MAITLAND MENTAL HEALTH REHABILITATION PROJECT

2 December 2024

Prepared for:
NSW Health Infrastructure

Prepared by:
Stantec Australia Pty Ltd

Project Number:
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MAITLAND MENTAL HEALTH REHABILITATION PROJECT

TRANSPORT ASSESSMENT FOR REVIEW OF ENVIRONMENTAL FACTORS

PREPARED FOR HEALTH INFRASTRUCTURE | 2 DECEMBER 2024
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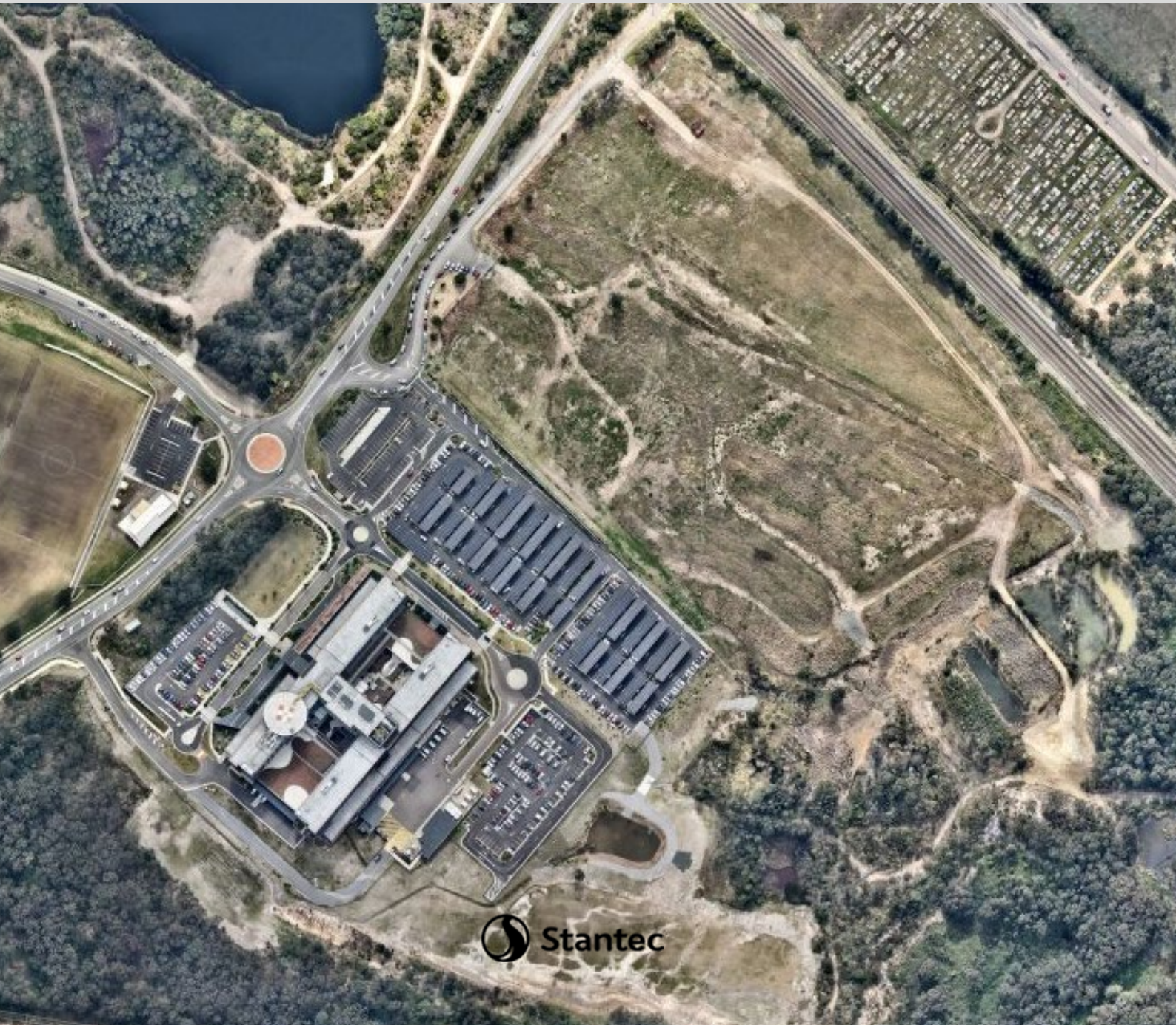

Revision	Description	Date	Author	Reviewer	Approver
A	Final	04/10/24	Helen Aberra /Liz McCormack	Karen McNatty	Karen McNatty

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Executive Summary

This Traffic and Transport Assessment has been prepared by Stantec Australia (Stantec) on behalf of Health Infrastructure (HI) to assess the potential environmental impacts that could arise from infrastructure works at 51 Metford Rd, Metford NSW 2323 (the site). The project is seeking approval for a Development Without Consent (REF) application under Part 5 of the EP&A Act.

Project Overview

The Maitland Mental Health Rehabilitation (MMHR) Project includes the construction of a two-storey mental health facility to be integrated with the Maitland Hospital campus. It will include a total of 161 FTE staff and 64 inpatient beds as follows:

- 20 medium secure forensic beds
- 24 low secure forensic beds
- 20 rehabilitation and recovery general beds.

The MMHR is a key health service in the development of the Metford Triangle as a Health Precinct and supports the strategic objective of Hunter New England Local Health District (HNELHD) and Hunter New England Mental Health (HNEMH) in collocating health services in a way that responds to the community needs now and into the future.

The site is regionally accessed by the New England Highway to the south and Raymond Terrace Road to the north. These two road links provide primary access to the site from the regional precinct, connecting to the site via Chelmsford Road and Metford Road. The site is well connected with public transport accessibility and active transport connections.

Car Parking Requirements

In summary, it is understood that the proposed (MMHR facility is anticipated to operate in a comparable manner to that of a private hospital with appointments by booking only and is not expected to have walk-ins. Parking demand will predominantly be from staff which will operate on a shift basis similar to a private hospital.

Based on a total of 64 beds and 161 FTE staff the MMHR would be required to provide 88 parking spaces, plus operational spaces including one emergency services space, two contractor spaces and one secure patient transport space. An additional 8 spaces are anticipated to be required to accommodate the proposed operational/ fleet vehicles which are expected to be kept on site.

Therefore, it is recommended that the MMHR seeks to accommodate a total of 107 parking spaces, which will satisfy the full parking requirement for the development. It is however noted that there are existing challenges with the parking at the Maitland Hospital Campus which this project is not seeking to address.

Design Assessment

Access to the proposed development will be through the existing Maitland Hospital site, from the Metford Road/ Fieldsend Street/ Pottery Road roundabout. MMHR traffic will use Pottery Road to access the MMHR via a new intersection adjacent to the existing P5 staff car park. The intersection

has been designed to cater for MRV and B99 vehicles to operate concurrently, line marking and priority control will be developed as part of the detailed design stage.

An indented drop-off bay will be provided along the MMHR frontage along with seven visitor spaces along the new internal roadway. Vehicles would then be able to turnaround, with staff, service and emergency vehicles provided access past this area. A staff parking area will be located to the east of the MMHR accommodating staff, consumer, contractor, and fleet cars.

A loading and servicing area is located in the south-western corner of the proposed facility with access provided off the main terminal circulation road. A fire services road is to be provided around the building to provide fire appliance access around the building perimeter.

Parking spaces in the at-grade parking area would be designed to be at least 2.6 metres wide by 5.4 metres long which would cater for both staff and visitor parking requirements to meet the Health Infrastructure guidelines. Internal aisle widths are designed to be a minimum of 5.8 metres which meets the minimum requirements of AS/NZS2890.1. Accessible spaces are required to be 2.5 metres wide and 5.4 metres long with an adjacent shared area of 2.5 metres wide by 5.4 metres next to the parking space in accordance with the Health Infrastructure Guidelines. The design also caters for waste vehicles and fire appliances to access and circulate the site.

Traffic Impact

The traffic generation rates for private hospitals referenced in the Transport for NSW Guide 2002 have been applied to the development. Based on the proposed 64 beds and 161 full time equivalent (FTE) staff, the proposed development could generate 28 and 65 trips respectively in the AM and PM peak hours.

The MMHR facility is expected to open in 2027, therefore the traffic impact of the MMHR has been considered for 2027 and 2037 future years with the following scenarios tested:

- Base – existing conditions, plus background traffic growth
- MMHR Development – Base plus estimated MMHR traffic.

The assessments indicate that with the expected background growth (base scenario) the study intersections would operate with moderate delays in 2027, although at high degrees of saturation for certain approaches. In the 2037 scenario, with the expected background growth (base scenario) Metford Road/ Raymond Terrace Road and Metford Road/ Fieldsend Road/ Pottery Lane would operate at/ above capacity during the road network peak periods. This is due to traffic volumes exceeding the capacity on Metford Road. Under both 2027 and 2037 scenarios. The MMHR development has minimal impact on the operation and performance of the surrounding intersections causing slight increases in degree of saturation and little to no deterioration in level of service on most approaches.

The State Significant Infrastructure (SSI) traffic assessment prepared for the Maitland Hospital identified that Metford Road would likely reach capacity in the future with the additional traffic from development occurring in the surrounding area, including the Maitland Hospital. The initial assessment identified that Metford Road would likely require upgrading by 2029.

A mid-block capacity assessment has been undertaken for the hospital campus internal road (Pottery Road) which indicates the existing road has plenty of spare capacity to accommodate additional traffic associated with the MMHR.

The planning, funding and delivery of any upgrades for Metford Road are to be considered by the East Maitland Catalyst Area Steering Group (which includes MCC and TfNSW) in response to projected population and employment growth in the surrounding area.

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This report has been prepared to assess the traffic and transport impacts of the proposed Maitland Mental Health Rehabilitation (MMHR) Project . This report accompanies a Review of Environmental Factors (REF) for the construction and operation of a new mental health services building within the Maitland Hospital campus, including:

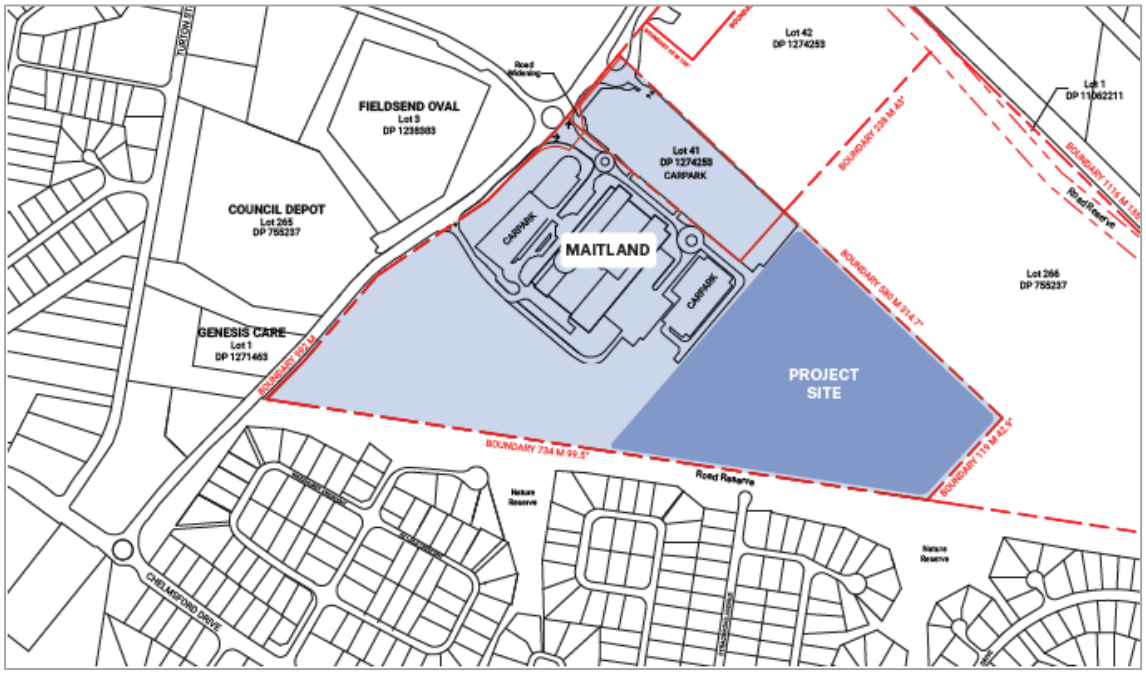
- site establishment
- site preparation including earthworks
- construction of internal roads and addition of at-grade car parks
- construction of two storey mental health facility
- 20 medium secure forensic beds; 24 low secure forensic beds; 20 rehabilitation and recovery beds (including high risk civil consumers) (64 beds total)
- inground building services works and utility adjustments, including service diversions
- building foundation works
- tree removal
- associated landscaping
- bioretention basin.

