



SMEC INTERNAL REF. 3002795

Albury Regional Job Precinct

# Infrastructure Assessment – Technical Report Traffic and Transport

Client Reference No. 21-3010-1  
Prepared for: Department of Regional NSW  
28 September 2023

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## Document Control

<b>Document Type</b>	Albury Regional Job Precinct
<b>Project Title</b>	Infrastructure Assessment – Technical Report Traffic and Transport
<b>Project Number</b>	3002795
<b>File Location</b>	\\filer.nasuni.local\smecanz\Projects\30027\3002795 Albury and South Jerrabomberra RJP\150 Deliverables\400 - Post-exhibition Albury RJP\Traffic and Transport\3002795-Albury Traffic Tech Report - FINAL .docx
<b>Revision Number</b>	02 -Post Exhibition Report

## Revision History

Revision No.	Date	Prepared By	Reviewed By	Approved for Issue By
00	6/04/2022	Oliver Emary Doug Tonge Josh Everett Andrew Newson	Sophie Olsen Jayne Klein Matthew Jordan	Sophie Olsen
01	17/10/2022	Doug Tonge Josh Everett Andrew Newson	Sophie Olsen Louise Round	Sophie Olsen
02 Post Exhibition	28/09/2023	Doug Tonge Josh Everett Andrew Newson Thomas Carberry	Oliver Emary Melissa Evertt	Oliver Emary

## Issue Register

Distribution List	Date Issued	Number of Copies
Department of Regional NSW	28/09/2023	Electronic

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## Important Notice

This Report considers current transport infrastructure network characteristics, opportunities and constraints, identifies the potential augmentation to existing infrastructure and the provision of new infrastructure that are considered to be required to facilitate future master planning for the purpose of achieving land use intensification within the identified study area.

This report sets a high contextual platform for the future traffic and transport infrastructure requirements and as such has not considered the functional or detailed design elements of the identified infrastructure. These detailed studies are considered to be necessary to advance the proposed master plan. The next steps include the development of a detailed demand analysis to provide the quantitative inputs for the future provision of transport and traffic management infrastructure of the study area.

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# Executive Summary

The objective of the Regional Job Precincts (RJP) program is to provide a more streamlined planning process to drive investment and development in regional NSW. The RJP program focuses specifically on targeted locations that are ready for development and will support thriving industries and job creation. SMEC has been engaged by Department of Regional NSW (DRNSW) to prepare an assessment of infrastructure needs to help attract new business to the regions, and support job growth.

The Albury RJP investigation area is a 1,190 ha area of industrial and undeveloped land in Ettamogah, north of Albury. A master plan has been prepared by Ethos Urban suggesting the structure of land uses that may be suitable for the region based on market sounding, consultation and economic assessment. The master plan provides an aspirational vision for the development of the region over the next 30+ years, and sees a variety of traditional general industrial, manufacturing, food and beverage, warehousing, freight and logistics uses.

This report provides an assessment of traffic and transport infrastructure within the Albury RJP area, with the following objectives:

- Examine the layout and available capacity of transport infrastructure that will support the Albury RJP
- Understand the likely demand that will be generated by the Albury RJP
- Identify the necessary upgrades to the transport network to accommodate the anticipated increase in demand
- Outline the priorities and potential staging of the investment to unlock the economic development potential of the Albury RJP, and
- Suggest funding mechanisms and trigger points for infrastructure upgrades.

## Traffic Generation and Distribution

To understand the traffic generation demand that will be created by the Albury RJP, traffic generation calculations were undertaken based on the Guide to Traffic Generating Developments (TfNSW, 2002) and Technical Direction TDT 2013/04. It is noted that on completion, the ultimate Albury RJP could generate employment-based traffic volumes of approximately 14,435 vehicles per day.

Traffic generation was distributed across the Albury-Wodonga road network using the Albury Wodonga Transport Model (AWTM). Traffic volumes for Stage 1 (2026) of the RJP are noted as a maximum of 2,400 trips during the AM and PM peak on the Hume Highway (south of RJP). For the Wagga Road (south of RJP) it is expected that 2,100 trips during the AM Peak and 1800 during the PM peak will occur. It is noted that a significant portion of trips to the Albury RJP will be via the Hume Highway and Davey Road interchange.

## Road Network

The Ettamogah Rail Hub (ERH) is located within the Albury RJP site and provides a direct connection to the Melbourne-Sydney railway line. An assessment of the ERH confirms that existing facilities provide sufficient capacity and space for current freight demand. No immediate upgrades were identified for the ERH based on available information. It is however recommended that the ERH review the pavement capacity to cater for future freight movements and to avoid pavement deformation issues arising as rail freight movements increase. Further consideration should also be given to the possibility of increasing maintenance facilities at the hub.

## Active Travel

The location of the RJP and its employment areas are generally outside a walkable range from residential areas and it is expected that most active travel access will be by bicycle, scooter or other micro-mobility solutions. The Hume Highway corridor limits travel from the eastern side of Albury and Thurgoona into the western side of the RJP and existing crossing points along the highway corridor are too far south to be useful for active travel to and from the RJP. With this considered, recommendations to improve active travel include ensuring that all stages of the development (Stages 1 – 3) have footpaths for pedestrian connectivity and sufficient width shoulders to accommodate safe cycle routes.

The Thurgoona Drive bridge across the Hume Highway should be investigated as a potential cycle crossing point to allow active travel trips from Thurgoona to access the north-south path adjacent to Wagga Road and provide an active travel



connection to Stage 1. Similarly, an additional main shared path crossing of the Hume Highway should be provided for Stage 2 that connects to the existing shared path in Thurgoona at Hargraves Road at the southern end and to the Stage 1 network near the intersection of Gerogery Road and Wagga Road. It is noted that planned upgrade works to the Davey Road interchange should include appropriate active travel facilities connecting the eastern and western sides of the RJP.

## **Public Transport**

Given the proposed industrial nature of the RJP, it is unlikely that all workers will work standard business hours making the provision of public transport more difficult. Any new bus services to the RJP should run at a frequency of every 10-15 minutes during peak times, and 15-30 minutes during off peak times via a direct bus route from Albury CBD. The bus route should include additional stops through North Albury and Lavington to avoid people having to first travel south to the Albury CBD to then head north towards the RJP. It is envisaged that these measures would make public transport a more attractive option and avoid further car dependant travel to the site.

## **Staging of Upgrades and Funding Mechanisms**

The staging of infrastructure will be necessary to support the development of the precinct. Internal transport networks will need to be developed to facilitate land release within the precinct in a timely and efficient manner, without overinvesting in infrastructure that may sit redundant awaiting sufficient demand. It is noted that the staging of the precinct will vary in response to several different factors including the pattern, timing and nature of development and land uses throughout the precinct. It is recommended that all active travel facilities and public transport routes be operational from the opening of each stage to ensure that travellers do not build car dependant travel habits.

A variety of funding mechanisms have been considered to support the cost effective, equitable and timely delivery of the road and transport infrastructure upgrades that have been identified as being required to support the stages of the master plan. The Albury Infrastructure Contributions Plan 2014 levies development contributions under Section 7.11 of the Environmental Planning and Assessment Act 1979 for local infrastructure and for water/sewer supply under Section 64 of the Local Government Act 1993. It is recommended that this Contributions Plan be expanded to include the RJP precinct, noting that it currently only applies to part of the RJP

State Infrastructure Contributions (SICs) help to fund the delivery of state and regional infrastructure such as hospitals, schools, state and regional roads, public transport infrastructure, emergency services, biodiversity and some larger regional open space improvements. It is recommended that a SIC be considered as an appropriate mechanism to fund new infrastructure such as schools, hospitals, regional open space and upgrades to Regional and State Roads. Further, a wider Social Impact Assessment to determine future education, health and regional sporting needs of growing Albury should be undertaken.

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# 1. Introduction

The intent of the Regional Job Precincts (RJP) program is to consider the contributing factors that will enable the unlocking of employment generating land market in regional settings, where coordinated investment in infrastructure can enable access to the critical inputs that make regional areas sustainable and successful; raw materials, transportation networks and a skilled workforce; to support thriving industries and job creation. SMEC has been engaged by Department of Regional NSW (DRNSW) to prepare an assessment of infrastructure needs to help attract new business to the regions, and support job growth.

This report firstly provides an assessment of existing (baseline) conditions relating to traffic and transport infrastructure and services within the Albury RJP investigation area and then considers how existing infrastructure and transport services within the region may need to be augmented to support the growth anticipated by the master plan.

This report considers:

- The current transport network including its limitations and capacity constraints across road, rail, public transport and active travel
- Required transport network upgrades to service the additional demand that is anticipated by industries locating to the RJP investigation area.

The Albury RJP investigation area is adjacent to the Melbourne to Sydney rail corridor and the Hume Highway and is approximately 10km north of the Albury CBD. The area is well serviced by road and rail, with the Ettamogah Rail Hub providing freight services for containerised freight through a common user terminal. Recent upgrades to the Davey Road interchange through the inclusion of south facing ramps provide improved access to the Hume Highway. Section 5 of this report provides detail on the existing road network, traffic volumes, public transport and active travel networks, and Section 6 notes that additional investment in road, rail, active travel and public transport systems are likely to be needed to support access to the area by employees.

The Department has developed a preferred master plan for the Albury RJP. The increased employment anticipated by the realisation of this master plan is expected to generate a significant amount of passenger and freight trips that will need to be conveyed by the transport network, and upgrades are expected to be required to accommodate the increased demand. Staging of the anticipated transport network upgrades that are expected to be required are discussed in Section 7.

## 2. Project Background

### 2.1 Project Objectives

The RJP program provides an opportunity to assist regional areas to attract investment through facilitating upfront strategic master planning. There is also an opportunity to streamline statutory planning to further drive agglomeration and reduce investment barriers.

SMEC has been engaged by DRNSW to prepare an assessment of infrastructure needs to help attract new business to the Albury region, and support job growth. With the presence of the Ettamogah Rail Hub, existing Visy-owned paper mill and early movers into the NEXUS Industrial Subdivision such as Circular Plastics, the Albury region shows enormous potential for regional growth and investment.

The focus of this report is on the capacity of the existing transport network, and suggests additional augmentation required to support the ultimate freight and passenger traffic volumes that are anticipated to be generated by the master plan. This report includes an assessment of current (baseline) conditions and tests the master plan to develop an understanding of infrastructure investment that may be required to unlock the identified potential regional growth and employment opportunities.

### 2.2 Report Objectives

This traffic and transport infrastructure assessment report seeks to provide an overview of the current context of the site relating to the transport network, and to identify necessary upgrades. The objectives of this Infrastructure assessment are to:

- Examine the layout and available capacity of transport infrastructure that will support the Albury RJP
- Understand likely demand that will be generated by the Albury RJP
- Identify necessary upgrades to the transport network to accommodate the anticipated increase in demand
- Outline the priorities and potential staging of the investment to unlock the economic development potential of the Albury RJP
- Suggest funding mechanisms and trigger points for infrastructure upgrades.

### 2.3 Project Location and Key Features

The Albury RJP investigation area is 1,190 ha approximately 10km north of the Albury CBD. The site surrounds the Ettamogah Rail Hub and the existing “NEXUS” industrial subdivision. Albury is located on the banks of the Murray River in the Riverina region of south-eastern NSW, approximately 300km north-east of Melbourne and 570km south-west of Sydney.

The Albury RJP investigation area is adjacent to the Melbourne to Sydney rail corridor, the Hume Highway and in relatively close proximity to Albury Airport, which provide excellent locational attributes to drive investment in freight and logistics, and access to national and international markets (Figure 2–1). Proximity to productive agricultural land in the Riverina Murray region also provides a key attribute to support growth of the area for food manufacturing industries, freight and logistics.

Albury has a current population of 55,030 residents (ABS, 2021), and is forecasted to grow by another 13,074 to 68,104 residents by 2036 (Local Strategic Planning Statement, Albury City Council, 2020) this is an increase of 23% by 2036. Several new residential subdivisions are occurring south and east of the site, to accommodate the urban expansion of Albury. Land to the north and west of the Albury RJP investigation area is predominantly rural with some large lot residential development.

It is understood that \$32M in funding was successfully obtained for the NEXUS Industrial Precinct Stage 1 from Albury City Council (ACC), and the NSW State and Federal Governments. This has been allocated to fund a range of economic development facilitating infrastructure projects including roadworks, gas and sewer augmentation programs, and to undertake the first stages of the NEXUS subdivision. The first stage of the NEXUS Industrial Precinct currently accommodates a range of tenants including Circular Plastics Australia PET recycling plant.

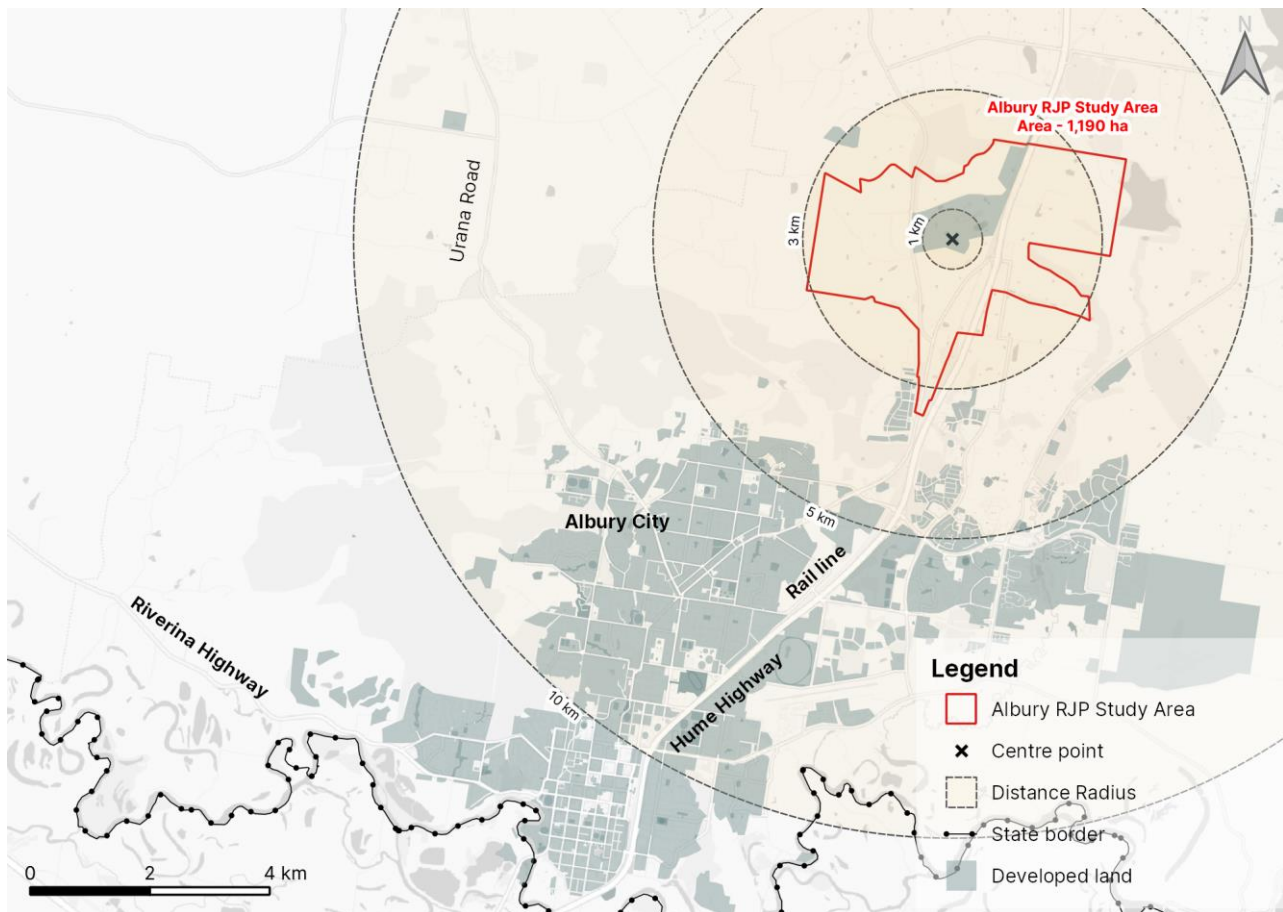


Figure 2-1 | Location diagram of study area and its proximity to Albury

The Albury RJP investigation area also contains the former Norske Skog paper mill, which is currently owned by Visy Industries. It is understood that the paper mill ceased operation in September 2019. The facility contains a rail siding and has direct vehicular access to Hume Highway via Wagga Road. Visy is a significant landowner within the RJP investigation area, as the paper mill previously operated a water reuse scheme with several fields containing irrigation infrastructure (centre pivots) nearby, some vacant and some currently under crop (lucerne).

The presence of the paper mill and rail siding infrastructure was the driving factor for the establishment of the Ettamogah Rail Hub (ERH) in 2009. The hub primarily manages import and export of goods through the Port of Melbourne and is operated as a Common User Terminal, which allows multiple rail and trucking companies to use the siding. The ERH has a fleet of trucks including a polymer vehicle enabling the movement of raw materials to and from the region. The ERH manages a range of raw materials and transport of goods for local pet food operators and companies such as Asahi with the potential to expand into other industries including recycling and e-waste.

Overall Forge, an open die forge, occupies a site to the south of the Visy papermill, with a frontage to Wagga Road. Overall Forge manufactures steel products for the Australian and South-East Asian mining and quarrying industries, and currently employs in the order of 100 people.

Circular Plastics, a PET recycling plant developed as a joint venture partnership between Cleanaway Waste Management Ltd., Pact Group, Coca-Cola Europacific Partners (CEP) and Asahi Beverages<sup>1</sup>, recently opened within the NEXUS Industrial Precinct. The facility is anticipated to recycle approximately 1 billion PET plastic bottles each year, reducing Australia's reliance on virgin plastic, the amount of plastic waste sent overseas and the amount of recycled plastic Australia imports. A local shed manufacturer has recently received DA approval however is yet to commence construction of a facility within the NEXUS subdivision.

<sup>1</sup> <https://www.investregional.nsw.gov.au/news/australias-largest-pet-recycling-plant-opens-in-albury/>



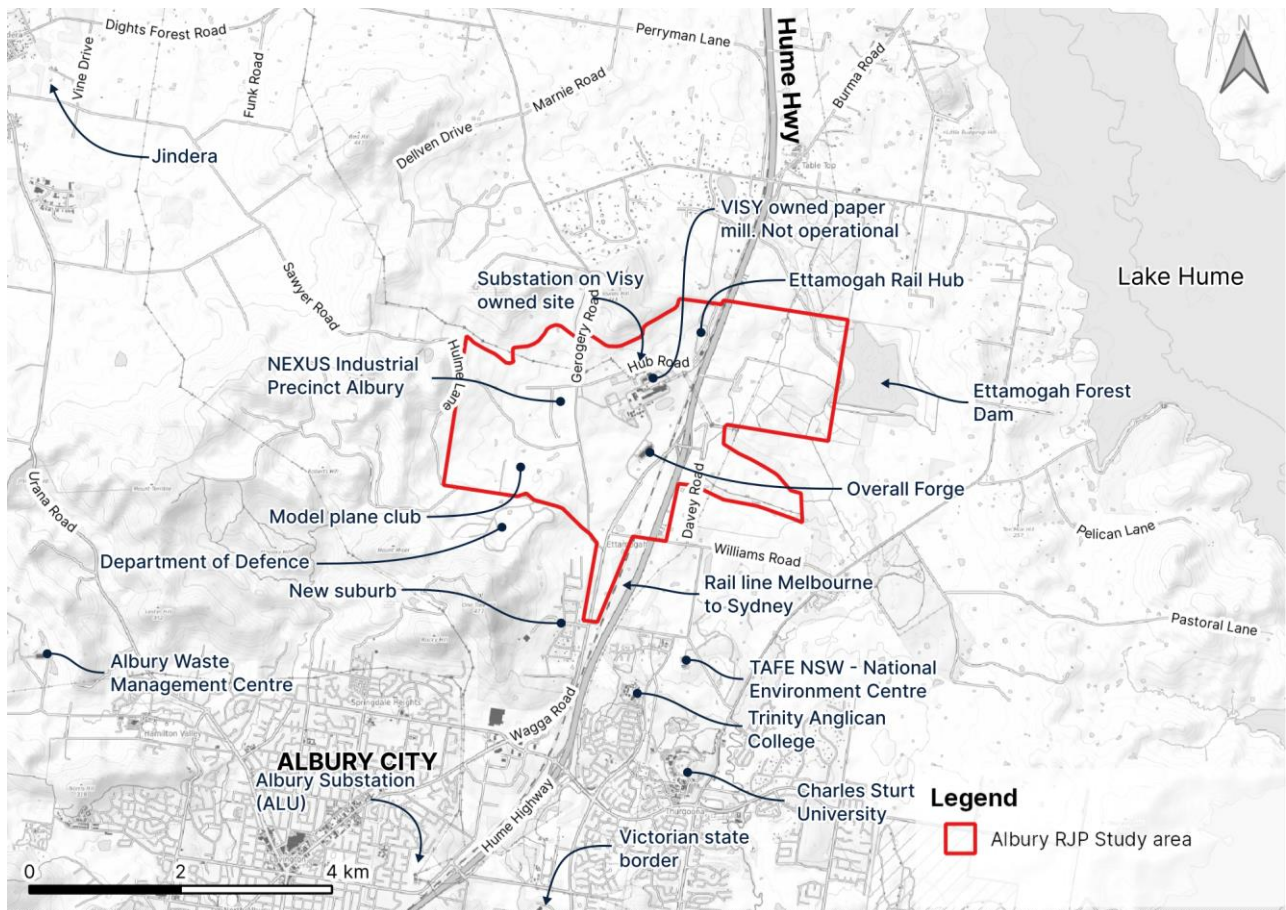


Figure 2-2 | Location of study area

There are several non-industrial uses within and abutting the study area. The Twin Cities Model Aero Club owns and occupies a large parcel of land on the southern side of the RJP investigation area and includes a clubhouse and flying facilities for model aircraft. New residential blocks within the adjoining suburb of “Ettamogah Rise” are located to the south-west of the RJP investigation area, separated by a large parcel of Department of Defence owned land. Residential subdivision is also occurring on the eastern side of the Hume Highway in the suburb of Thurgoona. Land to the north of the RJP investigation area is predominantly rural with some large lot residential development. The Albury Local Strategic Planning Statement encourages the continuation of this rural and rural residential character.

An existing network of established roads are present within the RJP investigation area, with key collector Gerogery Road feeding into Wagga Road and onto the Hume Highway. The recent modification of the Davey Road interchange to provide south facing ramps has significantly improved efficiency of movement to and from the RJP investigation area to the south. It is understood that a Development Application with ACC has been lodged to facilitate the construction of a truck stop / service station on the southbound side of the Davey Road interchange.

Other established roads feeding into the Albury region include the Olympic Highway, which links key agricultural areas surrounding Wagga Wagga and as far north as Bathurst; and the Riverina Highway, which provides access to the south-western agricultural food bowl.

## 2.4 Key Characteristics Assessment

Whilst it is appreciated that the Albury RJP investigation area is at a preliminary stage; this assessment seeks to provide a high-level appraisal of key characteristics of the area, for the purpose of categorising the identified characteristics into opportunities to be leveraged and challenges to be considered when seeking to facilitate the proposed master plan:

## Opportunities

- Relatively low fragmentation of land ownership
- Proximity of residential development to the south. May open opportunities for shared facilities or services within walking distance
- Topography and location within a small valley which helps to reduce visual impact of development
- Topography is basin in form, raised ground protects the areas outside of the precinct to the north, south and west
- Inland rail corridor and ERH providing access to Port of Melbourne and Port of Brisbane
- Original 3km rail siding at ERH which was extended in 2021 by 1800m to 5km improving the efficiency of the intermodal and the Main South Rail Line.<sup>2</sup>
- The site has direct access to the Hume Highway which allows movement directly from the precinct onto the highway and a connection across the highway from the east to the west
- Established existing businesses and new investment
- Existing energy network has potential for upgrades
- Visy's private services infrastructure - substation and water supply / discharge provide opportunity to benefit the wider precinct
- Natural water systems on site are an opportunity for site-based water supply – Eight Mile Creek
- Areas north, east and west are likely to be undeveloped, securing a perimeter with in-built buffers for industry to sensitive receptors.
- Housing availability and affordability

## Challenges

- Existing road pattern and impact on efficiency of movement
- Limited ability to expand rail connectivity to the east of the rail line
- Distance to nearest commercial centre to meet the needs of employees
- Accessibility by public transport, and active travel
- Access to wastewater facilities for trade-waste intensive industries
- Competition for businesses to locate in Victoria
- Riparian pathways limiting movement and development through the site
- Steeper slopes within the site are not ideal for development
- Existing areas of land undevelopable due to conservation zoning (biodiversity corridors) and large road infrastructure
- Areas with valued vegetation, some of which needs protection to preserve habitats
- Heavy quarry vehicle movement paths which run through and around the site
- Much of the land needs to be considered for heritage protection, these areas centre around the Eight Mile Creek area
- Bushfire risk, shown moderate to high risk
- Odour and noise concerns
- Visy owned land occupies large percentage of the precinct, reducing potential developable land.
- 100-year ARI flood risk and overland flow areas

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<sup>2</sup> <https://infrastructuremagazine.com.au/2021/06/04/12-2-million-ettamogah-rail-hub-upgrade-complete/>



## 2.5 Expected Residential Growth

In 2020 Albury had a population of 55,030 residents which is larger than the adjacent city of Wodonga (42,660 residents). Population growth in Albury over the last 20-years has been moderate, averaging +580 persons or 1.1% per annum (Regional Population - 2021, and the Census of Population and Housing - 2016).

