



Transport Management & Access Plan

Southern Growth Area – Zone 01 – Planning Proposal

Rowan Village & Sunnyside

22/12/2023

P2352r01v1



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contents

Glossary

1	Introduction	1
1.1	Overview & Background	1
1.2	Study Purpose	1
1.3	Study Area	1
1.4	References & Limitations	2
1.5	Stakeholder Engagement	3
2	Summary of Proposal	4
2.1	Planning Control Amendments	4
2.2	Reference Master Plan	4
3	Strategic Context	9
3.1	Integrated Transport Strategy	9
3.2	Council LSPS	10
3.3	Wagga Wagga Transport Plan	12
4	Existing Conditions	14
4.1	Surrounding Land Use	14
4.2	Mode Choice	14
4.3	Crash History	16
4.4	Active Transport	17
4.5	Public Transport	19
4.6	Freight Network	21
4.7	Road Network	21
5	Transport Assessment	27
5.1	Key Assumptions	27
5.2	Trip Generation	28
5.3	Active Transport Opportunities	29
5.4	Public Transport Servicing	30
5.5	Trip Distribution	31
5.6	Vehicular Traffic Generation	32
5.7	VPA Traffic Modelling	35
6	Implementation Plan	36
7	Summary & Conclusions	37
7.1	Summary	37
7.2	Conclusions	37
7.3	Next Steps	37

Figures

Figure 1: Core Study Area	2
Figure 2: Concept Master Plan	4
Figure 3: Development Staging (Indicative)	6
Figure 4: Typical Road Cross-Sections	7
Figure 5: Typical Road Cross-Sections	8
Figure 6: Potential "Southern Corridor" Heavy Vehicle Route	10
Figure 7: Wagga Transport Plan - Mode Share Targets	12
Figure 8: Wagga Wagga - South Mode Share	15
Figure 9: Census Car Driver Departure Destination	15
Figure 10: Wagga South Departure Trip Destination	16
Figure 11: Crash Data by Location	17
Figure 12: Wagga Wagga Active Travel Plan	18
Figure 13: Wagga Wagga Planned Active Transport Network	19
Figure 14: Existing Bus Routes	20
Figure 15: Freight Network - B-double approved routes	21
Figure 16: Regional Road Hierarchy	22
Figure 17: Approximate Site Access Locations	24
Figure 18: Key Local Intersections	25
Figure 19: ILP in Surrounding Context	30
Figure 20: Masterplan Bus Stop Catchments	31
Figure 21: Assumed External Network Assignment	32

Tables

Table 1: SGA Yield Summary	5
Table 2: Integrated transport strategy 2040 objectives	9
Table 3: Wagga Contributions Plan infrastructure	28
Table 4: Rowan & Sunnyside person trips by MOfE	28
Table 5: Assumed external trip distribution	31
Table 6: Adopted Traffic Generation Rates	34
Table 7: External vehicle trips	34
Table 8: external transport works triggers	36

Glossary

Acronym	Description
AGRD	Austroads Guide to Road Design
AGTM	Austroads Guide to Traffic Management
CC	Construction Certificate
Council	Wagga Wagga City Council
DA	Development Application
DCP	Development Control Plan
DoS	Degree of Saturation
DPIE	Department of Planning, Industry and Environment
FSR	Floor space ratio
GFA	Gross Floor Area
HRV	Heavy Rigid Vehicle (as defined by AS2890.2:2018)
ISDP	Infrastructure Servicing & Delivery Plan
ITS	Wagga Integrated Transport Strategy
LEP	Local Environmental Plan
LGA	Local Government Area
LoS	Level of Service
MOD	Section 4.55 Modification (also referred as a S4.55)
MRV	Medium Rigid Vehicle (as defined by AS2890.2:2018)
NGA	Northern Growth Area
NHVR	National Heavy Vehicle Regulator
OC	Occupation Certificate
RMS Guide	Transport for NSW (formerly Roads and Traffic Authority), Guide to Traffic Generating Developments, 2002
S4.55	Section 4.55 Modification (also referenced as MOD)
S96	Section 96 Modification (former process terminology for an S4.55)
SGA	Southern Growth Area
SRV	Small Rigid Vehicle (as defined by AS2890.2:2018)
TDT 2013/04a	TfNSW Technical Direction, Guide to Traffic Generating Developments – Updated traffic surveys, August 2013
TfNSW	Transport for New South Wales
TIA	Transport Impact Assessment
TIS	Transport Impact Statement
TMAP	Transport Management & Accessibility Plan
veh/hr	Vehicle movements per hour (1 vehicle in & out = 2 movements)
WWTP	Wagga Wagga Transport Plan

1 Introduction

1.1 Overview & Background

This Transport Management and Access Plan (TMAP) has been prepared by Ason Group on behalf of DevCore Developments Pty Ltd and Sunnyside Ventures Pty Ltd (the Proponent Group) to support a Planning Proposal to rezone Zone 1 of the Southern Growth Area (SGA). The SGA seeks to deliver of circa 4,750 dwellings, with Zone 1 (the subject of this proposal) seeking to deliver up to an initial 2,900 dwellings.

A planning proposal for the Sunnyside site (LEP21/0001) was previously submitted which sought development of approximately 700 lots. Similarly, the initial Rowan Village submission (LEP21/0006) sought amendments to facilitate approximately 2,100 residential lots plus village centre, open space and roads.

The site is strategically located between two major employments areas being the Wagga Wagga CBD to the north, with the Kapooka Army Base to the west. It seeks to unlock additional residential development to meet the demands of a growing region and support the economic growth of the area. The Proponent Group has successfully managed to address land ownership issues and brought together a large parcel of land for future development. A similar process will likely take significant effort and time within the Northern Growth Area (NGA) which is currently under fragmented land ownership. Based on the technical studies that have been undertaken for Rowan Village and Sunnyside as well as the SGA, the land is relatively free of environmental constraints and is ready for development. Notwithstanding, these are not mutually exclusive opportunities as they rely on different transport networks, with the SGA identified within the Transport for NSW (TfNSW) Wagga Transport Plan 2022 (WWTP).

Further detail regarding the strategic merit of the proposal/s can be found in the Planning Proposal document prepared by Urbis.

1.2 Study Purpose

This study seeks to provide:

- A more refined assessment of transport demands arising from the proposal to compare to the preliminary infrastructure triggers outlined in the Infrastructure & Services Delivery Plan (ISDP) prepared by IDC, including the associated transport modelling by Stantec.
- Discussion in relation to regarding relevant mitigation measures and infrastructure staging, considering all modes of transport and the above.

It does not include detailed operational modelling noting that Council and TfNSW are both in the process of updating relevant strategic models which shall underpin future detailed assessment. In this regard, further detailed modelling can be undertaken post-Gateway once these modelling inputs are available, if deemed necessary.

1.3 Study Area

As outlined above, the SGA has been considered by Council and forms a nominated growth area within the WWTP. The core study area previously investigated by Council is generally focused on the Holbrook Road and Plumpton Road corridors between Lloyd Road and Red Hill Road as shown below. The Main Street / Gregadoo Road intersection was also included.

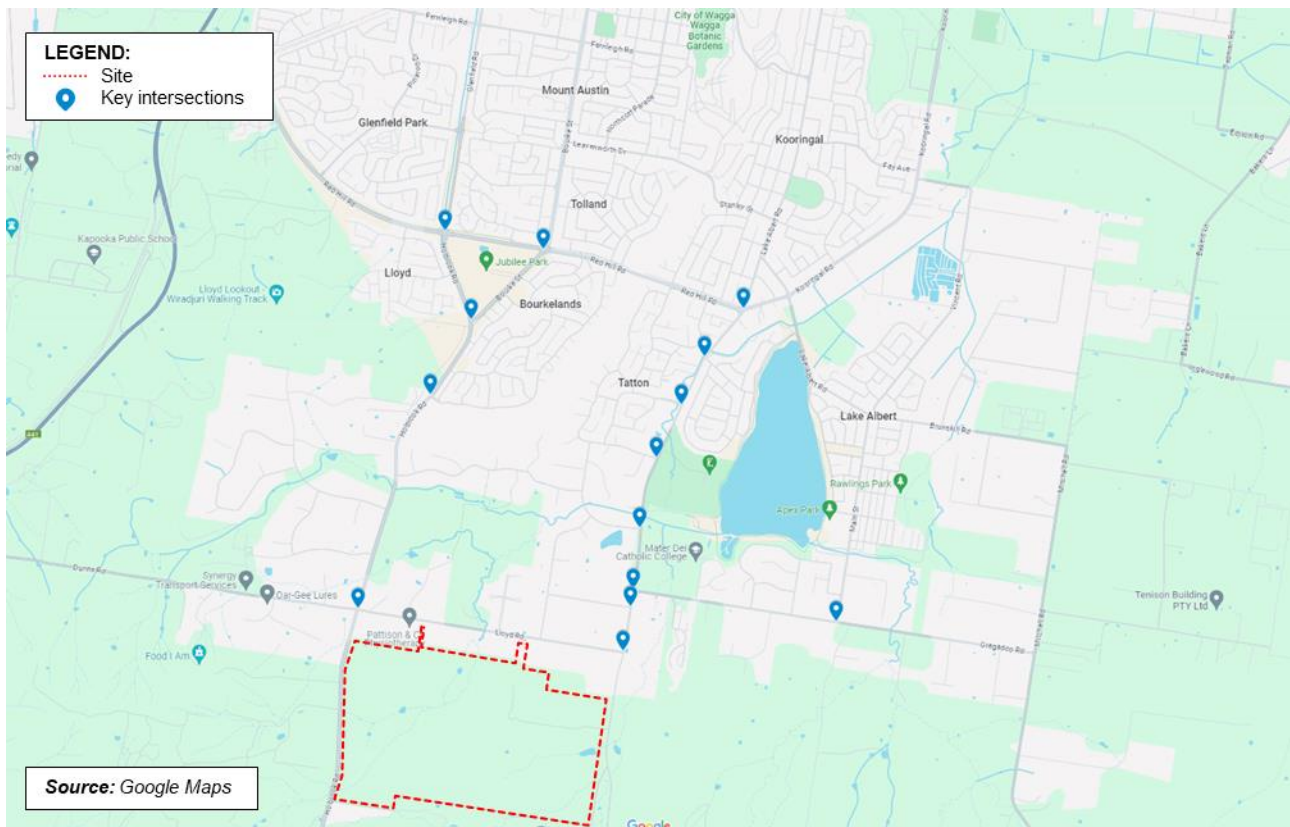


Figure 1: Core Study Area

TfNSW has subsequently requested inclusion of additional intersections with the Sturt Highway to the north which shall be included in future modelling, post-Gateway. Much of the traffic associated with the development It is understood that Council is currently undertaking a CBD Masterplan which would be expected to consider those intersections in any event.

1.4 References & Limitations

In preparing this report, we have made reference to:

- Stantec, *Wagga Wagga Southern Growth Area – Road Upgrades Assessment* (29 November 2023)
- TfNSW, *Wagga Wagga Transport Plan* (2022)
- John Randall Consulting Pty Ltd, *Sunnyside Estate Wagga Wagga – Preliminary Traffic Assessment Report* (August 2020)
- Wagga Wagga City Council , *Wagga Wagga Integrated Transport Strategy And Implementation Plan 2040* (2017)
- Wagga Wagga City Council , *Local Strategic Planning Statement* (2017)

1.5 Stakeholder Engagement

During development and refinement of the master plan, the Applicant has liaised with both Council and TfNSW officers. In particular, Council has provided assistance in relation to existing data and modelling to assist this preliminary assessment. It is acknowledged that further consultation shall be ongoing post-Gateway through refinement of the strategic and operational modelling prior to finalisation of the Infrastructure and Services Delivery Plan.

It is anticipated that further consultation with both agencies shall be ongoing through finalisation of relevant infrastructure and servicing delivery plans.

2 Summary of Proposal

2.1 Planning Control Amendments

The planning proposal seeks to rezone the site from RU1 Primary Production and R5 Large Lot Residential to the following:

- R1 General Residential
- R5 Large Lot Residential
- B2 Local Centre
- RE1 Public Recreation

2.2 Reference Master Plan

2.2.1 Concept Master Plan

To inform assessment of the above, Urbis has prepared a concept master plan. A copy of that master plan is provided below. It should be noted that the current master plan seeks to provide for a range of housing density and typologies anchored by a Village Centre that provides some local employment and day-to-day services such as shopping and other local amenities.



Figure 2: Concept Master Plan

The master plan envisages a total yield of 2,974 dwellings (2,274 in Rowan Village plus 700 in Sunnyside).

An area for a potential school is currently nominated in the plan. However, it is understood that there is presently no commitment for a school at this time and, as such, that area shall also be zoned for residential development.