Refer to the Review of Environmental Factors prepared by Ethos Urban for a full description of works.

1.1 Site Description

The site is located at the Maitland Hospital Campus on Metford Road, Maitland, which is around 6.4 kilometres from the CBD of Maitland. The project site is located within the development parcel, legally described as Lot 73 DP 1256781, as identified in Figure 1. The site is located to the east of the recently constructed Maitland Hospital.

Figure 1 Project locational diagram



Source: Bates Smart

1.2 Statement of Significance

Based on the identification of potential issues, and an assessment of the nature and extent of the impacts of the proposed development, it is determined that:

The extent and nature of potential impacts are moderate, however the impact of the development itself will not have significant adverse effects on the locality, community and the environment;

Potential impacts can be appropriately mitigated or managed to ensure that there is minimal effect on the locality, community.

1.3 Purpose of this Report

Health Infrastructure commissioned Stantec to undertake a transport impact assessment of the Metford Road corridor to inform the proposal of potential impact and mitigation measures associated with the proposed Maitland Mental Health Rehabilitation Centre (herein referred to as MMHR).

This report sets out an assessment of the anticipated transport implications of the proposed development, including consideration of the following:

- a review of existing traffic and parking conditions both on-site and surrounding the site
- suitability of the proposed parking in terms of supply (quantum) and layout
- the traffic generation characteristics of the proposed development
- suitability of the proposed access arrangements for the site
- the transport impact of the development proposal on the surrounding road network and internal precinct road network
- site accessibility
- pedestrian and bicycle considerations
- identification of transport related constraints and opportunities
- construction traffic management systems
- green travel initiatives.

1.4 Response to REF

This report sets out an assessment of the anticipated transport implications of the proposed MMHR and considers the transport conditions on the surrounding road network for the proposed year of opening and future 10-year horizon to ensure the surrounding road network can accommodate the operation of the proposed MMHR.

The Transport Impact Assessment addresses the Department of Planning, Housing and Infrastructure – NSW Government (DPHI) requirements for transport and accessibility impacts that will be included in the Secretary's Environmental Assessment Requirements (SEARs).

The industry SEARs that are applicable for this project are summarised in Table 1.

Table 1: Secretary's Environmental Assessment Requirements (anticipated SEARs)

SEARs Requirement	Relevant Report Section
Provide a transport and accessibility impact assessment, which includes: • an analysis of the existing transport network, including the road hierarchy and any pedestrian, bicycle or public transport infrastructure, current daily and peak hour vehicle movements, and existing performance levels of nearby intersections.	Section 2
• details of the proposed development, including pedestrian and vehicular access arrangements (including swept path analysis of the largest vehicle and height clearances), parking arrangements and rates (including bicycle and end-of-trip facilities), drop-off/pick-up-zone(s) and bus bays (if applicable), and provisions for servicing and loading/unloading.	Section 3 & 5
• analysis of the impacts of the proposed development during construction and operation (including justification for the methodology used), including predicted modal split, a forecast of additional daily and peak hour multimodal network flows as a result of the development (using industry standard modelling), identification of potential traffic impacts on road capacity, intersection performance and road safety (including pedestrian and cyclist conflict) and any cumulative impact from surrounding approved developments.	Section 7
• measures to mitigate any traffic impacts, including details of any new or upgraded infrastructure to achieve acceptable performance and safety, and the timing, viability and mechanisms of delivery (including proposed arrangements with local councils or government agencies) of any infrastructure improvements in accordance with the relevant standards.	Section 7
• Provide a Construction Traffic Management Plan detailing construction vehicle routes, access and parking arrangements, coordination with other construction occurring in the area, and how impacts on existing traffic, pedestrian and bicycle networks would be managed and mitigated.	Section 8

1.5 References

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

- an assessment of the site and its surrounds
- Maitland City Council Development Control Plan 2011 (DCP 2011)
- Transport for NSW Guide to Traffic Generating Developments 2002 (Guide 2002)
- Australian Standard/ New Zealand Standard, Parking Facilities, Part 1: Off-Street Car Parking AS/NZS 2890.1:2004
- Australian Standard, Parking Facilities, Part 2: Off-Street Commercial Vehicle Facilities AS 2890.2:2018
- Australian Standard / New Zealand Standard, Parking Facilities, Part 6: Off-Street Parking for People with Disabilities AS/NZS 2890.6:2009
- Health Infrastructure Hospital Car Park Design Guidelines 2019
- Maitland Hospital SSI Stage 2 Final Transport Assessment Report, prepared by Stantec (formally GTA Consultants) 2019
- Traffic and car parking surveys as referenced in the context of this report
- Plans for the development, prepared by Bates Smart dated August 2024.

2 Existing Conditions

2.1 Location

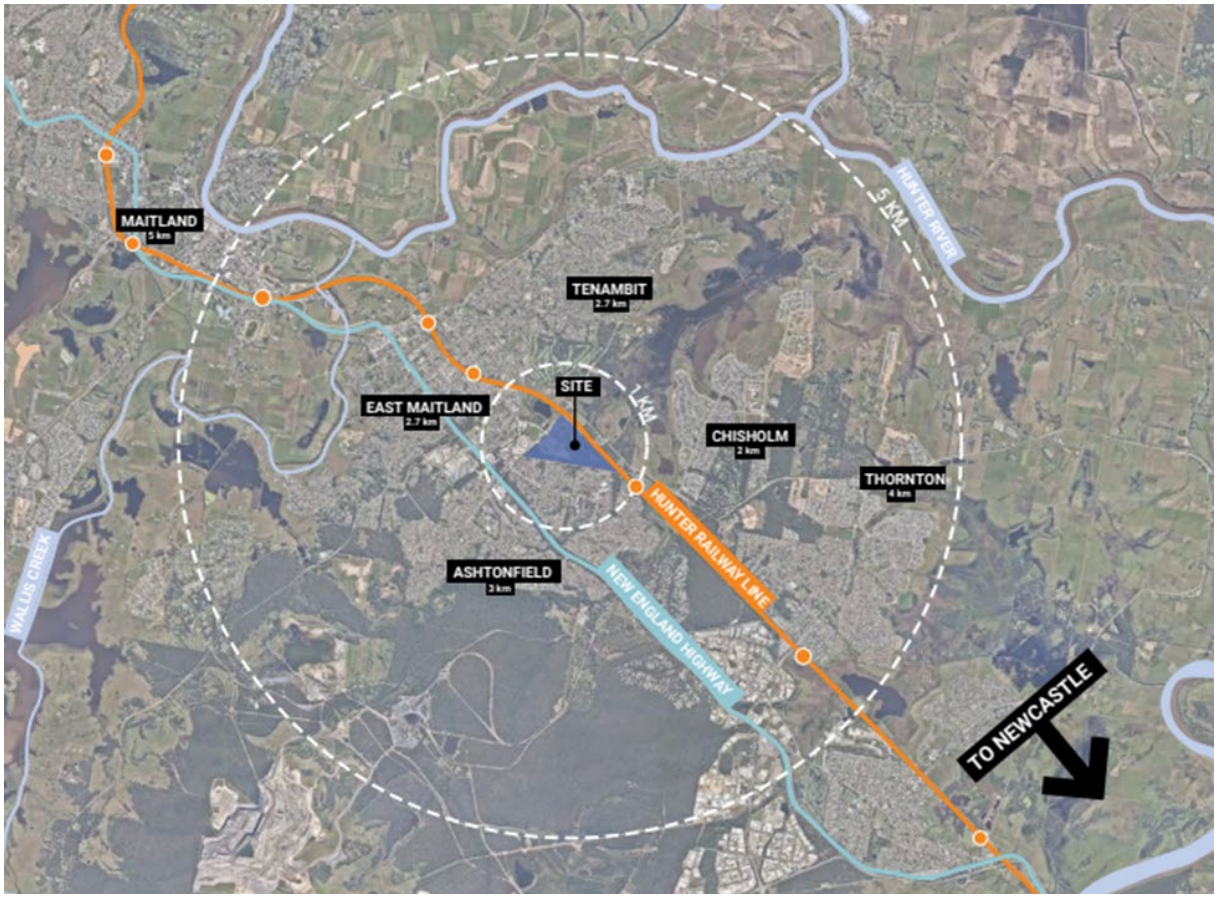
The MMHR will be located within the recently opened Maitland Hospital Campus at Lot 73 and Lot 41 in the south-western portion of the 'Metford Triangle' along Metford Road, Metford.

The surrounding properties include:

- Maitland Hospital
- 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 2 and Figure 3.

Figure 2: Subject site and its environs – overview



Source: Maitland Mental Health Project Masterplan Report, Bates Smart, Revision 1, October 2022

Figure 3: Subject site and its environs

Source: Nearmap May 2024

2.2 Road Network

2.2.1 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, and throughout the State. Transport for NSW 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 Roads Act 1993, and the regulation to manage the road system is stated in the Australian Road Rules.

Transport for NSW 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 Transport for NSW, typically no limit in flow and designed to carry vehicles long distance between regional centres.
- **Sub-Arterial Roads** – Managed by either Council or Transport for NSW under a joint agreement. Typically, their operating capacity ranges between 10,000 and 20,000 vehicles per day, and their aim 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.

Key roads surrounding the site are discussed below.

Pottery Road

Pottery Road is a private road providing primary access from Metford Road into the hospital site. It is a two-way road with one traffic lane in each direction, with additional turning lanes on the approach to its intersection with Metford Road. Pottery Road connects to internal hospital roads servicing the Maitland Hospital.

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.

The roundabout at Metford Road/ Fieldsend Street/ Pottery Road intersection provides the primary access point for the Maitland Hospital.

Figure 4: Pottery Road (looking south)

Figure 5: Metford Road (looking east)

Fieldsend Street

Fieldsend Street functions as a local road and intersects Metford Road at the Pottery Road access to the Maitland Hospital. It is aligned in a north-west, south-east direction and is two-way with one traffic lane in each direction.

The road provides access to the Council Sports Fields on the corner of Fieldsend Street and Metford Road. The shared path on Fieldsend Street between Metford Road and Brunswick Street provides a connection to an off-road shared path to Victoria Station. Fieldsend Street is shown in Figure 6.

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.

Figure 6: Fieldsend Street (looking north)

Figure 7: Chelmsford Drive (looking north)

Raymond Terrace Road

Raymond Terrace Road is classified as a State Road and is managed by Transport for NSW. 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. Raymond Terrace provides the primary access to the site from the regional precinct to the south.

New England Highway

The New England Highway is classified as a State Road and is managed by Transport for NSW. 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. New England Highway provides the primary access to the site from the regional precinct to the south.

2.2.2 SURROUNDING INTERSECTIONS

The following key intersections currently exist near the site:

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

2.3 Traffic Volumes

Previous traffic surveys were undertaken as part of the Maitland Hospital development and by Council post opening of the hospital. Stantec commissioned new traffic surveys in 2024 to provide an up to date representation of traffic conditions now the hospital is operational. Traffic surveys were undertaken on the intersections outlined in Section 2.2.2. In addition to the external intersections, two internal intersections within the Maitland Hospital that provide access to the existing car parking areas were surveyed.

The survey was undertaken on Thursday 30 May 2024 during the following peak periods:

- 7:00 am to 10:00 am

- 2:30 pm to 6:30 pm

The AM and PM peak periods were found to occur between 8:00 am and 9:00 am and 3:00 pm and 4:00 pm respectively. The peak hour traffic volumes are summarised in Figure 8 and Figure 9.

Full survey results are contained in Appendix B.

