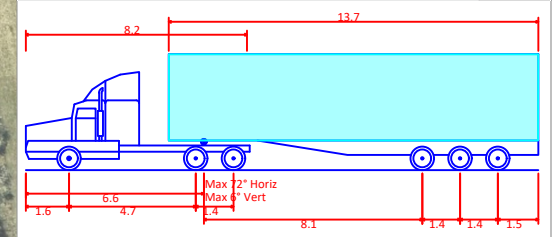


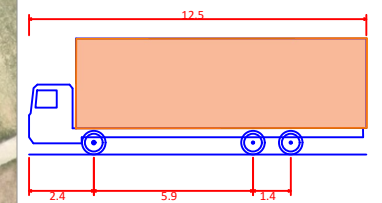


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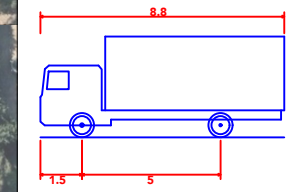
A3



AV - Articulated Vehicle
 Overall Length 19.000m
 Overall Width 2.500m
 Overall Body Height 4.301m
 Min Body Ground Clearance 0.418m
 Track Width 2.500m
 Lock-to-lock time 6.00s
 Curb to Curb Turning Radius 12.500m



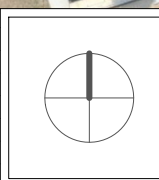
HRV - Heavy Rigid Vehicle
 Overall Length 12.500m
 Overall Width 2.500m
 Overall Body Height 4.300m
 Min Body Ground Clearance 0.417m
 Track Width 2.500m
 Lock-to-lock time 6.00s
 Curb to Curb Turning Radius 12.500m



MRV - Medium Rigid Vehicle
 Overall Length 8.800m
 Overall Width 2.500m
 Overall Body Height 3.633m
 Min Body Ground Clearance 0.428m
 Track Width 2.500m
 Lock-to-lock time 4.00s
 Curb to Curb Turning Radius 10.000m

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REV	DATE	COMMENT	DRAWN	REVIEWED	REV	DATE	COMMENT	DRAWN	REVIEWED
1	08/12/17	FOR INFORMATION	CS	AM					

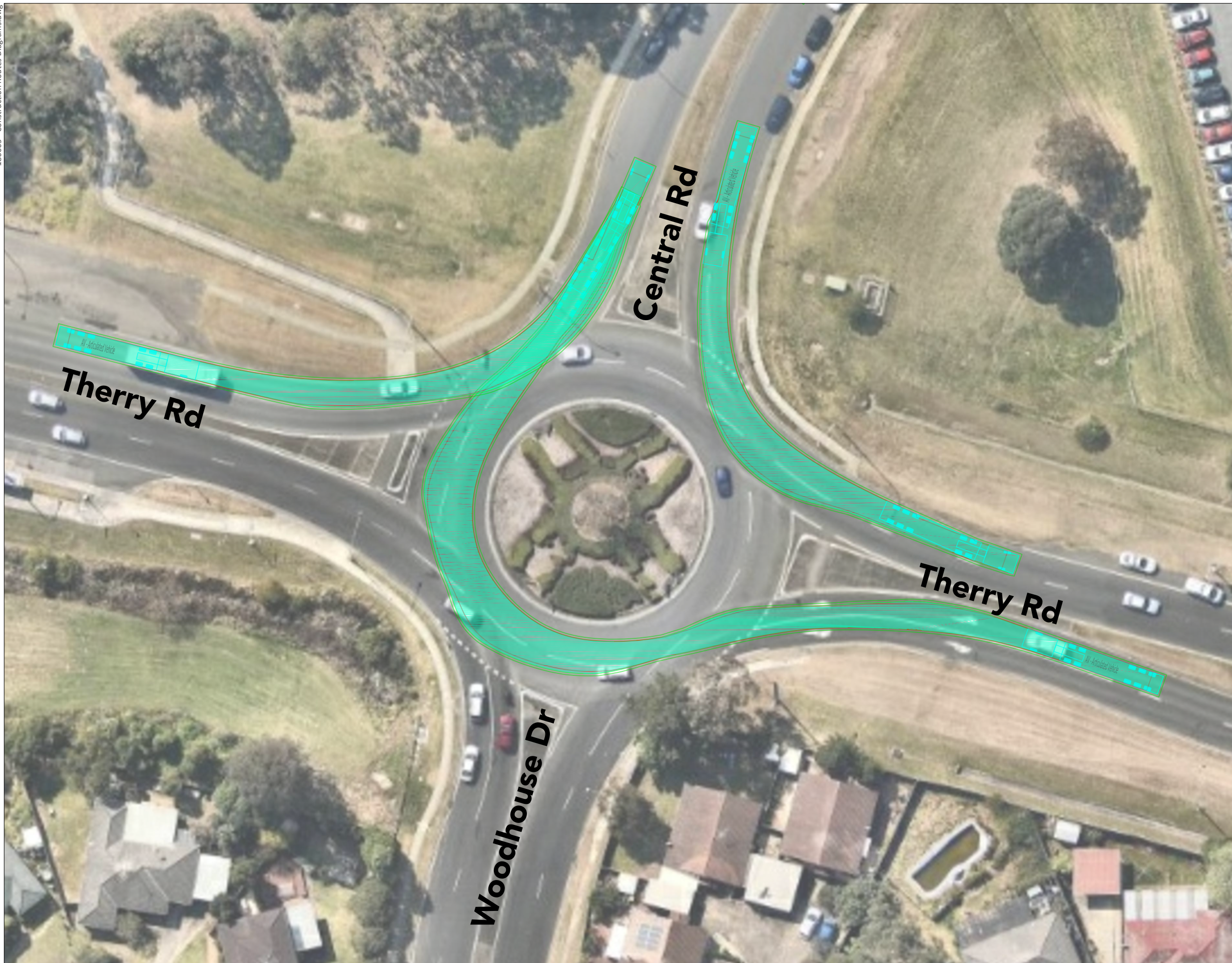


PROJECT:
**CTMP for Campbelltown Hospital
 Redevelopment (Stage 2)**

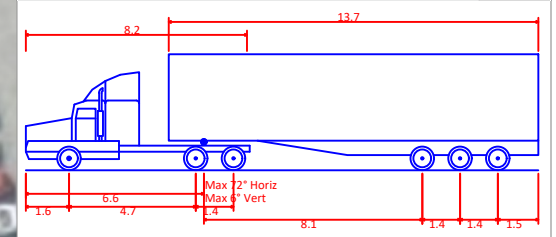
DRAWING TITLE:
Swept Paths Analysis

CLIENT: **Health Infrastructure**
 DRG. #: **PTC-002**
 PROJECT #: **T2-2266**
 SCALE: **1:1000**

