Wagga Wagga Special Activation Precinct A.4.1a Structure Plan

July 2020

Prepared for Department of Planning, Industry and Environment

Jensen PLUS together with

+ Meridian Urban

JENSEN PLUS

Planning
Landscape Architecture
Urban Design
Social Planning

“The ambition of the Wagga Wagga Special Activation Precinct is to be a sustainable hub of high value production and manufacturing, connected to the world and supporting Australia’s richest food and agricultural region.”

Acknowledgements

We acknowledge the following stakeholders and consultants whose inputs and participation informed the Wagga Wagga Special Activation Precinct Structure Plan.

_ The traditional owners of the region, the Wiradjuri people

_ Department of Planning, Industry and Environment

_ Wagga Wagga City Council

_ Dsquared Consulting

_ Meridian Urban

_ WSP

_ Todoroski Air Sciences

_ Rhelm

_ MacroPlan Dimasi

_ Landowners and businesses of the study area

_ The wider community of Wagga Wagga.

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Use this section to understand in detail the plan for Wagga Wagga SAP and how it might translate on the ground.

Use this section to understand how the Structure Plan will be translated to a successful activation precinct.

Section 01. Summary

Section 01 describes the vision for what Wagga Wagga Special Activation Precinct is intended to become. A summary of the process and issues identified is provided, along with the Structure Plan itself.

1.1 Structure Plan at a glance

"As NSW's Southern Gateway supporting Australia's richest food and agricultural region, the Wagga Wagga SAP will be a sustainable hub of high value production and manufacturing supporting innovative industries and businesses which are connected to the world."

Special Activation Precincts

This Structure Plan is a key outcome of a comprehensive master planning process for the Wagga Wagga Special Activation Precinct.

Special Activation Precincts are unique in NSW because they bring together planning and industry levers, and have the potential to harness support from all levels of government.

Economic opportunities

Wagga Wagga is a strategic location servicing the Riverina-Murray Region and is therefore of State and regional significance. The Wagga Wagga Special Activation Precinct is a place-based approach to 'activate' and leverage several catalyst opportunities of economic development.

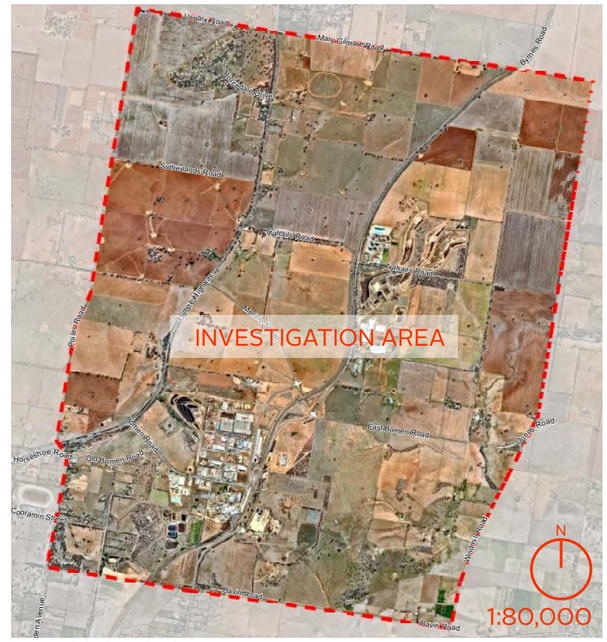
The Wagga Wagga SAP Structure Plan aims to capitalise on the economic opportunities associated with the construction of an Inland Rail network from Brisbane to Melbourne.

The Precinct will accommodate a proposed Riverina Intermodal and Freight Logistics Hub (RiFL) aimed at providing a key logistics and freight distribution focus for the Riverina-Murray region. The location also has the opportunity to leverage off major transport corridors between Adelaide, Melbourne, Sydney and Brisbane, and this provides this location a strategic advantage, aiding industry growth into the future and influencing economic potential.

In order to respond to this employment, growth areas need to be innovative in the way they function, utilise resources and integrate with their surrounding areas and markets more broadly.

There is a big opportunity to fill gaps in the supply chain in areas like food production and packaging, adding value to regional primary products from the Riverina-Murray Region. Other areas for innovation include:

- digital technology including e-commerce, digital platforms connecting agribusiness to capital, and traceability of origins of goods
- processing and packaging
- branding including 'clean and green' and organic foods
- agri-business or resource-related advanced manufacturing and packaging close to national rail (and road) freight terminals and routes.



Extent of the investigation area.

Sustainable development

There is also an opportunity to embrace sustainable development practices within a master planned precinct. This includes the potential to share an energy network, reduce and re-purpose waste streams and enhance the local environment through water quality and vegetation improvements.

Enquiry by design to maximise collaboration

The Structure Plan methodology was strongly informed by a commitment by the client group to a collaborative, multi-stage ‘Enquiry by Design’ workshop programme, facilitated by Jensen PLUS.

This culminated in a three-day Enquiry by Design workshop held in Wagga Wagga to develop a final scenario from the previously tested three scenario options identified from the Short EbD Workshop.

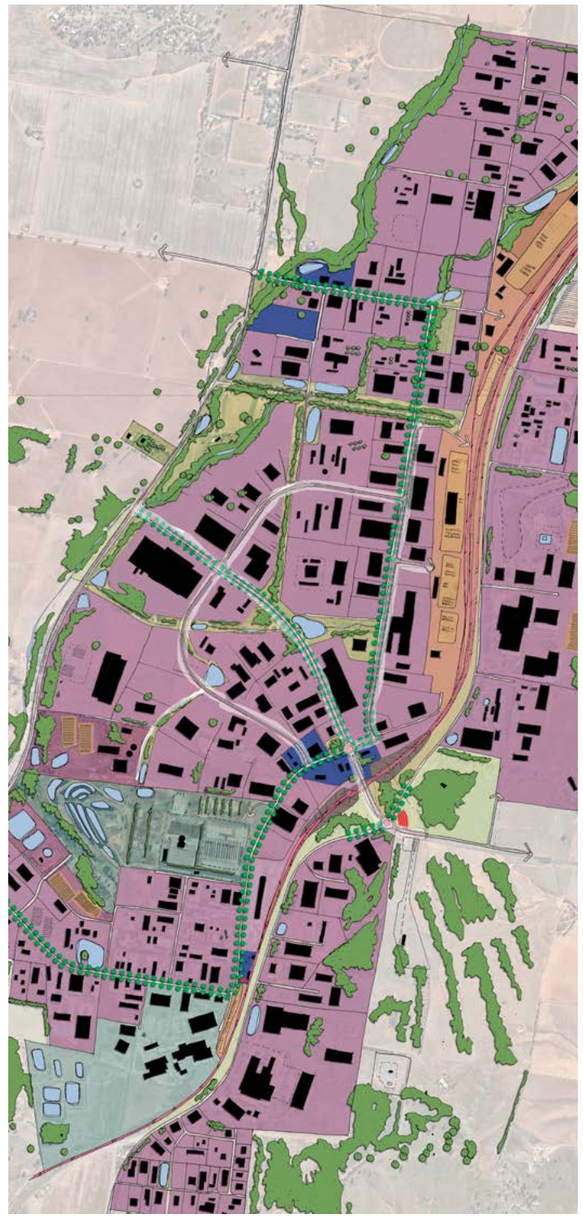
The final scenario concept was to align with the precinct vision and aspirations and incorporate best practice and innovation.

Structure Plan

Wagga Wagga Special Activation Precinct comprises 4506ha of land in the north of Wagga Wagga, NSW. The Precinct is being established as an economic and employment hub to accommodate regionally significant industries and businesses, on a large scale.

This Structure Plan defines Sub Precincts and overlays to further guide land use planning and development within the Precinct, including the optimum clustering of businesses to promote synergies and circular economy benefits, the efficient provision of infrastructure, and the management of potential noise, odour and air quality impacts on Precinct users and neighbours.

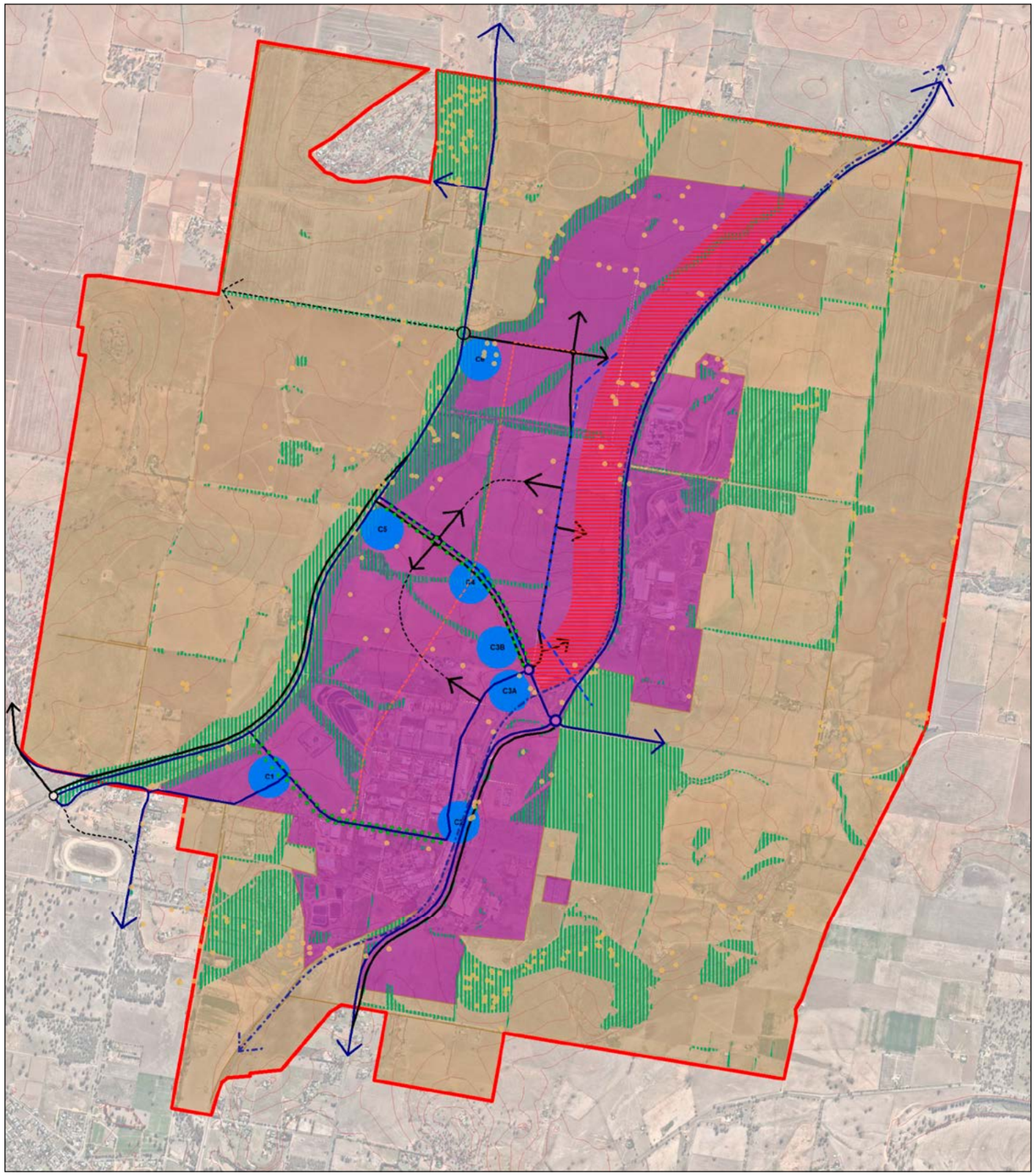
At the same time, the Structure Plan and associated statutory planning frameworks must remain flexible to enable fast-tracked planning, and to adapt to market and technological trends.



‘Illustrative master plan’ of Wagga Wagga Special Activation Precinct Precinct showing how the Precinct could look at full development

Wagga Wagga Special Activation Precinct **Structure Plan**

"The Wagga Wagga SAP Structure Plan applies to 4506 ha of land established for an regional employment hub. The Structure Plan applies to existing industry land at Bomen, and greenfield expansion areas largely between Olympic Highway and Main Southern Railway. Sub Precincts and overlays are defined to guide future development and infrastructure."



Legend

- Commercial Nodes (Indicative)
- Green Infrastructure Overlay
- Rail Terminal Overlay
- Regional Enterprise
- Roads
- Roundabout
- Rural Activity
- Special Activation Precinct Boundary
- Tier 1 & Tier 2 Paddock Trees
- Future roads
- HV Relocation
- New Roads
- Public Realm Landscape Improvement
- Rail
- Roads
- SAP Internal Infrastructure Corridor
- 10m Contours

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Section 02. Background

Section 02 describes why Wagga Wagga has been chosen as a SAP. It explains what a Special Activation Precinct is and the important drivers.

The aim and objectives of the Structure Plan and the approach taken to develop the Plan are outlined.

Use this section to understand the drivers for the project and the aims and objectives of the Structure Plan.

2.1 Introduction

An overview of the Structure Plan aim, objectives, project drivers and methods.

"A Structure Plan, informed by detailed technical studies, is required to define the long term vision to create an innovative and sustainable world-class and multi-function enterprise precinct at Wagga Wagga.

One objective of the Structure Plan is to inform the implementation of streamlined planning processes."

About the Structure Plan

This Structure Plan is a key outcome of a comprehensive master planning process for the Wagga Wagga Special Activation Precinct.

Master planning is part of a broader implementation programme which includes an infrastructure business case, and a new State Environmental Planning Policy (SEPP).

The Structure Plan is informed by technical studies prepared by other consultants and was developed utilising a collaborative 'Enquiry by Design' approach.

The Structure Plan guides land use planning and design, as well as investment in infrastructure including roads, water, electricity, telecommunication, gas and other services, and other infrastructure.

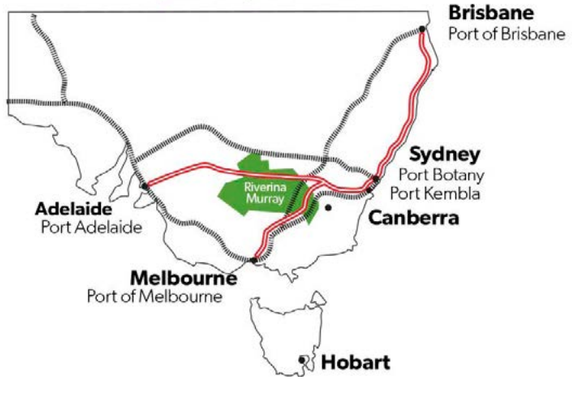
An objective of the Structure Plan is to inform the implementation of streamlined planning processes, including the creation of development standards to enable the adoption of exempt and complying development for identified land uses within the Wagga Wagga SAP.

Why Wagga Wagga?

Wagga Wagga is a strategic location servicing the Riverina-Murray Region and is therefore of State and regional significance. The Wagga Wagga Special Activation Precinct is a place-based approach to 'activate' and leverage several catalyst opportunities of economic development.

Master planning has been undertaken as part of a joint Government agency initiative, announced by Deputy Premier, the Hon. John Barilaro, to create a 20-year vision for job creation and regional development, including:

- creation of a new Riverina Intermodal Freight and Logistics hub
- road infrastructure upgrades
- digital infrastructure roll-out
- value adding opportunities.



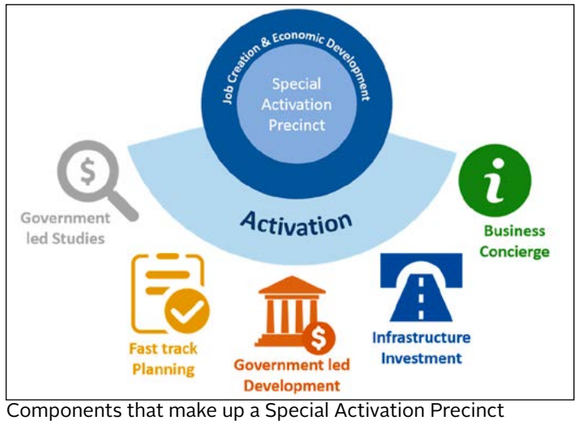
The Riverina Murray Region economy makes the largest regional contribution to the agricultural production of NSW. Wagga Wagga is a key regional city within the Region.
Source: Riverina Murray Regional Plan 2036

Special Activation Precincts

Special Activation Precincts are unique in NSW because they bring together planning and industry levers, and have the potential to harness support from all levels of government.

Special Activation Precincts contains five core components and this Structure Plan brings together the government led studies that will inform fast track planning for the Wagga Wagga SAP, and guide potential future infrastructure investment, government led development and investment attraction activities and incentives.

A SAP is designed to be more than a land use plan. The SAP is a mechanism designed to leverage sustained government and private sector investment and support, promote and attract business, and ultimately to cultivate a growth conducive environment in strategic locations in Regional NSW.



Components that make up a Special Activation Precinct
Source: Department of Premier and Cabinet

2.2 Precinct Drivers

An overview of the drivers of the project.

Inland Rail development

The Wagga Wagga SAP Structure Plan aims to capitalise on the economic opportunities associated with the construction of an Inland Rail network from Brisbane to Melbourne. The Inland Rail project has received $9.3 million in funding from the Commonwealth Government to support upgrades to the freight network. It is projected that the first train will rail between the two capital cities in 2025 and:

_ reduce supply chain costs

_ improve access to and from regional markets for agriculture products

_ better connect cities and farming to markets

_ improve sustainability

_ improve linkages; faster, safer and more reliable.

The Precinct is also home to a proposed Riverina Intermodal and Freight Logistics Hub (RiFL) aimed at providing a key logistics and freight distribution focus for the Riverina Murray region. The location also has the opportunity to leverage off major transport corridors between Adelaide, Melbourne, Sydney and Brisbane, and this provides this location a strategic advantage, aiding industry growth into the future and influencing economic potential.

Inland Rail route.to be established by 2025.

Focus on growth within the regions

The Snowy Hydro Legacy Fund which provides the framework for the establishment of Special Activation Precincts provides a focus for the New South Wales Government within the regions, specifically in support of growth in industries such as (amongst others):

_ agribusiness and forestry

_ freight and logistics

_ technology-based primary industries

_ advanced manufacturing

_ tertiary education and skills

_ renewable energy.

This renewed focus also supports further population growth in regional cities and surrounding hinterlands by increasing the attractiveness of these locations for people to live and work.

This in turn supports relieving the current pressures on Sydney and other coastal cities through population growth by disseminating further employment and growth opportunities into strategic regional locations in a way that further supports and value-adds to the New South Wales economy and regional communities.

Need for an innovative and competitive precinct

There is a need for any future employment precincts to thrive within an increasingly competitive market, both across Australia and globally.

In order to respond to this employment growth areas need to be innovative in the way they function, utilise resources and integrate with their surrounding areas and markets more broadly.

There is a big opportunity to fill gaps in the supply chain in areas like food production and packaging, adding value to regional primary products from the Riverina-Murray Region. Other areas for innovation include:

_ digital technology including e-commerce, digital platforms connecting agribusiness to capital, and traceability of origins of goods

_ processing and packaging

_ branding including ‘clean and green’ and organic foods

_ agri-business or resource-related advanced manufacturing and packaging close to national rail (and road) freight terminals and routes.

There is also an opportunity to embrace sustainable development practices within a master planned precinct. This includes the potential to share energy network, reduce and re-purpose waste streams, enhance the local environment through water quality and vegetation improvements. These can also bring major economic benefits, contributing to innovation, growth and job creation.

To be best positioned to take advantage of these opportunities, there is a need for flexibility in the range of activities and uses able to be accommodated, including the potential for 24/7 operation of activities. This requires a carefully considered and planned Precinct.

Facilitating existing + future business investment

The Bomen Business Park and surrounding businesses have sought to invest in their operations and further grow their businesses. This has often been complicated by a range of regulatory requirements and limitations which has resulted in delays and costs for businesses. In some instances, this has resulted in investment either moving interstate or overseas, along with opportunities for additional jobs.

There is a clear need to facilitate further business expansion and investment by establishing a clear strategic master plan for this location, supported by streamlined planning processes and decisions. This will provide the certainty and also flexibility sought by businesses to support investment decisions into the future as well as provide the clarity and confidence required to attract new businesses to Wagga Wagga.

Population growth

Wagga Wagga is earmarked for significant growth with aspirational forecasts of the Wagga Wagga population to achieve 100,00 people by 2038. There is a need to suitably plan for this growth and importantly provide for the economic and employment opportunities required to support the additional population within Wagga Wagga.

Wagga Wagga City Council has commenced planning for this with the preparation of a draft Northern Growth Area Master Plan. However, there is a need to align and link economic growth opportunities associated with a potential SAP at Wagga Wagga with those of the future growth of the city.

Proactive local government partner

Wagga Wagga City Council has been proactive in planning for the Bomen Business Park's growth through previous rezoning and a draft Master Plan prepared in 2018.

This follows the construction of strategic road infrastructure, including a grade separated rail crossing, aimed at supporting and facilitating the development of RiFL and growth of the Bomen Business Park.

The Council is also a major land owner within the study area and an important partner and facilitator of the SAP process, Structure Plan and its implementation.

Community interest in how growth should occur

The Bomen Business Park has previously undergone significant rezoning and a master plan. This, along with recent renewable energy proposals, have generated significant community interest and opinion, which is varied and sometimes conflicting.

The study area has characteristics that are valued by the surrounding community, who have an interest in ensuring that future master planning facilitates growth in a way that also acknowledges and maintains those elements impart to locals.

A number of communities live within or adjacent to the Wagga Wagga SAP area and have a direct interest in the outcomes of the Structure Plan. These include residents at Brucedale, Cartwright's Hill and within the Eunony Valley.

A successful Structure Plan needs a strategic approach which suitably engages with all stakeholders and communities of interest, and responds to these interests in a balanced and fair manner.

This necessitates a desire to revisit the 2018 Master Plan prepared by the Wagga Wagga City Council and plan more holistically for the development and implementation of the Wagga Wagga SAP into the future.

Bomen Business Park.

Residential growth area.

Eunony Valley.

2.3 Vision and Aspirations

The following Vision and aspirations were developed and endorsed by the SAP technical consultant team.

“As NSW’s Southern Gateway supporting Australia’s richest food and agricultural region, the Wagga Wagga SAP will be a sustainable hub of high value production and manufacturing supporting innovative industries and businesses which are connected to the world.”

Master Planning + Precinct Design

- Design a modern environmentally responsive industry and employment precinct that respects its strong landscape setting.
- Locate industries to manage amenity impacts (e.g. noise, light, air quality, odour, visual) on workplaces and communities.
- Grow from existing industry clusters and planned RiFL Hub.
- Provide for a range of land uses and futureproof for emerging industries.
- Provide a foundation to deliver on the promise ‘Wagga to the World’.
- Provide certainty and confidence for industries and businesses to establish and expand within the Wagga Wagga SAP.

Environment, Heritage + Sustainability

- Protect and acknowledge Aboriginal culture and places (eg Bowmen Axe Quarry), and European heritage.
- Incorporate world-class water, energy and waste cycle management and ecologically sustainable development principles.
- Be carbon and climate positive / neutral.
- Target secure, affordable renewable energy to support ESD and business investment.
- Identify and achieve a world-class ESD rating or certification best suited to the proposed uses.
- Protect the catchment of the Murrumbidgee River.
- Protect precinct biodiversity and environmental values and plan an enhanced green infrastructure network.

Natural Hazards + Resilience

- Incorporate precinct scale measures to manage natural hazards, including bushfire, to ensure future resilience
- Water reuse will be a standard approach throughout the precinct recognising its environmental importance.
- Future development will be located outside of flood prone areas and drainage corridors.

Infrastructure + connectivity

- Aligning the delivery of development with recently completed road infrastructure upgrades
- Ensure appropriate utility and service (water, sewer, stormwater, telephone/ data) connectivity, including the potential for district level energy and storage.
- Maximise opportunities for a digitally connected precinct, leveraging 5G, GigState and Smart Regional Places initiatives in Wagga Wagga.
- Optimise road, rail (and airport) infrastructure to enable efficient development.
- Futureproof road and rail to accommodate larger trucks and longer trains, building from the new RiFL Hub.
- Integrate active transport connectivity and public transport opportunities for a 24/7 Precinct.

Social + Community Infrastructure

- Integrate TAFE and tertiary education institutions, promote training and apprenticeships within the Wagga Wagga SAP..
- Create an ‘employment place of choice’ including by providing appropriate services and amenities to meet the needs of future workers.
- Consider other community infrastructure to support the people living and working in the area (e.g. open space, local services, recreation, trails).
- Work with local communities, including Wiradjuri people and local residents to create a strong connection to place.

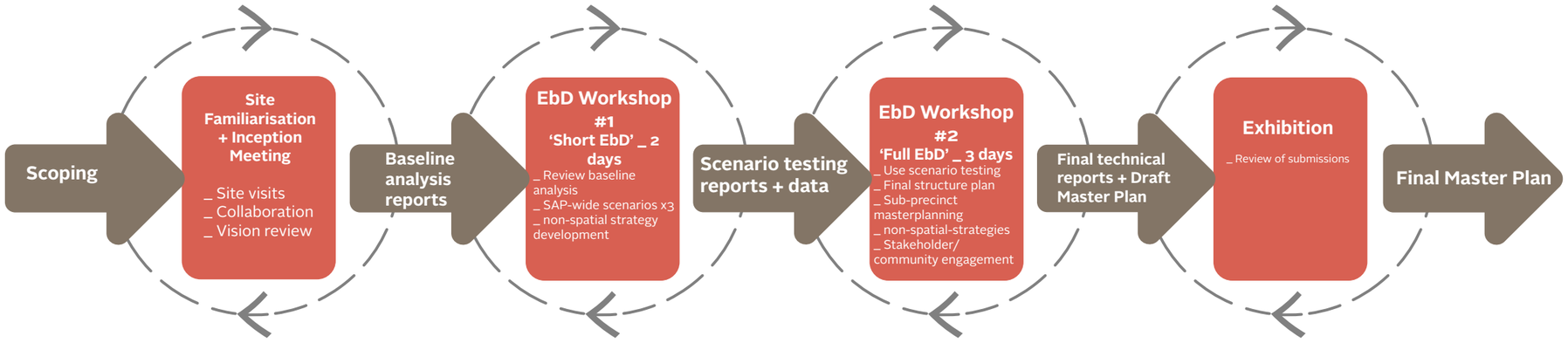
Economic + Industry

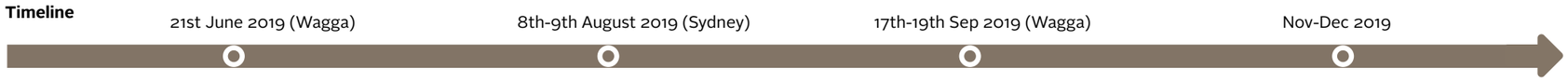
- Facilitate the streamlined establishment of diversified businesses in freight and logistics, advanced manufacturing, recycling, value-add agribusiness, engineering and technology, and renewable energy.
- Accelerate the establishment of circular economies, connecting existing organisations and resources, maintaining the value of products for as long as possible and minimising waste.
- Broker partnerships with industry and tertiary education / research sectors to promote innovation, R+D and commercialisation of new products.
- Ensure future development is aligned to precinct opportunities (land use efficiencies).
- Attract exemplar businesses with corporate social responsibilities aligned to the vision and aspiration of the precinct.

2.4 Methodology _ Enquiry by Design

“The Enquiry by Design (EbD) process is a planning tool that brings together key stakeholders to collaborate on a vision for a new or revived community...to assess a complex range of design requirements for the development site, with every issue tested by being drawn.”

Princes Foundation





The Structure Plan methodology was strongly informed by a commitment by the client group to a collaborative, multi-stage ‘Enquiry by Design’ workshop programme, facilitated by Jensen PLUS.

Enquiry by Design (EbD) workshops enable a design team and a stakeholder group to spend time together, on site, and ‘on topic’.

Four workshops formed the basis of the process:

_ Workshop 1 - ‘Site familiarisation + Inception Meeting’

_ Workshop 2 – ‘Short EbD’

_ Workshop 3 – ‘Full EbD’

_ Workshop 4 – ‘Presentation’ (presentation of the draft Structure Plan to stakeholders).

The EbD outcomes are further explained in Chapter 4.

Investigations + testing

Between each workshop Jensen PLUS and other technical consultants undertook investigations, testing and reporting, to inform the next collaborative workshop.

The EbD process is well suited to a large, regional project of this type, where gathering people together takes time to organise, and where maximum value must be sought from face-to-face time. It is also suited to projects with accelerated time-frames.

Stakeholders

The main participants in workshops were:

_ Department of Planning Industry and Environment

_ Regional Growth NSW Development Corporation

_ Wagga Wagga City Council staff and Elected Members

_ Technical consultants

_ State agencies (including EPA, TfNSW, RMS)

At the full EbD workshop in September 2019, additional stakeholder engagement meetings and community information sessions were incorporated into the process.

Achievements

The use of an EbD process to establish and develop a vision for large master planning projects is a well established technique, particularly for urban growth, town centre revitalisation and other urban development projects.

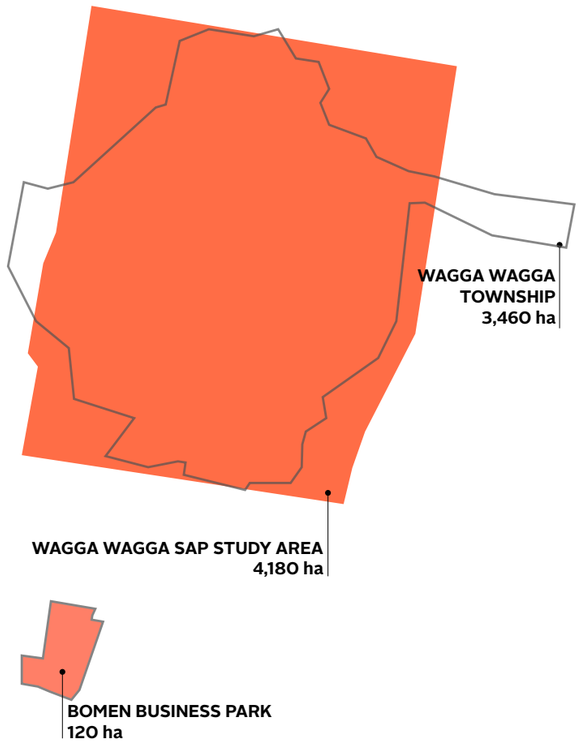
The use of EbD for Special Activation in Precincts is innovative given that the project is a large-scale industry topic. This presents new challenges such as the difficulty in forecasting demand (and therefore land requirements), the diversity of site sizes and spatial designs that might be required by businesses, and generally the lack of ‘rules of thumb’ that often underpin the rapid planning processes of an EbD.

The lessons from the Parkes SAP process were incorporated into a more focussed and refined process and EbD workshop programmes for Wagga Wagga SAP. Overall the Wagga Wagga SAP process has been very successful in developing a Structure Plan for a complex project, in a rapid way, with strong collaboration and stakeholder input from land owners, business owners and the broader community.

Section 03. Context

Section 03 summarises the context for the Structure Plan. It provides a brief history of Wagga Wagga and describes the study area in words and pictures. Strategic policy is summarised, much of which provides consistent direction for the Structure Plan. The current statutory planning context is also summarised.

3.1 Study Area



_ 34.5 times the area of Bomen Business Park today (including Livestock Marketing Centre)

_ 120% the area of the existing Wagga township

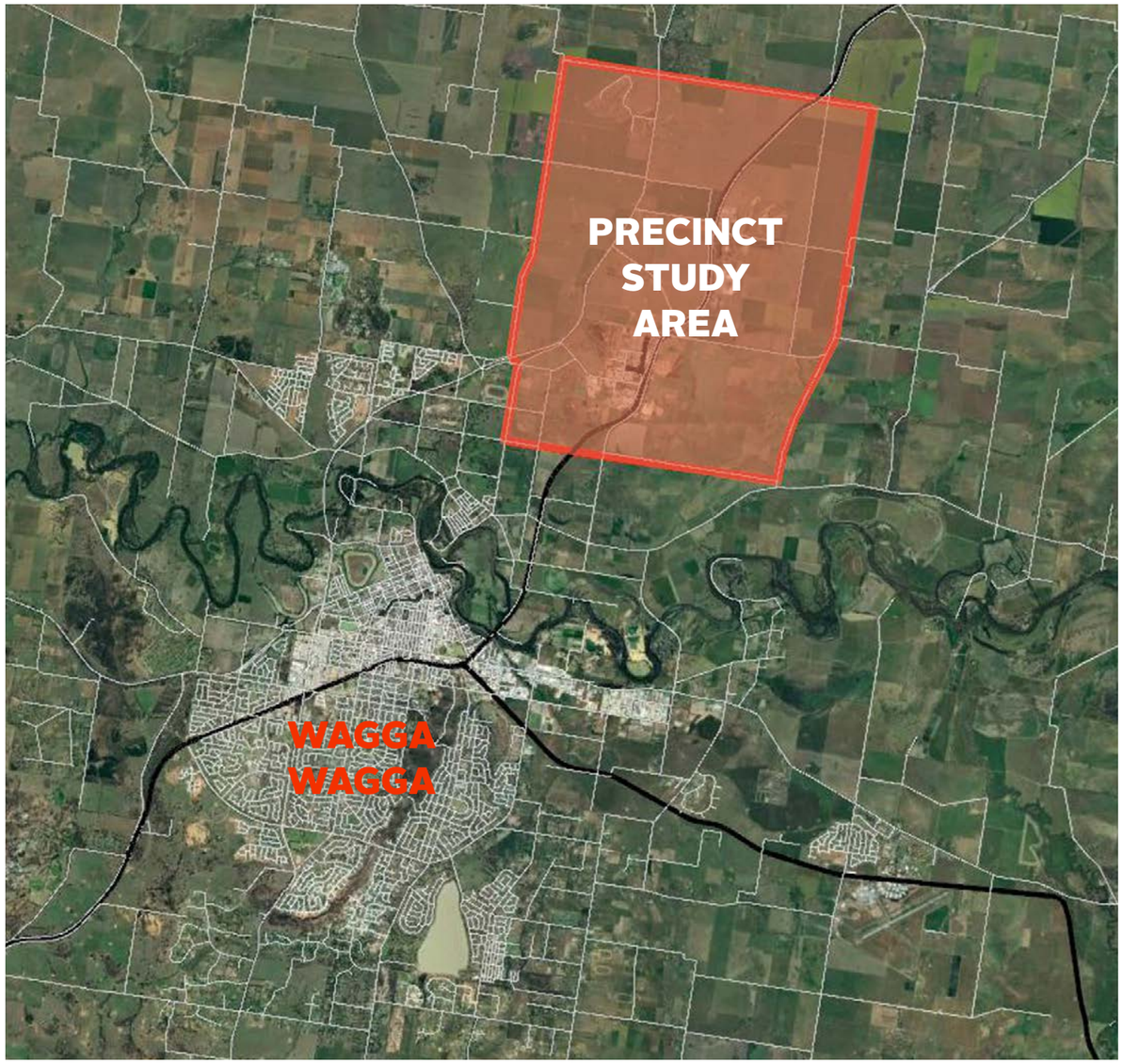
The Wagga Wagga Special Activation Precinct study area is located 4km north-east of the Wagga Wagga township and is over 4,000 hectares in size. The scale can be difficult to comprehend but is necessary to accommodate large footprint uses, provide for long-term growth and allow for the buffers required from existing sensitive receptors in and surrounding the study area.

Wagga Wagga Local Government Area

Wagga Wagga is NSW's largest inland regional city and one of three regional cities in the Riverina-Murray Region. It has the largest retail, commercial, administrative and population centre within the Riverina Murray region and services the needs of the surrounding settlements in a catchment of over 185,000 people.

The Riverina Murray Region is a leading and diversified economy that makes the largest regional contribution to the agricultural production of NSW. It leads the way in agricultural innovation and value-adding, leveraging advanced and automated technologies to maximise agribusiness diversification.

As a regional city, Wagga Wagga is well serviced by a large Central Business District, regional health precinct and supporting facilities, the Charles Sturt University campus, TAFE and a regional Airport with frequent flights to both Sydney and Melbourne.



Description

The study area is bound to the north by Mary Gilmore Road and Vonarx Roads, west by Poiles Road, south by Bavin Road and east by Windmiill Road and is approximately 6km wide and 7km long.

The Bomen Business Park, adjacent Livestock Marketing Centre and Wastewater Treatment Plant are located within the southern portion of the study area, along with a cluster of residential properties that make up Cartwright's Hill. Land uses vary from the intensive uses such as Teys Abattoir and Southern Oils to low impact facilities associated with warehousing, engineering and distribution services which support the hinterland activities and the Wagga Wagga township.

Large scale industrial activities (including ROBE and Energi) are scattered along Byrnes Road which meanders through the centre of the study area running north-south, following the Sydney to Albury Rail line. To the east of these activities a solar farm is under construction.

Residential uses are largely scattered throughout the study area, with the exception of the Brucedale area in the north-western corner. The remainder of the study area contains agricultural land uses within an open landscaped setting.

The Olympic Highway runs north-south through the western part of the study area connecting to the Gobbagombalin Bridge across the Murrumbidgee River and to the Wagga Wagga township and Sturt Highway running east-east to the south of the river.

Other key roads within the study area include Merino Drive which connects Byrnes Road with Olympic Highway and provides the only grade separated crossing of the rail line within the study area. Bomen Road provides connection from Olympic Highway to the Bomen Business Park.

A travelling stock route is located along the Olympic Highway, with two reserves located along the Highway and at the corner of Bomen Road.

Some 865 hectares of the central part of the study area is owned by Wagga Wagga City Council who have acquired land as part of the development Merino Drive, as well as to facilitate the proposed Riverina Intermodal and Freight Logistics Hub (RiFL) north of Merino Drive.

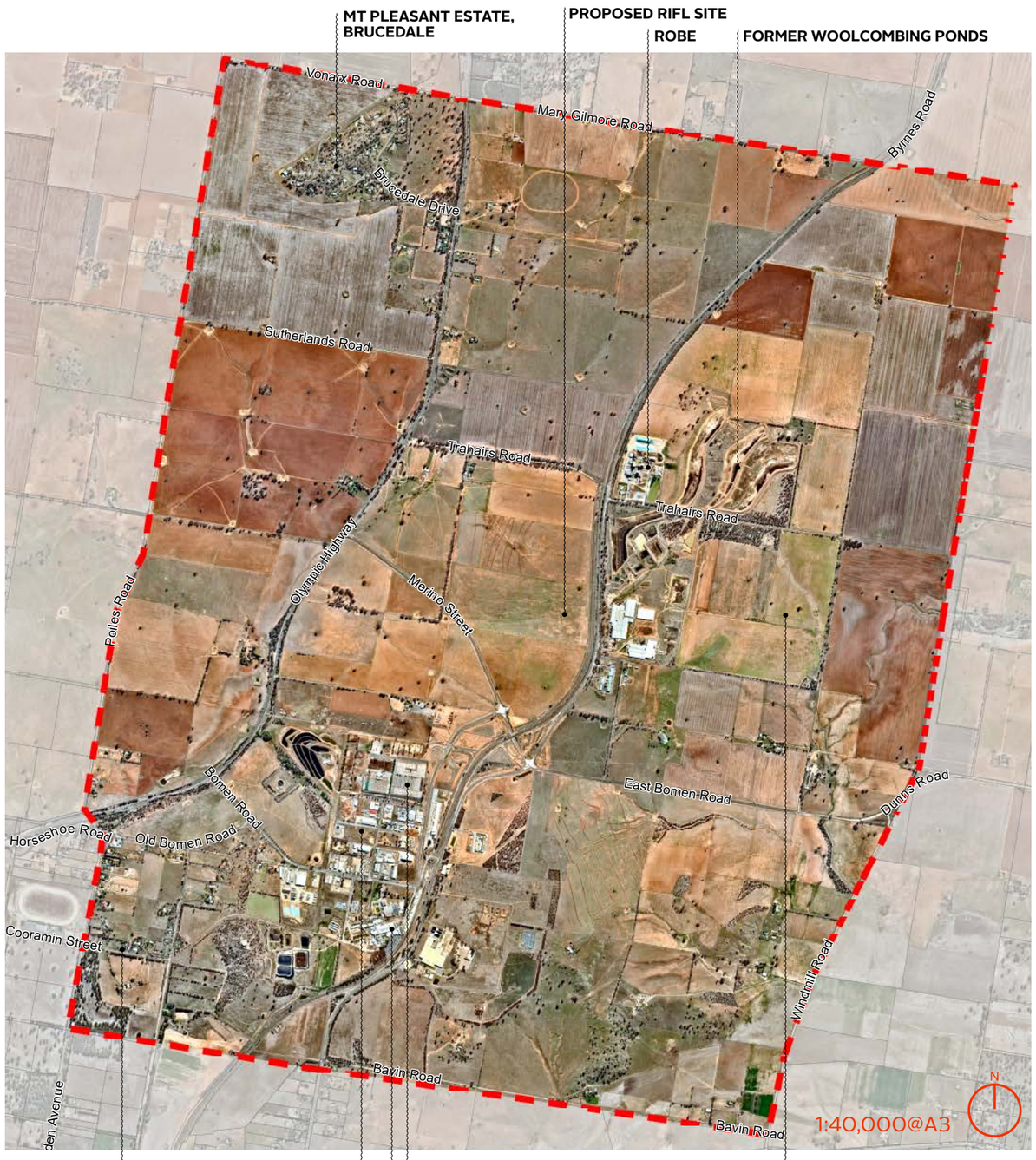
The study area has cultural relevance to the Wiradjuri people and artefact sites and scarred trees have previously been identified in the study area. Bomen Axe Quarry is a culturally significant place situated within the study area.

The land form is undulating with two distinct valleys running approximately north-south through the study area. The rail corridor and Byrnes Road are positioned approximately on the ridge between the two valleys, making existing developments such as ROBE at these locations highly visible from the surrounding locations within and outside of the study area to the east and west.

The western valley has a floor along the Olympic Highway that runs alongside the Dukes Creek which flows into the Murrumbidgee River to the south. The western ridge of this valley runs along the western boundary of the study area.

The eastern valley comprises the Eunony Valley which extends beyond the study area with the eastern boundary approximately located at the valley floor.

There are pockets of native vegetation scattered throughout the study area, including paddock trees, more heavily within the Brucedale Estate location and within the southern portion of the study area, although the majority of the landscape comprises open agricultural lands, with vegetation focussed into road corridors.



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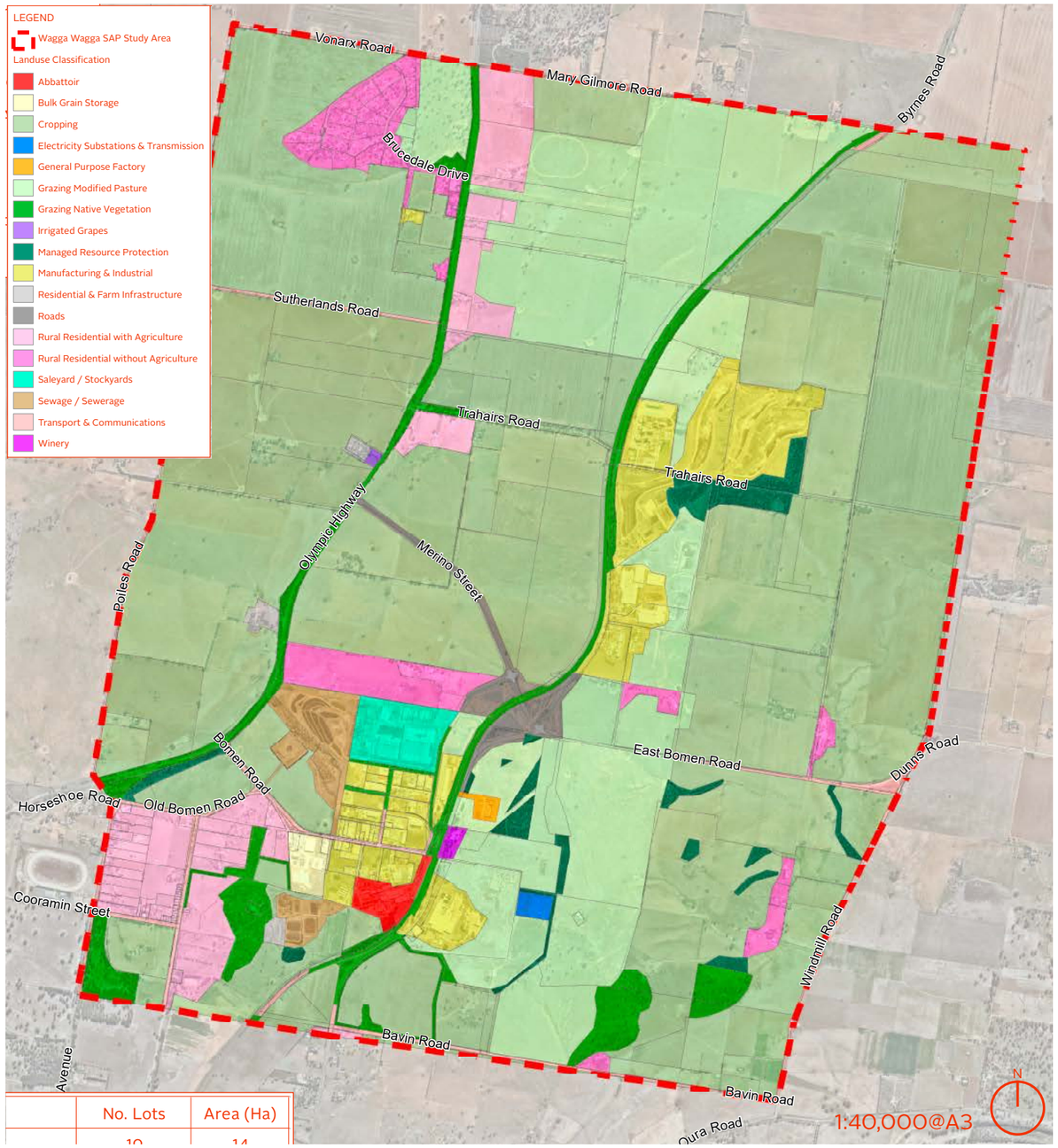
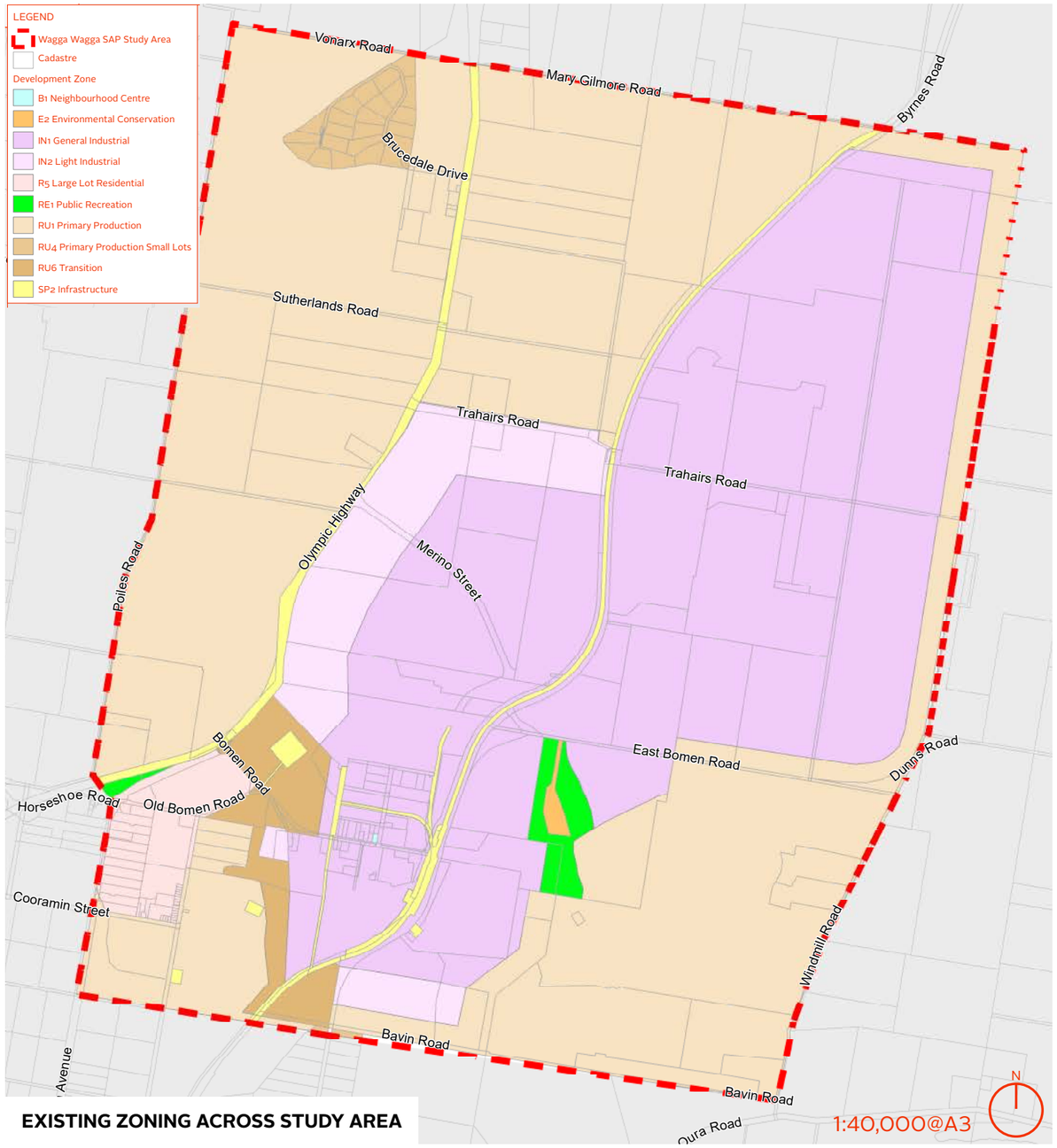
LAND USES ACROSS STUDY AREA

"Despite the extensive industry zoning, only 342ha of land is currently used for industry and related uses, focussed on the Bowmen Industrial Estate, and Byrnes Road."