Figure 8 Existing AM peak hour traffic volumes (8:00 am to 9:00 am)

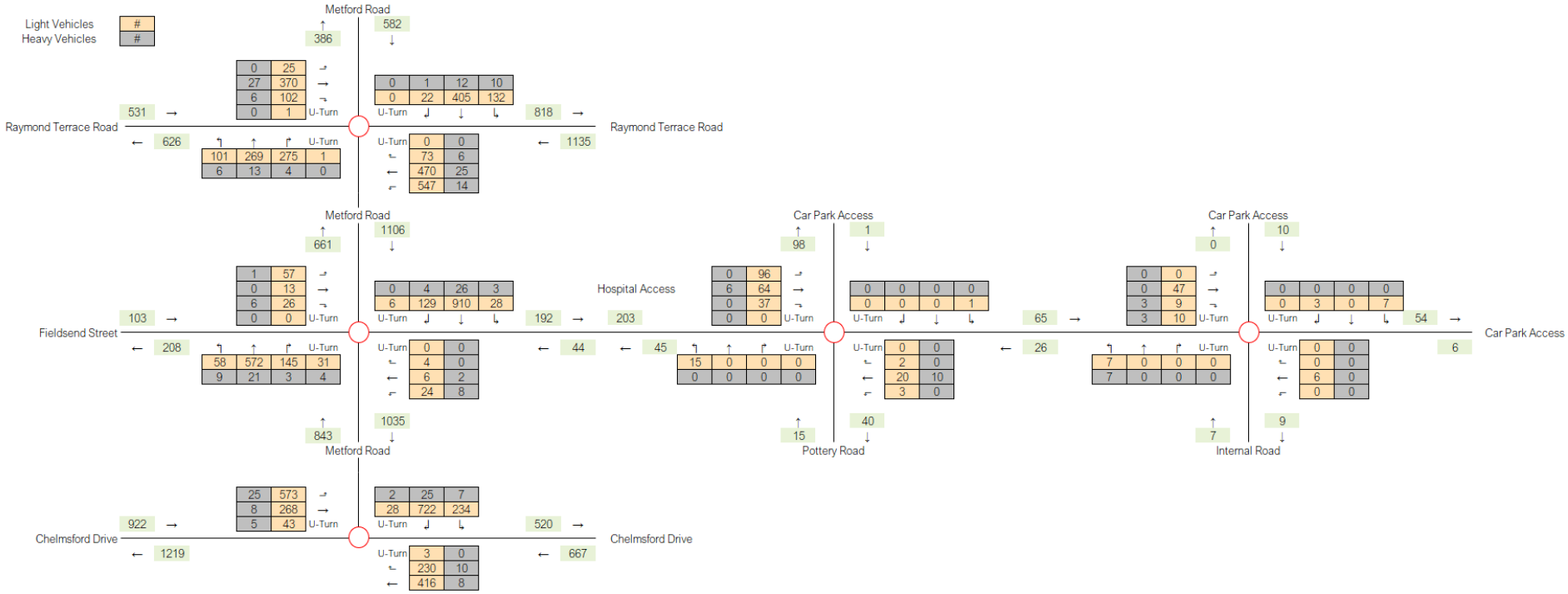
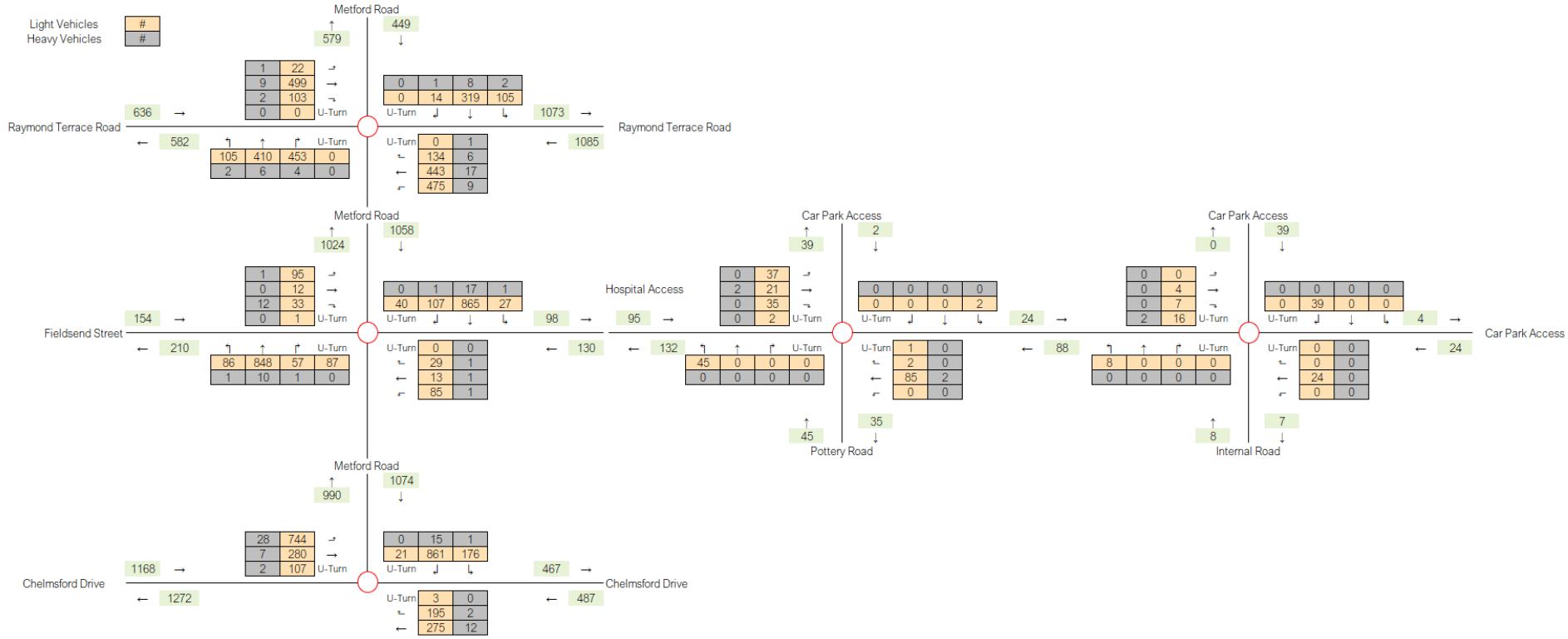


Figure 9 Existing PM peak hour traffic volumes (3:00 pm to 4:00 pm)



2.4 Road Network Performance

2.4.1 SITE OBSERVATIONS

Site inspections were undertaken on Wednesday 23 November 2022 and Thursday 30 May 2024. During both site visits traffic conditions on the surrounding road network were observed during the morning and afternoon peak periods.

Across both inspections, key intersections surrounding the site were observed to generally operate well. The Chelmsford Road/ Metford Road roundabout and Metford Road/ Masonry Lane intersection operated well in both the morning and afternoon peak periods with minimal queues and delays on all approaches.

At the Metford Road/ Fieldsend Street/ Pottery Road roundabout significant queuing was observed on the north-east approach in the morning peak period, with rolling queues occasionally reaching Raymond Terrace. It is anticipated the up-hill grade on this approach impacts the approach speeds to the roundabout. In the afternoon peak period queuing was observed on the south-east approach to this intersection. Other approaches were considered to generally operate well.

During the morning peak period the south-east approach to Raymond Terrace/ Metford Road roundabout was observed to have significant queuing, queues were generally a rolling queue with limited stopping towards the rear of the queue. This approach was partially impacted by queueing that extended along Metford Road from the Fieldsend Road roundabout. Some queueing was observed on the north-west and south-west approaches in the afternoon period.

2.4.2 INTERSECTION PERFORMANCE

The operation of the key intersections within the study area have been assessed using SIDRA INTERSECTION (SIDRA), a computer-based modelling package which calculates intersection performance.

The commonly used measure of intersection performance, as defined by the TfNSW, is vehicle delay. SIDRA determines the average delay that vehicles encounter and provides a measure of the level of service.

Table 2 shows the criteria that SIDRA adopts in assessing the level of service.

Table 2: SIDRA level of service criteria

Level of service (LOS)	Average delay per vehicle (secs/veh)	Traffic signals, roundabout	Give way & stop sign
A	Less than 14	Good operation	Good operation
B	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Near capacity	Near capacity, accident study required
E	57 to 70	At capacity, at signals incidents will cause excessive delays	At capacity, requires other control mode
F	Greater than 70	Extra capacity required	Extreme delay, major treatment required

Table 3 and Table 4present a summary of the existing operation of the intersections, with full results presented in Appendix D.

Table 3: Existing intersection operating conditions – AM Peak (8:00am to 9:00am)

Intersection	Approach	Degree of saturation (DOS)	Average delay (sec)	95th percentile queue (m)	Level of service (LOS)
Metford Road/ Raymond Terrace Road	Raymond Terrace Road SE	0.70	14	80	A
	Metford Road NE	0.52	14	26	A
	Raymond Terrace Road NW	0.38	12	18	A
	Metford Road SW	0.66	16	52	B
Metford Road/ Fieldsend Street/ Pottery Road	Pottery Road	0.09	11	6	A
	Metford Road NE	0.83	9	141	B
	Fieldsend Street	0.17	11	8	A
	Metford Road SW	0.68	7	51	A
Metford Road/ Chelmsford Drive	Chelmsford Drive SE	0.60	13	30	A
	Metford Road NE	0.59	12	40	A
	Chelmsford Drive NW	0.59	6	36	A

Table 4: Existing intersection operating conditions – PM Peak (3:00pm to 4:00pm)

Intersection	Approach	Degree of saturation (DOS)	Average delay (sec)	95th percentile queue (m)	Level of service (LOS)
Metford Road/ Raymond Terrace Road	Raymond Terrace Road SE	0.61	16	42	B
	Metford Road NE	0.53	18	32	B
	Raymond Terrace Road NW	0.76	19	56	B
	Metford Road SW	0.78	20	79	B
Metford Road/ Fieldsend Street/ Pottery Road	Pottery Road	0.19	11	12	A
	Metford Road NE	0.78	7	77	A
	Fieldsend Street	0.52	23	32	B
	Metford Road SW	0.88	10	17	A
Metford Road/ Chelmsford Drive	Chelmsford Drive SE	0.43	11	19	A
	Metford Road NE	0.61	6	43	A
	Chelmsford Drive NW	0.62	6	44	A

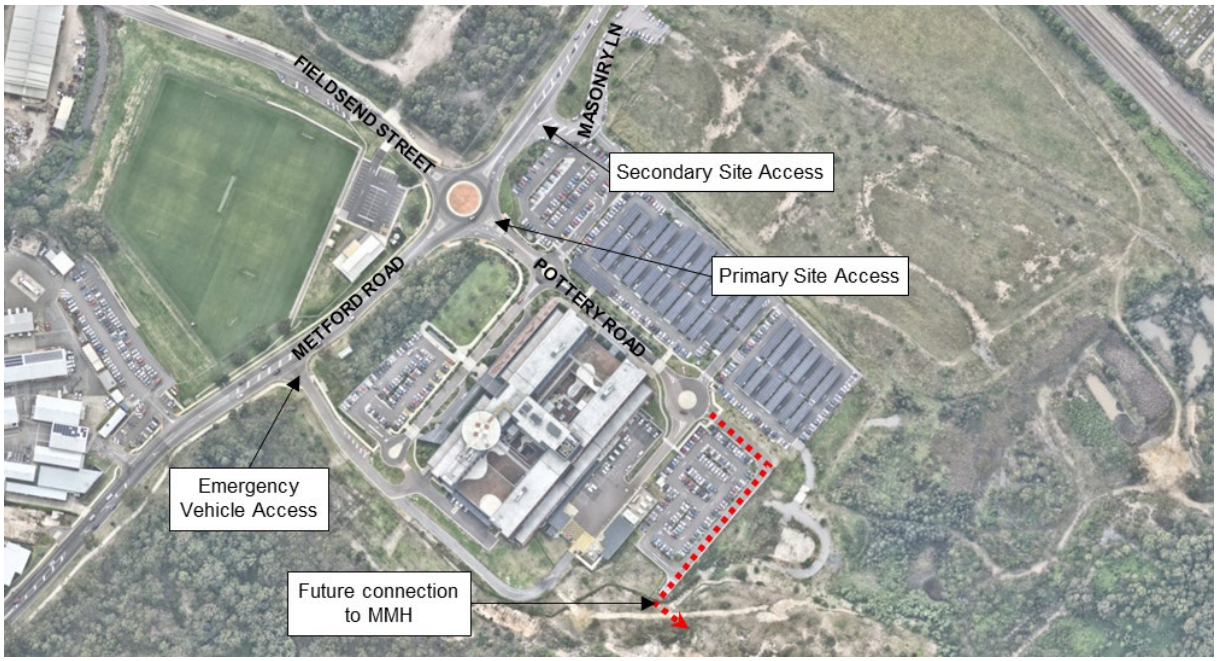
The analysed intersections appear to operate well at Level of Service B or better, with some queues experienced at certain approaches but with overall minor delays. It is noted however that observations on site recognise that there are heavy traffic volumes in the peak periods with Metford Road observed to be heavily utilised with rolling queues occurring over the majority of the peak hour.

The values highlighted in orange indicate approaches where the degree of saturation is approaching the maximum practical degree of saturation as specified in the TfNSW Traffic Modelling guidelines. Once the maximum practical degree of saturation is reached, the identified approaches are sensitive to increases in traffic.

