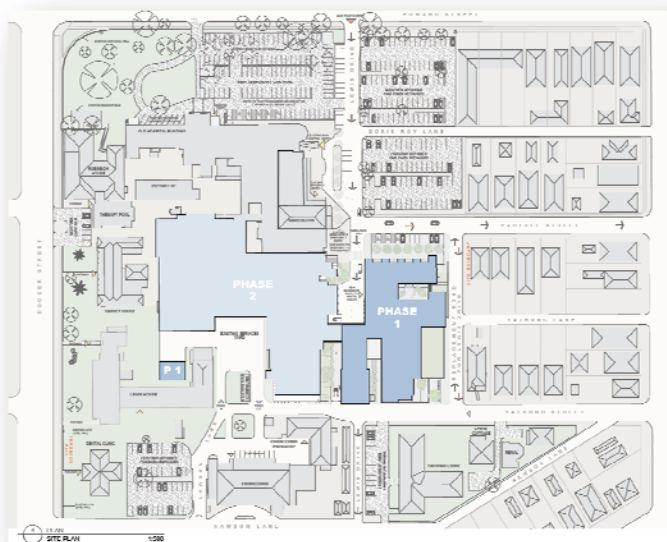


## APPENDIX **G**

### Traffic and Parking Report



# Wagga Wagga Hospital Redevelopment: Phase 1 Project Application



## TRAFFIC AND PARKING REPORT

- Part 3A Project Application
- V1.2
- 7 September 2011



# Wagga Wagga Hospital Redevelopment: Phase 1 Project Application

## TRAFFIC AND PARKING REPORT

- V1.2
- 7 September 2011

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Sinclair Knight Merz  
ABN 37 001 024 095  
100 Christie Street  
St Leonards NSW 2065 Australia  
Postal Address  
PO Box 164 St Leonards NSW 2065 Australia  
Tel: +61 2 9928 2100  
Fax: +61 2 9928 2500  
Web: [www.skmconsulting.com](http://www.skmconsulting.com)

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<b>Project manager:</b>	Colin Aitchison
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## Executive Summary

This Transport and Accessibility Report has been prepared by Sinclair Knight Merz to accompany a Part 3A Project Application for Phase 1 development of Wagga Wagga Base Hospital (WWBH). While the Phase 1 Project for the Hospital will add 4,763m<sup>2</sup> to the Hospital area, 30 beds, 31 FTE weekday staff, and approximately 9 registered and visiting medical officers, much of the development is modernising health facilities rather than increasing hospital functionality.

Peak inbound traffic generation for the hospital site corresponds with the morning shift, but peak traffic activity will be associated with the shift changes from day to evening shift at ~3:00pm.

Predominant access to the site will be via Edward Street for emergency vehicles and private vehicles, with emergency access to the Emergency Department via Lewis Drive.

At present, the Roads and Maritime Services are proposing a continuous median along the front of the Hospital to address a clear road safety issue along this segment of the Sturt Highway. It is proposed that while general site access off Edward St will be restricted to left-in/left-out, a break in the continuous median be provided for emergency vehicles (ambulance) is vital to avoid circuitous routing for emergencies or total realignment of the Hospital and the associated clinical services. Provision of a protected right-turn bay for emergency vehicles within the median will necessitate realignment of the eastbound lanes in Edward Street, removal of some parking spaces on Edward Street and relocation of the inbound bus stop. This median will prevent immediate access for staff and visitors who would otherwise approach from the west of the Hospital. These trips will need to divert via Docker, Brookong and Murray Streets.

The traffic direction on Lewis Drive is being retained as one-way southbound. Yabtree Street is currently one-way westbound, and it is proposed that this should be two-way to allow greater flexibility of access. This change is being addressed through the Wagga Wagga Local Traffic Committee.

The Phase 1 development necessitates relocation of Lewis Drive to a new parallel alignment to the east, thus retaining north-south connectivity. Phase 1 also displaces some 74 parking spaces from the southern eastern precinct of the Hospital. These will be replaced by an expanded parking area in the northern precinct to the west of Lewis Drive. This replacement carpark will also provide sufficient additional parking spaces to exceed the parking demand associated with the Phase 1 expansion in staff numbers, a net increase exceeding the requirements by some 18 spaces. This replacement parking area is being addressed through Infrastructure SEPP provisions for self-certification by NSW Health.



Operational traffic generation for the Phase 1 redevelopment was estimated consistent with the 6% increase in staffing. However, the effects were assessed at a more robust 20% increase in hospital traffic, with no effective deterioration in Level of Service of adjacent intersections.

Given the relatively small increase in staffing for Phase 1, preparation of a whole-of-site Work Place Travel Plan to assist in reducing reliance on single occupant private car travel and promotion of healthy active transport alternatives has been deferred to Phase 2. NSW Health has recognised the benefit for health promotion from such a plan, consistent with similar plans at a number of other regional hospitals. Greater support for integration with proposed local cycle routes, and additional cyclist end-of-trip facilities will form a critical element of that Planning, in addition to increased support for local bus services and potential relocation of bus stops.

Construction traffic will peak at 11 trucks per day during the first two months for spoil and excavation disposal to Gregadoo, with a similar peak during the fourth month for concrete delivery, anticipated to be sourced from east of WWBH. The construction workforce will peak at 140 persons during the sixth month period. Additional kerb parking from new median parking (Murray and Brookong Streets) and nominated kerb parking to the north of the Hospital are being developed with Wagga Wagga City Council for referral to the Wagga Wagga Traffic Committee. These will alleviate offsite parking demand. Options for use of offsite offstreet parking need to be further developed.

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## 1. Introduction

This Transport and Accessibility Report has been prepared by Sinclair Knight Merz to accompany a Project Application for the first phase of construction in relation to the Wagga Wagga Base Hospital (WWBH) Redevelopment. This Report is a refinement of the traffic elements included in the Part 3A Concept Application, referencing specific requirements from the Director General of Planning (DGRs) applicable to the construction of Phases 1 of the redevelopment

The site is located south west of the Central Business District of Wagga Wagga, at the corner of the Sturt Highway (Edward Street) and the current regional road (Docker Street). The site itself is part of a wider health precinct bounded by Edward Street and Rawson Lane to the north and south and by Murray Street and Docker Street to the east and west, along with the adjacent Calvary Hospital and medical consulting rooms between Docker Street and Emblen Street. This traffic assessment does not investigate precinct wide traffic issues, these being the domain of Wagga Wagga Council urban planning.

The WWBH Redevelopment Phase 1 Project plan provides an increase of 4,763 m<sup>2</sup> for development on the Mental Health Unit, largely bringing the functional areas to current standards for medical and care services. The 6% increase in staffing (to 541 weekday FTE) corresponds with an 11% increase in area.

Phases 2 and 3 of the redevelopment are currently being developed, and will ultimately add a further 125 staff and 16 patient beds, further enhancing the quality of medical and care facilities.

Government funding support for the redevelopment has been confirmed through to Phase 3. In this context, while this traffic and parking assessment is restricted to the current project application of Phase 1, the ongoing integration and constructability of Phases 2 and 3 are an important aspect of ongoing development of the Base Hospital.



## 2. Planning Context

### 2.1. Director General's Requirements

The Director General of Planning has issued the following requirements (DGRs) with respect to traffic and parking issues:

- §4. *Transport & Accessibility Impacts (Construction and Operational): The EA shall provide details on traffic, transport and accessibility generation, access (including emergency access), car parking arrangements, disabled spaces and patient pick up / drop off, loading areas and pedestrian and bicycle linkages.*
10. *Waste: Identify the likely waste to be generated during the construction and operation of the development and describe the measures to be implemented to manage, reuse, recycle and safely dispose of this waste.*

Additionally, the following Plans and Documents are required to be submitted:

- *A locality/context plan indicating:*
  - ... ..
  - *traffic and road patterns, pedestrian routes and public transport nodes.*
- *Traffic Impact Assessment - including an analysis of existing travel characteristics in the locality as well as the projected traffic impacts of the proposed development and any required upgrades; and*
- *Construction Management Plan and Traffic Management Plan addressing the management of traffic (including bus operations) during the construction stages of the development.*

The DGRs identify the following statutory planning documents (inter alia) as requiring review. Many of these do not relate to Wagga Wagga or to transport-related initiatives, and discussion is limited to relevant sources:

- NSW State Plan;
- SEPP (Major Development) 2005;
- SEPP (Infrastructure) 2007;
- NSW Planning Guidelines for Walking and Cycling;
- Wagga Wagga LEP 2010; and Wagga Wagga DCP 2010;
- relevant Development Control/ Section 94 contribution plans.



## **2.2. Statutory Planning Instruments**

### **2.2.1. NSW State Plan**

The NSW State Plan provides a framework for improvement in a number of arenas: health, transport and regional access. The State Plan identifies the redevelopment of the Wagga Wagga Base Hospital in its infrastructure projects list. The Project represents one stage of the proposed redevelopment.

#### **Improve access in rural and regional areas**

These initiatives relate particularly to the improved access to health services that underpins the redevelopment of the WWBH. While not a transport initiative, the location of the WWBH places it clearly at the intersection of the State Highway and one of Wagga Wagga's regional roads. Ready patient, staff and visitor access is an important issue for this regional base hospital.

#### **Promote healthy lifestyles**

While general health levels for the residents of Wagga and surrounding areas are not identified, the State Plan clearly addressed healthy life styles, including increased physical activity. Increased walking and cycling within the context of active transport is a clear development in this respect.

#### **Better Transport**

Transport was identified consistently as the highest priority for NSW communities, given its importance in providing access to jobs, services and facilities. Priority initiatives in transport clearly focused on urban centres. However, they do provide a point of reference for rural centres as well. These include:

- Increase share of journey to work trips on a safe and reliable public transport system
- Improve the efficiency of the road network
- Improve road safety
- Increase walking and cycling

### **2.2.2. NSW Planning Guidelines for Walking and Cycling**

These Guidelines exist in a broad policy context of NSW Government's *Integrating Land Use and Transport Planning Policy Package*; *Action for Bikes*; the Commonwealth Government's *The National Charter for Integrating Land Use & Transport*; *The National Greenhouse Strategy*; the NSW Government's action plan to promote physical activity *Simply Active Everyday*; and the *NSW Bikeplan 2010*. While the Guidelines focus on metropolitan areas, their application to Wagga Wagga is an important extension of both transport and healthy lifestyles objectives from the NSW State Plan. They provide recommendations for improved awareness of the various public and active transport options available at a site (Transport Access Guides), and recommendations for cycle and cyclist facilities.



Transport Access Guides (TAGs) can form a critical element of Work Place Travel Plans. See **Chapter 6 Travel Demand Management**.

In respect of cycle and cycling facilities, the following recommendations are applicable.

■ **Table 2-1 Bicycle Parking**

Land-use type	Resident/staff (Long-term use)	Customer/visitor (Short-term use)
Health, education, community and cultural facilities		
Hospitals — doctors and staff	5–10% Staff or 10–15% Beds	5–10% Staff
Health and medical centres	5–10% Practitioners	5–10% Staff

Bicycle security is also identified in the context of casual and medium-term use by staff, customers and the general public. In this context, bicycles should be locked to high quality racks in public areas, with users providing their own locking device. With respect to cyclist facilities, the following is relevant.