The Albury Local Government Area is predicted to see a population increase of 13,074 residents by 2036 (Local Strategic Planning Statement, 2020). This is estimated to be an average of approximately 600 dwellings per annum. The area to the south-east of the NEXUS hub, on the eastern side of the Hume Highway is earmarked as an area for residential development.

Infrastructure considerations for the RJP must also be considered in conjunction with the planned urban expansion of Thurgoona, to ensure sufficient capacity for both industry and residential expansion.

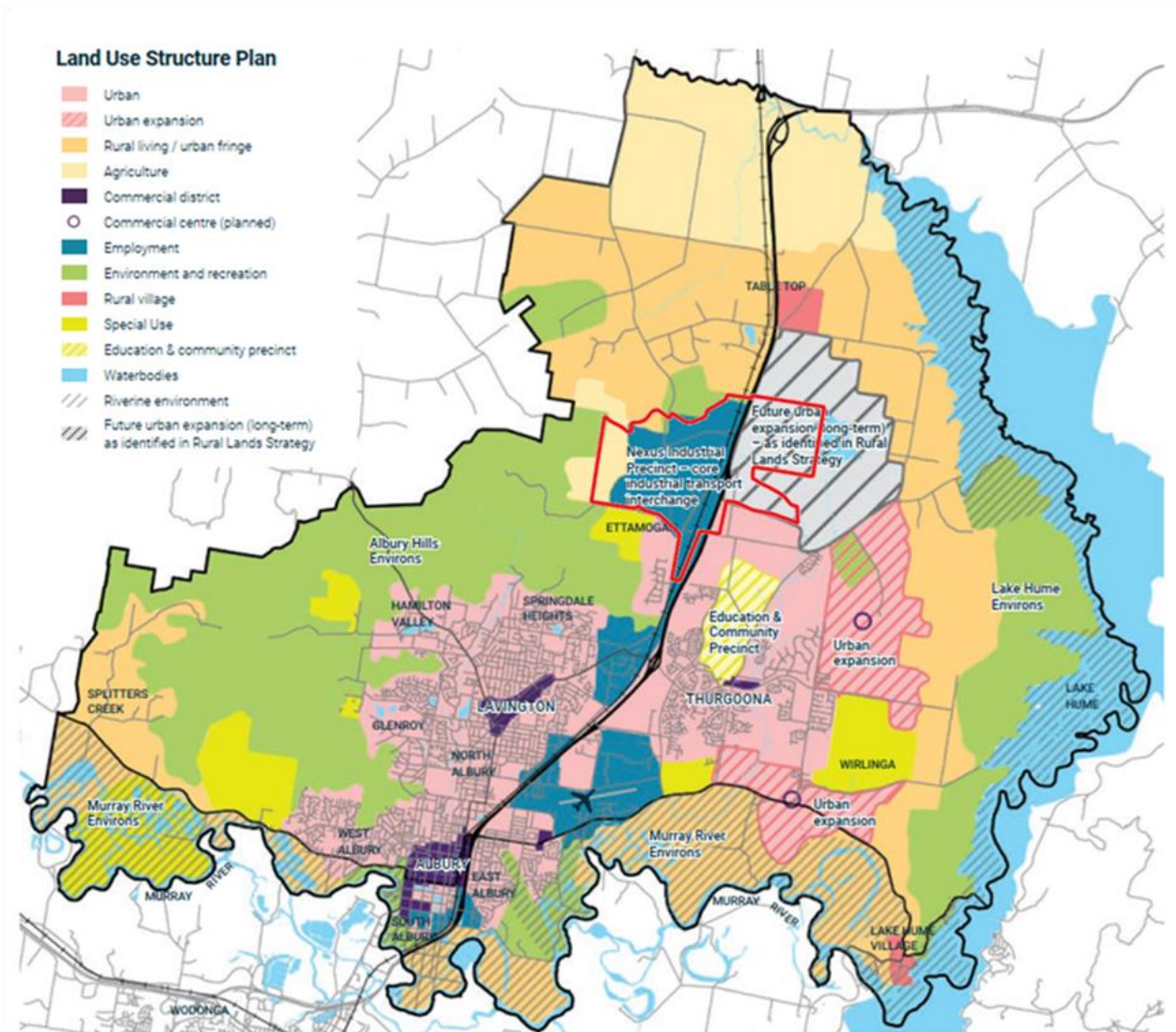


Figure 2-3 | Albury Land Use Structure Plan with approximate area of the Albury RJP investigation area outlined in red

## 3. Site Visit Summary

### 3.1 Observations

Members of the SMEC team attended the Albury RJP investigation area on 7 December 2021 to undertake a site reconnaissance and familiarisation exercise (refer Figure 3–1). This section provides the key observations of the local area:

- Topography – the RJP study area is reasonably flat however is bounded by hills to the north and west.
- A water storage dam is located just east of the RJP investigation area. It is understood this was previously used in conjunction with the paper mill.
- A quarry is located west of the site (operated by Burgess Earthmoving).
- The ERH is located in the northern section of the site and provides a 5km rail siding off the Melbourne to Brisbane rail line. The paper mill also has a private rail siding.
- The ERH has capacity to accommodate movement of containerised freight into and out of the region.
- Access to the Hume Highway is provided by Wagga Road and Davey Road on ramps.
- Residential development is occurring to the south and on the eastern side of the Hume Highway in Thurgoona.
- Council has advised of its desire to establish a commercial precinct / local centre on Wagga Road to service employees and businesses and provide enhanced amenity.

Large parcel of land to the west of the model aeroplane club would provide additional north-south connectivity into the first stage of the NEXUS subdivision.

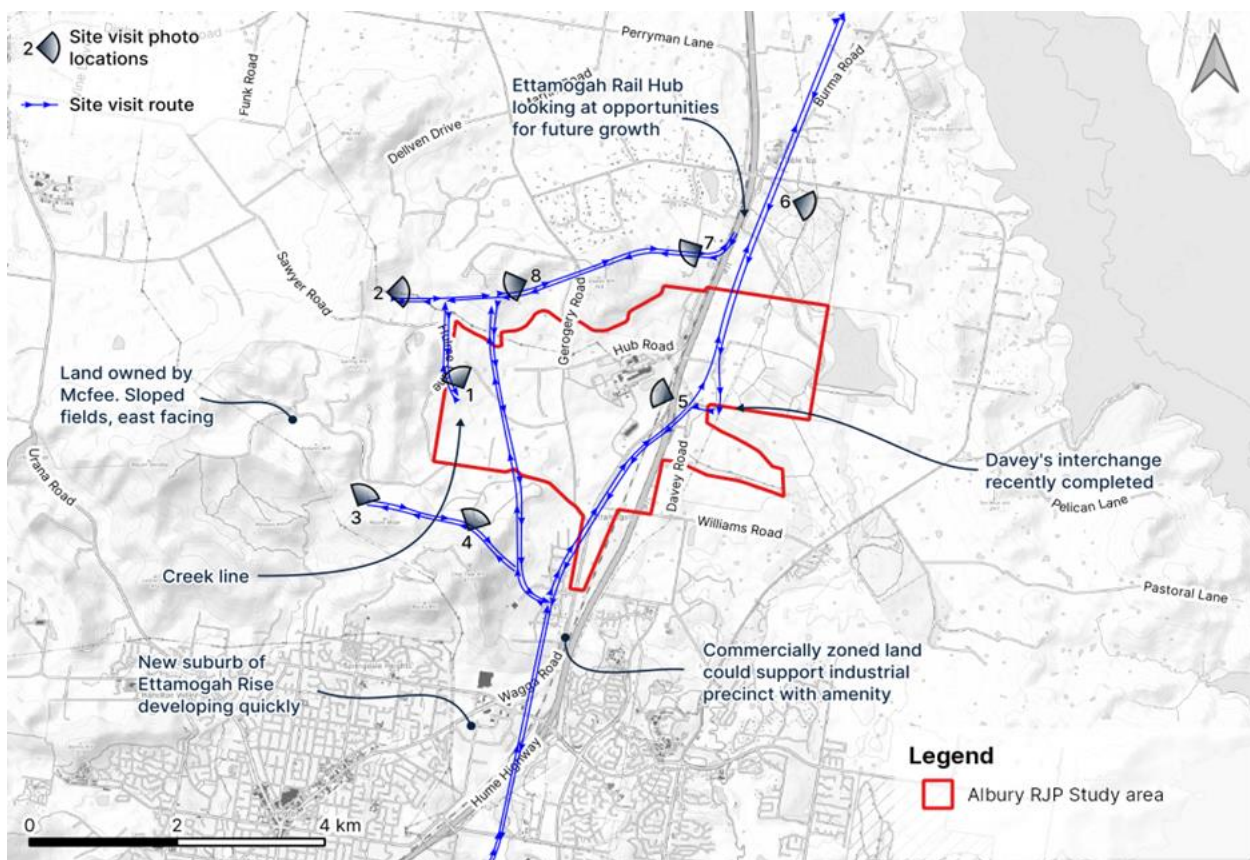


Figure 3–1 | Site visit route



## 3.2 Images



Figure 3-2 | A view looking north at the new Plastic Recycling centre



Figure 3-3 | A view looking East at the north boundary of the study area



Figure 3-4 | A view looking north towards the model aeroplane club headquarters



Figure 3-5 | A view looking north across the field to the Visy owned site

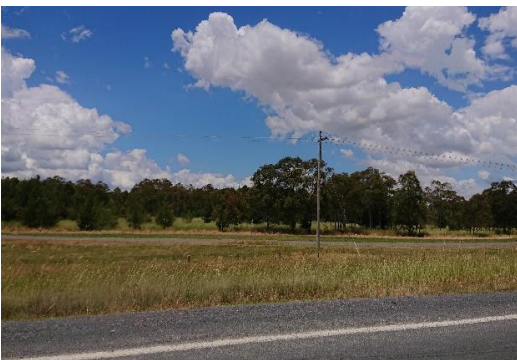


Figure 3-6 | A view looking west from the Hume Hwy



Figure 3-7 | A view looking east on the Hume Hwy



Figure 3-8 | A view looking south-west at the Visy owned site



Figure 3-9 | A view looking west entrance to the Nexus industrial hub



## 4. Precinct Master Plan

### 4.1 Overview

#### 4.1.1 Background

The Department of Regional NSW commissioned the development of the Albury RJP draft master plan. The master plan has been developed based on site visits, preliminary technical studies, options development process and information gathered from stakeholder workshops. The current master plan is provided in

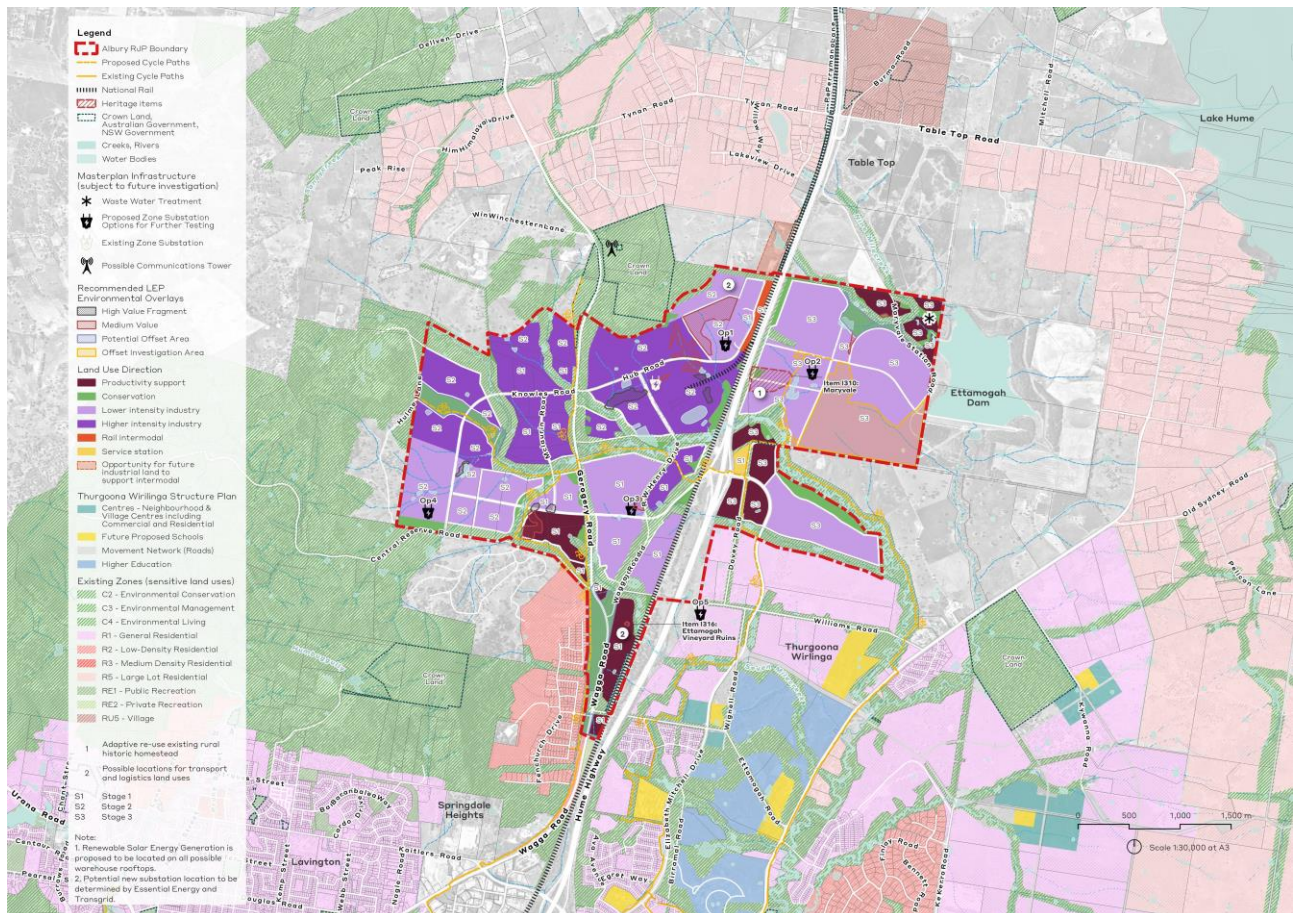


Figure 4–1 below.

#### 4.1.2 Vision and Principles

The vision of the Albury RJP is set to differentiate itself as an industrial hub for the future, focusing on highly sustainable production, circular economies and value-add industries.

The Precinct will be defined by its unique landscape and terrain, utilisation of surrounding amenity and services, and strong transport infrastructure, providing efficient connections to materials and markets in the region, interstate and overseas. The Precinct will not only be a highly desirable destination for businesses but offer a place to connect with nature. Key principles which have influenced the master plan include:

- Expand Albury's capacity as a Regional City with a future-focused job market.
- Create a deliverable, clear, robust and high-quality planning and land use framework.
- Respond to and build upon the precinct's unique rural landscape character.
- Create an environmentally sustainable and culturally responsible precinct.



- Open up avenues for collaboration between businesses and tertiary education establishments.

## 4.2 Land Ownership

Visy is the largest owner in the Albury RJP investigation area, with land covering the former paper mill and irrigation lands. Other key sites are the operational Overall Forge, Circular Plastics and Ettamogah Rail Hub. Land to the north and west of the site is occupied by quarries (Delany’s quarry and Burgess’ quarry), to the south of the site is Department of Defence owned land on Central Reserve Road.

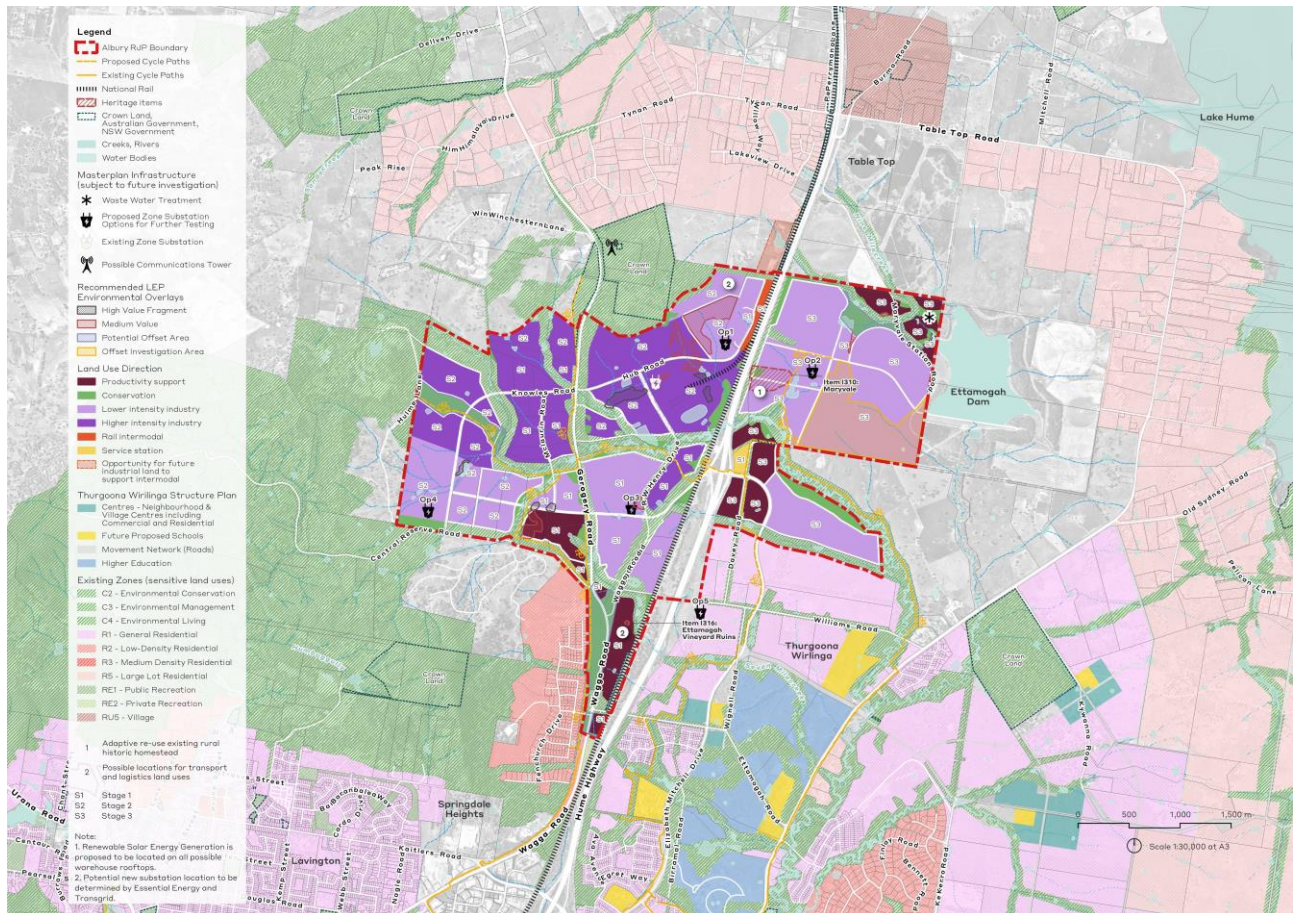


Figure 4-1 | Albury Master Plan (Ethos Urban 2022)

### 4.3 Land Uses and Target Industries

A key goal of the RJP and investment attraction plan is to establish a circular economy ecosystem with new operators establishing and using outputs from existing industries. Figure 4–2 provides a graphical depiction of the circular economy process and how it might apply to the Albury RJP investigation area.

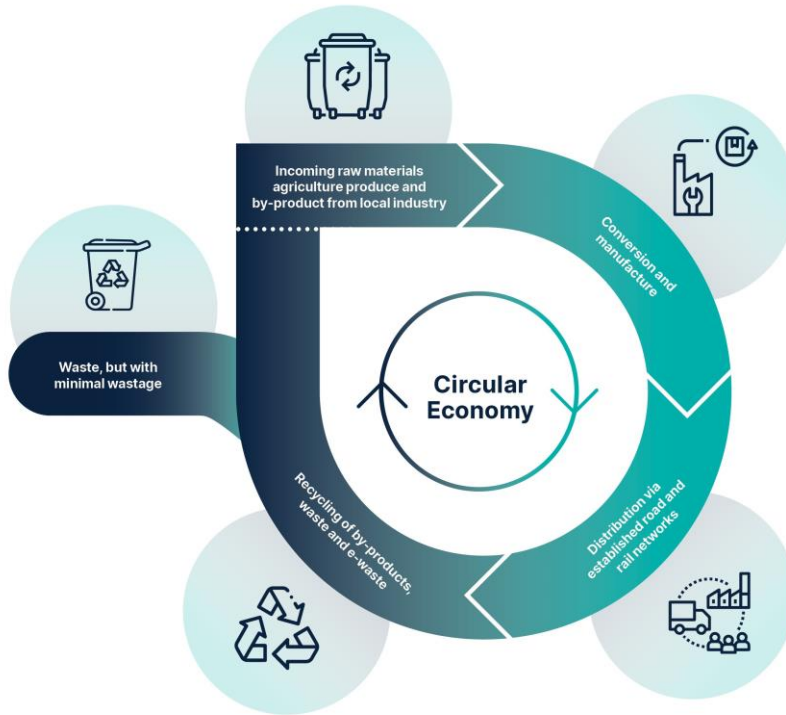


Figure 4–2 | Circular economy within the context of the Albury RJP

The Albury RJP Investment Attraction Plan, prepared by the Office of Regional Economic Development in collaboration with ACC, has been used to guide the preparation of the master plan. Based on locational attributes, existing skillsets and existing infrastructure, the following key industry groups targeted in the master plan are:

- Plastic product manufacturing (utilising PET)
- E-waste processing
- Food processing/manufacturing
- Outdoor recreational equipment metal fabrication e.g., boats, trailers, caravans

Following on from this, the master plan adopts the following eight land use directions:

1. **Conservation** – including riparian corridors and conservation land, based on biodiversity assessments undertaken as part of the RJP project.
2. **Lower intensity Industry** – providing opportunity for industries with low or limited amenity impacts. We have assumed industries and have distributed the land use within the zone as follows:
  - Microgrids ~ 5%
  - Light industry ~ 10%
  - Freight, logistics and distribution centres ~ 15%
  - Agricultural value-add processing and manufacturing ~ 25%
  - Waste and resource recovery ~ 30%
  - Plant and parts manufacturing ~ 5%



- Ancillary office space ~ 10%
3. **Higher intensity industrial** – providing suitable land for industries with higher noise, odour, air quality or traffic emissions such as:
    - Chemical manufacturing and mixing ~ 25%
    - Heavy manufacturing e.g., steel forge ~ 30%
    - Heavy industrial storage establishment ~ 30%
    - An abattoir ~ 5%
    - Ancillary office space ~ 10%
  4. **Heritage** – for the protection of homestead heritage areas to the east of the highway with future opportunities for adaptive reuse.
  5. **Intermodal** – for improved connection from Intermodal through the site with extension of Hub Road to Central Reserve Road and facilitation of expansion of the existing ERH. Specific nature of uses considered include:
    - Intermodal terminal ~ 30%
    - Warehousing ~ 30%
    - Refrigeration storage (approx. 3,000 sqm) ~ 25%
    - Dangerous goods and chemicals storage ~ 10%
    - Ancillary office space ~ 5%
  6. **Productivity** – for improved flexibility and suitability for both low-impact industrial or warehouse uses and to facilitate types of developments which support larger industrial uses, such as:
    - IT and business support services ~ 30%
    - Retail ~ 30%
    - Commercial ~ 20%
    - Low impact supporting industries ~ 15%
    - Education and childcare ~ 5%

## 7. Recreation Space

## 8. Service Station

Given the size of the Albury RJP (1,190 ha), consideration of staging and delivery is critical to understanding the required infrastructure upgrades, associated costs and the trigger points to ensure infrastructure is provided 'just in time'. Figure 4–3, Figure 4–4 and Figure 4–5 provide the indicative staging of development within the Albury RJP. Table 4–1 confirms the anticipated uptake of land by area, indicative gross floor area of buildings and associated employment generation. These figures have informed the demand modelling for infrastructure upgrades that will be required to support the growth of the Albury RJP.

