World Class End of Life Program – Tamworth Hospital

Transport Assessment

Prepared for: Health Infrastructure

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Revision

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A	27 September 2024	Final	Liz McCormack	Karen McNatty

Karen McNatty

For and on behalf of

Stantec Australia Pty Ltd

L9, 203 Pacific Highway, St Leonards NSW 2065

Acknowledgment of Country

In the spirit of reconciliation, Stantec acknowledges the Traditional Custodians of country throughout Australia and their connections to land, sea and community. We pay our respect to their Elders past and present, and extend that respect to all Aboriginal and Torres Strait Islander peoples.

Limitations

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TRANSPORT ASSESSMENT

World Class End of Life Program – Tamworth Hospital

1. Introduction

1.1 Background and Proposal

The World Class End of Life (WCEoL) Project at Tamworth Hospital proposes the delivery of world-class facilities for end-of-life within a new building on the Tamworth Hospital campus, that is an extension of the main hospital building. As part of the project, six palliative and supportive care beds will be delivered in this new build facility, with the unit being directly linked to the rest of the hospital building. This project is part of a broader World Class End of Life Care program, which is the redevelopment and refurbishment of palliative care facilities across NSW.

The proposed works will be carried out within the boundaries of Tamworth Hospital, which is located approximately two kilometres north of the Tamworth CBD, the largest town in the New England and North West region of NSW.

Stantec was commissioned by Health Infrastructure to prepare a transport impact assessment for the proposed WCEoL Project, to support the Review of Environmental Factors being prepared for the Project.

1.2 Purpose of this Report

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

- existing traffic and parking conditions surrounding the site
- suitability of the proposed parking in terms of supply (quantum) and layout
- the traffic generating characteristics of the proposed development
- the transport impact of the development proposal on the surrounding road network.

1.3 References

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

- an assessment of the site and its surrounds
- Tamworth Regional Development Control Plan 2010 (DCP 2010)
- Tamworth Regional Local Environmental Plan 2010 (LEP 2010)
- Roads and Maritime Services (now Transport for NSW) Guide to Traffic Generating Developments 2002 (TfNSW Guide 2002)
- other documents and data as referenced in this report.

2. Existing Conditions

2.1 Location

The Tamworth WCEoL facility is proposed to be located within the existing Tamworth Hospital campus, connected to the Main Hospital Building. The location of the subject site and its surrounding environs is shown in Figure 2-1.

Figure 2-1 Subject Site and Its Environs

2.2 Surrounding 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.

2.2.2 Road Network

Tamworth Hospital Precinct is accessed via several key traffic routes with key access points located along Johnston Street and Dean Street Table 2-1 provides a summary of the characteristics of the surrounding key roads.

Table 2-1: Surrounding roads network

Road	Road Function	Characteristics
Johnston Street	Local Road	Two-way, undivided road with kerbside parking. Connecting between Marius Street and internal hospital roads. Carries a bus route and has bus stops on either side of the road.
Dean Street	Collector Road	Two-way, two lane road with kerbside parking. Connecting between Bligh Street and Peel Street. Carries a bus route and has bus stops on either side of the road,
Circulation Road	Local Road	Two-way undivided road that is internal to Tamworth Hospital. Connects Dean Street and Johnstone Street, providing a circulation route around the main hospital buildings. Carries a bus route. .

The surrounding local road network connects with the broader Tamworth road network, including connections to Peel Street, Bligh Street and Marius Street, which provides connection to Tamworth city centre. The hospital parking areas are accessed via Dean Street and Johnston Street, with Circulation Road linking the internal hospital areas.

