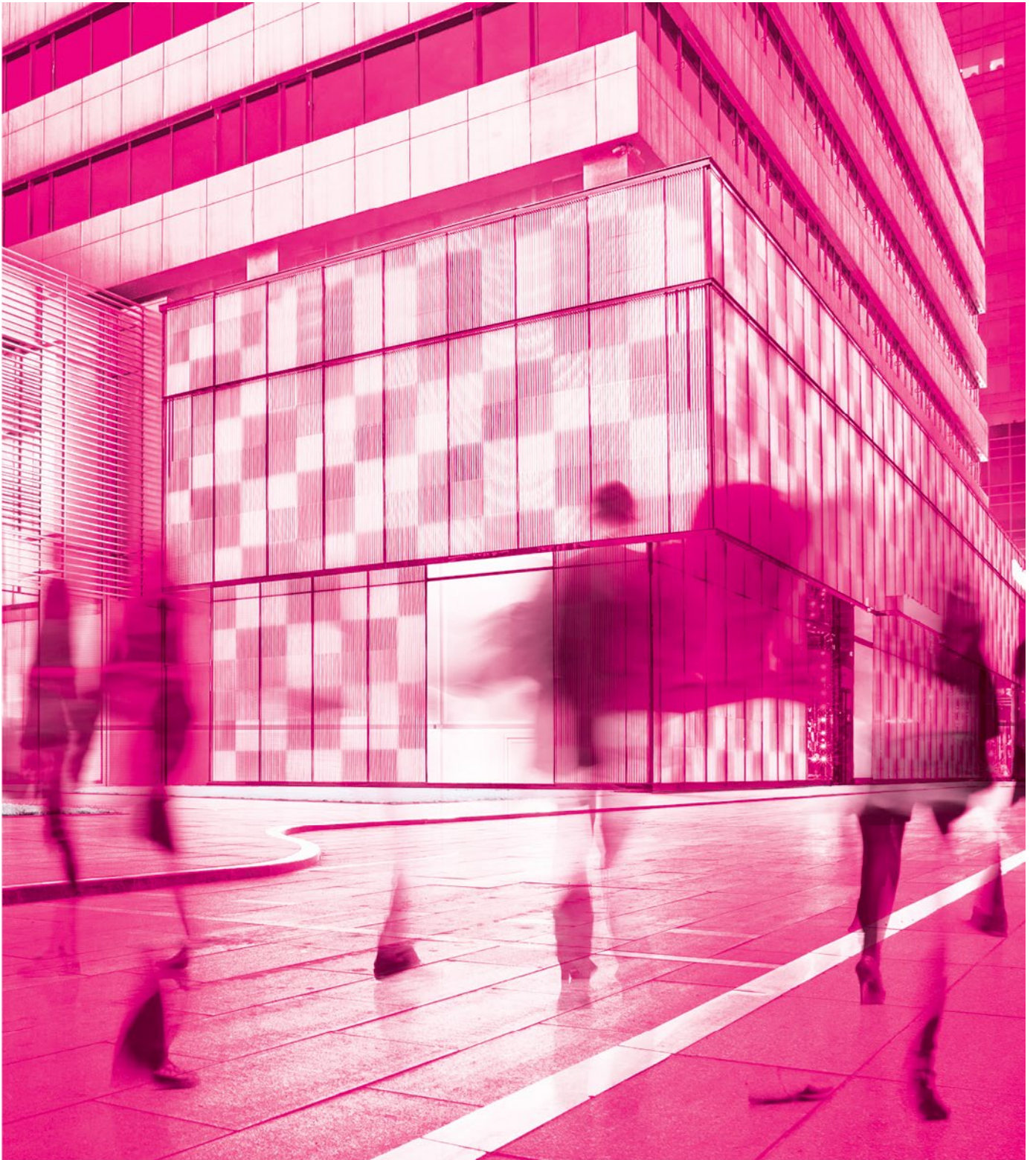




# Transport and Accessibility Impact Assessment;

Lang Walker AO  
Medical Research  
Building - Macarthur  
For Western Sydney  
University  
6 April 2022

**parking;  
traffic;  
civil design;  
wayfinding;  
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| 5     | 10/11/2021 | Revised Final | Jeremey Myaskovetskiy | Dan Budai | Lisa Fathalla        |
| 6     | 22/03/2022 | Revised Final | Jeremey Myaskovetskiy | Dan Budai | Lisa Fathalla        |
| 7     | 22/03/2022 | Revised Final | Jake Jansen           | Dan Budai | Lisa Fathalla        |
| 8     | 06/04/2022 | Revised Final | Jake Jansen           | Dan Budai | Lisa Fathalla        |

## Contacts

### Dan Budai

+61 2 8920 0800

+61 450 524 500

dan.budai@ptcconsultants.co

### Jake Jansen

+61 2 8920 0800

+61 415 626 505

jake.jansen@ptcconsultants.co

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### ptc.

Suite 502, 1 James Place  
North Sydney NSW 2060  
info@ptcconsultants.co  
t + 61 2 8920 0800  
ptcconsultants.co

# Contents

|          |                                                                               |           |
|----------|-------------------------------------------------------------------------------|-----------|
| <b>1</b> | <b>Introduction</b>                                                           | <b>1</b>  |
| 1.1      | Project summary                                                               | 1         |
| 1.2      | Reference Document                                                            | 2         |
| <b>2</b> | <b>Planning Secretary's Environmental Assessment Requirements</b>             | <b>3</b>  |
| <b>3</b> | <b>Background Information</b>                                                 | <b>5</b>  |
| 3.1      | Site context                                                                  | 5         |
| 3.2      | Development proposal                                                          | 6         |
| <b>4</b> | <b>Existing Transport Facilities</b>                                          | <b>7</b>  |
| 4.1      | Road hierarchy                                                                | 7         |
| 4.2      | Public transport                                                              | 10        |
| 4.2.1    | Bus services                                                                  | 11        |
| 4.2.2    | Rail services                                                                 | 13        |
| 4.3      | Active transport                                                              | 14        |
| 4.3.1    | Pedestrian facilities                                                         | 14        |
| 4.3.2    | Cyclist facilities                                                            | 14        |
| <b>5</b> | <b>Parking provision</b>                                                      | <b>16</b> |
| 5.1      | Planning policy                                                               | 16        |
| 5.2      | Parking requirements                                                          | 16        |
| 5.3      | Accessible Parking                                                            | 18        |
| 5.4      | Drop off bays                                                                 | 18        |
| <b>6</b> | <b>Access Assessment</b>                                                      | <b>19</b> |
| 6.1      | Loading Dock                                                                  | 19        |
| 6.2      | Service vehicles                                                              | 19        |
| <b>7</b> | <b>Traffic Impact Assessment</b>                                              | <b>20</b> |
| 7.1      | Existing Traffic Conditions                                                   | 20        |
| 7.1.1    | Traffic Surveys                                                               | 20        |
| 7.1.2    | SIDRA Analysis                                                                | 21        |
| 7.2      | Proposed traffic generation                                                   | 23        |
| <b>8</b> | <b>Preliminary Construction Traffic and Pedestrian Management Plan (CTMP)</b> | <b>24</b> |
| 8.1      | Objective                                                                     | 24        |
| 8.2      | Construction Activities and Program                                           | 24        |
| 8.2.1    | General Construction Activity                                                 | 24        |
| 8.2.2    | Construction Program                                                          | 25        |
| 8.3      | Hours of Work                                                                 | 25        |
| 8.4      | Construction Workforce                                                        | 25        |
| 8.5      | Construction Site Arrangement & Access                                        | 25        |
| 8.5.1    | Site Arrangement                                                              | 25        |
| 8.5.2    | Site Access                                                                   | 25        |
| 8.5.3    | Cycling and Pedestrian Access                                                 | 25        |
| 8.6      | Construction Traffic                                                          | 25        |
| 8.6.1    | Vehicle Types                                                                 | 25        |
| 8.6.2    | Traffic Generation                                                            | 25        |

|                                                            |           |
|------------------------------------------------------------|-----------|
| 8.6.3 Construction Vehicle Routes                          | 26        |
| 8.6.4 Works Zones                                          | 27        |
| 8.6.5 Road Occupancies                                     | 27        |
| 8.7 Construction Impacts and Stakeholders                  | 28        |
| 8.7.1 Impacts                                              | 28        |
| 8.7.2 Stakeholders                                         | 28        |
| 8.8 Traffic Control Measures                               | 28        |
| 8.9 Contractor Parking                                     | 29        |
| 8.10 Work Site Security                                    | 29        |
| 8.11 Induction                                             | 29        |
| 8.12 Occupational/Work Health and Safety                   | 29        |
| 8.13 Contact Details for On-Site Enquiries & Site Access   | 29        |
| <b>9 Green Travel Plan</b>                                 | <b>30</b> |
| 9.1 What is a green travel plan?                           | 30        |
| 9.2 Why a green travel plan is required                    | 30        |
| 9.3 The purpose of a GTP                                   | 31        |
| 9.4 Opportunities and Targets                              | 31        |
| 9.4.1 Walking                                              | 31        |
| 9.4.2 Bicycle network                                      | 32        |
| 9.4.3 Future Transport Targets                             | 32        |
| 9.4.4 Opal Cards                                           | 32        |
| 9.4.5 Car Share                                            | 33        |
| 9.5 Strategies                                             | 33        |
| 9.6 Workplace Transport Plans                              | 34        |
| 9.6.1 Dedicated Carpooling Space                           | 34        |
| 9.6.2 Public Transport                                     | 34        |
| 9.6.3 Car Share                                            | 35        |
| 9.6.4 Shuttle Bus Service                                  | 35        |
| 9.6.5 Transport access guide                               | 35        |
| 9.7 Steps to develop the green travel plan                 | 35        |
| 9.7.1 Step 1 – Set up an Advisory Committee                | 35        |
| 9.7.2 Step 2 – Data Collection & Review Existing Situation | 35        |
| 9.7.3 Step 3 – Prepare the travel plan                     | 37        |
| 9.7.4 Step 4 - Deliver & Implement                         | 37        |
| 9.7.5 Step 5 - Recognise Process                           | 37        |
| 9.8 Monitoring and evaluation                              | 37        |
| <b>10 Conclusion</b>                                       | <b>38</b> |
| <b>Appendices</b>                                          |           |
| A Swept Path Assessment                                    |           |
| B Letter from South Western Sydney LHD                     |           |

## List of Figures

|                                                                               |    |
|-------------------------------------------------------------------------------|----|
| Figure 1: Subject Site (Source: Nearmap)                                      | 1  |
| Figure 2: Local land use map (Source: NSW ePlanning Spatial Viewer)           | 5  |
| Figure 3: Proposed Site Plan                                                  | 6  |
| Figure 4: Road Hierarchy (Source: RMS State and Regional Roads)               | 7  |
| Figure 5: Appin Road, southbound (Source: Google maps)                        | 8  |
| Figure 6: Therry Road, westbound (Source: Google maps)                        | 8  |
| Figure 7: Parkside Crescent, northbound (Source: Google maps)                 | 9  |
| Figure 8: Central Road, southbound (Source: Google maps)                      | 9  |
| Figure 9: Public transport services within 400m and 800m walking catchments   | 10 |
| Figure 10: Nearby Bus Stops                                                   | 11 |
| Figure 11: Sydney Trains network                                              | 13 |
| Figure 12: Cycling Paths (Source: Transport for New South Wales Cycle Finder) | 15 |
| Figure 13: Car Park locations                                                 | 16 |
| Figure 14: Key Intersections                                                  | 21 |
| Figure 15: Indicative Daily Construction Vehicle Volumes                      | 26 |
| Figure 16: Indicative Construction Vehicle Route                              | 27 |

## List of Tables

|                                                                                 |    |
|---------------------------------------------------------------------------------|----|
| Table 1: SEARs responses                                                        | 3  |
| Table 2: Existing road network – Appin Road                                     | 8  |
| Table 3: Existing road network – Therry Road                                    | 8  |
| Table 4: Existing road network – Parkside Crescent                              | 9  |
| Table 5: Existing road network – Central Road                                   | 9  |
| Table 6: Bus route summary                                                      | 11 |
| Table 7: Summary of Parking Supply                                              | 17 |
| Table 8: Intersection performance – Levels of Service                           | 22 |
| Table 9: Summary of Existing and Future Traffic Conditions                      | 23 |
| Table 10: Potential strategies for adoption to achieve future transport targets | 33 |



# 1 Introduction

## 1.1 Project summary

ptc. has been engaged on behalf of Western Sydney University to prepare a Transport Impact Assessment to accompany a State Significant Development Application for the development of the Lang Walker AO Medical Research Building – Macarthur (the site).

