




Cobbora Land Use Planning Strategy

Addendum to the Warrumbungle Shire Land Use Strategy

ADOPTED

Submitted to Warrumbungle Shire Council

Report Revision History

Rev	Date	Prepared by	Reviewed by	Verified by
01	30/05/17	A Wetzel <i>Regional Director</i>	J Grant <i>Executive Director</i>	 Garry Fielding <i>Senior Consultant</i>
02	27/09/17	A Wetzel <i>Regional Director</i>	-	
03	12/04/18	A Wetzel <i>Regional Director</i>	J Grant <i>Executive Director</i>	
04	2/7/18	A Wetzel <i>Regional Director</i>	J Grant <i>Executive Director</i>	
05	25/9/18	A Wetzel <i>Regional Director</i>	J Grant <i>Executive Director</i>	
05	12/8/2019	R Bisley <i>Associate</i>	M Blackburn-Smith <i>Regional Director</i>	

This document is preliminary unless approved by a Director of City Plan Strategy & Development

CERTIFICATION

This report has been authorised by City Plan Strategy & Development, with input from a number of other expert consultants, on behalf of the Client. The accuracy of the information contained herein is to the best of our knowledge not false or misleading. The comments have been based upon information and facts that were correct at the time of writing this report.

Copyright © City Plan Strategy & Development P/L
ABN 58 133 501 774

All Rights Reserved. No material may be reproduced without prior permission. While we have tried to ensure the accuracy of the information in this publication, the Publisher accepts no responsibility or liability for any errors, omissions or resultant consequences including any loss or damage arising from reliance in information in this publication

Table of Contents

1. INTRODUCTION	1
1.1 OVERVIEW	1
1.1.1 REPORT STRUCTURE	1
1.1.1 GEOGRAPHIC TERMS.....	2
1.2 CONTEXT.....	4
1.2.1 STRATEGY AREA DESCRIPTION.....	4
1.2.2 HISTORY.....	4
1.2.3 COBBORA COAL PROJECT	5
1.3 COBBORA LAND USE PLANNING STRATEGY PROJECT.....	6
1.3.1 PROJECT PURPOSE AND OBJECTIVES	6
1.3.2 ALIGNMENT WITH OTHER PLANNING INITIATIVES.....	6
1.3.3 PREPARING THE STRATEGY	7
2. VISION	9
2.1 STRATEGY GOAL STATEMENTS.....	10
2.2 STRATEGIC PLANNING PRINCIPLES	11
2.3 PLANNING PRECINCTS	12
3. AREA-WIDE PLANNING CONSIDERATIONS	13
3.1 RURAL INDUSTRIES.....	13
3.1.1 OVERVIEW	13
3.1.2 TRADITIONAL AGRICULTURAL ENTERPRISES	14
3.1.3 NEW AGRICULTURE ENTERPRISES	17
3.1.4 NON-AGRICULTURAL INDUSTRIES.....	22
3.2 ENVIRONMENTAL FEATURES AND SYSTEMS	29
3.2.1 OVERVIEW	29
3.2.2 NATURAL SETTING	29
3.2.3 NATURAL HAZARDS.....	32
3.2.4 CLIMATE CHANGE.....	33
3.2.5 TRANSPORT AND ACCESS	33
3.2.6 SOILS	33
3.2.7 WATER SUPPLIES	34
3.2.8 BIODIVERSITY.....	37
3.3 RURAL LIFESTYLE AND HERITAGE	46
3.3.1 OVERVIEW	46
3.3.2 HOUSING	48
3.3.3 HERITAGE	53

4. PRECINCT PLANNING GUIDELINES	59
4.1 PLANNING CONTROLS FRAMEWORK	60
4.2 PRECINCT 1	64
4.3 PRECINCT 2	66
4.4 PRECINCT 3	69
5. CONCLUSION AND NEXT STEPS	72

1. INTRODUCTION

1.1 OVERVIEW

In 2010, the NSW Government announced it would develop the Cobbora Coal Project, which was expected to produce coal over approximately 21 years. This supply was intended to meet State energy needs by providing ongoing resources to coal fired power stations in NSW. Between 2008 and 2014, Cobbora Holdings Company (CHC), which is owned by the NSW Government, purchased land within the Dunedoo district and water licenses to take from on-site sources and the Cudjegong River sufficient to develop an open cut coal mine.

In 2013, the NSW Government announced that it would lease or sell the Cobbora Coal Project. The Project was subsequently abandoned, and, in 2016, the NSW Government initiated a staged process for the private sale of CHC's assets. Sales proceedings were completed in 2016 for water assets and late 2017 for land assets.

In November 2016, Warrumbungle Shire Council, with funding from the NSW Department of Planning and Environment, engaged consultants to prepare a Land Use Planning Strategy for CHC's landholdings. The aim of the project is to identify a Strategy that allows for the future development of CHC's former landholdings in a manner that supports the re-population of the Dunedoo district by facilitating the delivery of local economic development and employment-generating initiatives.

This, Land Use Planning Strategy provides a planning framework for CHC's former landholdings that can facilitate the area to become a high-value rural industries precinct for the Dunedoo district. This Strategy recognises the opportunities afforded by the aggregation and management of the land by CHC since 2008, and the onward sale of the land to the private market between 2016-2017. Specific economic development initiatives would rely on private investment.

Once finalised, and adopted by Council, the Strategy will become an addendum to Council's LGA-wide Land Use Strategy and form the basis for strategic planning considerations within the Strategy Area. This could result in changes to Council's planning controls, including its LEP (e.g. land use zonings, minimum lot size standards, overlay mapping) or DCP. Specific actions will be set out in an Implementation Plan, which will accompany the finalised Strategy.

1.1.1 REPORT STRUCTURE

The remainder of this section sets out the context and background for the project. The Cobbora Land Use Planning Strategy is then presented in the following sections:

- Section 2 provides a Vision and guiding principles for the Strategy Area;
- Section 3 describes the area-wide planning considerations, which form the context for the Strategy; and
- Section 4 sets out location-specific guidelines for three distinct Precincts within the Strategy Area.
- Section 5 presents a brief conclusion and describes how the Strategy will operate, once adopted.

1.1.1 GEOGRAPHIC TERMS

Table 1 defines the geographic terms used throughout the Report to refer to specific areas. These areas are also shown on **Figure 1**.

Table 1: Geographic terms used in the Report

Term	Name / description	Boundary definition
Precinct	Indicative areas within the Strategy Area that present common features and desired planning outcomes.	Boundaries defined by consultant team.
Strategy Area	CHC landholdings within Warrumbungle Shire LGA	Boundaries provided by CHC Pty Ltd
District	Dunedoo	Boundaries sourced from ABS. SA1 areas for Dunedoo Township 1107405 and 1107426, and broader district 1107404
LGA	Warrumbungle Shire	Local Government Area (LGA) boundary, sourced from LPI.
Region	Orana	LGA boundaries sourced from LPI, including: Bogan, Coonamble, Dubbo Regional (formerly Dubbo City and Wellington), Gilgandra, Narromine, Warren, and Warrumbungle.
	Central West and Orana	LGA boundaries sourced from LPI, including Orana LGAs as well as: Bathurst, Blayney, Cabonne, Cowra, Forbes, Lachlan, Lithgow, Mid-Western Regional, Oberon, Orange, Parkes, and Weddin.

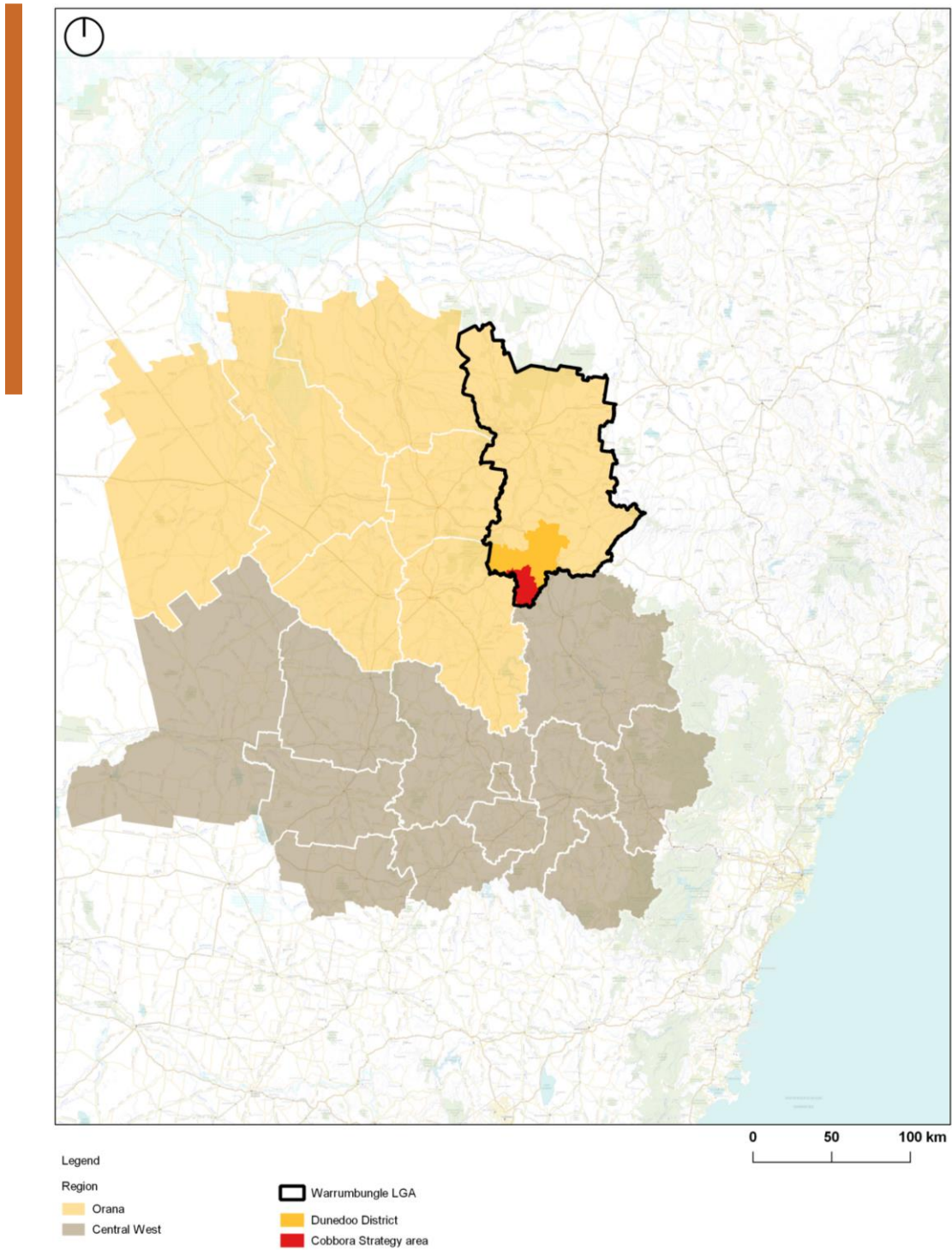


Figure 1: Regional context of the Cobbora Strategy area

1.2 CONTEXT

1.2.1 STRATEGY AREA DESCRIPTION

The Strategy Area is located along the Golden Highway, approximately 22km south-west of the Dunedoo township, 66km to the east of Dubbo, and 84km to the north of Mudgee.

Cobbora is situated at the convergence of the Brigalow Belt South and South Western Slopes biogeographic regions of Australia. Once a heavily forested landscape, lands across the broader area, including much of the Strategy Area, have been substantially cleared to accommodate agricultural activities over several generations.

Within the Strategy Area, naturally occurring surface water bodies, including Sandy Creek and Lahey's Creek, are predominantly tributaries to the Talbragar River.

No formal settlements are situated within the Strategy Area, but it does contain rural residences located within farming properties and lifestyle blocks. The nearest settlements (within 25km) are the small village of Cobbora and the town of Dunedoo.

1.2.2 HISTORY

The Wiradjuri people were the original inhabitants of the area. Evidence of their occupation is still apparent in the landscape today, particularly along river banks and creek lines.

European contact and pastoral settlement of the broader district began in the early-1800s. Cobbora developed at the crossing of the Talbragar River along the main route from Mudgee to Mendooran and was proclaimed a town in 1886. It served as the main centre for the area until the development of the railway diverted growth and investment to Dunedoo in the early 1900s.

Cattle and sheep farming have historically been the main drivers for agricultural development within the Strategy Area. Cropping for both fodder and grain has also been undertaken on those properties where soil has been deemed suitable.

In 2010, the NSW Government announced it would develop the Cobbora Coal Project, which was expected to produce coal over approximately 21 years. This supply was intended to meet State energy needs by providing ongoing resources to coal fired power stations in NSW.

Between 2008 and 2014, Cobbora Holdings Company (CHC), which is owned by the NSW Government, purchased sufficient water licenses and land within the Dunedoo district to develop an open cut coal mine. Some agricultural and residential uses continued following the acquisition of land through lease agreements offered by CHC.

In 2013, the NSW Government announced that it would lease or sell the Cobbora Coal Project. The Project was subsequently abandoned, and, in 2016, the NSW Government initiated a staged process for the private sale of CHC's assets, which concluded in 2017.



Figure 2: Summary of CHC acquisition and subsequent sales timeline

1.2.3 COBBORA COAL PROJECT

The acquisition of land in the Dunedoo district for the Cobbora Coal Project had an acute and ongoing impact on the local community. The acquisition process led several families to relocate, including to towns or villages outside the District. Land within the acquisition area was restructured for subsequent use via short-term farming and non-farming (residential) tenancies.

The agricultural landholding pattern, and variability in investment and farming practices both before and since the acquisition process, has influenced agricultural production value across the Strategy Area. New agricultural landowners will need to overcome an initial 'capital void' to establish sustainable enterprise models. Significant capital investment is expected to be required over many years to continue rehabilitating lands within the acquisition area and rebuild agricultural productivity.

1.3 COBBORA LAND USE PLANNING STRATEGY PROJECT

1.3.1 PROJECT PURPOSE AND OBJECTIVES

In November 2016, Warrumbungle Shire Council, with funding from the NSW Department of Planning and Environment, engaged consultants to prepare a Land Use Planning Strategy for CHC's landholdings. The aim of the project is to identify a Strategy that allows for the future development of CHC's former landholdings in a manner that supports the re-population of the Dunedoo district by facilitating the delivery of local economic development and employment-generating initiatives.

The core objectives of the project are to:

- Work with landholders within the Strategy Area and the existing broader community to support local business growth and locally-initiated economic development; and
- Identify priorities for attracting new business, particularly intensive agricultural uses.

1.3.2 ALIGNMENT WITH OTHER PLANNING INITIATIVES

The Warrumbungle Shire Local Environmental Plan (LEP) commenced in 2013. It represents the amalgamation of the former Coolah LEP 2000 and Coonabarabran LEP 1990, under the standardised LEP format. The LEP provisions, including mapped information, were generally a direct translation of historic LEPs into the new format. Specific provisions relating to the Strategy Area have not been substantially reviewed or updated since that time.

Council adopted the *Warrumbungle Shire Council Land Use Strategy* (Council's current strategy) in March 2013. This document provides guidance in reviewing and modifying planning controls, including Council's LEP. When it was prepared, Council anticipated that the Cobbora Coal Project was likely to be delivered within the strategy timeframe. Several of its directions to manage growth and change within the Dunedoo district were formulated around this assumption.

Pursuant to Local Planning Direction 5.1, planning proposals must generally be consistent with any applying regional strategy. The *Central West and Orana Regional Plan 2036* (Regional Plan), released by the NSW Government in 2017, is the applying regional strategy.

1.3.3 PREPARING THE STRATEGY

Council engaged City Plan Strategy and Development, in partnership with Aurora Research and Development in November 2016 to prepare this Strategy. The consultant team initiated the project by consulting with Council Officers and CHC, who provided relevant information and background studies from the Cobbora Coal Project application and facilitated a 1-day guided tour of the Strategy Area.

An open-invitation Public Workshop was held on 7th December 2016 in Dunedoo. This presented information about the project and sought feedback from attendees. It was attended by seven community members, and the main matters raised for consideration are presented in **Table 2**.

The consultant team subsequently collected and analysed additional information from State Agencies and Council officers and conducted targeted interviews to review the range of planning considerations presented in this Report.

A draft Strategy was publicly exhibited during August 2018, and finalised based on submissions received.

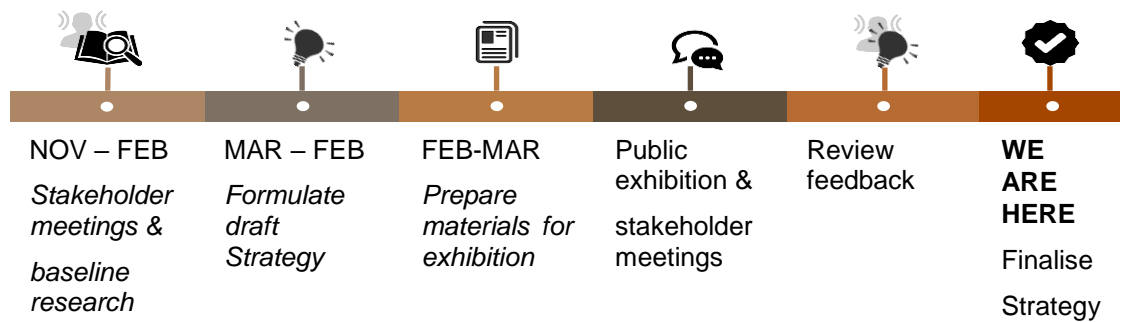


Figure 3: Project summary timeline

Table 2: Summary of matters raised at the Public Workshop

Strengths	Weaknesses	Consider
<p>Transport links (road and rail), within 5 hours of Sydney</p> <p>Attractive outlook - lifestyle, farm stays and farm experiences</p> <p>Tourism appeal</p> <p>Geopark / dark skies</p> <p>Well-known history</p> <p>Liverpool Range Windfarm</p> <p>People/community, noting:</p> <ul style="list-style-type: none"> Farmers Sporting legends <p>District well-served by</p> <ul style="list-style-type: none"> New retirement village Health services Public amenities/toilets Schools, including High School and TAFE, Recreational facilities and events (showground / function centre) 	<p>Soil capability (requires improvements)</p> <p>Water supply (seasonality)</p> <p>Local farming and road infrastructure</p> <p>Poor telecommunications / connectivity</p> <p>Power and gas (availability and cost)</p>	<p>New farming practices</p> <p>How to reduce costs (e.g. gas and electricity)</p> <p>Skilled labour / local talent</p> <p>How to reverse 10 years of little/no capital investment</p> <p>Recent meeting with RDA to consider tourism</p> <p>Opportunities for the racehorse industry</p> <p>Clean/green image</p>

2. VISION

The long-term vision statement for the Cobbora Strategy Area is:

Cobbora grows to become a high-value rural industries precinct for the Dunedoo district, adding diversity to the district's economy, supporting the regeneration of agricultural lands, and strengthening the district's identity within the broader region.

To achieve this, the Strategy has three long-term goals, to:

1. Facilitate the development of a rural industries precinct;
2. Support healthy and productive environmental systems; and
3. Maintain and, where possible, strengthen district-level community connections and the district's identity.

The Strategy is based on a series of Strategic Planning Principles, established to support the goals collectively. These Principles will form the basis for ongoing decision-making with respect to land use and development across the entire Strategy Area.

The Strategy also provides specific planning objectives and guidelines for three separate Precincts within the Strategy Area, which may be used as a strategic basis for property-based planning.

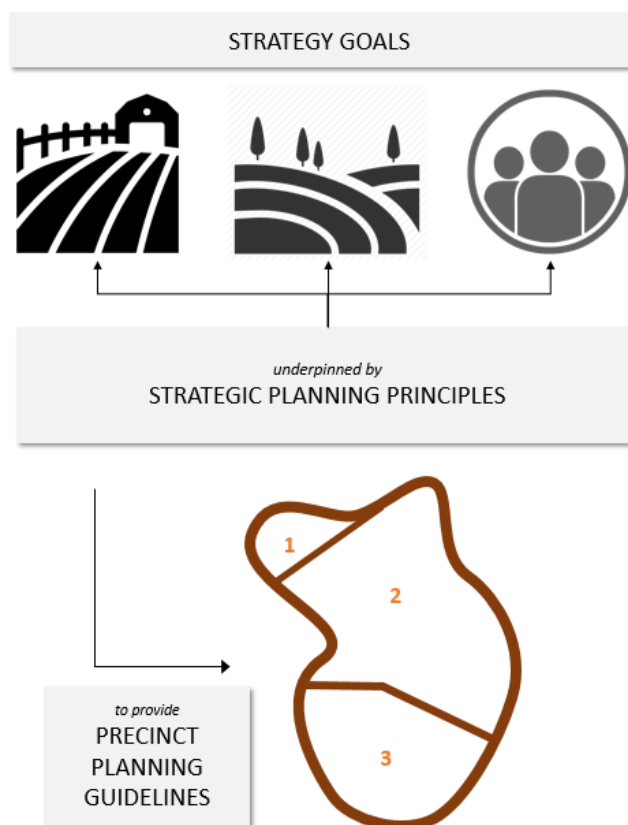


Figure 4: Strategy approach and structure

2.1 STRATEGY GOAL STATEMENTS

GOAL 1: ESTABLISH A RURAL INDUSTRIES PRECINCT

- Leverage off benefits of the Golden Highway, and existing agricultural strengths and expertise (e.g. new farming techniques, more diverse or niche products).
- Capture opportunities for emerging industries, including non-agricultural enterprises (e.g. bio Hub and renewable energy projects).
- Realise benefits locally - new jobs and connections to Dunedoo residents and businesses, new products applied and sold locally (e.g. fertilisers or energy from bio-hub, local-brand honey, Christmas Trees, etc.).

GOAL 2: SUPPORT HEALTHY AND PRODUCTIVE ENVIRONMENTAL SYSTEMS

- Recognise the environmental systems and natural resources that underpin agricultural productivity and rural lifestyle.
- Restore ecological functions disturbed by generations of agricultural activities.
- Share water resources in a balanced manner, to promote healthy environments and sustainable rural enterprises.
- Establish new partnerships and techniques in managing land and conserving resources.

GOAL 3: SUPPORT COMMUNITY CONNECTIONS AND IDENTITY

- Raise the profile of the Dunedoo 'brand', by promoting unique local products and services.
- Promote the area's historic and cultural values to residents and visitors.
- Maintain and grow local skills base, continuing traditions of inter-generational enterprises.

