

NSW Health Infrastructure
**SSD 18_9036 - Concord
Repatriation General Hospital
Redevelopment (Concept & Stage
1)**
Green Travel Plan

Rev A | 24 August 2018

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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1 Introduction

1.1 Background

This Green Travel Plan has been prepared in support of the SSD application for the Concord Repatriation General Hospital Redevelopment (SSD 9036). The SSDA seeks consent for the proposed redevelopment of Concord Repatriation General Hospital (Concord Hospital) to improve and replace outmoded facilities to meet the substantial growth in clinical service demand across the hospital's catchment:

- Concept approval is sought for the redevelopment indicatively comprising 82,000sqm GFA, to be undertaken in two (2) stages including:
 - Clinical Services Building (CSB) and multi storey carpark (Stage 1); and
 - Acute Services Building (ASB) and multistorey carpark (Stage 2).
- Detailed approval is sought for the Stage 1 construction of the proposed CSB (44,000sqm GFA) and the construction of a multi-storey car park located to the north of Hospital Road.

Detailed development approval for the proposed Stage 2 works will be completed at a later date and does form not part of this SSDA. The Stage 1 detailed works are estimated to be completed by end 2021.

The proposed Concept redevelopment is in accordance with the concept architectural package prepared by Jacobs. The proposed Stage 1 detailed development (CSB and multistorey carpark) is in accordance with the architectural drawings prepared by Jacobs.

The areas in the below staging plans have been assessed and are included within this report.

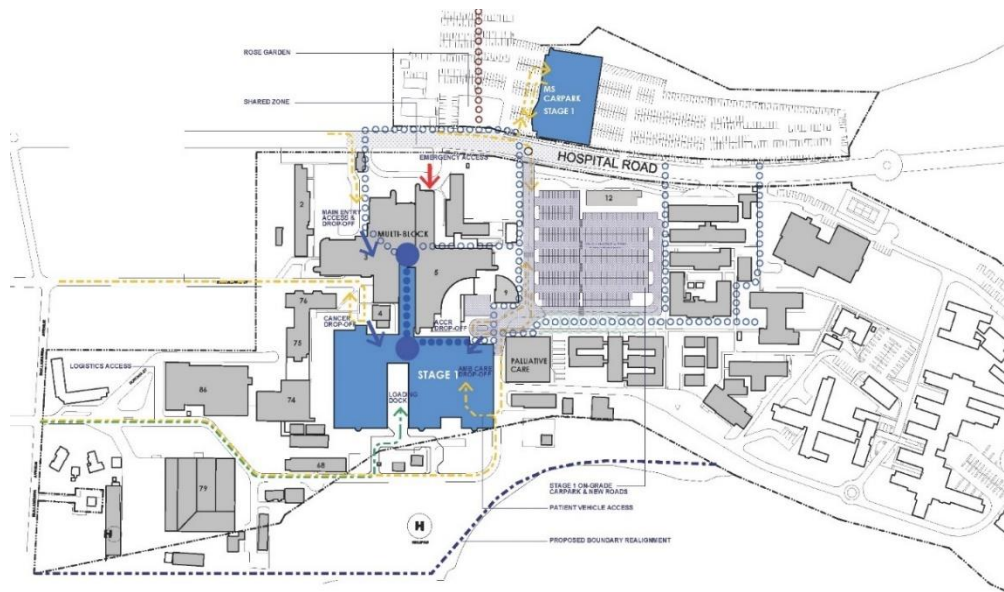


Figure 1 Stage 1 Proposal

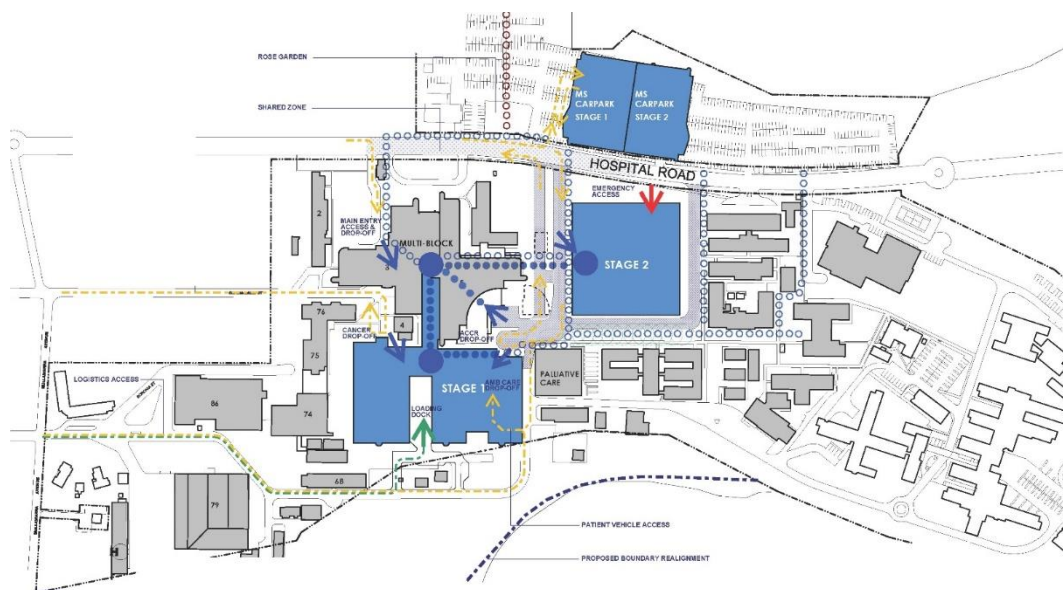


Figure 2 Stage 2 Proposal

This GTP aims to outline measures which positively influence transport demand and behaviours to the expanded hospital campus. Specifically, this document responds to a requirement in the SEARs for the project to prepare a GTP for the hospital campus.

Concord Hospital has an existing Travel Access Guide, available on their website, which outlines active and public transport accessibility to the site in a concise manner.