2.5 Site Access

Access to the MMHR will be predominantly via Maitland Hospital's primary site access at the Metford Road/ Fieldsend Street/ Pottery Road roundabout, with a new road adjoining to the eastern end of Pottery Road connecting to the MMHR (shown in Figure 10). Maitland Hospital also contains two additional site accesses including a secondary access at Masonry Lane (left in/ left out only) and an ambulance only access located 130 metres south of the Pottery Road roundabout.

Figure 10: Aerial view of subject site and access points via Maitland Hospital



Base image source: Nearmap, accessed May 2024

2.6 Public Transport

Bus services provide local connections to the outer areas of Metford, including East Maitland and Thornton. As part of the Maitland Hospital works a new public bus stop is located within the hospital site on Pottery Road near the Outpatients Entry, with services generally provided every 30 minutes.

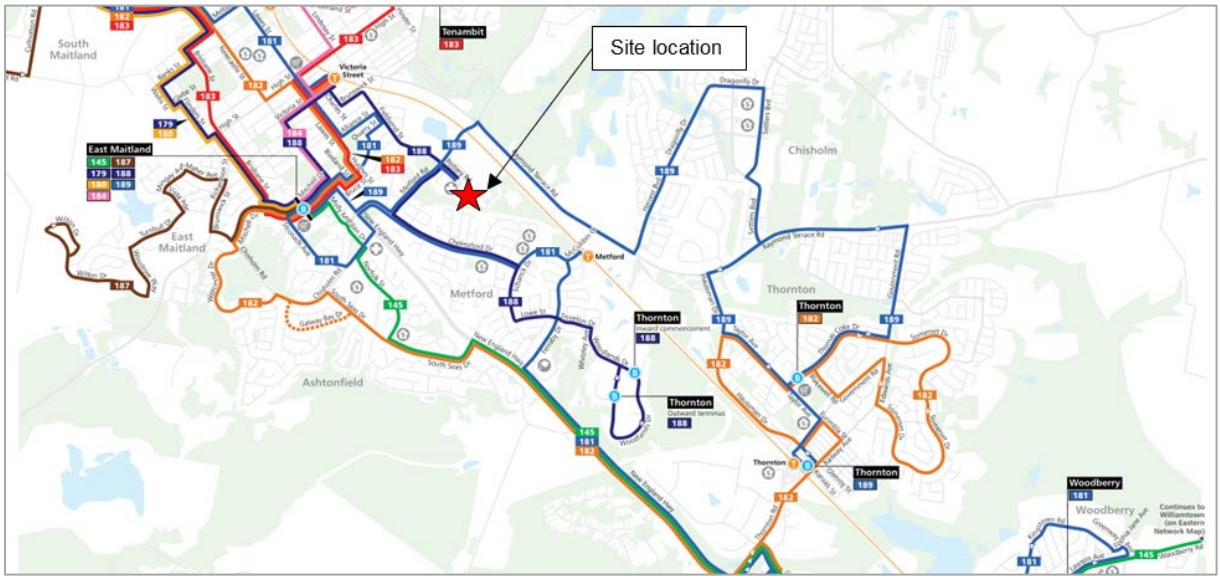
Victoria Street Railway Station is located around 1.4 kilometres from the site. It is part of the Hunter Line, with services alternately servicing Newcastle to Telarah, Dungog and Scone. Services at Victoria Street Railway Station are generally provided every 15-30 minutes.

A review of the public transport available near the site is summarised in Table 5 and illustrated in Figure 11.

Table 5: Public transport provision

Service	Route number	Route description	Location of stop	Distance to nearest stop	Frequency on/ off-peak
Bus	188	Green Hills Shopping Centre to Woodlands Estate via Maitland Hospital	Maitland Hospital, Pottery Road	0m	30 mins peak/ 30-45 mins off peak
	189	Green Hills Shopping Centre to Thornton via Chisholm			
	180	Singleton Heights to Green Hills Shopping Centre	Metford Road / Chelmsford Drive	700m	Limited services, 16 approx. every 2-3 hours
	181	Rutherford to Woodberry	Chelmsford Drive at Tennyson Street	950 m	Hourly peak/ 90min off peak
Train	N/A	Hunter Line	Victoria Street Station	1.4 km	30 mins peak/ hourly off peak
			Metford Station	2.7 km	30 mins

Figure 11: Surrounding public transport network



Basemap source: https://cdcbus.com.au/wp-content/uploads/2023/09/23375_CDC_NSW_OM2_map_A1_v4.pdf, accessed May 2024

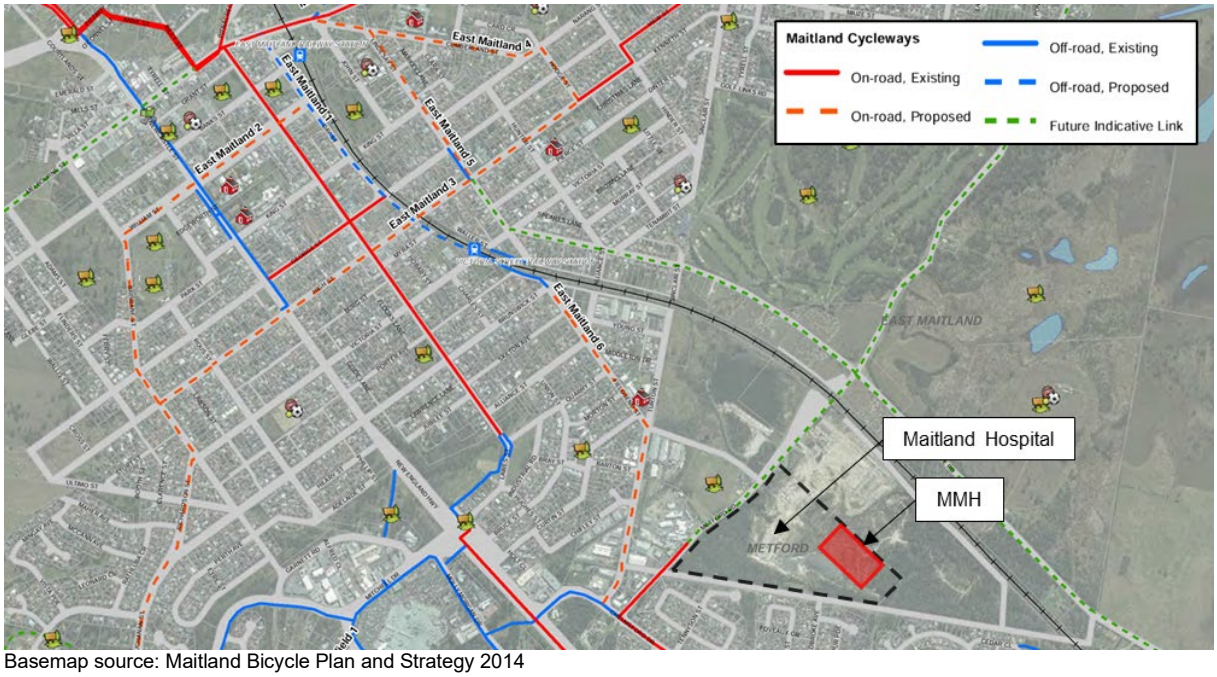
2.7 Walking and Cycling Infrastructure

There is a shared path on Fieldsend Street connecting Metford Road through to Victoria Street Station. This also connects to a new footpath provided on the north-western side of Metford Road between Fieldsend Street and the Council Depot. A shared path connection the Maitland Hospital and Chelmsford Road is also provided on the south-western side of Metford Road.

In addition, there are raised pedestrian crossing on Pottery Road that provide access between the car parking areas and the new Maitland Hospital.

The cycling network of East Maitland, including proposed on-road and off-road cycleways is shown in Figure 12. There is currently no specific bike infrastructure that connects to the new Maitland Hospital; however Metford Road is noted as a future indicative link in the Maitland Bicycle Plan and Strategy 2014.

Figure 12: Maitland bike network



Basemap source: Maitland Bicycle Plan and Strategy 2014

2.8 Heavy Vehicle Routes

It is noted that Metford Road between Chelmsford Street and Raymond Terrace Road is a Transport for NSW approved 25-metre, B-double route. As such, any changes to road design and intersection layout proposed on Metford Road must continue to accommodate 25-metre, B-double movements.

Figure 13: Heavy vehicle routes

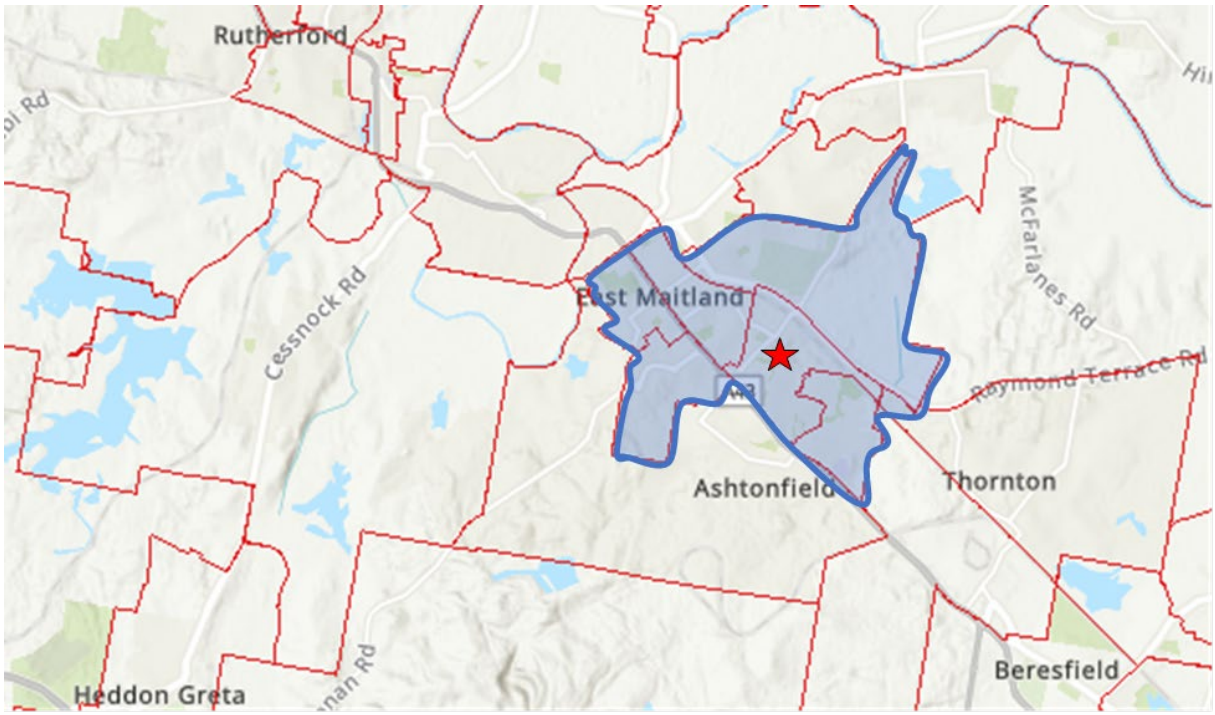
Source: http://www.rms.nsw.gov.au/business-industry/heavy-vehicles/maps/restricted-access-vehicles-map/map/index.html (accessed May 2024)

2.9 Existing Travel Patterns

Journey to Work (JTW) data has been sourced from the Australian Bureau of Statistics (ABS) 2016 census and provides an idea of existing travel patterns to the hospital and surrounding area. It is noted that while the 2016 census does not represent the latest set of data, the 2021 census was undertaken during the COVID-19 lock down period. Considering the above, the 2021 data does not accurately represent travel mode share data for the surrounding area and hence the 2016 data has been referred to within this Report.

Figure 14 details the catchment of census data analysed which corresponds to the ABS 2016 Destination Zone (DZN) 111157145 to 111157150.

Figure 14: Destination Zone containing MMHR



Base image source: ABS Maps, accessed May 2024

The JTW data indicates that 5,169 people work within the selected Destination Zone. Table 6 shows the distribution of travel modes by workers employed in the Destination Zone, adjusted for those that did not work, worked from home or who were not applicable. Data indicates that 96 per cent of workers travel to the area via private car, as driver or passenger. Public transport accounts for only two per cent.

Table 6: Existing travel mode share to the local area surrounding the site

Mode of Travel	Mode Share (%) [1]
Car, as driver	88
Car, as passenger	8
Train	1
Bus	1
Bicycle	0
Walked only	2
Other Mode	0

[1] Does not include residents who worked at home, did not go to work or who were not applicable.

2.10 Crash History

An analysis of the most recent five-year period of available crash data (1 January 2018 to 31 December 2022) has been undertaken based on crash data obtained from Transport for NSW Centre for Road Safety for the roads surrounding the site. The locations and severity of the crash data for the five-year period is shown in Figure 15, and summarised in Table 7.