■ **Table 2-2 Provision of cyclist facilities**

Staff	Lockers	Showers	Change rooms
0–12	1 per 3 racks	1 –	
13–49	1 per 3 racks	2 (1 male and 1 female)	2 (1 male and 1 female)
50–149	1 per 3 racks	4 (2 male and 2 female)	2 (1 male and 1 female)
150–299	1 per 3 racks	6 (3 male and 3 female)	2 (1 male and 1 female)
300–500	1 per 3 racks	8 (4 male and 4 female)	2 (1 male and 1 female)

Additional shower facilities are required at a rate of 1 female and 1 male shower for every 250 staff

### 2.2.3. Wagga Wagga Development Control Plan (2010)

Wagga Wagga Development Control Plan 2010 (DCP 2010) was approved by Council on 27 May 2010 and came into effect with the LEP on 16 July 2010. The DCP contains detailed provisions that supplement the provisions of LEP. As the LEP is a comprehensive DCP, no other DCPs apply to the Project.

The following DCP provisions are relevant to the Project:

- Part 2.3 Off-Street Parking:
  - Car parking requirement of 1 space / 25sqm of additional Gross Floor Area (GFA) for hospital redevelopments;

## 2.3. Statement of Commitments

During preparation of the Wagga Wagga Base Hospital Redevelopment Concept Plan, a range of initiatives were identified as being required by the DGRs for the Concept Plan, but being more



appropriate to the submission of detailed project planning. From a traffic and parking perspective, the following items are relevant.

- ensure that the transport, traffic and access proposals will support the relevant strategic State and Local government transport policies.
- implement strategies to promote alternate forms of transport as outlined in this Concept Plan Application.
- ensure that detailed traffic modelling and intersection analysis will be carried out at Project Application stage.
- provide details of the impacts of demolition and construction on traffic, and the mitigation measures to be implemented, at Project Application stage.
- prepare a WPTP at Project Application stage.
- ensure that future construction and traffic requirements will be included in a CEMP prepared prior to the commencement of any works.



### **3. Hospital Characteristics**

#### **3.1. Existing Hospital Profile**

Wagga Wagga Base Hospital is part of a wider existing health facility precinct that includes the nearby Calvary Hospital, private health facilities, and specialist practices and clinics. Almost all of the specialist practices and clinics are housed in Docker and Edward Streets, which adjoin the existing hospital site, while Calvary Hospital is located approximately 250m southwest of Docker Street.

The current WWBH occupies some 29,000 m<sup>2</sup>, provides 231 beds, has a weekday fulltime equivalent staffing of 510, with 154 registered and visiting medical officers.

The site currently houses many diverse, old and ad-hoc buildings that have numerous extensions. Buildings vary from the state heritage listed Old Hospital Building to the multistorey 1960s Main Building.

Vehicular access to car parking, the Main Building and the Emergency Department is directly off Edward Street via Lewis Drive. Vehicular access to the existing Hydrotherapy Pool is directly off Docker Street but parking is limited and shared with the UNSW School of Rural Health. Vehicular access to the Dental Unit, Community Health and the Australian Red Cross Blood Service Donor Centre is via the rear of the site, off Rawson Lane; and the Renal Unit and Yathong Lodge are accessed via Yathong Street and Lewis Drive.

Staff access is via Lewis Drive to the main car park. An additional staff car park can be accessed via Yathong Street or Rawson Lane. Service vehicles enter the site via Lewis Drive, Yathong Street and Rawson Lane. Ambulance access is via Lewis Drive.

Hospital car parking is provided within the hospital precinct, adjacent to the core hospital premises, providing 326 unallocated general access parking spaces. Much of the existing parking is time restricted, or permit restricted, being enforced by Wagga Council rangers. Street parking is also prevalent, much of it time-restricted.



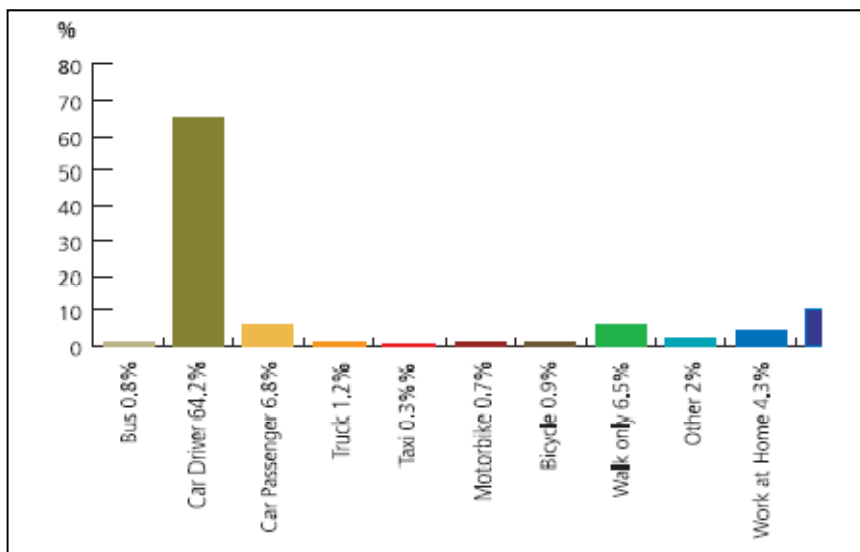
## 4. Existing Transport Context

### 4.1. Existing travel patterns within Wagga Wagga Local Government Area

Travel characteristics for Wagga Wagga residents travelling to work are sourced from the journey-to-work data extracted from Australian Bureau of Statistics (ABS) 2006 data<sup>1</sup>. The journey-to-work data set includes details of the origin and destination zones of trips, as well as characteristics of the journey such as mode of travel.

The data suggests (**Figure 4-1**) that 6.5% of the Wagga Wagga population walk to work as their mode of travel; only 1.1% of population use public transport as their method of travel; more than 70% of population use car as model of travel to work and less than 1% of population go to work by bike.

■ **Figure 4-1: Travel patterns within Wagga Wagga**



Source: Integrated Movement Study for City of Wagga Wagga, URaP, December 2008

The data indicates a high dependency on car travel within the LGA and very low levels of active and public transport in Wagga Wagga.

### 4.2. Existing travel patterns within WWBH

A WWBH staff mode-of-travel survey was conducted in 2007 by TEF<sup>2</sup>. The data (**Figure 4-2**) suggests that more than 85% of WWBH staff travel to work by car, 11% travel to walk and cycle

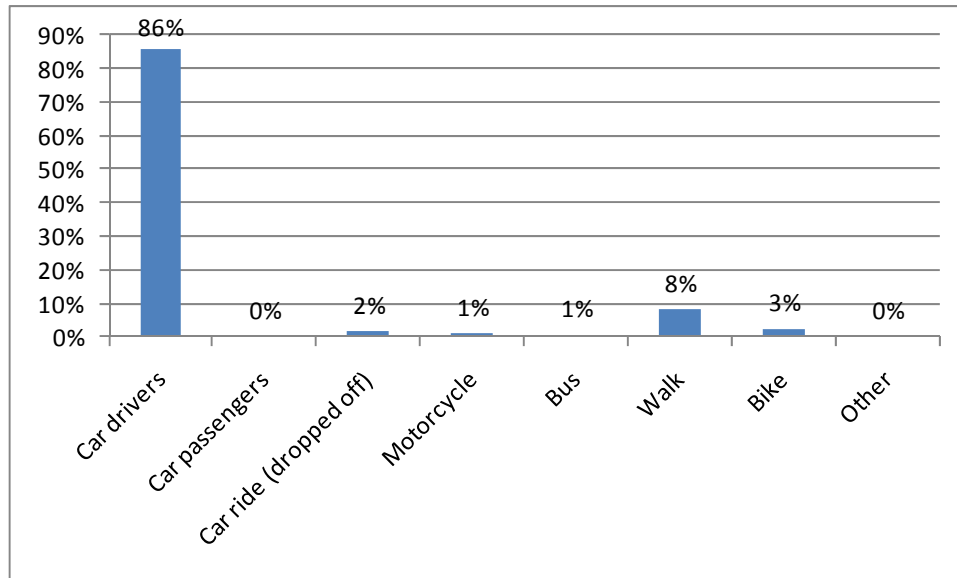
<sup>1</sup> Integrated Movement Study for City of Wagga Wagga, URaP, December 2008

<sup>2</sup> WWBH Traffic Management & Car Parking Study, TEF June 2007



and only 1% by bus. Again, the data indicates that there is a high dependency on car travel and very low levels of active and public transport to WWBH. Importantly, car-sharing as measured by travelling as a car passenger is not currently a meaningful alternative.

■ **Figure 4-2: Travel patterns within WWBH**



Source: TEF 2007

The very high level of single occupant car use is typical of regional cities of NSW. Reducing car dependency and encourage more use of public and active transport (walk and cycle) to and from the Hospital is consistent with State objectives, and is consistent with the underpinning role of NSW Health in our community of health promotion. However, the scale of Phase 1 development is not sufficient to be a threshold for effective development of such a strategy. This will need to be associated with Phase 2, when a more substantial increase in staffing will occur

### 4.3. Existing public transport provision

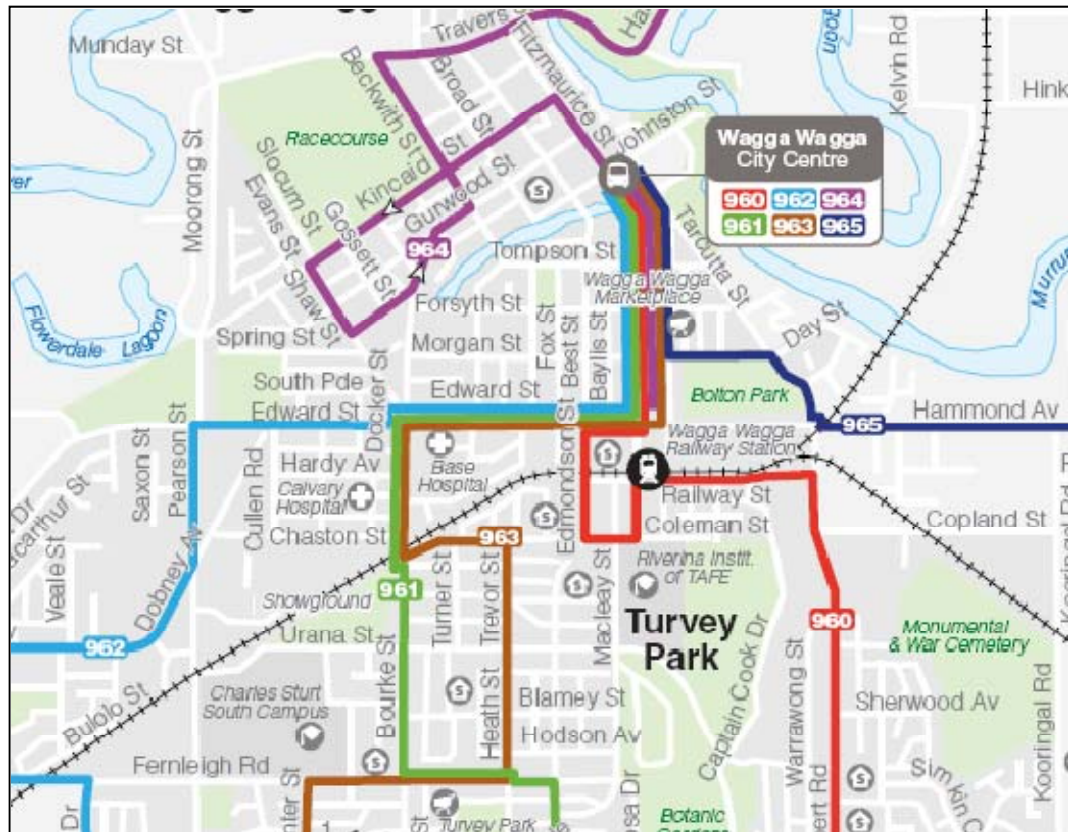
The hospital is currently serviced by three bus routes, operated by Busabout Wagga Wagga:

- Route 961 – Wagga Wagga City Centre to Bourkelands via Malaya Drive and Mount Austin;
- Route 962 – Wagga Wagga City Centre to Glenfield Park via Ashmont; and
- Route 963 – Wagga Wagga City Centre to Glenfield Park via Turvey Park and Bruce Street.

