lily Street.

The classified roads can be found illustrated in Figure 2. Key classified roads which provide access to the site are:

- Canley Vale Road (State Road)
- Elizabeth Street between The Horsley Drive and Victoria Street (State Road)
- The Horsley Drive, east of Elizabeth Street (State Road)
- The Horsley Drive, west of Elizabeth Street (Regional Road)
- Polding Street, Prairie Vale Road and Restwell Road (Regional Road)

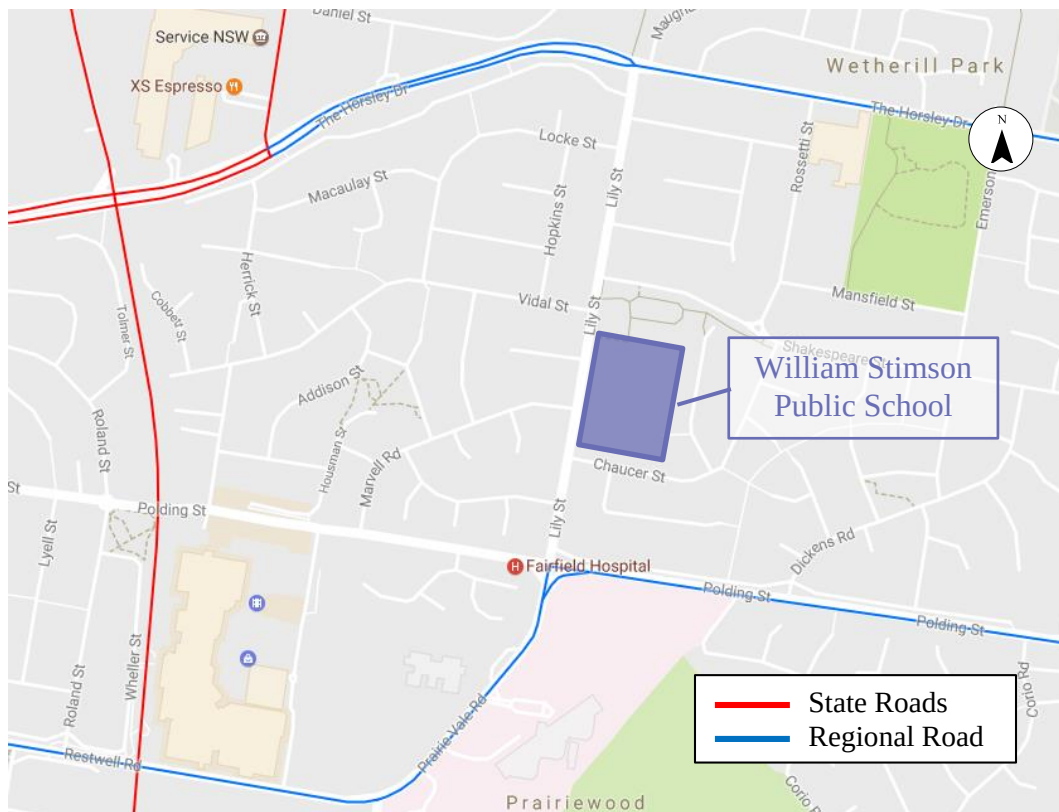


Figure 2: Classified roads around William Stimson Public School

2.2 Public transport

Public buses

William Stimson Public School is 7 kilometres away from the nearest railway station (Fairfield railway station). However, a number of bus routes service the area surrounding William Stimson Public School, illustrated in Figure 3

The buses provide services to Fairfield Railway Station and include:

- Bus 808 servicing Fairfield to Liverpool
- Bus 812 and 813 servicing Fairfield to Blacktown and Bonnyrigg
- Bus 800 and 817 servicing Fairfield to Blacktown and Cabramatta

Bus routes run frequently, with some 11 buses per hour providing access from Fairfield Station to the school between 8am and 9am. Eight buses per hour provide access to the station during school afternoon peaks between 3pm to 4pm.