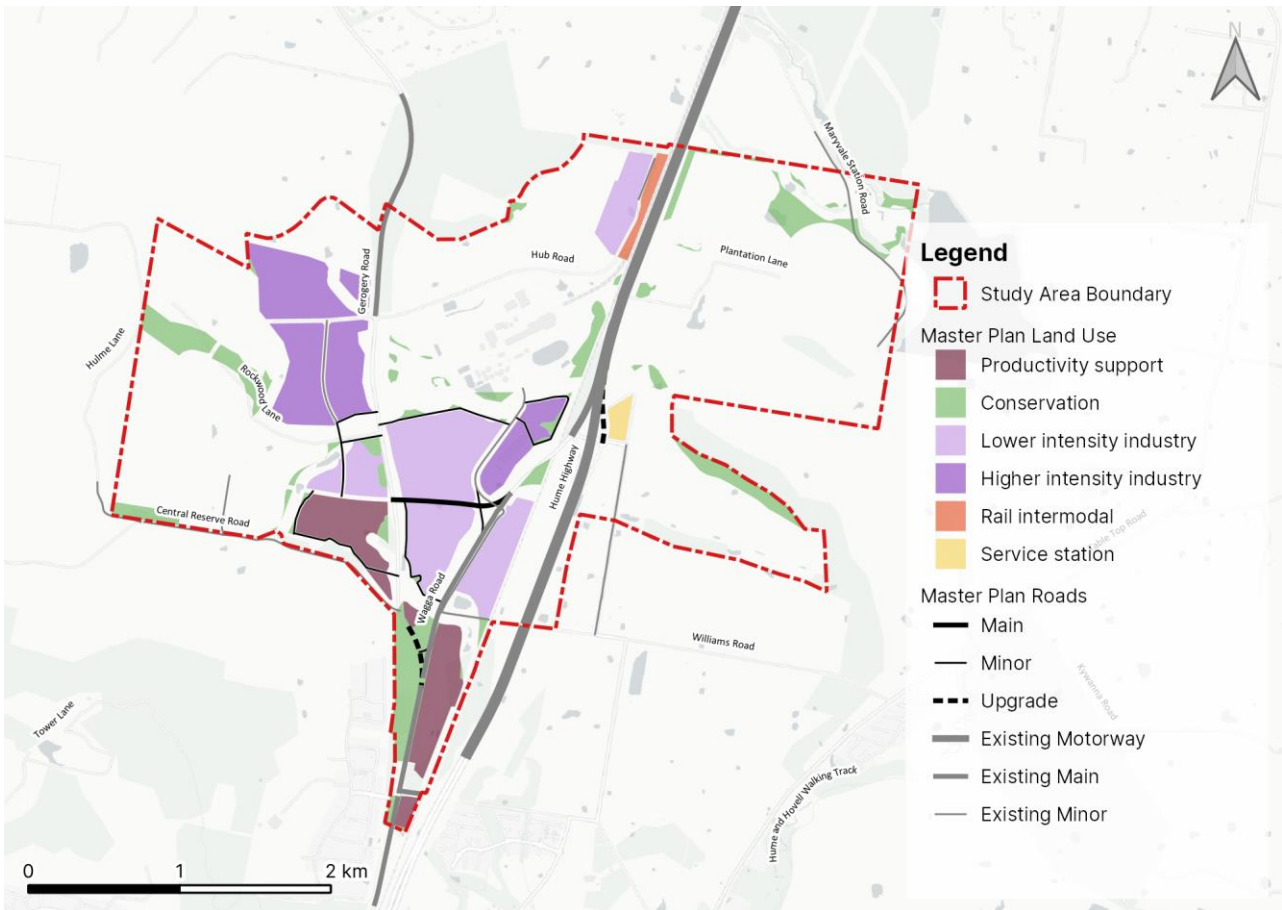


Figure 4-3 | Stage 1 Assumed Land Use

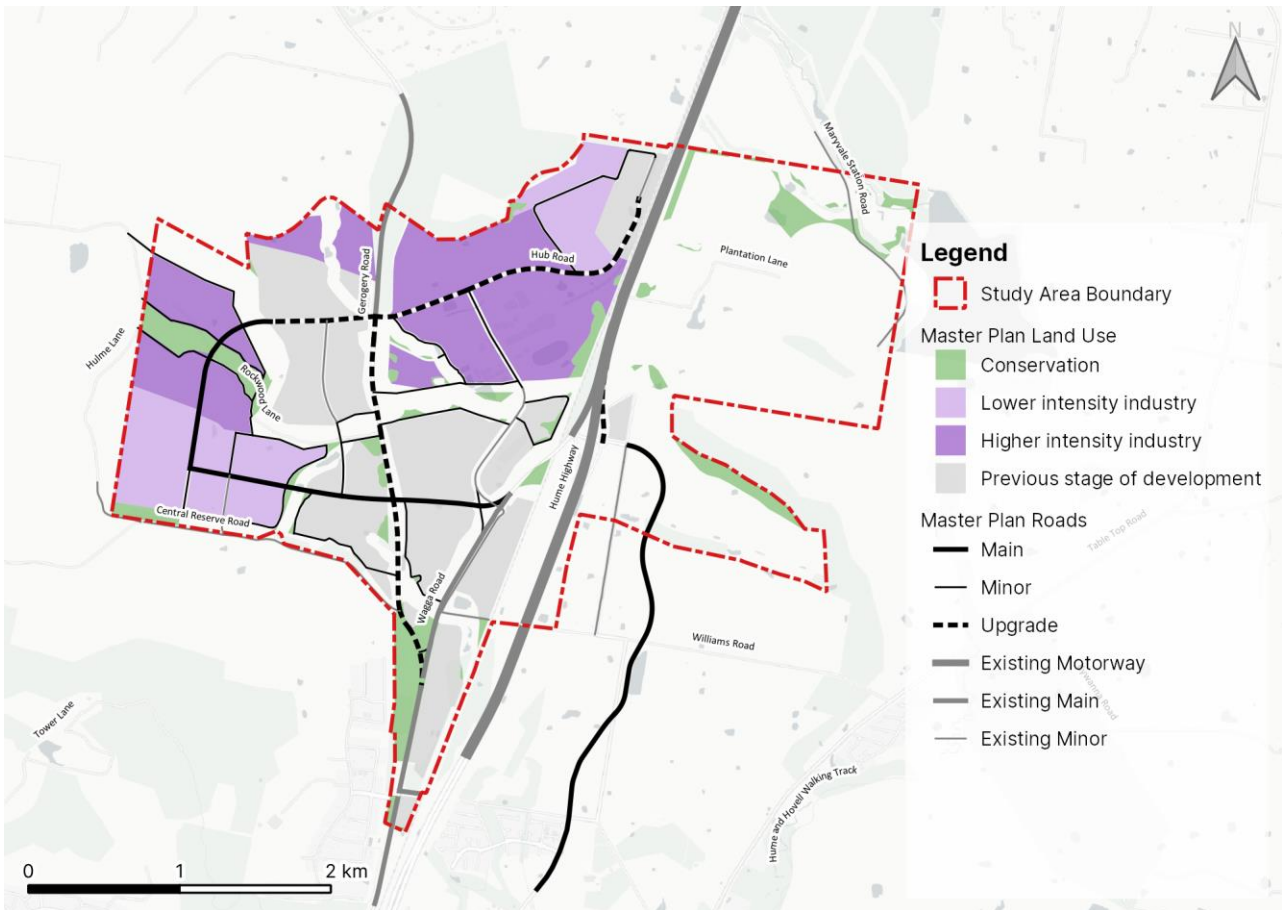


Figure 4-4 | Stage 2 Assumed Land Use



Figure 4-5 | Stage 3 Assumed Land Use

Table 4-1 | Anticipated Gross Floor Area (GFA) by stage

Landuse Direction	Stage 1 (m <sup>2</sup> )	Stage 2 (m <sup>2</sup> )	Stage 3 (m <sup>2</sup> )	TOTAL
Lower intensity industrial	220,000	247,500	702,000	1,169,500
Higher intensity industrial	180,000	450,000	0	630,000
Rail intermodal	10,000	0	0	10,000
Productivity support	100,000	0	138,000	238,000
Service station	2,500	0	0	2,500
<b>Total</b>	<b>512,500</b>	<b>697,500</b>	<b>840,000</b>	<b>2,050,000</b>

Table 4-2 | Anticipated Employment Capacity by land use direction and stage

Employment Capacity	Stage 1	Stage 2	Stage 3	Total
Lower intensity industrial	1,470	1,650	4,680	7,800
Higher intensity industrial	1,200	3,000	0	4,200
Intermodal	40	0	0	40
Productivity support	2,500	0	3,450	5,950
Service Station	80	0	0	80
<b>Total</b>	<b>5,290</b>	<b>4,650</b>	<b>8,130</b>	<b>18,070</b>

## 5. Existing Traffic and Transport Network

### 5.1 Introduction

The Albury RJP investigation area is adjacent to the Melbourne to Sydney rail corridor and the Hume Highway, and is approximately 10km from Albury Airport, providing excellent locational attributes to drive investment in freight and logistics, and access to national and international markets. The Albury Wodonga Regional Deal, which is currently being negotiated, emphasises the need to improve road and rail connectivity for the movement of people, freight, raw materials, and goods to key markets.

To understand the attributes of the existing transport network in and around the RJP site, an assessment of the road, rail, active travel and public transport network has been undertaken. This analysis considers the following key matters:

- Background overview of the current transport network, including key road and rail infrastructure
- Review of public transport routes and services
- Review of active travel network within proximity of the Albury RJP investigation area
- Freight accessibility, network constraints, vehicles used for servicing the freight network and any limitations of the existing intermodal terminal
- Consideration of key trends, planned projects and investment in road and rail infrastructure that may change the operation of the network

### 5.2 Road Network

The Albury RJP investigation area is serviced by several high order connections into the precinct from the surrounding road network. These road connections are rural in nature and generally of a good standard. In addition, there are several existing internal local roads within the precinct. The existing road network in and around the RJP investigation area is indicated in Figure 5–1.

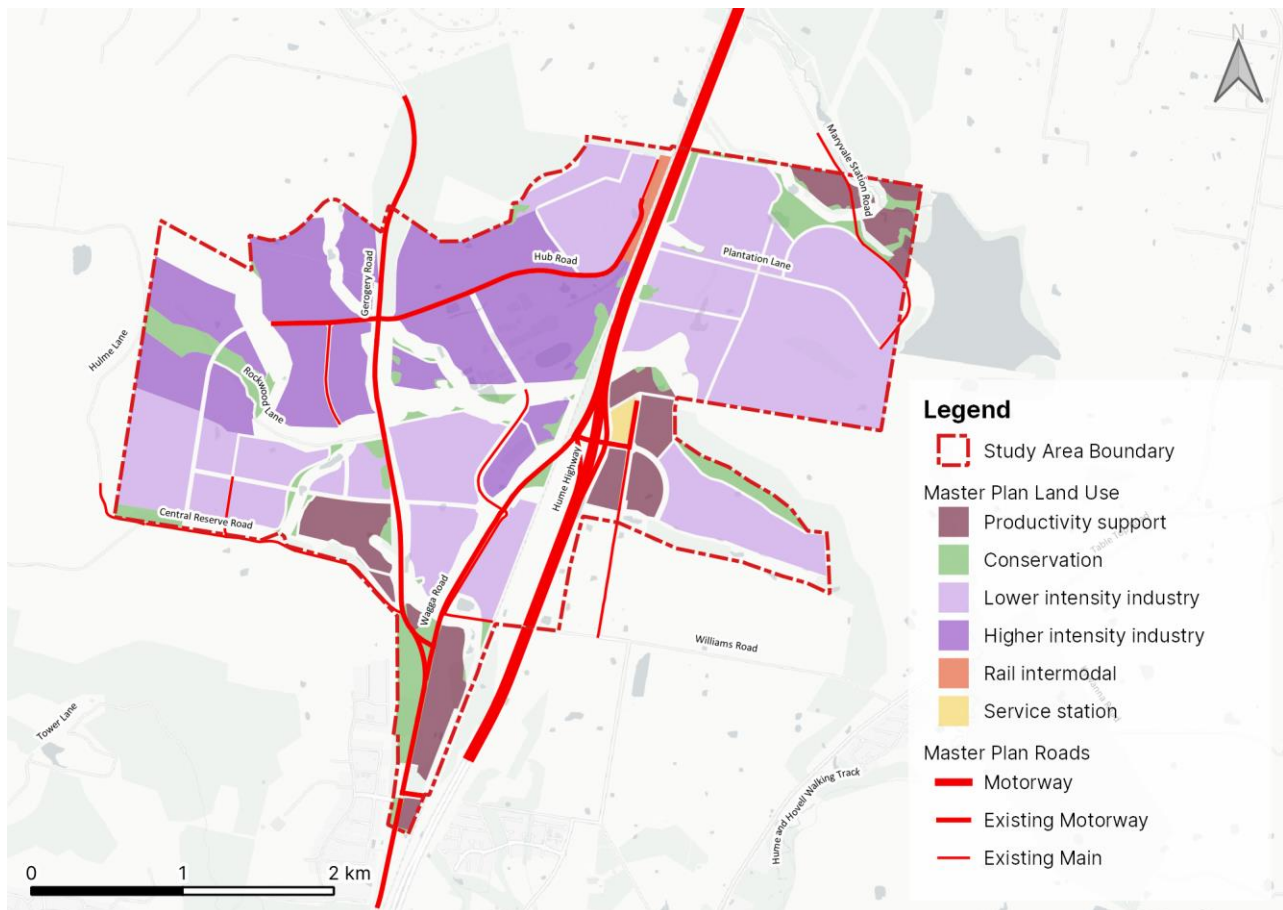


Figure 5-1 | Proposed master plan with the existing road network

## 5.2.1 External Road Access

### Hume Highway

The Hume Highway is a national highway running 840km from the northwest of Melbourne to the southwest of Sydney. It is the primary road logistics artery between Australia's two largest cities and the nation's capital and provides connectivity for heavy vehicles to numerous key highway freight links to regional NSW. Indeed, the Hume Highway between Sydney and Melbourne is Australia's busiest interstate road freight route and carries 40% of the total national road freight task (TfNSW, 2018).

The Hume Highway is a high standard dual carriageway over the entirety of its length. In the vicinity of the RJP investigation area the Hume Highway is posted at 110 km/h, has full width lanes and nearside shoulders (3.5m and 2.5-3m respectively). To the south of the Davey Road interchange, the Hume Highway is motorway standard with grade separation and full access control. To the north of the interchange the corridor adopts a rural freeway condition with at-grade access points.

The Hume Highway provides high speed / high standard access to Albury, Melbourne and regional Victoria to the south, and to Canberra, Sydney and regional NSW to the north. Given the access to and proximity of the Hume Highway to the precinct, this transport corridor will be key to the viability of the precinct and will be a critical consideration in the assessment of the RJP investigation area.

The Albury RJP investigation area is bisected by the Hume Highway and has direct, all movement grade separated access to the Hume Highway corridor via the Davey Road interchange. Recent investment by ACC and Commonwealth Department of Infrastructure, Transport, Regional Development and Communications (DITRDC) funded the construction of two south-facing ramps (on and off), approximately 1.6km in length, at the existing overpass of Davey Road and the Hume Highway (refer Figure 5-2). The package of work included the construction of two roundabouts and has improved the efficiency of southbound vehicle movements from the area and provides a B-double capable route, travelling



to/from the RJP investigation area. Both the Hume Highway and the Davey Road interchange are classified as State roads.



Figure 5-2 | Upgraded Davey Road interchange (Source: Metromaps, 2022)

## Wagga Road

Wagga Road is a relatively high standard rural arterial road. The corridor is a single, two-way carriageway posted at 80km/h, has approximately 3.5m lanes and 1m - 1.5m shoulders, generally wide verges (particularly south of Gerogery Road) and gentle horizontal and vertical geometry with good apparent sight lines. Most intersections along Wagga Road are generally of a reasonable standard for a rural setting with substantial deceleration / turn lanes for mainline approaches (albeit likely non-compliant to current standards in some instances).

Wagga Road provides a good southern arterial connection into the RJP investigation area, linking it to Lavington and North Albury. It is a high standard of arterial road and is considered an appropriate access point to support the RJP investigation area.

## Gerogery Road

Gerogery Road is a rural two-way single carriageway with an 80km/h speed limit and appears to be in reasonable condition. It has an approximately 8m wide carriageway width with minimal shoulders and verges. Gerogery Road is likely to be an important internal road within the western part of the precinct and provides access to semi-rural residential properties and rural areas to the north. The intersection with Wagga Road is currently a channelised right / auxiliary left turn arrangement that will be an important node in the development of the RJP. Upgrade of this intersection will be required as the RJP develops.

The Gerogery Road corridor is considered broadly appropriate to the requirements of the RJP investigation area, although it is noted that the standard of the road in terms of lane numbers, shoulders and verges is likely to require improvement as the RJP is developed.

## Davey Road

To the east of the Davey Road interchange, Davey Road will be an internal road and provide access to the eastern part of the RJP investigation area from the south. Davey Road is a narrow, unsealed rural laneway with deficient vertical geometry. Davey Road and the connecting road network to the south (such as Williams Road and Wignell Road) are likely to require upgrades including improvements to geometry, widening and sealing to adequately service the RJP investigation area. Should the Thurgoona Link Road progress (refer Section 5.8), it will address the need to upgrade these roads.

## Central Reserve Road

Central Reserve Road is a two-way, single carriageway low standard rural road that defines the southern boundary of the RJP that is sealed for the extent of the RJP. It does not have a posted speed limit (although it does have nonstandard speed warning signage) and has relatively poor horizontal and vertical geometry with a carriageway cross section that

ranges in width from 6.5 – 7.0m. The road has no shoulders, no edge marking and numerous roadside hazards in close proximity to the carriageway edge.

The road is accessed off Gerogery Road through a low standard T intersection with high skew on the minor leg approach and provides connectivity to rural properties to the west. It is considered that the intersection and Central Reserve Road more generally will require upgrade as the RJP develops including improved geometry, provision of shoulders and removal / protection of roadside hazards.

### 5.2.2 Internal Road Network

There is an existing road network of varying standard within the proposed RJP investigation area boundaries. The current road network in the eastern RJP area (i.e., to the east of the Hume Highway) consists entirely of narrow rural unsealed laneways. These laneways will require upgrading to support the RJP investigation area such as widening, sealing, improved geometry and potentially reconfiguration.

The road network in the western zone of the RJP investigation area has seen some recent improvements with the provision of new roads constructed as part of the NEXUS subdivision, to the west of Gerogery Road to support the NEXUS development. These roads augment the older road network that includes Hub Road and roads associated with the ERH and Visy facilities. These recently constructed roads and Hub Road are generally wide and are kerbed with positive piped drainage systems and are considered suitable for the RJP investigation area.

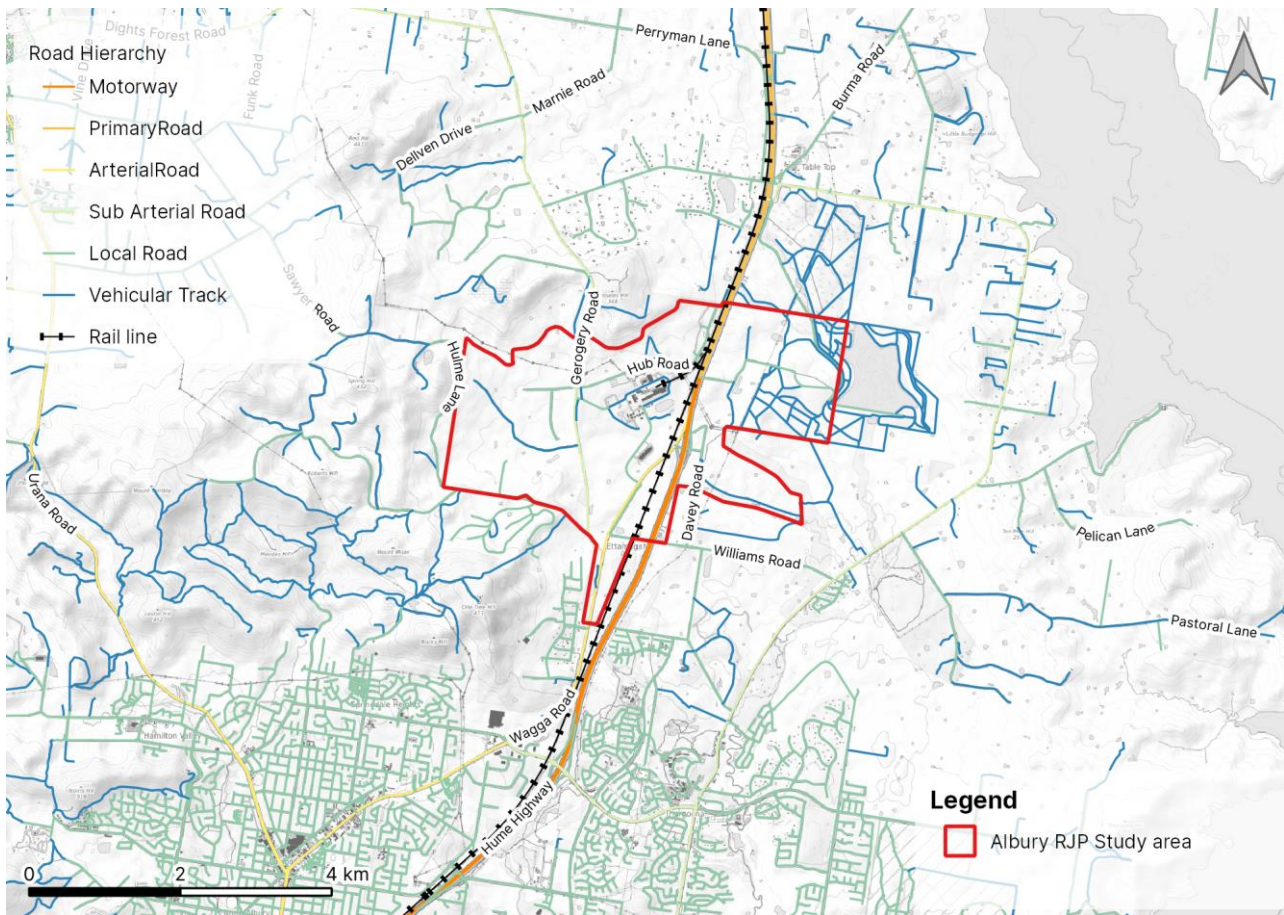


Figure 5-3 | Road and Rail Network (Source: NSW Open Data Portal)

## 5.3 Current Traffic Volumes

### 5.3.1 Current Traffic Volumes

The Albury-Wodonga Transport Model (AWTM) version 1.1 is maintained in VISUM and was provided by ACC for use in this project. This model was developed primarily to identify and characterise traffic flows between and around the Albury and Wodonga urban centres, and to generate projected future demand and performance. As such, it contains all travel modes as well as existing and known future land use. The extents of the model are shown in Figure 5–4. The model includes the Albury and Wodonga LGAs. The Hume Highway is included between the Olympic Highway Interchange in the north of the model and the western Murray Valley Highway interchange in the west.

