Lendlease

Randwick Campus Redevelopment

Integrated Acute Services Building (IASB) Addition

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Contents

Executive Summary

Arup was engaged by Lendlease, on behalf of NSW Health Infrastructure, to provide traffic and transport consultancy services for the Randwick Campus Redevelopment project (the Project). Stage 1 of this project primarily comprises the development of a new Prince of Wales Hospital Acute Services Building (ASB). State Significant Development (SSD) 9113 for the ASB was approved on 27 February 2019. The approved ASB is located to the immediate west of the existing Randwick Hospitals Campus (Campus), occupying a key position between the Campus and the Kensington Campus of University of New South Wales (UNSW).

In order to assist in realising the vision for the Randwick Health and Education Precinct, an extension to the approved ASB building is proposed to create opportunities for UNSW to integrate health related academic and translational research activities collocated within the ASB. The proposal is known as the Integrated Acute Services Building (IASB) Addition.

To enable the IASB Addition as well as future stages of the development, in-ground engineering services need to be diverted and a section of Hospital Road needs to be lowered. The lowering of Hospital Road will require the closure of Hospital Road to the south of High Street while maintaining vehicular access to the loading dock and staff car park off Barker Street from the south.

The transport assessment has been prepared to respond to SSD-10339 for the IASB Addition including the associated lowering of Hospital Road. The key aspects relating to traffic and transport is the closure of vehicle connectivity between Hospital Road and High Street.

Existing Transport Context

The Transport Assessment prepared for the ASB and SSD 9113 by Arup dated 13 July 2018 provided a detailed description of the existing transport context. The review of existing transport conditions investigated travel behaviours relative to mode for staff, visitors and patients. Revealed preference surveys were conducted in March 2012 (TTW, 2012) to understand the travel behaviours of staff and visitors. The Green Travel Plan baseline travel survey has recently been undertaken and this data will be used to update the travel baseline data.

Data indicated that over 40% of staff live within 5km of the Campus and 12% live within the suburb of Randwick itself. The majority of those accessing the Campus use private vehicles as a primary mode of transport, however staff public transport use is high relative to other hospitals.

The Campus is bound to the east by Avoca Street, a state owned arterial road. Barker Street sits along the south of the Campus and primarily functions as a collector road linking the main hospital access roads (Hospital Road and Easy Street, both privately owned Health assets) to the arterial road network. High Street is the northern boundary of the Campus.

The majority of intersections are performing within practical capacity. However, the key intersections along Avoca Street, mainly with Barker Street and Alison Road, are currently operating at capacity during peak periods.

There are approximately 2,300 on-campus car parking bays available to staff and the public. Parking demand peaks during the middle of the day (11am to 2pm) and occasionally gets close to capacity, but usually there is sufficient parking with spare capacity available outside of this peak period.

Randwick is a district hub for buses in Sydney's eastern suburbs. A number of bus routes pass through the suburb, with the majority providing all-day services to the CBD. Some bus routes provide access to surrounding areas, including Green Square, Mascot, Bondi Junction and Maroubra Junction. Enhancement of the bus services is expected with opening of the CSELR in December 2019.

Active transport modes, including walking and cycling, currently accounts for approximately 17% of staff travel modes to and from the campus. There is potential for a greater shift towards walking and cycling trips given the large proportion of staff living locally supported by the sustainable travel initiatives proposed by the Green Travel Plan such as the bicycle parking and end of trip facilities.

Other approved developments proposed within close proximity of the site would increase traffic volumes along Botany Street and through Randwick in general. The key development of note is the Newmarket Green development (currently under construction).

Proposed IASB Addition

The construction of the IASB Addition comprises a gross floor area of approximately 5,000m². The IASB Addition to the east of the ASB utilises the airspace over Hospital Road. To enable the IASB Addition, in ground engineering services need to be diverted and a section of Hospital Road needs to be lowered, as shown in Figure 3

As part of the proposed integration of UNSW use into the IASB Addition, the staff to be accommodated in the IASB Addition are currently working out of the UNSW Campus. As the IASB Addition houses predominantly education and research spaces, there will be no additional health services provided for patients.

- Parking for the IASB Addition staff who currently drive will continue to be accommodated on the UNSW Kensington Campus, noting that the staff are currently working on the UNSW Campus or the existing hospital campus. This will result in no new traffic generation by staff of the facility. Students would access the IASB Addition in line with UNSW's current transport policies for students.
- A new bicycle parking and end of trip facility is being planned for on campus which is part of approved SD9113. This will be available for IASB Addition staff.
- As an integrated facility in the ASB, vehicle access for drop-off and pick-up will occur via the Botany Street porte-cochere (refer to Figure 4). The porte-cochere will be connected to Botany Street as a new traffic signal intersection.

- Pedestrians moving between the IASB Addition and UNSW will use the pedestrian crossings included at the traffic lights. Pedestrian connection to the existing Campus will be facilitated by two new link bridges over Hospital Road approved for SSD 9113 and the provision of a pedestrian footpath on Hospital Road for improved access to the car park.

Transport Strategy

The Transport Assessment prepared for the ASB by Arup dated 13 July 2018 as per SSD 9113 included a transport strategy for the ASB. The same strategy applies for the IASB Addition.

SESLHD will implement and monitor the Randwick Hospitals Campus Green Travel Plan which provides the strategies for travel demand management at the Randwick Hospitals Campus. The growth in public transport will be leveraged via the significant NSW Government investment in a new integrated bus and light rail network, and campus initiatives to more effectively utilise existing car parking assets as well as grow staff carpooling, walking and cycling.

Lowering of Hospital Road

The road known as “Hospital Road” is a privately owned Health asset which currently facilitates a north - south connection between High Street and Barker Street as well as providing a number of access points for operational functions and essential services such as:

- Main loading dock access for Campus Logistics
- Adult ambulance access
- Car park access to 2 levels of the main Campus car park, between the hours of 6.00am-6.00pm.
- A number of health facilities have limited car parks along Hospital Road

Lendlease has developed a strategy for undertaking the works in three stages to be able to maintain traffic access to the car parks and to the Campus docks via Delivery Drive:

Stage 1 – During this stage of the project the northern side of Hospital Road will be occupied by a large 30t excavator to dig down and install the new sewer and stormwater pipe using a shoring box down to the middle of Delivery Drive. During this period logistics vehicles will access the Campus docks and the car park from Barker Street.

Stage 2 - Take possession of the southern portion of Delivery Drive and Hospital Road and complete road lowering. During this period logistics vehicles will access the Campus docks via High Street and all traffic will access the car park from Barker Street.

Stage 3 - Take possession of the northern portion of Delivery Drive and Hospital Road and complete road lowering. During this period logistics vehicles will access the Campus docks through the lowered Hospital Road and all traffic will access the car park from Barker Street.

An automatic traffic light system will be installed to allow two-way truck movements along the single lane dock entry roadway during construction.

Closure of Hospital Road

As stated above, Hospital Road is a privately owned Health asset on "private land" functioning as a "private road". The implementation of the long held Government Policy of the Health and Education Precinct Objectives, as formulated under the precinct master plan, involves the closure of the private road and the absorption of the use of the land into the IASB Addition with the consequential fundamental rethink on efficient and effective management of traffic in the locality. As noted above, a key consideration is points of accessibility for operational functions and essential services offered by the Precinct.

The two key outcomes are:

- Redirection of traffic exiting the Campus car park and Campus docks to Botany Street, Barker Street and Avoca Streets and the impacts this has on intersection operations. The Barker Street/Hospital Road intersection already has limitations on its operation.
- With only one access available from the southern end of Hospital Road, the flexibility for route choice is reduced.

The majority of intersections are currently performing within practical capacity. However, the key intersections along Avoca Street, mainly with Barker Street and Alison Road, are currently operating at capacity during peak periods. The redistribution of traffic to the Avoca Street /Barker Street intersection and the Easy Street / Barker Street intersection impacts on critical turning movements which causes a deterioration in the operation of both intersections during peak periods.

There is a public interest benefit of redirecting traffic away from High Street due to the increasing multimodal nature of the street for CSELR, buses and pedestrians. High Street is pedestrian activated with the existing Prince of Wales Hospital entrance and the proposed Sydney Children’s Hospital Randwick building extending the hospital’s street frontage to the west of Hospital Road.

A number of measures were considered to reduce the impact of traffic redirected South in the critical peak periods:

Closure of the loading dock during peak periods

The loading dock operates generally between 6am and 3pm. Recent logistics traffic counts indicate that traffic flow is spread over these operating hours with the busiest period between 10am and 12pm. In the peak road traffic periods, loading dock traffic represented only 7 vehicle movements to Hospital Road north in the morning peak hour and 3 vehicle movements in the afternoon peak hour. The closure of the dock for any period may impact on the delivery of critical items for hospital operations. For these reasons, Arup does not consider this mitigation measure to be appropriate.

Alternative redirection route on internal hospital roads

The disadvantage of this route is that it directs traffic towards the east when the majority of traffic exiting Hospital Road wishes to travel west, meaning that this alternative route is unlikely to be attractive to drivers. It also takes additional traffic along narrow internal roads introducing safety considerations for pedestrian activity and emergency vehicle access. The route is not suitable for large trucks. For these reasons, Arup does not consider this mitigation measure to be appropriate**.**

Closure of the car park exits onto Hospital Road

The primary traffic generator on Hospital Road is the car park, which has access points to Basement levels 2 and 3. These access points are currently closed between 6pm and 6am. Consideration has been given to closing the car park access earlier to reduce the impact on the afternoon peak. This traffic would need to be redirected to use the Easy Street access point to Barker Street. The redistributed traffic was tested at the Barker Street/ Easy Street roundabout and found to cause a deterioration in the road network operation. Additional queuing of vehicles could also be expected at the existing entry and exit control gates at Easy Street during the afternoon peak. For these reasons, Arup does not consider this mitigation measure to be appropriate.

Allow right turn movement from Hospital Road to Barker Street

Allowing traffic to turn right from Hospital Road into Barker Street would increase delays for exiting traffic due to the limited gaps in the Barker Street traffic flow in peak periods. With all traffic redirected to Barker Street there is minimal improvement to network performance and increased delay for exiting traffic. For these reasons, Arup does not consider this mitigation measure to be appropriate.

Open Magill Street

Based on the traffic analysis, this application proposes that Magill Street is opened and none of the other measures investigated are deemed appropriate or necessary, on the basis these measures provide no material improvement to network performance.

- The Magill Street / Botany Street and Barker Street / Botany Street intersections continue to operate at a similar level to existing operation. On this basis, it can be concluded that opening Magill Street provides a good alternative for traffic access to Hospital Road with the closure at High Street.
- There will be no additional parking demand due to IASB Addition staff already working on the UNSW campus and those that drive will retain their current parking available at UNSW.
- With the development of the ASB the function of Magill Street will change as new access points are provided for ambulance set down areas and emergency department drop offs. These are approved under the existing SSD approval. The forecast daily traffic volumes along Magill Street of 2,500 vehicles per day is expected to be less than the 3,000 vehicles per day local street threshold.

- The majority of use of Magill Street is from car park access points that are closed between 6.00pm and 6.00am.
- Between 6.00pm and 7.00am the anticipated traffic flow on Magill Street is 335 vehicles over this 13 hour night time period. This represents only 13% of the total daily two-way traffic flow.
- If the opening of Magill Street attracted additional traffic flow during the night time period, then a boom gate could be installed at the end of Magill Street to close access to Hospital Road between 10pm and 7am. The closure period would be signposted at the entry to Magill Street from Botany Street to stop non-local traffic from entering during this period.
- In addition, a weight restriction could be considered if logistics traffic use of Magill Street caused any detrimental effects. It is recommended that the larger logistics vehicles be directed to use Barker Street.

1 Introduction

Arup was engaged by Lendlease, on behalf of NSW Health Infrastructure, to provide traffic and transport consultancy services for the Randwick Campus Redevelopment project (the Project). Stage 1 of this project primarily comprises the development of a new Prince of Wales Hospital Acute Services Building (ASB). State Significant Development (SSD) 9113 for the ASB was approved on 27 February 2019. The approved ASB is located to the immediate west of the existing Randwick Hospitals Campus (Campus), occupying a key position between the Campus and the Kensington Campus of University of New South Wales (UNSW).

In order to assist in realising the vision for the Randwick Health and Education Precinct, an extension to the approved ASB building is proposed to create opportunities for UNSW to integrate health related academic and translational research activities collocated within the ASB.

The proposal known as the Integrated Acute Services Building (IASB) Addition, includes:

- Research Governance & Collaboration Spaces
- Clinical Research Facility
- Clinical Innovation and Translation Spaces
- High tech Interventional Suite and Clinical Translational Laboratory
- Bioengineering Innovation space
- Clinical Research Spaces.

To enable the IASB Addition as well as future stages of the development, in-ground engineering services need to be diverted and a section of Hospital Road needs to be lowered. The lowering of Hospital Road will require the closure of Hospital Road to the south of High Street while maintaining vehicular access to the loading dock and staff car park off Barker Street from the south.

This report has been prepared to respond to SSD-10339 for the IASB Addition including the associated lowering of Hospital Road. The proposed works are summarised in section 3. The key aspects relating to traffic and transport is the closure of vehicle connectivity between Hospital Road and High Street.

1.1 Study area and context

The Campus is located approximately 7.2km south east of the Sydney CBD and forms part of the proposed Randwick Health and Education Precinct. UNSW Sydney sits to the west of the Campus, while Randwick Junction Town Centre is located immediately to the north.