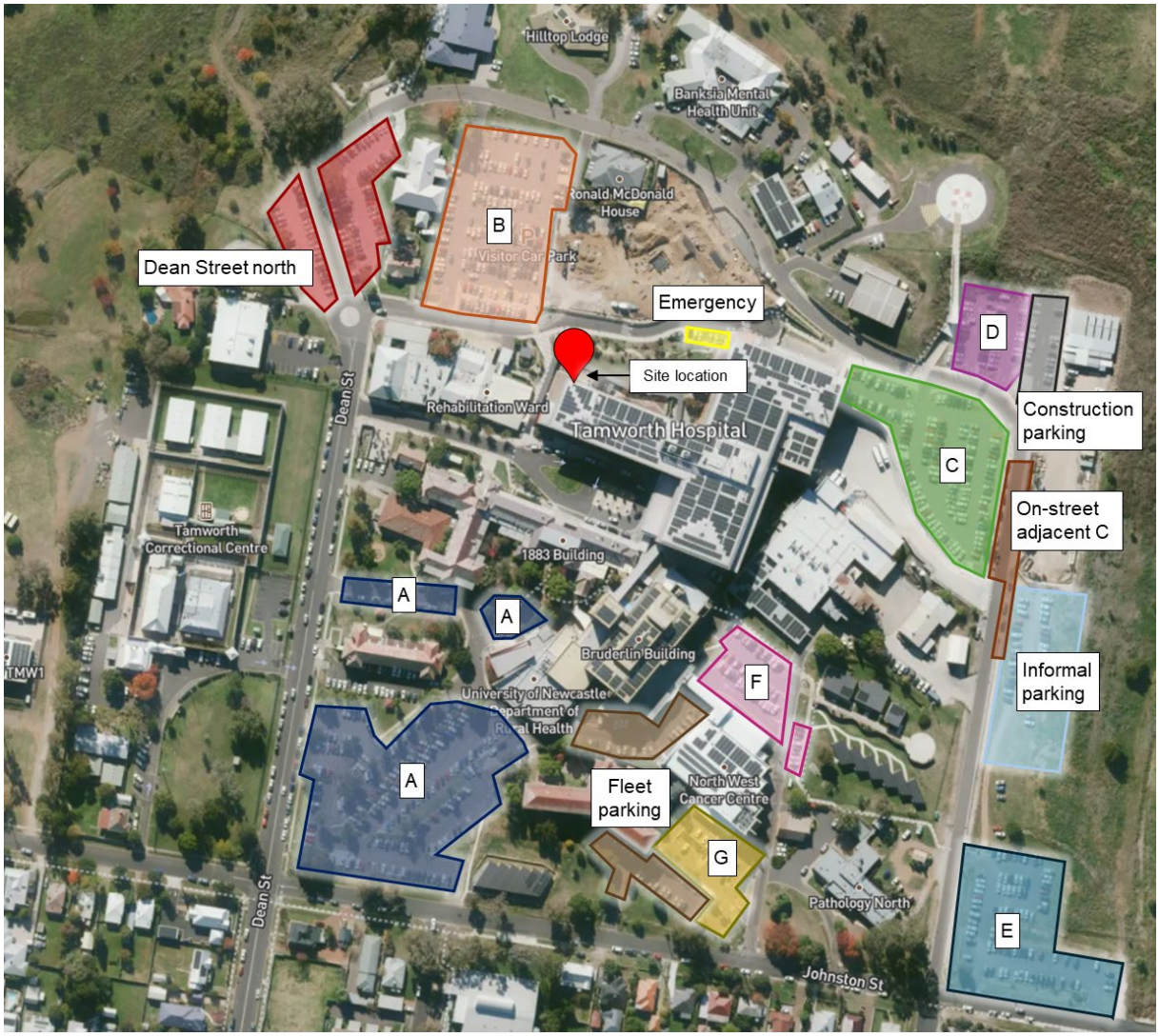
2.3 Car Parking

2.3.1 Supply

Significant car parking facilities are provided on site, servicing the various components of the Tamworth Hospital. Car parking is distributed across campus to support separate parking area arrangements for staff and visitors, as shown in Figure 2-2. A summary of these areas, associated uses and quantum of parking in each are summarised in Table 2-2.

It is noted that there are additional parking areas across the Hospital that are primarily associated with certain uses or buildings, including Breast Cancer Screening, Pathology North, Banksia Mental Health Unit, Hilltop Lodge and the rehabilitation ward. These parking areas are not considered particularly relevant for the proposed development, however general observations about the supply and occupancy of these areas are included in Figure 2-2and Table 2-2.

