7.0 Preliminary Construction Traffic and Pedestrian Management Plan

7.1 Design for Manufacture and Assembly approach

School Infrastructure NSW is committed to using innovative, sustainable, and efficient construction techniques to assist in the delivery of the school upgrade program, which includes the use of Design for Manufacture and Assembly (DfMA) for this school's construction works.

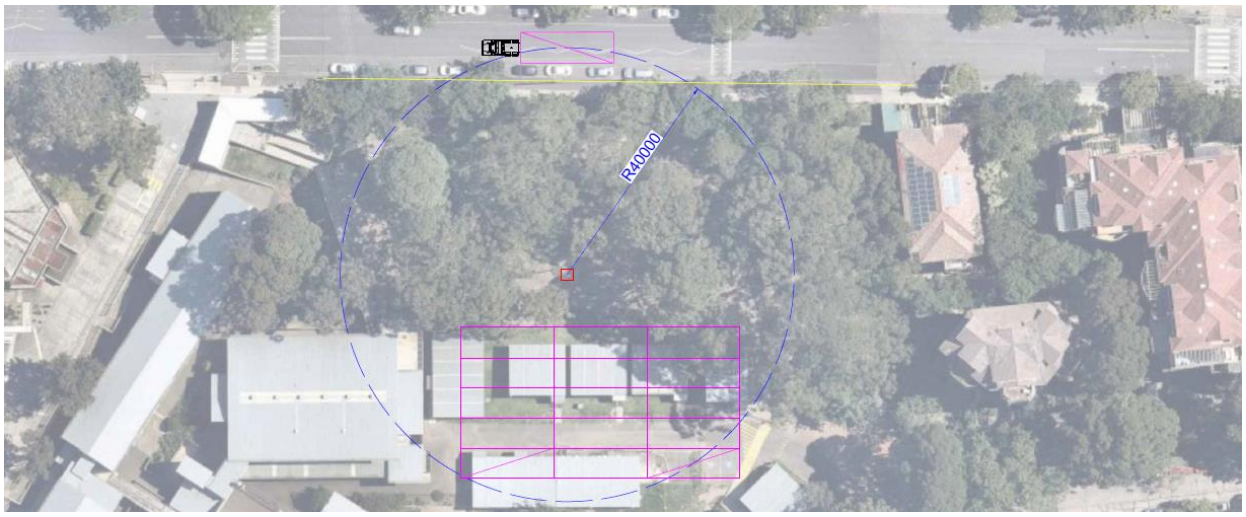
DfMA is a design and construction process that combines the manufacture of building components, such as wall systems and facades, in a factory (off-site) environment, with on-site construction assembly.

The approach has broad benefits, including cost savings, greater scalability, and reduced impacts to operational schools. DfMA relies on the scheduled delivery of building components and modules. When compared to traditional construction methods, DfMA creates less noise, less traffic, less pollution, and less dust which results in less impact to the transport network.

The approach is paired with modular building techniques that establish a grid system of between 4.5-4.9 m – a parameter that works as an optimal module size regarding materials and transport, but also as an optimal spatial requirement for teaching spaces.

Parts are transported to the site, typically in oversize vehicles, and lifted via crane into position, after which they are assembled. It may be possible to drive the vehicle on-site but in many locations with existing schools, the vehicles may need to be unloaded from the street (**Figure 7-1**). The exact location and size of the crane will be determined subject to further consultation with Council, Transport for NSW and the community.