The Campus is bound by High Street to the north, Avoca Street to the east, Barker Street to the south and Hospital Road to the west. The Campus consists of four hospitals: Prince of Wales Hospital, Sydney Children's Hospital Randwick, Royal Hospital for Women and the Prince of Wales Private Hospital, and associated research institutes: Black Dog Institute, Neuroscience Research Australia and the

Bright Alliance. A NSW Ambulance Depot is located on the corner of Barker Street and Hospital Road.

As part of Stage 1 of The Project, a new Prince of Wales ASB will be developed to the west of the existing Campus, bridging the physical gap between the Campus and UNSW. The ASB will include a new intensive care unit, operating theatres, extra beds and a new emergency department. The ASB will facilitate education, training and research to be more closely integrated into the health care services provided across the precinct.

The location of the Campus and the ASB is shown in Figure 1.

Figure 1: The Campus and Stage 1 expansion (ASB) location

1.2 Secretary's Environmental Assessment Requirements (SEARs)

The key transport and accessibility issues outlined within the SEARs are outlined as follows:

5. Transport and Accessibility	
accurate details of the current daily and peak hour vehicle, existing and future public transport networks and pedestrian and cycle movement provided on the road network located adjacent to the proposed development	Sections 2 and 3
details of estimated total daily and peak hour trips generated by the proposal, including vehicle, public transport, pedestrian and bicycle trips	Section 3
the adequacy of existing public transport or any future public transport infrastructure within the vicinity of the site, pedestrian and bicycle networks and associated infrastructure to meet the likely future demand of the proposed development	The majority of staff for the IASB Addition are already working in the precinct and travel patterns are unlikely to change.
measures to integrate the development with the existing/future public transport network and road network	Section 3
details of bicycle infrastructure and bicycle parking servicing the site	Section 3.4
the impact of trips generated by the development on nearby intersections, with consideration of the cumulative impacts from other approved developments in the vicinity, including the operation of Sydney Light Rail and planned intersection improvements, and the need/associated funding for, and details of, upgrades or road improvement works, if required (Traffic modelling is to be undertaken using SIDRA network modelling for current and future years)	Section 6.2
the identification of infrastructure required to ameliorate any impacts on traffic efficiency (including the operation of the Sydney Light Rail) and road safety impacts associated with the proposed development, including details on improvements required to affected intersections, additional school bus routes along bus capable roads (i.e. minimum 3.5 m wide travel lanes), additional bus stops or bus bays	Section 6
details of travel demand management measures to minimise the impact on general traffic and bus operations, including details of a location-specific sustainable travel plan (Green Travel Plan and specific Workplace travel plan) and the provision of facilities to increase the non-car mode share for travel to and from the site	Section 4
the proposed walking and cycling access arrangements and connections to public transport services	Section 3.5

the proposed access arrangements, including car and bus pick-up/drop-off facilities, and measures to mitigate any associated traffic impacts and impacts on public transport, pedestrian and bicycle networks, including pedestrian crossings and refuges and speed control devices and zones	
proposed bicycle parking provision, including end of trip facilities, in secure, convenient, accessible areas close to main entries incorporating lighting and passive surveillance	Section 3.4
proposed number of on-site car parking spaces for staff and visitors and corresponding compliance with existing parking codes and justification for the level of car parking provided on-site	Section 3.3
an assessment of the cumulative on-street parking impacts of cars and bus pick-up/drop-off, staff parking and any other parking demands associated with the development	All drop-off and pick-up will occur within the ASB porte-cochere with access from Botany Street.
an assessment of road and pedestrian safety adjacent to the proposed development and the details of required road safety measures and personal safety in line with CPTED	No changes are proposed to the approved ASB development as a result of the IASB Addition. The main pedestrian entry point to the ASB is via the Botany Street frontage where an open plaza arrangement provides good surveillance. Passive surveillance is available at both the Botany Street and Magill Street access points.
emergency vehicle access, service vehicle access, delivery and loading arrangements and estimated service vehicle movements (including vehicle type and the likely arrival and departure times)	No changes are proposed to the approved ASB development as a result of the IASB Addition.
the preparation of a preliminary Construction Traffic and Pedestrian Management Plan to demonstrate the proposed management of the impact in relation to construction traffic addressing the following: - assessment of cumulative traffic and transport impacts associated with other construction activities (if any) and details of measures to mitigate any associated traffic, pedestrian, cyclists, parking and public transport impacts - an assessment of road safety at key intersection and - locations subject to heavy vehicle construction traffic movements and high pedestrian activity - details of construction program detailing the anticipated construction duration and highlighting significant and milestone stages and events during the construction process - details of anticipated peak hour and daily construction vehicle movements to and from the site including measures to reduce construction	Refer to the CTPMP prepared by Lendlease July 2019.

vehicle movements during the defined peak periods - details of haulage routes and the locations of ingress and egress to the site - details of on-site car parking and access arrangements of construction vehicles, construction workers to and from the site, emergency vehicles and service vehicle - details of temporary cycling and pedestrian access during construction.	
Relevant Policies and Guidelines: - Guide to Traffic Generating Developments (Roads and Maritime Services) - EIS Guidelines – Road and Related Facilities (DoPI) - Cycling Aspects of Austroads Guides - NSW Planning Guidelines for Walking and Cycling - Austroads Guide to Traffic Management Part 12: Traffic Impacts of Development - Standards Australia AS2890.3 (Bicycle Parking Facilities).	These guides have been referenced where appropriate.

2 Existing Transport Context

The Transport Assessment prepared for the ASB and SSD 9113 by Arup dated 13 July 2018 provided a detailed description of the existing transport context. The review of existing transport conditions investigated travel behaviours relative to mode for staff, visitors and patients. Revealed preference surveys were conducted in March 2012 (TTW, 2012) to understand the travel behaviours of staff and visitors. The Green Travel Plan baseline travel survey has recently been undertaken and this data will be used to update the travel baseline data.

Data indicated that over 40% of staff live within 5km of the Campus and 12% live within the suburb of Randwick itself. The majority of those accessing the Campus use private vehicles as a primary mode of transport, however staff public transport use is high relative to other hospitals.

The Campus is bound to the east by Avoca Street, a state owned arterial road. Barker Street sits along the south of the Campus and primarily functions as a collector road linking the main hospital access roads (Hospital Road and Easy Street, both privately owned Health assets) to the arterial road network. High Street is the northern boundary of the Campus.

The majority of intersections are performing within practical capacity. However, the key intersections along Avoca Street, mainly with Barker Street and Alison Road, are currently operating at capacity during peak periods.

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Randwick is a district hub for buses in Sydney's eastern suburbs. A number of bus routes pass through the suburb, with the majority providing all-day services to the CBD. Some bus routes provide access to surrounding areas, including Green Square, Mascot, Bondi Junction and Maroubra Junction. Enhancement of the bus services is expected with opening of the CSELR in December 2019.

Active transport modes, including walking and cycling, currently accounts for approximately 17% of staff travel modes to and from the campus. The majority of active transport accounted for by walking trips (14%) rather than cycling trips currently. This proximity, in conjunction with limited availability of parking on the Campus has initiated a shift towards more active modes. However, there is potential for a greater shift towards walking and cycling trips given the large proportion of staff living locally supported by the sustainable travel initiatives proposed by the Green Travel Plan such as the bicycle parking and end of trip facilities.

Other approved developments proposed within close proximity of the site would increase traffic volumes along Botany Street and through Randwick in general. The key development of note is the Newmarket Green development (currently under construction). This mixed-use development comprises of approximately 760 dwellings and 2,500m^2 of commercial land use. New buildings are also occurring on the UNSW Campus however the university has a policy of no increase in car mode, with no new car parking being proposed.

3 Proposed IASB Addition

3.1 Site location

As part of Stage 1 of the Project, an ASB will be constructed to the west of the campus. The future expansion site, consisting of Stage 1 (ASB) and the future redevelopment stages bound by High Street to the north, Hospital Road to the east, Magill Street to the south and Botany Street to the west. The IASB Addition to the east of the ASB utilising the airspace over Hospital Road. Refer Figure 2.

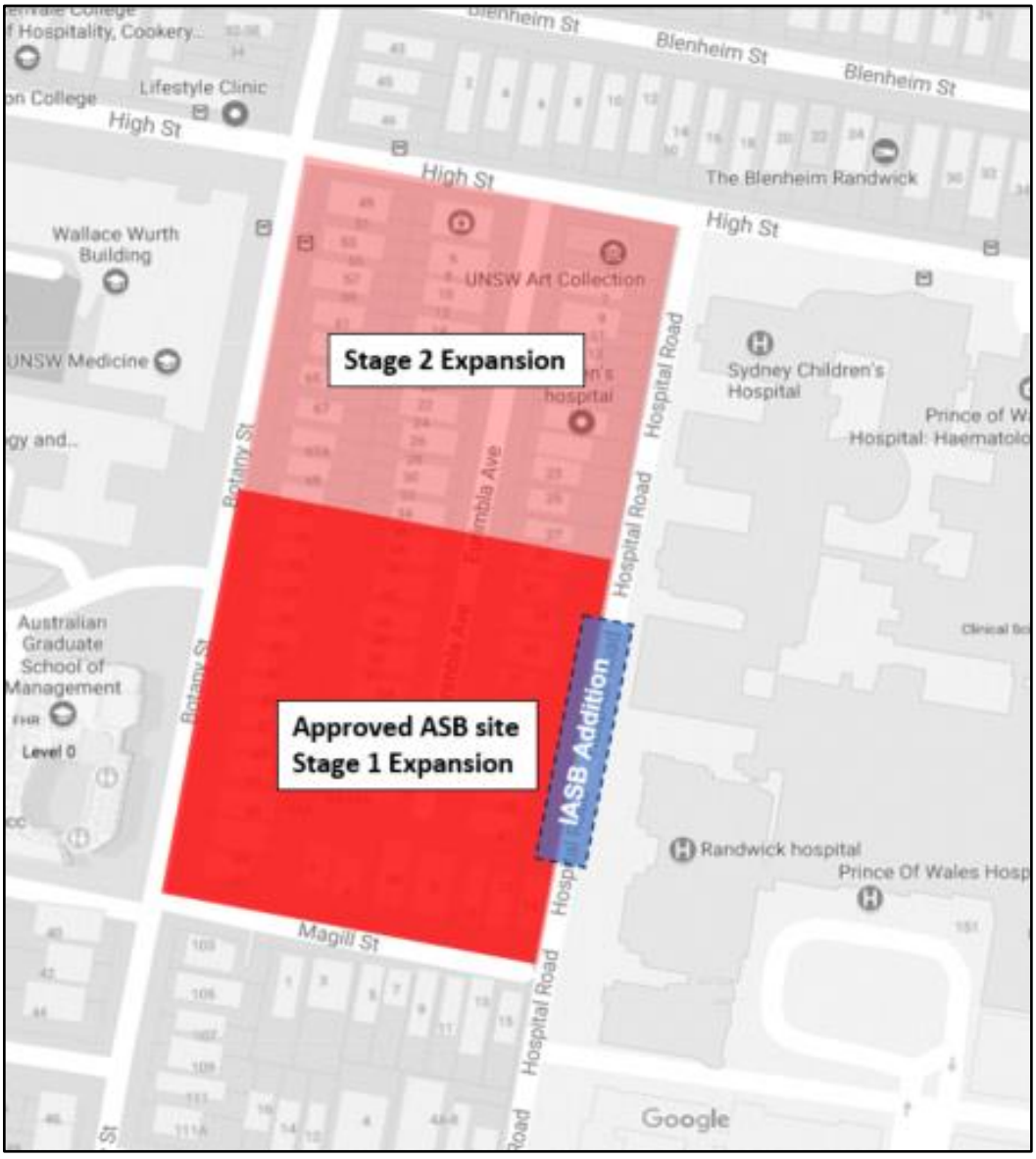

Figure 2: Proposed IASB Addition location

The construction of the IASB Addition comprises a gross floor area of approximately 5,000m². To enable the IASB Addition, in ground engineering services need to be diverted and a section of Hospital Road needs to be lowered, as shown in Figure 3.

