



RECOMMEND 75mm HIGH PROFILE TO ACCOMMODATE BUSES

**PRELIMINARY PLAN**  
FOR DISCUSSION PURPOSES ONLY  
SUBJECT TO CHANGE WITHOUT  
NOTIFICATION

DESIGN CHECK  
D.CHOI

DATE ISSUED  
12 SEPTEMBER 2019

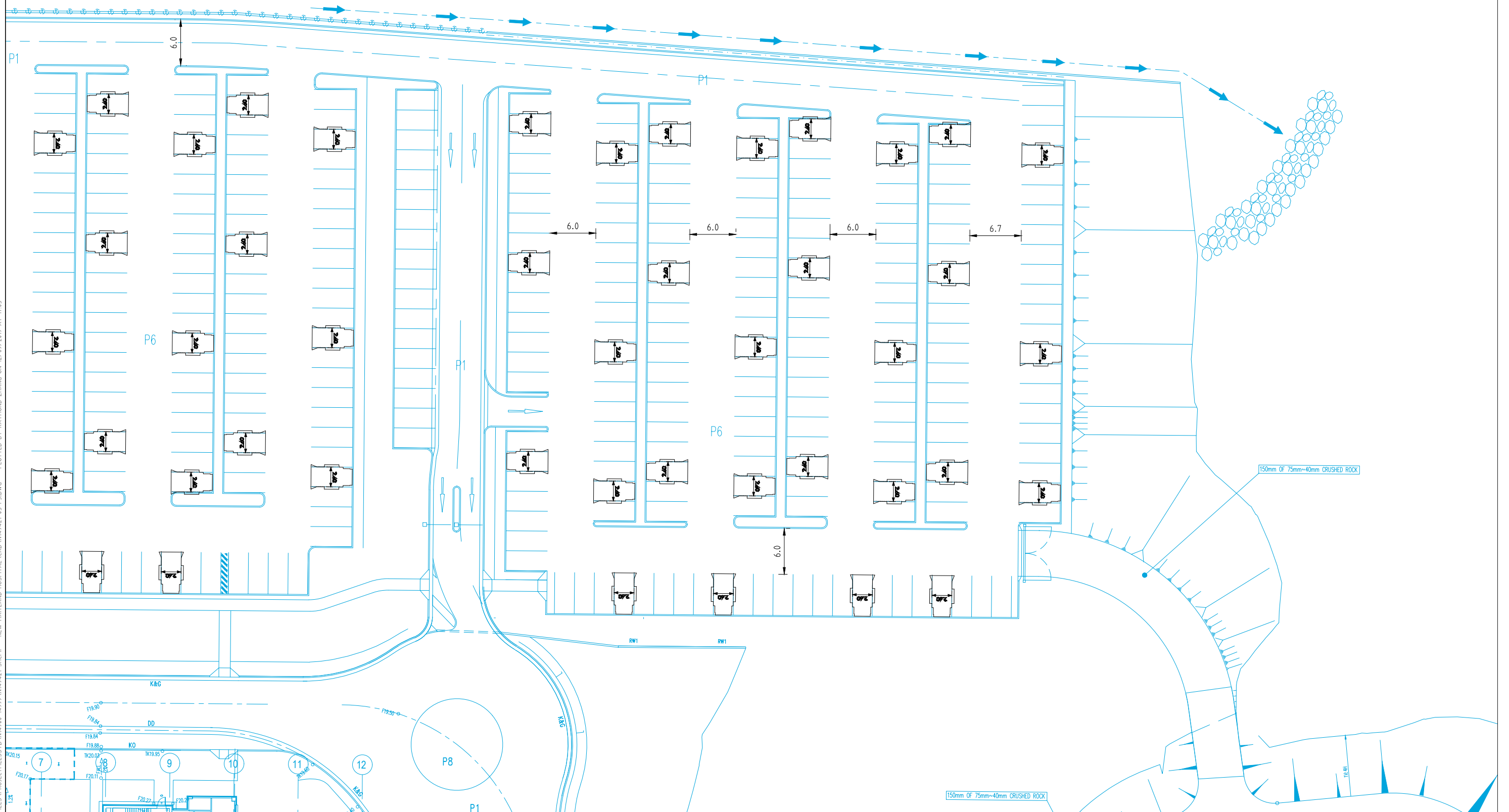
CAD FILE NO.  
N149421-05-P3.DWG

CAR PARK COMPLIANCE REVIEW

SHEET 01 OF 15

ISSUE P3

\\GTA.COM.AU\PROJECTFILES\PROJECTFILES\N14900-14999\N149421-05-P3.DWG PLOTTED BY RAYMOND ZHANG ON 12/09/2019 AT 17:05



Melbourne 03 9651 9600  
Sydney 02 8448 1800  
Brisbane 07 3113 5000  
Adelaide 08 8334 3600  
Perth 08 6169 1000

**PRELIMINARY PLAN**  
FOR DISCUSSION PURPOSES ONLY  
SUBJECT TO CHANGE WITHOUT  
NOTIFICATION

DESIGNED  
R.ZHANG

DESIGN CHECK  
D.CHOI

APPROVED BY  
K.MCNATTY

DATE ISSUED  
12 SEPTEMBER 2019

SCALE  
A3 0 2.5 5 10 1:500

CAD FILE NO.  
N149421-05-P3.DWG

NEW MAITLAND HOSPITAL

CAR PARK COMPLIANCE REVIEW

DRAWING NO. N149421-05-02

SHEET 02 OF 15

ISSUE P3

\\GTA.COM.AU\PROJECTFILES\PROJECTFILES\N14900-14999\N149421-05-P3.DWG PLOTTED BY RAYMOND ZHANG ON 12/09/2019 AT 17:05

NOSE TO TAIL BICYCLE PARKING TO BE PROVIDED IN ACCORDANCE WITH AS2890.3:2015 FIGURE 2.3. DISTANCE BETWEEN NOSE TO TAIL BICYCLE PARKING SHOULD BE 1.8m.

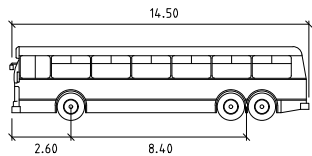
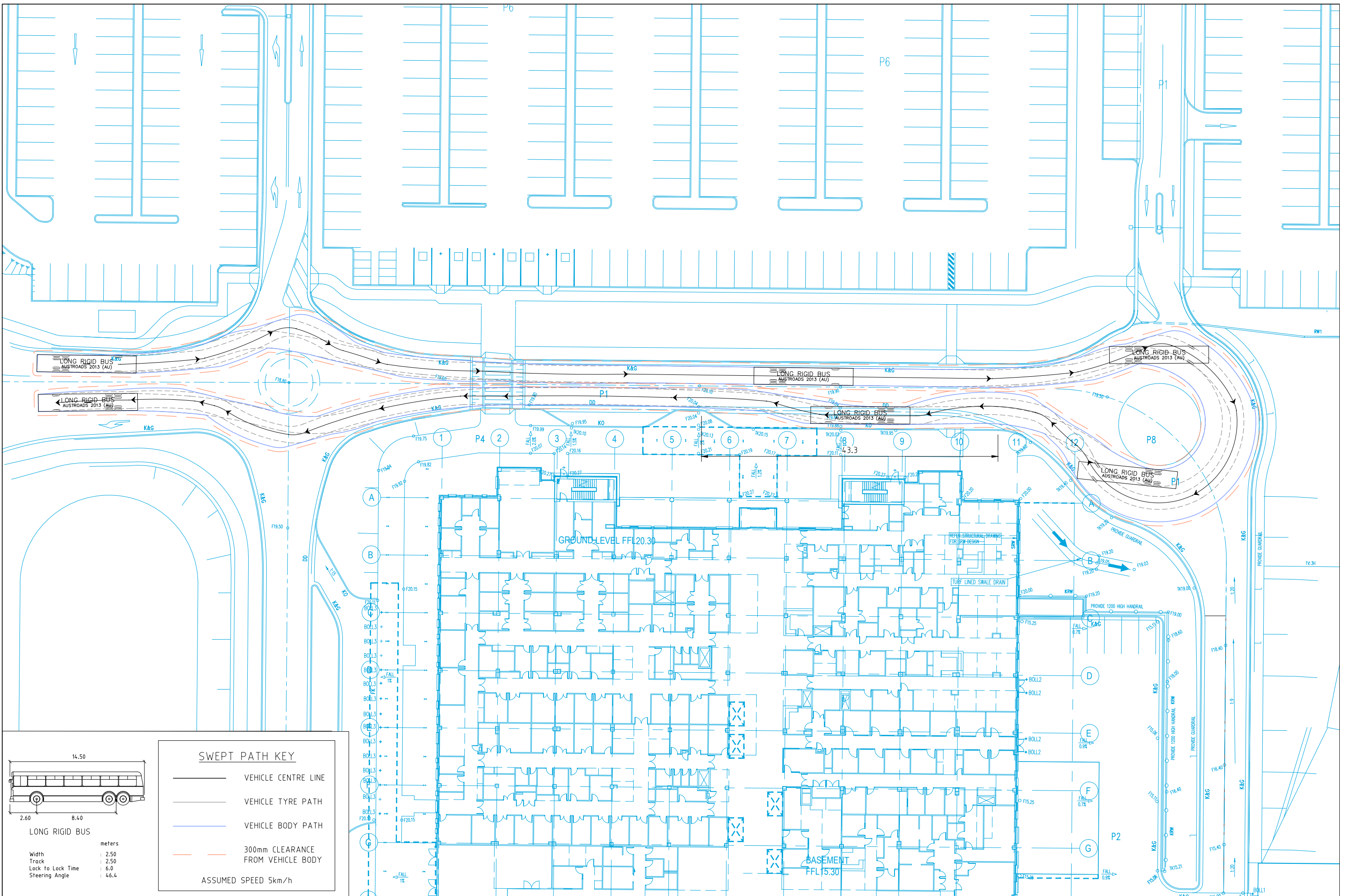
RECOMMEND WIDENING PATH TO 1.5m TO ACCOMMODATE FOR BICYCLES AND MOTORCYCLES

5.5mX5.5m AREA AT REAR OF AMBULANCE REQUIRED FOR PATIENT TRANSFER

ENSURE A MINIMUM CLEARANCE OF 3.8m IS PROVIDED TO ANY OVERHEAD CANOPY



\\GTA.COM.AU\PROJECTFILES\PROJECTFILES\14900-14999\N149421-05-P3.DWG PLOTTED BY RAYMOND ZHANG ON 12/09/2019 AT 17:05



LONG RIGID BUS

|                   |      |
|-------------------|------|
| Width             | 2.50 |
| Track             | 2.50 |
| Lock to Lock Time | 6.0  |
| Steering Angle    | 46.4 |

#### SWEPT PATH KEY

- VEHICLE CENTRE LINE
  - VEHICLE TYRE PATH
  - VEHICLE BODY PATH
  - 300mm CLEARANCE FROM VEHICLE BODY
- ASSUMED SPEED 5km/h



Melbourne 03 9651 9600  
Sydney 02 8448 1800  
Brisbane 07 3113 5000  
Adelaide 08 8334 3600  
Perth 08 6169 1000

#### PRELIMINARY PLAN

FOR DISCUSSION PURPOSES ONLY  
SUBJECT TO CHANGE WITHOUT  
NOTIFICATION

DESIGNED  
R.ZHANG

DESIGN CHECK  
D.CHOI

APPROVED BY  
K.MCNATTY

DATE ISSUED  
12 SEPTEMBER 2019

SCALE  
A3 0 2.5 5 10 1:500

CAD FILE NO.  
N149421-05-P3.DWG

#### NEW MAITLAND HOSPITAL

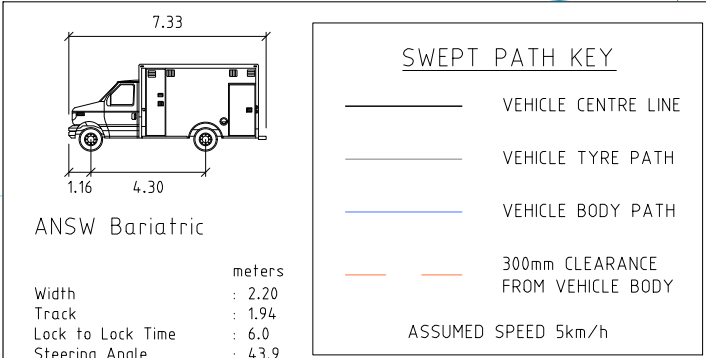
#### SWEPT PATH ASSESSMENT

DRAWING NO. N149421-05-04

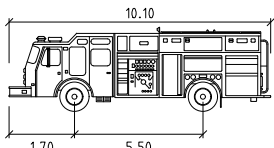
SHEET 04 OF 15

ISSUE P3





\\GTA.COM.AU\PROJECTFILES\PROJECTFILES\149421-14999\N149421-05-P3.DWG PLOTTED BY RAYMOND ZHANG ON 12/09/2019 AT 17:06



NSWFB Appliance

|                   |        |
|-------------------|--------|
| Width             | : 2.50 |
| Track             | : 2.50 |
| Lock to Lock Time | : 6.0  |
| Steering Angle    | : 38.7 |

#### SWEPT PATH KEY

- VEHICLE CENTRE LINE
- VEHICLE TYRE PATH
- VEHICLE BODY PATH
- 600mm CLEARANCE FROM VEHICLE BODY

ASSUMED SPEED 5km/h



Melbourne 03 9851 9600  
Sydney 02 8448 1800  
Brisbane 07 3113 5000  
Adelaide 08 8334 3600  
Perth 08 6169 1000

#### PRELIMINARY PLAN

FOR DISCUSSION PURPOSES ONLY  
SUBJECT TO CHANGE WITHOUT  
NOTIFICATION

DESIGNED  
R.ZHANG

APPROVED BY  
K.MCNATTY

DESIGN CHECK  
D.CHOI

DATE ISSUED  
12 SEPTEMBER 2019

SCALE  
A3 0 2.5 5 10 1:500

CAD FILE NO.  
N149421-05-P3.DWG

#### NEW MAITLAND HOSPITAL

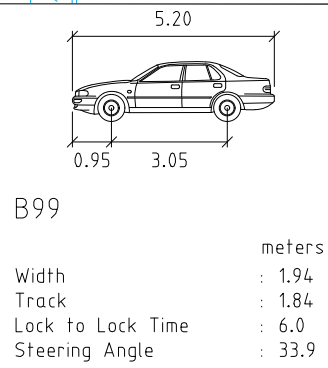
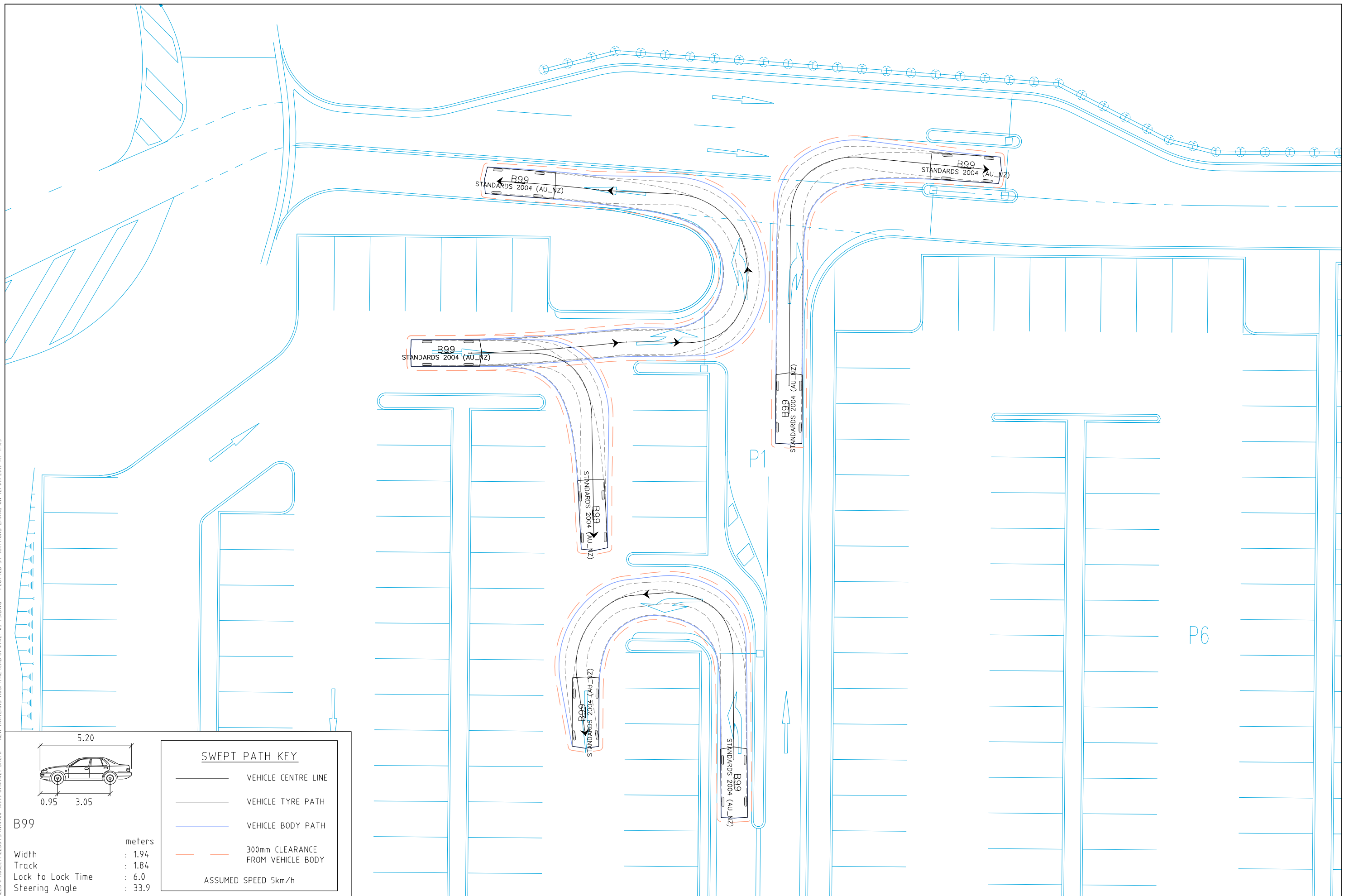
#### SWEPT PATH ASSESSMENT

DRAWING NO. N149421-05-13

SHEET 13 OF 15

ISSUE P3

\\GTA.COM.AU\PROJECTFILES\PROJECTFILES\N14900-14999\N14921-05-P3.DWG - NEW MAITLAND HOSPITAL\CAD\N14921-05-P3.DWG PLOTTED BY RAYMOND ZHANG ON 12/09/2019 AT 17:05



| SWEPT PATH KEY      |                                   |
|---------------------|-----------------------------------|
|                     | VEHICLE CENTRE LINE               |
|                     | VEHICLE TYRE PATH                 |
|                     | VEHICLE BODY PATH                 |
|                     | 300mm CLEARANCE FROM VEHICLE BODY |
| ASSUMED SPEED 5km/h |                                   |



Melbourne 03 9651 9600  
Sydney 02 8448 1800  
Brisbane 07 3113 5000  
Adelaide 08 8334 3600  
Perth 08 6169 1000

**PRELIMINARY PLAN**  
FOR DISCUSSION PURPOSES ONLY  
SUBJECT TO CHANGE WITHOUT  
NOTIFICATION

DESIGNED  
R.ZHANG

APPROVED BY  
K.MCNATTY

DESIGN CHECK  
D.CHOI

DATE ISSUED  
12 SEPTEMBER 2019

SCALE  
A3

CAD FILE NO.  
N149421-05-P3.DWG

NEW MAITLAND HOSPITAL

SWEPT PATH ASSESSMENT

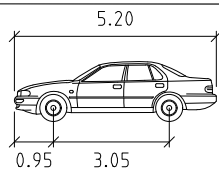
DRAWING NO. N149421-05-05

SHEET 05 OF 15

ISSUE P3



\\GTA.COM.AU\PROJECTFILES\PROJECTFILES\N14900-14999\N149421-SHCP - NEW MAITLAND HOSPITAL\CAD\N149421-05-P3.DWG PLOTTED BY RAYMOND ZHANG ON 12/09/2019 AT 17:05



B99

Width : 1.94 meters  
Track : 1.84  
Lock to Lock Time : 6.0  
Steering Angle : 33.9

#### SWEPT PATH KEY

- VEHICLE CENTRE LINE
  - VEHICLE TYRE PATH
  - VEHICLE BODY PATH
  - 300mm CLEARANCE FROM VEHICLE BODY
- ASSUMED SPEED 5km/h



Melbourne 03 9651 9600  
Sydney 02 8448 1800  
Brisbane 07 3113 5000  
Adelaide 08 8334 3600  
Perth 08 6169 1000

#### PRELIMINARY PLAN

FOR DISCUSSION PURPOSES ONLY  
SUBJECT TO CHANGE WITHOUT  
NOTIFICATION

DESIGNED  
R.ZHANG

APPROVED BY  
K.MCNATTY

DESIGN CHECK  
D.CHOI

DATE ISSUED  
12 SEPTEMBER 2019

SCALE  
A3 0 2.5 5 10 1:500

CAD FILE NO.  
N149421-05-P3.DWG

NEW MAITLAND HOSPITAL

SWEPT PATH ASSESSMENT

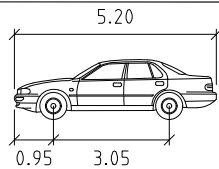
DRAWING NO. N149421-05-06

SHEET 06 OF 15

ISSUE P3

\\GTA.COM.AU\PROJECTFILES\PROJECTFILES\N14900-14999\N149421-SHEPP - NEW MAITLAND HOSPITAL\ACAD\N149421-05-P3.DWG PLOTTED BY RAYMOND ZHANG ON 12/09/2019 AT 17:05

○ F14.60



B99

Width : 1.94 meters  
Track : 1.84  
Lock to Lock Time : 6.0  
Steering Angle : 33.9

#### SWEPT PATH KEY

- VEHICLE CENTRE LINE
  - VEHICLE TYRE PATH
  - VEHICLE BODY PATH
  - 300mm CLEARANCE FROM VEHICLE BODY
- ASSUMED SPEED 5km/h



Melbourne 03 9651 9600  
Sydney 02 8448 1800  
Brisbane 07 3113 5000  
Adelaide 08 8334 3600  
Perth 08 6169 1000

#### PRELIMINARY PLAN

FOR DISCUSSION PURPOSES ONLY  
SUBJECT TO CHANGE WITHOUT  
NOTIFICATION

DESIGNED  
R.ZHANG

APPROVED BY  
K.MCNATTY

DESIGN CHECK  
D.CHOI

DATE ISSUED  
12 SEPTEMBER 2019

SCALE  
A3 0 2.5 5 10 1:500

CAD FILE NO.  
N149421-05-P3.DWG

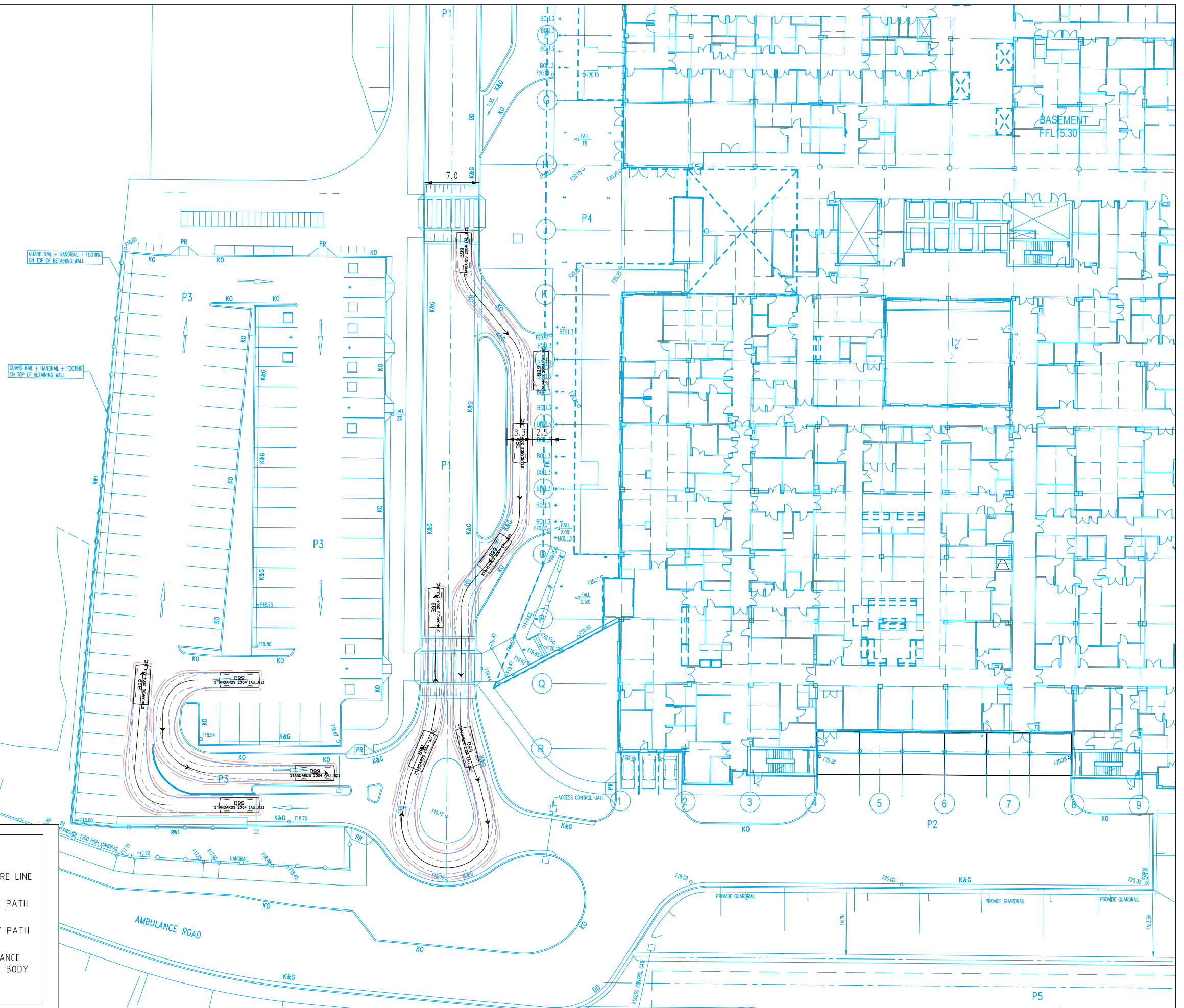
NEW MAITLAND HOSPITAL

SWEPT PATH ASSESSMENT

DRAWING NO. N149421-05-07

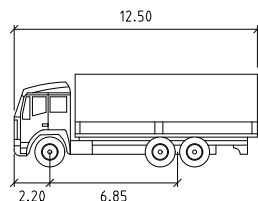
SHEET 07 OF 15

ISSUE P3





\\GTA.COM.AU\PROJECTFILES\PROJECT\NEW MAITLAND HOSPITAL\149421-05-P3.DWG PLOTTED BY RAYMOND ZHANG ON 12/09/2019 AT 17:06



SU TRUCK

|                   |        |
|-------------------|--------|
|                   | meters |
| Width             | 2.50   |
| Track             | 2.50   |
| Lock to Lock Time | 6.0    |
| Steering Angle    | 36.6   |

