

Green Travel Plan

Hornsby Ku-ring-gai Hospital Stage 2

Prepared for Health Infrastructure / 24 / October / 2017

161607 - TADD

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Revision Register

Rev	Date	Prepared By	Approved By	Remarks
0	28/07/17	GC	JS	Preliminary Draft
0.1	08/09/17	GC	JS	Final Draft for review
1.0	24/10/17	GC	JS	Following review

1.0 Introduction

1.1 Background

This Green Travel Plan has been prepared by Taylor Thomson Whitting (TTW) for Hornsby Ku-ring-gai Hospital (Hospital) as part of the proposed Stage 2 Redevelopment.

A Green Travel Plan is a way to manage the transport needs of staff, outpatients and visitors of the Hospital. The aim of the Plan is to reduce the environmental impact of travel to and from the development and it typically includes support for walking, cycling, public transport and car sharing, while reducing dependence on private vehicles and parking.

A previous Green Travel Plan was developed for the Hospital in 2015 as part of the Stage 1 Redevelopment. This Plan reviews and updates the previous Green Travel Plan, including an updated travel mode survey and proposed target mode shares. This allows for identification of any changes in travel patterns and allows for further recommendations based on the findings of the survey.

1.2 Objectives

This Plan has been formulated in response to the Secretary's Environmental Assessment Requirements dated 14 August 2017 (reference number SSD 8647).

This Green Travel Plan aims to reduce the environmental impact of travel to and from the Hospital through recommendations of programs to encourage walking, cycling and public transport use. This Plan considers the Hospital as a whole, including the Stage 2 Redevelopment.

This document is divided into sections as follows:

Section 1.0 details the background and benefits of the Green Travel Plan.

Section 2.0 outlines existing conditions of the site including available travel modes.

Section 3.0 outlines the expected existing travel modes to the site.

Section 4.0 details recommendations to reduce the impact of travel to and from the site.

1.3 Green Travel Plan Benefits

The aim of this Plan is to encourage active and sustainable travel behaviours. Environmental and social benefits commonly result from Green Travel Plans.

1.4 References

- NSW Premiers' Council for Active Living – Workplace Travel Plan
- Green Travel Plan for Hornsby Ku-ring-gai Hospital Stage 1 Redevelopment (TTW, 2015)
- Department of Planning and Infrastructure Guidelines for Walking and Cycling

2.0 Existing Conditions

2.1 Site Location

The Hornsby Ku-ring-gai Hospital (Hospital) is located within Hornsby approximately 40 minutes north from the Sydney CBD. It is bound by Lowe Road to the north, Burdett Street to the south, Derby Road to the east and Palmerston Road to the west. Refer to Figure 1 for the location of the Hospital in regards to the wider road network.

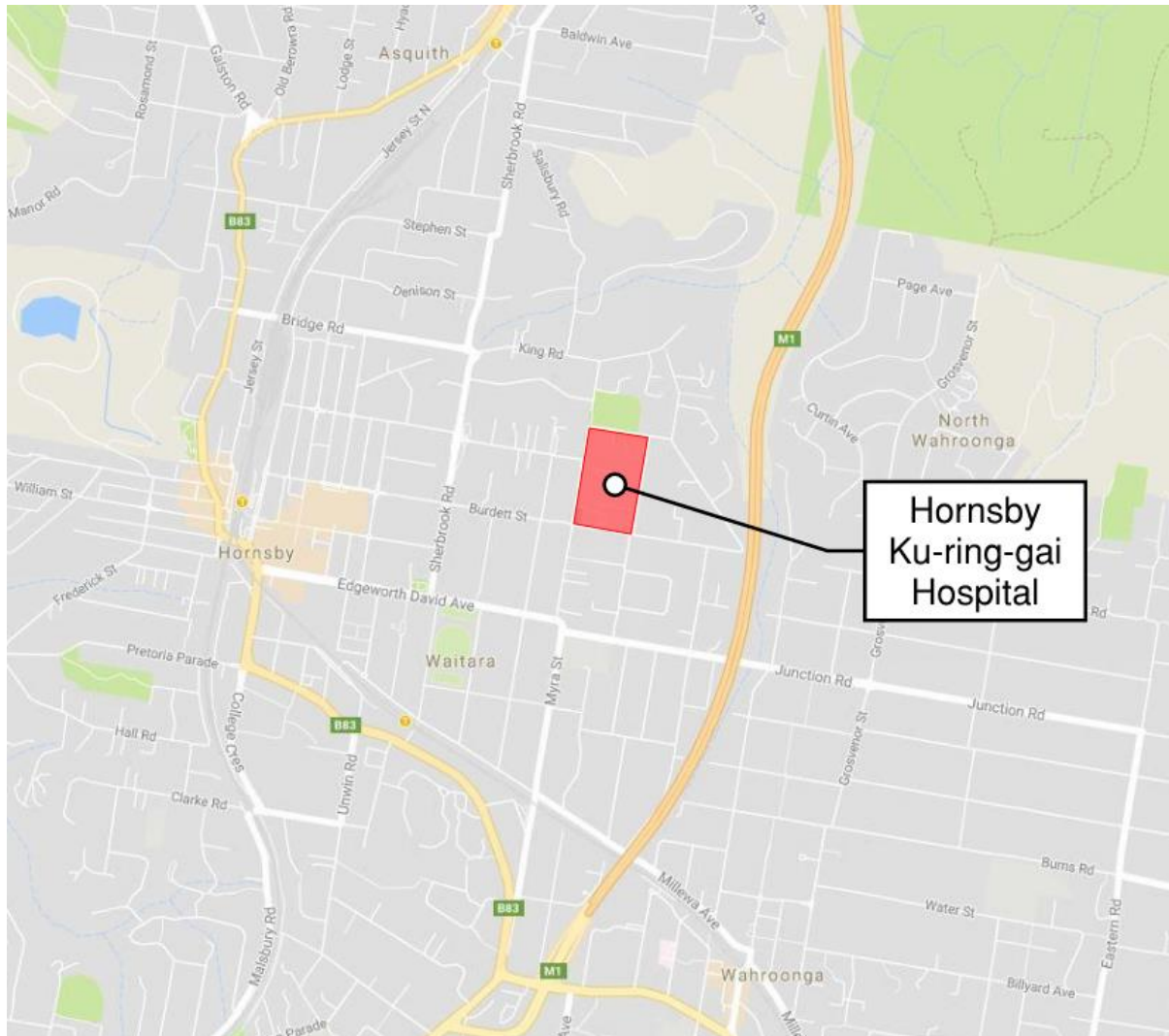


Figure 1: Hospital Location within Wider Road Network

2.2 Active Transport

2.2.1 Pedestrian Facilities

Pedestrian facilities such as covered walkways and marked foot crossings are provided within the Hospital. These are mainly located between carparking and main activity areas.