1.2 Hospital location

Concord Hospital is located in the City of Canada Bay Local Government Area. The site is located approximately 15km from the Sydney CBD, adjacent to the Parramatta River between Yaralla Bay to the south and Bray's Bay to the north.

The campus is located on a peninsula with all land access from the southwest only. Hospital Road is the only public road access to the hospital and the campus car parking, and it is also a 'dead end'. The campus has a broad frontage to Hospital Road and extends down to the foreshore. Emergency and Ambulance access is via Hospital Road whereas service access is via Boronia and Currawang Streets.

Bordering the campus is an established residential area on Fremont Street, Hospital Road, Nullawarra Avenue, Currawang Street and Boronia Street.



Figure 3: Site Location

1.3 What is a Green Travel Plan?

A GTP is a package of measures implemented by an employer to encourage more sustainable travel whilst commuting to work and also during the course of work. It is a means for an organisation to demonstrate commitment to a more proactive approach in improving the environmental sustainability of its activities.

More generally, the principles of a GTP are applied to all people travelling to and from a site. Government authorities are placing increasing emphasis on the need to reduce the number and lengths of motorised journeys and in doing so encourage greater use of alternative means of travel with more environmentally positive outcomes.

In the context of a Hospital campus, the majority of the measures are targeted towards staff, however patients and visitors are also encouraged to travel by sustainable modes.

2 Existing Travel Patterns and Infrastructure

2.1 Mode Split

The most notable features of existing travel patterns and surrounding infrastructure include:

- Car travel to the campus accounts for the majority of people travelling to Concord Hospital, including 89% of staff
- Approximately a third of the Concord Hospital staff live within the Canada Bay, Strathfield and Ryde LGA.

2.1.1 Travel Patterns

The travel characteristics for staff, outpatients and visitors in 2006 were collected through a questionnaire distributed to hospital staff, and interviews randomly made with outpatients and visitors to obtain information on mode of travel. The results of this survey are shown in Table 1.

Table 1: Mode of Travel (%)

Mode of Travel	Staff	Outpatients	Visitors
Car drivers	86%	33%	74%
Car passengers	3%	47%	10%
Bus	6%	11%	10%
Train	1%	2%	-
Bus +Train	1%	-	-
Taxi	<1%	7%	2%
Walk	2%	-	4%
Bike /Motorcycle	<1%	-	-
Total	100%	100%	100%

Car mode is high for all three user groups with 89% of staff, 80% of outpatients and 84% of visitors arriving by private car as a driver or passenger.

Despite the availability of nearby bus and train services, only 1% of staff utilised buses or trains to get to work. This mode share is largely reflective of a typical hospital in Sydney.

It is also beneficial to compare the results of the travel study to the latest Census data, from the 2016 Census for Destination Zone 113842576 which encompasses Concord Hospital. This comparison is shown in Table 2.

Table 2: Mode Share Comparison between 2006 Survey and 2016 Census data

Mode of Travel - Staff	Proportion of Total Trips		
	2006 Staff Survey Census	2016 Census DZ 113842576	2016 Census DZ 113842576 (excluding 'did not go to work')
Car drivers	86%	77%	85%
Car passengers	3%	3%	3%
Bus	6%	2%	2%
Train	2%	7%	8%
Walk	2%	2%	2%
Other	1%	<1%	<1%
Did not go to work	-	10%	-
Total	100%	100%	100%

The results of this comparison suggest that there has been little change in travel patterns since the 2006 survey, with car based trips accounting for the vast majority of travel to work in the area.

Some of the key factors which are likely to attribute to a high car mode share include:

- Staff working shifts which do not necessarily correlate with periods of good public transport availability;
- Afternoon and night shift staff in particular have concerns about safety and security when travelling to/from work in evenings and/or early morning.
- The perceived safety of the walking route between Rhodes train station and the campus
- Staff living in areas with poor public transport accessibility

2.1.2 Where staff live

2016 Journey to Work Census data was used to assess where employees of the Destination Zone 113842576 live (this zone encompasses Concord Hospital – (see Figure 4). Locations have been listed at Statistical Area Level 3 (SA3) which is closely aligned with large local government areas.

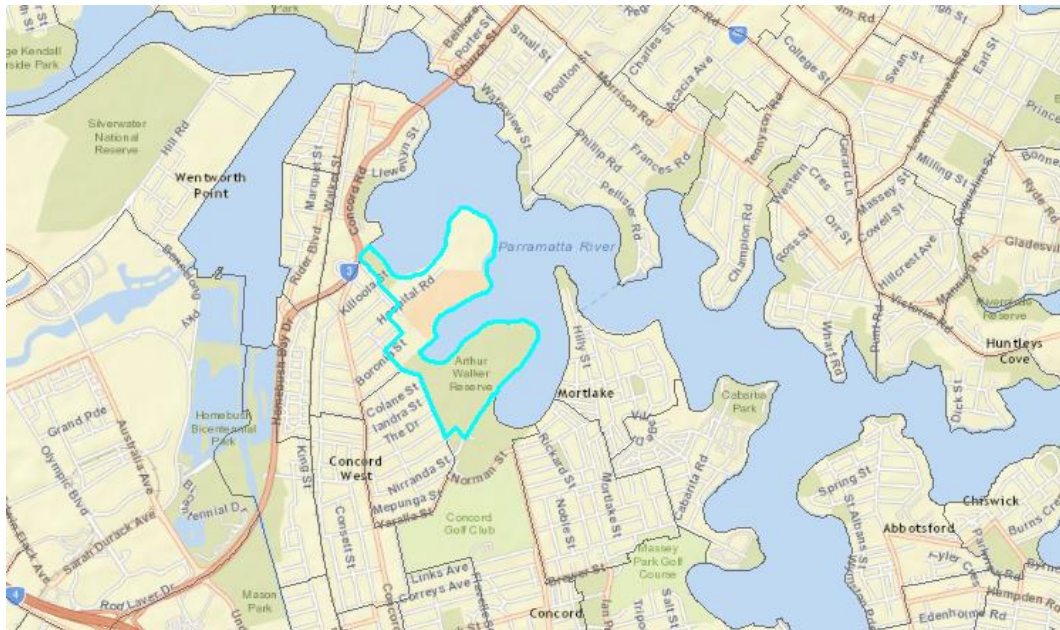


Figure 4: ABS DZN 113842576

The analysis indicates that around a third of staff live relatively close to the Hospital campus (e.g. Canada Bay, Strathfield and Ryde). This indicates that walking and cycling modes could be viable travel options for these workers.