	No. Lots	Area (Ha)
	10	14

"The study area is covered by 10 zones, principally Industrial and Primary Production Zones."



EXISTING ZONING ACROSS STUDY AREA

3.2 Historical context

More than 40,000 years ago - present

1830s

1849

1879

1939

1949

Traditional Owners - Wiradjuri People

The traditional land owners of the Wagga Wagga region are the Wiradjuri people who have lived in these lands for more than 40,000 years. The Wiradjuri tribe was the largest in NSW, ranging from northern Victoria in the south to Coonabarabran in the north, covering approximately one fifth of NSW.

European exploration and early settlement

Captain Charles Sturt and George Macleay, amongst other early colonists first sighted and explored the Wagga Wagga region as part of their expedition of discovery down the Murrumbidgee and Murray Rivers. Settlement swiftly followed (City of Wagga Wagga).

Wagga Wagga established

Wagga Wagga was proclaimed a town in 1849 and in the same year surveyor Thomas Townsend marked out the town.

In the 1860s the population totalled approximately 700, but by 1881 it had increased to 3,975 (City of Wagga Wagga).

The railway

The railway arrived in 1879, first in Bomen, then to Wagga Wagga before crossing the Murrumbidgee River a year later.

The Main Southern line to Albury and the Western trunk route to Bourke on the Darling River were responses to the threat that wool and other produce from the Riverina and the west of NSW would be diverted to Melbourne (https://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=4806250).

Wagga Wagga Airport established

Established initially as an inland training base for the RAAF, the airport was opened to civilian flights after World War 2.

A concrete runway was established in 1954 with a further upgrade in 1992 to accommodate Boeing 737s.

Wagga Agricultural College (Charles Sturt University)

The Wagga Agricultural College was established from the Wagga Experiment Farm which originally provided vocational farming education.

The College progressively expanded, particularly in the 1970s and 1980s to the current campus site. The site is now the tertiary education hub for Riverina Region.

1970s-80s

1990 - 2010

2015

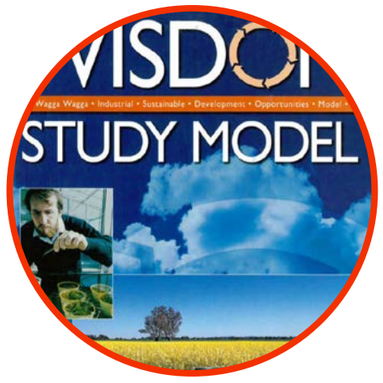
2016

2019

to the future...

Key uses and Bomen Industrial Estate established

Key uses within the Bomen Business Park are established in Bomen, including Teys, The Wool Combing Facility and the Wagga Wagga Livestock Marketing Centre. This is followed by the remainder of the estate, progressively developed since this period.



Bomen Studies and re-zoning

In 1990 an 'industry relocation hub' was investigated at Bomen and in 1995 the Wagga Wagga Industrial Sustainable Development Opportunities Model (WISDOM) was developed.

In 2008 /2009 the Wagga Wagga Local Environmental Study and Bomen master plan were prepared, drawing on some outcomes of the earlier studies and informing the rezoning's for the area as part of the new Wagga Wagga LEP 2010.

Riverina Intermodal Freight and Logistics Hub Proposed

City of Wagga Wagga partners with GWA to establish a framework for the establishment of the RiFL Hub at Bomen. Commercial viability assessments were prepared, concepts developed and obtained a funding commitment from the State Government for the 5.8km master rail siding in 2018.

Inland Rail

The new $10 billion Inland Rail connecting Brisbane to Melbourne that will pass through Wagga Wagga, opening up new freight and logistics opportunities for Wagga Wagga.

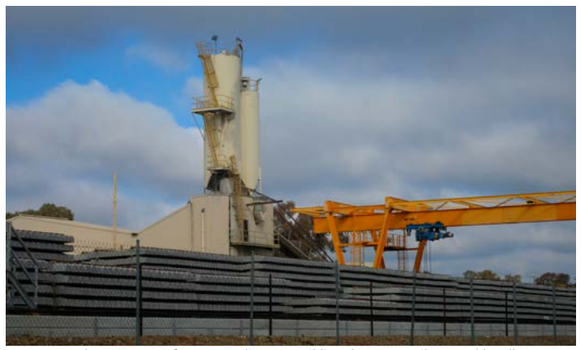
The Wagga Wagga Special Activation Precinct

3.3 Existing conditions

“A business park and Livestock Marketing Centre are found within the bounds of the railway line, the Pacific Highway and Merino Drive. Large industries are located on the ridge along Byrnes Road with a solar farm under construction to the east. The area is surrounded by agricultural land set within an undulating landscape defined by two valleys.”

Existing businesses


Wagga Livestock Marketing Centre is the largest sheep sale yard in Australia and is Council owned


Concrete Sleeper manufacturer adjacent rail line (on Council owned land)


Large buildings are visible from main roads

Bomen Industrial Estate includes smaller warehouse and light industry uses


Teys Abattoir employs ~1000 and is one of the largest cattle abattoirs in NSW

Southern Oil recycle waste oil and has plans for further expansion and investment in R+D

Infrastructure


Essential Energy Bomen Zone substation located next to Teys


Merino Road - new road and underpass to the rail corridor is in place and is part of significant established road infrastructure investment.

High pressure gas mains run through the study area and provide opportunities for connection.

Recent NBN tower _ insufficient coverage for Bomen businesses?

Landscapes + vistas


View of the study area from the elevated large-lot residential area on Brucedale Drive. The central ridge with existing Bomen industries are visible


The study area has a strong rural landscape character comprising open fields, scattered vegetation and undulating landscapes with few buildings.


Bomen Road looking west to a western ridge near the boundary of the study area


Bomen Road looking east towards the existing industrial estate. Note elevated landscape in background.


Looking west across the valley from Windmill Road


The former Bomen Train Station is a heritage place within the Bomen Industrial Precinct


Parts of the study area have a different character with a more natural vegetation setting. This is the south-eastern corner of the study area (Patterson Road)


East Bomen Road looking east towards Eunony Valley

Community interfaces

Charles Sturt University is a significant education campus with potential opportunities for integrating research and development


There are pockets of large lot residential blocks set in natural settings, many with vistas across the valley. This is Brucedale Drive.


There are a few scattered houses on larger lots used for horse keeping and other hobby farm purposes.

3.4 Riverina Intermodal Freight and Logistics Hub (RiFL)

The Riverina Intermodal Freight and Logistics (RiFL) Hub is a new freight terminal being established at Wagga Wagga on the Sydney to Melbourne Main Southern Railway, also forming part of Inland Rail. The project is driven by a private/public partnership between Visy Logistics and Wagga Wagga City Council and will form a key component of the Special Activation Precinct.

Key components of the RiFL comprise:

_ rail infrastructure

_ turnouts off the Main Southern Railway Line

_ 5.8km master rail siding

_ intermodal freight terminal for the transfer of containers between road and rail, to be developed in stages

_ adjoining industrial land development

_ greater capacity and efficiency in rail service access for local business, and new businesses

_ access for high capacity road freight vehicles.

Why?

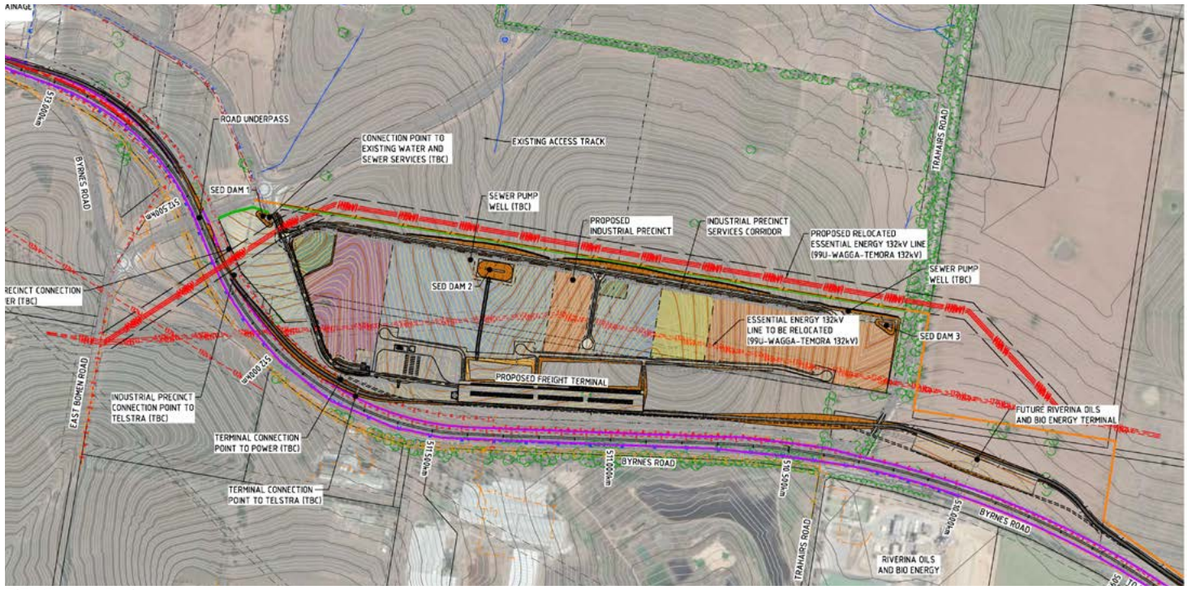
_ Strategic location and the junction of Sturt and Olympic Highways and the mid-point on the railway line connecting Sydney and Melbourne.

_ Over 41 million tonnes of freight are moved annually between NSW and Victoria.

_ 6 million tonnes of freight are moved annually between NSW and South Australia.

_ Freight volumes across NSW are projected to double by 2030 and triple by 2050.

_ Freight volumes between Melbourne and Brisbane will increase substantially following the establishment of the Inland Rail.



RiFL Concept Design


Aerial perspective of RiFL looking south-west

Benefits

_ Provides location for trains from other Riverina destinations (such as Griffith and Cootamundra) to join or split.

_ Enable more efficient trade connection between regional business and national and international markets.

_ Will provide cheaper rail network connectivity to industrial developments in proximity to the RiFL Hub.

_ Reduced shunting and loading operations which will no longer impact the mainline operation.

_ Reduce road freight movements within the Wagga Wagga central business area.

_ Encourage more efficient and sustainable freight through increased rail use.

_ Generate commercial interest in the Bomen Business Park and the wider Wagga Wagga.

References:

_ *Committee 4 Wagga, 2019, Riverina Intermodal Freight and Logistics Hub, <https://committee4wagga.com.au/riverina-intermodal-freight-and-logistics-hub>, viewed 8 November 2019*

_ *City of Wagga Wagga, 2019, Milestone achieved in development of proposed RiFL Hub, <https://wagga.nsw.gov.au/city-of-wagga-wagga/council/news/media-releases/media-releases-2017/april-2017/milestone-achieved-in-development-of-proposed-rifl-hub>, viewed 8 November 2019*

_ *City of Wagga Wagga, 2019, RiFL Hub, <https://wagga.nsw.gov.au/city-of-wagga-wagga/business/projects/bomen-business-park/bomen-business-park-rifl-hub>, viewed 8 November 2019*

3.5 Agri Park (Charles Sturt University)

The AgriPark (or Agrisciences Research and Business Park) is an innovation precinct to be established by the Charles Sturt University based at their Wagga Wagga campus. AgriPark vision is to support, facilitate and grow the nation's agricultural sector. It will allow for co-location and collaboration opportunities between the University and external industry and Government partners to enable innovation, growth and development which can respond to new national and global challenges facing the agricultural industry.

AgriPark will focus on key industries within Regional NSW, including:

_ Agribusiness & Forestry

_ Health & Residential Care

_ Mining

_ Tertiary Education

_ Freight & Logistics

_ Defence

_ Tourism.

It is expected that the AgriPark will begin Stage 1 Construction by 2021. It is expected that there will be opportunities for linkage and integration with the SAP through strategic collaboration between key businesses and stakeholders associated with the Bomen Business Park and the AgriPark and its partners.

Reference: M Cahill, 2019, Agri Park Presentation

Agri Park Concept Layout

3.6 Northern Growth Area

The Wagga Wagga City Council has commenced a master planning process for the growth of the Wagga Wagga township aiming to accommodate the long term aspirational target of 100,000 new residents.

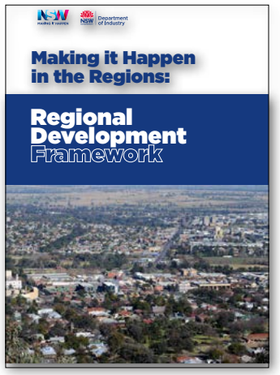
The northern growth area is located to the north of Estrella, between the Charles Sturt University and the Wagga Wagga Special Activation Precinct.

3.7 Relevant State and Local Policies

"NSW is a large state with a diversity of strategic and planning policies of relevance to Wagga Wagga SAP.

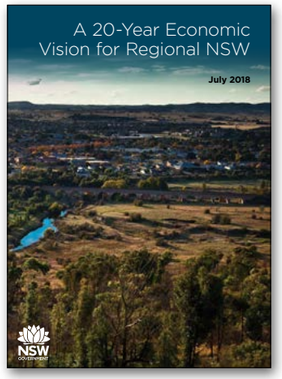
A review of this policy library highlights strong policy alignment around agribusiness, freight and logistics, research and development and the realisation of export opportunities, given Wagga's strategic location for the Riverina Region.

There is an increasing emphasis in recent documents on renewable energy, advanced manufacturing and the establishment of a business-friendly regulatory environment, coupled with investment support services."



NSW Regional Development Framework (2017)

_ For inland areas, such as the Riverina region, agribusiness is identified as a key industry sector that could drive regional development but will require investment in infrastructure to create efficient freight networks that will increase the sectors competitiveness.



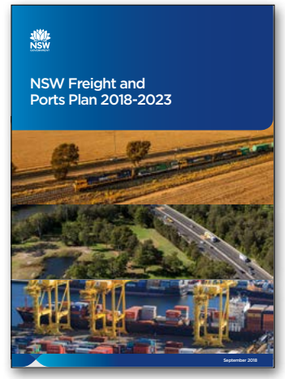
20 Year Economic Vision – Regional NSW (2018)

_ Vision is to accelerate economic growth in key sectors or 'engine industries', such as; agribusiness; tertiary education; health care; resources and mining, freight and logistics; advanced manufacturing; renewable energy; and technology enabled primary industries.

Investment Attraction Package for Regional NSW (2018)

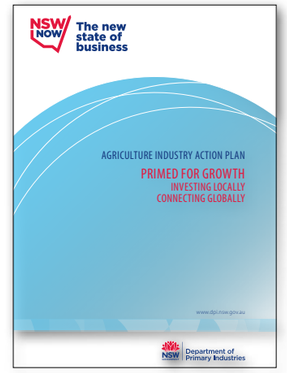
_ Skills Relocation Assistance – $10 million in grants to help meet the cost of moving from the city to the country.

_ Previously announced, 'Special Activation Precincts' or business hubs in areas that will offer infrastructure and streamlined planning processes for the industries and sectors responsible for driving significant growth in regions.



Transport for NSW – Freight and Ports Plan (2018 – 2023)

_ Increase capacity of freight sector via the delivery of new infrastructure to; increase rail and road freight capacity; increase capacity and number of fuel pipelines; and, support the freight sector via protecting and improving freight and logistics land, precincts, terminals and key freight routes (Pacific, Newell and Golden Highway).



NSW Agriculture Industry Action Plan (2014)

_ Drive continued growth of the sector and support growth of jobs in rural and regional areas. The plan identifies strategies and actions to unlock new market and growth opportunities for agricultural products across the supply chain, addressing a range of issues including workforce development, education, and research and development.

Future Transport Strategy 2056 – Regional NSW Services and Infrastructure Plan (2018)

_ The strategy aims for agile transport planning solutions that lead to a productive economy, liveable communities and a sustainable society, considering rapid changes in technology. Expected outcomes include a 'hub and spoke' network better connecting regions as well as connections to Sydney'.

Invest in Regional NSW – Prospectus (2018)

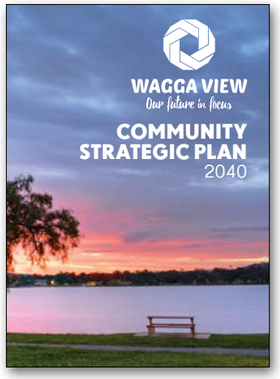
_ Investment programs to support businesses that are expanding and developing new market opportunities and looking to set up greenfield operations or relocate to Regional NSW.

Riverina Murray Regional Plan 2036

_ Identifies the region as a major freight and logistics hub with identified growth potential linked to its strategic location between major ports in Sydney and Melbourne and increased agricultural production capacity.

_ Identifies the Bomen Business Park as a significant contributor to jobs and economic growth in the region.

_ Highlights need to protect industrial areas from potential land use conflicts.



Wagga Wagga Community Strategic Plan 2040

_ Establishes the vision for Wagga Wagga focussed on four themes of 'thriving, innovative, connected and inclusive'.

_ Seeks to be a leading freight and logistics centre and encourage business investment - facilitated by the upgrade of infrastructure (such as roads, rail intermodal and airport).

_ Recognises the need to protect and value the environment and heritage.

_ Seeks sustainable development outcomes through master planning.

Wagga Wagga Spatial Plan 2013/2043

_ Spatial translation of strategic planning for the growth of Wagga Wagga, including establishment of performance indicators.

_ Identifies key growth locations, including north of Charles Sturt University subject to management of noise and odour emissions interface with Bomen Industrial Sewage Treatment Facility.

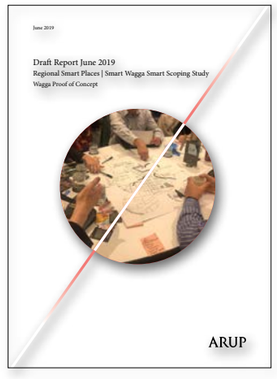
_ Identifies potential road connections including more direct connection between Bomen and the Olympic and Sturt Highways.

Integrated Transport Strategy and Implementation Plan 2040

_ Strategic directions to cater for a growing economic and population.

_ Establishes a holistic approach to transport, including provision of active and public transport infrastructure.

_ Identifies the duplication of the Gobbagombalin Bridge and the Bomen RiFL Hub connected to the inland Rail Network as strategic priorities.



Regional Smart Places - Smart Wagga Scoping Study (Draft) (2019)

_ Develops a Proof of Concept for the development of Smart Initiatives for Wagga Wagga utilising data and connectivity.

_ Establishes nine initiatives including:

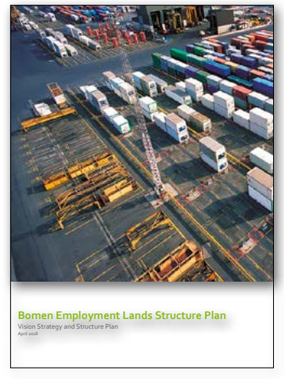
  _ on-demand transport (app + data)

  _ drone freight innovation

  _ southern Lights + Bomen (smart LED lighting)

  _ data collaborative (data sharing between government and private sector)

  _ regional smart dashboard.



Bomen Employment Lands Structure Plan (Draft) (2018)

_ Bomen employment lands as a hub for freight and logistics that supports a nationally significant agribusiness and manufacturing employment and economic hub in the Riverina.

_ Certainty for development delivery through statutory planning framework and futureproofing early infrastructure development.

_ Plan for growth and continued investment through staging aligned with infrastructure implementation strategies and protection of key infrastructure.

_ Fluid design to cater for mix of industry with primary and secondary freight logistics focussed on the RiFL Hub and National Highway network, as well as variety in lot sizes and formats.

_ Community focussed place through services and amenity for employees and the mitigation of visual, acoustic and odour impacts on surrounding communities.

_ Regionally identifiable logistics centre through high quality landscaped settings, well designed modern industrial development and signage.

Section 04. Investigations

Section 04 summarises the investigations and analysis for a range of technical disciplines including economics, transport, infrastructure, stormwater and groundwater, cultural heritage, noise, air quality and odour. Social infrastructure, streamlined planning processes and Ecologically Sustainable Development opportunities are also covered, all of which informs why the Structure Plan is depicted as is. The collaborative workshop process to develop and test the Structure Plan is also described.

4.1 Synthesised baseline conditions

"What is needed to best inform the master plan options development is a 'synthesised conditions' assessment. Issues need to be prioritised, overlaid, merged and refined, and non-spatial opportunities highlighted."

The findings of the baseline analyses for the nine technical packages includes numerous data layers, maps of spatial and non-spatial issues and opportunities.

Rather than repeating all information reviewed, the following analysis is a 'synthesised conditions' assessment used to inform the structure plan development. Within this analysis considerations have been prioritised, overlaid, merged and refined, and non-spatial opportunities highlighted.

Prioritised considerations mapping

An initial division into 'major' and 'other' considerations has been undertaken.

Major considerations include items of recognisable hazard (e.g. floodways), difficult to move infrastructure (e.g. gas pipelines) and areas of high visual sensitivity.

Other considerations are often elements that can be moved or altered / mitigated at a cost.

A list of the major and other assumed considerations is provided here, and on the following pages are a series of maps to highlights the outcomes of the synthesised conditions analysis.

Major considerations

Element	ha
Gas Distribution Pipeline	19
Aboriginal Heritage Places	6
EPI Heritage	24
Slope > 6%	321
Tier 2 Biodiversity	141
Tier 1 Biodiversity	120
0.5% Flood Extent	456
Tier 1 & Tier 2 Paddock Trees	51
High Visual Sensitivity	444
Groundwater Protection Zone	578
Residential Zone	133
Residential interface	455

Other considerations

Element	ha
Aboriginal Heritage Sites (20m Buffer)	5
Medium Visual Impact	1,037
Easements	82
High Topography for Water Supply	555
Sewer - Complicated Supply	1,843
Gas Pipeline ML	248
Poor Internet Quality	395
Travelling Stock Reserve	78
Areas of Environmental Interest	314
Bushfire Prone Area	67

Easements

“With few exceptions, easements are located east of the major north-south ridge (Byrnes Road) which is a central feature of the study area.”

Observations

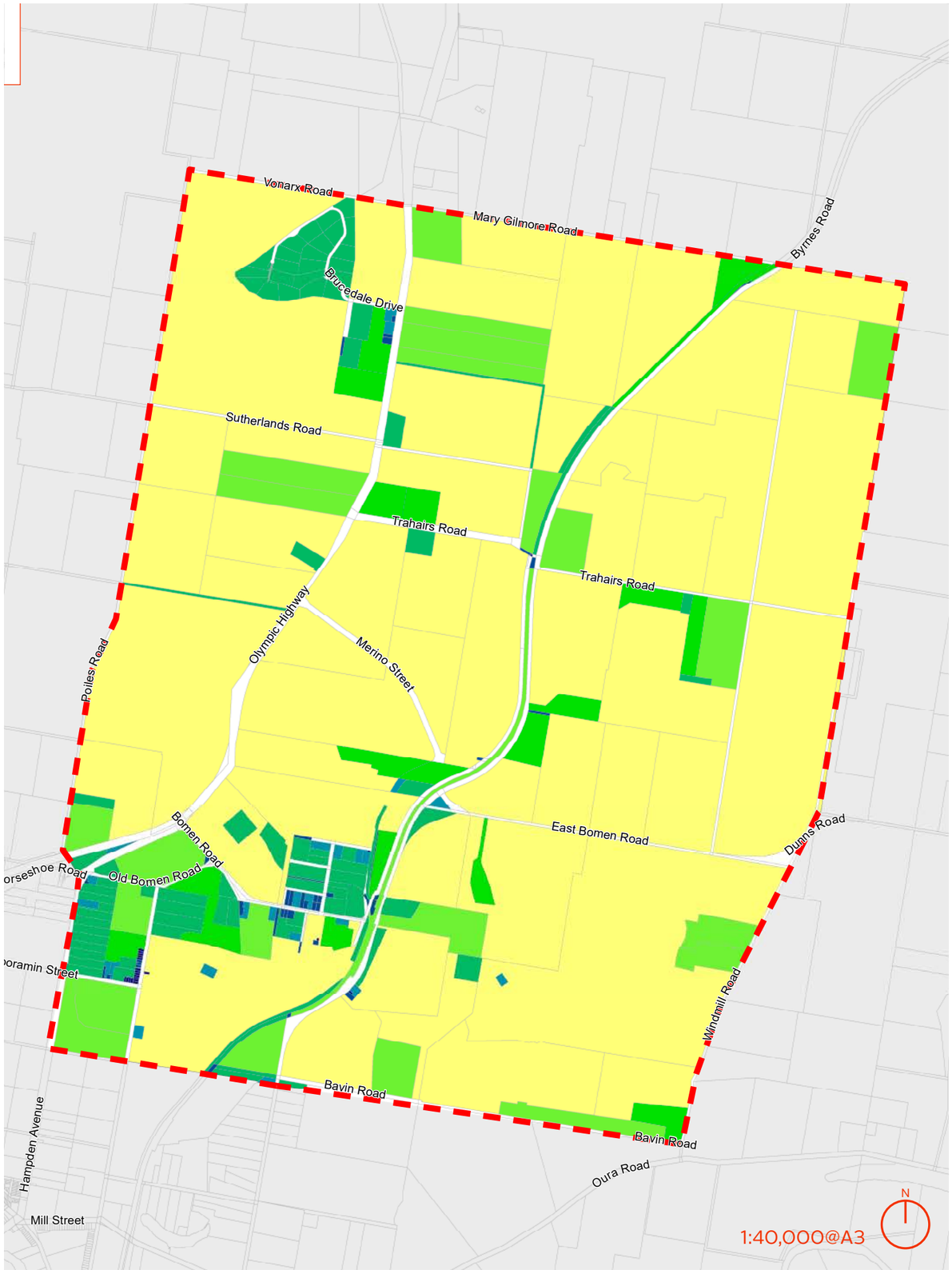
_ A number of easements have been identified.

_ These are primarily associated with gas and electricity transmission corridors.

_ With few exceptions, these easements are located east of the major north-south ridge (Byrnes Road) which is a central feature of the study area.

Lot size

“Analysis of existing allotments in the study highlights few allotments smaller than 1ha, with most of the site covered by large sites of 25ha or greater.”

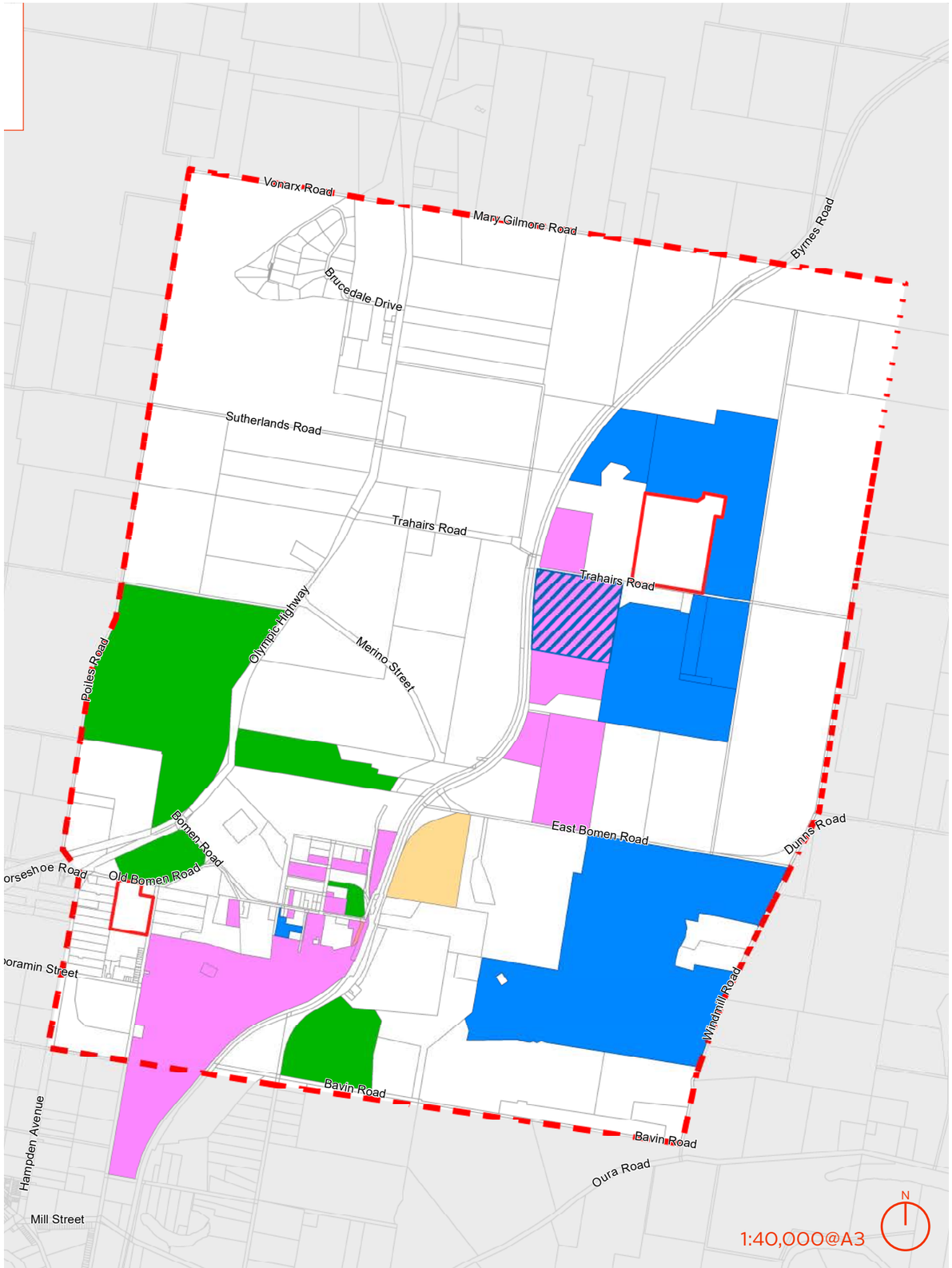


Observations

- Analysis of existing allotments in the study highlights few allotments smaller than 10,000m2.
- Smaller allotments are concentrated at the Bomen Industrial Estate and Cartwrights Hill areas.
- The majority of allotments are greater than 25ha in size.

Development Approvals since 2014

“More than 20 development approvals have been recorded in the study area since 2014.”



LEGEND

- Wagga Wagga SAP Study Area
- Cadastre

Development Approvals (since 2014)
Development Type

- Applications Undecided
- Approved Solar Farms
- Commercial
- Demolition
- Industrial
- Subdivision
- Uncertain

Observations

_ More than 20 development approvals have been recorded in the study area since 2014.

_ These include new industries (e.g. ROBE), expansions and alterations (e.g. Energi, Teys), and other types of approvals.

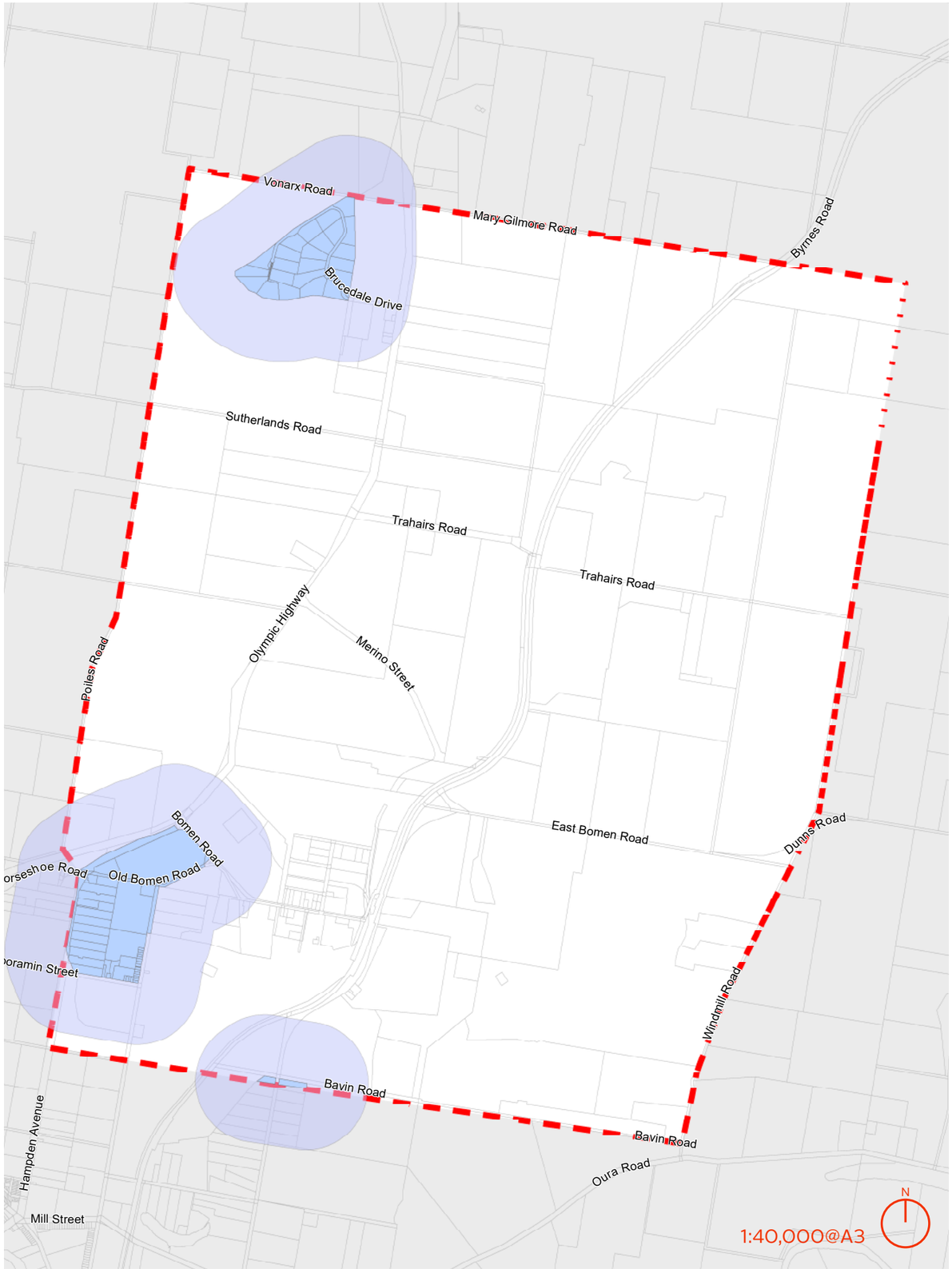
_ Two large solar farms have been approved in the east of the study area, with one small project approved at Bomen.

_ One undecided development application is known to be underway, for a Waste Disposal Facility (Non Putrescible Landfill) at Tecsite (former wool scouring facility at Byrnes Road).

_ An application has also been received for the extension of the southernmost solar farm within the existing lot.

Residential zoned land and 500m interface area

“Two residential zoned areas at Brucedale (north west) and Cartwrights Hill (south west) are important features of the study area.”

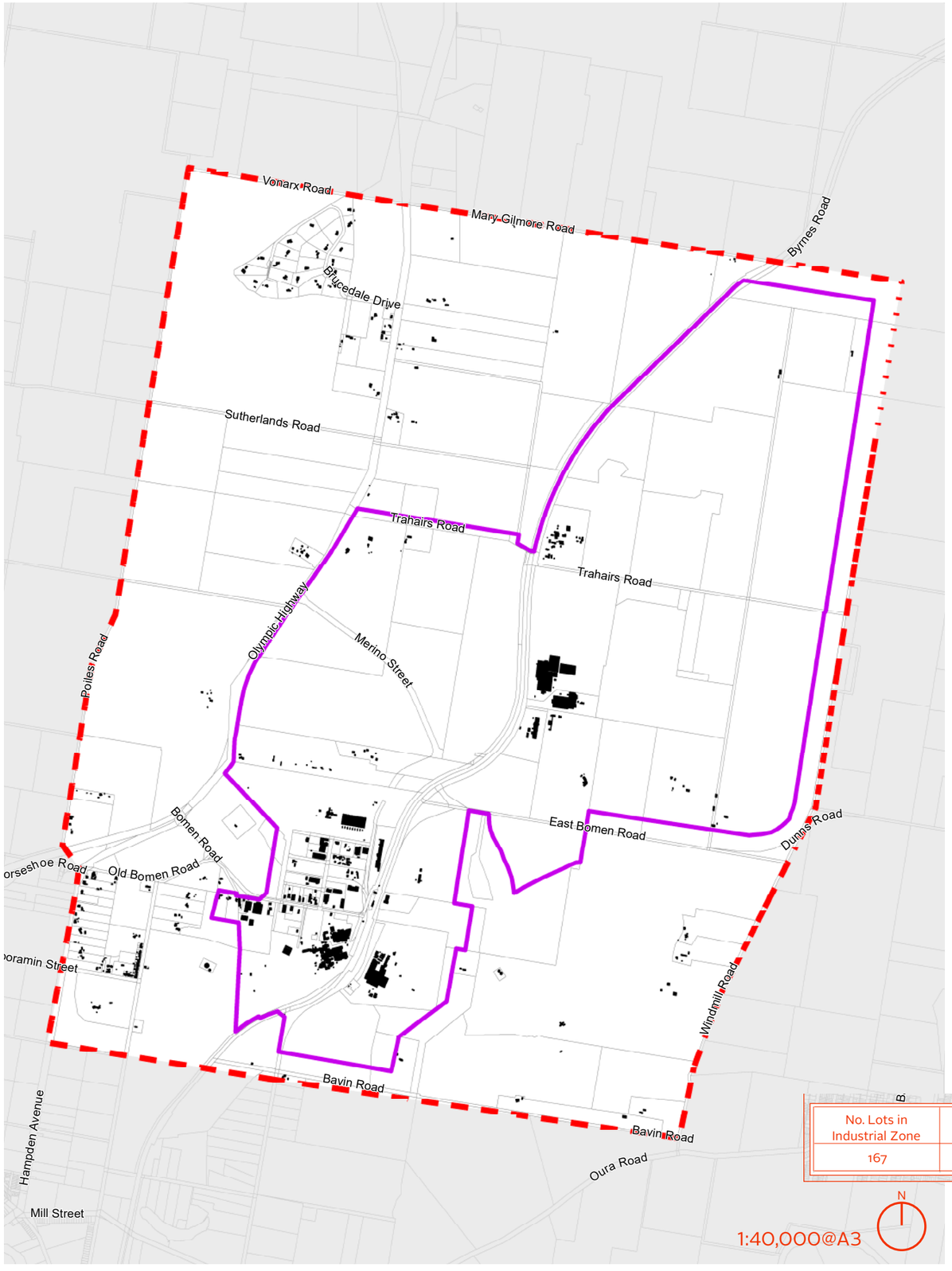


Observations

- Two residential zoned areas at Brucedale (north west) and Cartwrights Hill (south west) are important features of the study area.
- A nominal 500m interface area has been mapped around these zoned areas, indicating the scale of the precinct and the relative proximity of these areas to other parts of the study area.
- Existing views and amenity from these locations (particularly Brucedale and the Eunony Valley to the east) are important considerations in the structure planning of the SAP area.. It will be important to mitigate these as part of the development of the Structure Plan.

Building footprints

“About 250,000m2 of building footprint currently exists within the SAP’s industrial areas.”



No. Lots in Industrial Zone	No. Lots with Buildings	Total Area Buildings in Industrial Zone (m2)	Total Area 5 Largest Buildings in Industrial Zone Combined (m2)
167	63	249,533	117,496

Observations

- Existing industries within the study area are prominent locally and within the community, but their buildings remain very small in the context of the overall precinct.
- Only 63 allotments of 167 in the existing industrial zoned land have a building on the land.
- About 250,000m2 of building footprint currently exists (most being one storey and so approximating GFA).
- The five largest buildings account for half of this total.

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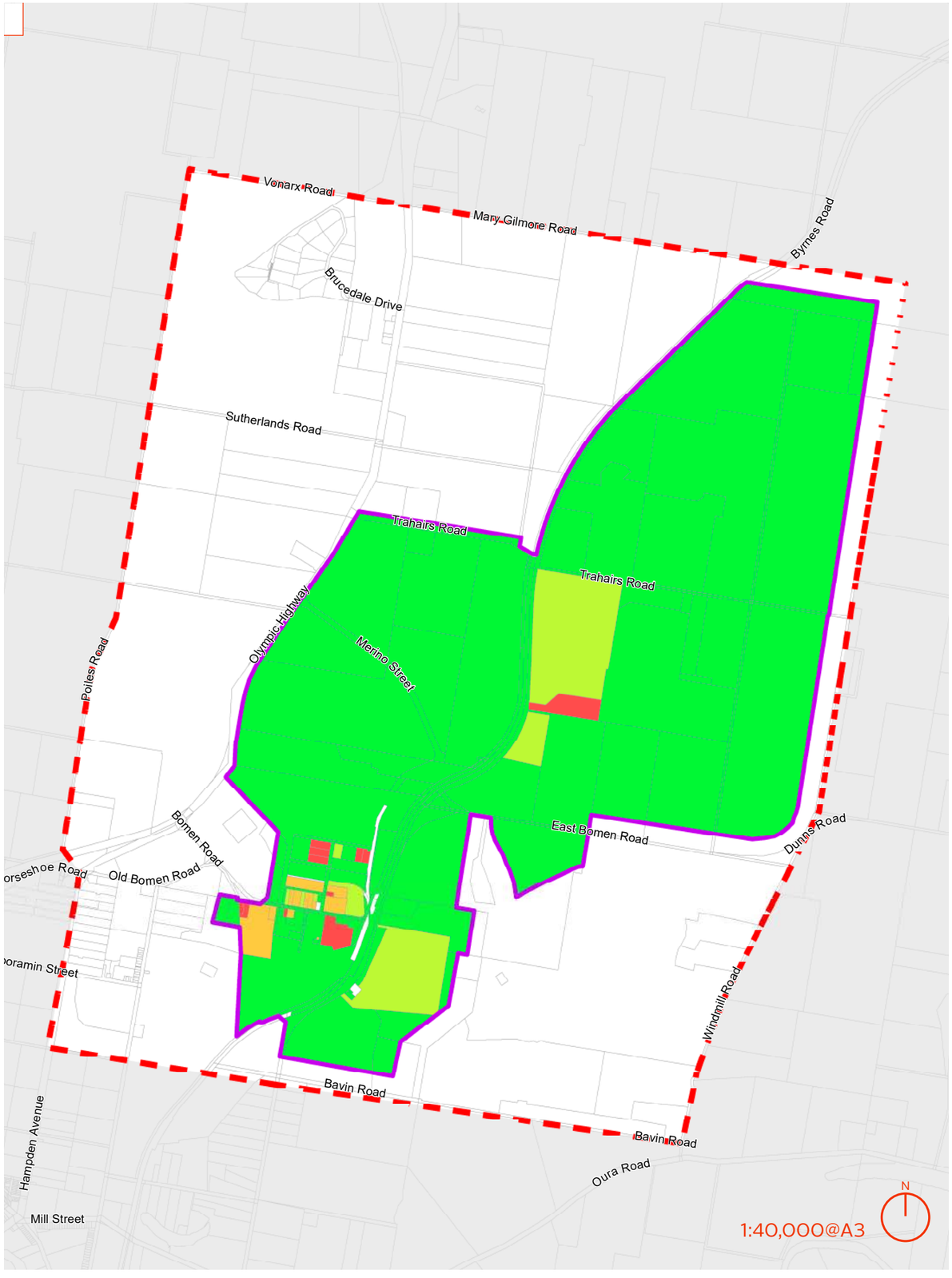
Landscape Architecture
Urban Design
Social Planning

Building Site Coverage

“Even on existing industry sites, building site cover is relatively low, with only 11 sites having a building site cover greater than 21%.”

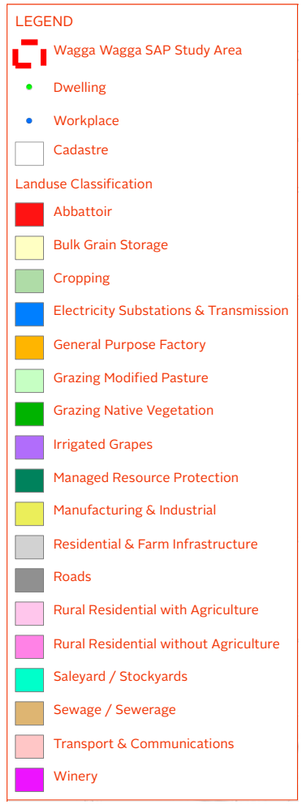


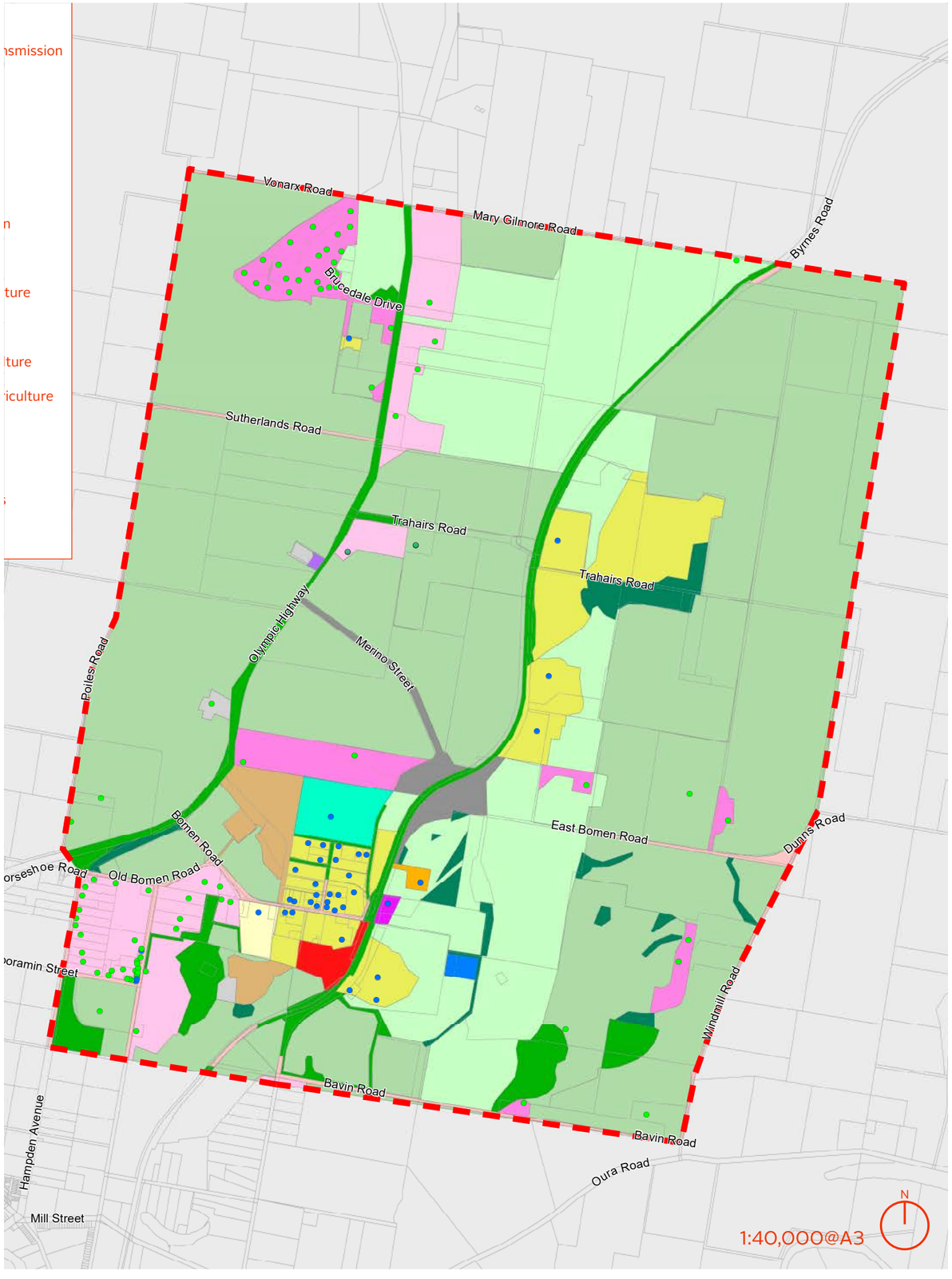
Observations

_ Even on existing industry sites, building site cover is relatively low, with only 11 sites having a building site cover greater than 21%.

Dwellings + workplaces

“Dwellings are in the northern and southern thirds of the study area and absent from the central portion.”