TABLE 1: SGA YIELD SUMMARY	
SGA Zone	Anticipated Yield (dwellings)
Zone 1	2,900 ¹
Zone 2	1,000
Zone 3	750
Zone 4	120
Total	4,770²

Notes: 1) 2,900 based on anticipated yield in Planning Proposal. Current ISPD contemplates a slightly higher figure of 2,974, including 700 lots within Sunnyside Estate + 2,274 lots within Rowan Village; with a resultant total SGA yield of 4,844 lots.

2) Council recommended cap of 4,750 for SGA

The Planning Proposal contemplates a yield of 2,900 dwellings within Zone 1. However, as discussed further in this report, it is expected that a higher figure can be supported.

2.2.2 Development Staging

It is envisaged that the development will be staged, with Rowan Village initially accessed off Lloyd Road via it's eastern access handle (a future public road) and Sunnyside accessed via new public road from Plumpton Road.

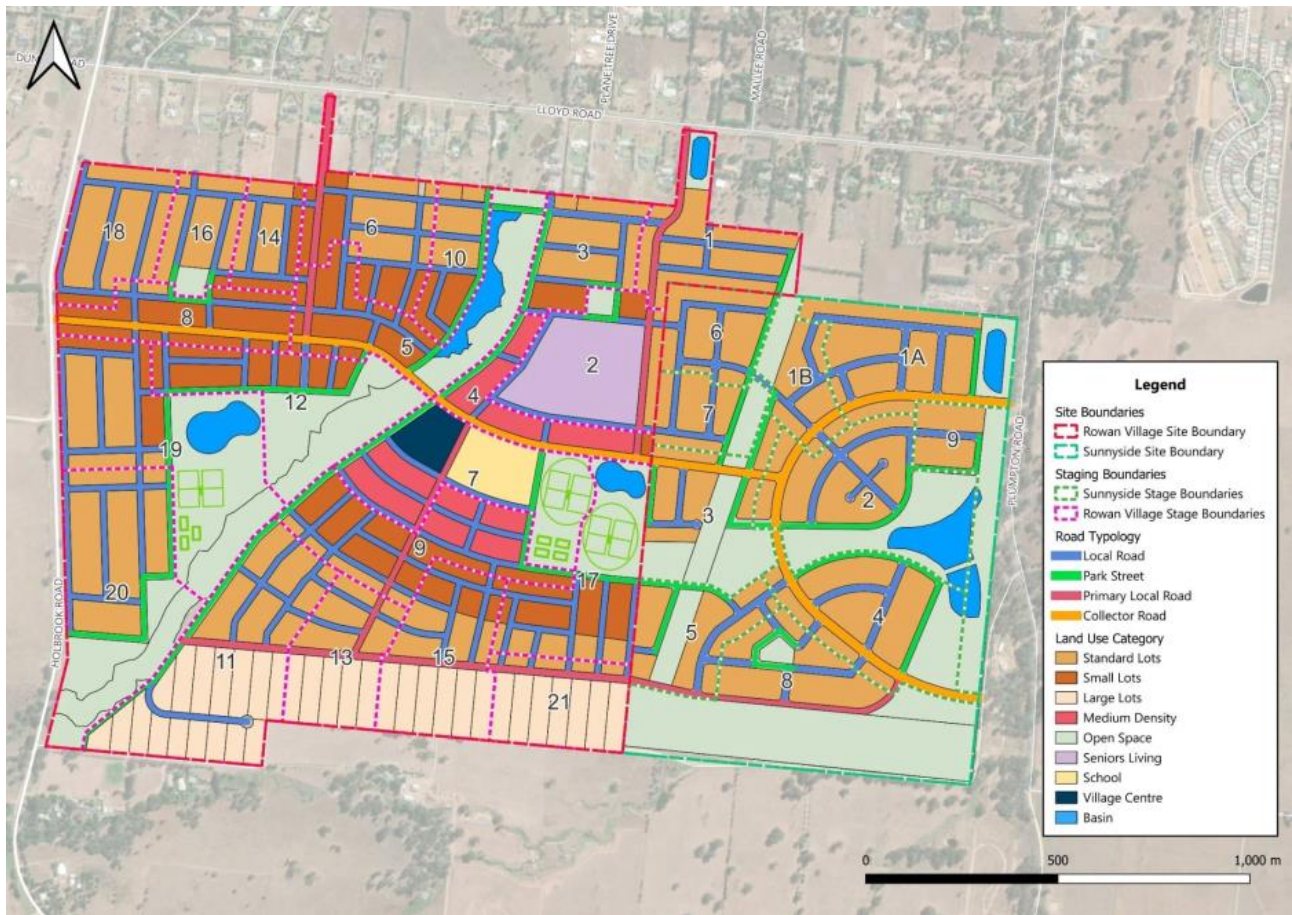
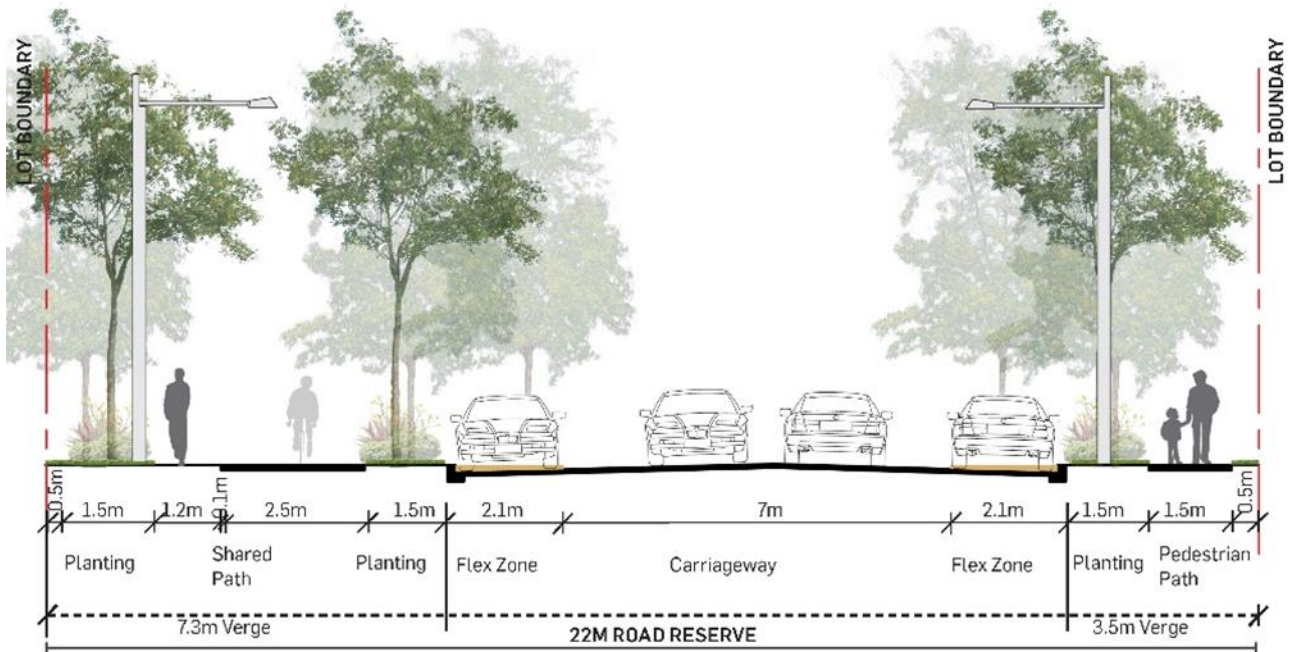


Figure 3: Development Staging (Indicative)

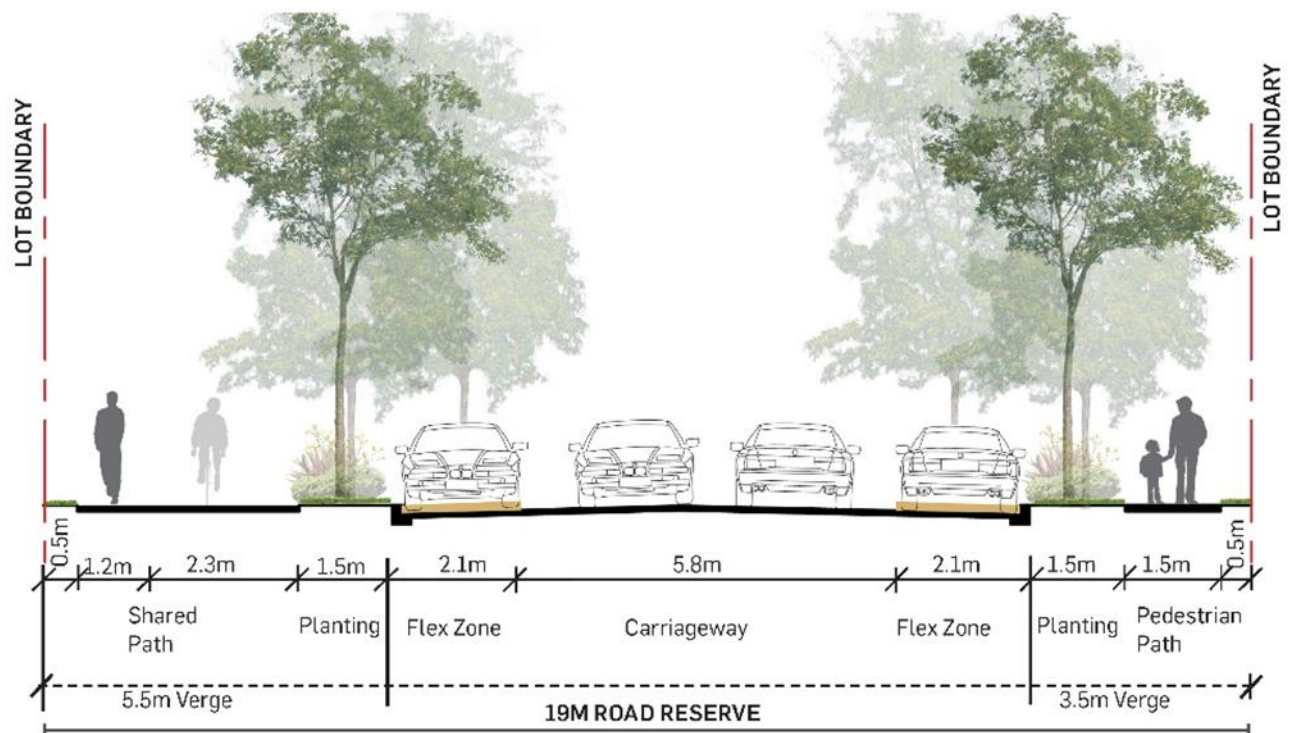
2.2.3 Internal Road Design

The proposed Draft Development Control Plan (DCP) nominates the following internal road cross-sections.

1. COLLECTOR ROAD (22M)



2. PRIMARY LOCAL ROAD (19M)

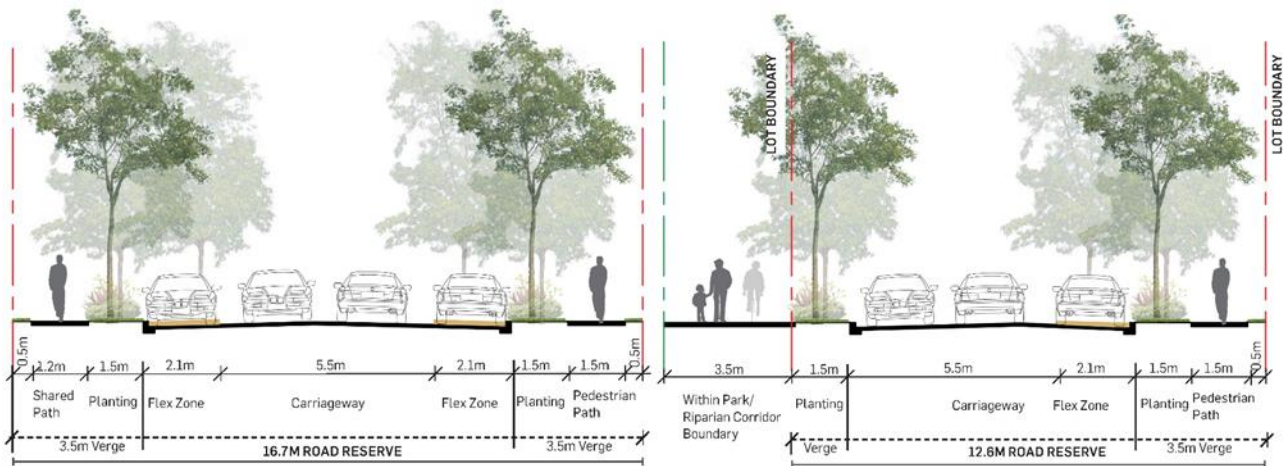


Source: Urbis

Figure 4: Typical Road Cross-Sections

3. LOCAL ROAD (16.7M)

4. PARK STREET (12.6M)



Source: Urbis

Figure 5: Typical Road Cross-Sections

It should be noted that:

- Carriageway widths are intentionally narrow to encourage a slow speed environment throughout the site. only the Collector Road provides for 3.5m traffic lanes which is suitable for that road noting this road is expected to carry buses and considering the higher order movement function that such a road is required to perform. Where possible, kerb blisters shall be encouraged at intersections and other key pedestrian / cyclist crossing points.
- As above, the *Collector Road* shall be designed to facilitate bus services. Additional width to the kerbside lane (parking flex zone) is required at bus stops (min. 3.0m required); however it is expected that this can be readily achieved through localised intrusions within the planning zones with minimal impact on overall road reserve width.
- The *Local Road* text suggests a Shared Path with a 1.2m width. This is inconsistent with typical Shared Path width and is therefore assumed that the intent is for a standard footpath in those sections of road.

