Liverpool Plains Shire Growth Management Study and Strategy








EDGE LAND PLANNING

Liverpool Plains Shire Council

NSW GOVERNMENT
Department of Planning

August 2009

Liverpool Plains Shire Council

Liverpool Plains Shire Growth Management Study and Strategy

Prepared for Liverpool Plains Shire Council and the Department of Planning
by

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Chapter 1 Introduction

1.1 Introduction

Liverpool Plains Shire was created in 2004 and comprises all of the former Quirindi Shire, the North and Western parts of Murrurundi Shire, the south western part of the former Parry Shire and a small part of Gunnedah Shire at Caroona. This is shown on map 1.1.

Liverpool Plains Shire is located in Northern New South Wales and covers an area of 5,002 square kilometres. The main industries include sheep and cattle farming, wheat, cotton and various other crops, as well as, some manufacturing including saw milling (under construction). There are also several intensive animal industries including poultry and cattle. Liverpool Plains Shire is also an area for recreation and tourism. In addition a coal mine has commenced operations at Werris Creek and there is also a considerable amount of exploration for coal and coal bed methane being currently undertaken. These resources form part of the larger Gunnedah Basin coal resource and will lead to increasing mining activity within the Shire.

The Shire has a resident population of 7,541 persons and the major urban settlements are Quirindi, Werris Creek and Willow Tree. Other smaller settlements include Ardglen, Blackville, Caroona, Colly Blue, Currabubula, Pine Ridge, Premer, Spring Ridge, Wallabadah and Walhallow.

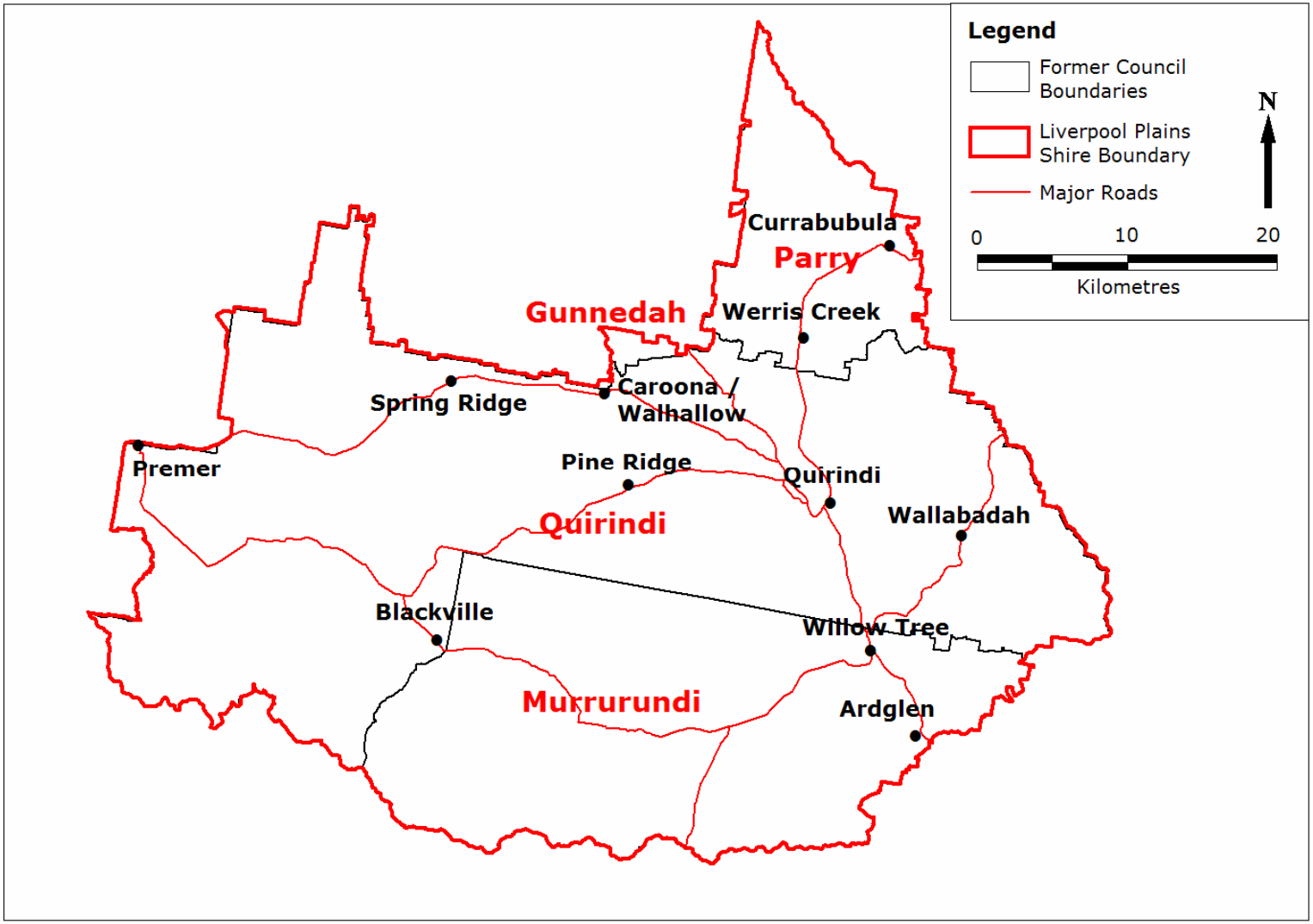
The land within the Shire provides an important resource, both for the Shire and the wider region. This resource consists of a number of components:

