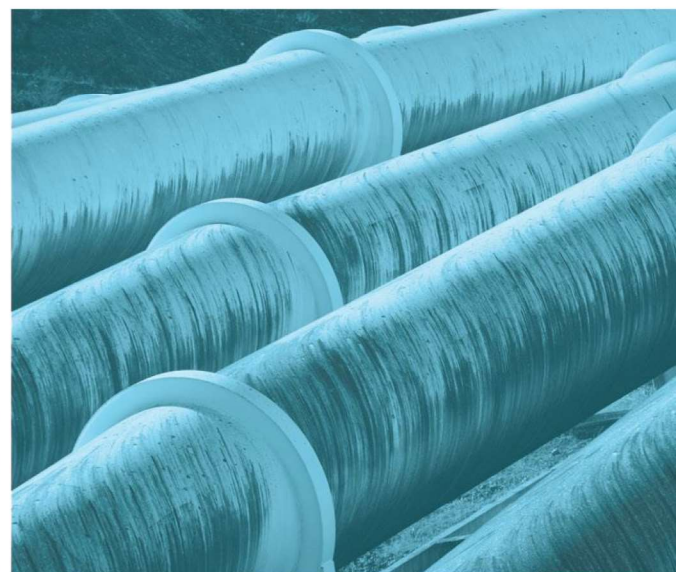
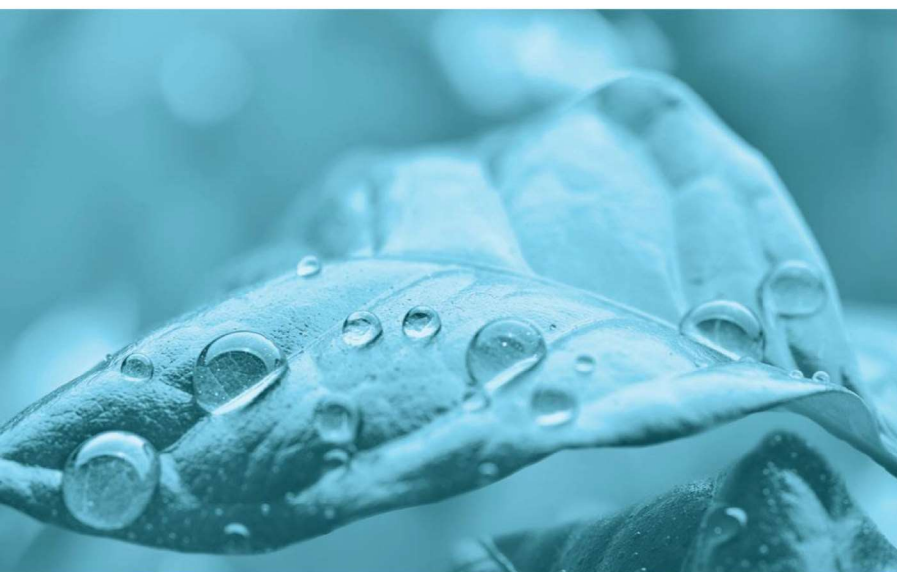




UNSW Biomedical Sciences Centre, Wagga Wagga

Traffic Impact Assessment

Prepared for UNSW
April 2020





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Traffic Impact Assessment

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Client

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Date

16 April 2020

Version

v6 Final

Prepared by



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16/04/2020

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16/04/2020

This report has been prepared in accordance with the brief provided by the client and has relied upon the information collected at the time and under the conditions specified in the report. All findings, conclusions or recommendations contained in the report are based on the aforementioned circumstances. The report is for the use of the client and no responsibility will be taken for its use by other parties. The client may, at its discretion, use the report to inform regulators and the public.

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1 Introduction

1.1 Background

University of NSW (UNSW) has been granted a 1603sqm site by Murrumbidgee Local Health District (MLHD) on which to build a Biomedical Science Centre (BSC). The site is in the north east corner of the existing at-grade car park on the Wagga Wagga Base Hospital (WWBH) campus and is bounded by Edward Street and Lewis Drive.

UNSW Rural Medical School already has a presence on the WWBH campus, training medical students from Years 4-6. The BSC will accommodate up to 90 additional junior medical students (Years 1-3), enabling UNSW to offer a full medical degree in Wagga Wagga from Years 1-6. The total number of Year 1-3 students will be reached over three years from January 2021, with one cohort numbering 25-30 students added each year.

The BSC will also service, for some classes, senior students (Years 4-6) already located on campus in Harvey House. In total the maximum population of the BSC will be up to 150 students, of which 50-60 are already training on the WWBH site.

The BSC will also accommodate 10 additional full time equivalent (FTE) staff.

The development of the BSC will result in the permanent removal of 52 existing car spaces from the hospital car park. However, a multi-storey car park is proposed to be constructed immediately to the south of the UNSW site. In addition, Health Infrastructure NSW has been master planning for future car parking on the WWBH site and the 52 spaces have been accounted for in this master plan.

There is no on-site parking proposed for the BSC development, other than a loading bay on the west side of the site. A range of Active Travel Promotion initiatives is proposed with the development including a higher than average provision on end of trip facilities (EoTF) for cycle commuting.

Some students and staff will choose to drive to the campus. This Traffic Impact Assessment addresses how spaces for these cars can be adequately accommodated by the available on-street parking in the 500m radius zone surrounding the UNSW site.

1.2 Site context

The site is located within the Wagga Wagga hospital precinct at 260-280 Edward Street, Wagga Wagga which is approximately 1km south-west of the Wagga Wagga Town Centre. The exact location of the site is at the south-east corner of the Sturt Highway/ Lewis Drive intersection. There are a site frontages of approximately 48.6m and 33m along Sturt Highway and Lewis Drive respectively (Figure 1.1).

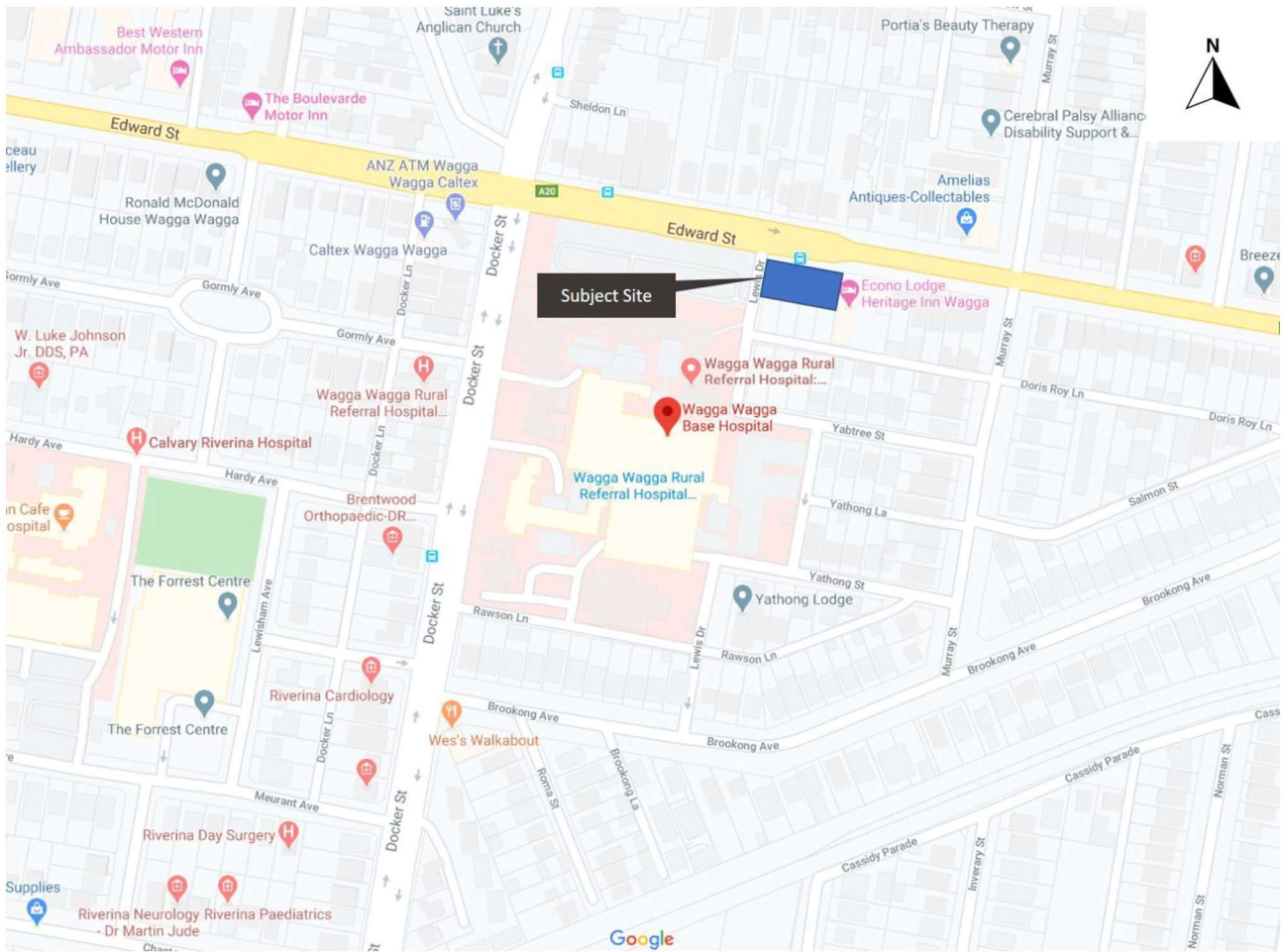


Figure 1.1 Site location (source: Google map)

The surrounding land uses to the UNSW facility are predominantly health care (the site forms part of a campus), low and medium density residential dwellings and commercial precincts.