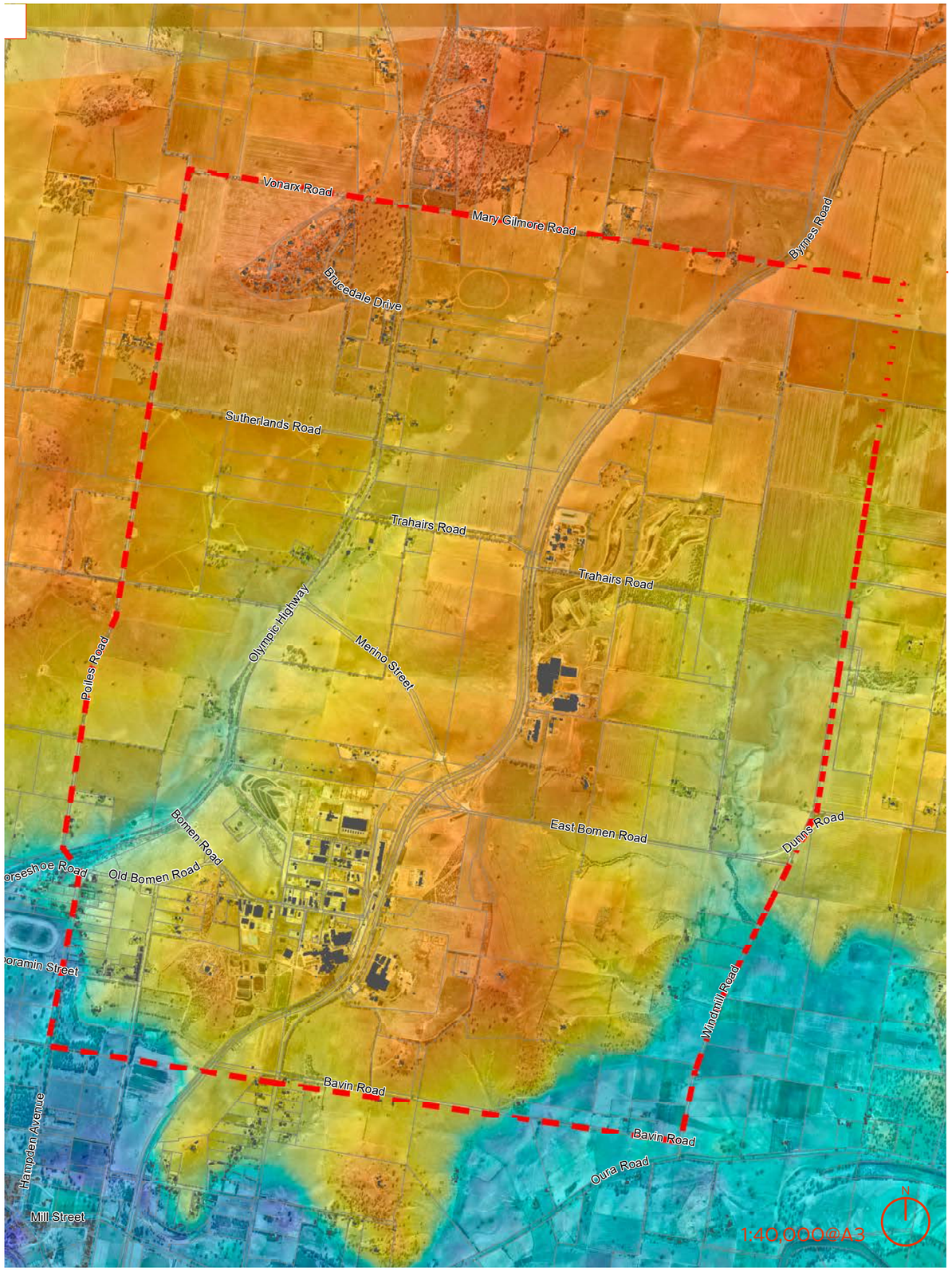
Observations

- There are 81 dwellings located within the study area, only 17 or which are outside of either Brucedale or Cartwrights Hill.
- 50 dwellings within the southern third of the study area
- 31 dwellings in the northern third of the study area
- No dwellings are located within the central third of the study area
- There are 38 workplaces within the study area, most of which are located within the Bomen Business Park.

JENSEN PLUS
Planning
Landscape Architecture
Urban Design
Social Planning

Elevation

“The Wagga Wagga SAP study area is elevated above the town, with a central focus on a broad north-south ridge upon which roads and railways have historically been located.”



Observations

_ The study area is situated on a raised plateau that sits outside of the natural floodplain of the Murrumbidgee River.

_ The land form is characterised by a ridge which runs north-south along the rail corridor and Byrnes Road at approximately 240 metres AHD.

_ Existing large industrial buildings such as ROBE, Energi and TECsight are positioned on the ridge making them visible from many locations.

_ Olympic Highway follows a western valley through the study area at approximately 190m AHD before rising over a ridge to the north.

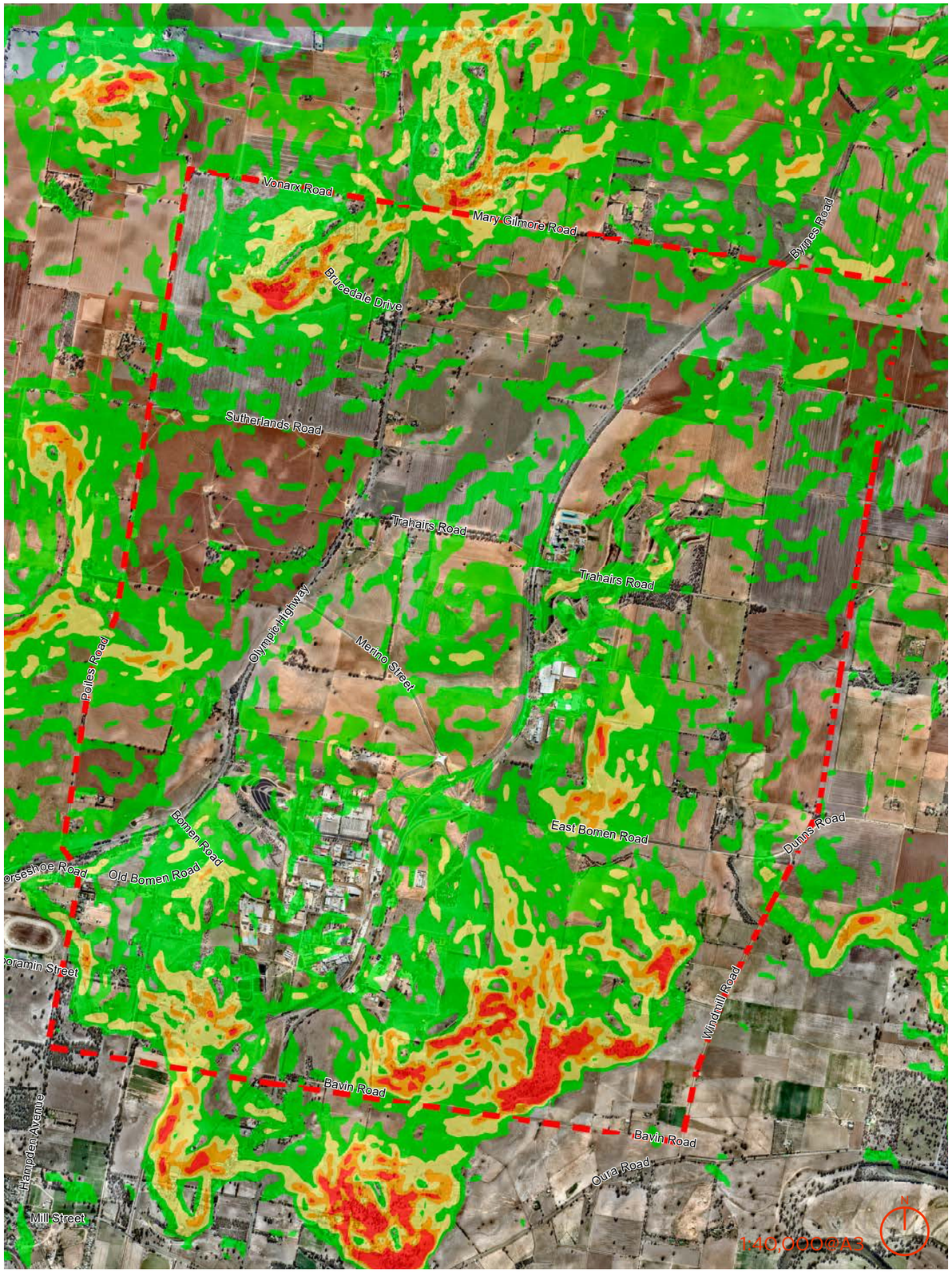
_ The eastern boundary of the study area runs along an eastern valley (Eunony Valley) at approximately 190m AHD with a quickly rising plateau and ridge further east to approximately 210m AHD affording views to the Byrnes Road ridge.

_ The Brudedale Drive housing estate is situated on a hill in the north-west of the study area with a ridge which runs just outside the western boundary of the study area. This area is the most elevated and is provided with views across the western valley to the Byrnes Road ridge, as well as to the rising lands beyond in the east.

_ The two valleys form natural drainage corridors that run through the study area.

Slope

“The study area’s topography is a major feature of the precinct and will have a major influence on the master plan.”



LEGEND

- Wagga Wagga SAP Study Area

Slope (%)

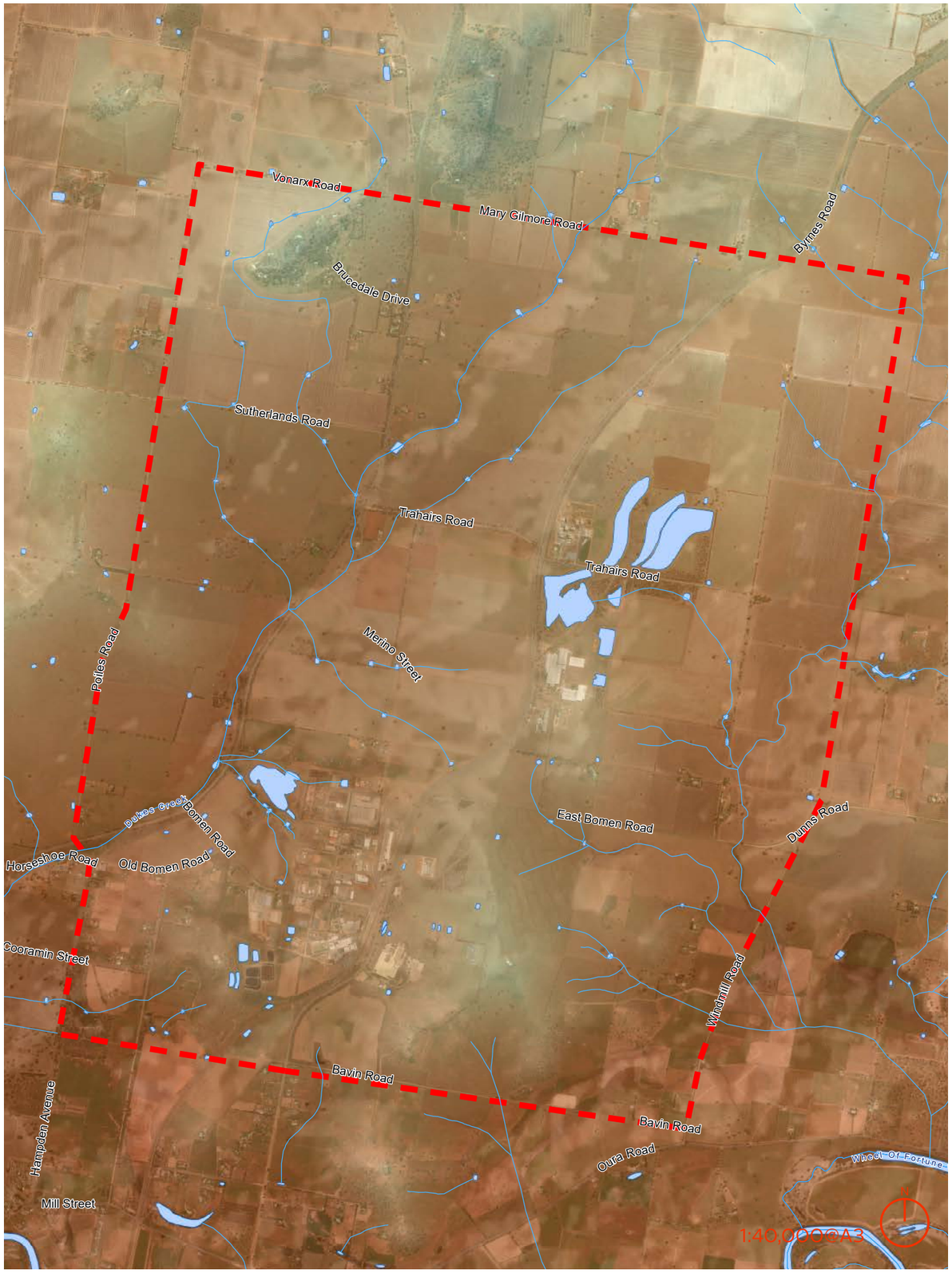
- 0 - 3
- 4 - 6
- 7 - 9
- 10 - 12
- 13 +

Observations

- Slope over 6% grade are typically not appropriate for industrial development and large scale buildings and hard-stand areas.
- Higher grade slopes (over 6%) are mostly positioned south of East Bomen Road and west of Byrne Road.
- Some higher grade slopes also exist in localised areas:
  - north of East Bomen Road and to the east of the Energi site
  - in Cartright’s Hill, west of the Teys site and the Bomen Business Park
  - around the Brucedale Road Estate
- The flattest locations of the study area are:
  - to the south of Merino Drive and east of the Olympic Highway
  - to the north of Trahairs Road between Olympic Highway and Byrnes Road
  - eastern end of Trahairs Road and along the eastern edge of the study area
  - immediate south of Sutherlands Road to the west of Olympic Highway.

Drainage

“Flow paths define two catchments that run through each valley north-south into tributaries and then into the Murrumbidgee River”



Observations

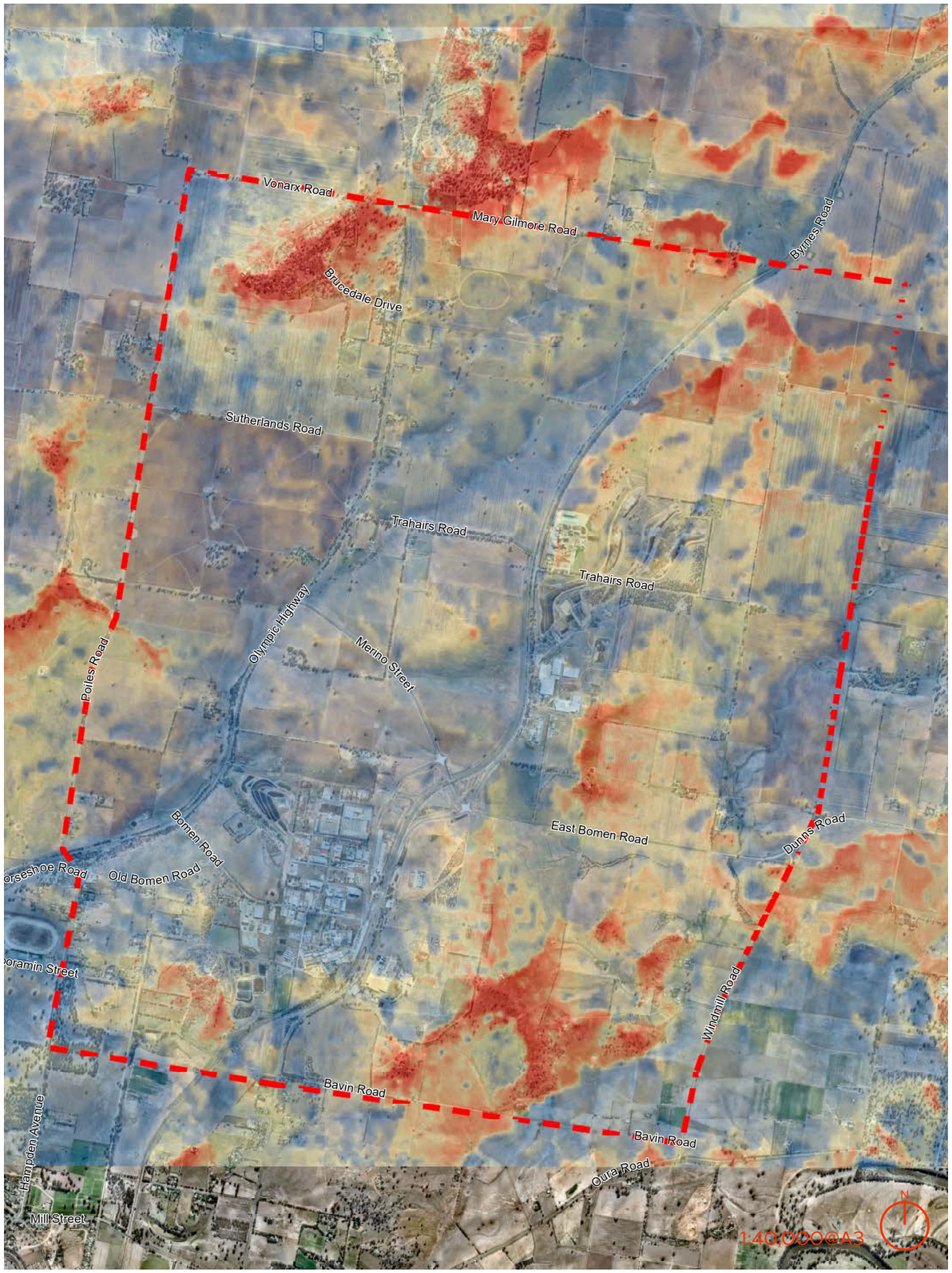
_ Two distinct channels flow through the study area.

_ A number of small artificial basins are positioned on the watercourses (dams from farming).

_ Largest waterbodies are the former Wool Combing Facility ponds.

Visual Exposure

“Visual amenity and impact has been identified a key community concern. The study area’s elevation and undulating topography results in an uneven pattern of visual exposure.”



Observations

_ Parts of the study area are more exposed to views than others due to the land form. This makes development in certain parts of the site more visible than others.

_ This map analyses ‘visual exposure’ by assessing how visible each position in the study area is from every other position in the study area. The resultant map highlights the locations that are most visible/seen in red (e.g. high points) and areas that are less visible and hence also less ‘seen’ in blue.

_ Brucedale Drive housing estate in the north west is highly visible, together with surrounding rises to this point.

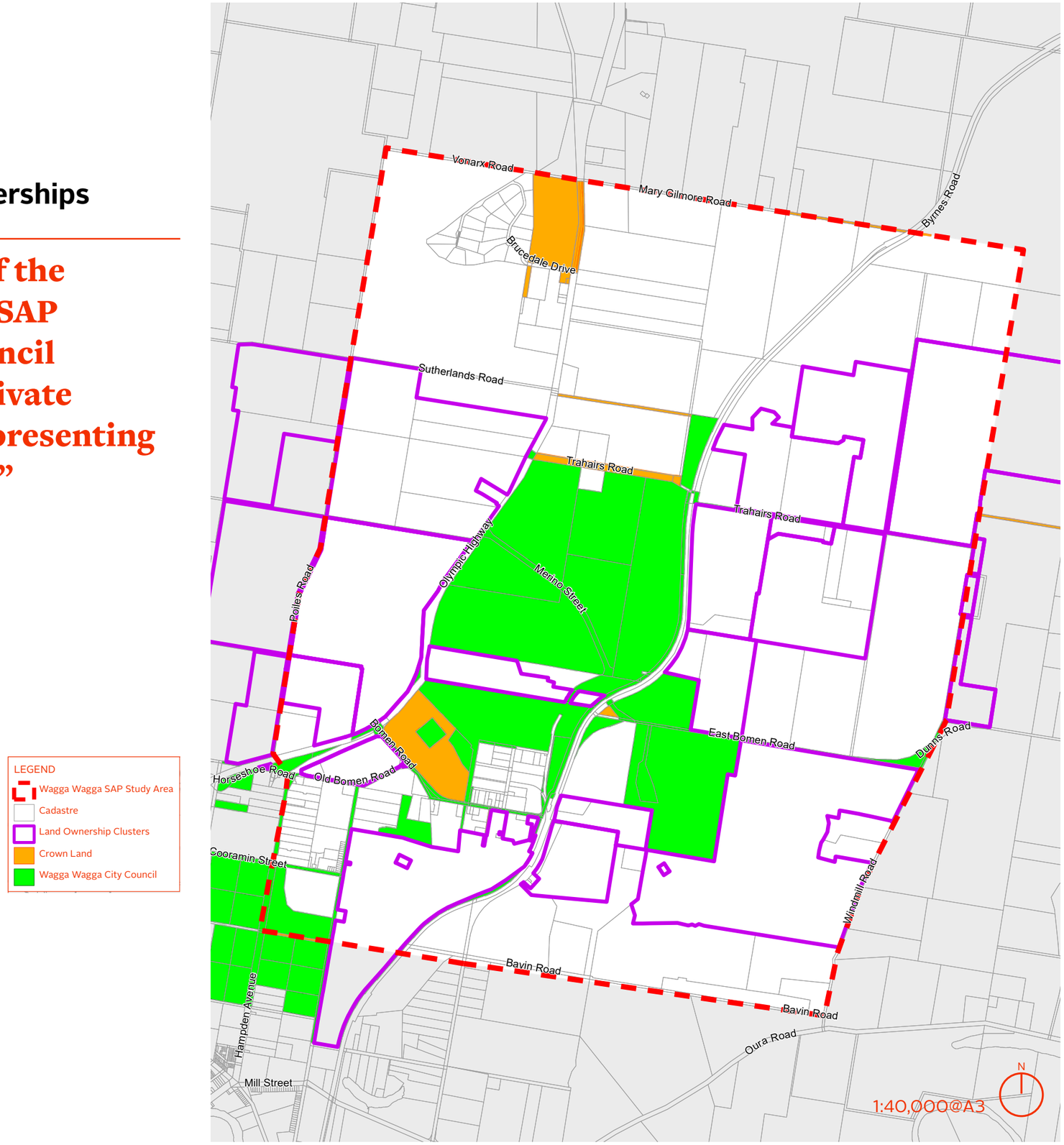
_ Portions of the western valley rising to the study area boundary have higher levels of visibility (noting that the northern growth area proposed by Council sits in this location).

_ Large areas south of East Bomen Road and east of Byrnes Road are highly visible.

_ Residential areas of Eunony Valley, largely outside the study area, are not highly visible, however the western slopes of the valley behind the existing industrial uses have high visibility, particularly the land in the north-eastern corner of the study area.

Major Land Ownerships

“Large parts of the Wagga Wagga SAP are under Council or common private ownership, representing opportunities.”



Observations

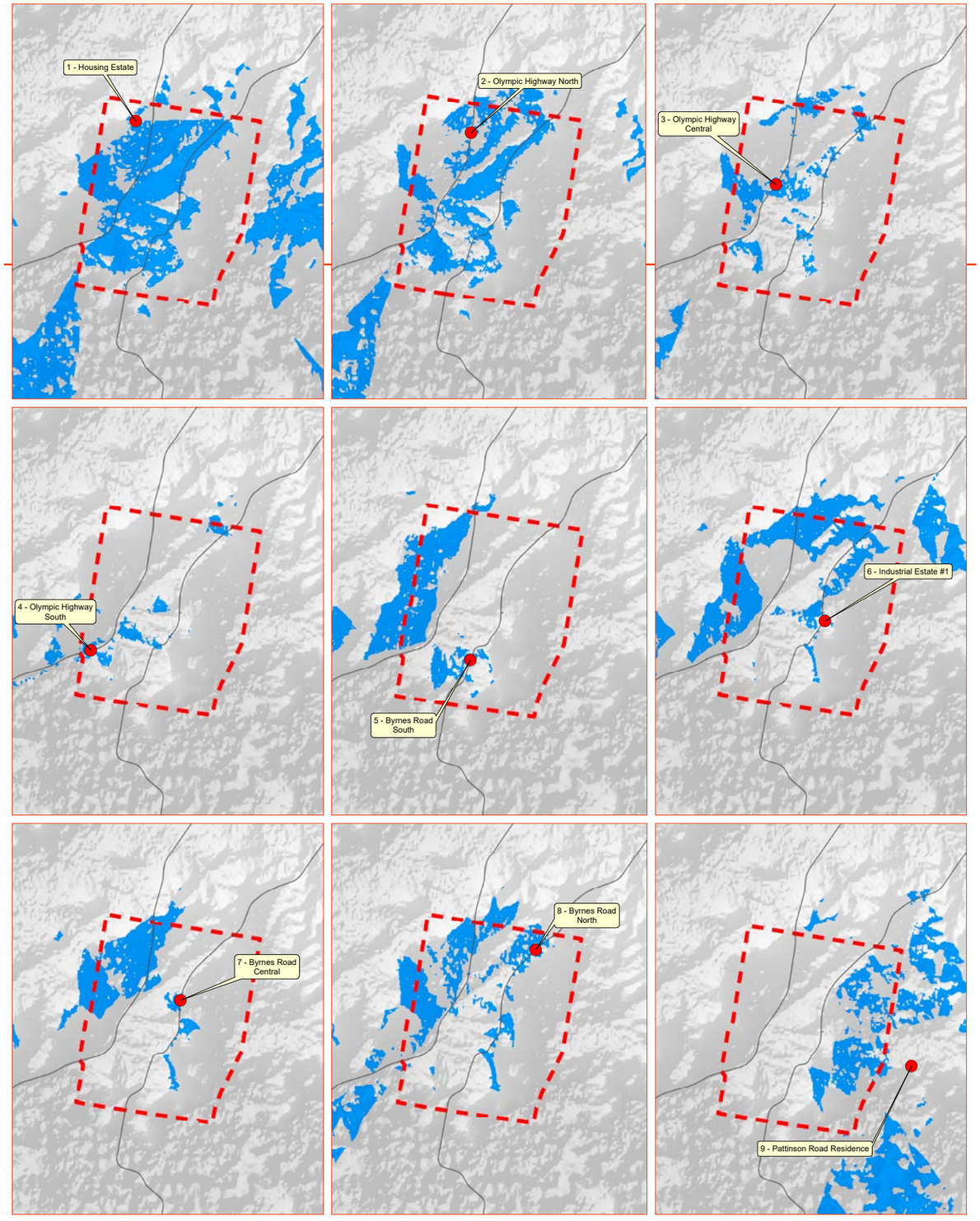
_ Council owns a significant proportion of the central corridor between Olympic Highway and the rail line.

_ Crown land interests are relatively minor.

_ Large parts of the central parts of the study area are in large ownerships.

Selected Viewsheds

“The extent of views varies greatly around the study area.”



Observations

_ These plans show the extent of views from selected public or residential locations within the study area.

_ They highlight visibility over the investigation are from Brucedale Drive.

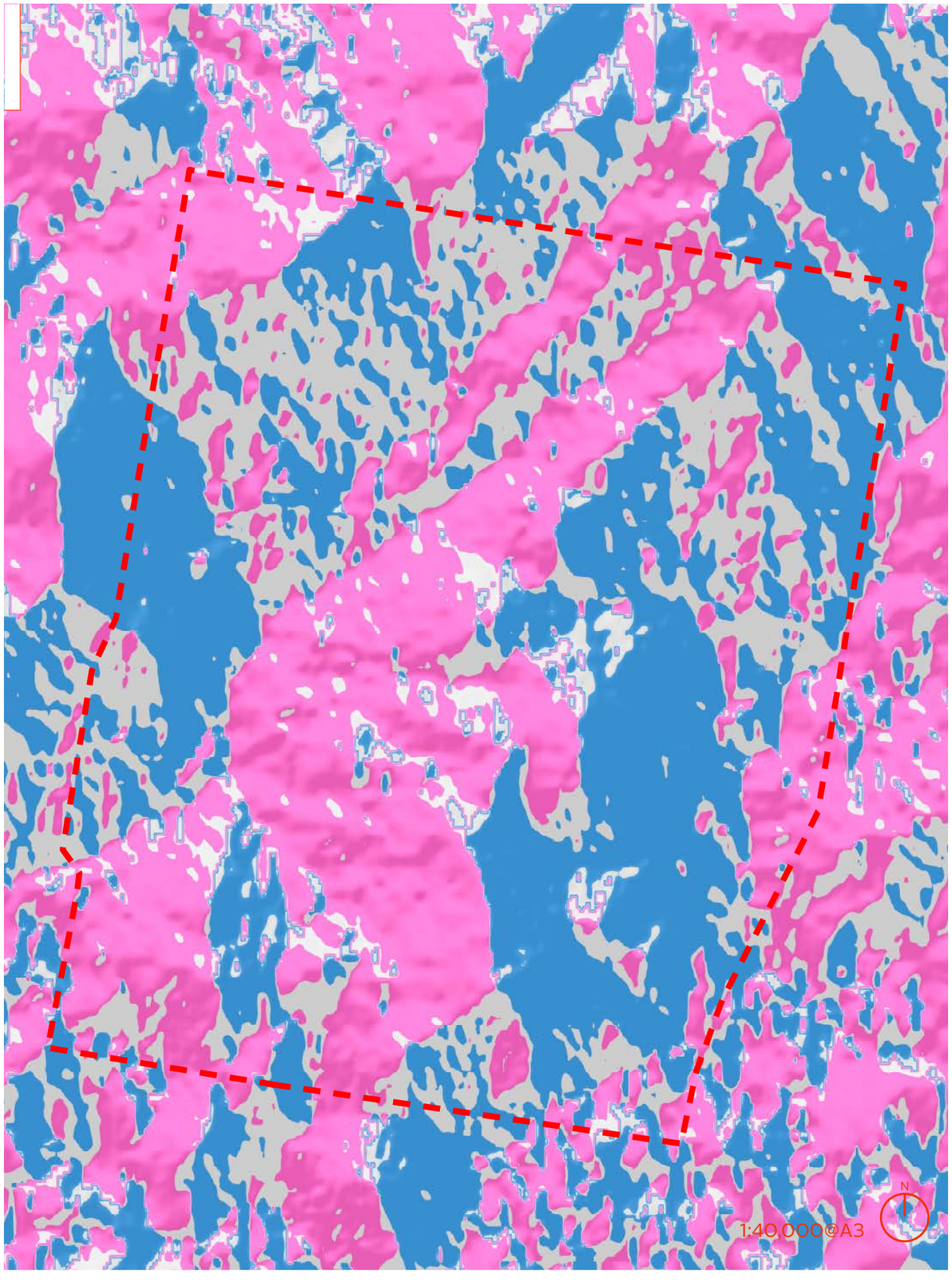
_ Views of the valley between Olympic Highway and Byrnes Road is not visible from Eunony Valley and also partally visible from selected locations along Byrnes Road.

_ Land to the west of Olympic Highway is visible from viewsheds along Byrnes Road (being on the ridge).

_ Further work should be undertaken as part of the Development of the Master Plan to further assess these views and develop land use and design controls to mitigate visual impact.

Aspect

“Large parts of the study area have either an easterly or westerly aspect, reflective of their visibility from neighbouring valleys.”

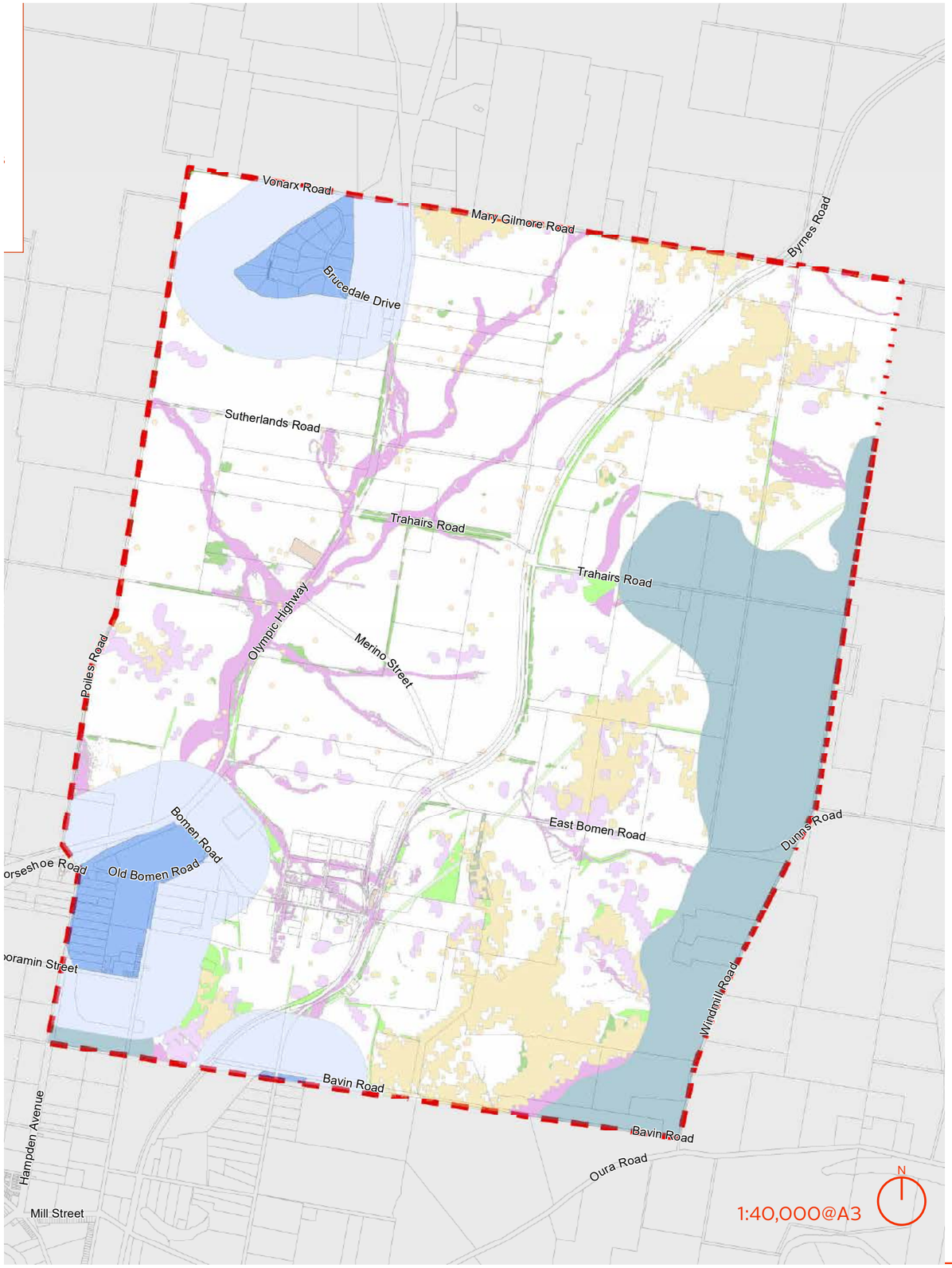


Observations

_ Large parts of the study area have either an easterly or westerly aspect, reflective of their visibility from neighbouring valleys.

‘Major considerations’

“Central, western and northern areas of the site are least affected by ‘major considerations.”



LEGEND

- Wagga Wagga SAP Study Area
- Cadastral Boundaries
- 0.5%Flood Extent
- Aboriginal Heritage Places
- EPI Heritage
- Gas Distribution Pipeline
- Groundwater Protection Zone
- High Visual Impact
- Residential Interface
- Residential Zone
- Slope > 6%
- Tier 1 & Tier 2 Paddock Trees
- Tier 1 Biodiversity
- Tier 2 Biodiversity

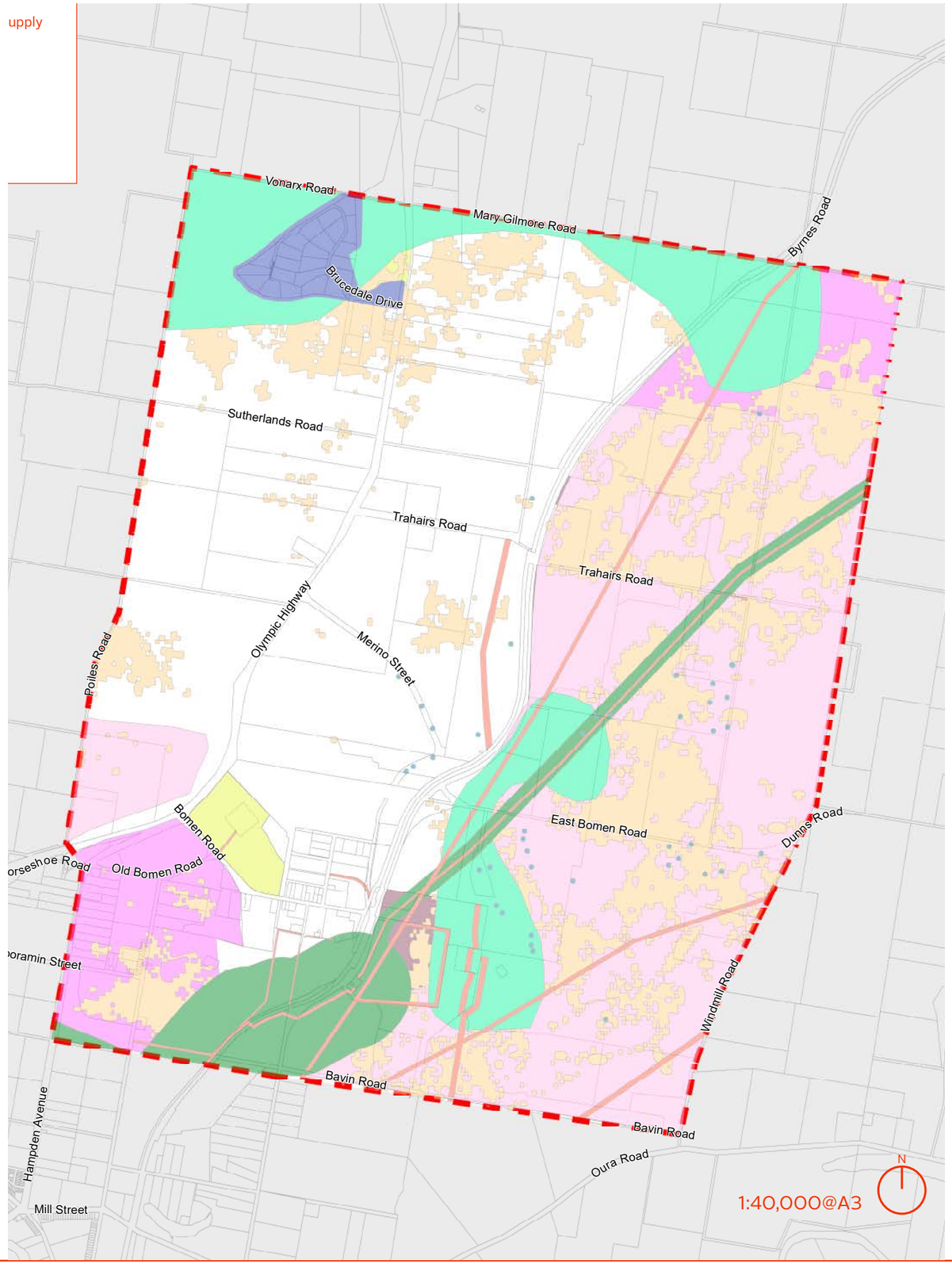
Observations

_ Central, western and northern areas of the site are least affected by ‘major considerations’.

upply

‘Other considerations’

“Central and western parts of the study area are largely unaffected by ‘other considerations.”



LEGEND

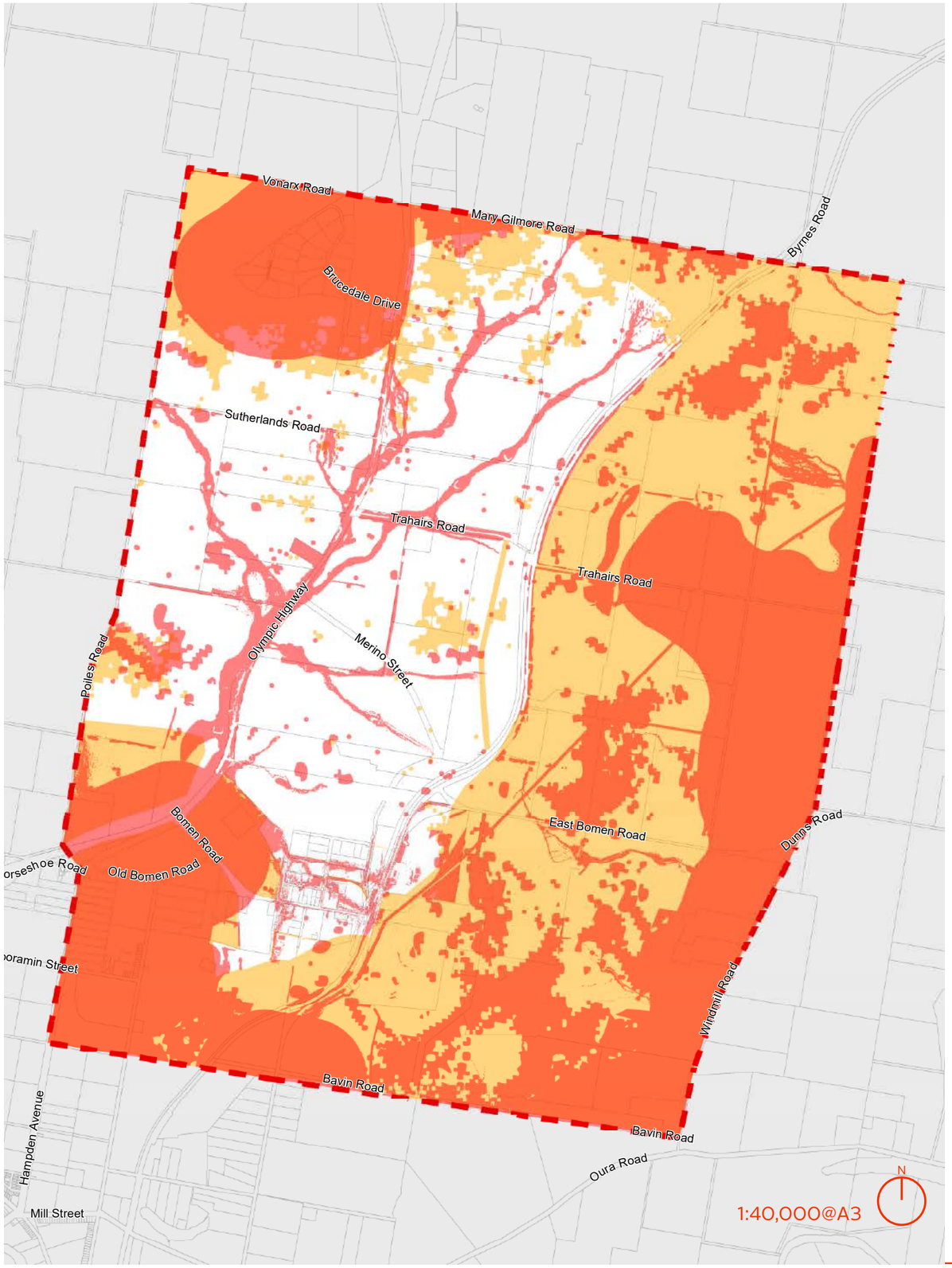
- Wagga Wagga SAP Study Area
- Cadastral Boundaries
- Aboriginal Heritage Sites (20m Buffer)
- Areas of Environmental Interest
- Bushfire Prone Area
- Easements
- Gas Pipeline ML
- High Topography for Water Supply
- Medium Visual Impact
- Poor Internet Quality
- Sewer - Complicated Supply
- Travelling Stock Reserve

Observations

_ Central and western parts of the study area are largely unaffected by ‘other considerations.’

Combined considerations

“Land central to the study area, and west of the major north-south ridge (Byrnes Road), is amongst the least restricted land for (industrial) development.”



	Area (ha)	% Study Area
Major Considerations	1,889	45%
Other Considerations	2,705	65%
Combined Considerations	2,988	71%
Study Area	4,180	100%

LEGEND

- Wagga Wagga SAP Study Area
- Major Considerations
- Cadastral Boundaries

JENSEN PLUS

Planning
Landscape Architecture
Urban Design
Social Planning

Observations

_ Land central to the study area, and west of the railway, is amongst the least constrained land for (industrial) development.

_ Land west of Olympic Highway also has fewer constraints.

_ 45% of the study area has been mapped with a ‘major consideration’. The greatest concentration of these hug the precinct boundaries especially to the south, south-east and north-west.

_ 65% of the study has a mapped ‘other consideration (some overlapping with ‘major considerations’). All land east of the railway/Byrnes Road has a mapped ‘other consideration’ over it.

4.2 Enquiry by Design Workshops

Short EbD Workshop 8-9 August 2019 (Sydney)

The aim of the workshop was to develop scenarios at a precinct-wide scale to align with the precinct vision and aspirations. The workshop provided the opportunity to think strategically and holistically about what the precinct should achieve, including incorporating best practices and the ability to adopt innovative and pioneering outcomes.

Objectives

_ Review + feedback on baseline analysis

_ Agree three SAP-wide master plan scenarios for technical study analysis and testing

_ Progress high-level technical strategies (by developing technical narratives for each scenario)

_ Collaboration of technical consultants across issues

Stakeholder, state agency, business and community engagement was excluded from this workshop.

Day 1_Scenario development

Participants broke into groups to discuss the findings of the Technical Baseline Analysis presentations and prepare a scenario concept for the Wagga Wagga SAP Study Area. Eight scenarios were prepared on day 1 and then short-listed on day 2 utilising a voting system where the preferred scenarios or elements within scenarios were identified.

At the workshop, three concept scenarios were developed. These scenarios were be based on spatial outcomes and/or growth scenarios and were used to form the basis for the next phase of refinement and testing.

Day 2_Strategic Focus Groups

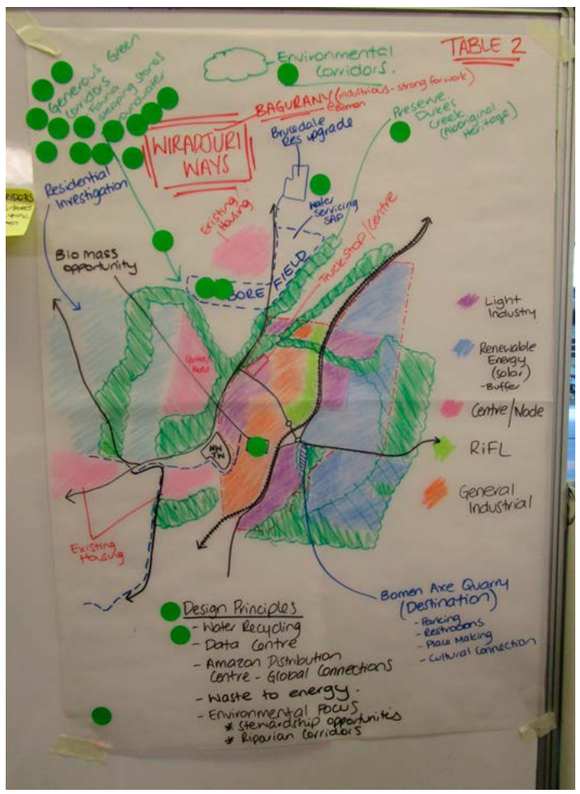
On day two, focus group discussions were also held to probe key project opportunities including non-spatial aspects. these areas covered some key issues that arose from the scenario development discussion. These included:

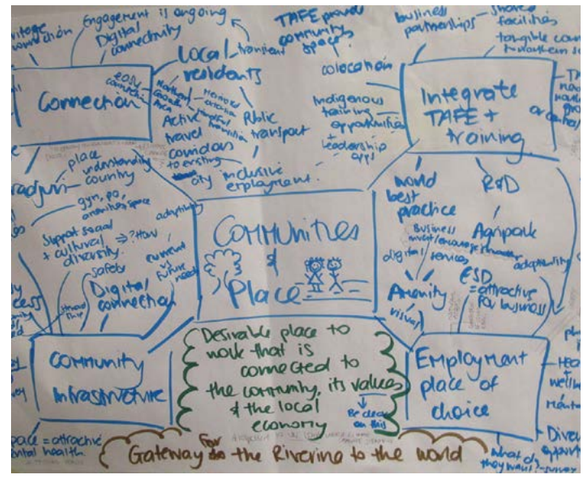
_ integration of ESD and the Circular Economy within the precinct (including elements needed and staging),

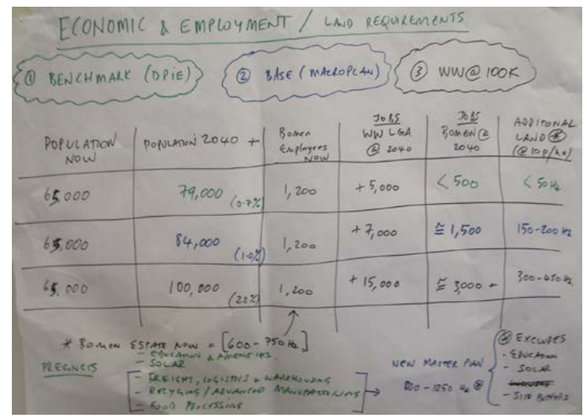
_ comparison of different projected population growth forecasts and how they will effect job numbers and resultant land provision required within the Wagga Wagga SAP,

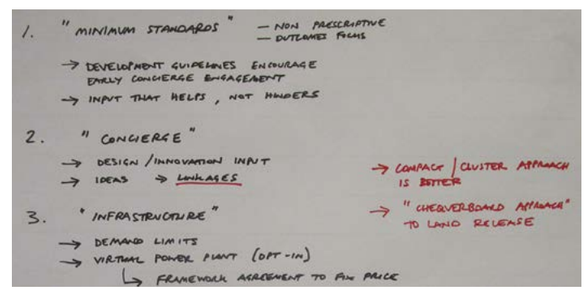
_ local elements that combine to make up a Community and Place. Key elements are connections, community infrastructure, integrate TAFE and training and employment place of choice,

_ approaches to combat water quality, water supply, flooding events, heritage and biodiversity issues, including cross sections and widths needed for riparian corridors.



