Preliminary Construction Traffic Management Plan

Liverpool Boys and Girls High School Upgrade Project

Prepared for NSW Department of Education

31 January 2025

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Revision Register

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Section 1 Introduction

1.1 Introduction

This preliminary Construction Traffic Management Plan (CTMP) has been prepared by Taylor Thomson Whitting (TTW) on behalf the NSW Department of Education (the **Applicant**) to assess the potential environmental impacts that could arise from the redevelopment of the Liverpool Boys High School and Liverpool Girls High School, at 18 Forbes Street, Liverpool NSW, 2170 (the **site**).

This proposal is prepared for the permanent new co-ed Liverpool Girls and Boys High School (LGBHS) on the existing Liverpool Boys High School (LBHS) and Liverpool Girls High School (LGHS) site. This report has been prepared to assess and address the construction traffic impacts of the proposed development and define the necessary management process and mitigation measures for construction of the project.

The new LGBHS has an anticipated opening year of 2028, facilitating existing student demands in the interim, with an ultimate student capacity of 2,000 students.

This report accompanies a Review of Environment Factors (REF) that seeks approval for redeveloping the Liverpool Boys and Liverpool Girls High Schools into a single co-educational school, including:

[redacted]

- Construction and operation of a six-storey school building, including school hall and gymnasium;
- Associated parking and building services;
- Construction of 112 staff car parking spaces, on-site waste storage and loading area to accommodate a 10.5m waste truck
- Tree removal;
- Associated landscaping and play spaces;
- Augmentation of service infrastructure; and
- Associated off-site infrastructure works to support the school, including (but not limited to) services, kiss and drop point and pedestrian crossings.

Refer to the Review of Environmental Factors prepared by Ethos Urban for a full description of works.

This CTMP has been prepared in support of a REF for the project. This document is considered preliminary in nature and would be finalised post-approval. This document should also be read in conjunction with the Transport and Accessibility Impact Assessment (TAIA) prepared for the REF.

1.2 Site Description

The site is located at 18 Forbes Street, Liverpool, within the Liverpool Local Government Area (LGA). The site is legally described as Lot 1 DP1137425 and has a total area of approximately 74,973m2.

The site comprises a broadly rectangular portion of land which currently contains the existing Liverpool Boys High School, Liverpool Girls High School, and the Gulyangarri Public School, which commenced operations in January 2024 and is located to the east of the wider site.

The site's western portion contains Liverpool Boys High School and Liverpool Girls High School. Liverpool Girls High School in the site's southwest comprises three, two-storey buildings. Liverpool Boys High School in the site's northwest, comprises approximately four, two-storey buildings, with adjacent at-grade carparking and various sports courts.

The site is also surrounded by a number of local roads including Lachlan Street to the north, Forbes Street to the west and Burnside Drive to the east. An aerial image of the site is shown at Figure 1 below.