Figure 2-2 Map of parking areas at Tamworth Hospital



Base map source: Metromap.com, accessed August 2024

Table 2-2: Summary of parking supply at Tamworth Hospital

Area	Use	Supply
A	Staff parking	5 x accessible 10 x doctors only (controlled access) 17 x 2P (primarily located on two way street between Dean Street and car park A) 4 x 90 minute only 2 x community transport 185 x not time restricted **Total of 223 spaces**
B	Visitor parking	11 x accessible 4 x dentist patients 8 x parents 5 x senior 7 x Ronald McDonald House 2 x rehab 118 x not time restricted **Total of 155 spaces**
C	Staff parking	24 x doctors only (controlled access) 118 x not time restricted **Total of 142 spaces**
On street parking adjacent C	No restrictions	**11 spaces**
D	Staff parking (evening shift)	10 x 2P 37 x not time restricted **Total of 47 spaces**
E	Staff parking	**99 spaces**
F	Outpatient parking	4 x accessible 5 x patient only 37 x not time restricted **Total of 46 spaces**
G	North west cancer patient parking	3 x accessible 27 x not time restricted **Total of 30 spaces**
Dean Street North	No restrictions	**Total of 92 spaces**
Emergency	Emergency drop off	2 x accessible 4 x P5 **Total of 6 spaces**
Construction parking	Controlled access parking adjacent construction site	N/A
Informal parking, accessed via Car park E	No restrictions	Informal area east of the Hospital parking observed. At most approximately 20 vehicles were observed to be parking in this area
Total		**784 spaces**[1]

[1] The total supply does not include the construction parking, fleet parking or the informal parking area north of car park E

Car parks A, C, D and E are all at-grade staff parking facilities. These areas have a total of 511 spaces across the four areas.

In terms of visitor parking, the car park of particular interest to the WCEoL project is Car Park B and Dean Street North Parking Area, located in proximity to the proposed site location. Stantec visited the site in August 2024 and undertook high level observations regarding the car parking. In total, it was observed that there were 273 car parking spaces for visitors in this carpark. Additional visitor parking is available in car parks F and G and at various on street locations.

2.3.2 On site parking demand

Counts of parking demand were undertaken by Stantec throughout the day between 11am and 4pm on Thursday 15 August 2024. A summary of the findings is presented in Table 2-3. Between 11am and 1pm, the staff parking was found to be approximately 95 per cent occupied and the visitor parking was approximately 93 per cent occupied.

Overall, it was found that the parking areas were nearing or at capacity between 11am and 3pm, after which there was a significant increase in available parking, particularly in the visitors parking areas.

In general, it was found the parking areas that were associated with specialist areas, such as Inala House, Banksia Mental Health Unit or Breast Screening NSW were observed to be approximately 90 per cent occupied during the peak observation times.

Throughout the day it was also observed that there were up to 15 spaces available in the fleet car parking area adjacent car park G, of a total of 40 spaces. Additionally, up to between 10 and 20 vehicles were observed using an informal parking area to the north of carpark E and south of the construction compound.

Table 2-3 On site parking demand

Time of observation	General Use	Number of available spaces	Additional notes
11am – 1pm	Staff	21	6 x available spaces in access-controlled area for doctors only 3 x available spaces were accessible spaces in car park A
	General or non-restricted	19	3 x available spaces in car park B were reserved for dentist and 7 x available spaces were reserved for Ronald McDonald House
1pm – 3pm	Staff	24	4 x available spaces 90 minutes only in carpark A 3 x available spaces in access-controlled area for doctors only
	General or non-restricted	21	5 x available spaces accessible spaces in car park B and 4 x available spaces were reserved for Ronald McDonald House
3pm – 4pm	Staff	25	4 x available spaces in access-controlled area for doctors only
	General or non-restricted	38	2 x available spaces for dentist and 2 for rehab 5 x available accessible spaces

A summary of the total parking supply by use across the hospital campus and the demand throughout the day is summarised in Table 2-4 and Table 2-5.

Table 2-4 Existing Tamworth Hospital parking demand (vehicles)

	Number of parking spaces available					
Time	**Staff[1]**	**General[2]**	**Accessible**	**Doctors only**	**2P or 90 minutes**	**Other[3]**
11am - 1pm	10	11	6	6	1	9
1pm - 3pm	12	25	9	3	1	9
3pm - 4pm	21	42	7	4	0	4
Total parking available	**439**	**298**	**33**	**34**	**27**	**33**

[1] Includes non time restricted parking spaces in car parks A, C, D and E
[2] Includes non time restricted parking spaces in car parks B, G and in the car park to the north of Dean Street
[3] Includes parking reserved for dentist, community transport, parents, senior, Ronald McDonald house and patient only

Table 2-5 Existing Tamworth Hospital parking demand (percentage occupied)

Time	Staff	General	Accessible	Doctors only	2P or 90 minutes	Other
11am - 1pm	98%	96%	82%	82%	96%	73%
1pm - 3pm	97%	92%	73%	91%	96%	73%
3pm - 4pm	95%	86%	79%	88%	100%	88%

2.3.3 On-Street Parking Supply

During the site visit in August 2024 high level observations regarding the supply and availability of on-street parking were undertaken in the areas surrounding the hospital.