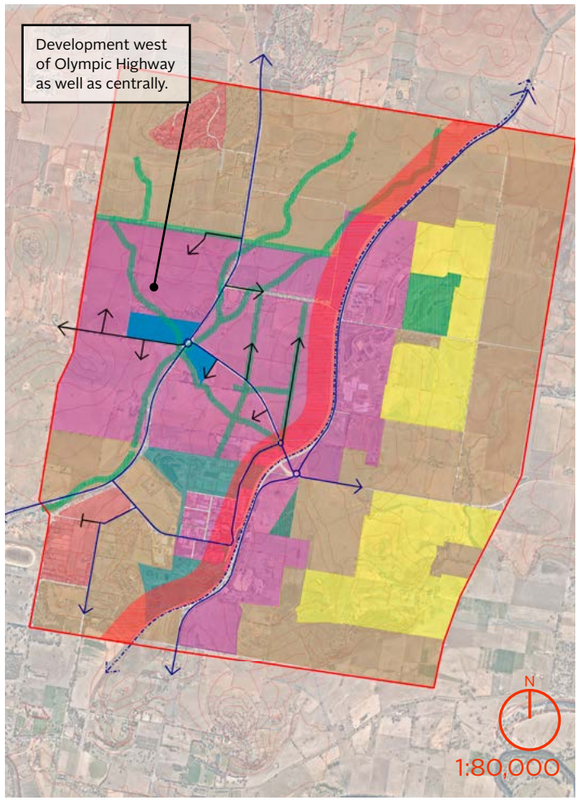


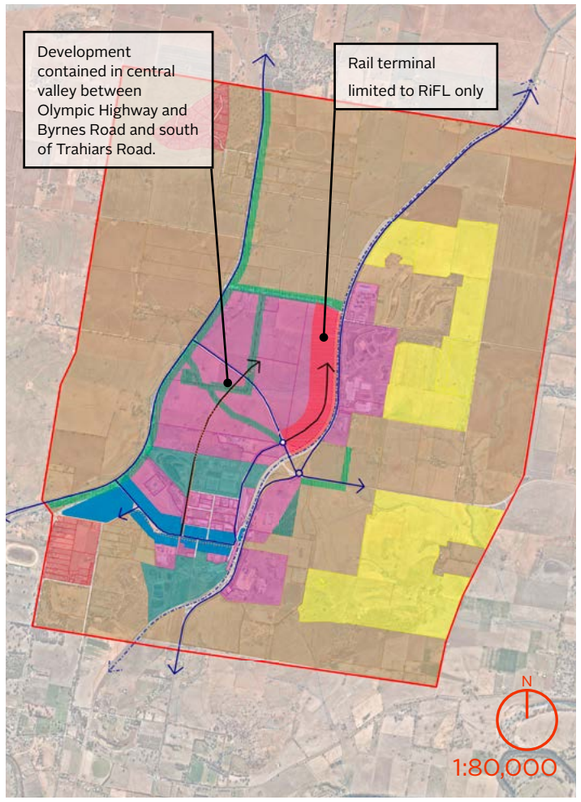


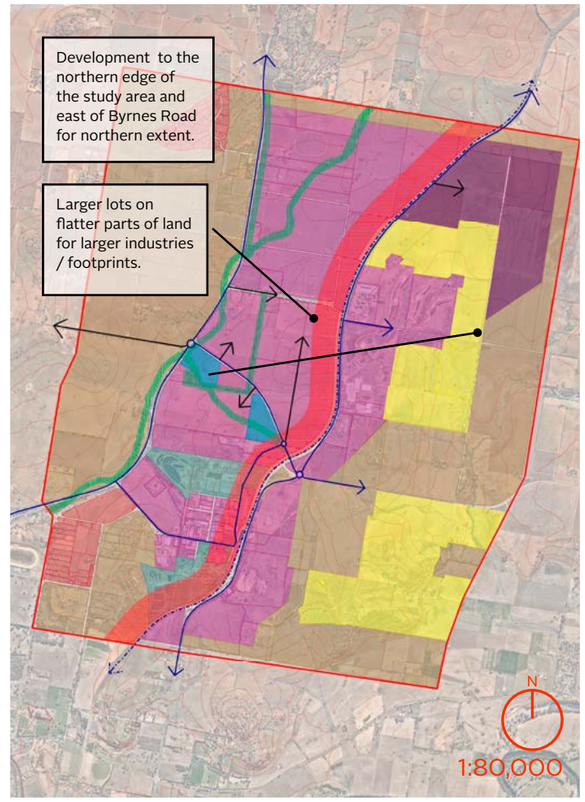


“In combination the three shortlisted scenarios test the best location of lower amenity industries, western and northern expansion options, and a more modest (smaller) option based on council-owned land.”

Three shortlisted scenarios from the Short EbD Workshop (refined and documented post workshop)







Scenario 4

Scenario 4 is a ‘high growth’ scenario featuring a central area for low amenity ‘stack’ industries, close to the RiFL hub. A Byrne Road industry cluster develops, along with green corridors, and a new area of high amenity tech and clean industries to the west of Olympic Highway.

Scenario 5

Scenario 5 is a ‘compact’ scenario focussed on developing land north and south of Merino Drive. A Commercial Gateway precinct is also included along Bomen Road.

Scenario 7

Scenario 7 is a ‘high growth’ scenario where development is directed north and north-east. It incorporates industry zoned land north-east of Byrnes Road and also new land along Olympic Highway. Additional rail terminals are included north of RiFL.

Full EbD Workshop 17 - 19th September 2019 (Wagga Wagga)

The Full Enquiry by Design workshop aimed to develop one final scenario from the previously tested three scenario options identified from the Short EbD Workshop.

The final scenario concept was to align with the precinct vision and aspirations and incorporate best practice and innovation.

As part of the development of the final scenario, the timing and sequencing of development and infrastructure was considered. This includes identifying required land and/or infrastructure items needed upfront to 'activate' the growth of the precinct.

Day 1 _Scenario testing display presentations

The technical consultants presented posters summarising scenario testing to small groups which circulated the room. The process allowed for information dissemination, questions and discussion on key issues from each technical discipline.

_ Jensen PLUS _ Master Planning

_ Dsquared _ Ecologically Sustainable Development Plan

_ Macroplan _ Strategic Economy and Employment Analysis

_ WSP _ Infrastructure

_ WSP _ Transport

_ WSP _ Renewable Energy

_ Rhelm _ Flooding and Water Quality Management

_ WSP _ Community and Social Infrastructure

_ WSP _ Environmental and Heritage

_ Todoroski Air Sciences _ Air, Noise and Odour Assessment

Day 1_Small group discussion of the 'Grand SWOT' analysis.

Groups discussed the outcomes of the SWOT analysis undertaken by each technical package in the testing of the three precinct scenarios. The following key findings were arrived at:

Scenario 4

_ Greater visual impact on Brucedale residents

_ Extended RiFL Increase SAP freight capacity

_ Commercial Gateway highly accessible

_ Relies on Merino Drive for circulation

_ Slopes in excess of 6%

_ Highway a barrier

Scenario 7

_ Accommodates all industrial land supply and supports land affordability

_ Strong landscape buffer - defined edge to Olympic Highway

_ Large areas of flat land suitable to for large buildings

_ Potential for further revegetation along drainage lines

_ Costly to service North Eastern areas

_ Highest potential for Aboriginal heritage impact

Scenario 5

_ Lower impact on external roads

_ More conducive to active and public transport

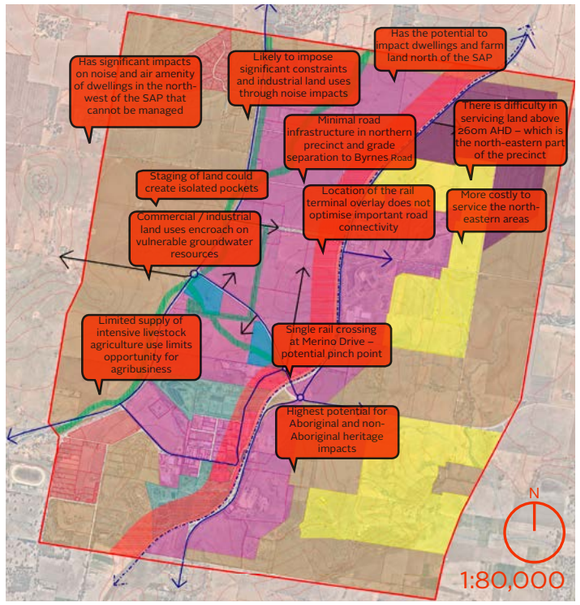
_ Strongest buffer to residential land

_ Higher employment density

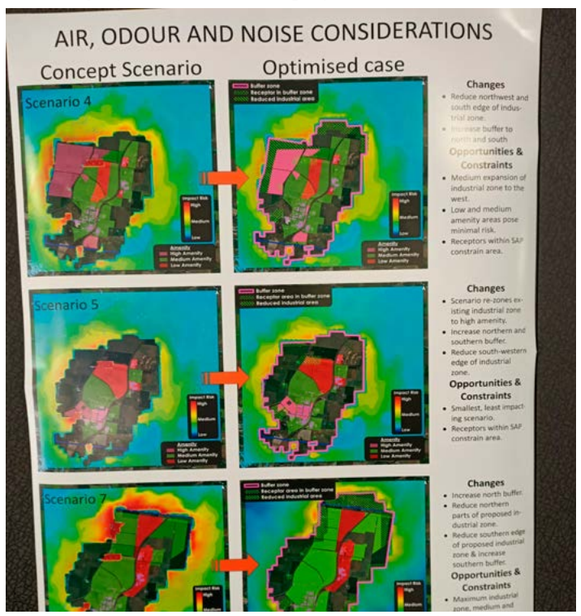
_ Inadequate industrial land supply

_ No direct road connection to northern growth area

_ Lower excess power available for energy storage



SWOT Analysis poster used to stimulate group discussion.



Example of technical package poster summarising key issues for each package.

Day 1 and day 2_Scenario Refinement

Eight small groups reviewed all scenario testing before preparing a refined concept based on their interpretation of the testing outcomes. The resulting eight concepts were presented to the whole group for critique at the end of Day 1.

One day 2 similarities were integrated and discussion took place around extent, direction for growth and direction was provided for the further refinement of the scenarios into a single, preferred scenario.

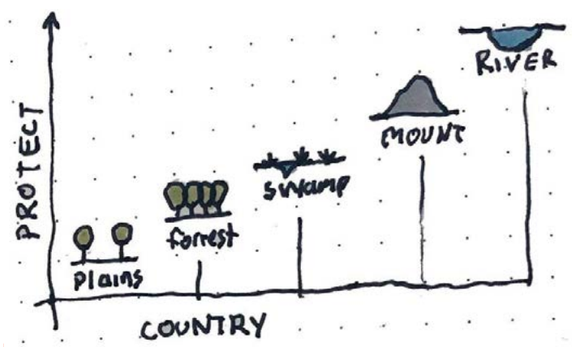
Michael Hromek (WSP) made a presentation on Wiradjuri culture and design and gave examples on how it could be incorporated in to the SAP.

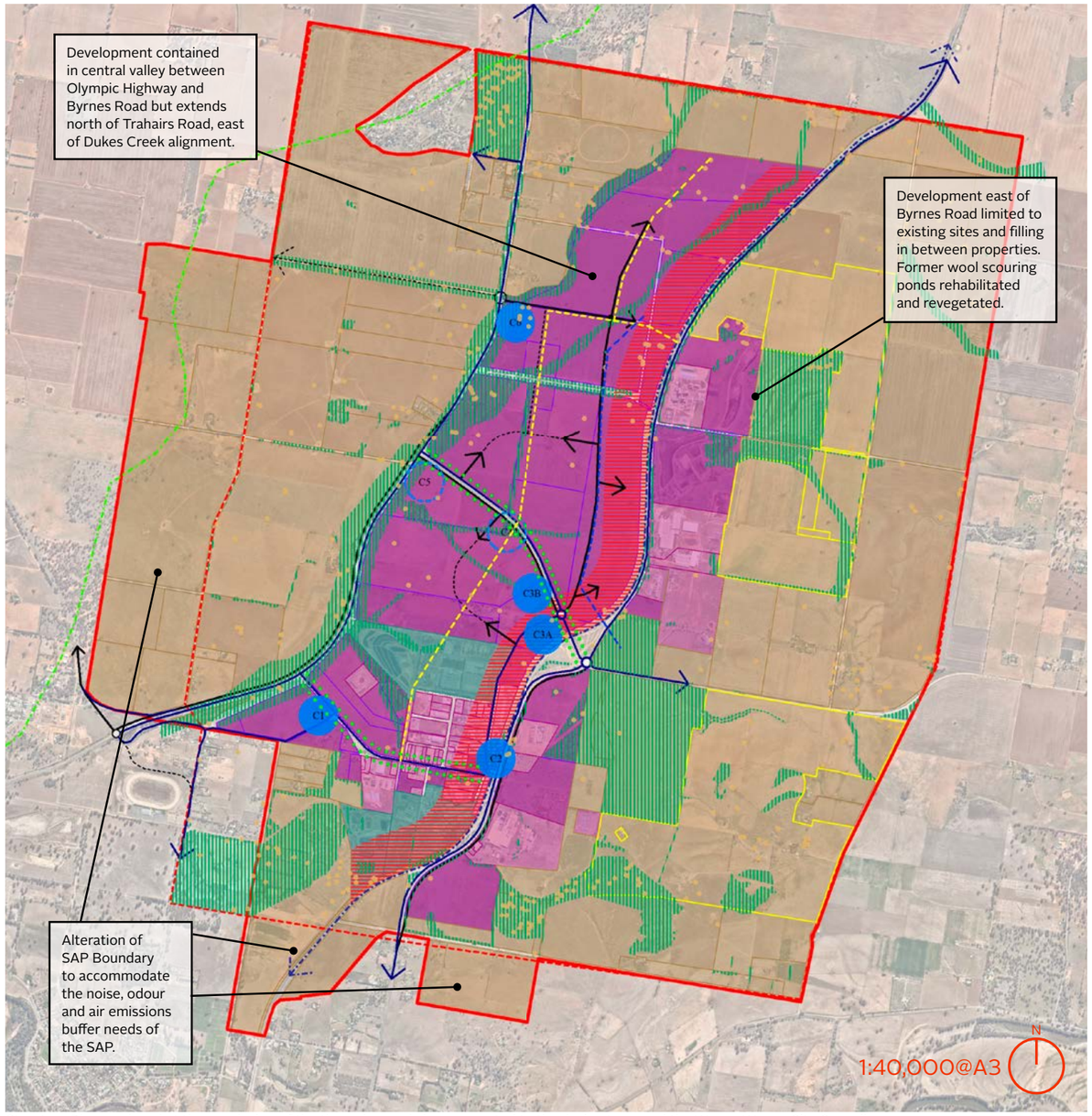
These themes were further developed within the refinement of the Structure Plan.

Day 3

On day 3 further refinements and discussion of issues were made the structure plan based on testing against environment, air/noise, infrastructure, heritage, contamination, flooding etc. In addition, Sub-precinct master plans for each area, and 3D visualisations were prepared.

A final presentation was made to the workshop participants and Wagga Wagga City Council Elected Members.





Structure Plan produced at the conclusion of the three day workshop presented to the design team and the Wagga Wagga City Council.

Other workshop outcomes

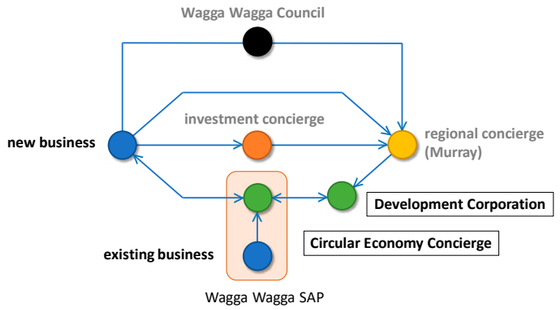
Mini Workshops

On days 2 and 3 a series of mini-workshops were programmed. Each addressed a key topic for the SAP master planning, and allowed a more detailed examination of these areas.

Implementing the Circular Economy Strategy

Four key Strategies Identified:

1. Build on the Bomen Nucleus
   - _ Elements of the circular economy are happening, celebrate them and make businesses ambassadors for the SAP.
2. Appoint a Circular Economy Concierge
   - _ Dedicated person supported by specialists, agencies and consultants as needed
   - _ Required immediately and essential to delivering a circular economy.
   - _ Needs to be experienced in process engineering, production and manufacturing, but dynamic in personality - the right vibe.
3. Invest in Infrastructure
   - _ Digital 5G network - data centre required
   - _ Virtual Power Plant (VPP)
   - _ upgrade Council's Water treatment Plant
   - _ Provide easements for circular economy infrastructure services
   - _ Model and plan for more sustainable businesses - don't over invest in power, gas and water capacity
4. Engage with Other Agencies
   - _ Funding opportunities through sustainability Advance Program, Australian Renewable Energy Agency, Clean energy Finance Corporation, NSW EPA.
   - _ Research and training opportunities through Charles Sturt University, TAFE and CSIRO.



Circular economy concierge role and relationships with organisations and stakeholders.

Industry Attraction and Skills Strategy

Industry focus for SAP should be:

- _ value adding to Agricultural produce (eg processing, niches, export pig abattoir, "Riverina"brand)
- _ Waste and Recycling (large waste by rail, e-waste, internal SAP waste - circular economy)
- _ advanced manufacturing (med-tech, vehicles - hydrogen, conversion petrol to electric, Defence supply chain)
- _ Freight and Logistics (warehousing and consolidation of goods, R&D on autonomous capability)

Key elements to attraction of investment include:

- _ an offer that isn't generic
- _ tailored to different investor segments (international, interstate and intrastate)
- _ clarity on industries to target and best suited to assist in high growth potential (eg supply chain clustering)
- _ co-ordinated approach from all parties (ie cross-government approach).

Wagga Wagga SAP's selling proposition includes:

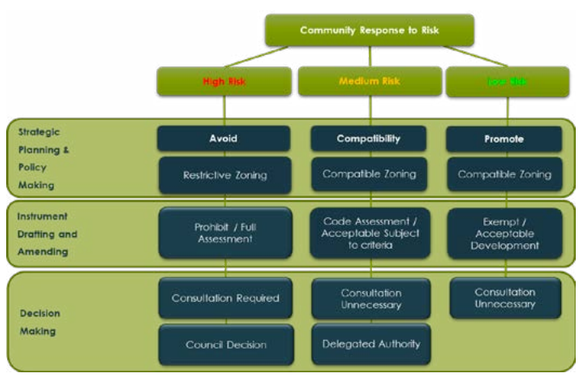
- _ locational advantage (12 hours from 75% of Australia's population)
- _ locational access to Food bowl - Riverina Murray is largest contributor GRP for Agriculture in NSW
- _ more secure water market and catchment to other regional locations
- _ access to large population for skilled workers
- _ track record for investment
- _ reliable energy grid.

What will help attract investment:

- _ concierge services - navigate government on business' behalf
- _ certainty around planning and approvals
- _ quantifying saving by coming to the SAP
- _ sustainable precinct / brand - corporate selling point)
- _ excellent connectivity to markets
- _ cheaper energy costs (Virtual Power Plant)
- _ digital connectivity (high speed, reliable and data centre)
- _ Wagga Wagga lifestyle - attractive to employees.

In order to achieve the high growth scenario, the Wagga Wagga SAP will need to:

- _ focus on manufacturing and value add - things that done compete with Asia (ie high value food products)
- _ build on the strengths of what is already established
- _ clustering of complementary industries and uses
- _ providing sufficient land to accommodate opportunities for the desired types of industries.



Risk Based Planning Framework

Observations and Opportunities:

_ Baseline issues – clear understanding of what can be addressed strategically through overlays & zoning, & what needs site-based assessment

_ Some 'uncertainty' of desired land use mix in Regional Enterprise Zone – low/medium/high amenity overlay will assist to refine acceptable uses locationally

_ Awareness that multiple innovative / ancillary uses may be possible in the Solar / Renewable Energy Precinct.

_ Further testing needed for:

  _ combination or ancillary uses to maintain flexibility

  _ 'consistent' and 'inconsistent' uses per sub-precinct to better shape finer grain land use intent

  _ Principal Development Standards that address land use risk.

Infrastructure Implementation Strategy

_ Implement RiFL rail project and include potential undergrounding of HV transmission line to reduce easement width.

_ Olympic Highway and Byrnes Road - intersection upgrades, with additional lane by 2060.

_ Coolamon Road upgrade.

_ Widening of Merino Road (RiFL expansion trigger), potential 3 lanes by 2060, possible underpass upgrade to be determined.

_ Eunony Bridge and Eunony Bridge Road upgrades

_ Likely 2 - 3 additional sub-stations (or substation upgrades), linked to staging of SAP.

_ Capitalise on opportunities for hydrogen mix to gas network.

_ Participate in Riverina Water IWCM Process

_ Upgrade to the East Bomen Reservoir and Pump Station, Bomen Reservoir and North Wagga Wagga High Lift, Brucedale Pump station.

_ Upgrade to the Brucedale Reservoir upgrades only triggered by northern growth beyond Sutherland Road (~140Ha).

_ Engineering analysis of receiving system is required to determine the Narrung STP upgrade requirements taking into consideration SAP and Northern growth area.

_ Rising mains and pump stations required to service the areas East of Byrnes Road.

_ Potential BISTF upgrade to full STP with opportunities to introduce recycled water and Biogas generation into the SAP.

_ Consideration of a Waste Transfer/Recycling Facility for the SAP.

_ Leverage the NSW Regional Digital Connectivity Program to provide Fiber connection from Wagga Wagga data hub to SAP area. Priority solution to improve connectivity to existing businesses, can subsequently connect to future areas.

_ Blue and green space provides for Riparian setback / flood conveyance, basins / water quality treatments, Tier 1 and 2 biodiversity (approximately 175 hectares (19% of SAP). Integrate with walking and cycle paths.

_ Integrate utilities within outer 50% of riparian corridors where suitable.

_ Ensure shared services corridors for infrastructure (min 6 metres width) within road shoulders, plus additional minimum 4m for future common services; for circular economy (fuel, hydrogen, slurry etc).

Identified quick wins for the Wagga Wagga SAP to benefit community and place.

Community and Place Strategy

Forward thinking social principles:

_ Gender equality - Equal employment and capacity building opportunities, social infrastructure and safe working conditions responding to the specific needs of women.

_ Human resource and development - Vocational training and capacity building to ensure the continued supply of a skilled labour force that can respond to new market developments.

_ Local Community Dialogue - International experience shows that engagement of firms in community activities can lead to significant positive contributions. It can strengthen the trust and relationships between industries and local communities.

Elements for People

_ Amenities - Central hub, cafes and good coffee, collaboration spaces, medical centre, child care, public amenities, recreational areas, gym, local shops, end of trip facilities, public wifi.

_ Training / Education links - Inclusive employment, links to TAFE & CSU/Agripark, training opportunities and entry level jobs, indigenous/migrant training and support.

_ Visually appealing - Green space, trees, screening, architecturally designed with quality and durability, signage - interpretive, symbolic, culturally representative, indigenous design aspects.

4.3 Transport Investigations

Wagga Wagga Special Activation Precinct Assessment of Refined Land Use - Transport and Traffic Plan (WSP November 2019)

Key Findings

_ Wagga Wagga SAP is well serviced by several major roads including Olympic Highway and Byrnes Road, connecting the area with Brisbane and Melbourne.

_ Most roads are already suitable for use by long articulated vehicles, 4.6m high vehicles and higher mass vehicles.

_ Modelling was undertaken using a series of population and employment growth projections prepared for the Wagga Wagga SAP, with agreed assumptions about trip generation and distribution across the 40 year planning period.

_ Upgrades required to the Eunony Road bridge (in implementation) will complete the heavy vehicle route to RiFL for anticipated truck size and is important in supporting the Wagga Wagga SAP.

_ The development of the SAP, along with the northern growth area and future plans for Charles Sturt University mean an upgrade to the Gobbagombalin Bridge is required.

_ Encouragement of alternative routes to the CBD from growing northern suburbs through Wiradjuri Bridge, Cartwrights Hill route and Boorooma Road/Gardner Street would protect the freight route via the Olympic Highway from peak period delays.

_ Refuelling facilities for larger vehicles and dedicated space for swap/leave/picking up trailers are currently limited and occur within Wagga Wagga roads.

_ Future stages of the RiFL Hub could take advantage of the upgrades as part of the Inland Rail (Double stack and 1800m long trains). Supporting longer trains could lower freight costs and make the Wagga Wagga SAP even more competitive.

_ Consider closing and consolidating existing Bomen and Harefiled intermodal facilities into the Wagga Wagga SAP / RiFL Hub.

_ Land should be reserved for rail-compatible businesses within a corridor of between 450 - 750 metres of the rail line for rail access, associated storage, shipping and related activities.

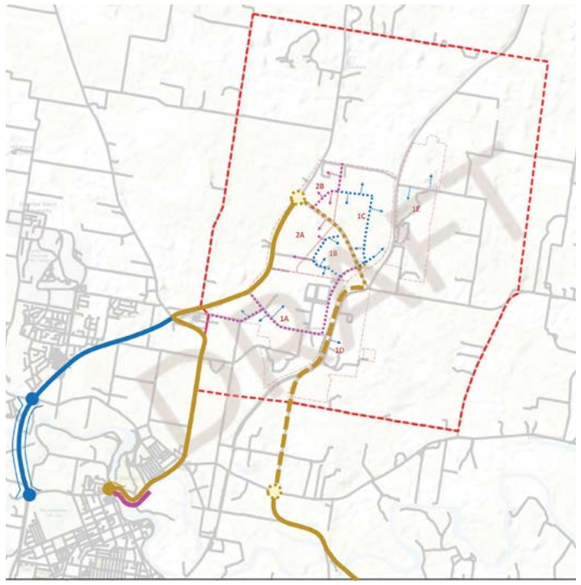
_ Extending public transport into the Wagga Wagga SAP is important for transport sustainability and for increasing accessibility. A future bus service should include a consideration of fixed-route and flexible/ on demand services. Early introduction would provide employees with an alternative to private car use before travel patterns are established.

_ While walking and cycling is likely to remain a small proportion of the Wagga Wagga SAP's transport task, provision of a connected path network is needed to maximise future mobility opportunities.

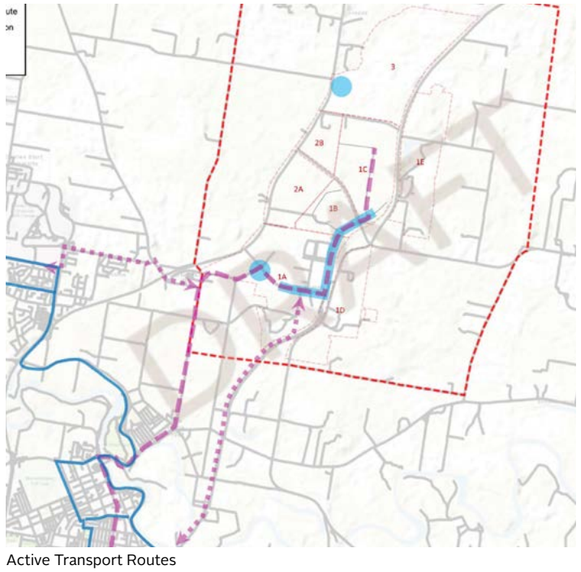
_ Regular pedestrian crossing opportunities across Merino Road and Dorset Street are important, as well as through other collector roads.

_ Public and private end of trip facilities should be included in public spaces and individual businesses to encourage cycling.

_ Livestock route is located along the Olympic Highway near Bomen and should be preserved unless a suitable alternative can be found.



Road upgrades and new internal road network



Active Transport Routes

Structure Plan Responses

_ Olympic Highway, Byrnes Road and Merino Road maintained as priority heavy vehicle corridors with access points minimised.

_ The route to the south via Hampden Avenue and the western portion of Old Bomen Road prevented from heavy vehicle connections.

_ Provision made for a fatigue management centre, trailer interchange and high-quality service centre within the SAP. Location near the RiFL hub is favourable in terms of minimising the distance for trucks visiting terminal.

_ Land adjacent to the rail corridor (350m) prioritised for rail-related / reliant industries and businesses through creation of a Rail Overlay.

_ Internal network for north-south and east-west roads to reduce use of Olympic Highway.

_ Network of active transport routes to Wagga Wagga CBD and across to the northern growth area integrated within green corridors and along key roads.

4.4 Services Infrastructure Investigations

Wagga Wagga Special Activation Precinct Final Draft Masterplan Report Infrastructure and Service Plan (WSP, November 2019)

Water Supply

To meet future demands for both the SAP area and northern growth areas, the existing sources will require upgrades together with new reticulations, which are already being considered by Riverina Water. Key upgrades to the source and reticulation include upgrades to Bomen Reservoir, East Bomen Pump Station, Brucedale Reservoir including new pumps stations in North Wagga, Brucedale and East Bomen together with approx. 35 Km of new water mains from 2019-2060 period.

Wastewater Management

Future infrastructure upgrades will be required as the Wagga Wagga SAP is developed. The area to the west of the ridgeline along Byrnes Road can be readily serviced by a gravity fed system connecting to the existing Bomen Waste Water Treatment facility. The area east of the ridgeline along Byrnes Road will be a gravity fed system but will require a new pump station to connect into the existing system.

The 2 strategic treatments options being considered are to upgrade the common rising main system between Cartwrights Hill Area and Narrung St WWTP (4.7km) and upgrade the BISTF to be a stand-alone WWTP with new discharge arrangement to the Murrumbidgee River. Both options are expected to require significant investment at the stage 1 of Wagga SAP development.

Stormwater Management

The Wagga Wagga SAP area is not constrained by the floodplain....As the Wagga Wagga SAP is developed an appropriate stormwater network will need to be developed taking into consideration the increase to impervious areas and the conveyance on stormwater flows within the catchment. Consideration should be given to ensure that development does not adversely impact on the recharge of groundwater within the Murrumbidgee Catchment as this is the primary water supply for the region.

Electricity Supply

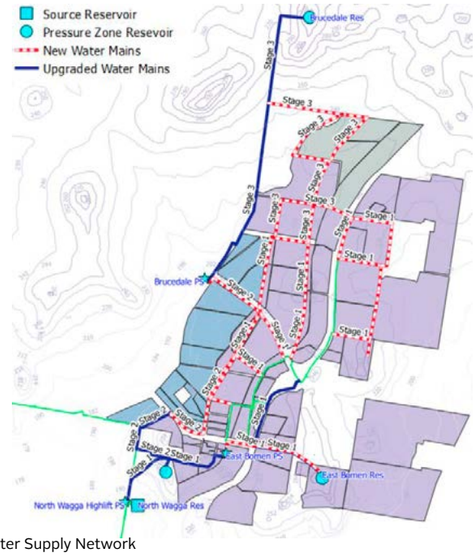
As the SAP is developed, expansion of the distribution system will be required. Alternative options are being considered including consideration of renewable energy opportunities and potentially exploring the innovative solution of a Virtual Power Plant which may provide a feasible alternative to typical power network expansion within the subject area. The Renewable Energy Opportunities and Constraints Report has identified a way in which the SAP can be 100% provided through renewable energy sources. However, to ensure power security, network upgrades will be required, including the provision of substation and upgrades to existing Wagga North substation.

Gas Supply

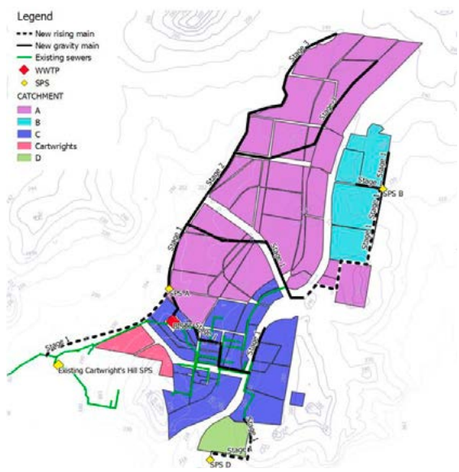
Access to gas is readily available with large transmission gas mains diagonally traversing the SAP area. There are some constraints related to the types of development activities in proximity to these transmission mains, however this does not sterilise the development of these areas.

Telecommunications

The Wagga Wagga SAP can take advantage of the NSW Digital Connectivity Improvement program which will establish a digital backhaul to Wagga Wagga. The connectivity to the SAP area will leverage this program and provide a connection directly to the existing Bomen Business Park area with a view to expand this as the SAP area is developed. The current preferred location for the Wagga Wagga Data Hub is within the Wagga Wagga SAP study area.



Water Supply Network



Waste water supply network

Structure Plan Response

- **Provision for expansion and growth of Bomen Industrial Sewage Treatment Facility to accommodate conversion to standalone Wastewater Treatment Plant.**
- **Provide stormwater infrastructure within road network and integrated within green infrastructure and riparian network.**
- **Plan for a common service easement within key corridors throughout the Structure Plan, principally along roads. Include space allocation for provision of additional services required as part of circular economy opportunities.**

4.5 Renewable Energy Investigations

Wagga Wagga Special Activation Precinct Renewable Energy Opportunity and Constraints Analysis - Final Draft Master Plan (WSP, November 2019)

Key Findings

_ WSP investigated the potential for the Wagga Wagga SAP to provide renewable energy generation to meet 100% of the annual electricity demand and the options available to achieving this.

_ Energy from roof-top solar is identified as a major contributor to achieving the self sufficiency target, accommodating between 70% and 76% of the anticipated demand, provided all businesses provide energy storage (ie battery) and integration within a Virtual Private Power (VPP) network.

_ The remainder of the required energy supply for the anticipated Stage 1 demand was identified through known existing planned projects covering Biogas and other waste digestions systems at four key businesses / locations within the Wagga Wagga SAP area.

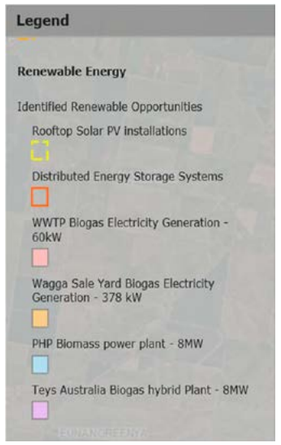
_ Future stages require additional sources, with one easy source being the proposed solar farms, once existing Power Purchase Agreements expired in 10 years time (which lines up with anticipated need).

_ Other additional commercial scale Solar PV Farms are an option along with a Biomass Power Plant of 3MW capacity, requiring up to 4,000-6,000 tonnes of woodchip or 4, 000 tonnes of straw per year to service it. Cost and availability of fuel feedstock will however impact on viability of any future Biomass Plant.

Structure Plan Response

_ **Provide flexibility within the Regional Enterprise Sub-Precinct and Rural Activity Sub-Precinct for energy generation facilities.**

Identified renewable energy opportunities.



4.6 Economics and Employment Investigations

Wagga Wagga Special Activation Precinct Strategic Economic and Employment Analysis Macroplan, November 2019

Economic Narrative and Attraction

_ *Wagga Wagga is the largest inland regional city in NSW with a broad industry base, from agriculture and agribusiness, to education and health services, to defence, through to manufacturing and freight and logistics.*

_ *The freight and logistics potential for the precinct is significant, offering industry increased opportunities to service larger markets and locally drive new economic and employment opportunities, particularly in Bomen.*

_ *Other key sectors that will drive the success of the SAP include advanced manufacturing, agribusiness, and renewable energy.*

_ *Bomen has many competitive advantages to leverage and attract advanced manufacturers including its affordability (looked for by SMEs), large land parcels (crucial to some businesses) and existing innovators (e.g. Enirgi and Southern Oil). With renewable energy and energy supply more broadly creating opportunities in the regions, there is scope for this to lead to further investment in Bomen.*

_ *With an established base of existing food manufacturers, support from a strong research base at tertiary education institutions, Bomen provides industry with the space and resources for businesses to expand and thrive.*

_ *The volume of land, infrastructure delivery, locational advantages, large land parcels and general affordability of land in Bomen will be key attractors for businesses. The SAP itself involves a major change in public policy to streamline the planning process – to remove what has emerged as a major impediment to businesses investing. The SAP also involves significant potential investment in infrastructure which would be an added attractor.*

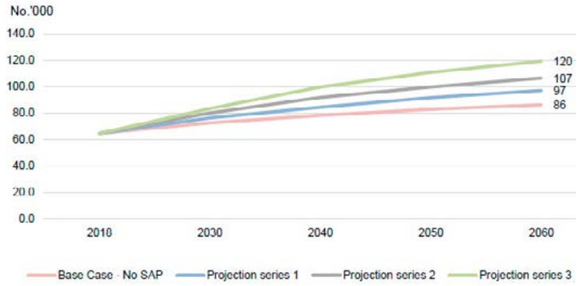
_ *The Government should consider the competitiveness of State charges and incentives, and direct engagement with businesses that are suitable to be located within the SAP.*

Population and Employment Generation

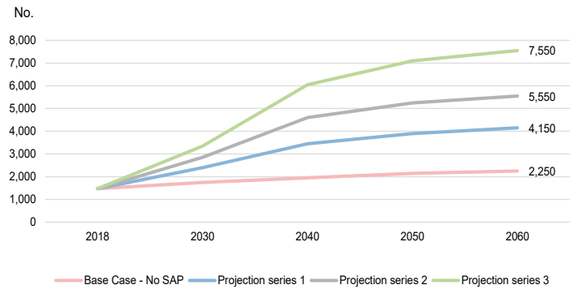
_ *The delivery of Wagga Wagga SAP in Bomen could result in a significant positive impact on growth in employment in the Bomen Employment Lands area and in turn leading to a significant positive impact on the future growth in population and employment in the entire Wagga Wagga LGA. Based on assumptions on the size and impact of the introduction of a SAP, three series of employment projections for Bomen and corresponding employment and population projections for Wagga Wagga LGA for the period 2018-2060 were prepared.*

_ *In terms of demand for land and based on a most probable low-density mix of land uses by industry, macroplan estimated the requirement for an additional 480 hectares of developable land by 2060. Allowing for green and physical infrastructure and spare capacity, this would require a gross 920 hectares of land to be added to the land currently used by businesses in Bomen.*

_ *Three stages for investment in the development of new lands in the Bomen Employment Lands area were projected. Stage 1 will accommodate employment growth to 2030 including on the high growth scenario. Stage 2 will need to be activated with medium growth (series 2) outcome circa 2050 but with high growth bringing that forward to the mid-2030s. Stage 3 will provide for longer term employment growth on the low and medium growth scenarios, but with the high growth outcome requiring consideration for activation in about 2040.*



Population Growth Projections Series against Base Case



Employment projections with and without SAP.

Structure Plan Response

_ Plan provides for 604 hectares of employment land overall, accommodating overall growth (factoring land take-up with roads and other infrastructure)

_ The Plan provides suitable staging to accommodate each of the growth demand scenarios envisaged, including account for the 80% take-up of any stage before commencement of the next stage.

4.7 Flooding and Water Quality Investigations

Wagga Wagga Special Activation Precinct Flooding and Water Quality Final Adopted Scenario Report (Rhelm, November 2019)

Catchment and Floodplain Overview

The Wagga Wagga SAP is located within portions of the Dukes Creek catchment and the Eunanoreenya tributary of Wheel of Fortune Creek, both of which are tributaries of the Murrumbidgee River.

Much of Dukes Creek is ephemeral and portions only flow during or immediately after a reasonable volume of rainfall. The upper catchment contains a series of large ponds currently used for management of runoff from the Saleyards, along with smaller dams in the vicinity of the Olympic Highway. Downstream of Horseshoes Drive, the creek is largely conveyed as overland flow.

The Eunanoreenya Valley tributary is ephemeral and many areas have no distinguishable creek bed or banks and instead flows as shallow overland flow. The upper catchment contains the former wool combing ponds which are not currently utilised for water management.

Southern parts of the Wagga Wagga SAP are within the Murrumbidgee River floodplain, however flood risks management requirements relate to runoff directly from the SAP and the immediate easterly catchment rather than the Murrumbidgee catchment.

Baseline flooding assessments indicate that areas should be set aside for the conveyance of flood flows. These areas are symbiotic with riparian corridor requirements.

Opportunities to develop centralised infrastructure that facilitate a more efficient and economic approach to the management of flood risk have been identified and incorporated in the testing of scenarios and the final structure plan.

Surface Water Quality Overview

The Management of Surface Water Quality has been integrated into the final adopted scenario with the intention of achieving sustainability, visual amenity, urban design and engineering functionality outcomes for the Precinct as a whole. Water quality in Dukes Creek and the Eunanoreenya Valley tributary is likely to be representative of rural and semi-rural land use reflective of the current land use of the majority of the Precinct.

In time of peak flow, it is likely that concentrations of suspended solids are likely to be high. There may be present higher concentrations of other toxicants such as pesticides and herbicides and the salinity of the surface water may be elevated.

The approach to water quality treatments is roof rainwater capture and re-use at a rate of 20kL per hectare of roof area within industrial zones (assumed 30% of the area is roof area); primary treatment of runoff via a gross pollutant trap; secondary treatment using bioretention basins.

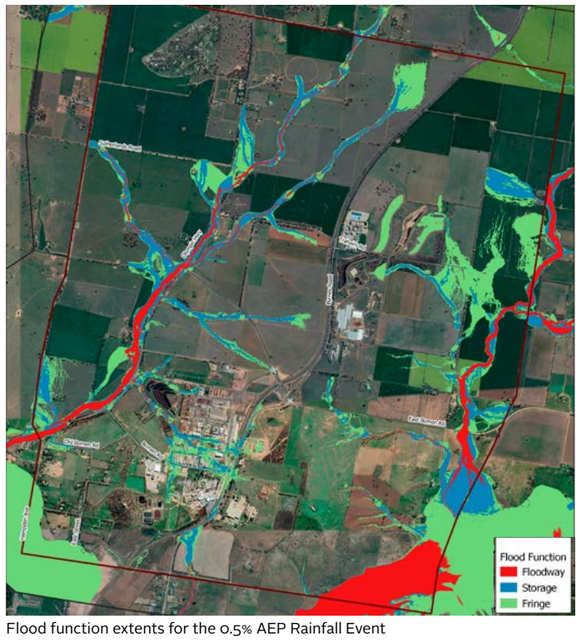
The basins would form the base with the air space above operating as flood detention basins during larger events.

Response to Managing Flooding and water Quality

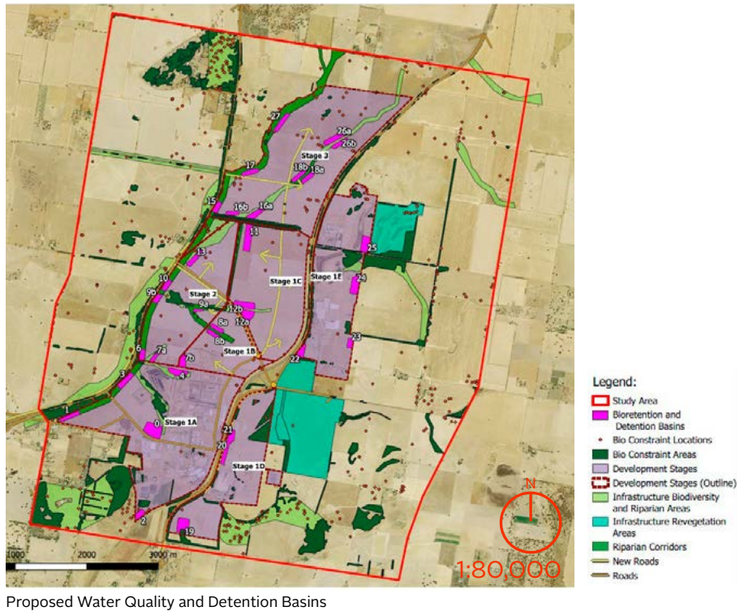
A combined total of 61.61ha and 554,000 m3 is required for the final adopted scenario for the purposes of flood detention (to manage flood impacts) and water quality.

A Green Infrastructure Biodiversity and Riparian Corridor (of varying width) is proposed to be set aside within the Precinct to convey low and high flows (up to the 0.5%AEP flood event). The combined flood detention and water quality basins are proposed to be located where possible within the outer portions of the corridor.

A series of culvert upgrades along the Olympic Highway and East Bomen Road will be required to ensure flood immunity of these roads up to the design flood event (0.5%AEP).



Flood function extents for the 0.5% AEP Rainfall Event



Proposed Water Quality and Detention Basins

Structure Plan Response

- **Land has been set aside for the provision of riparian corridors and the establishment of formal creeks where they are currently ill-defined.**
- **The plan accommodates integrated water storage and quality treatments within basins that are integrated within the riparian corridors and green infrastructure corridors, to minimise land take.**

4.8 Biodiversity, Heritage, Contamination and Hydrogeology Investigations

Wagga Wagga SAP Draft Master Plan Report - Biodiversity, Heritage, Contamination and Hydrogeology (WSP, November 2019)

Biodiversity

- Tier 1 high biodiversity constraints relate to:
  - native vegetation patches of PCT that correspond to Threatened Ecological Communities listed under the EPBC Act
  - native vegetation patches of PCT listed under the BC Act as serious and irreversible impact entities
  - potential habitat for EPBC listed flora species
  - potential habitat for EPBC listed fauna species
  - all hollow bearing trees.
- Tier 2 – Medium biodiversity constraint
  - native vegetation patches of PCT that correspond to Threatened Ecological Communities listed under the BC Act
  - paddock trees recorded as Class 2 or Class 3 that require biodiversity offsets at an ecosystem credit level
  - potential habitat for BC listed flora species
  - potential habitat for BC listed fauna species
  - native vegetation patches of PCT that do not correspond to Threatened Ecological Community listed under either BC Act and/or EPBC Act but qualify to require biodiversity offsets at an ecosystem credit level
  - planted native vegetation which provided habitat connectivity across the landscape.
- Tier 1 and 2 biodiversity constraints should be avoided by inclusion within green infrastructure corridors to strengthen protection and enhance movement flora and fauna corridors.
- Provide strategic vegetation linkages with Brucedale to the north and vegetation in south-west corner associated with Dukes Creek.
- All residual minor impacts such as those associated with the internal road and infrastructure network are expected. All residual impacts to biodiversity values would be assessed under the Biodiversity Assessment Methodology as part of a Biodiversity Certification process and require biodiversity offsetting in accordance with the NSW Biodiversity Offset Scheme.

Indigenous and European Heritage

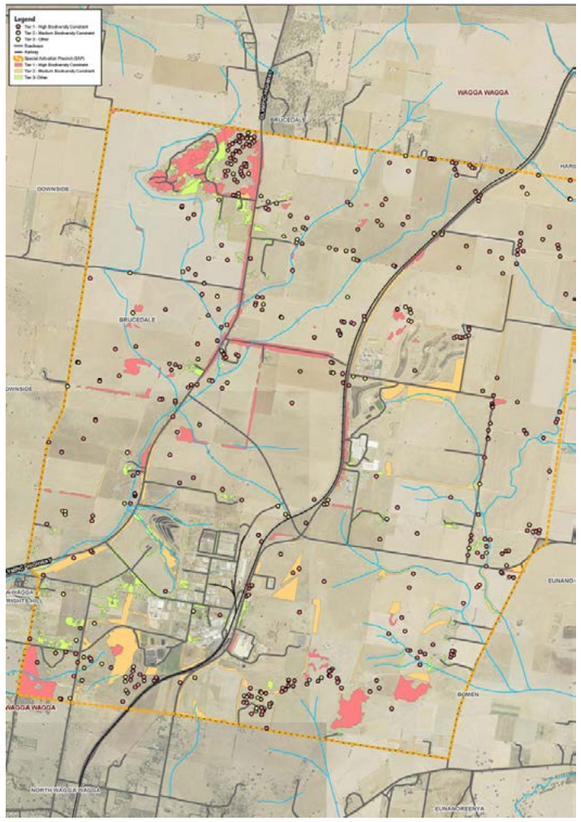
- Known aboriginal heritage place (Bomen Axe Quarry) should be protected.
- There are 42 recorded indigenous heritage sites (artefact scatters or isolated finds) throughout the Wagga Wagga SAP with 7% comprising modified trees.
- All indigenous heritage sites should be managed through an Aboriginal Cultural Heritage Management Plan (noting some sites already have one of these).
- Eight European Heritage Places and two non-listed but identified places exist in the Wagga Wagga SAP and should be protected within the Structure Plan. Adaptive re-use is recommended, along with suitable curtilage for places.

Bushfire Prone Land

- Revegetated areas within the Wagga Wagga SAP boundary is should be considered 'bushfire prone' land with the relevant specifications and requirements of Planning for Bushfire Protection (NSW Rural Fire Services, 2018) incorporated into development standards, including asset protection zones and perimeter roads.

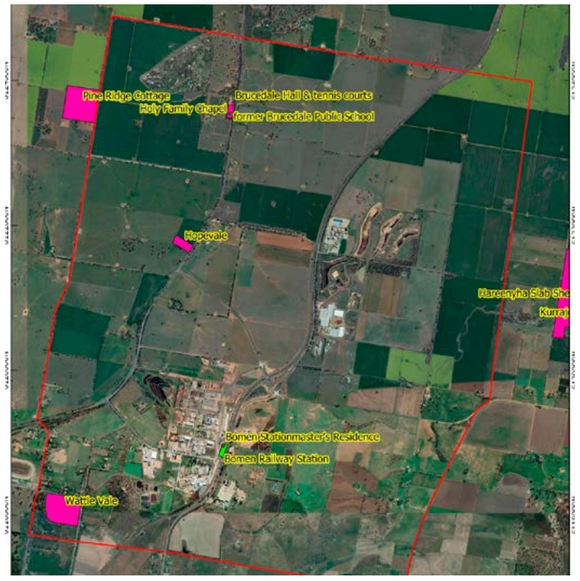
Contamination

- Several Activities of Environmental Interest (AEI) exist



Tier 1 and Tier 2 Biodiversity Areas

Indigenous heritage items + places



European heritage places

within the Wagga Wagga SAP area, mostly within the existing Bomen Business Park. These reflect current and past contaminating activities.