The site currently has a land use classification as SP2 – Infrastructure under the Wagga Wagga Local Environment Plan (LEP) 2010, as presented in Figure 1.2.

In 2019, Wagga Wagga City Council (WWCC) released its Health Precinct Master Plan, produced in consultation with members of the MLHD Executive. The UNSW site and building are located on this master plan as an education development.

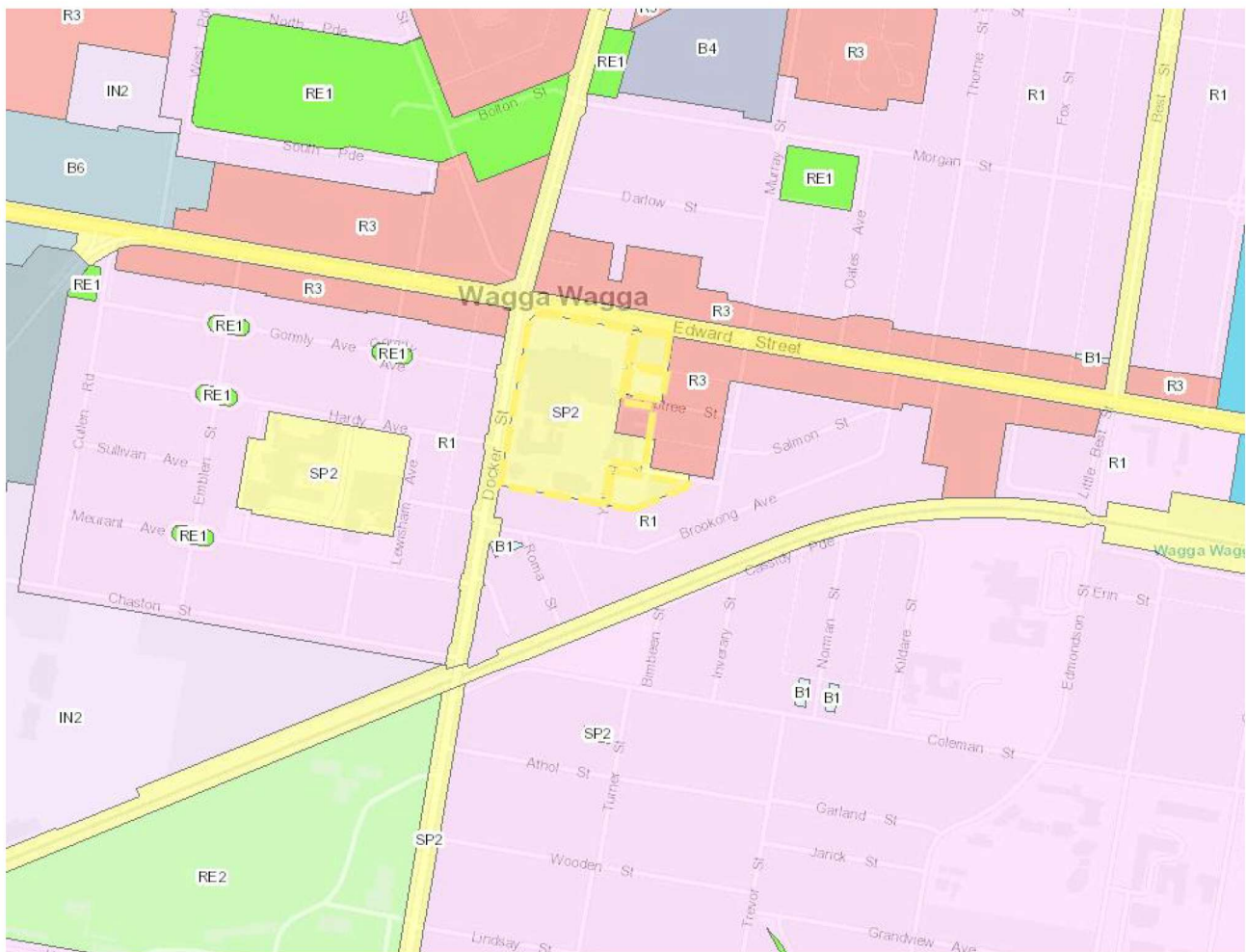


Figure 1.2 LEP Zoning Map (source: NSW ePlanning Viewer)

1.3 Purpose of this report

The scope of this report is primarily to assess the following:

- assess existing site traffic and transport arrangements;
- Determine the car parking requirements of the proposal and demonstrate how they can be met by availability of on street parking in the vicinity of the site
- determine the forecast traffic generation of the proposal and its impacts on the surrounding road networks;
- assess the vehicular ingress and egress at the site and its impacts on the external road networks;
- review the proposed bicycle parking provision and its compliance with the relevant Australian Standard; and
- determine the overall impact of the proposal on the road network, transport safety and efficiency.

2 Existing transport facilities

2.1 Road hierarchy

The NSW administrative road hierarchy comprises the following road classifications, which align with the generic road hierarchy as follows:

- state roads - freeways and primary arterials (TfNSW managed)
- regional roads - secondary or sub arterials (council managed and part funded by the State)
- local roads - collector and local access roads (council managed)

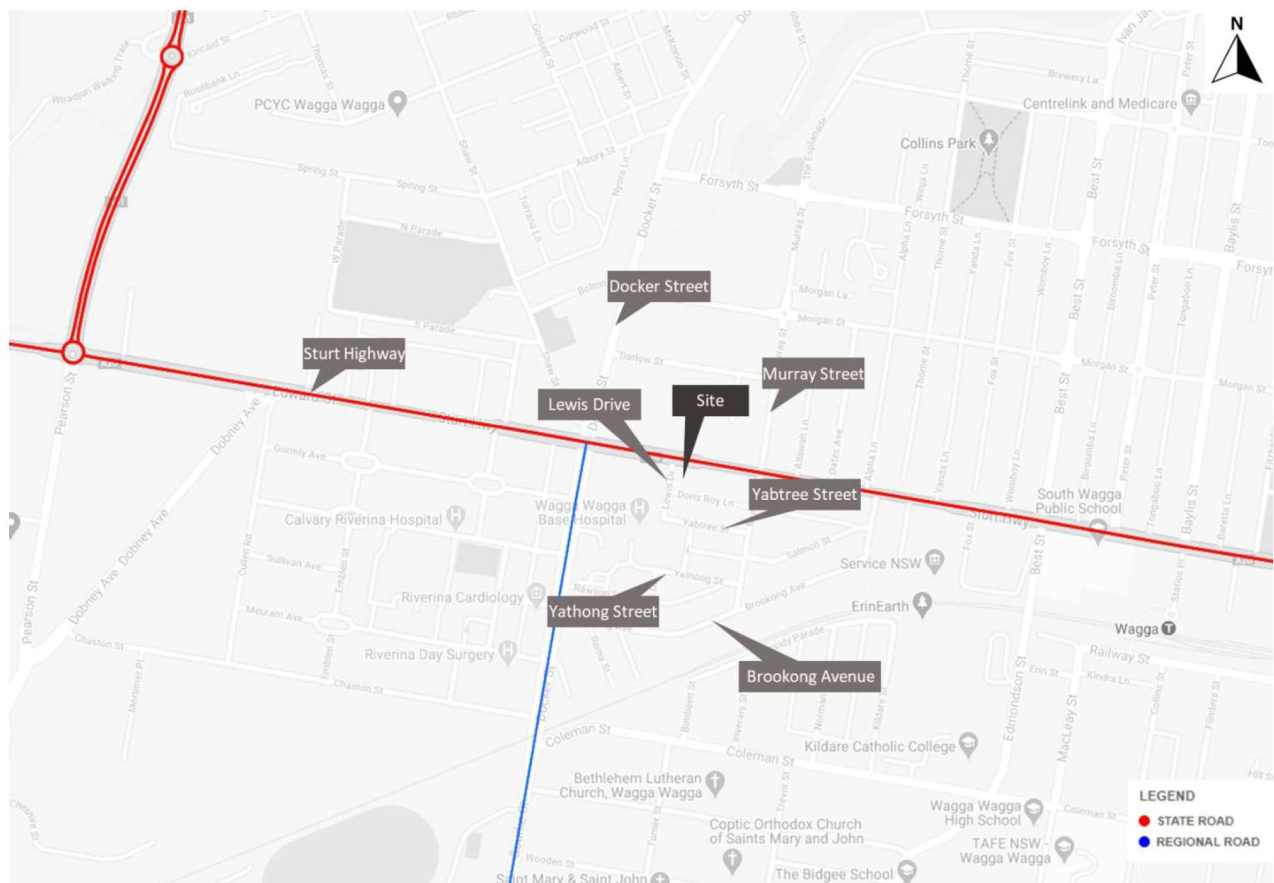


Figure 2.1 Road hierarchy (source: TfNSW carto)

A snapshot of each of the key roads is provided in the following tables.