#### SWEPT PATH KEY

- VEHICLE CENTRE LINE
  - VEHICLE TYRE PATH
  - VEHICLE BODY PATH
  - 600mm CLEARANCE FROM VEHICLE BODY
- ASSUMED SPEED 5km/h



Melbourne 03 9651 9600  
Sydney 02 8448 1800  
Brisbane 07 3113 5000  
Adelaide 08 8334 3600  
Perth 08 6169 1000

#### PRELIMINARY PLAN

FOR DISCUSSION PURPOSES ONLY  
SUBJECT TO CHANGE WITHOUT  
NOTIFICATION

DESIGNED  
R.ZHANG

DESIGN CHECK  
D.CHOI

APPROVED BY  
K.MCNATTY

DATE ISSUED  
12 SEPTEMBER 2019

SCALE  
A3 0 2.5 5 10 1:500

CAD FILE NO.  
N149421-05-P3.DWG

#### NEW MAITLAND HOSPITAL

#### SWEPT PATH ASSESSMENT

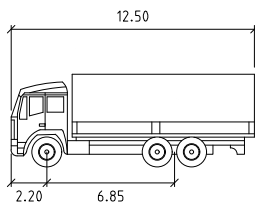
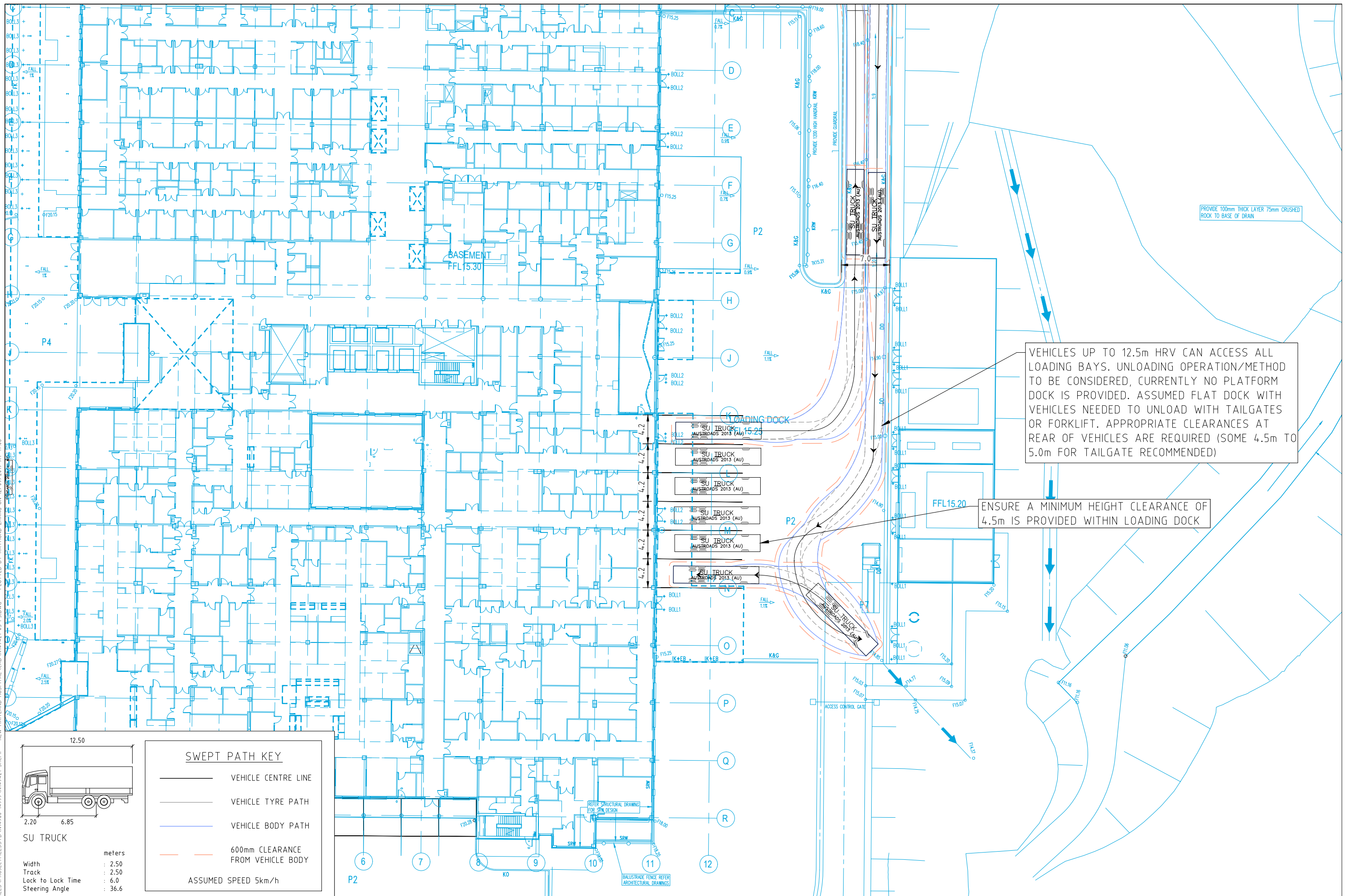
DRAWING NO. N149421-05-08

SHEET 08 OF 15

ISSUE P3



\\GTA.COM.AU\PROJECTFILES\PROJECTFILES\N14900-14999\N149421-SHCP - NEW MAITLAND HOSPITAL\CAD\N149421-05-P3.DWG PLOTTED BY RAYMOND ZHANG ON 12/09/2019 AT 17:06



SU TRUCK

|                   | metres |
|-------------------|--------|
| Width             | : 2.50 |
| Track             | : 2.50 |
| Lock to Lock Time | : 6.0  |
| Steering Angle    | : 36.6 |

SWEPT PATH KEY

- VEHICLE CENTRE LINE
- VEHICLE TYRE PATH
- VEHICLE BODY PATH
- 600mm CLEARANCE FROM VEHICLE BODY

ASSUMED SPEED 5km/h



Melbourne 03 9651 9600  
Sydney 02 8448 1800  
Brisbane 07 3113 5000  
Adelaide 08 8334 3600  
Perth 08 6169 1000

PRELIMINARY PLAN

FOR DISCUSSION PURPOSES ONLY  
SUBJECT TO CHANGE WITHOUT  
NOTIFICATION

DESIGNED  
R.ZHANG

APPROVED BY  
K.MCNATTY

DESIGN CHECK  
D.CHOI

DATE ISSUED  
12 SEPTEMBER 2019

SCALE  
A3 0 2.5 5 10 1:500

CAD FILE NO.  
N149421-05-P3.DWG

NEW MAITLAND HOSPITAL

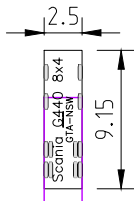
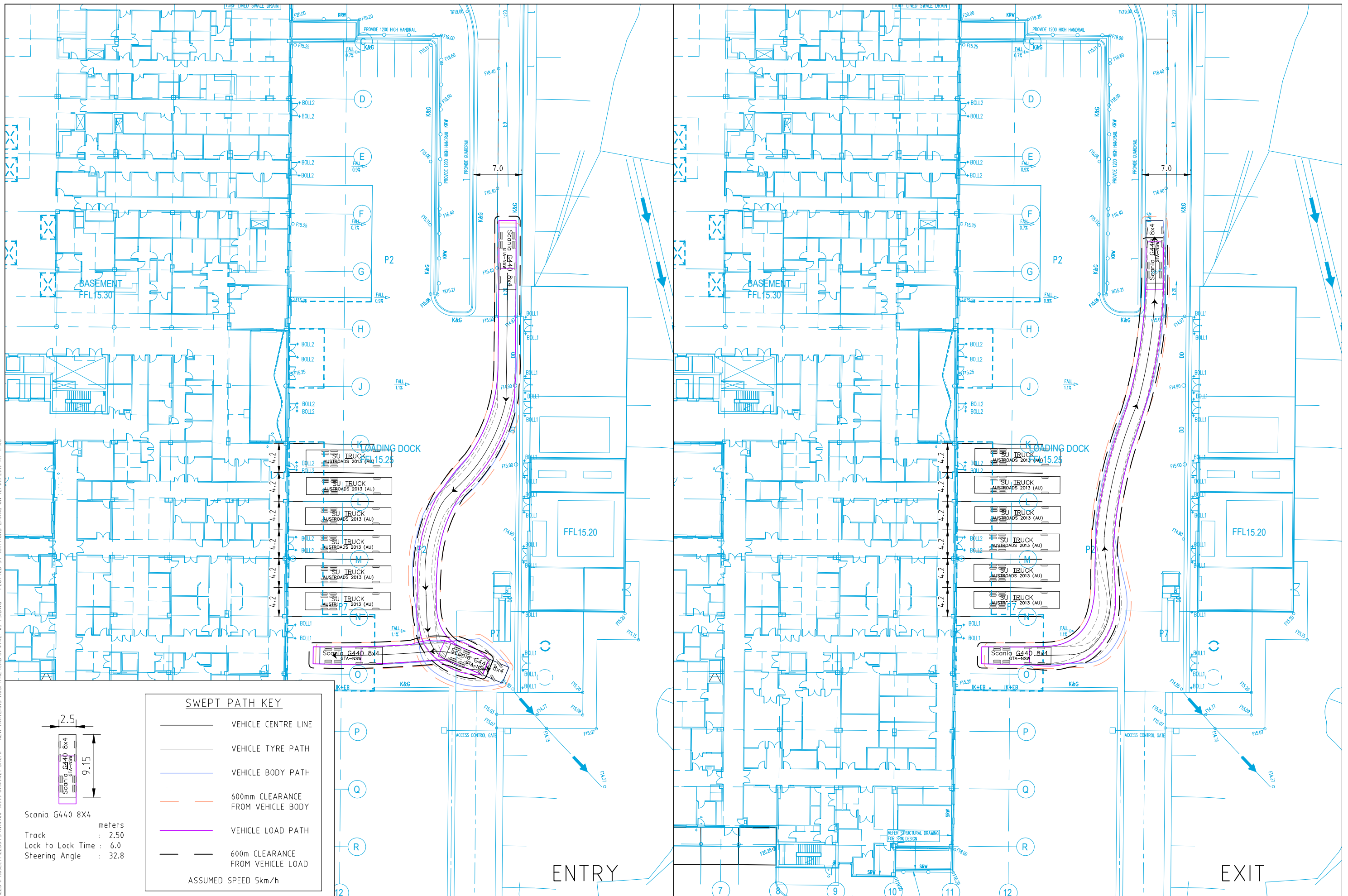
SWEPT PATH ASSESSMENT

DRAWING NO. N149421-05-09

SHEET 09 OF 15

ISSUE P3

\\GTA.COM.AU\PROJECTFILES\PROJECTFILES\N14900-14999\N149421-05-P3.DWG PLOTTED BY RAYMOND ZHANG ON 12/09/2019 AT 17:06



Scania G440 8x4  
Track : 2.50 meters  
Lock to Lock Time : 6.0  
Steering Angle : 32.8

#### SWEPT PATH KEY

- VEHICLE CENTRE LINE
  - VEHICLE TYRE PATH
  - VEHICLE BODY PATH
  - 600mm CLEARANCE FROM VEHICLE BODY
  - VEHICLE LOAD PATH
  - 600mm CLEARANCE FROM VEHICLE LOAD
- ASSUMED SPEED 5km/h



Melbourne 03 9651 9600  
Sydney 02 8448 1800  
Brisbane 07 3113 5000  
Adelaide 08 8334 3600  
Perth 08 6169 1000

#### PRELIMINARY PLAN

FOR DISCUSSION PURPOSES ONLY  
SUBJECT TO CHANGE WITHOUT  
NOTIFICATION

DESIGNED  
R.ZHANG

DESIGN CHECK  
D.CHOI

APPROVED BY  
K.MCNATTY

DATE ISSUED  
12 SEPTEMBER 2019

SCALE  
A3 0 2.5 5 10 1:500

CAD FILE NO.  
N149421-05-P3.DWG

NEW MAITLAND HOSPITAL

SWEPT PATH ASSESSMENT

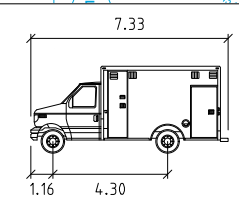
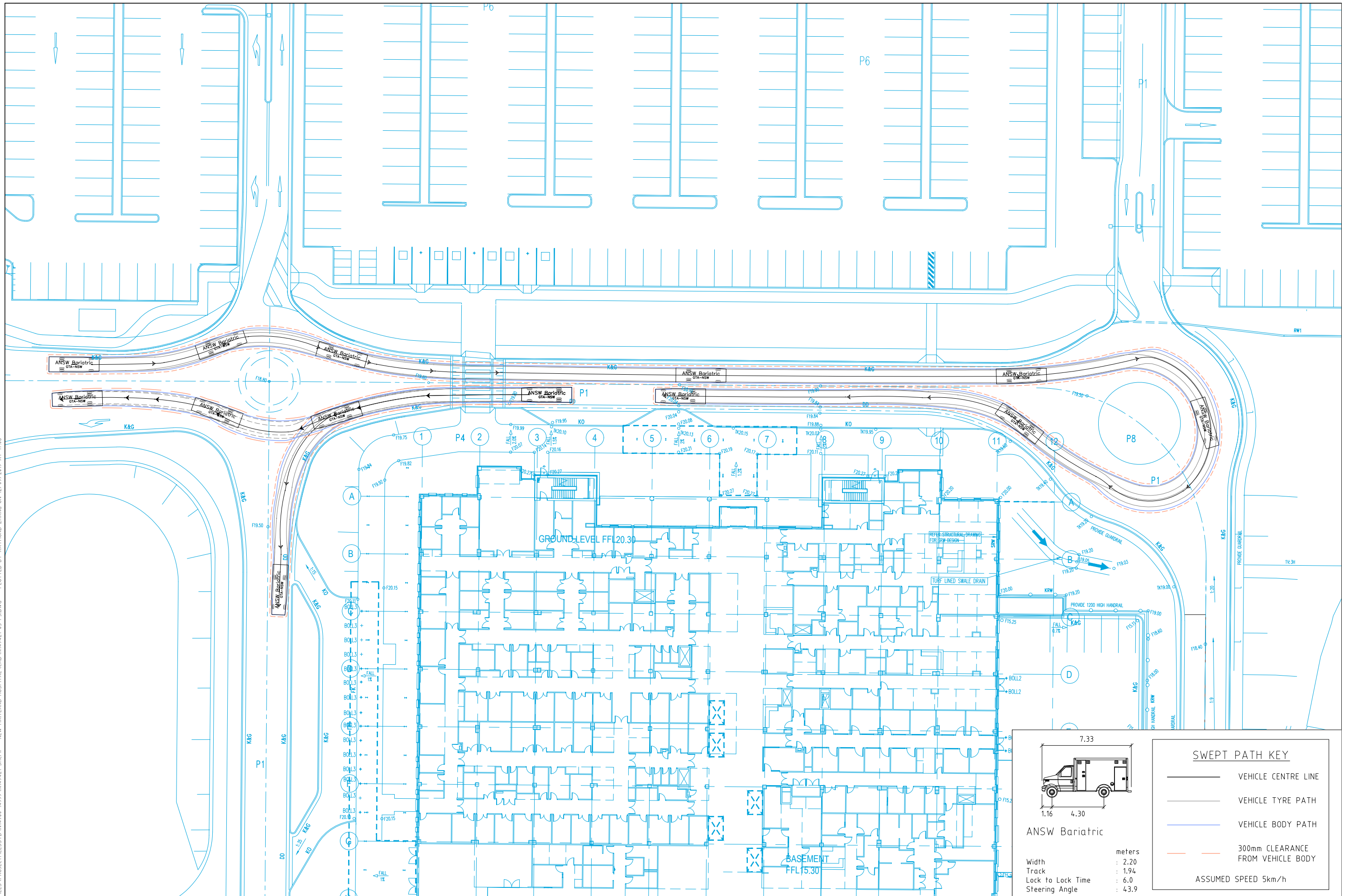
DRAWING NO. N149421-05-10

SHEET 10 OF 15

ISSUE P3



\\GTA.COM.AU\PROJECTFILES\PROJECTFILES\N14900-14999\N14921-05-P3.DWG PLOTTED BY RAYMOND ZHANG ON 12/09/2019 AT 17:06



ANSW Bariatric

|                   |        |
|-------------------|--------|
| Width             | : 2.20 |
| Track             | : 1.94 |
| Lock to Lock Time | : 6.0  |
| Steering Angle    | : 43.9 |

| SWEEP PATH KEY      |                                   |
|---------------------|-----------------------------------|
|                     | VEHICLE CENTRE LINE               |
|                     | VEHICLE TYRE PATH                 |
|                     | VEHICLE BODY PATH                 |
|                     | 300mm CLEARANCE FROM VEHICLE BODY |
| ASSUMED SPEED 5km/h |                                   |



Melbourne 03 9651 9600  
Sydney 02 8448 1800  
Brisbane 07 3113 5000  
Adelaide 08 8334 3600  
Perth 08 6169 1000

**PRELIMINARY PLAN**  
FOR DISCUSSION PURPOSES ONLY  
SUBJECT TO CHANGE WITHOUT  
NOTIFICATION

DESIGNED  
R.ZHANG  
  
APPROVED BY  
K.MCNATTY

DESIGN CHECK  
D.CHOI  
  
DATE ISSUED  
12 SEPTEMBER 2019

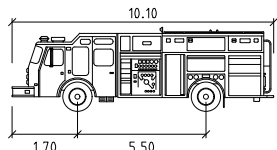
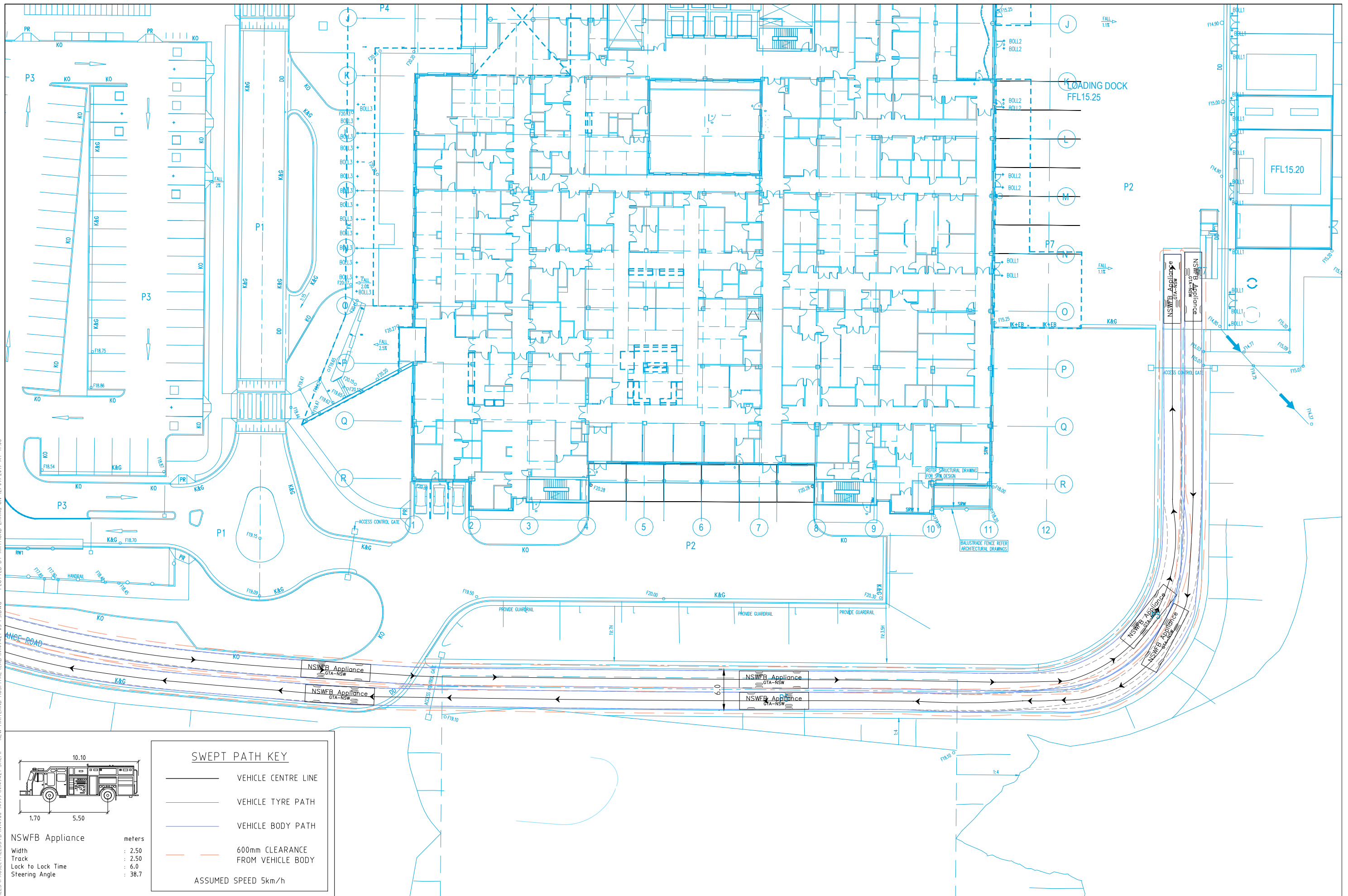
SCALE  
A3  
  
CAD FILE NO.  
N149421-05-P3.DWG

**NEW MAITLAND HOSPITAL**  
  
**SWEEP PATH ASSESSMENT**  
DRAWING NO. **N149421-05-11**

SHEET **11 OF 15**  
ISSUE **P3**



\\GTA.COM.AU\PROJECTFILES\PROJECTFILES\N14900-14999\N149421-05-P3.DWG PLOTTED BY RAYMOND ZHANG ON 12/09/2019 AT 17:06



NSWFB Appliance

|                   |        |
|-------------------|--------|
| Width             | : 2.50 |
| Track             | : 2.50 |
| Lock to Lock Time | : 6.0  |
| Steering Angle    | : 38.7 |

#### SWEPT PATH KEY

- VEHICLE CENTRE LINE
- VEHICLE TYRE PATH
- VEHICLE BODY PATH
- 600mm CLEARANCE FROM VEHICLE BODY

ASSUMED SPEED 5km/h



Melbourne 03 9851 9600  
Sydney 02 8448 1800  
Brisbane 07 3113 5000  
Adelaide 08 8334 3600  
Perth 08 6169 1000

#### PRELIMINARY PLAN

FOR DISCUSSION PURPOSES ONLY  
SUBJECT TO CHANGE WITHOUT  
NOTIFICATION

DESIGNED  
R.ZHANG

APPROVED BY  
K.MCNATTY

DESIGN CHECK  
D.CHOI

DATE ISSUED  
12 SEPTEMBER 2019

SCALE  
A3 0 2.5 5 10 1:500

CAD FILE NO.  
N149421-05-P3.DWG

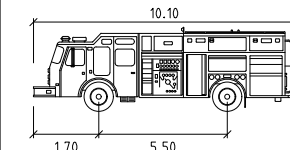
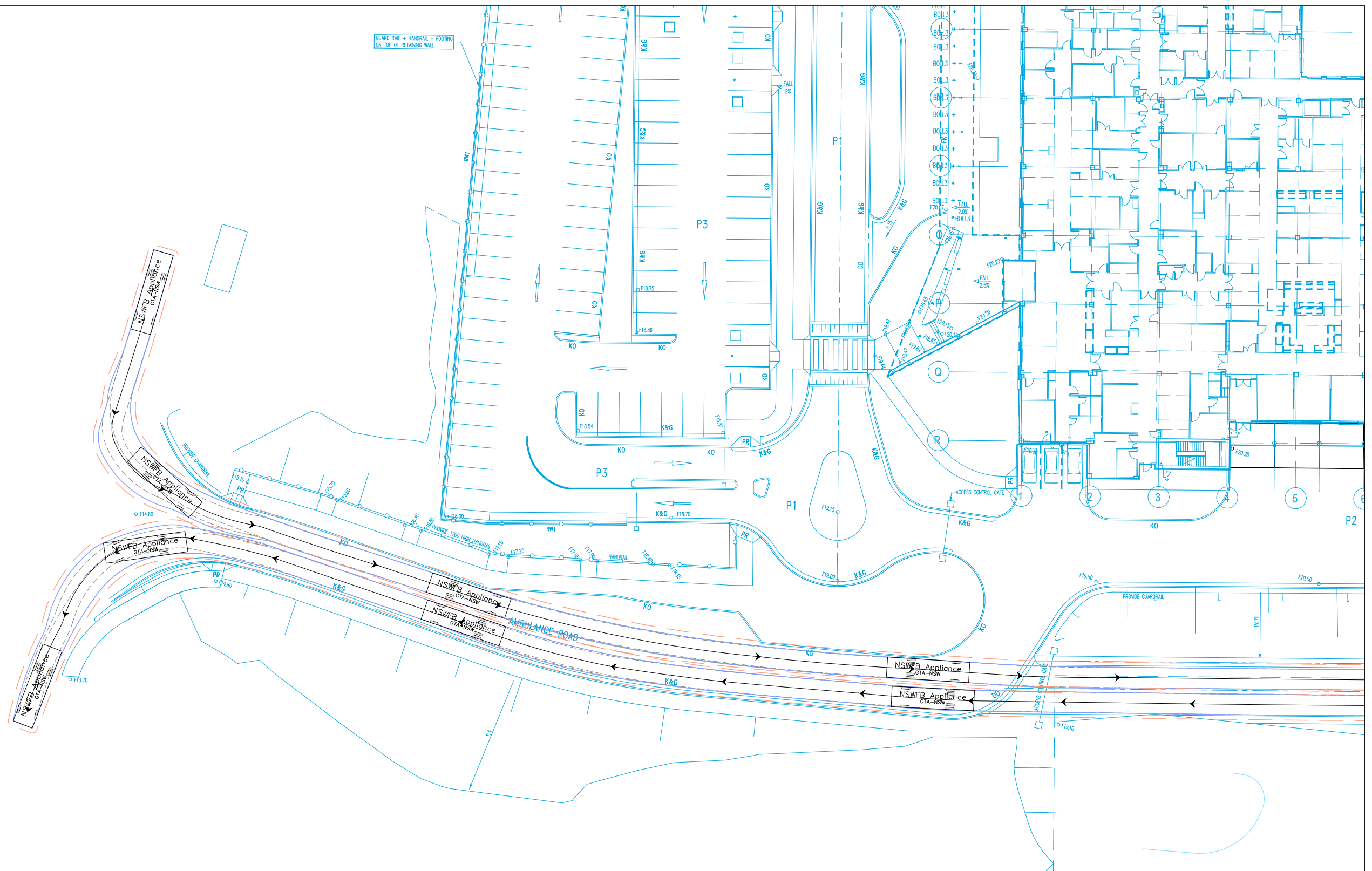
NEW MAITLAND HOSPITAL