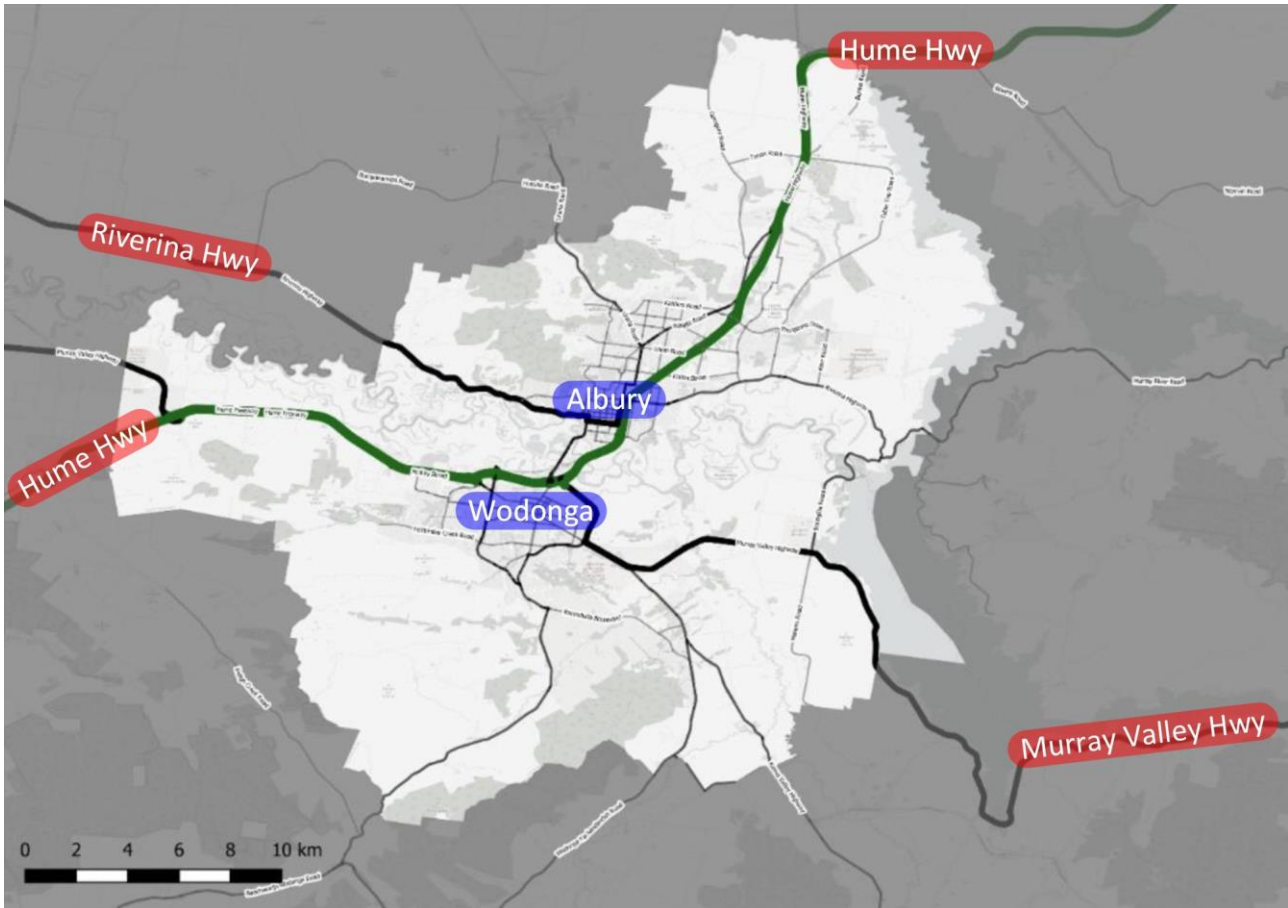


Figure 5–4 | Albury Wodonga Transport Model Area (Source: AWTM Model Development Report)

The provided model contains traffic volumes for the AM and PM peak periods in 2019. These are presented as volume diagrams in Figure 5–5 and Figure 5–6 respectively, which show hourly peak traffic volumes for the study area, Hume Highway, Albury and the Murray River Bridge.



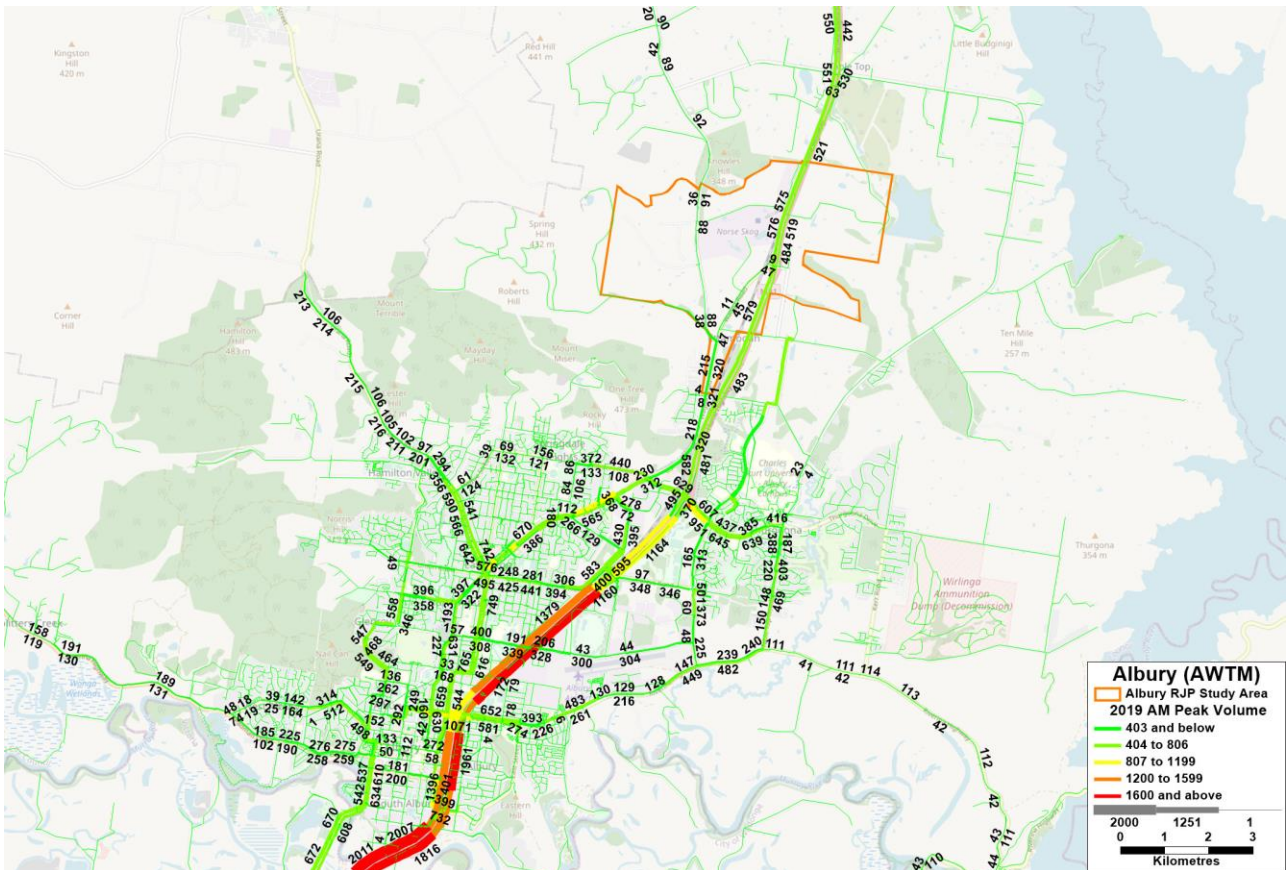


Figure 5-5 | AWTM 2019 AM Peak Hour Volumes

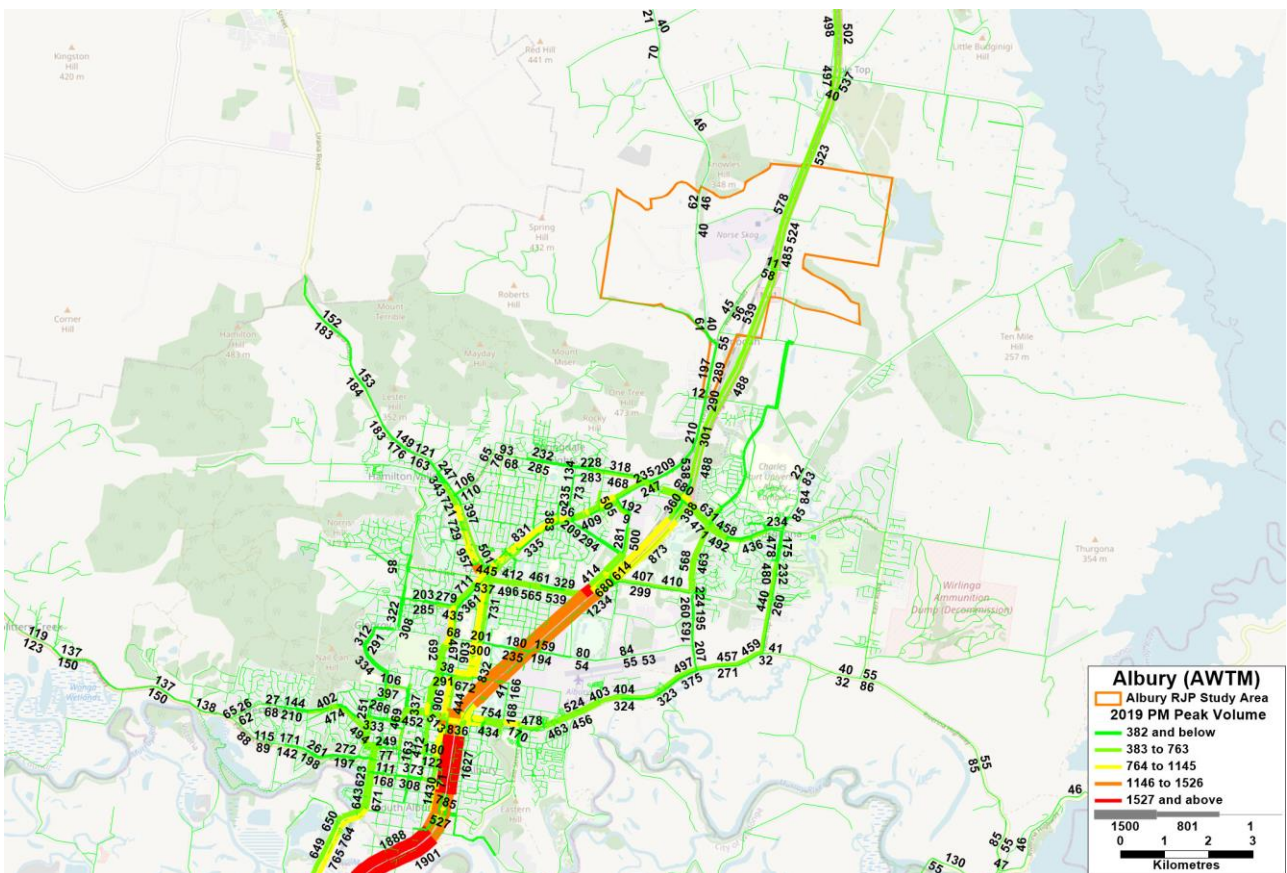


Figure 5-6 | AWTM 2019 PM Peak Hour Volumes

Selected current modelled traffic volumes for the surrounding area are shown in Table 5–1. Traffic on the Hume Highway within and surrounding the project area is well below the capacity of this road. This is also the case for all identified roads with the exception of Thurgoona Drive east of the Hume Highway, which exceeds 900 veh/hr westbound in 2019 AM and is likely to be near its practical capacity during this period. Otherwise, existing road network performance surrounding the study area does not appear to be a significant issue.

Wagga Road north of Thurgoona Drive carries 200-300 veh/hr while there is minimal traffic on Wagga Road approaching the Hume Highway interchange, which suggests that most of the Wagga Road traffic continues along other regional connectors such as Gerogery Road or is destined to local land uses rather than to Hume Highway. Vehicles destined for Hume Highway from south of Thurgoona Drive would be more likely to use the Thurgoona Drive interchange.

Table 5–1 | Selected AWTM Peak Hour Volumes

Location	Orientation	2019 AM		2019 PM	
		NB/EB	SB/WB	NB/EB	SB/WB
Hume Highway north of RJP investigation area	N-S	575	521	578	523
Hume Highway south of RJP investigation area	N-S	580	482	539	487
Hume Highway south of Thurgoona Drive	N-S	835	1,164	873	873
Wagga Road south of Hume Highway interchange	N-S	47	11	56	45
Wagga Road north of Thurgoona Drive	N-S	218	319	209	301
Gerogery Road west of Wagga Road	E-W	275	204	235	154
Davey Road	N-S	4	0	10	1
Elizabeth Mitchell Drive south of Ettamogah Road	N-S	406	411	299	240
Thurgoona Drive east of Hume Highway	E-W	607	951	632	472
Thurgoona Drive west of Hume Highway	E-W	629	533	688	472
Murray River Bridge	N-S	2,011	1,812	1,888	1,904

It should be noted that the volumes generated by the AWTM may vary from actual volumes on the network. Whilst the model was validated primarily to 2019 traffic counts across the network, there is likely to be discrepancies between actual and modelled volumes for some individual links. Notwithstanding, there appears to be significant latent traffic volume capacity in the surrounding road network to support development of the RJP investigation area, and it is likely that a proportion of Stage 1 of the RJP investigation area can be developed without significant upgrades to the local road network being required.

## 5.4 Rail Network

### 5.4.1 Background and Context

As established in Section 2 Project Background, the Albury RJP investigation area has existing access to both the Hume Highway and the national freight rail Main South line. The ERH is an existing intermodal facility located north of the NEXUS Industrial subdivision and is a freight logistics and transporting business operating within the Albury Wodonga Region. The ERH allows trains to move off the mainline and freely load/unload while reducing rail traffic and increasing capacity of the mainline. The sidings measure approximately 1400 – 1500m in length and this is considered satisfactory for the shorter (up to 900m) train types utilising the ERH.

The ERH is located adjacent to the Main South line, at approximately 633km (Route Access Standard Defined Interstate Rail Network D51). The ERH creates direct rail access to major ports of Melbourne and Sydney. Upon the completion of Inland Rail, direct access will also be provided to Brisbane, as well as numerous other facilities along the rail network. The ERH has private road access (via Hub Road) and is operated as a common-user rail terminal for containerised freight.



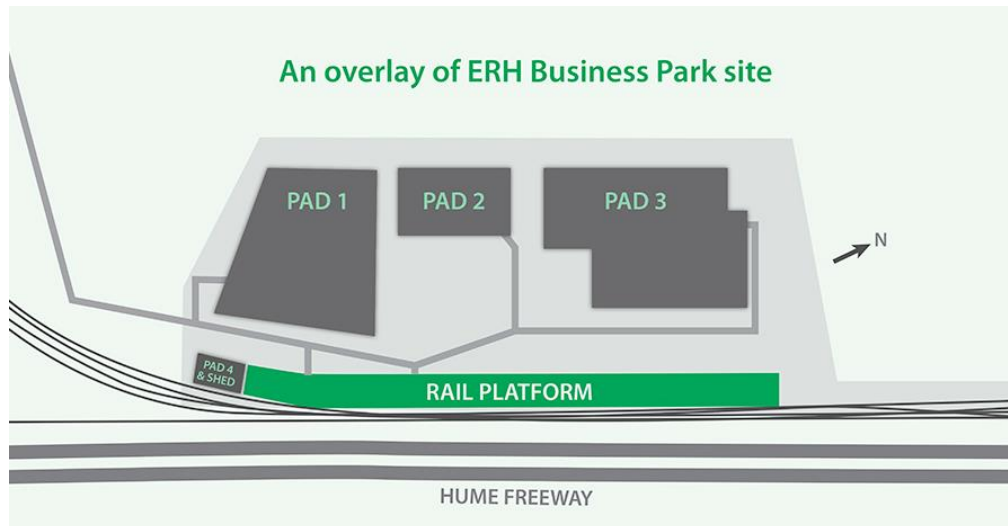


Figure 5-7 | Schematic plan of the Ettamogah Rail Hub (source: ettamogah-hub.com.au)

## 5.4.2 Existing Rail Network

The route capacity of this section of the Main South line has recently been improved to 25 Tonne Axle Load (TAL) at 80km per hour to align with the Melbourne to Brisbane Inland Rail service offering. The Albury to Illabo section of Inland Rail is currently in the delivery phase and is undergoing detailed design of track upgrades to accommodate the Inland Rail service requirements, with anticipated practical completion by the end of 2026. With specific reference to Ettamogah, the Inland Rail design requirement is to ensure there is sufficient kinematic envelope clearance between the main line and the arrival road of the ERH.

It is anticipated that the completion of Inland Rail will have a positive impact on the precinct. Whilst Inland Rail is primarily intended to provide a high-capacity freight link between Melbourne to Brisbane rather than moving regional goods to a major port, the track upgrades, regional connectivity, and the fact that intermodals are being developed along the alignment all improve the competitiveness of rail as a freight mode from the RJP.

Main line upgrades appear to have been undertaken in this section, including turnouts onto the newly constructed arrival road. Turnouts and track upgrades from the arrival road to the ERH sidings (Road 1 and Road 2) have not been undertaken and it is unknown to what extent future upgrades are planned. The 2021 upgrades at the ERH allow loading of 1800m trains off the Main Southern Line, improving the efficiency of the intermodal and the Mainline.

The siding roads are all on the western side of the main line, with all loading, stacking and storing facilities on the western side of the sidings.

Further development of the ERH is constrained to the western side of the siding roads. As a result, all loading and unloading is undertaken only from the western side of the trains. Conventional reach-stackers are employed at this facility, with container stacks up to three-high.

The Main South line, arrival road and sidings are standard gauge and generally appear to achieve Plate D clearance, and track centres of siding roads and arrival roads generally exceeds 4.5m. Details of rail, rail sleepers and other railway elements need confirmation from a site inspection, but for the purposes of operability it should be assumed that the hub is fully operational and compliant to ARTC requirements.

The ERH also connects to privately owned sidings, identified as the Australian Newsprint Sidings, which forms part of the Visy owned land. Rail network diagrams for the local Albury area and the ERH are indicated in Figure 5-8 and Figure 5-9.

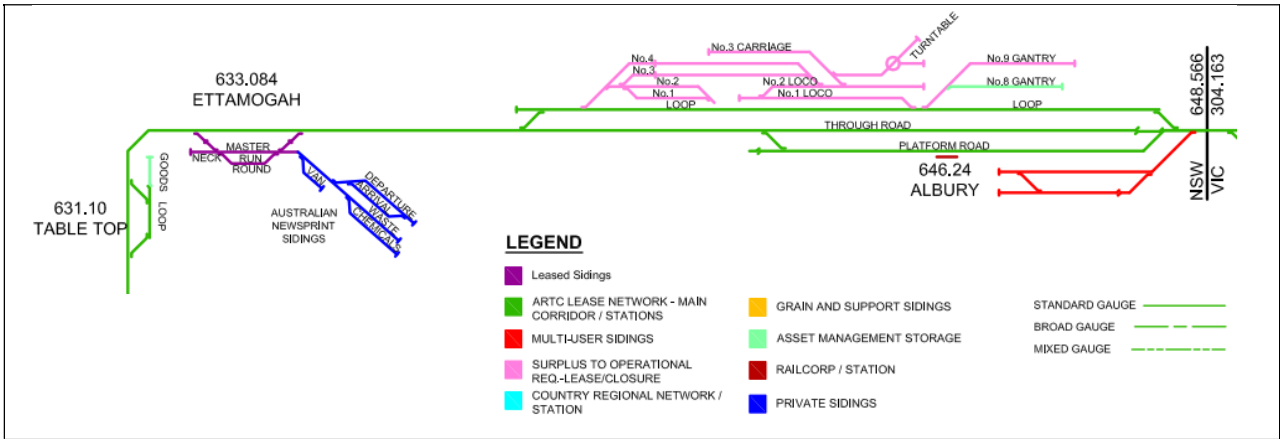


Figure 5-8 | Extract from ARTC North South Corridor Network Diagram (last updated June 2019)

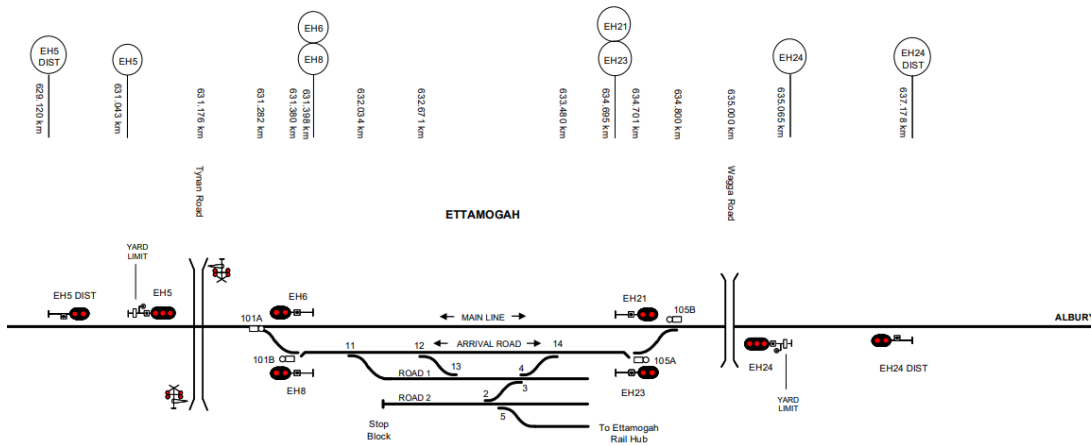


Figure 5-9 | Extract from ARTC Network information Book - NIB-T0686 (updated April 2021 to include Ettamogah upgrades)

### 5.4.3 Train Operations

Ettamogah lies within the Main South line sector Albury – The Rock. Available operational modelling information sourced from ARTC is summarised in Table 5-2. These forecasted numbers are not specific to the ERH, and there is uncertainty on the extent that the growth of rail hubs such as the ERH has been allowed for in the development of the future train numbers.

Table 5-2 | Current and Predicted Future Train Numbers

Year	Train Operations			
	Daily Avg No.	Weekly Avg No.	Weekly Peak No.	Est Tonnage (mpta)
2020	12	83	-	10
2039	19	133	142	18.5

The types of trains running along the Junee – The Rock Section include intermodals, grain trains, XPT, and container exports. Upon the completion of Inland Rail, train types will also include direct express and super-freighters. The ERH would not necessarily draw direct benefit from Super Freighter and Direct Express trains, but rather from the grain and container export trains moving goods towards export ports. This is due to the relative feasibility of freight via road, compared to via rail. T A detailed assessment of the train operations, movements and ERH operations should be undertaken as development and industry types are confirmed in the RJP.

The ERH is in a strategic location, and given the predicted increase in train volumes, it will provide useable facilities for surrounding freight logistic opportunities. The increased arrival road length and siding extension provides room for

1800m long trains to be loaded with no impact to the mainline, which further improves the offering of the ERH to local industry for the movement of goods via rail. A key component of Inland Rail delivery includes supporting the regional connectivity and the opportunity to move local goods from production to consumption via rail freight.

A final layout of the ERH (i.e., future master plan) has not been reviewed to assess future capacity, however it seems apparent that the facility is well developed with existing hardstands, rail road capacity, platforms, reach stackers and public road access.

## 5.5 Road Freight

Given the industrial nature of the proposed RJP investigation area, road freight access to and within the site will be an important consideration. Heavy vehicle access to all parts of the precinct is considered important for the viability of the RJP investigation area.

Site inspection and review of aerial imagery and mapping indicates that road and intersection geometry on access roads to the RJP investigation area (including the Hume Highway, Wagga Road, and Gerogery Road) is suitable for heavy vehicle access to the precinct. This is confirmed by TfNSW B Double route maps for the area (refer Figure 5–10) which indicate that these roads are all classified as 26m B double routes. It is noted however that Gerogery Road is only rated as General Mass Limit (GML) and Concessional Mass Limit (CML) B Double route but does not allow use by heavier Higher Mass Limit (HML) vehicles.

As indicated in Figure 5–11, road trains are not permitted on the road network around Albury (and the RJP investigation area). As such, road trains currently will not be able to access the RJP investigation area, although it is noted that Higher Productivity Vehicles such as PBS 2B vehicles (notionally 30m B doubles) are permitted to use the Hume Highway corridor, and PBS 3A vehicles (notionally 36m B triples and A doubles or similar) are also permitted to use the Hume Highway corridor under permit.

TfNSW mapping confirms that the Davey Road interchange is an approved B Double route, and whilst only part of the recently developed internal NEXUSs road network is gazetted for B double access, Council has confirmed that the new internal road network has been designed to cater to B triples. As such, road freight accessibility to the RJP investigation area, particularly given its proximity to the Hume Highway, is considered to be of a high standard.