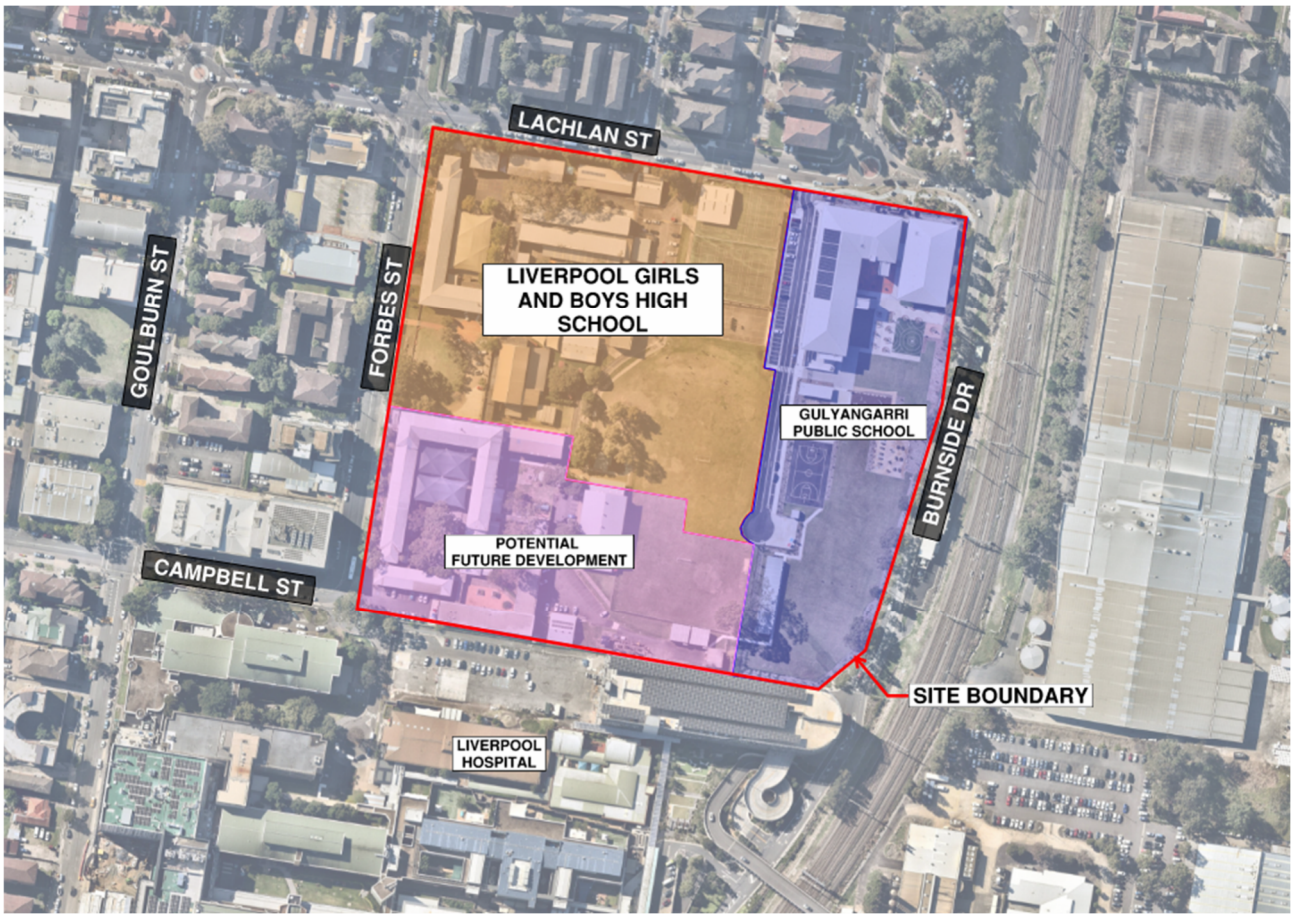

Figure 1: Site Plan
Source: Modified from Nearmap

The site is located within the Liverpool CBD, specifically within the Liverpool Health and Academic Precinct and there are a range of health and educational facilities in its surrounding area. The site is located within an extremely accessible area with the closest bus stops located less than 100 metres west along Forbes Street. Warwick Farm and Liverpool Train Stations are also 500 metres and 900 metres from the site respectively. Figure 2 provides a wider overview of the site's location.

Figure 2: Site Location
Source: Modified from Nearmap

1.3 Statement of Significance

Based on the identification of potential issues, and an assessment of the nature and extent of the impacts of the proposed development, it is determined that:

- The extent and nature of potential impacts are moderate, and will not have significant adverse effects on the locality, community and the environment;
- Potential impacts can be appropriately mitigated or managed to ensure that there is minimal effect on the locality, community.

1.4 REF Reporting Requirements

The NSW Guidelines for preparing a REF were reviewed to ensure the construction traffic and parking requirements were met in this report. Table 1 below identifies the typical requirements that need to be met for a school planning submission and identifies where they have been addressed in various sections of this report.