SWEPT PATH ASSESSMENT

DRAWING NO. N149421-05-14

SHEET 14 OF 15

ISSUE P3



|                   |        |
|-------------------|--------|
| NSWFB Appliance   | meters |
| Width             | : 2.50 |
| Track             | : 2.50 |
| Lock to Lock Time | : 6.0  |
| Steering Angle    | : 38.7 |

SWEPT PATH KEY

- VEHICLE CENTRE LINE
- VEHICLE TYRE PATH
- VEHICLE BODY PATH
- 600mm CLEARANCE FROM VEHICLE BODY

ASSUMED SPEED 5km/h

## Appendix D

---

### Chelmsford Drive/ Metford Road Intersection Concept Design







## Appendix E

---

### Green Travel Plan

# New Maitland Hospital

Metford Road, Metford  
Green Travel Plan



Prepared by: GTA Consultants (NSW) Pty Ltd for Health Infrastructure  
on 12/04/19  
Reference: N149421  
Issue #: A



# New Maitland Hospital

Metford Road, Metford  
Green Travel Plan


Client: Health Infrastructure

on 12/04/19

Reference: N149421

Issue #: A

## Quality Record

| Issue | Date     | Description | Prepared By | Checked By  | Approved By | Signed  |
|-------|----------|-------------|-------------|-------------|-------------|---|
| A     | 12/04/19 | Final       | O. Maw      | Volker Buhl | Volker Buhl |  |

# CONTENTS

|      |   |    |
|------|---|----|
| 1.   | Introduction                              | 1  |
| 1.1. | Background                                | 1  |
| 1.2. | Site Location                             | 1  |
| 2.   | Green Travel Plan                         | 5  |
| 2.1. | Introduction                              | 5  |
| 2.2. | What is a Green Travel Plan?              | 5  |
| 3.   | Background                                | 6  |
| 3.1. | Existing Transport Provision              | 6  |
| 3.2. | Existing Travel Behaviour                 | 11 |
| 3.3. | Survey Results                            | 12 |
| 4.   | Policy and Strategy Framework             | 14 |
| 4.1. | Introduction                              | 14 |
| 4.2. | Typical Challenges for Regional Hospitals | 14 |
| 4.3. | Analysis                                  | 14 |
| 4.4. | Overview Initiatives                      | 16 |
| 5.   | Actions                                   | 17 |
| 5.1. | Implementation                            | 17 |
| 5.2. | Walking                                   | 17 |
| 5.3. | Cycling                                   | 17 |
| 5.4. | Public Transport                          | 18 |
| 5.5. | Carpooling                                | 18 |
| 5.6. | Car Parking                               | 18 |
| 6.   | Monitoring and Review                     | 19 |
| 6.1. | Travel Survey                             | 19 |
| 6.2. | Review In-house Programs                  | 20 |
| 6.3. | Gaps                                      | 20 |

## Figures

|              |   |    |
|--------------|---|----|
| Figure 1.1:  | Subject site and surrounds  | 2  |
| Figure 1.2:  | Proposed NMH Site Plan  | 3  |
| Figure 1.3:  | Proposed NMH bus stop location  | 4  |
| Figure 3.1:  | Hunter Valley train and bus network – Metford/ East Maitland  | 7  |
| Figure 3.2:  | SUP along Fieldsend Street, looking north   | 8  |
| Figure 3.3:  | New footpath along Metford Road, looking west   | 8  |
| Figure 3.4:  | SUP directly in front of future NMH   | 8  |
| Figure 3.5:  | Pedestrian and bicycle crossing refuge  | 8  |
| Figure 3.6:  | Pedestrian and bicycle crossing refuge  | 9  |
| Figure 3.7:  | Existing bicycle infrastructure around NMH  | 10 |
| Figure 3.8:  | Existing and proposed bicycle network around NMH (as at 2014)                                       | 11 |
| Figure 3.9:  | Travel Zones containing and bordering NMH   | 11 |
| Figure 3.10: | JTW travel modes for workers travelling to Travel Zones 6609, 6610, 6611, 6612, 6613, 6614 and 6616 | 12 |

## Tables

|            |   |    |
|------------|---|----|
| Table 3.1: | Public transport routes and frequencies within the NMH area | 7  |
| Table 3.2: | Staff travel survey results                                 | 13 |
| Table 4.1: | Mode share of comparable hospitals in regional NSW          | 15 |
| Table 4.2: | Existing and proposed mode share targets                    | 16 |



# 1. INTRODUCTION

## 1.1. Background

As part of the Hunter New England (NHE) Health 2015/2016 Asset Strategic Plan (ASP), the construction of the New Maitland Hospital (NMH) has been identified as one of a top five priorities. Located along Metford Road in Metford, the NMH will replace the existing Maitland Hospital located in Maitland with new and increased health facilities to service the area.

The following Green Travel Plan (GTP) has been prepared for the NMH development. The GTP is being prepared to satisfy Condition 5 IX of State Significant Infrastructure 9775 SEARs:

*“details of travel demand management measures, including the preparation of a Green Travel Plan, to encourage sustainable travel choices and details of programs for implementation”*

A GTP is a way in which the NMH will be able to manage the transport needs of staff and visitors. The aim of the plan is to reduce the environmental impact of travel to/from and in association with the operation of the NMH. In essence, the plan encourages more efficient use of motor vehicles as well as alternatives to the single occupant motor car.

The plan comprises a list of strategies aimed at encouraging walking, cycling, public transport and car-pooling for travel to and from work and a shift away from the reliance on single occupant vehicle travel.

GTA Consultants (GTA) was commissioned by Health Infrastructure to prepare a GTP for the NMH.

## 1.2. Site Location

The NMH will be located on Lot 7314 and Part Lot 401 within the south-western portion of the ‘Metford Triangle’ along Metford Road, Metford. The site has a western frontage of 500 metres to Metford Road. The site has been declared State Significant Infrastructure and is generally cleared and disturbed land with an existing forest in the south western corner of the site.

The surrounding properties include:

- Council Sports Fields opposite the site on the corner of Fieldsend Street and Metford Road
- Council's depot on Metford Road
- Redundant brickworks site to the northeast of the site
- Bushland and residential to the south of the site.

The location of the subject site and its surrounding environs is shown in Figure 1.1.

Figure 1.1: Subject site and surrounds



Source: Fitzpatrick+Partners 16 February 2018

## 1.2.1. Development Proposal

It is proposed that the NMH would consist of 339 beds with a projected employment of 893 full-time equivalent (FTE) staff at the proposed year of opening. It is then expected that 1,106 FTE staff would be employed five years after opening and 1,162 FTE staff ten years after opening. An indicative layout of the NMH is shown in Figure 1.2.

Figure 1.2: Proposed NMH Site Plan



Source: BVN Schematic Design BVN-ARH-01A-AX0-002- Site Plan Issue 6

The NMH proposes to provide a total of 682 on-site parking spaces at the year of opening, including 515 staff parking spaces and 167 public/visitor parking spaces. It is estimated that an additional 140 car spaces will be required by 2031/2032 to support the full operation of the hospital. These will be provided in a staged manner on the site.

Bicycle parking is proposed within the NMH and includes 23 spaces for staff and 12 spaces for visitors. Staff bicycle parking will be located on the lower ground floor in a secure location with access to end of trip facilities whereas the 12 visitor spaces are to be located on the ground floor in the public domain. The NMH proposes to incorporate a minimum of three showers and 23 clothes lockers with associated change/ wash basin facilities.

The proposed NMH includes an on-site bus stop for incorporation into the Hunter Valley bus routes. As illustrated in Figure 1.3, bus routes will access the site via the Metford Road/ Fieldsend Street roundabout and circulate around the eastern-most internal roundabout to access the bus stop located near the hospital entry on the southern edge of the internal access road.



Figure 1.3: Proposed NMH bus stop location



Source: BVN Schematic Design BVN-ARH-01A-AX0-002- Site Plan Issue 6

## 2. GREEN TRAVEL PLAN

### 2.1. Introduction

Transport is a necessary part of life which has effects that can be managed. The transport sector is one of the fastest growing emissions sectors in Australia and therefore a travel plan provides an opportunity for reducing greenhouse gases, and for managing traffic congestion (which has adverse economic, health and social outcomes). As well as delivering better environmental outcomes, providing a range of travel choices with a focus on walking, cycling and public transport will have major public health benefits and will ensure strong and prosperous communities.

The overall aim of the plan is to minimise the reliance on single occupancy car journeys to and from the site given its location and accessibility to alternative travel modes.

### 2.2. What is a Green Travel Plan?

A GTP is a package of measures aimed at promoting and encouraging sustainable travel and reducing reliance on the private car. The GTP for the NMH will aim to mitigate (as far as possible) private car use, understanding that the regional location of the NMH precludes high use of public transport compared to more metropolitan locations. The purpose of the GTP is not to be “anti-car” but to make apparent, encourage and support people’s aspirations for carrying out their daily business in a more sustainable way. GTPs then provide:

- measures which encourage reduced car use (disincentives or ‘sticks’)
- measures which encourage or support sustainable travel (such as active transport, public transport and multi-occupant vehicle use)
- reduce the need to travel or make travelling more efficient (incentives or ‘carrots’).

Active transport relates to physical activity undertaken as a means of transport. It includes travel by foot, bicycle and other non-motorised vehicles. Use of public transport is also included in the definition as it often involves some walking or cycling to/ from pick-up and drop-off points.

The GTP would promote the use of transport, other than the private car, for choice of travel to and from the NMH site, which is more sustainable and environmentally friendly. Where private car is used, multi-occupancy trips (such as carpooling) should be encouraged. Ultimately however, end users will determine their most suitable means of transport. As such, a strong communications strategy is required to promote active and public transport thereby reducing incentive to the use private car.

## 3. BACKGROUND

### 3.1. Existing Transport Provision

#### 3.1.1. Surrounding Road Network

##### Metford Road

Metford Road functions as a sub-arterial road and is aligned in a north-east, south-west direction on the western boundary of the site. It is a two-way road with one traffic lane in each direction, configured with a nine-metre wide carriageway. Unrestricted kerbside parking is generally permitted south of Fieldsend Street however, no kerbside parking is permitted north of Fieldsend Street.

As part of early works for the NMH, a roundabout has recently been constructed at the Metford Road/ Fieldsend Street intersection, intended to provide the primary access for the NMH. Metford Road carries around 13,000 vehicles per day.

##### Fieldsend Street

Fieldsend Street functions as a local road and intersects Metford Road at the northern corner of the site. It is aligned in a north-west, south-east direction and is two-way with one traffic lane in each direction. 15 angle parking spaces have recently been constructed on Fieldsend Street adjacent to the sports fields.

Fieldsend Street provides access to the Council Sports Fields on the corner of Fieldsend Street and Metford Road.

Council recently constructed a shared path on Fieldsend Street between Metford Road and Brunswick Street connecting to an off-road shared path to Victoria Station. Fieldsend Street carries around 2,000 vehicles per day.

##### New England Highway

New England Highway is classified as a State road in the Roads and Maritime *Schedule of Classified Roads and State and Regional Roads* versions 2011/1. Near the site it is aligned in a north-west, south-east direction and is two-way with two traffic lanes in each direction. No kerbside parking is permitted.

##### Raymond Terrace Road

Raymond Terrace Road is classified as a State road in the Roads and Maritime *Schedule of Classified Roads and State and Regional Roads* versions 2011/1. Near the site it is aligned in a north-west, south-east direction and is two-way with one traffic lane in each direction. No kerbside parking is permitted.

##### Chelmsford Drive

Chelmsford Drive is classified as a sub-arterial road and is aligned in the north-west, south-east direction. It is a two-way road separated by a median, with one traffic lane as well as one bicycle lane and one parking lane in each direction east of Metford Road and two traffic lanes in each direction west of Metford Road, configured in a carriageway of 20 metres wide. Unrestricted kerbside parking is permitted on both sides of the road east of Metford Road, and no kerbside parking is permitted on Chelmsford Drive west of Metford Road.

##### Surrounding Intersections

The following intersections currently exist near the site:

- Metford Road/ Raymond Terrace Road (roundabout)
- Metford Road/ Fieldsend Street (roundabout)
- Metford Road/ Chelmsford Drive (roundabout).



### 3.1.2. Public Transport Infrastructure

Bus services provide local connections to the outer areas of Metford, including East Maitland and Thornton.

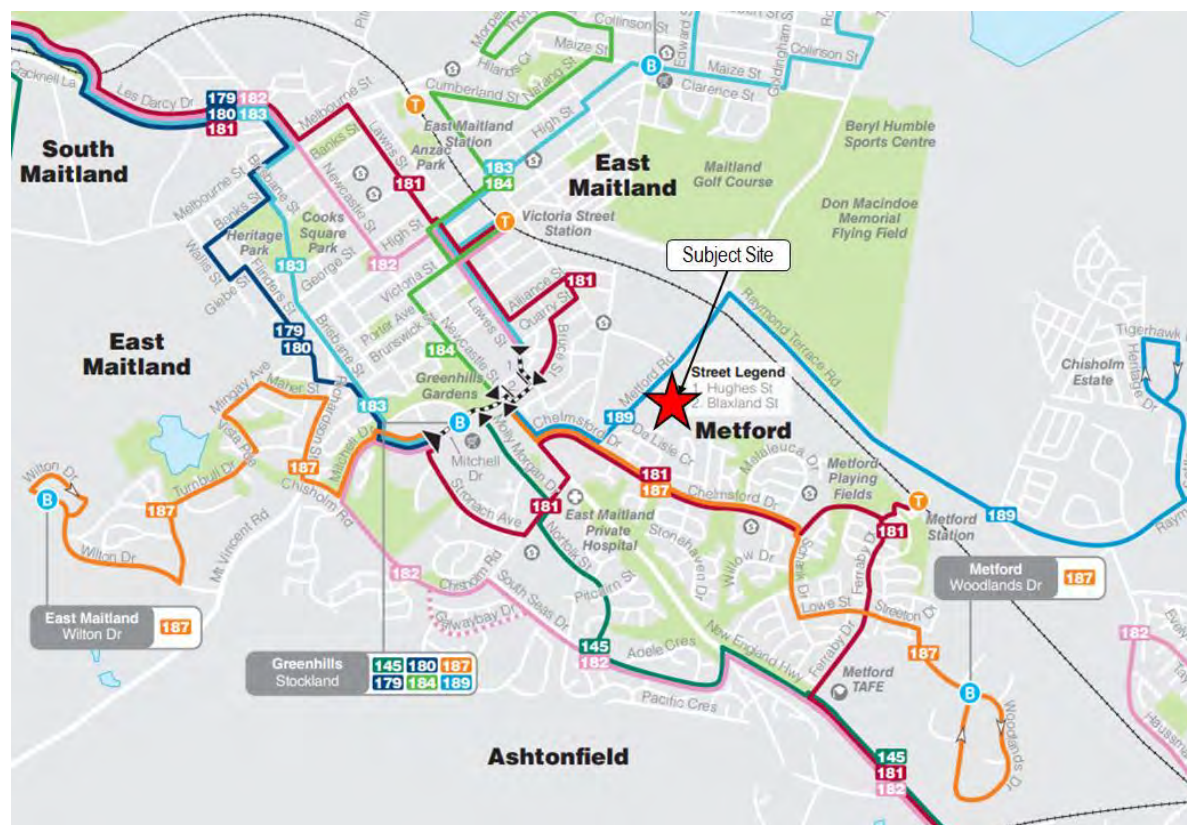
Victoria Street Railway Station is located 1.4 kilometres north-west of the NMH site and is part of the Hunter Line, with services alternately running from Newcastle to Telarah, Dungong and Scone. Services depart from Victoria Street Railway Station at general frequencies of 30 minutes. A summary of public transport within the surrounds of the NMH can be seen in Table 3.1.

Table 3.1: Public transport routes and frequencies within the NMH area

| Service | Route number | Route description                 | Location of stop                         | Distance to nearest stop1 | Frequency on/ off-peak               |
|---------|--------------|-----------------------------------|--|---------------------------|--------------------------------------|
| Bus     | 181          | Rutherford to Woodberry           | Metford Road/ Chelmsford                 | 650m                      | Hourly                               |
|         | 187          | East Maitland and Metford Loop    |  |                           | Hourly peak / every 2 hours off peak |
|         | 189          | Stockland Green Hills to Thornton |  |                           | Hourly peak / every 2 hours off peak |
| Train   | Hunter Line  | Telarah/Dungog                    | Victoria Street Station/ Metford Station | 1.4km                     | Every 30 minutes                     |
|         |              | Newcastle Interchange             |  |                           | Every 30 minutes                     |

Currently, the only bus service that travel along Metford Road is the 189 service (between Stockland Green Hills and Thornton), private bus operators and school bus services. The public transport options within the NMH area and surrounds are shown in Figure 3.1.

Figure 3.1: Hunter Valley train and bus network – Metford/ East Maitland



Basemap Source: [https://www.cdcbus.com.au/images/files/maps/hunter-valley/Maitland\\_and\\_Raymond\\_Terrace\\_Region\\_Map.pdf](https://www.cdcbus.com.au/images/files/maps/hunter-valley/Maitland_and_Raymond_Terrace_Region_Map.pdf) (accessed 27 January 2019)

## 3.1.3. Pedestrian and Bicycle Infrastructure

A number of shared user paths (SUP) and footpaths have recently been constructed along Metford Road and Fieldsend Street. This includes the following:

- SUP on the eastern side of Fieldsend Street (see Figure 3.2)
- footpath on the northern side of Metford Road, east of the roundabout with Fieldsend Street (see Figure 3.3)
- SUP directly in front of the NMH frontage on Metford Road to facilitate walking and cycling access from Metford Road and Fieldsend Street (see Figure 3.4)
- associated pedestrian and bicycle facilities for the Metford Road/ Fieldsend Road roundabout (see Figure 3.5 and Figure 3.6)

Figure 3.2: SUP along Fieldsend Street, looking north



Figure 3.3: New footpath along Metford Road, looking west



Figure 3.4: SUP directly in front of future NMH



Figure 3.5: Pedestrian and bicycle crossing refuge



Figure 3.6: Pedestrian and bicycle crossing refuge

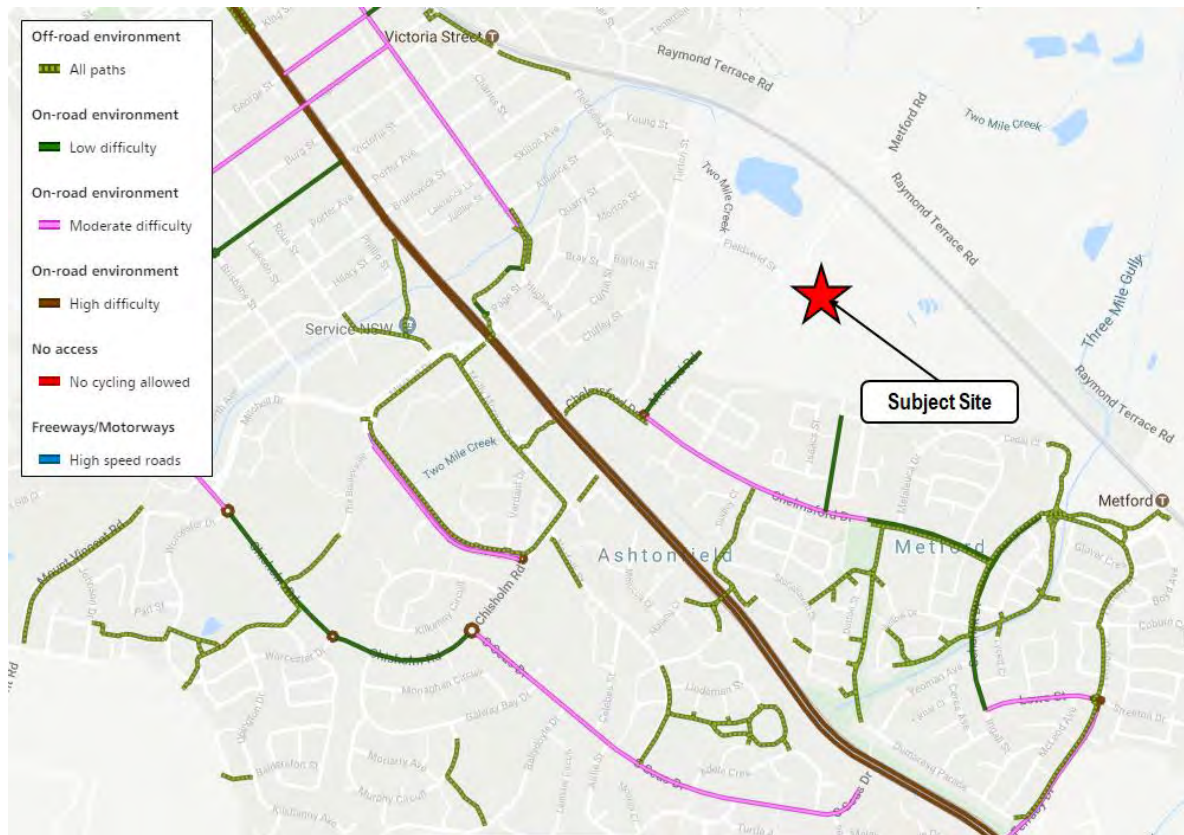


The bicycle infrastructure network surrounding the NMH consist of a range of on-road and off-road sections ranging from low difficulty (on-road via local streets) to high difficulty (along higher order roads such as the New England Highway). Some off-road infrastructure exists linking into the Metford area, south-east of the NMH. This is mainly in the form of SUPs.

Within the vicinity of the NMH, Metford Road currently consists of on-road bicycle lanes and SUP along Fieldsend Street from Metford Road to Turton Street. The existing cycling infrastructure as shown in the Roads and Maritime Services Cycleway Finder is presented in Figure 3.7. It is noted that this map has not been updated to reflect the recently installed SUP and footpath near the NMH site.



Figure 3.7: Existing bicycle infrastructure around NMH

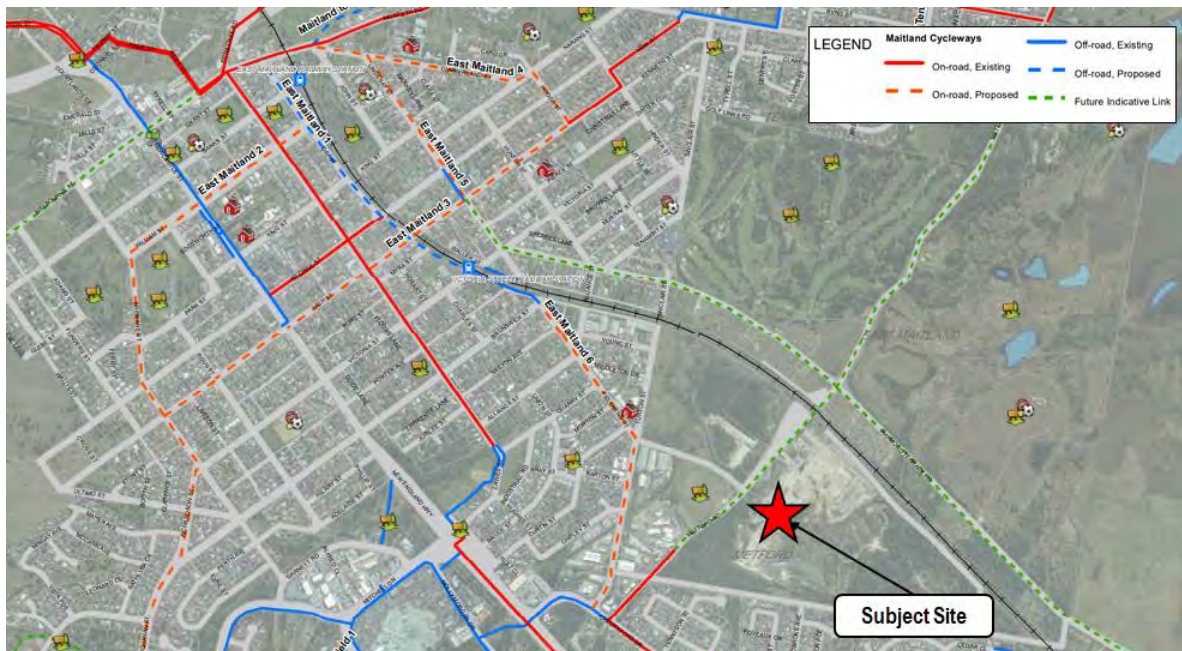


Basemap Source: [https://www.rms.nsw.gov.au/maps/cycleway\\_finder](https://www.rms.nsw.gov.au/maps/cycleway_finder) (accessed 27 January 2019)

As part of Maitland Bike Plan 2014, the existing bicycle network within Maitland LGA was mapped out as were proposed works to improve bicycle connectivity within the LGA and thereby improve safety and encourage more active travel. Future proposals for the bicycle network include indicative links along Metford Road (in both north and south directions) and Raymond Terrace.

The existing (at the time) and proposed bicycle network infrastructure within the Maitland Bike Plan 2014 is shown in Figure 3.8.

Figure 3.8: Existing and proposed bicycle network around NMH (as at 2014)



Basemap Source: Maitland Bike Plan 2014, Maitland City Council

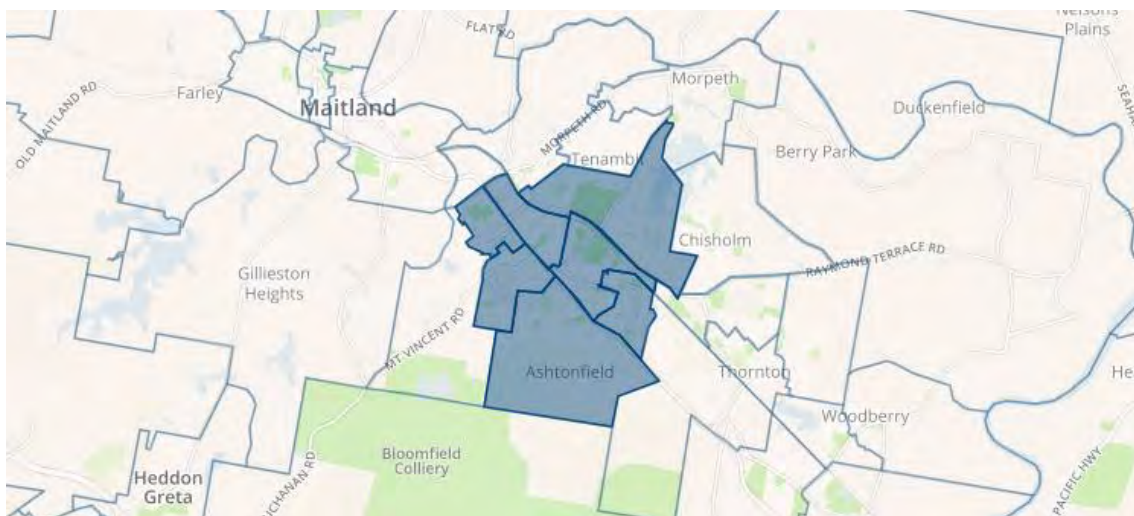
## 3.2. Existing Travel Behaviour

### 3.2.1. Journey to Work for Proposed NMH Site

The Journey to Work (JTW) data published by the Bureau of Transport Statistics (BTS) from 2011 Census data provides an understanding of travel patterns to/ from the site and the surrounding area.