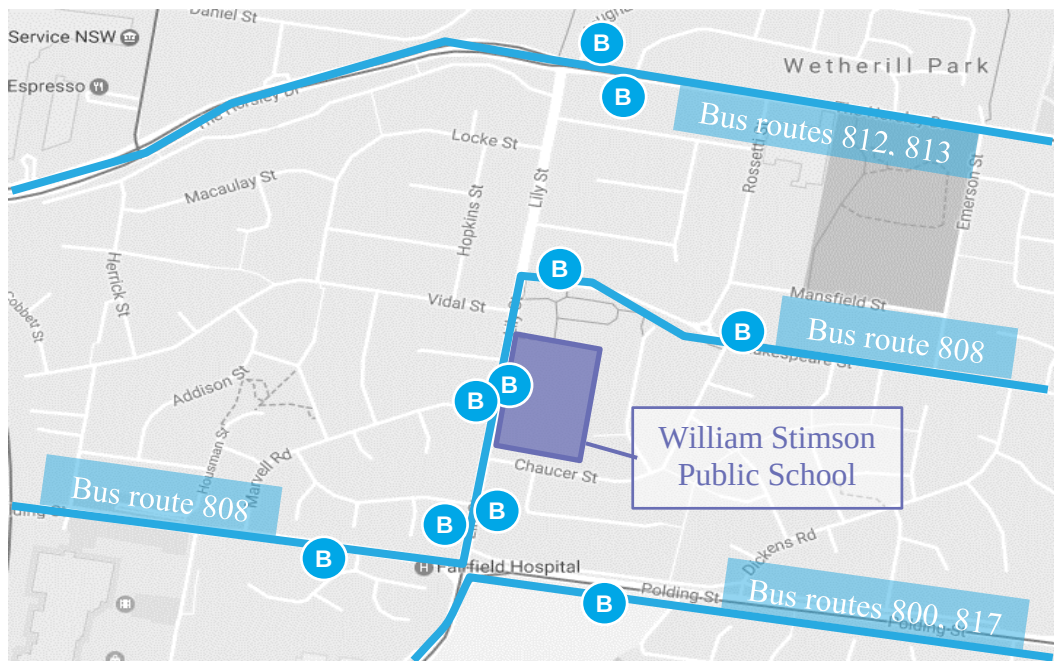


Figure 3: Bus facilities around the school

T-Way

The Liverpool to Parramatta T-way runs to the west of the school, with the nearest station (Horsley) about 1km away. The service has a 3-10 minute frequency at peak times.

School buses

The school has one dedicated morning school bus service, which departs at 7:28 from Abbotsbury Drive / Wallgrove Road and arrives at the school at 8:04. From site observations, the bus is used by a small number of students and no capacity issues. It is generally less common for primary school students to use school buses when compared to high school students.

Source: http://www.transitsystems.com.au/sydney/images/pdf/schools/WILLIAM_STIMSON_PUBLIC_SCHOOL.PDF



Photograph 1: Bus 808 stop outside the school on Lily Street

2.3 Pedestrian access

The primary pedestrian and student access to William Stimson Public School is on Lily Street, with a secondary access also present on this street. A third pedestrian access from Shakespeare Street through Shakespeare Park is also in use. The access locations for the school are illustrated in Figure 4.



Figure 4: Pedestrian access points

Before and after school, a school crossing supervisor is located at the zebra crossing across Lily Street adjacent to the school main entrance (Photograph 2). The crossing enables safe crossing of the road for students and parents dropping students off as well as facilitating safe access to and from the bus stop on the western side of Lily Street. Overall pedestrian accessibility to the school is good with a network of footpaths on both sides of the road in the vicinity of the school.



Photograph 2: Pedestrian school crossing supervisor at Lily Street zebra crossing

2.4 Staff parking

Three staff parking areas are provided on-site within the school boundary. The location and capacity of the separate car parks are illustrated in Figure 5. In total, there are 20 formal spaces and 48 informal spaces.