2.2 STRATEGIC PLANNING PRINCIPLES

Five strategic planning principles underpin this Strategy. These principles, described in **Table 3**, have been established to support the long-term goals for using and developing land at Cobbora. Further context and considerations for planning for the whole of the Strategy Area are provided in **Section 3**.

Table 3: Planning principles that underpin the Strategy

PLANNING PRINCIPLE	STRATEGY RESPONSE
Prioritise the protection of lands and natural resources that are important to local agricultural pursuits.	<p>Define locally important agricultural pursuits, and identify lands suitable to accommodate these, and avoid fragmentation of these areas.</p> <p>Recognise and prioritise the distinct needs of agricultural industries considered highly suitable to the area when reviewing the potential for land use conflict.</p> <p>Provide appropriate segregation to incompatible land uses, prioritising existing industries' right to farm.</p>
Encourage complementary rural industries to co-locate.	<p>Define an area suitable for the long-term establishment of new rural industries, making efficient use of existing infrastructure, including roads, energy and water.</p> <p>Accommodate non-agricultural industries where these are compatible with surrounding agricultural or environmental objectives.</p> <p>Provide appropriate segregation to incompatible land uses.</p>
Facilitate limited opportunities for rural living and visitor accommodation in appropriate locations.	<p>Recognise existing rural lifestyle blocks, and discourage incompatible land uses within or surrounding these.</p> <p>Discourage new residential development or subdivision in areas identified as important for locally important agriculture or other rural industries.</p> <p>Recognise the influence of rural subdivision within the broader area on water supply, prioritising the long-term feasibility of rural industry pursuits.</p>
Recognise and protect features that reflect the district's heritage and character.	<p>Identify features that reflect the area's agricultural settlement and historic communities and encourage these to be protected or adaptively re-used.</p> <p>Identify areas that may be significant to Aboriginal cultural heritage areas to inform ongoing planning and management.</p>
Protect the Strategy Area's natural environmental features and systems.	<p>Identify conservation priorities to protect or improve existing environmental features and systems, including considerations for biodiversity and water quality.</p> <p>Identify the preferred location of wildlife corridors that can provide habitat connectivity and wildlife movement across the broader landscape to inform ongoing planning and management.</p>

2.3 PLANNING PRECINCTS

The Strategy Area contains three distinct areas that can contribute to the overall vision in its own way. These areas are referred to as Planning Precincts throughout the Strategy.

The purpose of identifying Planning Precincts is to clearly establish desired outcomes that can be achieved by place-specific planning rules. These will be used to consider, for example, where changes to Council's planning rules as set out in the LEP or DCP may be required to encourage new land uses or forms of development.

The boundaries of the Planning Precincts are illustrated in **Figure 5**, with precinct-specific considerations set out in **Section 4**.

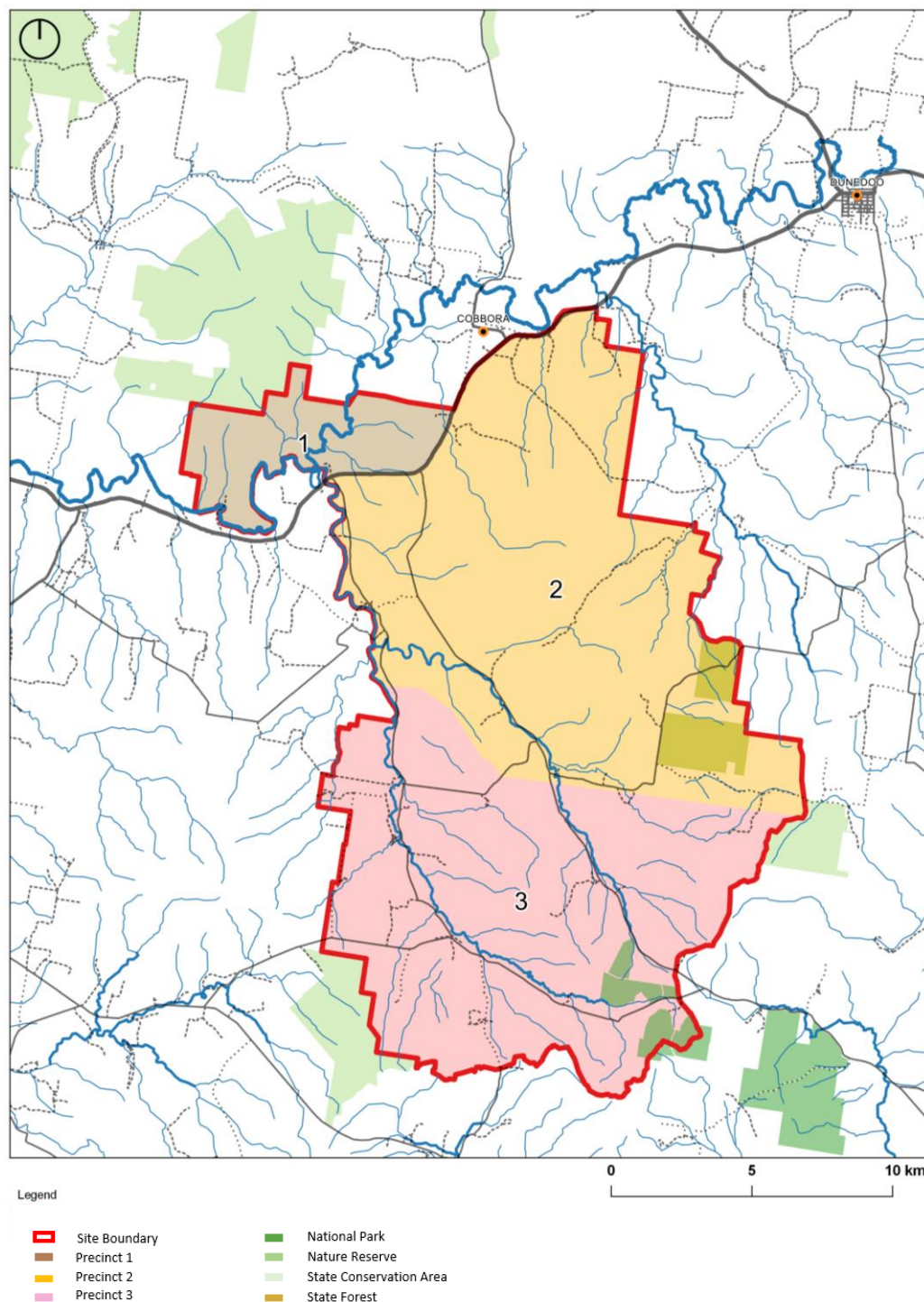


Figure 5: Planning Precinct boundaries

3. AREA-WIDE PLANNING CONSIDERATIONS

This Section of the Strategy describes planning considerations relevant to the entire Strategy Area. These specifically consider the Strategy Area's attributes relative to its context within the broader Dunedoo district and Orana region, focusing on:

- The suitability of the Strategy Area as a location for Rural Industries, as a basis for supporting a Rural Industries Precinct (Strategy Goal 1) in Section 3.1;
- The Strategy Area's unique environmental features, as a basis for protecting these through future planning (Strategy Goal 2) in Section 3.2; and
- The Strategy Area's relevance to rural lifestyles and heritage, as a basis for strengthening community identity (Strategy Goal 3) in Section 3.3.

3.1 RURAL INDUSTRIES

3.1.1 OVERVIEW

The Strategy aims to establish a multi-use, multi-user Rural Industries Precinct at Cobbora. This recognises that the whole of the Strategy Area offers several strategic advantages for agriculture and other rural industries, being:

- Close to economic markets and skilled labour in major regional centres at Dubbo and Mudgee, as well as the district centre at Dunedoo;
- Situated on Golden Highway, which affords convenient transport links and already provides a high-level of through-traffic; and
- A potential long-term beneficiary of Australia's national inland rail network, with stations proposed at Gwabegar or Narrabri, both around 200km by road.

Planning considerations outlined below provide a basis for supporting and improving the traditional agricultural activities already occurring across the Strategy Area. These include winter cropping, and livestock grazing to support wool and meat production. Considerations recognise the challenges facing the ongoing success of existing enterprises, which have been compounded by around a decade of little to no investment in farm improvements.

The Strategy aims to encourage the establishment of new agricultural activities, specifically recognising the Strategy Area's potential to accommodate enterprises associated with bee and honey production, chicken egg production, a more diverse range of meat products, and forestry or other plantations. Specific considerations in relation to each of these sectors are provided below.

The Strategy also aims to accommodate non-agricultural industries in suitable locations and circumstances. This recognises the advantages of, and opportunities to diversify on-farm income, facilitate alternative endeavours to drive economic development and employment, or otherwise raise the profile of the broader Dunedoo district.

The Strategy identifies Precinct 2 as the most suitable location for accommodating more diverse and intense rural industry activities, as discussed in **Section 4**. However, this should not preclude new development from occurring in suitable locations throughout the Strategy Area.

The range of industries considered in preparing the Strategy are not intended to be prescriptive or exhaustive. They do reflect a broad and realistic range of activities that may occur, subject to market demand, to provide a basis for anticipating the types of issues that may arise in establishing a Rural Industries Precinct at Cobbora.

Table 4: Land uses considered suitable for Cobbora's Rural Industries Precinct

Continue to support	Aim to encourage	Also allow for
Winter cropping	Bee and honey production	Waste receipt & processing
Livestock grazing	Chicken egg production	Renewable energy
Quarrying & non-coal mining	More diverse meat products	Rural tourism
	Private forestry & plantations	Other suitable opportunities

3.1.2 TRADITIONAL AGRICULTURAL ENTERPRISES

Agriculture is a major economic driver for the Central West and Orana region, and provides around 10% of the region's workforce¹. Broadacre cropping, livestock production (for meat and wool), and cotton collectively account for 90 percent of the region's Gross Value of Agricultural Production (GVAP). Horticulture is also an important sector for the region due to its high GVAP per hectare.

A recent study undertaken on behalf of the Department of Planning and Environment² considers the whole of the Strategy Area to be suitable for some form of agricultural production of regional significance, as illustrated on **Figure 6**. Of the regional agricultural drivers, the Strategy Area is predominantly suitable for sheepmeat and wool production, and broadacre cropping. Small pockets, towards the south of the Strategy Area, may also be suitable for horticulture should sufficient water supplies become available.

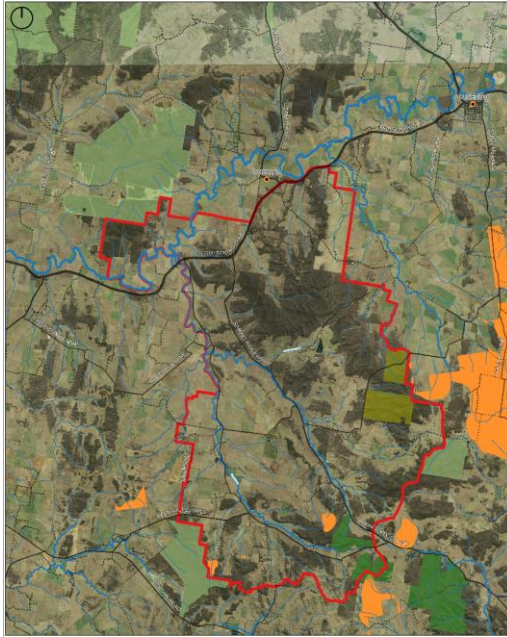
Prior to land being acquired for the Cobbora Coal Project, the Strategy Area was used for traditional farming activities, such as sheep grazing, cattle grazing, feed stock cropping (e.g. wheat and oats), and winter cereal cropping (canola, wheat, pulses and barley). Commercial farms were generally operated by multi-generational family farmers, living on homesteads within the Strategy Area. Smaller lifestyle blocks, situated toward the southern part of the Strategy Area, may also have accommodated hobby farming.

Two piggeries previously operated near the Strategy Area, at Yallambee and Danabar. The Danabar piggery was operational prior to acquisition for the Cobbora Coal Project. Both were situated close to the Golden Highway, on properties fronting waterways. This demonstrates that the Strategy Area could theoretically accommodate intensive agricultural activities. The commercial considerations relating to this are discussed later in the Strategy.

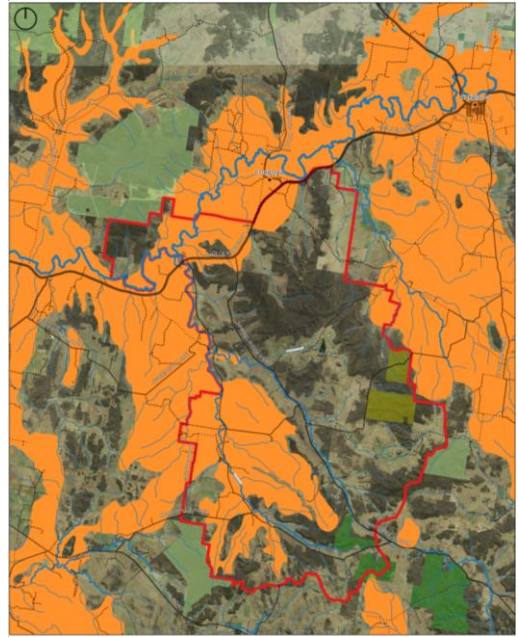
¹ RMCG (2016) on behalf of the NSW Department of Planning and Environment. *Central West & Orana Agricultural Industries*. Available online.

² RMCG (2016) on behalf of the NSW Department of Planning and Environment. *Agricultural Land and Industry Development Strategy: Agricultural Land Mapping*. Report and data provided to CPSD by the NSW Department of Planning and Environment.

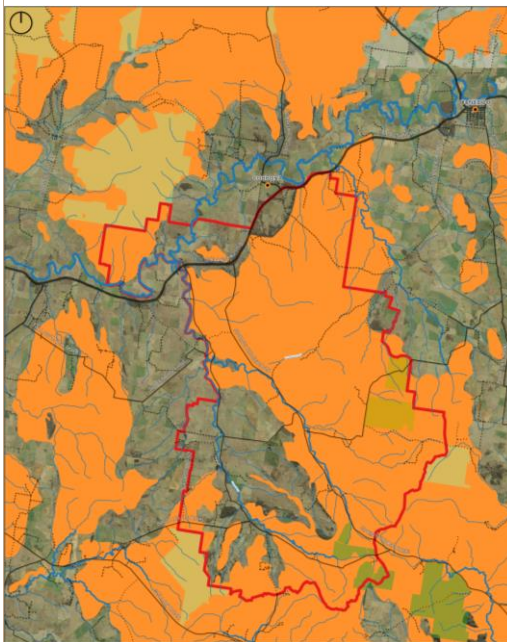
Land considered suitable for:



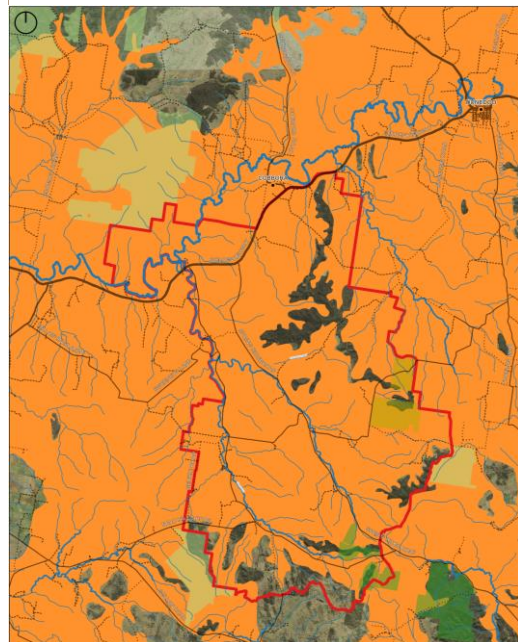
Horticulture



Cropping



Medium and fine wool



Coarse wool and sheepmeat

Figure 6: Suitability of land for regionally significant agricultural activities (Source data provided by NSW Department of Planning and Environment)

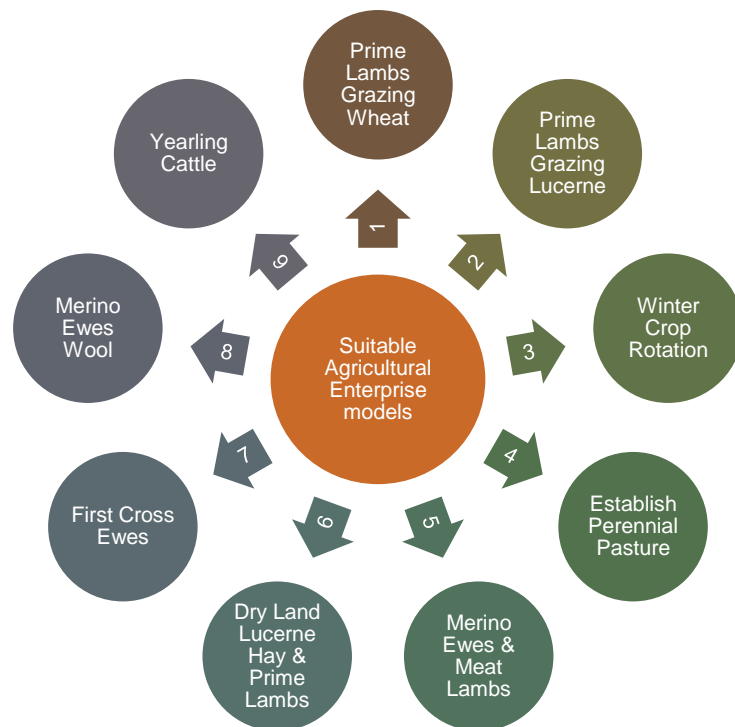


Figure 7: Nine agricultural enterprise models forming the basis for current activities at Cobbora (Source: Aurora R+D³)

In preparing its Integrated Land Management Plan, CHC identified nine traditional agricultural enterprise models that suited the Strategy Area's land capability. These are illustrated in **Figure 7**, and are generally listed in order of estimated gross profit margins based on crop yield and stocking ratings for an average rainfall season of 650mm/year within the region.

These nine traditional enterprise models are either already being undertaken or are anticipated to be most likely to be established within the Strategy Area during the early years of the Strategy. They formed the basis for the farming licence scheme that has underpinned farming activities within the Strategy Area since around 2008. They also formed the basis for the staged sale of CHC landholdings during 2016-2017 and, therefore, the likely future landholding pattern.

Around two-thirds of the Strategy Area is currently used for some form of agricultural activity. Most of this is for grazing (cattle and sheep), and grazing areas are mostly native grass (red grass), with some remnant perennial pasture such as lucerne, tall fescue and phalaris. Around 8 per cent of the Strategy Area is estimated to be used strictly for cropping, with the balance generally characterised by dense woodland occurring across less fertile rock outcrops along low hills and ridges.

Despite being a well-established agricultural area, the overall productivity of existing agricultural enterprises across the Strategy Area has, in recent years, generally been below average (EMM, 2014). This is attributed to a range of factors, summarised below:

- The extended drought between 2007-2012 followed by above average rainfall in 2012-2013 led to an increase in summer weeds, which have not been subsequently eradicated;

³ Information adapted from EMM (2014) on behalf of Cobbora Holdings Company Ltd. *Cobbora Coal Project: Integrated Land Management Plan*.

- Current farming enterprises are small by modern standards, which reduces economies of scale and limits the scope for re-investment in land and pasture management;
- The short-term nature of agricultural licenses issued by CHC, based on the expected start of coal production, influenced the extent to which some tenants invested in pasture improvements; and
- Variability in land management practices both before and after acquisition.

Several other Strategy Area-specific factors will influence enterprise profitability, and employment. These factors include:

- The deterioration of farming infrastructure, such as sheep and cattle yards, silos and grain storage across some properties;
- The degradation of other property assets, including housing;
- The lack of operational assets such as sheds and livestock handling equipment, which were removed by previous owners; and
- The high degree of variability in farm management practices in recent years, with respect to weed control, water infrastructure, fertiliser and pasture improvement.

Supporting sustainable and profitable enterprises will rely on enabling farmers to do one, or any of the following:

- Reduce costs associated with re-establishing and re-building agricultural assets, including improvements to the land and farming infrastructure;
- Increase the value of their product; and
- Diversify on-farm income streams.

3.1.3 NEW AGRICULTURE ENTERPRISES

The Strategy Area has the potential to accommodate several new agricultural enterprises, including intensive farming, in future. Four large-scale industries are considered to be highly suited to the Strategy Area and offer opportunities to establish and strengthen a local brand identity for the area. These are:

- Bees and honey (apiculture);
- A more diverse range of meat production enterprises;
- Chicken egg production; and
- Forestry and other plantations.

These uses are already permissible within the statutory planning framework but may benefit from adjustments to current planning controls to facilitate more commercially feasible agricultural operations.

The Strategy does not seek to encourage the creation of additional lifestyle lots. However, existing lifestyle blocks may be suitable for accommodating niche projects or hobby farms that can serve the local market. This could include models that do not rely on high quality soils or water supplies, such as small-scale hydroponic projects, semi-intensive meat or egg production enterprises, or similar.

Encouraging initiatives that support the specific needs of these industries, as discussed below, will assist in growing a vibrant and sustainable Rural Industries Precinct. This includes recognising that the Precinct is likely to form as a collection of smaller enterprises, either operating alone or small cooperatives, which would benefit from the coordinated provision of infrastructure and services for:

- Water supply;
- Freight and logistics; and
- Branding / marketing.

Bees and Honey (Apiculture)

Australia produces 20,000-30,000 tonnes per annum of honey, depending on rainfall and environmental conditions. The beekeeping industry contributes more than \$94 million to the national Gross Value Product (GVP). However, the most important role for bees is providing critical pollination services to agricultural producers. It is estimated that between \$4-6 billion of the GVP is dependent on bee pollination. Legume species and clovers in improved pasture grazing systems rely heavily on bee pollination, as does cotton, fruit, vegetable and nut crops.

NSW already produces 40-45% of the honey produced in Australia, and has the highest number of registered Apiarists and bee hives. The State's beekeeping industry contributes around 38% of Australia's total GVP associated with beekeeping. The NSW Government is currently developing a whole-of-government policy framework for the management of apiary Strategy Areas on public lands, including State forests, travelling stock reserves and National Parks.