The smallest geographical area for which JTW data is available is a Travel Zone. The relevant Travel Zones used for the purposes of this assessment are 6609, 6610, 6611, 6612, 6613, 6614 and 6616 and are shown in Figure 3.9.

Figure 3.9: Travel Zones containing and bordering NMH

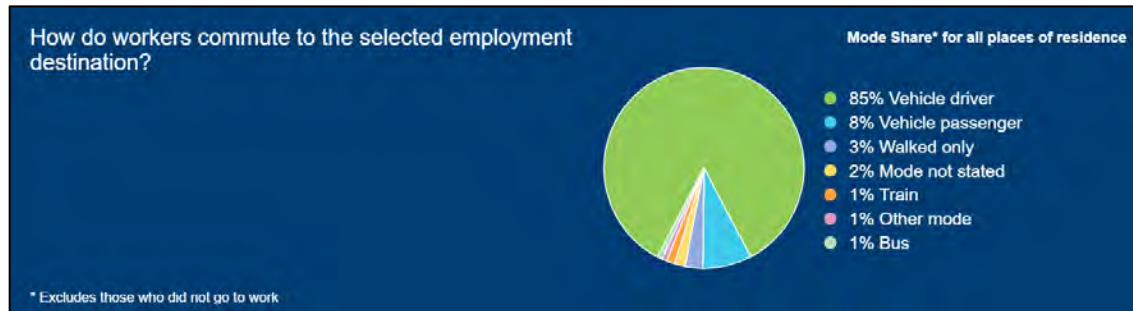


Source: Bureau of Transport Statistics, <http://visual.bts.nsw.gov.au/jtwbasic/#6612.6613.6611.6610.6609.6616.6614>, accessed 22 June 2017

The JTW data indicates that 6,603 people are employed within the selected Travel Zones.

Figure 3.10 shows the distribution of travel modes by workers employed within the Travel Zones and indicates that 93 per cent of workers travel to the area by private vehicles as a driver or passenger. In addition, the JTW data indicates that six per cent of workers travelling to the area do so by either walking, train or bus.

Figure 3.10: JTW travel modes for workers travelling to Travel Zones 6609, 6610, 6611, 6612, 6613, 6614 and 6616



Data source: Bureau of Transport Statistics, <http://visual.bts.nsw.gov.au/jtwbasic/#6612,6613,6611,6610,6609,6616,6614>, accessed 22 June 2017

The JTW data also indicates that around 62 per cent of workers travelling to the Travel Zones originate from the Maitland Area, while Newcastle accounts for 13 per cent, the Lower Hunter for 9 per cent and the remaining areas for 16 per cent.

## 3.3. Survey Results

### 3.3.1. Travel Behaviour for Existing Maitland Hospital

GTA prepared a parking demand study in October 2018 to inform the Stage 2 State Significant Infrastructure (SSI) assessment of the NMH. This assessment included a review of the current mode share of staff at the existing Maitland Hospital, located at 560 High Street, Maitland. The hospital currently has 779 full time equivalent (FTE) staff and a total of 198 beds.

The site is well-served by public transport, with a bus stop located along the site frontage to High Street with bus services every 20 minutes. Furthermore, Telarah Railway Station is located around 600 metres west of the site.

#### Staff Surveys

An online staff questionnaire was distributed to all hospital staff in August 2018 to understand existing staff travel patterns, and a total of 74 responses were received. The results of the survey show that car travel was the main mode of travel to/from the hospital, with over 95 per cent of responses travelling by private vehicle (including car passengers and motorcyclists) with an average vehicle occupancy of 1.1 persons per vehicle according to those surveyed. It is noted that this value excluded people who travelled by car for a portion of the trip to/from the hospital, such as parking near a railway station or other public transport facilities as part of their commute.

The survey responses relating to current staff modes of transportation is summarised in Table 3.2.



Table 3.2: Staff travel survey results

| Mode of transport              | Responses (%) |
|--------------------------------|---------------|
| Car – As a driver              | 91.9          |
| Car – As a passenger           | 1.4           |
| Motorcycle / scooter           | 2.7           |
| Bus                            | 0             |
| Bicycle                        | 0             |
| Walk                           | 1.4           |
| Train                          | 1.4           |
| Taxi                           | 0             |
| Split - Car / Public Transport | 1.4           |

The staff surveys indicated that the two main reasons for staff to travel by the above modes of transport to/from the hospital was due to:

- travel distance
- convenience.

Overall, the results of the existing Maitland Hospital staff survey are generally in line with the JTW seen for workers within Travel Zones for the NMH. This includes a heavy reliance on private vehicle use, and more importantly a low vehicle occupancy. Additionally, there is a low use of active travel and public transport modes of travel.

The staff surveys also indicate that 24 per cent of surveyed staff reside in postcodes that are within 2.5 kilometres of the NMH and 57 per cent reside in postcodes that are within 10 kilometres. This indicates a high proportion of staff living in proximity to the NMH that presents a potential pool for travel via non-car modes and especially walking and cycling.

## 4. POLICY AND STRATEGY FRAMEWORK

### 4.1. Introduction

Based on the transport network described above, this section identifies the potential travel patterns to and from the NMH. It builds on the walking and public transport networks already available around the site to identify transport modes which may be best suited to meet the travel demand for the site. This guides the actions specified in Section 5 of this GTP, to respond to available transport infrastructure and current travel patterns in the local area.

### 4.2. Typical Challenges for Regional Hospitals

Most staff travel associated with regional hospitals will occur via private vehicle as a result of the following:

- The shift nature of staffing requirements for hospitals, with many staff either starting late at night or early in the mornings as well as shifts lasting longer periods than typical work days.
- The general limited availability of convenient public transport within regional areas.

Walking and cycling often prove difficult due to the distance between place of residence and work, as well as a lack of quality facilities in between. In this regard, the following factors are typically attributed to a high mode share for private vehicles at regional hospitals:

- Residential locations and hospital locations can have limited access to public transport services.
- Driving presents attractive travel time advantages for many key staff origins.
- Only a limited number of staff origins in regional locations have access to direct public transport connections that do not require interchanging. This typically results in longer travel times, as well as influencing the perception of a lack of convenience and reliability.
- Time of arrival/ departure, which due to shift work, potentially limits the access to frequent public transport services. Staff that work in shifts with start and end times outside peak hours may also experience personal security issues.
- Time of arrival/ departure influences perceived comfort of traveling via alternate modes of transport, in particular outside peak hours.
- Unpredictable hospital activities may extend staff shift finish times. This can leave staff 'stranded' if public transport options are limited.
- Staff may need to drive to efficiently conduct other activities on their way to/ from the hospital such as school drop-off/ pick-up activities.

Nevertheless, strategies can be implemented to encourage staff to reduce their reliance on private vehicles.

### 4.3. Analysis

#### Scenario 1: Business as usual

If no further green travel actions are taken, it is likely that staff will continue to adopt the travel patterns they currently exercise travelling to and from the hospital. If the rates are applied outright to the employment forecasts for the NMH,

the potential future travel demand for different modes of travel can be estimated with a heavy reliance on single occupancy private vehicle use.

#### Scenario 2: Wayfinding and staff travel information

By targeting staff travel behaviour with quality information about transport options, the NMH can achieve more walking and cycling use by targeting the potential pool of employees that reside within the local residential areas such as Metford, Ashtonfield and East Maitland. Providing wayfinding, public transport information and inductions of end of trip facilities to new staff is an opportunity to demonstrate good transport practices.

#### Scenario 3: Proactive initiatives to reach set targets

A review of mode shares currently exhibited by comparable hospital developments within regional NSW has been conducted. The results of this are shown in Table 4.1.

Table 4.1: Mode share of comparable hospitals in regional NSW

| Mode of Travel                | Wyong Private Hospital Mode Share (%) | Gosford Hospital Mode Share (%) | Lismore Hospital Mode Share (%) |
|-------------------------------|---------------------------------------|---------------------------------|---------------------------------|
| Car – As a driver             | 96.7                                  | 86.0                            | 98.6                            |
| Car – As a passenger          |                                       | 9.0                             |                                 |
| Motorcycle / scooter          | Unknown                               | Unknown                         | 0.4                             |
| Bus                           | 0.8                                   | 2.6                             | 0                               |
| Train                         |                                       |                                 |                                 |
| Bicycle                       | 1.0                                   | 1.2                             | 1.0                             |
| Walk                          | 1.0                                   | 1.2                             | 0.0                             |
| Split - Car/ Public Transport | Unknown                               | Unknown                         | Unknown                         |

In preparing the proposed mode share targets for the NMH, the following factors have been considered:

- Staff travel surveys and mode shares from the existing Maitland Hospital.
- Mode shares from comparable regional hospitals in NSW (see Table 4.1).
- Proposed facilities within and surrounding the NMH.
- The environment surrounding the NMH.

Based on the above factors, the proposed mode shift for the NMH has been developed with achievable goals in mind, especially in the pursuit of shift to public and active transport. Ultimately, the private car will remain the dominant mode of travel to/from the NMH, however, the key to reducing traffic and parking demand will lie in achieving higher and multi-occupancy vehicles (i.e. carpooling and more car passengers). Therefore, the proposed mode share for the NMH which is considered to be achievable through this GTP is summarised in Table 4.2.



Table 4.2: Existing and proposed mode share targets

| Mode of Travel                | Survey Mode Share (%) | Proposed Mode Share (%) |
|-------------------------------|-----------------------|-------------------------|
| Car – As a driver             | 92                    | 85                      |
| Car – As a passenger          | 1                     | 5                       |
| Motorcycle / scooter          | 3                     | 3                       |
| Bus                           | 0                     | 1                       |
| Bicycle                       | 0                     | 2                       |
| Walk                          | 1                     | 1                       |
| Train                         | 1                     | 2                       |
| Split - Car/ Public Transport | 1                     | 1                       |

The proposed mode share includes encouraging higher occupancy in private vehicles as well as encouraging a take up in active travel modes such as walking and cycling. Understanding the low frequency and range of public transport options, it is not expected that public transport use will significantly increase from the existing one to two per cent, however, a moderate increase should be encouraged. This includes consideration of a bus stop provision within the NMH to allow route alterations to existing routes to service the NMH. In addition, shuttle services to Victoria Street Station could make the use of public transport easier and safer.

#### 4.4. Overview Initiatives

As part of the identified mode share considerations, a number of overview initiatives and principles have been developed with more detailed actions listed in Section 5. The transport aspects likely to influence and initiate mode change within the NMH include:

1. Implementation of the GTP
  - Appoint a Travel Plan Coordinator (TPC) to ensure the successful implementation and monitoring of the GTP. This should be coordinated in an integrated format for the entire NMH precinct. The TPC would manage and review the GTP on an ongoing basis. Usually, the role of a TPC is filled by an employee working in the NMH and would most likely be an administrator.
  - Conduct annual or biennial travel surveys to establish travel patterns in the area and assess success of the GTP. This is to be managed by the appointed TPC. Allow surveys to incorporate suggestions from employees to improve green travel arrangements.
2. Increase walking, running and cycling to work for staff and to other destinations (e.g. recreation, social).
  - Promote bicycle facilities within the NMH by providing staff tours on day of opening as well as staff inductions for new staff.
  - Promote local bicycle facilities within the surrounds of the NMH, as well as shops and bike maintenance courses run by a number of bike shops.
3. Increase car-pooling.
  - Provide a system to allow staff to identify those that reside near them which in turn can be used to organise car-pools between staff. Where possible, arrange shift plans accordingly.
4. Increase available information available to staff and visitors
  - An active system that encourages and facilitates walking, cycling and public transport travel would be beneficial. Sharing available information is a viable option to encourage.

## 5. ACTIONS

### 5.1. Implementation

| Action   | Implementation                             |
|--|--|
| Identify a staff member to complete travel coordinator duties in this plan for up to one year at a time  | At year of opening                         |
| Provide a welcome pack for each new staff member which includes a Travel Access Guide (TAG) and information on how to become involved in the staff car pool system | At year of opening and with each new staff |

### 5.2. Walking

| Action   | Implementation   |
|--|--|
| Identify employees living near work that may be interested in walking to work  | At year of opening and as part of regular updates to the GTP   |
| Produce a map showing safe walking routes to and from your site showing times rather than distances, to local facilities, such as shops and public transport stops | At year of opening as part of Travel Access Guide (TAG)        |
| Have a few umbrellas handy at reception for rainy days – perhaps bearing the NMH logo  | At year of opening   |
| Review condition of existing footpaths onsite regularly and upgrade as required  | At year of opening and regularly as part of updates to the GTP |
| Take part in 'National Walk to Work Day'   | Every year   |
| Introduce new staff to end of trip facilities as part of their induction   | Every time a new staff member begins                           |

### 5.3. Cycling

| Action  | Implementation                            |
|---|---|
| Establish an internal Bicycle Users Group (BUG). BUGs are formed by people who want to work together to improve facilities for cyclists and encourage cycling | At year of opening with regular check-ins |
| Develop a 'bike buddy' scheme for inexperienced cyclists  | At year of opening                        |
| Organise a breakfast for cyclists to incentivise staff to cycle as well as promoting cycling  | Once a month                              |
| Review bicycle parking regularly to meet peak needs, upgrade as required  | Regularly, annually or biannually         |
| Provide bicycle parking for visitors  | At year of opening                        |
| Ensure bicycle parking is clearly visible or provide signage to direct people to cycle bays   | At year of opening                        |
| Review condition of existing on-site bicycle routes regularly and upgrade as required   | Regularly, annually or biannually         |
| Supply a workplace toolkit consisting of puncture repair equipment, a bike pump, a spare lock and lights  | At year of opening with regular review    |
| Provide an on-site bicycle maintenance service (either as a special one-day event or on a regular basis)  | Annually or biannually                    |

| Action  | Implementation                     |
|---|------------------------------------|
| Produce a map showing more leisurely bicycle routes to work | At year of opening, as part of TAG |
| Participate in annual events such as 'Ride to Work Day'     | Annually                           |

## 5.4. Public Transport

| Action  | Implementation                     |
|---|------------------------------------|
| Develop a map showing public transport routes to work   | At year of opening, as part of TAG |
| Put up a notice board with leaflets and maps showing the main public transport routes to and from work                          | At year of opening, as part of TAG |
| Place information on the work intranet with links to appropriate external websites e.g. transportnsw.info                       | At year of opening                 |
| Provide leaflets or timetables with payslips  | At year of opening                 |
| Encourage discussions with public transport operators to provide a bus service between Victoria Street station and the hospital | At year of opening                 |

## 5.5. Carpooling

| Action   | Implementation     |
|--|--------------------|
| Introduce formal carpooling scheme to encourage staff to share rides   | At year of opening |
| Set up a carpooling database that is updated regularly and used to inform staff  | At year of opening |
| Organise postcode lunches to familiarise staff with each other   | At year of opening |
| Consider carpooling opportunities when rostering staff with involvement by the TPC   | At year of opening |
| Consider allocating priority parking spaces for car-poolers in preferred and visible locations (e.g. close to hospital entrance) | At year of opening |

## 5.6. Car Parking

| Action   | Implementation     |
|--|--------------------|
| Identify priority users of car park (e.g. people with disabilities and car-poolers) which will be located closer to preferred and visible locations. | At year of opening |



## 6. MONITORING AND REVIEW

In order for the GTP to be effective it must be reviewed on a regular basis. It is important to ensure that the GTP is meeting its objectives and having the intended impact on car use and transport choices for the staff at the NMH. The Plan should be reviewed on a yearly basis with staff travel surveys and in consultation with Council's Planners or Sustainable Transport Officer. The Plan should be updated and changed to reflect changing circumstances.

### 6.1. Travel Survey

It will clearly be important to understand people's reasons for travelling the way they do, any barriers to changing their behaviour and their propensity to change. This will enable the most effective initiatives to be identified, and conversely fewer effective initiatives can be modified or replaced to ensure the best outcomes are achieved.

To monitor the travel plan, a travel questionnaire should be conducted of all employees. Surveys results should be reported annually by the TPC or senior management and used to inform funding allocation for successful programs/ removal for unsuccessful programs. This would be in consultation with Council Planners or Sustainable Transport Officer, as required. Based on the review the travel plan should be updated to reflect changing circumstances.

An example format for the survey is provided below.

*Q1: What is your post code? \_\_\_\_\_*

*Q2: How do you usually travel to work? (Select one)*

- Walk / run
- Bicycle
- Bus
- Train
- Combination bus and train
- Drive a car
- Passenger in a car
- Other (explain)\_\_\_\_\_

*Q3: What time do you usually leave for work in the morning?*

*Q4: Other than travelling to work, what is your main mode of transport around Sydney? (Select one)*

- Walk / run
- Bicycle
- Bus
- Train
- Combination bus and train
- Drive a car
- Passenger in a car
- Other (explain)\_\_\_\_\_

*Q5: To facilitate transport programs, may we share your contact details with green travel champions?*

- Yes – I'll walk
  - If 'yes' please provide your email here:
- Yes – I'm a cyclist
  - If 'yes' please provide your email here:
- Yes – I'm a public transport passenger
  - If 'yes' please provide your email here:
- No

### 6.2. Review In-house Programs

The annual employee travel survey would assist the TPC in the review of the GTP. Other feedback provided to the travel coordinator should be used to update programs as well. Sample feedback could include email responses to programs, monitoring the bike/ car parking spaces used and transport complaints.

People in any organisation like to be part of a successful plan. Staff should be kept informed of green travel achievements, e.g. send out email bulletins, make announcements during meetings, or have a dedicated column within internal/ external publications. Advertise success to staff as part of a sustainability and green campaign for the NMH.

### 6.3. Gaps

It may occur that transport deficiencies are identified. Some examples may include:

- provision of more car-pool priority spaces may be required as demand grows
- bicycle spaces and lockers for employees and visitors as demand grows.

Transport deficiencies would be tracked by the travel coordinator, these issues may need to be revisited if identified as an issue during monitoring.





## Appendix F

---

### Construction Traffic Management Plan

# MULTIPLEX

## NEW MAITLAND HOSPITAL CONSTRUCTION TRAFFIC MANAGEMENT PLAN STAGE 2 MAIN WORKS

| DATE     | REQUESTED BY  | LOCATION               | DESIGNED BY       | REVIEWED          | VERSION   |
|----------|---------------|------------------------|-------------------|-------------------|-----------|
| 19/11/18 | Steve Russell | Metford Rd,<br>Metford | Brock<br>Donnelly | Gaven<br>Chandler | Version 4 |
| 20/02/19 | Bede Webb     | Metford Rd,<br>Metford | Brock<br>Donnelly | Gaven<br>Chandler | Version 5 |

## Contents

|   |    |
|---|----|
| Definitions & Abbreviations .....   | 3  |
| Introduction .....  | 3  |
| 2.1 The Project .....   | 3  |
| 2.1 Time Frame .....  | 3  |
| 2.2 Purpose of the TMP .....  | 4  |
| 2.3 Scope .....   | 5  |
| 3. Communications Strategy .....  | 5  |
| 3.1 Stakeholders List .....   | 5  |
| 3.2 Emergency Services .....  | 6  |
| 4. Traffic Management.....  | 6  |
| 4.1 General Outline.....  | 6  |
| 4.2 Traffic Control Plans.....  | 7  |
| 4.3 Responsibilities .....  | 7  |
| 5. Staffing .....   | 7  |
| 6. Site Vehicles .....  | 7  |
| 7. Vehicle Movement Procedure .....   | 7  |
| 7.1 Anticipated Truck Delivery Route .....  | 8  |
| 7.2 Site Operational Hours.....   | 8  |
| 7.4 Main Works Timeframes.....  | 8  |
| 8. Cyclist and Pedestrian Impacts .....   | 8  |
| 9. Road Conditions .....  | 9  |
| 10. Construction workers and vehicles.....  | 10 |
| 10.1 Construction Workers on Site .....   | 10 |
| 10.2 Construction Workers Parking .....   | 10 |
| 11. Vehicle Movement Plans .....  | 11 |
| APPENDIX 1 – BUILDING AND ROAD FOOTPRINT .....  | 12 |
| APPENDIX 2 – VEHICLE MOVEMENT PLAN (NORTHERN ENTRY ROAD IN OPERATION) .....                                       | 13 |
| APPENDIX 3 – VEHICLE MOVEMENT PLAN (NORTHERN & SOUTHERN ENTRY ROADS IN OPERATION)<br>.....                        | 14 |
| APPENDIX 4 – VEHICLE MOVEMENT PLAN (SOUTHERN ENTRY ROAD IN OPERATION ONLY).....                                   | 15 |
| APPENDIX 5 – VEHICLE MOVEMENT PLAN (LOT 401 NORTHERN CARPARK & OTHER ENTRANCES<br>ENTRY IN OPERATION, ALL 3)..... | 16 |
| APPENDIX 6 – ANTICIPATED TRUCK DELIVERY ROUTES.....   | 17 |



## Definitions & Abbreviations

|                |                                 |
|----------------|---------------------------------|
| RMS            | Roads and Maritime Services     |
| TCP            | Traffic Control Plan            |
| TMP            | Traffic Management Plan         |
| VMP            | Vehicle Management Plan         |
| The Contractor | Multiplex Constructions Pty Ltd |

## Introduction

### 2.1 The Project

Multiplex have been engaged by NSW Government Health Infrastructure to carry out the construction of the Early Works for the New Maitland Hospital, and will be collating a submission for the Stage 2 Main Works as noted below:

- Construction and operation of a new 7 storey Acute Services Building, including;
  - Emergency services;
  - Medical, surgical, paediatric and maternity services;
  - Critical care services for adults and babies, including a special care nursery;
  - Operating theatres, delivery suites and assessment rooms;
  - Palliative care and rehabilitation services;
  - Mental health services;
  - Satellite renal dialysis;
  - A new chemotherapy service;
  - Oral health service;
  - A range of ambulatory care and outpatient clinics.
- Internal roadways and car parking for staff, patients and visitors;
- Signage;
- Site landscaping and open space improvements;
- Tree removal; and
- Utility and services connection and amplifications works.

### 2.1 Time Frame

The New Maitland Hospital Main Works are scheduled to begin in September 2019 and will continue through until May 2021.



Overview of New Maitland Hospital Precinct - Metford Rd & Fieldsend Street, Metford

## 2.2 Purpose of the TMP

This Traffic Management Plan addresses the proposed construction of the New Maitland Hospital Main Works to be carried out by Multiplex as engaged by NSW Health Infrastructure.

The purpose of this TMP is to provide a framework describing how the Principal Contractor, Multiplex will safely manage the traffic aspects of the Project. The TMP provides the process to ensure that the Project maintains appropriate controls to manage traffic in and around the construction site. The TMP will:

1. Provide a high-level description of the various traffic management elements needed to make the project a success.
2. Serve as the key document that is agreed to by all parties & is the final approval to conduct traffic management during the project.
3. Ensure the safety of road users and construction traffic.

4. Ensure there is a safe interface between construction traffic and local traffic.
5. Eliminate the risk of injury to local traffic users and construction personnel.
6. Ensure that access to adjoining properties is maintained during construction  
Eliminate/ minimise traffic delays and traffic Issues.

### 2.3 Scope

This Traffic Management Plan (TMP) becomes the primary document detailing the traffic management arrangements under which this project is to proceed.

In case of emergencies and/or for the management of any incidents during the works the conditions stated in this TMP and/or any of the sub documentation do not apply to any emergency services.

## 3. Communications Strategy

### 3.1 Stakeholders List

The Stakeholders of the project are as follows:

#### CBRE – Project Manager for Health Infrastructure NSW

Contact: Kirsty Gill – Senior Project Manager  
Phone: 0408 852 539

Contact: Hamish Rolls – Project Manager  
Phone: 0407 296 934

#### Maitland City Council

Contact: Kevin Stein – Manager Engineering & Design  
Phone: (02) 4934 9808

Contact: Scott Henderson – Coordinator Infrastructure Planning Engineer  
Phone: (02) 4934 9814

#### Traffic Management Centre

Contact: Duty Officer  
Phone: 02 8874 6806  
Email: [rol.hunter@rms.nsw.gov.au](mailto:rol.hunter@rms.nsw.gov.au)

#### Multiplex:

Contact: Jeff Wall – Senior Project Manager  
Phone: 0418 314 827

Contact: Glenn Moore – Senior Site Manager  
Phone: 0418 314 827



Site Supervisor: Gaven Chandler  
Phone: 0497 707 678  
Email: [gchandler@dservices.com.au](mailto:gchandler@dservices.com.au)

Contact: Mrs Debra Bannerman  
Phone: 0426 163 836  
Email: [dbannerman@dservices.com.au](mailto:dbannerman@dservices.com.au)

NSW Fire & Rescue  
Contact: Mr Daniel Agland – Station Officer  
Phone: 4934 7497  
Email: [daniel.agland@fire.nsw.gov.au](mailto:daniel.agland@fire.nsw.gov.au)

### 3.2 Emergency Services

|                       |                                    |                           |                                    |
|-----------------------|------------------------------------|---------------------------|------------------------------------|
| <b>Police Station</b> | Contact: Operator/<br>Duty Officer | Ph: 000<br>(02) 4934 0200 | 3 Carolina Pl,<br>Maitland 2320    |
| <b>Ambulance</b>      | Contact: Operator                  | Ph: 000<br>13 12 33       | 21 Gillies St,<br>Rutherford 2320  |
| <b>Fire Station</b>   | Contact: Operator/<br>Duty Officer | Ph: 000<br>(02) 4934 7497 | 1, Chelmsford Dr,<br>Metford, 2323 |

Local Police, Fire & Ambulance services will be contacted & made aware of the project & the changed traffic conditions in place prior to the commencement of the works.

Nearest Hospital:

The Maitland Hospital

PH: (02) 4939 2000

560 High St, Maitland, 2320

## 4. Traffic Management

### 4.1 General Outline

This project requires coordinated efforts from a number of agencies as follows:

- The Contractor will coordinate with relevant authorities where required i.e. NSW Police, Fire & Rescue and Roads and Maritime Services to ensure all resources required to manage traffic for the project are provided.
- The NSW Police, will be provided with a copy of the TMP if requested.
- Fire & Rescue NSW will be provided with a copy of the TMP if requested.

#### 4.2 Traffic Control Plans

The works within the site will not be impeding on the use of the road and does not require TCP's.

There will be minimal impact on road users, but will have a minor level of increased truck traffic in the area.

Stage 2 main works project scope includes works outside the site for services upgrades, in these instances both traffic control plans and a road occupancy application will be submitted for approval prior to starting works.