_ These activities need to continue to be managed in accordance with regulations issued by the EPA under the Protection of Environmental Operations Act 1997, SEPP 55 - Remediation of Land and the Contaminated Land Act 1997.

_ The inclusion of a detailed site investigation is required as a development standard within the Wagga Wagga Special Activation Precinct for priority areas such as the entire former wool combing facility lands (including ponds), former Laminex facility waste disposal land and former fellmongery at 15 Lewington Street.

_ Ongoing monitoring of conditions of licences for existing land uses is recommended.

_ Implementation of an unexpected finds protocol should be included within a CEMP for all future development and could form part of a development standard for the Wagga Wagga SAP.

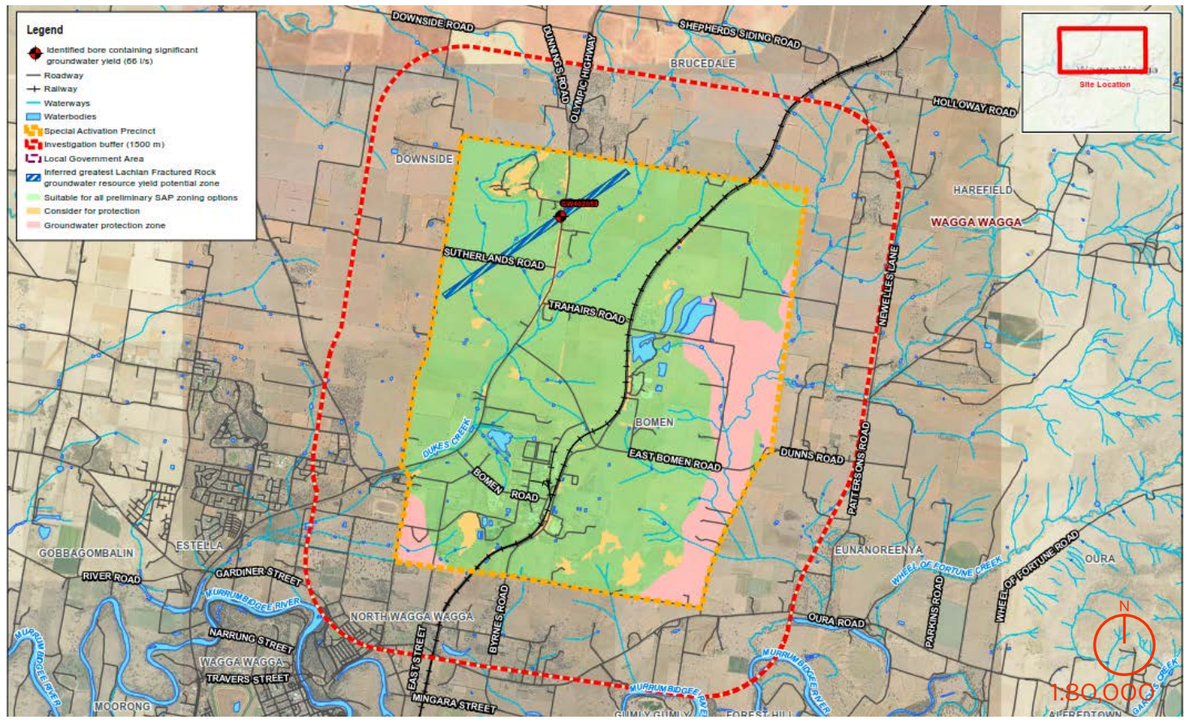
_ The former wool combing ponds should be rehabilitated. All ponds should be lined, filled and capped and the final land form free-draining but flat.

Groundwater and Hydrology

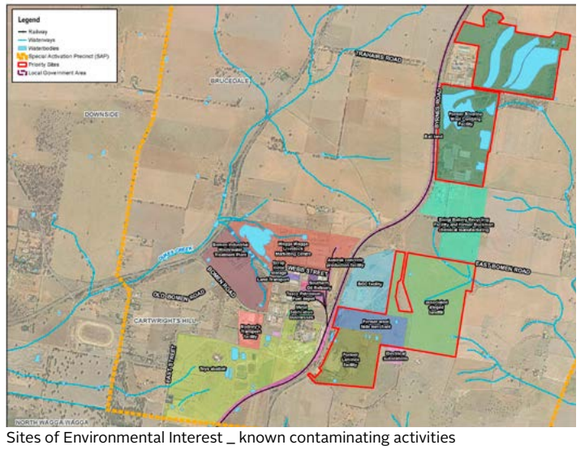
_ Groundwater protection zones exist along the east boundary of the Wagga Wagga SAP and at Cartwright's Hill – covers the Wagga Wagga alluvial groundwater source, high priority groundwater dependent ecosystems, mapped alluvial sediments and sensitive receptors – and include a 200 metre buffer.

_ A groundwater management strategy should be developed as part of development standards to provide guidance on the management and sustainability of the groundwater resource.

_ Further hydrological investigations should be undertaken to confirm the opportunity of the lower Lachlan fractured rock aquifer as a viable groundwater source for the Wagga Wagga SAP.



Hydrological features, including groundwater protection zones



Sites of Environmental Interest _ known contaminating activities

Structure Plan Response

_ Accommodate Tier 1 and Tier 2 biodiversity within green infrastructure corridors, including width ranging from 100m (Trahairs Road) to 40 metres, (1st order Riparian zones).

_ Provide for additional revegetation in strategic locations to better connect green corridors within the SAP and to adjacent locations, and allow for biodiversity offsetting.

_ Retain paddock trees with a desired 10 metre buffer.

_ Retains European heritage places, including potential re-use of the former Bomen Train station within a commercial hub.

_ Groundwater protection zones are largely avoided through the placement of the Regional Enterprise Sub-Precinct.

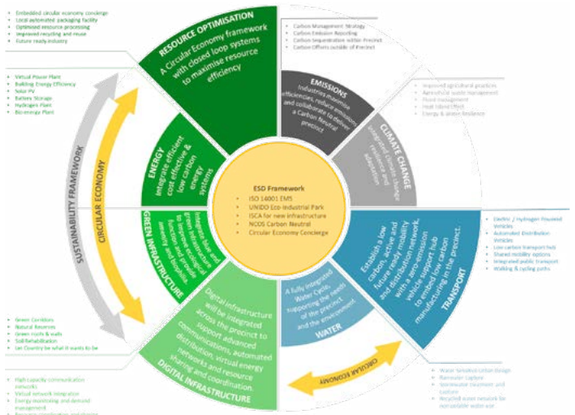
_ Provide for the redevelopment of the former wool scouring ponds to allow for rehabilitation.

4.9 Ecologically Sustainable Development

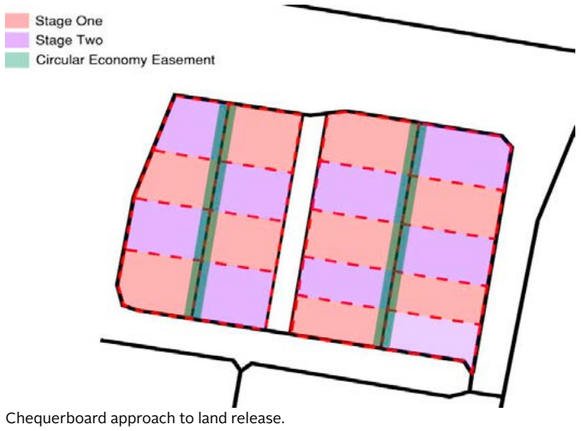
Wagga Wagga Special Activation Precinct Ecologically Sustainable Development (ESD) Plan DSquared Consulting, October 2019

The ESD Framework has United Nations Industrial Development Organisation (UNIDO) Eco-Industrial Parks framework as its foundation and provides an internationally recognised, holistic system to promote circular economy and industry symbiosis. It contains five components:

- ISO 14001 Environment Management System (EMS) - robust third party verified accreditation
- UNIDO Eco-Industrial Parks Framework - aligning EMS with four core EIP categories of Precinct Management & Performance, Environmental Performance, Social Performance and Economic Performance.
- Planning Framework - coordinated and facilitated land planning and release that takes a chequerboard approach" to allow for future expansion and co-location of synergistic business when they become available
- ISCA Infrastructure Sustainability Tool - and its application to all new major infrastructure (not upgrades) aiming for a "Leading" rating
- NCOS Carbon Neutral Certification - monitoring, management and certification framework for greenhouse gas emissions.



Executive summary - ESD on a page.



Chequerboard approach to land release.

Circular Economy

Four key strategies are suggested for a successful circular economy:

- Build on the Bomen Nucleus- there are significant opportunities for local connections of existing businesses to build a circular economy and attract other businesses to this location.
- Appoint a Circular Economy Concierge - dedicated to understanding process and resource needs of businesses and ways to link them together. This is a high priority strategy which can facilitate early quick wins. Without an effective full-time concierge a fully developed and successful Circular Economy Framework will be extremely problematic, if not impossible to create and maintain.
- Invest in infrastructure - particularly inset / embedded power network or VPP; upgraded Wastewater Treatment Plant to accept and process all trade waste, deliver back recycled water and generate energy; gas network capable of delivering hydrogen; and high speed, high bandwidth 5G digital communications network.
- Engage with other agencies - providing technical advice and potential funding opportunities.

Sustainable Energy Supply

Four strategies are suggested to deliver a low carbon, affordable energy system within the SAP:

- Establish a Virtual Power Plant to reduce energy costs, improve network security and improve energy efficiency for businesses. This is a potential quick win and high priority strategy for the SAP.
- support bio-energy generation proposed by several businesses at their facilities.
- Solar energy generation - build on the two proposed solar farms through inclusion of rooftop solar to provide a large platform, supported by battery storage.
- Facilitate a hydrogen hub with companies generating and selling hydrogen using renewable energy systems; despatching hydrogen through natural gas network; blending hydrogen for bulk container shipping and export; use within industries processes; co-location of industries; and as a base load energy source for heat and energy generation.

Sustainable Water Systems

A fully integrated water cycle can be achieved through the following strategies (and supported by KPIs and guidelines within the EMS):

- use of alternative water sources for non-potable water to reduce demand on potable supply (encouraged through the EMS and design guidelines encouraging its integration within development)
- on-site rainwater capture and re-use for all new facilities, potentially grouped and shared.
- stormwater detention and re-use with natural filtration using vegetation, to improve biodiversity, amenity and regenerate land
- waste water treatment and re-use at an upgraded Wastewater Treatment Plant at BISTF.

Climate Change

The SAP Structure Plan needs to include design and planning responses that ensure resilience to climate change impacts. This can be achieved through:

- including climate change adaptation relieince within the EMS for both the SAP and businesses in it
- provide extensive areas of blue and green space to attenuate peak stormwater events and heat island effect
- provide an inset energy network with energy storage to minimise risk of network failure
- provide a closed water cycle network with alternative water supply to mitigate drought related supply risks.

Greenhouse Gas Emissions

Strategies for reducing greenhouse gas emissions within the SAP include:

- integrate circular economy as an integral component of the development
- apply minimum standards for energy systems within buildings, connected by a virtual power network, and supported by a decarbonised natural gas network.
- integrated large scale rainwater and stormwater capture and re-use has a lower carbon footprint than potable or recycle water sources
- improving sustainable transport options for back haulage operations between businesses, employee commuting and supporting transition to sustainable transport options (such as EV charging infrastructure, public and active transport infrastructure
- National Carbon Offset Standard (NCOS) that provides a framework for achieving carbon neutrality for businesses.

Sustainable Transport

Three strategies are suggested for delivering a low carbon transport system for the SAP:

- Zero Emission Transport Hub - build synergies for businesses around an existing nucleus including future battery recycling opportunities; development and recovery of specialist oils and lubricants for EVs and hydrogen cell vehicles; hydrogen production facilities for processes and as a fuel source; supporting distribution through low carbon methods; and embedding EV charging and hydrogen refuelling in panning standards.
- create a Research and Development Education Hub - researching and developing zero emission vehicle manufacturing and re-manufacturing processes
- embed Deep Circular Economy into Zero Emission Transport Hub - broadening opportunities for materials and processes within facilities.

Green Infrastructure

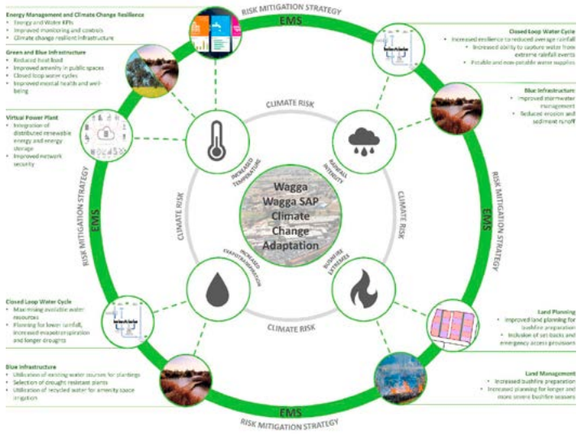
Blue and green infrastructure should be integrated into the precinct Structure Plan to ensure:

- existing flora is retained and improved
- corridors are connected to provide protected areas for fauna
- integration with sustainable transport routes (such has walking and cycling paths)
- stormwater retention and treatment is maximised in a way that also provides amenity
- carbon farming is undertaken in areas that are unlikely to b developed.

Digital Infrastructure

By providing advanced digital infrastructure, the Wagga Wagga SAP will be able to maximise efficiencies that will in turn improve ESD outcomes and reduce environmental impact. Specific measures that will be facilitated include:

- Carbon Neutral Certification - reliant on the capture, handling and movement of large volumes of data from multiple sources.
- Virtual Power Plant - relies on high speed, high bandwidth data network to monitor and manage each element of the connected energy infrastructure.
- automated distribution and waste management which improves efficiencies for transport and lower operating costs for businesses.
- automated or aligned maintenance of plant, equipment and appliances.



Climate change risk mitigation.

Structure Plan Response:

- **Blue and green infrastructure is integrated as part of the Structure Plan and excluded from the yields to ensure to ensure long term protection from development.**
- **Provision is made for integrated infrastructure corridors and easements throughout the Structure Plan which also accommodate future distribution for the circular economy (such as hydrogen).**
- **Provision is made for roof-top solar on buildings to facilitate sustainable energy generation, and will reinforced through the Delivery Plan, along with roof run-off and stormwater management, detention and re-use.**
- **Sustainable transport is accommodated through integration of walking and cycling paths throughout the SAP and connecting to key locations outside of the SAP.**

4.10Community and Social Infrastructure Investigations

Wagga Wagga Special Activation Precinct Community and Social Infrastructure Assessment (WSP, November 2019)

Key Findings

_ A desktop and site audit of community and social infrastructure was undertaken along with consultation with key stakeholders, business owners and the community.

_ The Wagga Wagga community values are strong, and there is a particular importance placed on sport and recreation, and arts and culture. There is a strong feeling of pride in the city and its community - of its welcoming atmosphere, strong cohesion, the lifestyle provided and comparatively affordable living.

_ The Wagga Wagga LGA is generally well serviced in terms of its community and social infrastructure needs. There is however, considerable concern voiced by the stakeholders that health services, emergency services and schools are already at or nearing capacity.

_ The increasing population will continue to place additional demands on already stretched resources, particularly education and child care services, health services, aged care, sporting facilities, open space, recreational space and community services.

_ The shifting demographic profile will also change the proportion of young, working populations and services such as child care, schools, health care and community support services will become relatively important.

_ There is a need to recruit and retain specialist and general practitioners to the area to cope with existing and ongoing demands.

_ Consider and additional co-located emergency services facility within the Wagga Wagga SAP to also service future northern growth area population.

_ Formalise linkages with Charles Sturt University and TAFE, particularly synergies with AgriPark to complement the SAP. Vocational training and capacity building will ensure a continued supply of skilled labour force, along with inclusive employment pathways for school leavers, disadvantaged and unemployed.

_ Strengthen physical, community, digital, economic and cultural connections, including through provision of public transport to SAP.

_ Ensure implementation of good social management practices including work, social and community infrastructure and good relationships with the local community.

_ Provide for equal employment and capacity building opportunities, including safe working conditions to the specific needs of women.

_ Provide amenities for employees, including a central hub, cafes and good coffee, collaboration spaces, medical centre, child care centre, public amenities, recreational areas, gym, local shops, public Wi-Fi and end of trip facilities.

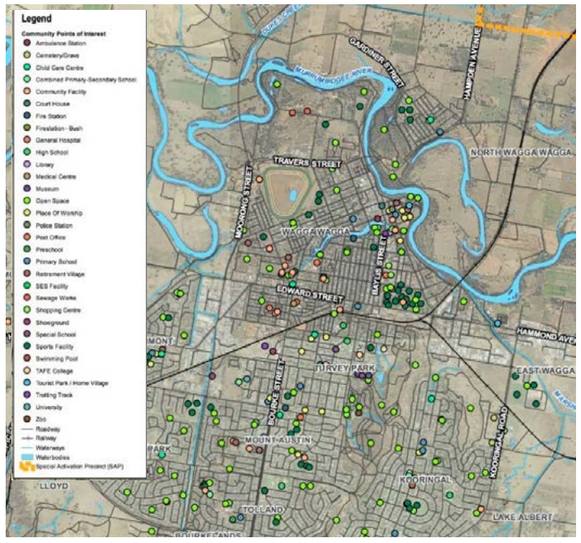
_ Ensure visual appeal to improve mental well-being of workers and community, including green space, trees, screening, architecturally designed buildings and inclusive signage.

_ Create a Social and Community Plan that drives best practice and aligns with NSW government 'Better Placed'.

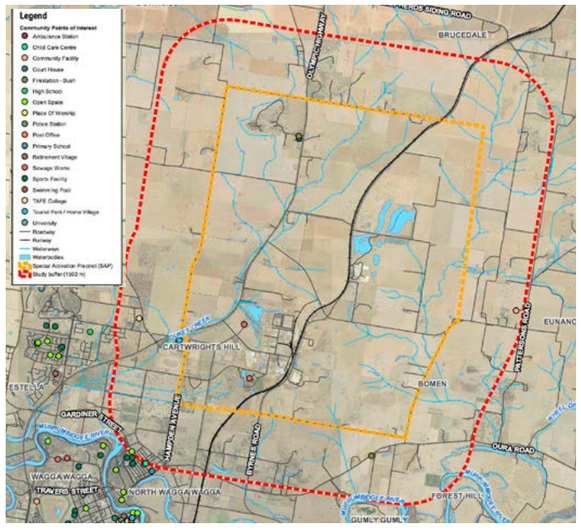
_ Reflect the Wagga Wagga community identity in the SAP design to ensure they feel connected to the SAP and part of the development and its benefits. Improving local amenity will aid in this.

_ Promote long-term engagement with stakeholders who are interested and engaged with the future of their city. This is particularly important for the planning and delivery process. Individual businesses should also be encouraged to do this with the community.

_ Open communication of the vision for the Wagga Wagga SAP, how it fits with the future for the community and its benefits are important to articulate.



Community + Social Infrastructure + Services in Wagga Wagga



Community + Social Infrastructure + Services in Special Activation Precinct

Structure Plan Response

_ Provisions for commercial nodes in strategic and accessible locations to provide for local services for the workforce and local community.

_ Provide opportunities for the inclusion of tertiary educations within the Wagga Wagga SAP.

_ Improved amenity provided through active transport connections, network of green corridors (integrated with Water Sensitive Urban Design) and public realm improvements.

_ Visual appeal a focus through public realm improvements and requirements within Delivery Plan.

4.11 Air, Noise and Odour Investigations

Wagga Wagga Special Activation Precinct Final Draft Master Plan Report C4.1 Planning Considerations for Air, Noise and Odour (Todoroski Air Sciences, November 2019)

An analysis and modelling of noise, odour and air quality has been undertaken for the Wagga Wagga Special Activation Precinct having regard to sensitive receptors outside of the industrial sub-precincts, existing topographical and typical atmospheric and weather conditions.

- The approach to determining appropriate criteria for determining potential noise and odour impacts has been determined to provide objective numerical criteria applicable to the land.
- This is only possible for noise and odour given that there is a limiting criterion for an emission (noise or odour), whereas for air, there are many criteria for many pollutants, which apply at various locations and averaging periods. As such, only preferences or guidance can be provided for air emissions.
- The key consideration in making the revised assessment is that there are no sensitive receptors within the precinct boundary, meaning that any existing receptors within the precinct boundary may become part of the buffer zone or may otherwise be re-zoned.

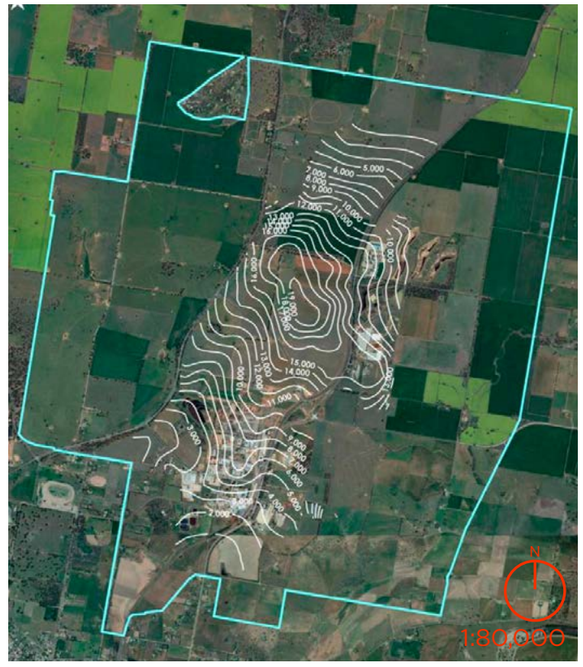
Noise

- *Contour lines within the industrial area represent the maximum attenuated sound power level per hectare (PWL(lot) - i.e. noise that can leave the site, per hectare).*
- *From a regulatory view point, measuring PWL(lot) at the site is more swift, direct and reliable than measuring the intrusive noise level at receivers, especially for a lot within a large industrial area where it can be very hard to determine which source/ lot/ operation is causing the noise at the receiver.*
- *This pre-set allowance for the lot's sound power level reduces the work a noise consultant may need to do, saving time and money.*
- *The PWL(lot) is easily measurable, and so potential transgressions can be swiftly and efficiently regulated.*
- All likely industrial noise sources can fit within the specified sound power level allowances in the industrial area, except in some limited locations near to receptors or the precinct boundary, where only low noise sources should be permitted.

Odour

- *The contour lines within the industrial area represent the maximum attenuated odour emission rate (OU. m3/s/ha) (i.e. rate of release of odour that can leave the site, per second per hectare).*
- *This converts linearly to any lot's odour emission allowance. For example, if the lot is half a hectare, it can emit odour at half the rate of the contour line level passing through the middle of the lot. If the lot area is two hectares it can emit double the contour line level.*
- *Like noise, this odour emission rate allowance can be set as a property right for the lot, perhaps as part of any a Section 10.7 Notice attached to the property.*
- The data indicate that a range of likely industrial odour sources can fit per the specified odour emission rate allowances in the industrial area, provided that care is taken in the approval process for industries near to receptors or the precinct boundary, where only low odour sources should be permitted.

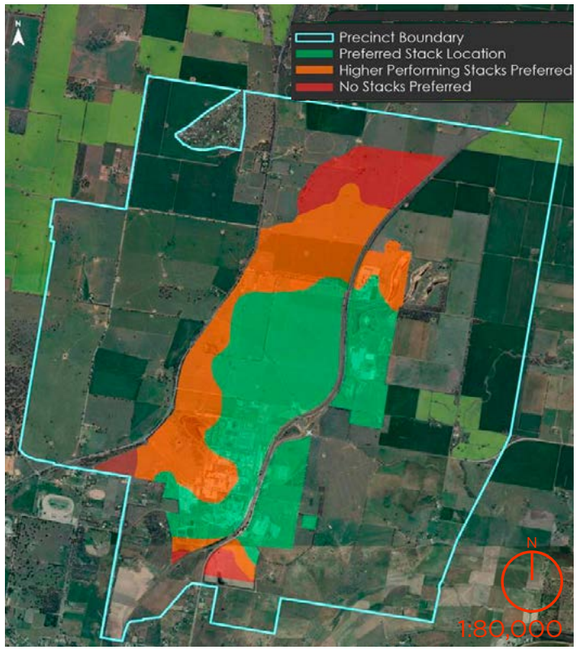
Sound Power Level Contours (dBA/ha)



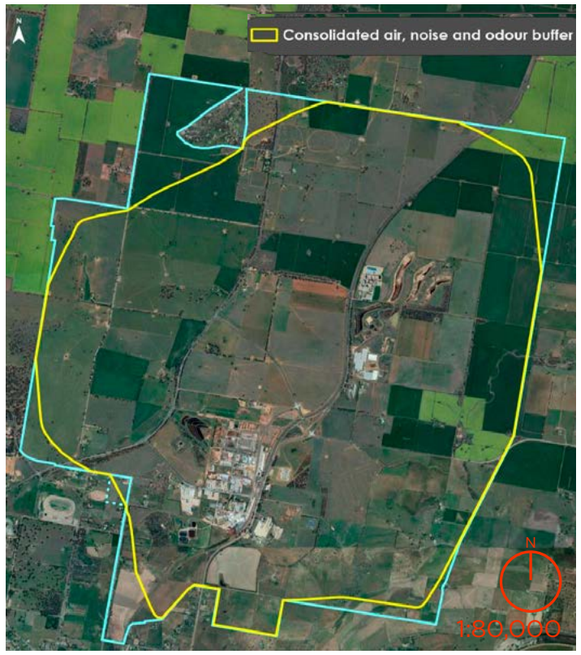
Maximum Odour Emission Rate (OU)

Air Quality

- *For air emissions, it is not possible to ascribe a maximum quantity of emissions per hectare, given that there may be hundreds of different types of air emissions, each with differing criteria averaging periods or locations for compliance.*
- *For air, the approach taken is to accept that all air toxic emissions must be minimised to the maximum practicable extent, as set out in Section 7.2.1 of the EPA Approved Methods (EPA, 2017).*
- *Stacks have the potential to cause most impact at locations where the dispelled plume may reach the ground. This is most likely to arise in elevated locations in the surrounding terrain, but may also occur nearby due to plume down wash effects. As the earlier work has shown, it is preferable to locate stacks in more elevated areas. This however is not mandatory, as it feasible for an applicant to simply specify a taller, higher velocity or higher temperature stack that has better dispersion and can perform equally well in a low lying area as a less highly performing stack in an elevated area.*
- *The figures aim to assist applicants to identify locations within the industrial area where installing a stack will be less costly (preferred locations), and also guide approval bodies as to the level of scrutiny warranted for applications with a stack, for example a stack with higher specifications may be needed in the zone between the preferred and not preferred areas for stacks, and a very high level of scrutiny would be needed for stack applications in the not preferred for stack area.*



Preferred Stack Locations



Consolidated noise, odour and air emissions buffer

Structure Plan Response

- **The boundary of the Special Activation Precinct and Regional Enterprise Sub-Precinct has been retired to appropriately capture the extent of developable industrial areas having regard to the sound power levels and attenuated odour emission rates.**
- **The Sub-Precinct narratives have acknowledged the need for existing sensitive receptors not be included in determining sensitive receptors for the purpose of noise, air and odour emissions from development.**
- **Beyond the Special Activation Precinct, areas at Cartwrights Hill and North Wagga Wagga (western side of Olympic Highway) to be rezoned to prevent further intrusion of sensitive receptors.**

4.12 Indigenous Design Investigations

Wagga Wagga Special Activation Precinct (Wariadjuri Country) Aboriginal Design Principles (WSP, November 2019)

An assessment of aboriginal cultural values was undertaken to better understand and inform the Structure Plan . The purpose of the study is to:

_ Establish a set of Aboriginal Planning and Design Principles for integration into the Aboriginal Heritage Assessment for the SAP site.

_ Provide a broader understanding of Wiradjuri Country.

_ Consider ways to engage and represent Wagga Wagga Aboriginal community within the planning of the SAP

_ Promote sustainable management of Aboriginal Cultural Heritage as per EPA Act 1979 1.3.

_ Establish criteria and locations for the choosing of potential 'Keeping Sites'.

_ Establish the idea of Country as an Environmentally Sustainable Design (ESD) Initiative.

_ Provide concepts for how the SAP might acknowledge Wiradjuri Heritage.

Aboriginal Design Principles

_ Indigenous led

_ Community involvement

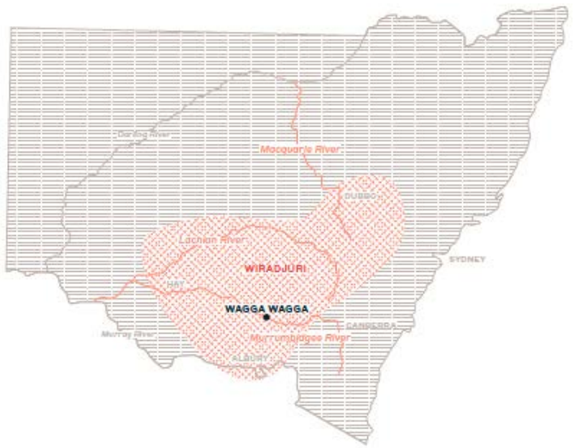
_ Appropriate use of Indigenous design

Design Approach

_ Image - Signage/surface treatment/ walls/art

_ Space - Indigenous space/ landscaping

_ Language - Wiradjuri



Wiradjuri Country

Wiradjuri Country is the land of the three Rivers

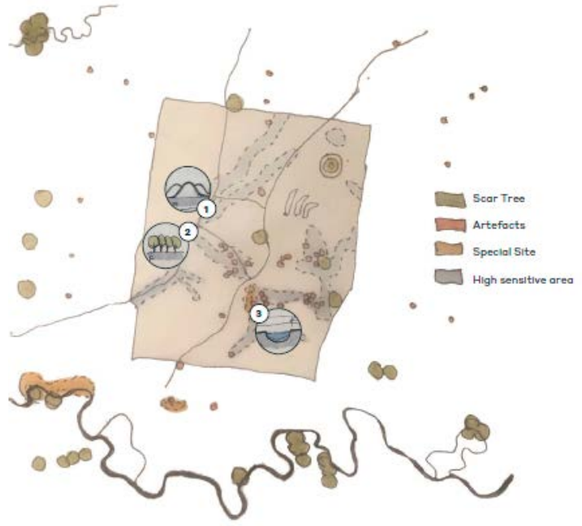
_ Murrumbidgee

_ Gulari (Lachlan)

_ Womboy (Macquarie)

Valuing Wiradjuri Country

_ The SAP project has the potential to implement Wiradjuri planning principles such as keeping highpoints open to be shared by everyone, not developing too close to water beds or interrupting water systems. Also it can acknowledge existing heritage sites such as the axe head quarry, scar trees, artefact scatters and special sites, such as permanent camp grounds.



Sacred Sites

Bomen Axe Quarry

_ "Bomen"/"Bowmin" as an Aboriginal word of the Wiradjuri Language meaning "Deep"; apparently taking its name from the deep lagoon on the northern side of the Murrumbidgee River. The 150 m x 70 m site is located on the crest of a spur near Bomen and consists of outcropping granite, naturally occurring basalt cobbles and artefacts providing evidence for on-site raw material acquisition and on-site reduction.

Modified (Scarred) Trees

_ Scarred trees have had a sheet of bark cut out and removed them from when the tree is alive.

_ One tree was recorded, in the filed survey for this study, as potentially having ritual significance. Scar trees remain the most visible evidence in the landscape of past Wiradjuri activity.

Designated "Keep Sites"

1. **Hills** - Small yet noble hills provide good regional viewpoints and potential site to appreciate the Country
2. **Open Forest farm land** - A scattering of trees provide what little native vegetation resides on the site and must be protected
3. **Campsite** - Campsite is recorded by the creek to the south and could be a site to retain and learn more about Wiradjuri Country.

Recommended Wiradjuri Engagement

1. Adopt Aboriginal Planning Principles within the SAP.
2. Designate Keep Sites. areas to be kept aside and protected from / or earmarked for special development.
3. Plan infrastructure (roads, paths, parks, buildings, facilities etc) for the appreciation of Wiradjuri sites within the SAP area and for intended future use.
4. Form a reference group made up of Traditional Owners, elders, artists etc.
5. Determine a long term Cultural Land Management Plan with reference group.
6. Engage the broader Aboriginal community through employment, design, educational or tourism of the SAP. through Aboriginal participation plans, Reconciliation Action Plan etc.
7. Consider Wiradjuri design and how it can influence the theming of these locations.

Country Masterplan

_ An overlay of environmental , cultural and site specific principles to provide guidelines around the planning of Wiradjuri Country and how to keep it's honour intact.

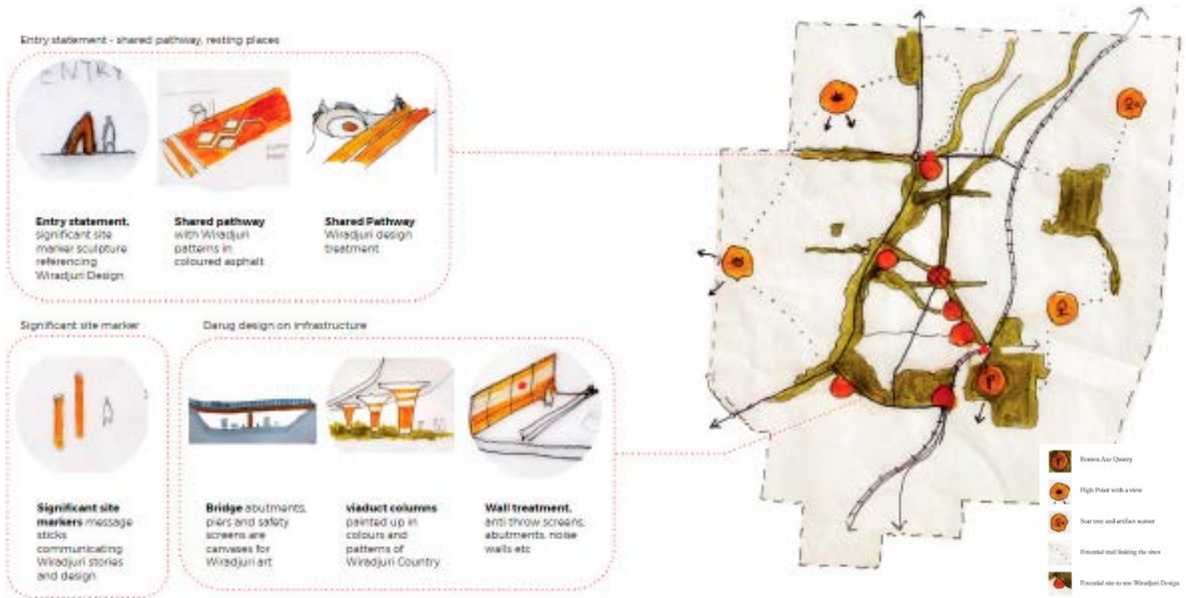
Further Indigenous participation

_ Consultation with Aboriginal Community - The use of Indigenous patterns and motifs must be done with approval - and hopefully involvement - from the elders and community.

_ Engage Aboriginal artists and designers.

_ A Smoking Ceremony recommended on the site.

_ Perform a Welcome to Country when site opens.



Opportunities to use Wiradjuri Design

Structure Plan Response

_ Protect Sacred Sites from development.

_ Protect and minimise impacts on identified keep sites.

_ Incorporate Wiradjuri Design within elements in Structure Plan and public realm and Design Guidelines.

_ Continue to engage with indigenous community.

4.13 Engagement Summary

The Department of Planning, Industry and Environment undertook a series of consultation and engagement activities throughout the investigations period of the Structure Plan preparation.

This has occurred concurrently with the baseline reporting, Enquiry by Design and scenario testing stages of the project and has, in many instances informed each stage of the investigations.

Key Stakeholders

_ Wagga Wagga residents, and business owners

_ Key communities:
  _ Eunony Valley
  _ Brucedale
  _ Cartwrights Hill

_ Key Business Stakeholders:
  _ Sale Yards
  _ Livestock Marketing Centre
  _ Southern Oils
  _ Great Southern Electrical
  _ Enirgi
  _ Riverina Oils & Bio Energy (ROBE)
  _ Teys Australia
  _ Proway Livestock Equipment
  _ Austrak

Engagement Activities

  _ 6 pop-ups
  _ 5 Community meetings
  _ 3 drop in sessions
  _ Survey and postcards
  _ 10 face-to-face meetings with residents and stakeholders
  _ Advertising and social media
  _ Radio and newspaper
  _ Phone hotline
  _ Email
  _ 2 landowner focus groups
  _ 8 targeted business visits
  _ Business roundatable

What we heard

Environmental:

_ ROBE is an eyesore for many.
_ Tree planting for screening/green corridor/buffer zones.
_ Height limits, colour and material of buildings will help with visual amenity.
_ Concerned about noise, light, odour and minimise night-time lighting.
_ Management of contaminated sites
_ Protection of agricultural/rural land and maintain rural lifestyle.

Land uses:

_ Protection of agricultural/rural land and maintain rural lifestyle.
_ Parklands for employees and locals.
_ Industrial development not appropriate on sloping land.
_ Truck stops and amenities for truckies.
_ Right industries in the right locations (don't develop east of the ridgeline).
_ Allow rezoning in certain areas from agriculture to residential.
_ East of Bomen Road potential for café/tourist facilities near contoured land.
_ Capturing water/stormwater/water recycling.

Roads:

_ Level crossing too close to future health precinct.
_ Inland rail level crossing at Bourke & Docker is dangerous.
_ Improvement to roads generally.
_ Traffic and rail noise will be an issue.

Other:

_ Better digital connectivity .
_ Issue around 24/7 operations (noise/traffic/lighting).
_ Impact on land prices.

Industry comments

_ Livestock Marketing Centre want to pursue co-generation, capturing waste from truck washouts and yards.
_ Largest sheep sale in the southern hemisphere, second largest cattle.
_ Lack of understanding at Government level of process and requirements for industry, expensive for energy waste and processing.
_ Support Enterprise Zoning, which prevent over regulation and co-sharing costs for energy and infrastructure .
_ Reliant on rail growth to expand into further markets and value add.
_ Planning System has held back development; four years to receive approval for modification.
_ Support Enterprise Zoning.
_ Need rail to expand into different markets and value add.
_ Need digital connectivity to expand, existing NBN does not support.
_ Cost of Services are restricting development (Council DSP).
_ Need to be based in Australia to provide high quality product; wages higher but only way can provide point of difference .
_ Some established businesses beginning to grow out of their processing space.
_ Expect more growth through value adding and circular economy.
_ Opportunity to work with DC or Council in relation to freight improvements, access to rail and international markets, technologies .
_ Access to construction of Terminal.
_ Some industries volatile due to contract uncertainty.
_ Digital Connectivity - Have to maintain an office in Wagga CBD because there is such poor and unreliable connectivity in Bomen.

Pop-up caravan used across different locations around Wagga Wagga

One of the community meetings.

Section 05. Structure Plan

Section 05 provides a Structure Plan with Sub Precincts located and sized for anticipated land uses. It shows how the vision and aspirations for Wagga Wagga SAP will be achieved. Illustrative master plans then show detailed development concepts within each Sub Precinct including local road and stormwater networks, a variety of allotment sizes and buildings, and areas of vegetation.

Relevant precedents are identified for Sub Precinct uses. A network, green infrastructure network and transport planning and noise, odour and air criteria complete the planning narrative.

5.1 Structure Plan Overview

This Structure Plan presents a framework to guide future development and infrastructure investment at Wagga Wagga SAP

"The ambition of the Wagga Wagga Special Activation Precinct is to be a sustainable hub of high value production and manufacturing, connected to the world and supporting Australia's richest food and agricultural region."

Wagga Wagga Special Activation Precinct comprises 4506 ha of land in the north of Wagga Wagga, NSW. The Precinct is being established as an economic and employment hub to accommodate regionally significant industries and businesses, on a large scale.

Sub Precincts + Overlays

It is anticipated that the whole of the Special Activation Precinct will be included in a single, new zone specific to precincts of this kind. This Structure Plan defines Sub Precincts and overlays to further guide land use planning and development within the Precinct, including the optimum clustering of businesses to promote synergies and circular economy benefits, the efficient provision of infrastructure, and the management of potential noise, odour and air quality impacts on Precinct users and neighbours.

Precinct Narrative

Growth of the area as an industry precinct began in the 1970s and existing business clusters at Bomen Business Park and Byrnes Road will also contribute greatly to the next phase of growth and development. The 'Bomen nucleus' will remain important to the Precinct's development for many years to come.

Also in the short term, development of the new Riverina Intermodal Freight and Logistics Hub (RiFL) north of Merino Drive will open up a new node of development, focused initially on freight and logistics but enabling land development for manufacturing and other industries to commence.

Facilitating access to RiFL, the recently developed Marino Drive also provides access to the major greenfield land opportunity of the coming decade. Much of this land north and south of Merino Drive is in public ownership, further cementing the opportunity for coordinated development to support the Precinct vision. Elevated land on the north of Merino and immediately west of RiFL provides particular opportunities for more difficult to locate (due to noise or emissions) industries, and it is important that land suitable for this purpose is used effectively.

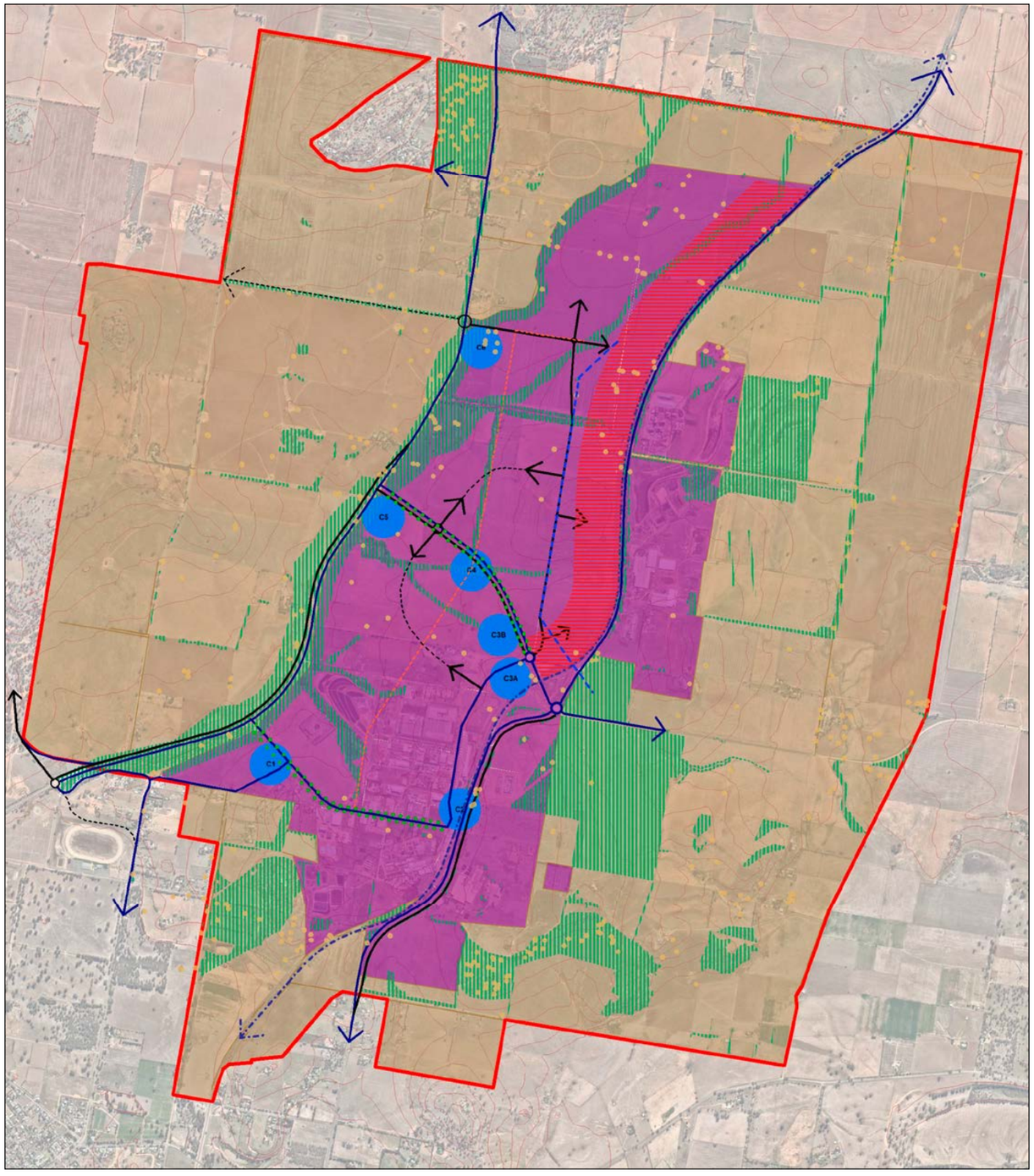
The Precinct is expected to generally grow from south (Bomen) to north (greenfield land), and also from east (rail and RifL) to west (Olympic Highway), expanding out from existing business clusters and from infrastructure nodes. Growth will not however be in a strictly linear pattern, and the flexibility of emerging and changing industry needs and landowner opportunities will need to be balanced with logical infrastructure provision.

In the north, Trahairs Road is to be preserved as an environmental corridor, and provides a natural break between stages. Development north of Trahairs Road is only expected in the long term, or if a very large land user seeks to locate in the Precinct. Such an 'out of sequence' development would likely be required to 'bring forward' infrastructure to enable development to proceed.

The Precinct enjoys reasonable rail, highway and local road access, with a major advantage that enabling road works in the form of Merino Drive (and associated rail underpass) is in place, with the RiFL rail access and intermodal terminal funded and soon to commence, providing a ready-made springboard to business investment in the short term.

Wagga Wagga Special Activation Precinct **Structure Plan**

"The Wagga Wagga SAP Structure Plan applies to 4506 ha of land established for an regional employment hub. The Structure Plan applies to existing industry land at Bomen, and greenfield expansion areas largely between Olympic Highway and Main Southern Railway. Sub Precincts and overlays are defined to guide future development and infrastructure."



Legend

- Commercial Nodes (Indicative)
- Green Infrastructure Overlay
- Rail Terminal Overlay
- Regional Enterprise
- Roads
- Roundabout
- Rural Activity
- Special Activation Precinct Boundary
- Tier 1 & Tier 2 Paddock Trees
- Future roads
- HV Relocation
- New Roads
- Public Realm Landscape Improvement
- Rail
- Roads
- SAP Internal Infrastructure Corridor
- 10m Contours

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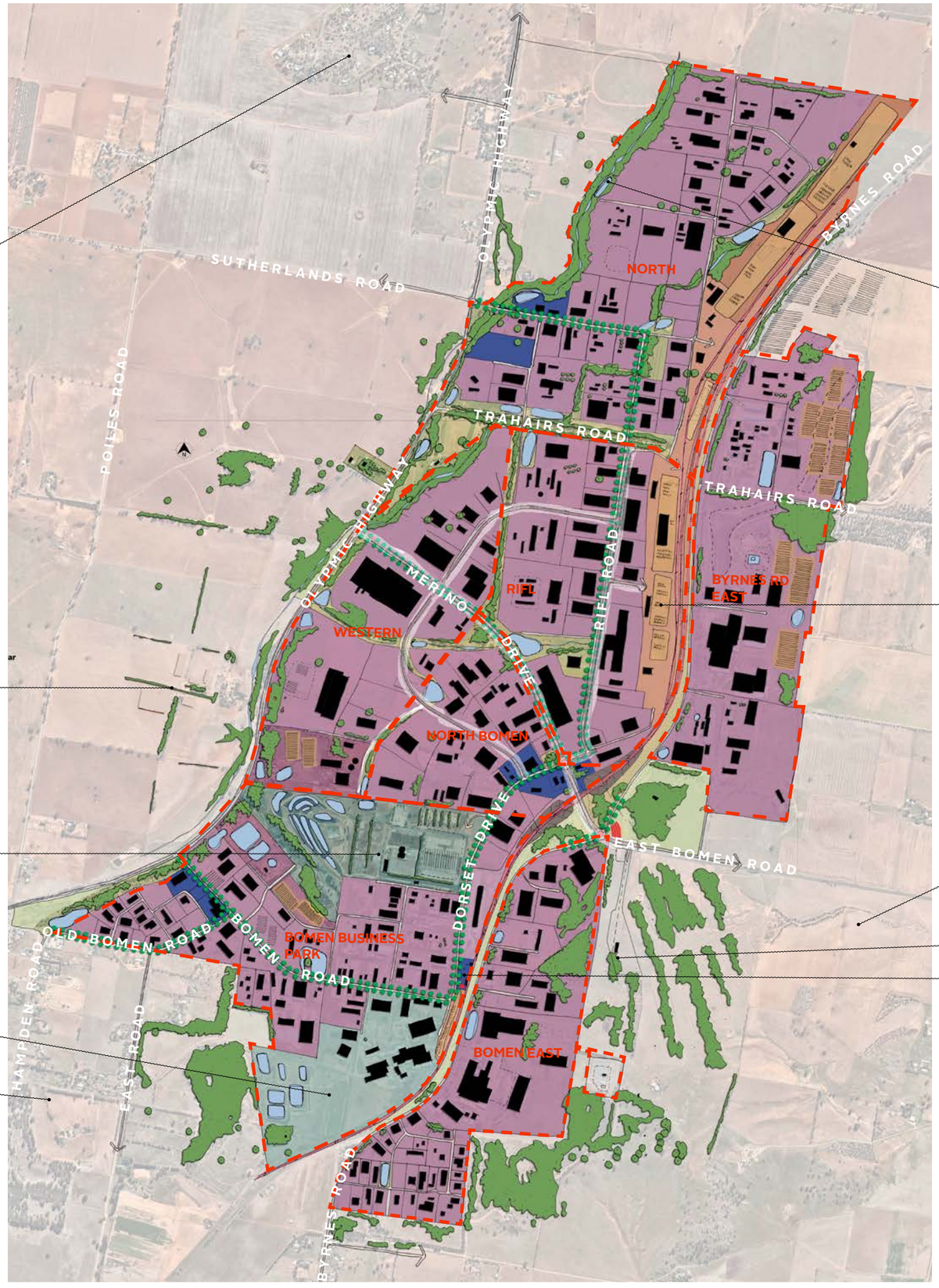
Urban Design
Social Planning

‘Illustrative master plan’ of Regional Enterprise Sub-Precinct showing how the Precinct could look at full development



Mt Pleasant estate, Brucedale

Rural Activity Sub Precinct separating industry from residential growth areas further west. Opportunity for agricultural education facility.