The Hospital is well serviced by pedestrian footpaths and facilities along the surrounding streets. A pedestrian zebra crossing is installed along Palmerston Road and kerb ramps provide connection to other footpaths that do not bound the Hospital.

The Hospital is relatively flat, however steep grades can be found when travelling to pedestrian attractors such as Hornsby Station.

2.2.2 Bicycle Facilities

Surrounding street around the Hospital are largely cycle friendly, with 50 kilometres per hour speed limits and wide roads. This encourages shared use by cyclists and vehicles.

There are no identified separated cycleways, dedicated cycling lanes or bike logos near to the Hospital identified on Hornsby Shire Council's Bike Map or Sydney Cycleways.

Few cyclists have been observed at the Hospital, however steep grades may discourage cycling to and from the area.

2.3 Public Transport

The Hospital is connected to the public transport network via buses and trains. Refer to Figure 2 for the public transport network within the vicinity.

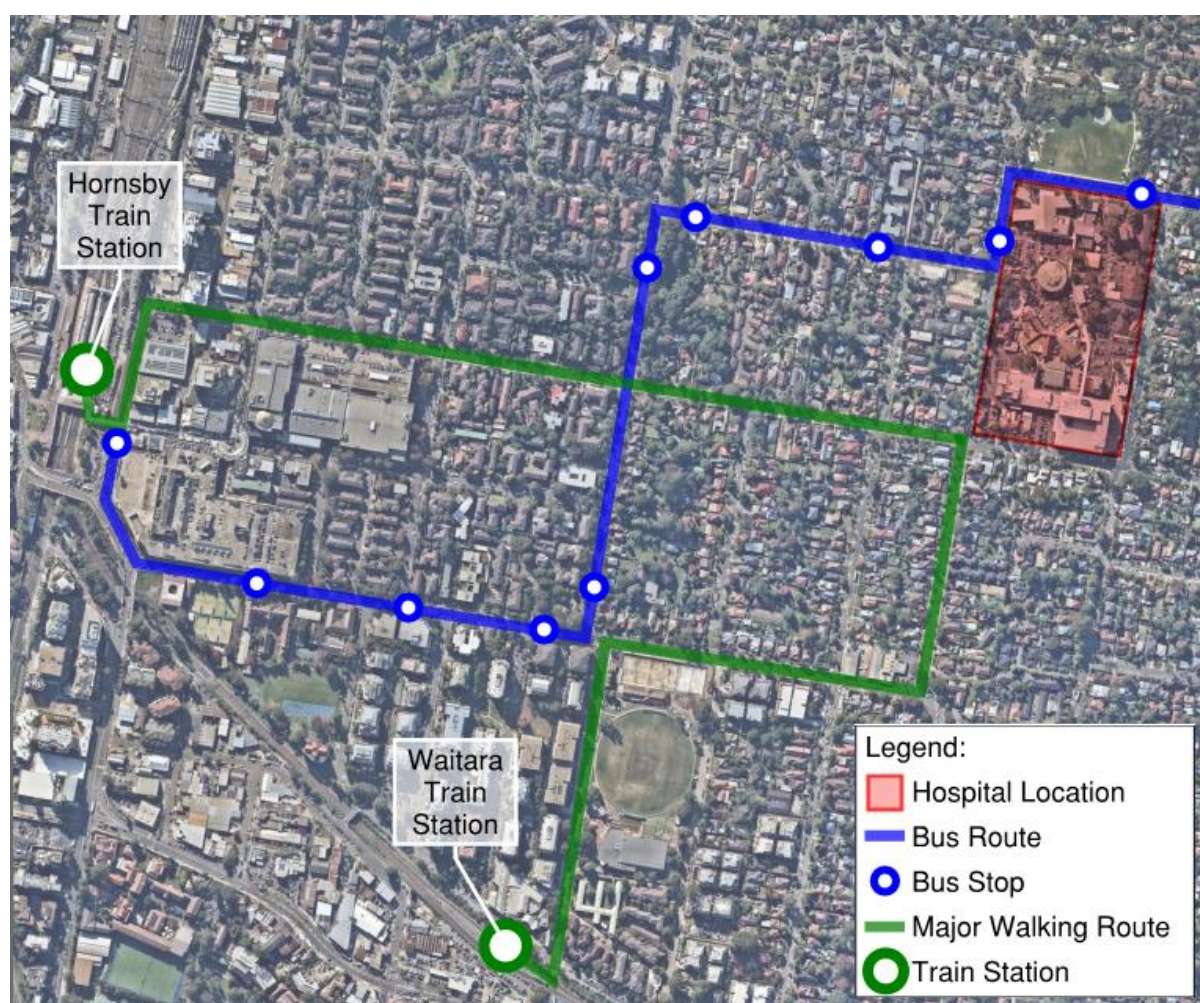


Figure 2: Public Transport Network Near to the Hospital

2.3.1 Bus Services

The 575 bus route travels via the Hospital. This service is operated by Transdev and connects to Macquarie University, Gordon, Turrumurra Station, Wahroonga, Waitara and Hornsby Station. Travel time via bus from Hornsby Station to the Hospital is approximately five minutes. The frequency of this service is every 20 minutes during the peak hour and every 30 minutes otherwise.

A site audit was conducted by TTW of the 575 bus service on Tuesday the 25th of July 2017 between the hours of 7:45am to 10:00am, 12:15pm to 2:45pm and 4:00pm to 6:00pm to

determine the capacity of the existing service. The audit was conducted at the bus stops located on Palmerston Road adjacent to the Hospital.

Generally it was found that buses were only 5% to 10% full (excluding standing room). This indicates that there is sufficient capacity for an increase in bus trips from the Hospital.

2.3.2 Train Services

The nearest railway stations to the site are Waitara (roughly 950 metres away) and Hornsby (roughly 1.2 kilometres away).