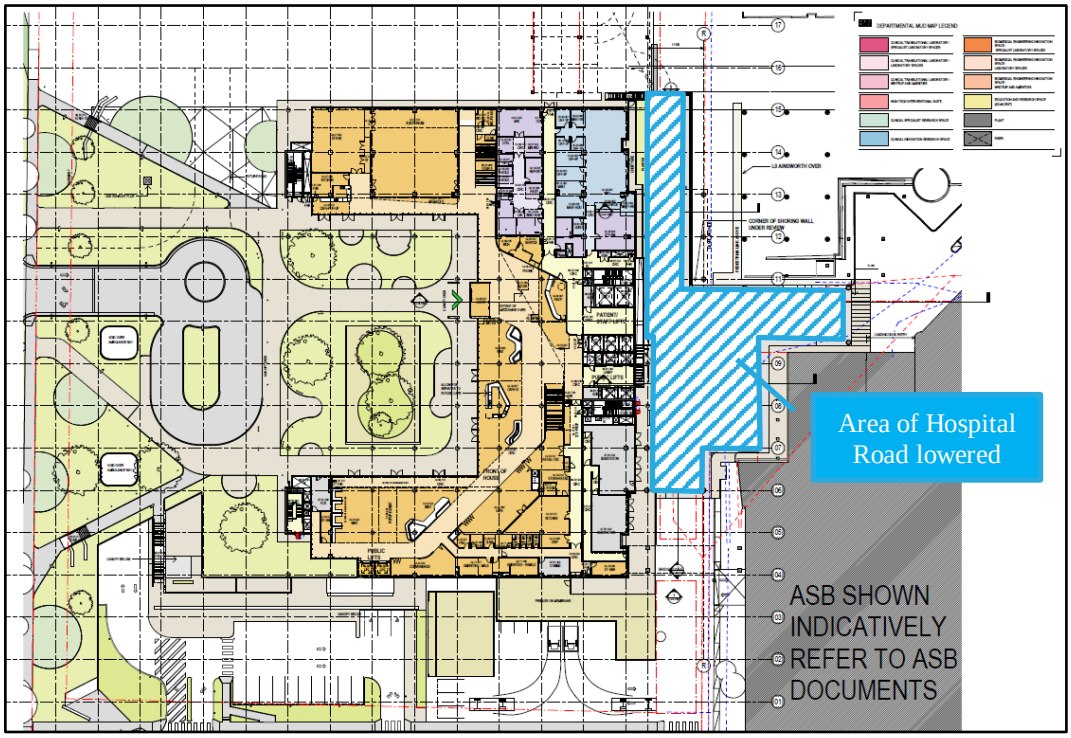

Figure 3: Proposed ASB Addition showing lowering of Hospital Road (Source: BVN, 2019)

3.2 Facility accommodation

As part of the proposed integration of UNSW use into the IASB Addition, the staff to be accommodated in the IASB Addition are currently working out of the UNSW Campus. As the IASB Addition houses predominantly education and research spaces, there will be no additional health services provided for patients.

3.3 Car parking

Parking for the IASB Addition staff who currently drive will continue to be accommodated on the UNSW Kensington Campus, noting that the staff are currently working on the UNSW Campus or the existing hospital campus. This will result in no new traffic generation by staff of the facility. Students would access the IASB Addition in line with UNSW's current transport policies for students.

3.4 Bicycle parking

A new bicycle parking and end of trip facility is being planned for on campus which is part of approved SD9113. This will be available for IASB Addition staff.

3.5 Vehicle and pedestrian access

As an integrated facility in the ASB, vehicle access for drop-off and pick-up will occur via the Botany Street porte-cochere (refer to Figure 4). The porte-cochere will be connected to Botany Street as a new traffic signal intersection.

Pedestrians moving between the IASB Addition and UNSW will use the pedestrian crossings included at the traffic lights.

Pedestrian connection to the existing Campus will be facilitated two new link bridges over Hospital Road approved for SSD 9113 and the provision of a pedestrian footpath on Hospital Road for improved access to the car park.

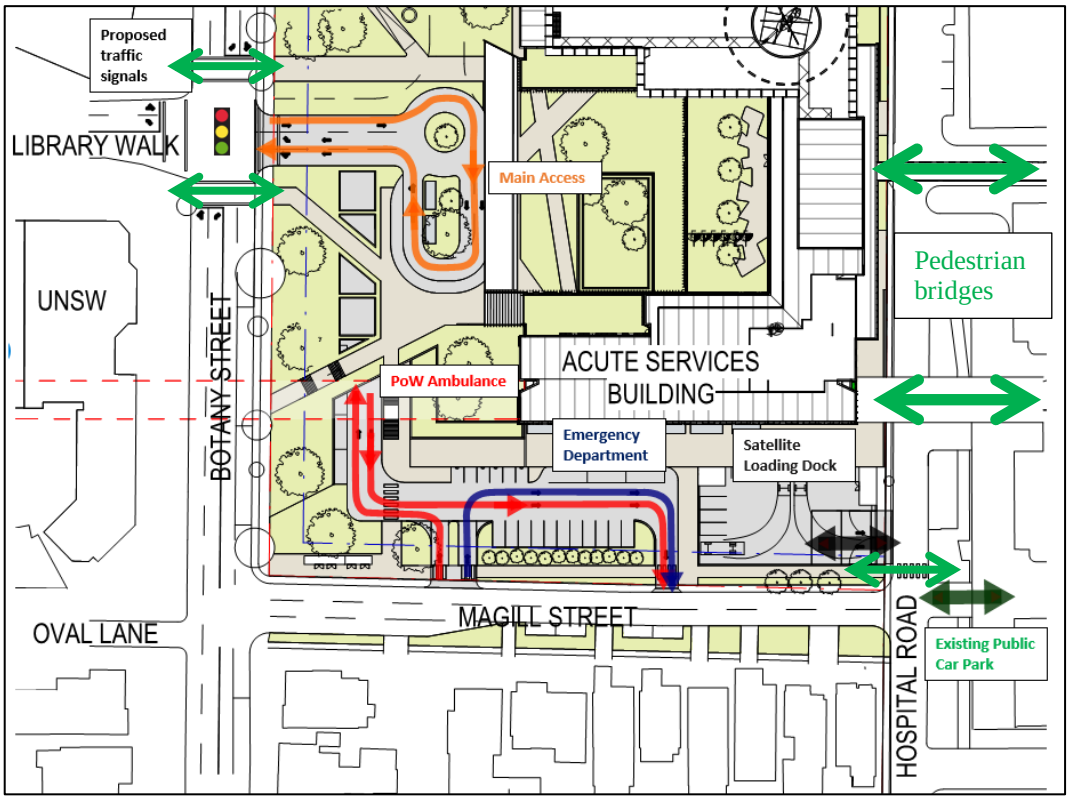

Figure 4: Vehicle and pedestrian access to the IASB Addition

4 Transport Strategy

The Transport Assessment prepared for the ASB by Arup dated 13 July 2018 as per SSD 9113 included a transport strategy for the ASB. The same strategy applies for the IASB Addition.

SESLHD will implement and monitor the Randwick Hospitals Campus Green Travel Plan which provides the strategies for travel demand management at the Randwick Hospitals Campus. The growth in public transport will be leveraged via the significant NSW Government investment in a new integrated bus and light rail network, and campus initiatives to more effectively utilise existing car parking assets as well as grow staff carpooling, walking and cycling.

The ASB is currently proposed to provide no additional parking. However, current travel behaviours are unlikely to propagate and given Transport for NSW's (TfNSW) investment in public transport improvements in the area (e.g. CSELR) and Sydney's strategic shift towards more sustainable transport modes, there is an opportunity to reduce private car dependence via improvements to public transport and appropriate travel demand measures.

The mode shift (for staff private vehicle use) required for the entire Randwick Health Campus to offset the parking requirements of the ASB has been calculated. This informed the interventions discussed within the subsequent green travel plan. The required mode shift away from private vehicles for staff was calculated using the following method based on the 156 additional beds:

- Calculate the 2027 forecasted full time equivalent staff that will be on site at any given time.
- Consider the forecasted parking requirement for staff and visitors to the ASB. A breakdown of current parking allocation indicates a 67/33 split between staff and visitors. This results in 272 spaces required for staff and 134 spaces required for visitors.
- Calculate the staff driver mode share shift required for the entire campus to accommodate the requirement for 134 ASB visitor parking spaces within existing parking supply.
- Analysis indicates that a staff mode shift away from private vehicles of 8% would be required by 2027.

Justification of the relevant mode share shifts for each mode is outlined as follows:

- Car (Driver) – a 8% reduction in driver mode shift has the potential to negate the 272 additional parking bays required by the ASB.
- Car (Passenger) – With introduction of car pool programmes and with potential incentives to registered car pool vehicles, a 1-2% increase in mode share is likely reasonable.
- Public Transport – Given NSW government's significant investment in public transport (CSELR, Sydney Metro, etc.), this is a mode that has the greatest propensity for change. The introduction of CSELR will improve the legibility of transport services to the Campus from the CBD. The potential subsequent

improvements to north-south bus services towards the south of the Campus will likely increase the current public mode share in this area. As result, a 3-4% increase in mode share is reasonable to expect.

- Walking – Analysis of staff postcodes relative to reasonable walking distances indicate that this mode is highly utilised. New staff on campus choosing to live nearby are likely to walk to work further supporting this sustainable mode of travel.
- Cycling – Analysis of staff postcodes relative to reasonable cycling distances indicate that there is an excellent opportunity to promote cycling as a mode of transport for staff. Analysis indicates that there is currently 9% of staff living within an active transport catchment of the Campus that are using modes other than walking or cycling. As result, a 2-3% increase in mode share is likely reasonable.

5 Lowering of Hospital Road

5.1 Existing use of Hospital Road

The road known as “Hospital Road” is a privately owned Health asset which currently facilitates a north - south connection between High Street and Barker Street as well as providing a number of access points for operational functions and essential services such as:

- Main loading dock access for Campus Logistics
- Adult ambulance access
- Car park access to 2 levels of the main Campus car park, between the hours of 6.00am-6.00pm
- A number of health facilities have limited car parks along Hospital Road

At High Street, all vehicle movements are permitted, and traffic signals have recently been installed to facilitate CSELR operations which are planned to commence in December 2019. Left turn out and left turn in movements to Hospital Road at High Street are size limited to vehicles under 9m.

At Barker Street the right turn exit movement from Hospital Road is banned by signage and a road median. All other movements are permitted. Signage indicates that ambulance access is from Barker Street, although High Street is also used.

The morning and afternoon peak vehicle movements are provided in Figure 5 and Figure 6. These vehicle movements were collected in 2019 with High Street operating with two-way traffic ready for operation of the light rail.

Current traffic utilisation of Hospital Road is approximately 33% from High Street and 67% from Barker Street. The car park is the major generator of traffic with some 1,900 vehicles per day entering and exiting via Hospital Road.

Delivery vehicles can arrive and depart Hospital Road from either High Street or Barker Street. There are a number of restrictions which limit turns with High Street left turn movements limit by vehicle length and no right turn permitted on exit at Barker Street.

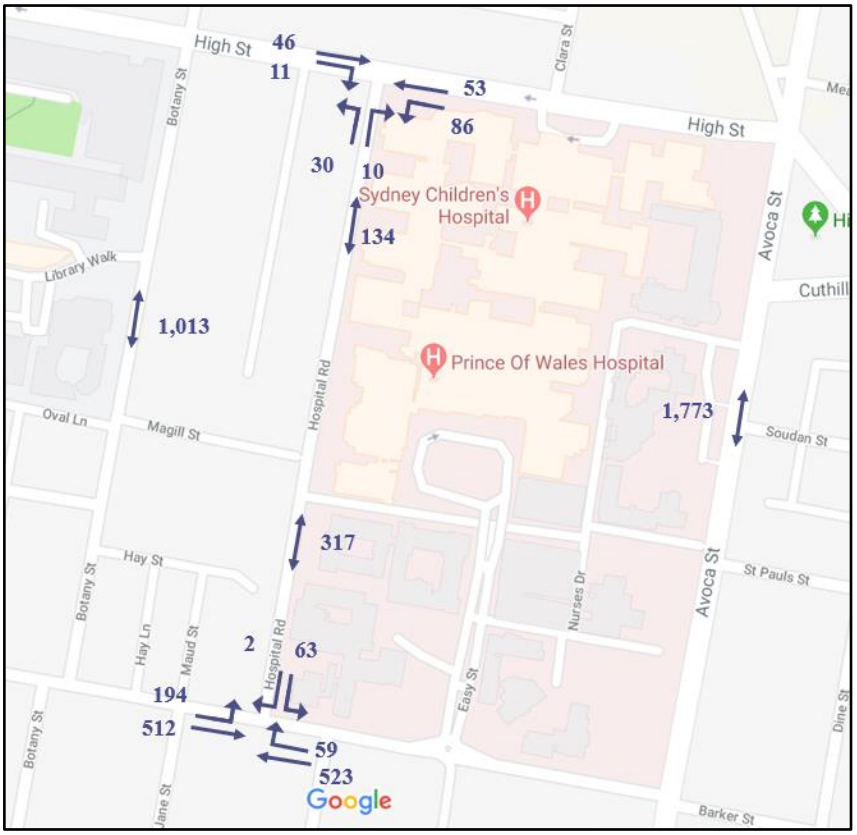

Figure 5: AM Peak

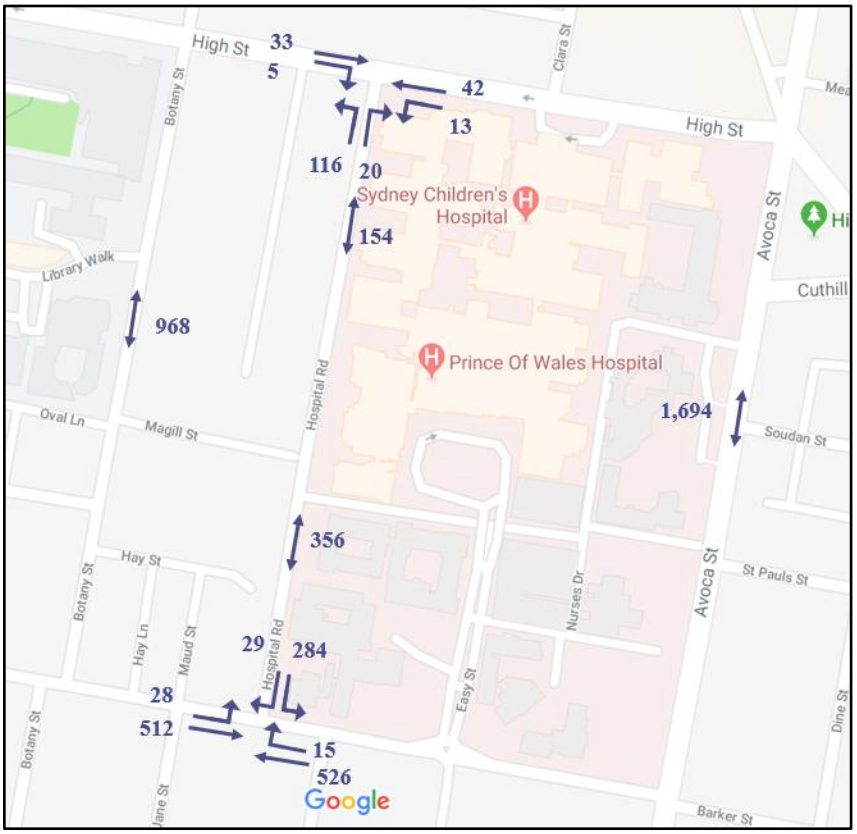

Figure 6: PM Peak

5.2 Access during construction of the IASB Addition

Lendlease has developed a strategy for undertaking the works in three stages to be able to maintain traffic access to the car parks and to the Campus docks via Delivery Drive as shown in Figure 7.