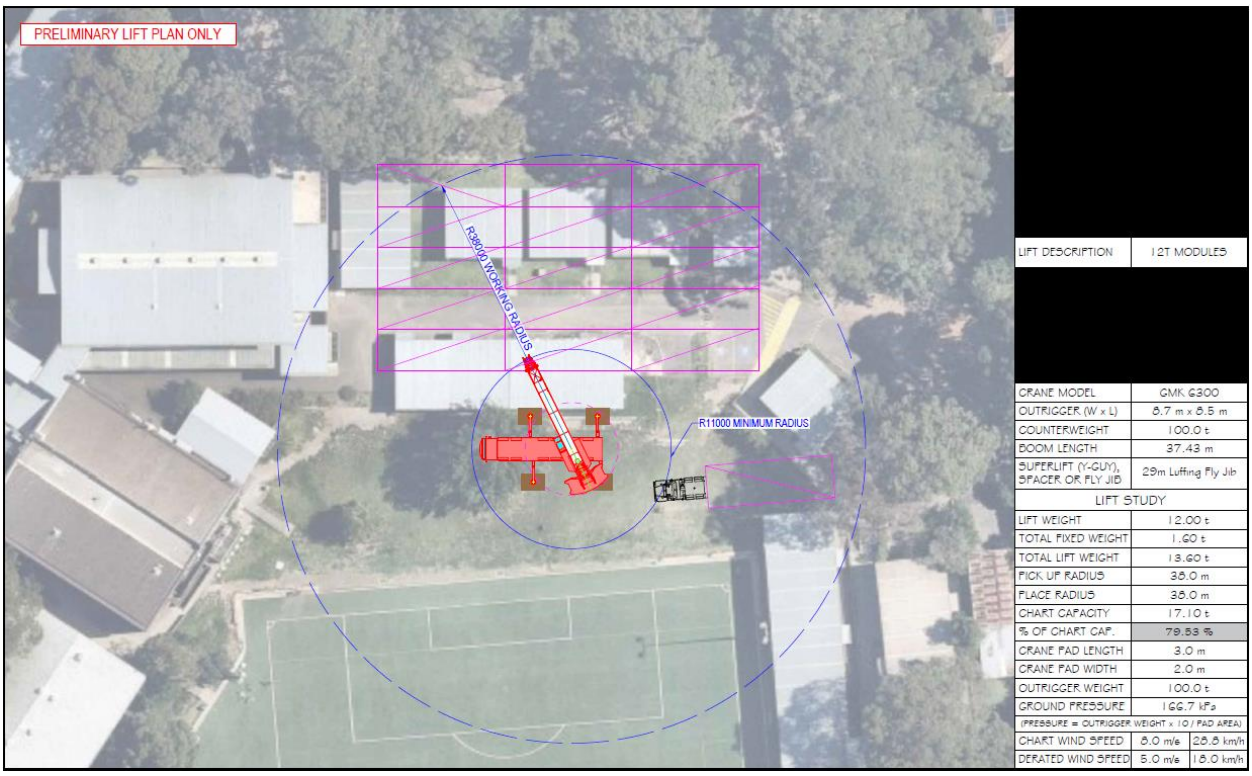
Figure 7-1 Example oversize vehicle placement relative to build location



Source: School Infrastructure NSW, 2020

Depending on the area available for staging at individual schools, the crane may be able to operate on-site (**Figure 7-2**) or may need to be located on street (**Figure 7-3**).

Figure 7-2 Example plan for crane location on site



Source: School Infrastructure NSW, 2020

Figure 7-3 Example plan for crane location on street

Source: School Infrastructure NSW, 2020

DfMA generally requires significant traffic management such as footpath or road closures but has the benefit of a much shorter construction window.

7.2 Preliminary construction management approach

The preliminary construction management approach is explained below. The contractor responsible for delivery will prepare a detailed construction traffic management plan (CTMP), which may need to be approved by relevant authorities prior to construction commencing. The CTMP would usually include Temporary Traffic Management Plans (TTMPs) and a Driver's Code of Conduct.

Some external construction activities will occur on Ward Street at some point during the construction period. Accordingly, the pedestrian footpath shall be managed by an accredited Traffic Controller or approved traffic / pedestrian control plan during crossover works and deliveries to the site. During construction of the temporary and final driveway crossovers, pedestrians will be directed around the construction site by the installation of temporary fencing and management of an accredited Traffic Controller or approved traffic / pedestrian control plan.