- Car park 1 is accessed from Lily Street and has 15 formal spaces and 1 informal space (see Photograph 3)
- Car park 2 is accessed from Lily Street and has 37 informal spaces (see Photograph 4)
- Car park 3 is access from Coleridge Road and has 5 formal and 10 informal spaces (see Photograph 5 and Photograph 6)



Figure 5: Staff parking areas and access points



Photograph 3 Car Park 1 - formal spaces



Photograph 4 Car Park 2 – informal spaces



Photograph 5 Car Park 3 – informal spaces



Photograph 6 Car Park 3 – formal spaces

Occupancy surveys were carried out at the on-site staff car park facilities on 27 March 2017 after the beginning of the school day (10am) with the following findings:

- Staff car park 1 contained 16 car spaces and 14 (formal spaces) were occupied
- Staff car park 2 contained 37 car spaces and 17 (informal spaces) were occupied
- Staff car park 3 contained 15 car spaces and 11 (5 formal and 6 informal spaces) were occupied
- Of the 68 staff car parking spaces available on site, a total of 26 car spaces (1 formal space and 25 informal spaces) were unoccupied.

Photographs of the three staff car parking areas are provided below. Staff Car Park 1 is line marked with specified bays, while vehicles in Car Park 2 park on grass areas. Staff Car Park 3 (on the east side of the site) provides parking bays, but vehicles have also parked on the adjacent grass areas.



Photograph 7: Staff Car Park 1



Photograph 8: Staff Car Park 2



Photograph 9: Staff Car Park 3 (vehicles parked in line marked areas)



Photograph 10: Staff Car Park 3 (vehicles parking on grass)

2.5 Accessibility

Parking occupancy surveys were undertaken on 3 April 2017 at 8:30-8:45am. The parking restrictions and number of car spaces on the streets surrounding the school are illustrated in Figure 6. It was raining on the day of the survey, which could be expected to result in more parents choosing to drop their children off by private vehicles.