3 Strategic Context

3.1 Integrated Transport Strategy

It is noted that Wagga Integrated Transport Strategy and Implementation Plan 2040 (ITS, Aug 2017) includes a number of key objectives.

TABLE 2: INTEGRATED TRANSPORT STRATEGY 2040 OBJECTIVES

Ref	Objective	Project Response
ILU2.1	Encourage residential development based upon activity and transport corridors	Zone 1 of the SGA has convenient access to 2 sub-arterial corridors of Holbrook Road and Plumpton Road.
ILU2.2	Ensure that future residential growth is connected to sufficient road networks to minimise congestion on key corridors.	To support the Proposal, a package of upgrades works has been identified in the ISDP to ensure that sufficient capacity is available at each stage of future development within the SGA.
ILU2.3	Ensure that pedestrians and active travel modes are a priority in all future infill development and greenfield development	Footpaths are proposed on both sides of all internal roads, with Shared Paths provided on Collector and Primary Local Roads.
ILU2.4	Ensure that private vehicles are not the only form of transport to be connected in Wagga Wagga	Provision for future extension of bus services to and within the site is planned for in the design of the masterplan.
ILU2.5	Ensure key sites and corridors are preserved or density where appropriate	Not directly applicable to the development. However, it is noted that the “Southern Corridor” heavy vehicle route (see below) could be provided south of the SGA. In turn, that would also help to improve connectivity between the site and some key employment areas at Kapooka and the Airport Precinct. Importantly, the Southern Corridor would not compromise connectivity in a northbound direction; the predominant focus of development traffic heading into local employment areas.

Notes: 1) The above contains an extract of relevant objectives. For a full list of objectives, refer to the plan itself

It is also noted that ITS seeks to investigate potential for a new heavy vehicle route to the south of the site, also referred to as the “Southern Corridor”¹.

¹ <https://wagga.nsw.gov.au/the-council/planning-and-reporting/community-planning/current-community-plans/advocacy-plan/heavy-vehicle-bypass>



Figure 6: Potential "Southern Corridor" Heavy Vehicle Route

This corridor is to be subject to further investigation and is not yet designed, endorsed or funded². Importantly, it does not form part of the Proposed Road Hierarchy documented elsewhere in the ITS. Delivery of that corridor in the future (by others) is not compromised by the proposal, nor would the connectivity of the site to the north be disconnected.

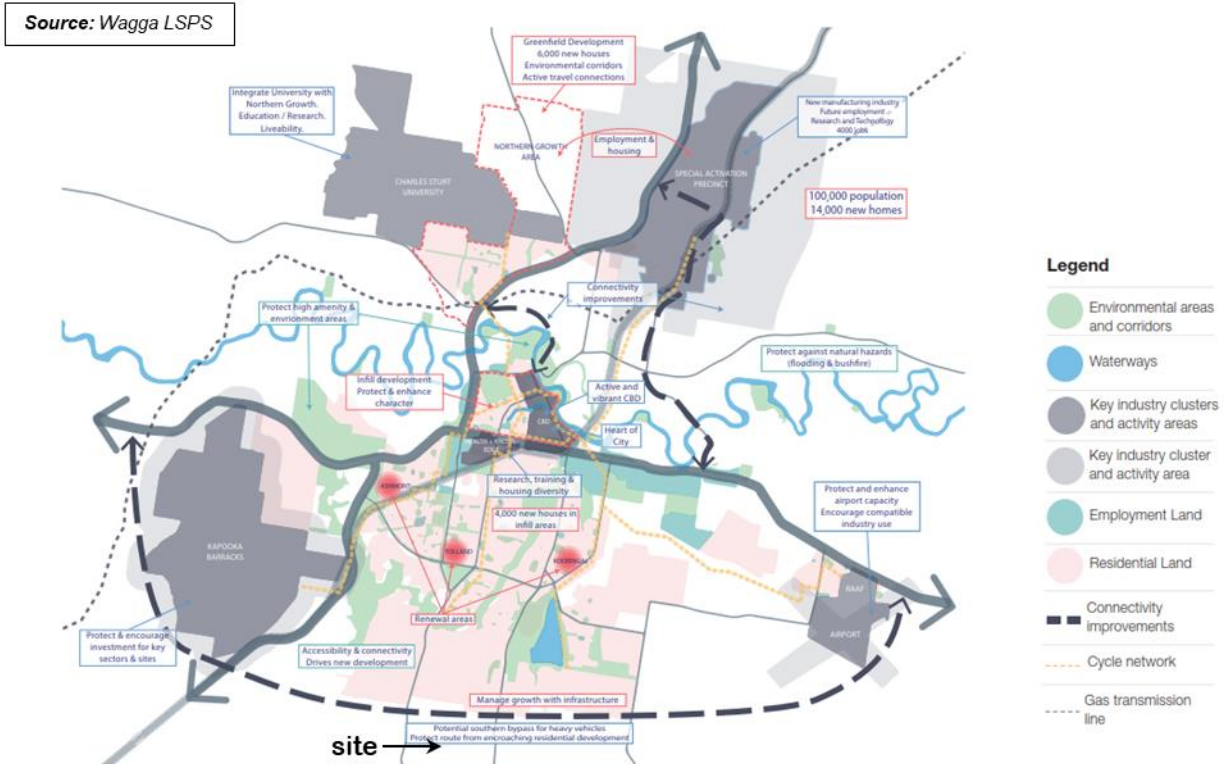
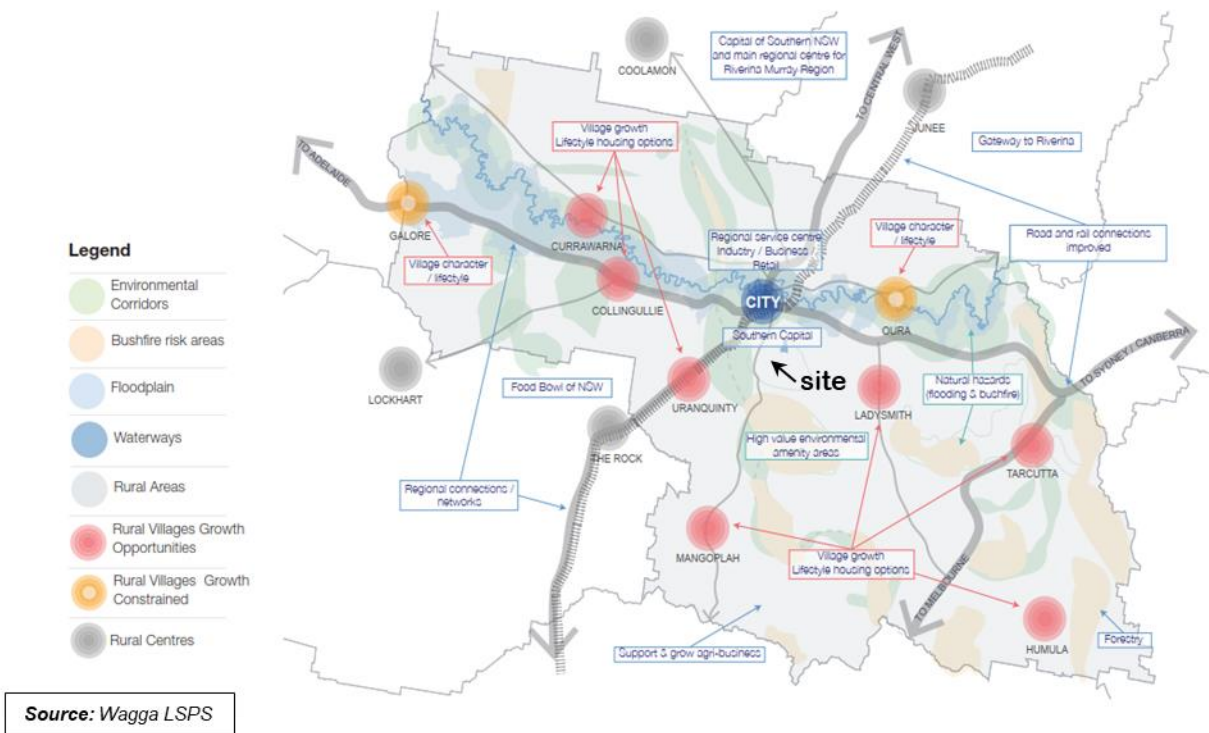
3.2 Council LSPS

The LSPS sets objectives for growth, including the desire to increase housing supply by 14,000 new homes by 2040.

It is understood that the previously identified targets for growth envisaged by greenfield development within the North Wagga Wagga Precinct (6,000 dwellings) and brownfield infill development within the existing urban area (4,000 dwellings within Ashmont, Tolland and Koorinal precincts) are not being realised as intended. For example, the draft masterplan for Tolland envisages only an additional 500 (of the 4,000) new homes (plus community infrastructure).

Therefore, the SGA – particularly Zone 1 – with its consolidated landholdings presents an opportunity to address this shortfall in the short-medium term to allow the continued growth of Wagga Wagga and surrounds.

² <https://committee4wagga.com.au/alternate-route>



3.3 Wagga Wagga Transport Plan

This Wagga Wagga Transport Plan (WWTP, Aug 2022)³ provides an overview of how Government (both TfNSW and Council) will address the transport challenges associated with the significant growth forecast for the City, as the heart of the Riverina-Murray region.

Importantly, the WWTP identifies the Southern Growth Area for future residential development and planned Active Transport connections to site forming Initiative C8 of that plan.

It also sets the following city-specific mode share targets for Wagga Wagga.

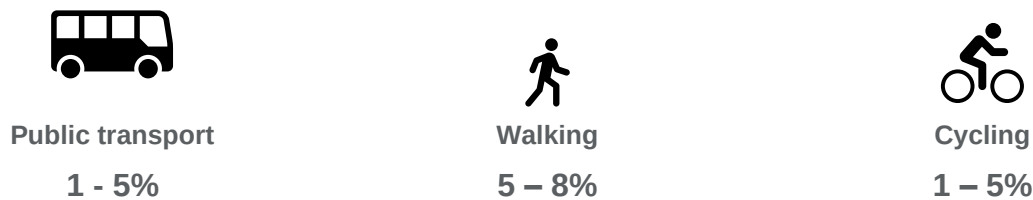


Figure 7: Wagga Transport Plan - Mode Share Targets

Micro-mobility in the form of e-bikes and scooters are seen as an opportunity to improve the attractiveness of Active Transport within the broader City area. The increased catchment area able to be served by these will make travel to/from the site to the Wagga CBD a potential option.

Initiative C8 proposes investigating a cycle link to the south of Wagga to service the SGA, with “future” links nominated along both Holbrook Road and Plumpton Road.

Importantly for master planning, Initiative C9 seeks to:

Ensure new residential precincts are designed to support walking and cycle-friendly neighbourhoods, as well as provide safe and efficient connections to the existing active transport network.

The WWTP also commits Council and TfNSW to further review regarding the feasibility of the Southern Bypass (or Southern Corridor referenced above).

Initial P10 and P11 commit industry, DPE and TfNSW to electric vehicle initiatives.

Investigate opportunities for additional electric vehicle charging station locations across Wagga Wagga.