Figure 15: Crash map from 1 January 2018 to 31 December 2022

Base image source: https://roadsafety.transport.nsw.gov.au/statistics/interactivecrashstats/index.html, accessed 15 May 2024

Table 7: Crash incident summary

Location	Crash Severity	Number of Crashes	Number of Injuries
Chelmsford Drive	Non-casualty (2) Moderate (3) Serious (2)	7	5
Metford Road	Non-casualty Serious (2)	3	3
Raymond Terrace Road	Non-casualty (2) Moderate (3)	5	3
Total		15	11

A summary of the crash history on the surrounding road network including Metford Road, Raymond Terrace Road and Chelmsford Drive is provided as follows:

- No fatalities were recorded during the five-year period.
- A total of 15 incidents occurred including three on Metford Road, five on Raymond Terrace Road and seven on Chelmsford Drive, resulting in 11 injuries.
- Of the incidents on Metford Road:
    - one non-casualty crash occurred approximately 120 metres south of the Raymond Terrace roundabout.

  - the remaining two crashes occurred approximately 130 metres south of the Pottery Road/ Fieldsend Street roundabout and resulted in two serious injuries due to a vehicle veering off-road and another performing an illegal U-turn.
- Of the remaining 12 incidents on Raymond Terrace Road and Chelmsford Drive only two were of a serious degree.

Given the low severity and number of recorded incidents there is no indication of a safety concern on the surrounding road network.

3 Development Proposal

3.1.1 OVERVIEW

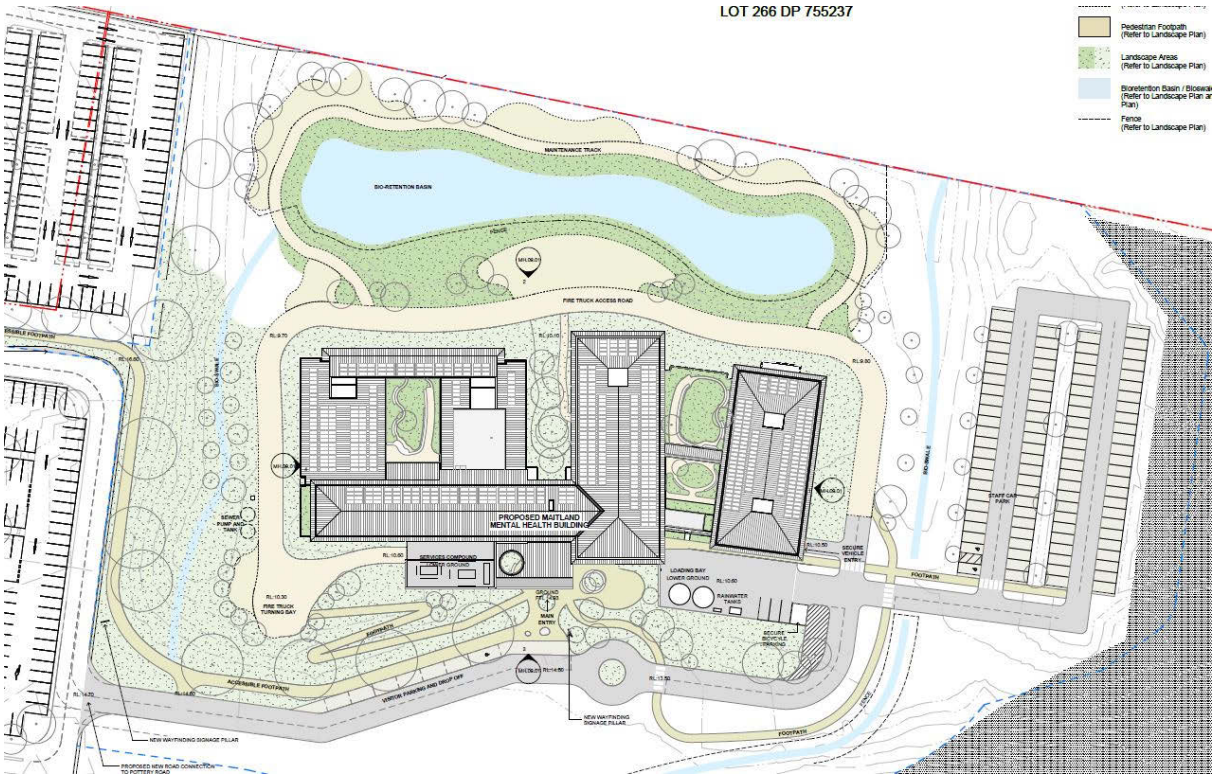
The MMHR Project (the project) includes the construction of a two-storey mental health facility to be integrated with the Maitland Hospital campus. It will include a total of 64 inpatient beds as follows:

- 20 medium secure forensic beds
- 24 low secure forensic beds
- 20 rehabilitation and recovery general beds.

The anticipated full time equivalent (FTE) staff numbers based on the latest service statement is 161 staff. Furthermore, the proposal includes a total of eight fleet vehicles.

The site layout is shown in Figure 16.

Figure 16: Site plan



Source: Site Plan, SWMHIP - New Maitland Hospital Mental Health, Drawing No. MH.01.03, Rev 7, prepared by Bates Smart

3.1.2 PARKING

The project includes the construction of car parking primarily for staff and fleet parking, as well as parking adjacent the proposed building for visitors, contractors and other uses. A summary of the proposed parking supply is shown in Table 8.

Table 8: Proposed parking supply

Location	Purpose	Number of parking spaces
Eastern carpark	Staff parking	88 (including 2 accessible spaces)
	Fleet parking	8
Loading	Contractor	2
	Police/emergency/other	1
	Secure parking	1 (enclosed)
Front entry	Visitor	7 (including 1 accessible space)
	Total parking supply	107 spaces

The site provides a total of 106 parking spaces plus an additional space in the secure parking area.

4 Parking

The proposed MMHR is anticipated to operate in a comparable manner to that of a private hospital with appointments by booking only and is not expected to have walk-ins. Parking demand will predominantly be from staff which will operate on a shift basis very similar to a private hospital. Therefore when considering appropriate parking rates, those of a private hospital are considered the most applicable.

4.1 Car Parking Requirements

This section outlines the various options for determining suitable car parking requirements for this development based on:

- Maitland Development Control Plan (DCP) 2011
- Transport for NSW Guide to Traffic Generating Developments 2002.

It is understood that that the project would accommodate 64 inpatient beds, 161 FTE staff and 25 operational/ fleet vehicles. The average number of staff per day shift (ASDS) has been calculated as 80 per cent of the FTE staff, based on similar facilities. This results in up to 129 staff on site during a weekday (morning or afternoon) shift.

4.1.1 TRANSPORT FOR NSW GUIDE TO TRAFFIC GENERATING DEVELOPMENTS

Car parking requirements for different development land uses is set out in the Transport for NSW Guide 2002. The rate considered to be the most appropriate for the site is the rate provided for private hospitals, outlined as follows:

$$peak\ parking\ accumulation = -19.56 + 0.85B + 0.27ASDS$$

where ‘B’ represents number of beds and ‘ASDS’ is the average staff per day shift.

The above formula estimates that the project is to provide a total of 70 parking spaces on site.

4.1.2 MAITLAND DEVELOPMENT CONTROL PLAN 2011

The Maitland DCP 2011 indicates that car parking for hospitals should be provided based on the following rates:

- 1 space per 10 beds (visitors), plus
- 1 space per 2 employees, plus
- 1 ambulance space.

Based on the DCP 2011, the project is to provide a total of 72 spaces, including seven visitor spaces, 65 staff spaces and one ambulance space.

4.1.3 OPERATIONAL REQUIREMENTS

Operationally it is understood that the MMHR would also require the following additional spaces:

- one police (authorised vehicles only) space
- two contractor spaces
- one secure patient transport service space
- eight fleet vehicle spaces.

4.1.4 SUMMARY

In summary, it is understood that the proposed MMHR is anticipated to operate in a comparable manner to that of a private hospital with appointments by booking only and is not expected to have walk-ins. Parking demand will predominantly be from staff which will operate on a shift basis very similar to a private hospital.

The above assessment indicates the project would be required to provide between 72 spaces, plus operational spaces including one police space, one secure patient transfer space, two contractor spaces and eight fleet parking spaces.

Therefore, it is recommended that the development accommodates at least 106 parking spaces, spaces plus one secure parking space as per the breakdown provided in Table 8.

Therefore, the parking supply proposed meets both the DCP and TfNSW requirements for the proposed development.

4.2 Accessible Spaces

Accessible car parking requirements for different development types are set out in the National Construction Code (NCC), Volume One 2019 Amendment 1.

Table 9: Accessible parking requirement (NCC 2019 Amendment 1- Table D3.5)

Class 9a [1]	No. of car parking spaces required
(a) Hospital (non-outpatient area)	1 space for every 100 car parking spaces or part thereof
(b) Hospital (outpatient area)	
(i) up to 1000 car parking spaces; and	1 space for every 50 car parking spaces or part thereof
(ii) for each additional 100 car parking spaces or part thereof in excess of 1000 car parking spaces	1 space
(c) Nursing home	1 space for every 100 car parking spaces or part thereof
(d) Clinic of day surgery not forming part of a hospital	1 space for every 100 car parking spaces or part thereof

[1] Class 9a is defined in the NCC as a *health care building*

Based on the proposed parking supply of around 106 parking spaces, two accessible spaces are required. The project provides three accessible parking spaces, one within the visitor area and two within the staff car park.

Accessible spaces are required to be 2.5 metres wide and 5.4 metres long with an adjacent shared area of 2.5 metres wide by 5.4 metres next to the parking space in accordance with the Health Infrastructure Guidelines, noting this exceeds the minimum requirements set out in the Australian Standard for Off Street Car Parking for People with Disabilities (AS/NZS 2890.6:2009).

The accessible parking supply summarised in Table 8 exceeds the required number of accessible spaces and therefore is suitable to cater for the proposed development.

4.3 Motorcycle Parking

DCP 2011 does not provide specific guidance on motorcycle parking provision requirements.

There is no proposed motorcycle parking provided as part of this proposal.

4.4 Electric Charging Stations

Health Infrastructure Guidelines note that Electric Vehicle (EV) charging is to be considered on a case-by-case basis in consultation with the LHD. As a minimum, provision for later installation of parking equipment shall be made, including provisions for electric car charging system, associated access control and potential dedicated transformer.

Health Infrastructure Design Guidance Note 46[1] outlines a minimum requirement for provision of electric charging stations for at least two per cent of total parking spaces. The Design Guidance Note states “LHD's can then choose to install charging stations and additional points as they see appropriate."

Clause J9D4 of the draft National Construction Code Volume 1 Building Code of Australia indicates the development is required to support the future installation of electric vehicle chargers for 20 per cent of car parking spaces. Based on a supply of 108 parking spaces, this results in the provision for at least 22 electric vehicle chargers/ spaces.

The HNELHD Sustainable Healthcare Together Towards Zero strategy indicates a move towards HNE fleet vehicles being hybrid electric and the implementation of e-charging stations across HNE facilities.

It is assumed that provision for EV charging stations is to largely be provided within the staff/ fleet car park. Conduits are proposed to be installed for 20 per cent of the parking quantity. The actual number of operating charging stations to be installed as part of the project is yet to be determined.

[1] Design Guidance Note No 046, Electric Vehicle Charge Points in Hospital Car Parks, Version 2, Health Infrastructure, 7 July 2 022

5 Design Review

5.1 Internal Road Network

An overview of the proposed internal road network is provided in Figure 17.

Figure 17: Site Plan

Source: Site Plan, SWMHIP - New Maitland Hospital Mental Health, Drawing No. MH.01.03, Rev 5, prepared by Bates Smart

As stated at Section 2.5, the Maitland Hospital campus has three accesses, as follows:

- primary access via Pottery Road (Metford Road roundabout)
- secondary access via Masonry Lane (left-in/ left-out)
- an ambulance only access located 130 metres south of the Metford Road/ Fieldsend Street/ Pottery Road roundabout.

Access to the proposed development will be through the existing primary access to Maitland Hospital via Pottery Road. MMHR traffic will use Pottery Road to travel to the rear of the campus and access the MMHR via a new three-way intersection to be designed near the access to staff car park P5 (as shown in Figure 17).

An indented bay will be provided along the MMHR frontage (shown in Figure 17) which provides seven visitor spaces near the MMHR entrance along the new internal road. Vehicles exiting these

spaces would then be able to turnaround at the new roundabout to the south, with staff, patient transfer, service and emergency vehicles provided access past this area. A staff parking area will be located to the south of the MMHR building accommodating staff and fleet cars.