Proposed development is set within the context of the Campbelltown Hospital redevelopment. The new building will be a multi-faceted research facility that forms part of an integrated hospital and research precinct delivering world-class research and improved health outcomes for the Macarthur region and wider community.

The plan is to establish a co-located medical research centre that will facilitate scientific, clinical and industry collaboration whilst providing a bench-to-bedside and bedside-to-bench approach enabling greater translation of research from medical discovery to the development of new prevention strategies, diagnostics and more effective treatments.

The location of the site within the local context is shown in Figure 1.



Figure 1: Subject Site (Source: Nearmap)

## 1.2 Reference Document

Relevant Policies and Guidelines:

- Guide to Traffic Generating Developments (Roads and Maritime Services, 2002).
- NSW Planning Guidelines for Walking and Cycling (Department of Infrastructure, Planning and Natural Resources (DIPNR), 2004).
- Guide to Traffic Management Part 12: Integrated Transport Assessments for Developments (Austroads, 2020).
- Australian Standard 2890 Parking facilities.

## 2 Planning Secretary's Environmental Assessment Requirements

Table 1 lists each of the transport related requirements issued by DPIE on 12 May 2021 and the location in this report that they are responded to.

Table 1: SEARs responses

| Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Location                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Provide a transport and accessibility impact assessment, which includes, but is not limited to the following:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                              |
| <ul style="list-style-type: none"> <li>analysis of the existing transport network, including: <ul style="list-style-type: none"> <li>road hierarchy.</li> <li>pedestrian, cycle and public transport infrastructure.</li> <li>details of current daily and peak hour vehicle movements based on traffic surveys and / or existing traffic studies relevant to the locality.</li> <li>existing performance levels of nearby intersections utilising appropriate traffic modelling methods (such as SIDRA network modelling).</li> </ul> </li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <p>Details on the existing transport network are provided in Section 4.</p> <p>Details on traffic movements and performance of intersections are provided in Section 6.</p>                                                                                                                                                                                                                                  |
| <ul style="list-style-type: none"> <li>details of the proposed development, including: <ul style="list-style-type: none"> <li>a map of the proposed access which identifies public roads, bus routes, footpaths and cycleways.</li> <li>pedestrian site access and vehicular access arrangements, including for service and emergency vehicles and loading/unloading, including swept path analysis demonstrating the largest design vehicle entering and leaving the site and moving in each direction through intersections along the proposed transport routes.</li> <li>car and motorcycle parking, bicycle parking and end-of-trip facilities.</li> <li>pedestrian, public transport or road infrastructure improvements or safety measures.</li> </ul> </li> </ul>                                                                                                                                                                                                                                                                                                                                                                     | <p>Details on the site access are provided in Section 6.</p> <p>The site will provide ancillary use to the existing hospital facilities. Hence, the proposed development will not generate any additional parking demand.</p> <p>The site is located within a existing well serviced hospital and improvements to pedestrian, public transport or road infrastructure are not anticipated at this stage.</p> |
| <ul style="list-style-type: none"> <li>analysis of the impacts due to the operation of the proposed development, including: <ul style="list-style-type: none"> <li>proposed modal split for all users of the development including vehicle, pedestrian, bicycle riders, public transport and other sustainable travel modes.</li> <li>estimated total daily and peak hour vehicular trip generation.</li> <li>a clear explanation and justification of the: <ul style="list-style-type: none"> <li>assumed growth rate applied.</li> <li>volume and distribution of proposed trips to be generated.</li> <li>type and frequency of design vehicles accessing the site.</li> </ul> </li> <li>details of performance of nearby intersections with the additional traffic generated by the development both at the commencement of operation and in a 10-year time period (using SIDRA network modelling).</li> <li>cumulative traffic impacts from any surrounding approved development(s).</li> <li>adequacy of pedestrian, bicycle and public transport infrastructure and operations to accommodate the development.</li> </ul> </li> </ul> | <p>Since the proposed development will provide ancillary use for the hospital, it is not anticipated that the site will generate any additional traffic.</p> <p>The existing performance of the surrounding road network has been assessed in a previous traffic impact assessment and the results of this traffic modelling has been included in Section 6.</p>                                             |



| Requirement                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Location                                                                                                                                                     |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>adequacy of car and motorcycle parking and bicycle parking provisions when assessed against the relevant car / bicycle parking codes and standards.</li> <li>adequacy of the existing / proposed pedestrian infrastructure to enable convenient and safe access to and from the site for all users.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                              |
| <ul style="list-style-type: none"> <li>measures to ameliorate any adverse traffic and transport impacts due to the development based on the above analysis, including: <ul style="list-style-type: none"> <li>travel demand management programs to increase sustainable transport (such as a Green Travel Plan).</li> <li>arrangements for the Travel Coordinator roles.</li> <li>governance arrangements or relationships with state and local government transport providers to update roads safety.</li> <li>infrastructure improvements or protection measures, including details of timing and method of delivery.</li> </ul> </li> </ul>                                                                                                                                                                              | <p>Since the proposed development will provide ancillary use for the hospital, it is not anticipated that the site will generate any additional traffic.</p> |
| <ul style="list-style-type: none"> <li>analysis of the impacts of the traffic generated during construction of the proposed development, including: <ul style="list-style-type: none"> <li>construction vehicle routes, types and volumes.</li> <li>construction program (duration and milestones).</li> <li>on-site car parking and access arrangements for construction, emergency and construction worker vehicles.</li> <li>cumulative impacts associated with other construction activities in the locality (if any).</li> <li>road safety at identified intersections near the site due to conflicts between construction vehicles and existing traffic in the locality.</li> <li>measures to mitigate impacts, including to ensure the safety of pedestrian and cyclists during construction.</li> </ul> </li> </ul> | <p>A preliminary Construction Traffic and Pedestrian Management Plan is provided in Section 8.</p>                                                           |
| <ul style="list-style-type: none"> <li>a preliminary Construction Traffic and Pedestrian Management Plan.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <p>A preliminary Construction Traffic and Pedestrian Management Plan is provided in Section 8.</p>                                                           |

## 3 Background Information

### 3.1 Site context

The site is located within an infrastructure zone (SP2), situated to the south-west of Campbelltown town centre. The local land use surrounding the subject site is shown in Figure 2. Key features surrounding the site include:

- To the north-east lies a commercial core precinct (B3) comprising of Campbelltown Mall, Australia Post and local restaurants and shops.
- To the west lies a public recreation precinct (RE1) which includes Marsden Park and Birunji Creek.

The greater residential precinct of Campbelltown, comprising typically of low density residential (R2) and high density residential (R4) zones.

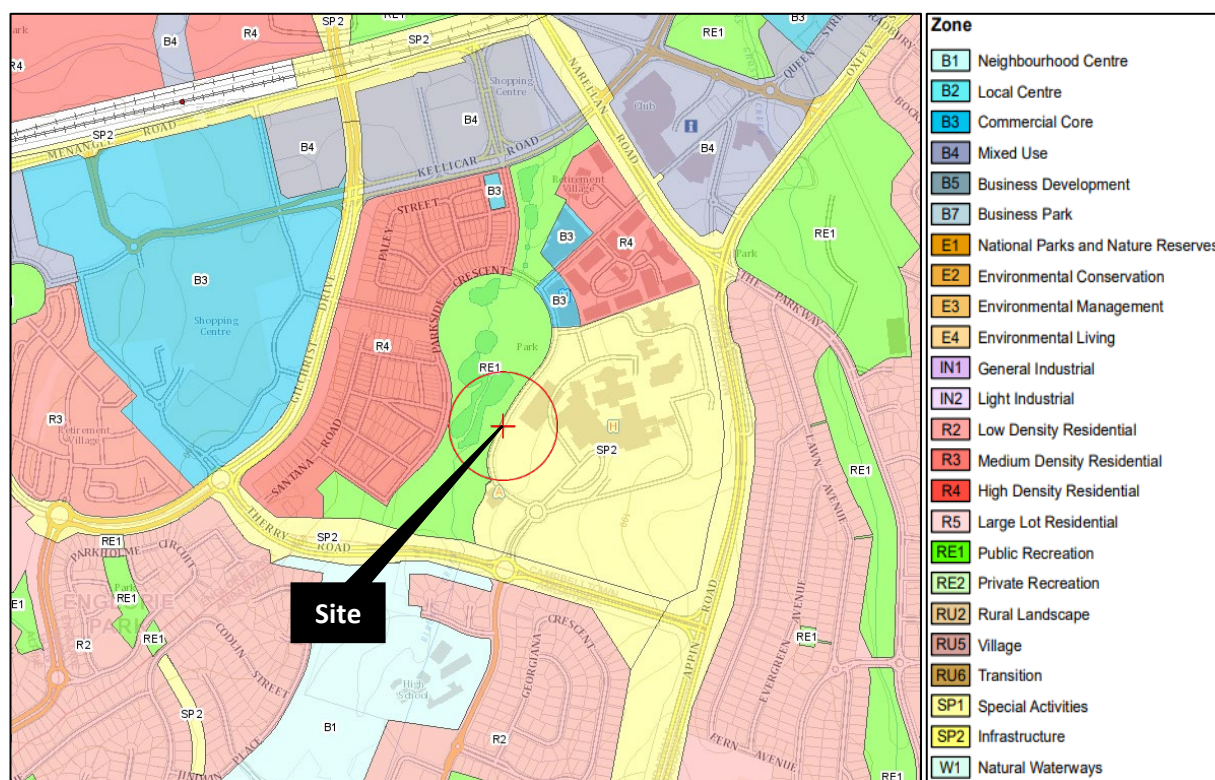


Figure 2: Local land use map (Source: NSW ePlanning Spatial Viewer)

### 3.2 Development proposal

As mentioned previously, the site will be a multi-faceted research facility that forms part of an integrated hospital and research precinct delivering world-class research and improved health outcomes for the Macarthur region and wider community. To accomplish this, the site will offer several important features including:

- Shared Spaces including waiting/breakout area, coffee kiosk, seminar rooms, an amphitheatre, toilets and parenting room
- Shared administration spaces
- Shared collaboration spaces including formal meeting rooms and staff lockers
- Dry research spaces including open plan workspace, focus rooms, quiet rooms, incubator spaces, maker space and storage
- Clinical research spaces including consult rooms, interview rooms, treatment rooms, a research assessment zone and disposal rooms
- Logistics and support areas including cleaner's rooms, waste rooms, plant and storerooms.

Figure 3 shows the general site plan of the proposal prepared by BVN.



Figure 3: Proposed Site Plan

## 4 Existing Transport Facilities

### 4.1 Road hierarchy

The NSW administrative road hierarchy comprises the following road classifications, which align with the generic road hierarchy as follows:

State Roads: Freeways and Primary Arterials (RMS Managed)

Regional Roads: Secondary or sub arterials (Council Managed, partly funded by the State)

Local Roads: Collector and local access roads (Council Managed)

The subject site is located on Parkside Crescent (local road) in the suburb of Campbelltown and is primarily serviced by State roads including Appin Road, Oxley Street, Kellicar Road, Menangle Road and Narellan Road, as well as Regional roads including Therry Road and Gilchrist Drive. The site is also serviced by local roads managed by Campbelltown City Council.

Figure 4 below shows the classification of the surrounding roads.