The route map is shown in **Figure 4-3**, and service frequencies are provided in **Table 4-1** below.



■ **Figure 4-3: Bus routes servicing WWBH**



Source: [http://www.fearnies.com.au/pdf/wagga\\_wagga\\_network\\_map\\_OCT10.pdf](http://www.fearnies.com.au/pdf/wagga_wagga_network_map_OCT10.pdf)

■ **Table 4-1: Bus service provision**

Route number	Direction, relative to Wagga Wagga City Centre	Number of weekday services	Number of Saturday services	Number of Sunday services
961	To	12	9	No service
	From	9	9	No service
962	To	13	11	No service
	From	11	10	No service
963	To	12	9	No service
	From	11	10	No service

Bus stops in the vicinity of the hospital are located at:

- Northern side of Edward Street (Sturt Highway), 45m east of Docker Street; and
- Southern side of Edward Street (Sturt Highway), 25m east of Lewis Drive.



The frequencies provided reflect the low bus patronage levels.

■ **Table 4-2 Earliest arrival time of local bus services at the Hospital bus stop in Edward St**

<b>Buses stopping at WWBH (Edward Street)</b>	<b>#961 from Bourkelands</b>	<b>#962 from Glenfield Park</b>	<b>#963 from Glenfield Park</b>
Inbound: to Wagga	7:53	7:46	8:03
	8:46	8:45	8:45
	9:16	9:14	9:14
Outbound: from Wagga	9:45	8:06	9:15

Wagga Wagga railway station is located approximately 1.1km east of the hospital. A total of four services are provided by CountryLink:

- To Sydney (two services daily); and
- To Melbourne (two services daily).

These rail services do not provide any realistic travel options for the hospital workforce, or patients, but could serve regional hospital visitors.

#### **4.4. Existing active transport provision**

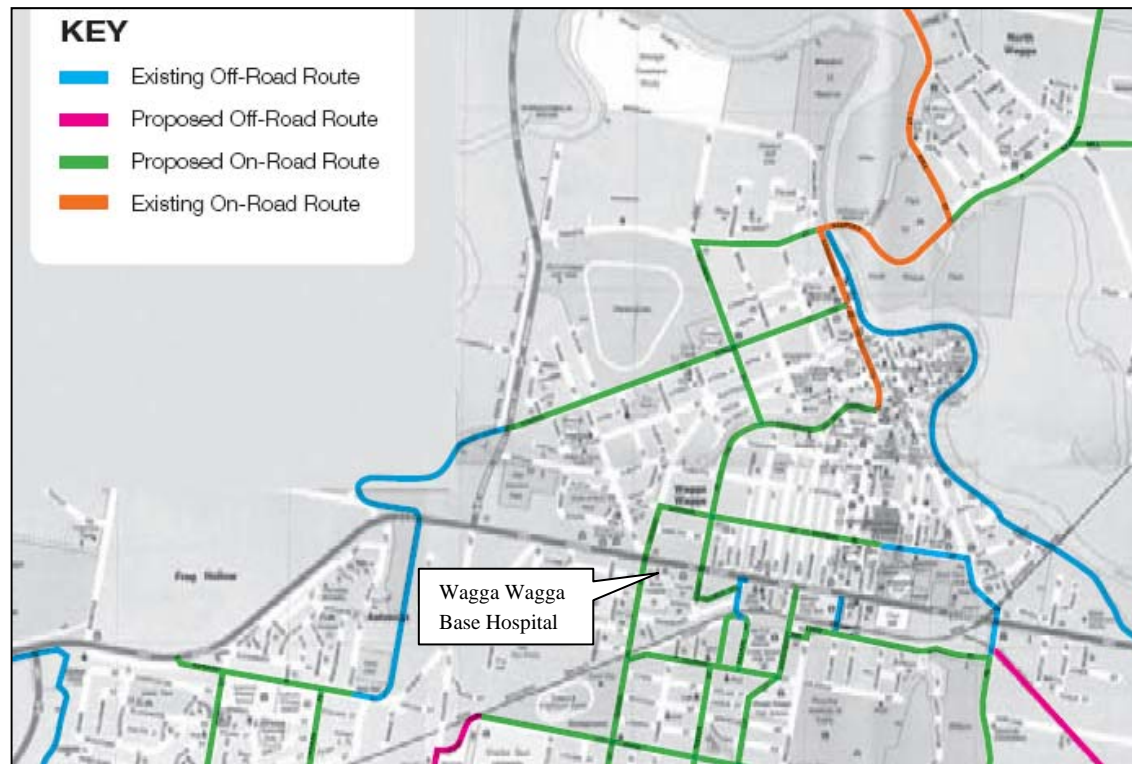
Paved pedestrian footpaths are provided on all road approaches to the hospital, including Edward Street (Sturt Highway), Docker Street, Gormly Avenue, Hardy Avenue, Murray Street, Yabtree Street, Yathong Street and Brookong Avenue. Signalised pedestrian crossings are provided on all approaches at the intersection of Edward Street (Sturt Highway) and Docker Street.

There are currently no formal on-road or off-road cycle paths / routes in close proximity to the hospital. The nearest off-road cycle path to the hospital is located at the railway overpass linking Brookong Avenue and Cassidy Parade / Kildare Street, approximately 520m south-east of the hospital. The *Integrated Movement Study for City of Wagga Wagga*, prepared by URaP – TTW Pty Ltd in December 2008, proposes formal on-road cycle routes on the following roads in the vicinity of the hospital:

- Docker Street;
- Murray Street;
- Salmon Street; and
- Morgan Street.

Currently, there are no facilities available within the Hospital Campus for bike storage and it will be recommended that bike facilities should be provided for WWBH to encourage more people travel to and from the Hospital by active transport in the future.

■ **Figure 4-4: Wagga Wagga City Bike Plan**



Source: Integrated Movement Study for City of Wagga Wagga, URaP – TTW Pty Ltd, December 2008

#### 4.5. Existing road infrastructure

It is usual to classify roads according to a hierarchy in order to determine their functional role within the road network. Roads are classified according to the role they fulfil and the volume of traffic they can appropriately convey. Changes to traffic flows on roads can then be assessed within the context of the road hierarchy. The guidelines for the functional classification of roads were developed by the New South Wales Roads and Maritime Services (RMS), and are described below:

- **Arterial Road:** typically a main road carrying over 15,000 vehicles per day and fulfilling a role as a major inter-regional link (over 1,500 vehicles per hour);
- **Sub-Arterial Road:** defined as secondary inter-regional links, typically carrying volumes between 5,000 and 20,000 vehicles per day (500 to 2,000 vehicles per hour). These roads supplement arterial roads in providing for through movement, to an individually determined limit that is sensitive to both roadway characteristics and abutting land uses;
- **Collector Road:** provides a link between local roads and regional roads, typically carrying between 2,000 and 10,000 vehicles per day (250 to 1,000 vehicles per hour). At volumes greater than 5,000 vehicles per day, residential amenity deigns to decline noticeably. Trunk



collector and spine roads with limited property access can reasonably carry traffic flows greater than 5,000 vehicles per day; and

- **Local Road:** provides access to individual allotments, carrying low volumes, typically less than 2,000 vehicles per day (250 vehicles per hour).

Key roads in the vicinity of the hospital are described below:

- Edward Street (Sturt Highway) – is an arterial road running east-west along the northern boundary of the hospital. It is part of the Auslink national network and forms part of the main highway route between Sydney and Adelaide. It has two lanes in each direction and has a posted speed limit of 60kmh.
- Docker Street – is a regional collector road running north-south along the western boundary of the hospital. It has three lanes in each direction (including one parallel parking lane in each direction) and has a posted speed limit of 50kmh.
- Lewis Drive – is a local road running one-way southbound along the eastern boundary of the hospital buildings. It has right-angle parking on the western-side in the northern precinct only. It provides access to the hospital's parking facilities and internal road system.
- Brookong Avenue – is a local residential road running northeast to southwest to the east and south of the hospital. It has one lane in each direction (plus one parking lane in each direction, with angle parking along the southern most portion) and has a posted speed limit of 50kmh. It currently serves as a bypass road for commuters wishing to avoid the traffic signals at Edward/Docker Streets.
- Murray Street – is a local residential road running north-south to the east of the hospital. It has one lane in each direction (plus one parallel parking lane on each side) and has a posted speed limit of 50kmh. It currently also serves as part of a local bypass route with considerable cross traffic at the Edward/Murray Street intersection.

The intersection of Edward Street (Sturt Highway) and Docker Street is signalised with pedestrian crossings on all approaches. In most circumstances, the signals operate using four phases (Edward Street westbound, Edward Street eastbound, diamond right turn from Docker Street, and Docker Street northbound and southbound). There is very little pedestrian activity at these signals.

While Docker Street is the western edge of the Wagga Wagga Base Hospital, it also operates as a regional road dividing a medical precinct that extends to include Calvary Hospital and medical consulting rooms between. Wagga Wagga Council and RMS are conscious of significant pedestrian traffic across Docker St in the vicinity of Hardy Street. Opportunities to enhance pedestrian flow within the precinct are important for the precinct, but are not appropriate to be addressed as part of the current assessment of the WWBH redevelopment per se. Such activity might be addressed within a Council precinct planning process.



#### 4.6. Intersection analyses

The performance of the road network is largely governed by the ability of key intersections to accommodate traffic demand. The performance of an intersection is determined in terms of its Level of Service (LoS) and is categorised from A to F (refer **Table 4-3**).