The global success of New Zealand's Manuka medi-honey products is often highlighted as a future opportunity for Australian honey production. This anti-bacterial honey has been highly effective in treating skin ulcers and wounds, especially those resistant to mainstream treatment and has led to the development of specific honey-infused wound dressings and products. The success of the Medi-honey range of products around the globe means that NZ is unlikely to be able to meet the demand for bio-active medicinal grade honey into the future.

Manuka honey is a specialised product, reliant on pollen of the *Leptospermum scoparium* shrub (a form of tea tree). There are over 80 species of *Leptospermum* native to Australia, and a study is currently underway to determine which species produce the most bio-active honey and where they can be cultivated⁴. Results have been highly encouraging to date, with *Leptospermum polygalifolium* showing exceptionally high levels of bio-active compounds (up to 8 times more than levels found in New Zealand Manuka honey)⁵. The potential of this honey to treat antibiotic resistant bacterial infections is considered highly significant.

Leptospermum are highly tolerant of the degraded and low nutrient soils, prolonged dry conditions, and flood-prone characteristics of the Cobbora Strategy Area, and several species, including *Leptospermum polygalifolium* has already been recorded on public lands within the district, as illustrated in **Figure 8**. Unpalatable to sheep, kangaroos, wallabies and possums, these plants are ideal for plantations, and could form part of a mixed farming system.

The current strength and future growth potential of NSW's apiculture industry is also expected to provide a platform for bee-related tourism. This could include farmgate or main street initiatives, as well as farm-based experiences.

In summary, apiculture is considered a highly suitable industry for Cobbora, as it:

- **Mutually benefits agricultural production.** Crops and improved pasture that are already available within the Strategy Area, such as lucerne, white clover and canola, provide the highly nutritional pollen required for bee health, and the bee pollination services can increase crop productivity.
- **Is readily compatible with sheep grazing.** Graziers adding *Leptospermum* plantations (e.g. as shelter belts) would diversify their income stream without excluding prime lamb production, providing a greater return per hectare. If rolled out at the district-level, this type of initiative could establish a medicinal honey industry of regional significance.
- **Addresses issues of seasonality.** The flora available within nearby State forests, conservation areas, and other heavily forested areas would support year-round honey production, providing a more stable income stream for farmers.

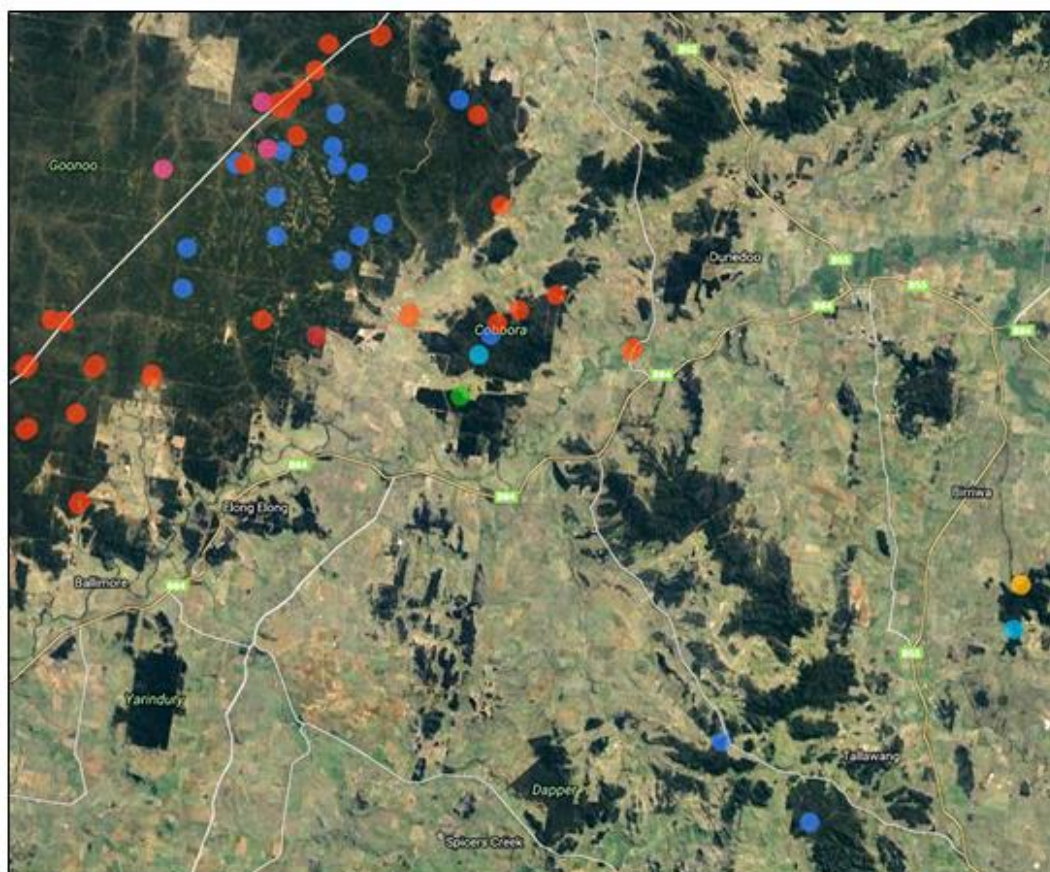
⁴ The University of Technology Sydney is leading the Oz Honey Project, as part of the Australian Government's Rural Industries Research and Development Corporation's Honey Bee & Pollination research program. The 5-year project is due for completion in 2019. More information is available online at <https://ozhoneyproject.wordpress.com/>

⁵ <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0167780>

- **Provides opportunities for value-add activities within the district.** At minimum, these could include local tourism, hospitality or retail initiatives such as selling locally-branded honey in shops and cafes in Dunedoo. It may also offer opportunities for commercial-scale honey bottling and distribution facilities.

Future planning should recognise industry-specific considerations, including:

- Hives cannot be exposed to pesticides or other toxins commonly used in modern, broadacre agriculture.
- Hives must be situated close to permanent water sources, or have access to water supplies in hot, dry conditions.
- Bee access to native flowering flora and uncultivated public lands is critical to maintain adequate nutrition on which honey production relies.



- | | |
|--------------------------------------|-----------------------------------|
| ● <i>Leptospermum (unspecified)</i> | ● <i>Leptospermum parvifolium</i> |
| ● <i>Leptospermum trinervium</i> | ● <i>Leptospermum divaricatum</i> |
| ● <i>Leptospermum polygalifolium</i> | |

Figure 8: Recorded occurrences of *Leptospermum* species within vicinity of the Strategy Area (Source: <http://spatial.ala.org.au/>)

Meat production

Australia is an internationally recognised producer of commercial livestock, and is a world-leader in the export of meat and livestock. The commercial production of cattle, sheep and goats for live export is already well-established in NSW. Domestically, demand for fresh meat, including lamb, mutton, pork, and chicken, is also increasing.

Transport to suitable export or meat processing facilities is a considerable cost factor for any enterprise. **Table 5** summarises processing facilities that are currently available relative to Cobbora. This illustrates that the Strategy Area is already accessible to sheep, lamb, goat and chicken processing facilities serving local, domestic and export markets. Despite previously accommodating piggeries, there are currently limited options for pork meat to be processed and packaged in a cost-effective manner.

Table 5: Summary of accessible meat processing facilities currently operating (Source: CPSD)

Location	Products	Market
Dubbo 45 min by road	Lamb, sheep	Export
Mudgee 60 min by road	Beef, lamb, goat	Export
Gilgandra 60 min by road	Chicken	Local
Binnaway 90 min by road	Sheep, goat	Export
Scone 2.5 hours by road	Beef, sheep, offal	Export
Cowra 2.5 hours by road	Beef, pork, lamb	Domestic
Wollondilly 5 hours by road	Pork	Domestic
Corowa 6.5 hours by road	Pork	Export
Frederickton 6.5 hours by road	Pork	Domestic

The Strategy Area offers immediate opportunities to leverage off existing enterprises and nearby facilities to accommodate chicken farms, goat farms, or specialty sheep breeds, as described in the case studies below. It may also be a suitable location for new enterprises in emerging or niche products. Supporting the development of specialty breeds and niche products through local networks, such as demand farming for residents and the local hospitality industry, would also assist in strengthening the district's identity and brand.

In summary, Cobbora is considered highly suitable to accommodating a more diverse range of meat production enterprises, noting:

- The area is currently a low biosecurity risk due to the lack of other intensive animal industries and its relative isolation;
- Any enterprise will be dependent on secure access to quality water supplies to support animal health;
- Immediate opportunities exist for chicken farms, goat farms, or specialty sheep breeds;

- Other opportunities may be available for emerging or niche products, subject to processing arrangements being secured in nearby facilities; and
- Opportunities for piggeries may improve over the longer-term, subject to improved access to processing facilities, including via inland rail.

Chicken eggs

In Australia, the chicken layer industry, or egg industry, is an important intensive animal production system. Chicken egg is considered as an alternative source of protein to meat. Eggs and egg products have traditionally been, and still are, a popular part of the human diet. This continues to support strong growth within the egg industry to meet rising demands, with Australians currently consuming around 200 eggs per year/person.

Several factors influence the lay-rate, including heat stress and nutrition. Traditional poultry farming, including semi-intensive and intensive models of egg production, relied on permanent structures to house large volumes of birds, control factors influencing lay-rates, and protect birds from predators.

Over the past five years, there has been increasing demand for free range and organic eggs, as consumers become more aware of animal welfare and human health concerns. This model relies on more mobile poultry housing options, to assist with managing the environment and pasture available to the birds.

Unlike the chicken meat industry, egg producers are less reliant on off-Strategy Area processing facilities. Small farms will be able to clean and package their own eggs on Strategy Area, provided they adhere to regulations and food safety standards. All producers will require access to cold storage facilities, and may also require refrigerated transport. A consolidated facility offering these services may assist in supporting several enterprises at a precinct-level.

Cobbora is considered highly suitable for accommodating chicken egg production enterprises, noting:

- Any egg production enterprise will benefit from being situated close to the source of feed ingredients grown within the Strategy Area, especially wheat; and
- Free-range egg production may be readily incorporated into mixed farming models.

Private forestry and plantations

The NSW Government set out a Forestry Industry Roadmap in 2016⁶. This anticipates demand for forest products in Australia will increase by over 40% over the next 25 years. It provides a framework to modernise the industry, which will include reviewing and updating existing industry regulations.

Forestry is already an established use within the Strategy Area, with 870ha of land at the Tuckland State Forest managed for conservation and the supply of hardwood. The Strategy Area is well-suited to the establishment of private forests or other plantations that may be used commercially. This could occur as a standalone enterprise or as part of a farm forestry model, with plantations established as windbreaks or tree lines. The Strategy Area is close to existing sawmills, serving domestic and export markets at Baradine (2 hours by road), Condobolin (3 hours by road) and Narrandera (5 hours by road).

As well as forestry, the Strategy Area may also be suitable for other types of plantations that could offer products direct to market, such as nurseries, or as an on-Strategy Area experience. Forests and other plantations also have the potential to support other activities associated with, for example:

- Bioenergy and the carbon economy;

⁶ Available online at <https://www.nsw.gov.au/news-and-events/news/nsw-forestry-industry-roadmap/>

- Agricultural or mineral production, such as livestock grazing, mushrooming, apiary (bee and honey production), or quarrying; or
- Tourism and recreation, such as educational or adventure experiences, camping, hunting or orienteering.

The area is best-suited to plantations of drought-tolerant species, such as cypress or pine. Specific considerations for these species are provided in the case studies below.

Case study: Cypress

Cypress is an aromatic softwood. It is highly durable, and resistant to termite, borer and fungal attack, which makes it ideal for structural building products, cladding, flooring and furniture. The bark also produces a resin called Sadrac which is used in pharmaceuticals and confectionary.

State forests have been actively managed with silviculture practices for nearly a century to improve cypress timber resource values. However, cypress stands on private land has generally been neglected, leading to the formation of dense stands that exclude all other species of flora and reduce grazing opportunity for livestock. This has led to the perception that cypress is an invasive weed, rather than a resource.

Cypress is endemic to the area around Cobbora. It is highly adaptable to climatic change and can regenerate in a variety of conditions, including drought. Provided livestock grazing and other disturbances are appropriately managed, cypress can provide economic and environmental returns into the future.

3.1.4 NON-AGRICULTURAL INDUSTRIES

Cobbora may also be a suitable location for several other non-agricultural industries that rely on rural and natural lands. These should be accommodated where they do not otherwise compromise the agricultural or conservation objectives outlined in the Strategy.

The Strategy Area already accommodates several non-coal mineral extraction activities. These generally serve the local construction and manufacturing industry and are expected to continue.

The Strategy Area's characteristics and context also make it highly suitable for industries such as:

- Waste receipt and processing;
- Renewable energy generation; and
- Rural tourism.

These may be provided as stand-alone enterprises, or incorporated into mixed-use models, including in association with agricultural production.

Quarrying and non-coal mining

The production of mineral resources is important to the State and Regional economies. The production of coal, for export and domestic purposes, is expected to continue being a major driver for investment and employment in regional areas across NSW. Coal seam gas production is an emerging market within the State, with a major project proposed around 250km north of the Strategy Area at Narrabri. At a regional-level, the production of construction and industrial materials also provides a cost-effective resource base for local businesses.

Extractive activities have the potential to generate noise, dust and vibration that may not be compatible with many agricultural uses. Extractive techniques also generally rely on a secure supply of significant volumes of water. Identifying where mineral resource deposits are likely to result in extractive activities and considering potential conflicts with current or likely future uses, is an important planning consideration for Cobbora.

Although the Cobbora Coal Project has been abandoned, a large deposit of coal remains within the Strategy Area. **Figure 9** shows the application boundary of the Cobbora Coal Project, along with the extent of the void proposed. This gives a reasonable indication of the area that would most likely be disturbed if this deposit is ever reconsidered for production in future.

The approval of the Cobbora Coal Project under Section 75J of the EP&A Act⁷ is expected to lapse in 2019, noting that the project never commenced, and the land is currently being sold. The likelihood of another coal mine project occurring within the Strategy Area in the lifetime of this plan is considered low, noting the coal exploration license affecting most of the Strategy Area is a Government-held title⁸. This recognises the NSW Government's view that a coal mine in this location currently unviable, and the global trend away from fossil-fuel based energy production.

The Strategy Area is also partially affected by a petroleum / coal seam gas exploration license held by a private company⁹. The productive value of petroleum or coal seam gas resources within the Strategy Area is currently unknown. The likelihood of petroleum or coal seam gas production occurring within the Strategy Area during the lifetime of this plan is considered low to moderate, as the industry is still an emerging market in NSW.

Figure 9 illustrates that the Strategy Area has been a source of construction materials, clays (kaolin), and metallic minerals (gold). Other metallic minerals, including copper, silver, zinc and lead, as well as industrial minerals such as limestone, marble, caliche, travertine and calcrete, have also been produced nearby. The likelihood of major mining or quarrying occurring within the Strategy Area is considered low to moderate, noting no mineral exploration licenses currently apply to any substantial extent, and major construction materials quarries tend to be located close to larger urban centres, such as Dubbo.

The Strategy assumes that the extractive activities most likely to occur within the Strategy Area are the intermittent production of clay or construction materials such as fill soils or gravel from locations where they are easily transported via the Golden Highway. These types of activities are not considered to pose a significant risk to the future development of a rural industries precinct, and may assist in providing construction materials for local developments.

⁷ Application no. 10_0001, granted in 2014, identifies that the project approval will lapse within 5 years, if not physically commenced.

⁸ Coal exploration licence no. EL6093, issued under the *Mining Act 1992*, is held by the Secretary NSW Department of Industry on behalf of the Crown. It was last renewed in 2013 and will be due for renewal again in 2024.

⁹ Petroleum exploration licence no. PEL433, issued under the *Petroleum (Onshore) Act 1991*, is held by Santos NSW Pty Ltd, and is currently being considered for renewal.

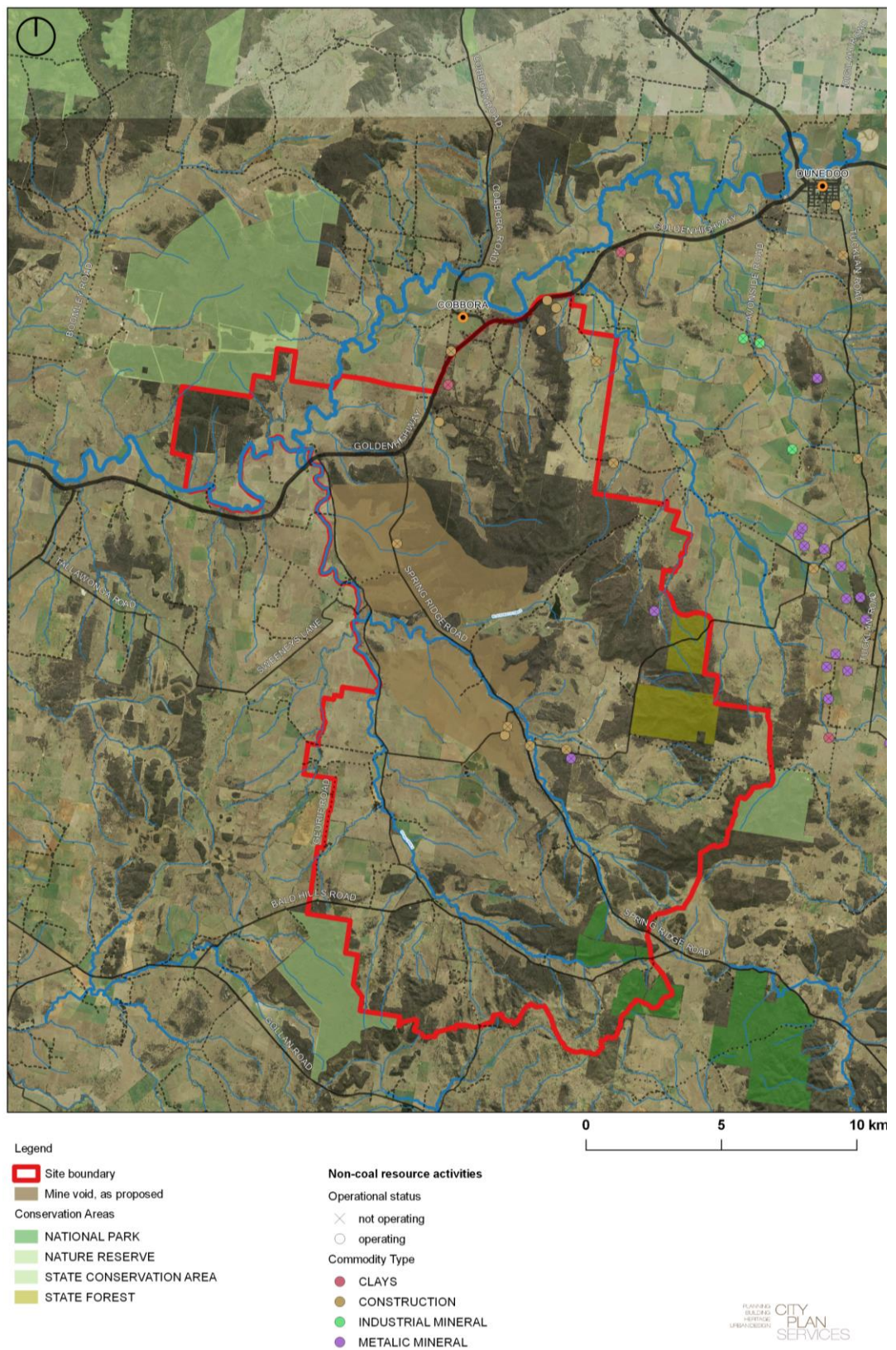


Figure 9: Overview of mineral resources, showing known deposits (Source: NSW Mineral Occurrence Database)

Waste receipt and processing

Waste generation is generally increasing at a national-level, leading to greater demands for waste collection, disposal, and resource recovery. This has created a platform for new, more advanced technologies to emerge, providing mechanisms for waste materials to be processed into value-add products.

The Strategy Area's relatively isolated, yet conveniently accessible location make it highly suitable for waste receipt and or advanced technology processing facilities.

The Strategy Area already offers direct access to the Golden Highway, which is the main trunk road connecting the Central West and Hunter regions. Land uses within this catchment would provide diverse potential waste inputs. These may include municipal or industrial waste, as well as agricultural, forestry or mining-related by-products. In future, the Strategy Area is expected to benefit from connections via Australia's inland rail network. This would further expand the potential catchment for receipt of waste inputs, or sale of value-add products.

There are opportunities for development within the Strategy Area to leverage off initiatives that are already underway within the broader Region. These are considered in the case studies provided below for BioHubs and tyre recycling facilities.

The Strategy Area would be a highly suitable location for a BioHub, as part of the growing network within Orana, either as a satellite or stand-alone facility. It has the potential to generate inputs on-Strategy Area, including through the clearing of invasive vegetation on agricultural lands, which will be required to support more productive agricultural pursuits. The Strategy Area would also continue to generate forestry and agricultural by-products through ongoing operations.

Further opportunities for BioHub inputs could be made available through, for example, Local Government initiatives that provide for the collection of organic municipal waste. The Strategy Area has the potential to service household collections within the Warrumbungle Shire, Upper Hunter Shire, Mid-Western Regional, Dubbo and Gilgandra Local Government Areas, subject to joint agreements.

Other market-driven opportunities may emerge for advanced technology waste processing facilities, like the example provided for tyre recycling. These would need to be considered on a case-by-case basis to determine compatibility with surrounding uses, either within the Rural Industries Precinct area, or elsewhere within the Strategy Area.

Case study: BioHubs

A **BioHub** is a facility that processes organic wastes and residues, such as urban wastes and forestry or agricultural by-products, including animal wastes and crop residues, into value-add products. End-products, including fertilisers or other soil ameliorants, and bioenergy, can be used on-Strategy Area or sold on.

Within the region: Orana BioHub network

Regional Development Australia (RDA) is currently working with stakeholders to establish a network of BioHubs within the Orana Region.

To date, RDA has completed a series of pre-feasibility studies that have considered BioHubs in two locations, at Cobar and Dubbo. These reviewed the availability of inputs and demand for outputs relevant to each location. A summary of the study findings is provided below.