- Canada Bay – 12%
- Strathfield – Burwood - Ashfield -12%
- Ryde – Hunters Hill – 9%
- Auburn – 6%
- Parramatta – 5%
- Merrylands – Guildford - 5%
- Carlingford – 4%
- Other (e.g. Baulkham Hills, Bankstown, Canterbury) – 47%

Figure 5 depicts the relative number of commuting trips originating across Sydney that end at Concord Hospital.

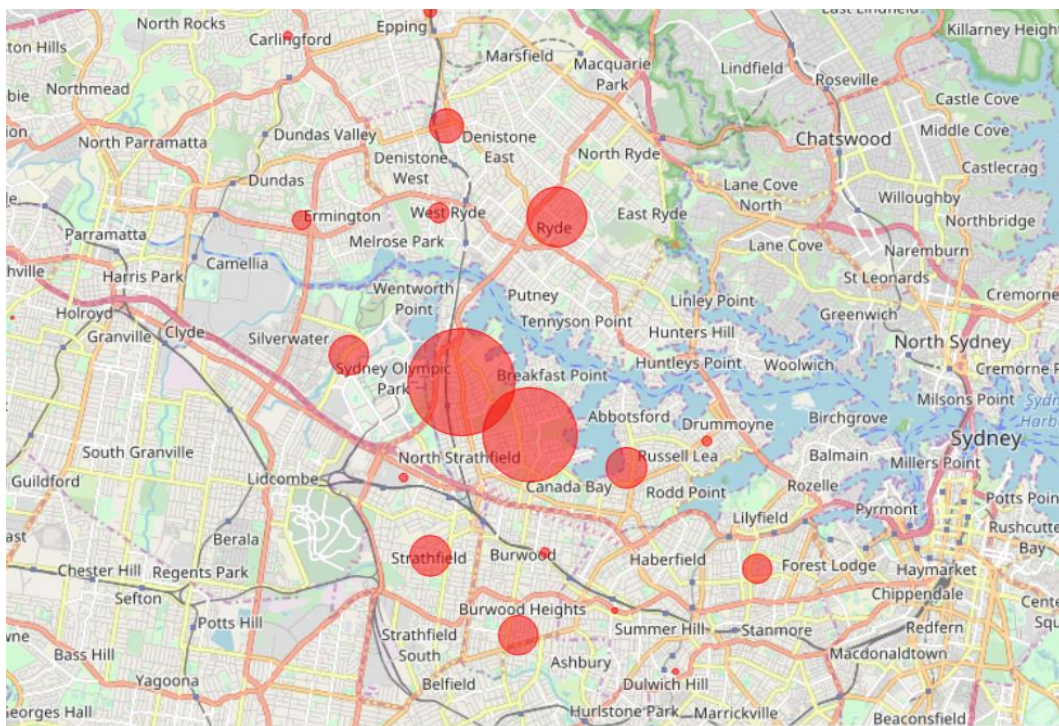


Figure 5: Location of trips to DZN 113842576

2.2 Active Transport Accessibility

2.2.1 Walking

The Kokoda Track Memorial Walkway is used by pedestrians, connecting Hospital Road with Brays Bay Reserve (via the main at-grade car park). This would also be the main pedestrian route to Rhodes Train Station.

Along Hospital Road there are footpaths provided along both sides of the road, with the main pedestrian crossing of the road at the raised table (east of the intersection with Fremont Street). A new bridge (Bennelong bridge) has also been constructed which improves the access to the Wentworth Point area. This bridge is restricted for use by pedestrians, cyclists and public transport only.

A walking accessibility map of the campus is presented in Figure 6, showing the train station is approximately 15mins walk from the campus. The 30-minute catchment extends to north of both the Concord Road Bridge and the John Whitton (rail line) Bridge to Meadowbank, as well as west of the Bennelong Bridge to Wentworth Point.