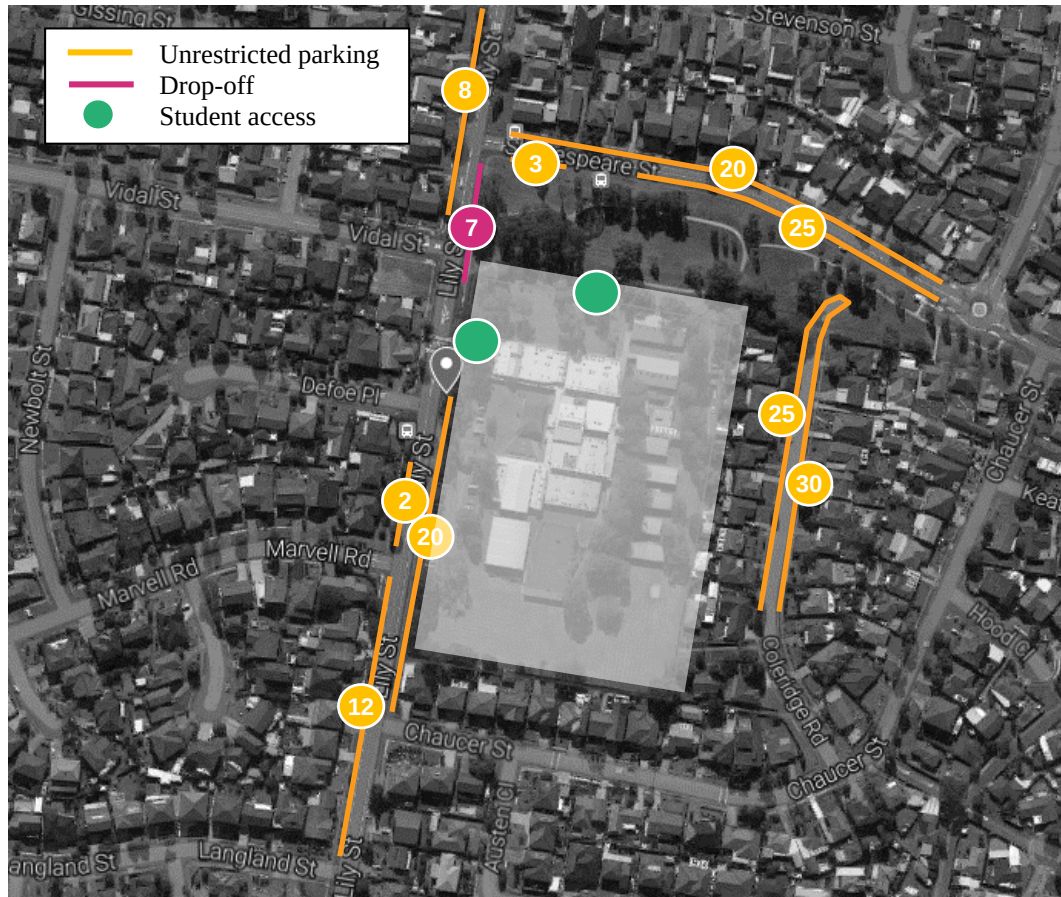


Figure 6: Current parking restrictions and number of spaces available around the school

2.5.1 Existing restrictions

The school is surrounded by a large number of unrestricted car spaces. Surveys prior to and after the school peak reveal that a small number of on-street parking spaces are utilised by residents. This is a result of most of the houses having driveways and garages.

In particular, suburban local roads including Defoe Place, Marvell Road, Coleridge Road and Vidal Street on the east of Lily Street are less than 25% occupied prior to the school peak period.

The photographs below show the extent of the existing on-street, unrestricted parking occupancy on local roads, showing the high number of available parking spaces. These photographs were taken on Friday 24 March 2017, 10:40am.



Photograph 11: Corner of Shakespeare Street and Lily Street



Photograph 12: Lily Street facing north



Photograph 13: Lily Street facing north, outside the school entrance



Photograph 14: Marvell Road facing west

2.5.2 Drop-off and pick-up

The primary drop-off bay is situated on the eastern side of Lily Street, north of the bus stop. The operation of the drop-off section was efficient. It was observed to reach capacity at multiple times during school peak periods, but vehicles were not observed to spill out of the parking bays onto Lily Street.

Lily Street between Langland Street and Shakespeare Street reaches full occupancy by 9am (Photograph 17). Defoe Place, and the first 100 metres of Vidal Street and Marvell Road also reaches capacity by 9am. While the streets closer to the school were busy, there was still capacity further down Shakespeare St, Marvell Road and Vidal Street within 150m – 200m walk to school entrances.



Photograph 15: Drop-off bay on Lily Street



Photograph 16: Drop-off bay on Lily Street



Photograph 17: Shakespeare Street, eastern side (left in photograph) full at 8:59am



Photograph 18: Shakespeare Street, eastern side empty by 9:09am

2.5.3 Key findings

While the surrounding local roads were busy over the 15 minute drop-off and pick-up periods, vehicles were found to leave within a short period of time. There was an abundance of on-street, unrestricted parking, which allowed parents to park their cars without double parking. The surrounding local road network was found to operate efficiently during these short school peak periods.

3 Proposed upgrades

William Stimson Public School has 562 students currently enrolled, and a total of 41 staff (including 33 teaching staff). The additional facilities will cater for an extra 92 students and an additional four staff.

The proposed works include:

- Construction of a new two (2) storey building with permanent teaching spaces
- Construction of a single storey building with permanent support teaching spaces
- Refurbishment and extension of staff and admin spaces
- Consolidating site levels and building new connections
- Sensory gardens and landscaping
- Removal of demountable buildings

No change to the existing car parking areas are proposed.