#### 4.3 Responsibilities

Multiplex have engaged Donnelly Services to develop a Traffic Management Plan for the construction of the New Maitland Hospital. A suitable qualified traffic control company will implement any TMP's required prior to any works commencing.

Officials from WorkSafe, Roads & Maritime Services NSW, Multiplex & the local Traffic Commander may inspect/request access to the Traffic Management Plan at any time.

#### 5. Staffing

The proposed traffic control arrangements does not require any traffic controllers, however the gates will be manned with security personnel to control passage of personnel on foot and in vehicles to and from site.

For the external services upgrades outside of the site a TCP detailing traffic control personnel will be submitted for approval.

#### 6. Site Vehicles

Vehicles directly involved in the project are to be parked on the site. All vehicles involved in construction activities will have flashing lights and reversing alarms.

All vehicles entering and exiting the construction carpark will be exempt from the above.

#### 7. Vehicle Movement Procedure

The number of daily truck movements will vary depending on the works being conducted on the specific day or timeframe in the construction programme.

Concrete pour days would expect an increase from in truck deliveries, however the delivery timing will be managed to ensure a smooth traffic flow and the utilisation of onsite truck waiting bays. It is suggested that the average for concrete pour days would be one truck every 5 – 10 minutes. There will be provisions for waiting bays onsite which will avoid trucks queuing or waiting on public roads. The stage 2

structure programme starts October 2019 and finishes July 2020, estimated average of 3 concrete pours per week.

On days outside of concrete pour days it is anticipated that there will be 1-2 truck deliveries per hour between the hours of 7am to 5pm Monday to Saturday.

### 7.1 Anticipated Truck Delivery Route

The predicted truck delivery routes will likely come from the south east end of New England Highway and eastern end of Raymond Terrace Road, entering site from the Metford road roundabout and the southern access road (once it has been built). See appendix 6 for a high level overview of expected truck delivery routes.

### 7.2 Site Operational Hours

1. Between 7am and 6pm, Monday to Fridays inclusive; and
2. Between 7am and 5pm, Saturdays.\*

Low noise activities carried out (eg hand held tools (including power tools), painting etc.) may be carried out at all times provided the activities do not cause offensive noise.

\*Subject to DA approval

\*The increase in site operational hours that are subject to the DA approval will not have an effect on the traffic management of the site. The proposal is to increase Saturday working hours only and will not have an effect as Saturdays are generally expected to have less workers onsite than during the week.

### 7.4 Main Works Timeframes

In accordance with Multiplex's main works programme the general stages of the project will go as follows

- Main Works total programme September 2019 to April 2021
  - Structure: September 2019 to July 2020
  - Façade: July 2021 to February 2021
  - Fitout: March 2020 to April 2021
  - Carpark: October 2019 to March 2021
- Anticipated peak construction time between March 2020 & July 2020

In addition to the above dates the following activities need to be considered for the duration of the project works, to be completed by early 2022.

- Construction Contingency
- Building Commissioning
- Operational Commissioning

## 8. Cyclist and Pedestrian Impacts

All works will be inside the site area with no access to cyclists or pedestrians. Trucks will be parked in designated areas off the road and footpaths. There will be no impact to cyclists and Pedestrians.

The construction of the in ground high voltage mains (external services upgrades), external to the site will require the submission of a separate traffic control plan, where the impact on public cyclists and pedestrians will be assessed.

## 9. Road Conditions

Metford Rd is a 2/lane – 2/way sealed road with a posted speed limit of 60km/h.

Fieldsend St 2/lane – 2/way sealed road with a posted speed limit of 50km/h.

Raymond Terrace Rd is a 2/lane - 2/way sealed road with a posted speed limit ranging from 60km/h to 80 km/h





## 11. Vehicle Movement Plans

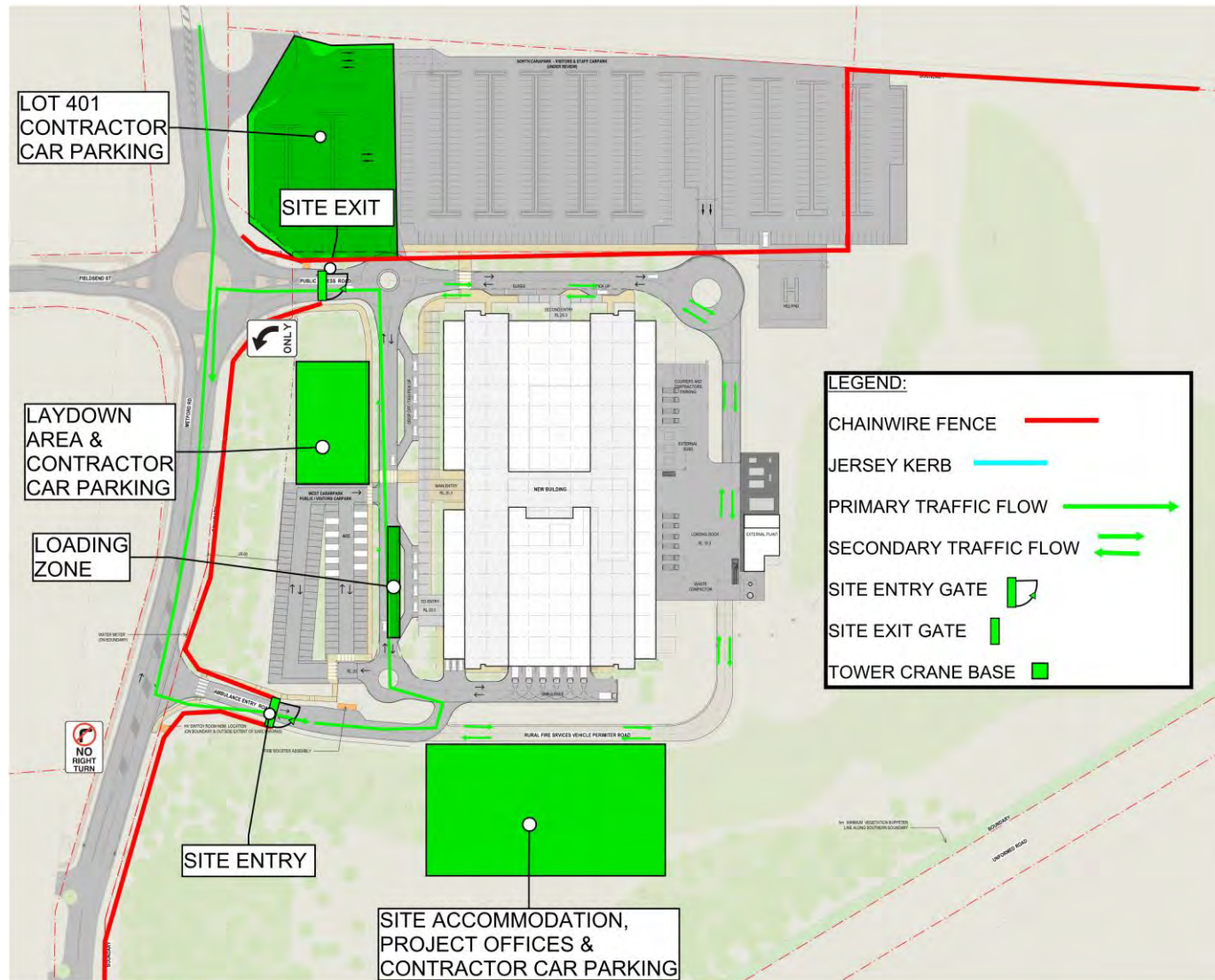
Appendix 2 - 5 details a Vehicle movement plan (VMP) with northern access road as the main entrance to site. Pending the construction of the southern access road (ambulance entry road) an alternative vehicle movement plan will be developed, the stage of construction will need to be assessed in the development of this VMP.

In similar fashion to the above a VMP will be developed for the inclusion of the Northern Carpark (Lot 401) and will need to suit the stage of construction that the project is at.



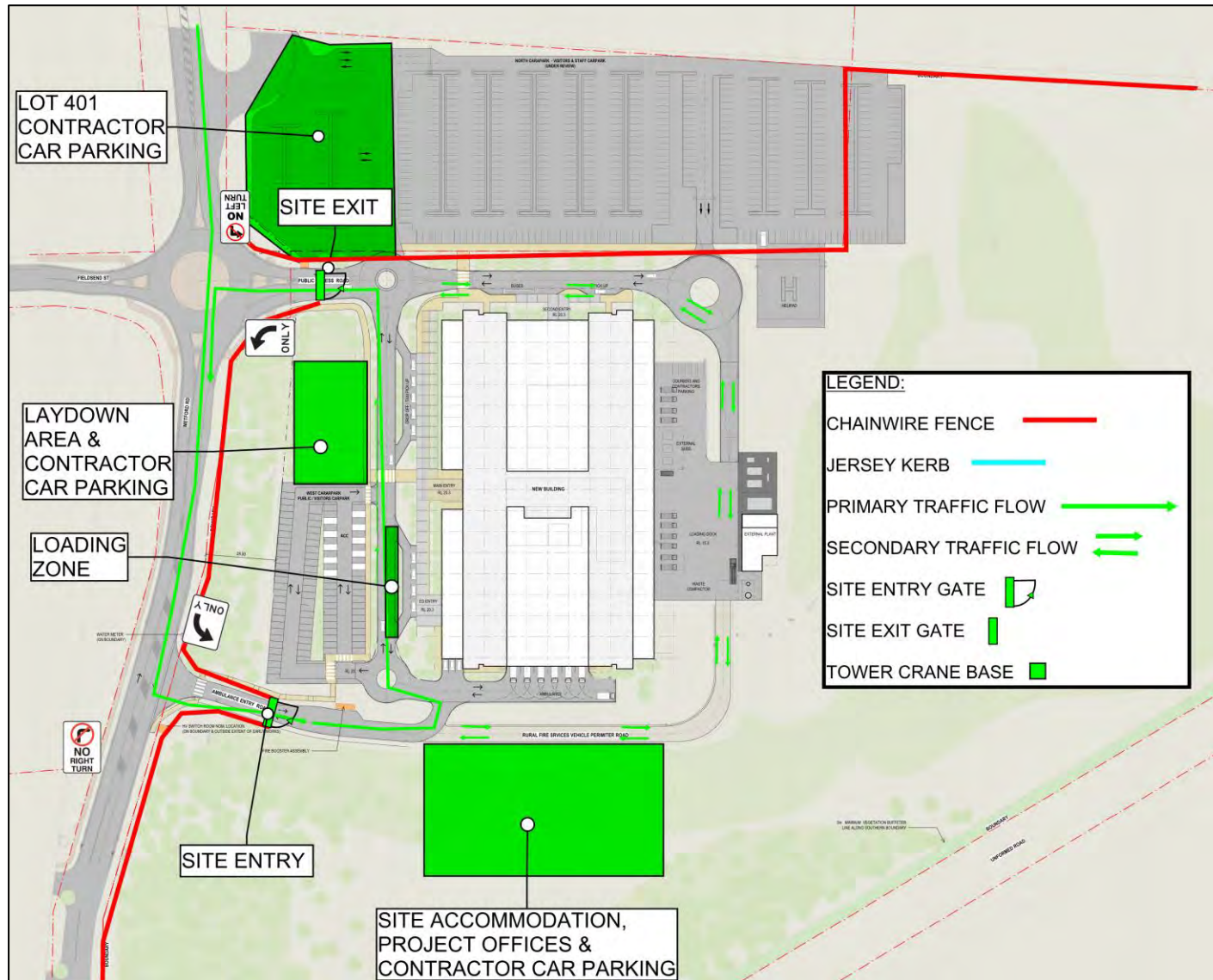


## APPENDIX 2 – VEHICLE MOVEMENT PLAN (NORTHERN ENTRY ROAD IN OPERATION)

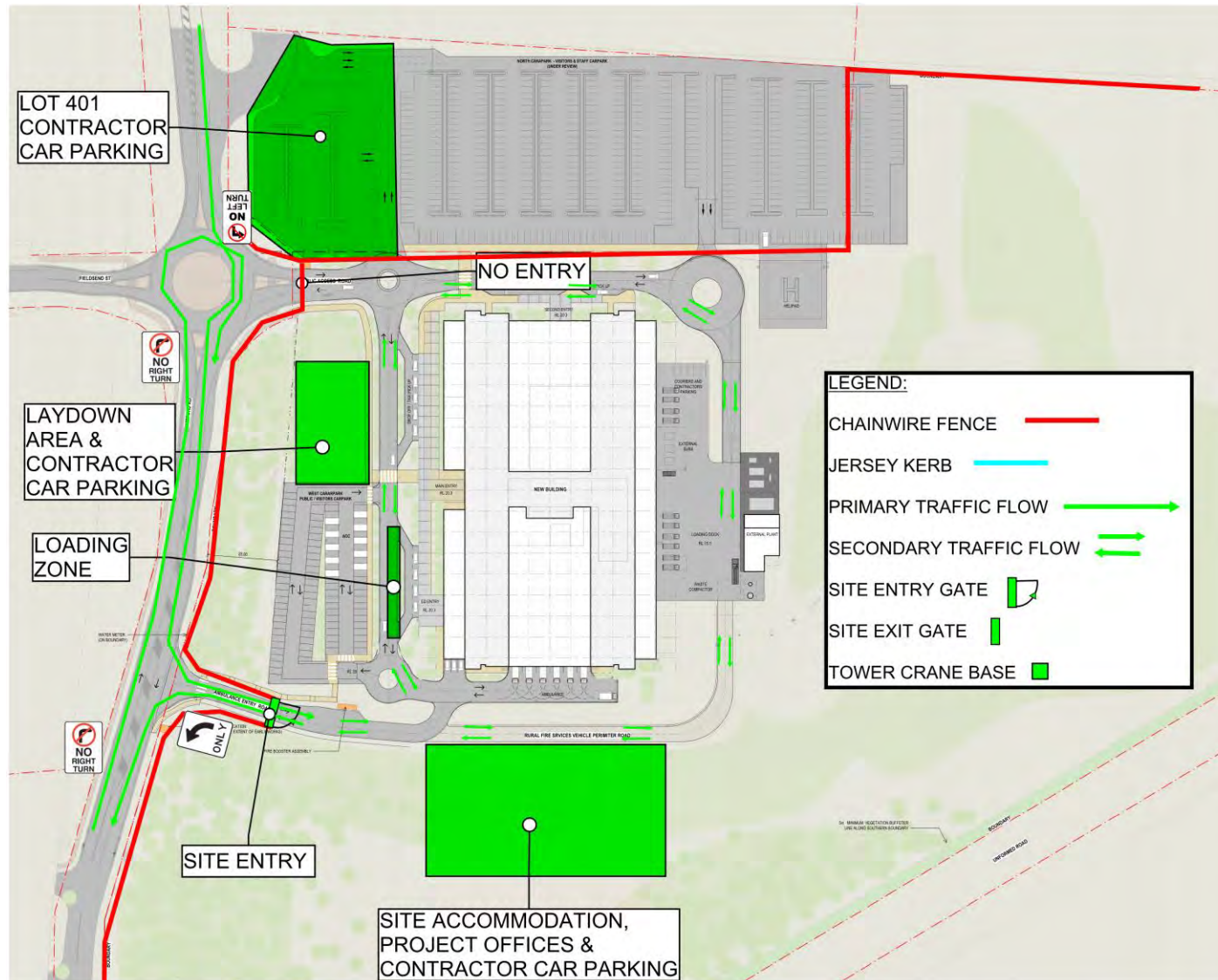




### APPENDIX 3 – VEHICLE MOVEMENT PLAN (NORTHERN & SOUTHERN ENTRY ROADS IN OPERATION)

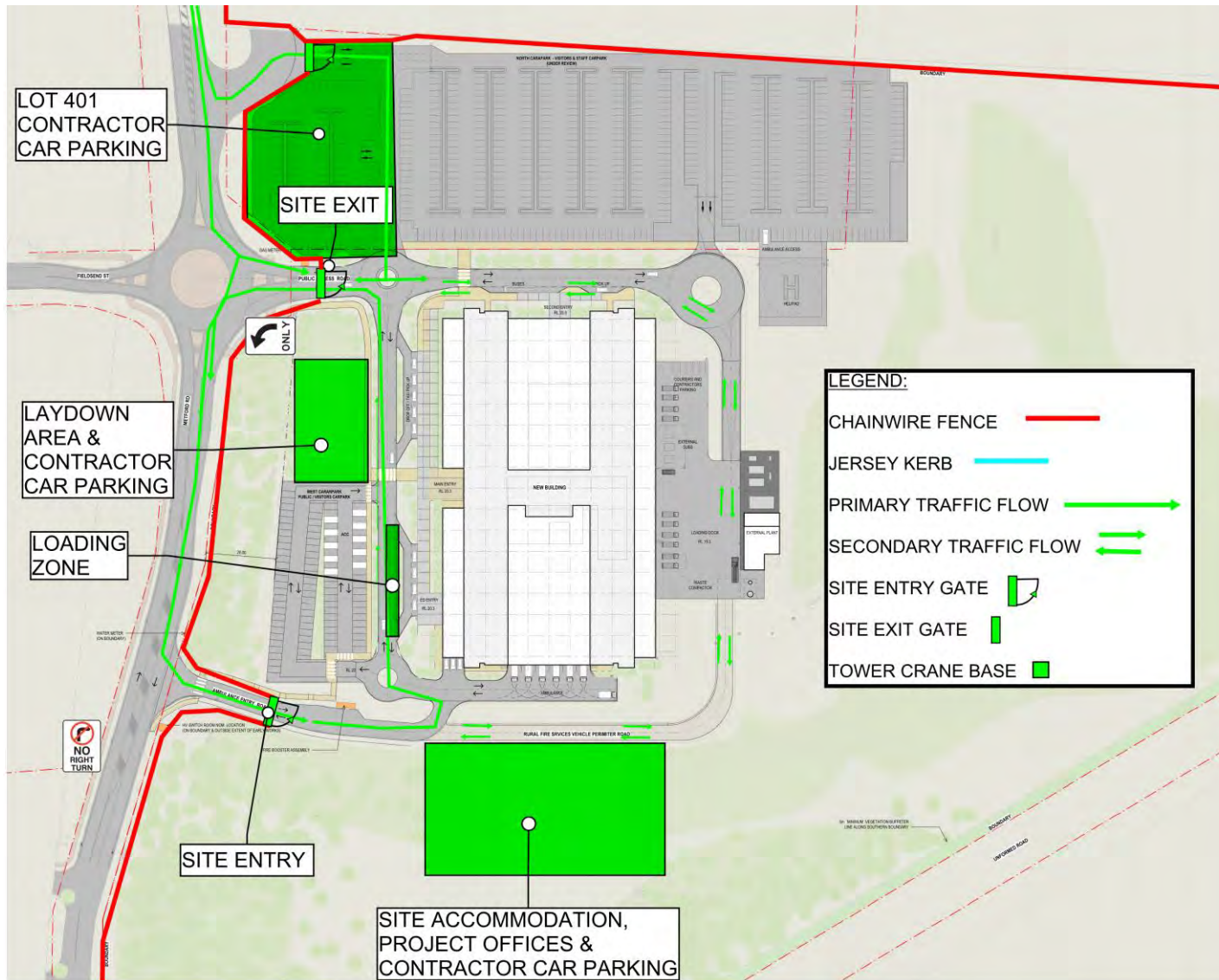


## APPENDIX 4 – VEHICLE MOVEMENT PLAN (SOUTHERN ENTRY ROAD IN OPERATION ONLY)

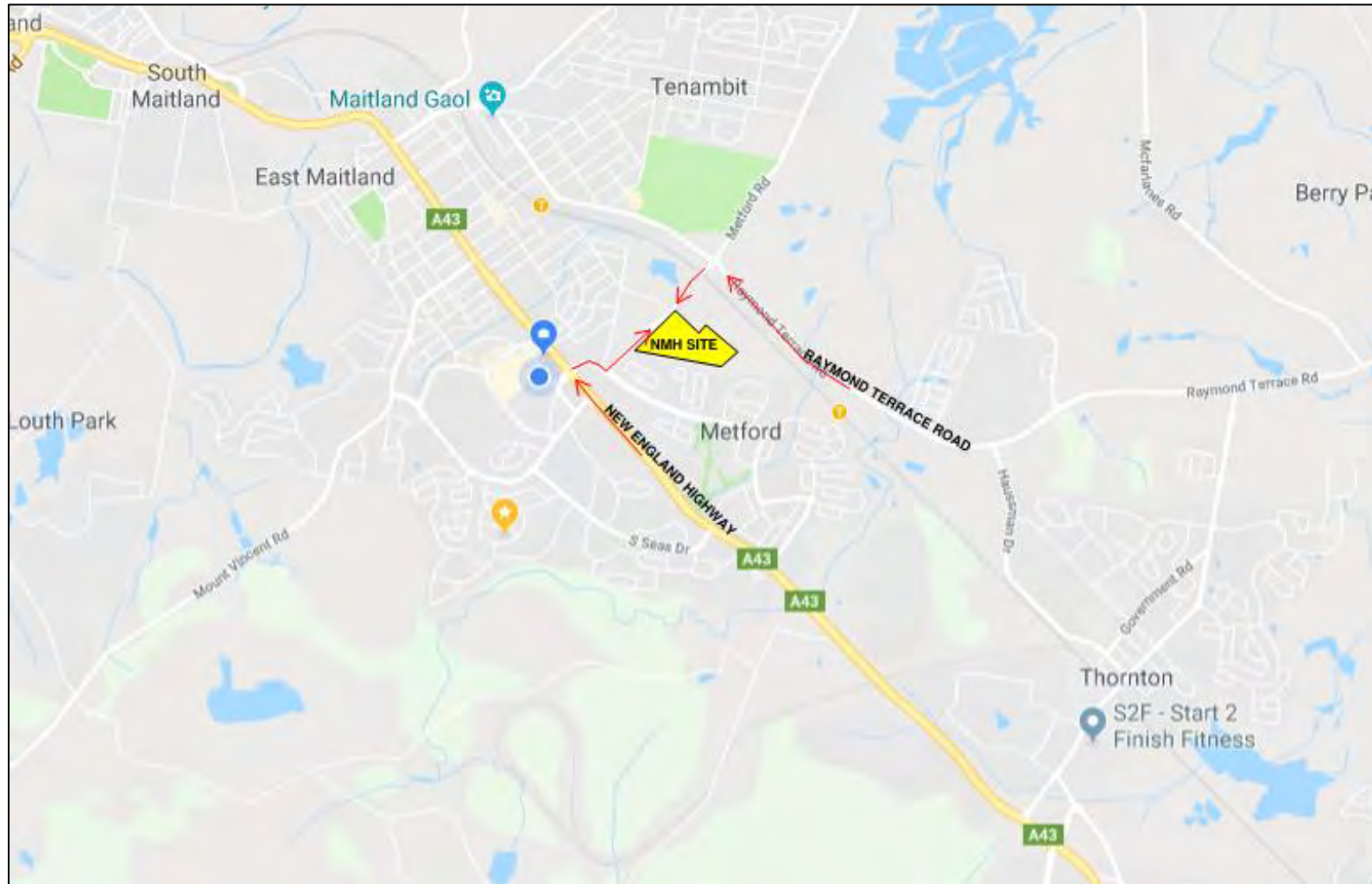




## APPENDIX 5 – VEHICLE MOVEMENT PLAN (LOT 401 NORTHERN CARPARK & OTHER ENTRANCES ENTRY IN OPERATION, ALL 3)



## APPENDIX 6 – ANTICIPATED TRUCK DELIVERY ROUTES





## Appendix G

---

### Parking Demand Study



# New Maitland Hospital Parking Demand Study

**Client //** Health Infrastructure  
**Office //** NSW  
**Reference //** N149421  
**Date //** 17/10/18


# New Maitland Hospital

## Parking Demand Study

Issue: A 17/10/18

Client: Health Infrastructure  
Reference: N149421  
GTA Consultants Office: NSW

### Quality Record

| Issue | Date     | Description | Prepared By                     | Checked By    | Approved By   | Signed  |
|-------|----------|-------------|---------------------------------|---------------|---------------|---|
| A     | 17/10/18 | Final       | Andrew Tierney, Ingrid Bissaker | Karen McNatty | Karen McNatty |  |

# Executive Summary

---

GTA Consultants (GTA) was commissioned by Health Infrastructure to undertake a car parking demand study to inform the Stage 2 Detailed Design of the State Significant Infrastructure application for the New Maitland Hospital (NMH) at Metford Road, Metford.

This report sets out an assessment of the anticipated car parking requirements for the NMH. This assessment includes a review of the current car parking demand profile of the existing Maitland Hospital, located at 560 High Street, Maitland. To ensure the proposed quantum of parking can accommodate the operations of the proposed NMH, this assessment has considered the parking demand of the NMH at the proposed year of opening, five year and ten-year horizon.

## Existing Maitland Hospital

The existing Maitland Hospital currently has 779 full time equivalent (FTE) staff and a total of 198 beds. The site is serviced by parking for up to 439 off-street parking spaces as well as available on-street parking. In addition, a Council-controlled car park accessed from High Street is used by visitors to the hospital.

An online staff questionnaire was distributed to all hospital staff in August 2018 to understand existing staff travel patterns. The results of the survey indicate that car travel was generally the main mode of travel to/from the hospital, with over 95 per cent of responses travelling by private vehicle (including car passengers and motorcyclists). The mode of travel for hospital staff was generally consistent with the Journey to Work data published by Transport for NSW's Transport Performance and Analytics from 2011 Census data.

GTA undertook parking occupancy surveys on 9 August 2018 within the available off-street formal and informal parking areas. The results indicate that off-street car parking demand in the nominated study area remain high across the day and that visitor parking demand exceeds capacity however some staff parking areas are currently underutilised. The peak demand for parking resulted in an overall car parking demand for formal and informal parking facilities of 103 per cent or 521 vehicles. This demand excludes any on-street parking demand. For the purpose of this assessment around 40 per cent of on-street parking has been assumed to be hospital related, this equates to an assumed demand of 74 spaces.

Combined off-street peak parking demand of 521 spaces (including demand for 436 formal spaces and 85 informal spaces) and on-street assumption of 74 spaces indicates that a total demand of 595 spaces is currently being generated by the existing Maitland Hospital.

Additional surveys were undertaken by GTA on Thursday 6 September 2018 to validate the findings.

## Parking Demand Model

A collation of attributes involving separate parking for staff, public/ visitors, and LHD controlled fleet vehicle parking has been used to model parking demand. The model attempts to analyse the total number of persons which utilise the site against the parking demand through weighting factors such as rates of attendance, vehicle occupancy, and parking space turnover.

Based on parameters agreed with Health Infrastructure, a demand of 561 spaces is calculated for the existing Maitland Hospital site. This calculated demand is within six percent of the observed demand of 595 spaces, allowing for minor fluctuations in assumptions, this is considered a suitable reflection of the existing demand.



Various other options for determining suitable car parking requirements for the proposed NMH were assessed, including a review of empirical data for other hospitals and the Development Control Plan requirements of Maitland City Council and other nearby Councils. However, the projected parking numbers were considered low when reviewed against the demand of the existing hospital.