■ **Table 4-3: Level of Service Criteria and Average Delay**

Level of Service	Average delay (seconds per vehicle)	Conditions for signalised intersections
A	0-14.5	Good operation
B	14.5 – 28.5	Acceptable delays & spare capacity
C	28.5 – 42.5	Satisfactory
D	42.5 – 56.5	Operating near capacity
E	56.5 – 70.5	At capacity
F	>70.5	Extra capacity required

*Source: RMS Guide to Traffic Generating Developments*

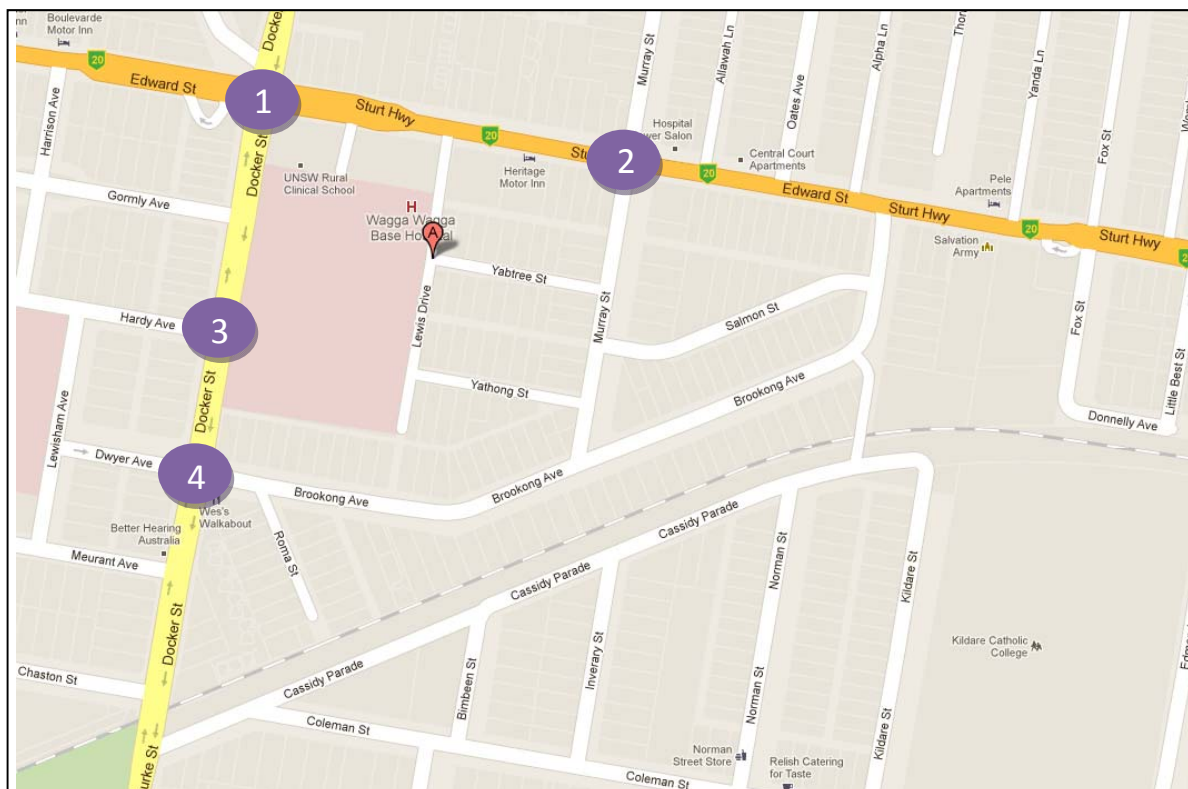
SIDRA intersection software was used to analyse the performance of the intersections within the WWBH precinct. Key input data for the SIDRA model include:

- Classified intersection counts dated 22<sup>nd</sup> June 2011;
- Intersection geometry referenced from a variety of sources including aerial photographs and site inspections;
- Phase times and movement descriptions as specified by historical SCATS data, sourced from the RMS.

The intersections were selected on the basis that they are likely to be the most affected by the future redevelopment of WWBH. **Figure 4-5** indicates the locations of the intersections that have been assessed as part of this analysis.



■ **Figure 4-5: Intersection Locations**



Source: 2011 Google Mapdata, Whereis®, Sensis P/L

The results of the analysis undertaken indicate that apart from Edward and Docker Street, the other three intersections are currently operating at a satisfactory LoS “A” during the AM peak hour. Edward/ Docker has an acceptable Level of Service “C”. Sidra results for all four intersections are summarised in **Table 4-4**:

■ **Table 4-4: Existing Intersection Performance Results**

Intersection	LoS (overall)	DOS (overall)	95% Queue (m)
① Edward / Docker (Optimised cycle time, no pedestrian activity)	C	0.86	141m on Docker St south
② Edward / Murray	A	0.57	20m on Murray St south
③ Docker / Hardy	A	0.26	4m on Hardy Ave
④ Docker / Brookong	A	0.34	26m on Docker St south

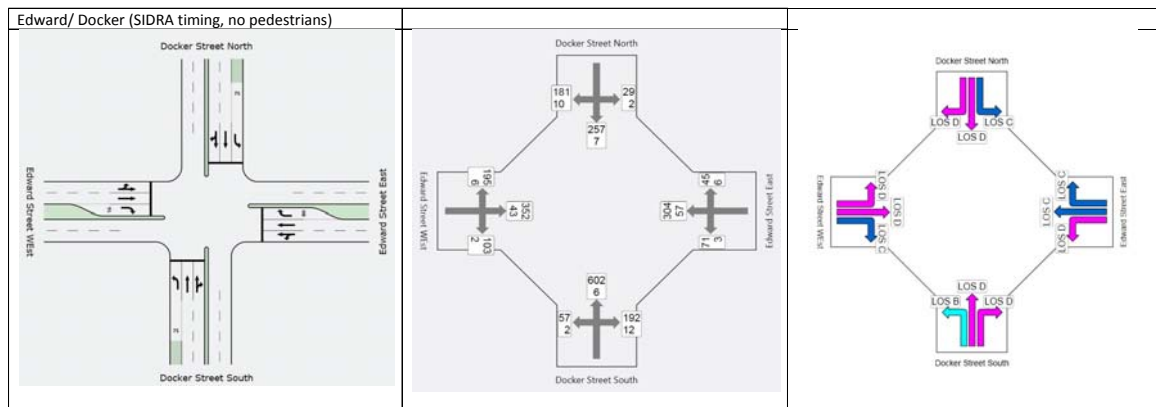


Detailed results by intersection are shown below:

#### 4.6.1. Edward and Docker Street Intersection

The intersection of Edward Street (Sturt Highway) and Docker Street is signalised with pedestrian crossings on all approaches. In most circumstances, the signals operate using four phases (Edward Street westbound, Edward Street eastbound, diamond right turn from Docker Street, and Docker Street northbound and southbound). Detailed results are shown in **Figure 4-6** below:

■ **Figure 4-6: Existing Intersection Performance at Edward Street and Docker Street**

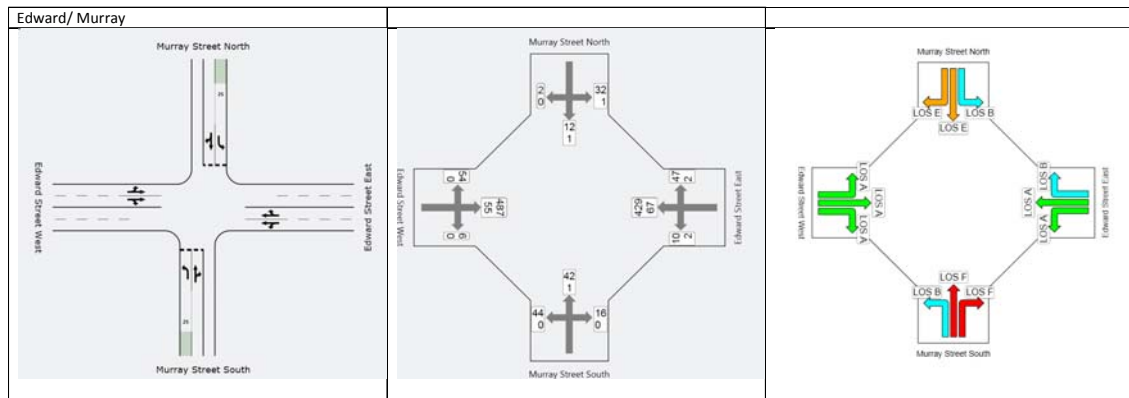


Sidra analysis indicates that the Edward Street and Docker Street intersection is operating at LoS “D” with the worst approach being Docker Street South (LoS “D”). The results also indicated that during the AM peak hour, this intersection has limited spare capacity available, with an overall degree of saturation of 0.86 (more than the 0.78 threshold).

#### 4.6.2. Edward and Murray Street Intersection

The intersection of Edward Street (Sturt Highway) and Murray Street is a give-way sign controlled intersection. Sidra analysis (**Figure 4-7**) suggests that the intersection is currently operating at LoS “A” with the worst approach at Murray Street South (LoS F) during the AM peak hour. The majority of the intersection has ample capacity, with degrees of saturation of 0.57 (less than 0.78).

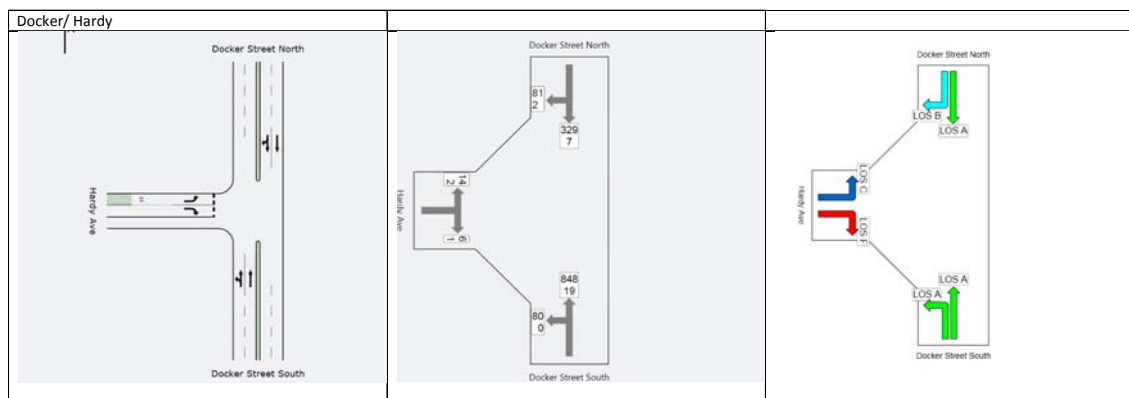
■ **Figure 4-7: Existing Intersection Performance at Edward Street and Murray Street**



#### 4.6.3. Docker Street and Hardy Avenue Intersection

The intersection of Docker Street and Hardy Avenue is a give-way sign controlled intersection. Sidra analysis (Figure 4-8) suggests that the intersection is currently operating at LoS “A” with the worst approach at Hardy Avenue Approach (LoS F) during the AM peak hour. The majority of the intersection has ample capacity, with degrees of saturation of 0.26 (less than 0.78).

■ **Figure 4-8: Existing Intersection Performance at Docker Street and Hardy Avenue Intersection**



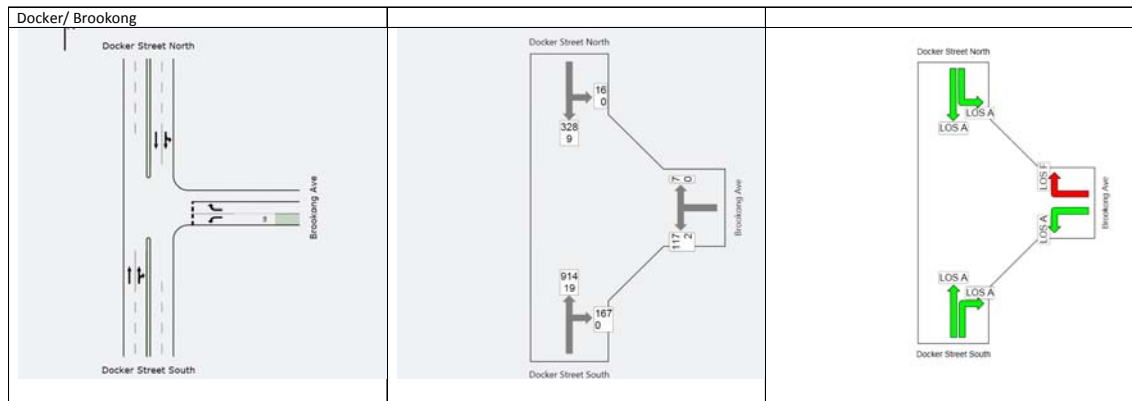
#### 4.6.4. Docker Street and Brookong Avenue Intersection

The intersection of Docker Street and Brookong Avenue is a give-way sign controlled intersection. Sidra analysis (Figure 4-9) suggests that the intersection is currently operating at LoS “A” with the worst approach at Brookong Avenue Approach (LoS F) during the AM peak hour. The majority of the intersection has ample capacity, with degrees of saturation of 0.34 (less than 0.78).