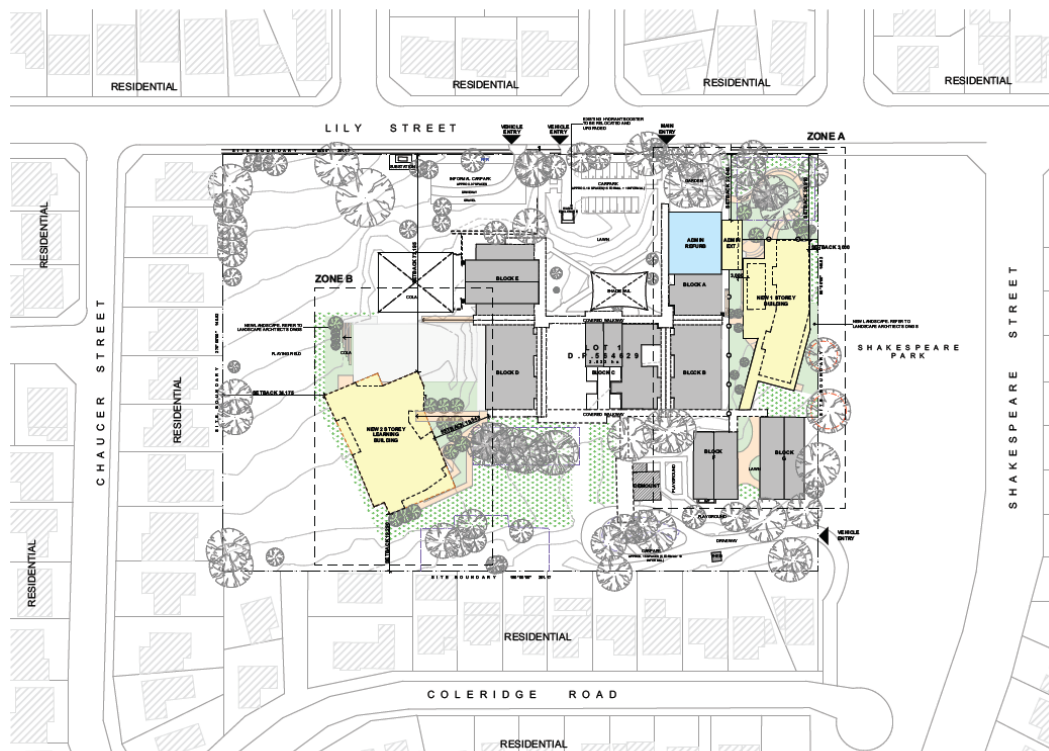


Figure 7: Proposed development (Source: JDH Architects)

4 Impact Assessment

4.1 Case study

In order to obtain an understanding of the likely future mode split of the new students, Arup has carried out on-site travel surveys of a similar Kinder to Year 6 school, located outside of a train station walking catchment.

Lindfield Public School is located off Grosvenor Road, and has approximately 723 kinder to primary school students enrolled. The school is located about 800 metres north of the closest train station. The main access is located on the northern side of Grosvenor Road where seven drop-off spaces are located, just west of the Pacific Highway intersection.

Lindfield Public School commences at 9:00am and finishes at 3:30pm.

During the drop-off period, the following results were found:

- (%) of students arriving by car: 43%
- Car student occupancy rate: 1.6 students per car

The pick-up period resulted in a lower proportion of students taking private vehicles. Lindfield Public School has a similar number of enrolled students to the future William Stimson Public School. Given that both schools are outside of a walking catchment to a train station, this makes the school a feasible case study to base travel assumptions upon. The findings in the case study will be used to estimate the traffic generated by additional enrolments.

Other primary school surveys have also been conducted in the Parramatta region and have indicated a 20% to 30% car mode share with students. Car occupancy rates were found to be within the rate of 1.6 to 1.8 students per car. To keep a conservative estimate, the higher car mode share rate will be used.

4.2 Forecast traffic

An additional 92 students and four teaching staff will be accommodated as a result of the new teaching spaces proposed for William Stimson Public School. The following assumptions were made to forecast the traffic generated for the proposed upgrades:

- One staff per teaching space required. Four additional staff therefore anticipated.
- Based on JTW 2011 data, 79% of workers travel by private vehicle. Therefore, three additional vehicular trips are anticipated by these four staff.
- 43% of students travelling by private vehicles with a car occupancy rate of 1.6 person/car results in additional 25 vehicular trips for the new students.
- The increase in students and staff is anticipated to result in 28 additional vehicular trips to the school (25 of which are drop-off).

4.3 Road network impact

The proposed upgrade of the school is forecast to generate an additional 28 vehicular trips. Given that the surrounding local road network is currently performing efficiently, with a majority of the intersections being unsignalised and operating on a priority basis, minimal impact to the surrounding road network is predicted.

Google Traffic screenshots of typical school periods indicate intersection along Polding Street / Lily Street and Horsely Drive / Lily Street operating efficiently.