### New Maitland Hospital

It is proposed that the NMH would consist of 339 beds. It is understood that the hospital is projected to employ around 893 FTE staff at the proposed year of opening, 1,106 FTE staff five years after opening and 1,162 FTE staff ten years after opening.

Based on parameters agreed with Health Infrastructure for the NMH, a demand of 775 spaces is calculated for the proposed NMH for the 10-year design horizon of 2031/2032. It is recommended that the parking supply for the proposed NMH includes a six percent increase to the calculated demand to ensure the variance in the parameters calculated and the current observed demand are accommodated. Therefore, it is recommended that an onsite parking supply of 822 spaces be provided. This includes 578 spaces for staff, 30 spaces for Visiting Medical Officers (VMO), 184 spaces for public (hospital users/visitors) and 30 spaces for LHD and Fleet vehicles. This excludes the provision of additional spaces for ambulance parking.

### Summary

It is recommended that an onsite parking supply of 822 spaces be provided for the proposed NMH, this excludes the provision of additional spaces for ambulance parking.

# Table of Contents

|   |           |
|---|-----------|
| <b>1. Introduction</b>                    | <b>1</b>  |
| 1.1 Background                            | 1         |
| 1.2 Purpose of this Report                | 1         |
| 1.3 References                            | 1         |
| <b>2. Existing Maitland Hospital</b>      | <b>2</b>  |
| 2.1 Current Hospital Operations           | 2         |
| 2.2 Site Context                          | 2         |
| 2.3 Surrounding Road Network              | 3         |
| 2.4 Car Parking                           | 4         |
| 2.5 Public Transport                      | 8         |
| 2.6 Travel Patterns                       | 8         |
| 2.7 Current Parking Demand                | 13        |
| <b>3. New Maitland Hospital</b>           | <b>17</b> |
| 3.1 Description of Proposed Operations    | 17        |
| 3.2 Site Context                          | 17        |
| 3.3 Surrounding Road Network              | 18        |
| 3.4 Public transport                      | 20        |
| 3.5 Pedestrian and Bicycle Infrastructure | 21        |
| 3.6 Travel Patterns                       | 21        |
| 3.7 Proposed Car Parking Demand           | 22        |
| <b>4. Parking Demand Recommendation</b>   | <b>28</b> |
| 4.1 Parking Demand Comparison             | 28        |
| 4.2 Car Parking Requirements              | 28        |
| <b>5. Conclusion</b>                      | <b>29</b> |

## Appendices

- A: Staff Survey Comments

## Figures

|             |   |   |
|-------------|---|---|
| Figure 2.1: | Existing Maitland site  | 3 |
| Figure 2.2: | Off-street parking proximate to the existing site   | 5 |
| Figure 2.3: | Informal off-street parking adjacent to the existing Maitland Hospital                              | 6 |
| Figure 2.4: | Pedestrian connection between Maitland Hospital car park 3 and informal parking area (facing south) | 7 |
| Figure 2.5: | Informal parking area adjacent to Council-controlled car park (facing north)                        | 7 |
| Figure 2.6: | Hunter Valley train and bus network – Maitland/ Rutherford  | 8 |

|              |  |    |
|--------------|--|----|
| Figure 2.7:  | Travel Zone containing Maitland Hospital                     | 9  |
| Figure 2.8:  | Visitor Survey – Maitland Hospital mode of transportation    | 10 |
| Figure 2.9:  | Visitor Survey – Average duration of stay                    | 10 |
| Figure 2.10: | Staff Survey - Staff origins                                 | 11 |
| Figure 2.11: | Staff survey – Typical travel time                           | 12 |
| Figure 2.12: | Staff Survey – staff parking location                        | 12 |
| Figure 2.13: | Weekday parking occupancy <sup>[1]</sup>                     | 13 |
| Figure 3.1:  | Proposed NMH   | 17 |
| Figure 3.2:  | Subject site and its environs                                | 18 |
| Figure 3.3:  | Metford Road (looking south-west)                            | 19 |
| Figure 3.4:  | Fieldsend Street (looking north-west)                        | 19 |
| Figure 3.5:  | Hunter Valley train and bus network – Metford/ East Maitland | 20 |
| Figure 3.6:  | Maitland bike network  | 21 |
| Figure 3.7:  | Travel Zones   | 22 |
| Figure 3.8:  | JTW travel modes by workers to the selected Travel Zones     | 22 |

## Tables

|             |  |    |
|-------------|--|----|
| Table 2.1:  | Surrounding road network                                       | 4  |
| Table 2.2:  | Existing on-site parking supply and restrictions               | 5  |
| Table 2.3:  | On-street parking (within 500 metres of the site)              | 7  |
| Table 2.4:  | TW travel modes by workers within the Travel Zone              | 9  |
| Table 2.5:  | Mode of travel of staff  | 11 |
| Table 2.6:  | Staff parking methods  | 12 |
| Table 2.7:  | Summary of peak public parking demand surveys                  | 14 |
| Table 2.8:  | On-street parking supply                                       | 15 |
| Table 2.9:  | Observed demand summary  | 15 |
| Table 2.10: | Summary of peak public parking demand surveys                  | 16 |
| Table 3.1:  | Public transport routes and frequencies                        | 20 |
| Table 3.2:  | Health Infrastructure Parameters – Demand Assumptions (staff)  | 24 |
| Table 3.3:  | Health Infrastructure Parameters – Demand Assumptions (public) | 25 |
| Table 3.4:  | DCP 2011 car parking requirements                              | 26 |
| Table 3.5:  | Hospital car parking requirements comparison                   | 27 |
| Table 3.6:  | Hospital staff and bed growth                                  | 27 |
| Table 4.1:  | Parking demand comparison                                      | 28 |
| Table 4.2:  | Recommended car parking demand (peak)                          | 28 |

# 1. Introduction

## 1.1 Background

The existing Maitland Hospital will be redeveloped at a new site at Metford Road, Metford. The New Maitland Hospital (NMH) will cater for a range of health services to residents of the Hunter Valley region, it is expected that the existing Kurri Kurri Hospital will continue to operate at a similar capacity.

GTA Consultants (GTA) prepared a transport impact assessment in May 2018<sup>1</sup> to address the potential transport implications of the Stage 1 Concept Design and site preparation works for the proposed NMH which was submitted as part of the Stage Significant Infrastructure application.

Subsequently, Health Infrastructure has commissioned GTA in August 2018 to prepare this parking demand study to inform the Stage 2 Detailed Design.

## 1.2 Purpose of this Report

This report sets out an assessment of the anticipated car parking requirements for the proposed NMH. This assessment includes a review of the current car parking demand profile of the existing Maitland Hospital, located at 560 High Street, Maitland. To ensure the proposed quantum of parking can accommodate the operations of the proposed NMH, this assessment has considered the parking demand of the NMH at the proposed year of opening, five year and ten-year horizon.

As part of the assessment, the following matters have been considered:

- i Existing parking conditions surrounding the site and current Maitland Hospital
- ii Existing parking demand profile of the current Maitland Hospital
- iii Existing visitor and staff travel patterns to/ from the current Maitland Hospital
- iv The traffic generating characteristics of the proposed NMH
- v Various options for determining suitable car parking requirements.

## 1.3 References

In preparing this report, reference has been made to the following:

- o An inspection of the site and its surrounds
- o Car parking supply and demand surveys undertaken by GTA
- o Car Park Demand Assessment Template, Health Infrastructure, 23 July 2018
- o On-site interview surveys with hospital visitors
- o Roads and Maritime Services (Roads and Maritime) Guide to Traffic Generation Developments 2002
- o Maitland City Council's (Council) Development Control Plan (DCP) 2011
- o Other documents and data as referenced in this report.

<sup>1</sup> New Maitland Hospital - State Significant Infrastructure - Transport Impact Assessment, GTA Consultants, 9 May 2018



## 2. Existing Maitland Hospital

An assessment of the current car parking demand profile of the existing Maitland Hospital is outlined below.

### 2.1 Current Hospital Operations

The existing Maitland Hospital is located at 560 High Street, Maitland. The hospital is part of the Hunter New England Local Health District (LHD) and serves the cities and towns of Maitland, Cessnock, Kurri Kurri, Singleton, Muswellbrook, Dungog and Raymond Terrace.

The hospital currently has 779 full time equivalent (FTE) staff and a total of 198 beds. The site is serviced by parking for up to 439 off-street parking spaces as well as available on-street parking, outlined further in section 2.4.

The existing Maitland Hospital services are at capacity, resulting in a high percentage of patients attending or being referred to hospitals in Newcastle or Sydney to meet demand. There are limited ambulatory care services to assist in reducing hospital admissions and length of stay. As such, the existing Maitland Hospital facility cannot support the growth and change in the type of services needed to provide contemporary health care to the Hunter Valley Region.

### 2.2 Site Context

The existing Maitland Hospital has a site area of around 35,000 square metres and is bound by High Street to the west and south, Mount Pleasant Street to the north and an open flood plain to the east. The site currently has a land use classification of SP2 infrastructure.

The surrounding properties generally include small businesses and low-density residential housing.

The location of the subject site and its surrounding environs is shown in Figure 2.1.

Figure 2.1: Existing Maitland site



Source: Nearthmap, accessed 21 August 2018.

## 2.3 Surrounding Road Network

### 2.3.1 Road Hierarchy

Roads are classified according to the functions they perform. The main purpose of defining a road's functional class is to provide a basis for establishing the policies which guide the management of the road according to their intended service or qualities.

In terms of functional road classification, State roads are strategically important as they form the primary network used for the movement of people and goods between regions within Sydney, and throughout the State. Roads and Maritime is responsible for funding, prioritising and carrying out works on State roads. State roads generally include roads classified as freeways, state highways, and main roads under the 1993 Roads Act, and the regulation to manage the road system is stated in the Australian Road Rules (2014).

Roads and Maritime defines four levels in a typical functional road hierarchy, ranking from high mobility and low accessibility, to high accessibility and low mobility. These road classes are:

**Arterial Roads** – Controlled by Roads and Maritime, typically no limit in flow and designed to carry vehicles long distance between regional centres.

**Sub-Arterial Roads** – Managed by either Council or Roads and Maritime under a joint agreement. Typically, their operating capacity ranges between 10,000 and 20,000 vehicles per day, and their

purpose is to carry through traffic between specific areas in a sub region or provide connectivity from arterial road routes (regional links).

**Collector Roads** – Provide connectivity between local sites and the sub-arterial road network, and typically carry between 2,000 and 10,000 vehicles per day.

**Local Roads** – Provide direct access to properties and the collector road system and typically carry between 500 and 4,000 vehicles per day.

## 2.3.2 Road Network

A description of the surrounding road network is summarised in Table 2.1.

**Table 2.1: Surrounding road network**

| Road Name             | Functional Class                   | Authority                   | Description  |
|-----------------------|------------------------------------|-----------------------------|--|
| High Street           | Collector Road / Sub-Arterial Road | Council                     | Two-way, two lane road aligned in a north-south direction along the frontage of the site, before curving to an east-west direction to the south of the site. Connects to the New England Highway west of the site. |
| Mount Pleasant Street | Collector Road                     | Council                     | Two-way, two-lane road aligned in an east-west direction proximate to the site. The road connects to the New England Highway in the west.  |
| New England Highway   | Arterial Road                      | Roads and Maritime Services | Two-way, four-lane national highway aligned in a north-south direction proximate to the site.  |
| Bonar Street          | Local Road                         | Council                     | Two-way, two-lane road aligned east-west proximate to high street. Provides access to significant visitor and staff parking.   |

## 2.4 Car Parking

### 2.4.1 Off-Street

GTA compiled an inventory of formal off-street car parking available for staff and visitors, with a breakdown provided in Table 2.2 and illustrated in Figure 2.2.

It is noted that the car parking facilities were located both on-site, with access provided from Mount Pleasant Street and High Street, and off-site, with access provided from Bonar Street. This includes three short term set-down parking spaces which are used to service public access to the Emergency Department (ED).

The 192 spaces available in carpark 1 comprising of 172 unrestricted all-day parking, 10 unrestricted all-day accessible parking, and 10 2-hour parking spaces. Carpark 1 is utilised by a combination of staff and public users. An additional 63 spaces are available to staff within car park 1A, which are restricted to staff and remain unavailable until 9:30am to accommodate the overlap in car parking demand during staff shift changeovers. Once carpark 1 is full, hospital parking for public users (patients and visitors) overflows into the Council-controlled car park (car park 5) and is accessed via High Street.



**Table 2.2: Existing on-site parking supply and restrictions**

| Car Park                         | Description                                 | Restrictions   | Supply (no. of spaces) |
|----------------------------------|---|--|------------------------|
| 1                                | Staff and Visitor                           | All day paid parking                                     | 172                    |
|                                  |   | 2 hour paid parking                                      | 10                     |
|                                  |   | All day accessible parking                               | 10                     |
| 1A                               | Staff Only<br>Shift Changeover Parking      | Restricted access closed until<br>9:30am<br>Paid Parking | 63                     |
| 2                                | Staff Only                                  | No Restrictions  | 56                     |
| 3                                | Staff and Fleet Vehicles                    | No Restrictions  | 110                    |
| 4                                | VMO/ Special Use                            | No Restrictions  | 18                     |
| <b>Subtotal hospital parking</b> |   |  | <b>439</b>             |
| 5                                | Visitor Only<br>Council Controlled Car Park | 1/2hr, 2hr, 3hr  | 66                     |
| <b>Total</b>                     |   |  | <b>505</b>             |

The following spaces are also provided in addition to the parking supply provided in Table 2.2:

- Main Entrance drop off – three P15 spaces (includes one accessible space)
- Five Ambulance parking spaces.

**Figure 2.2: Off-street parking proximate to the existing site**



Source: Nearmap, accessed 21 August 2018.



## 2.4.2 Off-street Informal Parking

In addition to the formal supply of parking available for use by staff and visitors of the hospital, GTA observed additional demand for informal off-street parking in two locations near the site, illustrated in Figure 2.3, as follows:

- Along the unsealed road located to the east of the site, accessed via Mount Pleasant Street
- Adjacent to the Council-controlled car park (car park 5), accessed via High Street.

A pedestrian connection exists between car park 3 and the southern section of the unsealed road, shown in Figure 2.4. It is therefore assumed that the observed demand for parking at the southern part of the unsealed road is predominately generated by staff.

The informal off-street parking adjacent to the Council-controlled car park is demonstrated Figure 2.5 and was observed to be predominately used by visitors.

**Figure 2.3: Informal off-street parking adjacent to the existing Maitland Hospital**



Source: Nearmap, accessed 21 August 2018.

**Figure 2.4: Pedestrian connection between Maitland Hospital car park 3 and informal parking area (facing south)**



**Figure 2.5: Informal parking area adjacent to Council-controlled car park (facing north)**



### 2.4.3 On-Street

GTA reviewed and compiled an inventory of publicly available on-street car parking within around 500 metres of the site. On-street parking likely to be utilised by the existing hospital is summarised in Table 2.3 and illustrated in Figure 2.3.

**Table 2.3: On-street parking (within 500 metres of the site)**

| Street                | Parking Restriction              | Number of available spaces |
|-----------------------|----------------------------------|----------------------------|
| Mount Pleasant Street | Short-term Parking (2hr)         | 24                         |
|                       | Accessible Parking               | 1                          |
| Adams Street          | Unrestricted Parking             | 35                         |
| High Street           | Unrestricted Parking             | 5                          |
|                       | Short-term Parking (P10 Parking) | 2                          |
| Ledsam Street         | Unrestricted Parking             | 18                         |
| Regent Street         | Unrestricted Parking             | 100                        |
| TOTAL                 | -                                | 185                        |

As detailed in Table 2.3, there are approximately 158 unrestricted parking spaces, 26 short term parking spaces, and one accessible space available on-street near the site.

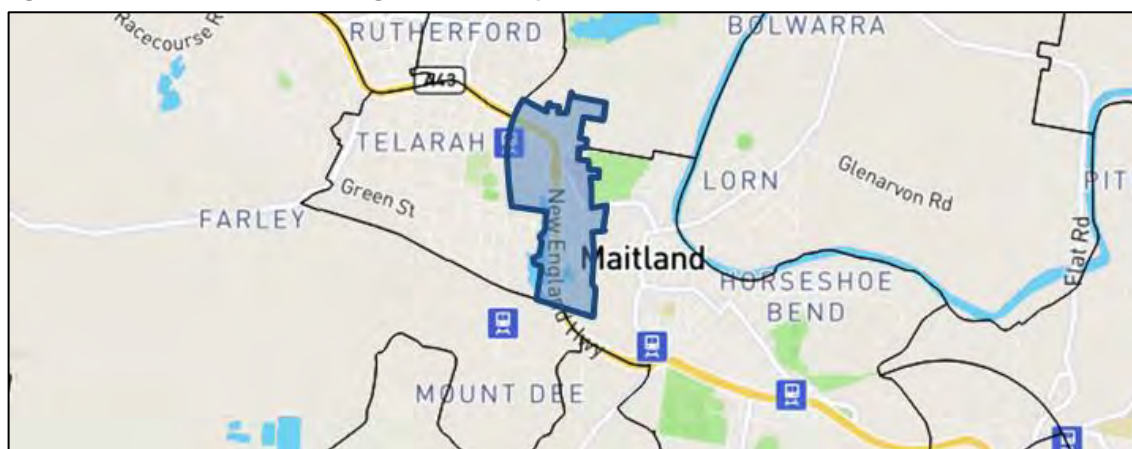
During GTA's site visit, demand for on-street car parking along Ledsam Street and Regent Street was observed to be high. Vehicular access to Adams Street and Mount Pleasant Street was restricted to accommodate construction works associated with the Mount Pleasant Street road upgrade.

An additional site visit was undertaken once road works on Mount Pleasant Street were completed and on street parking available, this identified that the unrestricted parking on Adams Street was completely occupied and that regular parking turnover was occurring on Mount Pleasant Road with three to five parking spaces generally available.





**Figure 2.7: Travel Zone containing Maitland Hospital**



Base map source: <https://www.transport.nsw.gov.au/data-and-research/forecasts-and-projections/travel-zone-explorer>, accessed 23 August 2018.

The JTW data indicates that a total of 1,268 persons work within the selected Travel Zone.

Table 2.4 shows the distribution of travel modes by the workers employed in the Travel Zone, which indicates that of the people that travel to work around 93 percent of workers travel to the area by private vehicle as a driver or passenger.

**Table 2.4: TW travel modes by workers within the Travel Zone**

| Travel Mode       | Mode Share Split (%) <sup>[1]</sup> |    |
|-------------------|-------------------------------------|----|
| Vehicle Driver    | 88                                  | 93 |
| Vehicle Passenger | 5                                   |    |
| Train             | 2                                   |    |
| Bus               | 0                                   |    |
| Waked             | 1                                   |    |
| Other             | 1                                   |    |
| Not Stated        | 2                                   |    |

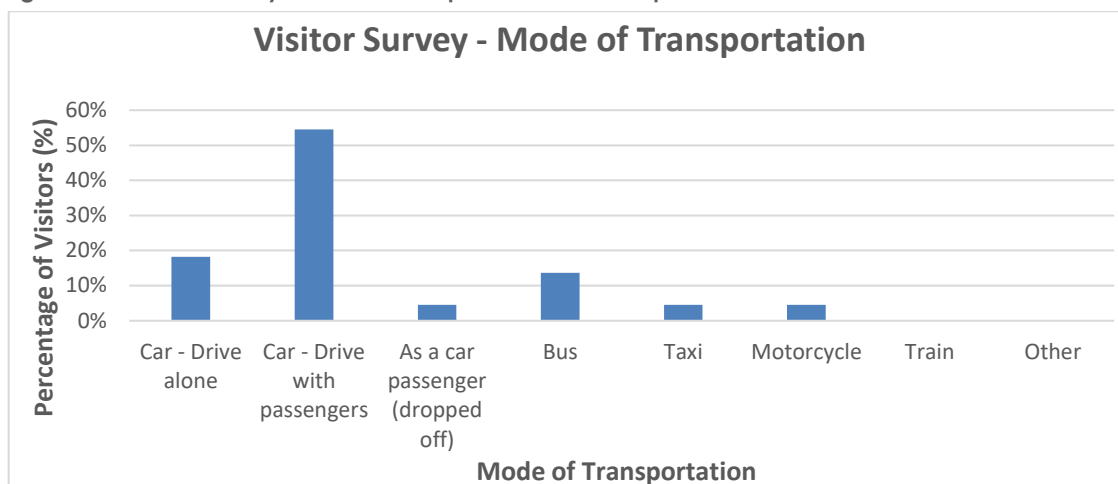
[1] Excludes those who did not travel to work

## 2.6.2 Visitor Surveys

Visitor surveys were undertaken during typical visiting times to understand current visitor travel patterns to/ from the hospital. GTA staff were located on High Street between car park 5 (Council controlled car park) and car park 1 (combined staff visitor car park off Bonar Street) on Thursday, 9 August 2018. It was difficult to obtain a representative number of surveys, with a total of 22 visitor responses received during the weekday survey, a summary of mode of transportation shown in Figure 2.8.



Figure 2.8: Visitor Survey – Maitland Hospital mode of transportation



As shown in Figure 2.8, respondents predominately arrived by car and no respondents were recorded for train as a mode of transport.

The visitor surveys indicated that 37 per cent of visitors surveyed stayed at the hospital for a duration between one and two hours, with 53 per cent of those surveyed staying at the hospital between the range one and three hours. 21 per cent of those surveyed identified as having a duration of stay longer than three hours. A summary of responses is identified in Figure 2.9.

Figure 2.9: Visitor Survey – Average duration of stay



### 2.6.3 Staff Surveys

An online staff questionnaire was distributed to all hospital staff in August 2018 to understand existing staff travel patterns, and a total of 74 responses were received. The results of the survey indicate that car travel was generally the main mode of travel to/from the hospital, with over 95 per cent of responses travelling by private vehicle (including car passengers and motorcyclists)

with an average vehicle occupancy of 1.1 persons per vehicle according to those surveyed. It is noted that this value excluded people who travelled by car for a portion of the trip to/from the hospital, such as parking near a railway station or other public transport facilities as part of their commute.

The mode of travel for hospital staff was generally consistent with the 2011 JTW data noted in section 2.6.1. The survey responses relating to current staff modes of transportation is summarised in Table 2.5.

**Table 2.5: Mode of travel of staff**

| Mode of transport              | Responses (%) |
|--------------------------------|---------------|
| Car – As a driver              | 91.9          |
| Car – As a passenger           | 1.35          |
| Motorcycle / scooter           | 2.7           |
| Bus                            | 0             |
| Bicycle                        | 0             |
| Walk                           | 1.35          |
| Train                          | 1.35          |
| Taxi                           | 0             |
| Split - Car / Public Transport | 1.35          |

It was found that the two main reasons for staff selection of these modes of transportation to/from the hospital was due to:

- Travel distance
- Convenience.

Based on survey responses, 54 per cent of participants have a duration of travel to/from the hospital which is greater than 20 minutes, typically in the morning peak between 7am and 9am (65 per cent of those surveyed) and evening peak between 4pm and 6pm (60 per cent of those surveyed). It was found that 50 per cent of responses identified as originating from the postcodes of 2320, 2323, and 2321.

A summary of the origins of staff travel to/from the hospital is shown in Figure 2.10, and typical travel time is shown in Figure 2.11.

**Figure 2.10: Staff Survey - Staff origins**

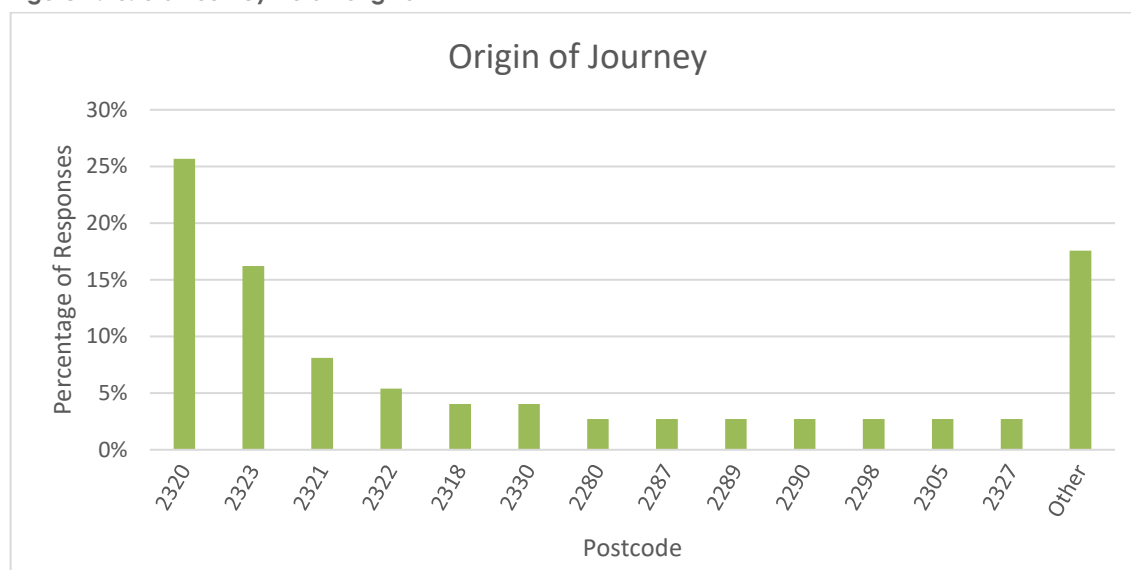
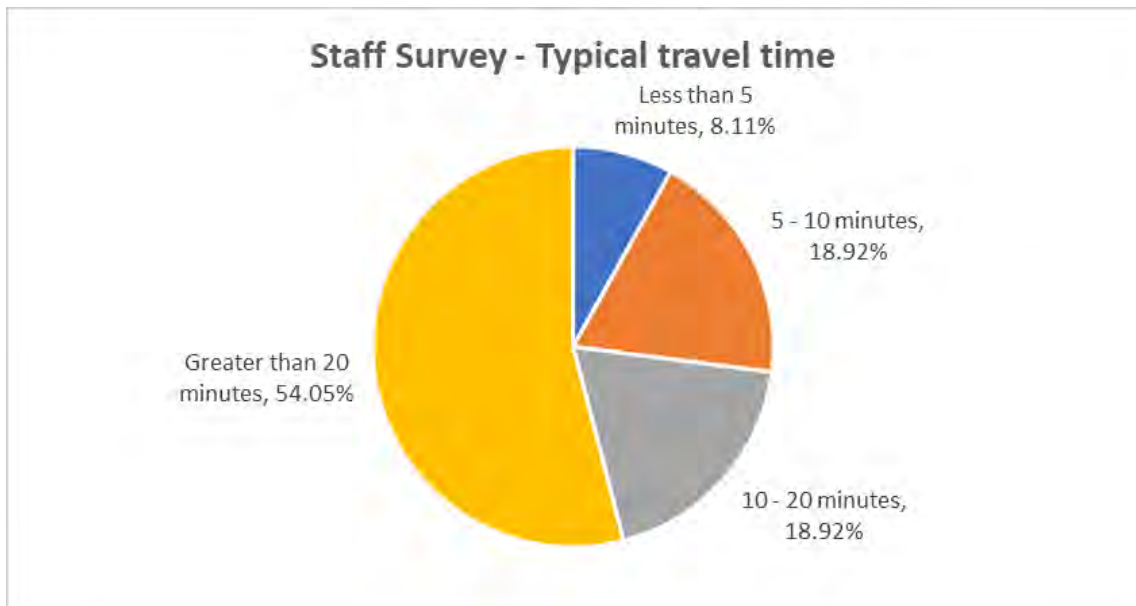


Figure 2.11: Staff survey – Typical travel time

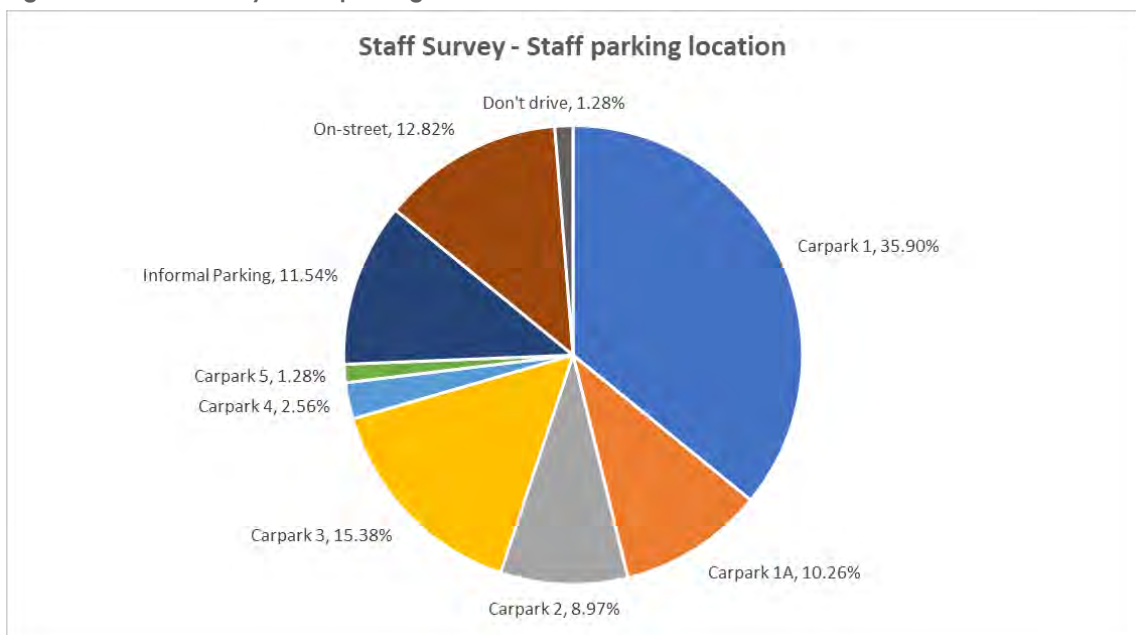


The survey results indicated high car usage for staff, a summary of typical staff parking locations is outlined in Table 2.6 and locations identified in Figure 2.12.