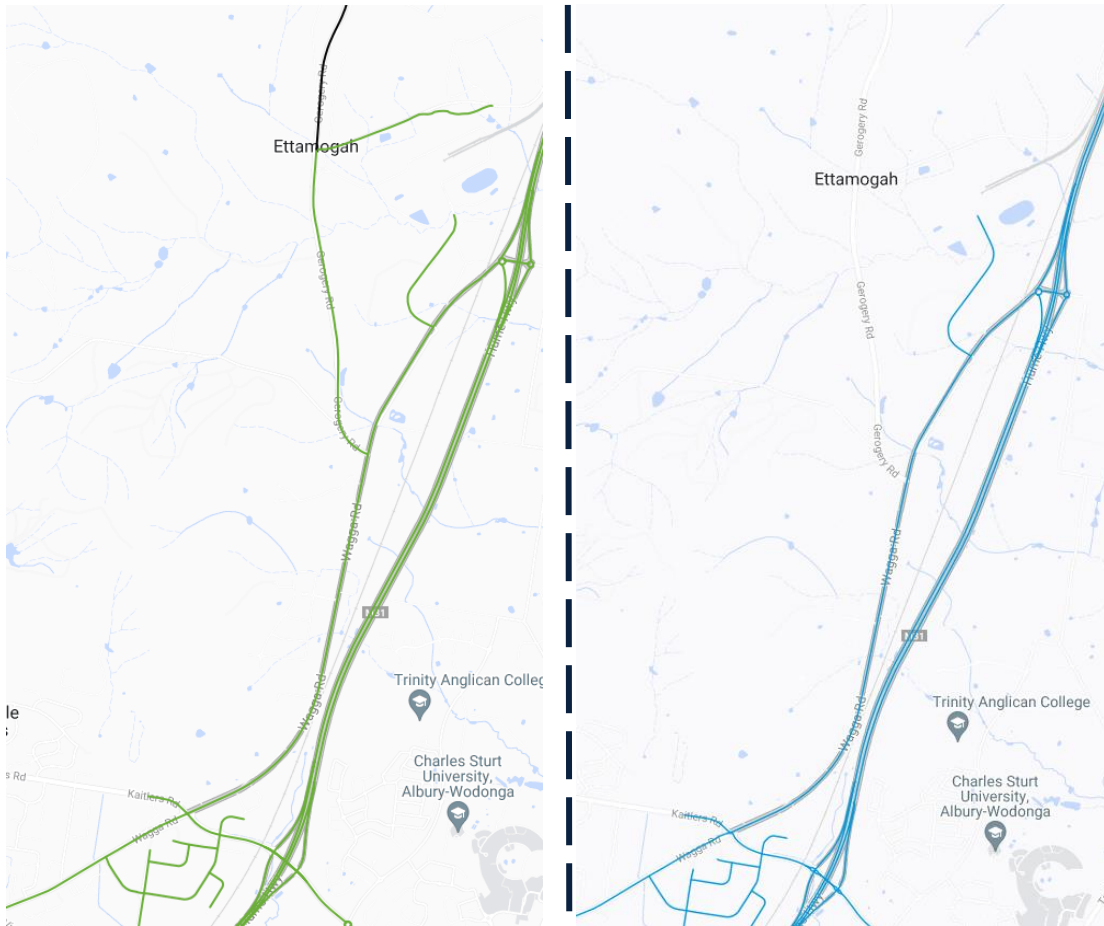


Figure 5-10 | Local 26m B Double network (GML/CML in green and HML in Blue) as of 5 August 2022. (source: TfNSW 2022)





Figure 5–11 | NSW Road Train Network (GML / CML to AB Triple) around Albury as of 23 December 2021 (source: TfNSW 2022)

## 5.6 Active Travel

Albury 2030, the ACC Community Strategic Plan, has committed to reducing emissions and increasing mode-share for active travel (walking and cycling) and public transport in the region. The objectives of Albury 2030 seek to encourage a more compact city, with access to high quality public and active transport services and facilities. The Albury City Bicycle Plan 2014-2019 formed the basis for much of the current active travel infrastructure provided in Albury. However, this plan has concluded and is due to be refreshed to address more recent planning and development outcomes. The ongoing Albury-Wodonga Integrated Transport Strategy (AWITS) has conducted a review of existing active travel network and travel patterns. Findings from the AWITS Background Report include:

- Walking and cycling in Albury are generally considered to be recreational rather than transport modes.
- Path networks are fragmented and limited, which leads to low walking and cycling uptake.
- A bike loop is being constructed in the Albury CBD, providing protected on-road facilities, intersection upgrades and end-of-trip facilities.

During consultation with Council, it was noted that cyclists regularly use Gerogery Road for training or longer distance rides. As the RJP is developed, increasing numbers of freight vehicles will reduce the attractiveness and safety of on-road cycling. Cyclists currently undertaking these training or longer rides on road are typically unlikely to shift to off-road paths and alternative routes or facilities will need to be identified. Figure 5–12 shows the current (2022) cycle

network in Albury. The figure clearly shows gaps in the off-road path network, particularly in the east-west direction. There are a number of continuous north-south paths, but these are unlikely to be well utilised if they cannot be easily accessed. The AWITS Background Report identified Albury’s open drain network as providing opportunities for improved connectivity.

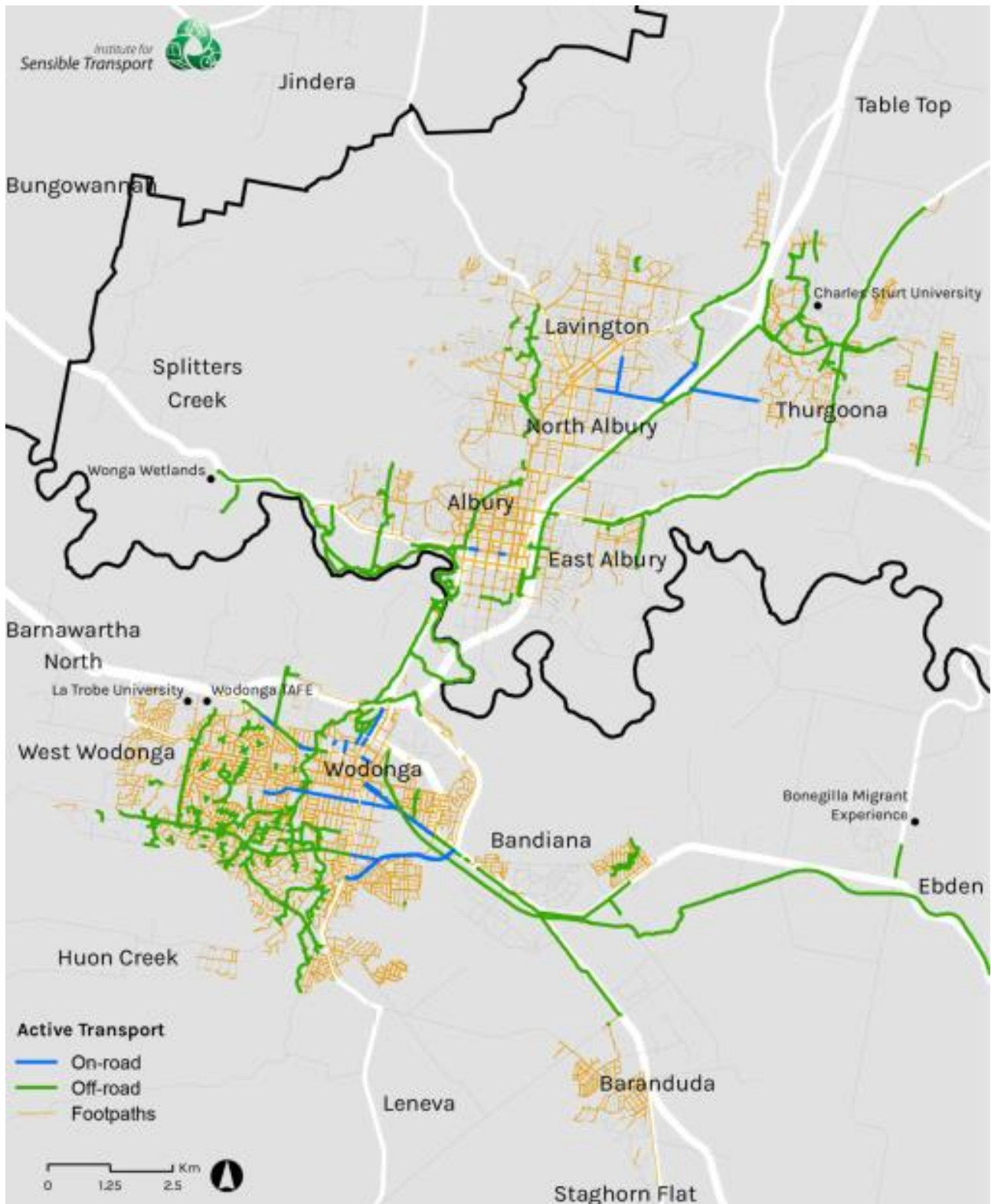


Figure 5-12 | Albury Cycle Network (Source: Albury Wodonga Integrated Transport Strategy Background Report, 2022)

Analysis of Journey-to-Work (JTW) undertaken for the AWITS Background Report indicates that approximately 90% of walking trips are less than 4km and approximately 90% of cycling trips are less than 10km. These distances represent practical maximum distances for catchment analysis.

A radius of 4km from the approximate centre of the RJP only covers Ettamogah Rise and a similar area on the northern edge of Thurgoona. This represents a very small number of potential walk trips to the RJP. In the future, development of the Thurgoona area is likely to add residents in a walkable catchment to the RJP. From the southern edge of the RJP, a 4km catchment covers residential areas north of Thurgoona Drive and Kaitlers Road. This is a more substantial population, but only provides walking access to the southern areas of the RJP.

A radius of 10km from the centre of the RJP, considered to be close to the maximum bicycle commuting distance, covers Lavington, Thurgoona, North Albury and parts of Albury CBD. This represents a substantial population catchment, which could easily cycle to the RJP if appropriate facilities are provided.

The Dallinger Road/Wagga Road cycle path already provides access between central Albury and the RJP investigation area. However, the distance, at approximately 12.5km, is toward the upper limit of what is considered a rideable daily commute. Access to this path from local residential areas must be improved before cyclists are likely to consider it an acceptable route to the RJP.

There is currently no cycle access across the Hume Highway corridor north of Racecourse Road, which limits cycle access between Thurgoona and the RJP investigation area.

While the current RJP investigation area is largely undeveloped, Gerogery Road and Hub Road have already been constructed. Neither of these roads include footpaths or safe crossing points. While marked shoulders have been provided on Hub Road, these are not considered appropriate for use as cycle lanes as they do not continue through intersections. Key intersections in the RJP area, including the intersection of Gerogery Road with Hub Road and the Davey Road interchange terminals have been constructed as roundabouts. Roundabouts do not offer safe and controlled pedestrian and cyclist movements, particularly when there are a large number of heavy vehicles.

All roads in the RJP area are currently signed 80km/h or higher. Speed limits this high represent danger to active travel users and consideration to their reduction should be made as the RJP is developed to encourage active travel in the precinct.

Pedestrian and cycle access to and through the RJP should be separated from general traffic, particularly heavy vehicles, and offer direct and convenient access. This is discussed further in the recommended upgrades prepared in response to the master plan and presented in Section 6.

## 5.7 Public Transport

### 5.7.1 Bus

Six bus services operate within Albury, with one bus service running between Albury and Wodonga, with a varying number of stops in each route. Bus services run in both directions, most running from Monday to Friday, with limited services on Saturday and no services on Sunday. Buses are operated by *Martin's Travel Group* and *Dyson Group*. Table 5–3 lists bus service numbers, their respective routes, frequency, and start and end times.

Table 5–3 | Existing Bus Services of Albury (Source: TfNSW, PTV)

Operator	Service No.	Bus Route	No. of Services	Start Time	End Time
Martin's Travel Group	906	Albury to Lavington	20 Services (Mon-Friday) 9 Services (Sat)	08:20	21:20
		Lavington to Albury	22 Services (Mon-Friday) 9 Services (Sat)	07:13	21:00
	907	Albury – Glenroy – Quicks Hill	13 Services (Mon-Friday) 9 Services (Sat)	08:45	21:28

Operator	Service No.	Bus Route	No. of Services	Start Time	End Time
		Quicks Hill – Glenroy – Albury	14 Services (Mon-Friday) 9 Services (Sat)	07:28	20:55
	908	Albury – Thurgoona	12 Services (Mon-Friday) 9 Services (Sat)	07:20	21:10
		Thurgoona – Albury	11 Services (Mon-Friday) 8 Services (Sat)	07:53	20:55
Dyson Group	AW	Albury – Wodonga	23 Services (Mon-Friday)	07:05	18:30
	WA	West Albury	9 Services (Mon-Friday) 4 Services (Sat)	07:45	17:45
	SA	South Albury	7 Services (Mon-Friday) 4 Services (Sat)	08:35	18:00
	EA	East Albury	8 Services (Mon-Friday) 3 Services (Sat)	07:20	18:15

Figure 5–13 shows the bus network map operated by Martin’s Travel Group and Figure 5–14 shows the bus network map operated by Dysons.





Figure 5-13 | Existing bus services operated by Martin’s Travel Group

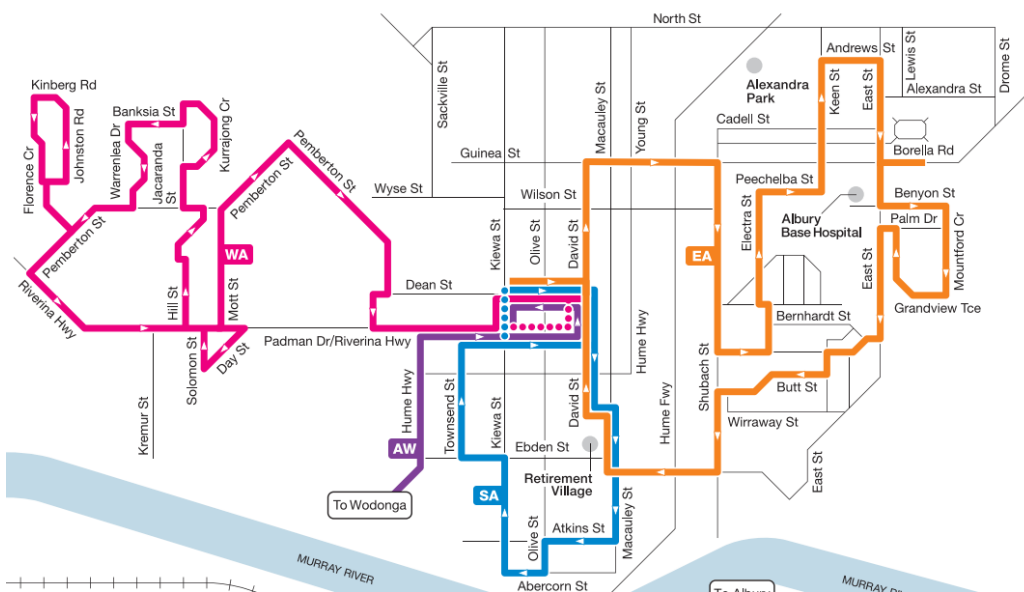


Figure 5-14 | Existing bus services operated by Dysons

Analysis undertaken in the AWITS Background Report indicate that approximately 65% of the Albury population is located within 400m of an existing bus stop, which represents reasonable coverage. These stops are serviced by six local routes looping through Albury. However, these routes are largely focused around bringing people to central Albury from surrounding residential areas and have not been updated for many years. The bus routes do not service existing employment areas and buses are often used for school bus routes, which limits capacity for adult passengers during the AM peak period. The existing network across Albury and Wodonga is fragmented and does not have a unified ticketing system or free transfers between routes. These factors, accompanied by high levels of available road and parking capacity, reduce the attractiveness of public transport.

To be considered high quality, public transport services must be:

- Fast, frequent and reliable
- Accessible, convenient and affordable
- Planned around demand

The development of the RJP project represents a significant change to the transport demand across the Albury-Wodonga area and should be considered in the broader public transport network design and provision.

Changes to the existing bus routes (906, 908), which pass through Springdale Heights, could be made to extend the routes to service the RJP investigation area. However, these bus routes are already relatively long and are not well utilised. Making them even longer and less direct is unlikely to increase utilisation. The closest existing bus stop to the RJP is located on Kaitlers Road, approximately 6km walk from the centre of the RJP. This is an unwalkable distance and would not attract any passengers.

A new bus route connecting from central Albury to the RJP investigation area could be provided, with convenient interchange options between local routes around Centro Lavington. The stop at central Albury (QEII Square) would provide interchange options between the East Albury, South Albury, and West Albury local routes, along with regional routes. However, this new bus route will not attract significant patronage unless it is integrated into a new public transport network.

In the longer-term, PT network travel from Thurgoona into the RJP will increase as Thurgoona is developed and direct buses from Thurgoona into the RJP should be provided. A key part of getting significant PT patronage to and from the RJP, which is not in a central location, will be interconnectivity between routes. However, interchange between buses will only be undertaken by public transport patrons if it is free and convenient. Passengers will not wait long periods or walk significant distances simply to get onto another bus.

Bicycle storage could be provided at key bus station locations in central Albury, Lavington and Thurgoona to encourage people to cycle and bus to the RJP investigation area, rather than Park & Ride or simply drive. The PT network and connections for cyclists to access bus stops should be considered in the future active travel network upgrades.

## 5.7.2 Passenger Rail

Albury Station is located on the Southern NSW Railway Line. It is serviced by three separate routes, each running in two directions. Two of these services run daily with the third running three times a day.

Information regarding train operations is based on the existing timetable information as published on the Sydney Trains Website and PTV website. The following Table 5–4 lists train service numbers, their respective routes, service frequency, and the scheduled arrival/departure times at Albury Station.

Table 5–4 | Albury Station Train Services (Source: TfNSW, PTV)

Service No.	Train Route	No. of Services	Scheduled Time
621	Central to Melbourne (Southern Cross)	1 Service (Daily)	04:08
622	Melbourne (Southern Cross) to Central		23:05
623	Central to Albury	1 Service (Daily)	15:10 (Arrival)
624	Albury to Central		11:49 (Departure)

Service No.	Train Route	No. of Services	Scheduled Time
V/Line	Melbourne to Albury	3 Services (Daily)	11:00, 15:55, 20:05 (Arrival)
	Albury to Melbourne	3 Services (Daily)	06:35, 12:45, 17:20 (Departure)

Albury Station is serviced by an adjacent regional bus station, which provides connectivity between the north-south rail line and some regional bus routes. The nearest bus stop providing connection to local buses is located approximately 400m away, and the main bus station at QEII Square is approximately 900m away. The low number of rail services, and timetabled arrival times well outside standard working hours, suggest that daily commuters would not travel by rail to the RJP investigation area. Regional workers who stay for multiple days in Albury while working within the RJP investigation area may travel by rail, but not daily commuters.

## 5.8 Planned Regional Transport Infrastructure Upgrades

There are several transport infrastructure upgrades planned or currently underway in the Albury region. Table 5–5 summarises the key planned road and rail infrastructure upgrades in the Albury region, indicating the location and details of each upgrade, and their potential implications for the RJP investigation area.

Upgrades have been sourced from the following documentation/websites:

- Albury Capital Works Plan
- Murray River Crossings Investment Priority Assessment
- Regional NSW Services and Infrastructure Plan
- Albury City Major Projects Website – Accessed January 20th, 2022
- DITRDC Infrastructure Upgrades Website – Accessed January 20th, 2022

Table 5–5 | Albury Planned Infrastructure Works and Upgrades

Location	Infrastructure description	Status	Implications for RJP
1 Thurgoona Link Road	Proposed linkage to connect the Thurgoona-Wirlinga growth area to the greater Albury Area. The upgrade will provide connectivity to the Hume Freeway for motorists travelling north at Davey Road, as well as providing an east-west link from Elizabeth Mitchell Drive to Kerr Road.	Consultation	Significant – this connection will provide direct access into the eastern zone of the RJP investigation area
3 Footpaths and Bike Paths	Improvements to the footpath and bike trail networks, including the following infrastructure upgrades: <ul style="list-style-type: none"> <li>• Extension of the Uranan footpath to connect with the path at Pearsall Street intersection.</li> <li>• Construction of the Albury CBD Bike Loop to connect with existing bike paths, and to develop new on-road lanes to encourage more cyclists to ride into the city centre.</li> <li>• Standard footpath program to build 3.2km of new paths across the city, including the expansion of the network in established residential areas.</li> <li>• Connect the existing path network from Norris Park to the Fiveways.</li> </ul>	In Progress	Moderate – improvements to the Albury path network will broadly increase the attractiveness and mode share of active travel, however the implications for the RJP investigation area depends largely on the proximity of network improvements to the precinct.

Location		Infrastructure description	Status	Implications for RJP
4	Albury Riverside Precinct	Development of the public leisure and recreation infrastructure in the section of the Murray River behind the Albury Swim Centre at Hovell Tree Park. This includes Improving links with the Wagirra Trail, CBD and Hovell Tree Park.	In Progress	Minor
5	Airport Precinct	Expansion of the general aviation western precinct. This enables the airports Western Precinct to accommodate the development of aviation businesses that require access to the runway, taxiway and apron system.	In Progress	Moderate – depending on the industry that the RJP investigation area attracts, improvements in local air industry and freight capacity may support the RJP investigation area
6	Centaur Road	Full reconstruction of Centaur Road from Overend Street to Tip Road. Reconstruction will include the following: <ul style="list-style-type: none"> <li>• Removal and replacement of road pavement, construction of new kerb, footpath, and driveways.</li> <li>• Installation of new shared path along the southern side of the road, along with pedestrian crossing in the centre of the pavement.</li> <li>• Intersection works on the Centaur Road and Mudgee Street intersection for safety and turning manoeuvres improvements.</li> </ul>	Plan/Design	Minor
7	Riverina Murray Freight	Capacity Enhancements to the Riverina Murray Main South Freight Rail. This includes a duplication of the Main South rail between Junee and the Victorian Border. Bridge upgrades to increase height (7.1m from track) upgrades.	Initial Investigation	Significant – upgrades to rail freight capacity will improve the viability of the RJP investigation area
8	Borella Road/Riverina Highway	Development of implementation plan for the delivery of the Borella Road/Riverina Highway Corridor Strategy, with the priority being the Airport entry roundabout.	In Progress	Minor
9	Mate Street	Planning infrastructure and streetscape improvements on Mate Street between Urana Road and Tarakan Avenue. This includes water main replacement, removal and replacement of footpaths, detailed landscaping, and upgrading existing street furniture.	In Progress	Minor



## 6. Transport Infrastructure Requirements

### 6.1 Introduction

This section provides a summary of the implications that the Albury RJP master plan would have on the existing traffic and transport network within and supporting the study area. Noting the three staged assumption for uptake of land presented in the master plan (Section 4.3), the implications that the RJP development would have on the following key transport network infrastructure elements have been considered:

- Road Network
  - Arterial Road Network
  - Internal Road Network
- Rail Network
- Road Freight
- Active Travel
- Public Transport

The assessment also identifies required upgrades that may be used to support the transport network for stage 3 (i.e., the ultimate development scenario). Further detail recommending appropriate staging of infrastructure including indicative delivery timeframes is provided in Section 7.

It is noted that due to the high-level nature of the master planning process, and the desire to allow flexibility in future land uses, a series of assumptions have been adopted to provide a representative sample of potential industrial and business uses that could be accommodated in the precinct. In identifying required transport infrastructure upgrades, it is intended to provide commentary on key pinch points and upgrades that need to be considered to support the efficient and effective development of the RJP. This assessment is not intended to replace a Traffic Impact Assessment that would ordinarily be required to accompany a development application, and which would be expected to provide more targeted assessment of traffic generated by specific uses.

It is further noted that the RJP and its impacts on transport demand and infrastructure requirements will require consideration in development of transport planning more broadly in the twin cities of Albury and Wodonga, beyond the RJP and its immediate surrounds. To this end, the Albury Wodonga Councils should consider the RJP in the current development of *MOVE: The Albury Wodonga Integrated Transport Strategy*. MOVE is a Two Cities One Community Initiative that will guide directions for how the people of Albury and Wodonga will move through the two cities now and into the future.

### 6.2 Traffic Generation and Distribution

#### 6.2.1 Traffic Generation

Based on the land use quantities and types described above, SMEC has conducted high-level traffic generation calculations for the RJP. Traffic generation calculations have been based on *Guide to Traffic Generating Developments* (TfNSW, 2002) and the subsequent Technical Direction TDT 2013/04 which provides further detail on some land use types.

TDT 2013/04 provides an average traffic generation rate for regional industrial parks based on floor area, along with maximum and minimum rates. There are also details of possible traffic generation based on the number of employees in an industrial estate. Traffic generation has been calculated for the following trip generation rates:

- Regional Average: average traffic generation rate surveyed for industrial estates (reference scenario)
- Regional Minimum: minimum generation rates surveyed (sensitivity scenario)
- Regional Maximum: maximum generation rates surveyed (sensitivity scenario)
- Employment Based: traffic generation rate based on observations at a single industrial park (sensitivity scenario)

Table 6–1 shows the possible generation for each of the RJP stages for each of the generation rates described above. The RJP area is largely undeveloped and currently generates very little traffic, and the volumes shown below generally represent the difference between current conditions and the RJP project case.

Table 6–1 | Potential Traffic Generation for each Stage of the RJP

	Stage 1			Stage 2			Stage 3		
	AM	PM	Daily	AM	PM	Daily	AM	PM	Daily
Regional Average	3,465	3,861	38,759	4,568	5,090	51,091	3,815	4,251	42,674
Regional Minimum	1,584	1,931	18,711	2,088	2,545	24,665	1,744	2,126	20,601
Regional Maximum	5,940	6,435	59,351	7,830	8,483	78,235	6,540	7,085	65,346
Employment-Based	4,837		50,104	4,137		42,848	5,460		56,555

On completion, the ultimate RJP development could generate the traffic volumes shown in Table 6–2.