Table 2.1 Sturt Highway (A20)

Road classification	State road
Alignment	Generally east – west between Hume Highway, Wagga Hill (east) and Adelaide (west)
Number of lanes	Travel lanes various; however, close to Wagga Hospital it is two lanes each way
Carriageway type	Sealed road
Carriageway width	Approximately 15m near the hospital
Posted speed limit	60km/h at the vicinity of the hospital
Heavy vehicle access	TfNSW approved 25/26m B-double route
Traffic function	Carries local and regional traffic



Plate 2.1 Sturt Highway looking west (Source: Google Streetview)

Table 2.2 **Docker Street**

Road classification	Regional road between Sturt Highway, Wagga Wagga and Chaston Street, Turvey Park
Alignment	Generally north - south between Forsyth Street, Wagga Wagga and Chaston Street, Turvey Park
Number of lanes	Two lanes each way between Forsyth Street and Chaston Street
Carriageway type	Sealed road
Carriageway width	14m with general travel lanes of 3m each and 2m wide median
Posted speed limit	50km/h
Heavy vehicle access	Yes
Traffic function	Carries local and regional traffic



Plate 2.2 **Docker Street looking south (Source: Google Streetview)**

Table 2.3 **Lewis Drive**

Road classification and connectivity	Local road connecting through the hospital campus south of the Sturt Highway (this road along with part of Doris Roy Lane and Yabtree Street, is in the process of being transferred from Council ownership to Health NSW)
Alignment	North – south
Number of lanes	North of Yabtree Street: one lane each way; however, no centre or edge line is provided South of Yathong Street: one way southbound
Carriageway type	Sealed road
Carriageway width	North of Yabtree Street: 7m with 3.5m general travel lane South Yathong Street: Varies between 4m and 6m
Posted speed limit	Default speed limit of 50km/h
Heavy vehicle access	Yes
Traffic function	Provides access to the hospital car parks and possibly carries some local traffic



Plate 2.3 **Lewis Drive looking south (Source: Google Streetview)**

Table 2.4 **Murray Street**

Road classification and connectivity	Local road between Brookong Avenue and Forsyth Street
Alignment	North - south
Number of lanes	One lane each way
Carriageway type	Sealed road
Carriageway width	9.5m between the travel lanes with additional parking lanes on both sides
Posted Speed limit	Default speed limit of 50km/h
Heavy Vehicle access	Yes
Traffic function	Carries local traffic



Plate 2.4 **Murray Street looking north (Source: Google Streetview)**

Table 2.5 **Brookong Avenue**

Road classification and connectivity	Local Road between Sturt Highway and Docker Street
Alignment	Varies but generally southwest – northeast to connect Sturt Highway and Docker Street which are perpendicular to each other
Number of lanes	One lane each way
Carriageway type	Sealed road with parking lane on both sides
Carriageway width	Travel lanes vary between 6.5 and 7m
Posted Speed limit	Default speed limit of 50km/h
Heavy vehicle access	Yes
Traffic function	Carries local traffic



Plate 2.5 **Brookong Avenue looking northeast (Source: Google Streetview)**

Table 2.6 **Yabtree Street**

Road classification and connectivity	Local Road between Lewis Drive and Murray Street
Alignment	East – west
Number of lanes	One lane each way
Carriageway type	Sealed road with parking on the southern side
Carriageway width	Varies between 5.6m and 8.5m
Posted Speed limit	Default speed limit of 50km/h
Heavy Vehicle access	Yes
Traffic function	Provides residential and hospital traffic accessibility



Plate 2.6 **Yabtree Street looking west (Source: Google Streetview)**

Table 2.7 **Yathong Street**

Road classification and connectivity	Local Road between Murray Street and Lewis Drive
Alignment	East – west
Number of lanes	One lane each way
Carriageway type	Sealed road with parking on the northern side
Carriageway width	Approximately 6.5m
Posted speed limit	Default speed limit of 50km/h
Heavy vehicle access	Yes
Traffic function	Carries local traffic and ambulance access



Plate 2.7 **Yathong Street looking west (Source: Google Streetview)**

2.2 Key intersections

There are a number of signalised and unsignalised intersections in the vicinity of the site. A brief description of each intersection is provided below:

- **Sturt Highway / Docker Street** – this is a signalised intersection where all turns are permitted. Dedicated right turn bays are provided on east and west approaches. It is understood that this intersection will be upgraded with additional designated right turn bays on north and south approaches as part of the hospital redevelopment;
- **Sturt Highway / Lewis Drive** – this is a priority-controlled T-intersection where vehicles can enter into Lewis Drive from both approaches of Sturt Highway. A 60m long right turn bay is provided for vehicles entering

into Lewis Drive from the highway. From Lewis Drive to Stuart Highway, vehicles are restricted to left out only;

- **Sturt Highway/ Murray Street** – this is a priority-controlled four-way intersection with all movements permitted. It is understood that signalisation of this intersection will be part of the hospital redevelopment with pedestrian crossing facilities on all four approaches;
- **Murray Street/ Doris Roy Lane** – this is a priority-controlled four-way intersection where vehicles on Doris Roy Lane have to give way to vehicles on Murray Street;
- **Murray Street/ Yabtree Street** – this is a priority-controlled T-intersection where vehicles on Yabtree Street must give way to vehicles on Murray Street; and
- **Murray Street/ Brookong Avenue** – this is also a priority-controlled T-intersection where vehicles on Murray Street must give way to those on Brookong Avenue. It is understood that this intersection will be upgraded by Wagga Wagga City Council where priority will be given between Murray Street and Brookong Avenue (east). Also, pedestrian and cyclist crossing will be facilitated.

2.3 Base traffic volume

No new traffic count has been undertaken as part of this traffic assessment. The base traffic volumes are extracted from the Stage 3 redevelopment studies for the hospital undertaken in 2019¹.

¹ Wagga Wagga Base Hospital stage 3 redevelopment traffic volume extracted from ptc. traffic report prepared in 2019.