The parking supply for key areas identified as being most likely used by staff and visitors to Tamworth Hospital has been summarised in Table 2-6 and illustrated in Figure 2-4. It is noted that this parking is likely also used by other surrounding land uses, including the Tamworth Correctional Centre, New England Respiratory Care, University of Newcastle Department of Rural Health and residential uses.

Figure 2-3 Relevant on-street parking areas

Table 2-6: Relevant on-street parking supply

Location	Supply and restrictions of on street parking	Parking demand
Dean Street north of Johnston Street	Unrestricted parking on both sides of the street between Johnston Street and access to Car park B	These parking areas were observed to be nearly at capacity across most of the day. At most 1 or 2 spaces were available at any given time.
Dean Street south of Johnston Street	Unrestricted parking on both sides of the street	The parking spaces on Dean Street were observed to be approximately 50% occupied between Johnston Street and Patterson Street
Smith Street		The parking spaces on Smith Street were observed to be approximately 50% occupied between Johnston Street and Oxley Street in the afternoon
Johnston Street	Unrestricted parkin on the south side of the street Two accessible spaces on the south side of the street in front of Tallowood Health	These parking areas were observed to be nearly at capacity across most of the day. At most 2 – 3 spaces were available in the afternoon.
Barton Lane	Unrestricted parking on the west side of the street	The parking spaces on Barton Lane were observed to be approximately 50% occupied between Johnston Street and Piper Street

In total there is a significant amount of on-street parking available in the vicinity of the hospital and the proposed site. However, it was observed that the on-street parking areas closer to the hospital were closer to capacity than those further away.

2.4 Public Transport

The site is not particularly well connected to existing public transport services. There are three bus stops near the site, which are served by two bus routes, and therefore it is expected that the public transport mode share for both staff and

visitors to the hospital would be low, this is also confirmed in the review of Journey to Work data provided in Section 2.6. The available bus services are summarised in Table 2-5 and shown in Figure 2-4.

Table 2-7: Existing public transport services

Mode	Route	Route	Peak Frequency/Off-peak Frequency
Bus	431	Tamworth to North Tamworth via Tamworth Hospital (loop service)	40 minutes/1 hour
	430	Tamworth to Oxley Vale via Tamworth Hospital (loop service)	2.5 hours (both peak and off peak)

Figure 2-4 Bus network map

Source: Tamworth Buslines (accessed September 2024)

2.5 Active Travel

2.5.1 Walking

In general, pedestrians in NSW experience a low level of priority on the transport network. Pedestrian spaces regularly conflict with driveways and loading zones, and signalised intersections cause lengthy delays in pedestrian journeys. Such conditions are common across Tamworth Hospital and the broader area. Some streets in the area are lacking pedestrian facilities, such as Johnston Street and Circulation Road. However, within Tamworth Hospital there are pedestrian paths and crossings linking the car parking areas to the hospital buildings.

2.5.2 Cycling

There is no specific cycling infrastructure in the vicinity of Tamworth Hospital. Johnston Street on the south border of the hospital is identified as a route in the long term planned cycleway network.

2.6 Travel Patterns

Journey to work (JTW) data has been sourced from the Australian Bureau of Statistics 2016 census and provides an indication of existing travel patterns to/ from Tamworth Hospital. Both 2011 and 2016 JTW data for the relevant travel zone was analysed to gain an initial understanding of any change in staff travel mode share over the five-year period, with outcomes summarised in Table 2-6.

Table 2-8: Travel characteristics comparison for Tamworth Hospital destination zone (112038647)

Mode	2016 JTW data	2021 JTW data
Private vehicle	94%	95%
Public transport	1%	1%
Active transport	4%	3%
Other/not stated	1%	1%

Table 2-6 indicates the following:

- Most commuter trips are made by private vehicle (94%) either as vehicle driver or vehicle passenger
- The commuting patterns have remained consistent between 2016 and 2021

3. Traffic, Access and Car Parking

3.1 Car Parking

The car parking requirements for different development types are set out in Tamworth Regional Development Control Plan 2010; however, it does not provide any specific guidance for hospitals. The DCP includes a rate for medical centres, however this is not considered to be comparable to the proposed end of life facility.