- For the Cobar BioHub:
 - Inputs would predominantly be forestry residues and wastes, and invasive native scrub.
 - High value timbers would be separated and diverted for sale, and essential oils may be extracted from some products prior to processing.
 - Processing would produce reductants (charcoals) and biochar for industrial applications.
- For the Dubbo BioHub:
 - Inputs would include crop residues, animal wastes, and potentially organic waste diverted from landfill.
 - The main product would be biochar, which will be further utilised to make "prescription" fertilisers.
- Both BioHubs can generate sufficient energy to operate, and surplus energy may be sold on in the form of steam, syngas or electricity.
- Each BioHub has the potential to create between 30-40 positions for skilled operators.
- Facilities could be operational within 3-5 years, subject to funding and necessary approvals.

Source: www.rdaorana.org.au

Case study: New methods in tyre recycling

Destructive distillation is emerging as a sustainable method for recycling end-of-life tyres, including agricultural and off-the-road tyres. The advanced technology processes tyres by applying continuous heat and pressure. The low-emissions process is also highly efficient, utilising 100% of the tyre to produce value-add products including:

- Reclaimed steel, which is removed early in the process and can be redirected for sale;
- Excess oils, which can be reclaimed and refined to produce diesel fuel;
- Carbon residues, which have industrial applications.

A single tyre recycling facility can also support a dispersed supply chain network, including tyre testing and repair outlets, as well as storage and logistics facilities.

Within the region: Green Distillation Technologies, Warren NSW

Green Distillation Technologies (GDT), headquartered in Victoria, established a pilot Green Tyre Recycling Plant at Warren, NSW in 2009. After proving the technology works, they have recently invested \$8million to upgrade facilities on their 21ha Strategy Area, and have plans for six more plants around Australia.

GDT's plant at Warren benefits from its location on the Oxley Highway, which is the main trunk route between Brisbane and Melbourne. Tyres are transported to the plant by road or rail. The company estimates that, at full capacity, the plant will be capable of processing 19,000 tonnes, or 3% of the end-of-life tyres generated in Australia per year.

Sources: www.gdtc6.com

Renewable energy

The renewable energy sector is an emerging industry in NSW. Growth in this industry will assist the State to provide more secure and affordable energy supplies for residents and businesses. Commercial projects generally rely on rural lands to achieve economies of scale, and benefit from being close to existing transmission infrastructure. Once established, solar and wind projects can also accommodate long-term agricultural activities, including livestock grazing, which can contribute to vegetation management requirements.

The Geological Survey of NSW maps released in 2016 identify that the Strategy Area has strong potential to support bioenergy, wind and solar projects¹⁰. The Strategy Area is also located relatively close to the transmission grid, with a high-voltage (330kV) transmission line located less than 30km to the south of the Strategy Area.

Several projects have already been established or are proposed in the surrounding area, including the Kyoto Energy Park (mixed solar, wind and hydro project) near Scone, the Liverpool Range Wind farm between Coolah and Cassilis, and solar farms at Parkes, and Griffiths, South Keswick and Narromine. The proximity of these projects will lead to an established local skills base, and drive supply chain developments.

Rural tourism

The Strategy Area is conveniently located to capture passing trade along the Golden Highway, or to attract day-trip visitors staying in Dubbo or Dunedoo. Several of the rural industrial pursuits outlined above also have the potential to incorporate rural tourism activities including:

- Day-based events and activities offering educational or adventure experiences;
- Farmgate retail, offering visitors the opportunity to pick their own product (e.g. vegetables or Christmas tree, etc.); and
- Overnight experiences such as farm stays or dark sky viewings.

Accommodating these activities within the Strategy Area can provide more diverse and sustainable income streams for property owners. Activities that rely on overnight visitor accommodation to be provided on-site within the Strategy Area will need to be suitably located to prioritise the Strategy's agricultural and environmental objectives.

Current planning instruments already facilitate a range of tourism opportunities, with uses such as bed and breakfast establishments, camping grounds, caravan parks, farm stay accommodation, recreation (outdoor) facilities permissible within the current zoning. These could be adjusted to allow for a wider range of uses, such as eco-tourist facilities, in appropriate locations within the Strategy Area.

¹⁰ Wade S.L., Barry C.M. & Nelson M.D. (compilers) 2016. *Renewable energy map of New South Wales*. Geological Survey of New South Wales, Maitland.

3.2 ENVIRONMENTAL FEATURES AND SYSTEMS

3.2.1 OVERVIEW

Protecting the Strategy Area's environmental features and systems will help to support greater agricultural productivity and maintain a high-quality setting for people living and visiting the area. This recognises the importance of conserving and, where possible, improving:

- Water, including the availability and quality of groundwater and surface water; and
- Biodiversity, including considerations for threatened species or communities as well as landscape-scale habitat connectivity.

The Strategy aims to improve people's understanding of the Strategy Area's natural features, and signpost where additional considerations may be required to conserve or better manage these features. This will include reviewing and updating Council's existing planning rules to more accurately identify environmentally sensitive areas, including features important for protecting threatened species or communities, wildlife corridors, and groundwater dependent ecosystems.

Improving natural environmental outcomes will rely heavily on the actions on local landowners to conserve and rehabilitate their land. This can be supported by State and Local governments through the delivery of education and training, and through assistance in securing grant funding. Other opportunities may also arise as the private conservation market continues to emerge in NSW, which will allow landowners to establishing ongoing funding for conservation through schemes such as Biodiversity Banking.

The considerations outlined below provide a basis for identifying and protecting important environmental features and systems through existing planning and management frameworks. The evidence presented draws heavily on studies recently completed as part of the Cobbora Coal Mine Project application. Reference is made throughout this Section of the Report to the Environmental Assessment (EA), and its accompanying documentation¹¹.

3.2.2 NATURAL SETTING

Cobbora is located at the convergence of the Brigalow Belt South and South Western Slopes biogeographic regions of Australia:

- The Brigalow Belt South bioregion extends from south of Dubbo to the mid-Queensland coast; and
- The South Western Slopes bioregion extends from Albury, in Victoria, to Dunedoo.

Once a heavily forested landscape, lands across the broader area, including much of the Strategy Area, have been substantially cleared to accommodate agricultural activities over several generations. The Strategy Area is situated between large reserves, including the Goonoo National Park to the north east, and the Goulburn River and Wollemi National Parks to the south west. Five protected areas, described in **Table 6**, occur within, or adjoin the Strategy Area's boundary. Many of these are former State Forests that have since been reserved for conservation. They generally reflect the only remnant vegetation in an otherwise cleared landscape and represent important habitat linkages across the fragmented southern corridor of the Brigalow Belt South bioregion.

Several rivers flow through the area, forming part of the Murray-Darling River System. Waterways within the Strategy Area are major tributaries to the Talbragar River to the north, and form part of the Macquarie River catchment. The Strategy Area is also situated close to the Cudgong River to the south, which may in future provide a more reliable water supply for rural enterprises.

¹¹ Major Project Application documentation for the Cobbora Coal Mine (Application No. 10_0001) is available online at http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=3695

Table 6: Summary of protected areas occurring within the Strategy Area

Ref	Name and type	Description
1	Yarrobil National Park	<p>Reserved in 2005, comprising 1,846ha across three separate locations that were all former State Forests.</p> <p>Partially included in the Strategy Area.</p> <p>Protects the upper sections of the catchments of Goodiman Creek, Mebul Creek, Sandy Creek and Laheys Creek.</p> <p>Licensed beekeeping, which predates the reservation, already occurs within the Park</p>
2	Goodiman State Conservation Area	<p>Reserved in 2005, comprising 569ha of former State Forest.</p> <p>Adjoins the Strategy Area.</p> <p>Protects the upper tributaries of Lambing Yard Creek and provides regional linkage to Yarrobil Park to the south and Tuckland State Forest to the north.</p>
3	Cobbora State Conservation Area	<p>Reserved in 2010, comprising 2,261ha of former State Forest.</p> <p>Adjoins the Strategy Area.</p> <p>Provides an important regional-level habitat link, including for threatened species.</p> <p>Contains features relevant to Aboriginal heritage (sandstone caves), and historic industries (Bengadee Sawmill).</p>
4	Dapper Nature Reserve	<p>Reserved in 1981, comprising 998ha of former State Forest.</p> <p>Adjoins the Strategy Area.</p> <p>Representative of remnant woodland vegetation of the central western slopes in an otherwise highly cleared landscape.</p> <p>Receives a small number of visitors each year, predominantly research groups and birdwatchers.</p>
5	Tuckland State Forest	<p>Operating State Forest, comprising 858ha across two separate locations.</p> <p>Category 1 forest - hunting is permitted, subject to licensing.</p>
<p>Reference documents:</p> <p>OEH (2014) Statement of Management Intent: Cobbora State Conservation Area</p> <p>OEH (2014) Statement of Management Intent: Dapper Nature Reserve</p> <p>OEH (2014) Statement of Management Intent: Goodiman State Conservation Area</p> <p>OEH (2014) Statement of Management Intent: Yarrobil National Park</p>		

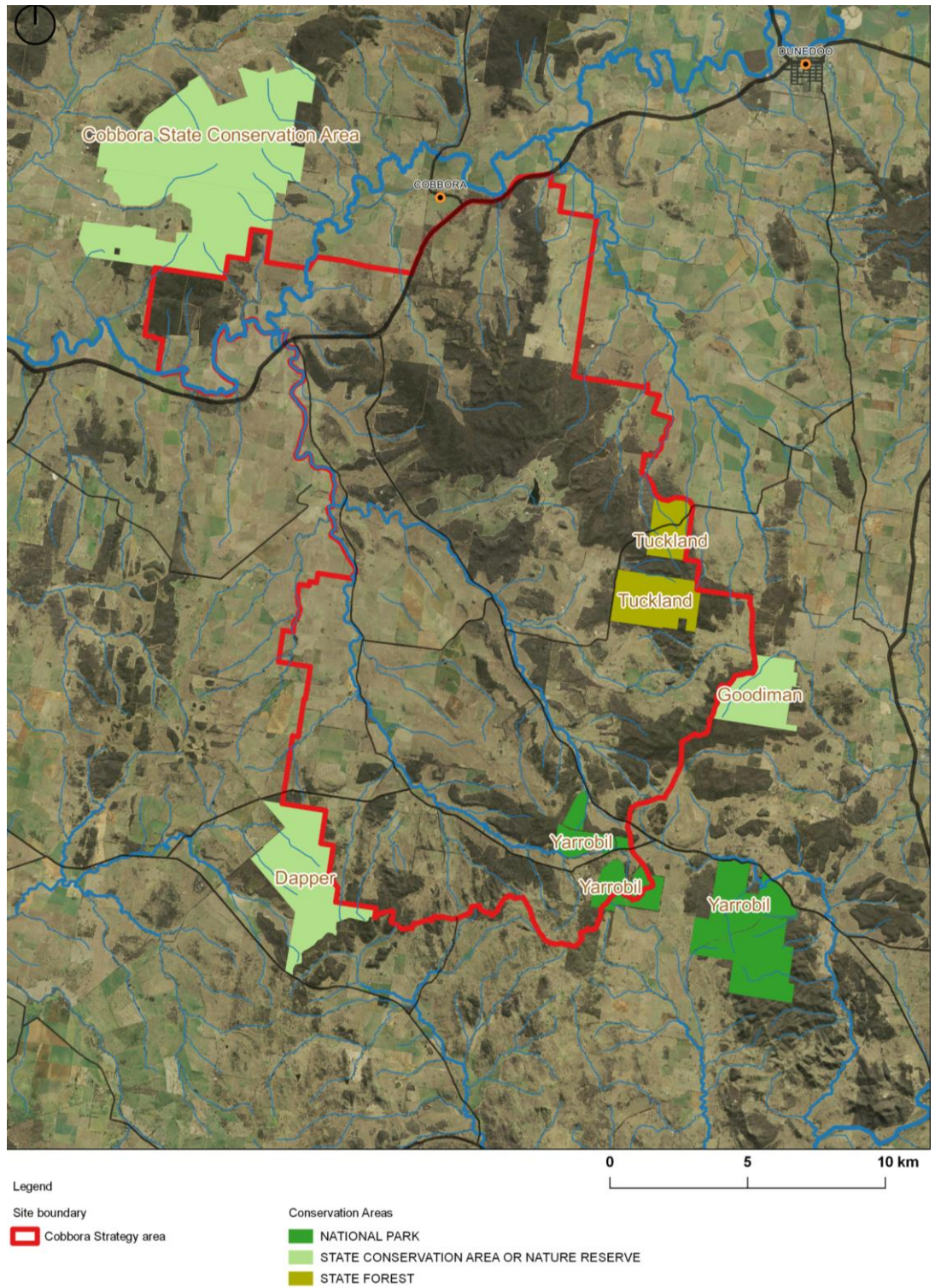


Figure 10: Reserved areas within or adjoining the Strategy Area

3.2.3 NATURAL HAZARDS

The Strategy Area is subject to natural hazards, including bushfire and flooding. These matters would need to be investigated with respect to any proposed development. Landscape-scale considerations are presented below, as relevant to this Strategy.

Bushfire

The Strategy Area falls within the Rural Fire Service's (RFS) Castlereagh Zone, and a Bushfire Risk Management Plan, approved in 2013, is in place for the area. The plan recognises that the bushfire season generally runs from October to March. Major sources of ignition are identified as lightning, escape from legal burns (mostly in rural farming and grazing managed lands), farm machinery (typically during harvest period, from November through January), incendiaries, and campfires.

A Bushfire Risk Management Plan was prepared specifically for the Strategy Area on behalf of CHC in 2014. This recommended land management actions for CHC to undertake that were predominantly relevant to the development envisaged as part of the proposed coal mine project.

As relevant to this Strategy, the CHC Bushfire Risk Management Plan identified one Fire Exclusion Zone located to the south of the Golden Highway between Sandy Creek Road and Spring Ridge Road. This is intended to allow young plants within a rehabilitation area establish a seedbank and coincides with a biodiversity corridor (described in Section 3.2.8 of this Report). The CHC Bushfire Risk Management Plan recommended that fire is excluded from this area for a minimum period of fifteen years, which could be a consideration for strategic planning with respect to the application of an environmental protection zoning.

Following the sale of CHC landholdings, new private landowners will be responsible for managing risks within their own properties in line with existing legislation. This will include clearing or otherwise managing hazardous vegetation, as per the Land Management Zoning recommendations outlined in the Castlereagh Zone Bushfire Risk Management Plan.

In the event of fire, the nearest Neighbourhood Safer Places are currently located at the Dunedoo Showground to the east, Mendooran Park to the north, Ballimore Fire Station to the west, and Billy Dun Oval (Gulgong) to the south. The Strategy Area is understood to be well-served by a series of firetrails that allow residents and emergency services personnel to easily navigate the area in the event of a fire. Landowners will also be responsible for maintaining these in line with current legislation and standards.

The Dapper Brigade's Fire Station is located within the Strategy Area at Spring Ridge Road. Prior to the disposal of CHC's land assets in 2017, this Brigade's volunteer base largely comprised CHC employees. Its continued operation will rely on volunteer enrolments from new landowners and the broader community.

Absentee landownership within the Strategy Area is considered a major risk to land management and emergency response with respect to bushfire. Due to the relatively isolated nature of the Strategy Area, it is not considered an appropriate location for further rural residential subdivision.

Flooding and Storms

The Strategy Area may also experience isolated flood events. This may occur during major flood events around existing surface waterbodies, including the Talbragar River, and its tributaries, Sandys Creek and Laheys Creek. These waterbodies are largely ephemeral, and major flood events are understood to largely be associated with low-flow backwater flooding.

High rainfall events may also lead to localised flash-flooding, with high-velocity flows removing topsoil and damaging buildings or infrastructure. Future development may rely on improvements to road infrastructure to minimise the risk of properties becoming isolated in such events.

The ability for people to evacuate in the event of a high-risk event will be an important consideration for future planning. This will rely on the provision of alternative evacuation routes and may require considerations for future road upgrades to provide flood-free and

flood-resilient access. This will be particularly relevant along Spring Ridge Road and Sandy Creek Road, which run parallel with and regularly cross creeklines.

3.2.4 CLIMATE CHANGE

Climate change has, and will continue, to impact the Strategy Area. This includes through an expected increase the frequency and severity of natural hazards, including fire, flood and storm events.

Climate change will have a bearing on the nature of agriculture in the future. Producers currently use economies of scale to counteract climate variability, and this trend is expected to continue. Economies of scale are obtained through measures such as increasing holding size, and through value-adding and diversifying enterprises. Technological advances will also assist primary producers to adapt to climate change.

The lower winter and spring rainfall, and higher potential evaporation values are also expected to reduce the water table over the long term. This elevates the importance of water sharing to balance the needs of the natural environment with demands arising from other water users. The local availability of water supplies to support development is discussed in more detail in Section 3.2.7 of this Report. Any enterprise, whether agricultural or non-agricultural, that relies on large amounts of water is unlikely to have long-term success in this location.

3.2.5 TRANSPORT AND ACCESS

The Golden Highway offers convenient connections between the Strategy Area and regional centres, including Dubbo (around 65km to the west) and Muswellbrook (around 200km to the east). Between Dunedoo and Dubbo, the Golden Highway is currently single lane in both directions, offering sealed shoulder widths and regular overtaking opportunities.

The NSW Government has recently released the Golden Highway Corridor Strategy (2017), which identifies that only one (1) of 26 intersections between Dunedoo and Dubbo is considered to meet current standards. The most common issue is that intersections are not provided with turn lanes of a sufficient length for the expected turning traffic volumes. Other issues include poor drainage, loose gravel or poor pavement condition, poor sight distance or inadequate signage. Future development within the Strategy Area may trigger requirements for Highway intersection upgrades.

Properties within the Strategy Area are served by a network of sealed and unsealed roads, including local roads maintained by Council, and private driveways maintained by landowners. The Strategy Area also includes a network of fire access tracks to support emergency response efforts. The local road network within the Strategy Area is understood to be subject to localised flash flooding during storm events.

The major local traffic route within the Strategy Area is Spring Ridge Road, which offers connections to Mudgee (84km to the south) via Laheys Creek Road (south) and the Castlereagh Highway. Spring Ridge Road is a sealed local road, with a width of approximately 6m or less, no centre line markings or sealed shoulders. Future development may rely on upgrades to support heavy vehicle movements or higher traffic volumes.

3.2.6 SOILS

Understanding soil characteristics is important to understanding the cultivation capabilities of land and establishing appropriate measures for managing land degradation and erosion.

The Strategy Area contains several soil types as per the Australian Soil Classification. The most fertile soils within the Strategy area occur along the Talbragar River (Vertosols soil type) and coincide with Ferrosols soil types scattered throughout the Strategy Area. These areas have been recognised as Biophysical Strategic Agricultural Land (BSAL) in State Government mapping for the purpose of applying State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007 (the Mining SEPP).

The most extensive areas comprise Chromosols and Kurosols/Natric types, which are considered to have moderate to moderately-low fertility. These types of soil generally form a surface seal, which can reduce seedling emergence, and poor water infiltration. They are more suited to dryland agricultural techniques or would rely on continuous soil improvement to increase the organic matter content and irrigation measures.

3.2.7 WATER SUPPLIES

The availability and quality of water is expected to be a determining factor for the ongoing success and sustainability of rural industries across the Strategy Area. Managing land use, and particularly rural subdivision, will be important to balance competing demands for water arising from the environment, residents, and businesses.

The *Water Management Act 2000* (WMA) generally provides the legislative framework for managing water resources in NSW. The WMA enables the NSW Government to make Water Sharing Plans, which establish the rules for reserving water for environmental purposes and sharing water between different users, including town supply, rural domestic supply, stock watering, industry and irrigation, within specified river or groundwater systems. They also identify the location of high priority groundwater dependent ecosystems.

Under the WMA, water is allocated through the issuing of water access licenses, which may be sold or traded according to the rules specified in Water Sharing Plans. Prescribed categories help define the priorities between different types of water access licenses, and generally determine the level of security afforded to the license holder. A greater level of security is generally required to sustain commercial activities.

Four water sources occurring within the Strategy Area currently have Water Sharing Plans, including the:

- Lower Talbragar River, subject of the *Water Sharing Plan for the Macquarie Bogan Unregulated and Alluvial Water Sources 2012*.
- Gunnedah-Oxley Basin groundwater source, subject of the *Water Sharing Plan for the NSW Murray-Darling Basin Porous Rock Groundwater Sources 2011*;
- Lachlan Fold Belt groundwater source (Macquarie-Castlereagh unit), subject of the *Water Sharing Plan for the NSW Murray-Darling Basin Fractured Rock Groundwater Sources 2011*; and
- Great Artesian Basin groundwater source (Southern Recharge area), subject of the *Water Sharing Plan for the NSW Great Artesian Basin Groundwater Sources 2008*.

A summary of planning considerations with respect to water quality and availability for each resource is provided in **Table 7** and **Table 8**. These generally demonstrate a scarcity of reliable water supply resources locally to support development, particularly during dry periods. This is expected to be further influenced by the ongoing impacts of climate change, as discussed in Section 3.2.4 of this Report. Furthermore, the characteristics of supply from some water sources limit the types of uses it may support.

Water resource entitlements from all sources within the Strategy Area are currently fully allocated. While the NSW Government does occasionally announce controlled allocations through a public tendering process, new enterprises, or existing enterprises that require additional entitlements, would need to source these from another holder on the open market. This suggests that any enterprise, whether agricultural or non-agricultural, that relies on large amounts of water is unlikely to have long-term success in this location without a supplementary income stream.