Table 1: Planning Submission Requirements

Requirements	Section Reference
Preliminary Construction Traffic Management Plan	
Set out proposed construction vehicle routes and site access arrangements and estimated movements per day	Construction vehicle routes – Section 3.4 Construction traffic management – Section 3
Include a high level assessment of / conclusion that the local road network could accommodate the movements subject to appropriate managements	Road Network Impacts – Section 5.1
Set out parking arrangements for construction workers and conclude that sufficient parking would available on site / proposed arrangements would avoid detrimental impacts to local road	Construction parking – Section 2.3
Set out whether works zones are required	A detailed CTMP will be provided, and further investigation will be conducted if work zones are required. Detailed CTMP will be provided following approval and once a contractor has been appointed.
A preliminary construction management plan that details management and mitigation measures to minimise impacts and ensure safety of road users and pedestrians	Mitigation measures – Section 5

1.5 Guidelines and References

In preparing this report, reference has been made to the following:

- Traffic Control at Work Sites Technical Manual, TfNSW, February 2022
- Australian Standard AS1742.3:2019 ‘Manual of Uniform Traffic Control Devices – Traffic control for works on roads
- Australian Standards AS1428.1 ‘Design for Access and Mobility’
- Austroads Guide to Temporary Traffic Management series (2021)
- Other documents referenced in this report.

Section 2 Construction Overview

Until the appointment of a contractor and the development of a detailed construction methodology, few details are known about the precise scope of works, and construction vehicle movements required to service this site. However, preliminary estimates can be made based on the site constraints, existing connections, and proposed new works. Once a contractor is appointed, and a construction methodology is developed, these details will be further refined and published in an updated CTMP.

2.1 Access Arrangements

Given that the proposed development is in early stages, the specific details of the construction site access arrangement have yet to be finalised. Notwithstanding there are opportunities for access to be provided along both Forbes Street and Lachlan Street, as this will be where the majority of construction works will be occurring. Refer to Figure 3 for an overview of the proposed site.