Hornsby Station is wheelchair accessible and staffed from the first to the last train service. It is roughly 20 minutes' walk to the Hospital, however the walk features steep grades. The Station is serviced by three lines:

- The North Shore Line: Services between Berowra and Parramatta with extensions to Wyong and Springwood in peak times. Services operate to the City via Gordon with some services only going as far as Chatswood during the off peak daytime hours. Around half of the services terminate or begin at Hornsby and do not extend to Berowra;
- The Northern Line: Services Epping and Hornsby to the City. The trains operate from Hornsby to the City via Macquarie Park or Epping; and
- The Newcastle and Central Coast Line: Connects Newcastle and Central. Some services only extend as far north as Wyong or Gosford.

Waitara Station is located on Alexandria Parade, Waitara. The Station is not wheelchair accessible and is serviced by the North Shore Line only. It is roughly a 17 minute walk from the Hospital.

2.4 Car Share Services

There are no formalised car share services within the vicinity of the Hospital.

2.5 Carparking

2.5.1 On Street Parking

The majority of the surrounding area in the near vicinity of the Hospital is typically low density residential. The exceptions are the northern side of Lowe Street and the western side of Palmerston Road from Northcote Road to Burdett Street. These areas are occupied by a recreational park spanning the majority of the block opposite the Hospital and various medical service providers respectively. These establishments provide additional parking demand on the area, which has some impact on parking availability for Hospital users.

Figure 3 shows the available street parking within 400 metres of walking distance from the Hospital (distances have been sourced from Nearmap). A parking survey conducted by TTV identified 472 on street parking spaces within the study area as shown in Figure 3.



Figure 3: On Street Parking Walking Distance

Palmerston Road from Burdett Street to Northcote Road has a 2 hour parking restriction (Monday to Friday 8:30am to 6pm and Saturday 8:30am to 12:00pm) on both sides of the road. This 2 hour parking restriction continues roughly 120 metres onto the southern section of Palmerston Road after Burdett Street. There are also bus, mail, no parking and no stopping zones along this section of Palmerston Road. Additionally, there are many large trees which may restrict larger vehicles from parking in some locations.

Derby Road from Burdett Street to opposite the Palmerston Building has a 2 hour parking restriction along the western kerbline. Other surrounding streets generally have unrestricted parking. The location of these parking restrictions is shown in Figure 4.

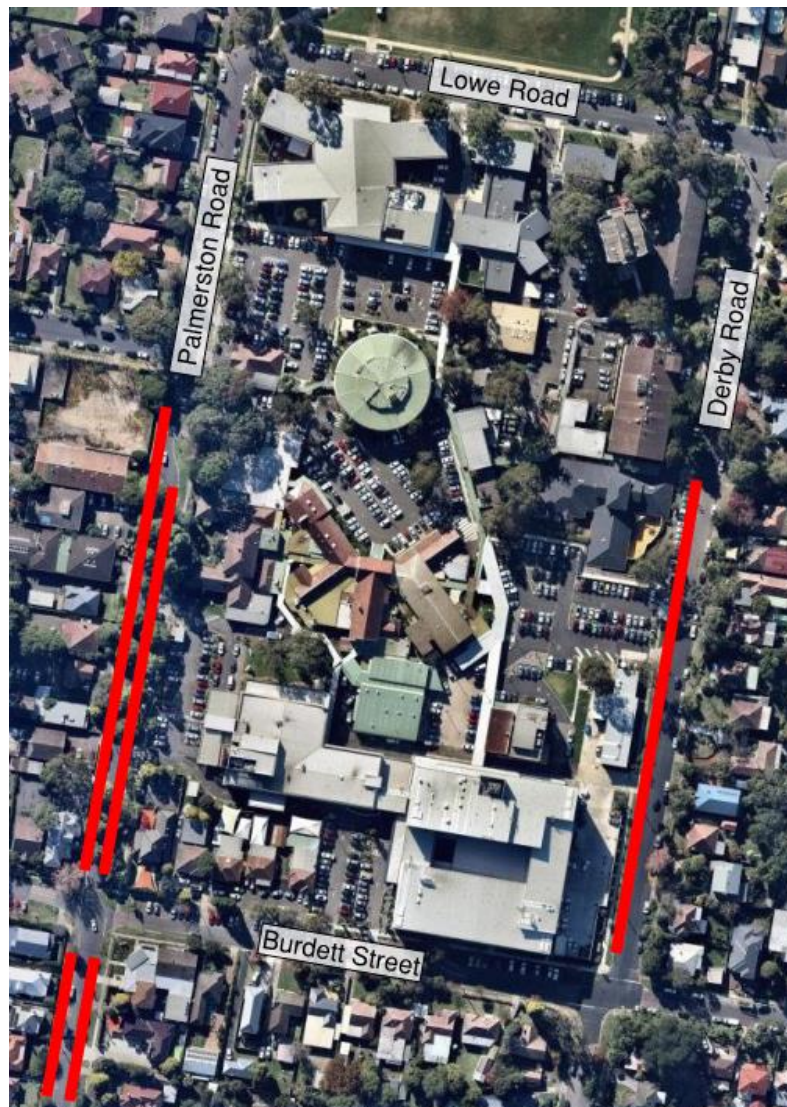


Figure 4: On Street 2 Hour Parking Restrictions

2.5.2 Off Street Parking

Access to off street parking is from the perimeter of the Hospital via Palmerston Road, Lowe Road, Derby Road and Burdett Street. Parking is currently scattered throughout the Hospital in multiple on-grade carpark. It is noted that some of these carparking areas are restricted by boom gates for special uses.

As ongoing works have been conducted at the Hospital within recent years, the existing on site parking supply has undergone several changes throughout different phases of the redevelopment.

It is noted that a number of vehicles park in informal spaces which are not linemarked within the Hospital, including 22 temporary spaces located on an unsealed pavement.

Figure 5 shows the indicative locations of each parking area within the Hospital with a breakdown of the spaces provided in each area detailed in Table 1.