Table 7: Summary of Strategy Area water supply resource characteristics

<p>Lower Talbragar (Surface water resource)</p>	<p>Largely ephemeral river with water table below the river bed for most of its reach. Ceases to flow during dry times.</p> <p>Salinity is relatively low; considered suitable for most stock and domestic purposes.</p> <p>Supports several smaller spring-fed creeks that are considered to have high environmental value.</p>
<p>Gunnedah-Oxley Basin (Groundwater resource)</p>	<p>Most extensive groundwater supply within the Strategy Area</p> <p>Also subject to Murray-Darling Basin Plan (national water sharing initiative)</p> <p>Groundwater quality, in particular salinity, may limit potential uses</p> <p>Supports a high level of groundwater-dependent ecosystems (GDEs), with potential for over-extraction leading to permanent habitat loss</p> <p>Currently supports several high-security users, including town water and domestic supplies, mining operations and other industries, which may constrain supplies to other users during dry periods.</p>
<p>Lachlan Fold Belt (Groundwater resource)</p>	<p>Occurring in the western part of the Strategy Area</p> <p>Also subject to Murray-Darling Basin Plan (national water sharing initiative)</p> <p>Does contain saline groundwater, but the nature of the groundwater flow paths suggests there is low risk of salinisation of the fresh groundwater.</p>
<p>Great Artesian Basin (Groundwater resource)</p>	<p>Occurring in the northern part of the Strategy Area.</p> <p>Quality of groundwater within Strategy Area is generally higher than in other parts of the basin. Generally high salinity, but suitable for stock watering.</p> <p>Currently supports several high-security users, including town water and domestic supplies, mining operations and other industries, which may constrain supplies to other users during dry periods.</p> <p>Also supports recreational uses (spa baths).</p> <p>Significant to Aboriginal cultural heritage.</p>

Table 8: Summary of Strategy Area water supply resource availability

	Stock / Domestic (ML/yr)	Local Utility (ML/yr)	License Share (units)	Comment
Lower Talbragar	40	0	1,661	Water resource entitlements are currently fully allocated.
Gunnedah-Oxley Basin	5,778	112	16,513	New enterprises, or existing enterprises required additional entitlements would need to source these from another holder on the open market or await release of additional entitlements by the NSW government through future controlled allocations.
Lachlan Fold Belt	74,311	5,101	62,248	
Great Artesian Basin	3,000	1,650	25,000	

All waterways occurring within the Strategy Area may be affected by basic landholder rights afforded under the WMA, which generally entitle:

- Any rural property owner fronting a river or overlying a groundwater aquifer to pump water without a license to meet reasonable domestic and stock requirements; and
- Any rural property owner to harvest up to 10 per cent of the average annual rainfall run-off without a license.

Managing the availability and quality of water can be influenced through a range of planning controls, including those already outlined in Council's LEP. This includes the minimum subdivision lot size standard, which has the potential to cumulatively influence water supplies due to basic landholder rights, as well as local provisions for groundwater vulnerability and riparian land and watercourses. These provisions will be reviewed and updated to support the Strategy outcomes.

Considerations relating to the creation of new lots to create additional dwelling entitlements are discussed in more detail in Section 3.3.2 of this Report. Other planning considerations affecting water supplies within the Strategy Area are discussed below.

Groundwater vulnerability

The hydrological functions (e.g. flood attenuation, groundwater recharge, etc.) of groundwater systems may also be altered by development. Groundwater sources also have the potential to be contaminated by development, particularly developments that store, or recycle solid or liquid waste. These impacts can have an immediate effect on flooding or more far-reaching implications for the quality and availability of water elsewhere in the catchment.

Impacts to groundwater resources can also affect groundwater dependent ecosystems. This is discussed in more detail in **Section 3.2.8**.

Council's LEP currently identifies where additional assessments are required to consider the impact of development on groundwater systems that are considered vulnerable through Clause 6.4 and corresponding Groundwater Vulnerability overlay mapping. While almost all groundwater resources are vulnerable to some degree, considerations are particularly relevant where, for example, the:

- Depth to water table is shallow;
- Net recharge is high (e.g. where water easily penetrates the surface); or
- Groundwater flow rate is high.

In 2001, the NSW government released Groundwater Vulnerability maps for the Macquarie Catchment, which includes the Strategy Area¹². These were based on regional-level modelling using the DRASTIC technique to classify groundwater vulnerability from low to high. Council's current Groundwater Vulnerability overlay mapping broadly corresponds with the high-level classification.

More recently, the EA identified locations within the Project Application Area where the depth to groundwater is 5m or less, which would make systems vulnerable to the impacts of development. Some of these locations are not currently identified on Council's Groundwater Vulnerability overlay mapping. While depth to water table is one of several considerations with respect to vulnerability, this suggests further investigation may be required to determine whether groundwater vulnerability is suitably signposted for the purposes of planning.

Considerations for signposting environmental sensitives are discussed further in **Info Box 1**.

Riparian land and watercourses

The *Water Management Act 2000* generally defines waterfront land as the bed of any river, lake or estuary and any land within 40 metres of the river banks, lake shore or estuary mean high water mark. Development located on waterfront land may require a controlled activity approval, if it requires:

- the erection of a building or the carrying out of a work (within the meaning of the Environmental Planning and Assessment Act 1979), or
- the removal of material (whether or not extractive material) or vegetation from land, whether by way of excavation or otherwise, or
- the deposition of material (whether or not extractive material) on land, whether by way of landfill operations or otherwise, or
- the carrying out of any other activity that affects the quantity or flow of water in a water source.

The purpose of controlling these activities is to avoid the contamination of watercourses or destabilisation of watercourse beds or banks. Impacts to riparian land and watercourses can also affect aquatic and riparian habitats. This is discussed in more detail in **Section 3.2.8**.

The NSW Government provides guidelines on identifying riparian corridors, which currently utilises the Strahler System of ordering watercourses, based on topographic modelling. Council's LEP currently specifies where additional assessments are required to consider the impact of development on waterfront land that are considered vulnerable through Clause 6.5 and corresponding Riparian Lands and Watercourses overlay mapping. This mapping generally corresponds to the waterways identified in the EA but may benefit from a review to confirm all classifiable watercourses are signposted for the purpose of planning.

Considerations for signposting environmental sensitives are discussed further in **Info Box 1**.

3.2.8 BIODIVERSITY

The Strategy Area's terrestrial and aquatic biodiversity has already been impacted by generations of agricultural activity. Protecting existing biodiversity values and rehabilitating natural systems will serve multiple purposes. This includes strengthening agricultural productivity and creating a high-quality setting for rural lifestyles.

Ongoing planning and management will require an understanding of the natural characteristics and biodiversity values that occur across the Strategy Area, and the likely impacts that may arise from a specific development. Existing legislative frameworks, and good practice, generally seek to avoid adverse impacts wherever possible, and to minimise or offset any unavoidable impacts.

¹² Available online at <http://www.water.nsw.gov.au/water-management/water-quality/groundwater>

A summary of the Strategy Area's context from the perspective of biodiversity and broad-scale conservation is provided below:

- The Strategy Area lies on the boundary of the South West Slopes and Brigalow Belt South bioregions. Compared with many other parts of Australia, the broader area is characterised as having rare ecological features and a greater biological diversity.
- While a large proportion of the Strategy Area has been extensively cultivated for agricultural activities, it still contains areas that are biologically diverse, including heavily vegetated lands and riparian environments corresponding to several waterways.
- Several waterways occur within the Strategy Area, which drains northward to the Talbragar River, and southward to the Cudgegong River. Both the Talbragar and Cudgegong Rivers are tributaries to the Macquarie River.
- Five areas within the Strategy Area include lands reserved for conservation or forestry under current legislation. These lands form part of the NPWS Estate managed by the State Government.
- Land and water resources within the Strategy Area are generally planned and regulated as part of the Central West (Local Land Services) and Macquarie-Bogan (Office of Water) catchment areas. Strategic conservation priorities relevant to the Strategy Area are set out in a range of documents relating to these catchment areas.
- The Strategy Area contains vegetation that is important for sustaining regional-level habitat connectivity. The area was previously identified as part of the NSW Government's Western Woodland Way initiative.

The Terrestrial and Aquatic ecological assessments accompanying the EA present the findings of desktop research and field investigations undertaken between 2009 and 2012. These assessments provide a solid understanding of the occurrence and general condition of features that are important to sustaining biological diversity. They also identify matters of environmental significance under current legislative frameworks at the National or State level. These will be important considerations when planning for any future development within the Strategy Area.

Specific matters are presented below to consider how future planning and management can:

- support the recovery of threatened species and ecological communities, currently protected by National or State legislation;
- sustain habitat connectivity across the landscape; and
- protect groundwater dependent ecosystems.

Protected species, populations and ecological communities

National and State legislation affords enhanced protection measures to threatened or unique species, populations and ecological communities. These frameworks normally require specific assessments where development has the potential to impact on protected matters. These frameworks are complex and may require multiple assessment methodologies to be undertaken through successive stages of planning.

NSW biodiversity legislation has recently been updated to introduce new thresholds for requiring assessments, and new methodologies for assessing the impacts of development. Under this framework, any new development or activity proposed within the Strategy Area that requires vegetation clearing of 1 ha or more will be required to provide a Biodiversity Development Assessment Report that considers the impacts of that clearing to biodiversity values and identifies measures to avoid impacts or offset unavoidable impacts.

Signposting where development is likely to impact on biodiversity, particularly those that are subject to enhanced protection measures, can assist landowners to understand the risks, and undertake appropriate due diligence at the outset of the planning process. It can also assist in identifying where coordinated initiatives, such as Biodiversity Certification or BioBanking, may facilitate development across multiple landholdings.

OEH identify biodiversity with a High Conservation Value (HCV) as including:

- over-cleared vegetation communities (i.e. communities with 30% or less of their pre-European extent remaining);
- communities which are rare within the catchment (approximately 1000ha or less remaining);
- threatened species habitat;
- remnant native vegetation adjoining conservation reserves; and
- remnant native riparian vegetation.

Impacts to vegetation within these classifications are likely to attract larger offset requirements or may not be capable of being offset.

Studies have previously been undertaken by the State Government at a landscape scale to identify Broad Vegetation Types across the Strategy Area¹³. The ecological assessments accompanying the EA also identified several flora and fauna species and ecological communities within the Project Application Area (PAA) that are protected under current legislation at National and State levels, as well as terrestrial and aquatic features occurring within the PAA that may otherwise be important to protected fauna species. This information has been used to identify potential HCV vegetation, presented in **Figure 11**. The potential HCV vegetation shown in **Figure 11** is considered indicative only and would need to be verified by a suitably qualified professional through a site-specific assessment.

Figure 11 also provides a comparison of Council's current LEP against potential HCV vegetation derived from more recent studies. This suggests Council's current LEP does not signpost the full extent of vegetation that may be subject to additional assessment requirements, or concurrent environmental approvals, to support new development. Considerations for signposting biodiversity are discussed in **Info Box 1**.

¹³ Mapping prepared for the Catchment Management Authority in 2008, available from OEH

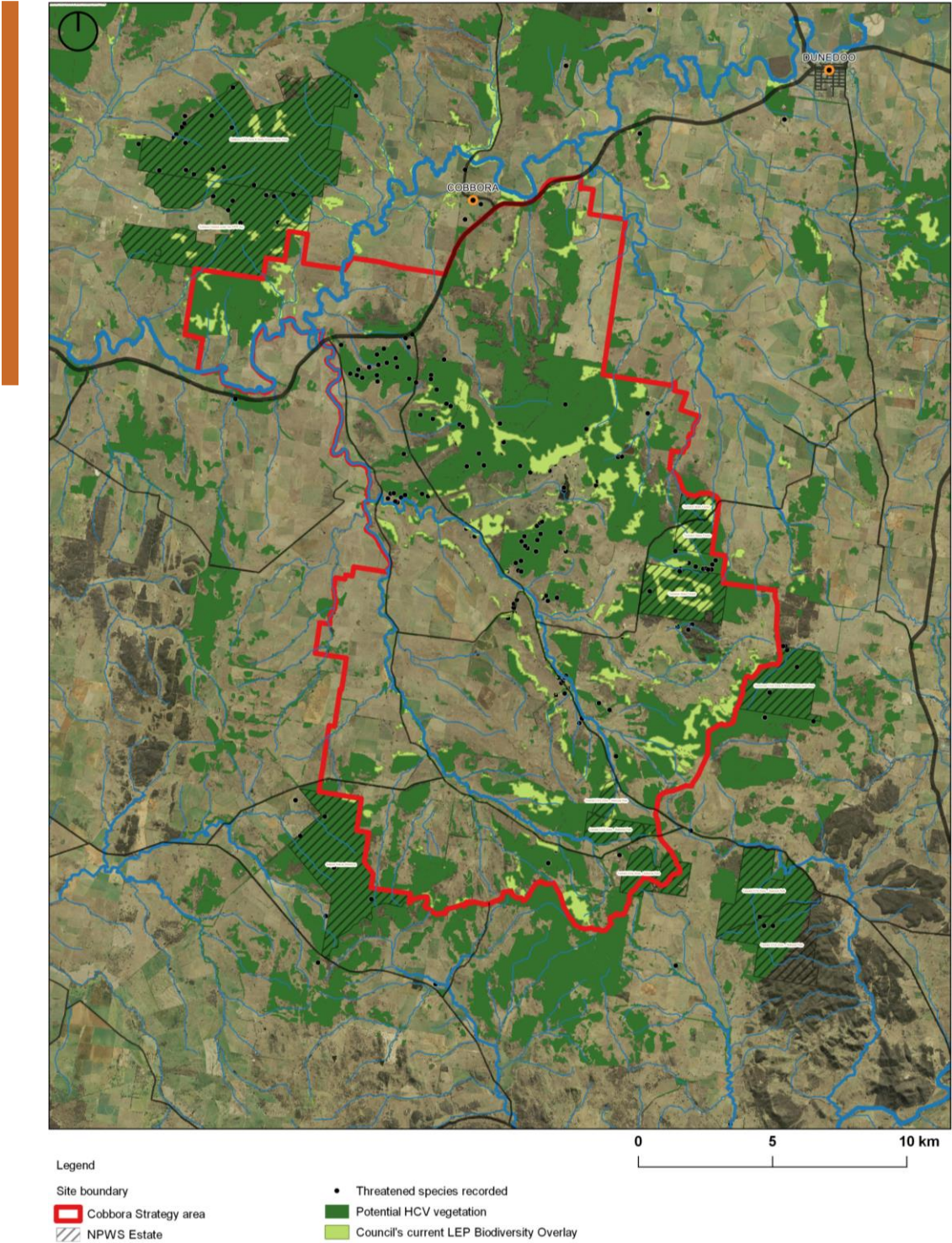


Figure 11: Potential High Conservation Value (HCV) vegetation as derived from previous studies (Source: CPSD using data provided by CHC and OEH)

Habitat connectivity

Habitat connectivity is an important factor to sustaining biodiversity. It relies on integrated habitat conservation and management measures delivered at landscape-scale, and often across multiple landholdings. Identifying where wildlife corridors occur and setting out the planning priorities and considerations within these, will assist in this process.

The Central West CMA previously identified regional-level wildlife corridors within the Strategy Area, upon which the ecological assessments accompanying the EA further expand. At a landscape scale, habitat occurring within the Strategy Area is critical to sustaining wildlife movements between Goonoo State Conservation area to the north and Lake Burrendong to the south.

Existing and potential future wildlife corridors relevant to the Strategy Area are identified in **Figure 12**, and described in **Table 9**. Three non-riparian wildlife corridors (1-3) have been derived from previous studies, based on vegetation mapping. Two riparian corridors (4-5) within the Strategy Area may also be important for terrestrial wildlife movement.

Council's LEP includes habitat connectivity as a consideration for local provisions relating to Terrestrial Biodiversity. Identifying on the corresponding LEP map the wildlife corridors that occur within the Strategy Area will more accurately signpost where consideration for habitat connectivity should be given.

Table 9: Existing and potential future wildlife corridors (corresponding to Figure 12)

Ref	Existing / future corridor	Description
1.	Existing wildlife corridor extending along the ridgeline at the eastern part of the Strategy Area.	This corridor contains large patches of remnant vegetation, generally connecting (from north to south) Cobbora State Conservation Area, Tuckland State Forest, Goodiman State Conservation Area, and Yarrobil National Park.
2.	Existing wildlife corridor extending along Spring Ridge Road.	This is both a roadside and riparian corridor, corresponding to Laheys Creek.
3.	Existing wildlife corridor extending along the southern part of the Strategy Area.	This east-west corridor connects several north-south corridors within the Strategy Area and the broader area.
4.	Potential future wildlife corridor, extending along Sandy Creek Road.	This would be both a roadside and riparian corridor, corresponding to Sandy Creek. It could provide additional north-south connections between existing corridors 1 and 3.
5.	Potential future wildlife corridor corresponding to the Talbragar River.	This is an existing riparian corridor that has been affected by agricultural development.

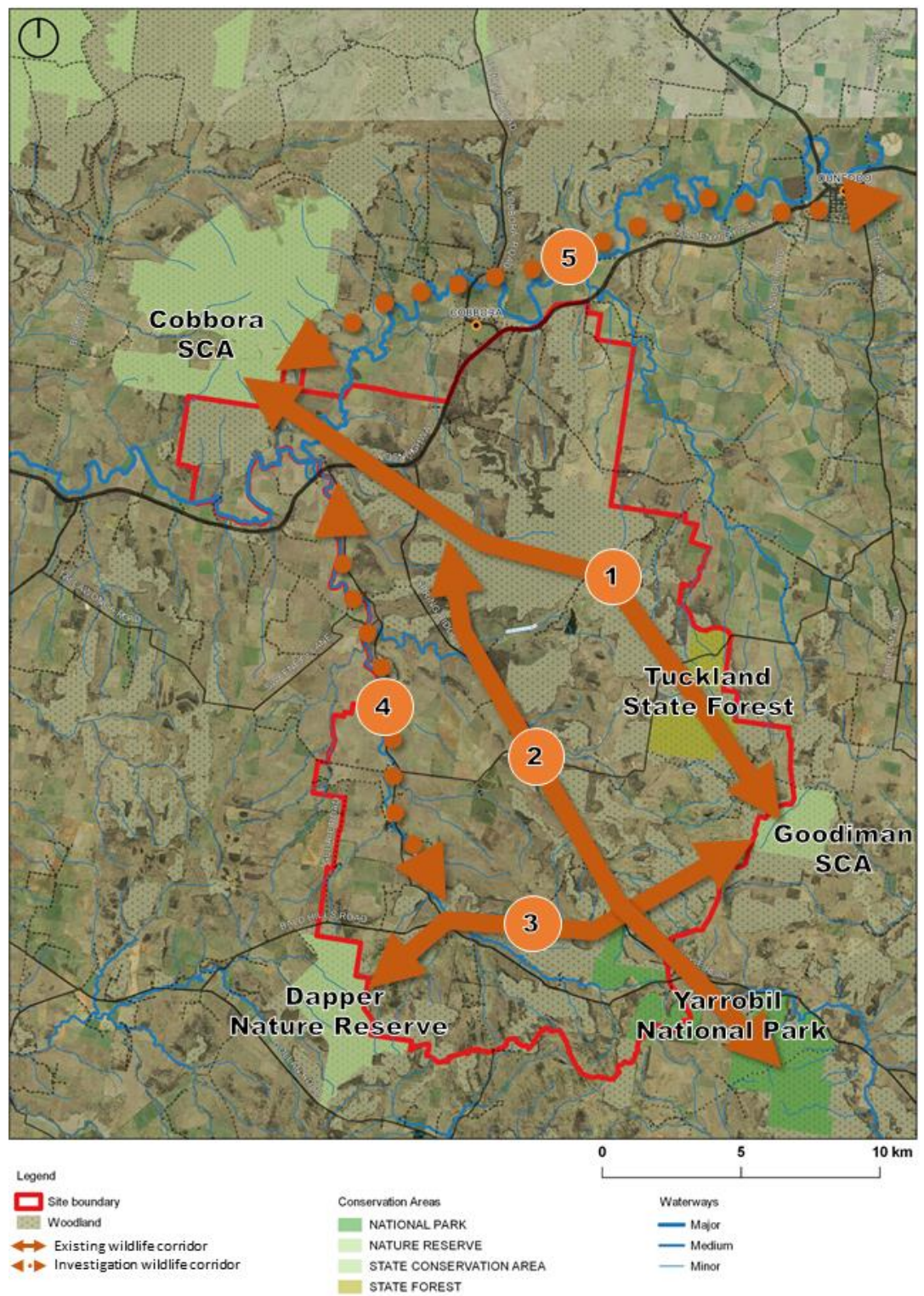


Figure 12: Existing wildlife corridors, and potential investigation corridors to enhance habitat connectivity (Source: CPSD using data provided by CHC)

Groundwater dependent ecosystems

Groundwater dependent ecosystems (GDEs) have the potential to be impacted by groundwater drawdown. This can occur during times of low rainfall or may arise as an on-Strategy Area or cumulative impact of development.

The EA presented the findings of several studies relating to groundwater resources and groundwater dependent ecosystems. These identified groundwater dependent ecosystems are most likely to occur around:

- Close to creeks and river channels, where groundwater occurs with 3m of the ground surface (the assumed maximum rooting depth for trees).
- Around rain-fed springs or seeps, with three recorded within the Strategy Area.
- Persistent pools, which also have the potential to support aquatic species, with six recorded within the Strategy Area.

Figure 13 illustrates considerations for groundwater dependent ecosystems, using information presented in the EA.

Groundwater dependent ecosystems are already a planning consideration under Council's LEP Clause 6.4 (Groundwater vulnerability). Specifically, Clause 6.4(3) requires the consent authority to consider any adverse impacts the development may have on groundwater dependent ecosystems before determining a development application.

The corresponding Groundwater Vulnerability LEP overlay maps identify land where additional assessments may be required to determine the impacts of development on groundwater resources. These maps do not currently identify the locations of groundwater dependent ecosystems.