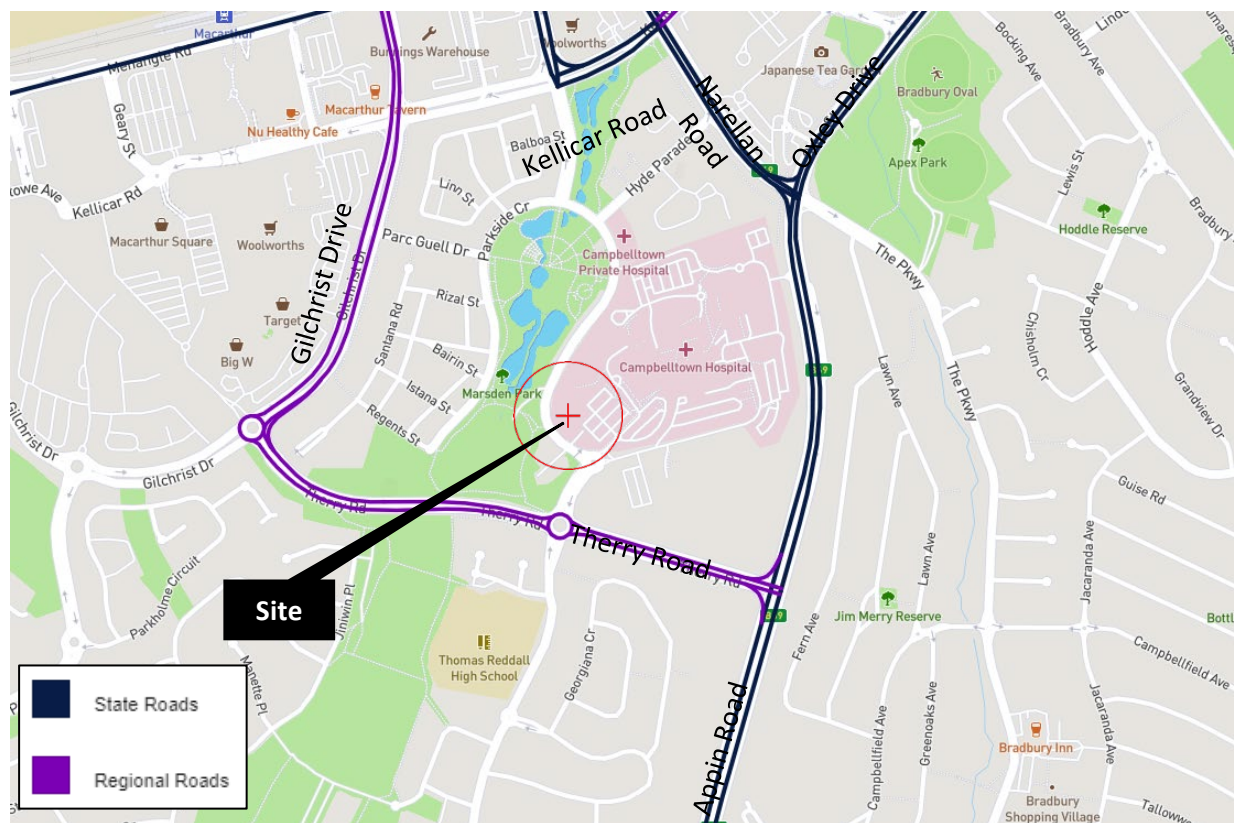


Figure 4: Road Hierarchy (Source: RMS State and Regional Roads)



Table 2: Existing road network – Appin Road

| Appin Road          |                                                           |
|---------------------|-----------------------------------------------------------|
| Road Classification | State Road                                                |
| Alignment           | North-South                                               |
| Number of Lanes     | 2 lanes in each direction within the vicinity of the site |
| Carriageway Type    | Divided                                                   |
| Carriageway Width   | ~ 30m                                                     |
| Speed Limit         | 80 km/h                                                   |
| School Zone         | No                                                        |
| Parking Controls    | No Parking                                                |
| Forms Site Frontage | No                                                        |



Figure 5: Appin Road, southbound (Source: Google maps)

Table 3: Existing road network – Therry Road

| Therry Road         |                                                    |
|---------------------|----------------------------------------------------|
| Road Classification | Regional Road                                      |
| Alignment           | East-West                                          |
| Number of Lanes     | 2 lane in each direction                           |
| Carriageway Type    | Divided                                            |
| Carriageway Width   | ~ 25m                                              |
| Speed Limit         | 60 km/h                                            |
| School Zone         | No                                                 |
| Parking Controls    | No Parking. Cars are observed parked in shoulders. |
| Forms Site Frontage | No                                                 |



Figure 6: Therry Road, westbound (Source: Google maps)

Table 4: Existing road network – Parkside Crescent

| Parkside Crescent   |                            |
|---------------------|----------------------------|
| Road Classification | Local Road                 |
| Alignment           | Generally North-South      |
| Number of Lanes     | 1 lane in each direction   |
| Carriageway Type    | Divided                    |
| Carriageway Width   | ~ 11m                      |
| Speed Limit         | 50 km/h                    |
| School Zone         | No                         |
| Parking Controls    | 3P 6:30am – 3:30pm Mon-Fri |
| Forms Site Frontage | Yes                        |



Figure 7: Parkside Crescent, northbound (Source: Google maps)

Table 5: Existing road network – Central Road

| Central Road        |                          |
|---------------------|--------------------------|
| Road Classification | Local Road               |
| Alignment           | North-South              |
| Number of Lanes     | 1 lane in each direction |
| Carriageway Type    | Divided                  |
| Carriageway Width   | ~18m                     |
| Speed Limit         | 50km/h unposted          |
| School Zone         | No                       |
| Parking Controls    | Unrestricted             |
| Forms Site Frontage | No                       |



Figure 8: Central Road, southbound (Source: Google maps)



## 4.2 Public transport

The locality has been assessed in the context of available forms of public transport that may be utilised by prospective staff and visitors. When defining accessibility, the NSW Guidelines to Walking & Cycling (2004) suggests that 400m-800m is a comfortable walking distance. Furthermore, the Guidelines also suggest 1500m is suitable for cycling accessibility to public transport facilities and local amenities.

The 400m and 800m catchments are shown in Figure 9.

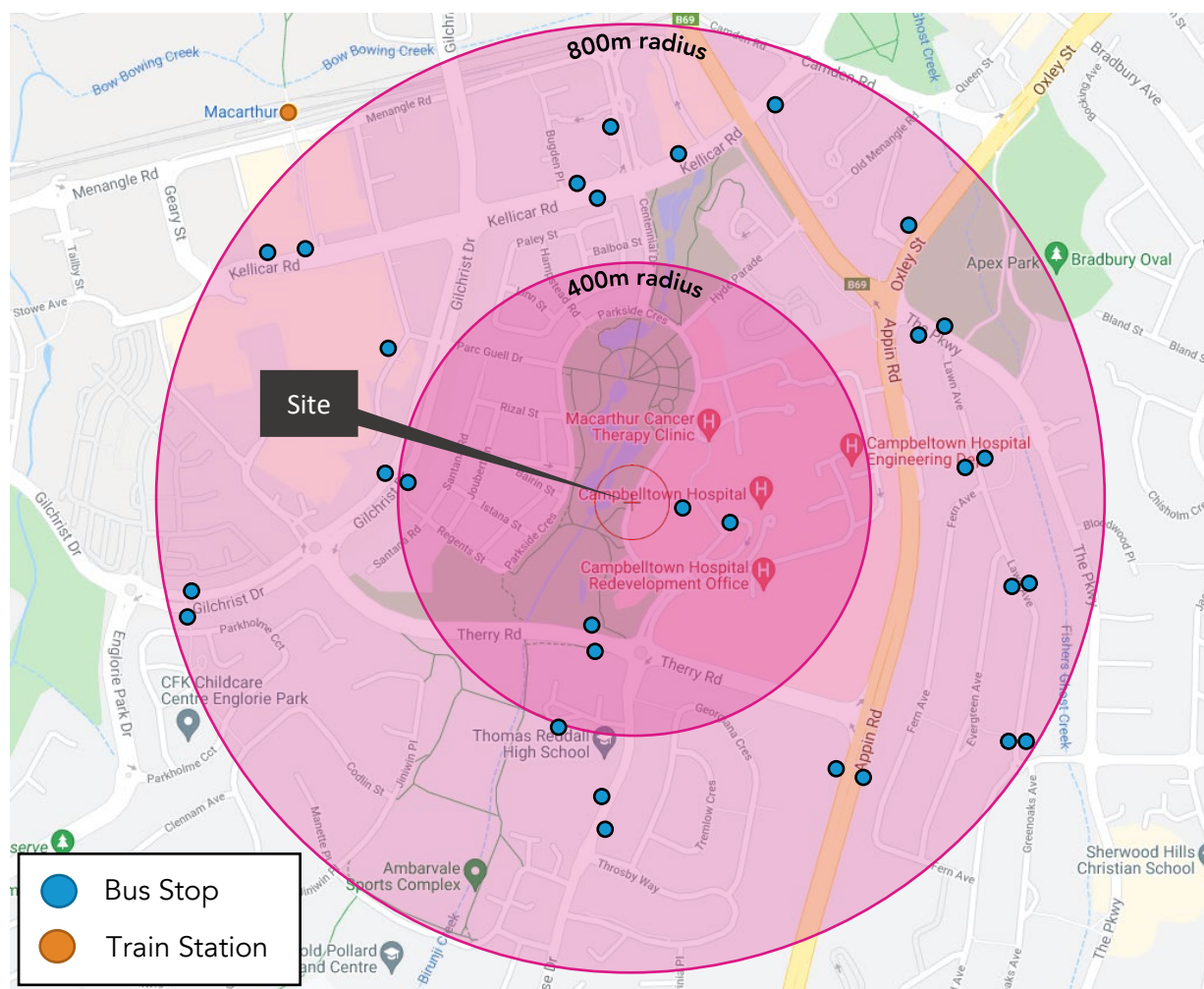


Figure 9: Public transport services within 400m and 800m walking catchments

4.2.1 Bus services

The Hospital is serviced by several bus services (see Figure 10).

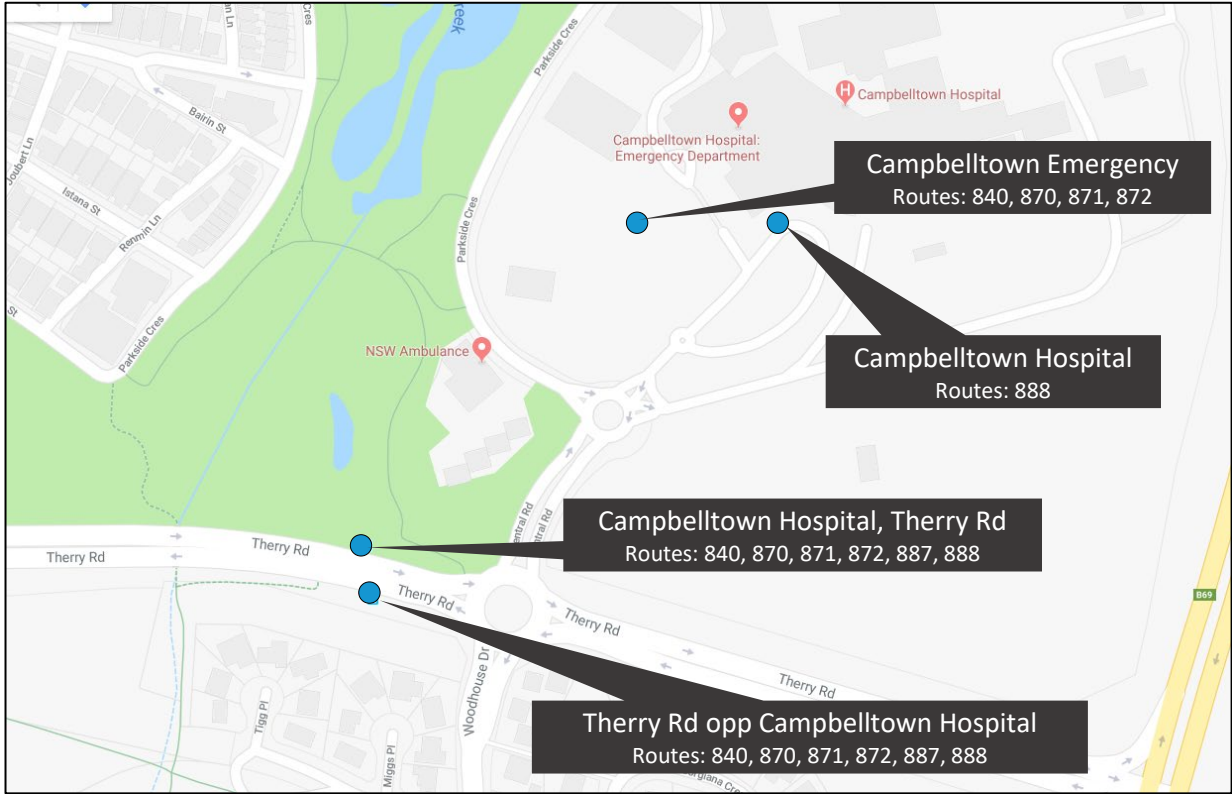


Figure 10: Nearby Bus Stops

Table 6 details the frequency of the bus services at these nearby bus stops.