■ **Figure 4-9: Existing Intersection Performance at Docker Street and Brookong Avenue Intersection**



#### 4.7. Median in Edward Street

Edward Street as a State Highway provides good regional connectivity for the Hospital as a regional facility. However, Roads and Maritime Services has identified a crash profile between Docker and Best Street resulting in 39 casualties over the last 5 years, with more than half being rear-end and turning crashes.

RMS as the approval authority has determined that the appropriate crash counter-measure is construction of a dividing median strip between Best and Docker Streets. It is understood that this will be in the 2011/2012 RMS works program. This would have the effect of prohibiting right-turn access for eastbound traffic into the main entry to Hospital at Lewis Drive, and prohibiting right turns and cross-traffic at the Edward/ Murray intersection.

The median across Lewis Drive entry would have a serious impact on hospital access. Traffic from the east along Edward Street will not be affected. However, regional traffic from all other points will need to access the Hospital via Docker/ Brookong/ Murray Streets. Wayfinding signage will be needed to ensure general traffic is adequately advised of approach routes to the hospital for general access and to the Emergency Department. These are issues for RMS and Wagga Wagga City Council in the context of RMS preparing a Review of Environmental Factors in initiating the Edward Street median, and beyond the context of this assessment.

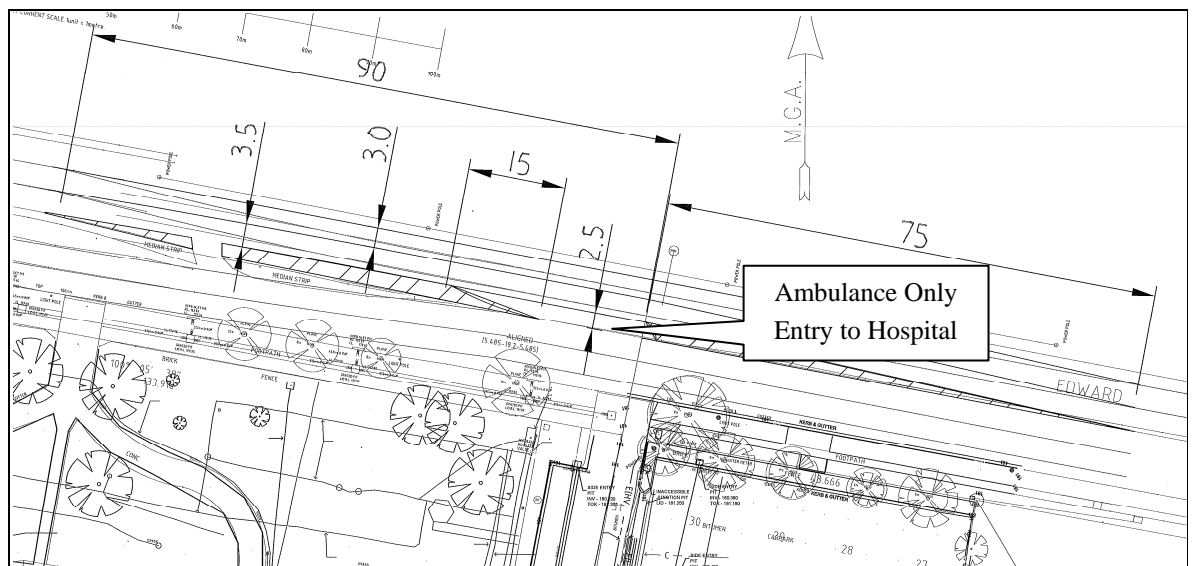
However, this route is not appropriate for emergency vehicles proceeding to the Hospital's Emergency Department. Following discussion with RMS, it is proposed to construct a protected right-turn bay within the median for emergency vehicles only. This would be sign-posted "Ambulance Only Entry". As a result of retaining the wide median from Docker/Edward to this point, the two eastbound lanes will need to be realigned, reducing parking on the northern kerb of



Edward Street, and relocation of the existing eastbound bus stop, bringing it some 75m east of its current location.

The median across Murray Street will not have an immediate effect, other than encouraging alternate approaches to the Hospital for traffic from the north.

■ **Figure 4-10 Indicative construction of right-turn bay in RMS median**



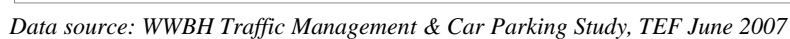
#### 4.8. Existing car parking

Parking surveys in 2007 (TEF<sup>3</sup>) indicated 304 car spaces provided in the Hospital Campus, with a further 275 on-street parking spaces being used in adjacent streets (**Figure 4-11**). An area north of Yathong Street is allocated to doctors and nurses.

The analysis of the data from those parking surveys suggested that the Hospital campus parking demand reached a peak by 11:00am through till 3:30pm. There was a peak parking demand of approximately 440 spaces using of some 300 spaces within the Hospital ground and some 140 spaces along streets in the vicinity of the Hospital. This is shown in **Figure 4-12**.

<sup>3</sup> ibid

■ **Figure 4-12: Estimated Existing Parking Demands at WWBH**





Onsite unallocated general parking now stands at 326 spaces, with varying time restrictions. Parking is provided for 7 disability vehicles.

■ **Figure 4-13 Current onsite car parking**





## 5. Traffic Impact Assessment

### 5.1. Proposed WWBH Redevelopment Project Plan (Phase 1)

Phase 1 will provide for enhanced Mental Health acute and new sub-acute patient care. It will occupy the land between Yathong and Yabtree Streets, where currently there are 74 unallocated parking spaces and four houses now owned by NSW Health.

It will add 4,763m<sup>2</sup> (16%) to the Hospital area, 30 beds (13%), 31 FTE weekday staff (6%) and approximately 9 registered and visiting medical officers (6%).

### 5.2. Hospital Car Parking

Demand for parking spaces can be based on a number of premises. The current Wagga Wagga Development Control Plan identifies the key metric as increased hospital area, nominating 1 additional parking space for each additional 25m<sup>2</sup> of gross floor area. The underpinning assumption is that hospital services are directly proportional to increased area. In the case of Wagga Wagga Base Hospital, the increased area is only modernising the standard of facilities rather than hospital functionality. In other jurisdictions, hospital car parking is associated variously with the number of beds and the number of staff. For example, Gosford Council requires 1 additional space per additional three beds and per three staff, while Bathurst Council requires 1 additional space per additional five beds and per three staff and per one doctor. The Roads and Maritime Services “Guide to Traffic Generating Developments” (2002) is silent on regional or public hospitals.

In the present project, it is contended that the key indicator for increase demand for overall parking is the increase in staffing. For Phase 1, the 6% increase in staffing translates to a need to provide an additional 20 unallocated general parking spaces.

To compensate for the displaced parking spaces and provide for increased parking needs, a replacement car park will be constructed in front of the Old Hospital building to the west of Lewis Drive. This is being approved under the provisions of the Infrastructure SEPP, as a self-certified onsite, at-grade parking area. This will provide an additional 97 unallocated parking spaces, one allocated space and 5 disabled spaces. Existing parking along the western kerb of Lewis Drive will be re-arranged providing 22 unallocated spaces (6 more than presently available). See **Figure 5-1**.



[illegible]

No change is proposed to the parking arrangements between Edward and Yabtree Streets to the east of Lewis Drive, including Doris Roy Lane. **Table 5-1** summarises changes in parking provision.

Location	Current	Phase 1
Edward/Doris Roy car park	72	72
Doris Roy Lane	6	6
Doris Roy/Yabtree car park	68	68
Replacement Car Park (exc disabled)	0	97
Lewis Drive (exc disabled)	16	22
Gissing House	3	3
Yabtree (exc disabled)	0	9
Yathong car park	74	0
Renal	5	5
Yathong Lodge	18	18
Engineering	12	12
Dental	45	45
Hydrotherapy	7	7
<b>Total</b>	<b>326</b>	<b>364</b>

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The existing seven disabled parking spaces along Lewis Drive will be relocated to the front of the Old Hospital (five spaces) and along Yabtree Street adjacent to the new Mental Health building (three spaces), resulting in eight disabled spaces. Current requirements for the provision of disabled parking on hospitals is covered in the Building Code of Australia( 2011), requiring 1 spaces per 50 general parking spaces for outpatient areas, and one per 100 spaces for non-outpatient areas. As such, the provision of disabled parking spaces meets requirements.

### **5.3. New Lewis Drive**

The location of Mental Health is determined by the functional design philosophy of the Hospital Redevelopment, integrating this function at ground level in immediate proximity with the Emergency Department.

This necessitates building on that portion of Lewis Drive between Yabtree and Yathong Streets. Under a Head of Agreement between NSW Health and Wagga Wagga Council, a land swap has been agreed, to provide replacement connection along the eastern edge of the Hospital property, between Yabtree and Yathong Streets, styled as New Lewis Drive. This will provide continued through access on the site.

New Lewis Drive is proposed as a 7m carriageway, with 1.2m paths on each side. This is consistent with documentation submitted as part of the Wagga Wagga Base Hospital Concept Approval Application, and identified in the Head of Agreement.

### **5.4. General Traffic Circulation**

Lewis Drive is proposed to be retained in its current one-way orientation. This will include that section of Yabtree Street between Lewis Drive and New Lewis Drive.

Currently Yabtree Street is configured as one-way westbound. Effective operation of the site will be enhanced by reconfiguration to allow exiting traffic to egress via Yabtree Street, particularly with an increased parking focus on the northern precinct of the hospital. This will necessitate Yabtree Street being reconfigured for two-way traffic eastwards from New Lewis Drive. Yabtree Street is 8.5m kerb-to-kerb, with 2.5m footpaths on each side. As an 8.5m carriageway, it is appropriate as a two-way road, but with no kerb parking. There are 8 properties facing the street, all with garage access off the rear lane, Doris Roy Lane or Yathong Lane. One property has a driveway access off Yabtree. Parking is available for 14 cars along Yabtree Street. It is contended that the majority of Yabtree parking is hospital oriented, and can be accommodated on site.