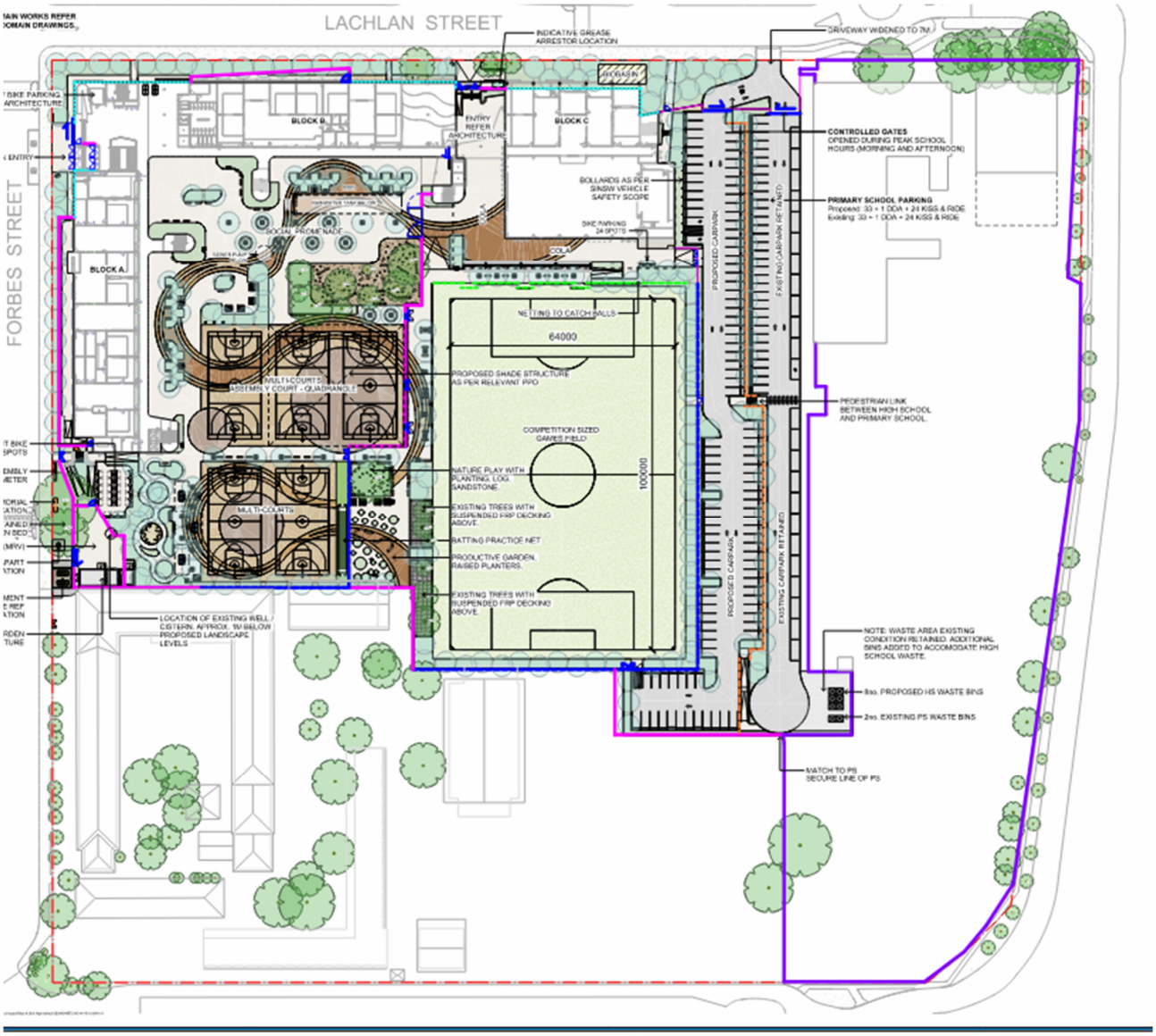

Figure 3: Proposed Landscape Site Plan
Source: NBRS

2.2 Hours of Operation

The hours of operation for construction activities are to be determined by the planning authority, and will likely contain similar work hours to the following:

- Monday to Friday 7:00 am – 6:00 pm
- Saturday 8:00 am – 1:00 pm
- Sunday and Public Holidays None

2.3 Worker Parking

To provide an understanding of the potential impacts of construction worker vehicle parking, Table 2 includes data from similar SINSW projects to provide an indication of anticipated construction worker parking demands.

Table 2: Typical and Peak Workforce Numbers at Similar Construction Sites

Project	Student Population Growth	Peak No. Daily Workforce	Typical Daily Workforce
Pendle Hill High School	1,320 students	70	20
Smalls Road Public School	1,000 students	130	70
John Palmer Public School	1,012 students	50	50

As shown in Table 2, based on relatively similar size projects, it is estimated that the project will generate similar demands, resulting in an anticipated maximum workforce of 130 construction workers. On a typical day during construction the workforce is anticipated to be between 20 – 70 construction workers.

Whilst not recommended, some construction workers may drive to the site. Where possible construction workers will be encouraged to utilise public transport and carpool to access the site. As a conservative assessment it has been assumed applying a 2 person per car occupancy rate to the typical daily workforce results in a car parking demand of 10 – 35 parking spaces per day. A detailed staged construction plan is yet to be developed; however it is likely at least some parking spaces will be provided on-site for construction workers.

There are a number of off-street public car parks within the vicinity of the site, including Multi-storey park & ride car park at Warwick Farm Train Station, Westfield Shopping Centre Car Park and Bathurst Street North Car Park. From on-site observations and review of Nearmap aerial footage there is limited available on-street within the vicinity of the site and therefore it is not encouraged for construction workers to park on-street. Reference can be made to the TAIA report to obtain further detail on on-street parking provisions. However, once a contractor is appointed, mitigation measures will be developed to minimise demand for parking in nearby public and residential streets and ensure construction workers utilise public transport and carpooling methods where possible. Typical mitigation measures include the following:

- Workers to be provided with a Travel Access Guide containing information on available public transport options and transport planning
- Workers recommended and reminded to carpool where possible
- Preferred parking locations should be advised to workers, to reduce impacts to residents for those workers that do choose to drive
- No workers to park within 100 metres of the school boundary (to ensure parking availability and to reduce impact to drop off and pick up periods)

- Workers recommended to park away from the pick up and drop off areas to avoid additional congestion
- Workers must follow all on-street regulatory signage including drop off and pick up zones around the school

2.4 Construction Vehicle Volumes

It is assumed that the average volume of construction vehicle traffic to and from the site would be consistent with other SINSW projects of similar sizes. Sample data from other projects is provided in Table 3 below.