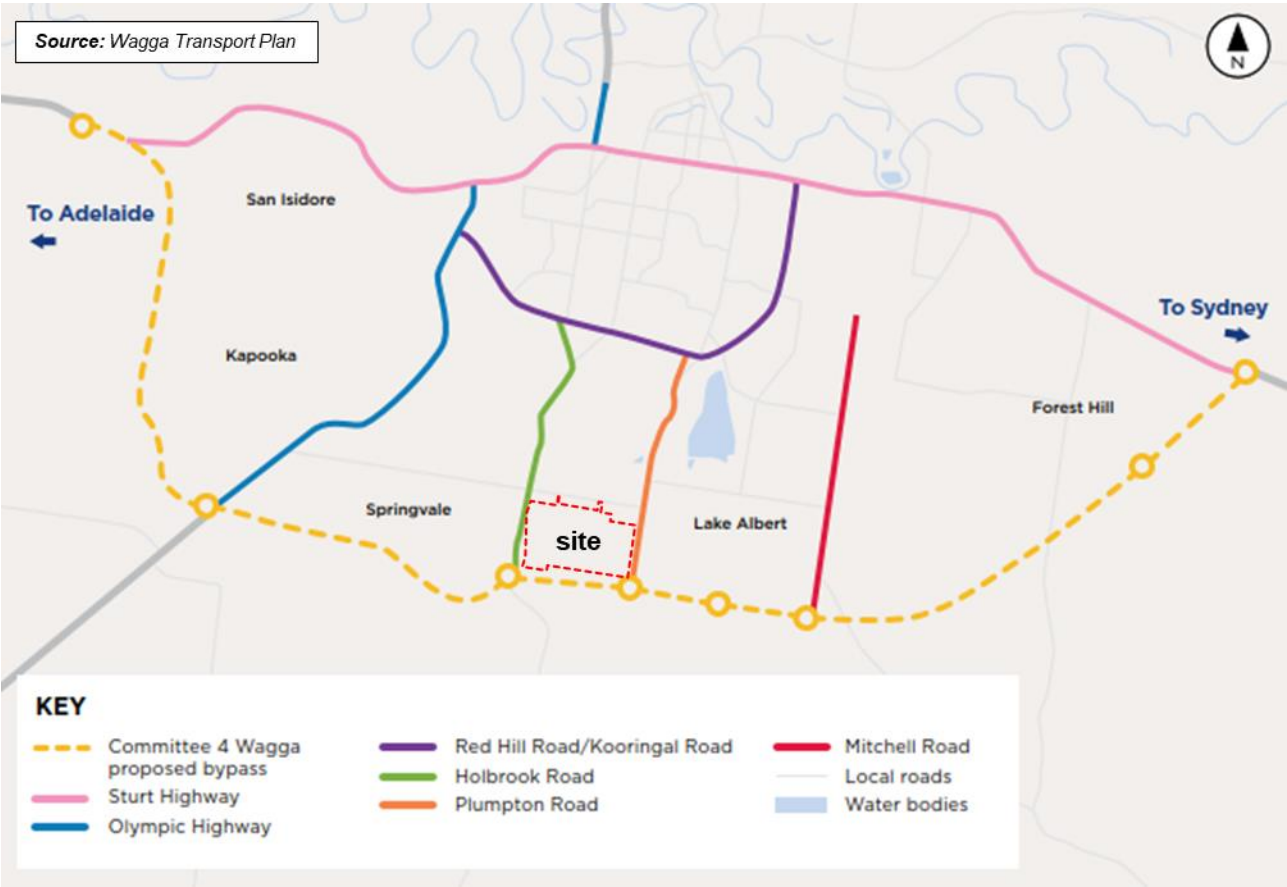
Consider the inclusion of on-site electric vehicle charging infrastructure for future development proposals.

These are matters for consideration as part of future development applications. Modern shopping centres include elective vehicle charging and the proposed neighbourhood centre therefore provides an opportunity for the development to align with these initiatives in the future.

The WWTP also supports investigation of the Heavy Vehicle Bypass south of Wagga and the subject site, as shown below. It is important to note that the route – whilst subject to change if it does proceed at all – is

³ https://www.future.transport.nsw.gov.au/sites/default/files/2022-08/wagga_wagga_transport_plan_1.pdf

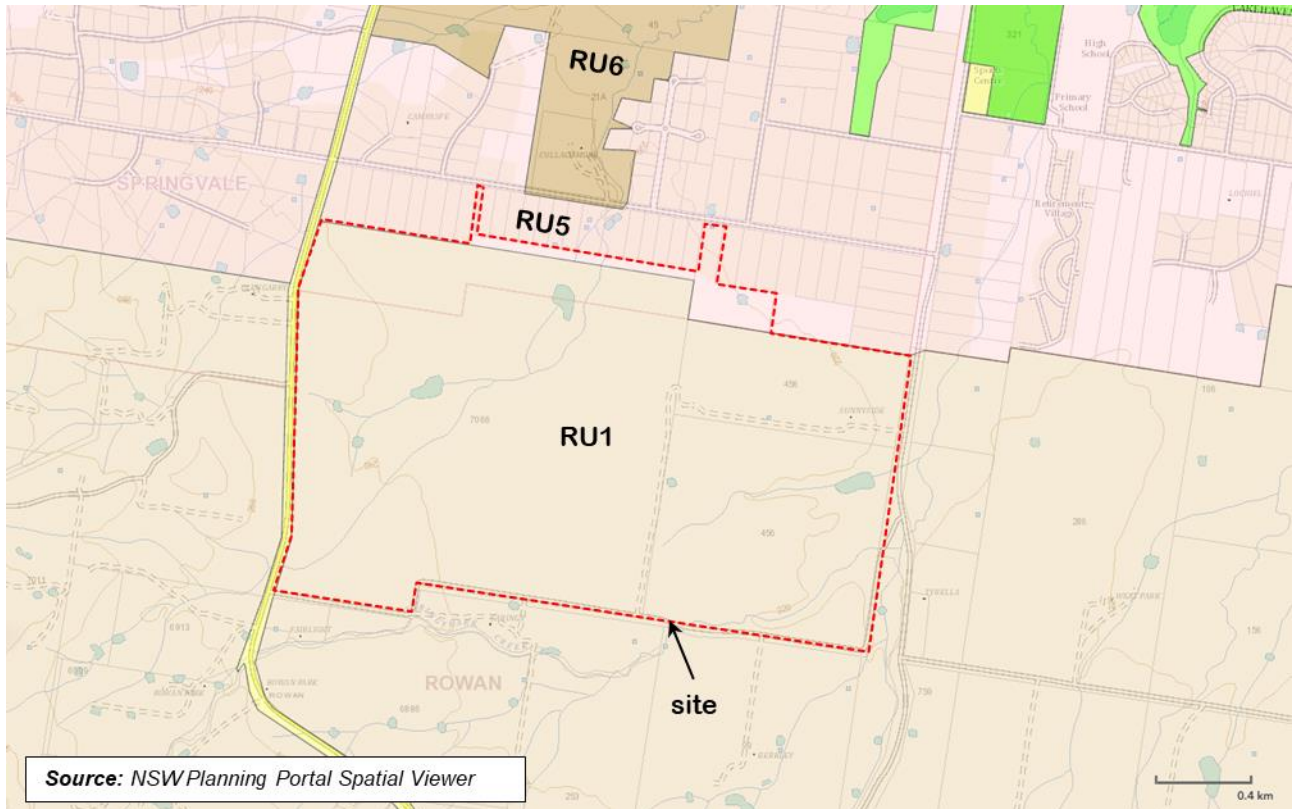
currently contemplated south of the site and therefore does not form a barrier to access the City. As such, the southern Heavy Vehicle Bypass can readily coexist with the Proposal.



4 Existing Conditions

4.1 Surrounding Land Use

The site is currently zones RU1 Primary Production and RU5 Village.



4.2 Mode Choice

Latest journey to work information for the Wagga Wagga – South SA2 indicates the following mode share splits. It can be seen that 'car driver' and 'car passenger' comprise 81% of trips.

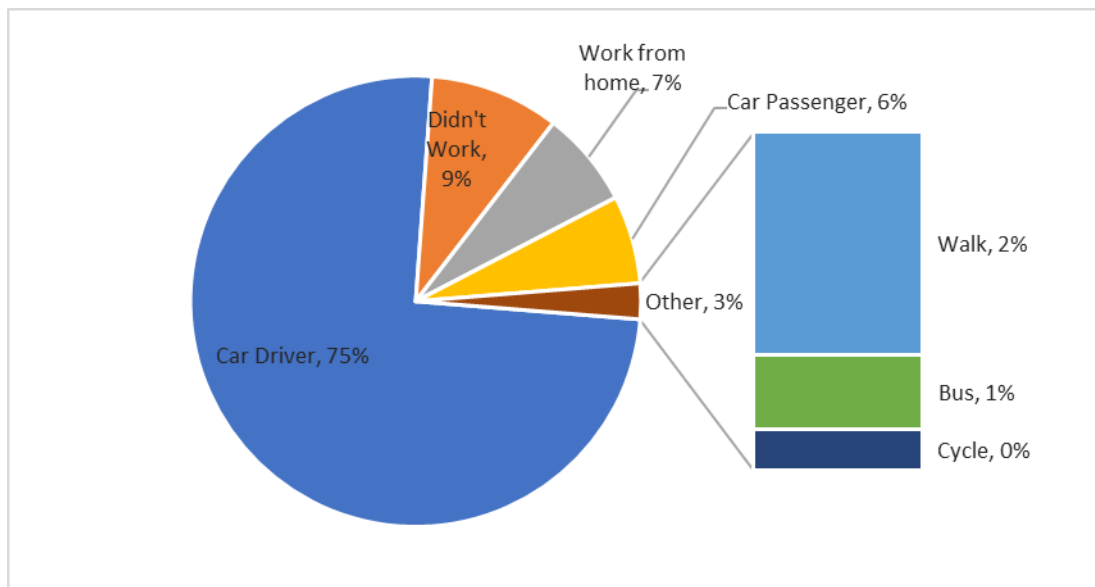


Figure 8: Wagga Wagga - South Mode Share

It is also noted that the mode share for public and active transport are well below desirable levels; albeit offset by the large proportion of persons who did not work or worked from home.

In terms of the distribution of travel for that SA2, the majority of 'car driver' trips are made within the Wagga region as shown below.

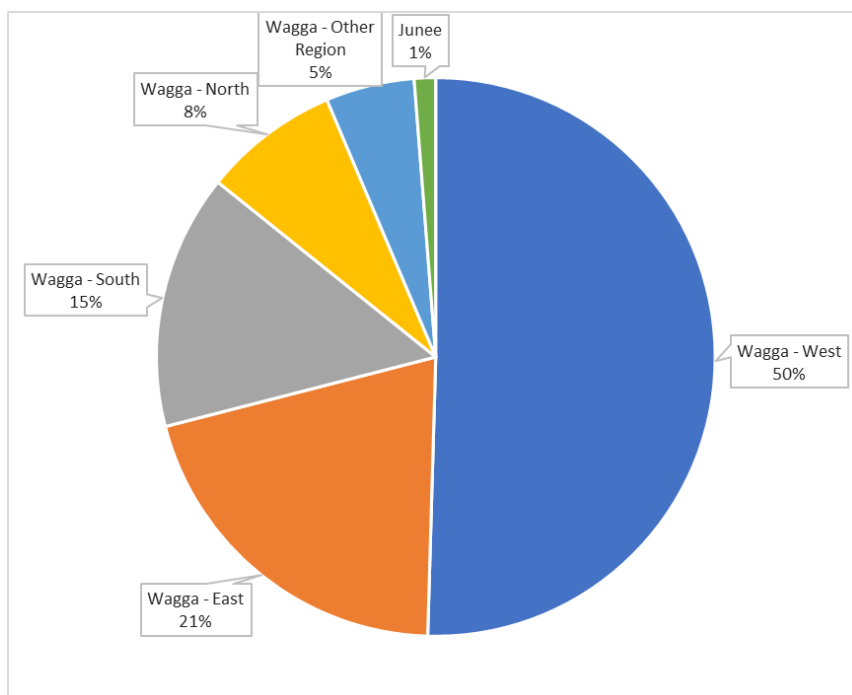


Figure 9: Census Car Driver Departure Destination

At present much of the trip destination is focused on areas within Wagga, south of the Sturt Highway.