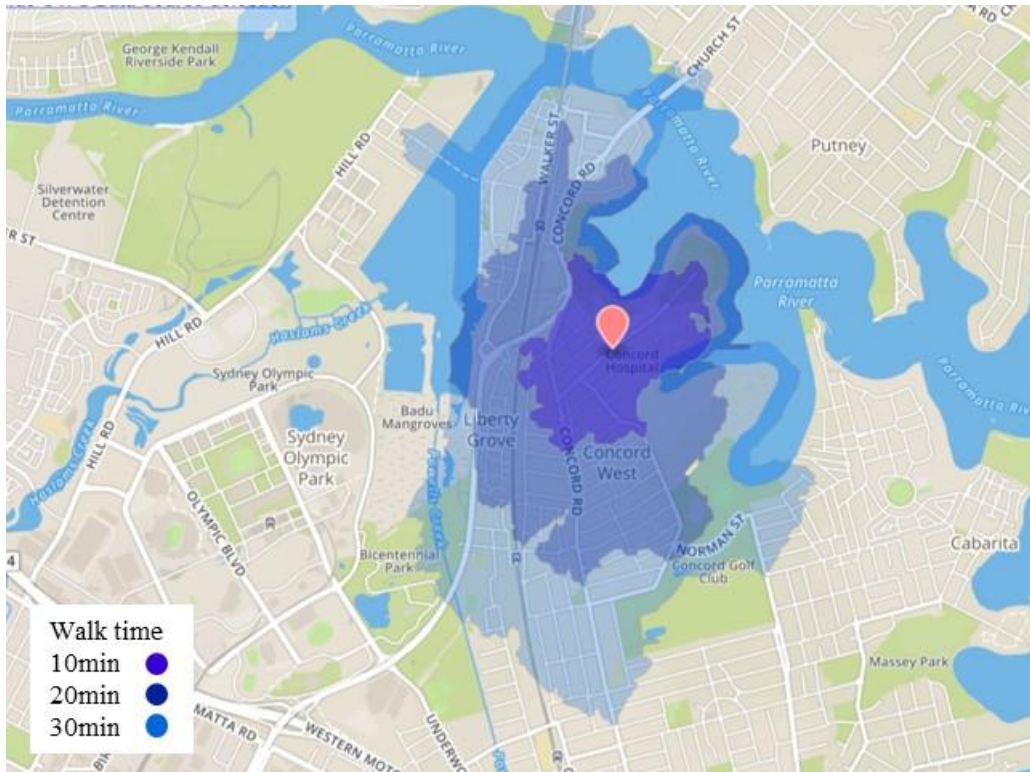


Figure 6: Walk Accessibility Map

2.2.2 Cycling

The cycle network in the immediate vicinity of Concord Hospital is presented in Figure 7. As can be seen, the cycle network is disjointed and fragmented in places. There are on-road cycle lanes along Nullawarra Road, however the provision along Hospital Road is mixed with traffic (painted bicycle symbol only). There is a shared path route which connects the Hospital to Concord Road just west of the Kokoda Track Memorial Walkway. The shared path continues to the north on the eastern side of Concord Road.

There are currently no dedicated cycling facilities that connect the eastern and western sides of the peninsula. Cyclists must use the local road network, including the Walker Street rail underpass to travel between the eastern and western sides of the peninsula.

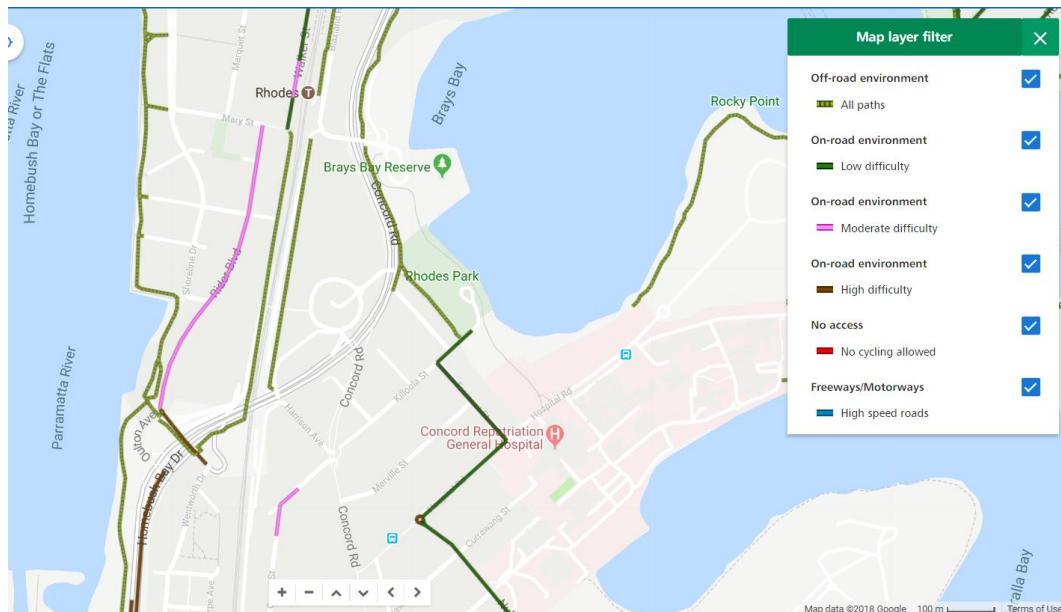


Figure 7: Cycle network (source: RMS Cycleway finder, 2018)

A cycling accessibility map of the campus is presented in Figure 8, showing the locations within 10, 20 and 30 minutes by bike. The 30-minute catchment includes areas such as Strathfield to the south and Eastwood and Ryde to the north.