To better understand the potential impacts of construction vehicle traffic, it is useful to consider the size of the project and to benchmark against other projects of similar size. For example, Table 3 includes data on SINSW projects with their increased student populations (as a result of the construction works) listed. This is one measure that can be used as a benchmark, to compare the project to others of similar sizes. However, this information is provided for reference only, and more accurate data would be provided by the appointed contractor prior to the commencement of construction.

Table 3: Construction Vehicle Volumes at Similar Construction Sites

Project	Student Population Growth (from project)	Peak # of trucks per day	Typical # of trucks per day
Pendle Hill High School	1,320 students	20	6 – 8
Smalls Road Public School	1,000 students	30	2 – 8
John Palmer Public School	1,012 students	6	6

Therefore, with a proposed school population of 2,000 students at full capacity, it is estimated that the project will require approximately 40 during the peak phase (equating to 80 two-way movements), and around 8 to 10 trucks on a typical day (20 two-way movements).

2.5 Construction Vehicle Types

The most common vehicle types are expected to range from Medium to Heavy Rigid Vehicles, or around 8 – 12 metres in length. Semi-trailers (up to 20 metres in length) may also be used from time to time, for delivery of larger materials and equipment.

Larger special-purpose vehicles may be required for activities such as installation and removal of tower cranes. These may be subject to special approval which would be obtained on a case-by-case basis. The necessary approvals would be discussed with TfNSW and Council at the time, subject to the affected road location.

2.6 Construction Program

The construction works are anticipated to commence in August 2025 with an estimated completion on April 2028. [redacted]

[redacted]

2.7 On Street Works Zone

Throughout all stages of construction, all standing and loading and unloading of construction vehicles shall occur on-site. Accordingly, a Works Zone is not anticipated during any stage of construction. In the event that one is necessary, the contractor would be required to obtain approval from relevant authorities (Council, Transport for NSW).

Section 3 Construction Traffic Management

3.1 Construction Delivery Management

The delivery of material to and from the site will result in some generated traffic activity associated with the works. It is expected that the heavy vehicles would generally arrive outside of AM and PM peaks, including the drop-off and pick-up times during the operational phase, therefore there is no impact on the peak period traffic volume associated with the heavy construction vehicles. The estimated construction traffic volume for the standard operation for the worst case is approximately 40 trucks per day. This is equivalent to approximately 4 trucks per hour over a 10 hour day, and as a result, increased traffic associated with construction activities will have only minor impacts on the existing road network.

In order to minimise any potential impacts on the performance and safety of the road network, the following administrative measures will be in place:

- All construction deliveries will take place during standard construction hours and outside of drop off / pick up activities.
- Construction deliveries are to be staggered throughout the day to minimise queueing and minimise any periods of excessive noise levels.

3.2 Construction Traffic Management

Light vehicle traffic generation would be generally associated with construction worker movements to and from the site. Construction workers would be comprised of project managers, various trades and general construction employees. Over the full construction period, the peak workforce detailed in Section 2.3 shows a maximum workforce of 130 workers and an average typical workforce of 70 workers. Assuming a car occupancy rate of 2 workers per vehicle this equates to an approximate vehicle demand of a maximum of 65 vehicles and 35 vehicles on a typical day.

The peak construction traffic periods for the workforce will typically arrive and depart at 6:30 – 7:00am and 6:00 – 6:30pm respectively each day. Therefore, the peak construction traffic is intended not overlap with the typical peak commuter traffic and thus, the construction traffic will have a minimal impact on the local network. Although, construction traffic for light vehicles will have minimal impact, workers should be encouraged to use active and public transport options.

Heavy vehicles would be generally associated with deliveries and construction machinery to and from the site. As mentioned previously in Section 2.3.1, any deliveries will be conducted outside of the school peak period in the morning and afternoon. Hence, heavy vehicles will have a minimal impact on the local network.

During construction of the proposed public domain works e.g. wombat crossings, or footpath widening, construction will be managed to ensure minimal impact on existing traffic movements. The detailed CTMP will provide details on the construction of public domain works associated with the project.