5.2.1 Staging

Stage 1 – During this stage of the project the northern side of Hospital Road will be occupied by a large 30t excavator to dig down and install the new sewer and stormwater pipe using a shoring box down to the middle of Delivery Drive. During this period logistics vehicles will access the Campus docks and the car park from Barker Street.

Stage 2 - Take possession of the southern portion of Delivery Drive and Hospital Road and complete road lowering. During this period logistics vehicles will access the Campus docks via High Street and all traffic will access the car park from Barker Street.

Stage 3 - Take possession of the northern portion of Delivery Drive and Hospital Road and complete road lowering. During this period logistics vehicles will access the Campus docks through the lowered Hospital Road and all traffic will access the car park from Barker Street.

An automatic traffic light system will be installed to allow two-way truck movements along the single lane dock entry roadway during construction.

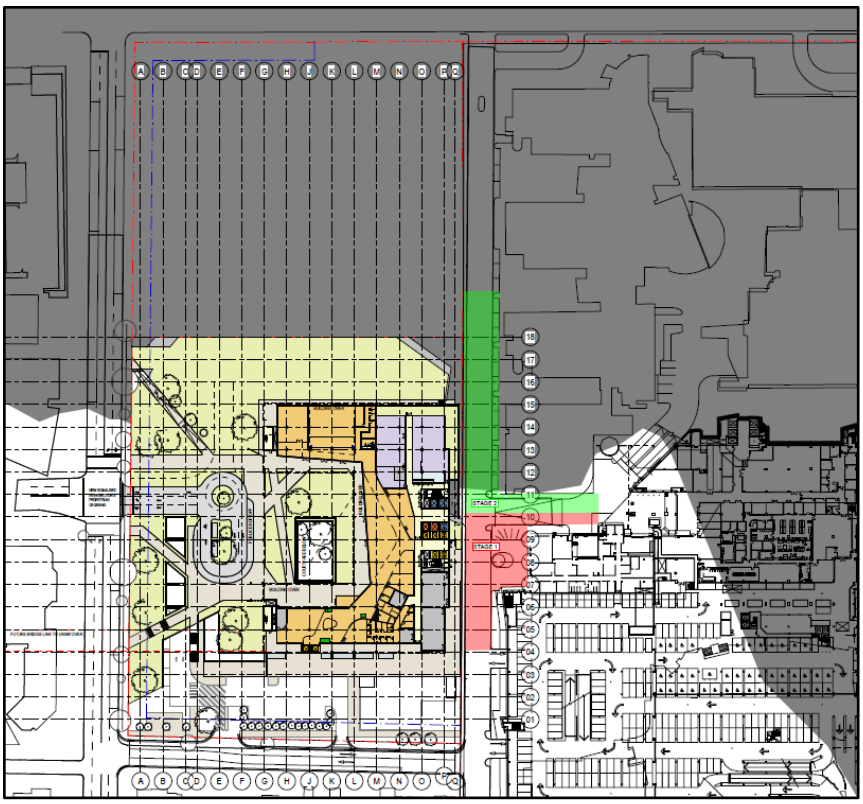

Figure 7: Proposed stages 2 and 3 of construction for Hospital Road lowering

5.3 Access in operation

The IASB Addition uses the Hospital Road air space to provide an integrated eastern extension to the ASB building. The structure for this building extension will require columns to be located on both sides of Hospital Road.

Medium Rigid Vehicle (MRV) and Heavy Rigid Vehicle (HRV) swept paths have been undertaken to confirm operations of Delivery Drive. These are shown in Figure 8 and Figure 9.

The MRV will enter and exit each side of the central column on Grid Line 10. This represents the normal delivery vehicle. If access is required for the 12.5m long HRV then entry would need to be to the south of the central column with exiting vehicles needing to wait.

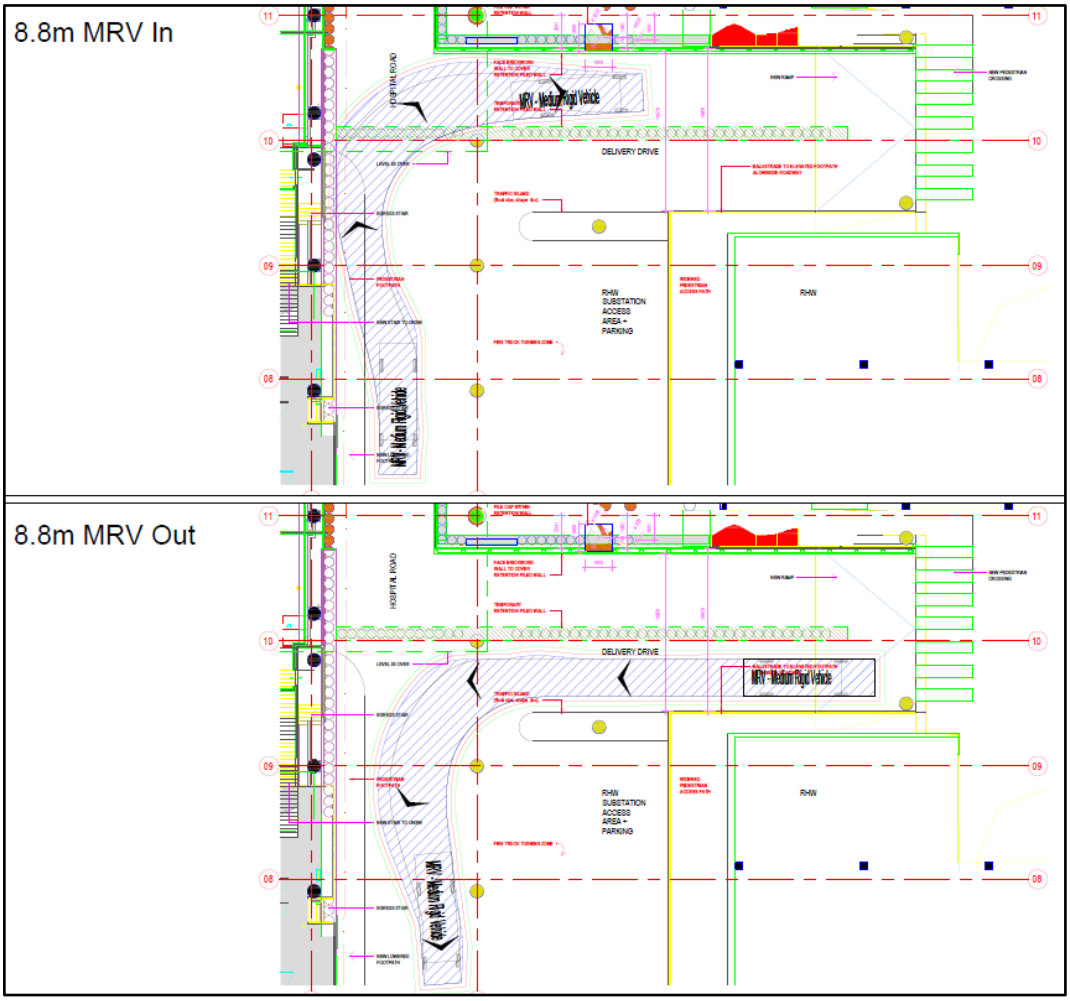

Figure 8: MRV Entry and Exit paths

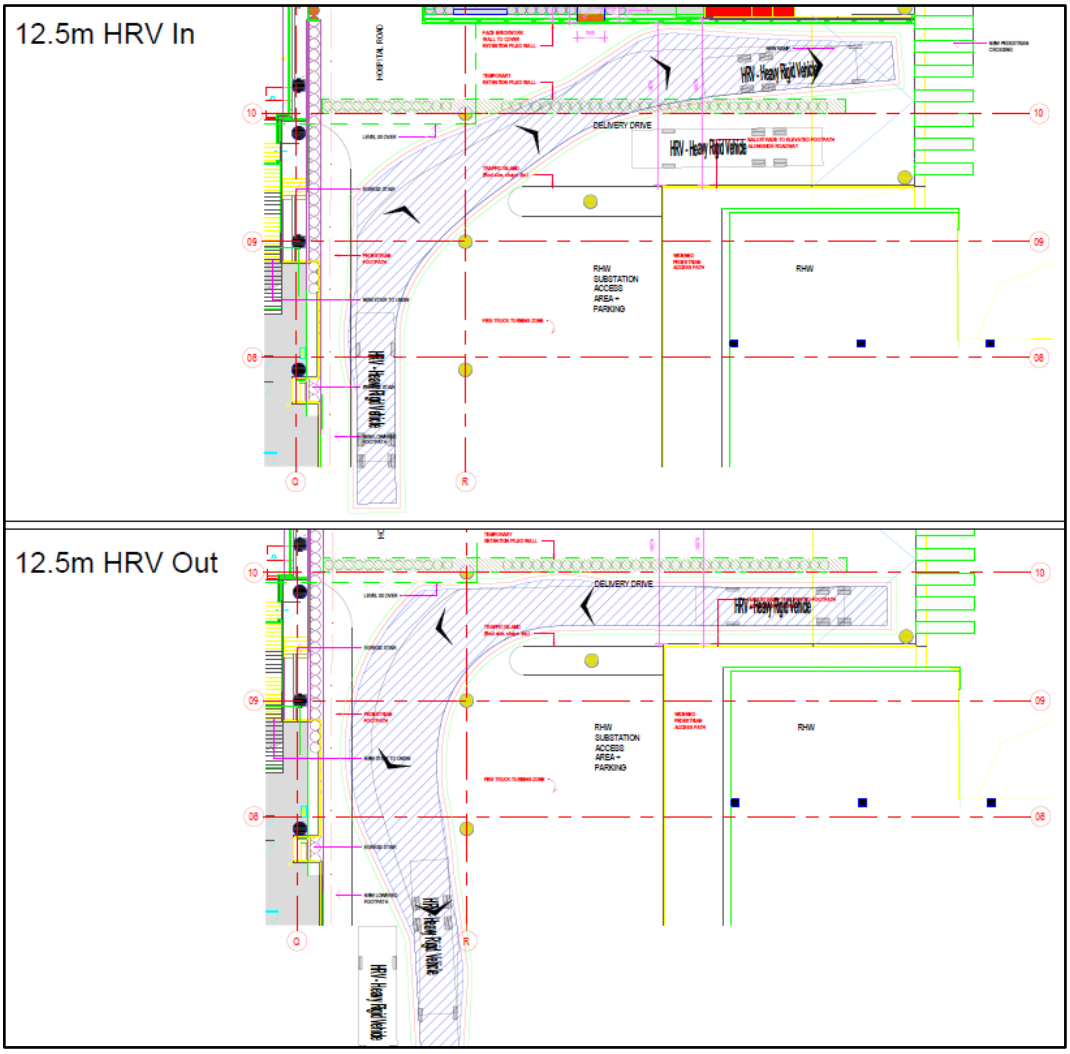

Figure 9: HRV Entry and Exit paths

5.3.1 Future fire truck access

If the fire hydrant booster valve location is moved to the south of Delivery Drive, an alternative fire truck general appliance (10.1m long) is possible utilising the existing hard stand area in front of the sub-station access. The fire truck turning paths are shown in Figure 10.