REV: 1



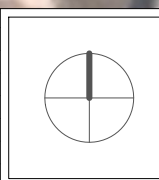
COMMENTS A3



AV - Articulated Vehicle	19.000m
Overall Length	2.500m
Overall Width	4.301m
Overall Body Height	0.418m
Min Body Ground Clearance	2.500m
Track Width	6.00s
Lock-to-lock time	12.500m
Curb to Curb Turning Radius	

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1	08/12/17	FOR INFORMATION	CS	AM					



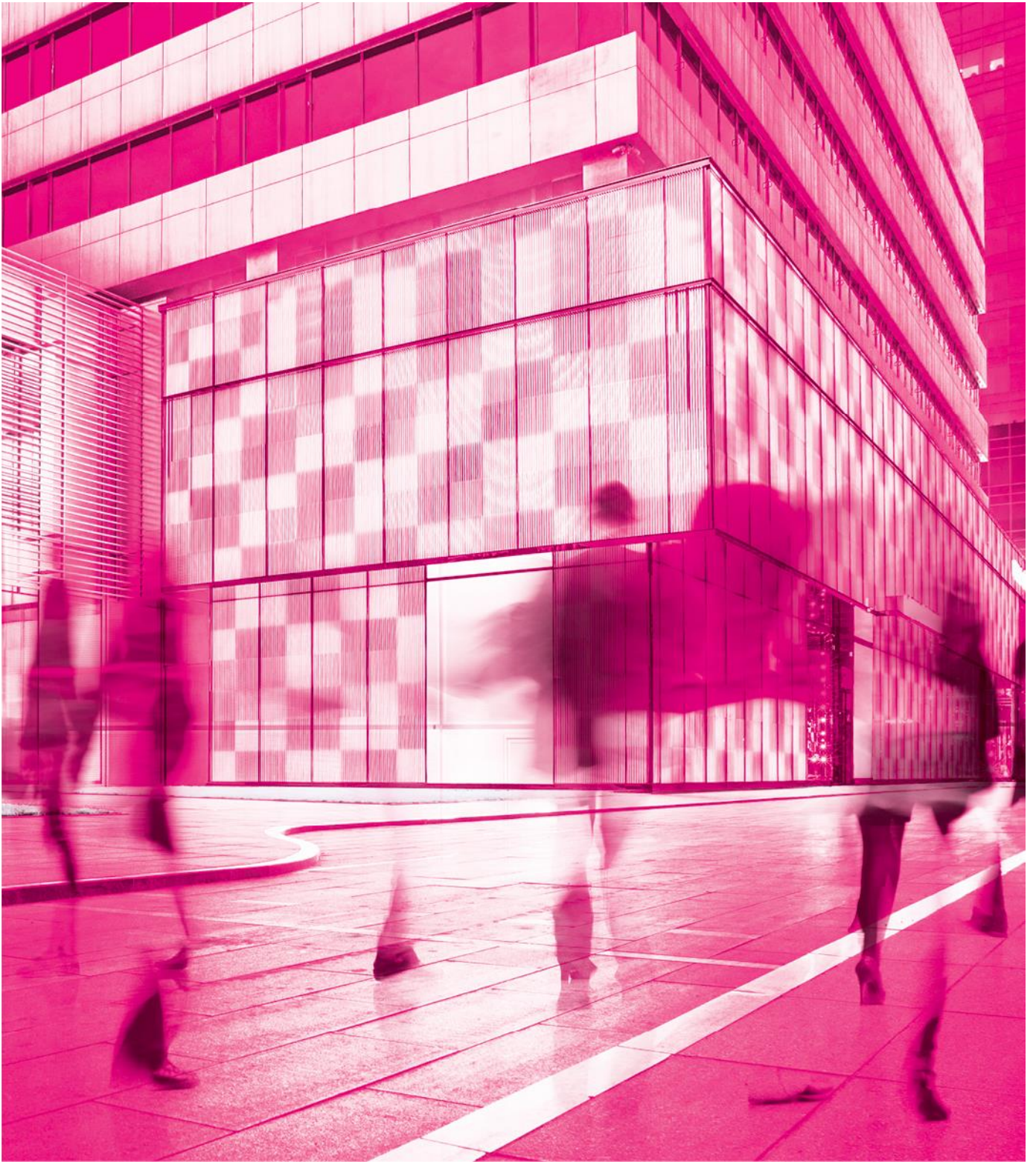
PROJECT:
**CTMP for Campbelltown Hospital
 Redevelopment (Stage 2)**

DRAWING TITLE:
**Swept Paths Analysis
 Therry Rd / Central Rd**

CLIENT: **Health Infrastructure**
 DRG. #: **PTC-001**
 PROJECT #: **T2-2266**
 SCALE: **1:500**

REV: 1

Attachment 4 Green Travel Plan



report;

Campbelltown Hospital
Green Travel Plan

For Health Infrastructure NSW

30 July 2018

parking;
traffic;
civil design;
communication;
ptc.

Document Control

Campbelltown Hospital
Green Travel Plan, Report

Issue	Date	Issue Details	Author	Reviewed	For the attention of
1	28 May 2018	Issue 1	JA/AU	AU	Health Infrastructure
2	26 June 2018	Final	JA/AU	AU	Health Infrastructure
3	30 July 2018	Final	EY	AU	Health Infrastructure

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1. Introduction

1.1 Project Summary

ptc. has been engaged by Health Infrastructure NSW (HI) to prepare a Green Travel Plan (GTP) for Campbelltown Hospital as per the Secretary's Environment Assessment Requirements (SEARS) with the Stage 2 Development Main Works. The works include:

- Expansion of the Clinical Services Block;
- Decentralised site access;
- Establishment of an Education and Research precinct;
- Expansion of Cancer Therapy;
- Inpatient & Outpatient Expansion; and
- Centralisation of administration services

The location of the hospital is outlined in Figure 1 presented below.