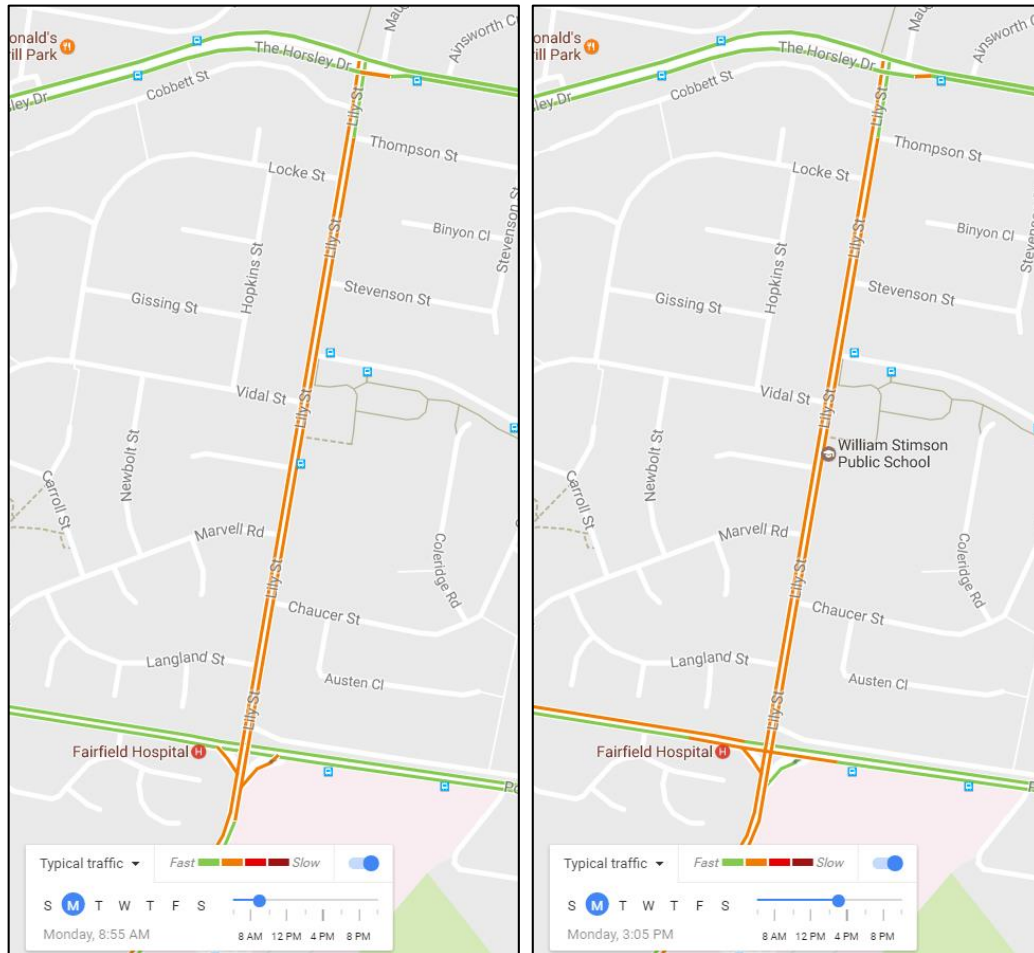


Figure 8: Google maps, April 2017 screenshots of typical traffic (travel times) at 8:55am and 3:05pm

4.4 DCP parking requirements

4.4.1 Existing DCP requirements

The Fairfield City Wide DCP (Amendment 13) provides a standard on the minimum number of parking spaces which should be provided for schools. The DCP stipulates a minimum of *'1 space per employee plus 1 space per 10 students in Year 12'*. As this is a primary school, there no requirement for student parking.

Based on 33 staff, the current DCP requirement for the school is 33 car parking spaces, shown in Table 1. There are 20 formal and 48 informal spaces provided on the current school site. It was evident from the site visits discussed in previous sections that informal parking could accommodate the additional demand. As such, considering the availability of informal parking around the school, the existing DCP requirements are fulfilled.

Table 1: Existing school parking requirements based on Fairfield DCP 2013

Measure	DCP spaces required	Total DCP requirement
33 staff	1 per 1	33

4.4.2 Future DCP requirements

The proposed works will result in an additional 4 staff. Based on the DCP requirements, an additional 4 spaces are required, or a total of 37 parking spaces.