Table 2.6: Staff parking methods

| Description                     | Staff percentage (%) |
|---------------------------------|----------------------|
| All day staff parking (formal)  | 73                   |
| Informal parking (east of site) | 11.5                 |
| Surrounding streets             | 13                   |
| Council carpark                 | 1.25                 |
| Non-driving staff               | 1.25                 |

Figure 2.12: Staff Survey – staff parking location



The survey found that staff found that 35 per cent of the issues raised related to having a suitable number of parking spaces for staff, and 18 per cent of the issues raised related to the provision of better facilities for these car parks such as lighting, security and safety, and protected walkways.

Around 75 per cent of staff surveys work a day shift starting between 7am – 9am, with around 60 per cent finishing between 4pm – 6pm. Around 25 per cent start that their working hours are variable with rotating shift work and out of hours on call.

A summary of specific staff feedback is provided in Appendix B.

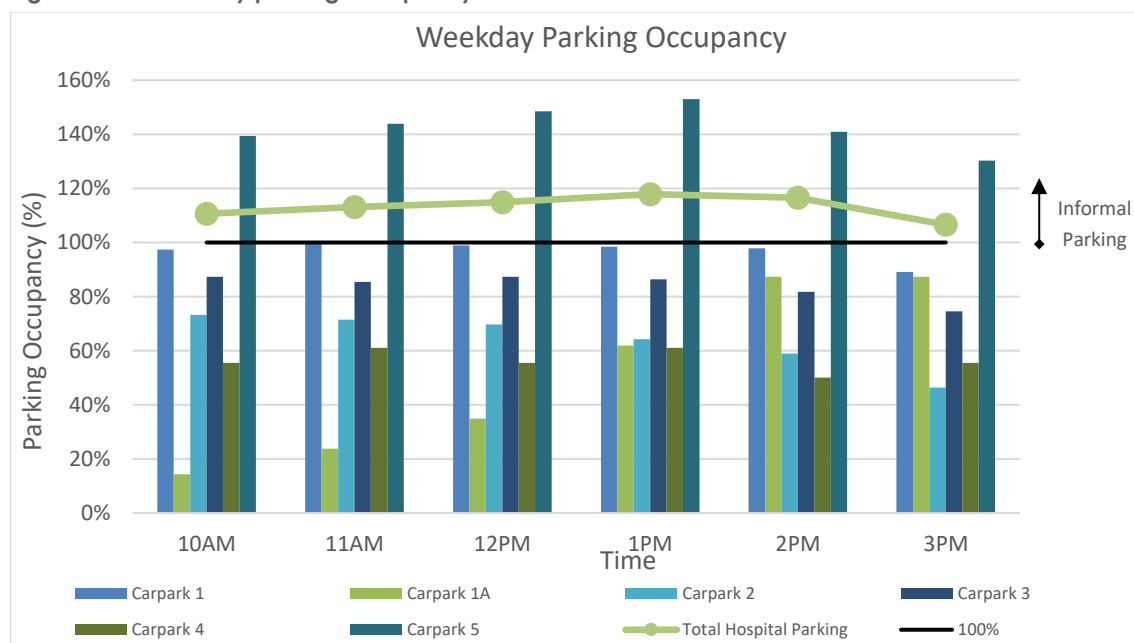
## 2.7 Current Parking Demand

GTA undertook a parking occupancy survey within the available off-street formal and informal parking areas, respectively identified in Section 2.4.1 and Section 2.4.2, to help understand the current demand for parking at the hospital. The survey was undertaken on Thursday, 9 August 2018, between 10am and 3pm. Additional surveys were also undertaken on Thursday 6 September 2018 to validate the demand.

It was assumed that all demand for parking within the Council controlled car park (car park 5) and adjacent informal parking area is related to the Hospital.

The car park demand profile of each car park is illustrated in Figure 2.13, noting car park 5 includes the demand for the adjacent informal parking area. The total hospital parking includes all demand for parking, including both informal parking areas and is shown relative to the hospital parking supply of 439 spaces.

**Figure 2.13: Weekday parking occupancy** <sup>[1]</sup>



[1] Informal Parking east of the site is included in total hospital parking

The results of the surveys are further summarised in Table 2.7. The results are reported according to the average demand, peak demand per car park and overall peak demand for parking at any one time.



**Table 2.7: Summary of peak public parking demand surveys**

| Car Park                            | Description                            | Restrictions                  | Supply<br>(No. of<br>spaces) | Peak hour<br>Demand<br>(No. of<br>Spaces) | Parking Occupancy Rate |                     |                            |
|-------------------------------------|--|-------------------------------|------------------------------|---|------------------------|---------------------|----------------------------|
|                                     |  |                               |                              |   | Average                | Car Park<br>Peak    | Common<br>Peak<br>(1:00pm) |
| 1                                   | Staff and<br>Visitor                   | All day Paid                  | 172                          | 170                                       | 97%                    | 100%                | 98%                        |
|                                     |  | 2hr, Paid                     | 10                           | 10  |                        |                     |                            |
|                                     | Accessible                             | All day Paid                  | 10                           | 9   |                        |                     |                            |
| 1A                                  | Staff Only                             | All day after<br>9:30am, Paid | 63                           | 39  | 52%                    | 87%                 | 62%                        |
| 2                                   | Staff Only                             | No<br>Restrictions            | 56                           | 36  | 64%                    | 73%                 | 64%                        |
| 3                                   | Staff Only                             |                               | 97                           | 87  | 88%                    | 93%                 | 90%                        |
|                                     | Fleet Vehicles                         |                               | 13                           | 8   | 55%                    | 69%                 | 62%                        |
| 4                                   | VMO<br>Vehicles                        |                               | 7                            | 5   | 57%                    | 86%                 | 71%                        |
|                                     | Staff Only                             |                               | 11                           | 6   | 56%                    | 73%                 | 55%                        |
| Official Hospital Parking Sub Total |  |                               | 439                          | 370                                       | 81%                    | 85%                 | 84%                        |
| 5<br>Council<br>Car Park            | Visitor (excl.<br>informal<br>Parking) | ½ hr, 2hr, 3hr                | 66                           | 66  | 99% <sup>[2]</sup>     | 100% <sup>[2]</sup> | 100% <sup>[2]</sup>        |
|                                     | Informal<br>overflow<br>parking        | Unrestricted<br>parking       | -                            | 35  | (29) <sup>[1]</sup>    | (35) <sup>[1]</sup> | (35) <sup>[1]</sup>        |
| East of<br>Site                     | Informal -<br>Assumed<br>Staff         | Unrestricted<br>parking       | -                            | 50  | (50) <sup>[1]</sup>    | (54) <sup>[1]</sup> | (50) <sup>[1]</sup>        |
| Overall Parking                     |  |                               | 505                          | 521                                       | 84% <sup>[2]</sup>     | 87% <sup>[2]</sup>  | 86% <sup>[2]</sup>         |

[1] Total vehicles provided. Formal supply count unavailable.

[2] Occupancy rate excluding overflow.

Figure 2.13 indicates that off-street car parking demands in the nominated study area remain high across the day. The peak demand for parking occurred at 1:00pm with an overall car parking demand for formal parking facilities of 87 per cent or 436 vehicles when excluding informal parking, or 103 per cent or 521 vehicles when including informal parking. This demand excludes any on-street parking demand.

The average demand for parking across the entire survey period was 84 per cent or 422 vehicles when excluding informal parking, or 99 per cent or 501 vehicles when including informal parking.

Table 2.7 indicates that visitor parking demand exceeds capacity. It is noted that 73 vehicles were turned away from car park 1 on the day of survey between the hours of 10am and 3pm, equating to around 15 vehicles per hour.

Table 2.7 indicates that car park 1A is currently being underutilised, with a peak observed demand of 87 per cent or 55 vehicles between 2:00pm and 3:00pm. During the common peak of 1pm, the car park had a demand of 62 per cent, or 39 vehicles. It is also noted that demand for staff parking in car park 2 or 3 both did not reach capacity. This however was most likely due to the road works currently occurring on Mount Pleasant Road which had an impact on the access to these car parks during the survey.

On-street parking provides approximately 192 spaces in proximity to the site. These are a combination of unrestricted and 2-hour restricted parking. Due to car park 1 being occupied by 9am it is likely that a significant percentage of the surrounding on street parking is occupied by hospital related vehicles. For the purpose of this assessment around 40 per cent of on-street

parking has been assumed to be hospital related, this equates to an assumed demand of 74 spaces. A breakdown of assumed parking is outlined in Table 2.8.

**Table 2.8: On-street parking supply**

| Location          | Total supply (no. of spaces) | Assumed utilisation | Assumed Demand (no. of spaces) |
|-------------------|------------------------------|---------------------|--------------------------------|
| Mount Pleasant St | 25                           | 40%                 | 10                             |
| Adams St          | 35                           |                     | 14                             |
| High St           | 7                            |                     | 3                              |
| Ledsam St         | 18                           |                     | 7                              |
| Regent St         | 100                          |                     | 40                             |
| <b>TOTAL</b>      | <b>185</b>                   |                     | <b>74</b>                      |

Combined off-street peak parking demand of 436 spaces, informal parking demand of 85 spaces and on-street assumption of 74 spaces outlines that a total demand of 595 spaces is currently being generated. This summation is outlined in Table 2.9.

**Table 2.9: Observed demand summary**

| Source                   | Demand (no. of spaces) |
|--------------------------|------------------------|
| Formal parking demand    | 436                    |
| Informal parking demand  | 85                     |
| <b>Sub-Total</b>         | <b>521</b>             |
| On-street parking demand | 74                     |
| <b>TOTAL</b>             | <b>595</b>             |

As mentioned, additional surveys were undertaken on Thursday 6 September to validate the findings above and also note any changes resulting from the completion of road works on Mount Pleasant Street. The demand surveys were verified over the previously identified peak periods and are outlined in Table 2.10.

**Table 2.10: Summary of peak public parking demand surveys**

| Car Park                            | Description                      | Restrictions               | Supply (No. of spaces) | Parking Occupancy Rate (12pm) | Parking Occupancy Rate (2pm) |
|-------------------------------------|----------------------------------|----------------------------|------------------------|-------------------------------|------------------------------|
| 1                                   | Staff and Visitor                | All day Paid               | 172                    | 100%                          | 97%                          |
|                                     |                                  | 2hr, Paid                  | 10                     |                               |                              |
|                                     | Accessible                       | All day Paid               | 10                     |                               |                              |
| 1A                                  | Staff Only                       | All day after 9:30am, Paid | 63                     | 44%                           | 100%                         |
| 2                                   | Staff Only                       | No Restrictions            | 56                     | 84%                           | 84%                          |
| 3                                   | Staff Only                       |                            | 97                     | 94%                           | 94%                          |
|                                     | Fleet Vehicles                   |                            | 13                     | 62%                           | 77%                          |
| 4                                   | VMO Vehicles                     |                            | 7                      | 71%                           | 71%                          |
|                                     | Staff Only                       |                            | 11                     | 64%                           | 55%                          |
| Official Hospital Parking Sub Total |                                  |                            | 439                    | 87%                           | 93%                          |
| 5 Council Car Park                  | Visitor (excl. informal Parking) | ½ hr, 2hr, 3hr             | 66                     | 100% <sup>[2]</sup>           | 100% <sup>[2]</sup>          |
|                                     | Informal overflow parking        | Unrestricted parking       | -                      | (66) <sup>[1]</sup>           | (54) <sup>[1]</sup>          |
| East of Site                        | Informal - Assumed Staff         | Unrestricted parking       | -                      | (17) <sup>[1]</sup>           | (17) <sup>[1]</sup>          |
| Overall Parking                     |                                  |                            | 505                    | 97% <sup>[2]</sup>            | 101% <sup>[2]</sup>          |

[1] Total vehicles provided. Formal supply count cannot be provided.

[2] Occupancy rate excluding overflow.

The additional parking occupancy surveys validate the onsite car parking demand for the existing hospital. The notable change was the informal parking previously occurring on the Council fields to the east of the site has reduced with Council closing off access to the northern section. This parking location was assumed to be temporary while road works were occurring on Mount Pleasant Road when no on street parking was available.

## 3. New Maitland Hospital

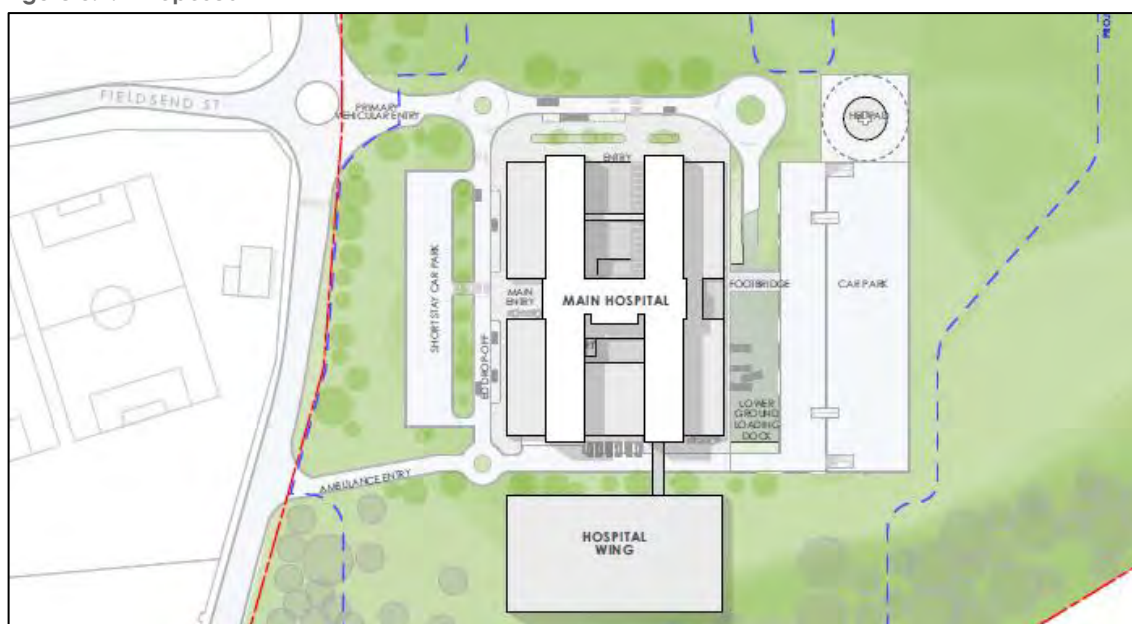
### 3.1 Description of Proposed Operations

The proposed NMH provides an opportunity to develop contemporary health facilities that will meet the needs of the Hunter Valley Region well into the future. The range of services at the proposed new hospital include emergency care, critical care, surgical care, acute care, maternity services, paediatric care, inpatient medical and surgical beds, rehabilitation, mental health, palliative care, chemotherapy and ambulatory care.

It is proposed that the NMH would consist of 339 beds. It is understood that the hospital is projected to employ around 893 FTE staff at the proposed year of opening, 1,106 FTE staff five years after opening and 1,162 FTE staff ten years after opening.

An indicative layout of the proposed hospital is provided in Figure 3.1.

**Figure 3.1: Proposed NMH**



Source: Fitzpatrick and partners dated 16 February 2018

### 3.2 Site Context

It is proposed that the NMH will be located on Lot 7314 and Part Lot 401 within the south-western portion of the 'Metford Triangle' along Metford Road, Metford. The site has a western frontage of 500 metres to Metford Road. The site currently has a land use classification of RU2 Rural Landscape and is generally cleared and disturbed land.

The surrounding properties include:

- Council Sports Fields opposite the site on the corner of Fieldsend Street and Metford Road
- Council's depot on Metford Road
- Redundant brickworks site to the northeast of the site
- Bushland and residential to the south of the site.



The location of the subject site and its surrounding environs is shown in Figure 3.2.

**Figure 3.2: Subject site and its environs**



Source: Fitzpatrick+Partners 16 February 2018

### 3.3 Surrounding Road Network

This section provides an understanding of the current road network surrounding the proposed site in terms of characteristics and operational performance.

#### 3.3.1 Road Network

##### Metford Road

Metford Road functions as a sub-arterial road and is aligned in a north-east, south-west direction on the western boundary of the site. It is a two-way road with one traffic lane in each direction, configured with a nine-metre wide carriageway. Kerbside parking is not permitted on Metford Road adjacent to the site.

Metford Road is shown in Figure 3.3 and carries around 13,000 vehicles per day<sup>2</sup>. There is no on-street parking available on Metford Road.

##### Fieldsend Street

Fieldsend Street functions as a local road and intersects Metford Road at the northern corner of the site. It is aligned in a north-west, south-east direction and is two-way with one traffic lane in

<sup>2</sup> Based on the peak hour traffic counts undertaken by GTA in May 2017 and assuming a peak-to-daily ratio of 10 per cent for arterial roads and 10 per cent for local roads. \*

each direction. No kerbside parking is permitted near the site and limited angled parking has been installed adjacent to Fieldsend Oval.

Council has identified road, cycleway and pedestrian infrastructure upgrades for Fieldsend Street in their Capital Works Program 2016-2020. This includes the construction of a cycleway between Metford Road and Brunswick Street, as well as pedestrian footpaths between Metford Road and Turnton Road. The cycleway has recently been completed.

Fieldsend Street also provides access to the Council Sports Fields on the corner of Fieldsend Street and Metford Road.

Fieldsend Street, prior to the road upgrades, is shown in Figure 3.4 and carries around 2,000 vehicles per day<sup>3</sup>.

**Figure 3.3: Metford Road (looking south-west)**



**Figure 3.4: Fieldsend Street (looking north-west)**



### New England Highway

New England Highway is classified as a State road in the Roads and Maritime *Schedule of Classified Roads and State and Regional Roads* versions 2011/1. Near the site it is aligned in a north-west, south-east direction and is two-way with two traffic lanes in each direction. No kerbside parking is permitted.

### Raymond Terrace Road

Raymond Terrace Road is classified as a State road in the Roads and Maritime *Schedule of Classified Roads and State and Regional Roads* versions 2011/1. Near the site it is aligned in a north-west, south-east direction and is two-way with one traffic lane in each direction. No kerbside parking is permitted.

### Chelmsford Drive

Chelmsford Drive is classified as a sub-arterial road and is aligned in the north-west, south-east direction. It is a two-way road separated by a median, with one traffic lane as well as one bicycle lane and one parking lane in each direction east of Metford Road and two traffic lanes in each direction west of Metford Road, configured in a 20 meters wide carriageway. Unrestricted kerbside parking is permitted on both sides of the road east of Metford Road, and no kerbside parking is permitted on Chelmsford Drive west of Metford Road.

<sup>3</sup> Based on the peak hour traffic counts undertaken by GTA in May 2017 and assuming a peak-to-daily ratio of 10 per cent for arterial roads and 10 per cent for local roads.

### 3.4 Public transport

Bus services provide local connections to the outer areas of Metford, including East Maitland and Thornton.

Victoria Street Railway Station is located around 1.5 kilometres from the NMH site. It is part of the Hunter Line, with services alternately running from Newcastle to Telarah, Dungong and Scone. Services at Victoria Street Railway Station are generally provided every 30 minutes.

A review of the public transport available near the site is summarised in Table 3.1 and illustrated in Figure 3.5.

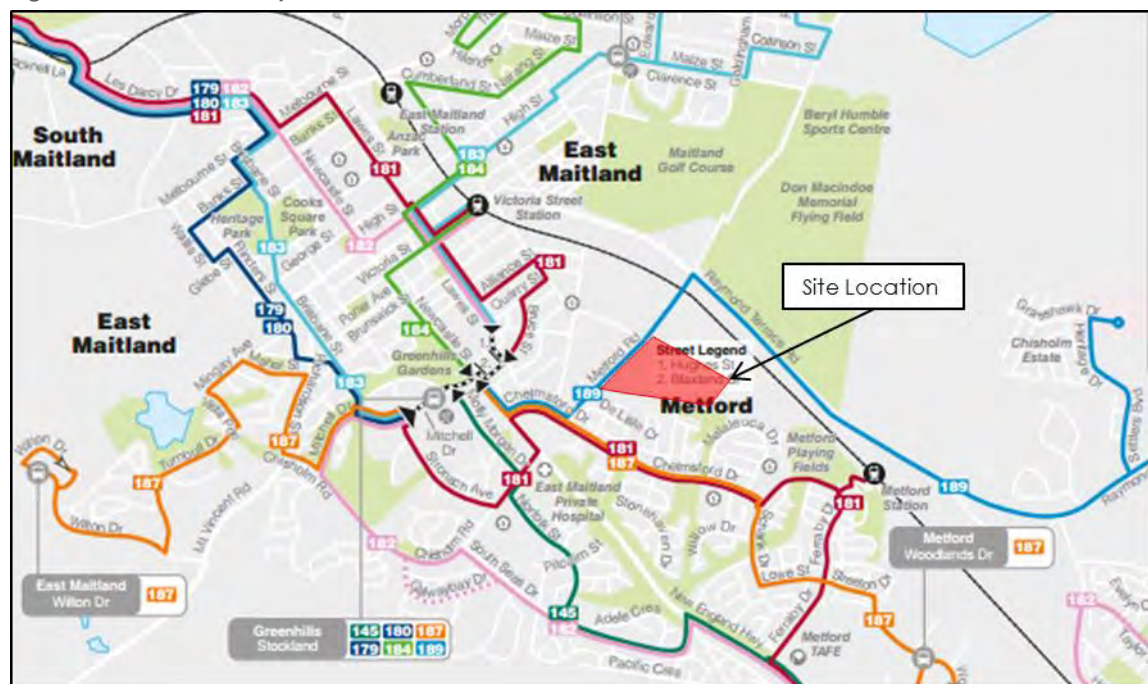
**Table 3.1: Public transport routes and frequencies**

| Service | Route number | Route description                 | Location of stop               | Distance to nearest stop <sup>1</sup> | Frequency on/off-peak                |
|---------|--------------|-----------------------------------|--------------------------------|---------------------------------------|--------------------------------------|
| Bus     | 181          | Rutherford to Woodberry           | Metford Road/Chelmsford Street | 650 m                                 | Hourly                               |
|         | 187          | East Maitland and Metford Loop    |                                |                                       | Hourly peak / every 2 hours off peak |
|         | 189          | Stockland Green Hills to Thornton |                                |                                       | Hourly peak / every 2 hours off peak |
| Train   | n/a          | Hunter Line                       | Victoria Street Station        | 1.4 km                                | Every 30 min                         |
|         |              |                                   | Metford Station                | 2.7 km                                |                                      |

[1] Distance taken from the Metford Road/Fieldsend Street intersection

Currently the only bus services using Metford Road is the 189 bus service, private operators and school bus services.

**Figure 3.5: Hunter Valley train and bus network – Metford/ East Maitland**



Basemap Source: [http://www.cdcbus.com.au/images/files/maps/hunter-valley/Maitland\\_and\\_Raymond\\_Terrace\\_Region\\_Map.pdf](http://www.cdcbus.com.au/images/files/maps/hunter-valley/Maitland_and_Raymond_Terrace_Region_Map.pdf) (accessed 5 May 2017)



## 3.5 Pedestrian and Bicycle Infrastructure

There are currently no pedestrian paths adjacent to the site on Metford Road. A shared path has recently been constructed on Fieldsend Street connecting Metford Road through to Victoria Street Station.

The cycling network of East Maitland, including proposed on-road and off-road cycleways is shown in Figure 3.6.