A loading bay is proposed in the south-west corner of the MMHR with a secure patient transfer area further to the east on the south side of the building. Inclusion of any access controls is yet to be determined and will be determined during the detailed design phase.

A fire services road is provided around the building, extending beyond the staff car park entrance. Adequate hardstand area would be provided at its end to enable fire services to turnaround. The road is critical to provide access for fire appliances around the perimeter of the facility in an emergency. It is understood that only fire appliance vehicle movements will be permitted along this road, with the road to be gated with emergency services key requirements.

A design review and swept path assessment is provided in Appendix B.

5.2 Parking

5.2.1 OVERVIEW

Parking spaces in the at-grade car park would be designed to be at least 2.6 metres wide by 5.4 metres long which would cater for both staff and visitor parking requirements to meet the Health Infrastructure guidelines. Internal aisle widths are designed to be a minimum of 5.8 metres which meets the minimum requirements of AS/NZS2890.1.

Accessible spaces are required to be 2.5 metres wide and 5.4 metres long with an adjacent shared area of 2.5 metres wide by 5.4 metres next to the parking space in accordance with the Health Infrastructure Guidelines.

5.2.2 VISITOR PARKING

The project will provide an indented visitor parking bay along the MMHR frontage, this will include seven visitor parking spaces (including one accessible space) along the new internal road.

5.2.3 STAFF PARKING

The staff car park would also accommodate fleet cars. It is recommended that the staff car park be configured to provide one-way clockwise circulation. This would reduce conflicting movements.

5.3 Logistics

The largest vehicle expected to access the loading dock is the 10.5m waste truck with deliveries expected to be accommodated by 8.8m medium rigid vehicles (MRV). The proposed road network extension to service the MMHR will be designed to connect into the existing network and accommodate for vehicles up to and including 10.1 metre fire appliances and 10.5m waste trucks.

Pottery Road is designed to accommodate two-way B99 vehicles on the bend adjacent to the Maitland Hospital eastern carpark (P5). For the MMHR to accommodate regular access by 8.8m MRVs for deliveries some widening would be required on the approach to the bend to accommodate two-way flow. Visibility on the approaches to the bend is good and the frequency of larger vehicles is expected to be low and unlikely to result in concurrently operating on the bend. Widening on the bend approach is to be included to accommodate future service delivery vehicle requirements.

A private and secure patient transfer area is provided which is separated from the main service area for the site.

6 Sustainable Transport Infrastructure

6.1 Overview

An overview of the existing and proposed sustainable transport infrastructure at the Maitland Hospital site is shown in Figure 18.

Figure 18: Sustainable Transport Infrastructure

Source: Site Plan, Maitland Mental Health Rehabilitation Project, Drawing No. MH.01.03, prepared by Bates Smart

6.2 Walking and Cycling Network

The existing Maitland Hospital walking and cycling network will service the proposed MMHR development, with extensions proposed to connect the development into the existing network.

As shown in Figure 18, the proposed footpath will connect into the existing network at the eastern end of Pottery Road near the P4 staff car park. The new path will provide suitable connection to and from the proposed facility to Metford Road and the surrounding areas.

The proposed pathways are anticipated to be 2.5 metres wide and will be designed to meet DDA compliance and function as shared pathways.

6.2.1 BICYCLE PARKING AND END OF TRIP FACILITES

The following facilities are proposed to be provided in the MMHR:

- four covered, secure bike parking spaces for staff
- two uncovered open bike parking spaces (hoops/ loops) for visitors/the public, near then main entrance
- one accessible unisex shower and one standard unisex shower on the ground level
- one accessible unisex shower and one standard unisex shower on the lower ground level

- Lockers are to be provided for each department in their relevant staff room or workspace area. The sizes and allocations of these lockers are to be confirmed.

Maitland DCP 2011 refers to the Austroads Guide to Traffic Engineering, Part 14 for the provision of bicycle parking rates and facilities. It is noted that this Austroads document has been superseded with updating guidance on cycling facilities. Therefore, reference has been made to Austroads Guide to Traffic Management Part 11 for bicycle parking provision rates. The bicycle parking provision rates most appropriate for the site are the general hospitals rate, in summary the rates are:

- 1 space per 15 beds for staff
- 1 space per 30 beds for visitors.

Based on the requirements the MMHR would be required to provide six bicycle parking spaces, including four staff and two visitor spaces, which have been allowed for as noted above.

6.3 Public Transport

The existing bus stop located on Pottery Road servicing the Hospital is located approximately 250-300 metres from the front entrance to the proposed facility. The existing bus stop will service any visitors or staff for the proposed MMHR development.

6.4 Travel Mode Share

As detailed in Section 2.9, the existing mode share for car as a driver and car as a passenger is high at 88% and 8%, respectively. The high car dependence is representative of the regionality of Maitland and limited public transport accessibility and coverage, as well as significant travel distances. As such, there is limited ability to effectively achieve a mode shift mode away from private car travel for the proposed development, regardless of sustainable transport initiatives.

It is also noted that the parking supply proposed as part MMHR is not dependent on the implementation of any mode shift as detailed in Section 4. On this basis, car remains as the main form of transport to MMHR, and this has been taken into account by providing sufficient parking spaces.

7 Traffic Impact

7.1 Overview

The MMHR is expected to open in 2027 accommodating 64 beds and 161 FTE staff.

Traffic impact of the MMHR has been considered for 2027 and 2037 future years with the following scenarios tested:

- Base – existing conditions, plus background traffic growth
- MMHR Development – base plus estimated MMHR traffic.

7.2 Traffic Generation

7.2.1 DESIGN RATES

The Transport for NSW Guide to Traffic Generating Developments 2002 (Guide 2002) has been referenced to understand the impact of the proposed development. The rate considered to be the most appropriate for this site is the rate provided for private hospitals, this is due to the facility typically being long stay care and therefore most of the traffic generated would be relating to staff who will be working shift work as typical with a hospital facility.

The following trip generation rates based on the number of beds and the average number of staff per weekday shift:

- Peak Vehicle Trips (PVT) = -14.69 + 0.69B + 0.31ASDS
- Morning Vehicle Trips (MVT) = -10.21 + 0.47B + 0.06ASDS
- Evening Vehicle Trips (EVT) = -2.84 + 0.25B + 0.40ASDS.

where ‘B’ represents the number of beds proposed and ‘ASDS’ is the average staff per day shift.

7.2.2 ESTIMATED TRAFFIC GENERATION

It is assumed that the project would operate at full capacity from 2027 accommodating 64 inpatient beds and 161 FTE staff. The average number of staff per day shift (ASDS) has been calculated as 80 per cent of the FTE staff, based on similar facilities. This results in up to 129 staff on site during a weekday (morning or afternoon) shift.

Based on the surveys of the surrounding network, it is expected that the peak impact would occur in the evening period. Therefore, the EVT has been utilised as the design traffic generation rate to overlap with the network peak. On this basis and having consideration for the proposed bed and staff numbers the project is estimated to generate the following:

- Morning Vehicle Trips (MVT) = 28 trips
- Evening Vehicle Trips (EVT) = 65 trips

Based on the above the MMHR is estimated to generate 28 and 65 vehicle trips in the AM and PM peak hours.

7.3 Background Traffic Growth

Transport for NSW provided Stantec with outputs for the Maitland area from their Strategic Traffic Forecasting Model (STFM) which has been used to determine the background traffic growth forecast for this transport assessment.

These outputs included forecasted mid-block traffic volumes for 2021, 2031 and 2041, accounting for the growth in traffic volumes as result of the development of the surrounding areas. Using these volumes, the growth rates for the individual links near the site were calculated and applied to the Stantec surveyed 2024 traffic volumes.

Table 10 Growth rates from STFM (TZP22)

Road	Year	Average Annual Growth Rate			
		AM		PM	
		Northbound/ eastbound	Southbound/ westbound	Northbound/ eastbound	Southbound/ westbound
Metford Road between Chelmsford Dr and Fieldsend Street	2021-2031	1.82%	2.70%	1.57%	1.12%
	2031-2041	2.35%	0.24%	2.50%	-1.83%
Metford Road between Fieldsend Street and Raymond Terrace Drive	2021-2031	1.88%	2.47%	2.01%	1.23%
	2031-2041	2.31%	0.67%	2.50%	-1.04%
Chelmsford Drive	2021-2031	2.80%	0.86%	0.80%	2.68%
	2031-2041	1.49%	1.11%	2.22%	1.33%
Fieldsend Street	2021-2031	2.59%	N/A	4.37%	N/A
	2031-2041	-0.27%		3.82%	
Raymond Terrace Road	2021-2031	1.18%	2.21%	1.10%	1.70%
	2031-2041	1.18%	2.90%	3.82%	2.41%

7.4 Distribution and Assignment

The directional distribution and assignment of traffic generated by the proposed development will be influenced by a number of factors, including the:

- configuration of the existing and future arterial road network in the immediate vicinity of the site
- existing operation of intersections providing access between the local and arterial road network
- likely distribution of staff and patient/ visitor residences in relation to the site
- configuration of access points to the site.

The broader directional distributions for each of the peak hours have been extrapolated from 2024 survey data, and is summarised in Table 11.

Table 11 Direction distribution of traffic to and from MMHR

Direction	Percentage of vehicles			
	Inbound		Outbound	
	AM	PM	AM	PM
Metford Road (north)	16%	29%	9%	23%
Metford Road (south)	77%	59%	73%	66%
Fieldsend Road (west).	7%	12%	18%	11%

Inbound and outbound distribution has been extrapolated from 2024 traffic survey data and calculated to be 81 per cent inbound and 19 per cent outbound during the AM peak hour and 43 per cent inbound and 57 per cent outbound during the PM peak hour. All vehicles associated with the MMHR are expected to enter and exit the site from the main access located on Pottery Road.

In addition to the above, the following traffic distribution assumptions were made:

- Local distributions at the Chelmsford Drive/ Metford Road and Raymond Terrace Road/ Metford Road intersections are based on existing distributions at these intersections.
- Maitland Hospital and MMHR traffic are assumed to have similar distributions.
- The access points at Masonry Lane and the ambulance access location were not included in this analysis as they are not expected to be used by MMHR staff or visitors.

7.5 Intersection Operation

The traffic impact of the MMHR has been considered for 2027 and 2037 future years with the following scenarios tested:

- Base – existing conditions, plus background traffic growth
- MMHR Development – Base plus estimated MMHR traffic.

7.5.1 YEAR OF OPENING – 2027

The intersection performance under Base and MMHR Development scenarios is summarised in Table 12 and

Table 13, respectively.

Table 12: 2027 Base scenario operating conditions (without MMHR development)

Intersection	Peak Period	Approach	Degree of saturation (DOS)	Average delay (sec)	95th percentile queue (m)	Level of service (LOS)
Metford Road/ Raymond Terrace Road	AM	Raymond Terrace Road SE	0.78	19	105	B
		Metford Road NE	0.57	14	31	A
		Raymond Terrace Road NW	0.41	13	20	A
		Metford Road SW	0.74	19	70	A
	PM	Raymond Terrace Road SE	0.66	16	50	B
		Metford Road NE	0.57	19	36	B
		Raymond Terrace Road NW	0.83	23	71	B
		Metford Road SW	0.88	27	110	B
Metford Road/ Fieldsend Street/ Pottery Road	AM	Pottery Road	0.06	17	3	B
		Metford Road NE	0.91	19	119	B
		Fieldsend Street	0.19	15	9	B
		Metford Road SW	0.72	13	58	A
	PM	Pottery Road	0.16	14	8	A
		Metford Road NE	0.82	15	94	B
		Fieldsend Street	0.67	40	47	C
		Metford Road SW	0.93	19	233	B
Metford Road/ Chelmsford Drive	AM	Chelmsford Drive SE	0.67	18	36	B
		Metford Road NE	0.66	17	52	B
		Chelmsford Drive NW	0.42	13	22	A
	PM	Chelmsford Drive SE	0.50	15	21	B
		Metford Road NE	0.67	18	53	B
		Chelmsford Drive NW	0.45	13	26	A

Table 13: 2027 MMHR scenario operating conditions (with MMHR development)

Intersection	Peak Period	Approach	Degree of saturation (DOS)	Average delay (sec)	95th percentile queue (m)	Level of service (LOS)
Metford Road/ Raymond Terrace Road	AM	Raymond Terrace Road SE	0.78	19	106	A
		Metford Road NE	0.56	14	31	A
		Raymond Terrace Road NW	0.41	13	20	A
		Metford Road SW	0.74	19	70	B
	PM	Raymond Terrace Road SE	0.66	17	50	B
		Metford Road NE	0.57	20	36	B
		Raymond Terrace Road NW	0.83	24	73	B
		Metford Road SW	0.89	28	123	B
Metford Road/ Fieldsend Street/ Pottery Road	AM	Pottery Road	0.13	17	9	A
		Metford Road NE	0.93	21	250	B
		Fieldsend Street	0.20	15	10	B
		Metford Road SW	0.73	13	61	A
	PM	Pottery Road	0.28	14	18	A
		Metford Road NE	0.84	16	103	B
		Fieldsend Street	0.71	46	53	D
		Metford Road SW	0.95	22	289	B
Metford Road/ Chelmsford Drive	AM	Chelmsford Drive SE	0.67	18	36	B
		Metford Road NE	0.67	17	52	B
		Chelmsford Drive NW	0.637	13	49	A
	PM	Chelmsford Drive SE	0.52	16	25	A
		Metford Road NE	0.69	18	57	B
		Chelmsford Drive NW	0.62	13	43	A

The results in Table 12 indicate that with the expected background growth the study intersections would operate with moderate delays in 2027, although at high degrees of saturation for certain approaches.