- Productive agriculture
- Rural landscapes
- Towns and villages
- Waterways
- Mineral Deposits
- Native vegetation
- Industry
- Community facilities and services
- Cultural heritage

The Growth Management Strategy will provide a future direction for the settlements and land within the rural areas of the Shire. It is the first stage in the review of the current Local Environmental Plan (LEP). There are 3 other documents prepared in 2005 (and which are available on Council's Website) as follows:

- Issues Paper (Published in February 2005)
- Community Consultation Report (Published in June 2005)
- Community Based Shire Wide Heritage Study (2005)

This document provides a description of the physical, social and economic environment of the Shire as well as the planning context. The development pattern is described as well as the issues facing the future of the Shire. Finally, analysis of these issues has been carried out to provide a set of options. It then discusses the matters that have to be addressed to achieve a sustainable future for the Shire. The Strategy provides a vision, growth management philosophy, development principles, objectives, strategies and policy actions for a number of matters that are all related to providing a sustainable future for the Shire.



Map 1.1: Former Shire Boundaries

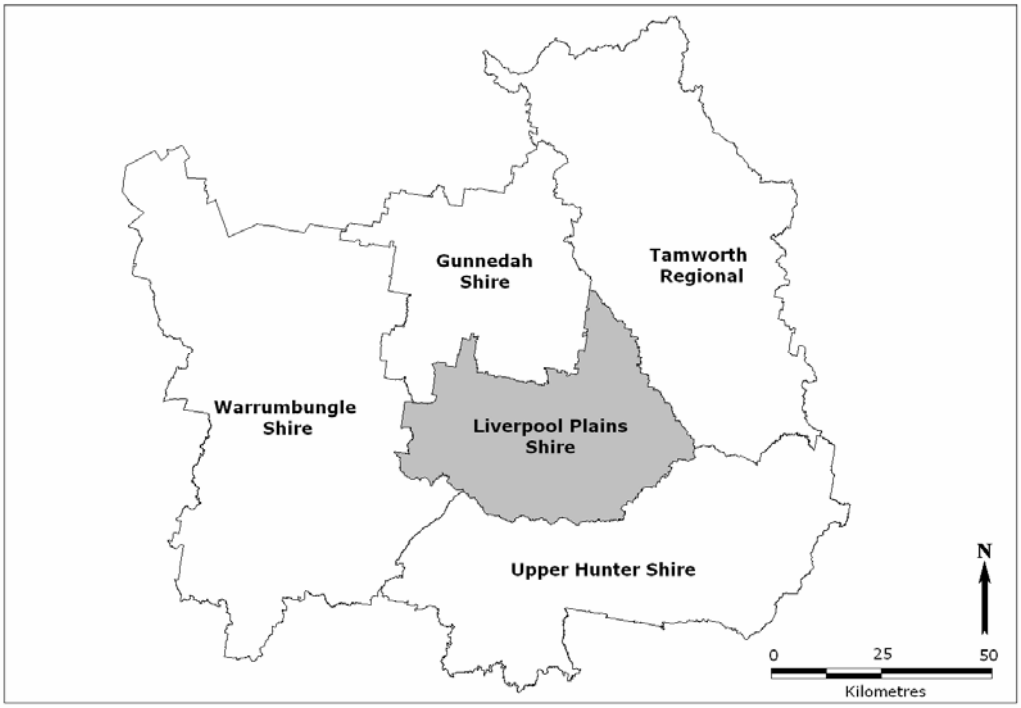
These include land use planning, growth management, social issues, economic development, infrastructure, catchment management, biodiversity, natural hazards, landscapes, heritage and culture.

This Strategy was exhibited from 10 November to 19 December 2008. Council subsequently adopted the Strategy at its meeting held on 25 March 2009 after considering a report on the submissions received during the exhibition period.