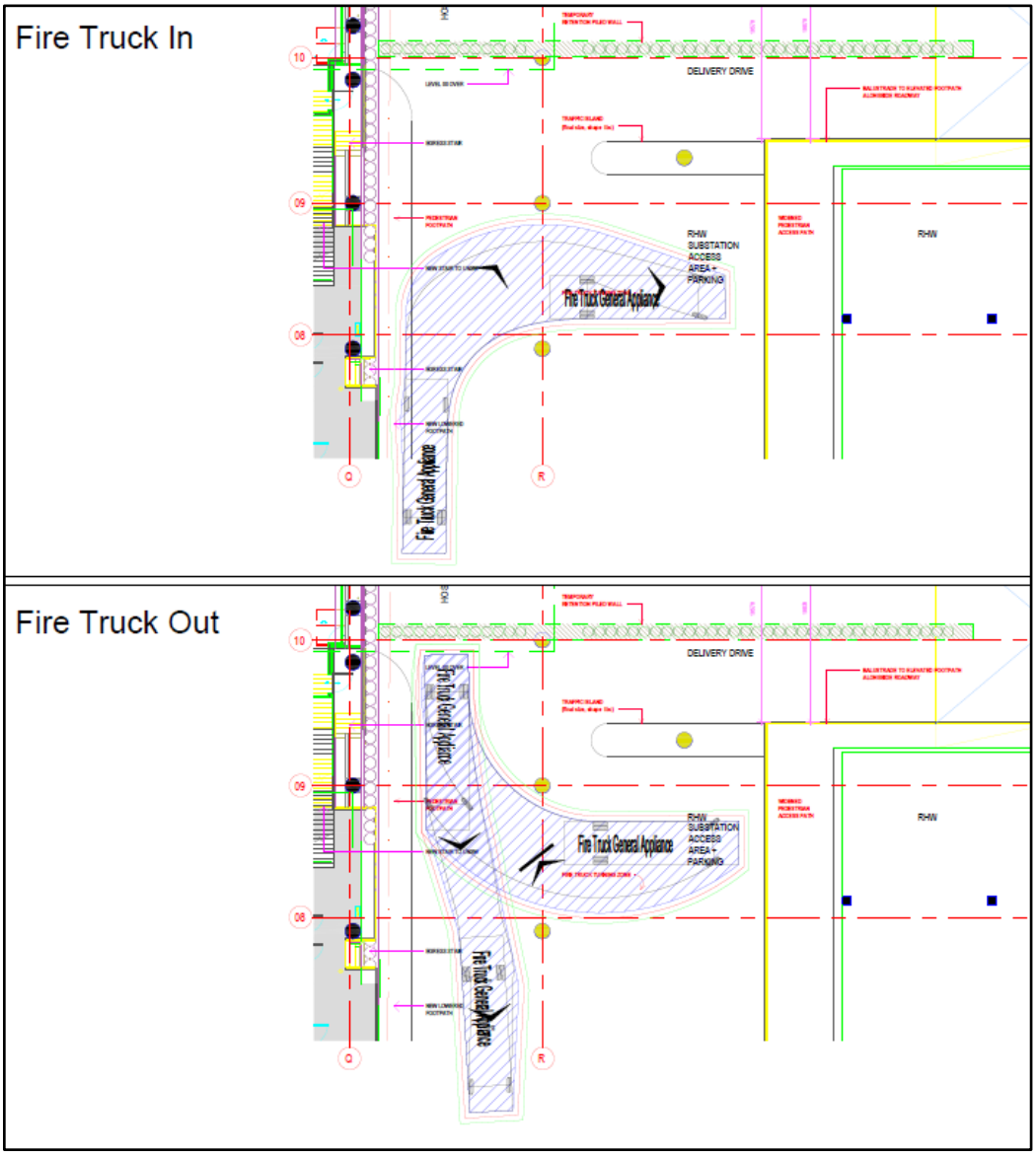

Figure 10: Fire truck general appliance (10.1m long)

6 Closure of Hospital Road

As stated above, Hospital Road is a privately owned Health asset on "private land" functioning as a "private road". The implementation of the long held Government Policy of the Health and Education Precinct Objectives, as formulated under the precinct master plan, involves the closure of the private road and the absorption of the use of the land into the IASB Addition with the consequential fundamental rethink on efficient and effective management of traffic in the locality. As noted above, a key consideration is points of accessibility for operational functions and essential services offered by the Precinct.

6.1 Redistribution of traffic

Car park traffic currently using the High Street/Hospital Road intersection for access from the north and west will need to adjust the route of travel via Botany Street to access Barker Street. Other traffic from the east could reroute via Avoca Street as shown in Figure 11.

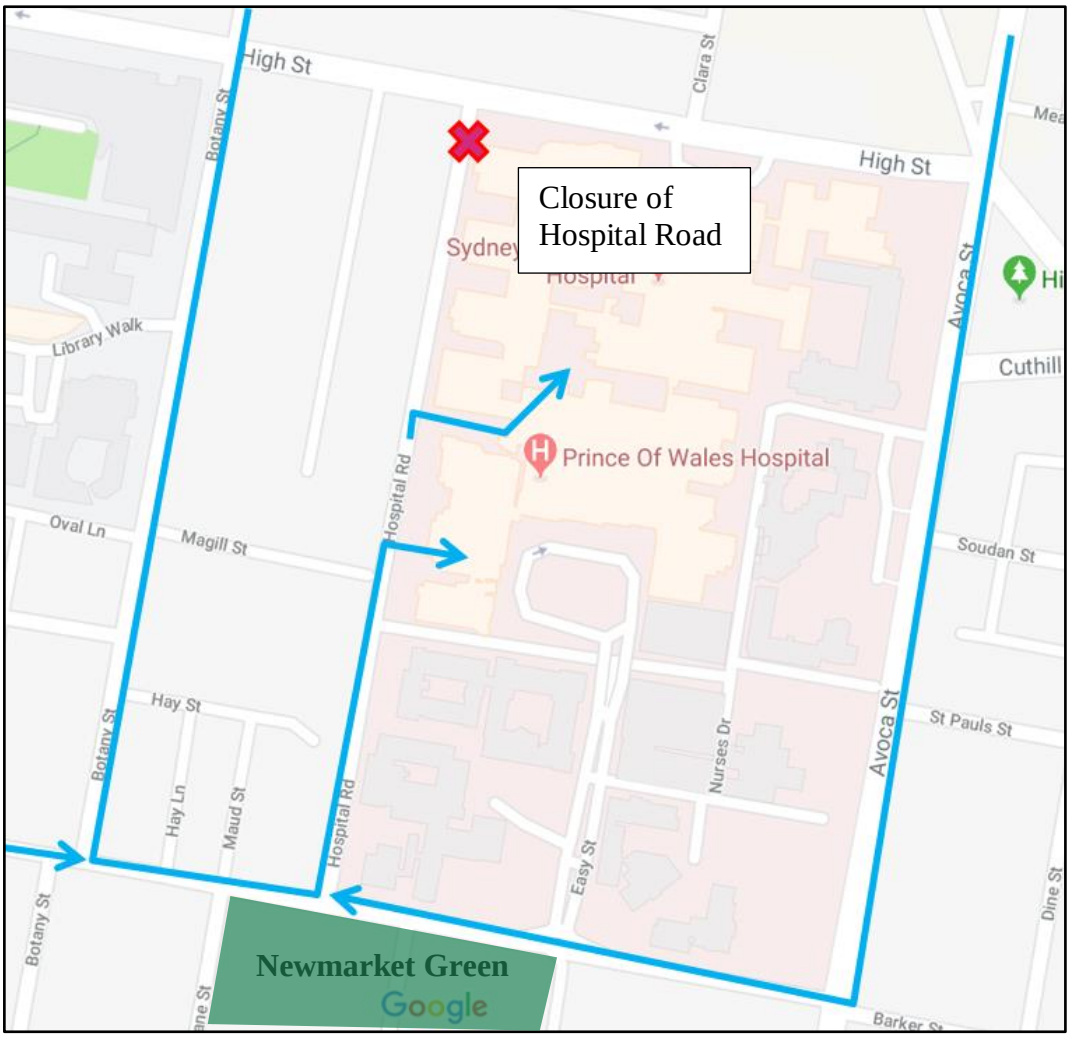

Figure 11: Alternative traffic routes for the closure of Hospital Road at High Street

A key issue is the operation of the Barker Street/Hospital Road intersection. Queuing of vehicles occurs in both directions along Barker Street due to the traffic signals upstream at Avoca Street and Botany Street. Currently, traffic wishing to travel west from Hospital Road needs to turn left and then execute a U-turn at the Easy Street roundabout. Due to the traffic queuing at peak times (school and commuter peaks) queuing occurs in Hospital Road on exit. Additional traffic will be using Barker Street for access to Newmarket Green when complete, further impacting on traffic flows.

The two key outcomes are:

- Redirection of traffic exiting the Campus car park and Campus docks to Botany Street, Barker Street and Avoca Streets and the impacts this has on intersection operations. The Barker Street/Hospital Road intersection already has limitations on its operation.
- With only one access available from the southern end of Hospital Road, the flexibility for route choice is reduced.

Given that Hospital Road is providing access for a range of existing users, including ambulance access, it will be necessary to ensure future traffic flows can be appropriately accommodated and managed to allow for priority of use.

The traffic currently using Hospital Road has been redirected for each stage of closure. The percentage change in traffic volume at key intersections on the access road system are shown in Figure 12 and Figure 13 for each stage. The second stage which closes Hospital Road north of Delivery Drive redirects the most traffic to the Southern access road system.

Arup has modelled the traffic impacts for Stage 2 of Hospital Road. The AM and PM peak traffic has been redirected to use available routes as shown in Figure 14 and Figure 15. Traffic modelling is described in Section 6.2.

The majority of intersections are currently performing within practical capacity. However, the key intersections along Avoca Street, mainly with Barker Street and Alison Road, are currently operating at capacity during peak periods. The redistribution of traffic to the Avoca Street /Barker Street intersection and the Easy Street / Barker Street intersection impacts on critical turning movements which causes a deterioration in the operation of both intersections during peak periods.

There is a public interest benefit of redirecting traffic away from High Street due to the increasing multimodal nature of the street for CSELR, buses and pedestrians. High Street is pedestrian activated with the existing Prince of Wales Hospital entrance and the proposed Sydney Children's Hospital Randwick building extending the hospital's street frontage to the west of Hospital Road.

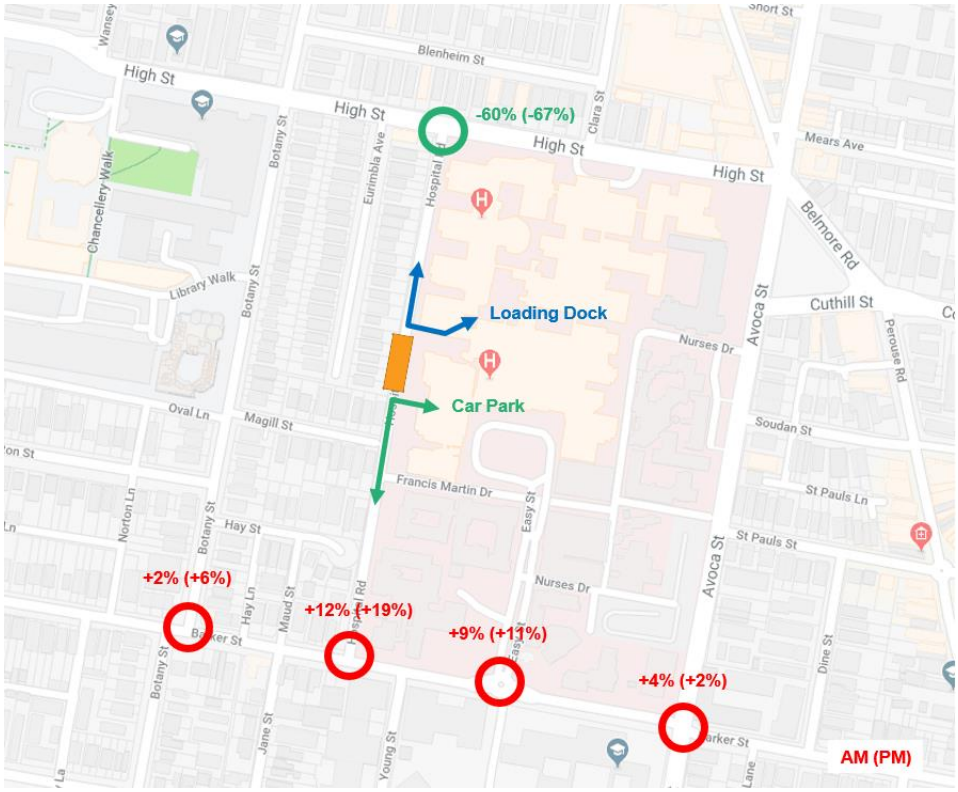

Figure 12: Stage 1 Closure of Hospital Road south of Delivery Drive – percentage change in traffic volumes

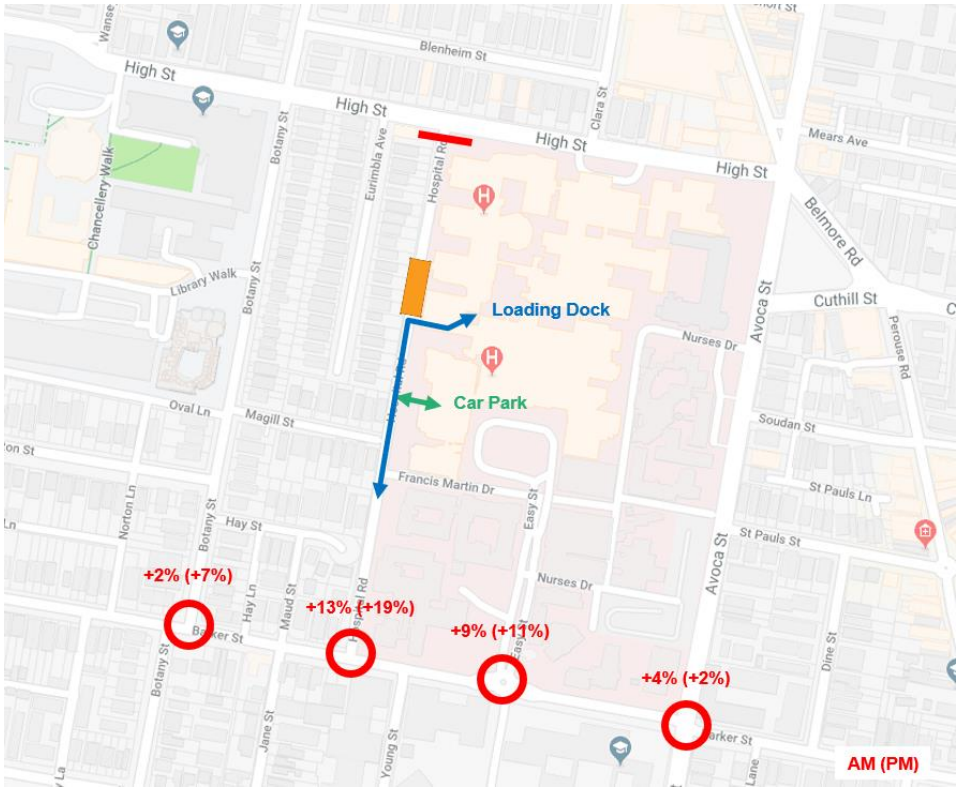

Figure 13: Stage 2 Closure of Hospital Road north of Delivery Drive – percentage change in traffic volumes