Table 13 indicates that the additional MMHR traffic volumes would have minimal impact on the surrounding intersections with minor increases in average delays and queuing.

7.5.2 10 YEAR DESIGN HORIZON – 2037

The impacts on the surrounding road network during peak periods for the 2037 Base and MMHR Development scenarios are detailed in Table 14 and Table 15, respectively.

Table 14: 2037 Base scenario operating conditions (without MMHR development)

Intersection	Peak Period	Approach	Degree of saturation (DOS)	Average delay (sec)	95th percentile queue (m)	Level of service (LOS)
Metford Road/ Raymond Terrace Road	AM	Raymond Terrace Road SE	1.26	218	1190	F
		Metford Road NE	0.78	14	63	A
		Raymond Terrace Road NW	0.52	11	31	A
		Metford Road SW	1.05	70	334	E
	PM	Raymond Terrace Road SE	0.94	27	172	B
		Metford Road NE	0.79	22	68	B
		Raymond Terrace Road NW	1.06	66	304	E
		Metford Road SW	1.19	209	670	F
Metford Road/ Fieldsend Street/ Pottery Road	AM	Pottery Road	0.15	20	11	B
		Metford Road NE	1.06	73	856	F
		Fieldsend Street	0.33	14	18	A
		Metford Road SW	0.86	9	111	A
	PM	Pottery Road	0.21	12	13	A
		Metford Road NE	0.81	81	88	A
		Fieldsend Street	0.97	93	126	F
		Metford Road SW	1.13	132	1397	F
Metford Road/ Chelmsford Drive	AM	Chelmsford Drive SE	0.88	28	68	B
		Metford Road NE	0.83	21	99	B
		Chelmsford Drive NW	0.78	10	88	A
	PM	Chelmsford Drive SE	0.63	16	38	B
		Metford Road NE	0.88	26	135	B
		Chelmsford Drive NW	0.79	9	90	A

Table 15: 2037 MMHR scenario operating conditions (with MMHR development)

Intersection	Peak Period	Approach	Degree of saturation (DOS)	Average delay (sec)	95th percentile queue (m)	Level of service (LOS)
Metford Road/ Raymond Terrace Road	AM	Raymond Terrace Road SE	1.44	374	1924	F
		Metford Road NE	0.77	14	62	A
		Raymond Terrace Road NW	0.52	11	31	A
		Metford Road SW	1.05	74	349	F
	PM	Raymond Terrace SE	0.94	28	177	B
		Metford Road NE	0.79	22	69	B
		Raymond Terrace Road NW	1.06	69	305	E
		Metford Road SW	1.52	354	1444	F
Metford Road/ Fieldsend Street/ Pottery Road	AM	Pottery Road	0.15	18	11	B
		Metford Road NE	1.09	92	993	F
		Fieldsend Street	0.34	15	19	A
		Metford Road SW	0.89	9	116	A
	PM	Pottery Road	0.27	12	17	A
		Metford Road NE	0.82	7	94	A
		Fieldsend Street	0.97	111	122	F
		Metford Road SW	1.16	156	1581	F
Metford Road/ Chelmsford Drive	AM	Chelmsford Drive SE	0.73	17	47	B
		Metford Road NE	0.76	17	77	B
		Chelmsford Drive NW	0.72	8	67	A
	PM	Chelmsford Drive SE	0.71	18	39	B
		Metford Road NE	0.74	18	67	B
		Chelmsford Drive NW	0.89	12	146	A

The results in Table 14 indicate that with the expected background growth all surveyed intersections would be operating at/ above capacity during the road network peak periods in 2037 regardless of the MMHR. This is due to traffic volumes exceeding the capacity on Metford Road. It is evident that Metford Road would require upgrades in order cater for the anticipated traffic volumes, regardless of the MMHR.

SIDRA movement summaries are provided in Appendix D.

7.6 Metford Road – Future Capacity

As part of the traffic assessment undertaken for the approval of the Maitland Hospital it was identified that Metford Road would reach a mid-block volume/capacity ratio of 0.9 (Level of Service E) in 2024 with the hospital development in the PM peak. Level of Service E indicates that the traffic volumes are close to capacity and therefore minor disturbances within the traffic stream could cause breakdown.

The Hunter and Central Coast Development Corporation (HCCDC) has established the East Maitland Catalyst Area Steering Group. This Steering Group has been established to support the work of Maitland City Council and key NSW Government agencies in achieving the vision and outcomes of

the East Maitland Catalyst Area in accordance with the Hunter Regional Plan 2036 and Greater Newcastle Metropolitan Plan 2036. The Steering group includes representatives from:

- Maitland City Council
- Department of Planning Industry and Environment
- Transport for NSW
- Health Infrastructure.

The Catalyst Area program will identify the need to plan for, fund and deliver the infrastructure (including Metford Road) needed to support growth of new homes and jobs in the area.

The upgrades that are required to accommodate expected background growth are outlined in the Transport for NSW STFM for Metford Road.

7.6.1 MID-BLOCK CAPACITY ANALYSIS

Analysing the expected through-traffic on Metford Road near the site provides an understanding of the performance characteristics of this key corridor following the development of the Maitland Hospital and MMHR.

The Austroads Guide to Traffic Management – Part 3: Traffic Studies and Analysis provides typical mid-block capacities for urban roads. This is summarised in Table 16.

Table 16: Typical mid-block capacity – Urban roads

Type of lane	One-way mid-block capacity (passenger cars per lane, per hour)
Median or Inner Lane	
Divided Road	1,000
Undivided Road	900
Middle Lane (of a 3 Lane Carriageway)	
Divided Road	900
Undivided Road	1,000
Kerb Lane	
Adjacent to Parking Lane	900
Occasional Parked Vehicles	600
Clearway Condition	900

Source: Table 6.1 of Austroads Guide to Traffic Management – Part 3: Traffic Studies and Analysis

In addition, peak-period mid-block capacities may increase to 1,200 or 1,400 passenger cars per lane per hour when the following conditions exist or can be implemented:

- adequate flaring at major upstream intersections
- uninterrupted flow from a wider carriageway upstream of an intersection approach and flowing at capacity
- control or absence of crossing or entering traffic at minor intersections by major road priority controls

- control or absence of parking
- control or absence of right turns by banning turning at difficult intersections
- high volume flows of traffic from upstream intersections during more than one phase of a signal cycle
- good coordination of traffic signals along the route.

On this basis, a capacity of 1,200 passenger cars per lane per hour has been adopted for Metford Road. This is considered appropriate, since the road exhibits the following:

- absence of crossing or entering traffic at minor intersections by major road priority control
- adequate flaring at major upstream intersections
- control or absence of parking and control.

Analysis of the mid-block level of service was conducted based on criteria set by TfNSW and experience with comparable developments, with a summary provided in Table 17.

Table 17: Mid-block level of service criteria

Level of service	Description	Volume to capacity ratio (VCR) range
A	A condition of free flow in which individual drivers are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and to manoeuvre within the traffic stream is extremely high, and the general level of comfort and convenience provided is excellent.	0.00 – 0.34
B	In the zone of stable flow and drivers still have the reasonable freedom to select their desired speed and to manoeuvre within the traffic stream, although the general level of comfort and convenience is a little less than LoS A.	0.35 – 0.50
C	Also, in the zone of stable flow, but most drivers are restricted to some extent in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience declines noticeably at this level.	0.51 – 0.74
D	Close to the limit of stable flow and approaching unstable flow. All drivers are severely restricted in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience is poor, and small increases in traffic flow will generally cause operational problems.	0.75 – 0.89
E	Occurs when traffic volumes are at or close to capacity, and there is virtually no freedom to select desired speeds or to manoeuvre within the traffic stream. Flow is unstable and minor disturbances within the traffic stream will cause break-down.	0.90 – 0.99
F	In the zone of forced flow. With LOS F, the amount of traffic approaching the point under consideration exceeds that which can pass it. Flow breakdown occurs, and queuing and delays result.	1.0 or greater

Source: Based on values as supplied in Guide to Traffic Generating Developments (TfNSW, 2002)

Based on Table 17, an assessment of the mid-block capacity for each direction (northbound (NB) and southbound (SB) of Metford Road during peak periods for the 2022 existing, 2027 growth and 2037 growth scenarios, with and without the MMHR development, is outlined in Table 18.

Table 18: Mid-block capacity

Road Segment	Scenario	Traffic Volumes				Volume/ Capacity			
		AM		PM		AM		PM	
		NB	SB	NB	SB	NB	SB	NB	SB
Metford Road (north of Fieldsend Road)	2024 Existing	661	1106	1024	1058	0.55 (C)	0.92 (E)	0.85 (D)	0.88 (D)
	2027 Base	699	1187	1078	1095	0.58 (C)	0.99 (E)	0.90 (E)	0.91 (E)
	2027 w MMHR	699	1191	1087	1103	0.58 (C)	0.99 (E)	0.91 (E)	0.92 (E)
	2037 Base	858	1357	1339	1078	0.72 (C)	1.13 (F)	1.12 (F)	0.90 (E)
	2037 w MMHR	859	1361	1347	1086	0.72 (C)	1.13 (F)	1.12 (F)	0.91 (E)
Metford Road (south of Fieldsend Road)	2024 Existing	843	1035	1090	1100	0.70 (C)	0.86 (D)	0.91 (E)	0.92 (E)
	2027 Base	880	1109	1135	1139	0.73 (C)	0.92 (E)	0.95 (E)	0.95 (E)
	2027 w MMHR	897	1112	1152	1164	0.75 (D)	0.93 (E)	0.96 (E)	0.97 (E)
	2037 Base	1042	1265	1422	1152	0.87 (D)	1.05 (F)	1.18 (F)	0.96 (E)
	2037 w MMHR	1059	1269	1438	1176	0.88 (D)	1.06 (F)	1.20 (F)	0.98 (E)

Table 18 indicates the following:

- Metford Road north of Fieldsend Road currently operates at capacity providing a mid-block LOS of E for southbound traffic during the AM peak. Multiple other segments operate close to the limit of stable flow at LOS D
- Under the 2027 Base scenario multiple segments on Metford Road are anticipated to operate at capacity for both the AM and PM peaks.
- Under the 2037 Base scenario multiple segments on Metford Road are operating at or over capacity at LOS F during both the AM and PM peaks.
- MMHR provides minimal impact to the mid-block level of service under all scenarios.

It is noted that Metford Road is expected to operate at LOS E in 2027 regardless of whether MMHR is developed, with the development having a minor impact to the level of service (aligning with the findings of the SIDRA modelling discussed in Section 7.5). LOS E indicates that the traffic volumes are close to capacity and therefore minor disturbances within the traffic stream could cause breakdown.

7.6.2 INTERNAL ROAD CAPACITY (POTTERY ROAD)

An assessment has been undertaken for Pottery Road to access its capacity when including the MMHR. The two scenarios shown in Table 19 are the existing conditions and with MMHR. The midblock capacity was assessed on Pottery Road between the two roundabouts that provide access

to car parking areas. The capacity per lane per hour was determined to be 900, as per Table 16 above.

Table 19: Internal road mid-block capacity

Road Segment	Scenario	Traffic Volumes				Volume/ Capacity			
		AM		PM		AM		PM	
		EB	WB	EB	WB	EB	WB	EB	WB
Pottery Road (Internal)	2024 Existing conditions	72	35	29	90	0.08 (A)	0.04 (A)	0.03 (A)	0.10 (A)
	With MMHR	94	40	57	127	0.10 (A)	0.04 (A)	0.06 (A)	0.14 (A)

It is noted that existing traffic volumes using Pottery Road are less than 100 vehicles in each direction and all operate at LOS A. Pottery Road is not expected to require additional upgrades and would adequately cater for future traffic volumes associated with the addition of MMHR traffic through the site.