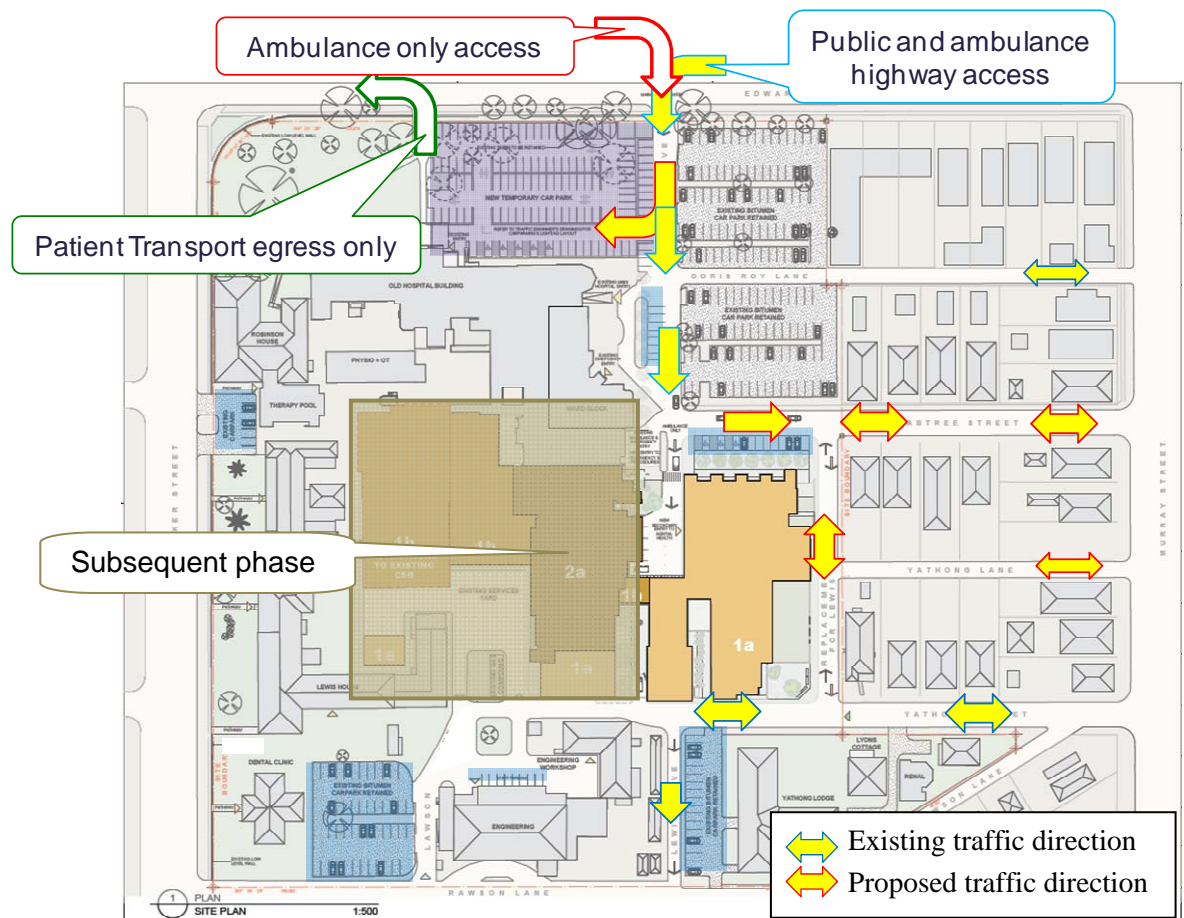
The configuration of New Lewis Drive could retain a southbound one-way orientation, consistent with the orientation of the replaced Lewis Drive. However, as discussed in **Section 7.1.3**



**Construction traffic routing**, operation as a two-way orientation will provide improved construction circulation.

Two-way operation of Yabtree Street and New Lewis Drive is being approached under separate approvals through the Wagga Wagga Local Traffic Committee.

■ **Figure 5-2: Proposed Phase 1 Traffic Circulation**







### 5.5. Emergency and service vehicle circulation

Emergency vehicles will continue to access the hospital via Lewis Drive off Edward Street. Egress will be via Yabtree or Yathong Streets. Service vehicles will continue to access the hospital via Yathong Street, off Murray Street.

### 5.6. Offsite parking

Preliminary estimates, detailed in **Table 5-2** and **Figure 5-3** revealed that up to 60 additional on street parking spaces could be provided in the vicinity of the hospital if selected areas in Brookong Avenue and Murray Street were converted to front- or rear-to-kerb angle parking.

This is subject to adequate alternatives being available for residential garbage collection from rear lane access, an issue being clarified by Wagga Wagga Council.

■ **Table 5-2 Angle Parking**

Location	Kerb Distance (m)	Parallel parking places (at 5.4m/car)	Perpendicular parking places (at 2.4m/car)	Angle Parks (perpendicular -2 and rounded down)	Additional car parking by implementing angle parking
A	20	3.7	8.3	6	2
B	20	3.7	8.3	6	2
C	40	7.4	16.7	14	6
D	50	9.3	20.8	18	8
E	100	18.5	41.7	39	20
F	30	5.6	12.5	10	4
G	30	5.6	12.5	10	4
H	30	5.6	12.5	10	4
I	40	7.4	16.7	14	6
J	25	4.6	10.4	8	3
Total	385	71.3	160.4	135	59



■ **Figure 5-3 Locations that could be suitable for angle parking**



Liaison with Wagga Wagga Council indicates that Council is developing a theme of centre island right-angle parking, along Murray and Brookong Streets. These streets are wide enough to support retention of existing parallel parking, with 450m of centre parking, indicatively providing an additional ~120 parking spaces.

These two themes (kerb angle parking and centre island right-angle parking are being developed with Wagga Wagga Council for submission to the Wagga Wagga Traffic Committee.

Wagga Wagga Council has recently approved creation of 60° angle parking along Shaw Street to the north west of the hospital site. This will provide an additional 35 parking spaces. Further expansion of this angle parking towards the intersection of Docker and Edward Streets is not favoured due to the presence of a child care centre, and no alternative to kerb-side garbage collection.

Additional kerb parking is available along South Parade adjacent to Duke of Kent Park would provide 60 parking spaces, albeit that this represents a 650m walk to the hospital.



■ Figure 5-4 Council-initiated angle parking and proposed additional parking



Source: Google Maps, Whereis®, Sensis



## 5.7. WWBH traffic generation and intersection analysis

The adopted principle assumption is that parking demand will increase in proportion with staff increase. With no change in hospital functions, traffic generation is expected to increase in the same proportion (6%). This increase is marginal. To provide a more robust assessment, a 20% increase in site traffic has been assessed for its effect on surrounding intersections. Intersection layouts and AM peak volumes (refer to **Section 4.6**) were modified to reflect<sup>4</sup>:

- 20% increase in car access to the hospital during the AM peak 1 hour;
- Changed traffic circulation to the hospital, especially at Lewis Drive Entry; and
- RMS's planned Edward Street median that will prevent access to Lewis Drive from eastbound traffic and prevent all but left turns at the Edward/ Murray Streets intersection.

Detailed results by intersection are shown below:

### 5.7.1. *Edward and Docker Street Intersection*

There are currently 66 vehicles<sup>5</sup> entering the hospital via Lewis Drive at Edward Street (assumed as 33 from each direction) during the AM peak hour. As a result of RMS's proposal for a median along Edward Street, a right-turn access from Edward Street into Lewis Drive would be banned for general vehicles. These vehicles are expected to use Docker Street, Brookong Street, and Murray Street onto Edward Street to access the hospital car park instead. This would result in a reduction in Edward Street eastbound traffic volumes and an increase in Docker Street southbound traffic volumes.

Traffic volumes at Edward and Docker Street intersection were modified to reflect the above changes. Detailed results are shown in **Figure 5-5** below:

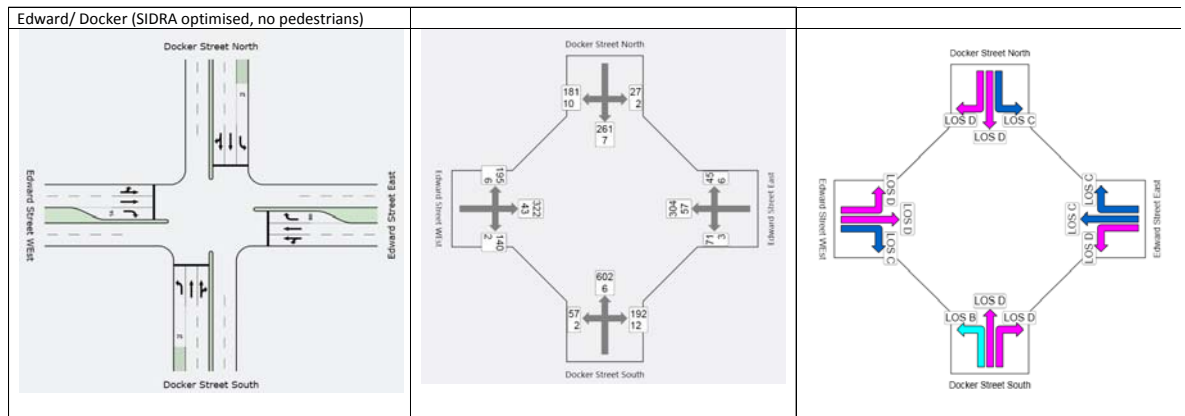
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<sup>4</sup> It should be noted it was assumed that the background growth would be negligible.

<sup>5</sup> Tube Counts Lewis Drive at Edward Street, 22June-28June 2011



■ **Figure 5-5: Phase One Intersection Performance at Edward Street and Docker Street**



Sidra analysis suggests that the changes in flow are so minimal that there is barely any impact on any of the movements. Edward Street and Docker Street intersection would still be operating at LoS “D” with the worst approach at Docker Street South (LoS “D”).

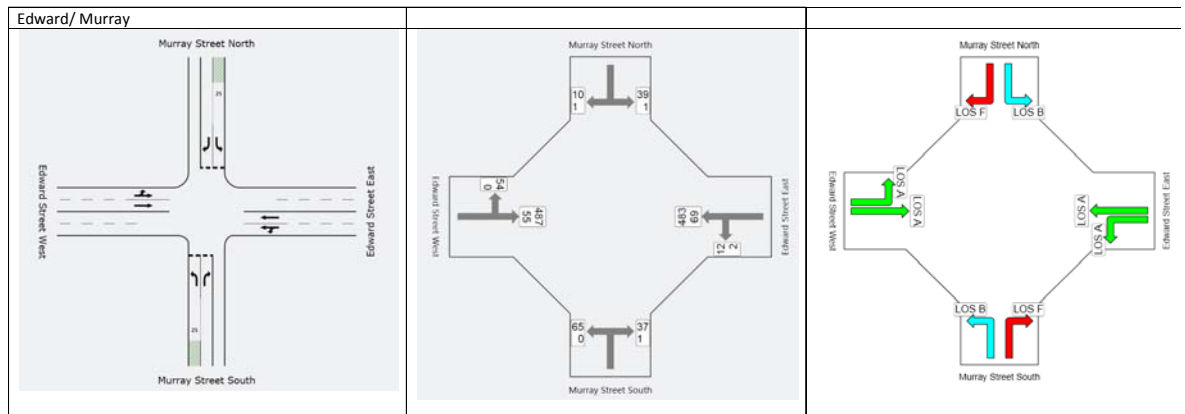
#### 5.7.2. Edward and Murray Street Intersection

It is expected that the RMS’s planned Edward Street median would run all the way through the Edward/ Murray Streets intersection (see **Section 4.7**). As a result, there would be no through access in Murray Street across the intersection. The right turn access from both the west and east approach of Edward Street would be banned as well.

It is expected that traffic that currently turn right from Edward Street (both approaches) into Murray would, in the future, use the right turns at Edward Street and Docker Street intersection. Vehicles that currently access the hospital from Murray Street north of the intersection would, in the future, use a different route via Darlow Street, Docker Street, Brookong Avenue and Yathong Street to access the hospital.

Traffic volumes and new layout at Edward and Murray St intersection were modified to reflect the above changes. Detailed results of the intersection analysis are shown in **Figure 5-6** below:

■ **Figure 5-6: Phase One Intersection Performance at Edward Street and Murray Street**



Sidra analysis suggests that the changes in flow would have a minor impact on Murray Street (north) right turn approach (from LoS “E” to LoS “F”). However, if assuming all vehicles from Murray Street north of the intersection using Darlow Street and Docker Street route instead, the impact on the Murray Street north right turn would be negligible. The overall intersection at Edward Street and Murray Street will still be operating at LoS “A”.