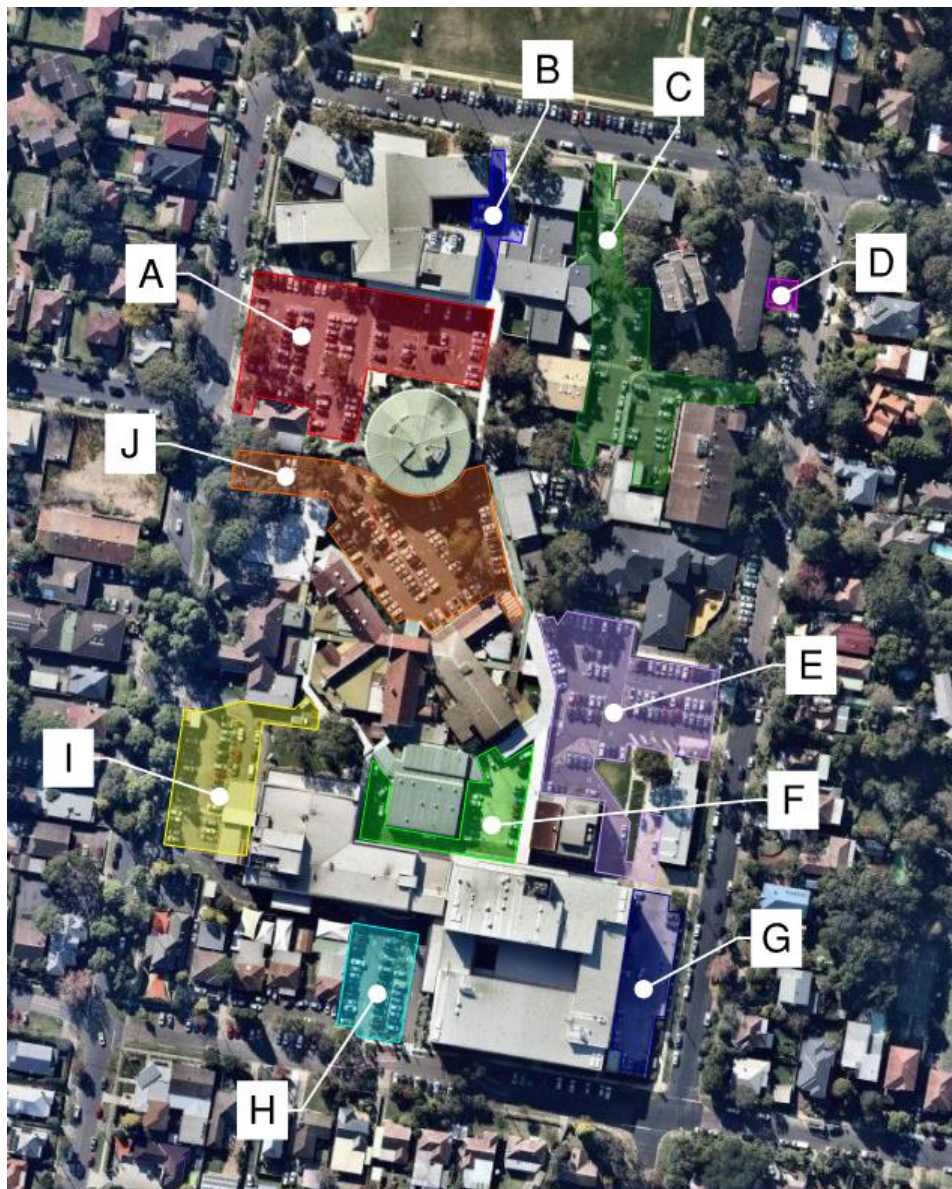


Figure 5: Existing Off Street Parking

Table 1: Inventory of Off Street Parking Spaces

Location	Linemarked Spaces	Accessible Spaces	Informal Spaces	Special Use¹	Special Use Informal Spaces²
A	113	2	0	0	0
B	5	1	0	0	0
C	49	7	6	1	3
D	0	0	0	5	3
E	80	2	11	0	0
F	0	0	22 ³	2	5
G	12	0	3	0	0
H	27	2	0	0	0
I	39	2	0	1	1
J	98	3	2	0	0
Total	423	19	44	9	12

¹Special uses include fleet, engineering, police and environmental vehicles where identified clearly. Ambulance parking bays are not included.

²These are informal spaces in marked areas for restricted uses.

³These spaces are temporary and currently on an unsealed pavement.

Once the Stage 2 Redevelopment works have been completed, it is expected that there will be a total of 731 spaces within the Hospital. Refer to Figure 6 for a summary of off street parking pre and post completion of the Stage 2 works.