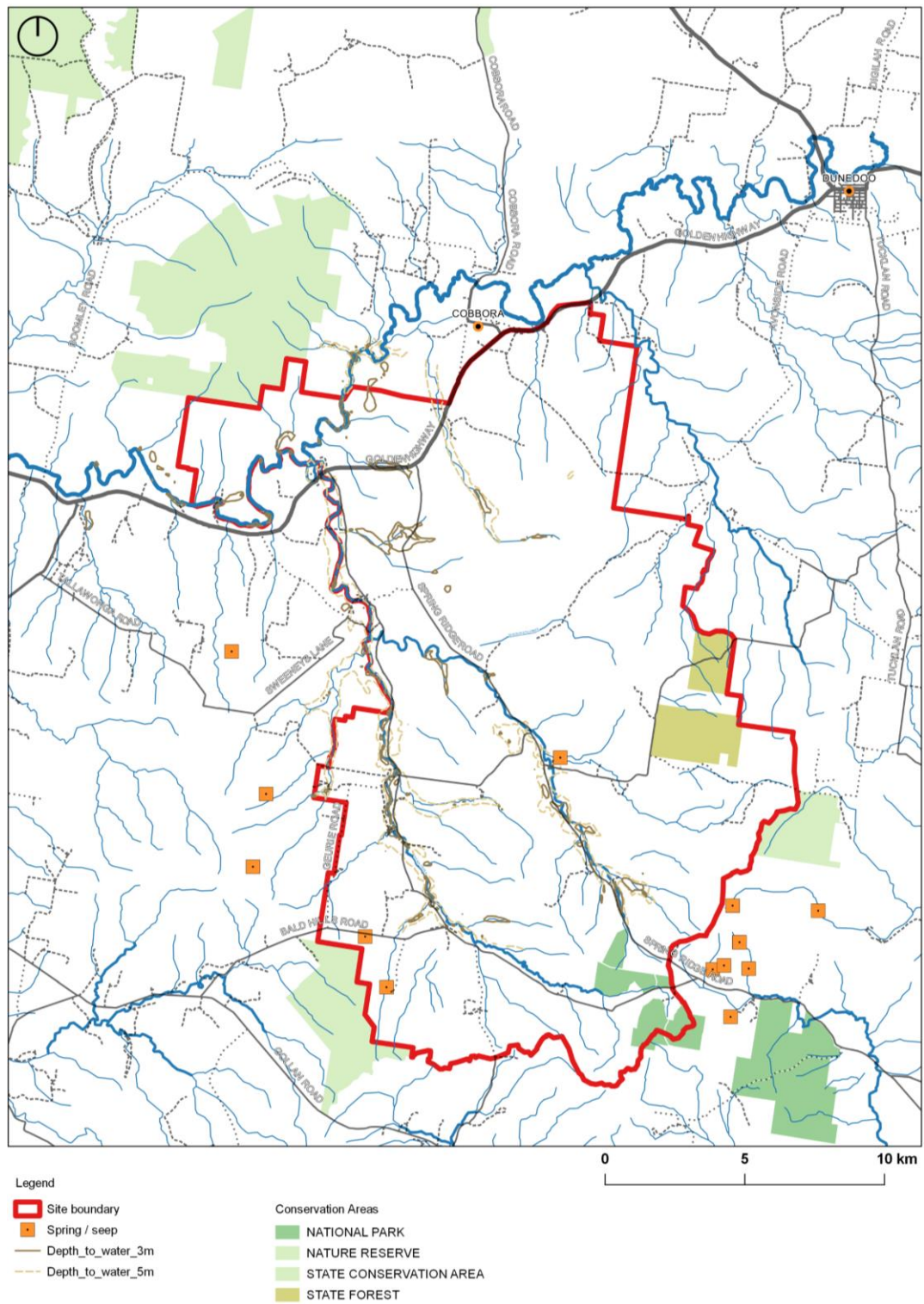


Figure 13: Considerations relevant to protecting Groundwater Dependent Ecosystems (Source data provided by CHC)

Considerations for signposting environmental sensitivities

Council's Local Environmental Plan (LEP) is an important tool for signposting where impacts to vegetation or other naturally occurring features are likely to require additional assessments or approvals. Council's LEP already sets out assessment requirements for Terrestrial Biodiversity (clause 6.3), Groundwater Vulnerability (clause 6.4) and Riparian land and Watercourses (clause 6.5). These correspond to overlay maps, which identify relevant features.

The requirements specified in Council's LEP often correspond with assessments mandated by other legislation. These include but are not limited to the Commonwealth's *Environment Protection and Biodiversity Conservation Act 1999*, and the *NSW Environmental Planning and Assessment Act 1979* (EPA Act) and *Biodiversity Conservation Act 2016*. The types of surveys and assessments required to gain relevant approvals can add considerable time and cost to new development projects. Specific assessment methods may be detailed in Council's Development Control Plan (DCP) or other technical manuals published by Federal, State or Local Governments.

One option to better signpost biodiversity could be to update Council's LEP overlay mapping to, for example, identify the full extent of HCV vegetation or the location of groundwater dependent ecosystems. This would require Council to complete Strategy-wide studies to validate the information presented in this Report. These studies would form the basis for a Planning Proposal to amend Council's LEP overlay maps, under Part 3 of the EPA Act, which must be approved by the Minister.

Alternatively, Council could prepare a site-specific DCP for the Strategy Area. This DCP could identify, among other things, vegetation management requirements and other conservation priorities. In contrast to the LEP, DCPs can be made and amended by Council, offering greater flexibility to incorporate new information over time.

3.3 RURAL LIFESTYLE AND HERITAGE

3.3.1 OVERVIEW

The Strategy aims to maintain and, where possible, strengthen district-level community connections and the district's identity. To achieve this, the Strategy Area can provide a level of residential development suitable to meeting economic development outcomes without compromising heritage values.

The Strategy does not intend to provide for significant residential growth to occur within the Strategy Area itself. This recognises the proximity and suitability of other nearby settlements, including Dunedoo Township, to accommodate more residential growth and diversification in coming decades. Instead, the Strategy Area is considered to have the potential to attract in-migration to the broader Dunedoo District by supporting economic activities that create jobs and otherwise offer high quality experiences for residents and visitors. These types of activities were considered in **Section 3.1**

The Strategy generally supports maintaining the current level of population within the Strategy Area, and provides a framework that facilitates new residential development associated with farming or other economic development activities that align with the long-term vision. This approach will help support local services that rely on a critical mass of residents, such as health, education and rural fire services. It also recognises that some forms of residential development can assist in addressing challenges facing farmers by, for example:

- Allowing families to grow in place, supporting inter-generational or legacy farming;
- Providing accommodation for seasonal workers within the Strategy Area, allowing farmers to reduce labour costs; or
- Providing accommodation for visitors within the Strategy Area, allowing farmers to diversify their income streams by offering recreational, educational or research-oriented experiences.

The Strategy also provides a framework for identifying heritage values to inform future planning and plan-making within the Strategy Area.

Table 10: Snapshot of selected demographic characteristics for Dunedoo, 2006-2011 (Source: ABS census data for Dunedoo suburb)

	2006	2011	Comment
Total population	1,653	1,253	Dunedoo's population is generally declining, reflective of broader national trends of migration toward regional centres. The impact of the Cobbora Coal Project will have played a part in this, as many families re-located following the acquisition process.
Median age	42	46	Dunedoo's population is aging, and the overall proportion of its labour force is shrinking.
Age dependency ratio ¹	41%	46%	
People identifying as Aboriginal or Torres Strait Islander	63 (3.8%)	75 (6.0%)	The district currently has a lower proportion of people identifying as Aboriginal or Torres Strait Islander than Dubbo (14.5%), but remains higher than the State average of 2.5%.
Top 5 countries of birth (if not Australia)	England Netherlands Greece South Africa Germany	England Canada New Zealand Denmark Germany	Around 84% of Dunedoo residents were born in Australia. National trends suggest correlations between economic growth and higher levels of immigrant populations in regional areas.
Top 5 industries of employment	Farming Education Hospital Local Government Road freight	Farming Education Hospital Store-based retail Accommodation	Farming remains the largest driver of employment in the region, with around 30% of residents employed in that industry. Growth in the number of people employed in retail and accommodation is reflective of the area's emerging visitor and tourist industry.
<p>Source data derived from Australian Bureau of Statistics 2006 and 2011 census using comparative data for the suburb of Dunedoo (Code SSC10749), the urban centres of Dubbo (Code UCL112005) and Mudgee (Code UCL114019), and the whole of NSW.</p> <p>¹Age dependency ratio is a measure of the number of dependents, aged 0-17 and 65+, to the total population.</p>			

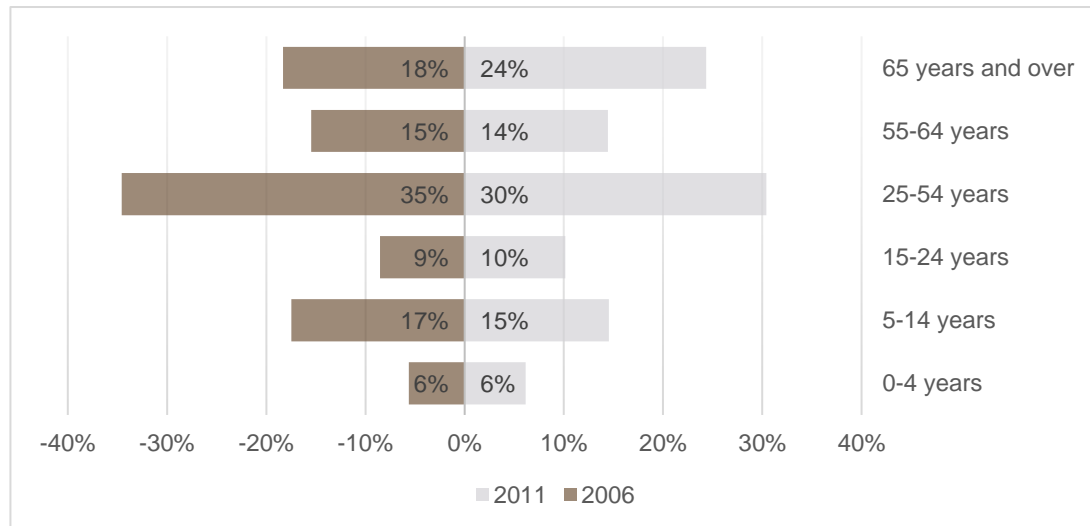


Figure 14: Change in the age distribution of Dunedoo's population, 2006-2011 (Source: ABS census data for Dunedoo suburb)

3.3.2 HOUSING

Economic and social development outcomes in rural areas can be threatened where suitable housing options, both rental and for purchase, are unavailable¹⁴. The Strategy aims to accommodate the growth and diversification of rural industries within the Strategy Area, which will rely on the provision of a diverse range of housing both within and outside the Strategy Area.

Table 11: Snapshot of selected housing and household characteristics for Dunedoo, 2006-2011 (Source: ABS census data for Dunedoo suburb)

	2006	2011	Comment
Occupied dwellings rented	25%	21%	The number of dwellings available for rent reduced in the five years to 2011. Housing within the Strategy Area may represent a significant proportion of this supply. Its onward sale for private ownership may further reduce supplies in the broader district.
Occupied dwellings owned outright	50%	47%	The proportion of households who own their house outright is significantly higher than the average for Dubbo (34%), Mudgee (35%) or NSW (32%). Often, the family home is a household's major asset. In rural areas that are heavily dependent on agriculture, this can become a form of 'entrapment', particularly in areas experiencing population decline.

¹⁴ Australian Housing and Urban Research Institute (2001) *Rural housing, regional development and policy integration: positioning paper*. Available online.

Average household size	2.5	2.4	Average household sizes within the district are generally consistent with nearby regional centres at Dubbo (2.5), Mudgee (2.4), but are smaller than the average for NSW (2.6).
Median weekly household income	\$632	\$716	Weekly incomes within the district are increasing, but are still substantially lower than regional centres at Dubbo (\$1,053), and Mudgee (\$1,023).
Source data derived from Australian Bureau of Statistics 2006 and 2011 census, using comparative data for the suburb of Dunedoo (Code SSC10749), the urban centres of Dubbo (Code UCL112005) and Mudgee (Code UCL114019), and the whole of NSW.			

Considerations for housing within the Strategy Area

Providing suitable residential development opportunities within the Strategy Area, including short-term and visitor accommodation, will require balanced considerations for several, often competing interests. This specifically includes the cumulative impact of residential development on water supply, which could disadvantage long-term agricultural and environmental outcomes. It also relates to broader land use conflict issues such as noise, dust, odour, pests, weeds, or hazard reduction, which may require rural industries to implement costly managed interventions.

Residential development within the Strategy Area currently reflects the area's rural, predominantly agricultural, settlement history. These include homesteads serving larger agricultural landholdings, as well as a limited number of smaller rural lifestyle blocks.

The Strategy Area is currently estimated to contain around 60 dwellings, noting:

- Between 2008 and 2014, CHC acquired 114 houses as part of the property acquisition program. Up to 72 of these dwellings were expected to be retained, and made available for rent. Several of these dwellings are located outside the Warrumbungle Shire LGA, and do not form part of the Strategy Area.
- A desktop analysis of aerial photography confirmed 50 dwellings, and identified a further 32 lots containing unspecified buildings.

The estimated number of existing dwellings, by lot size, is summarised in **Table 12** and illustrated on **Figure 15**. These suggest most existing dwellings on lots less than 600ha appear to be homesteads that have previously formed part of larger holdings and have benefitted from historic subdivisions. There are two broad areas within the Strategy Area that reflect a localised subdivision pattern more characteristic of rural lifestyle blocks. These are located off the Golden Highway, near the historic Cobbora village, and at the southern end of Spring Ridge Road, near the intersection of Sandy Creek Road.

Table 12: Estimated existing dwellings, by lot size, based on desktop analysis (Source: CPSD)

Lot size (ha)	No. lots counted		
	<i>With existing dwelling</i>	<i>With unspecified buildings</i>	<i>With no noticeable structures</i>
< 100	33	23 ¹	209
100-299	10	6	42
300-399	1	2	7
400-499	Nil	1	2
501-599	Nil	Nil	2
≥ 600	6	Nil	3 ²
Note 1. Discounted by two lots identified as containing Rural Fire Service infrastructure			
Note 2. Discounted by one lot currently zoned RU3 Forestry			

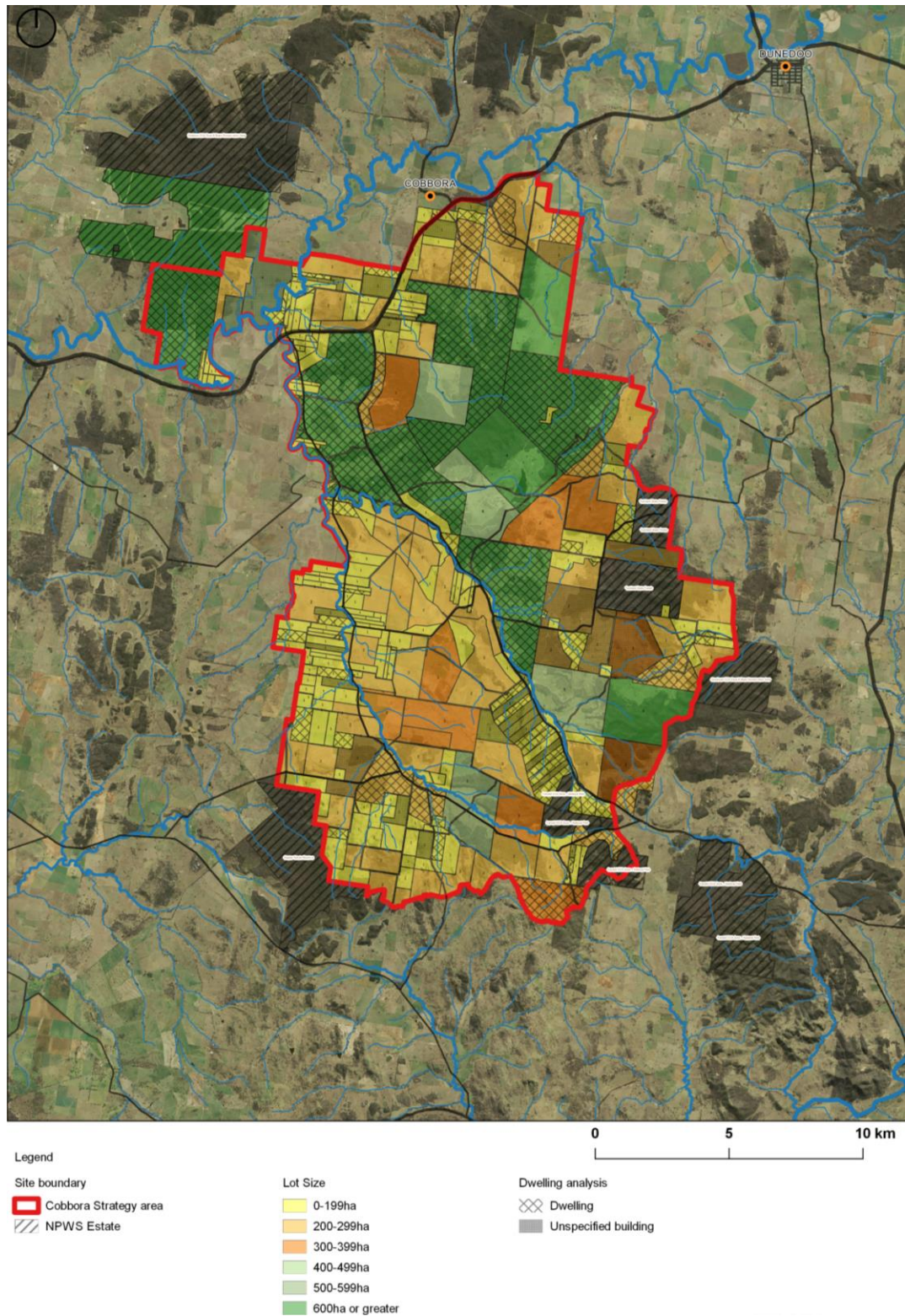


Figure 15: Existing dwellings and lot size analysis (Source: CPSD)

Dwellings acquired by CHC were found to be in variable conditions ranging from well-maintained to dilapidated. Approximately one-third of the dwellings were earmarked for demolition due to being in an unsafe condition. The remainder were made available for rent under CHCs farming licenses or residential tenancy scheme. Dwellings within the Strategy Area may provide for a large portion of the residential accommodation available for rent in the broader Dunedoo district. The recent sale of these properties has the potential to change the current tenancy pattern, but it is too early to anticipate the effect of this on the permanent population levels within the Strategy Area.

The range of residential uses permissible under the Strategy Area's current RU1 Zoning is quite generous. However, Council's LEP currently applies a minimum subdivision lot size of 600ha across the Strategy Area. This standard predominantly applies to subdivisions intending to afford dwelling entitlements, including dual occupancies and rural workers' dwellings.

Most lots containing dwellings are already substantially below the current provided in the LEP. Of the 50 lots that currently contain dwellings, 41, or 82%, are less than 205ha. Similarly, of the 32 lots that contain unspecified buildings, 27, or 84%, are less than 205ha. Based on this, the Strategy Area currently has limited residential growth potential, with only 3 lots estimated to meet the current minimum lot size standard that would enable construction of a new dwelling.

The current legislative framework may also present some challenges to delivering residential development within the Strategy Area. This uniquely arises from the potential for uncertainty in establishing existing use rights on properties where dwellings were either demolished or remained unoccupied as part of the Cobbora Coal Project land acquisition and management program. It also generally relates to development objectives and standards, including land use zonings and minimum lot size requirements set under Council's LEP.

Lots less than 600ha with existing dwellings or dual occupancies may retain their dwelling entitlements under clause 4.2A(4) of Council's LEP, subject to detailed planning assessment. This provision is currently contingent on the underlying RU1 Primary Production land use zoning. It would enable existing dwellings or dual occupancies that were legally constructed to be improved or replaced but would not allow for the creation of any additional dwellings above the current situation.

Residential development principles

Some residential development may be required within the Strategy Area to achieve the Strategy's economic outcomes. However, the Strategy Area is not intended to be a significant focus for housing growth and diversification within the Dunedoo District. Furthermore, residential development within the Strategy area should only be supported in locations where it does not adversely affect the current or future potential to accommodate rural industries. To achieve this, residential development should generally be discouraged:

- In areas identified as highly suitable for cropping, to minimise the fragmentation of these lands;
- On properties with frontage to waterways, to minimise the impacts on water supplies afforded by basic landowner entitlements.

Smaller minimum subdivision lot size standards may also be appropriate in some locations or circumstances, to facilitate residential growth alongside other development outcomes. This includes:

- To support mixed farming or intensive farming enterprise models, which typically rely on smaller landholdings than the current minimum subdivision lot size standard; and
- Where residential subdivisions below the minimum subdivision lot size standard would enable surrounding lands to be publicly reserved or otherwise managed for conservation (e.g. Stewardship Sites) (refer to **Info Box 2**).

Reducing minimum lot sizes to encourage conservation

The NSW Government is undertaking significant legislative reforms to introduce a more balanced approach to land management and biodiversity across the state. This includes new procedures for identifying High Conservation Value legislation and establishing ongoing conservation management arrangements.

The new legislation provides several options for rural landowners to benefit from delivering conservation outcomes on residual (e.g. non-productive) lands within larger landholdings. This includes raising biodiversity 'credits', based on the conservation value of their site. These credits can then be sold on the open market, with potential purchasers including developers, the Biodiversity Conservation Trust, or other public or private sector environmental investors. These sites are then managed in perpetuity as "Stewardship Sites", with owners receiving annual payments to deliver conservation outcomes in line with site-specific management plans.

In some situations, Stewardship Site owners would retain ownership of their sites, and the land would be managed as part of the wider landholding. In other situations, the Stewardship Sites could be sold for management as a wider public or private reserve system.

Under all LEPs, the minimum lot size standard could limit the extent to which rural landowners may benefit from this scheme. This could arise where the subdivision to enable the creation of the Stewardship Site lot would result in the creation of one or more lots smaller than the specified standard, particularly where any residual lots contain existing dwellings. Standard planning controls make some compensations to provide flexibility for rural subdivisions that enable primary production (e.g. clause 4.2 of Council's LEP) but have not yet been reviewed and updated to facilitate similar flexibility for conservation.

Section 3.2.8 of this Report demonstrates that portions of the Strategy Area may be highly suited for large-scale conservation, which may include possible expansions to public reserve systems or management of vegetation on private lands to maintain biodiversity corridors. This may rely on changes to planning controls to facilitate the creation of Stewardship Sites in a manner that does not adversely affect rural landowners' ability to maintain their livelihoods.

3.3.3 HERITAGE

Protecting and showcasing features that reflect the area's heritage will be important to supporting the Strategy's social and economic outcomes. This will assist in maintaining and strengthening community connections and contribute to creating a high-quality rural lifestyle for residents and attractive experience for visitors.

Identifying where features are known to contain, or are likely to contain, heritage significance is an important first step toward protecting and maintaining it in a meaningful way. To achieve this, the Strategy draws on recent studies to identify locations where additional considerations will be required to protect heritage values. Separate considerations are provided for historically relevant features, generally, and for Aboriginal cultural heritage values specifically.

Historical heritage

The EA, and accompanying studies, identified evidence of human occupation and settlement within the Strategy Area that reflects the longstanding importance of the area to the Wiradjuri people, as well as the relevance of the area to European contact and pastoral settlement from the early-1800s.