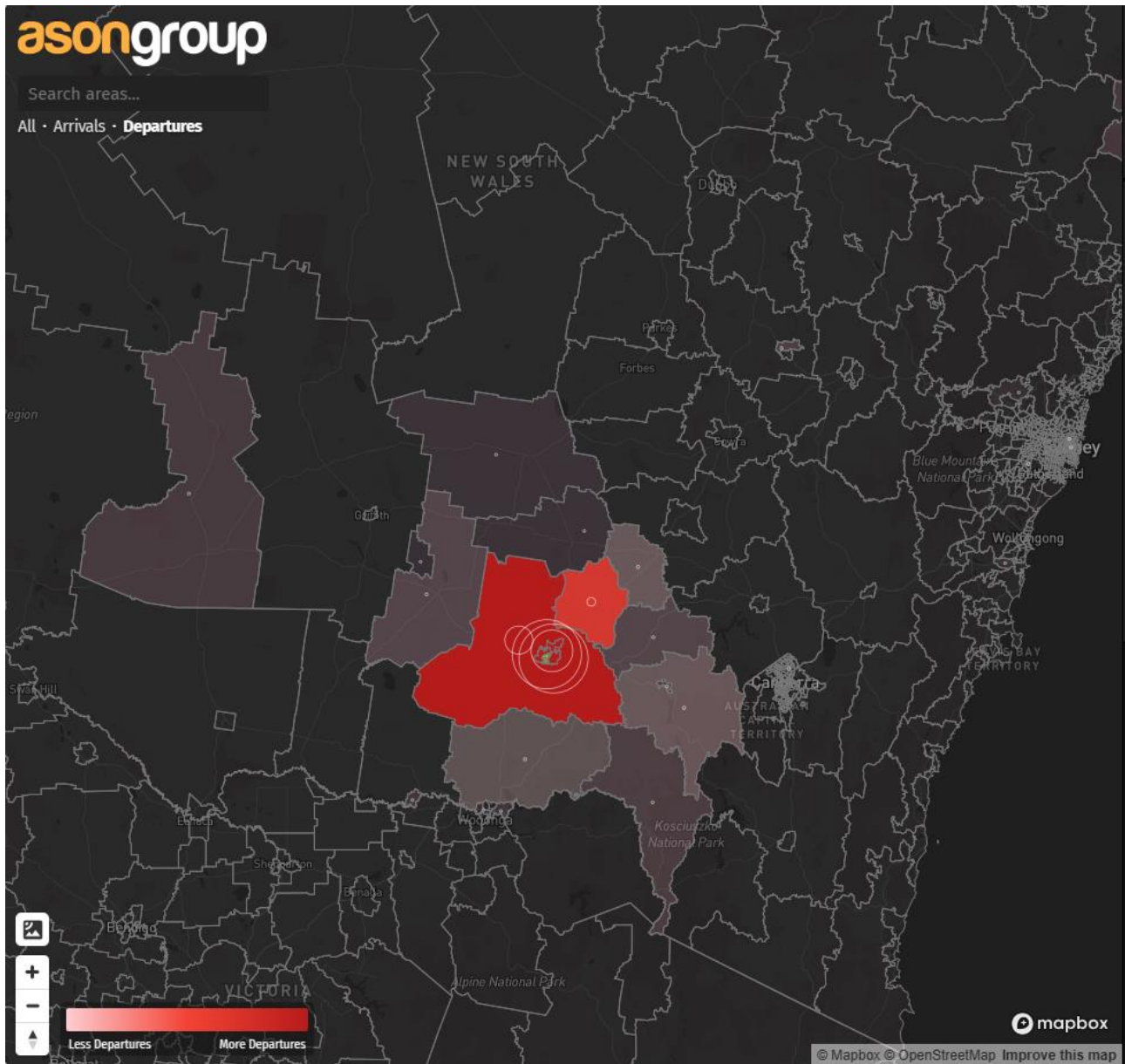


Figure 10: Wagga South Departure Trip Destination

4.3 Crash History

The latest 5-year crash data has been reviewed with a summary by location provided below. In general, crash density increases along key routes and in closer proximity to the Wagga CBD in part due to increased traffic volumes and therefore probability that a crash might occur.

It is noted that a number of local crashes have occurred in vicinity of the site; however Council and TfNSW are taking steps to improve the local road network which should improve the safety of the network. Upgrades to key intersections is discussed further in Section 4.7.2.

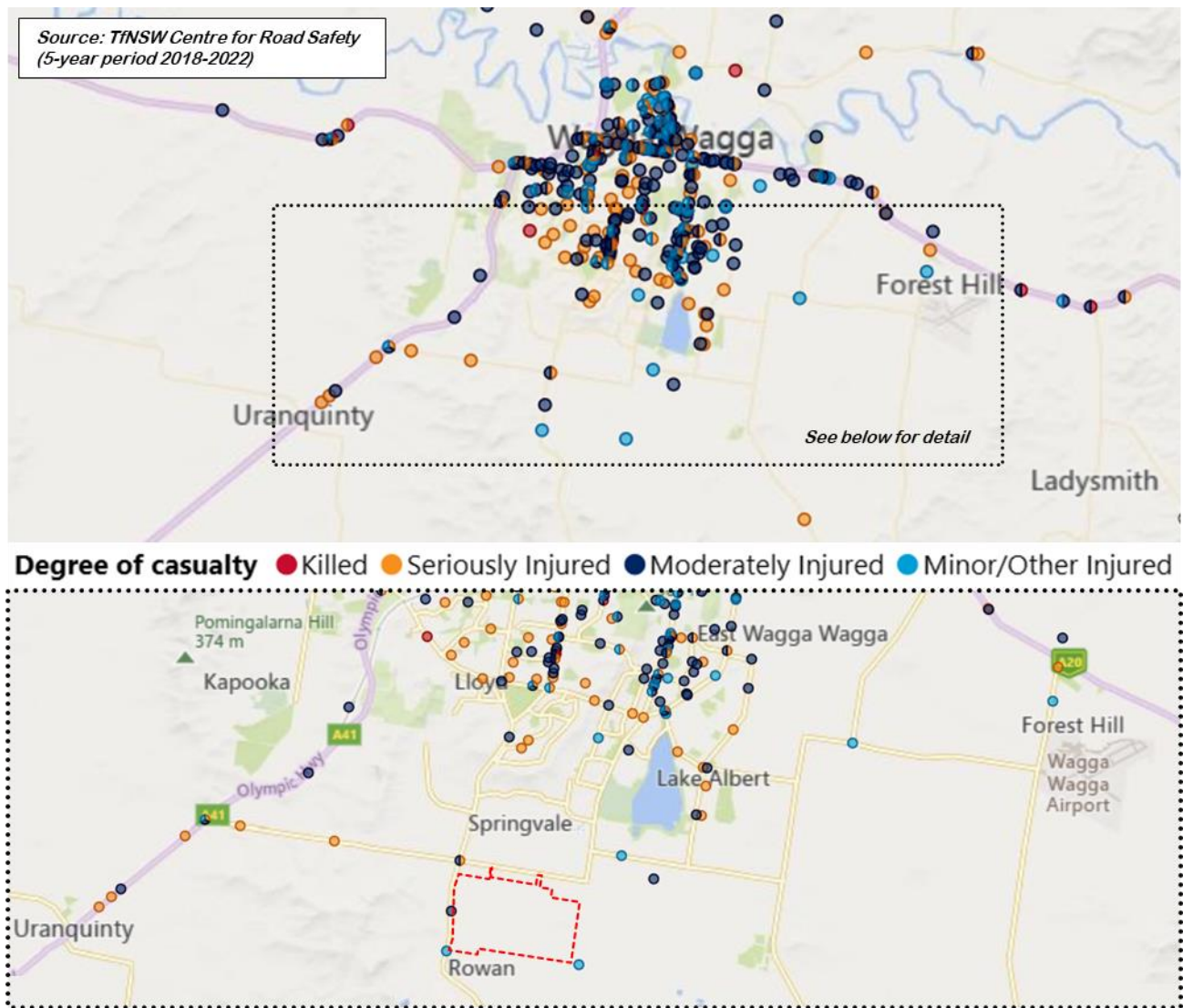


Figure 11: Crash Data by Location

4.4 Active Transport

4.4.1 Walking Network

There are no existing footpaths in the vicinity of the site.

4.4.2 Cycling Network

Similarly, there are no cycle paths within proximity of the subject site. Currently cycle paths extend along Holbrook Road as far south as Kaloona Drive, approximately 2.45 kilometres to the north of Lloyd Road.

The current Active Travel Plan highlighting key links is shown below.

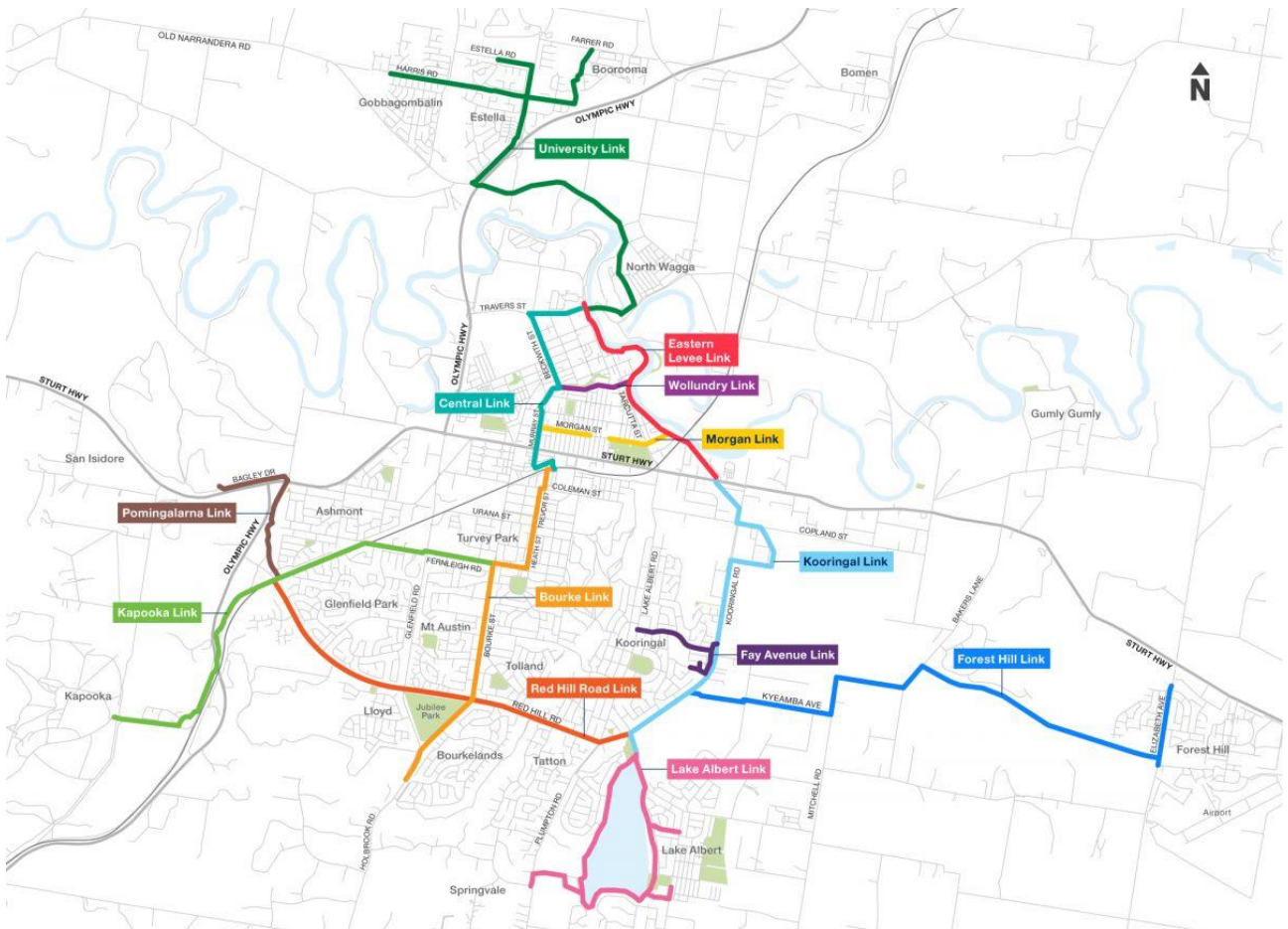


Figure 12: Wagga Wagga Active Travel Plan

It is noted that the Wagga Wagga Transport Plan nominates additional future cycle links, including a southern extension along both Holbrook Road and Plumpton Road, connecting to the site.