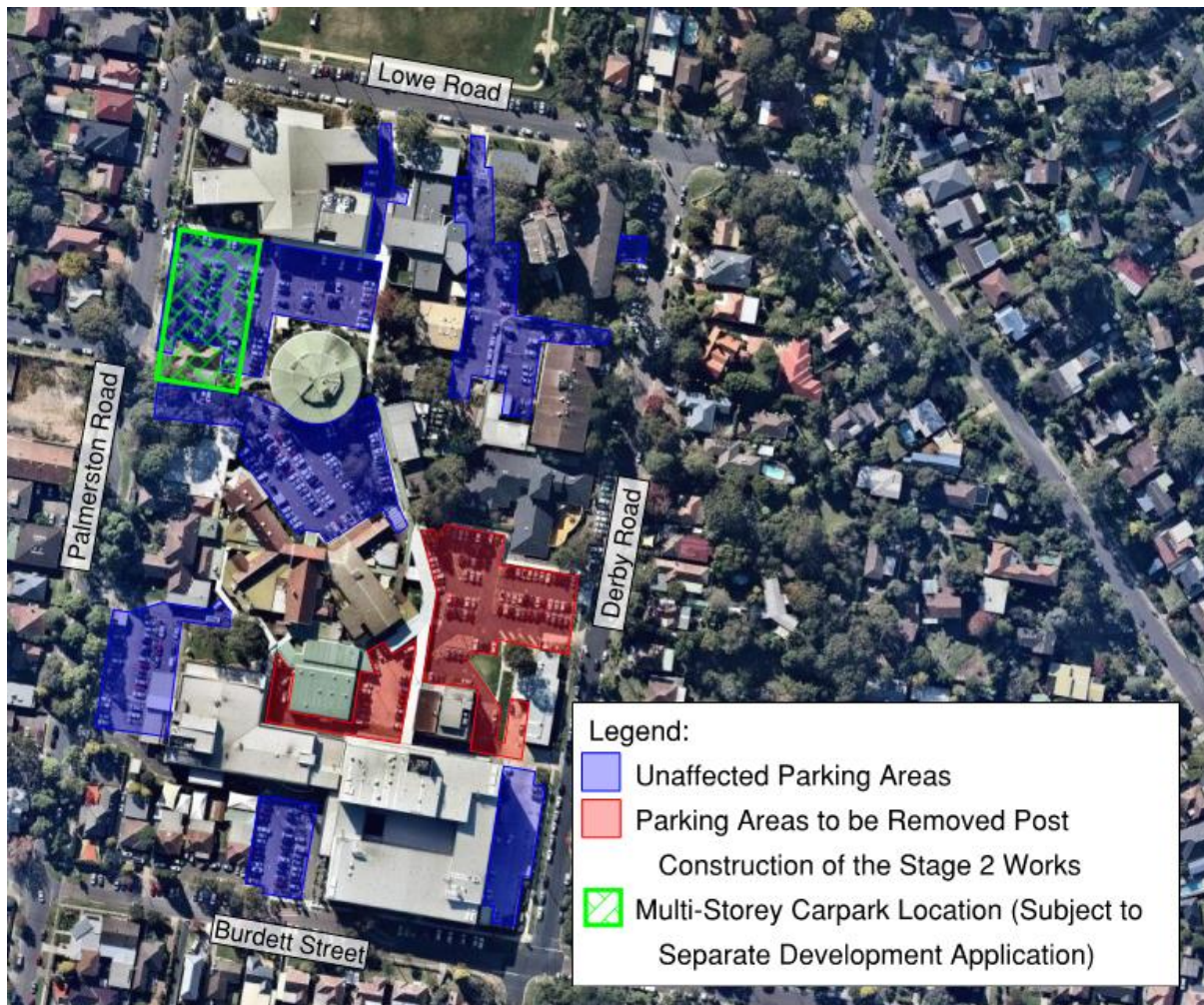


Figure 6: Off Street Parking Post Completion of the Stage 2 Works

2.6 Drop Off and Pick Up Facilities

Private vehicles largely use the main entry (near to the emergency department) to the Hospital to drop off and pick up. Short term parking is available within this area. Informal drop off and pick ups have also been observed along Palmerston Road.

The Hospital covers a large area and taxis can drop off and pick up at any location. Free taxi phones are located in the main entrance and emergency department. There is a taxi zone located along Palmerston Road near the main entry.

3.0 Existing Travel Patterns

3.1 Journey to Work Data

The 2011 Census Journey to Work (JTW) data provides an estimate of travel modes into and out of the surrounding area. JTW data is defined by travel zones (TZ) and the Hospital is located within TZ 1626.

JTW data includes details about the travel modes used by those travelling to the travel zone for work. This can provide details on how staff are likely to be travelling to the Hospital. JTW data indicates that the majority of workers travelling to the zone do so by private vehicle (91%) and train (7%).

The remainder of the TZ consists largely of low density residential areas, meaning that the Hospital is the main generator of workers to the area.

Note that Journey to Work Data from the 2016 census will be unavailable until October 2017.

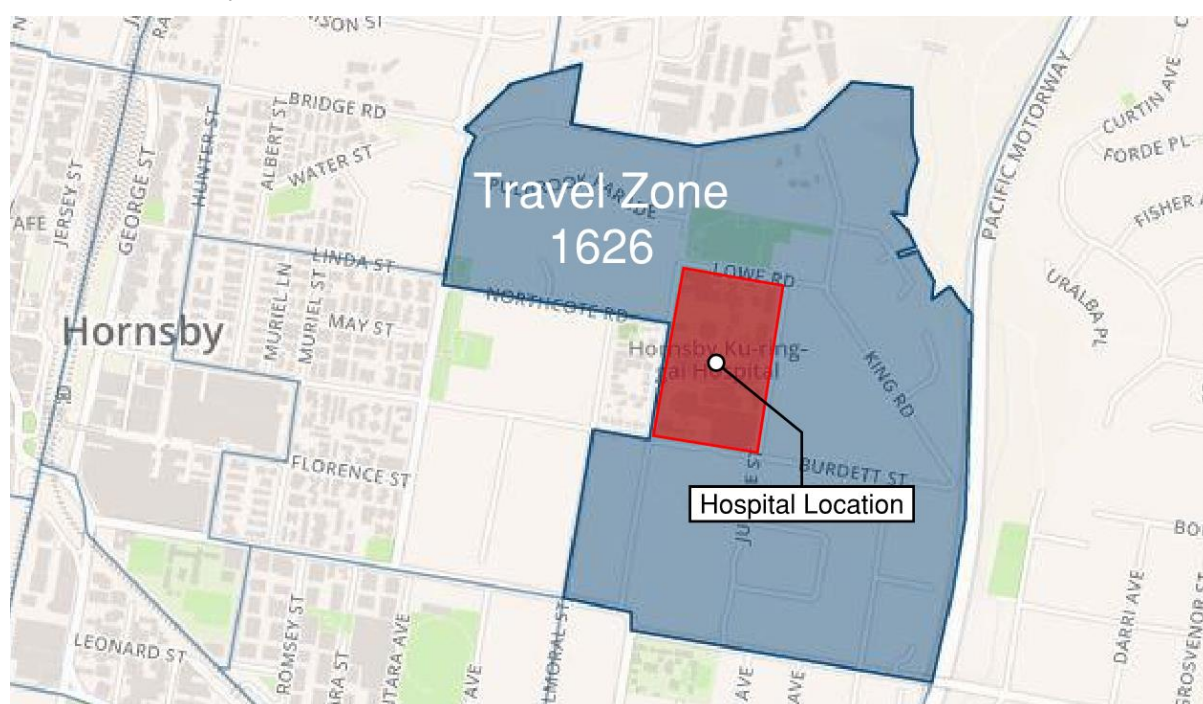


Figure 7: Hospital Campus Travel Zone

3.2 Travel Mode Survey

3.2.1 Staff

Staff at the Hospital comprise of nurses, visiting medical officers, senior specialists, junior medical officers, engineering staff and environment staff.

A travel mode survey was conducted of these staff at the Hospital from Monday the 8th of February to Monday the 15th of February 2016. A hand out survey was randomly distributed to staff at the Hospital in order to obtain information on modes of travel, car occupancy, length of stay and origin of trips. A total of 95 responses were received.

Of the staff surveyed, 68% were full time employees and 28% part time. The average length of stay was 8 hours and 40 minutes. The majority (92%) of staff travelled by private vehicle,

travel modes used are shown in Figure 8. Of those driving, 93% were the only person in their vehicle.