3.3 Construction Vehicle Management

During days of high estimated vehicle movements, communication between the site and incoming vehicles will be maintained to stagger the arrival of vehicles, in order for them to be accommodated within the worksite and to minimise traffic disruptions.

Loading and unloading activities will occur within the site, at the nominated vehicle zones, or within any approved Works Zone. All deliveries should be made outside of any posted School Zone times where possible to ensure the highest level of safety for students at the adjacent primary school. Truck movements to and from the site will be scheduled outside peak hours where possible to reduce impacts to the local and state road network. All deliveries are to be made within the approved work hours.

Non-tonal reversing beepers (or an equivalent mechanism) shall be fitted and used on all construction vehicles and mobile plants regularly used on-site (i.e., greater than one day) and for any out of hours work.

3.4 Construction Vehicle Routes

All construction vehicles are to travel on the main road network (such as motorways and arterial roads) as far as practical, except where strictly required to reach the construction site.

The directional distribution and assignment of traffic generated by the construction works will be influenced by a number of factors, particularly the origin/destination of materials, configuration of access points to the site and the surrounding arterial road network.

Construction vehicles will generally approach from the Hume Highway and use local roads to access the site. The construction vehicle routes are detailed below and shown in Figure 4. These are preliminary in nature and consider one possible approach and departure route for each direction. However, the road network provides multiple possible connections between the site and the Hume Highway, which could accommodate construction vehicles. Detailed construction vehicle access routes will be determined once the construction site access points are finalised.

- Approach Routes:
    - From the east: Hume Highway, Forbes Street, Lachlan Street
    - From the west: Hume Highway, Bigge Street, Lachlan Street (or Forbes Street)
- Departure Routes:
    - To the east: Lachlan Street (or Forbes Street), Bigge Street, Hume Highway
    - To the west: Lachlan Street (or Forbes Street), Bigge Street, Hume Highway