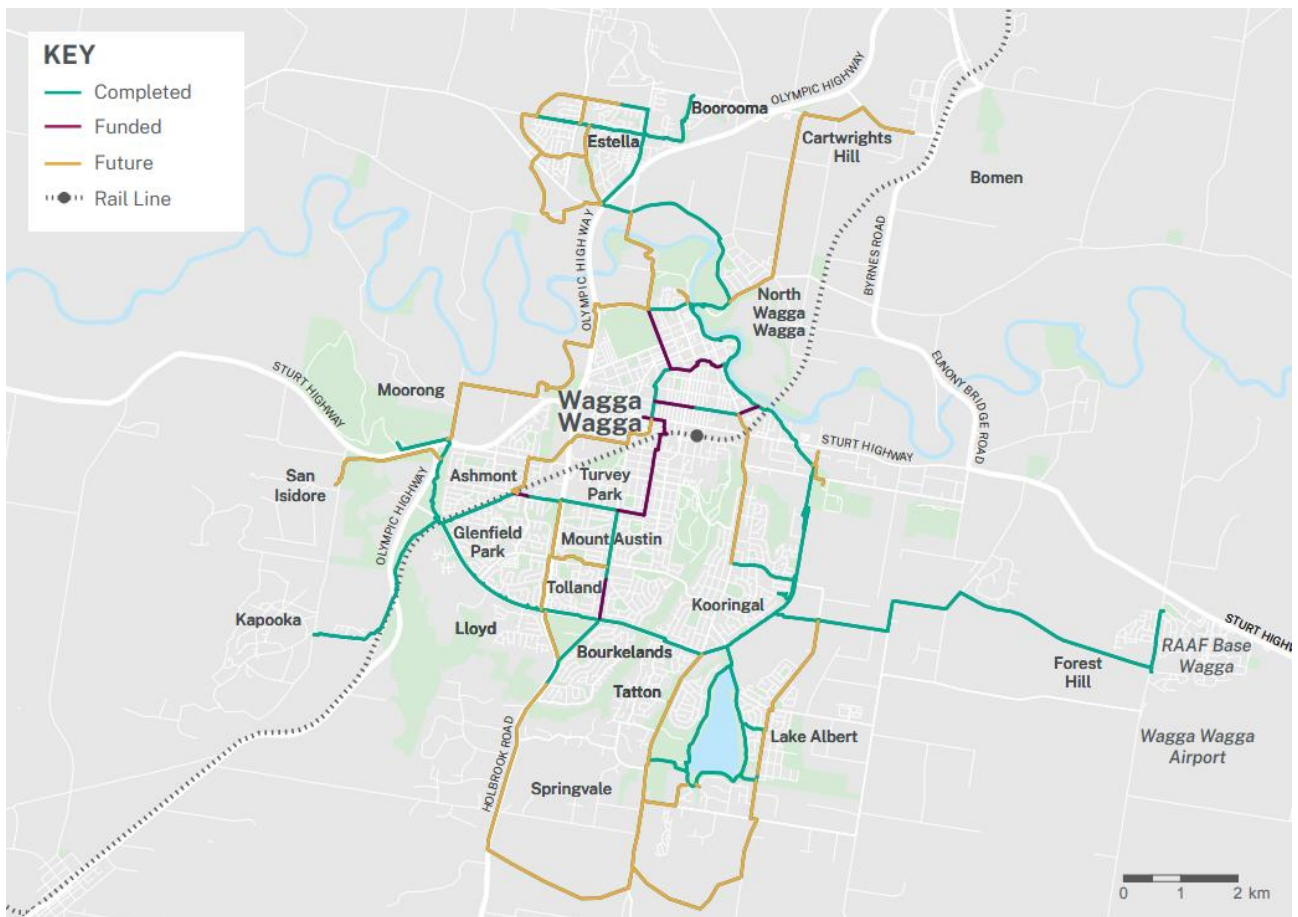


Figure 13: Wagga Wagga Planned Active Transport Network

4.5 Public Transport

The Busabout network map for Wagga Wagga is presented at a reduced scale below. It is noteworthy that existing services extend south only so far as Featherwood Road which is approximately 1.5 kilometres to the north of Lloyd Road and therefore it can be concluded that the existing bus services do not serve the subject site which is currently of a rural character.

Routes 960, 961, 962, 963, 965, 966, 969

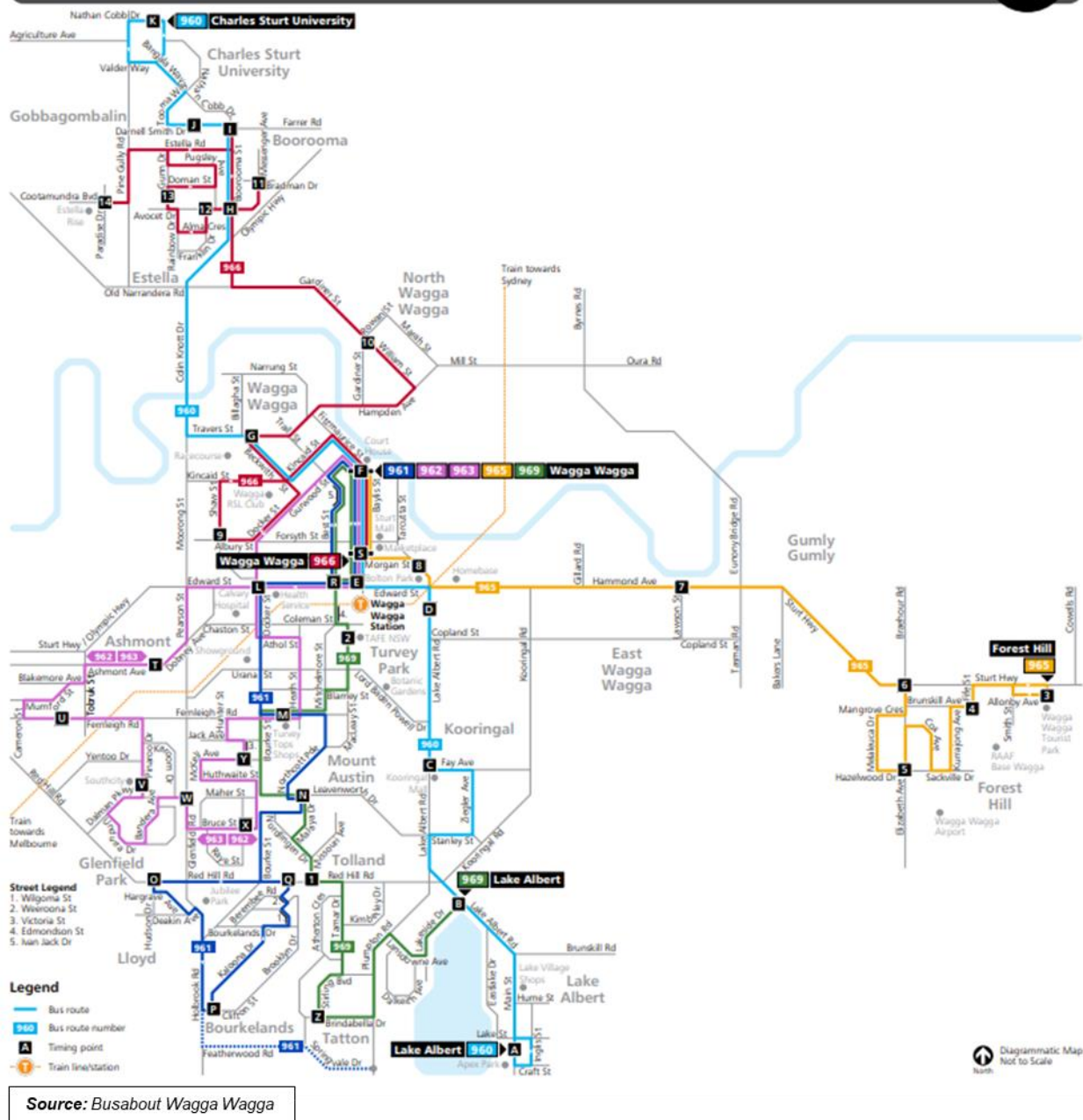


Figure 14: Existing Bus Routes

Services are typically at hourly intervals with some variation in start and finish times. It is expected that these services play an important role for a number of persons within the LGA.

4.6 Freight Network

Freight is a critical component to the local economy, with relevant Restricted Access Vehicle routes shown below.

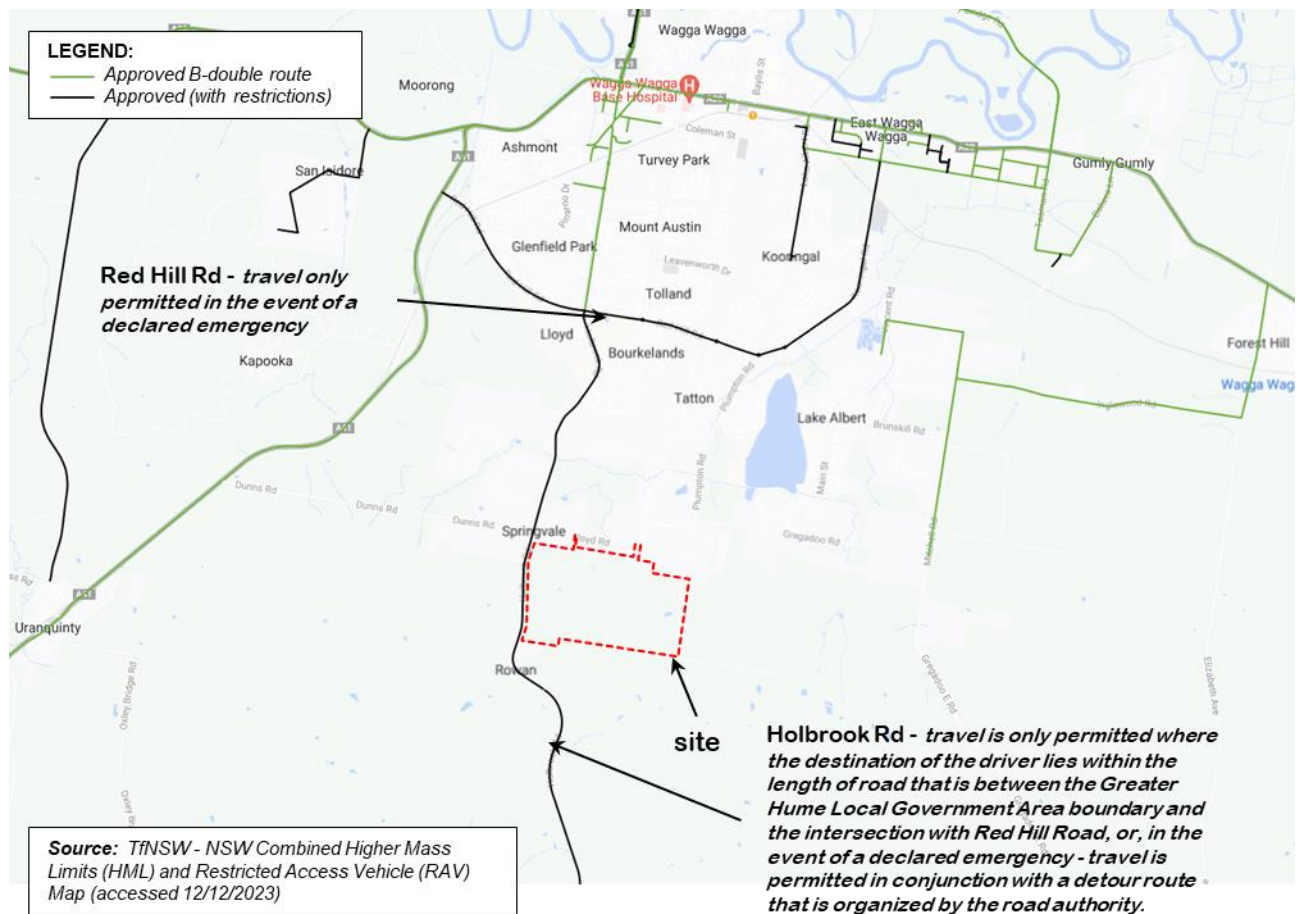


Figure 15: Freight Network - B-double approved routes

It is noted that the regional transport plans propose a new southern bypass route. Whilst the intent of that bypass would be to serve freight movements and reduced heavy vehicles encroachment within urban areas, it could also provide improved E-W connectivity to the site.

4.7 Road Network

4.7.1 Road Hierarchy

The road hierarchy surrounding the site is shown below. Sturt Highway, Olympic Highway and Holbrook Road form TfNSW classified roads, with other roads in the study area controlled by Council.



Figure 16: Regional Road Hierarchy

Key roads in the vicinity of the site include:

- Holbrook Road – a Regional Road that forms a major N-S corridor and the western boundary of Zone 1 of the SGA. It is currently signposted with a 100km/h speed limit, reducing to 80km/h to the south of Lloyd Rd as it transitions from a rural road into a more urban environment.
- Plumpton Road – a local Sub-Arterial that also forms a major N-S corridor and the eastern boundary of the SGA - Zone 1. South of Lloyd Road, the speed environment changes from 80km/h to a 100km/h rural road.
- Red Hill Road – a Sub-arterial road to the norther of the site that plays a key E-W corridor function serving South Wagga Wagga.
- Gregadoo Road – a local Collector Road that travels east from Plumpton Road. It provides an alternative route to the east, including the Wagga Airport Precinct, for site-related traffic. It is subject to a 60km/h speed zoning.
- Lloyd Road – a local road that traverses in an E-W direction between Holbrook Road and Plumpton Road. It generally provides local access to surrounding properties and is subject to an 80km/h speed zoning.
- Rowan Road – a local rural road to the south of the SGA. It is generally a gravel road with some short sealed sections near property entrances.

In relation to the state speed limits above, it should be noted that a number of roads also have School Zones, reducing speeds during school peak periods (8:00 - 9:30AM and 2:30 – 4:00PM)

4.7.2 Key Intersections

Key intersections along Red Hill Road are generally roundabout controlled, including intersections at Holbrook Road, Bourke Street and Plumpton Road.