As described earlier in Section 2.4, there are 68 car parking spaces at the school, with 26 spaces typically available. The existing car parking provision is therefore considered to adequately cater for, and have capacity for, the additional parking demand from the increase in staff (i.e. 4 spaces). No additional parking formal parking spaces are required.

Table 2: Future school parking requirements based on Fairfield DCP 2013

Measure	DCP spaces required	Total DCP requirement
4 staff	1 per 1	4

4.5 Encouraging staff to adopt green travel

To minimise the unlikely impact of on-street parking by staff, the school can implement green travel strategies for staff. These solutions are easy and cost effective:

- Staff carpool, the school can help organise a system which will reduce single private vehicle car trips to the school
- Encourage staff to take public transport / active transport

4.6 Student traffic impact

Parking

On-street parking occupancy surveys undertaken have identified the following streets surrounding the school with spare capacity. These are highlighted in Figure 9. Each of the streets are within a 250m radius of the main entrance to the school and would still provide a high level of capacity (approximately 80-100 spaces) for the 25 forecast additional drop-off vehicles.



Figure 9: Local surrounding streets with observed spare capacity during school peak

Drop-off and pick-up bays

The existing drop-off/pick-up zone along the eastern side of Lily Street has been identified as reaching capacity. As there is a considerable amount of unrestricted on-street parking with capacity in the area, it is proposed to monitor activity rather than provide additional drop-off spaces. Should issues arise, two feasible options have been considered.

One option is to provide more drop-off spaces in the immediate surrounds of the school by converting a proportion of the existing unrestricted spaces along Shakespeare Street to drop-off bays during school periods, as illustrated in Figure 10.

Alternatively, the cul-de-sac at the end of Coleridge Road could be used. Parking surveys found that although the area has unrestricted parking, spaces are unoccupied at school start and finishing times. The cul-de-sac could have parking restrictions changed to no parking during school peak periods to facilitate drop-offs and pick-ups. There is an opportunity to provide footpath connections from this area leading to the school.



Figure 10: Additional provision of drop-offs. Photograph of Cul-de-sac was taken at 10.50am with low occupancy

5 Conclusion

William Stimson Public School has a current enrolment of 562 students. The proposed upgrades provides added learning areas to cater for an additional 92 students and four (4) additional staff. The project aims to meet 15% of the required student population growth within the Bonnyrigg Cluster for the next 15 years.

Arup has carried out a traffic and transport assessment of the school, with the key findings below:

- Bus routes run frequently, with some 11 buses per hour providing access from Fairfield Station to the school between 8am and 9am. Eight buses per hour provide access to the station during school afternoon peaks between 3pm to 4pm.
- Overall pedestrian accessibility to the school is good with a network of footpaths.
- The school is surrounded by a large number of unrestricted on-street car spaces. Surveys prior to and after the school peak reveal that a small number of on-street parking spaces are utilised by residents. This is a result of most of the houses having driveways and garages.
- While the surrounding local roads were busy over the 15 minute drop-off and pick-up periods, vehicles were found to leave within a short period of time.
- There was an abundance of on-street, unrestricted parking, which allowed parents to park their cars without double parking. The surrounding local road network was found to operate efficiently during these short school peak periods.
- The existing drop-off/pick-up zone along the eastern side of Lily Street has been identified as reaching capacity.
- More drop-off provision can be considered along Shakespeare Street or at the cul-de-sac at the end of Coleridge Road should it be required.
- The proposed upgrade of the school is forecast to generate 28 additional vehicular trips. Given that the surrounding local road network is currently performing efficiently, with a majority of the intersections being unsignalised, minimal impact to the surrounding road network is predicted.
- There are 20 formal and 48 informal spaces provided on the current school site. The proposed works will result in an additional 4 staff. Based on the DCP requirements, an additional 4 spaces are required, or a total of 37 parking spaces. There is adequate capacity in the on-site staff car parks (26 spaces) to meet the additional demand from staff (4 spaces).
- It is therefore unlikely that upgrades to the school will affect the existing public and road network conditions adversely - with minimum impact generated from the additional staff and students.