Table 6–2 | Ultimate RJP Traffic Generation

	Ultimate (Total)		
	AM	PM	Daily
Regional Average	11,848	13,202	132,523
Regional Minimum	5,416	6,601	63,977
Regional Maximum	20,310	22,003	202,931
Employment-Based	14,435		149,507

## 6.2.2 Traffic Distribution

Traffic generated by the RJP was distributed across the Albury-Wodonga road network using the Albury Wodonga Transport Model (AWTM). The AWTM is a four-step strategic transport model used for forecasting traffic volumes for future horizons, namely 2026, 2031 and 2036 AM and PM peak periods. For this assessment, the model was modified slightly to allow indicative distribution of RJP traffic across the Albury-Wodonga area with appropriate access locations onto the road network.

Indicative land use for the RJP was included in the AWTM to obtain a travel pattern across the Albury-Wodonga area, and then the indicative trip matrix was scaled to match the calculated trip ends for the RJP. This matrix was then assigned to the AWTM network.

Traffic volumes from the modified AWTM represent travel to and from the RJP adequately for this level of assessment, but do not consider increases in travel secondary to the RJP trips. For example, new employment trips (over and above the base case) to and from the RJP are modelled, but other trips that would be taken by that new employee’s household (e.g., shopping, education, leisure, etc.) are not included in the model. Traffic volumes around the RJP are considered to be reliable, traffic volumes in other parts of the model will potentially be higher than the model estimates due to the secondary population and trip purposes that are not included in the model. It is recommended that a comprehensive update of the AWTM be undertaken in the future that captures adjustments to all land uses across the model area inclusive of the RJP.

Approximate volumes for key links around the RJP (inclusive of baseline traffic and movements generated by the RJP) are shown in Table 6–3 below.

Table 6-3 | Indicative Traffic Volumes around the RJP

Location	2026 (Stage 1)			2036 (Stage 1+2)			2036 (Stage 1+2+3)		
	AM	PM	Daily	AM	PM	Daily	AM	PM	Daily
Wagga Road (south of RJP)	2,100	1,800	19,500	3,700	4,800	42,500	3,800	5,500	46,500
Gerogery Road (north of RJP)	600	1,200	9,000	1,600	1,300	14,500	2,000	1,300	16,500
Hume Highway (south of RJP)	2,600	2,600	26,000	4,300	3,500	39,000	4,700	3,800	42,500
Hume Highway (north of RJP)	1,400	2,100	17,500	3,700	2,000	28,500	4,100	1,900	30,000
Davey Road (bridge)	600	700	6,500	800	2,400	16,000	1,100	2,100	16,000

## 6.3 Road Network

The master plan proposes the provision of an internal road network to facilitate the development of the RJP. The need to upgrade several arterial roads that provide access to the RJP and associated intersection has also been identified. The existing and proposed road network in and around the RJP is indicated in Figure 6-1.

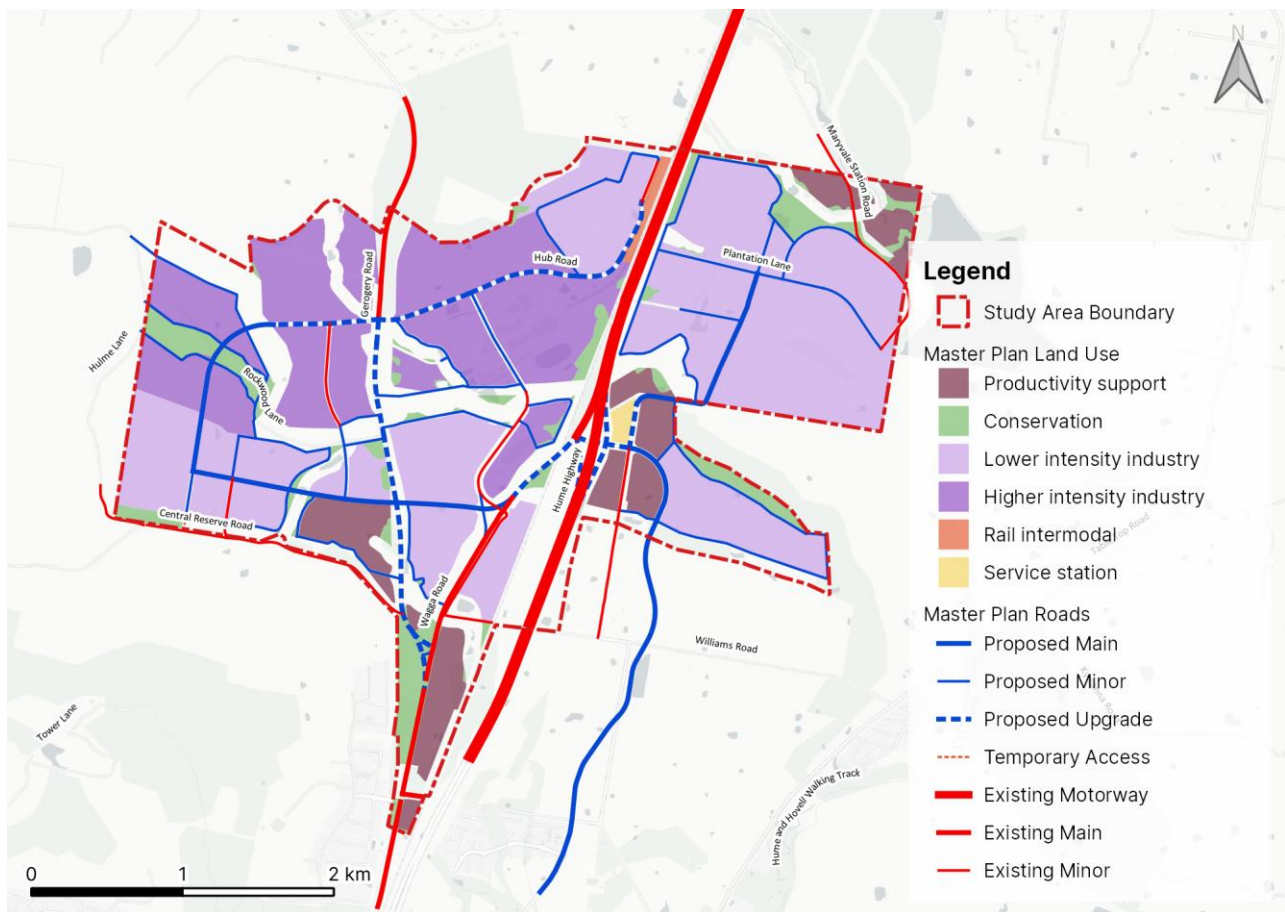


Figure 6-1 | Proposed RJP road network

### 6.3.1 Arterial Road Network

#### Hume Highway

Given the land use nominated in the RJP master plan, and the proposed master plan road layout, the modelling discussed in Section 6.2 has indicated that a significant proportion of RJP trips will use the Hume Highway and Davey

Road interchange to access the precinct. These trips would include commuting trips accessing the RJP for employment and work-related trips (freight movements etc.).

The 2019 modelled volumes on the Hume Highway are well below the capacity of a 110km/h two-lane free-flow dual carriageway and given the latent capacity in this corridor, it is not anticipated that any upgrades to the Hume Highway will be required to accommodate the RJP in any of the development stages. This finding is supported by the modelling results to 2036.

However, the single lane exit ramps of the Davey Road interchange with roundabout terminals are at risk of operating over capacity following Stage 1 of the RJP. Whilst the strategic traffic modelling indicates that the current arrangement is likely to have sufficient capacity to accommodate Stage 1 of the development, it is expected that as Stage 2 of the RJP is developed the interchange will require upgrades, including:

- Signalisation and reconfiguration of ramp terminal intersections
- Widening of the south facing ramps to two lanes
- Duplication or widening of the interchange bridge over the Hume Highway to provide additional through and turn capacity at the interchange.

A potential layout of the Davey Road interchange that may be adopted in Stages 2 and 3 is indicated in Figure 6–2, noting that it is highly notional and will require refinement in response to actual development patterns as the RJP evolves in the future. It is noted that any works associated with the upgrade of this interchange (or any other works on classified State roads) will require concurrence from TfNSW and would be managed as a Works Authorisation Deed. It is not proposed that any additional access from the Hume Highway to the RJP be provided for the development of the precinct. However, it is noted that if capacity of the Wagga Road corridor and the Davey Road interchange is not increased, vehicles may increasingly use at grade intersections on the Hume to the north (such as Tynan Road).



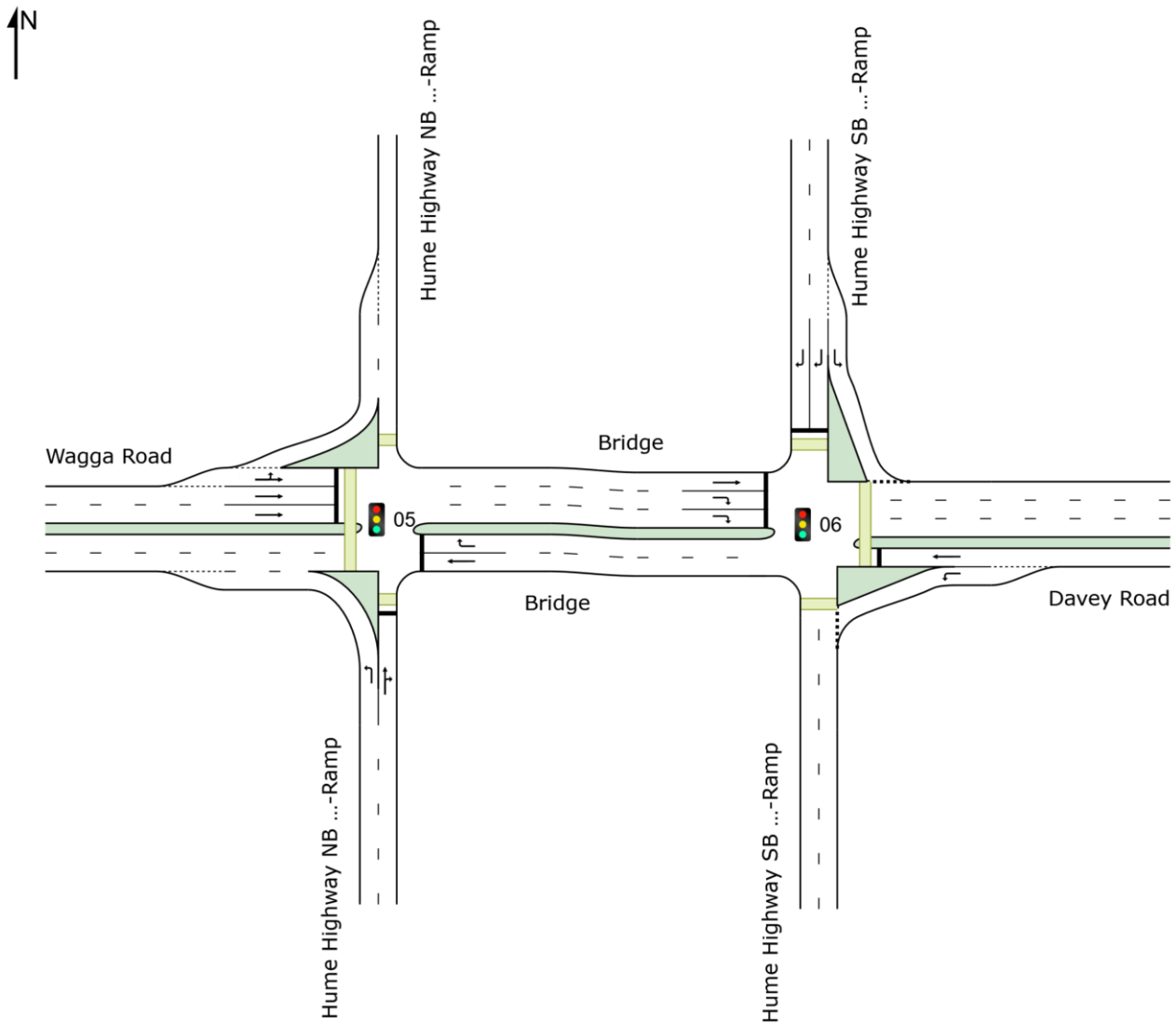


Figure 6-2 | Notional future Davey Road interchange layout – Stage 3

## Wagga Road

Wagga Road is also likely to experience a significant increase in volumes as a result of the RJP. Commuting trips from Lavington, Glenroy and parts of North Albury are likely to use Wagga Road to access the RJP. Heavy vehicle trips from the Albury Waste Management Centre are also likely to use Wagga Road.

Strategic traffic modelling indicates that forecast volumes on Wagga Road will exceed its current capacity at the completion of Stage 1 and that duplication of the carriageway will be required. In fact, modelling indicates that the Wagga Road corridor is the most desirable access route into the RJP and that by the time Stage 2 is complete it is possible that Wagga Road may require widening to three lanes in each direction between Thurgoona Drive and Gerogery Road. Upgrades to Wagga Road will also require upgrades to associated intersections.

It is also noted that the northern part of Wagga Road between the Davey Road interchange and R W Henry Drive will be the main access to the precinct from the Hume Highway and is expected to see a significant increase in traffic volumes and will also require upgrade. Furthermore, the Wagga Road / R W Henry Drive intersection will be a key entry point into the precinct and as a result, the nature of the intersection will change and is expected to require significant upgrade in the short term. The current master plan proposes reconfiguration of the intersection into a 4-way arrangement that captures Wagga Road, R W Henry Drive and a new link road to Gerogery Road (refer discussion below).

## Gerogery Road

The proposed master plan identifies Gerogery Road as the central north-south transport spine of the precinct (refer Figure 6–3). As such, it is expected to see substantial increases in volumes as a result of the RJP. Whilst strategic modelling indicates that these increases appear likely to be accommodated by the existing capacity of the corridor in the short term for Stage 1 of the RJP, the current standard of the corridor is considered inappropriate for high traffic volumes. As such, it is anticipated that upgrade of the road will be required in the early stages of the RJP, inclusive of improvements such as provision of full width shoulders, appropriate verge widths, and removal or protection of roadside hazards

It is anticipated that as the RJP develops, upgrades to the road cross section will be required in the medium to long term to support Stages 2 and 3 of the RJP. Modelling indicates that these upgrades are likely to include duplication of Gerogery Road to two lanes in each direction.

The Gerogery Road / Wagga Road intersection is expected to be the main point of entry into the precinct and will need to accommodate the majority of traffic flows into the precinct. It is anticipated that the intersection will require upgrade and signalisation as part of Stage 1 of the RJP, with further upgrade to major signalised at grade intersection in Stage 2 of the RJP’s development. A potential layout of the Wagga Road / Gerogery Road intersection that may be adopted in Stages 1 and 2/3 is indicated in Figure 6–4, noting that it is highly notional and will require refinement in response to actual development patterns as the RJP evolves in the future.



Figure 6–3 | Gerogery Road spine within master plan highlighted in yellow

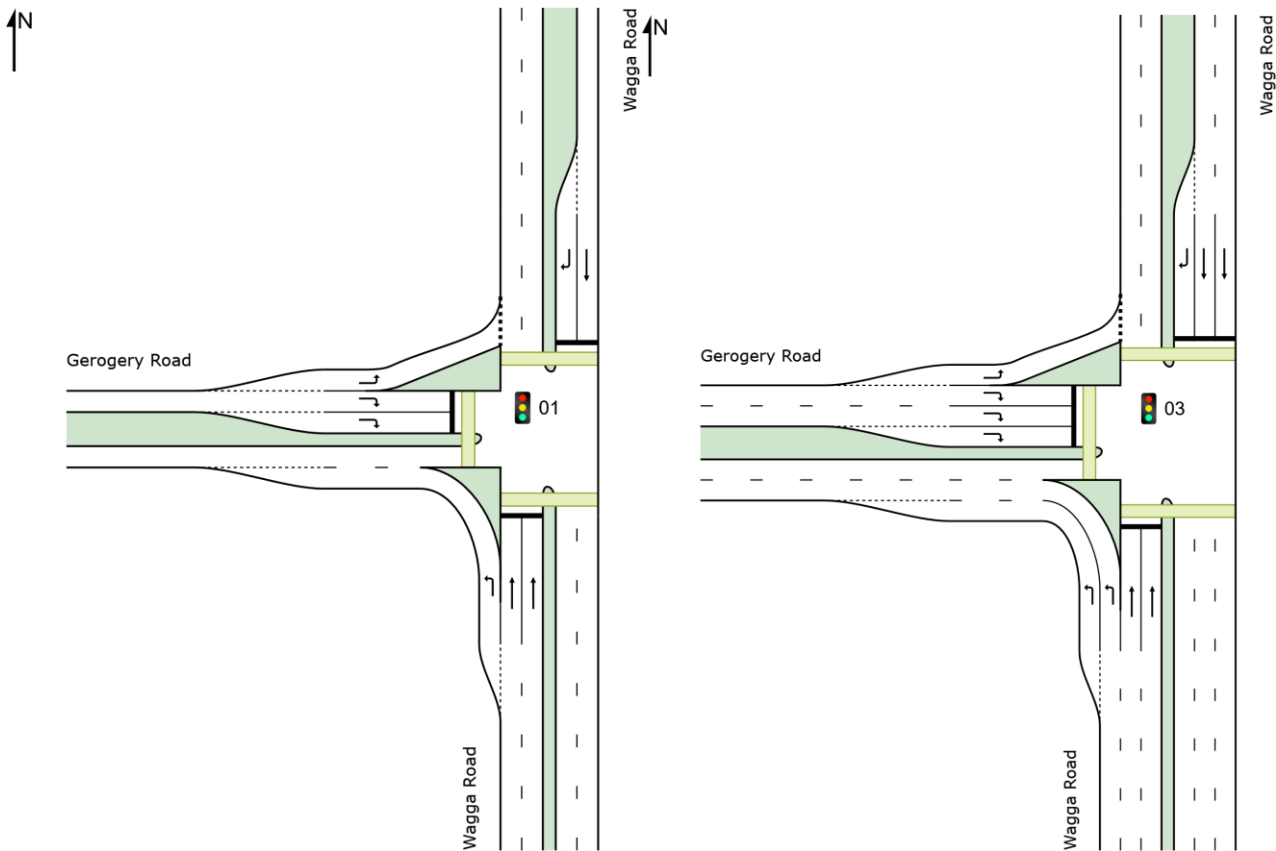


Figure 6–4 | Notional future Wagga Road / Gerogery Road intersection – Stage 1 (left) and Stage 2/3 (right)

## Davey Road

Davey Road provides access from the south into the eastern part of the RJP investigation area, which is proposed for development in the long term in Stage 3. Its current form as an unsealed country laneway with substandard geometry is inappropriate to convey the increased volumes anticipated from the RJP. As such, Davey Road will require upgrade as the RJP develops, however the extent and nature of this upgrade will be largely dependent on the configuration and timing of the development of the Thurgoona Link Road.

## Central Reserve Road

Central Reserve Road provides access to the southern perimeter of the RJP. Whilst the master plan proposes an internal road network layout that is likely to direct the majority of traffic to Gerogery Road internally, it currently proposes a link to Central Reserve Road that will see some traffic use this existing road. Given the relatively low standard of this road, it is considered likely that upgrade will be required including improvements to cross section (lane widths, shoulders, verges) and both vertical and horizontal geometry. Conversely, removal of the link between the precinct and Central Reserve Road could be considered to avoid directing RJP traffic onto this road.

## 6.3.2 Internal Road Network

### General

The master plan proposes a subdivision road layout that services various land uses within the precinct. The layout is broadly appropriate in that it appears to provide access throughout the RJP and avoids no through roads. It is expected that single, two-way carriageways throughout the precinct will have sufficient capacity to convey the traffic volumes generated within the RJP.

In future stages of design development, appropriate road geometry, cross section and intersection configuration will need to be identified and adopted. Given the precinct's proximity to the Hume Highway, and current work being undertaken by TfNSW to facilitate increased volumes of High Productivity Vehicles in that corridor, it is recommended that road geometry and intersection layouts be developed to accommodate swept paths of Performance Based Standard (PBS) Level 3 vehicles.

It is noted that grades of the proposed internal road network throughout the precinct are generally relatively gentle and suitable for a road and associated path network. An assessment indicates that the maximum road corridor grades within the precinct are 10% or below and are considered suitable for a subdivision layout. However, it is noted that grades above 5% are generally undesirable for active travel and given this, and the likely high prevalence of heavy vehicles in the precinct, it is recommended that road grades be minimised to the largest extent possible in the development of the precinct design.

### R W Henry – Gerogery Link Road

The master plan proposes a link road between R W Henry Drive and Gerogery Road through existing irrigated agricultural land (refer Figure 6–5). This link road is an important element of the internal road network within the RJP as it provides access from the Hume Highway into the western half of the RJP.

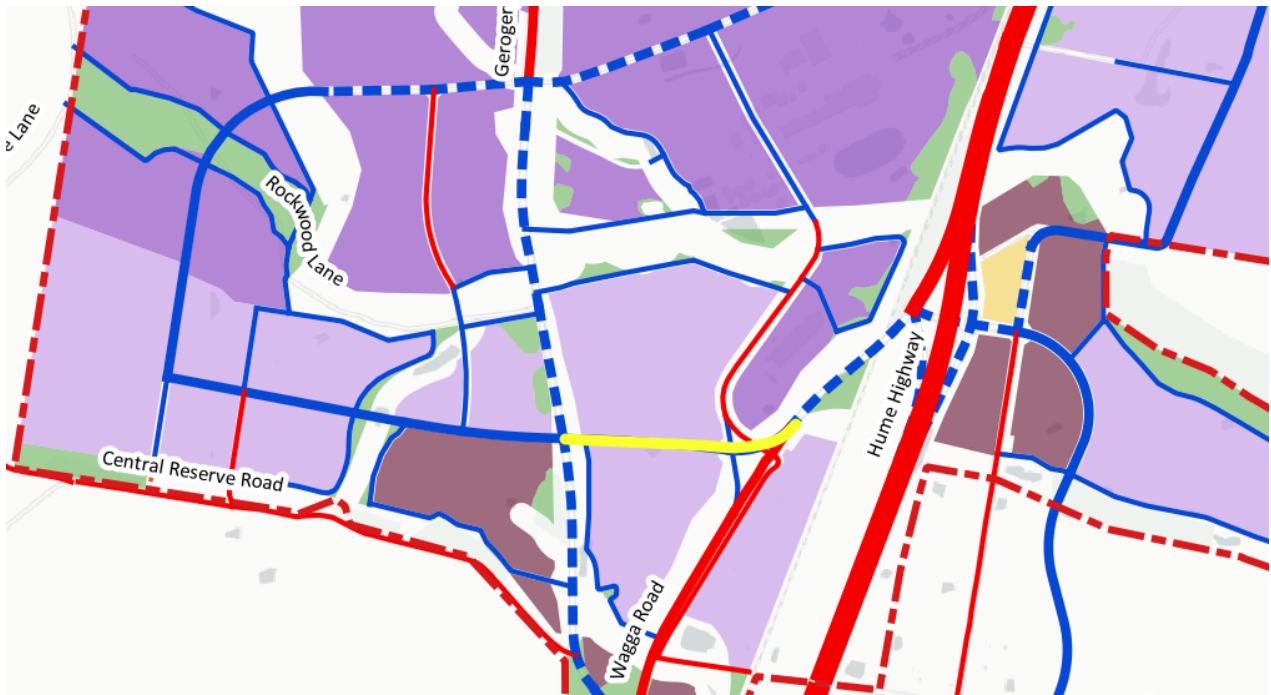


Figure 6-5 | Gerogery Rd – R W Henry Link Road location highlighted in yellow

The link road will significantly improve journey times and distances for a large proportion of trips to and from the RJP, shortening access from the Hume Highway into the western RJP zone by approximately 1.3km by avoiding the need to route through the Wagga Road / Gerogery Road intersection to the south. The provision of the link road will also unload the Wagga Road / Gerogery Road intersection and increase the capacity of the network which will become increasingly important as the RJP develops.

It is also noted that provision of the link road will make the use of the Hume Highway to access the RJP more attractive from the south and will divert traffic away from the Wagga Road corridor. This is considered an important outcome given the residential development occurring adjacent to this corridor. The reconfiguration of the Wagga Road / R W Henry Drive intersection proposed in the master plan will assist in this regard. A potential layout of the Wagga Road / R W Henry Drive intersection that may be adopted in Stages 1 and 2/3 is indicated in Figure 6-6, noting that it is highly notional and will require refinement in response to actual development patterns as the RJP evolves in the future.

It is anticipated that the link road will be single two-way carriageway in the short term (Stage 1), although depending on the pattern of development and final industry and land use type in the RJP, the link road may require duplication in Stage 2 or 3 of the precinct development.