At the time of this report, it is noted that Dunns Road Upgrade⁴ is currently underway. This includes the recently completed reconstruction and sealing of Dunns Road and upgrade of the Dunns Road / Olympic Highway intersection. Upgrades of the Dunns Road / Holbrook Road intersection to a roundabout, including reduced speed limits of 60km/h is also underway and planned for completion in January 2024.

It is also noted that the Gregadoo Road / Plumpton Road intersection is committed for design and construction as part of Stage 1 of the Gregadoo Road Upgrade ⁵which is jointly funded by Council (\$3.5M) and the Federal Government (\$1.2M)

⁴ <https://haveyoursay.wagga.nsw.gov.au/dunns-road-upgrade>

⁵ <https://haveyoursay.wagga.nsw.gov.au/gregadoo-road-upgrade-stage-1>



Figure 17: Approximate Site Access Locations



Figure 18: Key Local Intersections

4.7.3 Existing Traffic Volumes

Existing traffic volumes on key roads were surveyed by Council between 2017 – 2019 in developing Council's strategic transport model. It is understood that updated surveys are being undertaken to inform refinement of those volumes which shall be included in final traffic modelling studies in due course.

5 Transport Assessment

5.1 Key Assumptions

5.1.1 Background Traffic Growth

Historic growth in the area has been checked using TfNSW count station data (station ID 95176) between 2006 and 2010. The historic data suggests that weekday traffic in Holbrook Road has increased (linearly) by some 1.8%, within increased growth of up to nearly 4% p.a. in any one direction. This is a relatively significant increase but should be viewed with caution noting the limited (and dated) dataset with volumes actually decreasing in some intervening years.

Background traffic growth from Council's strategic model (in EMME) has been incorporated into the Stantec modelling work undertaken to support this proposal. It is expected that updates to background growth assumptions can be undertaken upon receipt of new data obtained by Council.

5.1.2 Committed Infrastructure

Committed works within the study area include:

- New roundabout at the intersection of Holbrook Road / Dunns Road / Lloyd Road, as part of the Dunns Road Upgrade project
- Upgraded priority-controlled intersection at Plumpton Road / Gregadoo Road, as part of the Gregadoo Road Upgrade – Stage 1 project. It is understood that this is initial works, prior to the construction of a new roundabout at that location (see below).

5.1.3 Planned Infrastructure

Other planned works outlined in the Wagga Wagga Local Infrastructure Contribution Plan 2019-2034 include.

TABLE 3: WAGGA CONTRIBUTIONS PLAN INFRASTRUCTURE

Ref	Infrastructure Item	Detail	Staging / Priority
TT1	Glenfield Road Corridor	All works generally to the north of Red Hill Road and therefore outside the scope of this initial assessment.	High
TT3	Red Hill Road upgrade	Level of Service plots for this road corridor show no worsening issues into the future except for the section of Red Hill Road between Lake Albert Road and Glenfield Road. Two roundabouts will require alteration to accommodate additional lanes at entry. Four intersections require protected turning lanes	Medium
TT7	Gregadoo Road Corridor	Includes a new roundabout at Gregadoo Road / Plumpton Road.	High
TT26	Active Travel Plan	Council adopted an Active Travel Plan for cycling. This plan identifies the principal bike network (43km) throughout the city and locations for the CBD end of trip facilities. The network will be mostly off road and a high quality surface. The remainder on road component will be separated from travelling vehicles using traffic control barriers. The network also includes cycling / pedestrian priority crossings at road intersections.	High
P2S	Strategic Planning Study - Transport Planning	Update the Wagga Wagga Integrated Transport Strategy	Medium
PS6	Wagga Wagga Integrated Transport Strategy Development of the Implementation Plan	Investigate and develop implementation for the initiatives identified in the Strategy	High

Notes: 1) Unless stated otherwise, all works relate to Citywide growth

2) These works to be funded by Lloyd growth

5.2 Trip Generation

5.2.1 Residential

The TfNSW *Guide to Traffic Generating Developments – Updated traffic surveys* (TDT13/04a) provides a summary of surveys undertaken at Glenfield Park in Wagga Wagga and resulted in the following person-trip rates.

TABLE 4: ROWAN & SUNNYSIDE PERSON TRIPS BY MODE

Period	Person Trip Rate (per dwelling)	Mode					
		Walk (1.0%)	Cycle (0.1%)	Bus (5.9%) ²	Car ¹ (70.2%)	Car Passenger (22.1%)	Other (0.7%)
Daily	8.81	255	26	1,507	17,925	5,643	179
Peak 1-hr	1.32	38	4	226	2,694	848	27

Notes: 1) Assumes combined yield of up to 2,900 dwellings

2) Bus mode share based on reference site which is serviced by 2 x routes

3) Mode share may vary depending on time of day and availability of services. For simplicity, the same % applied to both scenarios.

4) Peak 1-hr person trips does not coincide with network peak

It is noted that the above relates to all trip purposes for which commuting is just a small component of the overall daily travel demand. In this regard, it is noted that Household Travel Survey data suggests that the majority of daily trips are for other purposes such as education, shopping and recreational purposes. In this regard, the proposal includes a range of land-uses and services to contain travel demands as much as practical through nominating centralised areas for school/s and a local centre. Parks and other open space are provided throughout the Masterplan.

5.2.2 Other Uses

The masterplan includes a local centre with a range of uses, including:

- Local retail,
- Café, and
- Other amenities including a small medical centre

Trip generation associated with this centre will be refined during future development application/s but it is expected to largely serve the subject sites. As such, it is unlikely to generate substantial external demands on the transport network beyond the site. Furthermore, with its central location, the local centre is intended to be accessed via walking and cycling.

5.3 Active Transport Opportunities

5.3.1 Internal

As noted in , the proposed roads include footpaths on both sides of all roads, with Share Paths provided on Primary Local and Collector Road typologies. Additional paths are provided within Open Space areas to ensure a suitable active travel grid is provided throughout the site.

The Local Centre and School lots are centrally located within the Masterplan to maximise walking and cycling opportunities for these uses.

5.3.2 External Connectivity

In due course, it will be desirable to connect the site to the existing urban areas to the north via extension of the existing Shared Path network. The below Structure Plan (prepared by Urbis) sets out potential connections through Zones 02 & 03 (to the north) of the SGA once developed; however connection via Holbrook Road and Plumpton Road corridors is also an option.

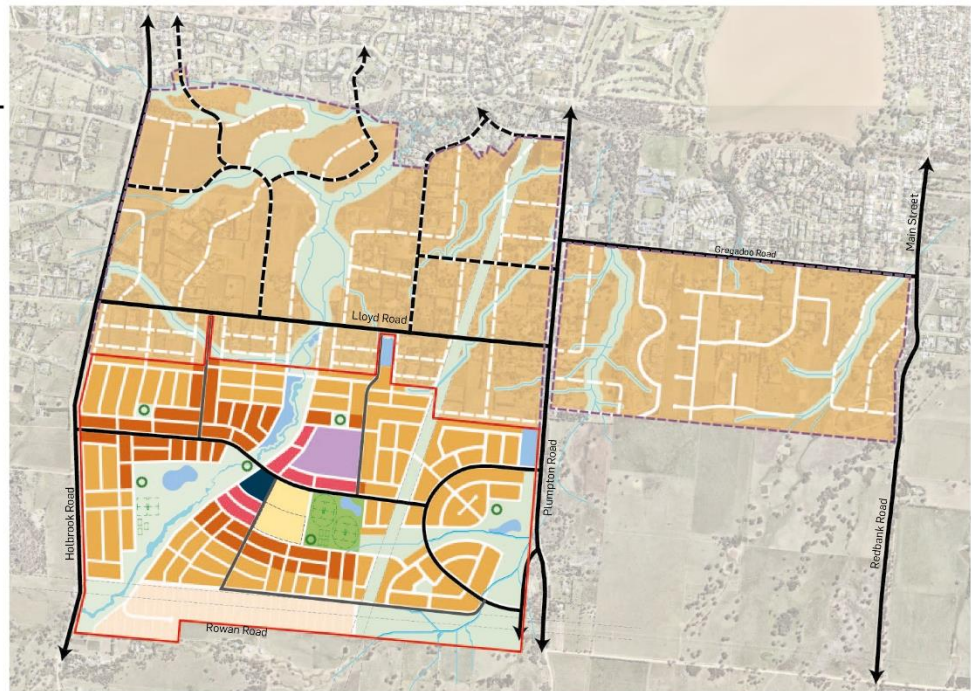


Figure 19: ILP in Surrounding Context

5.4 Public Transport Servicing

The masterplan has been designed to facilitate bus services along the main east-west Collector Road corridor. This provides coverage to the majority of the site within 800 metres, as shown below.

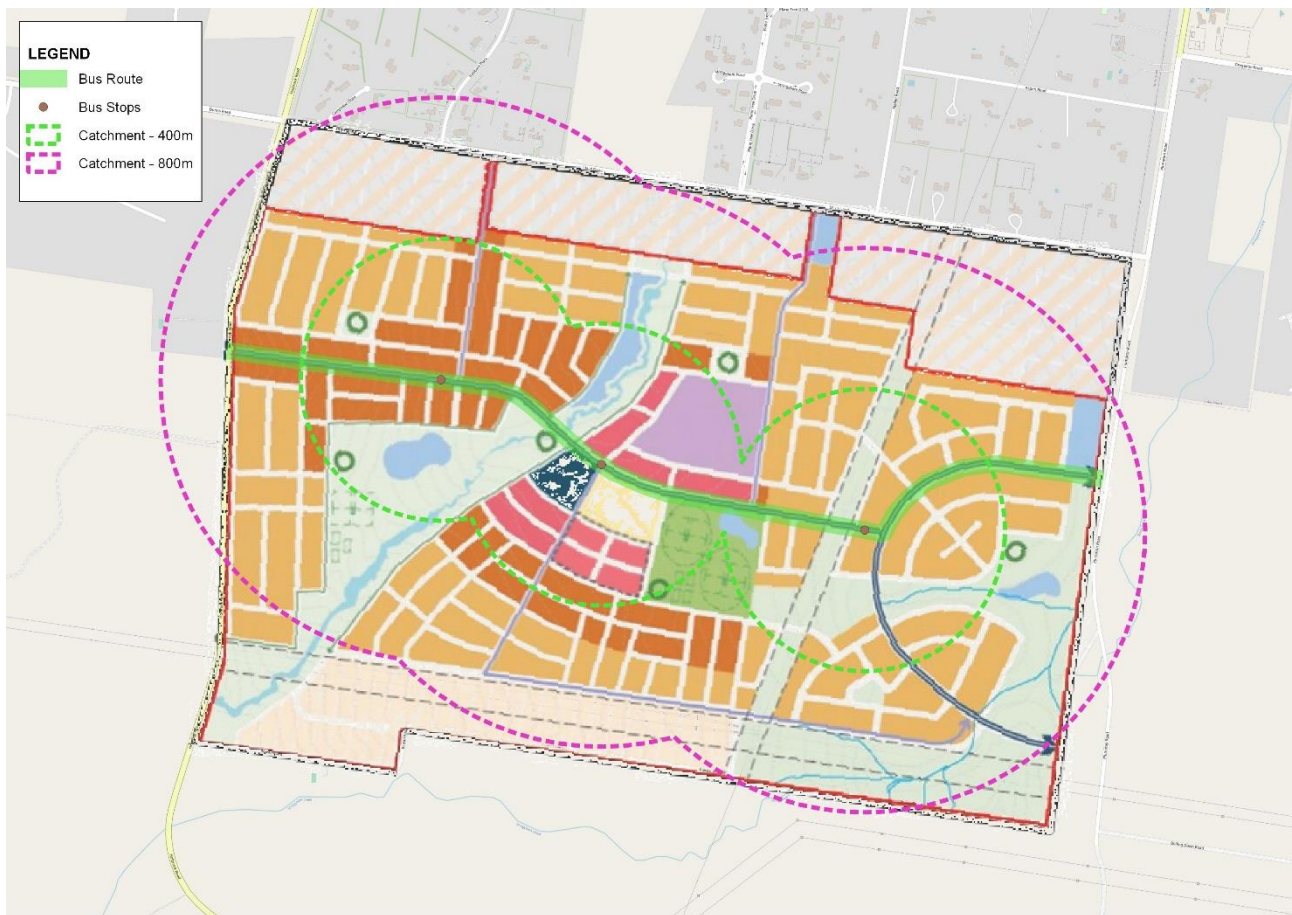


Figure 20: Masterplan Bus Stop Catchments

Interim routes during early stages of the development can be refined in consultation with bus operators during subsequent stages of the development as each stage is constructed. Early bus service access is desirable to establish habitual use of public transport services.