The Guide to Traffic Generating Developments (2002) is typically referenced in such circumstances, however it is noted that the parking rates presented in the Guide are considered representative of hospitals, rather than specifically an end of life facility. As such, an empirical approach to the assessment of parking has been documented for the proposal.

In terms of the assessment for parking demand for staff, the following assumptions have been considered:

- General staff profile: For the proposed facility, there is an estimated six new full-time equivalent (FTE) staff working on site. However, as the proposed facilities are staffed 24 hours per day across three shifts, the proposal results in an extra two staff working at any one time.
- Staff changeover: It is expected that there will be some short periods of increased parking demand during shift changeover between staff. Therefore, it has been assumed that the at peak times, four staff would be on site for a short period.
- Private vehicle mode share: It is assumed that 90 per cent of staff will drive the site considering the journey to work data and lack of substantial public transport services in proximity to the site.

Based on the above, the expected parking demand is 3 - 4 parking spaces for staff.

In terms of the assessment for parking demand for visitors, the following assumptions have been considered:

- Bed occupancy: Assumed to be 100 per cent
- Visitors per inpatient: Assumed to be two per inpatient. It is noted that it would likely be greater than two visitors per person per day, however, this visitation is expected to be spread through the day and there will be notable “peak” in demand.
- Private vehicle mode share: 90 per cent of visitors driving with 1.8 visitors per car
- As a worst case, it is anticipated that there will be no turnover (all visitors there at once) and all visitors will arrive at the same time. Visiting hours for the hospital are between 10am and 8pm.

Based on the above and noting the six beds proposed, the expected parking demand would be approximately six parking spaces for visitors.

In total, the expected parking demand for the proposal is approximately 10 parking spaces. The opening hours for visitors are between 10am and 8pm and it is expected that the peak time for visitors would be after 3pm, when it was observed there was a higher availability of public parking across the site. Despite the high car park occupancy that was observed on site, it is expected that the existing parking areas can accommodate the small increase in parking demand.

3.2 Traffic Impact

The WCEoL proposal is expected to result in a very minor uplift in traffic likely less than 10 vehicles in a peak hour. As such, the overall traffic impact is expected to be negligible and is not expected to not have any adverse impact on the function, operation, or safety of the surrounding road network.

3.3 Pedestrian and Cyclist Access

The WCEoL proposal is not expected to not have any impact to pedestrian and cyclist access within the wider Tamworth Hospital Area

4. Preliminary Construction Traffic Management Plan

4.1 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. Specific details of construction were not available at the time of reporting due to a contractor not yet being appointed. Accordingly, this assessment has been prepared based on Stantec's experience with similar projects and broader involvement across Health projects in NSW. The appointed Principal Contractor will be responsible for developing a detailed Construction Traffic Management Plan in accordance with the relevant conditions of approval.

4.2 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.

4.3 Work Hours

Works associated with the development will be carried out in accordance with the relevant conditions of approval.

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 the relevant authorities.

The actual duration of the works is currently unknown and will be scheduled once the contractor is appointed.

4.4 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 20 workers on-site per day across the duration of the project.