Table 6: Bus route summary

| Bus Route | Coverage (to and from)             | Service Frequency                                                                                                                                        |
|-----------|------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 840       | Oran Park to Campbelltown Hospital | Weekdays:<br>Peak period – every 30 mins<br>Off peak – every hour<br>Weekend/Public Holidays:<br>Service every hour                                      |
| 870       | Liverpool to Campbelltown          | Weekdays:<br>Peak period – every 30 mins<br>Off peak – every hour<br>Saturday:<br>Service every hour<br>Sunday/Public Holidays:<br>Service every 2 hours |
| 871       | Liverpool to Campbelltown          | Monday - Saturday:<br>Service every hour<br>Sunday/Public Holidays:<br>Service every 2 hours                                                             |



| Bus Route | Coverage (to and from)                | Service Frequency                                                                                                                          |
|-----------|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|
| 872       | Liverpool to Campbelltown             | Monday - Saturday:<br>Service every 30 mins<br>Weekend/Public Holidays:<br>Service every hour                                              |
| 887       | Wollongong to Campbelltown via Appin  | Weekdays:<br>Service every hour<br>Weekend/Public Holidays:<br>Service every 2 hours                                                       |
| 888       | Campbelltown to St Helens Park (Loop) | Monday - Saturday:<br>Service every 10-20 mins<br>Sunday/Public Holidays:<br>Peak period – every 20 minutes<br>Off peak – every 30 minutes |

#### 4.2.2 Rail services

Macarthur Train Station is located approximately 850m north west of the subject site as shown in Figure 9. Figure 11 shows Macarthur Train Station in the context of the entire Sydney Trains network. Considering the distance of the train station from the subject site, it is anticipated that staff who choose to travel to the site will use a combination of bus and rail public transport services.



Figure 11: Sydney Trains network

## **4.3 Active transport**

### **4.3.1 Pedestrian facilities**

Walking is a viable transport option for distances under 800m and is often quicker for short trips door to door. Walking is also the most space efficient mode of transport for short trips and presents the highest benefits. Co-benefits where walking replaces a motorised trip include improved health for the individual, reduced congestion on the road network and reduced noise and emission pollution. Site observations show that the existing footpath networks and crossing points between the adjoining residential precincts and the hospital are generally adequate.

A very low proportion of hospital-users walk to and from the Hospital, with 0.2% of staff, 1.2% of visitors and no outpatients walking to the hospital (as per surveys conducted in July 2017).

### **4.3.2 Cyclist facilities**

Like walking, cycling is only likely to be an attractive mode share for staff members who live within relatively close distance to the campus. Surveys conducted in July 2017 indicate that no staff members cycle to the Hospital, and 0.4% of other hospital-users bicycle/motorcycle to the Hospital.

The site is reasonably accessible to bicycles from all directions, due to generous road width with hard shoulders in the locality; however, the area is reasonably hilly which may deter staff from cycling. The only dedicated cycle paths are from the north, on Narellan Road and Oxley Street. Figure 12 shows possible cycle routes around the site.

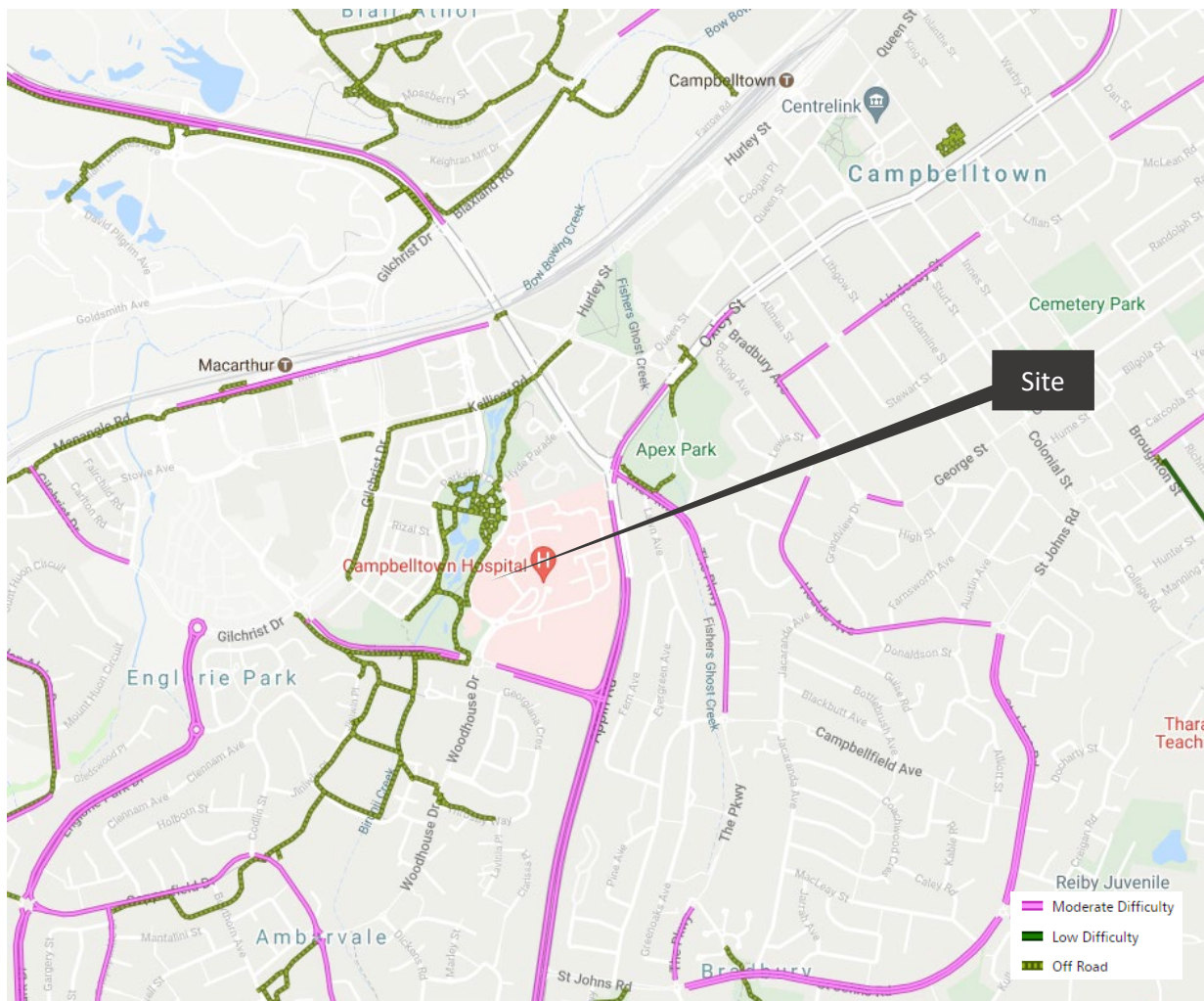


Figure 12: Cycling Paths (Source: Transport for New South Wales Cycle Finder)



## 5 Parking provision

### 5.1 Planning policy

Campbelltown DCP does not include provisions for Hospitals. Therefore, the parking requirements have been assessed on a first principles basis.

### 5.2 Parking requirements

Based on the population study, the proposal is anticipated to require 11 general admin and logistics staff positions, 1 welcome host, 1 kiosk operator and 44 Dry & Clinical Research staff positions. The 11 general admin and logistics staff will be on flexible work arrangements distributed throughout the WSU campuses and therefore only 25% of these staff will be attendance on site. Considering 98.2% of staff drive to Campbelltown Hospital and 5.1% of staff carpool, the staff parking demand for the site will be 45.34.

Furthermore, the site is expected to generate on average, 25 non-staff visitors. Considering 91% of visitors to Campbelltown Hospital drive, the non-staff parking demand for site will be 22.75.

Based on the above parking demand calculation based on first principles, the site is expected to generate a parking demand of approximately 68. It is noted that Campbelltown Hospital campus will have a parking demand of 1,797 without the proposed making the new total campus parking demand 1,865.

An overview of the existing and proposed future parking is shown in Figure 13 summarised in Table 7. At the end of 2017 there were 1,280 on-campus parking spaces at the Hospital. By the end of ongoing Stage 2 works, there will be a total parking provision of 1,865 spaces.



Figure 13: Car Park locations

Table 7: Summary of Parking Supply

| Car Park                          | Before<br>Redevelopment | Post Stage 2 |
|-----------------------------------|-------------------------|--------------|
| CP1                               | 82                      | 116          |
| CP2                               | 240                     | 240          |
| CP3                               | 20                      | 20           |
| CP4                               | 37                      | 37           |
| CP5                               | 248                     | 0            |
| CP5A                              | 6                       | 0            |
| CP6                               | 121                     | 0            |
| CP7                               | 40                      | 0            |
| CP8                               | 207                     | 149          |
| CP9                               | 257                     | 258          |
| Drug                              | 22                      | 0            |
| MSCP                              |                         | 810          |
| K1                                |                         | 99           |
| K2                                |                         | 42           |
| K3                                |                         | 94           |
| <b>TOTAL</b>                      | <b>1280</b>             | <b>1865</b>  |
| <i>OVERALL GAIN/LOSS</i>          |                         | <i>409</i>   |
| <i>GAIN/LOSS from SSD</i>         |                         | <i>-219</i>  |
| <i>GAIN/LOSS from Other Works</i> |                         | <i>628</i>   |

The parking demand can be accommodated by the parking supply upon completion of the Stage 2 redevelopment works—written confirmation has been provided to DPIE from NSW Health South Western Sydney LHD stating they are agreeable to the use of the 68 parking spaces that form a part of the Stage 2 redevelopment (Appendix B).

### 5.3 Accessible Parking

With reference to *BCA Table D3.5 Car parking numbers for people with a disability*, for a Class 9a building—a health-care building, including those parts of the building set aside as a laboratory (a) Hospital (non-outpatient area) the requirement is 1 space for every 50 carparking spaces or part thereof.

The adjacent Macarthur Clinical School provides a relatively high rate of 1 accessible space per 16 carparking spaces and CP8, also adjacent to the site, provides 8 accessible spaces for the 149 (post Stage 2) car spaces. Therefore, it is considered that the requirement for accessible spaces is exceeded for the site.

Additionally, NSW Health Infrastructure has confirmed that these spaces will be available prior to the commencement of operation of the research facility.

### 5.4 Drop off bays

It has been recommended that drop off bays be provided on Parkside Crescent to replace some of the existing parking to accommodate the operational nature of the proposal. The drop off bays are 8m long to allow motorists to drive into and out of the bays in a forward direction.

This arrangement will reduce the overall on-street parking supply by one space, however, it will provide better overall accessibility for the proposal.

## 6 Access Assessment

### 6.1 Loading Dock

Access to the loading dock is proposed via the service area located on the south western corner of the site with access to this area via an existing vehicular crossover on Parkside Crescent, which exists for the MCS building to the south of the site.

Additional driveway access from Parkside Crescent is not required as waste is proposed to be collected from the site by utilising the existing access and loading dock as required.

Due to site constraints, to minimise reductions in parking and to coordinate with existing waste contractor requirements, a right-in / left-out arrangement is proposed. The swept path analysis in Appendix A demonstrates compliance with this requirement.

### 6.2 Service vehicles

Waste is to be collected from the site via the service area located on the south western corner of the site. Access to this area will be via an existing vehicular crossover which exists for the MCS building to the south of the site. Based on the swept path assessment, widening of the vehicular crossover will be necessary to accommodate the turn radius of the 8.0m Suez rear lift waste collection vehicle. The swept path assessment for the service area is provided in Appendix A.



## 7 Traffic Impact Assessment

### 7.1 Existing Traffic Conditions

#### 7.1.1 Traffic Surveys

In 2017, **ptc.** undertook a traffic study to assess the impact of the proposed Campbelltown Hospital Upgrades.

Intersection surveys have been undertaken at key intersections and access points, surrounding the Hospital. These were conducted on two separate days, 20<sup>th</sup> July 2017 and 8<sup>th</sup> November 2017 (non-school holiday periods). The following intersections were surveyed:

**Thursday 20<sup>th</sup> July 2017 (6:30am – 9:30am & 3:30pm – 6:30pm)<sup>1</sup>:**

- Parkside Crescent Access – Priority controlled left-in / left-out T-junction
- Parkside Crescent / Central Road Roundabout – Priority controlled roundabout

**Wednesday 8<sup>th</sup> November 2017 (6:30am – 9:30am & 3:30pm – 6:30pm)**

- Therry Road / Central Road Roundabout – Priority controlled roundabout
- Appin Road Access – Priority controlled left-in / left-out T-junction

In addition, SCATS count data was obtained, from TfNSW, for the Therry Road/Appin Road intersection for 20/07/2017. Due to the layout of this intersection, where each lane in the intersection (for every approach) permits only one movement, intersection counts can be derived from the SCATS data. Figure 14 presents the location of the analysed intersections.