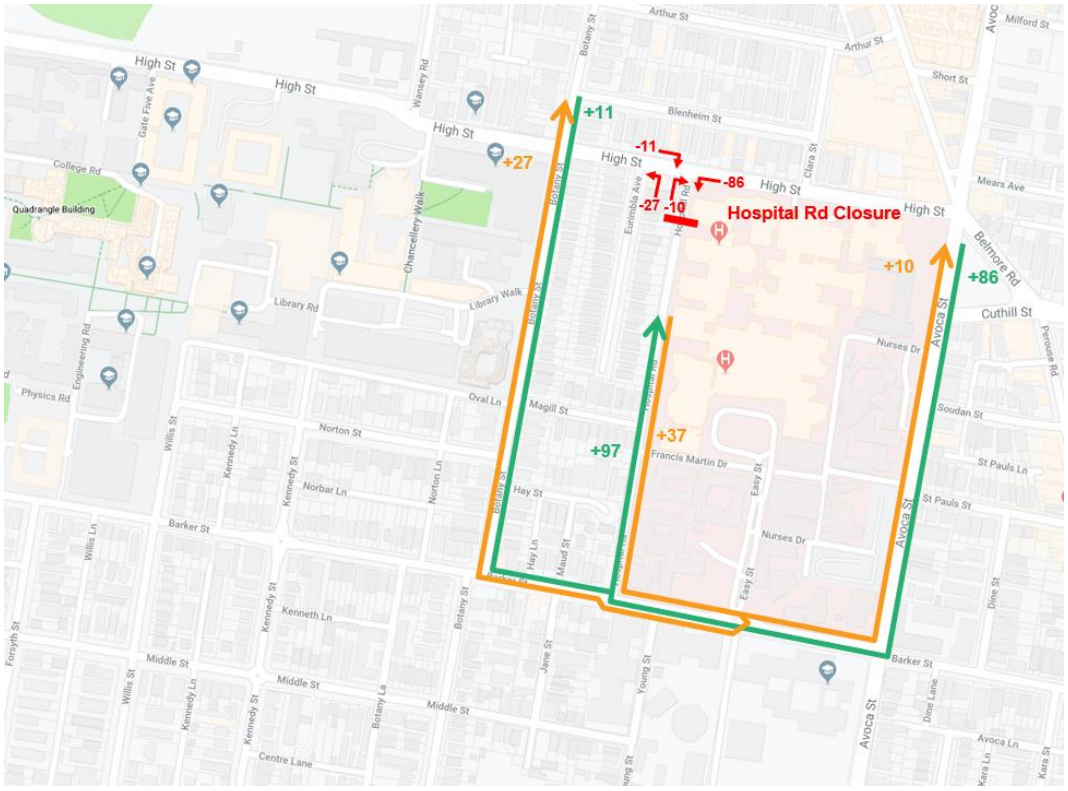

Figure 14: AM Peak redirected traffic on available routes

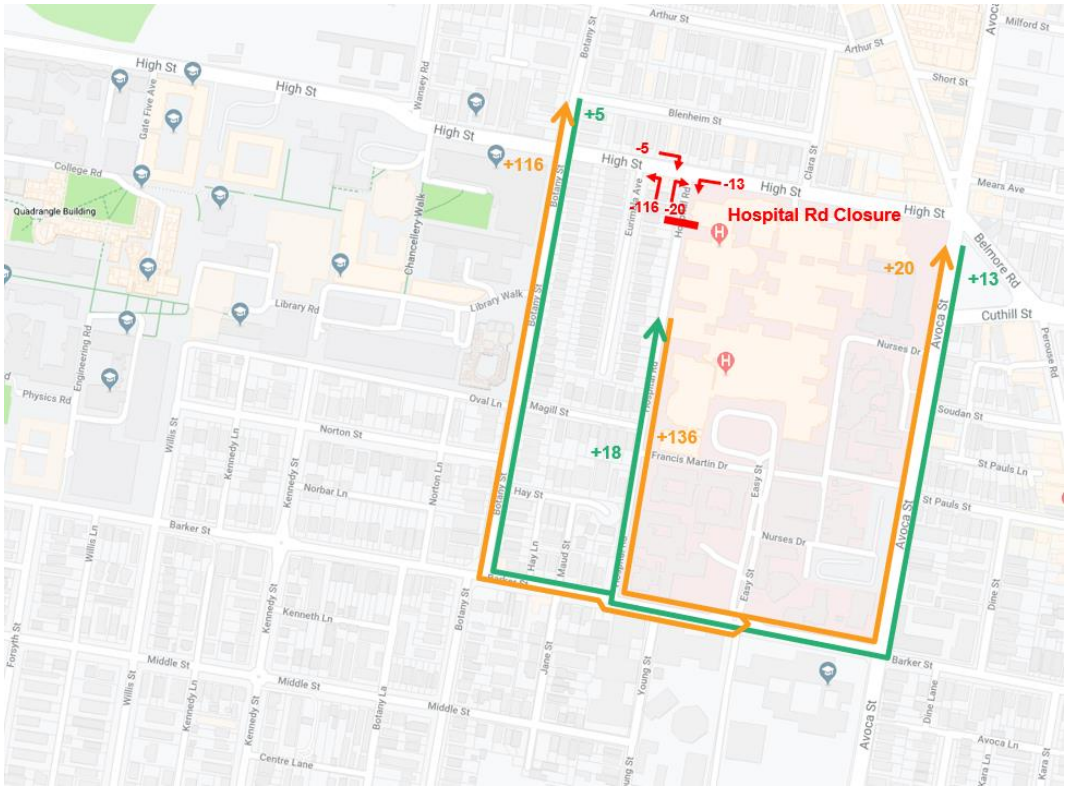

Figure 15: PM Peak redirected traffic on available routes

6.2 Intersection operations

Intersection modelling was undertaken on all key intersections within the study area to provide an understanding of the existing and future performance of the nearby road network.

SIDRA network, an industry standard static modelling software package, was utilised to assess the identified intersections. The intersection performance is assessed in terms of the following metrics:

- Level of service;
- Degree of saturation; and
- Average delay.

In urban areas, the traffic capacity of the major road network is generally a function of the performance of traffic intersections. This performance is quantified in terms of the Level of Service (LOS), which is an index of the operational performance of traffic at an intersection and is based on the average delay per vehicle. LOS ranges from A = very good to F = highly congested travel conditions, as shown in Table 1.

Table 1: Roads and Maritime Services NSW Level of service definitions (RMS NSW Guide to Traffic Generating Developments 2002).

Description	Level of Service	Average Delay per Vehicle (s)
Very Good	A	< 14.5
Good	B	14.5 ≤ 28.5
Satisfactory	C	28.5 ≤ 42.5
Near Capacity	D	42.5 ≤ 56.5
At Capacity	E	56.5 ≤ 70.5
Over Capacity	F	≥ 70.5

Generally, it is desirable to aim at achieving a LOS C or greater at all major road intersections. However, in practice, it is reasonable for some intersections to operate at LOS D at peak times.

Another common measure of intersection performance is the degree of saturation (DOS), which provides an overall measure of the capability of the intersection to accommodate additional traffic. A DOS of 1.0 indicates that an intersection is operating at capacity. The desirable maximum DOS are as follows for the respective intersection types:

- Signalised intersection – 0.9
- Roundabout – 0.85
- Priority intersection – 0.8

The signal operations (including phasing and cycle times) were recorded during peak period video recordings.

The existing intersection operations are shown in Table 2 indicating that the Barker Street/ Avoca Street intersection is operating over capacity in both the AM and PM peak periods. In the PM peak, traffic queuing along Barker Street from the Avoca Street intersection affects the operation of the Easy Street roundabout. After redirection of traffic due to the closure of Hospital Road, the Barker Street intersections deteriorate in operation during the PM peak period. This is indicated graphically in Figure 17 and Figure 19.

Table 2: Existing intersection operations

Intersection	AM Peak hour			PM Peak hour		
	DoS	LoS	Delay (Seconds)	DoS	LoS	Delay (Seconds)
Botany St / High St	0.89	D	37	0.91	D	44
Botany St / Magill St	0.22	N/A	1	0.28	N/A	1
Hospital Rd / High St	0.40	B	16	0.44	B	16
Avoca St / Nurses Dr	0.39	N/A	0	0.48	N/A	0
Barker St / Botany St	0.66	C	26	0.66	C	30
Barker St / Hospital Rd	0.39	N/A	2	0.87	N/A	6
Barker St / Easy St	0.66	A	7	> 1.0	E	63
Barker St / Avoca St	> 1.0	E	70	> 1.0	E	> 70

Table 3: Future intersection operations with Hospital Road closed at High Street

Intersection	AM Peak hour			PM Peak hour		
	DoS	LoS	Delay (Seconds)	DoS	LoS	Delay (Seconds)
Botany St / High St	0.88	D	39	0.90	D	41
Botany St / New ASB Access/ UNSW G11	0.44	A	9	0.65	C	23
Botany St / Magill St	0.19	N/A	1	0.31	N/A	1
Barker St / Botany St	0.74	C	28	> 1.0	E	58
Barker St / Hospital Rd	0.41	N/A	3	> 1.0	N/A	> 70
Barker St / Easy St	0.59	A	6	0.93	B	10
Barker St / Avoca St	> 1.0	F	> 70	> 1.0	F	> 70

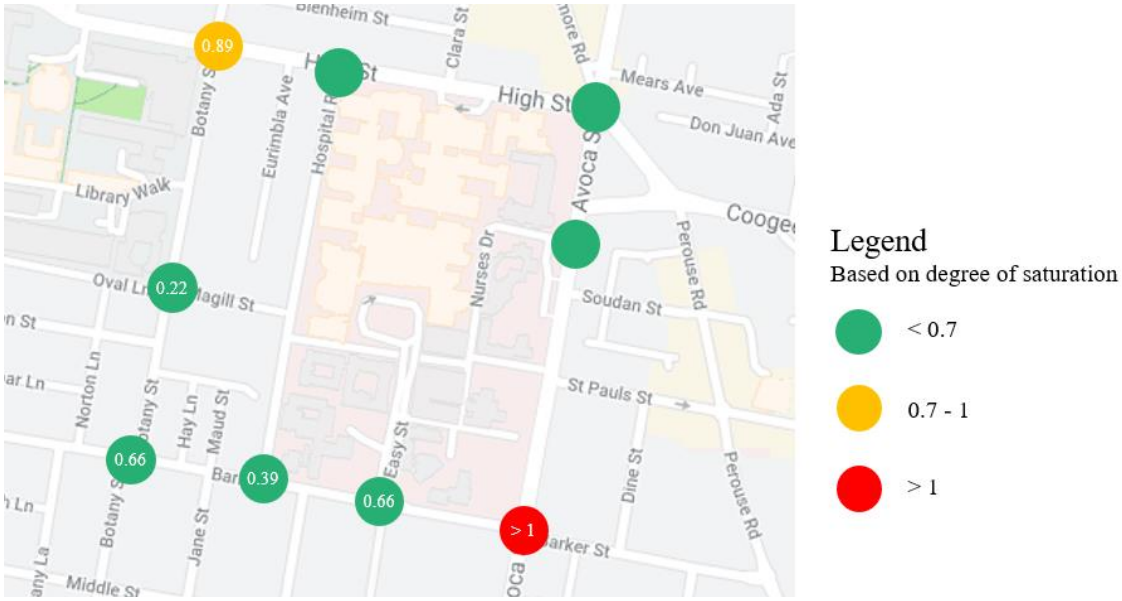

Figure 16: AM Peak existing intersection operations

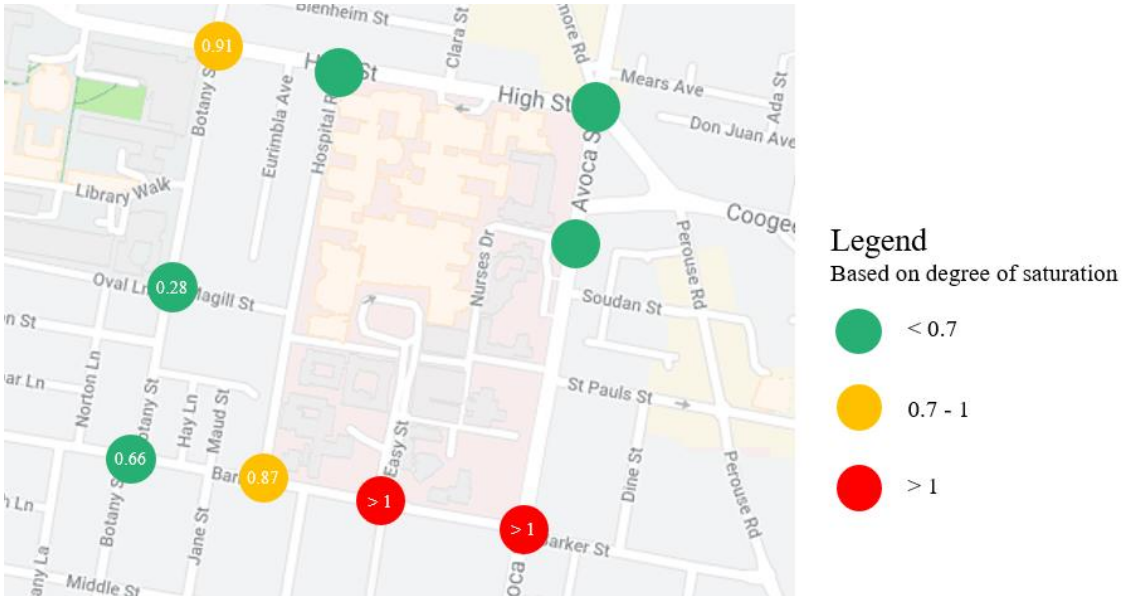

Figure 17: PM Peak existing intersection operations

Figure 18: AM Peak future intersection operations with Hospital Road closed at High Street

Figure 19: PM Peak future intersection operations with Hospital Road closed at High Street

6.3 Measures to reduce the impact of redirected traffic

A number of measures were considered to reduce the impact of traffic being redirected South in the critical peak periods. These are described in the following sections.