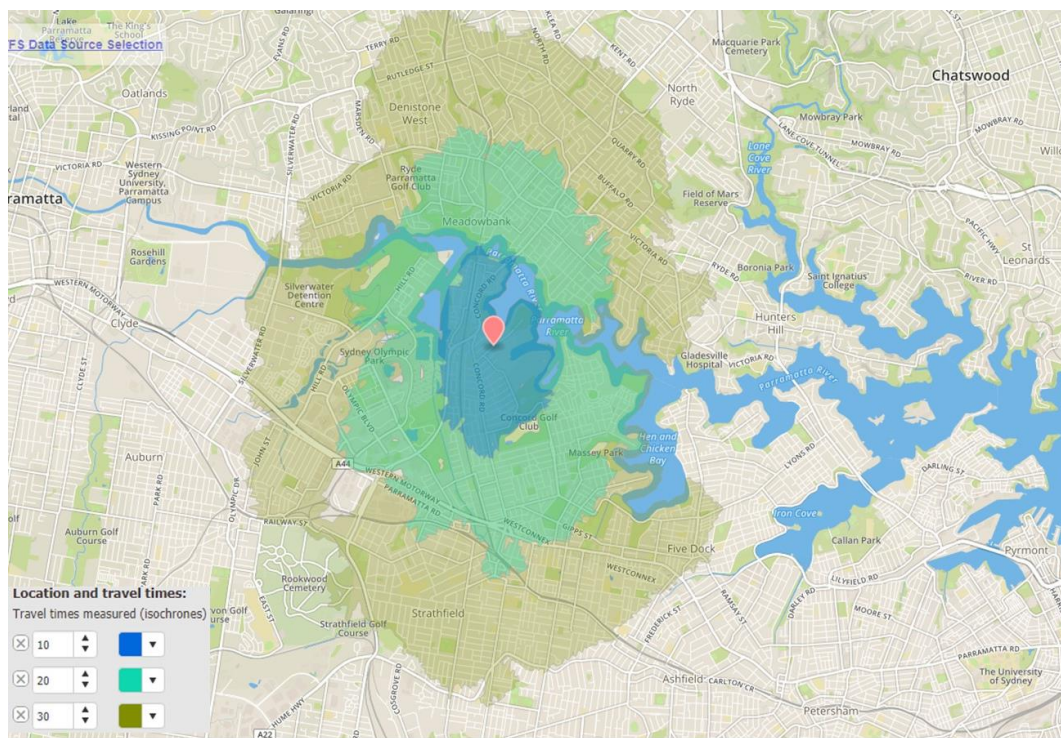


Figure 8 Cycle accessibility map

On-site bicycle parking is limited to racks dispersed throughout the campus near building entrances and near the Sports Medicine building. Examples are shown in Figure 9. In general, the existing provision is considered poor and lacking security.



Figure 9: Existing bicycle parking

As part of the redevelopment, new high-quality end of trip facilities will be provided along with 40 new bike parking spaces.

2.3 Public Transport Accessibility

2.3.1 Train

From the City, trains run to Rhodes Station via the T1 Northern Line. Concord Hospital is approximately 1 km (15 minute) walk from Rhodes Train Station. Trains also run frequently to Burwood or Strathfield. As detailed above, buses run from both of these train stations (see Figure 10).



Figure 10: Transport access guide

Source: SLHD, 2016

2.3.2 Bus

Three bus routes provide direct access to Concord Hospital, stopping along Hospital Road. All of the bus routes provide wheelchair access. The bus routes are:

- 458 Ryde to Burwood via Rhodes, Concord Hospital, Concord West, North Strathfield and Strathfield Station. Services operate from 5.30am to midnight. It operates at 30 minute frequencies during the day and every hour from after 7pm. It operates with a reduced frequency at weekends.
- 460 Five Dock to Concord Hospital via Canada Bay. This service operates from 10am to 3pm with one service per hour (Monday to Friday only).
- M41 Hurstville to Macquarie Park via Burwood Station, Concord Hospital, Ryde and Macquarie University. Services operate from 5.30am until midnight. It is a frequent service, running every 8-12 minutes during the day and every 20-30 minutes from after 7pm. It operates with a reduced frequency at weekends.

Both the 458 (on Walker Street, adjacent to the station) and the M41 (on Concord Road, 200m from the station) stop close to Rhodes train station.

Bus patronage data provided by TfNSW details the number of people using bus services which stop along Hospital Road (east of Fremont Street) on a typical weekday and is presented in Figure 11 and Figure 12. Approximately 850 bus trips are made each day (425 boarding and 425 alighting services) along Hospital Road. Around 40% of the alighting trips occurs before 9am, with a similar amount of boarding trips occurring between 3pm and 6pm, which indicates use by staff. Around three-quarters of all bus trips recorded are to and from areas to the south of the campus.

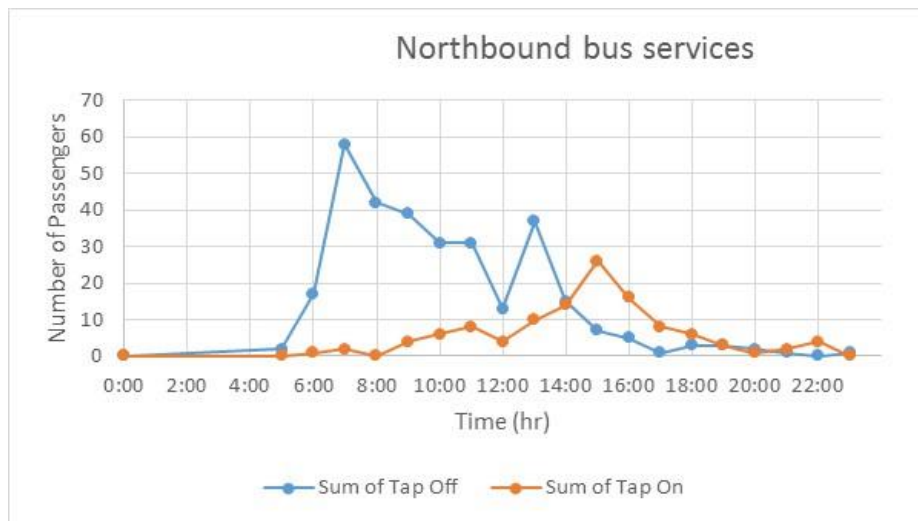


Figure 11: Northbound bus service patronage (source: TfNSW, 18/02/2018)



Figure 12: Southbound bus service patronage (source: TfNSW, 18/02/2018)

2.3.3 On demand bus services

As of July 2018, on-demand bus services became operational in the Inner West. Users book the service via an app and can make trips within the area shown in Figure 13 below. These services cover the ‘first and last mile’ gaps between

existing transport hubs, potentially making it easier for staff and visitors of Concord Hospital to access the site, particularly in the instance of traveling between Rhodes Station and the campus.



Figure 13: Inner West on-demand bus service coverage area
Source: TfNSW, 2018

2.3.4 Future public transport initiatives

It was announced in November 2016 by the NSW Government that a new underground metro railway is to be planned between Parramatta and the Sydney CBD (Sydney Metro West). The Sydney Metro West study area is shown in Figure 14 and indicates that a station precinct is planned for Concord West or North Strathfield. This metro station will also facilitate interchange with the

existing T1 line. This new metro station, along with complimentary bus services, has the potential to significantly improve the accessibility of Concord Hospital, with a high frequency service in relatively close proximity to the campus.