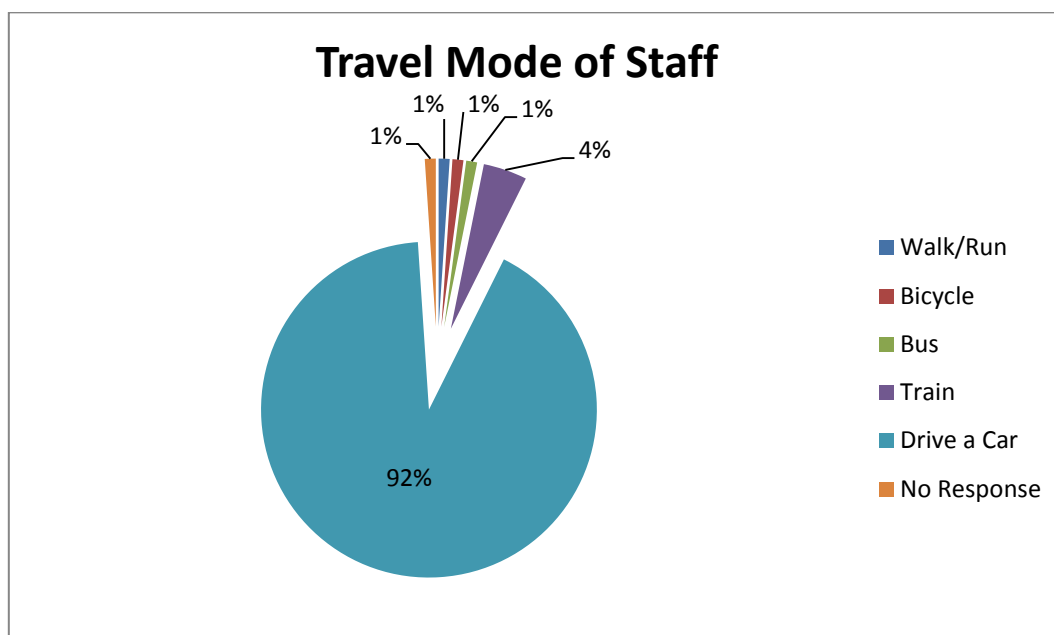


Figure 8: Travel Mode of Staff at the Hospital (Source: TTW Travel Mode Survey, February 2016)

A total of 33% of those surveyed used a car for work trips during the day, some staff identified the need to travel to other hospitals within the North Shore Local Health District (NSLHD) during the day.

Staff surveyed were asked to identify their major concerns when travelling to and from work. Inadequate parking was the most common concern, with 60% of respondents choosing this option. Other concerns raised by staff include the need for greater parking provision for fleet vehicles and better bus services from Hornsby Station during peak hours for staff.

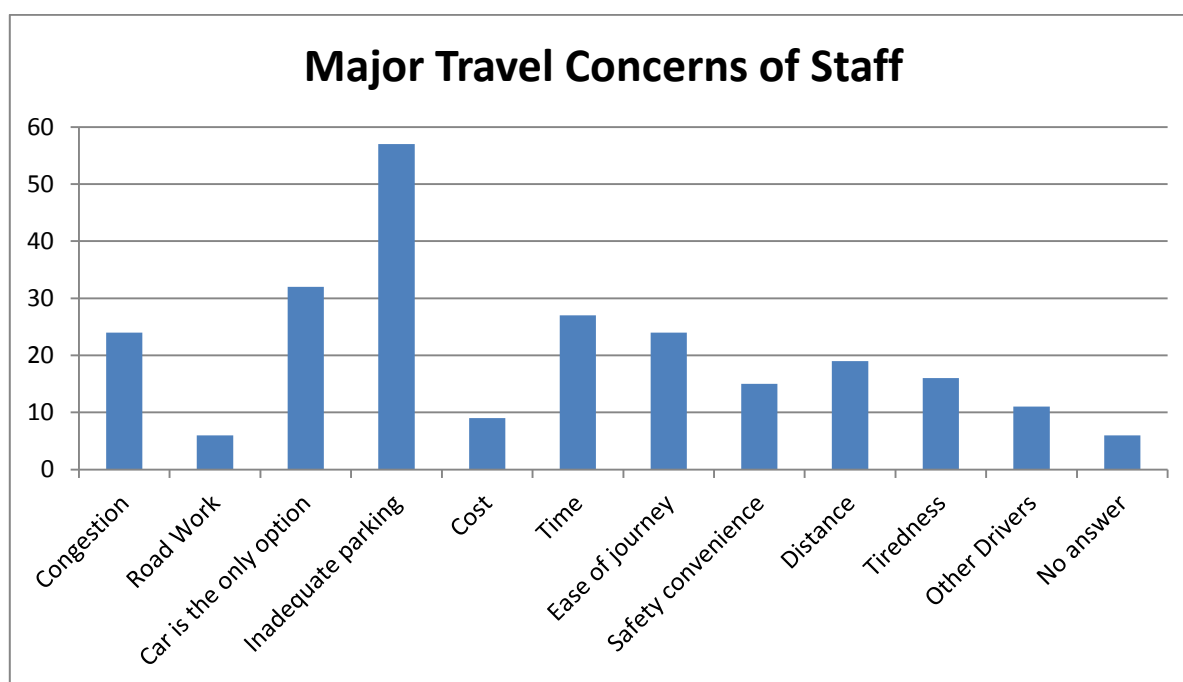


Figure 9: Major Travel Concerns of Staff at the Hospital (Source: TTW Travel Mode Survey, February 2016)

A total of 62% of those surveyed stated they would not consider using another mode of travel (for example a bus or train) even if it was made more available. Reasons for this include childcare needs, impracticality due to rotating shifts, length of travel and the need to travel between various hospital sites in the North Shore.

3.2.2 Visitors and Outpatients

A travel mode survey of visitors and outpatients was conducted Tuesday the 15th of March 2016. A total of 78 responses were collected via a face to face interview conducted within on grade carparks and surrounding streets of the Hospital.

The majority of outpatients and visitors travelled to the Hospital by private car (85%). Other travel modes are as detailed in Figure 10.

The majority of those surveyed stated their visit to the Hospital was a “on-off” (24%) or “once a week” (18%), with 11% visiting as frequently as once a day.