This project has been funded by the Department of Planning through the Planning Reform Fund. It is consistent with the recently announced planning reforms because this strategy will lead to a review of the current LEP which will use the Standard LEP.

1.2 Location and Study Area

The Liverpool Plains Shire is located on the North West Slopes and Plains Region of NSW. To the north is Gunnedah Shire with Tamworth Regional Council to the north and east and Upper Hunter Shire Council to the east and south. Warrumbungle Shire Council is to the west. Map 1.2 shows the surrounding Shires. It should be noted that the Shires of Coonabarabran and Coolah have been recently amalgamated to form the Warrumbungle Shire.

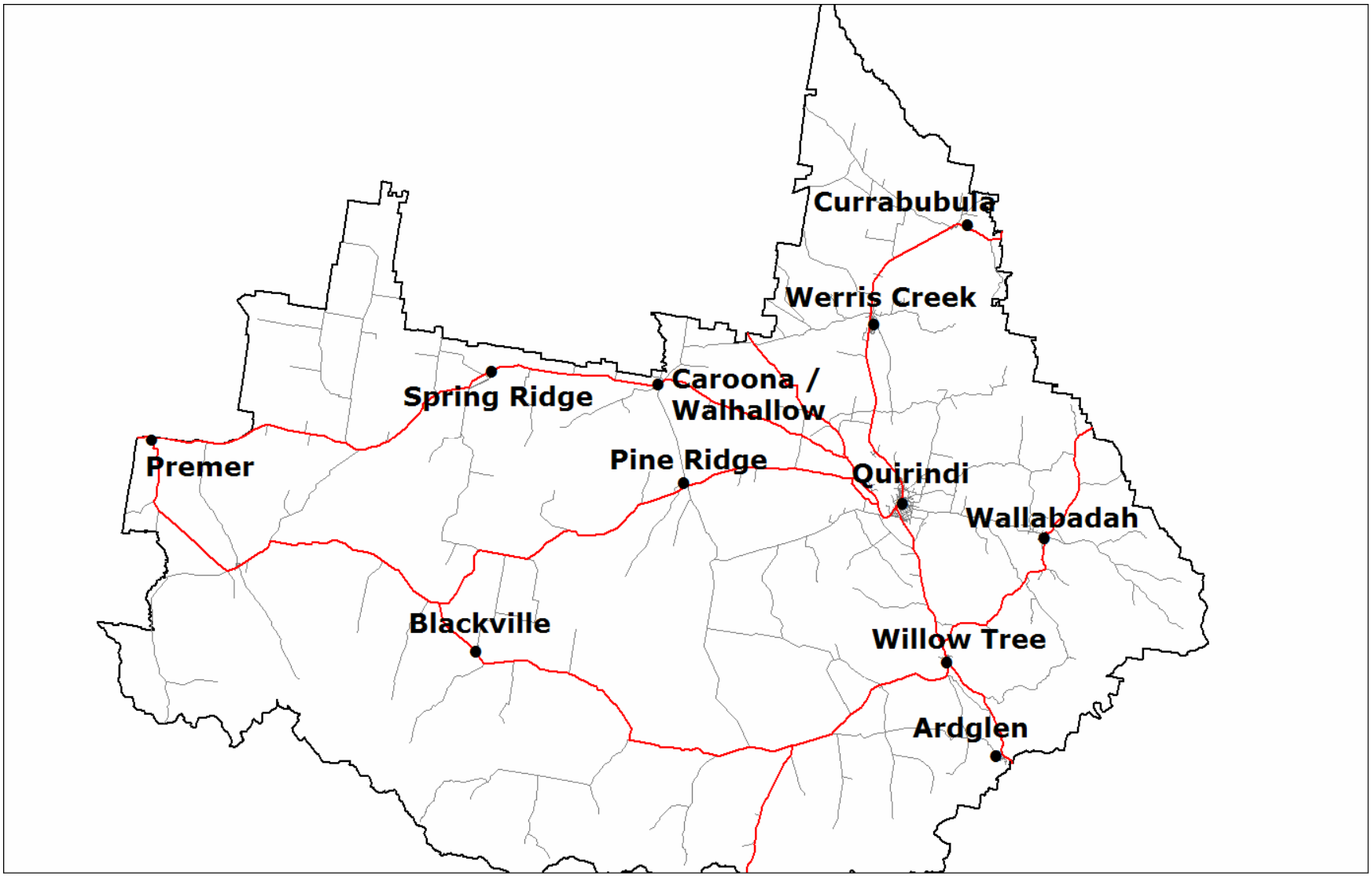


Map 1.2: Surrounding Shires.