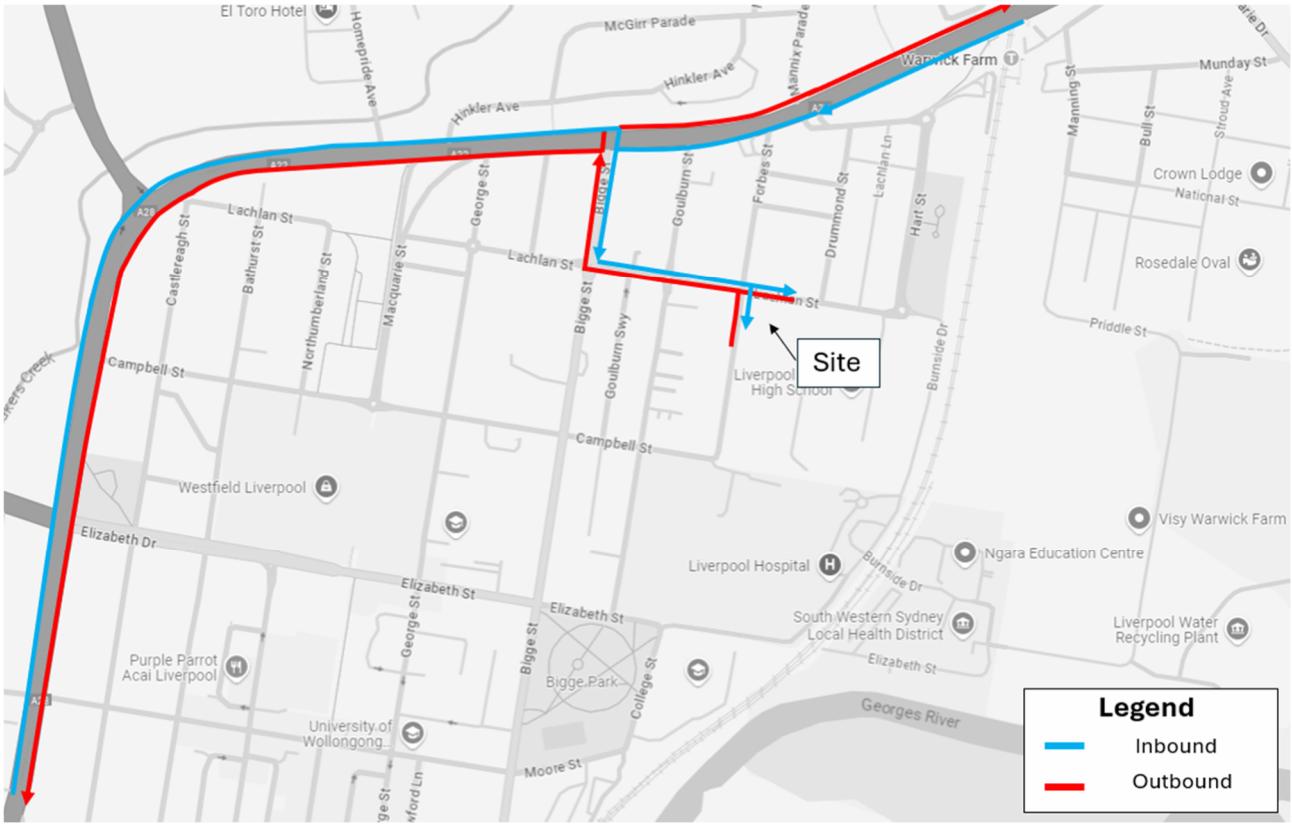

Figure 4: Truck Travelling Routes
Source: Modified from Google Maps

3.5 Other Surrounding Projects

The new Gulyangarri Public School (GPS) became operational in Term 1, 2024. Additionally, the Multi-Storey Car Park (MSCP), part of the Liverpool Health and Academic Precinct, is understood to be largely completed.

No other existing or future developments of significance are known to be occurring concurrently in the immediate area surrounding the site.

3.6 Traffic Guidance Scheme

As part of the detailed CTMP, Traffic Guidance Schemes (previously referred to as Traffic Control Plans) will be prepared in accordance with the principles of the *Traffic Control at Work Sites manual (Transport for NSW, 2020).* The Traffic Guidance Schemes primarily show where construction signs will be located at specific locations (such as uncontrolled intersections) along the approved truck routes to warn other road users of the increase in construction vehicle movements. Traffic controllers will be employed to manage construction vehicle movements in and out of the site.

The Traffic Guidance Schemes will generally include the following considerations:

- Construction vehicle activity, including the loading / unloading of trucks to be conducted within the work site.
- Positioning of traffic controllers to manage construction vehicle access in / out of the site.
- Pedestrians and all passing vehicles will maintain priority.
- Clear definition of the work site boundary to be provided by erection of fencing around the site boundaries.
- All signage will be clean, clearly visible and not obscured.
- All construction vehicle activity will be minimised during peak periods, where possible.

3.7 Site Induction

All workers employed on-site by the contractors would be required to undergo a site induction. The induction would include:

- Permitted truck routes to and from the work site
- Restricted parking within the adjacent local roads
- Preferred travel to the site by public transport and overview of off-site parking locations and shuttle bus arrangements

3.8 Workplace Health and Safety

Any workers required to undertake works or traffic control within the public domain shall be suitably trained and covered by adequate and appropriate insurance. All traffic control personnel will be required to hold Transport for NSW certification in accordance with the ‘Traffic Control at Work Sites’ manual.

Section 4 Construction Administration

4.1 Local Impacts

The site manager shall be responsible for liaising with the site manager of any surrounding construction projects once identified. In particular, communication across sites should ensure:

- Overall project programs are to be identified and shared.
- High-volume days or periods (such as concrete pours) are to be communicated, and where possible are to be coordinated to avoid excessive impact to the road network.
- Oversize / over mass delivery days are to be communicated, and where possible are to be coordinated to avoid excessive impact to the road network.
- Traffic control measures (including Traffic Control Plans / Traffic Guidance Schemes) are to be shared if these may be relevant to construction vehicle routes for surrounding projects.