5.5 Trip Distribution

The distribution of external trips associated with the development is assumed as follows.

TABLE 5: ASSUMED EXTERNAL TRIP DISTRIBUTION

Origin/ Destination	% Assignment	Assumed Route
Wagga CBD	40%	50/50 Holbrook / Plumpton
Health Precinct	15%	Holbrook
Charles Sturt University	5%	Holbrook
Bomen	8%	Koorinal (via Plumpton)
Airport	2%	Gregadoo (via Plumpton)
East Wagga Industrial	10%	Koorinal (via Plumpton)

Kapooka	10%	Red Hill Rd (via Holbrook)
Rural	5%	All Directions
Internal	5%	n/a - internal roads only

The below provides a summary of the above, once the above are assigned to the study area network.

It is noted that the 2023 trip generation surveys suggest an average inbound / outbound split for regional development as follows during peak periods:

AM Peak 41% inbound / 59% outbound

PM Peak 56% inbound / 44% outbound

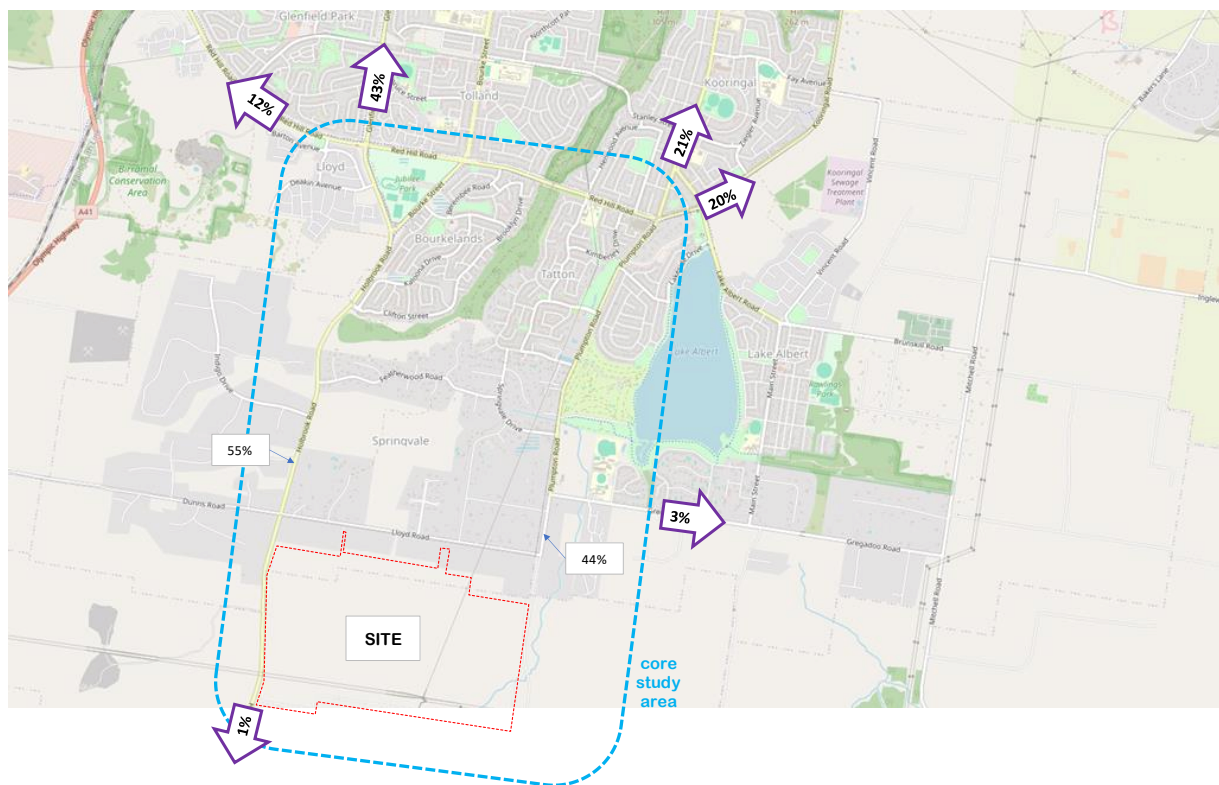


Figure 21: Assumed External Network Assignment

5.6 Vehicular Traffic Generation

5.6.1 Residential

The TfNSW *Guide to Traffic Generating Developments – Updated traffic surveys (TDT13/04a)* recommends adoption of the following external traffic generation rates for low-density residential dwellings in regional areas:

- AM Peak 0.78 veh/hr/dwelling
- PM peak 0.71 veh/hr/dwelling

It is noted that these are average regional rates, with variability up to 0.85 vehicles per hour per dwelling. Of note is the data includes surveys of an estate at Glenfield Park which is in close proximity to the subject site (NW corner of Red Hill Road / Holbrook Road) and therefore forms the preferred reference for 'similar development'.

- AM Peak 0.67 veh/hr/dwelling
- PM peak 0.83 veh/hr/dwelling

The surveys underpinning these rates were undertaken pre-COVID. TfNSW has subsequently undertaken updated surveys -documented in the *Transport for NSW Trip Generation Surveys – Low Design Residential – Analysis Report* (Bitzios, 26 October 2022) - which demonstrated a 21-24% decrease in trip rates; presumably as a result of increased work-from-home opportunities and peak spreading. Application of a discount of 20% to the Glenfield Park surveys results in the following peak vehicle trip rates:

- AM peak 0.54 veh/hr/dwelling
- PM peak 0.66 veh/hr/dwelling

5.6.2 Seniors Housing

It should also be noted that Seniors Housing typically attracts lower rates again, with TDT13/04a recommending the following rates:

- AM peak 0.4 veh/hr/unit (assumed for consistency with PM rate; actual rate lower)
- PM peak 0.4 veh/hr/unit

5.6.3 Other Uses

Relevant rates and internal/external traffic generation shall be reviewed and confirmed during the course of future Development Applications, once the final land use mix is more defined.

Having regard for the above and the likely internalisation of the majority of traffic associated with the small Local Centre, a contingency of say up to 150 external vehicles per hour during peak periods is deemed suitable for the non-residential uses.

5.6.4 Combined Traffic Generation

A summary of the adopted traffic generation rates is presented below.

TABLE 6: ADOPTED TRAFFIC GENERATION RATES

Land Use	AM Peak			PM Peak		
	Total	In	Out	Total	In	Out
Residential	0.54	41%	59%	0.66	56%	44%
Seniors Housing	0.40	40%	60%	0.40	60%	40%
Other Non-Residential ¹	150	60%	40%	150	40%	60%

Notes: 1) 1) Non-residential figure is assumed. Shall be subject to further review during future DA/s.

The resultant external vehicular trip generation is summarised below.

Whilst the balance of the SGA shall be subject to a separate Planning Proposal and assessed in due course, it is estimated that the remaining land within the broader SGA could yield a further 1,870 dwellings.

TABLE 7: EXTERNAL VEHICLE TRIPS

Site	Land Use	AM Peak			PM Peak		
		Total	In	Out	Total	In	Out
Rowan Village	Residential	1,182	484	698	1,444	809	635
	Seniors Housing	34	14	20	34	21	13
	Other Non-Residential	150	90	60	150	60	90
	Sub-total: Rowan Village	1,366	588	778	1,628	890	738
Sunnyside	Residential	378	155	223	462	259	203
	Sub-total: Rowan Village & Sunnyside	1,744	743	1,001	2,090	1,149	941
Balance of SGA	Residential	1,010	414	596	1,234	691	543
	Total SGA	2,754	1,157	1,597	3,325	1,840	1,485

Notes: 1) Assumed residential yield:

Rowan Village: 2,274 dwellings, including 2,188 standard dwellings + 86 Seniors living

Sunnyside: 700 dwellings

Balance of SGA: 1,870 dwellings

5.7 VPA Traffic Modelling

It should be noted that the above forms the basis of this assessment. However, it is not relied upon for the purposes of the Voluntary Planning Agreement (VPA) offer and associated staging plan prepared by IDC.

Reference is made to the *Road Upgrades Assessment* by Stantec in relation to the capacity of the surrounding network to accommodate increased vehicular traffic associated with the SGA, with the following assumptions:

- 1 vehicle trip / hour / dwelling (equating to an assumed generation of 4,750 vehicles per hour)
- Nil self-containment for schools and local trips
- Distribution – assumes all traffic uses Plumpton Road to head north, until such time as the second (western) Lloyd Road connection is provided (in approximately Stage 6)

It is noteworthy that the assumed traffic generation is considered conservative in nature. Further refinement of relevant traffic modelling shall be undertaken, in consultation with both Council and TfNSW, prior to finalisation of the ISDP and final VPA.

Furthermore, the Stantec analysis has modelled the impacts from traffic associated with the whole SGA and not just that of Zone 1 (Rowan Village and Sunnyside).

6 Implementation Plan

The Stantec assessment identifies the following indicative triggers for relevant transport network upgrades. However, it is expected that increase yield could be possible having regard for the reduced trip rates outlined above noting that the assumed Stantec rate (1 veh/hr/dwelling) is approximately 50% higher than the critical PM peak rate (0.66 veh/hr/dwelling) outlined above in Section 5.6.1.

TABLE 8: EXTERNAL TRANSPORT WORKS TRIGGERS

Upgrade Works	ISDP Trigger	Revised Trigger
Plumpton Road Gregadoo Road Intersection Upgrade	300	452
Plumpton / Red Hill / Koorinal Road Intersection Upgrade	1,000	1,505
Plumpton Road Duplication - all new pavement (PROJECT A)	1,500	2,258
Plumpton Road Duplication - all new pavement (PROJECT B)	1,500	2,258
Plumpton Road Aspen Road Intersection Upgrade	1,500	2,258
Plumpton Road Lansdowne Road Intersection Upgrade	1,500	2,258
Plumpton Road Lloyd Road Intersection Upgrade	1,500	2,258
Plumpton Road Stirling Road Intersection Upgrade	1,500	2,258
Holbrook Road Lloyd Road Dunns Rd Intersection Upgrade	2,500	3,764
Holbrook Road Northbound Lane Duplication (PROJECT A)	3,000	4,516
Holbrook Road Featherwood Road Intersection Upgrade	3,000	4,516
Holbrook Road Red Hill Road Intersection Upgrade	3,000	4,516
Holbrook Road Northbound Lane Duplication (PROJECT B) Note split of Project into A and B 3600	3,600	5,420 ¹
Holbrook Road Bourke Street Intersection Upgrade	3,600	5,420 ¹
Bourke Street southbound Lane Duplication	4,000	6,022 ¹
Bourke Street Red Hill Road Intersection Upgrade	4,600	6,925 ¹

Note: 1) Figure exceeds full-development of the SGA. As such, these works may not be required.

7 Summary & Conclusions

7.1 Summary

The following observations and key findings are considered noteworthy:

- The Southern Growth Area (SGA) is contemplated within the recent Wagga Transport Plan and has already undergone preliminary assessment by Council, including identification of upgrades along both Holbrook Road and Plumpton Road corridors.
- Given demand for housing and delays to delivery of planned housing within other growth areas, it is anticipated that lot production within Zone 1 of the SGA (i.e. the subject of this Planning Proposal) will be faster than previously contemplated by Council. The subject site is ready to develop and provide in the order of 2,900 lots over the course of the next decade.
- Accordingly, a preliminary Road Upgrade Assessment (by Stantec) has been undertaken to inform preparation of an Infrastructure and Servicing Delivery Plan (ISDP by IDC) which has then formed the basis of a draft VPA to Council.
- It is noted that the ISPD has adopted very conservative (high) traffic volume forecasts in establishing relevant triggers points for upgrades. Adopting more applicable traffic generation rates would increase the relevant trigger points by +50%. This enables more contributions funding to offset costs of works at each stage.
- Notwithstanding, it is noted that the existing strategic (EMME) model upon which this analysis is based is a Council model that is in the process of being recalibrated based on new data. It is anticipated that the outcomes and recommendations of this report will need to be refined following model calibration.
- However, the preliminary analysis has been conservative and should provide sufficient comfort that a viable infrastructure delivery plan can be achieved to support development.

7.2 Conclusions

In summary, the Proposal is supportable on transport planning grounds. There is a clear strategic rationale for the development and a suitable infrastructure staging plan is available to be funded, subject to further detailed refinement of transport modelling. It is expected that such refinement can readily occur alongside consideration of the proposal and addressed in detail prior to a final determination.

7.3 Next Steps

Council are in the process of revising the City-wide strategic transport model. Once complete, it is expected that further assessment of the Proposal (and SGA as a whole) will be undertaken, including:

- Expansion of the model area to include Sturt Highway intersections (at the request of TfNSW)
- SIDRA analysis of key intersections to confirm concept configurations and inform future detailed design
- Confirm the staging plan and finalisation of the VPA