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<sup>1</sup> Traffic data extracted from the surveys conducted for the previous **ptc.** traffic report, *Parking Demand & Traffic Assessment*, 10 October 2017

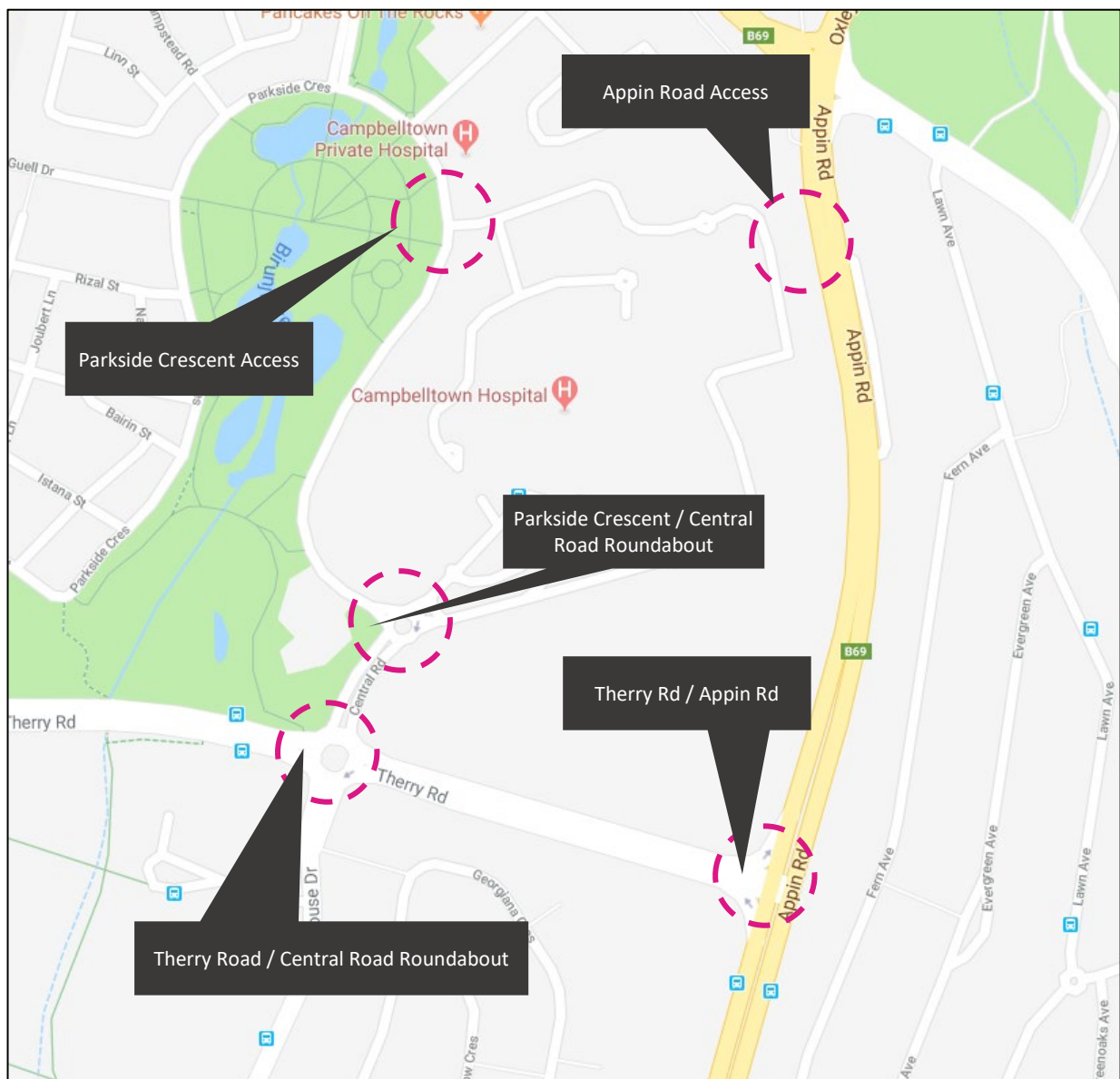


Figure 14: Key Intersections

### 7.1.2 SIDRA Analysis

A volume analysis was performed using the SIDRA Intersection 8 software, a micro-analytical tool for individual intersection and whole-network modelling. The models are based on the collected traffic survey data. SIDRA provides a number of performance indicators outlined below:

- Degree of Saturation – The total usage of the intersection expressed as a factor of 1 with 1 representing 100% use/saturation. (e.g. 0.8=80% saturation).
- Average Delay – The average delay encountered by all vehicles passing through the intersection. It is often important to review the average delay of each approach as a side road could have a long delay time, while the large free flowing major traffic will provide an overall low average delay.

- 95% Queue Lengths (Q95) – is defined to be the queue length in metres that has only a 5-percent probability of being exceeded during the analysis time period. It transforms the average delay into measurable distance units.
- Level of Service (LoS) – This is a categorization of average delay, intended for simple reference. It is a good indicator of overall performance for individual intersections. The RMS adopts the following bands:

The LoS criteria is shown in Table 8.

Table 8: Intersection performance – Levels of Service

| Level of Service | Average Delay (secs/vehicle) | Traffic Signals, Roundabout                                                                             | Give Way & Stop Signs                     |
|------------------|------------------------------|---------------------------------------------------------------------------------------------------------|-------------------------------------------|
| A                | <14                          | Good operation                                                                                          |                                           |
| B                | 15 to 28                     | Good with acceptable delays & spare capacity                                                            | Acceptable delays & spare capacity        |
| C                | 29 to 42                     | Satisfactory                                                                                            | Satisfactory, but accident study required |
| D                | 43 to 56                     | Operating near capacity                                                                                 | Near capacity & accident study required   |
| E                | 57 to 70                     | At capacity. At signals, incidents would cause excessive delays. Roundabouts require other control mode | At capacity, requires other control mode  |
| F                | >70                          | Extra capacity required                                                                                 | Extreme delay, major treatment required   |

A SIDRA analysis has been completed based upon survey data and development traffic generation assumptions for the following key intersections:

- Therry Road / Central Road Roundabout
- Parkside Crescent / Central Road Roundabout
- Parkside Crescent Access
- Appin Road Access
- Therry Road / Appin Road
- Therry Road Access (new access)

For all future scenarios, a growth rate of 1% p.a. has been applied over a period of 8 years.

The SIDRA results from that report are provided in Table 9.

Table 9: Summary of Existing and Future Traffic Conditions

| Intersection                                | Time    | Period      | Level of Service | Degree of Saturation (v/c) | Average Delay (s) | 95% Queue Length (m) |
|---------------------------------------------|---------|-------------|------------------|----------------------------|-------------------|----------------------|
| Therry Road / Central Road Roundabout       | AM Peak | Existing    | LOS A            | 0.421                      | 8.2               | 16.5                 |
|                                             |         | Development | LOS A            | 0.488                      | 9.0               | 21.3                 |
|                                             | PM Peak | Existing    | LOS B            | 0.767                      | 16.3              | 45.7                 |
|                                             |         | Development | LOS B            | 0.876                      | 20.3              | 67.7                 |
| Parkside Crescent / Central Road Roundabout | AM Peak | Existing    | LOS A            | 0.264                      | 5.3               | 11.4                 |
|                                             |         | Development | LOS A            | 0.402                      | 6.2               | 20.9                 |
|                                             | PM Peak | Existing    | LOS A            | 0.338                      | 6.2               | 15.3                 |
|                                             |         | Development | LOS A            | 0.410                      | 7.0               | 19.7                 |
| Parkside Crescent Access                    | AM Peak | Existing    | LOS A            | 0.159                      | 2.0               | 5.2                  |
|                                             |         | Development | LOS A            | 0.193                      | 2.3               | 6.6                  |
|                                             | PM Peak | Existing    | LOS A            | 0.235                      | 1.2               | 2.6                  |
|                                             |         | Development | LOS A            | 0.265                      | 1.4               | 4.0                  |
| Appin Road Access                           | AM Peak | Existing    | LOS A            | 0.406                      | 0.5               | 1.5                  |
|                                             |         | Development | LOS A            | 0.438                      | 0.7               | 0.0                  |
|                                             | PM Peak | Existing    | LOS A            | 0.275                      | 0.5               | 3.3                  |
|                                             |         | Development | LOS A            | 0.310                      | 1.0               | 0.0                  |
| Therry Road / Appin Road                    | AM Peak | Existing    | LOS A            | 0.769                      | 14.3              | 151.1                |
|                                             |         | Development | LOS B            | 0.862                      | 18.6              | 207.5                |
|                                             | PM Peak | Existing    | LOS B            | 0.834                      | 17.8              | 104.7                |
|                                             |         | Development | LOS B            | 0.896                      | 25.8              | 166.5                |
| Therry Road new access                      | AM Peak | Existing    | N/A              | N/A                        | N/A               | N/A                  |
|                                             |         | Development | LOS A            | 0.114                      | 0.5               | 0.7                  |
|                                             | PM Peak | Existing    | N/A              | N/A                        | N/A               | N/A                  |
|                                             |         | Development | LOS A            | 0.263                      | 0.5               | 2.6                  |

## 7.2 Proposed traffic generation

The traffic generation has been assumed to be the same as the parking demand of the site. Hence, the site is anticipated to generate 68 vehicular trips in the both the AM and PM peak hours. Considering the ample capacity shown in the traffic modelling provided in Table 9, the additional 68 trips (or approximately one trip every 53 seconds) will not significantly deteriorate in the intersection performance and therefore, the site can be adequately accommodated by the existing road infrastructure.



## 8 Preliminary Construction Traffic and Pedestrian Management Plan (CTMP)

### 8.1 Objective

It is acknowledged that prior to the Development Approval and an engaged contractor, there are many unknown factors that might affect this Construction Traffic Management Plan (CTMP). As such, this section is presented as a preliminary management plan, to support the development application process by outlining high-level considerations for the construction of the proposal. An updated CTMP will be required and a construction contractor appointed for Construction Certification (CC).

The CTMP associated with the construction activity of the project aims to ensure safety of all workers and road users within the vicinity of the construction site, with the following primary objectives:

- To minimise the impact of the construction vehicle traffic on the overall operation of the road network.
- To ensure continuous, safe and efficient movement of traffic (vehicular and pedestrian) for both the general public and construction workers.
- Installation of appropriate advance warning signs to inform users of the changed traffic conditions.
- To provide a description of the construction vehicles and the volume of these construction vehicles accessing the construction site.
- To provide information regarding the changed access arrangement and also a description of the proposed external routes for construction vehicles accessing the site.
- Establishment of a safe pedestrian environment in the vicinity of the site.

### 8.2 Construction Activities and Program

#### 8.2.1 General Construction Activity

All construction activities shall be wholly contained within the approved construction compounds, including, but not limited to plant, vehicles, materials, waste, site offices and amenities.

Any hoardings and barriers shall not impact pedestrians, maintain worksite security whilst providing appropriate pedestrian thoroughfare. Providing safe pedestrian visibility near any crossing points will be a key criterion in the hoarding arrangements. Prior to any site establishment works, the hoarding arrangement will obtain approval from the relevant Certifying Authority. Upon completion of any stage, the dismantling of any hoardings or road-signage shall be done in accordance with RMS Traffic Control at Works Sites Manual.

In accordance with TfNSW requirements, all vehicles transporting loose materials will have the entire load covered and/or secured to prevent any items, excess dust or dirt particles depositing onto the roadway during travel to and from the site. All subcontractors must be inducted by the lead contractor to ensure that the procedures are met for all vehicles entering and exiting the construction site. The lead contractors will monitor the roads leading to and from the site and take all necessary steps to rectify any road deposits caused by site vehicles.

Vehicles operating to, from and within the site shall do so in a manner, which does not create unreasonable or unnecessary noise or vibration. No tracked vehicles will be permitted or required on any paved roads.

### **8.2.2 Construction Program**

Tender is planned for February to April 2022 with CC planned for May to July 2022 and construction commencement from August 2022. The details of the construction program are not available at this stage and will be confirmed once contractors have been engaged.

## **8.3 Hours of Work**

Hours of work will be defined by the Development Conditions of Consent provided by DPIE.

Notwithstanding, the following hours are proposed, which align with typical Council regulations:

- Monday to Friday: 7:00am – 6:00pm
- Saturday: 8:00am – 1:00pm

No work will be permitted on Sundays and public holidays.

## **8.4 Construction Workforce**

The construction workforce will be made aware that there is minimal on site and street parking. Parking arrangements will be developed with the selected contractor.

## **8.5 Construction Site Arrangement & Access**

### **8.5.1 Site Arrangement**

Appropriate hoarding/fencing (as specified in Australian Standards and Workcover requirements) will be installed to prevent public and staff access and to maintain security for the various areas of the works.