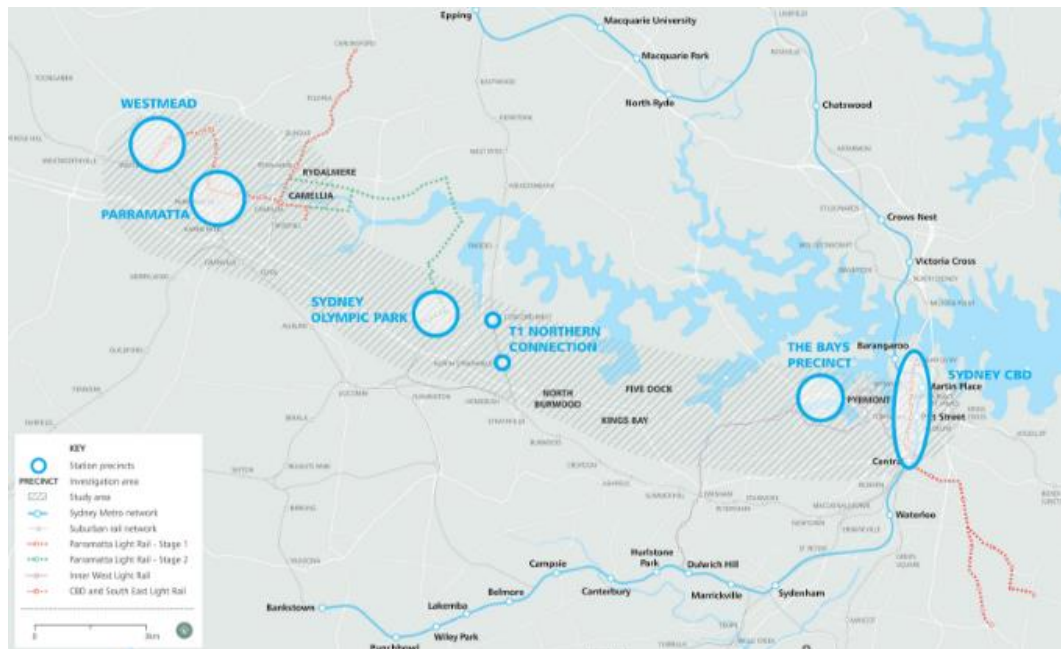


Figure 14: Sydney Metro West study area
Source: Sydney Metro, 2018

2.4 Car Parking

2.4.1 On-site

There are 1,957 car parking spaces on site, comprising of 1,890 standard car spaces and 67 accessible spaces. Parking on campus is at capacity, with the main Hospital Road car park regularly full during weekdays, in particular between 10am and 4pm.

Parking is free for the first 30 minutes, with a fee of \$6.00 introduced for up to 2 hours. Longer time periods incur increasing fees up to a maximum daily rate of \$20. Staff parking charges are set at \$11 and \$9 per week for full-time and part-time staff respectively. Parking charges at Concord Hospital are subject to those set by the NSW Health Hospital Car Parking Fees policy.

A parking permit system is in operation at the Hospital at present, with a waiting list of over 500 staff at present.

2.4.2 On-street

A summary of the parking restrictions in place on the local streets surrounding the hospital campus is presented in Figure 15. The majority of the streets have two hour (free) on-street parking while Hospital Road has four hour (metered) parking. A resident parking scheme is in place along each of these streets apart from Hospital Road (east of Fremont Street) where parking is metered. It is

estimated that there are approximately 540 on-street parking spaces in the vicinity of the hospital. Analysis carried out as part of the transport assessment for Hospital estimated that a peak of 125 – 185 on-street spaces are used by Hospital users, with the majority of this activity occurring along on Hospital Road.

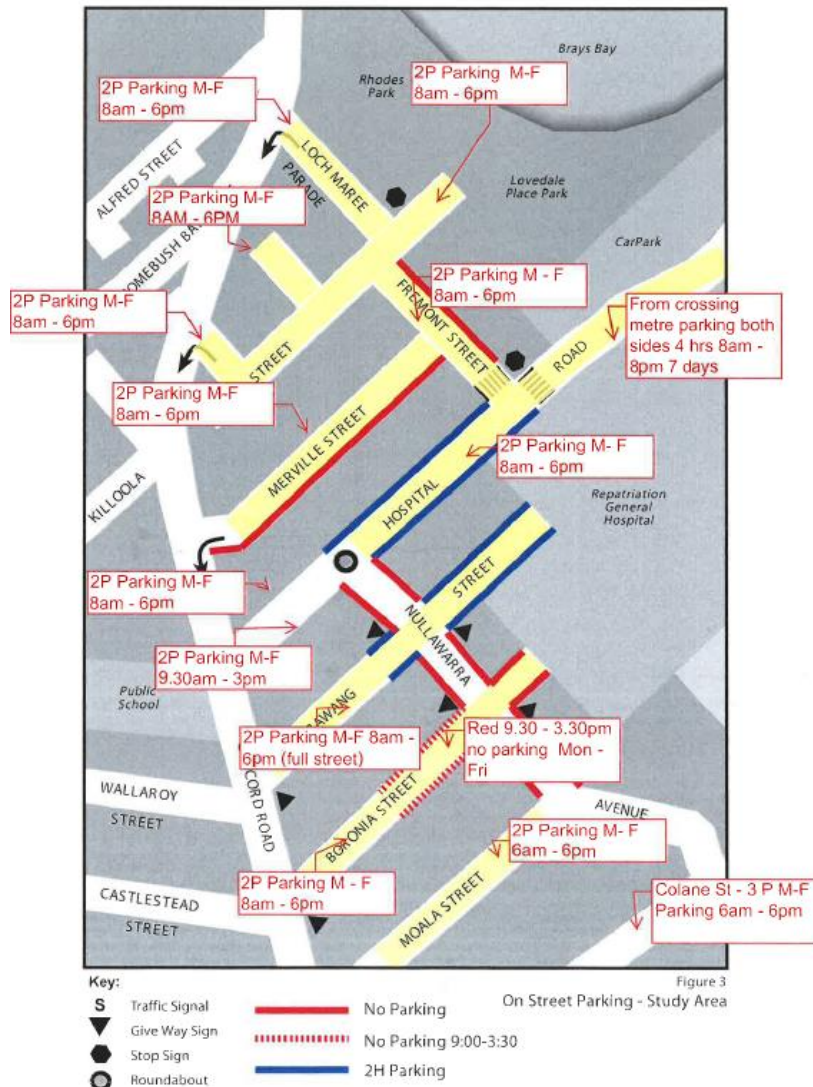


Figure 15 On-street car parking restrictions (2018)

Source: Arup/Urban Research and Planning

3 Green Travel Plan Framework

3.1 Objectives

The main objectives of the GTP are to encourage travel mode behaviour change by promoting the use of more sustainable means of transport.