6.3.1 Alternative redirection route on internal hospital roads

There is an existing route available through the campus along Francis Martin Drive and Nurses Drive for vehicles to exit from Hospital Road to Avoca Street as shown in Figure 20. This route could be promoted by signage but would only be available for exiting vehicles as Nurses Drive is one-way northbound. Traffic entering Hospital Road would need to use Barker Street.

The disadvantage of this route is that it directs traffic towards the east when the majority of traffic exiting Hospital Road wishes to travel west, meaning that this alternative route is unlikely to be attractive to drivers. It also takes additional traffic along narrow internal roads introducing safety considerations for pedestrian activity and emergency vehicle access. The route is not suitable for large trucks. For these reasons, Arup does not consider this mitigation measure to be appropriate.

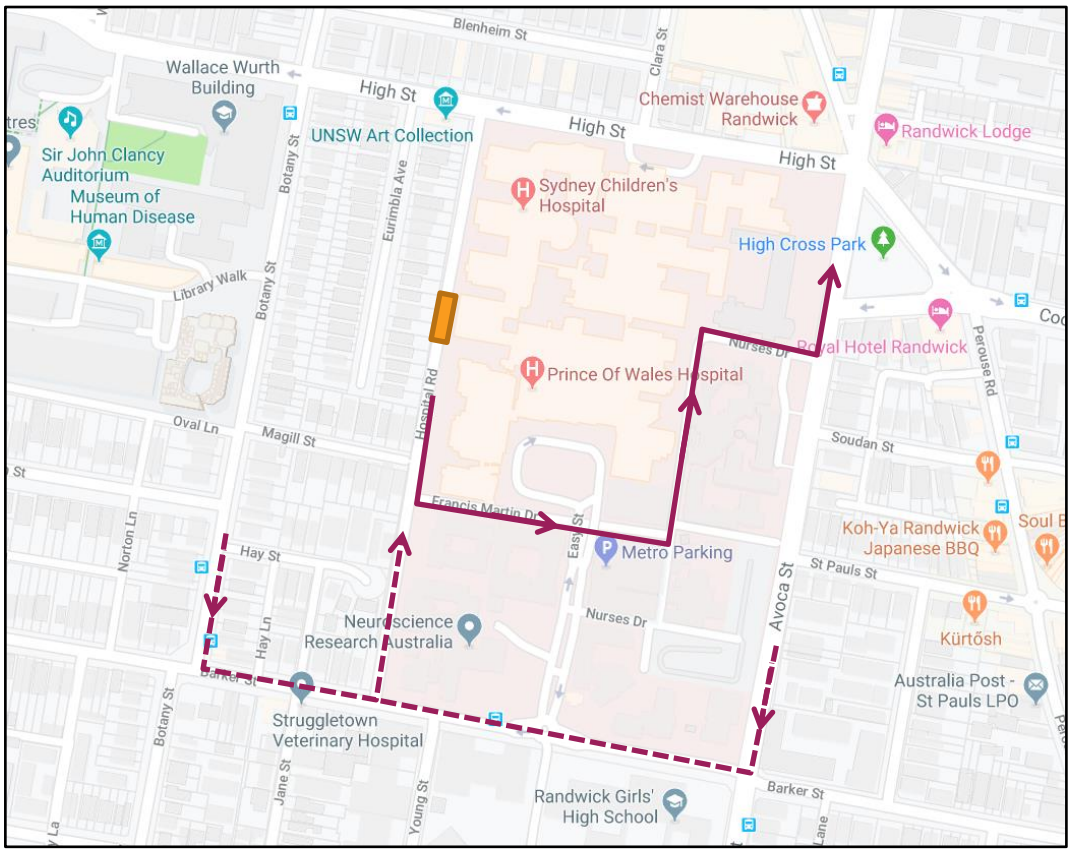

Figure 20: Signposted exit route via Francis Martin Drive and Nurses Drive

6.3.2 Closure of the car park exits onto Hospital Road

The primary traffic generator on Hospital Road is the car park, which has access points to Basement levels 2 and 3. These access points are currently closed between 6pm and 6am. Consideration has been given to closing the car park access earlier to reduce the impact on the afternoon peak. This traffic would need to be redirected to use the Easy Street access point to Barker Street.

The redistributed traffic was tested at the Barker Street/ Easy Street roundabout and found to cause a deterioration in the road network operation. Additional queuing of vehicles could also be expected at the existing entry and exit control gates at Easy Street during the afternoon peak. For these reasons, Arup does not consider this mitigation measure to be appropriate.

6.3.3 Closure of the loading dock during peak periods

The loading dock operates generally between 6am and 3pm. Recent logistics traffic counts indicate that traffic flow is spread over these operating hours with the busiest period between 10am and 12pm. In the peak road traffic periods, loading dock traffic represented only 7 vehicle movements to Hospital Road north in the morning peak hour and 3 vehicle movements in the afternoon peak hour. The closure of the dock for any period may impact on the delivery of critical items for hospital operations. For this reason, Arup does not consider this mitigation measure to make a material difference.

6.3.4 Allow right turn movement from Hospital Road to Barker Street

Allowing traffic to turn right from Hospital Road into Barker Street would increase delays for exiting traffic due to the limited gaps in the Barker Street traffic flow in peak periods. With all traffic redirected to Barker Street there is minimal improvement to network performance and increased delay for exiting traffic. For these reasons, Arup does not consider this mitigation measure to be appropriate.

6.3.5 Open Magill Street

Magill Street offers an alternative entry and exit route to Hospital Road from Botany Street without needing to redirect traffic towards Barker Street. The street operation of the intersections on Botany Street have been tested for the potential traffic redirected to Magill Street as shown on Figure 21 and Figure 22.

With the development of the ASB, opening the eastern end of Magill Street at Hospital Road was considered to provide a more legible and direct access to the car park for vehicles using the ASB and emergency department drop off facilities. Magill Street is currently a no-through road that is primarily utilised by residents. Prior to the demolition works commencing onsite, peak hour intersection counts conducted at Magill Street indicated that it carried approximately 30 vehicles per hour. Assuming that peak hour trips account for 10% of daily trips, this translates to approximately 300 two-way vehicle trips per day. With the removal of residential properties on the northern side of the street and a reduction in on-street

car parking when the ASB opens, residential background traffic is expected to drop to 150 two-way vehicles per day.

In addition to providing a direct access to the car park for drop off vehicles utilising the new ASB and emergency department, it is anticipated that a proportion of traffic currently accessing the car park via Hospital Road will utilise Magill Street.

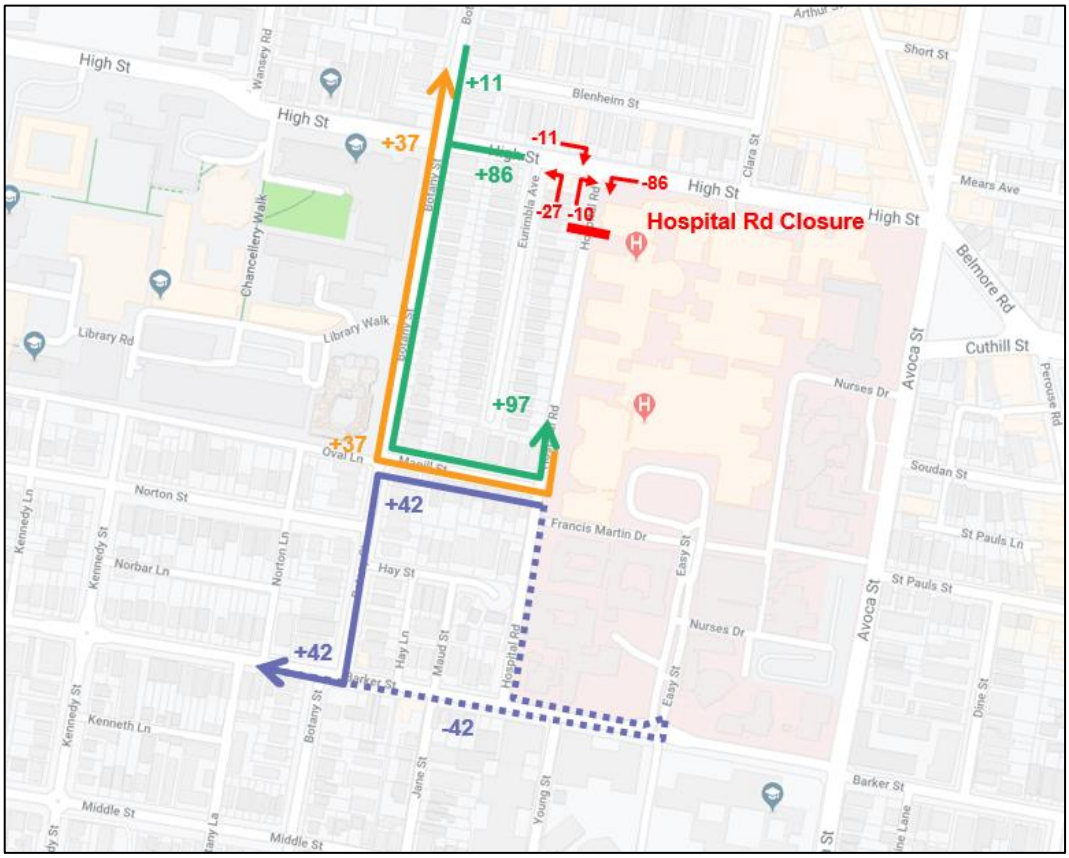

Figure 21: AM Peak traffic redirection to Magill Street

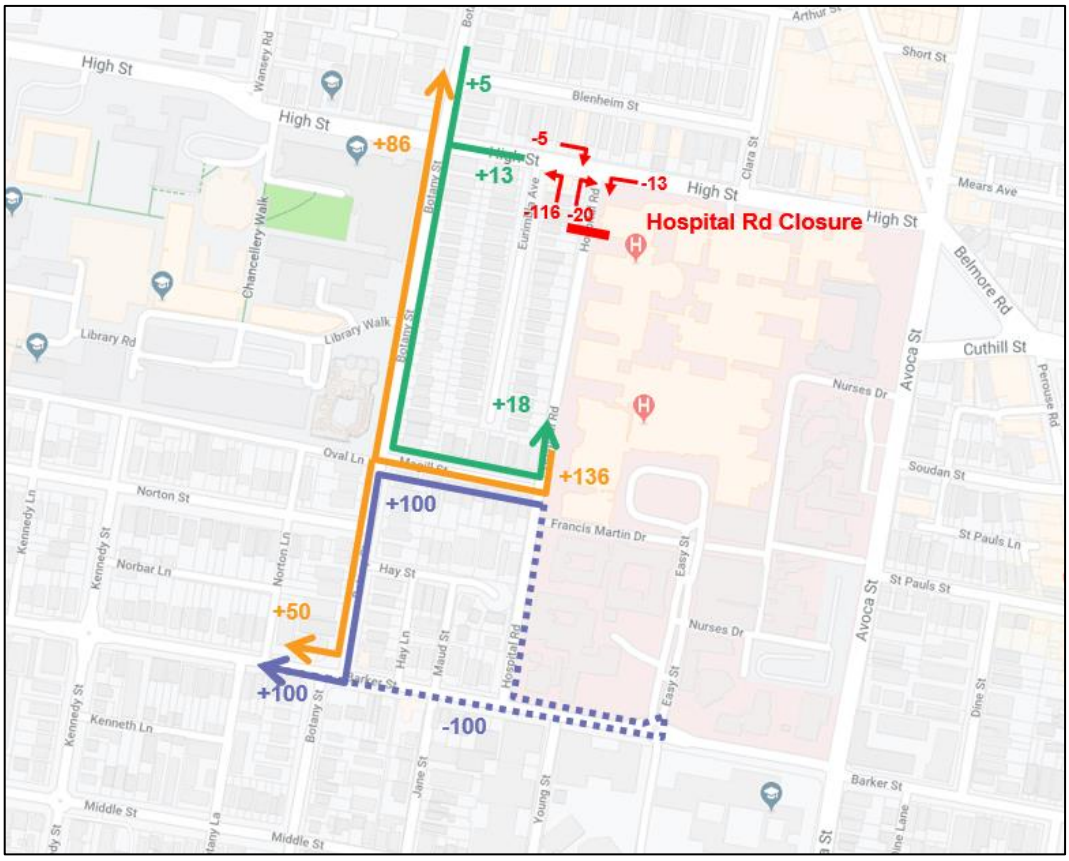

Figure 22: PM Peak traffic redirection to Magill Street

The various categories of traffic using Magill Street can be described as traffic accessing driveways along Magill Street and traffic gaining access to Hospital Road.