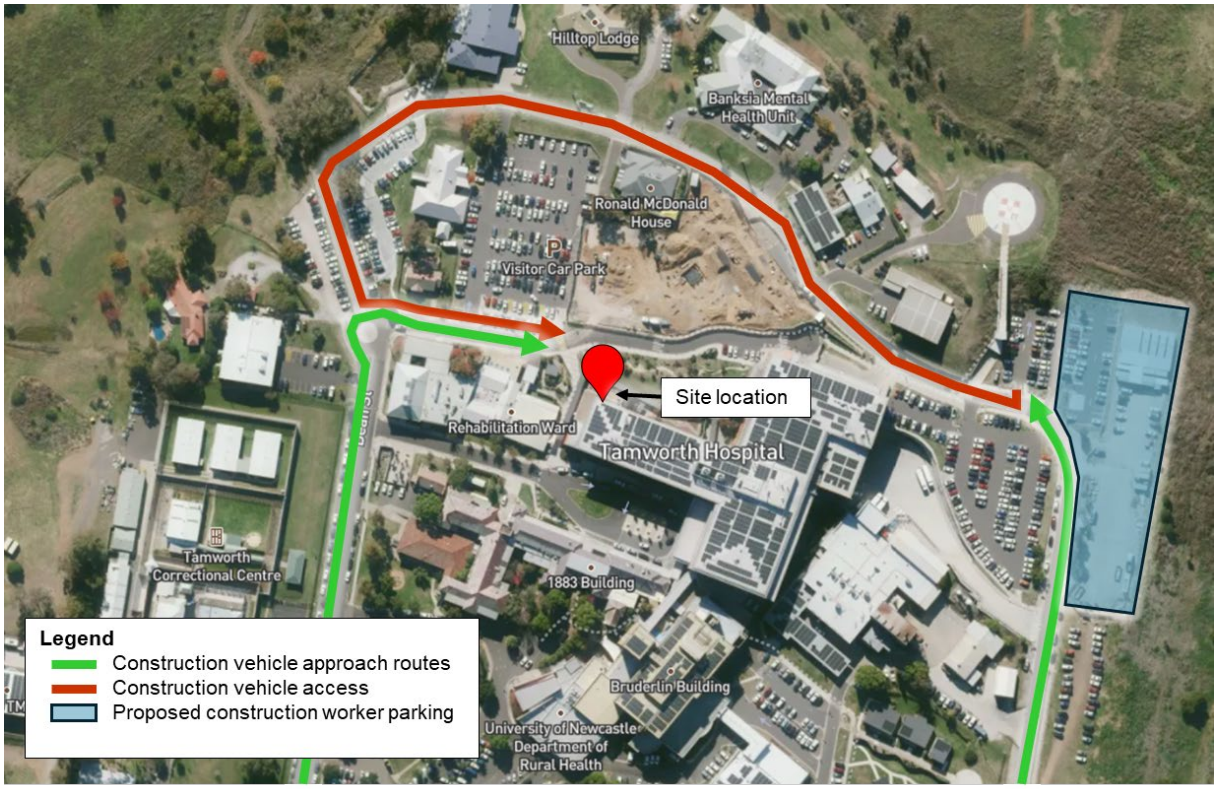
Given the known high demand for parking within the Campus associated with Hospital staff and visitors, dedicated construction worker parking will be available within the existing contractors staging area in the northwest corner of the Campus, accessed via Circulation Road.

Construction workers who are allocated parking should be encouraged to arrive on-site early, to avoid any significant overlap with peak AM peak Campus staff arrivals (7:00am-8:00am). Likewise, overlap with peak PM staff activity (4:00pm-5:00pm) should be avoided.

4.5 Construction Vehicle Staging Area

A construction vehicle staging area is proposed in the same location as the existing contractor's compound, in the northwest of the site.