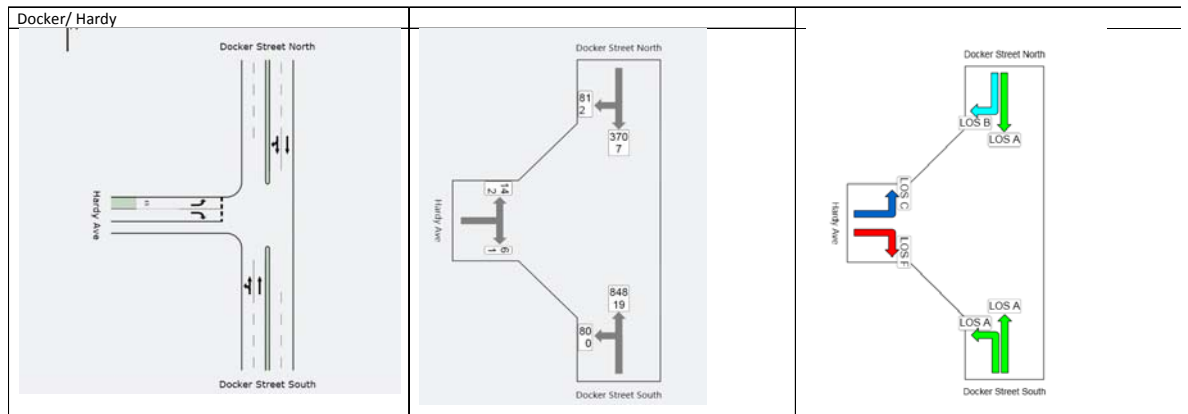
### 5.7.3. Docker Street and Hardy Avenue Intersection

As there would be more Edward Street eastbound vehicles accessing the hospital car park via Docker Street, Brookong Street and Murray Street instead of Lewis Drive, it is expected that there would be an increase of 41 vehicles travelling southbound via Docker Street during the AM peak hour.

The additional traffic volumes at Docker Street and Hardy Avenue intersection were added and detailed results are shown in **Figure 5-7** below:



**Figure 5-7: Phase One Intersection Performance at Docker Street and Hardy Avenue Intersection**



Sidra analysis suggests that the changes in flow are so minimal that there is barely any impact on any of the movements. Edward Street and Murray Street intersection is still operating at LoS “A” with the worst approach at Murray Street South.

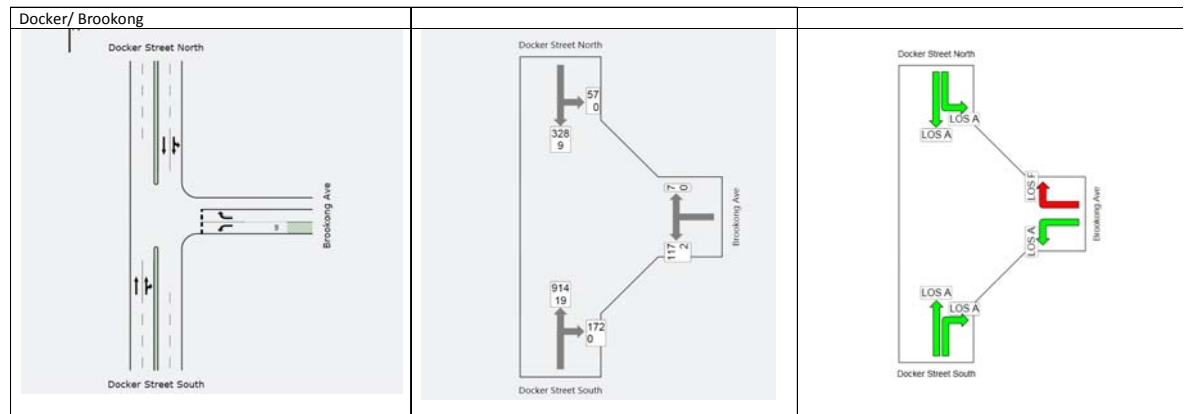
#### 5.7.4. Docker Street and Brookong Avenue Intersection

As there would be more Edward Street eastbound vehicles accessing the hospital car park via Docker Street, Brookong Avenue and Murray Street instead of Lewis Drive, it is expected that there would be an increase of 41 southbound vehicles turning left at Brookong Avenue during the AM peak hour. 20% increase in car access to the hospital via Brookong Avenue, Murray Street and Yathong Street route is also required to be reflected in the intersection analysis.

The additional traffic volumes at Docker Street and Brookong Avenue intersection were added and detailed results are shown in **Figure 5-8** below:



■ **Figure 5-8: Phase One Performance at Docker Street and Brookong Avenue Intersection**



Sidra analysis suggests that the changes in flow are so minimal that there is barely any impact on any of the movements. Docker Street and Brookong Avenue intersection is still operating at LoS “A” with the worst approach at Brookong Avenue approach.

### 5.8. Intersection Summary

It is concluded that the increase in traffic arising from the Phase 1 Development will have negligible effect on the performance of the surrounding intersections.

■ **Table 5-3 Summary of Intersection Performance with Phase 1 Traffic**

Intersection	LOS (overall)	DOS (overall)	95% Queue (m)
① Edward / Docker (Optimised cycle time, no pedestrian activity)	C	0.86	141m on Docker St south
② Edward / Murray	A	0.17	4m on Murray St south
③ Docker / Hardy	A	0.26	5m on Hardy Ave
④ Docker / Brookong	A	0.35	28m on Docker south





## **6. Travel Demand Management**

### **6.1. Introduction**

Reduced dependence of private car travel and development of Travel Demand Management initiatives is consistent with the NSW State Plan, and other government initiatives. It provides the opportunity for reduced car reliance, and increased active transport including walking and cycling. This can best be developed through preparation of a Work Place Travel Plan (WPTP), also known as a Green Travel Plan.

Development of such a plan was identified in the Wagga Wagga Base Hospital Redevelopment (MP\_10\_0226) Concept Plan Application and Environmental Assessment of April 2011. A Statement of Commitment was provided that a Plan would be submitted with each Project Application. At that time, the first Project Application was anticipated to be more substantial than Phase 1, and the staff increase is a worthy trigger for initiating a Plan. Development of a workplace travel plan was foreseen as a key initiative in managing travel demand for the wider hospital redevelopment.

However, for the purpose of WWBH Phase 1 Project Application, an increase in staffing of 31 personnel will not have a noticeable effect on private car activity, and is not considered an appropriate threshold for implementation at this time.

NSW Health has developed a number of WPTPs for a variety of regional and urban hospitals. Preliminary discussions have been held with the Southern and Murrumbidgee Local Health Networks, identifying opportunities to develop a Plan suitable for WWBH.

A Commitment is now offered to provide a Work Place Travel Plan for Wagga Wagga Base Hospital in association with submission of the Phase 2 Project Application.

### **6.2. Public transport measures**

It is apparent from previous studies that hospital journey-to-work trips originate from throughout Wagga Wagga. This creates a challenge for the enhancement of public transport servicing the Hospital. The shift patterns of hospital staff also impose constraints on commercially viable services. Development of appropriate services with local bus operators should be adopted within the Work Place Travel Plan. Bus patronage can be encouraged with improved bus information, timetabling and bus stop location. These aspects will be integrated into the Phase 2 WPTP.

### **6.3. Cycling Facilities**

The NSW Planning Guidelines for Walking and Cycling identify the need to include end-of-trip facilities for cyclists within the redevelopment. If Phase 1 were a standalone development, the



Guidelines would indicate provision of 6 cycle parking spaces, one locker and a male and female change room a shower in each. (See **Section 2.2.2**). The current proposal includes a male and a female shower/change room with 12 lockers for hospital staff, changing into hospital clothing. Cycle racks can be readily incorporated into Phase 1 landscaping.

The integration of cycling trip-end facilities for the hospital as a whole-of-site development is beyond the scope of the Phase 1 Mental Health development. It is recommended that a coherent cycling strategy be integrated within the Work Place Travel Plan to be submitted in association with the forthcoming Phase 2 Project Application.



## 7. Construction Activity

The construction of Phase 1 of the redevelopment creates some tactical issues with respect to workforce and construction traffic management in an operational hospital environment.

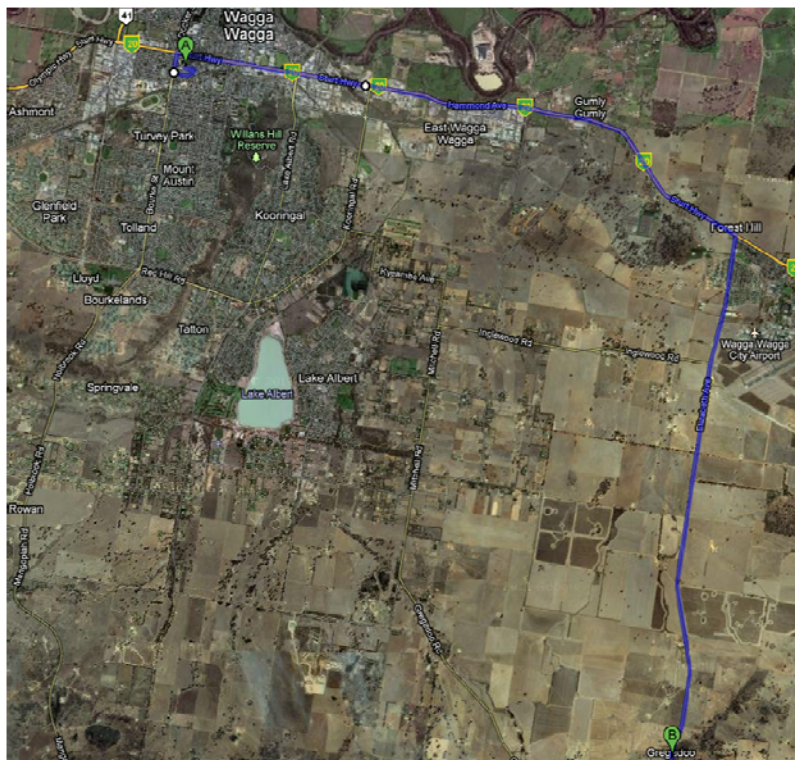
### 7.1. Construction Traffic

It is expected that the large majority of heavy vehicle traffic will approach the site from east on Edward Street and return to the same locations.

#### 7.1.1. Excavation, Spoil and Building Demolition

It is anticipated that waste materials will be delivered to the Gregadoo Waste Management Centre at Gregadoo. This is a 20km trip along the State Highway to Forest Hill, thence by Elizabeth Drive. Bulk excavation for Phase 1 is expected to generate some eight outbound waste movements per day for the first two months. See **Figure 7-2**.