8 Preliminary Construction Traffic and Pedestrian Management Plan

8.1 Overview

This overview of construction traffic impacts associated with construction activity aims to ensure the safety of all workers and road users in the vicinity of the construction site. The primary objectives of the Construction Traffic and Pedestrian Management Plan (CTPMP) outlined below includes the following:

- To identify the need for adequate and compliant traffic management requirements within the vicinity of Maitland Hospital.
- To ensure continuous, safe and efficient movement of traffic for both the general public and construction workers.
- Establishment of a safe pedestrian environment in the vicinity of the site.
- To inform the Principal Contractor and set the ground rules for managing the construction traffic associated with the construction site.

8.2 Key Objectives

The overall principles of traffic management during the construction activity include:

- Provide an appropriate and convenient environment for pedestrians.
- Minimise the impact on pedestrian movements.
- Maintain appropriate capacity for pedestrians at all times on footpaths around the site.
- Maintain appropriate public transport access.
- Maintain current levels of parking within the precinct.
- Maintain permanent access to/ from the hospital accesses for emergency services.
- Restrict construction vehicle movements to designated routes to/ from the site.
- Manage and control construction vehicle activity in and around the site.
- Minimise impacts to general traffic around the site.

8.3 Work Hours

Works associated with the development will be carried out in accordance with the approved consent conditions, with the anticipated work hours of construction as follows:

- Monday to Friday 7:00am and 6:00pm
- Saturday 8:00am and 1:00pm
- Sunday/ public holiday no work.

In addition to regular work hours, there will be occasions where specific out-of-hours works are required. The Principal Contractor will be responsible for instructing and controlling all subcontractors regarding the hours of work. Any work outside the approved construction hours would be subject to specific prior approval from Health Infrastructure.

The actual duration of the works is currently unknown and will be scheduled once the contractor is appointed. For the purposes of this assessment, it is expected that the duration of the construction works could be around 12-18 months.

8.4 Construction Worker Parking and Traffic

The number of construction workers is currently unknown and will depend on the methodology of the appointed contractor. However, to provide a preliminary assessment the average number of workers during peak activities is anticipated to be around 80 to 100 workers on-site per day across the duration of the project.

Construction worker parking is to be provided on site within the project area to the east of the existing hospital unless agreed otherwise with Maitland City Council, as

Workers would also be encouraged to use public transport to access the site where practical. During site induction, workers should be informed of the existing bus network servicing the site. Appropriate arrangements should be made for any equipment/ tool storage and drop-off requirements.

Construction worker arrivals and departures by vehicle are likely to be outside of the AM network peak hour, however, could occur within the PM peak.

8.5 Construction Traffic Volumes

The site will have various types of construction vehicles accessing the site. The largest construction vehicle accessing the site would likely be 19 metre semi-trailers and truck and dog combinations.

It is expected that the peak construction vehicle activity and will result in up to 20 trucks (40 two-way movements) in and out of the site per day. These movements are expected to be spread throughout the day and therefore a conservative 20 per cent is assumed to occur within the peak hours.

Table 20: Construction traffic volumes

Type	AM peak		PM peak		Daily	
	In	Out	In	Out	In	Out
Light vehicles	80-100	-	-	80-100	80-100	80-100
Heavy vehicles	4	4	4	4	20	20

Generally, construction workers are expected to arrive before the AM peak period, however, could likely depart during the PM peak period. Table 20 conservatively assumes that should construction vehicles arrive and depart in the peak periods there could potentially be an additional 80-100 light vehicles and eight heavy vehicles in the peak hours for the construction of the MMHR.

8.6 Site Access

General construction vehicle access for workers and heavy vehicles including 12.5m HRVs and truck and dogs are expected to be via Pottery Road and through the existing road network adjacent to staff car park P5.

Site access arrangements for any semi-trailers would require an alternative access either managed via the dedicated access near the existing ambulance road to the Hospital or via an access through the loading dock. This is to be confirmed following the engagement of a construction contractor and will be confirmed in the detailed CTPMP. The appointed contractor will be responsible for obtaining appropriate disruption notices with the LHD.

Queuing or marshalling of construction vehicles will not be permitted on the external road network, with call-up procedures to be put in place to manage arrivals.

8.7 Construction Vehicle Routes

Generally, construction vehicles will have origins and destinations from a wide variety of locations. However, all construction vehicles will be restricted to the State and Regional Road network where practicable. The main access routes for construction vehicles are from the New England Highway and Raymond Terrace Road. The construction vehicle routes are detailed below and shown in Figure 19. No queuing or marshalling of construction vehicle will be permitted on public roads.

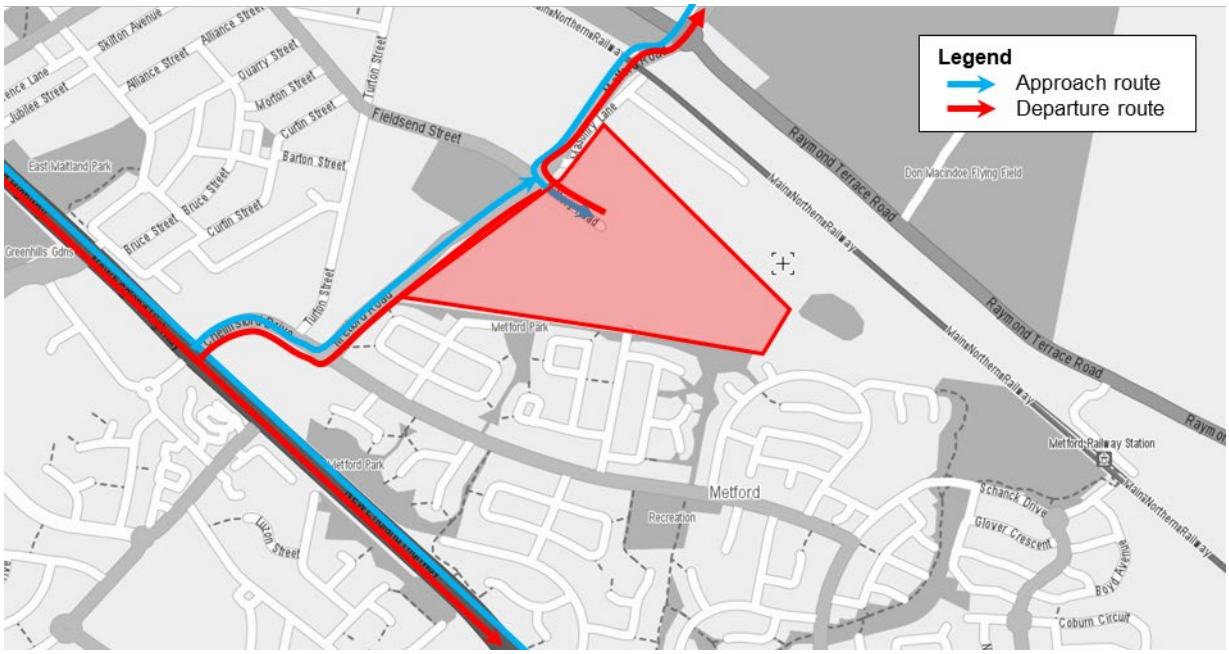
Approach Routes

- North: Raymond Terrace Road, Metford Road, Pottery Road.
- South: New England Highway, Chelmsford Drive, Metford Road, Pottery Road.

Departure Routes

- North: Pottery Road, Metford Road, Raymond Terrace Road.
- South: Pottery Road, Metford Road, Chelmsford Drive, New England Highway.

Figure 19: Construction vehicle approach and departure route



Base image source: http://www.street-directory.com.au/

8.8 Traffic Guidance Schemes

Detailed information for work site operations is contained in the Traffic Control at Work Sites manual (TfNSW, 2022). The control of traffic at work sites must be undertaken with reference to SafeWork NSW requirements and any other Workplace Health and Safety manuals.

The Principal Contractor will be required to provide Traffic Guidance Schemes (TGS') for the proposed works which will generally consider the following:

- Construction vehicle activity, including the loading/ unloading of trucks to be conducted within the work site.
- Pedestrians and all passing vehicles will maintain priority.
- Clear definition of the work site boundary to be provided by erection of A Class hoardings/ fencing around the site boundaries.
- All construction vehicle activity will be minimised during peak periods, where possible.

8.9 Pedestrian and Cyclist Management

During the construction period, pedestrian and cyclist movements throughout are to be maintained as much as feasible. There is not expected to be any impact to existing pedestrian or cyclist paths by the proposed construction works.

8.10 Public Transport

Given the low number of anticipated heavy vehicle movements associated with the construction works, the overall impact to existing public transport services is expected to be negligible. This includes the impact on the identified local area bus services.

8.11 Emergency Vehicles and Heavy Vehicles

During construction, the Principal Contractor will ensure that there is no disruption to emergency vehicles on public and internal Hospital roads.

The existing emergency access from Metford Road provides separate access for emergency services and departments. The majority of construction vehicles will access the site via Pottery Road, however, should there be a need for access by a semi-trailer an additional access arrangement would be required as semi-trailers would not be able navigate the existing road bend adjacent to P5. There is possibility for a rare occurrence use of the dedicated ambulance access for these vehicles, if required. Any potential impacts on emergency access would need to be able to be effectively managed throughout the works.

8.12 Existing and Future Developments

It is the Principal Contractor's responsibility to liaise with Health Infrastructure and other landowners should there be other potential future developments under construction at the same time. A coordinated approach to traffic management and wayfinding signage is logical in such instances. Stantec are not aware of any other significant developments currently being constructed nearby that would impact the construction traffic management of the MMHR.

8.13 Traffic Movements in Adjoining Areas

No adverse effects are expected from the movement of heavy vehicles through adjacent council areas.

9 Conclusion

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

- The proposed MMHR is anticipated to accommodate 64 beds, with a total of 161 FTE staff. Additionally, a total of eight fleet/ operational vehicles are required to support the planned operations for the facility.
- A high-level parking assessment indicates the site is required to provide a total of 106 parking spaces, to service visitors, staff, fleet vehicles and the operational requirements of the facility. The project provides 108 spaces and therefore satisfies the requirement.
- Traffic conditions in the surrounding area have changed following the opening of the Maitland Hospital. The traffic assessment indicates that the surrounding road network generally operates well, however some approaches to key roundabouts exceed the maximum practical degree of saturation and will be sensitive to increases in traffic volumes.
- The project could generate 28 vehicle trips in the AM peak hour and up to 65 vehicle trips in the PM peak hour.
- The traffic assessment identified that the study intersections would operate adequately in both 2027 scenarios (with and without development), although with some approaches experiencing high degrees of saturation.
- Under 2037 scenarios, Metford Road would reach capacity and ultimately require upgrades to cater for future demand for the area, including additional demands associated with the proposed MMHR (although these volumes would have minimal impact on the road network).
- The internal road (Pottery Road) has spare capacity to accommodate additional traffic associated with the MMHR.
- It is noted the Pottery Road is designed to accommodate two-way B99 vehicles on the bend adjacent to the Maitland Hospital eastern carpark, modifications to the existing road will be required to accommodate two-way movements on the bends for larger vehicles.

10 Mitigation Measures

Table 21 summarises the identified mitigation measures.

Table 21: Mitigation Measures

Project Stage	Mitigation Measures	Relevant Section of Report
D/ C	Parking Provision & Design Parking spaces in the at-grade car park would be designed to be at least 2.6 metres wide by 5.4 metres long which would cater for both staff and visitor parking requirements to meet the Health Infrastructure guidelines. Internal aisle widths are designed to be a minimum of 5.8 metres which meets the minimum requirements of AS/NZS2890.1. Accessible spaces are required to be 2.5 metres wide and 5.4 metres long with an adjacent shared area of 2.5 metres wide by 5.4 metres next to the parking space in accordance with the SHCPIP Hospital Car Park Guidelines.	Section 4 & 5
D	Internal Circulation Pottery Road is currently designed to accommodate two-way B99 vehicles on the bend adjacent to the Maitland Hospital eastern carpark, modifications to the existing road will be implemented to accommodate two-way movements on the bends for larger vehicles.	Section 5
C	Construction Traffic Management A detailed CTMP would be prepared by the appointed contractor.	Section 8
O	Traffic Generation Upgrades to Metford Road are required to accommodate expected background growth outlined in the Transport for NSW STFM for Metford Road. This task is with the East Maitland Catalyst Area Steering Group and is not the responsibility of the MMHR.	Section 7

[1] D = Design Stage, C = Construction Stage, O = Operation Stage