The more specific objectives include:

- Improved mode share for public transport, cycling and walking to work journeys;
- Ensuring adequate facilities are provided at Concord Hospital to enable staff, patients and visitors to commute by sustainable transport modes;
- Facilitate the sustainable and safe travel of new employees; and
- Raise awareness of sustainable transport amongst staff, patients and visitors.

3.2 Proposed Green Travel Plan Measures

3.2.1 Green Travel Plan

Description of measure

Despite being located within a 15-minute walking distance of Rhodes Train Station and having bus services stop along Hospital Road, just 10% of staff currently travel by public transport to Concord Hospital.

There is considered significant scope to increase the proportion of staff travelling to the campus by public transport – particularly staff with regular day time working hours or working day shifts. As a result, this GTP will be implemented to promote the uptake of public transport, walking and cycling by staff, patients and visitors for travel to and from the campus.

Monitoring mechanisms

- Appoint a travel plan co-ordinator to oversee the implementation of the GTP;
- Obtain feedback from staff as to the effectiveness and usefulness of the GTP; and
- Surveys of staff and visitors to be conducted to understand travel patterns and trends of people travelling to and from Concord Hospital.

3.2.2 Staff induction

Description of measure

To ensure new members of staff are aware of the GTP, all new staff members should be made aware of the Plan as part of their induction process, which will include:

- A brief introduction to the plan and its purpose;
- Tour of Concord Hospital to include a visit to the bicycle parking areas and shower and changing facilities; and
- Establishment of transport information packs to new staff explaining the various ways (other than motor vehicle) of travelling to and from Concord Hospital. These packs should include:
 - Safe/preferred routes for pedestrian access to Rhodes Station and pedestrian accessibility maps showing locations reached within 30-minutes walk;
 - Map of cycleways in the area including the preferred routes between the campus and keys destinations to the north and south; map of the campus including the location of bicycle parking and end of trip facilities on campus;
 - Public transport information, including map showing areas served by bus and information on how to avail of the new on-demand services;
 - Carpooling initiatives and how to connect with other potential car poolers;
 - Information around the benefits (including health and financial) of active travel.

Monitoring mechanisms

- Sydney Local Health District (SLHD) to maintain a record of the number of staff inducted through the updated process as a way of understanding their exposure to the GTP; and
- SLHD to monitor the proportion of staff travelling to Concord Hospital by non-car modes through travel surveys.

3.2.3 Cycling

Description of measure

It is noted that just <1% of staff access Concord Hospital via bicycle, with a small number of bicycle parking is provided on site. The Stage 1 development will provide 40 spaces in a secure and covered location with access to end of trip facilities as shown in Figure 16.

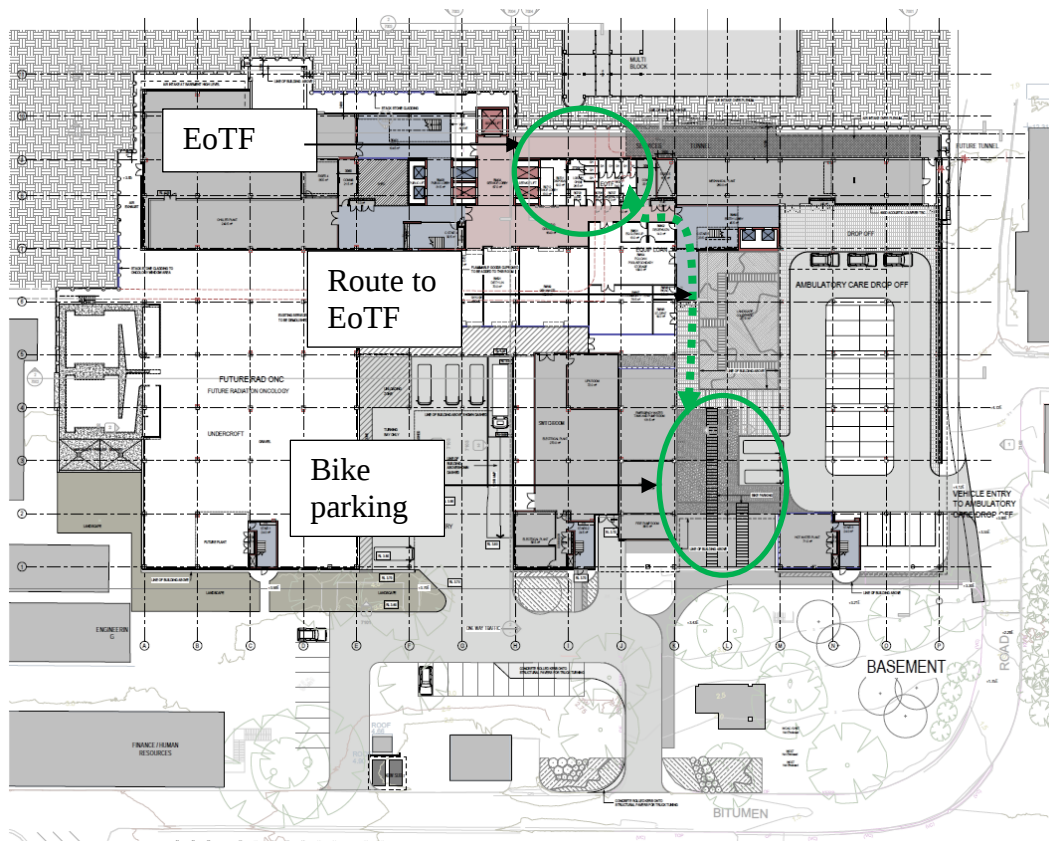


Figure 16 New bike parking and end of trip facilities

Awareness of safe cycle routes in the vicinity of Concord Hospital, along with the proposed improved facilities, could increase use of cycling as a mode of transport, particularly by staff. Additional bicycle parking should be considered if the existing number of spaces are found to be full regularly, measured through occupancy surveys.