### **8.5.2 Site Access**

Construction vehicle access will be via Parkside Crescent. Details of the site access will be provided once the contractor has been selected.

### **8.5.3 Cycling and Pedestrian Access**

It is unlikely that existing pedestrian access will be impacted by the construction activities. However, if there is an impact, the appropriate precautions and Traffic Control Plan (TCP) plans should be prepared.

## **8.6 Construction Traffic**

### **8.6.1 Vehicle Types**

The proposed works are envisaged to be carried out using a mix of commercial small to heavy rigid vehicles (6.4m SRV to 12.5m HRV) including utes, tip trucks, concrete agitators, concrete pumps, etc. Articulated vehicles including 'truck & dogs' (18m) and 19m semi-trailers are also anticipated to be used for material collections and deliveries.

### **8.6.2 Traffic Generation**

Peak construction traffic generation for the Lang Walker AO Medical Research Building - Macarthur will coincide with the Campbelltown Hospital Stage 2 multi deck car park works. Construction traffic impacts will need to be assessed based upon the cumulative amount of construction traffic. As the construction vehicle routes are similar, an assessment of the construction traffic generation considering the combined trip generation of the Stage 2 Main Works and other works within the Hospital should be undertaken prior to commencement of construction for the main works phase.

The indicative daily construction vehicle movements to and from the site is shown in Figure 15. This indicates a peak of 35-36 vehicles per day for 9 weeks of the proposed construction period. This translates to a frequency of 3 vehicles per hour if spread over the entire 11 hours that the site will be open on weekdays. Therefore, it is considered that the impact of construction vehicle movements will have a minimal, localised and controlled impact on the local road network.

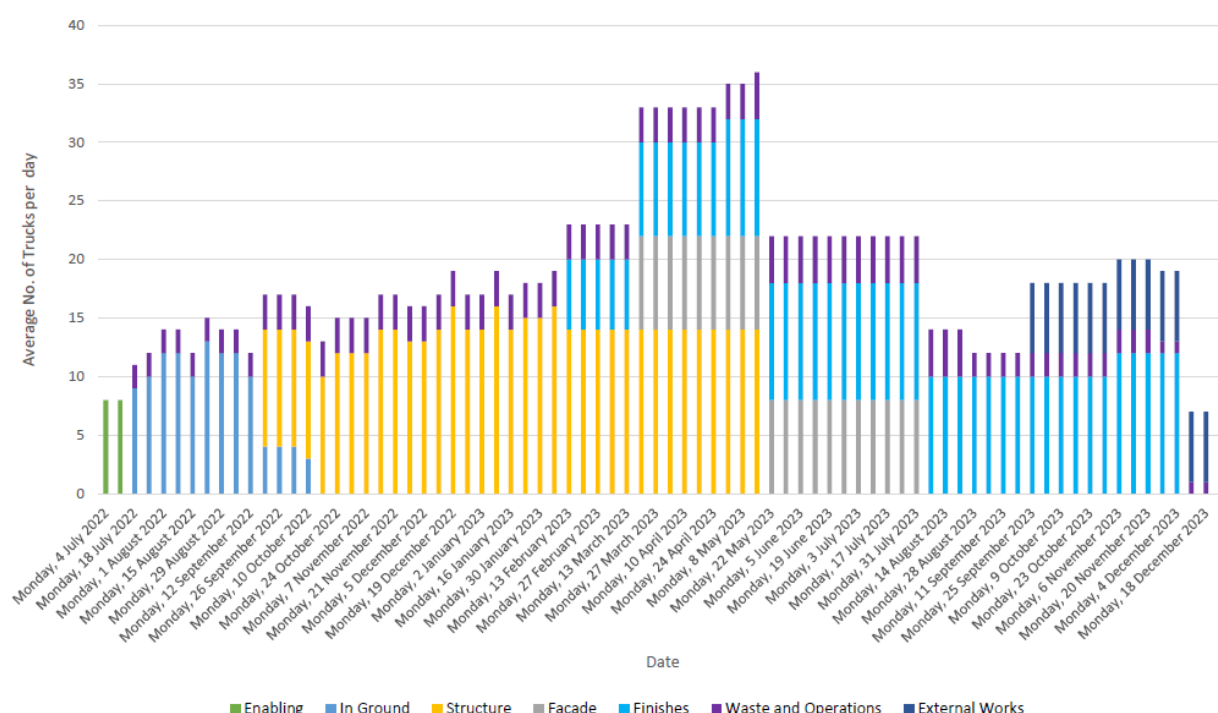


Figure 15: Indicative Daily Construction Vehicle Volumes

Regarding the cumulative construction traffic impacts generated by the proposal and the Stage 2 Campbelltown Hospital redevelopment, Stage 2 is forecast for completion prior to the 9 week peak period. Therefore, the preceding weeks will only generate vehicles associated with finishes and external works. The cumulative daily total is not likely to exceed the peak of 36 for the proposal, which again, will have a minimal, localised and controlled impact on the local road network.

### 8.6.3 Construction Vehicle Routes

The indicative construction vehicle route is provided in Figure 16. This path enables access from the north and south and egress to the north. The preferred construction vehicle access is off Appin Road which can accommodate two-way movement for vehicles up to an 8.4m MRV without vehicle movements affecting opposing lanes. Access for vehicles up to a 19m AV is possible with encroachment into opposing lanes.

Secondary construction vehicle access is possible via Therry Road, with swept path analysis indicating the ability of vehicles up to a 19m AV accessing and egressing the site. This also enables an egress path down towards the south, if required, by exiting onto Therry Road and then turning right into Appin Road.

Upon engagement of a construction contractor, this proposed route is intended to be revisited and revised based on specific vehicle requirements and contractor advice.

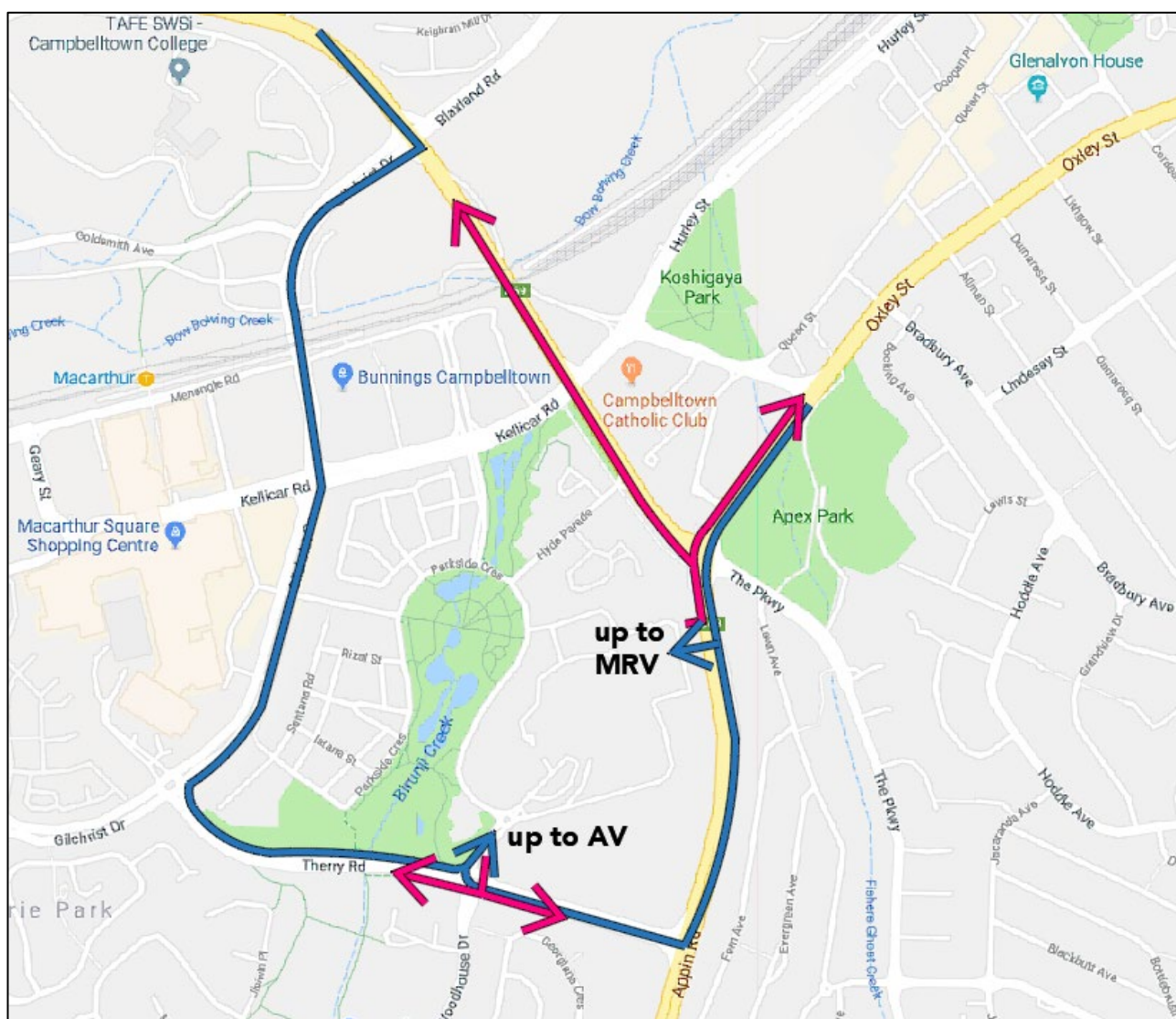


Figure 16: Indicative Construction Vehicle Route

#### 8.6.4 Works Zones

No Works Zone is proposed at this stage; however, if a Works Zone is required on a public road, the appropriate work zone applications shall be lodged with Campbelltown Council.

#### 8.6.5 Road Occupancies

No lane or road closure is proposed at this stage. In the event that works do require a lane or road closure, the proponent shall submit a Road Occupancy Licence (ROL) application to the Transport Management

Centre (TMC) for approval, prior to carrying out the associated works. The proponent recognises that a minimum of 10 days is required for the assessment of an ROL and will manage this accordingly.

## **8.7 Construction Impacts and Stakeholders**

### **8.7.1 Impacts**

It is anticipated that construction impacts will be minimal, as construction activities appear to be readily capable of occurring wholly within the proposed work compounds, without the need to modify the external road network, and with minimal interference with the internal roads and facilities of Campbelltown Hospital. Moreover, all routes are anticipated to minimise use of local roads, limiting as far as is practicable, interfacing between heavy vehicles and other road users. Various routes surrounding the site have been swept-path tested (in accordance with AS2890.2:2002) with 19m semi-trailer vehicles for feasibility in the Traffic Impact Assessment for the multi-deck car park.

In light of the above, although the volume of light and heavy vehicles will increase within the immediate road network, these increases are not expected to create any major traffic-related impacts to the road users and local population around the site.

It is anticipated that the increased volume of heavy vehicles in the internal road network may create some delays or hazards to internal road users if not properly managed. A traffic control plan may be required with traffic controllers engaged to safely coordinate traffic. It is advised that the Project Manager maintain constant communication with the Hospital, to coordinate activity between the two sites.

In addition, the cumulative influence, if any, of construction vehicles should also be considered and if need be, require mitigation measures which would be included in the updated CTMP for the Construction Certificate stage.

### **8.7.2 Stakeholders**

Stakeholders should be identified, and informed of the proposed works, potential timing, and possible impacts. These details will be better understood upon further development progression and engagement of a contractor. Some of the initial stakeholders are listed in the following section.

- Western Sydney University (Proponent)
- Campbelltown Hospital
- Department of Planning, Industry & Environment (Approval Authority)
- Campbelltown City Council
- Transport for New South Wales (TfNSW)
- Chamber of Commerce

## **8.8 Traffic Control Measures**

No traffic guidance scheme (TGS) is required at this stage – in the event that an activity requires a TGS, it shall be developed in accordance with the Australian Standards and the RMS Traffic Control at Works Sites Guidelines.



Any traffic controllers engaged on-site shall be accredited by TfNSW, and act in accordance with TfNSW Conditions, including:

- No stopping of traffic on public streets; and
- No stopping of pedestrians in anticipation of truck movements. Pedestrians may only be held for short periods, for their safety, whilst a truck is entering or leaving the site.

No marshalling or queuing of trucks shall be permitted on the public road.

## **8.9 Contractor Parking**

Employees and sub-contractors will be encouraged to use public and active transport to access the site and not park on public roads. As part of the induction program, contractors and sub-contractors will be advised during their site inductions that there is no parking within the Campbelltown Hospital site, or within the adjacent streets. To minimise impact on street parking, contractors and sub-contractors will be encouraged to use public transport or to car pool.