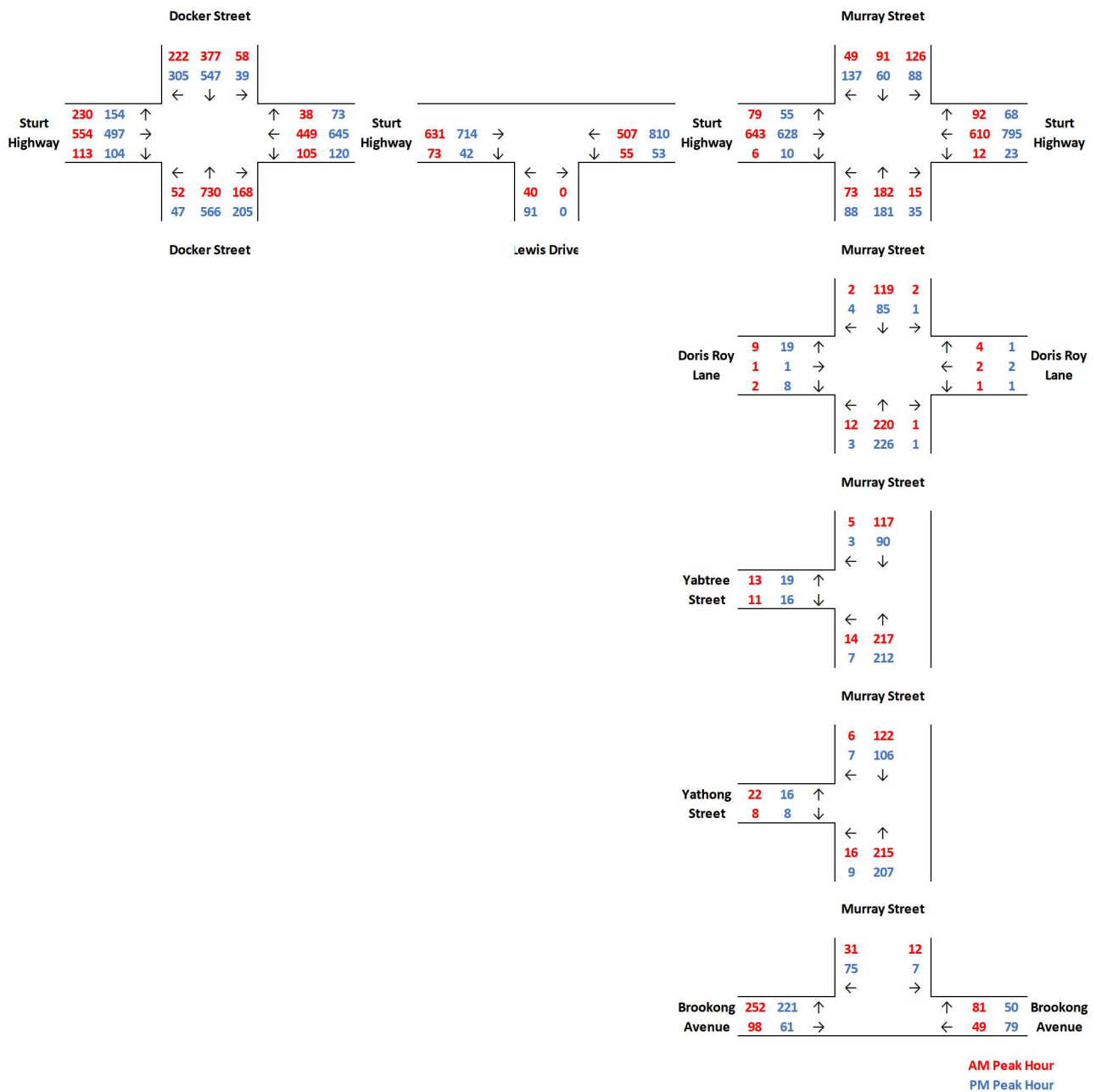


Figure 2.2 Base volumes

It is noted that Sturt Highway exhibits slightly tidal traffic patterns, i.e. the major traffic flows are eastbound during the AM peak and westbound during the PM peak. It is also noted that Sturt Highway has two traffic lanes each way which is appropriate for the amount of traffic carried.

In comparison, Docker Street shows a more obvious tidal northbound peak flow in the AM peak but an almost equal split of northbound and southbound traffic in the PM peak.

On Lewis Drive, inbound traffic to the hospital site is clearly prevalent in the AM peak while more or less equal inbound/outbound traffic flows are experienced in the PM peak.

2.4 Review of the TfNSW crash data

Crash data in the vicinity of the site has been obtained from TfNSW Centre for Road Safety between 2014 and 2018. The crashes are categorised based on the severity of the crashes as follows:

- non-casualty (e.g. towaway);
- minor/ other injury;
- moderate injury;
- serious injury; and
- fatal.

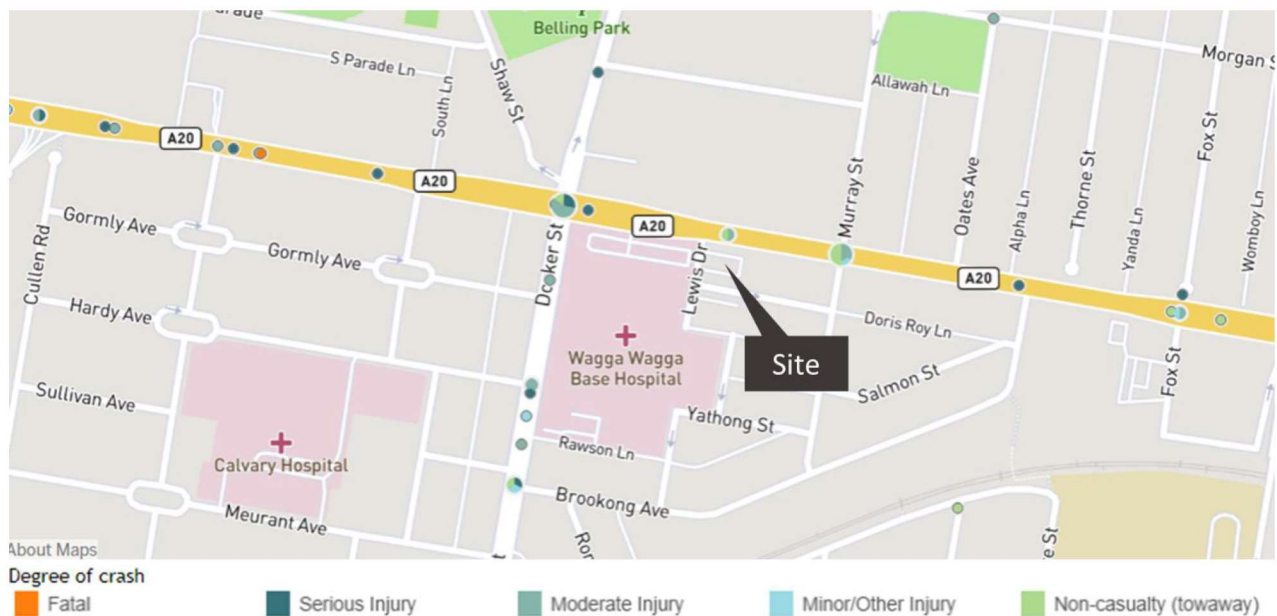


Figure 2.3 TfNSW Crash Data map

Within the period considered, 47 crashes occurred in vicinity of the subject site with the following severities:

- 10 non-casualties;
- 5 minor/other injuries;
- 19 moderate injuries;
- 12 serious injuries; and
- 1 fatal.

Of these crashes, the majority occurred along Sturt Highway (34 crashes) and Docker Street (10 crashes) with only three crashes occurring on the minor local roads.

2.5 Bus Services

The bus stop at the site frontage is currently serviced by seven bus routes (1W, 3W, 22, 24, 961, 962 and 963) operated by Busabout Wagga, Junee Buses and Allens Coaches. These bus services provide local connections to local suburbs, Wagga Wagga City Centre and Junee. By interchange with other buses in the City Centre, many other destinations are accessible. Figure 2.4 presents a map of the bus services network operated by Busabout Wagga.

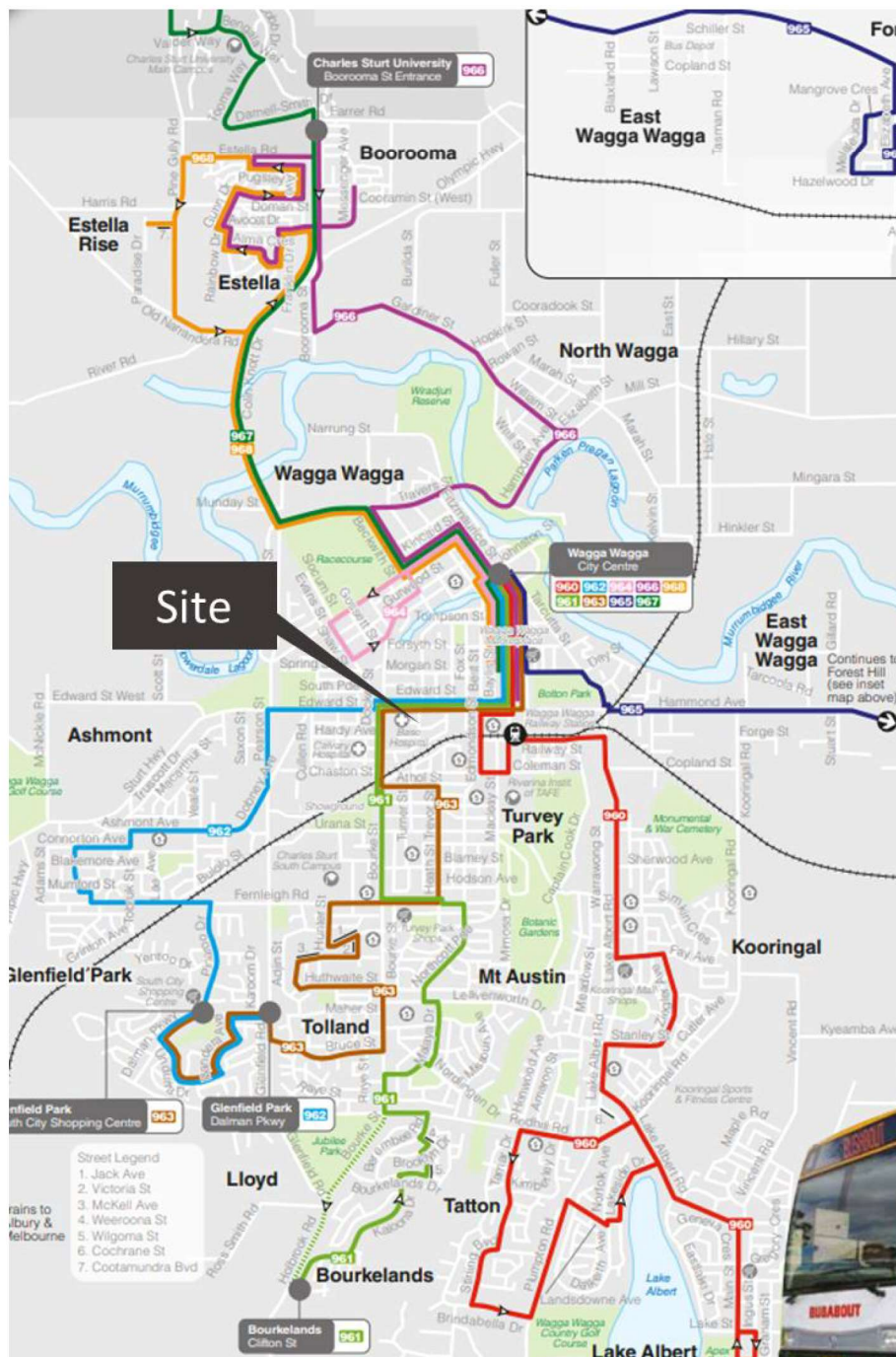


Figure 2.4 Bus services map (source: Busabout Wagga)

The frequencies of these services are summarised in Table 2.8. The combination of routes between the Hospital campus and Wagga Wagga city centre provides a higher overall frequency for this connection than that provided by individual bus routes.