The Historic Heritage Assessment (Appendix Q to the EA) presents the findings of desktop searches and field surveys to identify potential non-Aboriginal heritage items and investigate their significance. Of the thirteen items identified, six (6) are located within Warrumbungle Shire LGA, and all were determined to be locally significant. These six items are described in **Table 13** and illustrated on **Figure 16**.

Table 13: Summary of non-Aboriginal heritage items identified in the EA

Ref	Item name	Description and significance
1.	Dapper Union Church	Established c. 1910 and constructed using bricks from the local area. It catered for three denominations - Anglican, Methodist, and Presbyterian, and was a focus for religious and social life for many farming families. It is currently in fair condition. Locally significant
2.	Cobb and Co Stopping Place	Visible remains including broken bricks and dressed sandstone blocks suggest this was potentially a stopping place for the Cobb and Co coaching company. Further archaeological investigation could reveal more about the importance of the area as a main travel route during early settlement. Locally significant
3.	Laheys Creek Cemetery	This cemetery is associated with the Falconer family, one of the earliest families to settle in the area. Four generations of the Falconer family are buried here. The earliest identifiable marker dates to 1862, and the most recent burial was conducted in 1965. The graves are currently in good condition. Locally significant
4.	Yukon Paradise	A locally rare, and externally intact example of a 1920s farmhouse. It is in good condition and situated in a visually prominent position. Locally significant
5.	Brick Clamp	Visual remains of a structure with broken and badly fired bricks suggest this was formerly a brick clamp Strategy Area. Further archaeological investigation could reveal more about historical construction methods and local brick making techniques. Locally significant
6.	Woolandra	A locally rare, and externally intact example of a circa 1890-1910s farmhouse. It is in good condition. Locally significant

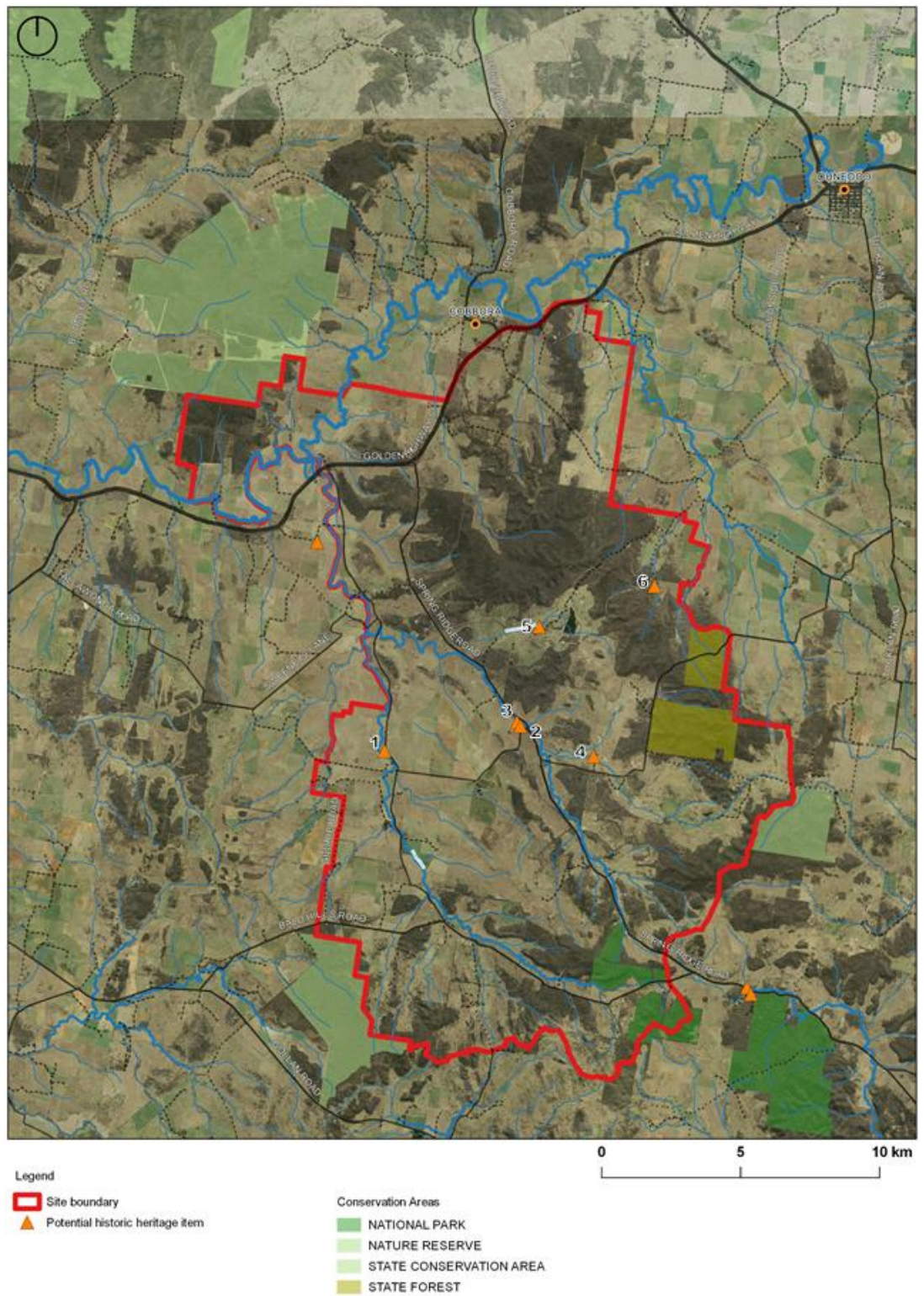


Figure 16: Historic heritage items to be considered for inclusion in Council's LEP (Source: CPSD using data supplied by CHC).

Aboriginal cultural heritage

The Aboriginal Cultural Heritage Assessment (Appendix P to the EA) presents the findings of archaeological surveys, and engagement with local Aboriginal community representatives. This identified objects or places that are significant to Aboriginal heritage, with separate considerations for scientific and socio-cultural values.

The Aboriginal Cultural Heritage Assessment recorded 229 Aboriginal objects or places, many of which are located within the Strategy Area. These include open stone artefact sites, scarred trees, grinding groove sites, hearths and rock shelters generally occurring along waterways and ridgelines. These are each considered to have scientific value of varying degrees.

Several areas of archaeological sensitivity were also identified along many of the creeks, which could potentially contain unrevealed heritage values. With few exceptions, the recorded Aboriginal objects or places are also situated within these areas, as illustrated on **Figure 17**.

While the number and frequency of Strategy Areas recorded reflect the historic significance of the broader landscape to Aboriginal people, engagement undertaken to inform the Aboriginal cultural heritage assessment did not identify any evidence that the Strategy Area is of specific socio-cultural value.

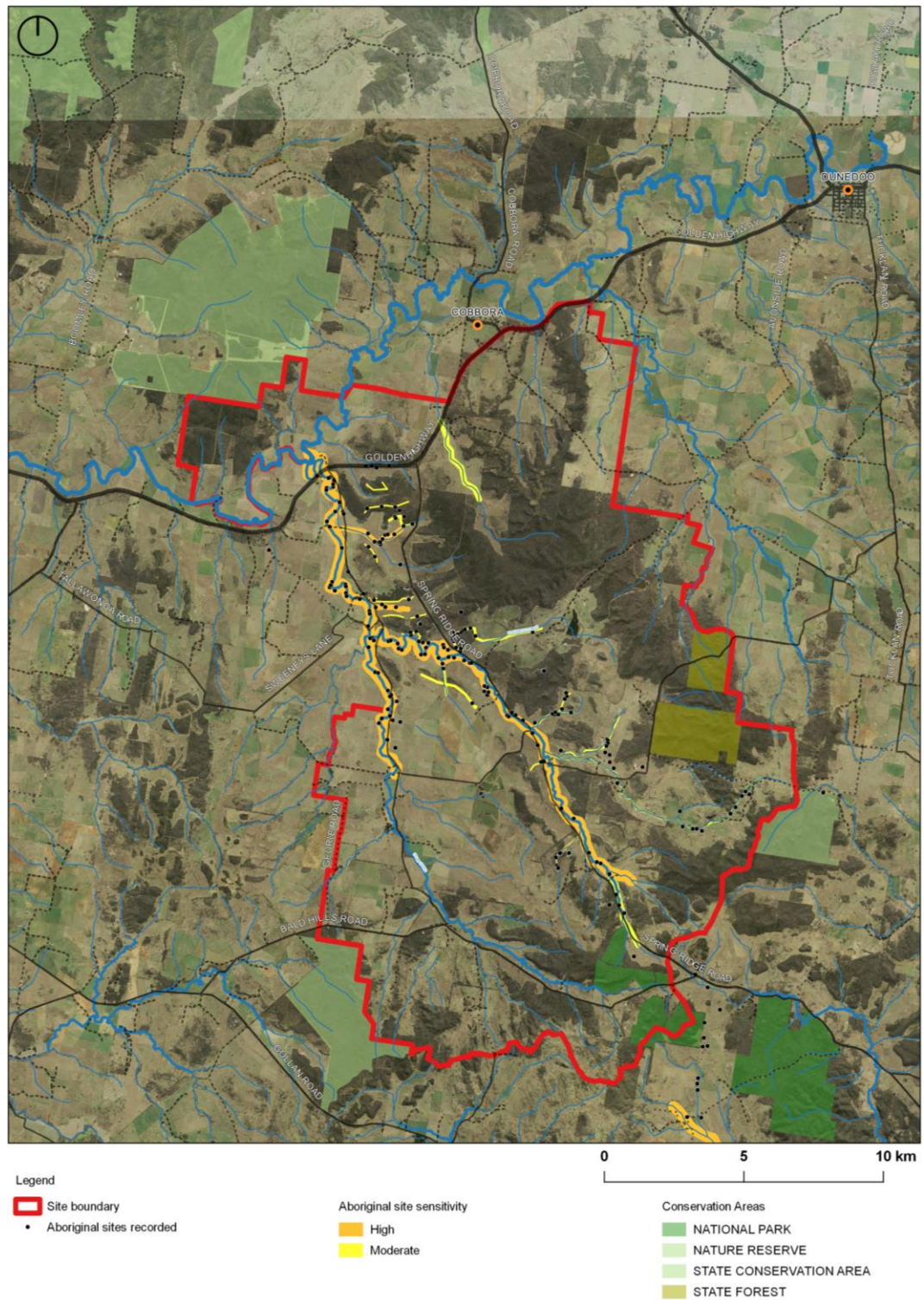


Figure 17: Recorded Aboriginal Strategy Areas and areas of archaeological sensitivity to be considered for inclusion in Council's LEP (Source: CPSD using data supplied by CHC).

Protecting heritage

The Historic and Aboriginal Cultural Heritage Assessments provide a sound basis for applying heritage provisions in Council's LEP. The standard instrument compels all LEPs to include clause 5.10 Heritage Conservation. Any non-Aboriginal heritage items must be listed and described on Schedule 5 - Environmental Heritage and shown on a Heritage Map.

Considerations for identifying Aboriginal heritage are summarised in **Info Box 3**. If agreement is reached with local Aboriginal communities, the location and nature of Aboriginal objects and Aboriginal places of heritage significance may be described in Schedule 5 and shown on a Heritage Map, to apply LEP clause 5.10 Heritage Conservation. Alternative approaches have been taken to applying specific provisions for Aboriginal cultural heritage in LEPs elsewhere in NSW, to identify locations with greater potential for Aboriginal objects or places to occur without revealing the exact location or nature of recorded Strategy Areas. These utilise additional local provisions that could be made under Part 6 of Council's LEP.

To support the Strategy objectives, it is recommended that Council:

- Consider identifying the six locally significant heritage items identified in the EA in Schedule 5 to the LEP, and on the LEP Heritage Map, to apply LEP clause 5.10 Heritage Conservation. This would rely on updated heritage assessments.
- Confirm that all Aboriginal Strategy Areas recorded in the Aboriginal cultural heritage assessment accompanying the EA have now been recorded on AHIMS.
- Include under LEP Part 6 a new local provision relating to development within areas identified as having a high occurrence of known Aboriginal objects or places, or otherwise being archaeologically sensitive.
- Work with local Aboriginal communities to consider whether it is appropriate to identify any of the Aboriginal Strategy Areas recorded in the Aboriginal cultural heritage assessment accompanying the EA in Schedule 5 to the LEP, and on the LEP Heritage Map, to apply LEP clause 5.10 Heritage Conservation.

Info Box 3

Considerations for identifying Aboriginal heritage

The National Parks and Wildlife Act 1974 (NPW Act) is the primary piece of legislation that protects Aboriginal Cultural Heritage in NSW. Under the NPW Act, it is an offence to harm Aboriginal objects and places. Anyone proposing to carry out an activity that may harm an Aboriginal object or place must investigate, assess and report on the harm that may be caused.

Clause 80B of the National Parks and Wildlife Regulation 2009 (NPW Regulation) provides a defence to harming an Aboriginal object whilst carrying out certain low impact activities, including farming and land management activities that are likely to occur throughout the Strategy Area. However, any person who discovers an Aboriginal object whilst undertaking any of these activities is obligated to report it, must not knowingly causing harm, and should obtain an Aboriginal heritage impact permit, if needed.

Once reported, Aboriginal objects and places are recorded in the Aboriginal Heritage Management System (AHIMS). This information is publicly accessible, if people choose to search the records. However, broadly identifying the exact location and nature of recorded Aboriginal objects or places may not always be culturally inappropriate.

Identifying in the LEP where there is a high occurrence, or potential for Aboriginal objects and places to occur can assist people to exercise due diligence in determining whether their actions will harm Aboriginal objects and places in a more culturally appropriate manner.

4. PRECINCT PLANNING GUIDELINES

This Section of the Strategy describes planning considerations relevant to three separate Precincts within the Strategy Area. These specifically consider each Precinct's attributes to provide location-specific guidelines for future planning and plan-making.

For each Precinct, the Strategy provides:

- A strategy map highlighting important features or considerations;
- A brief description of the Precinct's attributes relative to the Strategy's desired outcomes;
- Place-specific considerations for future planning; and
- Recommendations for future changes to planning controls that would enable the above.

Using these guidelines

The purpose of these guidelines is to provide a basis for considering future changes to planning controls (e.g. through Council's LEP or DCP), to achieve the intended outcomes of this Strategy. Wherever possible, the guidelines seek to utilise Council's existing planning framework, including the land use zones, overlays or other local provisions that are already provided in the LEP, to achieve the intended outcomes.

Recommended changes to planning controls, including development standards or the mapped extent of areas to which provisions should apply, reflect the evidence presented throughout this Report. The guidelines refer to other Report sections, where relevant.

4.1 PLANNING CONTROLS FRAMEWORK

Further planning and plan-making will be required to influence and facilitate change in a manner that achieves the Strategy goals. This may include changes to land use and development planning controls applying to the site, which can be supported by a range of other initiatives.

Current planning controls, set out in Council's LEP, generally apply uniform provisions across the whole of the Strategy Area. Modifying these controls in select locations may assist with facilitating Strategy outcomes. This Section consolidates considerations presented previously in this Report to provide Strategy Area-wide guidelines and recommendations to underpin future decision-making. The application of these controls within each Precinct is discussed in later sections.

Minimum subdivision lot size standards and rural subdivision considerations

The minimum subdivision lot size standard predominantly serves to limit the fragmentation of lands in a manner that creates additional dwelling entitlements. This may limit the ability of rural enterprises to offer on-site accommodation for employees (including family-run enterprises), or to generate income streams through the provision of lifestyle, tourist or visitor accommodation in addition to the main residence. These factors can influence the way a rural enterprise operates or its potential to diversify its income stream, as discussed in Section 3.1.

At the same time, Section 3.2.7 recognises that the introduction of additional rural occupiers may have a detrimental impact on water supplies within the Strategy Area. This would influence the long-term viability of rural enterprises within the Strategy Area and may have implications beyond the Strategy Area, so must be a consideration when establishing planning controls.

A minimum subdivision lot size standard of 600ha applies uniformly to all RU1 zoned land across the Strategy Area. This may put the Strategy Area at a disadvantage when compared with standards applying to adjoining land within the Dubbo Regional LGA to the west (400ha) or Mid-Western Regional LGA to the south (100ha).

The considerations for housing within the Strategy Area, provided in Section 3.3.2, demonstrate that there are fewer than 10 properties within the Strategy Area that are larger than the 600ha standard that currently applies and fewer than 15 properties that are larger than the 400ha standard applying in Dubbo Regional LGA. Based on the dwelling count presented in **Table 12**, reducing the minimum lot size standard to 400ha across the Strategy Area would, under the current RU1 - Primary Production zoning, provide an estimated capacity for an additional 8 dwellings.

The recent introduction of changes to biodiversity legislation is creating opportunities for new models of conservation management. This includes through the creation of "Stewardship Sites", which can be traded as biodiversity offsets to facilitate development elsewhere in NSW (refer to **Info Box 2**). Stewardship Sites can apply to residual (non-productive) lands within larger rural landholdings and have the potential to generate income streams for rural enterprises or rural landowners. The creation of these lots may rely on departures from the current minimum lot size standard. This may be facilitated through the introduction of a new supporting clause in Council's LEP, rather than modifications to the minimum lot size standard.

Land use zonings

Under Council's LEP, three land use zonings currently apply within the Strategy Area:

- The E1- National Parks and Nature Reserves and RU3 - Forestry zonings apply to National Parks and State Forests reserved under legislation; and
- The RU1 - Primary Production land use zoning uniformly applies to the remainder of the Strategy Area.

There may be advantages to introducing new land use zonings within the Strategy Area to more accurately convey the objectives for planning in specific locations and offer customised land use tables for permitting development. The Standard LEP offers a range of zonings intended to support development in non-urban areas. This includes rural and environmental protection zonings that may suitably apply within the Strategy Area.

Table 14 summarises alternative planning controls considered suitable to the Strategy Area, based on current practice guidelines¹⁵, noting:

- None of the recommended zonings are intended to suggest the area is suitable for urban development, or additional rural residential development that is not otherwise associated with a rural enterprise.
- Non-agricultural land uses may be suitable within the Strategy Area but would need to be considered on a case-by-case basis. These types of development may be facilitated through the application of other zonings, including industrial zonings as relevant.
- The RU1 zoning is expected to continue applying across the majority of the Strategy Area.
- The application of the RU4 - Primary Production Small Lots zoning would provide greater direction as to the preferred location of more intensive enterprises. Potential uses were discussed in Section 3.1 of this Report.
- The application of the RU2 - Rural Landscape and RU6 - Transition zonings would better signify where the ongoing use of land may be limited by surrounding uses or sensitivities such as established rural residential, forestry or conservation areas.
- The application of alternative environmental protection zonings E2 - Environmental Conservation and E3 - Environmental Management would better signify where environmental sensitivities occur, and the primary objective of land use is to protect or otherwise support these sensitivities.

Except for the RU1 zoning, the alternative zonings presented do not currently apply elsewhere in Warrumbungle Shire LGA.

Other Strategy-wide matters for consideration

Section 3 outlined several matters that may rely on adjustments to several provisions, including LEP overlays for heritage conservation, terrestrial biodiversity, groundwater vulnerability, and riparian land and watercourses, or matters that may require a site-specific DCP for all or parts of the Strategy Area.