4.2 Community Notification

Community notification shall be undertaken as per any school or SINSW requirements and should include:

- Temporary notification signage installed around the site and affected areas highlighting the upcoming changes / impact.
- Door knocking to the immediately surrounding stakeholders advising them of the upcoming works.
- Mailbox drops within a set radius around the project, distributing the monthly project updates.
- Project updates on the school websites containing project updates, notifications, and contact numbers.
- Project specific distribution lists that can be signed up to by members of the public who wish to receive notifications electronically.

Section 5 Impact Management and Mitigation Measures

5.1 Impact to Road Network

The potential impacts to the road network, and associated mitigation measures, are detailed in Table 5.

Table 5: Construction Impacts to the Traffic Network

Project Stage	Impact	Mitigation Measures
Construction	**Construction traffic increases traffic volumes on road network.**	As stated in Section 3.3, that all construction deliveries will take place during construction hours and outside of drop off / pick up activities. As stated in Section 3.1, the local road network has already been designed to accommodate the additional volumes, hence no mitigation measures are required. Furthermore, construction traffic movements are to be scheduled outside peak periods where possible.
Construction	**Construction worker parking exerting additional demand to on-street parking.**	On-site car parks are to be made available to workers as soon as practical; additional areas such as the new staff car park, which are anticipated to be built at early phases of the project, are to be made available for workers car parking if possible. Construction Worker Transport Strategy shall be prepared to encourage alternate transport modes, and reductions in car usage by construction workers. Workers choosing to park on-street to be instructed to park in areas of least impact to neighbours.
Operation	**Congestion during Gulyangarri PS drop-off and pick-up times.**	Vehicle movements related to the project are to be scheduled outside school peak periods where possible. Construction truck routes are to be located away from GPS where possible.
Construction	**Impacts to Lachlan Street & Forbes Street during road works (including crossings and bus bay).**	Construction works are to be staged and/or managed (e.g. contraflow movements) to maintain vehicle flows along Forbes St. Any road closures (if required) are to be coordinated with Transport for NSW and Council.
Operation	**Local impacts**	Sufficient communication measures as documented in Section 4.1 are to be implemented to ensure nearby neighbours are well-informed of any project updates.

5.2 Impact to Pedestrian and Cyclists

The potential impacts to the pedestrian network, and associated mitigation measures, are detailed in Table 6.

Table 6: Construction Impacts to the Pedestrian Network

Project Stage	Impact	Mitigation Measures
Construction	**Impacts on Lachlan Street & Forbes Street footpaths during road works**	Construction works are to be staged and/or managed (e.g. contraflow movements) to maintain pedestrian flows along Forbes Street and Lachlan Street. Footpaths lanes may need to be temporarily closed, requiring pedestrians to be temporarily diverted to an adjacent footpath. Any road closures (if required) to be coordinated with Transport for NSW and Council.
Construction	**Impacts to Lachlan Street & Forbes Street footpaths during footpath reconstruction / extension works.**	Pedestrians to be diverted to appropriate locations either in the kerbside parking lane (with suitable barrier protection) or on the opposite side of the road (with suitable crossing points provided). To ensure a safe, fully signposted passage, minimum 1.2m wide path will be provided separate from the works and moving vehicles for pedestrians as per AS1428.1'Design for access and mobility (including persons with a disability) at all times. Where necessary, a suitably qualified traffic controller between the hours of 7.30 and 9.30am and 2.30 and 4.00pm during school term may be required to control the movement of pedestrians entering and departing the site, around the school works
Construction	**Materials lifting / construction activities adjacent to Lachlan Street & Forbes Street footpaths.**	Appropriate hoarding to be provided at site boundary.

Section 6 Conclusions

In summary, this preliminary CTMP has been prepared as part of the preliminary construction works for the proposed LGBHS. The plan aims to assess and address the construction traffic impacts of the proposed development and define the necessary management process and mitigation measures for construction of the project.

The proposed traffic management arrangements recommended in this plan satisfy the requirements of TfNSW Traffic Control at Work Sites Manual, AS 1742.3 and AS 2890.2, and the plan seeks to minimise the impact of construction activities on the surrounding community, in terms of both vehicle traffic and pedestrian amenity. It is important to reiterate this plan is preliminary in nature and is required to be updated once a contractor has been appointed.