Table 2.8 Bus services

Bus route	Coverage	Frequency
1w	Ganmain/Coolamon to Wagga Wagga	Only provides one service at 8:30am towards Wagga Wagga city centre Mon-Fri
3w	Wagga Wagga to Ganmain/Coolamon	Only provides one service at 5:32pm towards Ganmain/Coolamon Mon-Fri
22	Junee to Wagga	Only provide one service at 8:30am towards Wagga Wagga city centre and one service at 5:33pm towards Junee Mon-Fri
24	Junee to Wagga	Only provide one service at 11:05am towards Wagga Wagga city centre and one service at 12:47pm towards Junee on Thursdays
961	Bourkelands to Wagga Wagga	Inbound: every 40 minutes during peaks and hourly during off-peaks between 8:15am and 4:04pm Mon-Sat Outbound: hourly between 9:32am and 4:32pm Mon-Sat
962	Glenfield Park to Wagga Wagga via Ashmont	Inbound: hourly between 7:53am and 5:48pm Mon-Sat Outbound: hourly between 9:10am and 5:15pm Mon-Sat
963	Glenfield Park to Wagga Wagga via Bruce St and Turvey Park	Inbound: hourly between 8:03am and 4:48pm Mon-Sat Outbound: hourly between 9:15am and 5:15pm Mon-Sat

The buses of various sizes have a combined seating and standing capacity of up to 80 passengers. On the basis of the site observations during the peak periods, there is abundant spare capacity on the existing bus services (more than 80 percent spare capacity).

2.6 Rail Transport

Wagga Wagga Railway Station is located 1.1 km walking distance from the site and is serviced by the Southern NSW line running from Wagga Wagga to Sydney Central and Melbourne twice a day in each direction.

Given the new Light Rail service connection is now operating between UNSW Kensington Campus and Sydney (Central) railway station, this improvement also facilitates improved rail transport connections between the separate UNSW campuses throughout NSW including at Wagga Wagga.

2.7 Active transport

2.7.1 Walking

The site is well served by pedestrian infrastructure including footpaths along both sides of Sturt Highway and surrounding residential streets in the vicinity of the site. There are existing pedestrian crossing facilities on all four approaches at the intersection of Sturt Highway with Docker Street. It is expected that future signalisation of Sturt Highway/ Murray Street and intersection upgrade of Brookong Avenue/ Murray Street will improve further pedestrian connectivity in the area.

2.7.2 Cycling

The Wagga Wagga Bicycle Plan was released in 2011 and set out the Bicycle Network development priorities within Wagga Wagga LGA. The key vision developed as part of the Bicycle Plan was *“to create an environment where cycling is an easy, enjoyable and convenient way to get about, where there are no barriers, and everyone has the confidence and desire to simply ‘pick up a bike and go’, whenever they feel like it”*.

It recognises the benefits of cycling, including to Council’s quadruple bottom line (environmental, social, economic and governance), as well as to the wider transport network, but also the considerable barriers to cycling, which include major roads, traffic volumes and speeds, and the lack of continuity in the bicycle network.

Subsequently in 2019, Council approved the Wagga Wagga Active Travel Plan which has over 50 km of cycleways. Construction has commenced at the time of preparing this report and the entire upgrades will be completed by May 2021. This improvement to cycling infrastructure will coincide with the completion of the Wagga Wagga Hospital Stage 3 Building and the UNSW BSC centre. The following additional cycleway links will connect with the existing bicycle networks to provide improved continuity of bicycle access using cycleways:

- Levee Link
- University Link
- Kapooka Link
- Red Hill Link
- Koorringal Link
- Morgan Link
- Wollundry Link
- Bourke Link
- Forest Hill Link
- Central Link

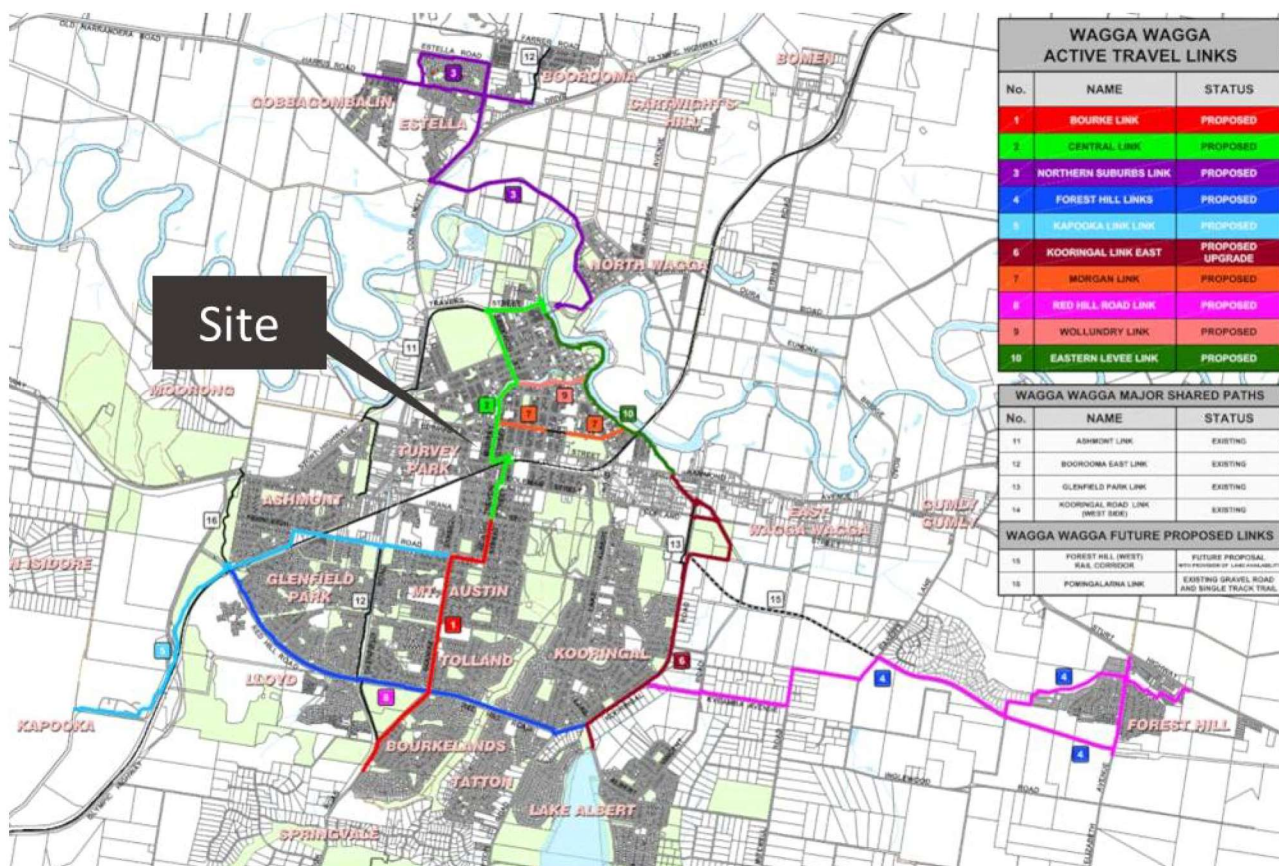


Figure 2.5 Wagga Wagga Active Travel Links (source: Wagga Wagga Active Travel Plan)

In addition, Wagga Wagga City Council is introducing the RECHARGE Scheme in partnership with Recharge Scheme Australia³. This scheme aims to facilitate mobility through providing designated electric scooters and wheelchair recharge outlets for people with restricted mobility and people with disabilities. Within the LGA, Wagga Wagga City Library, Wagga Civic Theatre and Seniors Community Centre are currently participating in the recharge Scheme.