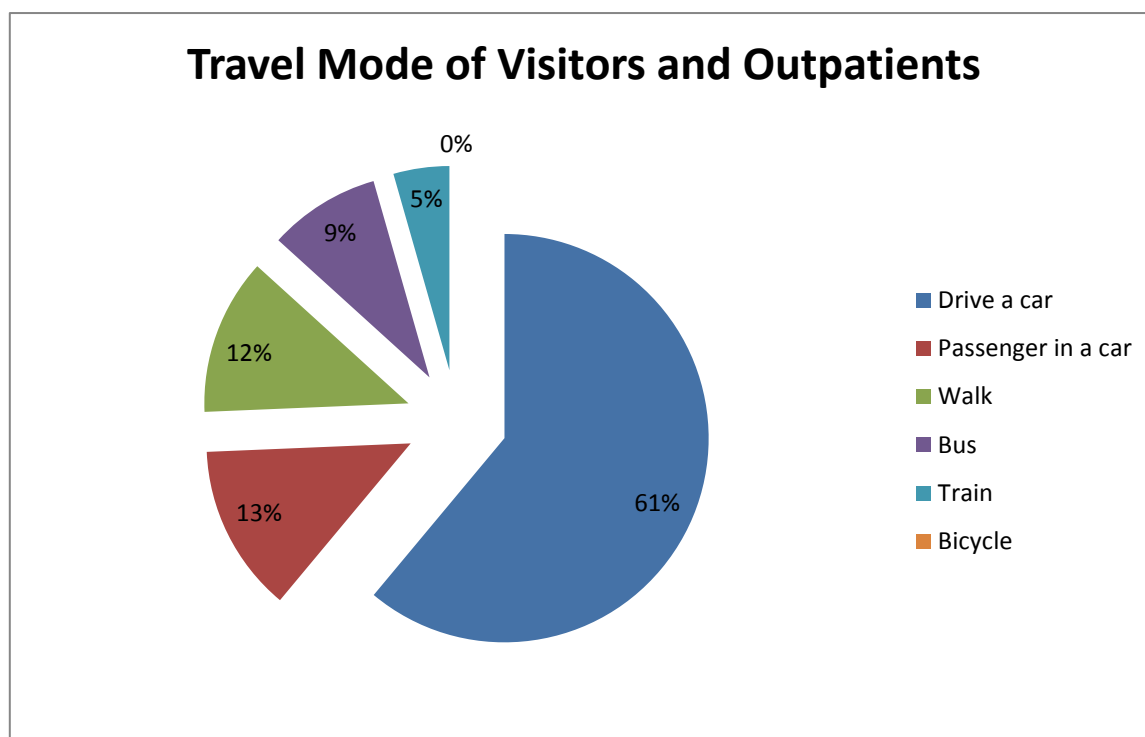


Figure 10: Travel Mode of Visitors and Outpatients (Source: TTW Travel Mode Survey, March 2016)

Main concerns by visitors and outpatients included the parking provision on site and possibility of paid parking being introduced.

3.3 Previous Surveys

Travel mode surveys were also conducted by TTW in 2015 to support the Green Travel Plan that was prepared as part of the Stage 1 Redevelopment of the Hospital.

3.3.1 Staff

It was found in this previous survey that 86% of staff were driving to work, with the remaining 14% taking public transport such as a bus or train. Comparing this to the recent survey shows that the number of staff using private vehicle has increased.

The survey identified that the average travel time for a staff member from work to home was

48 minutes, indicating that the homes of staff were located a significant distance from the Hospital. The average car occupancy was approximately 1 person per vehicle, indicating that the majority of private vehicle trips were single occupant.

Staff concerns during the previous survey are summarised as shown in Figure 11. These remain fairly consistent with the concerns raised in the recent survey.

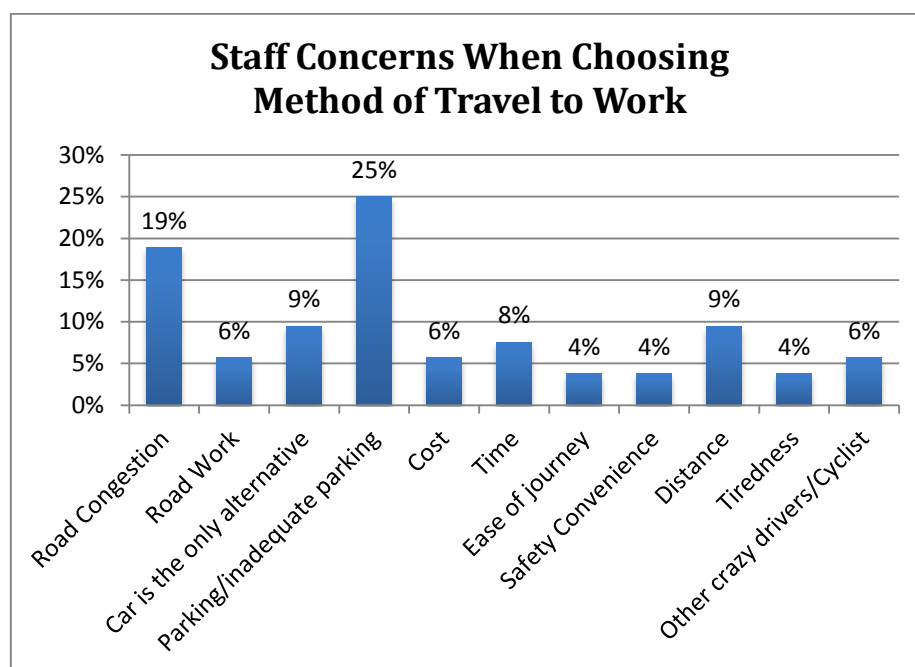


Figure 11: Previous Staff Concerns of Travel to the Hospital (Source: Green Travel Plan for the Stage 1 Redevelopment, TTW 2015)

In the previous survey, only a third of staff identified that they would be open to alternative transport modes, with 64% of staff indicating they would not consider other modes of travel (such as carpool, bus or train) even if they were made more accessible/available.

3.3.2 Visitors and Outpatients

The majority (74%) of visitors and outpatients who responded to the previous survey travelled as car drivers, while the next popular mode of transport was travelling as a car passenger (12%). The average rate of car occupancy was 1.7 people per vehicle. This shows that visitors and outpatients have reduced their private vehicle usage, with a total decrease of 12% of those travelling as a driver or passenger.