Wagga Wagga Livestock Marketing Centre

Teys Australia Wagga Wagga Abattoir

Cartwrights Hill

Dukes Creek

Riverina Intermodal Freight and Logistics Hub

Eunony Valley

Bomen Axe Quarry

Bomen Railway Station

5.2 Structure Plan Elements

“The rationale for the Structure Plan has been developed collaboratively by the project team, using the outputs of detailed technical investigations. Stakeholder and community engagement has also informed key decisions about land use planning and Structure Plan elements.”

Regional Enterprise Sub Precinct

The primary industry and business area of the Precinct is the Regional Enterprise area, which extends from the south of the precinct to almost its northernmost point. The Regional Enterprise Sub Precinct is largely contained between the Olympic Highway in the west, and the Main South Railway to the east, with the exception of two industry clusters on the east side of Byrnes Road. A large area of 1,330 ha has been included in the Sub Precinct to accommodate industrial land supply for 40 years or more, and to preserve flexibility to respond to market demand for industry and employment uses at Bomen.

The Sub Precinct includes Teys Australia’s Wagga Wagga Abattoir, and Wagga Wagga Livestock Marketing Centre (sheep and cattle saleyards) are two large, existing facilities at Bomen.

Rural Activity Sub Precinct

A rural buffer to industry areas is provided through the Rural Activity Sub Precinct. It exists to separate and protect neighbouring landowners and residents from potential amenity impacts from industry, and also to prevent the encroachment of sensitive (e.g. residential) land uses on industry areas. Key to this is the separation of the Precinct’s industry areas to Wagga’s northern growth areas to the west. Large scale residential encroachment would severely undermine the ability for the employment and industry objectives of the Precinct to be fully realised, and so the Rural Activity Sub Precinct extends to the ridgeline west of Poiles Road to ensure this risk is minimised.

On the eastern side, Eunony Valley is not identified as an industry area and ridgeline development along Byrnes Road is acknowledged as an existing cluster with growth potential but requiring careful management including better screening of industry sites. In the north and south of the Precinct, Rural Activity Sub-Precinct areas separate industry from the Mount Pleasant Estate, Brucedale, and to a lesser extent to the Cartwrights Hill area nearby in the south.

Some residential dwellings are present within the Sub Precinct. No new dwellings are anticipated, and the careful management of existing residential use interfaces must be achieved alongside the planning and development of employment and industry land.

The Rural Activity Sub Precinct also has a role in maintaining and enhancing the landscape character of the Precinct, including improvements through revegetation and waterway management. In particular, a small number of sites east of Byrnes Road are identified for revegetation, as part of anticipated rehabilitation of land from previously contaminating activities.

As well as agricultural and environmental land uses, two large solar farms are approved in this Precinct (in Eunony Valley, with one under construction). While additional large-scale solar facilities of this type are not envisaged elsewhere in the Sub Precinct, potential for small-scale solar and other renewable energy projects in the Sub Precinct is acknowledged. Agriculture and environment-related education facilities are also envisaged in this Sub Precinct.

Commercial nodes

The elongated geography of the industry area, and its multiple access points, do not lend itself to one local ‘centre’ in which to focus worker amenities like shops and cafes, business support services, fuel and transport services, and other community facilities including public open space. Instead, a number of locations with potential for commercial are identified, each with different locational advantages and land use potential.

‘Commercial nodes’ then are not designed as property-based Sub Precincts. Instead, development aligning with the intent of the Commercial nodes is supported in proximity to these locations, with some flexibility in their final location indicated at this Structure Plan stage.

Green Infrastructure Overlay

A network of green infrastructure is planned across the Precinct. It is intended that this network has multiple functions and values including:

- protection of high value vegetation and biodiversity areas
- riparian corridor protection, enhancement and revegetation (beyond minimum standards)
- stormwater management, detention and treatment
- revegetation of public (e.g. council owned) land which is not identified for future industrial development
- establishing local and regional environmental and biodiversity linkages
- buffer planting, screening and windbreaks (e.g. around solar farms, and along Olympic Highway).

Rail Terminals Overlay

The Rail Terminals Overlay is a 350m wide area on the western side of the Main South Railway, overlaying Regional Enterprise Sub Precinct.

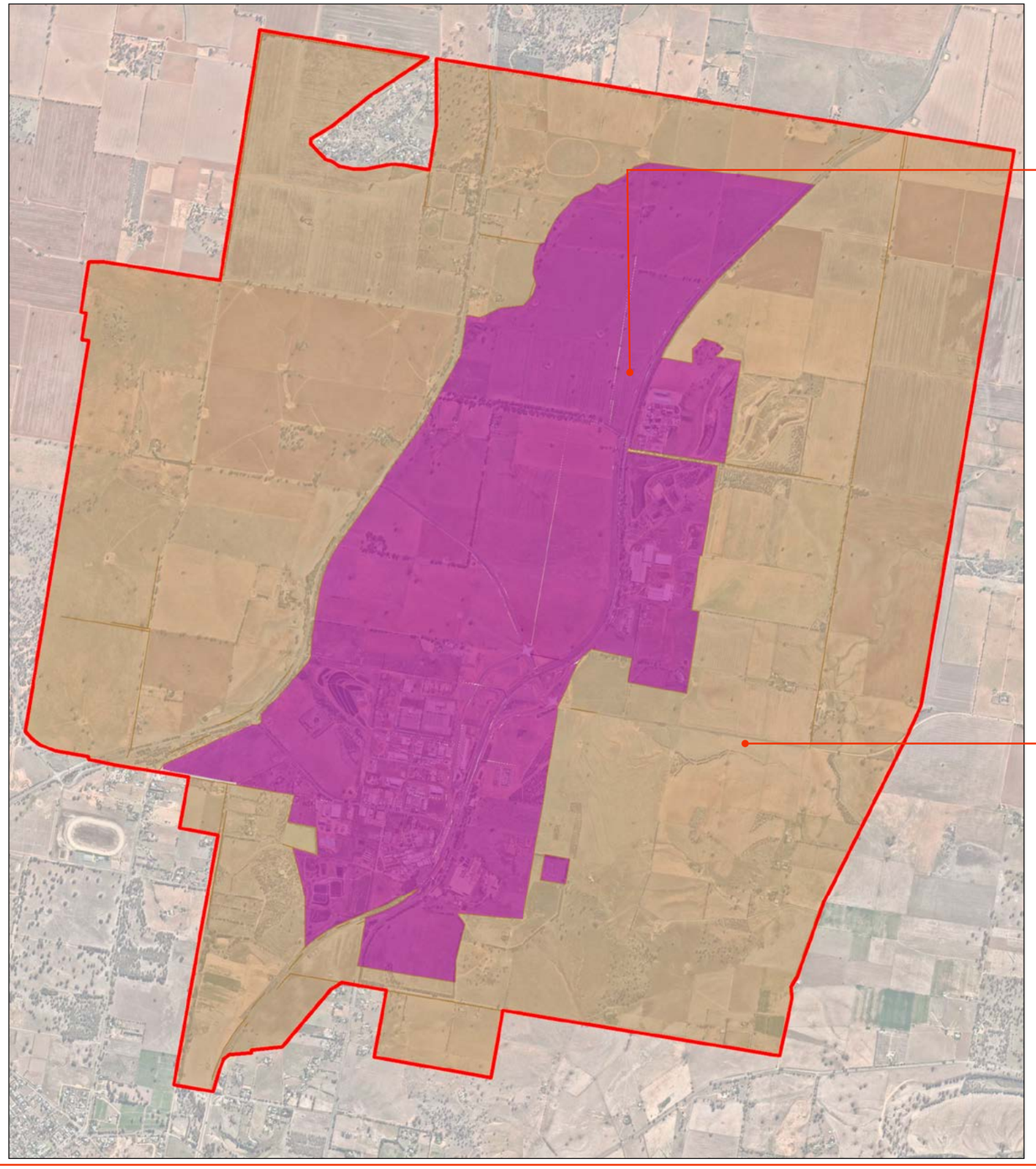
Leveraging rail access and Inland Rail connectivity is critical to the long-term success of the Precinct. The intention of this overlay is to preserve short- and longer-term opportunities to develop rail-related businesses and infrastructure at the Precinct, including intermodal terminals, and land for manufacturing and other industries using rail to import and export materials and goods.

The scale and development patterns of the Precinct should allow for businesses and infrastructure not reliant on rail access to be accommodated in other Precinct locations, noting that opportunities for ‘last mile’ connectivity between rail terminals and businesses should be fully developed to enable the whole of the Special Activation Precinct to benefit from the proximity to rail at Wagga Wagga.

Noise, Odour and Air Quality

To achieve both industry certainty and protection of amenity for Precinct users and neighbours, a series of overlays defining preferred locations and limits for amenity impacts have been established. These apply over the Regional Enterprise Sub Precinct.

5.3 Sub Precincts



Regional Enterprise Sub Precinct

_ The 1330ha Regional Enterprise Sub Precinct is the principal industry area for the Special Activation Precinct, and provides short and long term land supply to support regional economic development.

Rural Activity Sub Precinct

_ The 3170ha Rural Activity Sub Precinct surrounds the industry areas, separating these activities from residential areas and preventing encroachment. Agricultural uses, small-scale renewable energy and education and training may also be developed in this Sub Precinct.

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5.3a

5.3a Regional Enterprise_ Sub Precinct

“The Regional Enterprise Sub Precinct is the principal industry area for the Special Activation Precinct, accommodating advanced manufacturing, agribusinesses, rail and road transport terminals, warehouses, industrial recycling, and a diverse array of local industries.

The Sub Precinct includes existing industries at Bomen, and is staged to allow for orderly development of infrastructure.”

Overview

The Regional Enterprise Sub Precinct is the principal industry area for the SAP, and embraces the precinct’s advantages in circular economy industry clusters, export-oriented businesses, and regionally-relevant industries.

The Sub Precinct starts around the Bomen Industrial Estate in the south of the Precinct, extending north between Olympic Highway and Byrnes Road. It is a large, 769 Hectare area of land about 6km long by 2km wide.

The Regional Enterprise Sub Precinct is the industrial heart of the SAP and accommodates a diversity of businesses from the SAP’s target economic sectors, including:

_ Riverina Intermodal Freight and Logistics Hub as the catalyst of a freight and logistics industry cluster including warehousing and transport businesses especially those rail-related.

_ Industrial recycling including of oils, metals, batteries, tyres, plastics, and re-manufacturing industries using recycled products.

_ Agribusinesses with an emphasis on food value adding. Primary processing such as oil crushing or even high-tech glasshouses are possible, with diverse opportunities in secondary food processing and food technology. Other agriculture-related manufacturing and technologies also has a big emphasis.

_ Local industries in engineering, agricultural products, niche manufacturing, service industries, construction and convenience retail is also an important part of the Regional Enterprise industry mix.

_ preserving and enhancing function of the longstanding livestock industries comprising the Wagga Wagga Livestock Marketing Centre (saleyards) and Teys / Cargill Abattoir.

Development is expected to grow around a small number of nodes being:

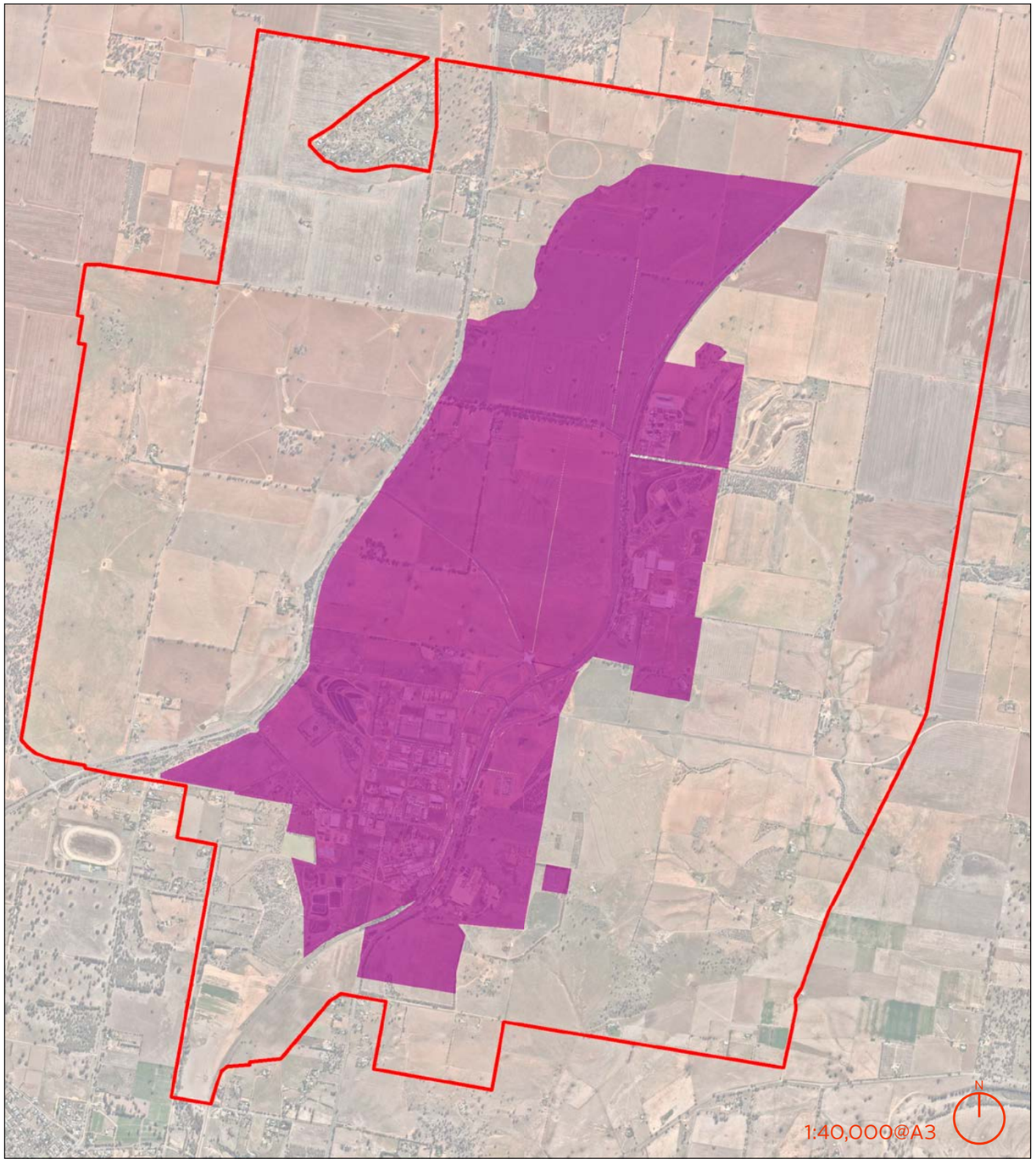
_ Existing Bomen Industrial Estate on Bomen Road

_ A new, larger industry cluster at and around the new RiFL hub

_ Existing, larger industries on Byrnes Road

Area _ 874 ha

(Areas approximate and inclusive of non-developable land for roads, infrastructure, open space, drainage, green infrastructure areas etc. Note inclusive of areas for Commercial Nodes.)



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Urban Design
Social Planning

The sub-precinct is large in scale and has been designed to accommodate anticipated need for employment and industry land over a 40 to 50-year period.

Existing Conditions

_ Bomen Business Park, Wagga Wagga Livestock Marketing Centre ('Wagga Wagga Saleyards'), and Teys Abattoir developed from the 1970s and forms the nucleus for the Special Activation Precinct. Most of the Precinct's 38 workplaces are located at Bomen and include a range of manufacturing, light industry, food processing and transport businesses.

_ Bomen Business Park includes allotments of less than 1000m2, with lots of 1 to 5Ha also common.

_ Immediately south of and adjoining Bomen Business Park, the Teys Abattoir is by far the largest employer in the area with up to 1000 staff. The Saleyards, owned by Wagga Wagga City Council, on the northern edge of Bomen Business Park is the largest sheep saleyards in the country. The Saleyards occupy 55 hectares and the Teys Abattoir 30 hectares (although is situated on a 240 hectare site).

_ West of Bomen Business Park, a waste water treatment plant provides primary treatment only, with potential room to expand onto the surrounding Crown Land.

_ Recent infrastructure investment in the form of Merino Drive, a new road opening up the central area of the Precinct and connecting Olympic Highway to Byrnes Road via an underpass of the railway, with new, safer access to Bomen Business Park via Dorset Drive.

_ Byrnes Road sits east of the Main South Railway from Albury to Sydney also forming part of the Melbourne -Brisbane Inland Rail route.

_ North of the Saleyards is predominately agriculture use with a small number of dwellings, predominately related to rural land use

_ There are two clusters of existing development to the East of Byrnes Road comprising of:

_ The southern area, which includes B.O.C Gasses, Vinidex (pipelines) with other undeveloped land parcels.

_ The northern area, east of Bomen Road (also fronting Byrnes Road), which includes Enirgi Battery Recycling, TEC Sight (warehousing and business centre on the site of the former wool combing facility), Riverina Oils and Bio-Energy (ROBE), and canola crushing and oil manufacturing.

Future Development

_ Many land uses ranging from rail terminals and warehouses to manufacturing and food processing businesses will be located within this Sub Precinct.

_ A diversity of lot sizes and locations will be on offer to investors.

_ The RiFL Hub and associated industry and logistics land will be the catalyst to growth of the central part of precinct.

_ Existing industries will expand along with greater infill development at the Bomen Business Park. There is still vacant land available here and a number of sites remain under-developed.

_ The Saleyards will retain its status as the premier selling centre in the region through improved efficiency and improvements to facilities, including heavy and light vehicle access, waste management, treatment and disposal practices and exploration of recycling, harvesting and reusing energy from waste.

_ The Saleyards will expand within its current site and further expansion opportunities include increasing the frequency of sales days (presently Monday for Sheep and Thursday for Cattle), facilitated through operational improvements.

_ The development of the Abattoir is expected to occur through intensification of use as opposed to expansion. There is an opportunity for increased food processing capacity and value adding to occur in this facility.

_ Building on the established waste management systems utilised at the Abattoir, there is an opportunity to explore energy from waste possibilities, generating renewable energy from captured biogas while also reducing abattoir generated pollution.

_ The Abattoir site is partly covered by the Rail Terminals Overlay – as such there is an opportunity for the facilities own rail access to be established (noting that the RiFL development makes this unlikely in the short term).

_ Green Infrastructure (e.g. Tier 1 & 2 biodiversity areas), while present within the area is a limited size and are not anticipated to constrain operations or anticipated growth or intensification.

_ The expansion of the new industrial land will be staged. It is expected to primarily grow from south to north starting at Bomen and extending north, while also growing east to west from the RiFL Hub towards the Olympic Highway.

_ The scale of the Regional Enterprise Sub Precinct allows for a diversity of allotment size and uses. This can include 10 – 15+ Hectares and accommodate manufacturing plants, sites for warehousing and distribution centres, along with industrial estates.

References:

_ *Australian Abattoirs, 2017, Chronological History of Australian abattoirs and meatworks – Wagga Wagga (Est #291) NSW, <https://australianabattoirs.com/2017/09/13/wagga-wagga/>, viewed 12 November 2019*

_ *Teys Australia, 2019, Sites – Wagga Wagga, <https://www.teysaust.com.au/teys-australia/sites/>, viewed 12 November 2019*

_ *City of Wagga Wagga, Important Dates, <https://wagga.nsw.gov.au/city-of-wagga-wagga/wagga-wagga/history-2/important-dates>, viewed 11 November 2019*

Relevant Precedents

LAND USES

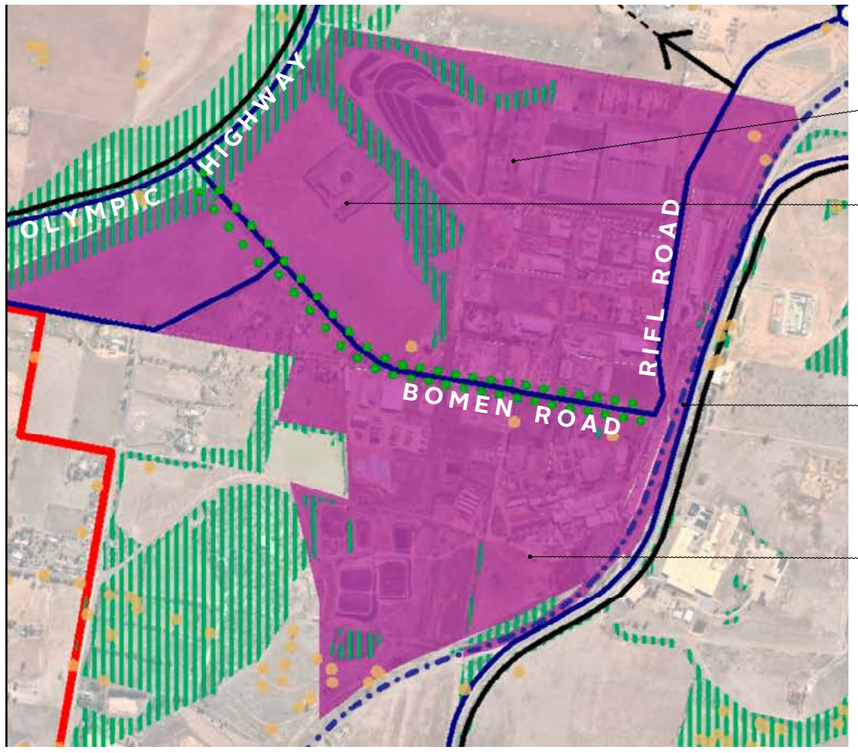
SUB PRECINCT	DESIRED LAND USES
Regional Enterprise	Agricultural Produce Industry (e.g. advanced manufacturing of agricultural products)
	Intensive plant agriculture (e.g. glass houses)
	Depot facility
	Electricity Generating Works (small scale with negligible off-site air, noise and odour impacts or anaerobic digester related to intensive livestock agriculture
	Emergency Services facility
	General Industry (e.g. advanced manufacturing of non-agricultural products)
	Liquid Fuel Depot facility
	Local Distribution facility
	Road Transport Depot (e.g. container maintenance, refuelling, mechanics workshop etc.)
	Truck Depot (e.g. parking, provisioning, maintenance, refuelling)
	Warehouse and/or Distribution Centre
	Customs inspection facility
	Livestock processing industry on existing sites (abattoirs, knackeries, tanneries, woolscours and rendering plants)

Note: These desired land uses represent industries and activities that are likely to meet the aspirations of the Precinct, and that have been identified at the time of preparing this Structure Plan.

This list is not intended to be exhaustive, as new business opportunities will be identified over time, and as a more flexible and risk-based approach is to be taken to the statutory planning framework for the Precinct; (see Statutory Planning Considerations Paper by Meridian Urban).

The Master Plan and Delivery Plans for the Precinct will further articulate the desired, and allowable, land uses for the Special Activation Precinct.

Regional Enterprise - Bomen Business Park



Saleyards

Waste Water Treatment Plant

Bomen Railway Station

Teys

_ Bomen Business Park will be focused on the intensification of existing uses and infill development of vacant sites within the existing Bomen Business Park.

_ There are also some specific opportunities along Bomen Road, including at the Teys site.

_ There is vacant land available at the entry to precinct at the intersection of Bomen Road and the Olympic Highway, located on both sides of Bomen Road.

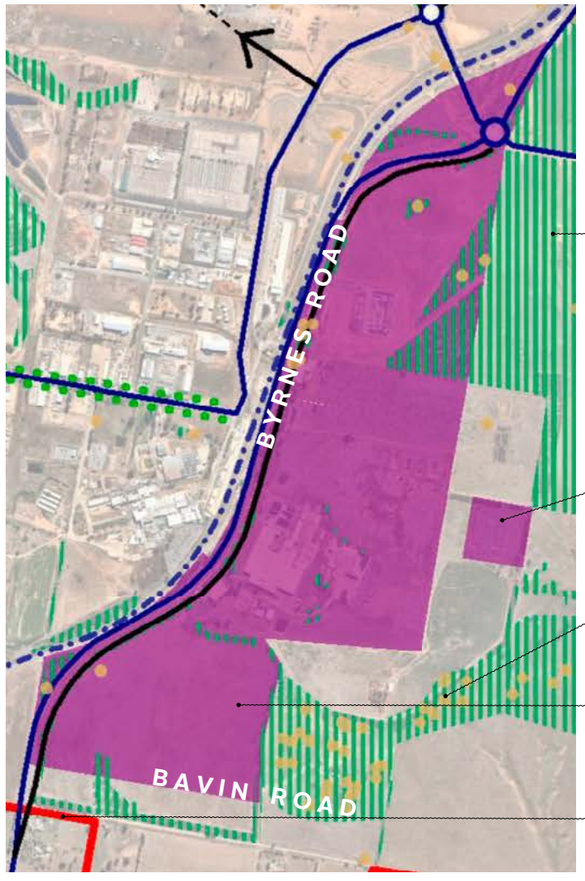
_ The land on the southern side will function as a transition area between the Precinct and the nearby residential land at Cartwrights Hill. This area will cater to business with reduced noise, dust, odour and other amenity impacts.

_ The land on the northern side is adjacent to the existing waste water treatment plant (which is earmarked for expansion). Businesses in this area will need to accommodate buffer areas and odour impacts associated with the waste treatment facility.

_ Public realm upgrades are also envisaged within the sub precinct, specifically along Bomen Road and comprising of street trees, lighting upgrades, footpaths, public interaction nodes (eg Bomen Railway Station).

_ This will continue to be a location where local industries will cluster - small allotments are already present (many less than 1 hectare) which will likely maintain this area as the most diverse business area within the precinct.

Regional Enterprise - Bomen East



Plantings forming part of green infrastructure network, also screening Bomen Axe Quarry area from industry.

Wagga North Substation with potential upgrades to supply the SAP.

Cluster of paddock trees forming part of east-west green infrastructure across southern part of Precinct.

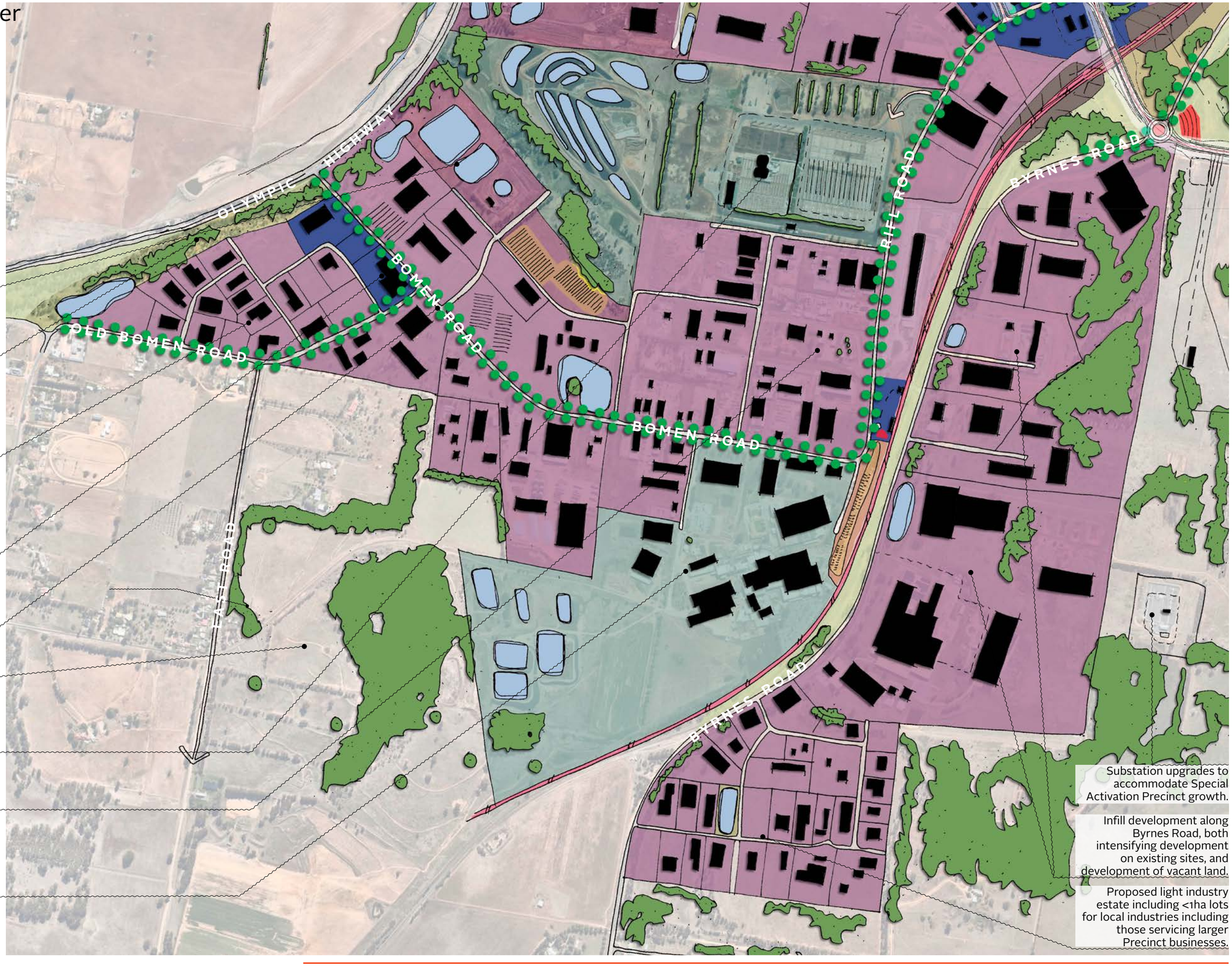
Byrnes Road
Proposed industrial estate on Byrnes Road near corner of Bavin Road, with setback to separate industry from residential to south. Suitable for light industry and business uses due to location.

Byrnes Road
Established rural residential area on Byrnes Road

_ Bomen East comprises a small number of sites along Bomen Road. Some of these are 40ha or more in size, with two existing industries: BOC Gases, and Vinidex (pipelines). Further development of these two sites is possible, as half or more of the land is currently vacant.

_ The major opportunity in this stage is the proposed Byrnes/Bavin industrial estate, which could supplement the supply of smaller (<1ha to 2ha) business and industry sites currently limited to the Bomen Business Park area. Further infill development opportunities are also possible along Byrnes Road.

‘Illustrative master plan’ showing concept for Bomen Business Park and Bomen East)



Waste water treatment plant expansion to service Precinct, with opportunities for small-scale renewable energy such as bio-energy, solar and hydrogen surrounding this site, helping to buffer WWTP from adjoining businesses.

8om landscaped buffer to Olympic Highway, incorporating stormwater detention and treatment where possible.

Old Bomen Road land developed for ‘high amenity’ business and industry uses with noise, odour, air quality restrictions, acting as a transition between Precinct and Cartwrights Hill.

Commercial node opportunity near Bomen/ Old Bomen Road. Services to local businesses and workers, at prominent gateway location into precinct.

Bomen Road improvements including street trees, lighting and footpaths to enhance local amenity at this key street.

Landscape buffer between industry areas and Cartwrights Hill.

Livestock Marketing Centre - continuous improvement of infrastructure and operational efficiency over time, within existing site.

Bomen Business Park infill development on vacant land and on existing business sites.

Teys abattoir continues to develop with new value-add opportunities and buildings able to be accommodated alongside existing infrastructure.

Substation upgrades to accommodate Special Activation Precinct growth.

Infill development along Byrnes Road, both intensifying development on existing sites, and development of vacant land.

Proposed light industry estate including <1ha lots for local industries including those servicing larger Precinct businesses.

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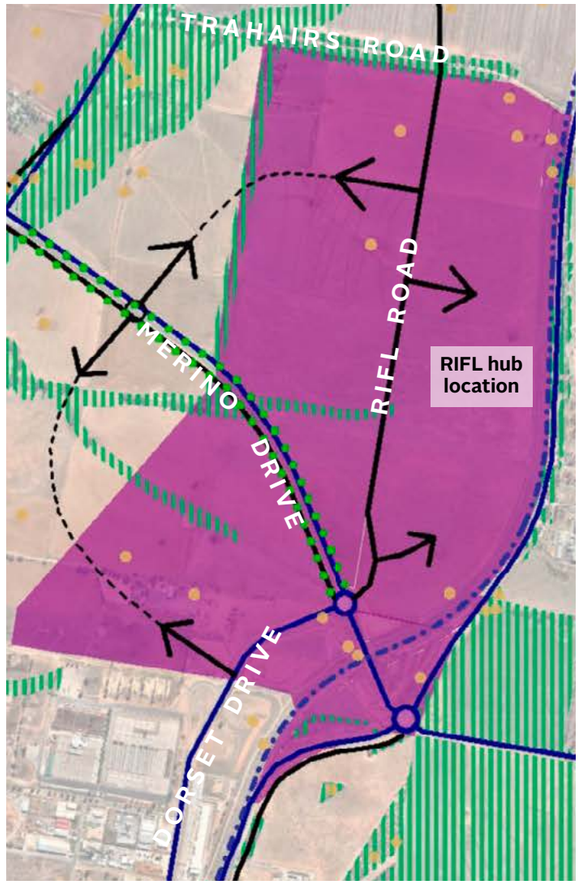
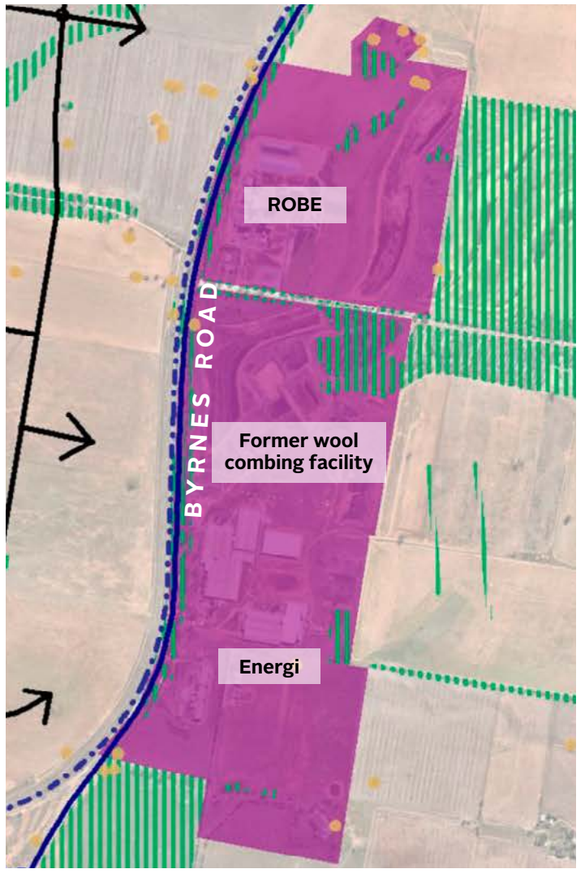
Regional Enterprise - North Bomen + RiFL



- North Bomen and RiFL comprises primarily of new land made available through the new Merino Drive and Dorset Drive construction and is envisaged as the next major growth area. The land is largely owned by the Wagga Wagga City Council and incorporates the RiFL Hub site.
- The RiFL Hub is sited on the northern side of Merino Drive, the construction of which will open up the land for the types of industries that will most benefit from proximity and accessibility to the intermodal terminal.
- There is strategic advantage in locating businesses here that will most benefit from last mile transportation improvements.
- On the southern side of Merino Drive there is an opportunity for a similar development to the Bomen Business Park accommodating a range of mixed industries.
- It is also noted that the land associated with RiFL is sited in an area of higher topography which lends itself to industries which require separation due to noise and air emissions.
- The potential for a third commercial node (Node 3) is identified at the intersection of Dorset Drive, Merino Drive, and RiFL Road and is a good location for vehicle related uses including a petrol station, heavy vehicle servicing, and some related retail use. Some drainage lines are evident through the area will need to be managed with riparian zones and identified as Green Infrastructure on the Structure Plan
- Rail Terminals Overlay also partially applied to the RiFL area. Care needs to be taken within the RiFL Hub land to ensure that new development located here is businesses that will most benefit from the proximity to the rail.
- A 132 HV aboveground powerline is located through the centre of the RiFL Hub area. This is to be relocated to the western side of the area. It should be located to align with RiFL Road to minimise impact on available land.

Regional Enterprise - Byrne Road East



- Byrne Road East is a grouping of industries on the east side of Byrnes Road, north of East Bomen Road. Energi (battery recycling), former wool combing facilities (mixed business) and ROBE (canola oil manufacturing) dominate this cluster.
- Further development of these properties and businesses provides the primary growth opportunity, especially if supported by additional infrastructure such as waste water.
- Energi's large site includes vacant land close to existing plant which is most suited to further development. Energi's office is positioned a short distance away on a ridge overlooking Eunony Valley, with development opportunities between. However expansion of industry uses to the East Bomen Road frontage is not supported.
- ROBE's site is relatively small, with expansion opportunities possible to the north or east, or even west (across the road and rail), subject to land access.
- The former wool combing facility on the corner of Byrnes and Trahairs Roads is a large site with two large buildings, repurposed to accommodate a variety of smaller businesses and storage. Again, land surrounding these buildings is only partly developed, suggesting further development opportunities.
- This site, along with two neighbouring properties on the north side of Trahairs Road, also contain a total of four, large ponds associated with the discontinued wool combing use. The ponds are understood to be contaminated, and the one of the northern ponds is proposed to be non-putrescible waste landfill to fill the land and facilitate rehabilitation and redevelopment.
- Noting the emphasis on circular economy activity at the Special Activation Precinct, a rehabilitation and filling solution could be sought for all ponds. A preferred outcome may be to fill to a flat level that may allow the further re-use of the land. The easternmost ponds are outside of the Regional Enterprise Sub Precinct, and are closer to and adjoining a groundwater protection zone, suggesting that revegetation is preferred for these ponds.

‘Illustrative master plan’ showing concept for Bomen,North, RiFL and Byrnes Rd East (central area of Precinct)

Pocket of land with restricted access via Olympic Highway and environmental values incorporating stormwater management and biodiversity values.

Trahairs Road as part of 100m wide green infrastructure corridor to protect environmental values. Two north-south road links connect to Stage 3 development area to the north.

5-10ha sites for mixed industries such as manufacturing, logistics with proximity to RiFL and Olympic Highway.

Advanced manufacturing cluster on higher ground where noise, odour, air quality constraints are lowest. Large sites of 10ha+. Screening and windbreak from north-south green infrastructure corridor immediately west of ridge.

20+ha site for large distribution centre on Merino Drive with direct access for excellent highway and intermodal accessibility.

80m landscaped buffer to Olympic Highway, incorporating stormwater detention and treatment where possible.

‘Bomen Business Park extension’ links development north towards RiFL hub, mixed industries, 2-4ha sites.

Commercial node opportunity including fuel, transport services, food, business services etc. in close proximity to RiFL, and in prominent location for freight transport routes.

Grain terminal opportunity including direct links to ROBE on Byrnes Road, supporting circular economy principles.

Riverina Oils and Bioenergy (ROBE) showing potential expansion onto land north and east of current site.

‘RiFL Road’ proving RiFL access, access to industry land on both sides of road, relocated 132kV within road reserve, and future connection to Stage 3 land north of Trahairs Road.

Riverina Intermodal Freight and Logistics Hub including master siding and other sidings. Developed in stages from south to north.

Further development of businesses and land on large properties along Byrnes Road including Energi (battery recycling).

Wayfinding opportunities including signage, enhanced public realm, and Wiradjuri design treatments.

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Regional Enterprise West

Vegetation buffer to Olympic Highway

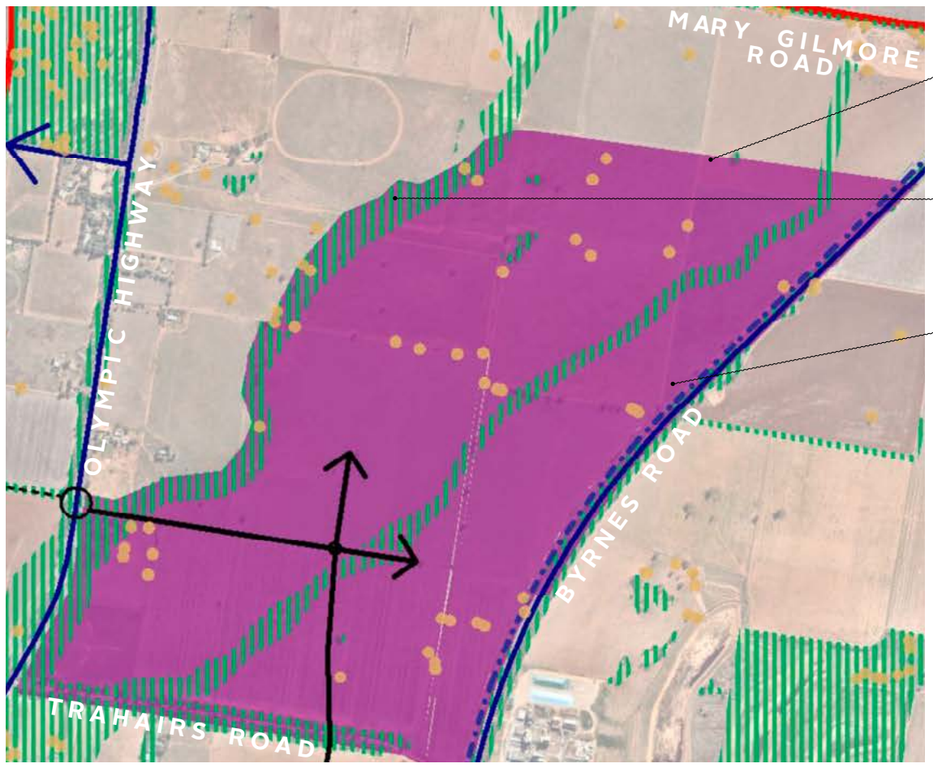
Riparian corridor (min 40m)

Local road access

Green corridor + windbreak (50m), incorporating SAP Infrastructure Corridor, and shared path

- Western area is located north and south of Merino Drive, alongside the Olympic Highway and buffered from it by an 80m green infrastructure buffer.
- western area provides a natural expansion west from Bomen North and RiFL, with local collector road access via these stages supplementing access from Merino Drive. No access from Olympic Highway is contemplated. Direct access from Merino Drive is unlikely and is only supported where very large sites (e.g. a major distribution centre) warrants this level of access.
- A mixture of land sizes and industry types are anticipated, with larger allotments possible backing onto Olympic Highway which is furthest from local access points.
- Design of streets and allotments to accommodate riparian zones and stormwater detention and treatment areas. Green infrastructure area accommodate riparian zones which are wider than minimum standards to allow for flooding, detention and revegetation opportunities.
- A small area of land between riparian and Olympic Highway, with difficult access and containing high value vegetation has been earmarked as green infrastructure and could be used for stormwater and revegetation functions.

Regional Enterprise North



No access to Mary Gilmore Road except emergency access

Dukes Creek riparian zone (80m)

No access to Byrnes Road except emergency access

- Northern land is only likely to be required for development in the longer term (2040 or beyond), making Trahairs Road the northernmost extent of development for some time.
- An exception to this could be if additional rail terminal capacity or functionality is sought in the near term e.g. dedicated grain terminal for ROBE.
- Further intermodal rail terminal development is possible further north in North. The rail terminals overlay preserves this opportunity.
- Trahairs Road reserve contains very high value vegetation and is preserved and widened as a green corridor (100m wide) with no road or infrastructure function (walking, cycling and emergency access only). Two north-south road connections are planned to cross Trahairs and to southern areas of the Precinct.

The eastern ‘RiFL Road’ extension and 132kv power corridor is a 50m wide corridor. The western road link requires a 30m corridor only. Careful design is required to minimise impacts on biodiversity values.

- Northern land is elevated and requires new or supplemented infrastructure networks including water supply from the Brucedale system. A new road access from Olympic Highway is planned, with a Commercial Node opportunity at this entrance to provide local services for workforce and businesses in North.
- Dukes Creek maintained as the western extent of Regional Enterprise land and is an effective buffer distance between industry and Mt Pleasant Estate, Brucedale. An 80m wide green infrastructure corridor is proposed to accommodate flooding and stormwater management, as well as substantial revegetation and visual buffers.

‘Illustrative master plan’ showing concept for North (northern area of Precinct)

Dukes Creek green infrastructure corridor with revegetation and stormwater management forms edge of industry area for separation and screening to Brucedale residents.

5-10ha sites for mixed industries such as manufacturing, logistics with proximity to northern rail terminals.

Future expansion opportunity for rail/road intermodal terminals.

Local drainage line and riparian zone adapted to integrate with subdivision design.

New Precinct access from Olympic Highway, also allowing Sutherland Road connection to west (northern residential growth area beyond Special Activation Precinct).

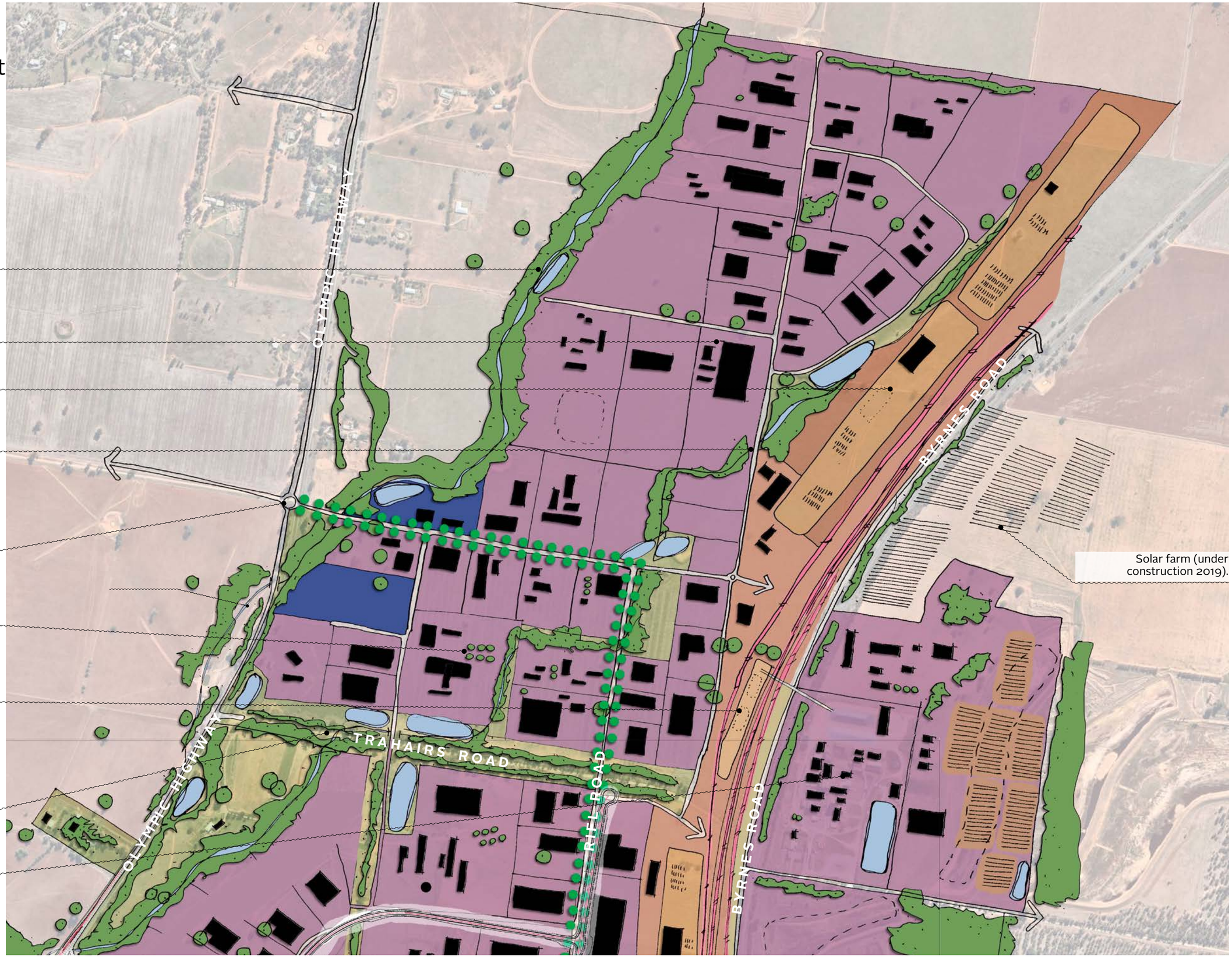
Advanced manufacturing cluster on higher ground where noise, odour, air quality constraints are lowest. Large sites of 10ha+.