**Figure 3.6: Maitland bike network**



Basemap Source: <https://www.maitland.nsw.gov.au> (accessed 1 March 2018)

## 3.6 Travel Patterns

### 3.6.1 Journey to Work Data

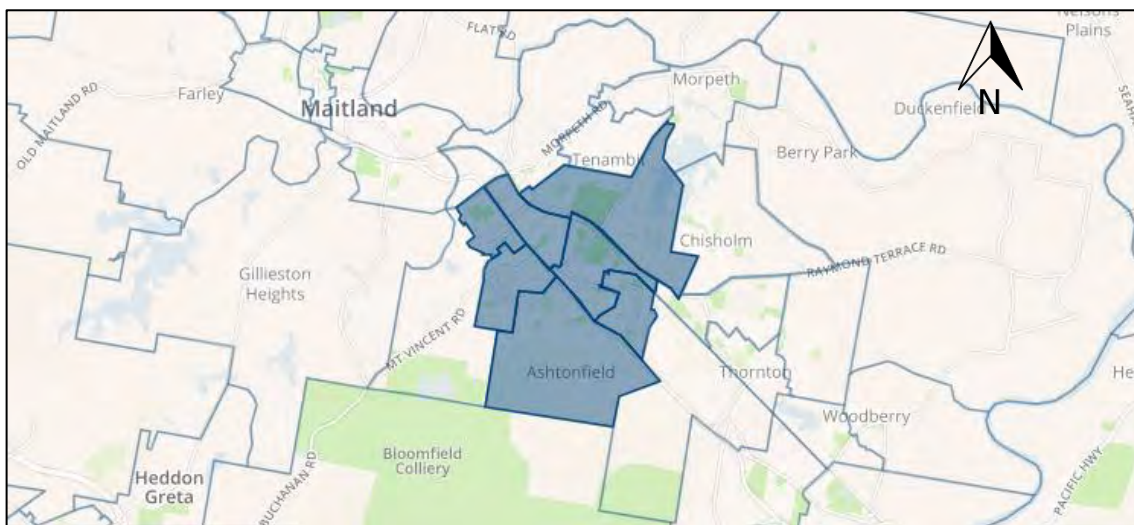
The Journey to Work (JTW) data published by the Bureau of Transport Statistics<sup>4</sup>(BTS) from 2011 Census data provides an understanding of travel patterns to/ from the site and the surrounding area.

The smallest geographical area for which JTW data is available is a Travel Zone. The relevant Travel Zones used for the purposes of this assessment are 6609, 6610, 6611, 6612, 6613, 6614 and 6616 and are shown in Figure 3.7.

<sup>4</sup> Now the "Transport Performance and Analytics" section of Transport for NSW



**Figure 3.7: Travel Zones**



Source: Bureau of Transport Statistics, <http://visual.bts.nsw.gov.au/jtwbasic/#6612,6613,6611,6610,6609,6616,6614>, accessed 22 June 2017

The JTW data indicates that a total of 6,603 people work within the selected Travel Zones.

Figure 3.8 shows the distribution of travel modes by the workers employed in the Travel Zones, which indicates that around 93 per cent of workers travel to the area by private vehicle as a driver or passenger. In addition, the JTW data indicates that six per cent of workers travelling to the area choose an alternate mode of transport such as walking, bus or train.

**Figure 3.8: JTW travel modes by workers to the selected Travel Zones**



Data source: Bureau of Transport Statistics, <http://visual.bts.nsw.gov.au/jtwbasic/#6612,6613,6611,6610,6609,6616,6614>, accessed 22 June 2017

The JTW data also indicates that around 62 per cent of workers travelling to the Travel Zone originate from the Maitland Area, while Newcastle accounts for 13 per cent, the Lower Hunter for nine per cent and the remaining areas for 16 per cent.

### 3.6.2 Proposed Mode Split

Based on the 2011 JTW data for the current Maitland Hospital and NMH sites, in addition to the results of the 2018 travel surveys for the current Maitland Hospital, a private vehicle mode share of 93% has been adopted for the NMH.

## 3.7 Proposed Car Parking Demand

This section outlines the various options for determining suitable car parking requirements for the NMH and is based on a combination of the following:

- NSW Health Infrastructure parameters/ scope
- Other hospital developments
- Maitland City Council Development Control Plan (DCP) and various other Council DCPs
- Roads and Maritime Guide to Traffic Generating Developments (2002)
- Empirical Assessment of Car Parking Demand.

### 3.7.1 Health Infrastructure Parameters / Scope

A collation of attributes involving separate parking for staff, public/ visitors, and LHD controlled fleet vehicle parking has been used to model parking demand. The model attempts to analyse the total number of persons which utilise the site against the parking demand through weighting factors such as rates of attendance, vehicle occupancy, and parking space turnover.

#### Staff Parking

Consideration for staff parking is made based on the total driving staff numbers present at work at any one time. Total FTE staff numbers are factored by the percentage of staff who will be present on site at any one time, the percentage of staff who drive to work, the average occupancy rates of staff vehicles, as well as a nominal staff shift changeover allowance.

This number is increased by an allowance for VMO vehicle demand, which is also factored by driving demand, vehicle occupancy and vehicle space turnover.

#### Public / Visitor Parking

Consideration for public/ visitor parking is based on a combination of outpatient visitors, inpatients, Emergency Department (ED) presentations and other on-site users not accounted for otherwise.

Outpatient demand is a factor of the annual average number of service events, factored by total weekdays each year, percentage of outpatients who drive, and parking space turnover rates.

ED demand is a factor of annual average number of ED presentations, factored by total weekdays each year, percentage not admitted to an overnight bed, percentage who will have a related party travel by vehicle (non-ambulance presentations and related parties), day-time presentations, and parking space turnover rates.

Inpatient demand is a factor of the total number of beds, by the weekday occupancy rates, visitors per bed, percentage of visitors who drive and the vehicle occupancy rates, day-time visitors, and parking space turnover rates.

#### LHD Controlled Spaces

LHD controlled parking is provided as a nominal figure. These are allocated for the LHD fleet and service vehicles.

#### Existing Demand Calculation

Based on the agreed parameters a demand of 561 spaces is calculated for the existing site. This calculated demand is within six percent of the observed demand of 595, allowing for minor fluctuations in assumptions, this is considered a suitable reflection of the existing demand.

## Demand Assumptions

The assumptions surrounding staffing and service parameters which were used as the base for the demand calculations is outlined in Table 3.2 and Table 3.3.

**Table 3.2: Health Infrastructure Parameters – Demand Assumptions (staff)**

| Factor  | Input     |              |                        | Reference Source                            |
|---|-----------|--------------|------------------------|---|
|   | Existing  | Opening Year | 10-year design horizon |   |
|   | 2018      | 2021/2022    | 2031/2032              |   |
| FTE Staff   | 779       | 893          | 1,162                  | NMH Financial Statement 7 June 2018         |
| Percentage staff present on weekdays                    | 75%       | 75%          | 75%                    | Average of other regional hospitals         |
| Maximum percentage of staff present on shift changeover | 65%       | 65%          | 65%                    | Average of other regional hospitals         |
| Percentage of staff driving to work                     | 93%       | 93%          | 93%                    | NSW Journey to work data and staff survey   |
| Average staff vehicle occupancy                         | 1.1       | 1.1          | 1.1                    | Staff survey (Section 2.6.3)                |
| VMOs present on weekdays                                | 46        | 46           | 56                     | Assumption agreed with HI                   |
| Percentage VMOs driving to work                         | 100%      | 100%         | 100%                   | Assumption agreed with HI                   |
| Average VMO vehicle occupancy                           | 1.0       | 1.0          | 1.0                    | Assumption agreed with HI                   |
| VMO space turnover factor                               | 2.0       | 2.0          | 2.0                    | Assumption agreed with HI                   |
| Nominal changeover allowance                            | 65 spaces | 65 spaces    | 65 spaces              | Based on existing allocation for changeover |

**Table 3.3: Health Infrastructure Parameters – Demand Assumptions (public)**

| Factor  | Input    |              |                             |                                    | Reference Source                             |
|---|----------|--------------|-----------------------------|------------------------------------|--|
|   | Existing | Opening Year | 10-year design horizon      | Sensitivity Scenario               |  |
|   | 2018     | 2021/2022    | 2031/2032                   | 2031/2032                          |  |
| Outpatients service events annual (weekday daily) | 56,612   | 71,555 (284) | 71,555 (284) <sup>[1]</sup> | 72,843 (+18%) <sup>[1&amp;2]</sup> | NMH Financial Impact Statement               |
| Percentage outpatient driving                     | 80%      | 80%          | 80%                         | 90%                                | Average of other regional hospitals          |
| Outpatient space turnover factor                  | 2.7      | 2.7          | 2.7                         | 2.7                                | Average of other regional hospitals          |
| ED presentations annually (daily)                 | 51,777   | 57,878 (159) | 72,420 (199)                | 72,420 (199)                       | NMH Financial Impact Statement 7 June 2013   |
| ED presentation utilising private vehicle         | 85%      | 85%          | 85%                         | 85%                                | Average of other regional hospitals          |
| ED presentations not admitted to an overnight bed | 72%      | 72%          | 72%                         | 72%                                | Bureau of Health Information – State Average |
| ED presentations in day time                      | 60%      | 60%          | 60%                         | 60%                                | Average of other regional hospitals          |
| ED presentation vehicle turnover factor           | 2.7      | 2.7          | 2.7                         | 2.7                                | Average of other regional hospitals          |
| Inpatient Beds                                    | 198      | 264          | 339                         | 339                                | HI Business case                             |
| Inpatient weekday bed occupancy                   | 85%      | 85%          | 85%                         | 85%                                | Target Occupancy                             |
| Inpatient visitor vehicle occupancy               | 1.8      | 1.8          | 1.8                         | 1.8                                | Average of other regional hospitals          |
| Inpatient turnover factor (daytime)               | 2.7      | 2.7          | 2.7                         | 2.7                                | Average of other regional hospitals          |
| Percentage inpatient daytime visitors             | 65%      | 65%          | 65%                         | 65%                                | Assumption based on other regional hospitals |
| Number of visitors per bed                        | 2        | 2            | 2                           | 2                                  | Average of other regional hospitals          |

[1] HNELHD projects a step-up increase in 2021/22 and projects the activity remains at the same level from 2021/22 onwards. The sensitivity testing assumes the outpatient service events may increase at the projected population growth rate (18 per cent).

[2] Source: [http://www.healthstats.nsw.gov.au/Indicator/dem\\_pop\\_lgmap/dem\\_pop\\_proj\\_age\\_trend](http://www.healthstats.nsw.gov.au/Indicator/dem_pop_lgmap/dem_pop_proj_age_trend)

Based on the demand assumptions outlined in Table 3.2 and Table 3.3, a parking demand of 775 spaces are to be provided to accommodate onsite parking.

### 3.7.2 Other Hospitals

A review of empirical data for similar large regional hospitals (more than 70 beds) was undertaken.



A review of Dubbo Base Hospital and Bowral and Districts Hospital parking indicates a recommended hospital parking rate of around 1.83 spaces per bed. Application of this rate results in NMH parking demand for around 620 parking spaces for the 339 in-patient beds to be provided.

However, it is also noted that the data set has a rate of 2.6 staff per bed, whereas the current and proposed hospitals respectively have a rate of 3.9 and 3.4 staff per bed. A parking demand of 620 parking spaces may therefore be considered lower than the actual demand.

The provided rate of 1.83 spaces per bed equates to a demand of 363 for the existing hospital, substantially lower than the observed demand.

### 3.7.3 Roads and Maritime Guidance

The Roads and Maritime Guide to Traffic Generating Developments does not provide rates for public hospitals. However, the private hospital rate indicates that the Peak Parking Accumulation (PPA) can be estimated referencing the total number of beds and the average staff per weekday shift (ASDS). It is noted that the ASDS has been calculated as 80 per cent of the Full Time Equivalent (FTE) staff.

- $PPA = -19.56 + 0.85B + 0.27ASDS$ , where B is the number of beds.

Based on the Roads and Maritime Guide, the peak parking accumulation for the NMH would be 520 car parking spaces.

### 3.7.4 Maitland City Council DCP

The car parking provision requirements for different development types are set out in the Maitland City Council DCP 2011. A review of the car parking requirement rates and the floor area schedule results in a DCP 2011 parking requirement for the proposal as summarised in Table 3.4.

**Table 3.4: DCP 2011 car parking requirements**

| Council       | Defined use                          | Size  | DCP parking rate  | DCP parking requirement   |
|---------------|--------------------------------------|---|---|---------------------------|
| Maitland City | Hospitals, Residential Care, Hostels | 339 beds<br>1,162 full time equivalent (FTE) staff <sup>[1]</sup> | One space per 10 beds; plus one space per two employees; plus one space per ambulance | 499 spaces <sup>[2]</sup> |
| <b>Total</b>  |                                      |   |   | <b>499 spaces</b>         |

[1] Daily staff numbers have been calculated as 80 per cent of FTE staff.

[2] Ambulance area not included as part of this DCP parking assessment.

Based on the DCP 2011 requirements, the NMH would be required to provide 499 car parking spaces.

Based on the DCP requirements, the existing would generate a demand of 332 car parking spaces, substantially below the existing observed demand of 629.

A comparison of various DCP hospital car parking requirements for Councils surrounding Maitland City Council is summarised in Table 3.5.

**Table 3.5: Hospital car parking requirements comparison**

| Council DCP | DCP  | Size  | DCP parking rate  | DCP parking requirement |
|-------------|--|---|---|-------------------------|
| Newcastle   | DCP 2012                                     | 339 beds<br>1,162 full time equivalent (FTE) staff <sup>(1)</sup> | One space per three beds; plus one space per two employees  | 579 spaces              |
| Singleton   | DCP 2014                                     |   | One space per two beds; plus one space per five employees   | 533 spaces              |
| Mid-Coast   | Great Lakes DCP 2014 and Gloucester DCP 2010 |   | Car parking will be assessed in accordance with RTA Guidelines  | 520 spaces              |
|             | Greater Taree City Council DCP 2010          |   | One space per three beds; plus one space per 15 beds for visiting doctors; plus one space per two employees; plus one space per ambulance | 601 spaces              |
| Total       |  |   |   | 520 - 601 spaces        |

[1] Daily staff numbers have been calculated as 80 per cent of FTE staff.

[2] Ambulance area not included as part of this DCP parking assessment.

Based on Table 3.5, the car parking requirements set out in DCP 2011 are low.

### 3.7.5 Increase in Beds / Staff from existing hospital

The car parking provision for the existing hospital services:

- 779 staff (FTE)
- 198 beds.

The total demand observed on site is 629 spaces during the recorded peak.

The increase in staff numbers and in-patient beds projected for the new hospital is outlined in Table 3.6.

**Table 3.6: Hospital staff and bed growth**

| Source          | Existing Maitland Hospital | New Maitland Hospital 2032 Projection | Percentage Increase (%) |
|-----------------|----------------------------|---------------------------------------|-------------------------|
| Staff           | 779                        | 1,162                                 | +50                     |
| In-patient beds | 198                        | 339                                   | +71                     |
| <b>Combined</b> | 977                        | 1,501                                 | +53                     |

Increasing the current demand by 53 per cent will increase the current demand to 963 spaces.

## 4. Parking Demand Recommendation

### 4.1 Parking Demand Comparison

A comparison of the demand projected by different models is outlined in Table 4.1.

**Table 4.1: Parking demand comparison**

| Model                               | Existing Hospital Demand | Variance to Existing Demand | Projected Demand for NMH |                   | Recommended Supply for NMH (Fully operational 2032) |
|-------------------------------------|--------------------------|-----------------------------|--------------------------|-------------------|---|
|                                     |                          |                             | Opening Year             | Fully Operational |   |
|                                     |                          |                             | 2021/2022                | 2032              |   |
| Existing demand                     | 595                      | -                           | -                        | -                 |   |
| Health Infrastructure Parameters    | 561                      | -34 (-6%)                   | 640                      | 775               | 822 <sup>[1]</sup>                                  |
| Other Hospitals                     | 363                      | -266                        | 483                      | 620               |   |
| Maitland DCP                        | 332                      | -297                        | 384                      | 499               |   |
| Sensitivity Scenario <sup>[2]</sup> |                          |                             |                          | 787               | 835 <sup>[1]</sup>                                  |

[1] Projected demand +6% variance from existing demand.

[2] Parameters outlined in Table 3.2 and Table 3.3.

Table 4.1 shows that other hospitals and the Maitland City Council DCP project a low demand for the existing hospital to that observed on site. Utilising the Health Infrastructure parameters more accurately reflects the existing demand with a six percent variance. Therefore, it is recommended that the supply for the NMH includes a six percent increase to ensure the variance in the parameters calculated and the current observed demand are accommodated. Therefore, it is recommended that an onsite parking supply of 822 spaces be provided, this excludes the provision of additional spaces for ambulance parking.

### 4.2 Car Parking Requirements

The projected parking demand appears to be best modelled by the Health Infrastructure parameters, projecting a demand of 822 spaces in total. A summary of the car parking demand projections based on the NSW Health Infrastructure parameters/ scope for the opening year of 2021/22, five-year design horizon of 2026/27 and 10-year design horizon of 2031/32 is outlined in Table 4.2.

**Table 4.2: Recommended car parking demand (peak)**

| Source                                | Existing Hospital | Opening Year | 5-year horizon | 10-year horizon | Sensitivity Scenario |
|---------------------------------------|-------------------|--------------|----------------|-----------------|----------------------|
|                                       | 2018              | 2021/22      | 2026/27        | 2031/32         | 2031/32              |
| Staff                                 | 222               | 461          | 554            | 578             | 578                  |
| VMOs                                  | 7                 | 24           | 30             | 30              | 30                   |
| Public (hospital users)               | 195               | 164          | 175            | 184             | 197                  |
| LHD & Fleet vehicles                  | 18                | 30           | 30             | 30              | 30                   |
| <b>Total demand</b>                   | <b>442</b>        | <b>679</b>   | <b>789</b>     | <b>822</b>      | <b>835</b>           |
| Total incremental peak parking demand |                   | -            | 110            | 143             | 156                  |

## 5. Conclusion

Based on the analysis and discussions presented within this report, the following conclusions are made:

- i The existing Maitland Hospital services are at capacity, resulting in a high percentage of patients attending or being referred to hospitals in Newcastle or Sydney to meet demand.
- ii The existing car parking facilities are located both on-site, with access provided from Mount Pleasant Street and High Street, and off-site, with access provided from Bonar Street and three short term set-down parking spaces which are used to service public access to the ED. In addition, a Council-controlled car park accessed from High Street is used by visitors to the hospital. The current formal parking off street supply is 513 spaces, including drop off and ambulance spaces.
- iii Visitor parking demand currently exceeds capacity, the demand for the existing hospital when combining on-street, off-street, and informal parking areas generates a total demand of 595 spaces.
- iv The Health Infrastructure parameters projects a demand of 561 spaces for the existing site. This demand projection is six percent lower than the observed demand of 595 spaces.
- v Various options for determining suitable car parking requirements for the NMH were assessed, when comparing the projected demand through reviewing empirical data for other hospitals and DCP requirements of Maitland City Council and other nearby Councils the projected parking numbers were considered low when reviewed against the demand of the existing hospital.
- vi It is recommended that an onsite parking supply of 822 spaces be provided for the NMH, this excludes the provision of additional spaces for ambulance parking.



# Appendix A

---

## Staff Survey Comments

## Staff Survey Summary for Question 9

Q9. What is most important to you / what would you like to see in the car park?

|     |    |  |
|-----|----|--|
| 35% | 38 | More parking   |
| 3%  | 3  | Cheaper parking  |
| 4%  | 4  | More access locations  |
| 18% | 19 | Better facilities (lighting, security/safety, etc)   |
| 10% | 11 | Free parking   |
| 1%  | 1  | Earlier access to restricted parking   |
| 2%  | 2  | Motorcycle EoT facilities  |
| 1%  | 1  | Better PT  |
| 5%  | 5  | Larger parking spaces  |
| 5%  | 5  | Close parking  |
| 2%  | 2  | No queuing on entry or exit  |
| 2%  | 2  | Staged parking (delayed opening)   |
| 1%  | 1  | Priority parking (e.g. for car pool schemes)   |
| 1%  | 1  | Colour coded parking to distinguish use  |
| 1%  | 1  | "A 15 minute drop off / pick up bay with wheelchairs locked up similar to supermarket trolleys, so visitors can access and return them easily" |
| 1%  | 1  | No increase in parking cost  |
| 1%  | 1  | Free dedicated exec positions, covered access to the hospital main entrance"   |
| 1%  | 1  | More accessible parking spaces   |
| 2%  | 2  | Accessibility, affordability and safety"   |
| 1%  | 1  | Appropriate parking for the cost being paid  |
| 6%  | 6  | Staff and visitor separate carparks  |

#### Melbourne

A Level 25, 55 Collins Street  
MELBOURNE VIC 3000  
PO Box 24055  
MELBOURNE VIC 3000  
P +613 9851 9600  
E [melbourne@gta.com.au](mailto:melbourne@gta.com.au)

#### Sydney

A Level 16, 207 Kent Street  
SYDNEY NSW 2000  
P +612 8448 1800  
E [sydney@gta.com.au](mailto:sydney@gta.com.au)

#### Brisbane

A Ground Floor, 283 Elizabeth Street  
BRISBANE QLD 4000  
GPO Box 115  
BRISBANE QLD 4001  
P +617 3113 5000  
E [brisbane@gta.com.au](mailto:brisbane@gta.com.au)

#### Canberra

A Level 4, 15 Moore Street  
CANBERRA ACT 2600  
P +612 6263 9400  
E [canberra@gta.com.au](mailto:canberra@gta.com.au)

#### Adelaide

A Level 5, 75 Hindmarsh Square  
ADELAIDE SA 5000  
PO Box 119  
RUNDLE MALL SA 5000  
P +618 8334 3600  
E [adelaide@gta.com.au](mailto:adelaide@gta.com.au)

#### Perth

A Level 2, 5 Mill Street  
PERTH WA 6000  
PO Box 7025, Cloisters Square  
PERTH WA 6850  
P +618 6169 1000  
E [perth@gta.com.au](mailto:perth@gta.com.au)

## Appendix H

---

### Midblock Capacity Analysis



### Metford Road midblock capacity analysis

| Growth Scenario | Scenario            | Traffic volumes |      |            |      | Volume/ Capacity |          |               |          |
|-----------------|---------------------|-----------------|------|------------|------|------------------|----------|---------------|----------|
|                 |                     | AM              |      | PM         |      | AM               |          | PM            |          |
|                 |                     | Northbound      |      | Southbound |      | Northbound       |          | Southbound    |          |
| 2022            | Without development | 515             | 920  | 945        | 741  | 0.43 (B)         | 0.77 (D) | 0.79 (D)      | 0.62 (C) |
|                 | With development    | 635             | 950  | 1045       | 973  | 0.53 (C)         | 0.79 (D) | 0.87 (D)      | 0.81 (D) |
| 2023            | Without development | 525             | 938  | 964        | 756  | 0.44 (B)         | 0.78 (D) | 0.8 (D)       | 0.63 (C) |
|                 | With development    | 645             | 968  | 1064       | 988  | 0.54 (C)         | 0.81 (D) | 0.89 (D)      | 0.82 (D) |
| 2024            | Without development | 535             | 956  | 982        | 770  | 0.45 (B)         | 0.8 (D)  | 0.82 (D)      | 0.64 (C) |
|                 | With development    | 655             | 986  | 1082       | 1002 | 0.55 (C)         | 0.82 (D) | 0.9 (E)       | 0.84 (D) |
| 2025            | Without development | 545             | 974  | 1000       | 784  | 0.45 (B)         | 0.81 (D) | 0.83 (D)      | 0.65 (C) |
|                 | With development    | 665             | 1004 | 1100       | 1016 | 0.55 (C)         | 0.84 (D) | 0.92 (E)      | 0.85 (D) |
| 2026            | Without development | 555             | 992  | 1019       | 799  | 0.46 (B)         | 0.83 (D) | 0.85 (D)      | 0.67 (C) |
|                 | With development    | 675             | 1022 | 1119       | 1031 | 0.56 (C)         | 0.85 (D) | 0.93 (E)      | 0.86 (D) |
| 2027            | Without development | 566             | 1010 | 1038       | 814  | 0.47 (B)         | 0.84 (D) | 0.87 (D)      | 0.68 (C) |
|                 | With development    | 686             | 1040 | 1138       | 1046 | 0.57 (C)         | 0.87 (D) | 0.95 (E)      | 0.87 (D) |
| 2028            | Without development | 577             | 1029 | 1057       | 829  | 0.48 (B)         | 0.86 (D) | 0.88 (D)      | 0.69 (C) |
|                 | With development    | 697             | 1059 | 1157       | 1061 | 0.58 (C)         | 0.88 (D) | 0.96 (E)      | 0.88 (D) |
| 2029            | Without development | 587             | 1049 | 1077       | 844  | 0.49 (B)         | 0.87 (D) | 0.9 (E)       | 0.7 (C)  |
|                 | With development    | 707             | 1079 | 1177       | 1076 | 0.59 (C)         | 0.9 (D)  | 0.98 (E)      | 0.9 (D)  |
| 2030            | Without development | 599             | 1068 | 1097       | 860  | 0.5 (B)          | 0.89 (D) | 0.91 (E)      | 0.72 (C) |
|                 | With development    | 719             | 1098 | 1197       | 1092 | 0.6 (C)          | 0.91 (E) | 1 (E)         | 0.91 (E) |
| 2031            | Without development | 609             | 1088 | 1118       | 877  | 0.51 (B)         | 0.91 (E) | 0.93 (E)      | 0.73 (C) |
|                 | With development    | 729             | 1118 | 1218       | 1109 | 0.61 (C)         | 0.95 (E) | 1.02 (Failed) | 0.92 (E) |
| 2032            | Without development | 621             | 1109 | 1139       | 893  | 0.52 (C)         | 0.92 (E) | 0.95 (E)      | 0.74 (C) |
|                 | With development    | 741             | 1139 | 1239       | 1125 | 0.62 (C)         | 0.95 (E) | 1.03 (Failed) | 0.94 (E) |

Melbourne  
A Level 25, 55 Collins Street  
PO Box 24055  
MELBOURNE VIC 3000  
P +613 9851 9600  
E melbourne@gta.com.au

Sydney  
A Level 16, 207 Kent Street  
SYDNEY NSW 2000  
P +612 8448 1800  
E sydney@gta.com.au

Brisbane  
A Ground Floor, 283 Elizabeth Street  
BRISBANE QLD 4000  
GPO Box 115  
BRISBANE QLD 4001  
P +617 3113 5000  
E brisbane@gta.com.au

Canberra  
A Tower A, Level 5,  
7 London Circuit  
Canberra ACT 2600  
P +612 6243 4826  
E canberra@gta.com.au

Adelaide  
A Suite 4, Level 1, 136 The Parade  
PO Box 3421  
NORWOOD SA 5067  
P +618 8334 3600  
E adelaide@gta.com.au

Gold Coast  
A Level 9, Corporate Centre 2  
Box 37, 1 Corporate Court  
BUNDALL QLD 4217  
P +617 5510 4800  
F +617 5510 4814  
E goldcoast@gta.com.au

Townsville  
A Level 1, 25 Sturt Street  
PO Box 1064  
TOWNSVILLE QLD 4810  
P +617 4722 2765  
E townsville@gta.com.au

Perth  
A Level 2, 5 Mill Street  
PERTH WA 6000  
PO Box 7025, Cloisters Square  
PERTH WA 6850  
P +618 6169 1000  
E perth@gta.com.au