¹⁵ LEP Practice Note PN11-002

Table 14: Summary of recommended zonings and lot sizes considered suitable to the Strategy Area

Standard zone	Intention of zone	Applicability within Strategy Area	Lot sizes ¹
RU1 - Primary Production	To cover most kinds of primary industry production, including agriculture, forestry and extractive industries.	Areas suitable for cropping.	Between 400-600ha
RU4 - Primary Production Small Lots	To specifically support agricultural uses that operate on smaller rural holdings or that are more intensive in nature.	Less fertile soils; and Already containing lifestyle blocks.	Between 200-400ha ²
RU2 - Rural Landscape	To specifically support commercial primary production in locations with ecological or scenic landscape qualities.	Heavily vegetated lands; or Existing or potential wildlife corridors; or Less fertile soils.	Between 400-600ha
RU6 - Transition	To provide a transition between rural uses and areas supporting more intensive (rural) settlement or other environmental sensitivities.	Within 2km of existing lifestyle blocks; or Within 1km of areas reserved for conservation.	Between 400-600ha

E2 - Environmental Conservation	To identify where the primary objective of land use is to protect, manage and restore areas of high ecological, scientific, cultural or aesthetic values.	Riparian corridor lands adjoining the Talbragar River; or Land containing vegetation contributing to landscape-scale biodiversity corridors	600ha
E3 - Environmental Management	To protect or manage several coinciding environmental sensitivities on land that is clearly not used for agriculture, save for occasional grazing.	High conservation value vegetation; and High proportion of rock outcropping; and Less fertile or highly erodible soils; and Steeply sloping land (>25%).	Between 400-600ha

Note 1: Reduction in minimum lot size standards to create Stewardship Sites should be considered on a case-by-case basis

Note 2: Reduction in lot size standards below 400ha should be considered on a case-by-case basis

Table 15: Summary of other considerations Strategy-wide controls

Intention	Relevant LEP Provision	Comment
To identify and protect items of heritage significance, having regard to Aboriginal and non-Aboriginal heritage.	LEP cl 5.10, Schedule 5 Environmental Heritage, and associated "Heritage map"	<p>This could be achieved by amending Schedule 5 and LEP mapping to identify the locally significant heritage items identified in Table 13 of this Report.</p> <p>Working with local Aboriginal communities to formulate suitable controls could assist with protecting objects or places of cultural significance, including those illustrated in Figure 17 of this Report.</p>
To identify and protect High Conservation Value vegetation, or vegetation that otherwise contributes to landscape-scale biodiversity corridors.	LEP cl 6.3, and associated "Terrestrial biodiversity map"	<p>This could be achieved by amending LEP mapping to more accurately identify the extent of HCV vegetation and relevant vegetation within biodiversity corridors, as indicated in Figure 11 and Figure 12, respectively. This would rely on further ecological investigations, undertaken in consultation with OEH.</p>
To identify and protect groundwater dependent ecosystems.	<p>LEP cl 6.4, and associated "Groundwater vulnerability map"</p> <p>or</p> <p>LEP cl 6.3, and associated "Terrestrial biodiversity map"</p>	<p>This could be achieved by amending LEP mapping to identify the location of GDEs as illustrated in Figure 13.</p> <p>Alternatively, amending LEP mapping for "Terrestrial biodiversity" to identify the location of GDEs as illustrated in Figure 13.</p>
To enable replacement of lawfully erected houses that were previously demolished or made vacant as a result of CHC land acquisitions.	New sub-clause to 4.2 Rural Subdivision, with associated map	<p>This could be achieved by introducing a new LEP map to identify the Strategy Area boundary, and all properties within the Strategy Area that contained a dwelling at the time of CHC acquisition.</p> <p>The above change would need to be supported by the introduction of a new sub-clause to 4.2 Rural Subdivision to permit the erection of dwelling houses on the properties identified, facilitating re-development.</p> <p>The new sub-clause should include a sunset clause of a minimum 5 years.</p>

4.2 PRECINCT 1

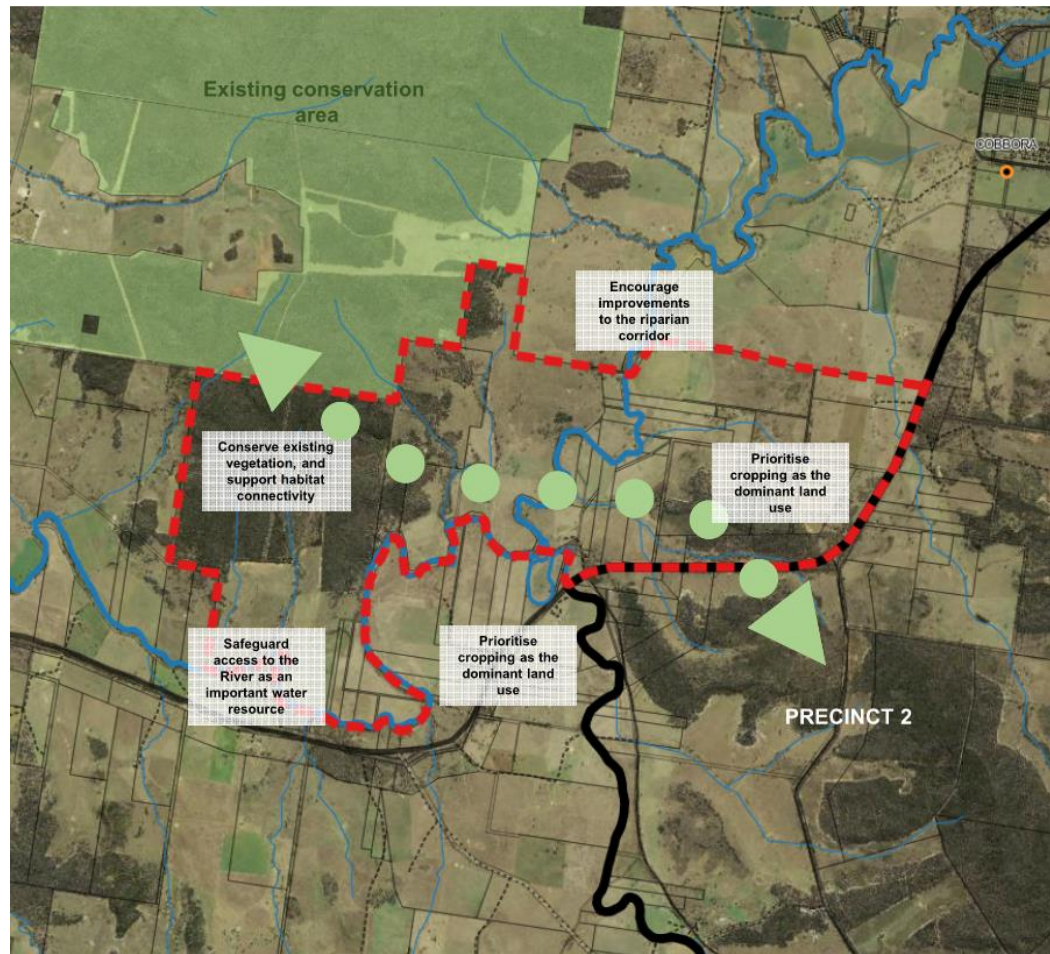


Figure 18: Precinct 1 Strategy map

Precinct 1 extends to around 2,720ha and includes all the Strategy Area land situated to the north of the Golden Highway.

The Precinct is highly visible from the Golden Highway. It provides an attractive rural outlook, including long views northwards to heavily forested hilltops.

Most of the land within the Precinct is considered highly suitable to, and is currently used for, cropping. These areas have already been substantially cleared for agricultural activities.

The current subdivision pattern reflects a high level of fragmentation, with lot sizes generally ranging from around 20 to 500ha. The location of existing dwellings and other outbuildings suggest this pattern is likely to relate to 4 former landholdings. It is understood that land within the Precinct was recently sold as three landholdings, at around 390ha, 950ha and 1,180ha.

The Talbragar River bisects the Precinct and affords properties within it convenient access to quality water supplies, subject to water allocation licenses. The River is also likely to be an important water supply source for other rural industries in the area, which may require access to extract water.

The Precinct does include some heavily vegetated areas that are likely to contain important biodiversity values, particularly:

- toward the west, and north of the River leading into adjoining areas already reserved for conservation; and
- toward the south west, along less fertile hills and ridgelines.

These areas should be managed to maintain habitat connectivity.

Place-specific planning considerations for Precinct 1 are illustrated on **Figure 18** and summarised below.

- Prioritise broadacre cropping as the predominant commercial land use.
- Other uses, including intensive activities, may be accommodated within the Precinct where they do not adversely impact on the long-term viability of cropping activities.
- Prevent fragmentation of land suitable for cropping by encouraging larger landholdings. This will include maintaining high minimum subdivision lot size standards.
- Discourage any further rural residential subdivision of properties fronting the Talbragar River. This will minimise the amount of water afforded to property owners through basic landowner entitlements.
- Safeguard the potential for future water supply infrastructure by reserving access to the River, including through the provision of easements.
- Encourage land and conservation management that maintains or improves the Talbragar riparian corridor. This may include voluntary initiatives or landowner requirements to rehabilitate or restore vegetation along the riverbank.
- Encourage the conservation and improvement management of heavily vegetated areas, particularly where these provide habitat connectivity.

Table 16: Recommended land use zonings suitable to Precinct 1

Standard zone	Applicability within Precinct	Intention	Lot size range ¹
RU1 - Primary Production	Areas suitable for cropping, generally comprising the entire Precinct.	To minimise the fragmentation of land more suited to broadacre cropping within the Strategy Area.	400-600ha
E2 - Environmental Conservation	Riparian corridor lands adjoining the Talbragar River	To protect the water supply and encourage regeneration	600ha
Note 1: Reduction in minimum lot size standards to create Stewardship Sites should be considered on a case-by-case basis			

4.3 PRECINCT 2

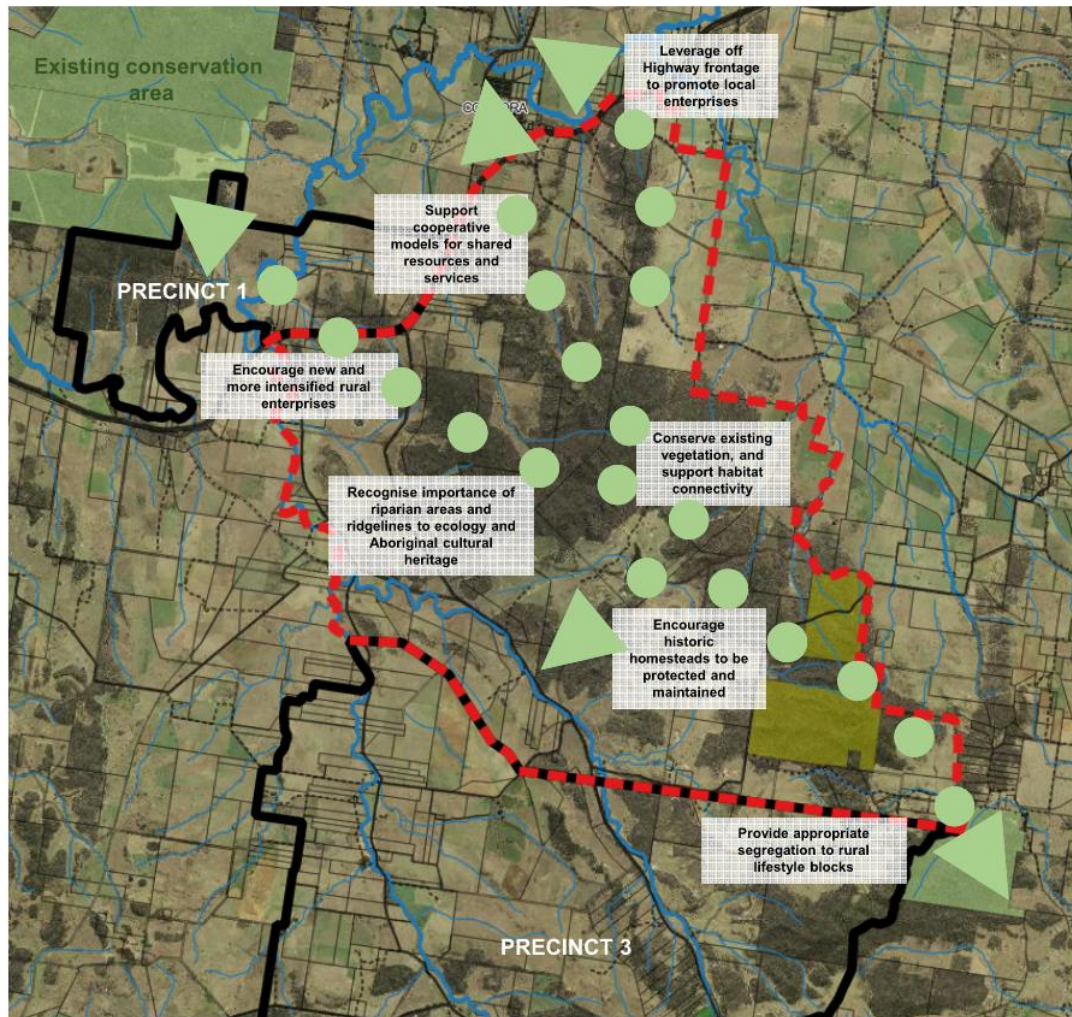


Figure 19: Precinct 2 strategy map

Precinct 2 extends to around 16,650ha and comprises the central part of the Strategy Area, from the Golden Highway southward to Dapper Road.

This Precinct currently has some of the largest lots available. These larger lots generally incorporate extensive areas of heavily forested land, which may not immediately provide substantial commercial opportunities for landowners. These areas are known to be ecologically important and may be significant to local Aboriginal communities. Identifying appropriate land access and management arrangements should be a priority for future planning.

The Precinct also contains features that reflect the area's settlement history, including historic homesteads at Woolandra and Yukon Paradise, as well as the Laheys Creek Cemetery. Encouraging investment into this Precinct can assist in maintaining these local heritage places and make it easier for people to visit and appreciate them.

Land within the Precinct is not generally suitable for cropping, but is highly suited to livestock grazing and already supports several mixed farming models. New rural industries can leverage off advantages already afforded in the Precinct:

- Convenient access to the Highway for efficient freight and labour connections, as well as marketing opportunities.
- Relatively good internal circulation via Sandy Creek Road, Spring Ridge Road, and Dapper Road.
- Potential water supply allocations from Sandy Creek and Laheys Creek, Woolandra Dam, along with limited groundwater sources.

Precinct 2 is the most suitable location within the Strategy Area to accommodate new or intensified rural industries, including non-agricultural industries. The success of any new enterprise will rely on addressing the challenges discussed throughout this Report, including sourcing sufficient water supplies and/or minimising water requirements, diversifying income streams, etc.

The suitability of new uses will continue to be considered on a case-by-case basis as opportunities arise (e.g. through the assessment of LEP amendments or development applications). These are generally expected to reflect a collection of smaller rural agricultural enterprises operating from landholdings of between 300-500ha. Smaller holdings may be suitable for intensive agriculture or specialised non-agricultural pursuits.

Several precinct-level initiatives may assist in attracting new projects and investment to the area, particularly where these assist operators in reducing costs or other risks associated with water, transport, and marketing.

Place-specific planning considerations for Precinct 2 are illustrated on **Figure 19** and summarised below.

- Prioritise this area as the preferred location for new and more intensified rural industrial pursuits, including agricultural and non-agricultural activities, subject to Strategy Area suitability. This may include reducing the minimum subdivision lot size standard to reflect current industry trend and support smaller operations. Reductions below 400ha should be considered on a case-by-case basis.
- Facilitate advertising and wayfinding signage along the Golden Highway, allowing local operators to promote their product. Investigate opportunities for enterprises to share resources and services, particularly with respect to water supplies, freight and logistics, and marketing or branding, including through the establishment of cooperative management and funding models.
- Provide appropriate segregation between incompatible land uses within the Precinct, and to existing rural lifestyle blocks situated to the south and east.
- Encourage land and conservation management that maintains or improves riparian corridors along Sandy Creek and Laheys Creek. These areas are also likely to contain features or places important to Aboriginal cultural heritage. Shared access and management arrangement with Aboriginal communities should be considered through future planning.
- Encourage the conservation and improvement management of heavily vegetated areas, particularly where these provide habitat connectivity. This may include considerations for future land dedications to the public reserve system or establishing private conservation arrangements to assist with funding ongoing management initiatives.

Table 17: Recommended land use zonings suitable to Precinct 2

Standard zone	Applicability within Precinct	Intention	Expected lot size range ¹
RU1 - Primary Production	Areas suitable for cropping toward the western part of the Precinct.	To minimise the fragmentation of land more suited to broadacre cropping within the Strategy Area.	400-600ha
RU4 - Primary Production Small Lots	Less fertile soils that have already been cleared of vegetation.	To encourage employment opportunities that relate to more intensive agricultural models and facilitate a greater diversity of non-agricultural uses.	200-500ha ²
RU 2 - Rural Landscape	Heavily vegetated lands providing existing or potential wildlife corridors in the central part of the Precinct.	To facilitate private landowners to participate in conservation schemes such as through the dedication of lands to public or private reserve systems, or participation in offset trading schemes such as BioBanking.	400-600ha
RU6 - Transition	Within 2km of existing lifestyle blocks towards the south of the Precinct.	To protect and manage development in areas that have the potential to adversely affect existing lifestyle blocks, and to safeguard long-term opportunities for rural industries by discouraging further encroachment of residential development.	400-600ha
E-zones	Large stands of contiguous vegetation within biodiversity corridors, once validated.	To signify an ongoing priority to manage land for conservation, particularly where this is supported by other measures such as public reservations or stewardship agreements.	400-600ha
<p>Note 1: Reduction in minimum lot size standards to create Stewardship Sites should be considered on a case-by-case basis</p> <p>Note 2: Reduction in lot size standards below 400ha should be considered on a case-by-case basis</p>			

4.4 PRECINCT 3

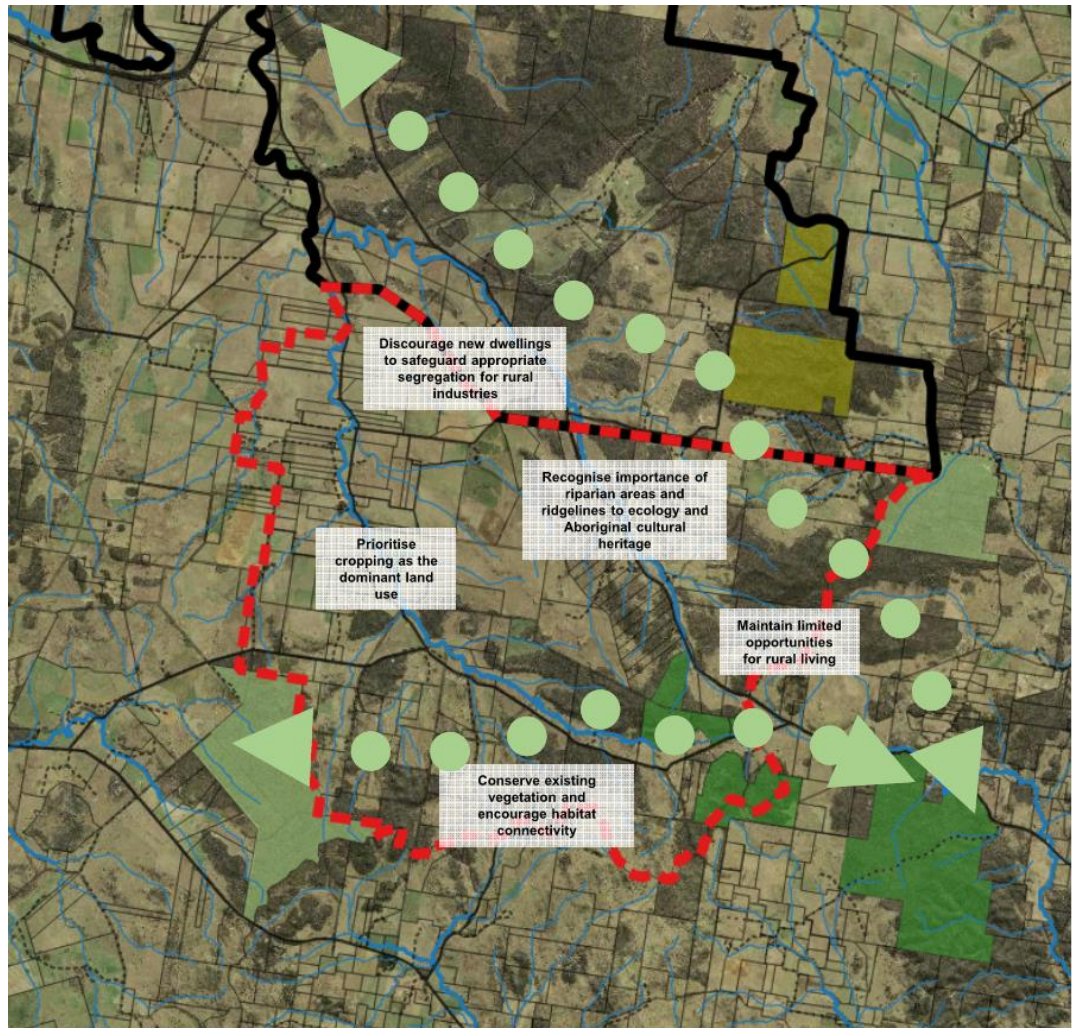


Figure 20: Precinct 3 strategy map

Precinct 3 extends to around 14,450ha and generally includes all the Strategy Area land situated to the south of Dapper Road.

The Precinct is relatively isolated, and the furthest distance from the Highway. The current subdivision pattern reflects a high level of fragmentation, with lot sizes generally ranging from around 20 to 400ha. These appear to predominantly reflect larger agricultural landholdings, with the exception of the lifestyle blocks fronting Spring Ridge Road.

The Precinct affords several properties direct frontage to Sandys Creek and Laheys Creek. These water supplies are expected to remain important resources for other rural industries across the Strategy Area, which may require access to extract water.

The Precinct does include some heavily vegetated areas that are likely to contain important biodiversity values, particularly along less fertile hills and ridgelines. These may contain habitat links important to support east-west wildlife movements between Goodiman State Conservation Area, Yarrobil National Park and Dapper Nature Reserve. These areas should continue be managed to maintain habitat connectivity.

Place-specific planning considerations for Precinct 3 are illustrated on **Figure 20** and summarised below.

- Prioritise broadacre cropping as the predominant commercial land use.
- Prevent fragmentation of land suitable for cropping by encouraging larger landholdings. This will include maintaining high minimum subdivision lot size standards.
- Protect the amenity of existing lifestyle blocks by segregating inappropriate land uses.
- Discourage any further rural residential subdivision of properties fronting existing waterways. This will minimise the amount of water afforded to property owners through basic landowner entitlements.
- Discourage any further residential encroachment toward Precinct 2, to safeguard future opportunities for rural industries in that Precinct.
- Safeguard the potential for future water supply infrastructure by reserving access to the existing waterways, including through the provision of easements.
- Encourage land and conservation management that maintains or improves riparian corridors associated with existing creeklines. This may include voluntary initiatives or landowner requirements to rehabilitate or restore vegetation along the riverbank.
- Encourage the conservation and improvement management of heavily vegetated areas, particularly where these improve east-west habitat connectivity.

Table 18: Recommended land use zonings suitable to Precinct 3

Standard zone	Applicability within Precinct	Intention	Lot size range ¹
RU1 - Primary Production	Areas suitable for cropping toward the western part of the Precinct, around Sandy Creek	To minimise the fragmentation of land more suited to broadacre cropping within the Strategy Area.	400-600ha
RU6 - Transition	Including or within 2km of existing lifestyle blocks.	To protect and manage development in areas that have the potential to adversely affect existing lifestyle blocks, and to safeguard long-term opportunities for rural industries by discouraging further encroachment of residential development.	400-600ha
RU 2 - Rural Landscape	Less fertile soils or existing lifestyle blocks located >2km from Precinct 2.	To facilitate private landowners to participate in conservation schemes such as through the dedication of lands to public or private reserve systems, or participation in offset trading schemes such as BioBanking.	400-600ha
E-zones	Large stands of contiguous vegetation within biodiversity corridors, once validated.	To signify an ongoing priority to manage land for conservation, particularly where this is supported by other measures such as public reservations or stewardship agreements.	400-600ha
<p>Note 1: Reduction in minimum lot size standards to create Stewardship Sites should be considered on a case-by-case basis</p> <p>Note 2: Reduction in lot size standards below 400ha should be considered on a case-by-case basis</p>			

5. CONCLUSION AND NEXT STEPS

This Report outlines a Strategy for CHC's former landholdings that can enable the area to become a high-value rural industries precinct for the Dunedoo district. This recognises the opportunities afforded by the aggregation and management of the land by CHC since 2008, and the onward sale of the land to the private market between 2016-2017.

The public exhibition of a draft Strategy during August 2018 enabled key stakeholders, and the general community, to provide feedback on the range of potential uses considered suitable for the site, and the matters that should be considered when planning for the future development and use of land within the Strategy Area. This Strategy has been finalised based on feedback received during the exhibition period.

As an addendum to Council's LGA-wide Land Use Strategy, the Cobbora Strategy will form the basis for strategic planning considerations within the Strategy Area. This could result in changes to Council's planning controls, including its LEP (e.g. land use zonings, minimum lot size standards, overlay mapping) or DCP. Specific actions will be set out in an Implementation Plan, which will accompany the finalised Strategy.