Grain terminal opportunity including direct links to ROBE on Byrnes Road, supporting circular economy principles.

Trahairs Road as part of 100m wide green infrastructure corridor to protect environmental values. Two north-south road links connect to Stage 3 development area to the north.

Riverina Oils and Bioenergy (ROBE) showing potential expansion onto land north and east of current site.

Solar farm (under construction 2019).



JENSEN PLUS

5.3b

5.3b Rural Activity_Sub Precinct

“The Rural Activity Sub-precinct surrounds the principal industrial areas within the SAP and provides separation to surrounding residential and rural areas.”

LAND USES	
SUB PRECINCT	**PROPOSED LAND USES**
Agriculture Educational Establishment. (tertiary, with agricultural or environmental focus)	Extensive agriculture (e.g. irrigated pastures, irrigated fodder cropping)
	Rural industries
	Recreational areas
	Environmental protection works
	Electricity Generating Works (eg small scale (25-35MW) solar PV farms
	Forestry

Note: These desired land uses represent industries and activities that are likely to meet the aspirations of the Precinct, and that have been identified at the time of preparing this Structure Plan.

This list is not intended to be exhaustive, as new business opportunities will be identified over time, and as a more flexible and risk-based approach is to be taken to the statutory planning framework for the Precinct; (see Statutory Planning Considerations Paper by Merdian Urban).

The Master Plan and Delivery Plans for the Precinct will further articulate the desired, and allowable, land uses for the Special Activation Precinct.

Note: small scale solar PV farms identified by WSP, Renewable Energy Opportunity and Constraints Analysis - Final Draft Master Plan, November 2019

Overview

The Rural Activity Sub-Precinct is intended to provide the necessary buffer to the intensive industrial activities within the Wagga Wagga SAP and provide the visual and amenity separation to surrounding areas outside of the SAP.

The focus on this Sub Precinct is to prevent encroachment of industrial uses outside of the SAP, as well as additional sensitive receptors closer to the SAP. It also seeks to act to visually separate the industrial activities from surrounding locations.

Existing conditions

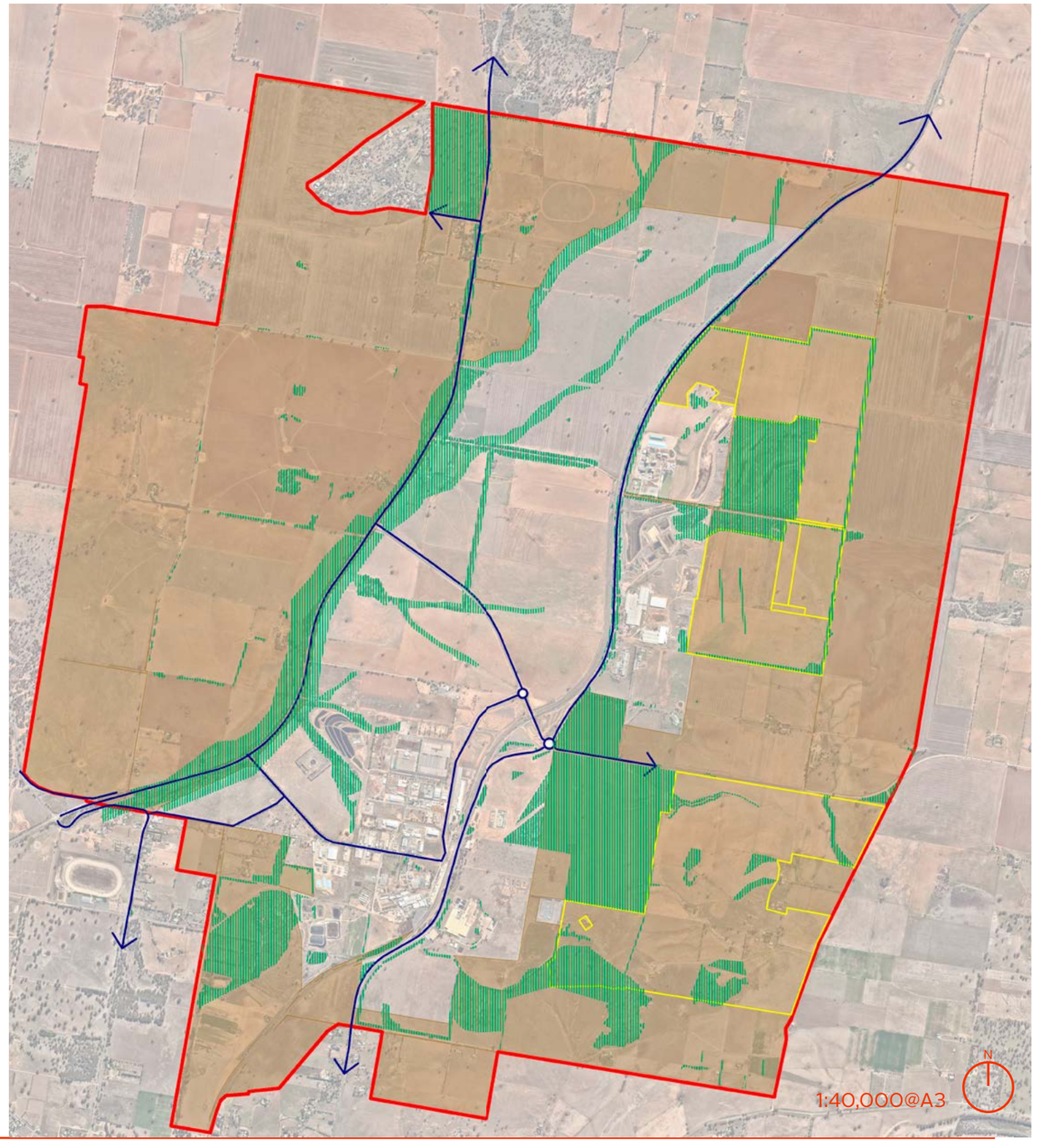
- The land west of the Olympic Highway comprises agricultural land, with scattered dwellings.
- Land along the northern boundary of the SAP is elevated agricultural land.
- Land to the east of Bomen Road falls down into the Eunony Valley and is highly visible from the east. This land is currently largely agricultural in use, despite its Industrial Zoning, other than for the construction of a Solar Farm.
- The area includes the Bomen Axe Quarry, a sacred Wiradjuri site, along with significant areas of Tier 1 and 2 vegetation. The south-eastern part of this location is also subject to a groundwater protection area.

Future development

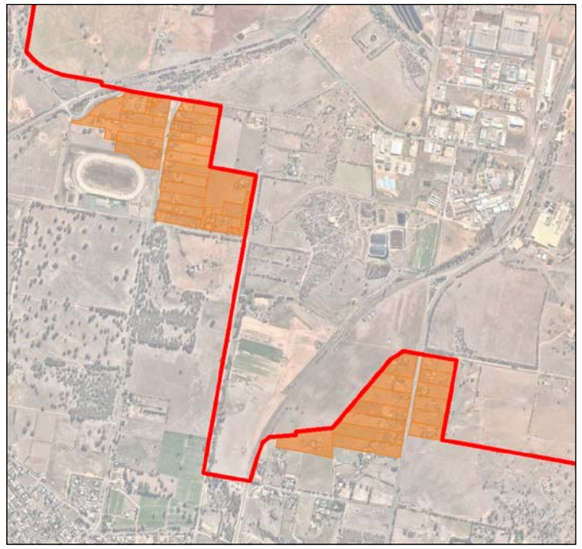
- Development will be limited to maintaining agricultural activities, together with opportunities for re-vegetation and land rehabilitation. New dwellings and lots should be avoided.
- There may be limited viability for agricultural activities in parts of the Sub Precinct, which may require a need for purchase by the Development Authority, potentially to facilitate vegetation offsetting, or other sensitively located and design agricultural industries.
- There may be scope for the establishment of educational campus or small scale renewable energy uses within the Sub-Precinct.

Area _ 3170 ha

(Areas approximate and inclusive of non-developable land for roads, infrastructure, open space, drainage etc.)



Residential clusters to the south of the SAP



_ A number of properties abut the Wagga Wagga Special Activation Precinct to the south and south-east along Byrnes Road, Hilary Street, Hampden Avenue, East Street, Old Bomen Road and Horseshoe Road.

_ These properties are currently zoned a combination of R5 Large Lot Residential (Hampden and East Streets) and Ru4 Primary Production Small Lots (Byrnes Road and Hilary Street) which allows allotments between 1 and 2 hectares.

_ The proximity of these properties to the existing and proposed industrial area means that there is existing conflict between businesses and residential uses. Businesses do not have certainty that they can continue to operate their business or expand, and the residents and small businesses to the south of the industrial area don't have certainty that their property and amenities will not be impacted.

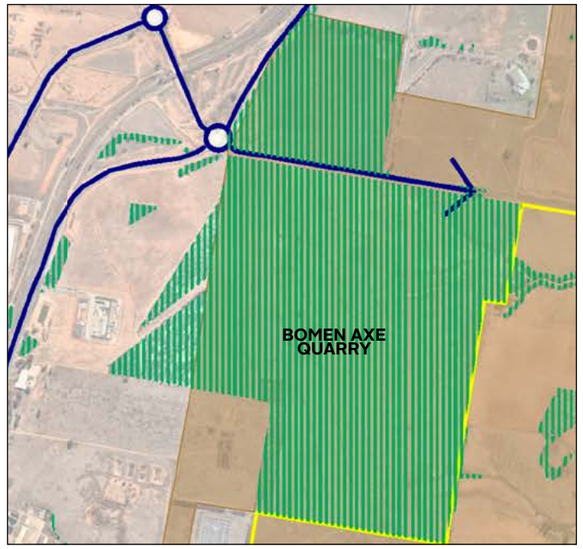
_ Even though industrial uses will need to be constructed and operated in accordance with EPA licences and planning policies to ensure residential uses will not be unreasonably impacted, this is an existing land use issue that needs to be resolved at a strategic land use planning level.

_ Technical Studies undertaken for the Wagga Wagga Special Activation Precinct Structure Plan and other previous studies undertaken by the City of Wagga Wagga have recommended three steps to manage this issue better under the new planning framework, being:

1. New controls for noise, air and odour for the industrial area under the new Wagga Wagga Special Activation Precinct Master Plan; and
2. A new landscape buffer (Rural Activity Sub-Precinct) will separate the industrial area (Regional Enterprise Sub-Precinct) from Cartwrights Hill and other nearby residential neighbourhoods; and
3. There there not be any additional houses, or further establishment or intensification of sensitive development in these locations.

_ It is recommended that the planning controls in these areas be further reviewed (outside of the Special Activation Precinct process) to achieve this outcome.

Bomen Axe Quarry

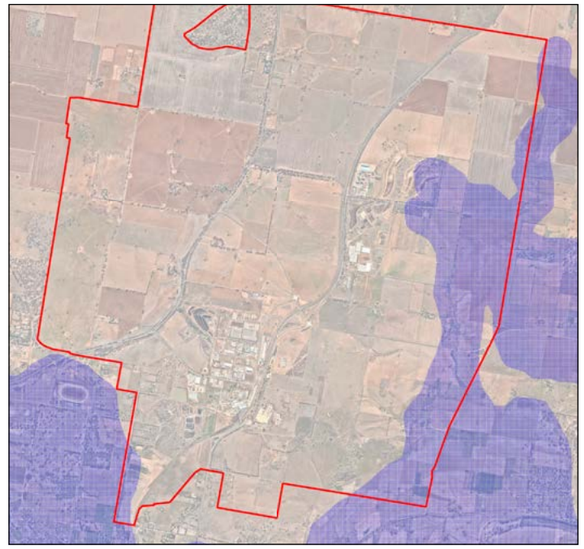


_ The Bomen Axe Quarry is a sacred Wiradjuri site and it is important that the cultural values of the site are respected and protected. This is best achieved through appropriate buffers from the site and an approach that speaks to the rehabilitation of the land, consistent with aboriginal cultural values.

_ The land surrounding the Axe Quarry is owned by the Wagga Wagga City Council and adjoins areas with Tier 1 and Tier 2 vegetation.

_ Revegetation of the Council owned land is suggested, both to provide a better buffer around the Bomen Axe Quarry, and to provide a strategic green corridor connection whilst also providing opportunities for off-setting.

Groundwater protection area



_ The south-eastern portions of the Wagga Wagga SAP Study Area have been identified as having groundwater protection zones. These locations cover the Wagga Wagga alluvial groundwater sources, high priority groundwater dependent ecosystems, mapped alluvial sediments and sensitive receptors. The protection of this land from inappropriate development is therefore important and should be avoided for further industrial development.

_ The northern portion of the protection zone incorporates a portion of the former wool scouring ponds which are contaminated. The Structure Plan recommends rehabilitation and revegetation of this portion of the wool scouring ponds.

_ The extent of the groundwater protection zone area has been incorporated into the Rural Activity Sub Precinct to ensure land uses and future development have minimal impacts on the groundwater source.

5.3c

5.3c Commercial Nodes

"The Commercial nodes will play an important role in providing services and amenities for workers, visitors and the community. They will become key focal points within the SAP."

LAND USES	
SUB PRECINCT	**PROPOSED LAND USES**
Commercial Node	Highway Service Centre (fuel, food etc)
	Tertiary or technical training facility
	Sales Centre
	Offices
	Recreation Area / Park
	Roads
	Public domain lighting, markers and signage
	Tavern
	Data Centre
	Innovation Hub

Note: These desired land uses represent industries and activities that are likely to meet the aspirations of the Precinct, and that have been identified at the time of preparing this Structure Plan.

This list is not intended to be exhaustive, as new business opportunities will be identified over time, and as a more flexible and risk-based approach is to be taken to the statutory planning framework for the Precinct; (see Statutory Planning Considerations Paper by Merdian Urban).

The Master Plan and Delivery Plans for the Precinct will further articulate the desired, and allowable, land uses for the Special Activation Precinct.

Overview

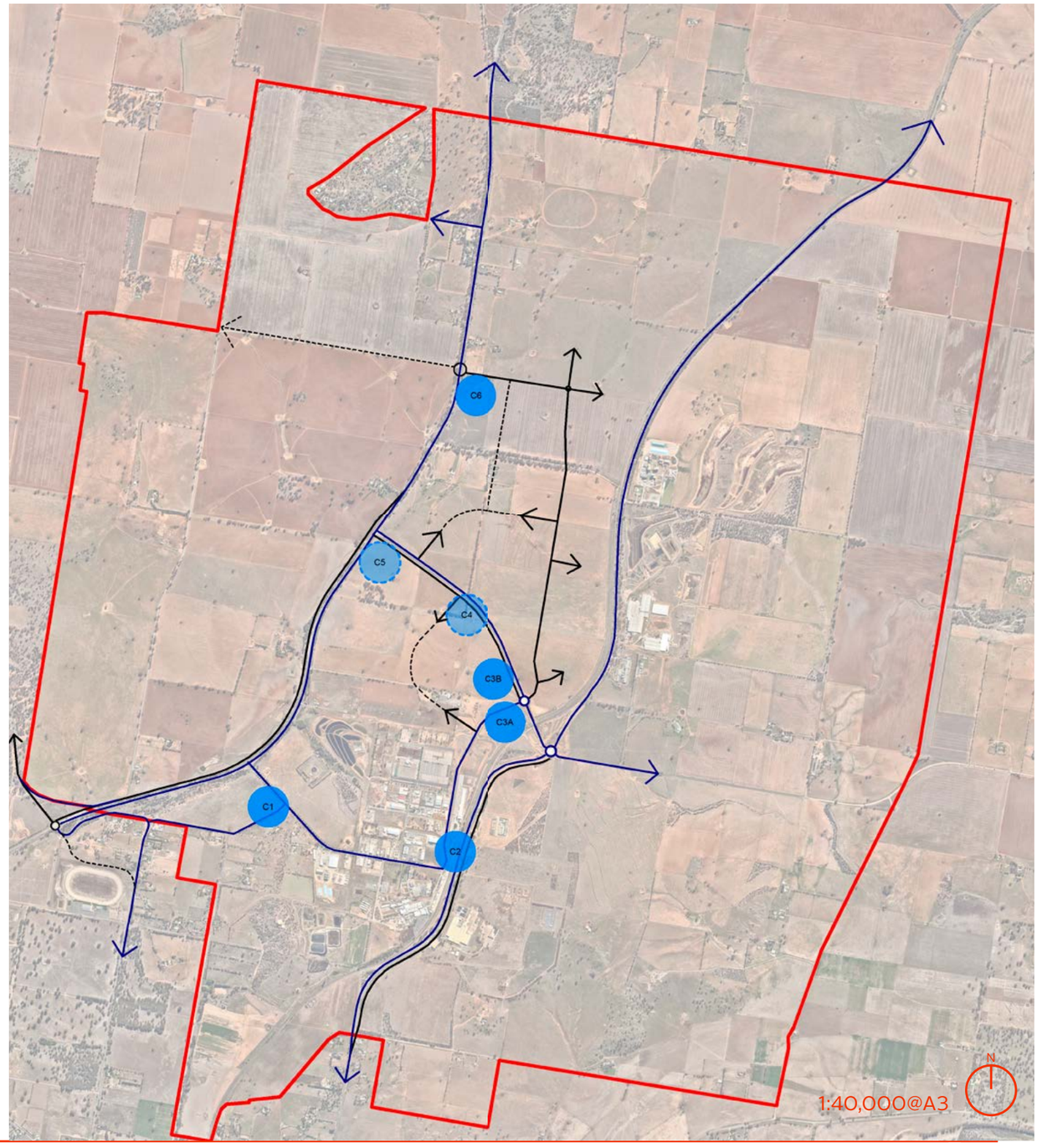
The Commercial nodes will accommodate service nodes for the SAP to both service the local employment population, but also accommodate uses that don't need to be amongst industrial development, but still complement the Precinct overall.

The approach has decentralised services into several locations across the Precinct in response to different land use strategies across the nodes, as well as to facilitate short and longer term staging of development. This approach provides flexibility for uses to be developed and adapted for nodes if and when they become viable and required for the SAP. It also increases accessibility for the working population, given the SAP extends approximately six kilometres from north to south.

The Commercial Nodes will also be accompanied by improvements to amenity, including street tree plantings, landscaped footpaths, comfortable shared use paths, conveniently placed crossing points along roads and lighting wayfinding that supports safe movement day and night.

Existing conditions

- C1 (Bomen Road) is on land that slopes down from the road, and also adjoins residential and farming activities, requiring a more considered design approach to any new development.
- C2 comprises the former Bomen Rail Station building. This is currently empty and sits within an undeveloped and unattractive setting between the rail line and the realigned Dorset Street.
- C3A and 3B are highly visible along Merino Drive and on land that is largely flat in nature, making them suitable for more intensive building forms.
- C4 and 5 along Merino Road are also largely flat, with Node 5's location adjacent the Olympic Highway highly visible, making it attractive for certain uses.
- C6 is situated on land that is slightly higher than other nodes, reflective of the landform within the SAP. This location is adjacent to Dukes Creek and is closer to a number of residential properties along Olympic Highway.



Existing Conditions

Former Bomen Rail Station Building

Node 3B location looking west from Merino Road

Future development

_ C1: Bomen Road / Old Bomen Road

- _ Suitable location for services (such as child care, gym, food and meeting places, retail and food.
- _ Potential to host a sales centre in an early stages of the SAP's development. Considered more suitable than Nodes 3A and 3B as not likely to be as noisy and busy.
- _ Potential for location of Data Centre if this is required immediately (ie before Stage 1B).
- _ Potential to host small scale shops and services which can also service communities to the south.

_ C2: Former Railway Station

- _ Suitable to house the SAP Concierge and act as a sales centre in the immediate term. A quick win project for the SAP.
- _ Scope for a cafe to be positioned here to service the existing Bomen Business park community, along with improved amenity of this location.

_ C3A and 3B Dorset Drive

- _ The location of these nodes have the potential to act as a true gateway into the precinct. As such development and public realm treatments at this node need to be of a high standard.
- _ Suitable for fuel and service centre, including trailer interchange due to its proximity to the RiFL Hub and its accessibility from both Byrnes Road and Olympic Highway.
- _ Also suitable location for the potential Data Centre.

_ C4 / 5 - Merino Drive

- _ Suitable locations for services (such as child care, gym, food and meeting places, retail and food.
- _ Integrate with the green infrastructure corridors to be developed and provide an improved amenity , as well as provide pedestrian and cycle access from surrounding areas.
- _ Node 5 attractive due to visibility from Olympic Highway, but only likely required as part of Stage 2 if Node 4 is at capacity.

_ C6: Olympic Highway / Northern Access Road

- _ Long term commercial opportunities to service Stage 3 of the SAP.
- _ Location attractive for retail, food and possibly fuel (if not developed elsewhere) due to visibility from Olympic Highway and amenity from green corridor.

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Relevant Precedents

BP Eastern Creek, NSW, a new highway service centre with 22 B-Double parking spaces. ~2.5ha development area on ~4ha site (becon.com.au)

ANSTO Innovation Precinct, Licas Heights, NSW (theleader.com.au)

Accommodation and food services to support Precinct and capitalise on highway traffic (ihg.com)

Redhouse Cafe and Shop - former North Adelaide Railway Station (tripadvisor.com)

Training facilities (fusiondna.co.uk)

Tonsley, Adelaide - Main Assembly Building - collaboration spaces (tonsley.com.au)

5.4a

5.4a Rail Terminals _ Overlay

"The Rail Terminals Overlay is crucial to maintaining Wagga Wagga Special Activation Precinct's competitive advantage into the future as a rail-focused freight and logistics hub centred on RiFL and it's potential expansion."

LAND USES	
SUB PRECINCT	**PROPOSED LAND USES**
Rail Terminals	Car parks
	Depot facility
	Freight Transport facility (e.g. rail-road intermodal terminal, grain storage)
	Hazardous Storage Establishment (where related to a rail freight terminal)
	Liquid Fuel depot (where related to a rail freight terminal)
	Roads
	Transport Depot (e.g. rail sidings, provisioning, maintenance, refuelling, container maintenance)
	Truck depot
	Warehouse or Distribution Centre (where related to a rail freight terminal e.g. freight forwarding)

Note: These desired land uses represent industries and activities that are likely to meet the aspirations of the Precinct, and that have been identified at the time of preparing this Structure Plan.

This list is not intended to be exhaustive, as new business opportunities will be identified over time, and as a more flexible and risk-based approach is to be taken to the statutory planning framework for the Precinct; (see Statutory Planning Considerations Paper by Merdian Urban).

The Master Plan and Delivery Plans for the Precinct will further articulate the desired, and allowable, land uses for the Special Activation Precinct.

Overview

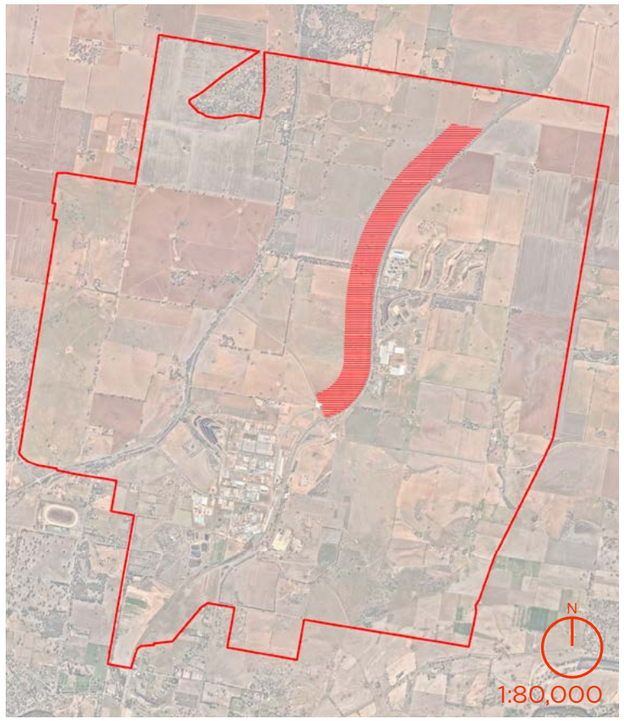
The Rail Terminals Overlay straddles a number of Sub Precincts in the Wagga Wagga SAP. The Rail Terminals Overlay is intended to preserve opportunities for rail and transport infrastructure crucial to maintaining Wagga Wagga SAP competitive advantage as a rail-focused freight and logistics hub.

Existing conditions

- The Rail Terminals Overlay extends 350 metres from the Sydney-Albury line.
- Between Bomen Road and Merino Drive are a range of warehousing, engineering, fuel storage uses (including Southern Oils) that form part of the Bomen Business Park, portion of the Livestock Marketing Centre, along with the concrete sleeper manufacturing facility east of Dorset Drive.
- North of Merino Drive the land is vacant agricultural land with the central portion earmarked for the proposed RiFL hub in the core area of the SAP and overlay.

Area _ 151 ha

(Areas approximate and inclusive of non-developable land for roads, infrastructure, open space, drainage etc.)



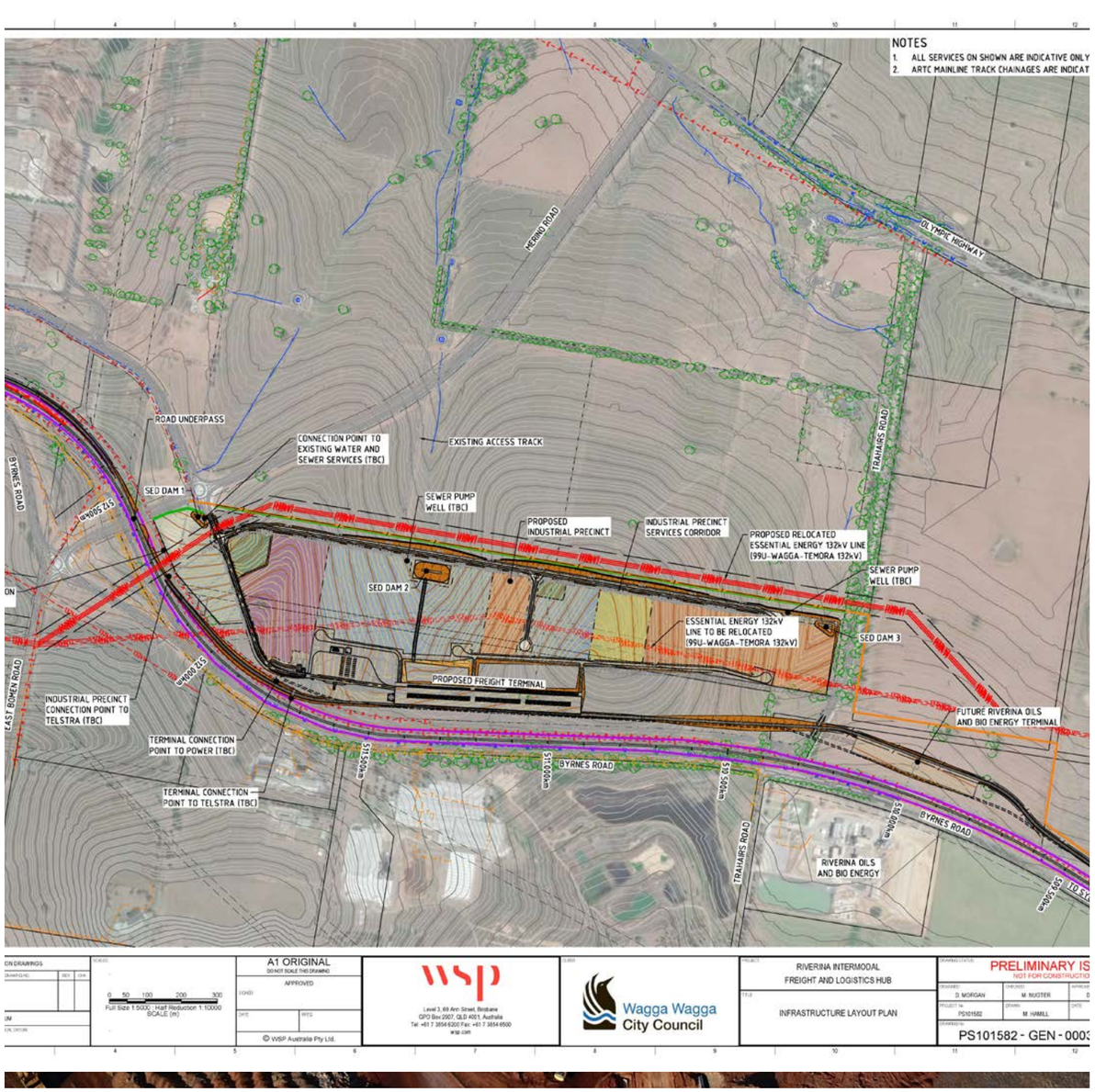
Future development

- The RiFL Hub will comprise a significant portion of the overlay and will represent an early component of the SAP's development. The overlay will facilitate the establishment of the rail sidings and associated infrastructure, the container hard-stand, as well as the range of warehousing, freight and logistics buildings proposed as part of the adjacent subdivision.
- The Overlay allows for potential future expansion of the RiFL Hub further north into the future, subject to market demand.
- The Overlay ensures that strategic land locations adjacent to the rail corridor are set aside and focussed on rail-related or reliant businesses and activities. this is important to take advantage of the Inland Rail project and the Wagga Wagga SAP's strategic location within the Riverina-Muray Region.

Relevant Precedents: images from RifL hub and of existing rail terminals uses

Perspective of RiFL looking south-west

Perspective of RiFL looking north-west



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5.4b

5.4b Green Infrastructure _ Overlay

“The Green Infrastructure Overlay reflects the strategic ecological approach to protecting and enhancing areas that are environmentally, culturally and visually significant.”

Structure planning for the Wagga Wagga SAP has been underpinned by a commitment to sustainability in all its forms: aiming to develop an employment and innovation precinct in balance with conserving and renewing the environment.

The application of a Green Infrastructure Overlay captures areas of higher value vegetation, biodiversity, waterways and catchments, and other natural features, which are culturally and environmentally significant.

The Overlay is spread throughout the Structure Plan area and covers multiple SubPrecincts.

Existing conditions

_ Site surveys were undertaken to identify vegetation, threatened species and threatened flora and fauna and any Tier 1 and Tier 2 Biodiversity Areas within the SAP. Key locations include Trahairs Road, Dukes Creeks and scattered paddock trees.

_ Culturally significant “Keep Sites” have been identified to ensure they are protected (or earmarked for special development), these include:

  _ Hills

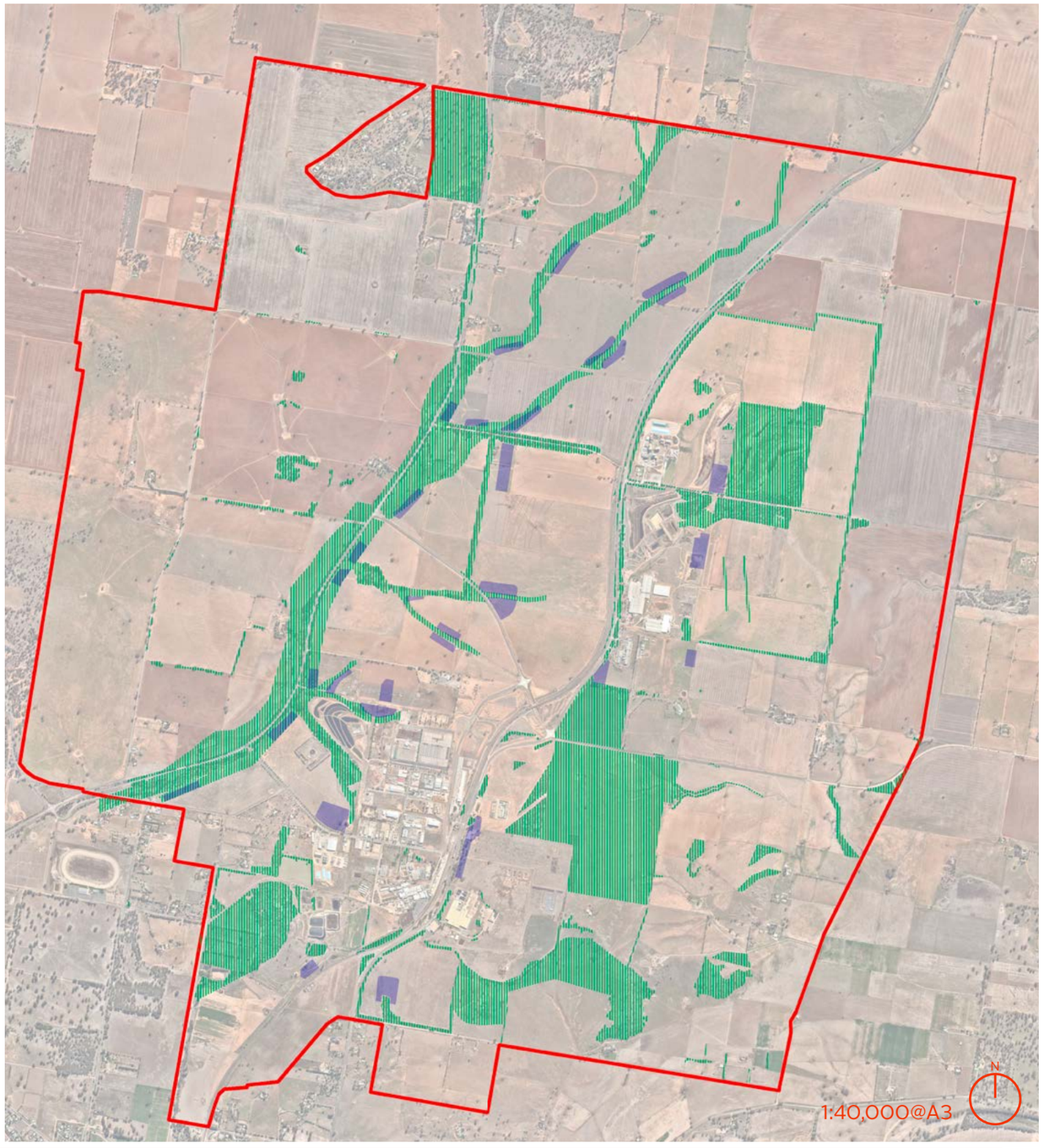
  _ Open Forest Farm land

  _ Campsite; and

  _ Sacred Sites (Bomen Axe Quarry and Scarred Trees)

_ Drainage flow paths were also analysed and form another environmental constraint on development. Two distinct catchments with their tributaries flow through the study area. There are also a number of waterbodies, including smaller artificial basins (dams for farming) and some larger waterbodies, the largest of which are the former Wool Combing Facility ponds.

_ The two key channels are also populated with significant vegetation and form key riparian corridors which dissect the SAP from north to south. These areas are contributors to biodiversity of flora and fauna, micro-climatic conditions and flood mitigation.



Proposed Strategic Approach

- The Structure Plan adopts an avoidance hierarchy with blue and green infrastructure, high and medium biodiversity patches listed under Federal and State legislation are integrated into the Structure Plan as part of the Green Infrastructure Overlay. Importantly, these areas are excluded from the industrial land area yields to ensure long term protection from development.
- Where infrastructure works or similar activity cannot be avoided, biodiversity off-setting is required in accordance with the NSW Biodiversity Offset Scheme and will be considered as part of a Strategic Bio-certification of the Wagga Wagga SAP. Strategic revegetation sites have been included to facilitate this.
- The strategic approach to the environmental layer was developed with the following elements:
  - Develop a number of green corridors or linkages based on identified vegetation areas and for the provision of riparian corridors and the establishment of formal creeks where they are currently ill-defined, where necessary using a 'stepping stone' approach to provide fauna and biodiversity connectivity through the Precinct.
  - Include Tier 1 & 2 paddock trees in the location of these linked networks where possible and protect these trees where they are not within the network areas with a desired 10 metre buffer.
  - Co-locate floodway's, water courses and basins with green infrastructure corridors where possible to minimise land take up.
  - Select areas for water sensitive urban design improvements which reinforce the proposed corridor network.
  - Integrate and identify culturally significant sites as "keep sites" to protect these areas and explain their significance to SAP occupants and the wider community.
  - Define Precinct edges with buffers by peripheral tree planting for screening purposes, physical identification and differentiation, and to improve the overall visual amenity of the area.

Green biodiversity links

- The Green Infrastructure Overlay indicates a desired structure of north-south riparian corridors through the SAP, generally aligning with key water course channels. Some strategic additional planting will be required to realise the corridor network. While the corridors do not have to be physically continuous the stepping stone approach requires substantial areas of vegetation at intervals which enable species dispersal and breeding potential.

Paddock trees, hollow trees and scarred trees

- These trees are dispersed across the site but many clusters are evident in the significant native vegetation areas in the north west section of the study area and in the eastern section. Many of these trees will be captured by a green infrastructure corridor network.
- Those not captured within the green infrastructure corridors areas will require specific protection through a finer grained control such as design and development standards. A ten-metre buffer around identified trees is recommended.

Floodway co-location

- While minor natural drainage paths exist now, development of the SAP Structure Plan has required development of a more robust floodway system with detention basins to cater for future development. This system was integrated where possible with the areas of significant vegetation, reinforcing the green corridor linking strategy.
- Full realisation of sensitive floodway integration into sites will require careful design and development at project stage, using SAP Design Guidelines to clearly indicate desired environmental and design outcomes.

WSUD (Water sensitive urban design)

- Design of detention basins, roadside swales and built form standards are aimed at water conservation and minimising flooding and run-off. The location of swales and stormwater interventions contributes to healthy vegetation and corridor strength particularly along key access roads in the SAP.

Culturally significant areas and trees

- Identified sacred site, and the "keep sites" should be highlighted in development standards and in promotion of the SAP to reinforce their protection and promote the responsive nature of the SAP Structure Plan.

Benefits

Action in all these areas will contribute to a meaningful network of diverse vegetated areas in corridors which will:

- provide habitat and movement options for fauna in the SAP area
- reinforce the number and health of native endemic species
- minimise flooding and scouring from stormwater run-off
- capture stormwater and roof run-off for re-use through WSUD
- augment green infrastructure in strategic locations to optimise benefits
- contribute to amenity improvements within the SAP.

5.4c

5.4c Noise, odour + air quality standards

“Management of noise, odour and air emissions from the Precinct is essential to both maintaining an appropriate level of amenity for surrounding sensitive receptors outside of the Precinct, and ongoing operations for businesses.”

The approach adaopted for the SAP is informed by Todoroski Air Sciences, *“Wagga Wagga Special Activation Precinct Final Draft Master Plan Report C4.1 Planning Considerations for Air, Noise and Odour”*. Refer to this report for methodology and recommendations for mitigating amenity impacts for the precinct.

The approach of the noise, air and odour models was to present a hypothetical scenario where the Regional Enterprise Sub-Preicnct is developed with employment uses, and there are no sensitive receivers in the buffer areas. These models were then used to prepare **site controls** for the Regional Enterprise Sub-Precinct (shown as contours on the following plans) and a cumulative **precinct performance measure** (shown as the purple outer contour).

However, these are not the only framework for assessing and managing noise, odour and air impacts. Most uses that make noise and create emissions will require a licence to operate form the EPA. In issuing this licence, the EPA will need to assess the impacts on nearby sensitive uses, and limit the impacts through conditions of consent to ensure the impact is acceptable and consistent with EPA polices. In the instance where industry is close to a sensitive use, their operations may be limited beyond the contours shown on these plans.

Noise

- Sound power levels contours have been used to provide an objective quantifiable way of managing noise levels to maintain acceptable amenity to sensitive receptors outside of the SAP.
- Sound power levels identify the maximum noise able to be achieved per hectare at any one location across the Regional Enterprise Sub-Precinct. They are based on a location’s proximity to sensitive receptors outside of the SAP, along with land form and other environemntal factors.
- This approach provides certainty, avoids individual modelling per proposal and aids in monitoring once uses are established and most importantly, accounts for cumulative impacts of development over time.

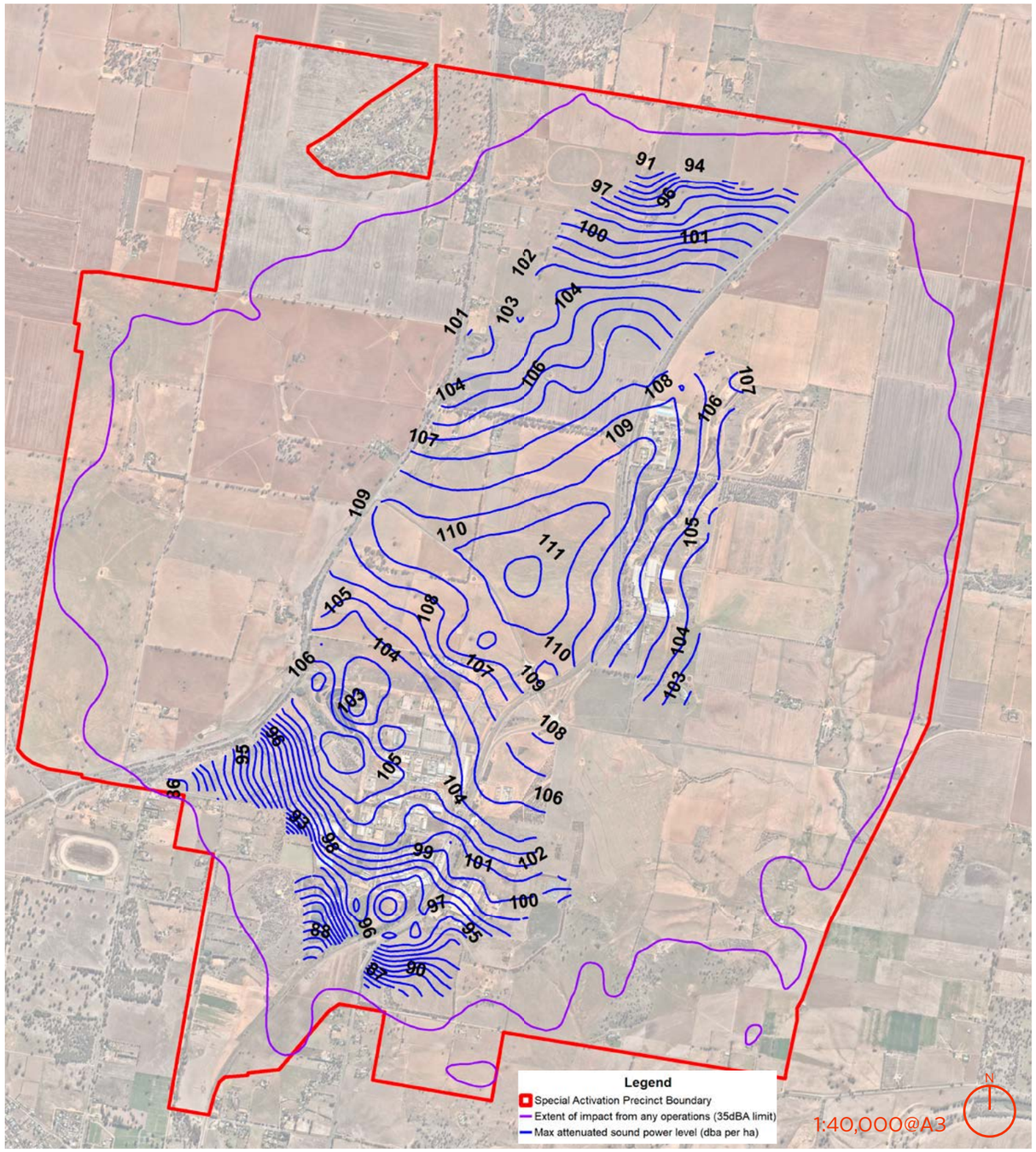
Odour

- An odour emission rate allowance has been set as a property right on each lot, having regard to the lot’s location, topography and distance from sensitive receptors.
- The odour emission rate provides certainty, avoids individual modelling per proposal and aids in monitoring once uses are established.

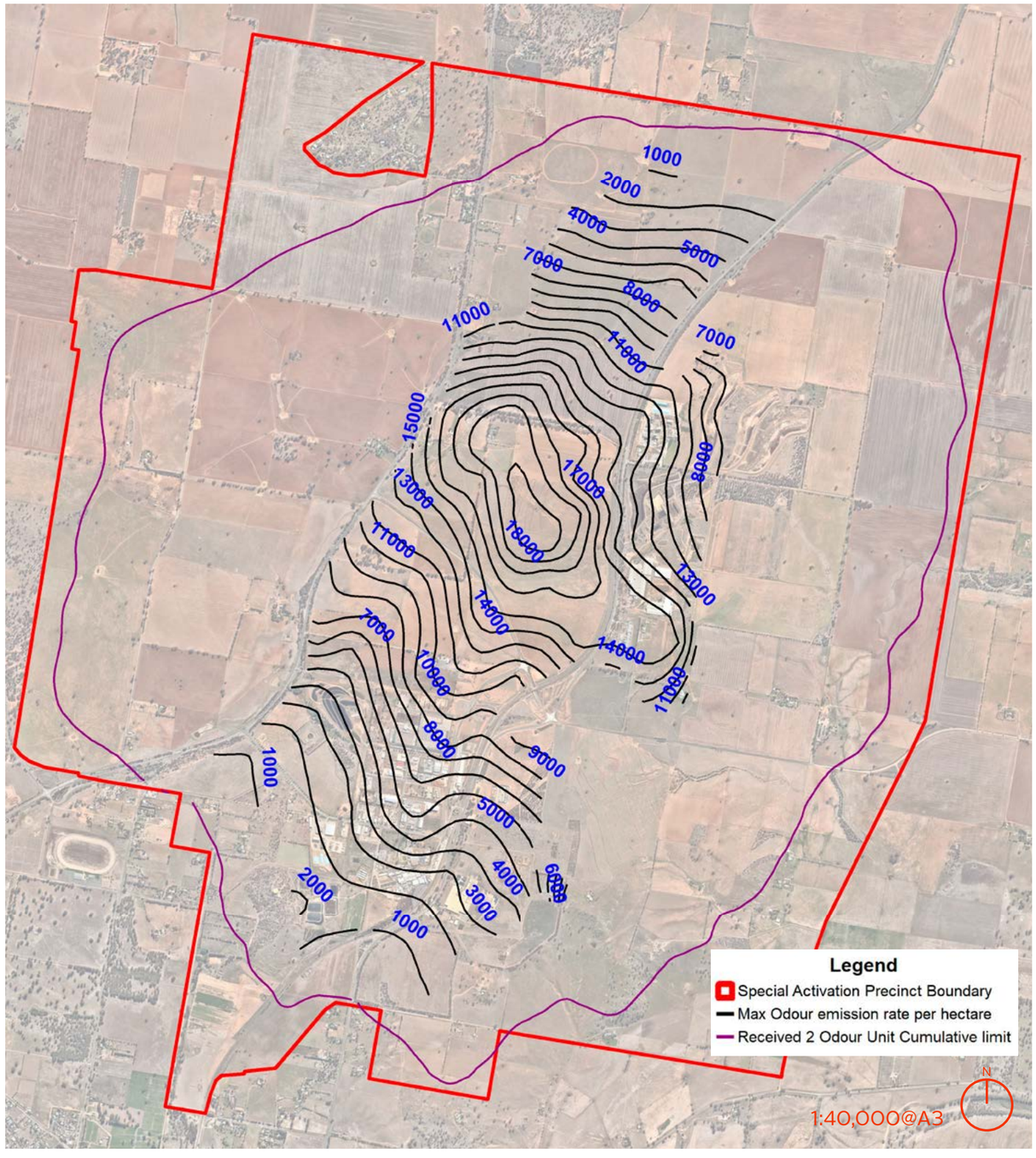
Air emissions

- Standard numerical criteria are not possible to apply across the SAP for air emissions.
- Emissions are likely to impact based on whether they are from a source or stacks. The management of stacks is needed to mitigate impacts on surrounding locations.
- Elevated locations are identified as preferred locations (green on air emisssions map on following page) for activities that require a stack for the management of emissions. Conversely, low ground across the precinct (red on air emissions map on following page) should not be used to accommodate stack sources. In between these locations (orange on Air Emissions Map on following page), the use of stacks may be possible, provided the stacks are appropriately designed and managed as higher performing stacks.