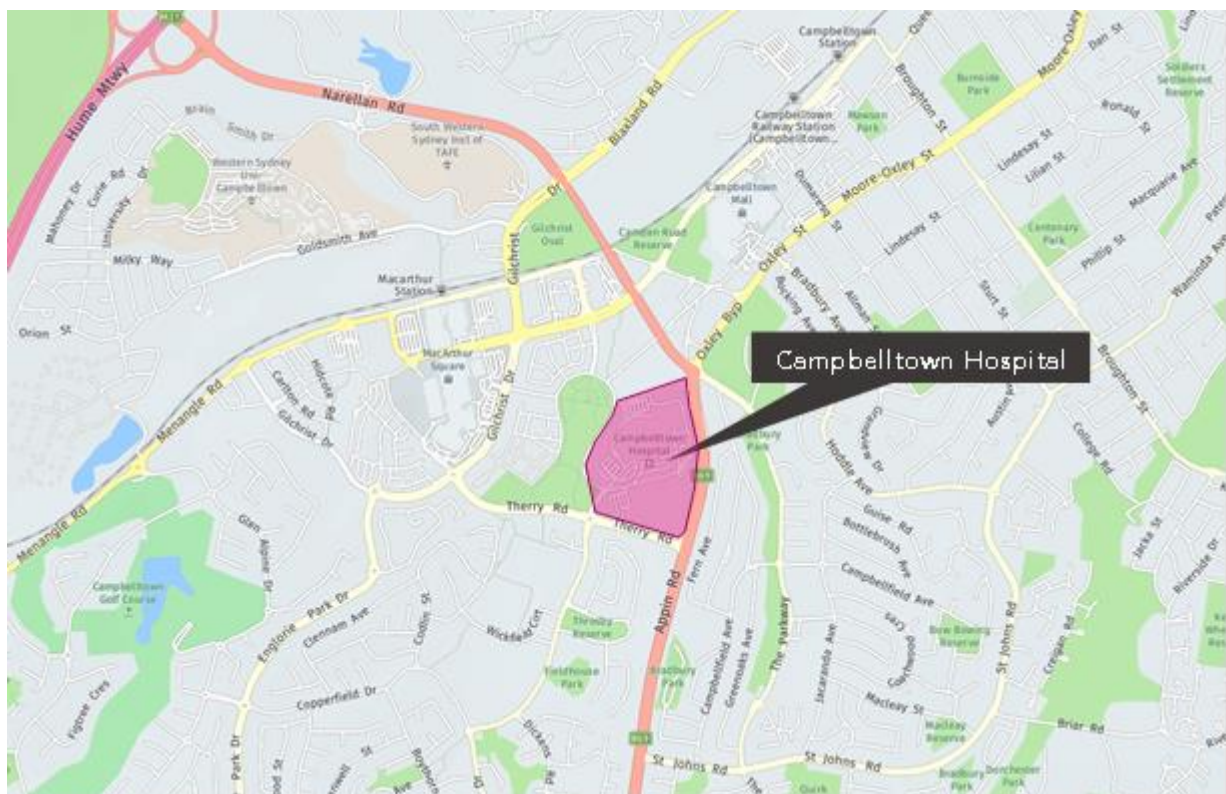


Figure 1: Campbelltown Hospital Location

1.2 Purpose of the Plan

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 hospital 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 hospital;
- A framework to identify and respond to travel demand from the hospital and surrounding area;
- Strategies to implement prior and during the development; and
- The monitoring strategy to track performance of the Green Travel Plan.

2. Background

2.1 Subject Site

The development site is known as Campbelltown Hospital and lies within the following lot:

- Lot 6, DP1058047.

The site is located within an infrastructure zone (SP2), situated to the south-west of Campbelltown town centre. 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.

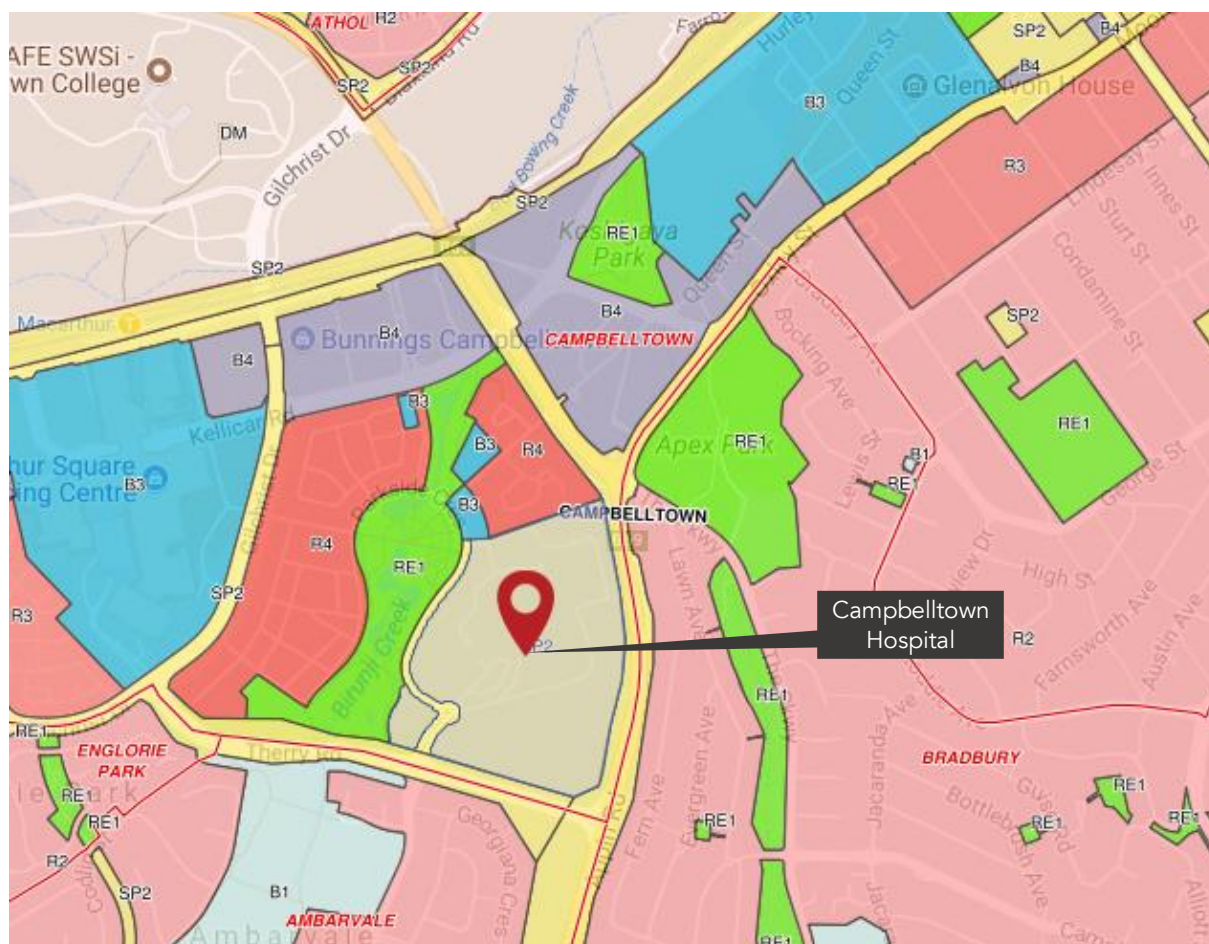


Figure 2 – Land Zoning Map (Source: Planning Portal NSW)