The existing footpaths shall remain open at all times to ensure that the construction site does not interfere with pedestrians or cyclists, with efforts to minimise impacts where possible.

The indicative route for vehicles would be from Carlingford Road to Ward Street as shown in **Figure 7-4**. Local area traffic calming currently on Midson Road may make it not a viable route, so access may be best accommodated directly off Carlingford Road. Carlingford Road is approved for the following routes and vehicle types:

– Oversize / Overmass Load Carrying Vehicles

– 4.6 m high vehicles

– 19-26 m B-double vehicles

Access from Carlingford Road should be as direct as possible for heavy vehicles and minimise incursion onto other roads such as Midson Road, which may not be compatible with some vehicle sizes due to local traffic area management devices on Midson Road.

Figure 7-4 Construction vehicle routes

Ward Street, Midson Road and Lilli Pilli Street may require temporary parking restrictions and/or work zones to be compatible with the size of the parts delivery oversize vehicles and unloading. The contractor would apply to Council for the relevant traffic management requirements.

As the vehicles delivering parts to the site are oversize, delivery will need to be outside of peak periods, both to minimise impacts to the broader road network but also to reduce the risk of damage to parts.

Analysis of the kiss and drop areas on Ward Street in **Table 4-3** above shows that there is spare capacity in some locations along Ward Street during school pick up and drop off periods. However, capacity is limited and unlikely to cater for many workers before impacting on school pick up and drop off.

Workers will be utilising on-street park in the local area although workers are encouraged to carpool or utilise public transport service within the area, thereby reducing the minimal parking demand in the Epping area.

7.2.1 Road safety considerations

Traffic management will require approval from Transport for NSW and Council. The contractor will need to define traffic management requirements to ensure the safety of students, staff, parents, and all other transport network users.

Management measures need to be put in place to exclude pedestrian and vehicle conflicts with unloading including crane operations.

Neither delivery nor unloading should occur during drop off (8:00-9:30am) and pick up (2:30-4:00pm) periods to minimise risks to students.

Temporary diversions to footpaths need to provide safe crossing facilities, clear sightlines for vehicles and pedestrians, and even footpaths of at least the width of the footpath replaced. Where this is not achievable in the same corridor, diversions should be proposed in the construction traffic management plan, prepared in consultation with the school.

7.3 Construction program

Construction works for the development are expected to start in December 2021 and finish by December 2022. The delivery of modular components is slated to occur between April and July 2022. The contractor will provide a more detailed program for construction in the detailed construction traffic management plan.

7.4 Construction impacts and mitigation

Final construction vehicle numbers are still being confirmed. A preliminary estimate of 20 heavy vehicle truck movements is anticipated on a typical day.

Road network impacts by worker traffic to the site will be mitigated by the construction workers generally starting earlier and finishing earlier than the commuter peak periods and would likely not coincide with the school or road network peak periods. Construction workers will be encouraged to carpool, further reducing the impact on the road network and local parking demands. Overflow parking for contractors is proposed along Ward Street, Lilli Pilli Street, and Dent Street including in the Epping West oval car park.

The DfMA construction approach is expected to require traffic management measures such as the full road closure of Ward Street at some point during the construction period. Closures would be short in duration compared with traditional construction approaches.

The only concurrent construction expected is that for the New Primary School in Epping, which has overlapping construction periods. As the sites are significantly separated and the majority of impacts are expected to be outside of school hours, there is sufficient capacity in the network to accommodate the impacts – particularly as there are no identified other concurrent construction activities.

Other mitigation measures would be adopted during the construction phase to ensure traffic movements have minimal impact on surrounding land uses and the community in general. These would include the following:

– Truck loads would be covered during transportation off-site

– Neighbouring properties would be notified of construction works and timing. Any comments would be recorded and taken into consideration when planning construction activities

- All activities, including the delivery of materials would not impede traffic flow along local roads
- Materials would be delivered, and spoil removed during standard construction hours
- Avoidance of idling trucks alongside sensitive receivers
- Deliveries would be planned to ensure a consistent and minimal number of trucks arriving at the site at any one time.