³ <https://www.rechargescheme.org.au/>

3 Existing traffic and parking profile

3.1 Existing on-street parking controls

The site is generally surrounded by R1 General Residential land zoning where on-street parking is unrestricted in the vicinity of the site.

3.2 Existing on-street parking surveys

To determine the current on-street parking utilisation, parking surveys were conducted within a 500m radius of the site across two weekdays, during midday of Wednesday, 26 February and Thursday, 27 February 2020. The survey areas are presented in Figure 3.1.



Figure 3.1 On-street parking survey extent

It was assumed that within the 250-500m radius, the area that were not covered in the survey had limited accessibility to the future UNSW site. In addition, the on-street parking in these areas was generally well utilised by the staff and visitors to Wagga Wagga Base Hospital and the nearby Calvary Hospital and by patients of the many outpatient clinics in the vicinity of Docker Street. The area surveyed across two days provided a reasonable level of parking data to quantify the existing parking occupancy at the vicinity of the UNSW campus. The parking survey results are summarised as follows:

- within 250m radius: 52 available parking spaces
- between 250m and 500m radius: 275 available parking spaces

Overall, there are 327 available spaces within a 500m radius of the campus, however this is likely to reduce in the near future by the loss of approximately 56 on-street parking spaces from road carriageway changes after the signalisation of the Sturt Highway/Murray Street intersection.

Table 3.1 **Parking Availability within 250m radius**

Location	Available spaces	Parking inventory
Darlow Street	39	65
Darlow Lane	4	4
Murray Street	9	39
Total	52	108

Table 3.2 **Parking Availability between 250m and 500m radius**

Location	Available spaces	Parking inventory
Docker Street	12	23
Edward Street	21	63
Brookong Avenue	12	84
Murray Street	4	21
Morgan Street	9	98
Allawah Lane	6	8
Oates Avenue	49	74
Alpha Lane	3	4
Throne Street	48	74
Yanda Lane	8	8
Bolton Street	29	40
Shaw Street	11	72
South Parade	30	30
South Lane	18	18
Edward Street	15	31
Total	275	648

In addition, the historic aerial imagery of the on street parking availability in the locality was examined as shown in Appendix A, which presents aerial views of selected days during 2018, 2019 and 2020 showing the on street parking utilisation and parking availability within 500m radius of the subject site.

Overall, the aerial imageries show consistent on-street parking conditions and align with the survey results. It is noted that there is significantly less on street parking demand on Saturday, 17 February 2018 compared to the weekdays.

4 Development proposal

There is an existing UNSW Rural Clinical School (RCS) campus within Wagga Wagga Base Hospital that provides clinical education for Years 4 to 6 medical students. The proposed new BSC centre will cater for Years 1 to 3 medical students, which will offer students the opportunity to complete the full 6-year medical degree rurally in Wagga Wagga. Due to the rural environment, students come from all over Australia and live in residential areas within close proximity to the campus. It is expected that this practice will continue for the junior students.

As stated earlier, the proposed BSC centre will accommodate up to 90 additional junior medical students (Years 1-3). The total number of student will be reached over three years from January 2021, with one cohort numbering 25 to 30 students added each year until up to 90 junior students are enrolled. The facility will also accommodate 10 new FTE staff members.

At present on-campus student accommodation is offered at a reduced fee of \$38 per week. The subsidised accommodation is available for up to twenty-four students. The proposal will not provide additional accommodation; however, given the new students are Years 1-3 and aged from as young as 17 to 20 years, they may be able to access the subsidised on-campus accommodation or otherwise live locally.

5 Traffic and parking impact assessment

5.1 Parking impact

As outlined earlier, the new BSC facility will accommodate up to 90 additional junior students and as well as servicing up to 50-60 senior students already based in Harvey House. The parking requirements for the Harvey House-based students represent the existing situation. Only parking for additional students is considered as part of this Traffic Impact Assessment. On any given day it is envisaged that a maximum 90 students, 10 visitors and 10 staff will be present at the campus. The productive FTE occupancy will be approximately 85% where staff members take holiday, sick leave, external training etc (based on the estimates undertaken for the traffic report for Stage 3 Wagga Wagga hospital development). Therefore, the productive FTE staff present at the campus would be approximately 8.5 (nine).

The BSC will contain a lecture theatre and teaching spaces that will be utilised by students and occasional visitors associated with the UNSW Rural Medical School. There may be up to 10 visiting doctors or educators sharing the use of these spaces. There will be no conference facilities attracting broader use that would increase the parking demand for the building.

5.1.1 Parking requirements and provision

Wagga Wagga City Council's DCP 2010 (part A) does not provide any specific parking rate for universities. Therefore, the closest comparable parking rate for 'secondary school' has been adopted which requires 1 space/ two employees plus 1 space/ ten senior students. Assuming visitors will have the student parking rate, based on a maximum 90 students, 10 visitors and 9 productive FTE staff, the estimated parking demand for the campus would be 15 spaces in 2023 when the third intake of students commences.

The proposed new BSC facility will not provide any additional onsite parking. No parking provision is reasonable and justifiable based on the following considerations:

- the subject facility will accommodate junior students (Years 1-3) who are likely to live locally and walk or cycle to the campus;
- as the students and staff will generally remain on campus for the whole day, there is a strong likelihood that they will travel to the campus by bicycle or on foot and not need to come and go multiple times which could encourage them to drive to and from the campus;
- the facility will provide sufficient bike & scooter racks and the associated EoTF which are necessary to encourage active transport;
- Wagga Wagga City Council's Active Transport Plan indicates that 67% of the city's employment occurs within the Sturt Highway CBD catchment. Given that cyclists typically travel on average at 15-20km/h, they can easily travel up to a 3.0km radius from the city centre (which includes the UNSW campus) in 10 minutes.
- the university will heavily promote active transport and sustainable modes of transport to the campus as the majority of the students are expected to live within a 3km radius of the campus. This is aligned with the objectives of Wagga Integrated Transport Strategy and Implementation Plan 2040;
- the Wagga Integrated Transport Strategy also discourages the oversupply of off-street parking in CBD centres, where walking and cycling are encouraged to minimise any parking impact within adjacent residential streets. As recommended in the strategy, the university authority will implement a cycleway education program for users to access facilities;

- in situations where car travel is “unavoidable” for either students or staff members attending the campus, they can utilise on street parking. A recent on-street parking survey shows that there is ample on street parking available in the streets to the north and north-east of the site at the peak midday parking times on weekdays (there were 39, 9, and 49 available spaces on Darlow Street, Murray Street North, and Oates Avenue respectively), refer to the parking surveys in section 3.2;
- the total number of Year 1-3 students will be reached over three years from January 2021, with one cohort numbering 25-30 students added each year until up to 90 junior students are enrolled. Therefore, any increased on-street parking demand would only occur gradually over time and will be unlikely to be noticeable by any nearby residents; and
- the BSC development will provide an onsite loading bay, ensuring Lewis Drive is kept free from obstruction

It is also noted that the 52 car spaces within the footprint of the site will be permanently displaced. This displacement has been factored into the Health Infrastructure master planning work undertaken recently for car parking across the WWBH campus.

5.1.2 Bicycle parking

Wagga Wagga City Council Development Control Plan does not stipulate any bicycle parking requirements. Austroads *Cycling Aspects of Austroads Guides* indicates that for universities or institutes of technology, the following bicycle parking rates apply:

- 1 space (class 1 or 2) per 100 part time students
- 2 spaces (class 2) per 100 full time students

A total of 18 covered, lockable bike racks is proposed for the 90 students, 10 visitors and 10 FTE staff which significantly exceeds the minimum design requirement and aligns with the values of Wagga Wagga Integrated Transport Strategy and Commuter Cycling Network.

The bicycle parking will be in accordance with AS 2890.3 Parking facilities – Bicycle Parking Facilities. Improved Bicycle parking and access will ensure that potential conflicts with other hospital traffic and parking demand are minimised. In addition, the bicycle parking will be located at highly visible, secure, convenient and undercover areas with easy access from the street.

5.1.3 Scooter Parking

In addition to bike parking, the facility will provide ten roller scooter parking spaces at a secured location.

5.1.4 End of Trip Facilities (EoTF)

Although Council’s DCP 2010 does not specify any requirements for EoTF facilities such as shower rooms and lockers, these are provided to encourage the uptake of cycling by the students and staff members. EoTF facilities are to be provided for the proposed UNSW BSC facility in accordance with the following strategy:

- one bathroom and change area shall be provided and shall contain at least one toilet, wash basin, mirror, clothing hooks and power points (including shaving plugs)
- one bathroom and change area(s) per 10 required bicycle parking spaces
- clothes lockers to be provided at the rate of one clothes locker for every secured bicycle parking space

Based on the provision of 18 secured bicycle spaces, the proposed development have fulfilled the requirements by incorporating the following:

- separate male and female bathroom and change area across three levels
- one shower cubicle each for male, female, and accessible
- 18 clothes lockers

5.1.5 Pedestrian facilities

The existing pedestrian infrastructure and connections through and within the Wagga Wagga Base Hospital Campus will generally be maintained.