2.2 Campbelltown Hospital

Campbelltown Hospital is a major metropolitan hospital that provides a diverse range of services including intensive care, cardiology, maternity, gynaecology, paediatrics, palliative care, respiratory and stroke medicine, surgery and emergency medicine and broad aged care services.

The Hospital is part of the NSW health system with its major responsibility is to improve the health of the community of Macarthur. The Hospital delivers quality health care to the residents of the three local government areas of Wollondilly, Camden and Campbelltown.

A summary of the current key statistics of the Hospital as presented below:

Table 1 – Campbelltown Hospital Key Statistics

Key Statistics ¹	
Clinical Staff (FTE) ²	1,101
Administration & Support Services Staff	767
Outpatient Occasions of Service (per annum)	216,682
Emergency Department Presentations (per annum) ³	70,408
Students (average per day)	160

The Hospital is to undergo significant expansion over the next 15 years in response to the following drivers⁴:

- Expected population growth of 58% across the Macarthur LGAs (Campbelltown, Camden & Wollondilly);
- Growth of 144% in Macarthur residents aged 70+;
- Growth of 58% in children aged 0-14 years;
- Diabetes rates 32% higher than the State average;
- Emergency Department presentations expected to increase by 90%;
- More than 50% of Macarthur residents requiring surgery currently travel outside the Macarthur region for their healthcare.

¹ Per Hospital Data

² Included Hospital Staff and Mental Health Staff

³ Calculation: Weekdays Emergency Presentations + Weekends Emergency Presentations = (192×260)+(197×104)=70,408

⁴ Source: Clinical Services Plan May 2017

The existing site plan of Campbelltown Hospital is as presented below:



Figure 3 – Existing Site Layout

The latest concept plan of Campbelltown Hospital Redevelopment Stage 2 works is as presented below:

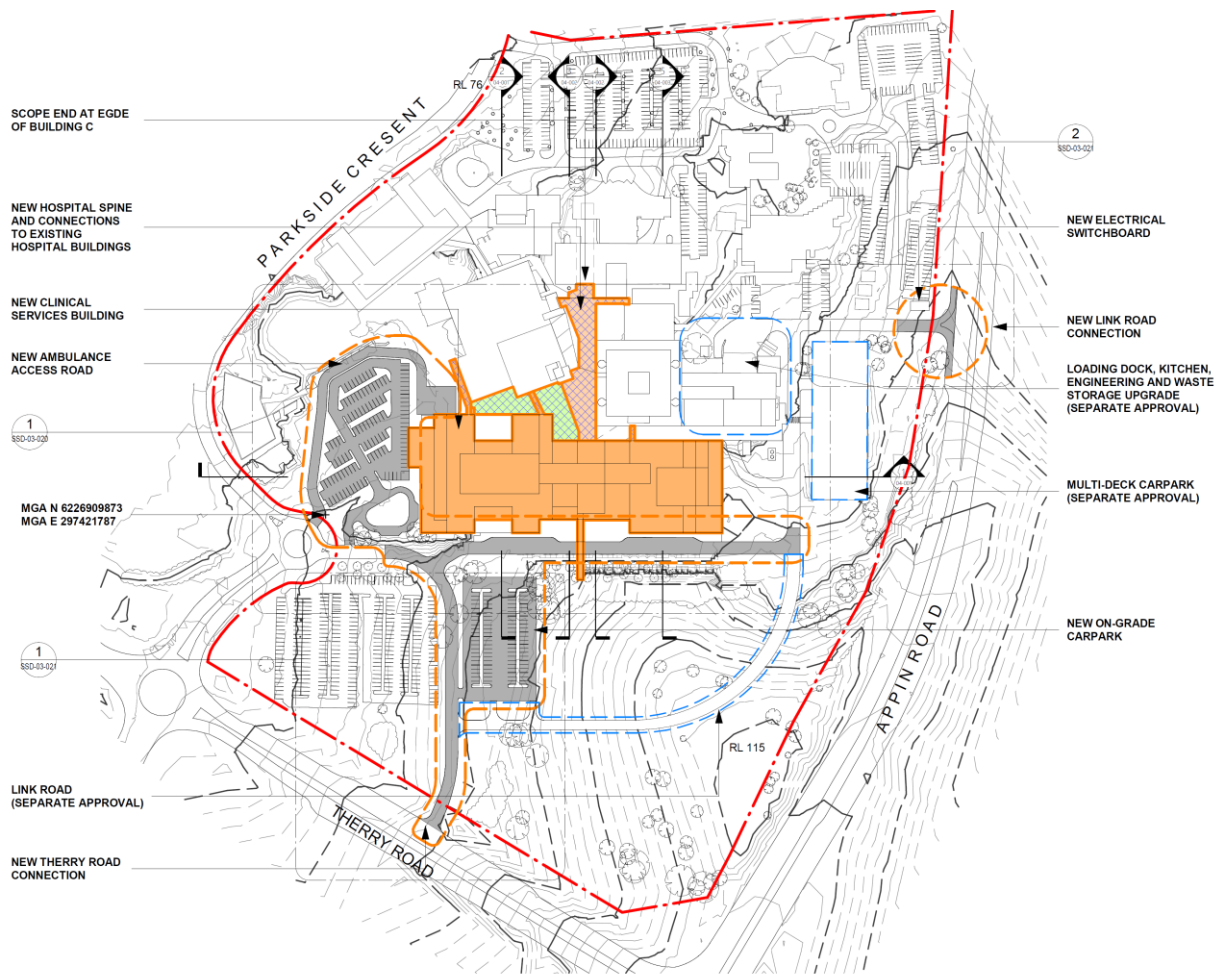


Figure 4: Campbelltown Hospital Redevelopment Stage 2 works

3. Green Travel Plan (GTP)

3.1 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.