To support alternative travel, secure areas could be made available within the work compounds for tradesmen and staff to store equipment, overnight, making light travel via alternative modes more viable.

## **8.10 Work Site Security**

The works site shall be fully bounded with barriers to prevent pedestrian access. When not in use, the site shall be appropriately secured.

## **8.11 Induction**

All staff and subcontractors engaged on site will be required to undergo a site induction. The induction will include permitted access routes to and from the construction site for all vehicles, as well as standard environmental, OH&S, driver protocols and emergency procedures. Additionally, the lead contractor will advise workers of public transport and car-pooling opportunities.

## **8.12 Occupational/Work 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 insurances. All traffic control personnel will be required to hold TfNSW accreditation in accordance with Section 8 of Traffic Control at Worksites.

## **8.13 Contact Details for On-Site Enquiries & Site Access**

A contractor has not been engaged at this stage.

## 9 Green Travel Plan

It is expected that the details in this section will be developed further as the project progresses, with a view to implementation of a formalised monitoring and evaluation process to achieve the maximum benefits of a Green Travel Plan (GTP).

### 9.1 What is a green travel plan?

A GTP is a document that outlines how a development intends to make travel to and from the site safer and more sustainable for residents and their visitors. The GTP addresses local traffic issues around the site and encourages active, safe and sustainable travel methods, such as walking, cycling, scooting, public transport or car sharing. A GTP correlates with the development's overall aspirations and is a document that is monitored and reviewed regularly.

A GTP is not just the installation of bike racks or provision of end-of-trip facilities. A good GTP aims to promote and maximise the use of more sustainable modes of travel via a range of actions, promotional campaigns and incentives. The plan includes site management tools that encourage residents, staff and visitors to make more sustainable transport choices. A GTP requires ongoing implementation, monitoring and review. As such, nominating an individual or a team to oversee the implementation of a travel plan is a crucial component of success.

An effective GTP can offer many benefits such as reduced parking costs, less congestions on the public road networks, health and environmental benefits which generally results a healthier and happier campus with fewer sick days to staff and students.

### 9.2 Why a green travel plan is required

Development of a Green Travel Plan is widely accepted as one of the best ways to increase active travel around the site. A successful GTP offers many benefits for the community, including:

- Building confidence and improving social interaction by walking and/or cycling
- Assists in implementation of health, fitness and wellbeing programs
- Improving social interaction with others to be more interested and involved in the with the precinct as they walk or cycle
- Improving safety by reducing traffic and local road congestion
- Improving the environment by reducing air pollution from private vehicles;
- Creating opportunities for healthier lifestyles and more vibrant, cohesive and accessible communities; and
- Providing individuals with leadership opportunities.

It is likely that staff and visitors with a good understanding of an active and sustainable mode of transport will follow a healthy and active lifestyle, care about the environment and prioritise location and lifestyle over car ownership.

### 9.3 The purpose of a GTP

The purpose of the GTP is to provide a package of measures with the aim at promoting and reducing the reliance of private car usage and encourage and support the uptake of daily business in a more sustainable way. This may be achieved through the review of existing policies and identifying programmes to encourage residents, visitors and employees to adopt more active and sustainable forms of transport. This document identifies the following:

- Review of existing public transport infrastructure and future transport options;
- Assessment of existing travel patterns within the area;
- A modal share target for the development;
- A framework to identify and respond to travel demand from the development and surrounding area;
- Strategies to implement prior and during occupancy; and
- The monitoring strategy to track performance of the Green Travel Plan.

### 9.4 Opportunities and Targets

#### 9.4.1 Walking

Walking is only likely to be an attractive option for people who live relatively close to the campus.

It is a viable transport option for distances under one kilometre (approximately 20-25min) and is often quicker for short trips door to door. Walking is also the most space efficient mode of transport for short trips and presents the highest benefits.

Walkers might include staff, outpatients and visitors; however, staff on early morning or late evening/night shifts would be unlikely to walk for safety reasons. For these reasons, we expect that walking would only be an attractive mode share for people living locally. This appears to be supported by our surveys which show only 0.2% of staff walking to work. 1.2% of visitors and no outpatients walked to the Hospital.

Co-benefits where walking replaces a motorised trip include improved health for the individual, reduced congestion on the road network and reduced noise and emission pollution. Site observations show that the existing footpath networks and crossing points between the adjoining residential precincts and the hospital are generally adequate.

Whilst it is not likely that a notable portion of the construction workforce will live within walking distance, this does indicate that walking between the site and other transport hubs (bus stops, train stations) is catered for.

The pedestrian connections from the car parks to the Site is generally acceptable. Within the hospital precinct, paths are mostly quite generous. Away from the hospital, at many locations, footpaths are not provided or are provided only one side of the street. In many instances, the road network has been designed to prioritise vehicle movements, including intersections with roundabouts where pedestrians need to negotiate many directions of traffic whilst crossing the road. These often provide positive efficiency outcomes for vehicle movements. However, pedestrians have no priority and are at greater risk crossing when compared with other intersection layouts. It is recommended that inadequate provision of footpaths be rectified.

In the previous staff survey, we could not determine the staff living within the walking catchment of the hospital due to large geometry of postcode 2560 (Campbelltown). As such, we recommend that further staff surveys be undertaken to target staff living within 800m-1km catchment.

Further, it is important to note that the train connection between Liverpool to Campbelltown is much faster than buses (e.g. 23min compared to approx. 70-80min by buses). From the hospital, Macarthur Station is approximately 20min walk (Campbelltown Station is a 30min walk). State Government has a land use and infrastructure plan for streetscape works, such as shared pathways, footpath improvements, pedestrian crossings and refuges to improve connections to Campbelltown Station and within Campbelltown CBD (NSW Government, Campbelltown Precinct Land Use And Infrastructure AnalysisError! Reference source not found.).

The pedestrian route to Campbelltown & Macarthur stations should be assessed. If required, necessary discussion should be held with the Council and State Government. Staff, especially day time staff, should be encouraged to use the pedestrian routes to the stations highlighting the health benefits and reduction of net travel time by traveling via train and walk, rather than bus.

#### **9.4.2 Bicycle network**

Similar to walking, cycling is only likely to be an attractive mode share for staff members who live within relatively close distance to the campus.

Our site observations indicate that minimal cycling is currently occurring to the hospital and no bicycle was seen parked at the racks located outside the main entrance of the hospital. However, 12.6% staff responded in the survey that they would be interested in cycling if the end of trip facilities are provided.

The existing bicycle network in the locality is highly fragmented (Figure 12). Generous road width and shoulder in the area provide an opportunity to those who are willing to ride on the road. However, less confident riders may not find the road network conducive for regular riding. Shoulder lanes between the moving traffic and the door opening zone presents safety implications to cyclists and on many occasions shoulder lanes generally end just before the intersections and reappear on the opposite side.

Due to its location, land use, geometry and road network, it is reasonable to consider that the cycling mode to the hospital by the day time staff will be below the Sydney's average (typically 1-2%). However, similar to walk trips, staff living within 2.5km radius (considered as a short trip) should be encouraged to ride (Figure 12). Discussions should also be held with the Council for safe and direct cycling path to the hospital from the nearby residential precincts.

Existing bike racks should be upgraded and cycling should be promoted to the staff members. Bicycle lockers and end of trip facilities should also be provided within the hospital.

#### **9.4.3 Future Transport Targets**

To encourage and promote more active travel opportunities, the hospital should consider adopting targets as set by similar hospitals. In addition, it is recommended that the hospital consider carrying out benchmarking by conducting intercept surveys to gain an accurate base from which this data can be improved upon year by year. Should the survey indicate staff living within the 800m-1km catchment area (approximately 10-20min walk), a walking trip should be promoted to these staff members.

These targets would apply to all staff travelling to and from work on a daily basis.

#### **9.4.4 Opal Cards**

To improve the relative attractiveness of public transport, other transport modes such as driving should be benchmarked against and generally exceed the cost of public transport. Communal opal cards could be

considered when travelling between hospitals. Similar to a fleet car, it would be a communal opal card for the staff members.

#### 9.4.5 Car Share

Car share services will remove a common requirement to drive to the hospital for personal or business purposes. Subsidising car share membership will attract more car share users. Inter hospital trips can be made by car share vehicles, thus reducing the overall hospital fleet numbers. Discussion should be held with the car share operators to ascertain the demand for car share vehicles within the hospital campus.

### 9.5 Strategies

There are a number of strategies which can be employed to encourage non-car modes of transport to and from the Hospital. The following table outlines potential strategies that can be adopted in achieving future transport targets.

Table 10: Potential strategies for adoption to achieve future transport targets

| Target                                                       | Strategy                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Public Transport</b>                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Increase journeys to work by Public                          | <p>Create a map identifying the location of bus stops and routes and make this available to all staff and visitors.</p> <p>Promote the use of apps for public transport connectivity.</p> <p>Improve the promotion of Public Transport on the Hospital website.</p>                                                                                                                                                                                                |
| <b>Cycling</b>                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Increase journeys to site by cycling                         | <p>Create maps and bike routes, which link to surrounding key amenities and available facilities.</p> <p>Provide facilities on-site for staff and visitors to repair bikes. Ensure visitor bicycle racks are positioned in an accessible and sheltered location that provides good passive surveillance, and is easily recognisable to visitors.</p> <p>Provide secure, internal End of Trip facility with bike storage racks and shower and change amenities.</p> |
| <b>Walking</b>                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Encourage residents to walk to work as part of their journey | <p>Work in partnership with Council and RMS to determine whether there are opportunities to improve the pedestrian connectivity to the Hospital. For example, ensure that pedestrians are considered within the proposed RMS road upgrades.</p>                                                                                                                                                                                                                    |
| <b>Car Pooling/Car Share</b>                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Improve accessibility to car share                           | <p>Work with carpooling networks (e.g. Western Sydney Carpool) to increase the ability for staff to carpool.</p>                                                                                                                                                                                                                                                                                                                                                   |



| Target | Strategy                                                                                                                                                                                                                                                                                                                                                     |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        | <p>Promote the existence of car share within the building and surrounding areas, via potential promotional campaigns on site.</p> <p>Engage with a car share provider to provide spaces/pods within the Hospital. This would provide staff with the ability to undertake short trips during their shift, without having to bring a vehicle to the campus</p> |

## 9.6 Workplace Transport Plans

The core principle in reducing the demand for car parking spaces (specifically for Hospital Staff) is to introduce and promote “Healthy Transport Plans”.

The availability of the rail, bus, cycle and pedestrian network near the Hospital Precinct combined with a proportion of staff living within relatively close proximity to the Precinct clearly highlights the possibility of introducing a robust and sustainable travel plan. Travel plans should aim to:

- Encourage staff, patients and visitors to use more sustainable travel options to get to the Hospital
- Encourage staff to adopt healthy transport choices such as walking and cycling where this is a realistic option
- Explore car parking needs with Public Transport providers, which may include consideration of park and ride schemes
- Pursue opportunities for sharing vehicles or transport not only for staff but to explore innovative solutions to minimise journeys
- Consider journey management and distance covered
- Ensure that the Hospital’s actions in respect to transport do not have an adverse impact upon the environment and consequently the health of the population which we serve. There is a requirement to balance the needs of patients, visitors and staff against ensuring protection of the environment for which we all have a responsibility; and,

Furthermore, there are other methods of shifting the number of staff accessing work by incentivising and increasing the use of carpooling, cycling, park and ride. However these forms of transport need to be supported by an incentivised system to make these forms of access more desirable than driving.

### 9.6.1 Dedicated Carpooling Space

The hospital should allocate some dedicated carpooling spaces to promote carpooling by the staff members living in the same areas. There are many ways to manage carpooling spaces which can be explored in due course. As a start, two (2) to three (3) parking spaces are recommended for carpooling with an effective marketing strategy to promote these spaces to the staff members.

### 9.6.2 Public Transport

To improve the relative attractiveness of public transport, other transport modes such as driving should be benchmarked against and generally exceed the cost of public transport. Local Health District (LHD) is

interested in working with Campbelltown Council to provide clear wayfinding signage between the train station and hospital, to promote the use of public transport.

### **9.6.3 Car Share**

Car share services will remove a common requirement to drive to the hospital for personal or business purposes. Subsidising car share membership will attract more car share users. Inter hospital trips can be made by car share vehicles, thus reducing the overall hospital fleet numbers. Discussion should be held with the car share operators to ascertain the demand for car share vehicles within the hospital campus.

### **9.6.4 Shuttle Bus Service**

Based on the staff survey, if there is reasonable number of staff is found to be living within the 5-10km radius of the hospital, a shuttle bus can be considered in the future based on the demand. Discussion should be held with Transport for NSW/ Council for effective operation of the shuttle bus service.