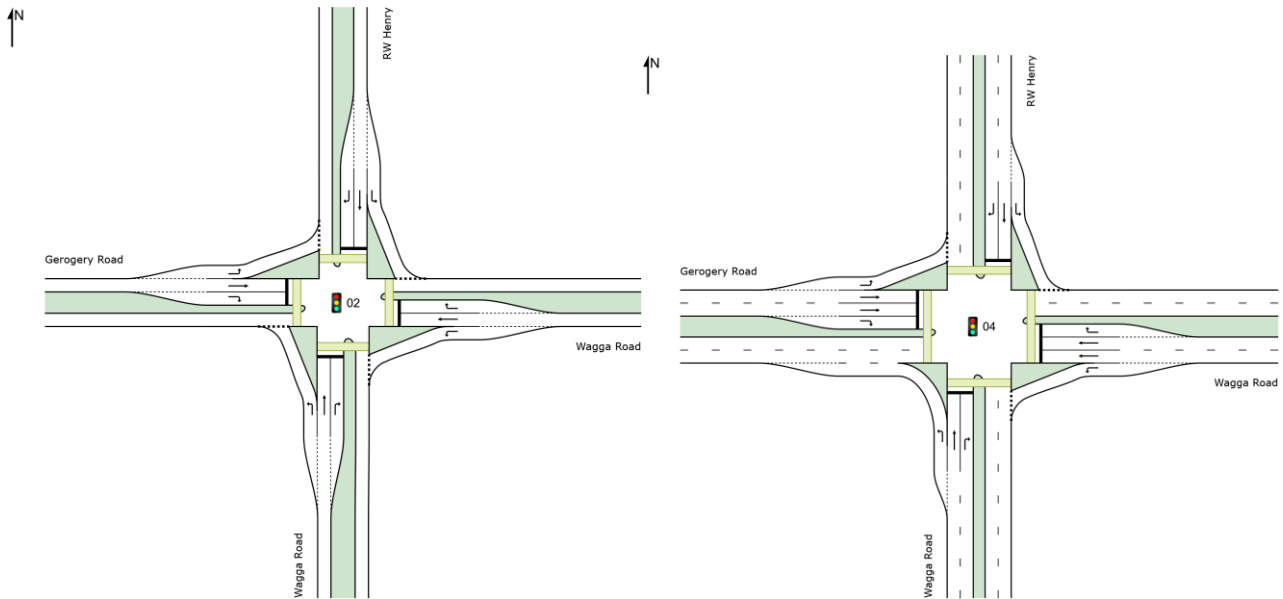


Figure 6-6 | Notional future Wagga Road / R W Henry Drive intersection – Stage 1 (left) and Stage 2/3 (right)

### R W Henry Drive Extension

The master plan proposes an extension of R W Henry Drive from its current termination at the Visy plant through to Hub Road (refer Figure 6-7). This connection is considered an important element of the internal road network as it:

- Provides access to areas identified for heavy industry land use
- Improves network connectivity through the precinct and enhances access to the Ettamogah Rail Hub

It is anticipated that the road extension will be a single two-way carriageway in Stage 1. The delivery timeframes for the road extension will depend on the spatial allocation of development within the precinct over time and will generally respond to the land use uptake in the northern part of the precinct, although it is noted that duplication of the carriageway may be required in Stage 2 or 3 of the RJP’s development depending on the pattern of development and final industry and land use type in the RJP.



Figure 6-7 | R W Henry Drive extension location highlighted in yellow

## 6.4 Rail Network

The ERH is a strategic intermodal hub developed in anticipation of future demand. The rail hub is a strategic facility that is well connected to the main line. A recently upgraded arrival road extends approximately 3km in length, with two sidings off the road and turnouts placed to allow train break up as needed for loading and unloading adjacent to the hard stand. The existing hardstands are concrete (approximately 300m rail frontage) and unsealed granular (approximately 600m rail frontage).

Existing facilities appear comprehensive and provide capacity and space for immediate freight demand, although a detailed numerical analysis has not been completed. No immediate upgrades are considered necessary for the hub based on the available information. However, as train numbers grow, the ERH may see a need for future hard stand expansion, which appears feasible to the north of the existing granular hardstand. This would maintain vehicular access to the hardstands and also to the nominated pads.

In considering the turnouts from the arrival road into the ERH, it is likely that a condition assessment will be undertaken by ARTC as it is noted these have not yet been replaced with the recent upgrades to 25 TAL (80km/hr).

Pavement deformation at Intermodal Hubs is a key issue that presents often. Based on increased freight, and increased Equivalent Standard Axle (ESA) movements across the hardstand areas, it is recommended the ERH review and assure themselves that the pavement has capacity to cater for future movements.

While the ERH sidings are leased from ARTC, the adjacent sidings extending into the Visy-owned industrial area are identified as private. The long-term utilisation of this siding should be considered with the master planning and industrial growth. There are direct benefits of private sidings for some industries and maintaining the sidings and creating a bespoke opportunity for an industrial partner with this existing infrastructure may be beneficial. This could however be a form of direct competition to the very purpose of the ERH. The existing rail infrastructure in the Visy Private siding appears slightly degraded and may not be well maintained. Additionally, details of the rail, rail sleepers and other railway elements are unknown, and would need consideration for any future use or reinstatement of Visy operations. Decommissioning of the rail sidings in the future may provide benefit to the ERH and also local business. It would be prudent for ACC to request available information from Visy (or ARTC) regarding Private Siding agreements / Interface Agreements if opportunities did present around reuse or rezoning of this infrastructure.

The existing sidings present an opportunity to increase maintenance services, especially with the development of Inland Rail and the requirements for Maintenance sidings. Consideration could be given to discussion of the possibilities for either increasing the maintenance facilities via ERH, or jointly discussing operation and maintenance opportunities with ARTC.

## 6.5 Road Freight

Given the predominantly industrial nature of the land uses proposed in the master plan, it is anticipated that freight movements will be an important consideration for the proposed transport network. To that end, it is recommended that the entirety of the RJP internal road network, in addition to key access roads, be configured to convey high productivity heavy vehicles. Furthermore, given the direct access that the RJP will have to the Hume Highway corridor, it is considered appropriate that the road network be developed to allow for the movement of PBS Level 3 vehicles. Advice from Council is that existing roads within the NEXUS development area have been designed to accommodate B triples.

Future upgrades of the Wagga Road / Gerogery Road intersection and the Wagga Road / R W Henry Drive intersection will need to ensure that they can fully accommodate PBS Level 3 vehicles. Minor alteration to the existing layout of these intersections may be required should PBS Level 3 vehicles require access to the precinct in the short term. As the surrounding road network is currently designated for B double movement, existing road geometry should accommodate PBS Level 2 vehicles.

## 6.6 Active Travel

Active travel to and from the RJP will be predominantly for employment (Journey to Work) purposes in the short to medium term. In the longer term, development of off-road paths and routes through the RJP may attract other visitors or recreational cyclists. Road cyclists currently use roads in the RJP area for training or long-distance rides, but as development of the RJP proceeds, increasing traffic and heavy vehicle volumes may require these rides to be undertaken elsewhere. Journey to Work (JTW) data from ABS Census 2016 suggests that approximately 1.2% of people living in Albury currently cycle to work, while approximately 3.9% walk to work. The location of the RJP and its employment areas are generally outside a walkable range from residential areas, so most active travel access will be by bicycle, scooter or other micro-mobility solution. However, future development of Thurgoona will increase the population in a walkable distance, and appropriate path connectivity should be provided. The current active travel mode share in Albury is quite low, and the RJP offers an opportunity to increase the active travel mode share and reduce reliance on private cars.

The NSW government, in an effort to reach the ultimate goal of zero deaths and serious injuries on NSW roads, has adopted a safe system approach. This approach recognises the reality that people make mistakes on the road and the transport system itself should be designed to minimise the negative outcomes of any mistake. The safe system consists of four key components:

- Safe people
- Safe roads
- Safe speeds

- Safe vehicles

Active travel planning in the RJP includes considerations of safe roads and safe speeds. Safe people and safe vehicles are outside the control of this planning process.

The most effective way to provide safe roads for active travel is to physically separate pedestrians and cyclists from vehicle traffic, generally by providing paths a suitable distance from the kerb. Where verge space is constrained, on-road lanes with a physical separation are safer than lanes with only line marking. In some cases, where there are expected to be substantial numbers of high-speed cycle movements, shared paths can lead to conflicts between cyclists and pedestrians. To cater for these cycle movements, on-road lanes can be included, in addition to the shared paths.

Pedestrians should not be expected to walk on the roadway and paths should be provided for all pedestrian movements. Locations where there are expected to be a combination of pedestrian and cycle movements should include paths wide enough to easily pass.

Key physical barriers to active travel to the RJP include:

- Hume Highway corridor
- Rail line
- Distance

The Hume Highway corridor limits travel from the eastern side of Albury and Thurgoona into the western side of the RJP, which is primarily proposed for short to medium term development. There are a number of existing crossing points along the highway corridor, but many of these are too far south to be useful for travel to and from the RJP.

Similarly, the rail line is a physical barrier running north-south and limiting east-west travel. The rail line runs parallel to the highway and increases the effective width of the physical barrier.

The distance between the RJP and residential areas reduces the attractiveness of active travel but can be partially overcome by improving the active travel facilities. People are much more likely to travel along a separated, landscaped shared use path than on a narrow shoulder and will travel further for the same perceived effort. An additional option to encourage active travel usage is to provide attractive end-of-trip facilities. These can be provided at each destination (e.g., each workplace providing their own facilities) or at one or more central locations. A centralised end of trip facility can provide benefits of scale and can also include commercial opportunities such as cafes and bike maintenance facilities. The end-of-trip facilities should, at a minimum, provide secure bicycle/scooter storage, toilets, showers and lockers. Additional facilities could include drying rooms, towel service, free toiletries etc. These additional services can significantly increase the attractiveness of active travel.

For the purposes of this master plan, three main types of active travel facilities are proposed:

- **Main Shared Path:** A wide, high quality, reasonably direct path network that generally follows major road corridors and is intended to provide fast, direct connectivity between and through major centres. This path caters to pedestrians and commuter cyclists and provides sufficient width for users to pass without conflict.
- **Shared Path:** A narrower shared path that provides access between the Main Shared Path network and local land uses. This network generally follows lower roads and green corridors and provides less-direct access for commuters, and scenic routes for recreational trips.
- **Footpath:** A standard footpath. This should be the minimum level of active travel facility provided on all roads in the RJP.
- **On-road cycle lane:** A marked space on the road for use by cyclists. On-road cycling is not preferred in the RJP due to the large number of freight vehicles but should still be provided along Gerogery Road to provide a safe route for long-distance, high-speed road riders.

Recommendations for active travel facilities in and around the RJP have been divided into three stages, aligned with the three stages of development. Basic layouts have also been provided for each stage, showing main shared paths, shared paths and on-road cycle lanes. Footpaths are not shown, because it is assumed that all road corridors will have a footpath as the minimum standard. Similarly, all roads should have sufficient space for cyclists to safely ride on the shoulder if they choose not to use the path network.

In the short term, Stage 1, the existing shared path adjacent to Wagga Road, which currently terminates at Whitehall Avenue near Leicester Street, should be extended along Gerogery Road to Hub Road as a main shared path. A new main

shared path running east-west should also be constructed. Shared paths running north-south provide additional connectivity to local land uses and opportunities for recreational activity. All roads in the RJP should have footpaths and wide enough shoulders to cycle on without being in conflict with traffic. In addition, the Thurgoona Drive bridge across the Hume Highway should be investigated as a potential cycle crossing point to allow active travel trips from Thurgoona to access the north-south path adjacent to Wagga Road. This bridge appears to be wide enough to accommodate a cycle path along the northern shoulder without requiring widening, but the existing roundabouts at the ramp terminals represent a hazard for cyclists. Figure 6–8 shows the recommended facilities for implementation in Stage 1 of the RJP, with new active travel routes in pink.

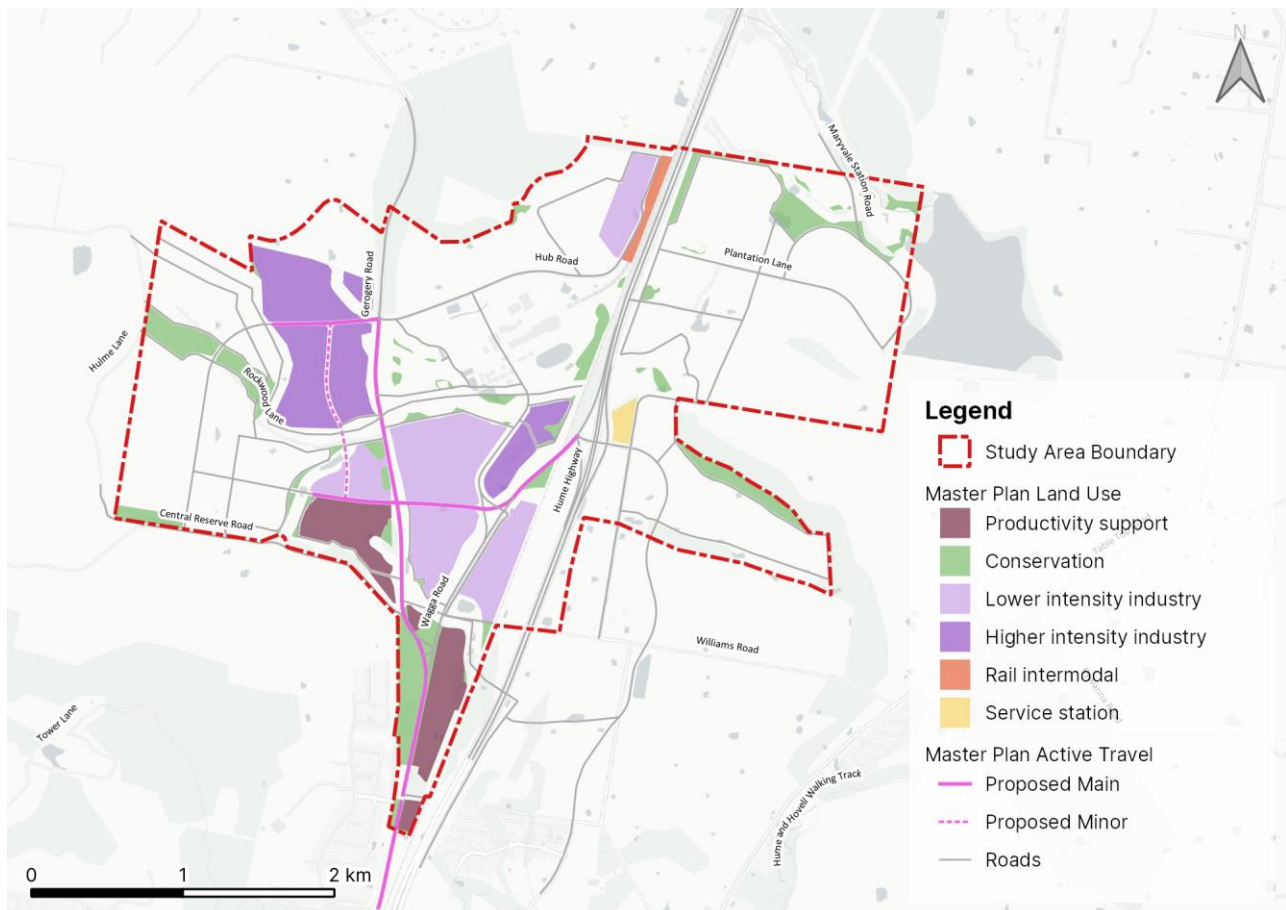


Figure 6–8 | Stage 1 Recommended Active Travel Facilities

In the medium term, Stage 2, an additional main shared path crossing of the Hume Highway should be provided. There is an existing bridge on the Hume Highway and rail line providing fauna crossing opportunities at Seven Mile Creek. This location should be investigated as a possible grade separated cycle crossing as the existing structures offer an opportunity to provide corridor crossings at a lower cost. A cycle path here should connect to the existing shared path in Thurgoona at Hargraves Road at the southern end and to the Stage 1 network near the intersection of Gerogery Road and Wagga Road. The main shared path network should be extended through the new development area, along with shared paths connecting all land uses. The conservation corridors through the RJP represent an opportunity to provide additional active travel facilities. These conservation corridors are not direct, but could be utilised to provide attractive active travel opportunities for recreational trips. An indicative east-west alignment has been suggested in Figure 6–9, showing the recommended active travel facilities for Stage 2 of the RJP. For clarity, the Stage 1 active travel network is not shown in Figure 6-10.



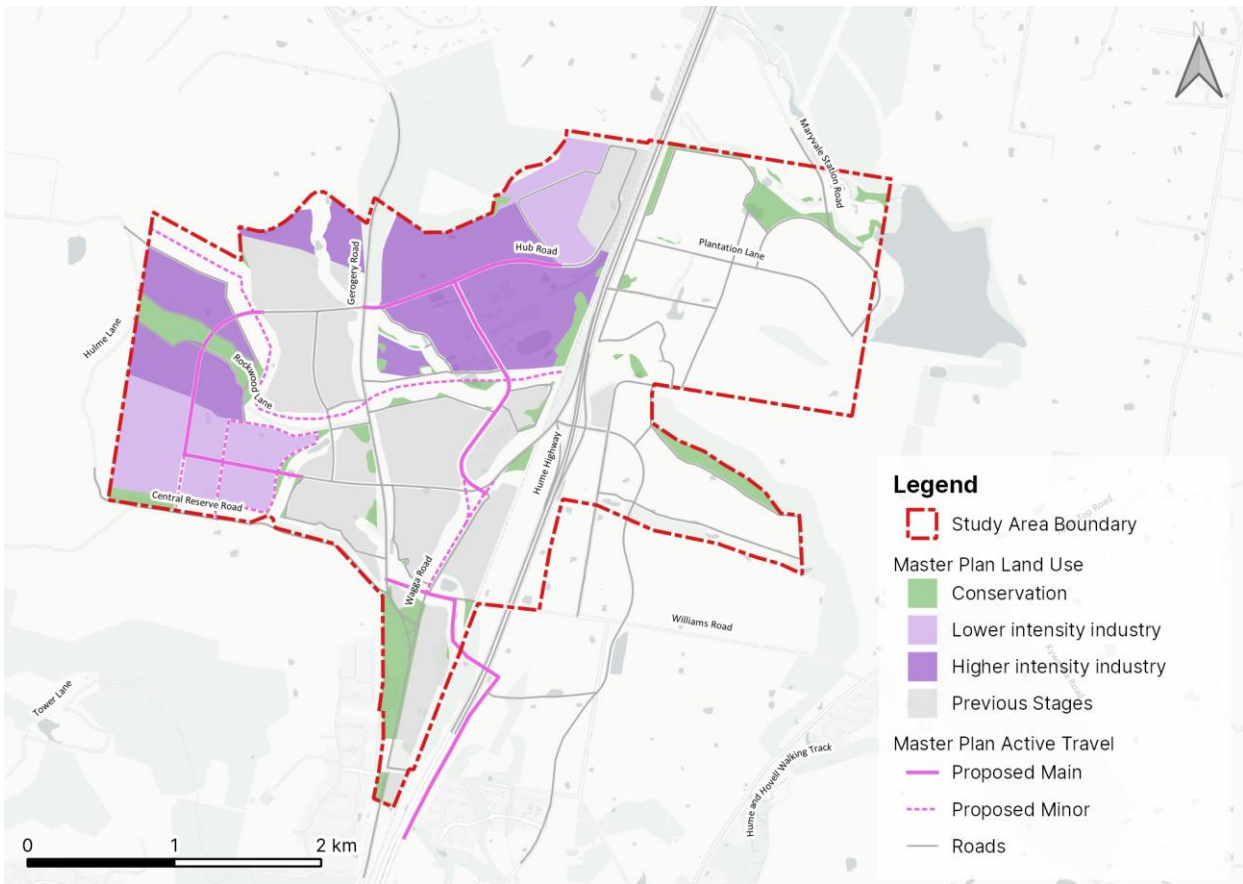


Figure 6–9 | Stage 2 Recommended Active Travel Facilities

In the long term, Stage 3, an additional main shared path should be provided connecting Thurgoona to and through the eastern part of the RJP. This path could connect to the existing off-road path on the eastern side of the Hume Highway, or to key paths in the Thurgoona network, which has not yet been planned. At the same time, the Davey Road interchange should be upgraded to include appropriate active travel facilities connecting the eastern and western sides of the RJP. To reduce construction rework, it is likely that this upgrade would be most economical if combined with the Davey Road interchange upgrade proposed in Stage 2. Shared paths and footpaths should be constructed along all road corridors, providing connectivity to local land uses. Figure 6–10 shows the recommended facilities to be implemented in Stage 3 of the RJP.

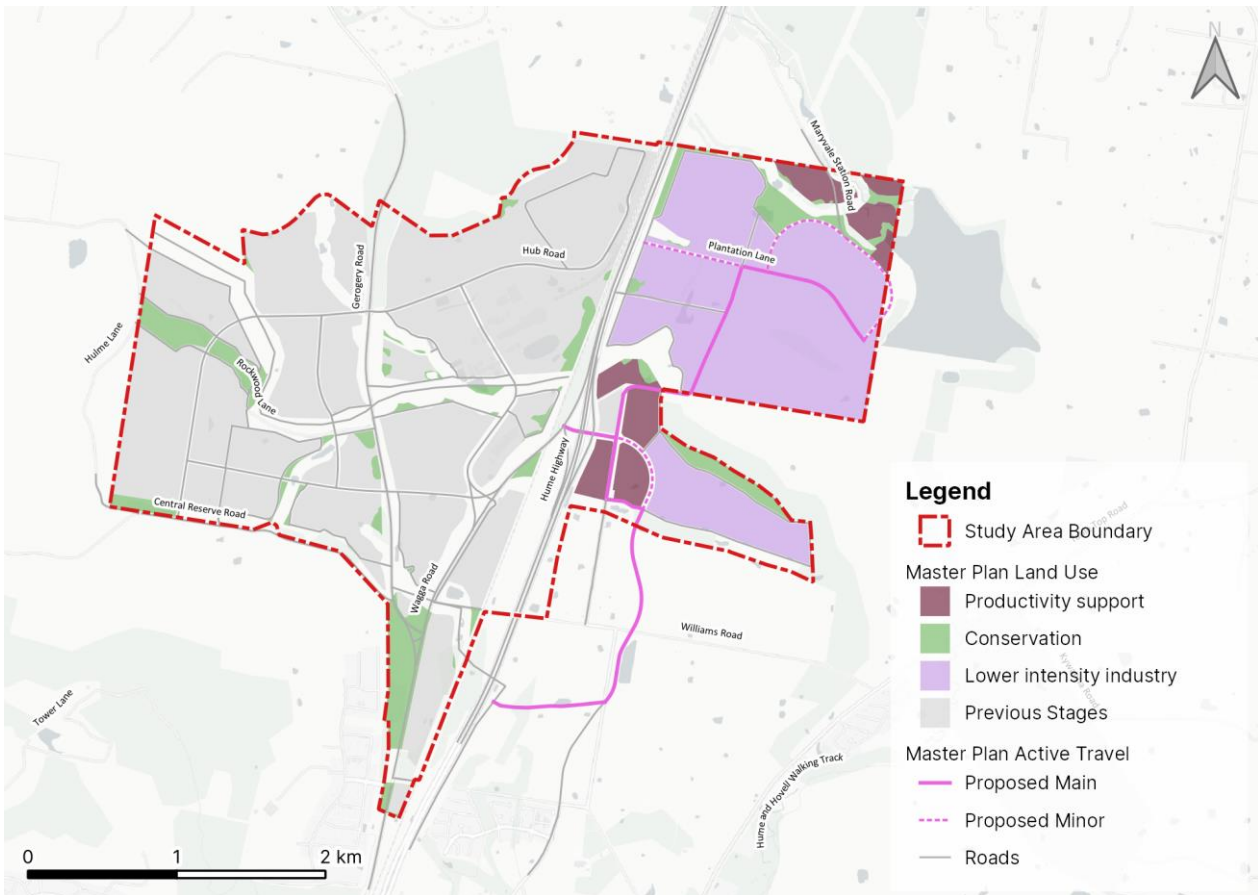


Figure 6–10 | Stage 3 Recommended Active Travel Facilities

Figure 6–11 shows a potential alignment of the recommended short, medium and long-term active travel facilities, along with possible locations for centralised end-of-trip facilities.

The RJP also offers an opportunity to provide active travel facilities along the conservation corridors and adjacent to watercourses through the site. These corridors could offer walking and cycling through natural areas while still being close enough to built-up areas to not be too isolated. Provision of these facilities should be planned in conjunction with the wider recreational network and an example east-west route is shown in Figure 6–11.