3.2 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 Travel Plan 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.

3.3 The purpose of green travel plan

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.



4. Existing Transportation Facilities

4.1 Road Hierarchy

The subject site is located 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.

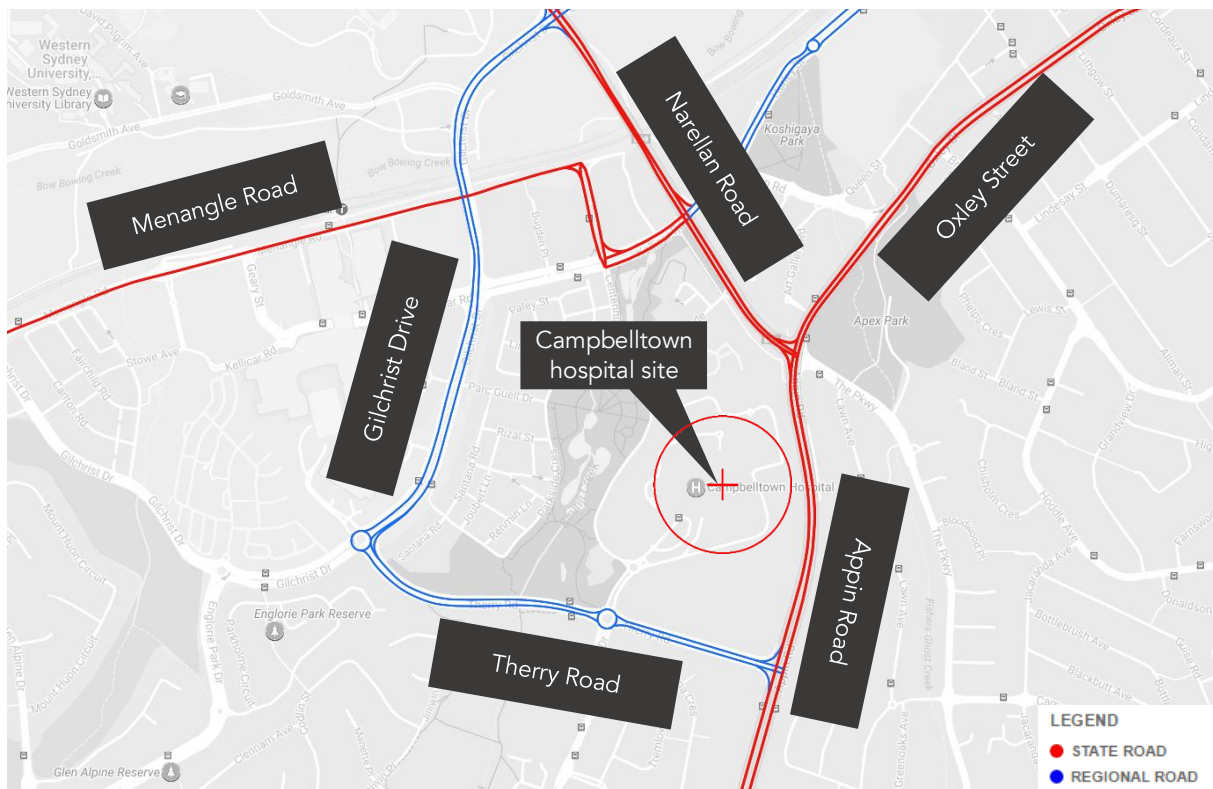


Figure 5 – Road Hierarchy Map (Source: RMS Classification Review)

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, Part funded by the State)
- Local Roads - Collector and local access roads (Council Managed)

4.2 Public Transport

The development site is served by a number of public transport services. The NSW Planning Guidelines for Walking and Cycling 2004 suggests a distance of up to 400m and 800m reflects comfortable walking distance as access to local amenities and public transport links, respectively. Furthermore, the Guidelines also suggest a distance of 1500m is suitable for cycling accessibility to public transport facilities and local amenities.

Figure 6 shows an 800m radius catchment from the hospital as presented below.



Figure 6 – 800m radius catchment area surrounding the Hospital

4.2.1 Heavy Rail

The Hospital is serviced by two heavy rail stations, Campbelltown and Macarthur, within a 2km radius. Macarthur is the closest station, approximately 1.2km from the Hospital.

Campbelltown and Macarthur stations are both on the T8 Airport & South and Intercity Southern Highlands Lines. Services on these lines provide access to the campus from the north, south, east and west as follows⁵:

Table 2 – Heavy Rail Routes servicing Campbelltown Hospital (current as of 9 January 2018)

Train Line	From & To	Frequency (approx.)	Services operate approx. (Weekdays)	Services operate approx. (Weekends)
T8 Airport & South Line (Suburban)	Macarthur to City via Airport or Sydenham	Weekday every 5-10mins (peak) & every 15mins (off-peak), Weekend every 15mins	Macarthur 3:23am – 10:58pm, Campbelltown 3:27am – 11:02pm	Macarthur 3:43am – 11:28pm, Campbelltown 3:47am – 11:32pm
T8 Airport & South Line (Suburban)	City to Macarthur via Airport or Sydenham	Weekday every 15mins (peak) & every 15mins (off-peak), Weekend every 10-15mins	Campbelltown 5:28am – 1:18am, Macarthur 5:31am – 1:21am	Campbelltown 6:03am – 2:18am, Macarthur 6:06am – 2:21am
Southern Highlands Line (Intercity)	Goulburn to Campbelltown (departing to City)	Weekday every 30mins (peak) & 45-60mins (off-peak), Weekend every 50-70mins (peak) & every 120mins (off-peak)	Macarthur 4:47am–11:39pm Campbelltown arr. 4:50am–11:42pm, Campbelltown dep. 4:57am-10:17pm	Macarthur 5:22am – 11:28pm Campbelltown arr. 5:25am–11:31pm, Campbelltown dep. 5:32am – 11:32pm
Southern Highlands Line (Intercity)	Campbelltown to Goulburn (arriving from City)	Weekday every 30mins (peak) & 45-60mins (off-peak), Weekend every 60-90mins (peak) & every 120mins (off-peak)	Campbelltown arr. 5:27am –12:17am, Campbelltown dep. 5:28am -12:24am, Macarthur 5:31am – 12:27am	Campbelltown arr. 6:02am–12:47am, Campbelltown dep. 6:03am – 12:54am, Macarthur 6:06am – 12:57am

Services via the T8 Airport & South Line are limited-stops, with a reasonable frequency for both weekdays and weekends (from early morning to late evening). Services via the Southern Highlands Line serve as express services to and from City in addition to the frequent limited-stops services via the aforementioned T8 Airport & South Line.