#### ■ Figure 7-1 Indicative heavy vehicle route for waste disposal



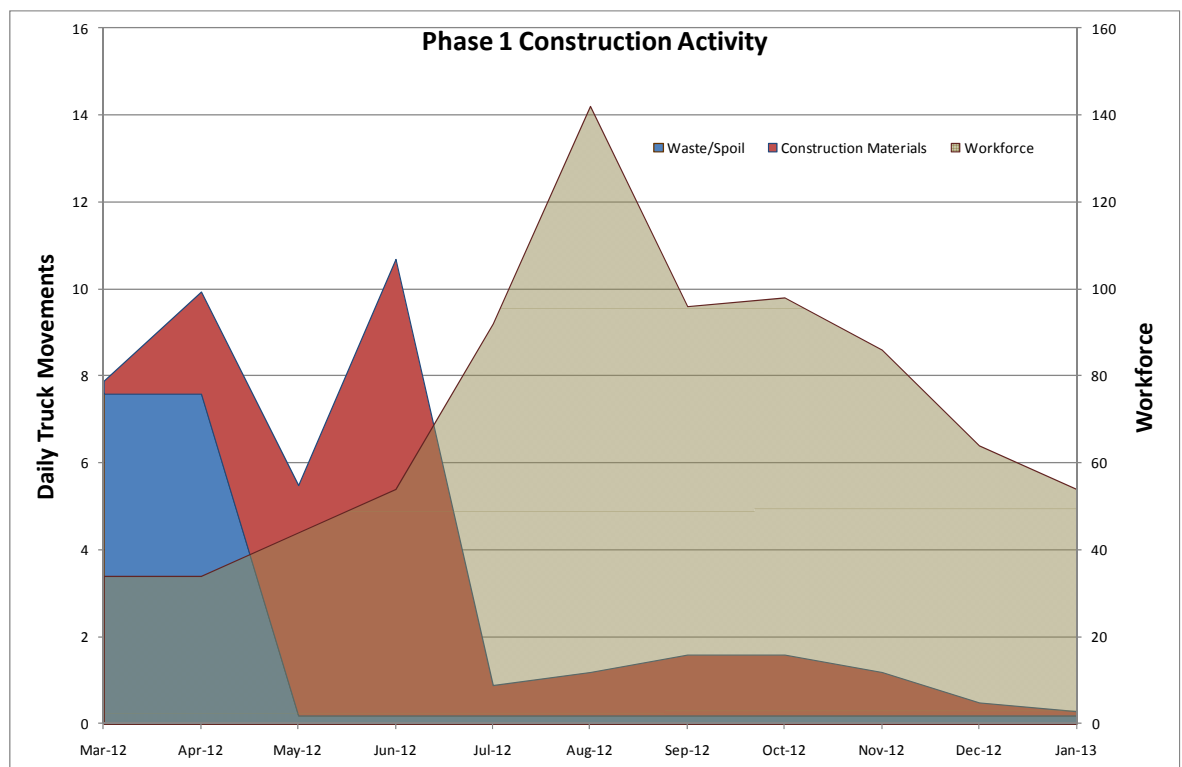
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### 7.1.2. Building Materials

It is expected that most of the traffic will come from locations in East Wagga Wagga. Maximum inbound movements occur shortly after the demolition works, peaking with a maximum of 11 inbound truck movements expected per day during the fourth month of Phase 1. At other periods, inbound traffic is generally expected to be one per day. See **Figure 7-2**.

■ **Figure 7-2 Forecast Construction Activity**



Source: Hansen Yunken Construction Management Program

### 7.1.3. Construction traffic routing

Direct access to the hospital site off the Sturt Highway can readily be achieved via Murray Street.

Within the site, heavy vehicles should travel in one direction to avoid conflicts. Given the nature of the loads and the swept paths of the truck with dog trailers and articulated vehicles to be used, transition through the site would best be manoeuvred by a series of right turns. Direct access to the site off the regional road network (Dockers Street) is not available via Rawson Lane due to the configuration of the intersection with Dockers St and narrow road network within the site.

It is proposed that heavy vehicles should enter the site via Yathong Street, into New Lewis Drive and exit via Yabtree Street. This clockwise motion around the site allows right-turn swept paths to be used providing greater flexibility and minimising kerb impacts.

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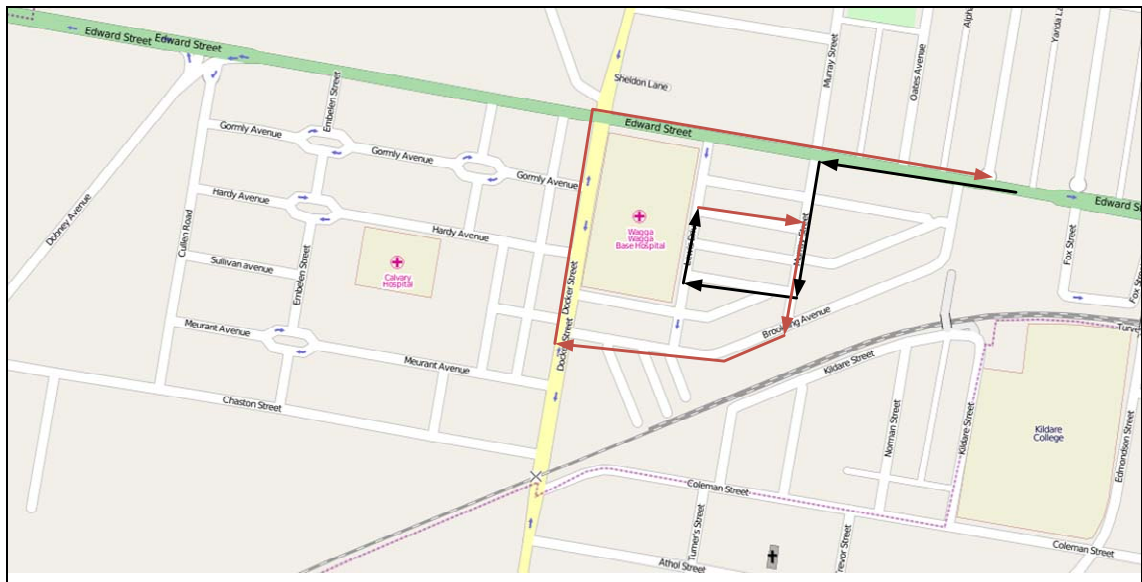


By following these routes, conflicting movements are avoided in narrower streets around the site and kept to Murray Street and Brookong Avenue, both of which are very wide.

Given the RMS's objective of closing right-turns at Murray Street with construction of the median from Docker Street to Best Street, the route towards the east carrying spoil or excavation material (and return to depot for concrete trucks and other construction material trucks) will need to be south into Murray, right-turn to Brookong, right-turn to Docker, and right-turn to Edward Street.

**Figure 7-3** presents the proposed route.

### ■ Figure 7-3 Easterly inbound and outbound heavy vehicle routes



## 7.2. Workforce

The workforce is expected to reach a peak of approximately 140 persons in the sixth month of Phase 1 construction. Given the central location of the Hospital at the intersection of the regional road and State Highway and the nature of the work, it is anticipated that the workforce is going to travel from all points of the compass from Wagga Wagga and its surrounds. This renders ineffective any consolidated workplace bussing. While site working hours are expected to be within 7:00am-5:00pm, it is more likely that the workforce will arrive between 6:30 and 7:00am, and depart between 3:00 and 5:00pm. Bus services are currently not provided in this early time slot, and buses are fully utilised in the afternoon on sub-regional school runs. It is most likely that the site will be accessed by single occupant private cars.

Ideally, parking would be on site or very nearby so that subcontractors can access tools and other equipment stored in their cars. With onsite parking being fully utilised by hospital staff and visitors, there will need to be locations where tools can be dropped off and picked up, before



parking offsite. Such an area would have peaky demand, but could be used at all times of day. To minimise unnecessary use of this, the site should also have secure spaces for tool storage so that subcontractors are comfortable leaving tools on site overnight and on weekends.

Traffic loads from employees and heavy vehicle traffic are presented in **Figure 7-2**.

#### **7.2.1. Workforce Parking**

During Phase 1, the workforce is to reach 140 employees for an extended period. Parking management will be needed to ensure that the workforce arriving prior to a 7:00am start does not consume all available kerb parking around the Hospital. This can be achieved by directing workforce parking to particular kerb areas, such as Shaw Street and South Parade. It would need to be complemented by time-restricted parking in the vicinity of the hospital that would restrict early construction parking, but allow longer day parking during normal hospital hours. However, hospital staff hours largely correspond with the construction workforce hours.

Additional off-street parking could provide an appropriate solution. This could be provided by the opening of additional onsite car parks early in the construction programme, or by creating a temporary construction car park near the site.

Possible locations for an offsite car park are shown in **Figure 7-4**. They are:

- Wagga Wagga Showgrounds. The showgrounds may be used for contractor parking with the provision of a shuttle bus to and from the hospital. There are no clear areas onsite suitable for parking. Further, the show ground is used for shows, the peak of which is the Wagga Show.
- A former Mobil Fuel Depot at 110 Coleman Street. This is an unoccupied site on reasonably flat and cleared land close to the site. It is currently listed for sale by Eldridge Real Estate with an asking price of \$1.5 million. There are issues that would need to be clarified in respect of negotiations with the current owner, as well as statutory planning issues associated with development applications for changed land use. This would represent a 700m walk. However, the local Busabout bus service 963 runs past this site, but earlier than of direct use to the hospital workforce. Suitably earlier services could be established.
- Duke of Kent Park. There may be scope to provide some parking at Duke of Kent Park if the previous options are not suitable. However, it is known that this is not an all-weather ground. Investigations will continue in this respect.



**Figure 7-4 Possible Sites for construction workforce parking**



### 7.2.2. Workforce parking summary

Additional kerbside parking in the vicinity of the Hospital can be provided by additional kerbside parking through angle parking, designated construction parking area (such as South Parade) or through off-street parking. These need further determination in consultation with Council and landowners.

### 7.3. Vehicle access on New Lewis Drive

Lewis Drive in the southern precinct of the Hospital provides through connectivity to Brookong Street for vehicles (100 vehicles/hour in the afternoon) and for pedestrians. Under a Head of Agreement between NSW Health and Wagga Wagga Council, a land transfer is being developed that will replace Lewis Drive, by parallel New Lewis Drive on the east property border. This will ultimately provide continued north south connectivity through the site.

During construction, Lewis Drive will need to be occupied to accommodate the Phase 1 construction works, including some demolition and excavation. New Lewis Drive will need to be available for construction traffic. However, it will be unwise to mix general traffic and construction traffic along New Lewis Drive. It is proposed that New Lewis Drive be reserved for construction vehicles during Phase 1 construction, being returned for general use prior to the





opening of the Phase 1 development. General vehicles exiting the site will be able to egress via a two-way Yabtree Street (See **Section 5.4**)

#### **7.4. Pedestrian access on New Lewis Drive**

There is currently a strong pedestrian movement in the afternoon peak. The pedestrian demand is dominantly hospital staff, walking along Lewis Drive heading to southern precinct carparking and offsite parking along Brookong Street. The present pedestrian access is unsatisfactory, as it deviates into the existing Ambulance Bay due to inadequate carriageway width.

It is expected that pedestrian staff will not walk around the construction of Mental Health, deviating along Yabtree Street and onto New Lewis Drive, but rather filter through the hospital through the back-of-house area. This is a hospital management issue, one that can be readily accommodated within the hospital. The need to accommodate pedestrians along New Lewis Drive during construction could be accommodated by a separated temporary path, but is not warranted.

#### **7.5. Construction Traffic Control**

A preferred access path through the hospital grounds has been nominated, in along Yathong, right-turn into New Lewis Drive, right-turn into Yabtree and right-turn into Murray Street. This provides maximum flexibility in maintain an acceptable swept path through the site. With truck activity peaking at 10-11 trucks per day, some management of the loading profile will need to be established to ensure that trucks do not enter the site until ready for loading, and similarly do not queue in Murray and Brookong residential streets while awaiting access.

The Contractor will need to provide a traffic control plan immediately prior to construction. This plan will detail access routes, secure tool drop-points, off-site waiting areas, on-site controls, wheelwash areas, and any other construction traffic controls. It will also designate construction workforce carpark areas, in conjunction with Wagga Wagga Council.

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