5.1.6 Waste collection

The waste collection for the development is proposed to be from Sturt Highway. Provision of waste collection via Lewis Drive will impact on the hospital traffic, including general vehicle and ambulance access to Emergency which is not desirable.

Collection of the waste from Sturt Highway is a standard practice for the properties fronting the highway and the UNSW site sits within the zone for WWCC waste collection. There is no dedicated left turn bay into Lewis Drive at the hospital entrance.

There is an existing Australia Post box at the site frontage which is used by Australia Post vehicles at least twice a day for seven days per week. There is also an existing taxi rank on the highway (in front of Heritage Lodge) which can accommodate up to 3-4 taxis. Taxis can wait here for unlimited duration.



Plate 5.1 Proposed waste collection zone on Sturt Highway

The proposed waste collection from Sturt Highway for the UNSW site is unlikely to impact on the traffic operation of the highway due to the following reasons:

- collection of 5 to 10 bins will occur during early in the morning once every week/ fortnight, depending on the type of the waste;
- the kerbside lane at this section of the highway already permits stoppages (Australia Post vehicles and taxis);
- the existing line markings allocate the area outside of our site as a shoulder and allow unimpeded flow of two-lane traffic to entry of Lewis Drive and hospital even when a waste truck is collecting; and
- The existing restriction is a no parking zone rather than a no stopping zone.

5.1.7 Loading dock and servicing

On site loading area will be provided on the western side of the development, off Lewis Drive. Roll kerb will be provided for entry and exit of loading/service vehicles and the area will be provisioned with lockable bollards to

reserve access as required. As discussed in the previous section, waste collection will not occur at the loading area, instead waste will be collected on Sturt Highway, along with other residences, as confirmed by WWCC.

A swept path assessment has been undertaken to ensure a Medium Rigid Vehicle (MRV) can suitably enter and exit the loading area in a forward direction.

Deliveries to the loading dock will be managed by UNSW to ensure that only one vehicle will arrive to occupy the loading dock at any given time.

5.1.8 Rural and regional public transport improvements

TfNSW has been undertaking a trial of rural and regional “on demand” public transport services at Wagga Wagga.

Regional bus routes have been redesigned to help meet the needs of travellers from Holbrook to Albury or Wagga Wagga for regular appointments such as shopping, university, medical and legal appointments and a range of other needs. A key objective is to provide greater flexibility and mobility in the transport services to accommodate the needs of the Wagga Wagga community.

The program allows the patrons to book an on-demand service over the phone, via an app or in person at key locations. Payment to drivers can be pre-paid by debit/ credit card or cash. An on-demand bus will pick the customer up at the specified origin/ convenient nearby location and transport the customer to the specific destination within the on-demand area.

These on-demand services will supplement the regular bus services.

5.2 Traffic impact

The proposal is expected to have minor traffic impact as there will not be any onsite parking. Some staff members and students are expected to drive; however, the traffic volume impact due to the additional trips is likely to be minor and will not be noticeable as it will be absorbed in daily fluctuation of traffic on the Sturt Highway and other surrounding roads.

6 Traffic and parking demand impacts

6.1 Construction stage impacts

It should be noted that due to this construction of the UNSW facility, a total of 52 car parking will be permanently displaced from the UNSW site. Health Infrastructure has planned for the replacement of these parking at the hospital campus. A further 19 car parking spaces in the area will become temporarily unavailable during the construction period. Also, it is envisaged that there may be up to 50 construction workers at any given time who would require somewhere to park. The Construction Traffic Management Plan (CTMP) of the WWHS Stage 3 redevelopment indicates that 130 spaces were required for a workforce of 200, i.e. 65% of workers will park. Assuming this ratio applies to this development, there may be a demand of up to $50 \times 65\% = 33$ parking spaces from the construction workers.

Therefore, the estimated net additional parking demand near the site during the construction period will be approximately $(52+19+33) = 104$ parking spaces during the peak construction activity for the new UNSW facility.

Additionally, it is acknowledged that for the future signalisation of the Sturt Highway/ Murray Street intersection is likely to eliminate a further 56 existing on street parking spaces from the area.

Notwithstanding these changes, the surveyed available parking on the nearby public streets should still be sufficient to accommodate the estimated peak construction workforce parking demand based on the following calculation:

- as stated in section 3.2, there are currently approximately 327 on-street available car parking spaces within a 500m radius of the hospital campus on a typical weekday, mainly in the areas to the north, north west and north east of the UNSW campus location. Approximately 56 of these car parking spaces will be lost due to signalisation of the Sturt Highway/ Murray Street intersection (giving a future net locality vacant parking capacity of 271 parking spaces);
- after considering the additional construction stage parking demand (net) of 104 spaces which would be generated by the UNSW facility this effective future locality total of 271 vacant car parking spaces will be reduced to approximately 167 spaces;
- as discussed above, the WWHS Stage 3 redevelopment will require 130 spaces for the construction workforce which are being provided by the available on-street parking surrounding the hospital campus. At the time of the on-street parking survey for the UNSW site, the Stage 3 redevelopment workforce was at 70% peak, meaning the $130 \times 70\% = 91$ spaces have already been absorbed in the parking survey, and that $130 \times 30\% = 39$ additional spaces could be required on top of the survey at construction peak. Therefore, the locality will have remaining $167 - 39 = 128$ vacant spaces with the peak combined construction parking demand. This level of impact is considered to be acceptable for the duration of the UNSW facility construction and is unlikely to create any significant construction stage parking impact on the adjoining public streets;
- other on-street parking managements could be considered, such as implementation of angle parking on the streets that have relatively higher widths between the kerbs e.g. Brookong Avenue; and
- the UNSW facility construction workers will also be encouraged to utilise public transport and carpooling to travel to and from work wherever possible.

The above measures will minimise any parking impact during the UNSW campus development. A detailed assessment of construction worker parking arrangements will be undertaken in consultation with the construction contractor and will be incorporated in the Construction Traffic Management Plan (CTMP) which will be prepared prior to the commencement of construction.

Table 6.1 **Summary of construction stage on-street parking demand and supply**

	Parking demand or supply	Net gain
Supply	Available on-street spaces within 500m radius	327
Demand	Signalisation	-56
	Displacement from UNSW site – permanent	-52
	Displacement from area adjacent to UNSW site – temporary	-19
	UNSW Construction worker parking demand	-33
	Stage 3 construction worker parking demand (on top of existing survey)	-39
Total		128

6.2 Operations stage

After all construction work has been completed and the centre is fully operational, the proposed on-site FTE staff and student numbers will generate an additional car parking demand in the locality for approximately 15 vehicles. As the facility will not be providing any onsite car parking spaces, this parking demand will be met by utilising the currently available on street parking in the nearby streets. A parking survey has been undertaken in the vicinity of the site which shows plenty of on-street parking is available currently.

After the WWHS Stage 3 redevelopment works is completed in the first half of 2021, the on-street parking will free up 91 spaces (from the current worker parking demand, i.e. 70% of the 130 spaces), which will bring the total to $(327-56-52+91)=310$ available spaces . This proposal will take up only 15 out of the potential 310 available spaces within the 500m radius of the site.

7 Summary & Conclusions

UNSW has been granted a site in the north east corner of the existing at-grade car park on the Wagga Wagga Base Hospital (WWBH) campus on which a Biomedical Science Centre (BSC) is proposed. UNSW Rural Medical School is currently training medical students from Years 4-6 on the WWBH campus. The BSC will accommodate up to 90 additional junior medical students (Years 1-3), enabling UNSW to offer a full medical degree in Wagga Wagga from Years 1-6. The BSC will also sometimes service senior students (Years 4-6) already located on campus, bringing the maximum population up to 150 students. The total number of Year 1-3 students will be reached over three years, with one cohort numbering 25-30 students added each year.

The BSC will also accommodate 10 additional full time equivalent (FTE) staff.

It is expected that a high proportion of the facility students and staff will live locally, including some in subsidised on-campus accommodation and will be able to travel by other means such as walking, cycling or public transport and will not need to travel to and from the facility by car. A range of active travel mode promotions and end of trip facilities for cycle users, including 18 secured bicycle parking spaces, will be provided at the site to help ensure minimal car usage and a low associated parking demand in 2023 when the third intake of students commences.

An on-site loading dock, delivery vehicle parking bay will be provided of sufficient size for access by a standard MRV delivery vehicle. Waste collection will occur on Sturt Highway and not at the loading dock.

The Wagga Wagga City Council Development Control Plan does not specify car or bicycle parking requirements for a tertiary institute. As the proposed BSC will not provide any onsite parking spaces, the staff, student and visitor parking demand will be met by the availability of car spaces in nearby streets.