Despite regular services, the tube count data (conducted between 16 July 2017 and 22 July 2017) showed just 3% of outpatients and 2.9% of visitors utilising heavy rail mode share to travel to the Hospital. Only 0.6% of staff utilised heavy rail (or a combination of heavy rail and bus) as their mode share option. This is mainly due to the need for transit connections between transport modes between trains and buses. This is further reflected in conducted surveys resulting as the major reason why hospital-related users do not use public transport.

⁵ <http://www.sydneytrains.info/timetables>

4.2.2 Bus Services

The Hospital is serviced by a number of bus services. These services have been summarised Table 3.

Table 3 – Bus Routes Servicing Campbelltown Hospital (current as of 9 January 2018)

Bus Route	From & To	Frequency (approx.)	Services operate approx. (Weekdays)	Services operate approx. (Weekends)
870	Campbelltown to Liverpool	Weekdays every 30-60 mins, Sat every 60 mins, Sun every 120 mins	6:02am – 10:01pm	Sat 9:06am – 9:00pm, Sun 8:56am – 7:45pm
870	Liverpool to Campbelltown	Weekdays every 30-60 mins, Sat every 60 mins, Sun every 60-120 mins	5:51am – 9:41pm	Sat 6:41am – 8:37pm, Sun 7:10am – 8:05pm
871	Campbelltown to Liverpool	Weekdays & Sat every 60 mins, Sun every 120 mins	9:18am – 1:15pm	Sat 7:26am – 5:25pm, Sun 7:55am – 3:55pm
871	Liverpool to Campbelltown	Weekdays & Sat every 60 mins, Sun every 120 mins	10:04am – 3:04pm	Sat 8:14am – 6:17pm, Sun 9:07am – 7:08pm
872	Campbelltown to Liverpool	Weekday & Sat every 30 mins, Sun every 60 mins	6:01am – 10:30pm	Sat 6:50am – 10:30pm, Sun 7:23am – 9:45pm
872	Liverpool to Campbelltown	Weekdays & Sat every 30 mins, Sun every 60 mins	6:07am – 10:21pm	Sat 7:12am – 10:23pm, Sun 7:46am – 9:38pm
888	Campbelltown to St Helens Park Loop	Weekdays 2 services, Sat & Sun 1 service	11:59am & 3:38pm	Sat 12:13pm, Sun 11:57am

Bus services to and from the Hospital is on a relatively regular basis. The abundance of routes and services will provide a reasonably attractive mode share option for some hospital-related users and construction workers, subject to the availability of convenient bus stops close to their home location.

To increase the mode share to bus transport, we recommend the following measures should be considered:

- Currently the majority of direct bus services run along the north-south corridor (Figure 7). However, using multiple bus routes or a combination of trains and buses, the network coverage is quite extensive. Nonetheless, given the low frequency of services, waiting time for connecting services are likely to be a major discouraging factor for low public transport usage.

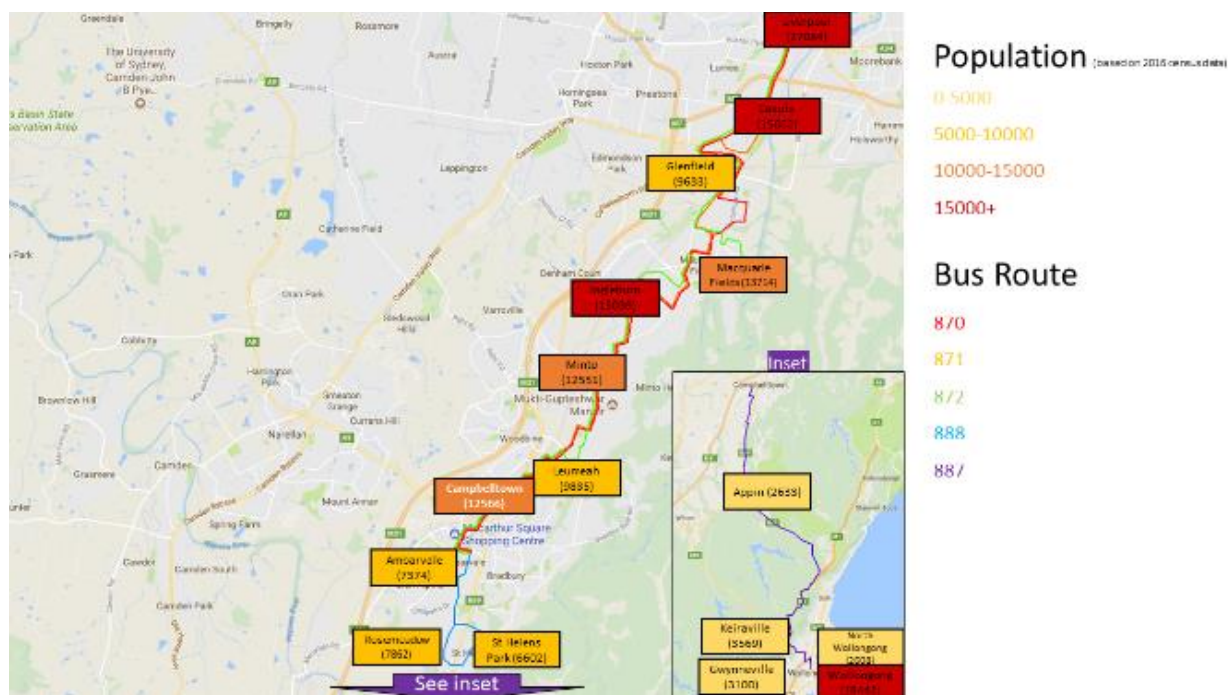


Figure 7 - Existing bus network coverage

- NSW State Government is currently considering Rapid bus routes in various parts of Sydney. Rapid bus routes will directly connect major centres for jobs, shopping centres and other growth areas and improve Sydney’s cross-metropolitan public transport network. In this area, the Government is currently investigating a new Rapid bus route covering the Growth Centres: Liverpool – Campbelltown via Leppington and Oran Park areas. The Rapid route will provide:
 - Over 150 new services every weekday on this Growth Centre route;
 - More early morning, evening, night and weekend services; and
 - Integrate with the delivery of the South West Rail Link.