To manage driver conduct the following measures are to be implemented:

- All truck movements will be scheduled
- Vehicles are to enter and exit the site in a forward direction along the travel path shown on delivery maps
- Drivers are to always give way to pedestrians and plant.

Traffic controllers will be used to stop traffic on the public street(s) to allow trucks to enter or leave the site. Where possible, vehicles must enter and exit the site in a forward direction. They must wait until a suitable gap in traffic allows them to assist trucks to enter or exit the site. The Roads Act does not give any special treatment to trucks leaving a construction site, the vehicles already on the road have right-of-way. Vehicles entering, exiting and driving around the site will be required to give way to pedestrians at all times.

8.0 Conclusion

The proposal (**Figure 5-1**) seeks the construction of two new buildings, refurbishment of existing buildings and demolition works. The total student number is expected to decrease from 1,290 in 2023 (identical to 2020 enrolments) to 1,056 by 2028.

In summary:

- The proposal is supported by several green travel initiatives / principles developed specifically for the school that provide opportunities for alternative travel options and reduce the need for car travel. A Travel Plan has been developed with the school to deliver best practice travel programs and initiatives to manage travel demand.
- It is estimated that there would be no change of vehicle trips generated by the development in the year of commencement (2023) while there would be 54 and 26 fewer car trips by the tenth year of operation for AM and PM school peak hours (2033).
- As part of the scope of works, the primary access will be relocated to Ward Street where the new administrative and staff building is located. The location of the main entrance is more appropriate at the location specified, as the kiss and drop zone and the school bus stop are just outside the main entrance. There are no changes proposed to the school accesses at Carlingford Road and the northern boundary of the school (next to West Epping Park).
- The proposal does not include any changes to staff car parking, drop off pick up facility and servicing / emergency strategy.
- A parking duration survey indicated that average dwell times for pick up and drop off were around two minutes and 15 minutes, respectively. A demand / capacity analysis shows inefficient operation at the Ward Street angle parking area, especially during the PM peak. The Dent Street parking area was observed to be at capacity between 2.30pm and 3.30pm due to long waiting times during pick up.
- Council is initiating a series of proposals regarding the drop off / pick up zone to ease the congestion during drop off / pick up hours and improve safety in relation to Ward Street, Angus Avenue and Ryde Street. It is also recommended to adopt a time-limited parking scheme for drop off / pick up locations.
- Traffic modelling indicates that the Midson Road / Lilli Pilli Street intersection will operate satisfactorily in both the year of commencement (2023) and 10 years post commencement (2033). This finding is consistent regardless of whether the right turn ban is implemented at Ward Street. No cumulative impacts of other known and committed developments are expected.
- The proposed future school catchment would also result in more students travelling from the north of Carlingford Road and fewer students travelling from the south of Carlingford Road.
- The existing footpath network lacks connectivity especially to the west of the school, leading to a potentially unsafe walking environment. It is understood that Council has funding for a raised threshold zebra crossing on Ward Street in the vicinity of the school. SINSW is proposing to funding a footpath on the eastern side of Ward Street from Carlingford Road to the crossing and potentially as far as Lilli Pilli Street.
- The school is proposing to also fund an additional 60 bicycle parking spaces on-site, to be located near key entrance points to the site. The proposed works as well as the delivery of the Parramatta Cycling Network could increase mode share for cycling relating to short drop off and pick up trips.
- More frequent bus services on Carlingford Road connecting with Epping Station during school peak hours would extend public transport coverage and reduce car reliance for school staff and students who live further from the school. Additional bus services between the school and Epping Station are suggested for consideration by TfNSW in ongoing service planning.
- As the proposed development will decrease student numbers, it is assumed that there will be no capacity issue in relation to the active transport infrastructure and public transport services.

The Transport and Accessibility Impact Assessment concludes that given the reduction in student numbers associated with the proposal, the transport impacts are considered negligible and at a level to be accommodated by planned infrastructure and initiatives.