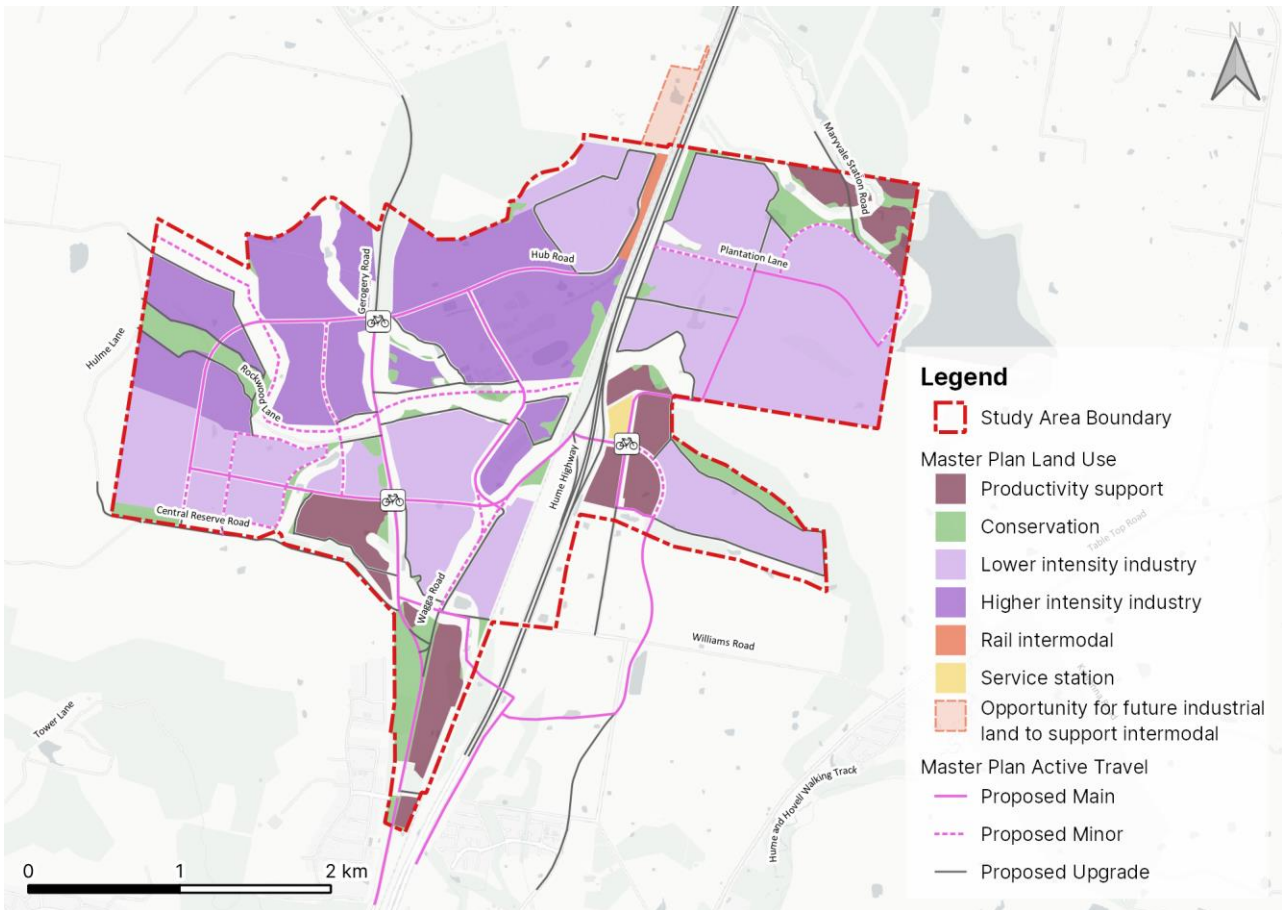


Figure 6-11 | Active Travel Network Upgrades (Short, Medium and Long Term)

## 6.7 Public Transport

As with active travel, most public transport to and from the RJP will be for employment purposes. Existing JTW data from ABS Census 2017 suggests that only 0.7% of people living in Albury currently travel to work by bus for the reasons discussed in Section 5.7. Sufficient capacity to accommodate this proportion of travellers to the RJP could be provided by two buses, but that would be a sub-optimal outcome from a public transport perspective and inconsistent with ACC desire to improve public transport mode share. The RJP development represents an opportunity to provide high-quality public transport that attracts and encourages significant usage. However, providing a good public transport service to the RJP would not attract significant usage without changes to the broader network. Network changes need to be agreed between operators, TfNSW and ACC. Public engagement and stakeholder consultation could also be considered.

Given the proposed industrial nature of the RJP, it is unlikely that all workers there will work standard business hours, which makes public transport provision more difficult. The current bus network in Albury is largely centred around the CBD and provides access from residential areas to the CBD in the AM peak and back to the residential areas in the PM peak. The location of the RJP north of the residential areas would change that peak flow. Existing services do not run frequently enough to attract high numbers of users. Any new bus services to the RJP should run at a frequency that makes public transport an attractive option. AWITS Background Report suggests that a “decent quality” public transport route should run at least every 30 minutes. To be attractive to commuters, buses to the RJP should run every 10-15 minutes during peak times, and 15-30 minutes during off-peak times. It is important to note that the industrial nature of the RJP development means that peak demand times may not coincide with peak time for other land uses in Albury. Peak demand times will need to be identified as applications for development approval are received during the RJP construction.

In the short term, a dedicated bus route to the RJP should be provided from Albury. This bus route should be integrated into the wider Albury public transport network, but could include transfers with other bus routes at QEII Square and Lavington to take advantage of buses coming from other parts of Albury. The RJP route should travel through North Albury and Lavington and on to the RJP. Passengers from North Albury would prefer not to travel south to the CBD to

transfer to a bus travelling north, so would need to be serviced en route to the RJP. Figure 6–12 shows the recommended public transport route through the RJP, along with indicative bus stop locations and circles representing 400m coverage.

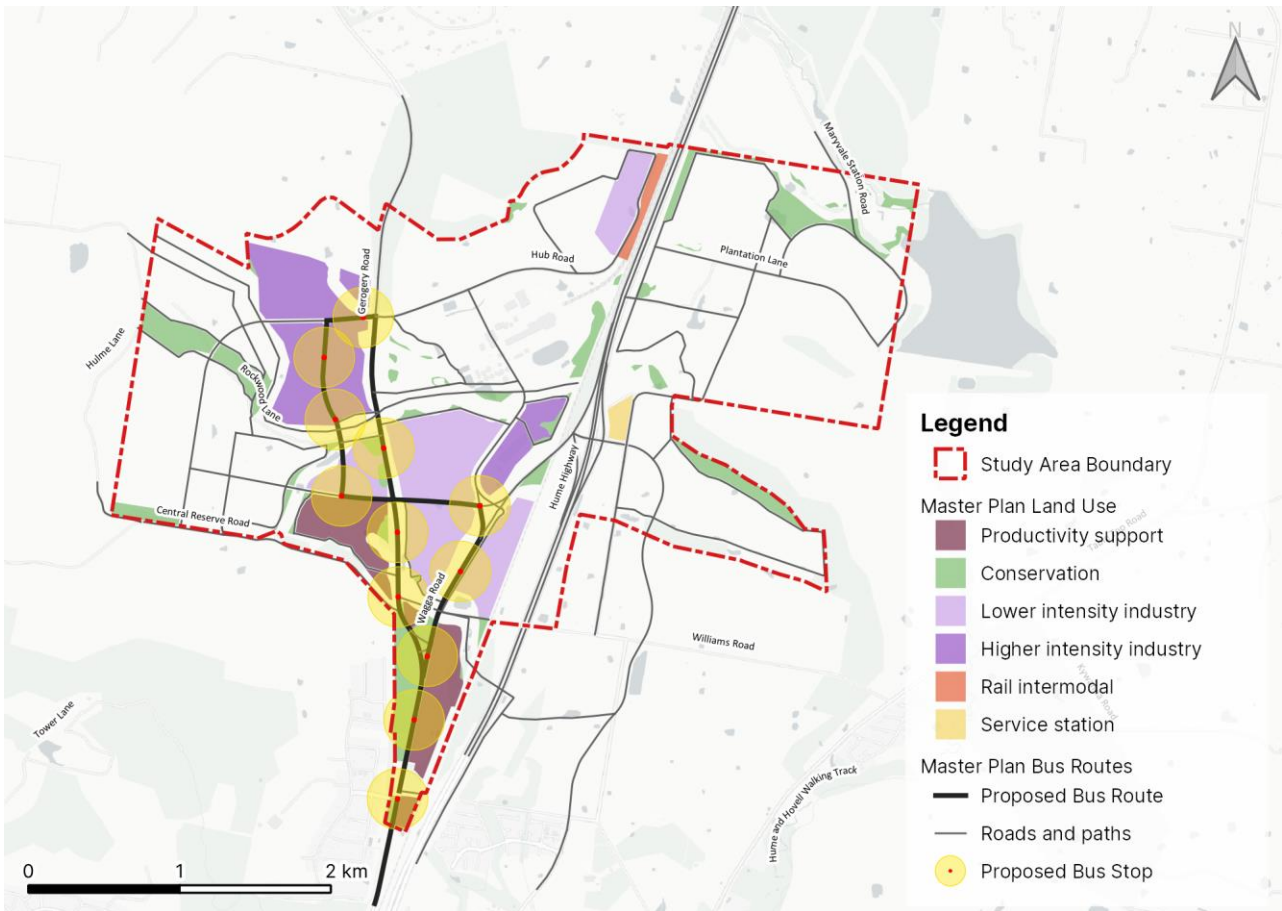


Figure 6–12 | Stage 1 Public Transport Recommendations showing bus stop locations and yellow circles representing 400m coverage from bus stops.

In Stage 2, the dedicated route to the RJP should be extended to cover the new Stage 2 development areas. The arrangement shown in Figure 6–13 provides reasonable coverage of Stages 1 and 2 but requires the removal of a stop that was active in Stage 1.



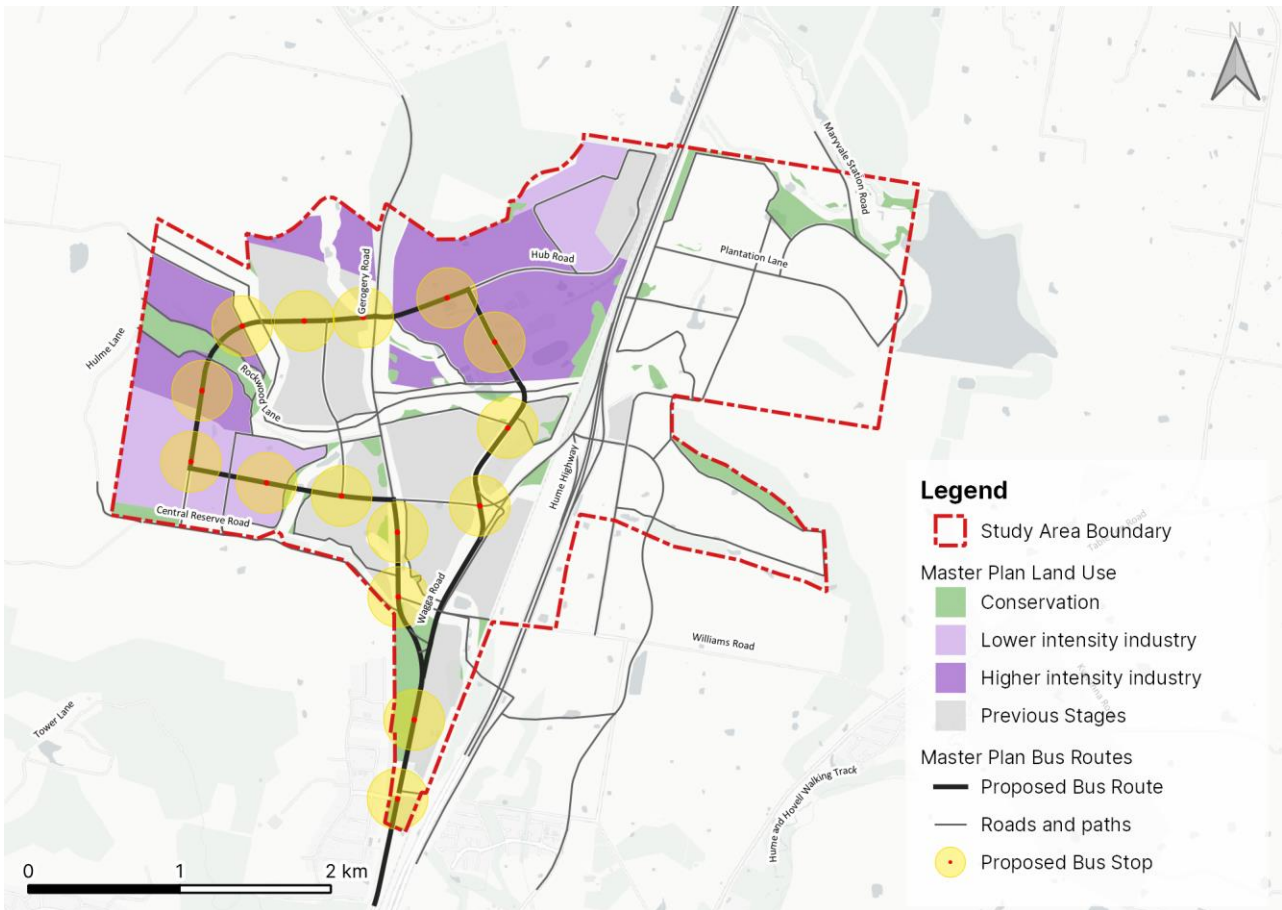


Figure 6–13 | Stage 2 Public Transport Recommendations showing bus stop locations and green circles representing 400m coverage from bus stops.

In the long term, the RJP bus route could be extended to run between Albury and Thurgoona via the RJP. This route should run in both directions to maximise attractiveness, along with connections to other local bus routes. Figure 6–14 shows a possible bus route, along with indicative bus stop locations and 400m catchments.

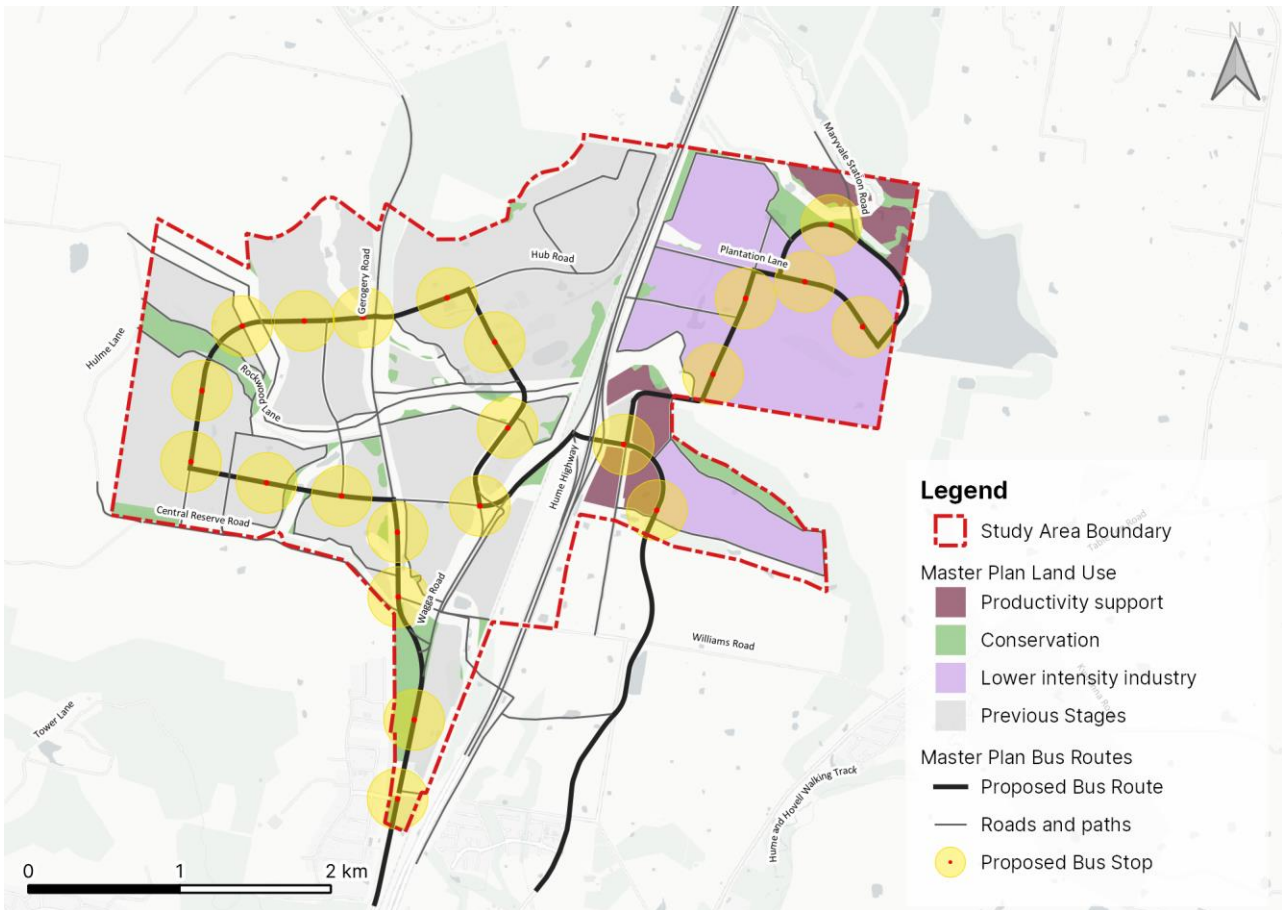


Figure 6-14 | Stage 3 (ultimate) Recommended Public Transport with proposed bus route (outlined in black) and orange circles representing 400m coverage from bus stops.

Given the relatively low density of the RJP, servicing all destinations with a bus route could lead to long, slow, meandering routes. To avoid this, and take advantage of the proposed active travel network, a shared bike/e-scooter scheme could be implemented inside the RJP, based around a small number of bus stops. Purchase of a bus ticket would entitle a traveller to use a shared mobility device to access their final destination. A scheme like this would require active management throughout the day to ensure that devices are always available at the right place and time but could present an innovative option for the precinct. The shared bike/scooter scheme could be based around the proposed end-of-trip facilities (discussed in Section 6.6) and would increase the demand for small commercial/retail opportunities like cafes and convenience stores. Concentration of pedestrian and cyclist activity and development of community around these small hubs could be a recognised benefit for businesses and workers to be located in the RJP.

## 7. Staging of Upgrades

### 7.1 Introduction

This section provides recommendations around staging of infrastructure delivery for the Albury RJP, based on the anticipated staged uptake of land use across the three stages provided by Ethos Urban. The intent of this exercise is to provide commentary on key tipping points where upgrade of infrastructure will be necessary to support the development of the precinct. This discussion is important to ensure infrastructure is delivered in a timely and efficient method to support uptake of land, without overinvesting in infrastructure that may sit redundant awaiting sufficient demand.

### 7.2 Staging Recommendations

Staged development of the transport network will need to respond to the spatial release of various land uses within the RJP. That is, the internal transport network will need to be developed to facilitate land release within the precinct. Notwithstanding the uncertainty around the staged uptake of land in the RJP, for the purpose of this transport assessment, Stage 1 of the precinct development has been assumed to occur by 2026, with the development of the proposed land uses complete by that time. The 2026 AWTM has been used to assess the implications of the Stage 1 development on the road network adjacent to the RJP.

Stage 2 of the precinct captures the remainder of the development of the precinct to the west of the Hume Highway corridor and is assumed to occur between 2026 and 2036. The 2036 AWTM has been used to assess the implications of the Stage 2 development on the road network adjacent to the RJP based on the assumption that all of Stage 2 development will be delivered by that time. As the 2036 AWTM is the latest available version of the strategic model, it has also been used to assess the implications of the Stage 3 development on the road network adjacent to the RJP. A potential staging of expected upgrades is summarised in Table 7–1.

It is noted that should the delivery of these stages be different to the assumed timeframes, it is possible that the impacts on the road, active transport and public transport networks may be different to those identified in this assessment. Furthermore, the staging will vary in response to a number of different factors including the pattern, timing and nature of development and land uses throughout the precinct. All active travel facilities and public transport routes should be operational from the opening of each stage to ensure that travellers do not build a car-reliant habit.

Table 7–1: Notional transport upgrade stages

Stage 1 (to 2026)	Stage 2 (2026 – 2036)	Stage 3 (2036 +)
Roll out of internal western RJP road network	Roll out of internal western RJP road network	Roll out of internal eastern RJP road network
R W Henry – Gerogery Link Road (including upgrade of the R W Henry / Wagga Road intersection)	Upgrade of Davey Road interchange including bridge widening / duplication and signalisation of ramp terminals	Duplication of R W Henry Drive and / or R W Henry – Gerogery Link Road (depending on pattern of development within RJP)
Duplication of Wagga Road between Thurgoona Drive – R W Henry Drive and associated intersection upgrades (Windsor Ave, private accesses etc.)	R W Henry Drive Extension	Widening of Wagga Road to three lanes in each direction between Thurgoona Drive – Gerogery Road including intersection upgrades (Windsor Ave, private accesses etc.)
Upgrade and signalisation of Wagga Road / Gerogery Road intersection	Duplication of Gerogery Road for extent within RJP	Upgrade of eastern external roads including Davey Road, Wignell Road and upgrading or constructing the Thurgoona Link Road (depending on its level of development at the time)
Provision of shoulders on Gerogery Road for extent within RJP	Extension of dedicated bus route from Albury CBD to RJP	Provision of bi-directional loop bus service from Albury CBD to Thurgoona via RJP

Stage 1 (to 2026)	Stage 2 (2026 – 2036)	Stage 3 (2036 +)
New bus route from Albury to RJP via North Albury and Lavington	Implementation of Stage 2 path network and recreational paths along conservation corridors	Provision of internal RJP shared mobility scheme linked to public transport
Implementation of Stage 1 active travel network	Inclusion of paths and shoulders on all internal roads	Implementation of Stage 3 active travel network
Inclusion of paths and shoulders on all internal roads	Development of recreational network through conservation corridors	Inclusion of paths and shoulders on all internal roads

### 7.3 Funding Mechanisms

There are various funding mechanisms to support the cost effective, equitable and timely delivery of the road and transport infrastructure upgrades that have been identified as being required to support the stages of the master plan. This section considers the potential to update the existing infrastructure contributions plans and other mechanisms such as Special Infrastructure Contribution (SIC) levies and Voluntary Planning Agreements (VPAs).

Development contributions are payments made by developers to help fund public infrastructure that is needed as a result of development. Development contributions are a key source of funding for NSW councils and state agencies.



Figure 7-1 | Types of infrastructure funded through development contributions in NSW (source DPIE, 2021)

Section 7.11 and 7.12 of the Environmental Planning and Assessment Act 1979 (EP&A Act), permits the collection of local development contributions by councils, in accordance with local infrastructure plans. These plans cover the construction of public infrastructure that will ultimately be owned by the local council such as open space, community facilities and stormwater upgrades. Funding for State infrastructure is levied through Special Infrastructure Contributions (under Clause 7.24 of the EP&A Act) or through planning agreements.

Albury Infrastructure Contributions Plan 2014 levies development contributions under Section 7.11 of the EP&A Act for local infrastructure and for water/sewer supply under Section 64 of the Local Government Act 1993. It is recommended that this Contributions Plan be expanded to include the RJP precinct, noting that it only applies to part of the RJP. In light of the infrastructure upgrades and staging recommendations in the RJP master plan, it is recommended that the Contributions Plan be reviewed to provide Council with a mechanism to collect the funding required for the



infrastructure that will support employment and industrial growth. Alternatively, Council could adopt a site-specific contributions plan for the RJP area only, which could allow the continuation of the existing 2014 contributions plan in parallel.

State Infrastructure Contributions (SICs) help to fund the delivery of state and regional infrastructure such as hospitals, schools, state and regional roads, public transport infrastructure, emergency services, biodiversity and some larger regional open space improvements. SICs are payable in addition to local contributions, and a determination made by the Planning Minister determines when and where a SIC levy applies.

As a result of the expected additional population in the Thurgoona growth area, and the additional employment generated by the RJP, it is recommended that a SIC be considered as an appropriate mechanism to fund new infrastructure such as schools, hospitals, regional open space and upgrades to Regional and State Roads. A wider Social Impact Assessment to determine future education, health and regional sporting needs of growing Albury should be undertaken. It is noted that the Hume Highway is a State Road, however the remaining roads that form part of the RJP or are immediately adjacent to and impacted by the RJP are part of the Albury City Council road network.

Provided a clear nexus can be established between development associated with the Albury RJP and the upgrade works required, then a SIC may be the correct mechanism to levy development and partially fund future works.



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