Events such as National Bike Week and Bike2Work Days, which encourage the usage of bikes as a mode of transport, should also be promoted.

Monitoring mechanisms

- SLHD to monitor the demand for bicycle parking at Concord Hospital through on-site observations; and
- SLHD to monitor the percentage of staff cycling to Concord Hospital through travel survey.

3.2.4 Walking

Description of measure

The 2006 questionnaire of hospital staff as well as the recent Census data indicated that only 2% walk to work at Concord Hospital. Given the locations staff live, the potential to significantly increase this number may be limited. There is however, an opportunity to improve existing connections between the site and Rhodes Station, including:

- Improved signage and wayfinding;
- Improved lighting along pedestrian routes; and
- Improved sense of security along this route, especially when dark

In addition, a number of improvements to the pedestrian network on campus have been proposed as part of the Stage 1 SSDA to ensure a safe environment is available for staff, patients and visitors. These include:

- A new raised pedestrian crossing on Hospital Road (east of the new roundabout);
- An east-west link through the temporary on-grade car park and to the existing hospital building;
- A new footpath along the Gate 2 access road; and
- The provision of new end of trip facilities for staff walking or jogging to work or exercising at during breaks.

Monitoring mechanisms

- SLHD to monitor the percentage of staff walking to Concord Hospital through travel survey
- Obtain feedback from staff regarding issues that may have walking certain routes and liaise with local authority regarding improvements (e.g. lighting and security issues)

3.2.5 Public transport

Description of measure

Approximately 10% of staff travel by public transport to the Hospital. It is likely that increased use of public transport represents the greatest opportunity in terms of mode shift. Proposed measures to encourage travel by public transport include

- Provision of maps with locations and walk distances to public transport stops and stations;
- Provision of real-time information screens on campus;
- Promote and provide information to staff, patients and visitors regarding the new on-demand bus services;
- Review of wayfinding and signage between Rhodes Train station and the campus and liaise with authorities for improvements where required

Monitoring mechanisms

- SLHD to monitor the percentage of staff taking public transport to Concord Hospital through travel survey

3.2.6 Carpooling

Description of measure

Staff travel surveys indicate that only a small number of staff who drive to the site carry a passenger with them. There are a number of staff living in common surrounding suburbs, meaning there is potential to implement a carpooling program. This could involve a simple poster on the noticeboard or staff intranet page where staff would register their interest in carpooling by indicating where they live and their shift times.

A website has recently been established (www.hospitalcarshare.com.au) which allows staff members at a number of hospitals across Victoria to connect with each other to encourage sharing a lift to work each day.

Concord Hospital could actively promote carpooling through the creation of a designated parking area where carpool vehicles have a guaranteed space. Staff would have to register to a carpool scheme established by Concord Hospital so that they receive a sticker identifying their car as a carpool vehicle.

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What are the benefits?

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Figure 17: Hospital Car Share Website

3.3 Summary of Monitoring Mechanisms

- Feedback from staff as to the effectiveness and usefulness of the GTP;
- Travel survey of staff and visitors to understand travel patterns and trends of people moving to and from Concord Hospital;
- Recording of the number of staff inducted through the updated process as a way of understanding their exposure to the GTP;
- Monitoring the demand for bicycle parking at Concord Hospital through on-site observations.

4 Mode Share Targets

It is assumed that the car driver mode share for Concord Hospital will naturally decrease as the traffic and parking environment surrounding the campus becomes more constrained in future years. There are, however, further opportunities to reduce car dependency to encourage travel to Concord Hospital by alternative modes.

The implementation of the measures identified in this GTP will encourage staff currently driving to and from Concord Hospital to use more sustainable travel modes. The GTP sets a minimum target mode share shift away from single occupancy private vehicle use of 10%. This is applicable to daytime staff only, with staff arriving after hours to continue to primarily drive to work. This equates to a car mode share for staff of approximately 79%, in comparison to 89% in 2006 and 88% in the 2016 Census.

An annual travel survey is recommended to be the mechanism for monitoring whether this target is reached. Should the target not be reached, further measures will need to be considered to promote public transport, walking and cycling to Concord Hospital, such as greater incentives for staff to travel via these modes.

5 Conclusions

The encouragement of sustainable and active transportation options is a major objective for hospitals across NSW. There are opportunities to reduce car dependency and encourage travel to Concord Hospital by sustainable, alternative modes – taking particular advantage of the availability of public transport in close proximity to the campus.

A number of specific measures have been outlined in this GTP to help promote the use of public transport, walking and cycling by staff and visitors travelling to and from Concord Hospital. These travel demand management measures support the objectives of the NSW Government to encourage non-car modes to constitute a larger percentage of modal share.

Measures included in this travel plan are summarised below:

- All new staff members are to be made aware of this GTP as part of their induction process. This would involve informing staff of available sustainable transport options to and from Concord Hospital;
- Concord Hospital should promote safe cycle routes in the vicinity of the campus, as well as the end-of-trip facilities available. Additional bicycle parking should be considered with any development occurring on the campus;
- Concord Hospital should promote the use of public transport, including making staff and visitors aware of the new on-demand bus service available;
- Carpooling is to be encouraged through the implementation of a staff car sharing database. This could involve establishing a staff intranet page where staff can register their interest in carpooling by indicating where they live and their shift times; and
- The parking permit waiting list is to be retained so as to not induce greater private vehicle demand at Concord Hospital.