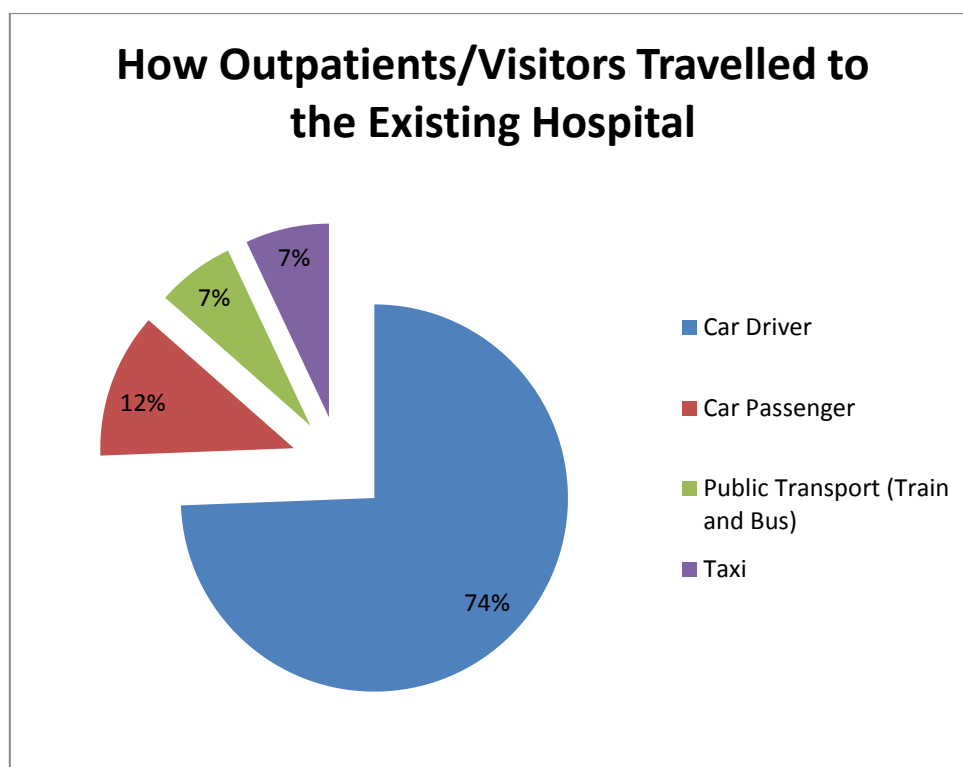


Figure 12: Previous Travel Mode Split of Visitors and Outpatients (Source: Green Travel Plan for the Stage 1 Redevelopment, TTW 2015)

Respondents were asked how they thought travel to the Hospital could be improved. The main concern by those surveyed was the lack of parking provided at the Hospital, with 52% of respondents stating that improved parking would be their priority for the Hospital.

4.0 Recommendations

4.1 Key Issues

The following key issues have been considered when developing this revised Green Travel Plan for the Hospital:

- The surrounding topography that can be seen as a barrier to active travel;
- Distances that staff travel each day;
- The need for some staff to travel between NSLHD sites during the day;
- Lack of infrastructure to support active travel modes;
- The variable working schedules of shift workers at the Hospital; and
- The reduced mobility of many travellers to the Hospital.

4.2 Targets

The previous Green Travel Plan did not propose travel mode share targets. These targets have been based on the results of the travel mode surveys with considerations to the results of the previous travel mode survey and the nature of travellers to the Hospital.

4.2.1 Staff

Realistic goals for the travel mode share of staff to the site are as detailed in Table 2.

Table 2: Mode Share Targets for Staff

Travel Mode	Existing Share	Proposed Target	Change
Walk/Run	1%	2%	+1%
Bicycle	1%	2%	+1%
Bus	1%	4%	+3%
Train	4%	7%	+3%
Drive a Car	92%	85%	-7%
No Response	1%	N/A	N/A

4.2.2 Visitors and Outpatients

Realistic goals for the travel mode share of outpatients and visitors to the site are as detailed in Table 3. Note that cycling and walking mode share rates have not been increased due to the constraints of those travelling to the Hospital.

Table 3: Mode Share Targets for Visitors and Outpatients

Travel Mode	Existing Share	Proposed Target	Change
Drive a Car	61%	55%	-6%
Passenger in a Car	13%	15%	+2%
Walk	12%	12%	0%
Bus	9%	11%	+2%
Train	5%	7%	+2%
Bicycle	0%	0%	0%

4.3 Existing Initiatives

The Hospital currently utilises the following initiatives to discourage the use of private car use among travellers:

- The Hospital provides fleet cars for movement between Hospitals within the North Shore Local Health District and transportation of equipment.
- Some parking areas within the Hospital are restricted to certain users (such as staff) by boom gates.
- Parking restrictions are employed within some of the Hospital car parks to discourage all day parking by staff.

4.4 Actions and Recommendations

In order to achieve the travel mode targets detailed in Table 2 and Table 3, initiatives and programs will need to be implemented to reduce the reliance on private vehicle transport. With consideration to the barriers to sustainable travel discussed in Section 4.1, we recommend the following actions:

- A Transport Access Guide (TAG) be prepared to notify staff, visitors and outpatients about the sustainable travel modes available to them. This TAG should include a map showing public transport routes and safe walking/cycling routes. This information should be provided to new staff members and made available for visitors and outpatients at the Hospital.
- Carpooling could be encouraged by providing parking spaces on site that are restricted to staff who have committed to carpooling. Potential carpooling pairs could be connected by grouping staff members who live within the same area.
- Provision of more wayfinding signage between Hornsby and Waitara Stations to encourage pedestrian travel to the Hospital.
- A dedicated car share space could be provided on the Hospital site to allow for staff members who are required to take trips during the day.

We recommend that this Green Travel Plan is reviewed and updated on a regular basis. As part of this process, mode share targets should be updated and a review of the actions be proposed.

5.0 Conclusions

This Green Travel Plan is a critical step in outlining the actions to be undertaken by the Hospital to ensure that sensible and thoughtful travel choices are made by those travelling to the Hospital. This Plan recognises that the Hospital has unique users who may not be able to adopt more sustainable transport modes, however aims to propose achievable targets in light of this.

Prepared by
**TAYLOR THOMSON WHITTING
(NSW) PTY LTD**



GRACE CARPP
Traffic Engineer

Authorised By
**TAYLOR THOMSON WHITTING
(NSW) PTY LTD**



JASON SCOUFIS
Traffic Manager

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