An opportunity to link the Rapid bus route to Campbelltown Hospital along with Macarthur Shopping Centre should be discussed with the State Government. A simpler and more frequent bus service along the corridor will make bus travel more attractive to the staff and visitors.

To assist in achieving a greater utilisation of public bus mode share, we understand from that the local bus contractor (Interline Bus Company) is proposing to double services to the Hospital in 2018.

5. Opportunity and targets

5.1.1 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 (1) 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.



Figure 8 - Walking for visitors, management and medical staff

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 hospital entrances are usually 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 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 survey

should be undertaken to target staff living within 800m-1km catchment (approximately 10-20min walk) as shown in Figure 6. Walking trips should be promoted to these staff members.



Figure 9 - Promoting walking trips

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 (Figure 10).

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.

'Walk to Work Day' should be celebrated to the hospital on annual basis (<http://www.walk.com.au/wtw/homepage.asp>).

The NSW Government Land Use and Infrastructure Plan aims to improve walking and cycling connections to Macarthur Station and the residential areas to the south. (refer to Land Use and Infrastructure Plan presented below in Figure 10).

There are plans for a new regional cycle route parallel and perpendicular to the rail line to provide better connections to the station and surrounding area. There are a series of local cycle networks including:

- Through the university basin reserve
- Bolger Street and Parc Guell Drive, linking to the residential precinct and Campbelltown Hospital to the east
- Through Barber Reserve link to the south
- Streetscape works, such as footpath improvements and pedestrian crossings to improve station connections and pedestrian environments

Land Use and Infrastructure Plan

Transport and Movement

The proposed transport network aims to:

- ▶ Improve walking and cycling connections from Macarthur Station to the residential areas to the south;
- ▶ Increase direct bus routes and improve suburban bus route travel times to centres, and
- ▶ Improve road and street legibility and permeability throughout the precinct.

Key network improvements are identified on Figure 27 and include:

Public Transport

- ▶ Investigate opportunities to improve direct connections and reduce travel times for the suburban bus network suburban bus network to create a more connected system that provides direct routes to, from and through the corridor
- ▶ Investigate opportunities for a potential public transport link from Menangle Road to Camden Road, under Narellan Road to improve pedestrian, cycle, and public transport connectivity
- ▶ Kiss and ride facility on the north side of Macarthur station

Walking and Cycling

- ▶ New regional cycle route parallel and perpendicular to the railway line to provide better connections to the station and surrounding area
- ▶ Series of local cycle network improvements, including:
 - Through the University Basin Reserve and along Goldsmith Avenue, linking to the university residential development to the west and Mount Annan Botanic Garden
 - Bolger Street and Parc Guell Drive, linking to the residential precinct and Campbelltown Hospital to the east
 - Through the Barber Reserve to link to the south
- ▶ Streetscape works, such as footpath improvements and pedestrian crossings, to improve station connections and pedestrian environments.

Parking

- ▶ Undertake a parking study for the precinct to identify parking demand, develop appropriate parking management strategies and identify opportunities for improved mode share to increase walking, cycling and public transport use.

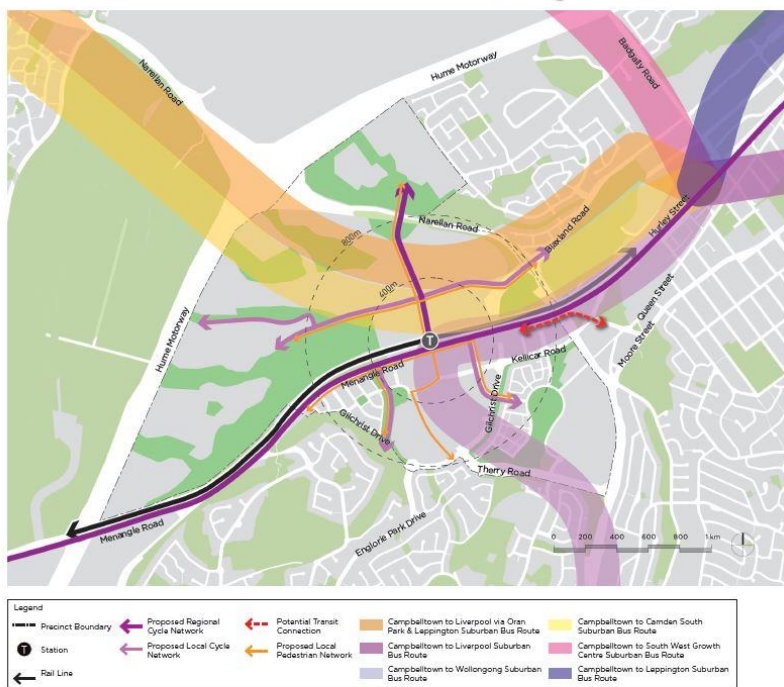


Figure 27: Proposed transport infrastructure improvements in Macarthur

20 Macarthur Precinct - Land Use and Infrastructure Analysis

Figure 10 - NSW Government Land Use & Infrastructure Plan

5.1.2 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. No end of trip facility (e.g. bike lockers, male and female shower facilities etc.) is provided at the hospital. Consequently, no staff member uses bike travel to the hospital, however, 12.6% staff responded 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 11). 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 2.5m radius (considered as a short trip) should be encouraged to ride (Figure 11). 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.

The Hospital 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 as shown below:

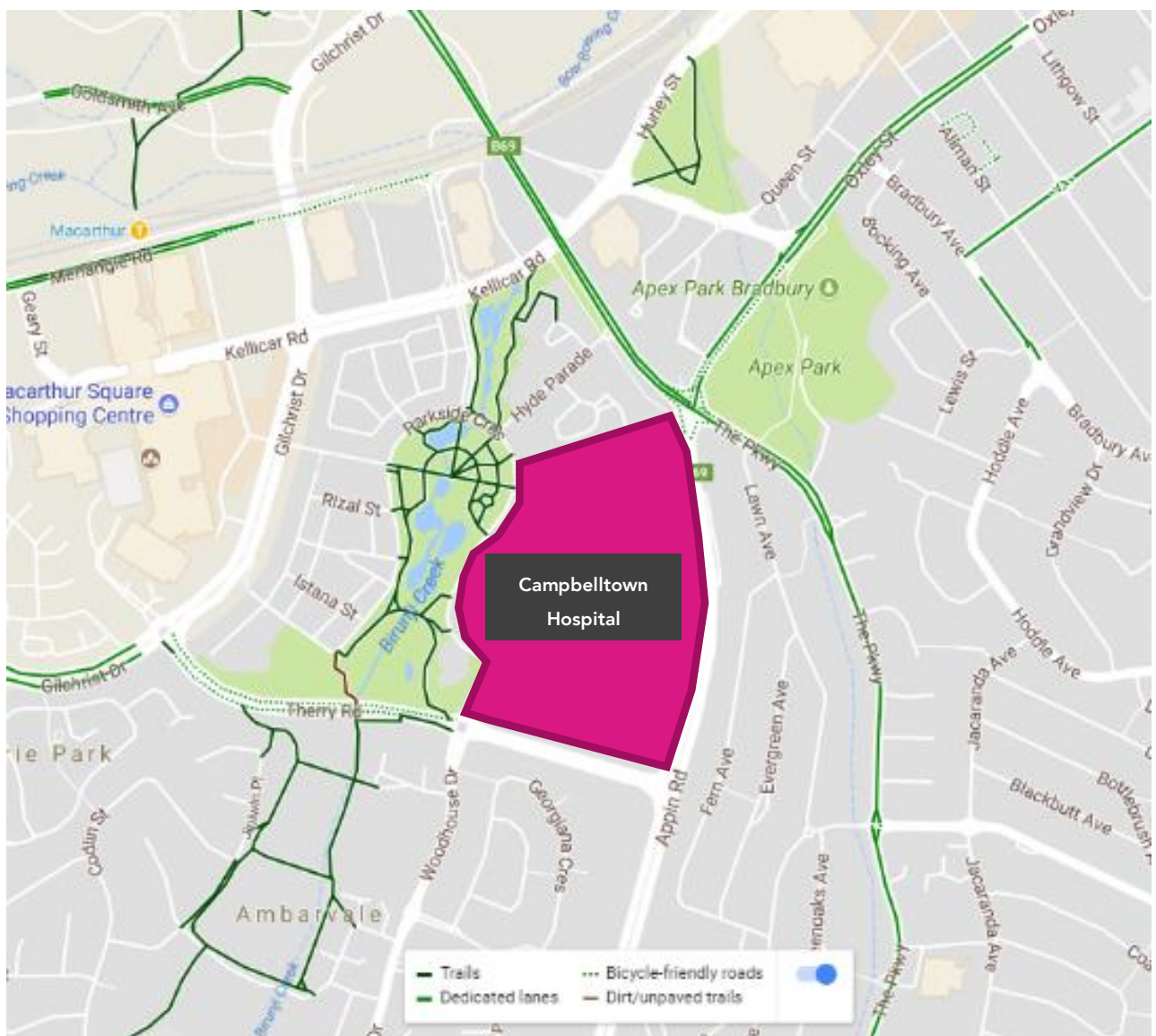


Figure 11 – Bicycle routes near Campbelltown Hospital

5.1.3 Proposed bicycle parking provision

- Increased number of external cycle racks
- Secure, convenient, accessible storage facilities close to main entries, with good lighting and passive surveillance
- End of Trip Facility (EOTF) includes the provision of clean showers and change rooms and well maintained in close proximity to bike racks

5.1.4 Current On-Site Initiatives

The following initiatives are available to encourage increased cycling, reducing the reliance on private car usage:

- Bicycle spaces – minimal bike racks (2 x external and 1 x undercover)

5.1.5 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) as shown in Figure 6, 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.

5.1.6 Dedicated Carpooling Space

Some dedicated carpooling spaces could be considered to promote carpooling by the staff members living in the same areas. There are many ways to promote and manage carpooling spaces which could be considered in due course.

5.1.7 Communal 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.

5.1.8 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 (e.g. GoGet, Flexicar, PopCar etc.) to ascertain the demand for car share vehicles within the hospital campus.

5.1.9 Future Bus Services

The number of bus services to the Hospital is expected to double towards the end of 2018. Discussions with the bus service provider, Interline Bus Company, indicate the expected upgrade to occur in November.

Currently, the utilisation of bus services at the hospital is quite low. Surveys undertaken by **ptc.** in 2017⁶ indicate that 4% of outpatients, 3.7% of visitors, and 0.3% of staff utilise bus as the preferred mode share option. Opal data reveals the average number of daily trips to be 96 and the average number of commuters per bus to be 0.7. The low frequency might be a contributory factor for low bus intake.

The expected vehicular trip generation of the development is 528 vehicles during the peak hour (370 in and 159 out for AM, reverse for PM). Using a 4% mode share figure, this would equate to 15 additional visitors/outpatients arriving⁷ and 7 additional visitors/outpatients leaving⁸ by bus in the AM peak hour, and the reverse in the PM peak hour.

It is assumed that doubling of the bus services may result in double the utilisation, due to decreased average wait time and hence, greater convenience. Discussion are being held with Interline bus company regarding routes across the different entrances of the Hospital to allow for improved flows around and within the Hospital. There will also be a continued focus to work closely with Interline to ensure targeting services to the time of peak demand in the Hospital (i.e. outpatient clinics). From an internal hospital perspective, a targeted focus through the wayfinding strategy will also provide patients with information regarding a variety of options for their arrival at the Hospital.

Even with the estimated increase in bus patronage, there is ample of spare capacity within the bus network to accommodate the forecast increased patronage resulting from the development.

⁶ Parking Demand Study & Traffic Assessment, prepared by **ptc.** on 10 October 2017

⁷ $370 \times 0.04 = 14.8$

⁸ $159 \times 0.04 = 6.36$

6. 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 4: Potential strategies for adoption to achieve future transport targets

Target	Strategy
Public Transport	
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>
Cycling	
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>
Walking	
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>
Car Pooling/Car Share	
Improve accessibility to car share	<p>Work with carpooling networks (e.g. Western Sydney Carpool) to increase the ability for staff to carpool.</p> <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>



Figure 12 - End of Trip facility example

6.1 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.

6.1.1 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.

6.1.2 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.

6.1.3 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 (e.g. GoGet, Flexicar, PopCar etc.) to ascertain the demand for car share vehicles within the hospital campus.

6.1.4 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.

6.1.5 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.

7. Steps to develop the green travel plan

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

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).

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).

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

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.

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.

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.



Figure 13 - Active travel for staff



Figure 14 - Encouraging staff group rides