A parking survey has been undertaken in the vicinity of the site (within 500m radius) which shows approximately 327 available on-street parking spaces on typical weekdays. The related locality traffic and parking changes associated with the signalisation of the Sturt Highway and Murray Street intersection, combined with the UNSW facility and additional WWHS Stage 3 construction traffic and displacement of the existing car park will reduce the available on-street parking spaces within 500m radius of the site to 128 spaces.

When fully operational, it is expected that this proposal will take up only 15 out of the 310 available spaces (130 spaces freed up after completion of Stage 3 redevelopment). The 52 hospital car parking spaces which are currently provided on the UNSW site will be replaced in a new multi-storey hospital car park which is proposed to be constructed immediately to the south of the UNSW site. Health Infrastructure NSW has been master planning for future car parking on the WWBH site and the 52 spaces have been accounted for in this master plan.

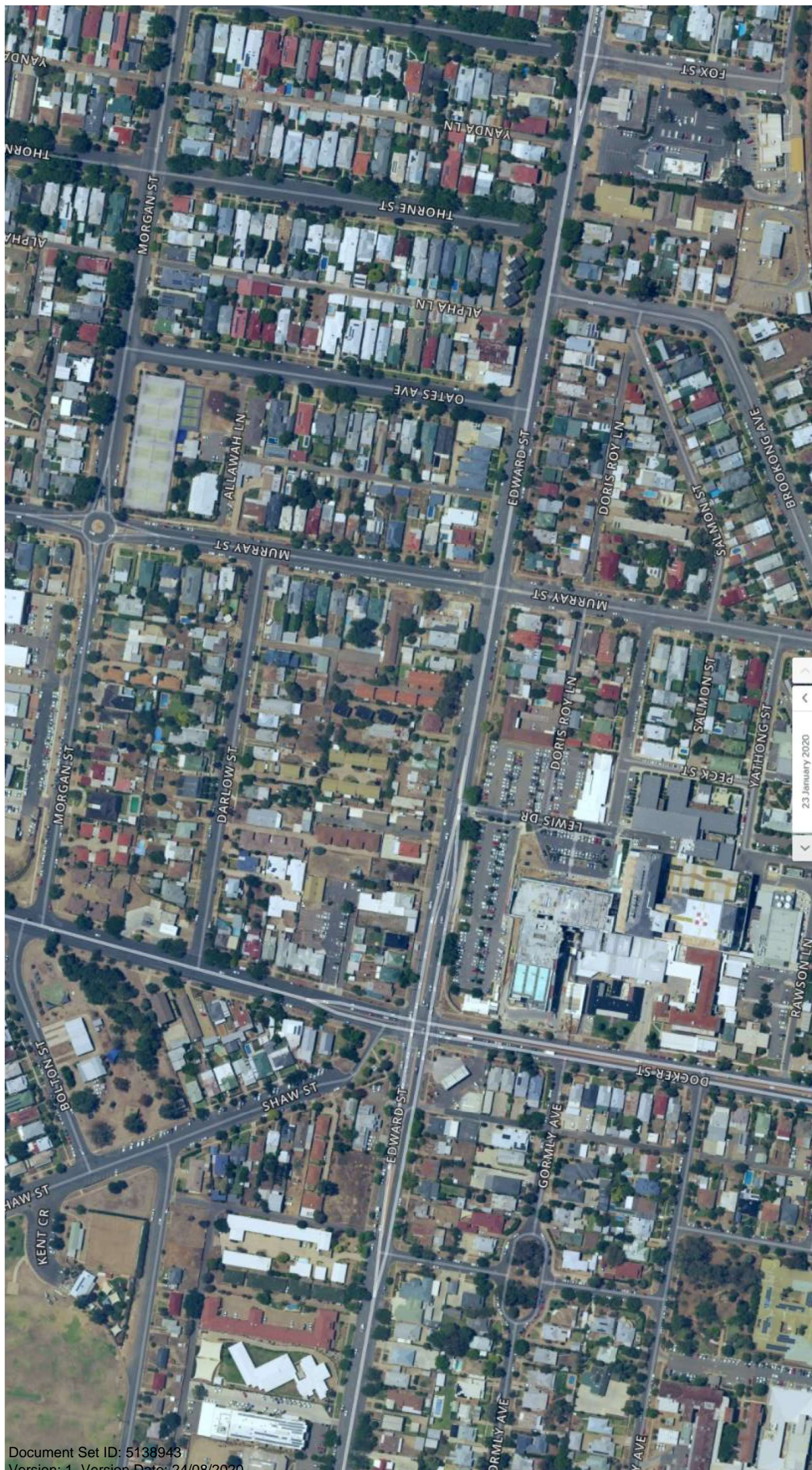
Due to the low level of forecast additional traffic, the impacts to the nearby intersections will not be noticeable.

To promote the sustainable travel of the facility staff and students, onsite bicycle parking provision will substantially exceed the Austroads bicycle parking requirements and align with the objectives of Wagga Wagga Active Travel Plan.

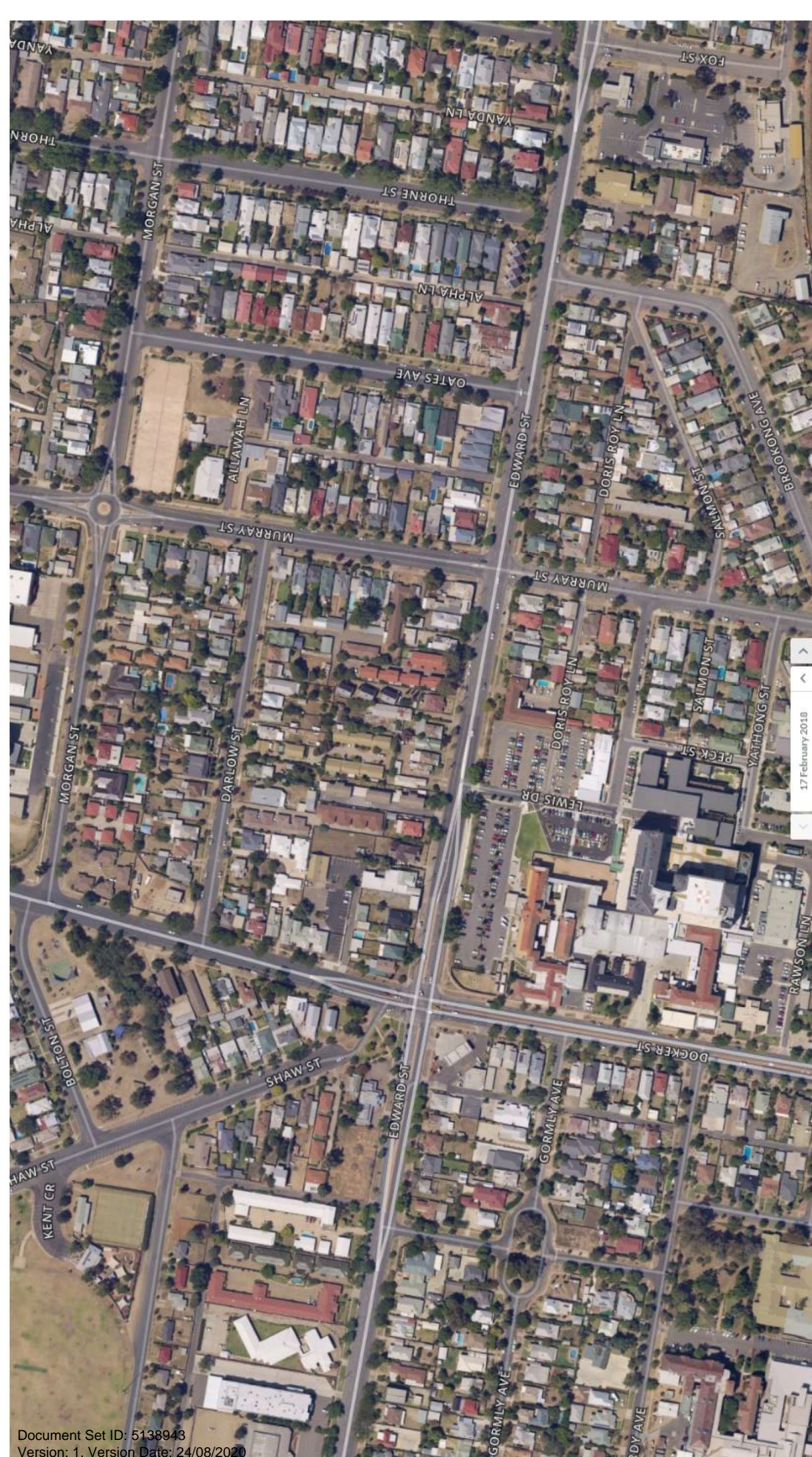
Thus, the proposed development and its approach to travel and parking is considered appropriate.

Appendix A

Aerial views of on street parking







17 February 2018

Appendix B

Architectural plan