Figure 5.1: Dedicated Construction Vehicle Access and Vehicle Staging Area



4.6 Construction Vehicle Volumes and Routes

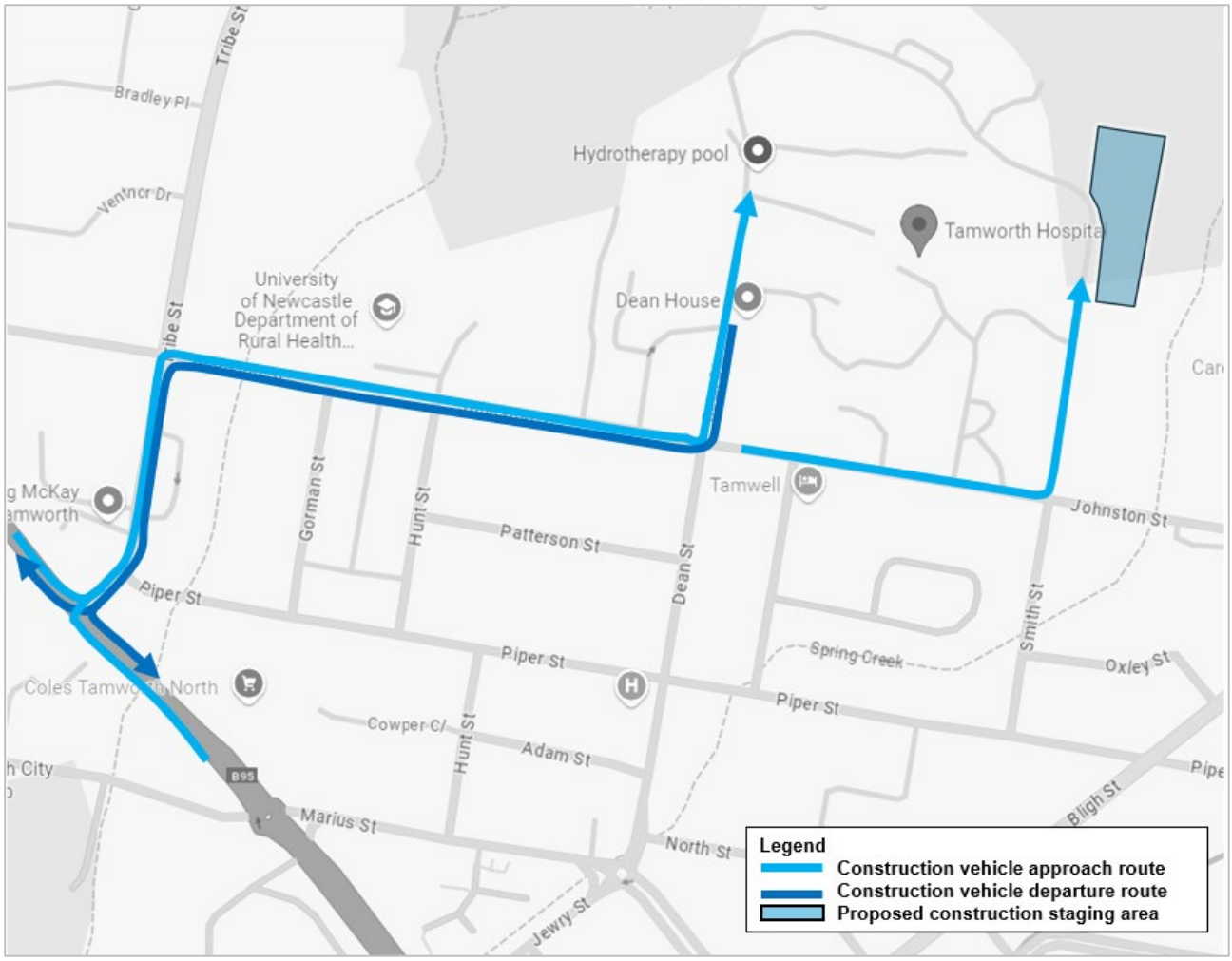
The site will have various types of construction vehicles accessing the site. The largest construction vehicle accessing the site would likely be 20-metre semi-trailers.

It is expected that the peak construction vehicle activity will result in up to 10 trucks (maximum 20 two-way movements) in and out of the site per day. These movements are expected to be spread throughout the day and would have a negligible impact on existing traffic volumes both internal and external to the Tamworth Hospital.

Generally, construction vehicles will have origins and destinations from a wide variety of locations throughout the Tamworth area and beyond. However, dedicated construction vehicle routes have been developed with the aim to provide the shortest distances to/ from the arterial road network and therefore minimising the impact of construction traffic on surrounding local roads.

The proposed construction vehicle access routes are shown in Figure 5.2.

Figure 5.2: Construction vehicle routes



Basemap Source: Google Maps

4.7 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.

4.8 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.

4.9 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.

4.10 Emergency Vehicles

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

5. Conclusion

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

- The WCEoL Project at Tamworth Hospital proposes the facilities for end-of-life care as an extension to the Main Hospital Building with six palliative and supportive care beds.
- The proposed facilities are estimated to generate a parking demand of approximately 10 car parking spaces in peak periods. Despite the high levels of occupancy observed across the car parking areas at the hospital, the additional vehicles are expected to be able to be accommodated given the peak visitor time is expected to be after 3pm.
- It is anticipated that the proposal will generate minor traffic volumes and is not expected to have any additional impact on the function, operation, or safety of the surrounding road network.
- The appointed Principal Contractor would be responsible for preparing a detailed Construction Traffic Management Plan and associated Traffic Guidance Schemes, which would be able to appropriately manage and mitigate any potential impacts on traffic, pedestrians, cyclists, public transport and emergency vehicles.