### **9.6.5 Transport access guide**

To encourage staff and visitors to adopt alternative sustainable transport options, a Transport Access Guide should be developed to summarise available transport options identified. A Transport Access Guide is a concise presentation of how to reach the site using low-energy, sustainable and active forms of transport.

The aim of a Transport Access Guide is to make sure people know how to get to the subject development by walking, cycling or public transport (as well as by car).

A Transport Access Guide can take many forms such as a map printed on the back of business cards or invitations to more comprehensive information provided to new residents or staff as part of their induction kit. Guides may be incorporated into stationery, brochures and sales literature and provided electronically on the web site and in emails. An electronic version can be kept on a computer and produced as needed. Reception and enquiry staff should be familiar with the content so they can advise callers about easy transport alternatives to car travel.

Transport and Access Guides should be included in Green Travel Plans and should comply with RMS guidelines.

## **9.7 Steps to develop the green travel plan**

To develop a GTP, there are five (5) key steps to follow to commence its operation:

### **9.7.1 Step 1 – Set up an Advisory Committee**

- Appoint an individual to coordinate specific actions and to track the progress of this work
- Develop a working group that involves representatives from the campus community
- Identify ways how the whole community will be involved and informed of the work (e.g. regular articles in the precinct website / social media).

### **9.7.2 Step 2 – Data Collection & Review Existing Situation**

As part of the development, it is expected that there will be a more patients, visitors and employees travelling to and from the campus on a daily basis. To identify how staff and visitors living in the Campbelltown area travel elsewhere for work or shopping etc. and/or for people coming to the hospital, an

initial survey should be conducted to identify the travel behaviour of staff and visitors. This may be conducted as an online survey or an intercept survey of those accessing the hospital. This would assist with developing and monitoring travel planning schemes and how access can be improved to the hospital. As a minimum the following questions should be considered:

- Are you staff/visitor to the site? Yes/No
- Did you park on site today? If so, where?

#### **Staff Only Questions**

- If you are a staff member, do you have an allocated parking space within the Site?
- How do you currently travel to work and the distance of their travel?
- Based on the public transport and other sustainable travel options available, which would be their preferred mode of travel?
  - Walk/run
  - Bicycle
  - Bus
  - Train
  - Combination of bus and train
  - Drive car
  - Passenger in car
  - other \_\_\_\_
- Is your residence in an area not serviced by any of the identified transport options?
- Do you need to drive to work for another reason? Why and how often this would occur (i.e. shift work)

#### **Visitors Only Questions**

- If you are a visitor, where did you travel from today?
- What mode of transport did you use?
- Why did you use this particular method of travel mode?

#### **All Users**

- Have you heard of car share? If this was readily available to you, would you use if you did not have a car parking is unavailable?
- If not, what are the barriers to you using car share to travel to and from site?
- What would make you consider using car share to access the site?
- Any suggestion/recommendations to encourage sustainable mode of transport etc.;

Once the survey findings are available, methods to achieve specific targets can be identified with proposed time frames. This could include adopting strategies outlined in Section 6. These methods and targets are then available to be monitored (refer Section 8).

### **9.7.3 Step 3 – Prepare the travel plan**

Based on the data, an overall vision for the modal travel should be considered with clear objectives. The GTP should be prepared based on those objectives, notably:

- Build a precinct culture that supports active travel by motivating and encouraging the community to get involved
- Set specific SMART (Specific, Measurable, Achievable, Relevant, Timed) targets
- Develop an action plan that lists activities and strategies that eliminates the community's barriers to active travel to meet the objectives
- Estimate the budget required to meet the objectives, identify funding source and develop implementation strategies
- Review and consult with the community

### **9.7.4 Step 4 - Deliver & Implement**

Once developed, launch the GTP and carry out regular monitoring (every 12 months is recommended) as part of the implementation strategy. Travel mode data should be collected and reviewed each quarter.

### **9.7.5 Step 5 - Recognise Process**

The successes of the GTP should be celebrated regularly, for example at key community events. The plan should regularly be reviewed and include new ideas, targets and benchmarks.

## **9.8 Monitoring and evaluation**

A Travel Plan Co-ordinator and Travel Plan Group should be established to monitor and review the sustainability targets.

As a minimum, the Plan should be reviewed on a quarterly basis incorporating consultation with staff and visitors at the completion of a regular travel survey.

The yearly review should result in an update to the Travel Plan which may include, where necessary:

- Modifications to the previously agreed targets as a result of data collected and analysed.
- Implementation of additional remedial actions if the Travel Plan is not meeting its objectives within the timescales specified which remedial actions may include but not be limited to, undertaking new or additional monitoring activities to those specified in the Travel Plan.

## 10 Conclusion

**ptc.** has been engaged on behalf of Western Sydney University to prepare a Traffic Impact Assessment to accompany the State Significant Development Application to DPIE for the new Lang Walker AO Medical Research Building - Macarthur located within the Campbelltown Hospital Campus.

The site is located within close proximity to State and Regional Roads. Furthermore, the site is well serviced by public transport with several bus services providing access to Macarthur Train Station. The site is also located near a few off-road cycle routes that provide cyclists with access to the greater region.

The parking demand for staff and visitors has been calculated on a first principles basis and totals 68. This can be accommodated by the total parking supply upon completion of the ongoing Stage 2. Furthermore, on-street parking is available along the site frontage. In the same way, a conservative traffic generation has been assumed to be 68 trips in both the AM and PM peak hours. Traffic modelling undertaken previously indicate the road network has ample capacity remaining and should be able to adequately accommodate the 68 trips generated by the development in both peak hours.

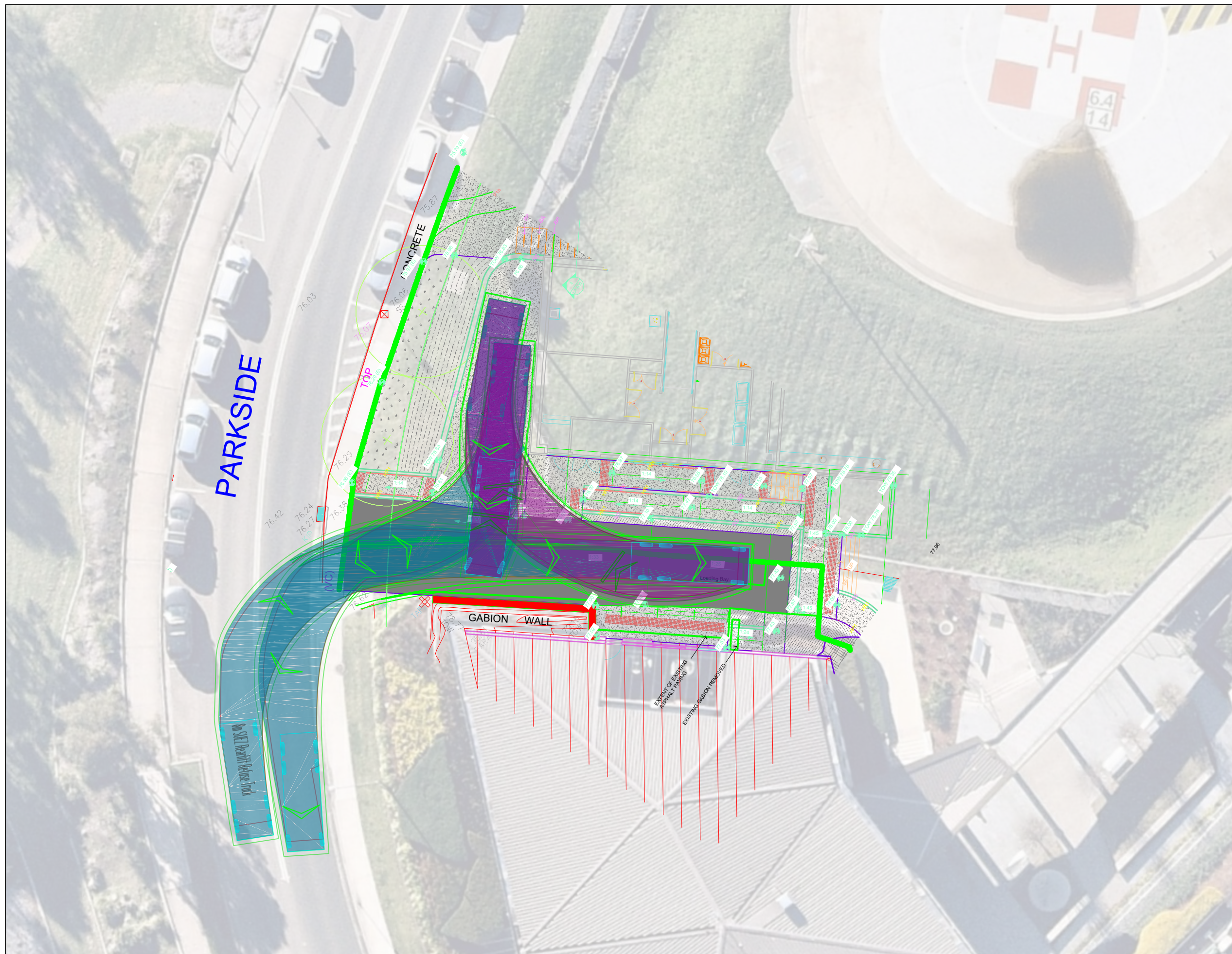
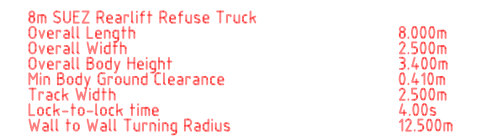
The service area is located on the south-western corner of the site. An 8.0m Suez rear lift waste collection vehicle will access the loading area via an existing vehicular crossover currently utilised by the MSC building. Based on the swept paths, the vehicular cross over will require widening to enable the design vehicle to access the service area.

A preliminary CTMP has been included in this assessment to outline the construction traffic measures to improve site safety to the public and workers. Under the indicative construction program, there will be an overlap between the works as part of the SSD and other works within the Hospital site. However, it is considered that the combined and/or separate impact of construction vehicle movements at any point within the proposed construction program will have a minimal, localised and controlled impact on the local road network. It is expected that the final CTMP will be continually reviewed and amended if required, due to changes in design, or additional requirements of DPIE, Council, TfNSW or any other authority requirements.

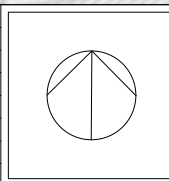


## Appendix A Swept Path Assessment





| REV | DATE       | COMMENT / DESCRIPTION | DRAWN | REVIEWED |
|-----|------------|-----------------------|-------|----------|
| 5   | 29/03/22   | FOR INFORMATION       | JAJ   | DB       |
| 4   | 10/03/2022 | FOR INFORMATION       | PD    | DB       |
| 3   | 24/02/22   | FOR INFORMATION       | JAJ   | DB       |
| 2   | 29/07/21   | FOR INFORMATION       | AP    | DB       |
| 1   | 26/07/21   | FOR INFORMATION       | AP    | DB       |



|                     |
|---------------------|
| DRAWING TITLE       |
| DRIVEWAY ASSESSMENT |

|           |              |
|-----------|--------------|
| CLIENT    | SVN          |
| DRAWING # | PTC-1        |
| PROJECT # | 21-3113      |
| SCALE     | 1 : 250 @ A3 |

CONCEPT

REV 5



## Appendix B Letter from South Western Sydney LHD



**SWD21/127654**

Ms Kiersten Fishburn  
Secretary  
Department of Planning, Industry and Environment  
4 Parramatta Square, 12 Darcy Street  
PARRAMATTA NSW 2150

Dear Ms Fishburn

I write with reference to correspondence of 4 November 2021 issued by the Department of Planning, Industry and Environment following a review of the Environmental Impact Statement submitted for the Macarthur Medical Research Centre SSD-17491477.

This letter confirms that Health Infrastructure (NSW Health) is agreeable to the use of the 68 'surplus' parking spaces that form part of the Campbelltown Hospital Stage 2 redevelopment by the Macarthur Medical Research Centre (Lang Walker AO Medical Research Building – Macarthur).

Should you have any questions or require additional information, please do not hesitate to contact [Chris.Skeggs@health.nsw.gov.au](mailto:Chris.Skeggs@health.nsw.gov.au) or on 0404 020 553.

Regards

Grant Isedale  
**General Manager**  
Camden and Campbelltown Hospitals

Date: 10 November 2021

South Western Sydney Local Health District acknowledges the traditional owners of the land.