Traffic that is already committed to Magill Street as local residents or due to SSD9113:

Residential: Local residential traffic.

ED and Ambulances: Public cars accessing ED and Ambulances.

Traffic gaining access to Hospital Road:

ASB Drop-off: Cars that have dropped a person at the ASB on Botany Street and then proceed to the car park and later return from the car park.

Staff to car park: Staff arriving and departing to and from the north and north-west to car park up to 6pm when Hospital Road access points close.

Public to car park: Public arriving and departing to and from the north and north-west to car park up to 6pm when Hospital Road access points close.

For the purpose of assessing the change in traffic that would occur over a typical day with the IASB Addition and Magill Street open, an hourly profile of traffic has been developed based on the hours of operation of the hospital uses and the car park access arrangements (refer to Table 4).

Between 6.00pm and 7.00am the anticipated traffic flow on Magill Street is 335 vehicles over this 13 hour night time period. This represents only 13% of the total daily two-way traffic flow.

If the opening of Magill Street attracted additional traffic flow during the night time period, then a boom gate could be installed at the end of Magill Street to close access to Hospital Road between 10pm and 7am. The closure period would be signposted at the entry to Magill Street from Botany Street to stop non-local traffic from entering during this period.

In addition, a weight restriction could be considered if logistics traffic use of Magill Street caused any detrimental effects. It is recommended that the larger logistics vehicles be directed to use Barker Street.

The additional traffic that would occur with Magill Street open is focused to the 7am to 6pm time period due to the closure of the car park access points onto Hospital Road after 6pm. As cars depart the ASB drop-off to proceed to park, drivers will be advised via signage that access to the car park after 6pm is via Barker Street and Easy Street. Staff accessing the car park will be aware of the 6pm closure and proceed as usual to the Easy Street access via Barker Street.

Applying these operating parameters to the traffic categories results in no additional traffic using Magill Street between 6pm and 7am. The profile of activity is shown in Figure 23.

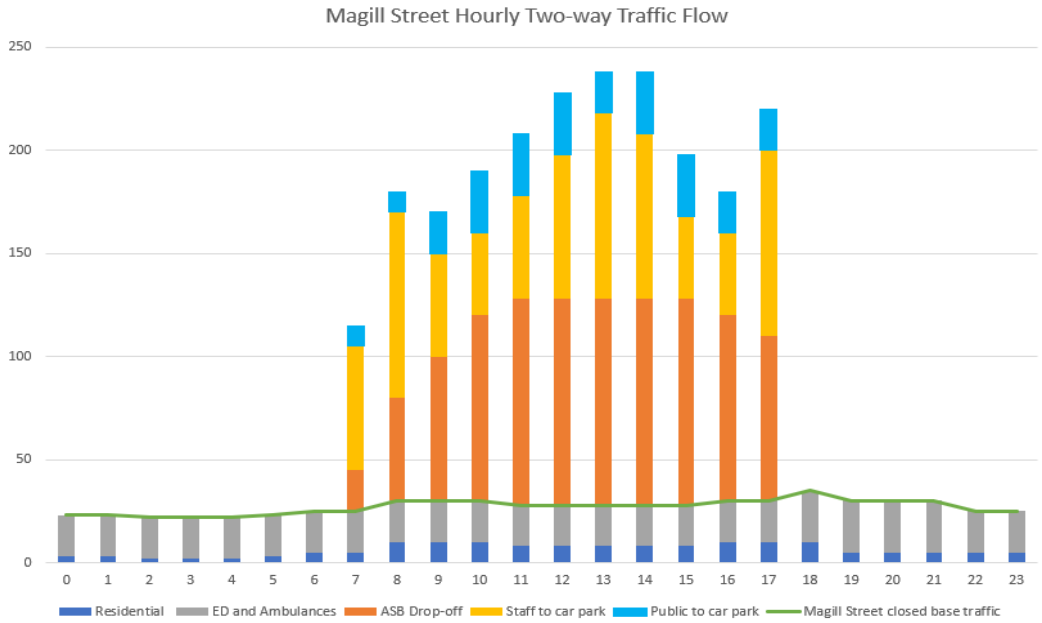

Figure 23: Anticipated daily profile of traffic on Magill Street

Table 4: Anticipated Magill Street traffic categories hourly profiles

Time Starting	Magill Street closed			Additional traffic with Magill Street open				Total two-way traffic	
	Residential	ED and Ambulance	**Total**	ASB Drop-off	Staff to car park	Public to car park	**Total**	% increase	**Total**
0	3	20	**23**	0	0	0	**0**	0%	**23**
1	3	20	**23**	0	0	0	**0**	0%	**23**
2	2	20	**22**	0	0	0	**0**	0%	**22**
3	2	20	**22**	0	0	0	**0**	0%	**22**
4	2	20	**22**	0	0	0	**0**	0%	**22**
5	3	20	**23**	0	0	0	**0**	0%	**23**
6	5	20	**25**	0	0	0	**0**	0%	**25**
7	5	20	**25**	20	60	10	**90**	360%	**115**
8	10	20	**30**	50	90	10	**150**	500%	**180**
9	10	20	**30**	70	50	20	**140**	467%	**170**
10	10	20	**30**	90	40	30	**160**	533%	**190**
11	8	20	**28**	100	50	30	**180**	643%	**208**
12	8	20	**28**	100	70	30	**200**	714%	**228**
13	8	20	**28**	100	90	20	**210**	750%	**238**
14	8	20	**28**	100	80	30	**210**	750%	**238**
15	8	20	**28**	100	40	30	**170**	607%	**198**
16	10	20	**30**	90	40	20	**150**	500%	**180**
17	10	20	**30**	80	90	20	**190**	633%	**220**
18	10	25	**35**	0	0	0	**0**	0%	**35**
19	5	25	**30**	0	0	0	**0**	0%	**30**
20	5	25	**30**	0	0	0	**0**	0%	**30**
21	5	25	**30**	0	0	0	**0**	0%	**30**
22	5	20	**25**	0	0	0	**0**	0%	**25**
23	5	20	**25**	0	0	0	**0**	0%	**25**
Total daily two-way	**150**	**500**	**650**	**900**	**700**	**250**	**1850**	**285%**	**2500**

The results of the SIDRA intersection analysis are provided in Table 5 for the AM and PM peak periods and graphically in Figure 24 and Figure 25. The analysis shows that there will be a slight increase in Level of Service (LoS), Degree of Saturation (DoS) and delay at the Botany Street / High Street intersection although still at acceptable levels. The Magill Street / Botany Street and Barker Street / Botany Street intersections continue to operate at a similar level to existing operation. On this basis, it can be concluded that opening Magill Street provides a good alternative for traffic access to Hospital Road with the closure at High Street.

Table 5: Future intersection operations with Hospital Road closed at High Street and Magill Street open

Intersection	AM Peak hour			PM Peak hour		
	DoS	LoS	Delay (Seconds)	DoS	LoS	Delay (Seconds)
Botany St / High St	0.89	D	40	0.98	E	60
Botany St / New ASB Access/ UNSW G11	0.48	A	8	0.65	C	20
Botany St / Magill St	0.20	N/A	3	0.60	N/A	5
Barker St / Botany St	0.72	C	29	0.78	D	37

Based on the traffic analysis, this application proposes that Magill Street is opened and none of the other measures investigated are deemed appropriate or necessary.

Figure 24: AM Peak with Magill Street open

Figure 25: PM Peak with Magill Street open

7 Traffic Impact Assessment for IASB Addition

The Transport Assessment prepared for the ASB by Arup dated 13 July 2018 provided a detailed description of the traffic impacts.

With the ASB and IASB Addition traffic activity along High Street will largely remain unchanged. However, with the relocation of hospital services to the ASB, a proportion of traffic currently using Easy Street for drop-off and pick-up will relocate.

It is proposed to open Magill Street to Hospital Road to provide a more legible and direct access to the car park for vehicles using the ASB and emergency department drop off facilities. Magill Street is currently a no-through road that is primarily utilised by residents. Peak hour intersection counts conducted along Magill Street indicates that it currently carries approximately 30 vehicles per hour. Assuming that peak hour trips account for 10% of daily trips, this translates to approximately 300 two-way vehicle trips per day.

In addition to providing a direct access to the car park for drop off vehicles utilising the new ASB and emergency department, it is anticipated that a proportion of traffic currently accessing the car park will utilise Magill Street.

With the development of the ASB the function of Magill Street will change as new access points are provided for ambulance set down areas and emergency department drop offs. These are approved under the existing SSD approval.

The RMS guidance for environmental capacity of minor streets (RMS Guide to Traffic Generating Developments 2002), indicates local streets should have a maximum daily vehicle throughput of 3,000 vehicles per day. **The forecast daily traffic volumes along Magill Street (2,500 vehicles per day inclusive of traffic redirected from Hospital Road north) is expected to be less than the 3,000 vehicles per day threshold. As a result, these forecast volumes are deemed to be acceptable given the intended function of Magill Street.**

The expected level of traffic activity for the ASB development is similar to that generated by the existing 92 dwellings that have been removed by the development. With no additional parking to be provided for the ASB or the IASB Addition, traffic generation is forecast to be minor and spread throughout the day aligned with drop-off and pick-up activity and hence will not impact the wider road network. A future development north of the ASB on the expanded Randwick Hospitals Campus will utilise the same intersection on Botany Street (Botany Street/ ASB Access Road) and a hypothetical traffic generation has been tested to show that the proposed intersection will be suitable. The wider traffic impacts of Stage 2 would be assessed by a future development application.

7.1 Other developments

Other approved developments proposed within close proximity of the site would increase traffic volumes along Botany Street and through Randwick in general. The key development of note is the Newmarket Green development (currently under construction). This mixed-use development comprises of approximately 760 dwellings and 2,500m^2 of commercial land use.

The forecast development traffic indicates two-way daily and peak hour traffic volumes of 400 vehicles per day and 40 vehicles per hour (assuming a 10% peak hour factor), on Botany Street respectively. These peak hour volumes were factored in as part of the SIDRA assessment conducted for the approved ASB.

8 Construction Traffic Management

Prior to the commencement of construction, a Construction Pedestrian and Traffic Management Plan (CPTMP) will be prepared to ensure the safest possible management of construction access and appropriate mitigation measures. The CPTMP would be prepared by the Construction Contractor and address:

- The likely construction vehicle numbers and frequency;
- Approach and departure routes;
- Parking access arrangements during construction;
- Provision of acceptable pedestrian management measures

A preliminary CPTMP has been prepared alongside the Construction Management Plan and follows the following framework:

- Description of proposed works
- Impact of proposed measures
- Effects on existing and future developments
- Detailed of provisions made for emergency vehicles, heavy vehicles and cyclists
- Measures to ameliorate impacts
- Public transport services affected
- Public consultation

9 Conclusions

Arup has undertaken a transport assessment which responds to the Secretary's Environmental Assessment Requirements (SEARs) issued for State Significant Development Application No. SSD-10339 for the IASB Addition including the associated lowering of Hospital Road. This is an integrated development with the ASB which was approved under the State Significant Development Application No. SSD-9113. Key findings include:

- It is proposed to open Magill Street at Hospital Road to mitigate the impacts of the closure of Hospital Road at High Street. A number of alternative access strategies have been explored however they were discounted for reasons set out in Section 6.3.
- The Magill Street / Botany Street and Barker Street / Botany Street intersections continue to operate at a similar level to existing operation. On this basis, it can be concluded that opening Magill Street provides a good alternative for traffic access to Hospital Road with the closure at High Street.
- As part of the proposed integration of UNSW use into the IASB Addition, the staff to be accommodated in the IASB Addition are currently working out of the UNSW Campus. As the IASB Addition houses predominantly education and research spaces, there will be no additional health services provided for patients.
- Parking for the IASB Addition staff who currently drive will continue to be accommodated on the UNSW Kensington Campus, noting that the staff are currently working on the UNSW Campus or the existing hospital campus. This will result in no new traffic generation by staff of the facility. Students would access the IASB Addition in line with UNSW's current transport policies for students.
- A new bicycle parking and end of trip facility is being planned for on campus. This will be available for IASB Addition staff.
- As an integrated facility in the ASB, vehicle access for drop-off and pick-up will occur via the Botany Street porte-cochere (refer to Figure 4). The porte-cochere will be connected to Botany Street as a new traffic signal intersection.
- Pedestrians moving between the IASB Addition and UNSW will use the pedestrian crossings included at the traffic lights. Pedestrian connection to the existing Campus will be facilitated two new link bridges over Hospital Road approved for SSD 9113 and the provision of a pedestrian footpath on Hospital Road for improved access to the car park.
- With the development of the ASB the function of Magill Street will change as new access points are provided for ambulance set down areas and emergency department drop offs. These are approved under the existing SSD approval. The forecast daily traffic volumes along Magill Street of 2,500 vehicles per day is expected to be less than the 3,000 vehicles per day local street threshold.
- Between 6.00pm and 7.00am the anticipated traffic flow on Magill Street is 335 vehicles over this 13 hour night time period. This represents only 13% of the total daily two-way traffic flow.