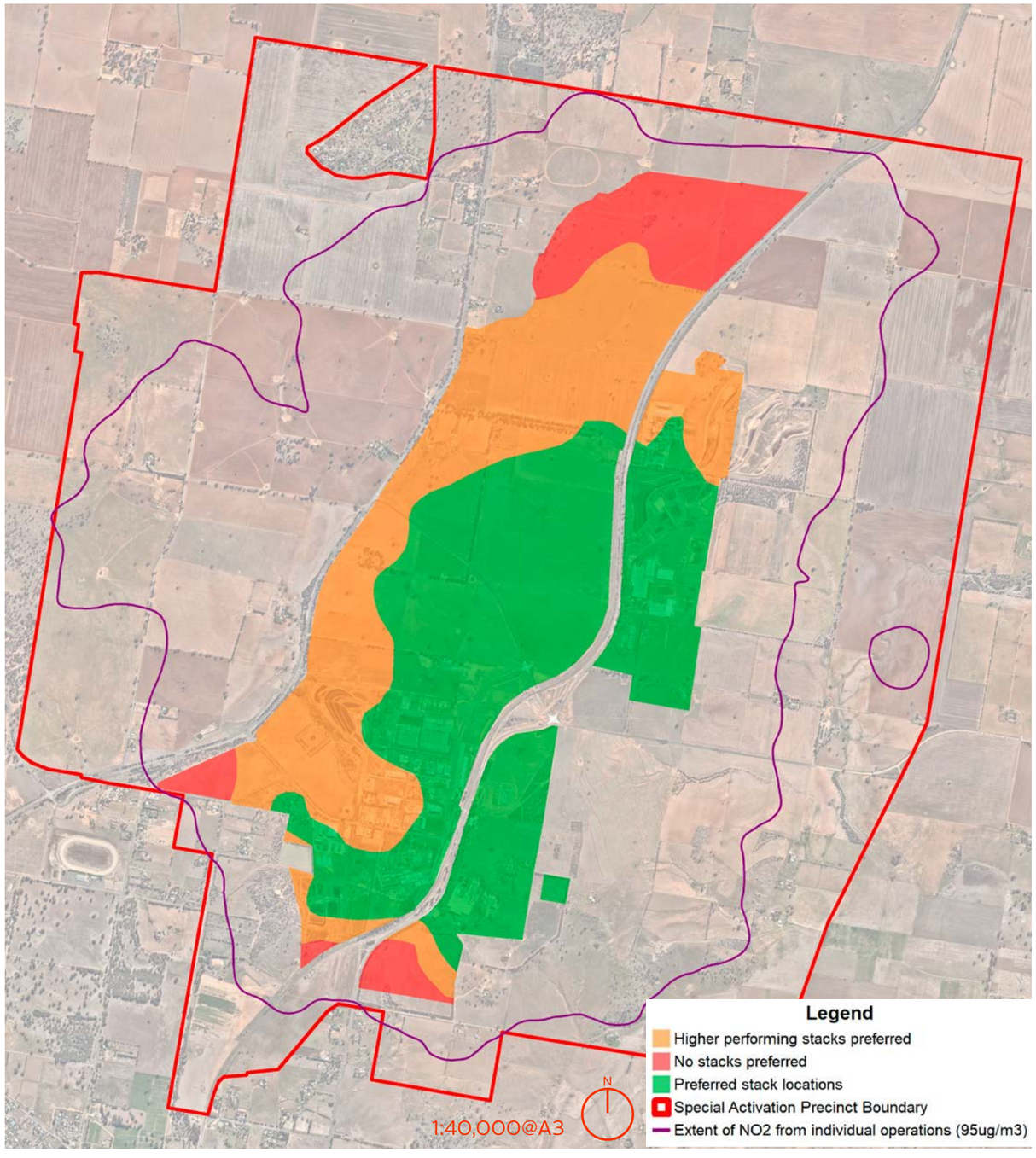
Noise, sound + power levels (dB)



Odour units / ha



Air Emissions - Preferred Stack Locations



5.4d

5.4d Transport

“There is a solid foundation of transport infrastructure that, with improvements at key locations, will support the future expansion of the Precinct.”

Overview

The Wagga Wagga Special Activation Precinct has excellent access to regional and national transport networks with the Melbourne to Brisbane inland rail (underway), Olympic Highway and Sturt Highway. It is important that the strategic transport opportunities are capitalised upon within the precinct.

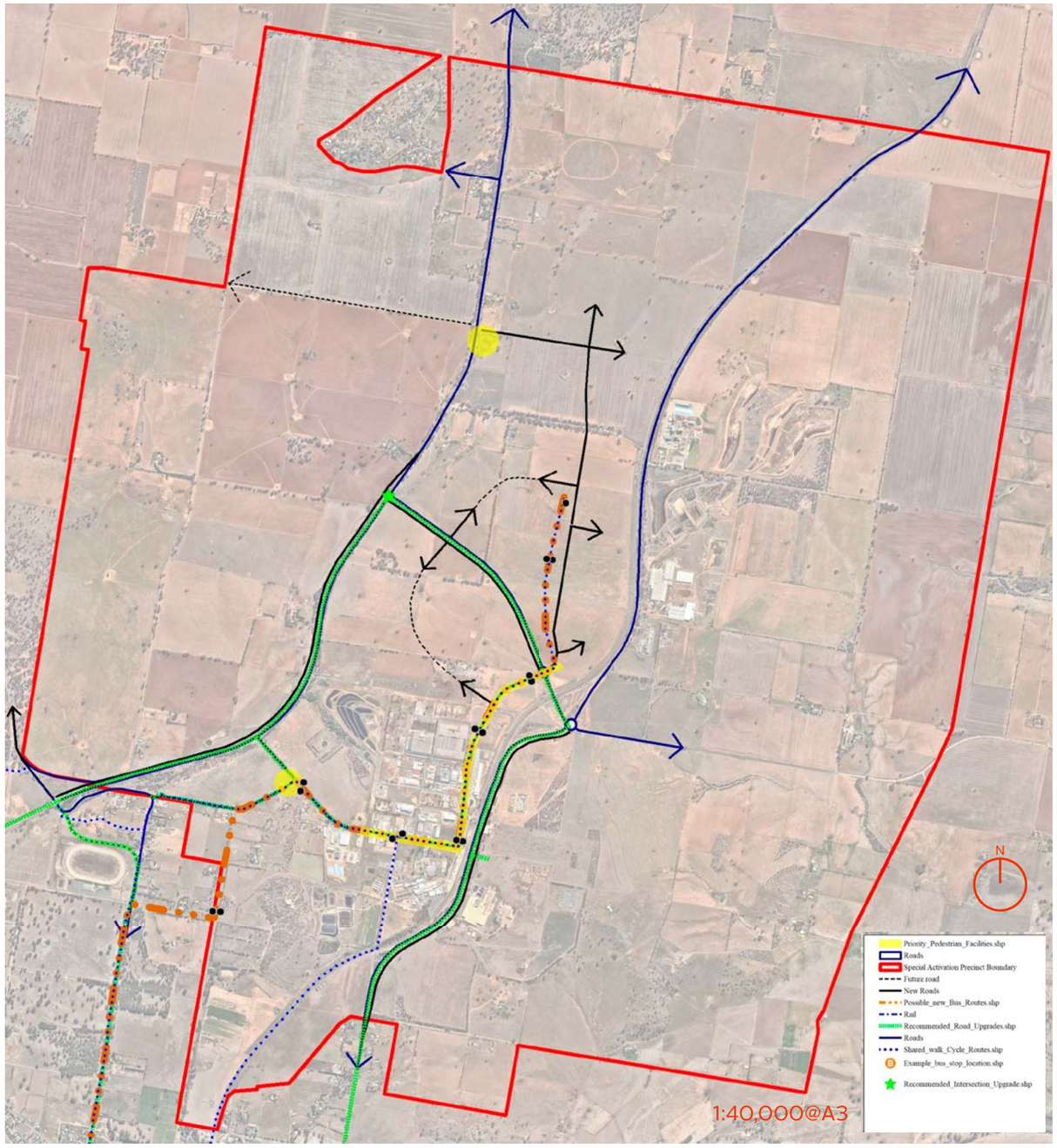
Within the Precinct the key distributor roads are:

- Olympic Highway linking the precinct to the Wagga Wagga CBD and north.
- Byrnes Road connecting to Eunony Bridge Road and the Sturt Highway in the south.
- Merino Road, a recently constructed road that connects Byrnes Road and Olympic Highway, provides a grade separated crossing of the railway and forms part of the heavy vehicle loop servicing the precinct.
- Other minor roads and routes include Bomen Road and Dorset Street, which services the existing Bomen Business Park, Old Bomen Road and Hampden Street which provide connections to adjacent rural and residential areas to the south.
- A section of the travelling stock route network runs north-south through the SAP along the Olympic Highway.

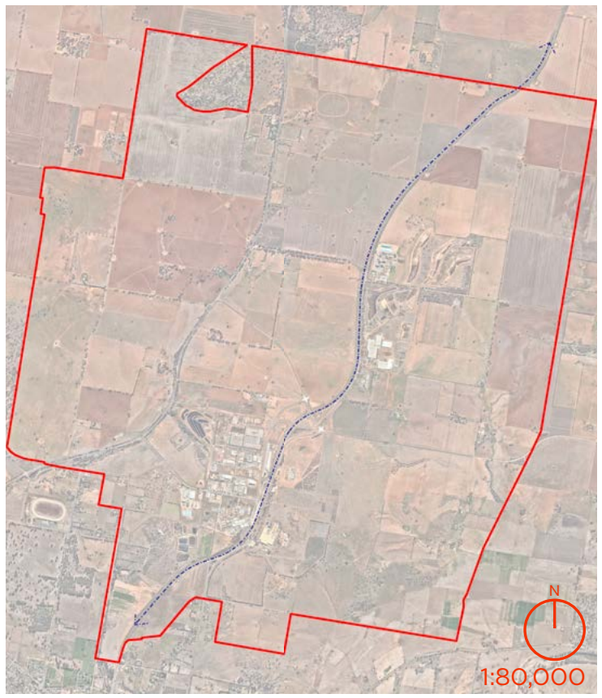
Proposed Transport Network

- The diagrams in this section highlight elements of the proposed transport network for the Precinct.
- A series of road upgrades is recommended to manage anticipated traffic flows, principally in the southern half and to the south of the Precinct.
- The proposed network seeks to significantly improve public and active transport access and movement to the Precinct, within the precinct and adjacent notes, such as the Wagga Wagga CBD and Charles Sturt University and will be refined as part of the Delivery Plan. This will be further refined as part of the Delivery Plan.

Transport Network Summary



Rail Network

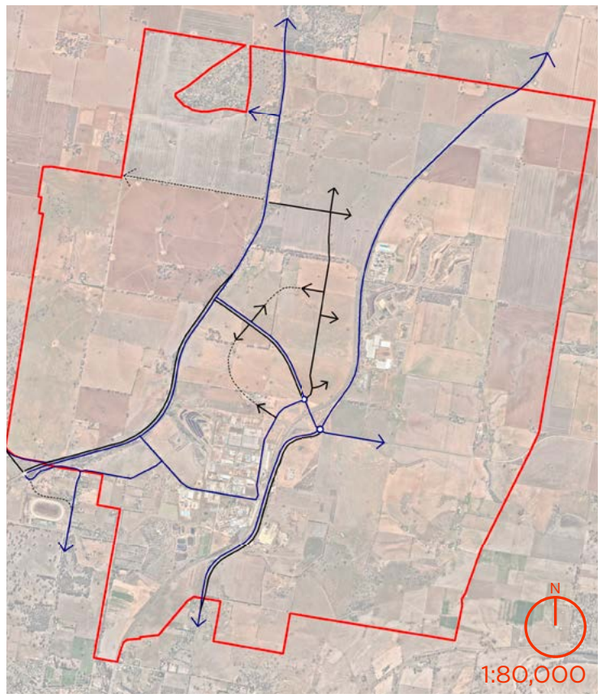


_ The ARTC's Inland Rail project from Melbourne to Brisbane will consolidate rail opportunities which will run through the Precinct.

_ Coupled with this, the RiFL Hub proposes a 5.8km master rail siding from the main line. The Structure Plan provides for potential further expansion north of the rail siding, subject to demand and take-up of the RiFL land and rail infrastructure.

_ The Merino Road construction has created the grade separated crossing to service the precinct and facilitate unrestricted movement of heavy vehicles east-west across the line. No additional grade separation crossings are envisaged as part of the structure plan.

New Road Network



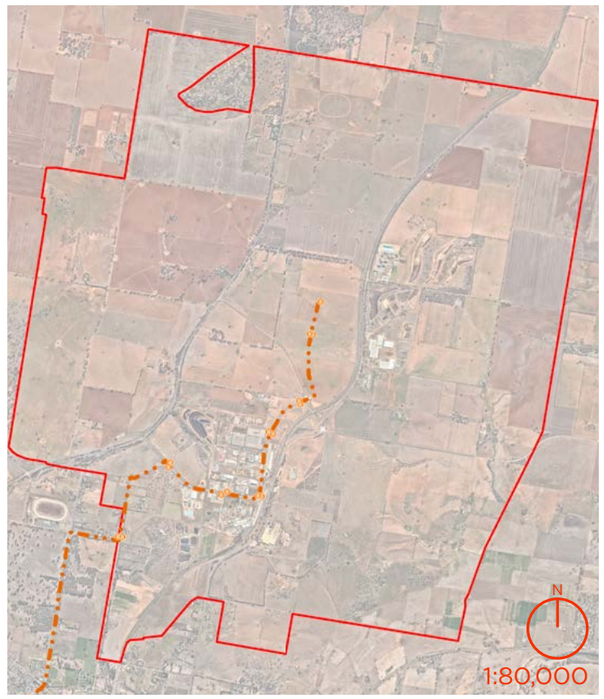
_ Wagga Wagga SAP is well serviced by freight rail, and merino drive upgrades and the intended Eunony bridge upgrade

_ Upgrades to road infrastructure is going to be required to accommodate the anticipated increase in freight traffic generated by the Wagga Wagga SAP, this will include widening of key roads (Merino Drive, Byrnes Road, Olympic Highway).

_ Primary freight networks protected by provision of alternative routes for light vehicle traffic connection to the CBD, an internal road network and the provision of minimal of access points to key heavy vehicle corridors.

_ Restriction of heavy vehicle movements maintains for Hampden Street to provide protection for residential areas.

Buses

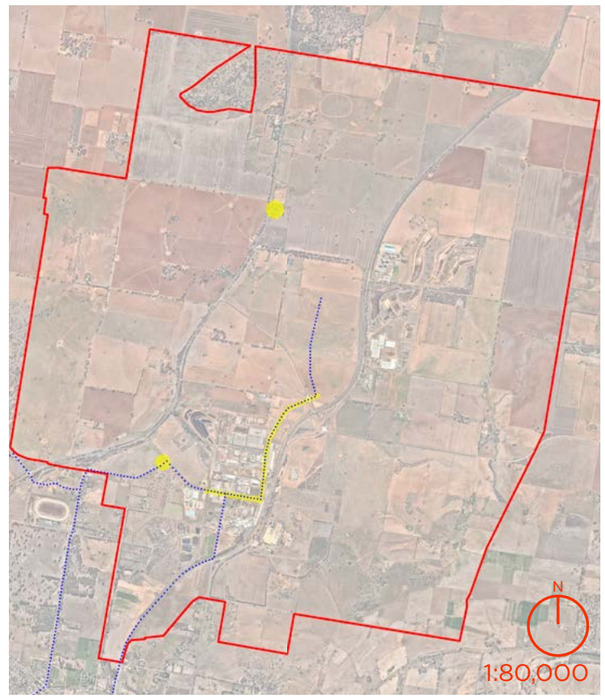


_ In order to achieve transport sustainability and increased accessibility to the Wagga Wagga SAP the Structure Plan incorporates a potential bus route between the CBD and the Special Activation Precinct.

_ The proposed route through the SAP provides accessibility along the key north-south connector roads internal of the precinct, and connects with the existing Bomen Business Park, the three key commercial nodes (Nodes 1, 2 3A/3B, and the RiFL Hub.

_ A number of bus stops are indicated at key junctions and proving for bus services both to and from the precinct. Bus services along these routes should include a combination of fixed-route and flexible/on demand services.

Walking + cycling



_ In order to maximise future mobility opportunities, the Structure Plan contemplates the provision of a shared cycling and walking connected path network within the Wagga Wagga Special Activation Precinct.

_ Follows a north-south spine between the Wagga Wagga SAP and Wagga Wagga CBD along Hampden Avenue, Old Bomen Road, Bomen Road and Dorset Drive.

_ Shared use paths integrated into key parts of the green infrastructure overlay provide additional connections throughout the precinct.

_ East-west connectivity provided to link into the proposed Principle Bike Network and improve accessibility to the Charles Sturt University.

_ End of trip facilities integrated within key public spaces and individual businesses.

_ Bomen Road, Dorset Drive and the RiFL Road designed as key pedestrian areas.

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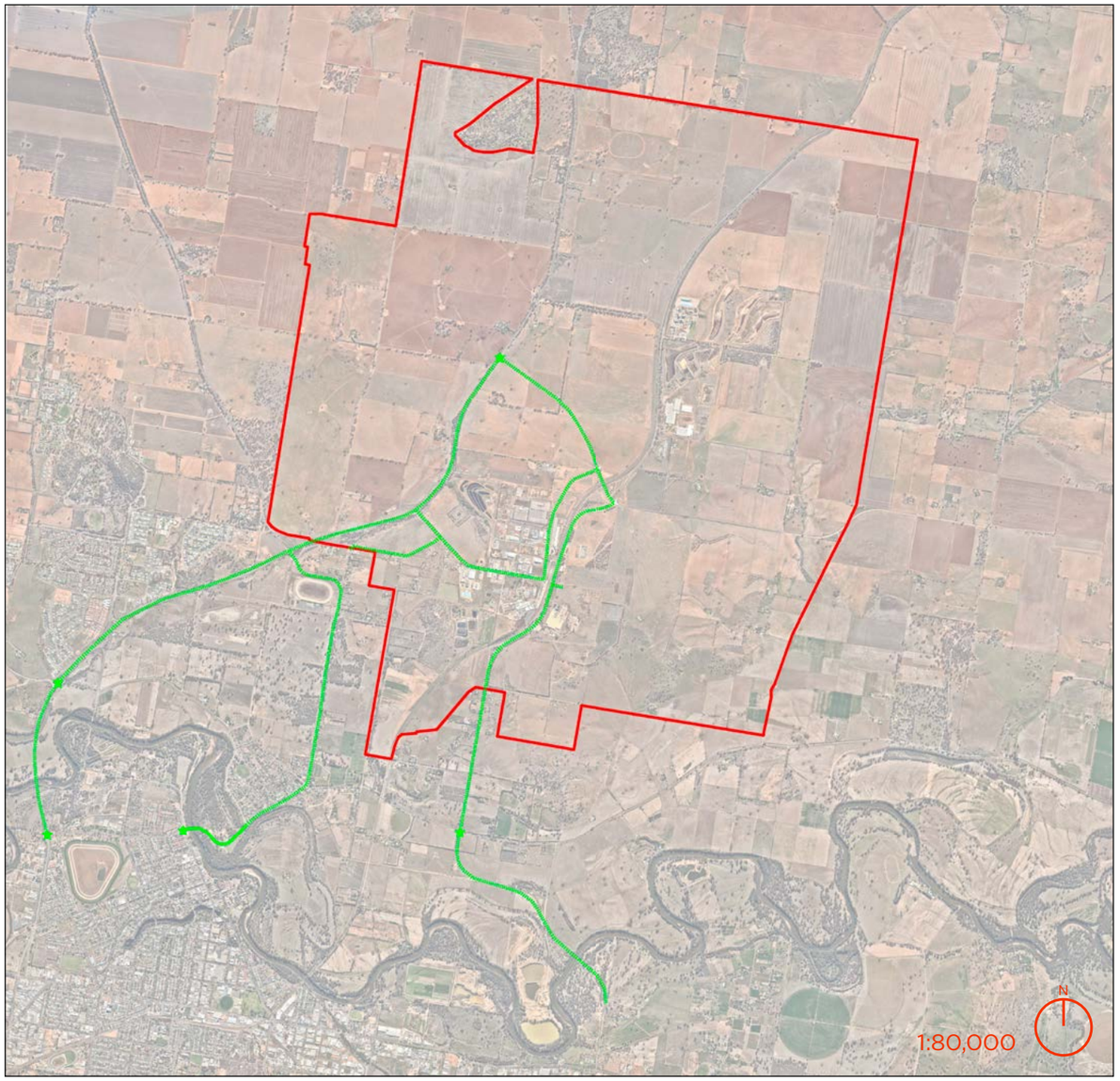
Roads external to the Precinct



- The Heavy Vehicle loop road system of Olympic Highway, Merino Road and Byrnes Road will be completed with the upgrade of the Eunony Bridge Road which will occur early in the Precinct's development (implementation underway). This provides for the early transport requirements for the Precinct's development and allows for immediate opportunities to be capitalised upon.
- Anticipated growth in traffic movements will require the upgrade of several key roads within and external the precinct including:
  - Widening of the Olympic Highway south of Merino Road. This will include the need to upgrade the Gobbogombalin Bridge and key intersections at Coolamon Road, Travers Street and Old Narrandera Road
  - Widening of Byrnes Road south of Merino Road, Oura Road intersection and including the Eunony Bridge Road to Sturt Highway
  - Widening of Merino Drive with additional lanes
  - Widening of the Hampden Avenue corridor, including the Wiradjuri Bridge, along with upgrading of intersections with Travers Street, Fitzmaurice Street and realignment to Coolamon Road / Olympic Highway junction.
- Importantly, a number of required road upgrades will also be influenced by other factors influencing traffic volumes on these roads. this includes growth of the Wagga Wagga township beyond that attributable to the State Activation Precinct, as well as the planned Northern Growth Area's development and timing.

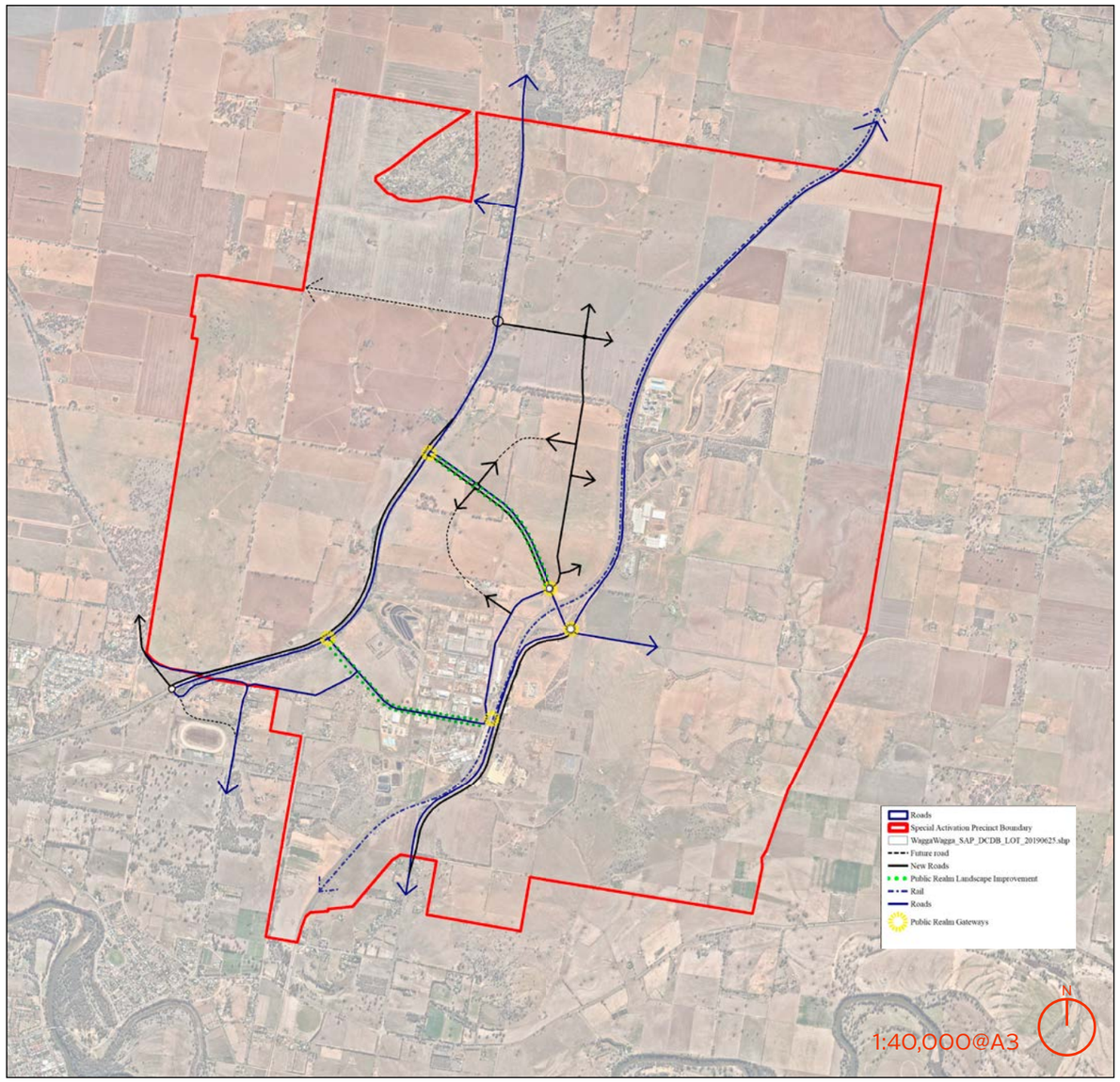
5.4e

5.4e Public Realm

“The quality of the Precinct as a place to be will be important in attracting workers and therefore businesses. The public realm will be an essential ingredient to this.”

The success of the Precinct’s ability to attract businesses will go beyond economic infrastructure and streamlined planning processes. Making the Precinct a place where people want to be will also aid in attracting businesses and skilled workers.

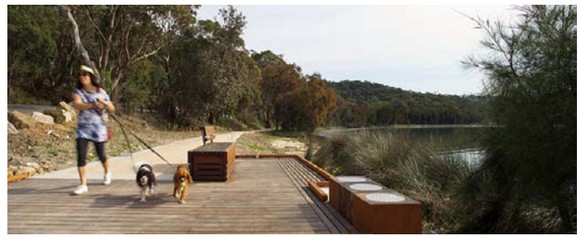
- The public realm within the existing Bomen Business Park is of poor quality, with no street trees, a lack of suitable footpaths and no public spaces for enjoyment by workers.
- Improvements to the look and feel of was identified as a key improvement required to the existing Bomen Business Park from workers and business owners. As was having spaces to relax, socialise, recreate and potentially collaborate.
- Public realm improvements are identified as an important part of the Structure Plan, to be further scoped and identified through the Delivery Plan.
- A focus for increased public realm quality should be at the central streets and spaces within the precinct, such as at Commercial Nodes which will become the focus points for the working and visiting community to the Precinct.



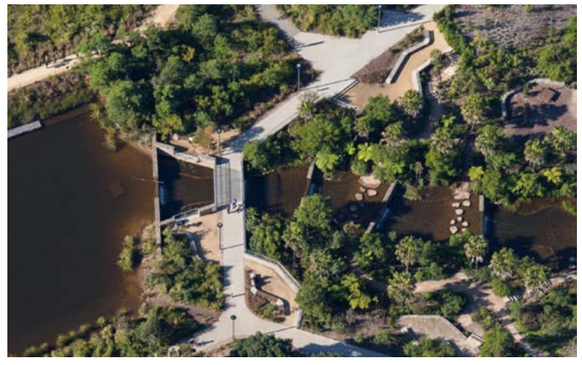
- Important elements will need to include:
  - parks and plazas spaces that can be used at various times and multiple purposes for a wide range of people
  - high quality streets that include landscaping, street trees, street furniture and lighting that make them safe and comfortable to use day and night for all users, including women
  - signage and landscaping gateways, markers and elements that contribute to a sense of arrive and identity for the Precinct, whilst also providing a unifying theme that ties the different parts of the precinct together.
- There is an opportunity to integrate Wiradjuri design themes into public realm treatments, aid in building a connection to country , identity and place.
- Public realm treatments need to be a considered design response that takes into account locational and environmental factors, particularly resilience against a changing climate, robustness and cost effectiveness for maintenance.

Relevant Precedents of bus, walk, cycle, street design

Rest area - Geelong, Victoria.



Shared use path - Narrabeen Lagoon.



Path network - Sydney Park, NSW.

Relevant Precedents of street furniture

Sixth Street - Murray Bridge, South Australia.

Wayfinding signage.

Solar lighting along shared use path.

5.4f

5.4f Service Infrastructure

“Timely provision of infrastructure is important to the efficient and economic delivery of the Precinct.”

Overview

The forward planning and programming of service infrastructure is important to delivering the Wagga Wagga Special Activation Precinct. Early sequencing will provide the confidence for businesses to invest and locate into the Precinct.

_ Existing service infrastructure is limited to the provision of services to the Bomen Business Park and the businesses established to the east of Byrnes Road.

_ Water and wastewater infrastructure provision for the precinct is achieved from numerous sources north and south of the precinct and is influenced by levels across the precinct area.

_ The precinct is well serviced by energy and gas infrastructure with a number of transmission and distribution infrastructure.

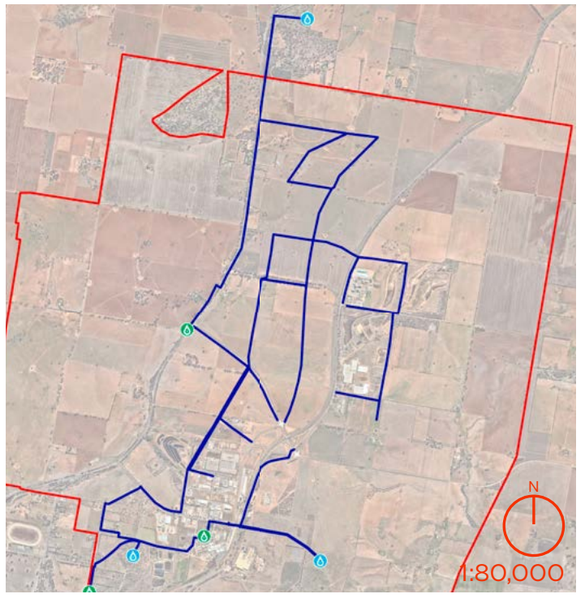
_ Infrastructure upgrades will be required for each stage of the precinct, dependent on take-up, the number, scale and intensity of use of businesses that establish.

_ Headworks / trunk infrastructure works will be required, with timing and capacity to be determined and influenced by the degree to which sustainable energy and water sources are integrated into the infrastructure network of the precinct.

_ Common infrastructure corridors have been proposed within the Structure Plan. These will principally be located within road shoulders, however a central north-south spine has been allocated connecting the potential upgraded Bomen Wastewater Treatment Plant with businesses north of Merino Road and into Stage 3.

_ It is important that future proofing is built into the infrastructure provision, including providing suitable spaces for distribution of materials (e.g. hydrogen, slurry etc) associated with circular economy opportunities. A minimum 4 metre width is recommended. This may also require strategic placement of easements within lots as part of subdivisions.

Water

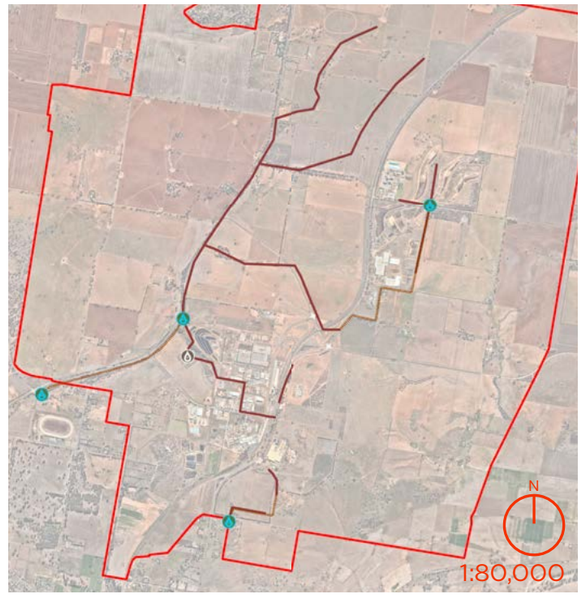


_ In order to meet future demand for the SAP area and the northern future growth areas existing water sources will require upgrades together with new reticulations.

_ Key upgrades required include 35 km of new water mains, and upgrades to Bomen Reservoir, East Bomen Pump Station, Brucedale Reservoir, and new pumps stations in North Wagga, Brucedale and East Bomen.

_ Triggers for upgrades will be dependant on the demand from the types of busineses that establish within the precinct, as well as the potential to generate and use recycled water and stormwater.

Waste Water

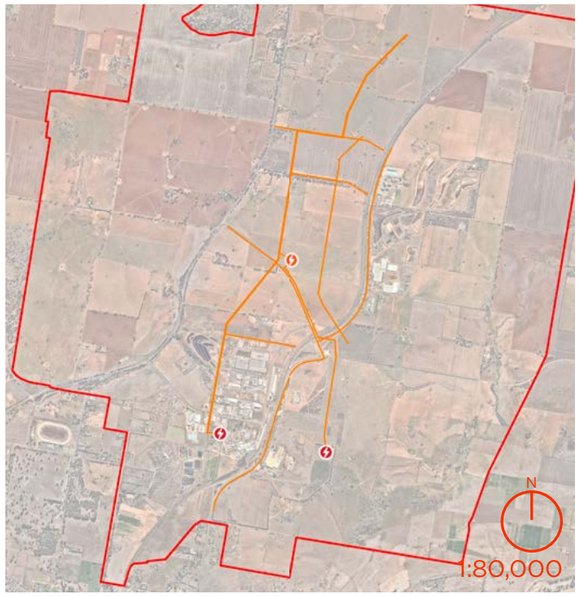


_ The Structure Plan provides for the expansion and growth of Bomen Industrial Sewage Treatment Facility (BISTF) to accommodate the conversion to standalone Wastewater Treatment Plant. There is also scope for this to take trade waste, water recycling and energy generation.

_ To service the area to the west of the ridgeline along Byrnes Road a gravity fed system connecting to the existing Bomen Waste Water Treatment facility has been identified and included within the Structure Plan.

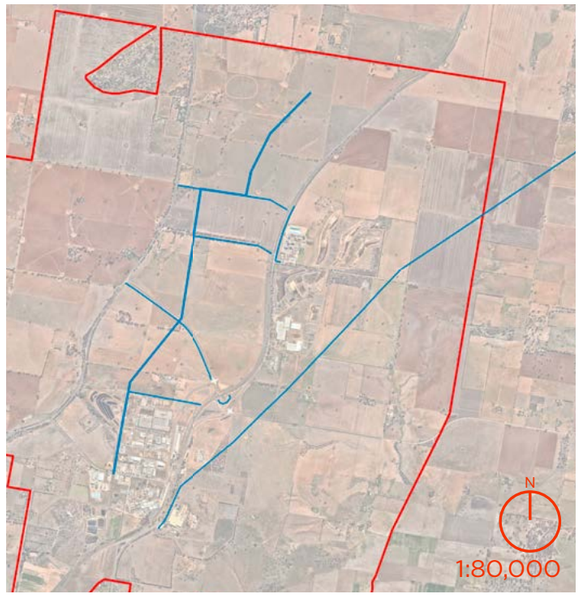
_ A gravity fed system with a new pump station has been identified for the area east of the Ridge line along Byrnes Road and included within the Structure Plan

Energy



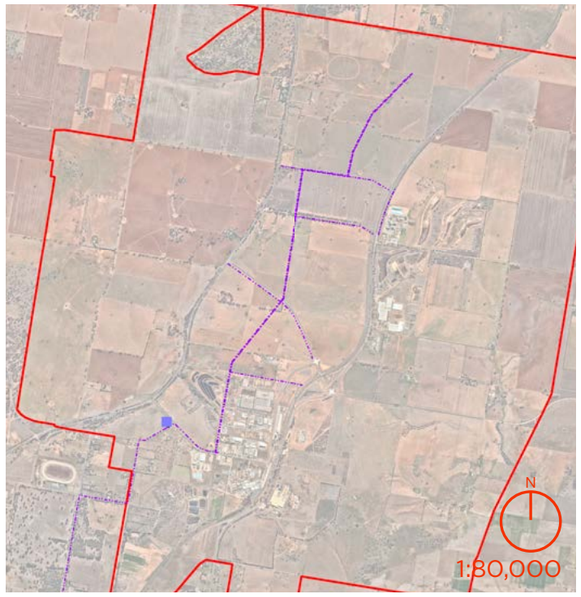
- Potential power infrastructure upgrades are identified within the Structure Plan to provide for modelled power demand expectations. This will include potential need for an additional 2 to 3 new substations (or upgrades to existing), linked to the Staging of development within the Precinct.
- However, the full extent of this power infrastructure may not be required with the focus for the Precinct to achieve 100% renewable energy self sufficiency. This is earmarked to be achieved through roof-top solar provision, bio-mass generation, integrating with the solar farms under construction and in the longer term, additional bio-energy plant(s). Central to this is the provision of a Virtual Power Plant (VPP) and energy storage systems (such as Batteries).

Gas



- Access to gas is readily available with large transmission gas mains diagonally traversing the SAP area. The Structure Plan identifies the existing network and future extensions that will occur as the staged development of the Wagga Wagga SAP is delivered.
- The Regional Development Cororation are investigating the suitability of a hydrogen generating facility in the Precinct to ensure that the desired renewable targets are met.

Digital



- The NSW Digital Connectivity Improvement program will establish a digital backhaul to Wagga Wagga. The SAP area will leverage this program and provide a connection directly to the existing Bomen Business Park area with a view to expand this as the SAP develops
- The preferred location of the Wagga Wagga Data Hub (within the Wagga Wagga SAP) has been identified in the Structure Plan (noting that this is still to be determined with an alternative location in the CBD).
- The early delivery of digital communications is critical to maintaining competitiveness of existing business, providing opportunity to grow and attracting future businesses into the Precinct.

Merino Drive

Indicative cross section showing future widening and public realm

"Merino Drive is central to the Precinct and, unlike other major roads, connects east-west. This makes Merino Drive an important access route to virtually all corners of the Precinct. Direct property access is not allowed, expect for very large sites. Short and long term improvements to the environmental function and amenity of Merino Drive are required, including street trees, swales, and a shared path on at least one side. Duplication provides an opportunity for a central median/turning lane to be included in the cross section, and to manage level changes."

section

Location Plan

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RiFL Road

RiFL Road must accommodate short and long term development opportunities

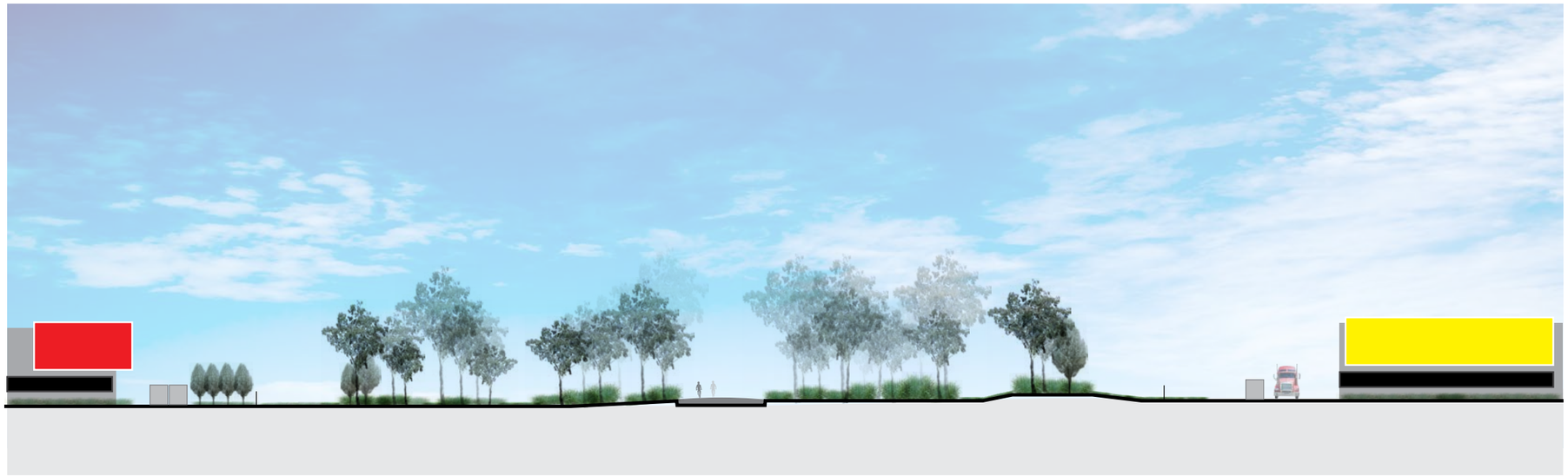
“The Riverina Intermodal Freight and Logistics Hub is expected to commence construction soon, and includes an important access road not just for RiFL but to the northern half of the Special Activation Precinct. This ‘RiFL Road’ needs to provide property access, connect to future stages, and incorporate a 132kv power line to be relocated from the RiFL site, without prejudicing access to land on the western side of the road. Level changes need to be carefully managed in this cross section.”

Location Plan

Trahairs Road

A wide green corridor in this location is an important structuring element

"Trahairs Road contains big trees and is one of the most intact vegetation corridors in the Precinct. Preserving this vegetation is important for biodiversity, visual screening and place making."



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Green Infrastructure Corridor

A multi-functional corridor and local road cross section

"A 50m green infrastructure corridor running north-south at the boundary of Stages 1C and 2 includes an enhanced treed corridor, a 10m wide SAP internal infrastructure corridor, and a shared path. A 20m road reserve on one side provides local road and property access."

Location Plan

Bomen Road

Making Bomen Road a functional and attractive street

“Bomen Road will continue to be an important and busy street within the Precinct. Its wide roadway can be retained for maximum flexibility, but with new shared paths, lighting, street trees and build outs at street corners making it easier and safer to walk in this area, and improving the amenity and image of Bomen.”

section line

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Local Road

Industrial road cross section

"Local industry roads in a reserve of 30m provides ample room for truck access and visitor on-street parking, with street trees, footpaths and services also easily accommodated."

section line

Location Plan

Section 06. Implementation

Section 06 discusses some of the "who, when and how much"questions that will be addressed in project implementation. Issues include development phasing, statutory planning framework and prority implementation actions. for the Wagga Wagga SAP is also provided.

6.1 Indicative Sequencing of development

“Achieving the vision will require a coordinated and long term implementation programme involving the Regional Growth NSW Development Corporation, state government departments, Wagga Wagga City Council, developers and businesses.”

Reliable predications about the timing and pattern of development growth is notoriously hard, and especially so for employment and industry land, which is subject to diverse needs and trends within different industry sectors.

There are of course logical sequences for infrastructure development and land release, often based on proximity to existing infrastructure and development, as well as order of cost. But much depends on market demand, and not only the broader market, but the individual appetites and motivations of businesses and landowners.

Wagga Wagga SAP is also a complex precinct, being a mixture of existing development and greenfield land, with an elongated geography, multiple access points and contexts.

Generally it is expected that development will occur from south (Bomen) to north (vacant land), but also from east (railway and Byrnes Road industries) to west (Olympic Highway). There will also be exceptions at key sites and gateway locations, and the expansion of existing businesses will influence the pattern of growth significantly.

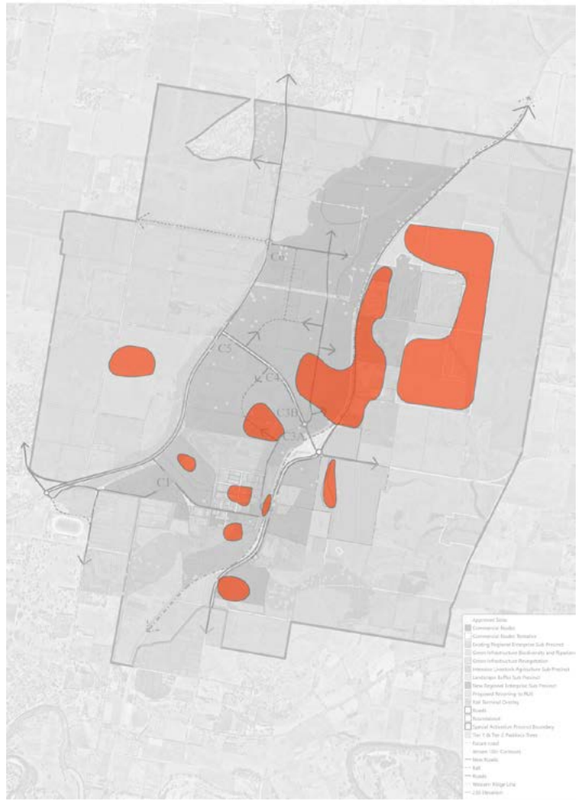
A non-linear sequence of development might be expected:

- 1. The first phase will be stimulated by existing industry expansion at Bomen and Byrnes Road, and key projects such as the early stages of the RiFL hub north of Merino Drive.
- 2. In the next phase, the ‘islands’ of development on either side of Merino Drive grow into one much larger areas of industry, with new nodes also emerging such as at Bomen Road near Olympic Highway. Major revegetation works on public land east of the industry areas will also be prominent by this time.
- 3. By the third phase the islands of industry land are joined into one large mass extending from Teys all the way north to Trahairs Road, and from Olympic Highway to the west of Eunony Valley.
- 4. The fourth phase, in some decades time, is when a northern expansion of industry land towards Brucedale might be expected. By this point substantial renewal of businesses and properties all across the Precinct is also taking place.

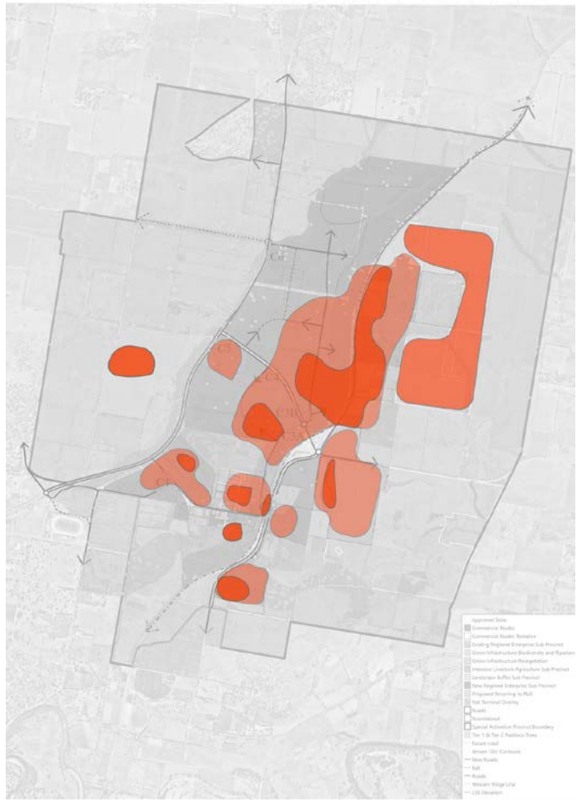
To enable logical infrastructure planning and land releases to occur, the Structure Plan suggests indicative stages. Some flexibility exists to plan and build infrastructure and land to respond to market demand and other property development considerations.

Delivery Plans are required before development can occur and will be developed for each Stage, as identified by the Regional Growth Development Corporation and approved by the Department of Planning, Industry and Employment. This mechanism will ensure that land use and infrastructure provision are undertaken in a coordinated way.

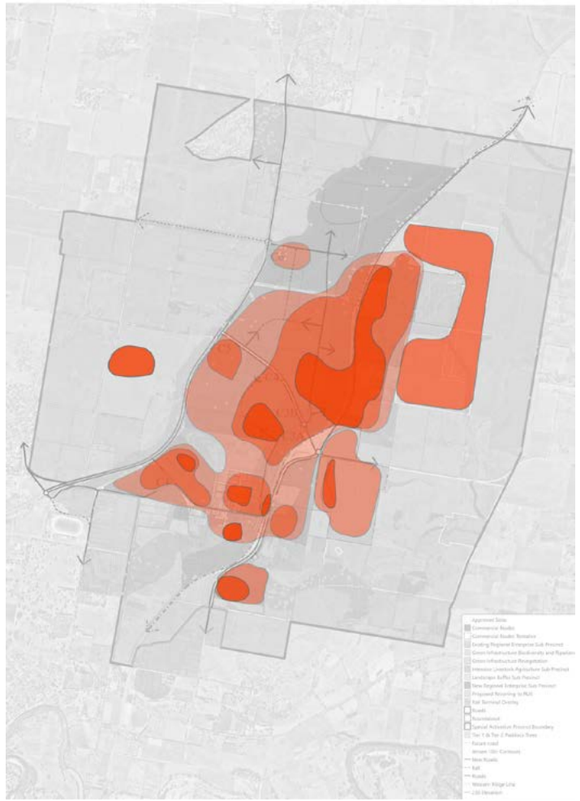
Phase 1



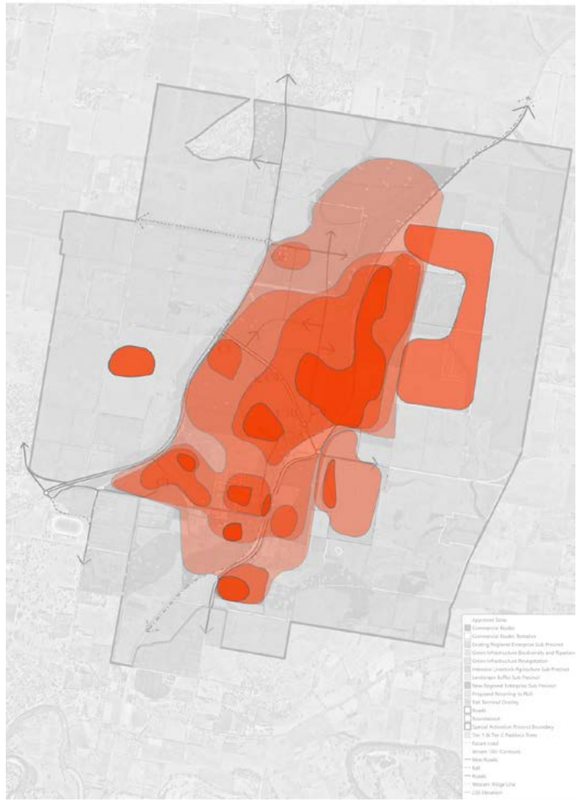
Phase 2



Phase 3



Phase 4



Note that the extent and locations of the Phases is indicative only and will respond to market opportunities, infrastructure programming and demands.

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