The Shire has an area of 5,002 square kilometres. There are a number of settlements in the Shire and they include the following:

- Quirindi
- Werris Creek
- Willow Tree
- Wallabadah
- Currabubula
- Ardglen
- Colly Blue
- Pine Ridge
- Caroona
- Walhallow
- Spring Ridge
- Blackville
- Premer

Map 1.3 shows the Liverpool Plains Shire and the location of these settlements.



Map 1.3: Liverpool Plains Shire showing the location of the settlements.

1.3 Study Objectives

- To provide a focus on strategic planning at the local level within a State / Regional context;
- To implement a set of modern planning controls for Liverpool Plains Shire to meet the contemporary needs of the community that:
  - ⇨ Provides electronic delivery
  - ⇨ Recognises natural resource management issues
  - ⇨ Identifies and protects the Shire's heritage assets
  - ⇨ Contains a rural landuse strategy
  - ⇨ Provides for urban development opportunities
- To engage an experienced environmental planning consultant to assist Council to undertake a study, develop a strategy and draft an appropriate plan including maps and associated support documentation;
- To undertake extensive consultation with the community and agencies to ensure the adopted plan is relevant to the needs of the Shire;
- To develop a single local environmental plan for Liverpool Plains Shire as part of the local government boundary reform process;
- To undertake sub-regional planning of the Namoi catchment in particular with the Namoi Catchment Management Authority, Department of Planning and Department of Natural Resources and other agencies with responsibility for land management;
- To implement best practice land use management for rural lands given the importance of the "black soils" for agriculture.

The brief is reproduced as Appendix 1.

1.4 Why Prepare a Strategy

The preparation of a strategy is a vital component in the future sustainability of the area. It enables the Council to consider all of the aspects of the social, environmental and economic issues that interact and have to be considered for the future of an area. The strategy is an overarching document that provides the Council with guidance for the future of the area to ensure its sustainability. It also provides a basis for Government Departments and other organisations to plan for the provision of public and private infrastructure and services in the LGA. It will develop a clear statement of principles and a map that will be the strategic direction for growth management outcomes for the Shire over the next 20 years.

The preparation of a strategy enables the Council and other organisations to address the big picture issues as well as providing a road map for the future direction of the development of an area. It is important to recognise however, that this strategy also gives a direction for further work. It provides a framework and sets the direction for future rezonings that will implement the strategy.

The measure of success of a strategy is its implementation by the Council and the acceptance of this by the community. The strategy will make a series of recommendations that will have an impact on the Council's resources. In an area like Liverpool Plains, where new urban housing is being produced, a large amount of the resources of the Council is devoted to these areas. Too often in the past, the provision of services and facilities to the rural areas and villages has not kept pace with the urban areas. It should be recognised that the Council needs to devote a considerable

amount of resources to achieve the outcomes that would be expected by the community if the strategies were to be implemented. If we are to achieve a sustainable future, this resource imbalance needs to be rectified. Costing of the strategies need to be considered in the context of the Council's Management Plan.

1.5 Methodology

The study has been prepared by the consultant based on discussions held with Council Officers, Government Departments and the Community.

Data was gathered based on secondary information except for a detailed landuse survey and lot and holding size analysis, which was carried out by the consultant. The land use survey entailed utilising aerial photography to gain an appreciation of the landuse, which was then field checked by a survey of all roads and properties in the Shire. This information was then coded and entered into Councils property database, which enabled it to be mapped using a Geographical Information System (GIS). The holding sizes within the Shire were categorised and mapped. The Shire was inspected from the air in a light plane, which provided a valuable perspective on the issues such as catchments, vegetation and conflicting landuses. A detailed description of the methodology for the landuse survey is contained in Appendix 2.

A detailed literature review has been carried out of studies and issues relevant to local and regional planning. Discussions were held with various Council officers covering the areas of planning, environmental science, engineering and social services.
Australian Bureau of Statistics census information was used to provide a population and demographic profile of the Shire.

Input has been given by the Community and the State Government Departments through formal and informal discussions. In addition, a series of community consultation meetings were held. The outcome of the consultation is reported in a separate document titled Community Consultation Report (which is available on Council's Website).

Chapter 2: Existing Characteristics

2.1 Introduction

Liverpool Plains Shire has an array of existing characteristics. They have been grouped under the following headings:

- Physical and Environmental Characteristics – natural and built environment
- Social Profile
- Economic Factors

This has been done to reflect the main components of Ecologically Sustainable Development (ESD) and also to provide a logical break-up of information.

2.2 Physical and Environmental Characteristics

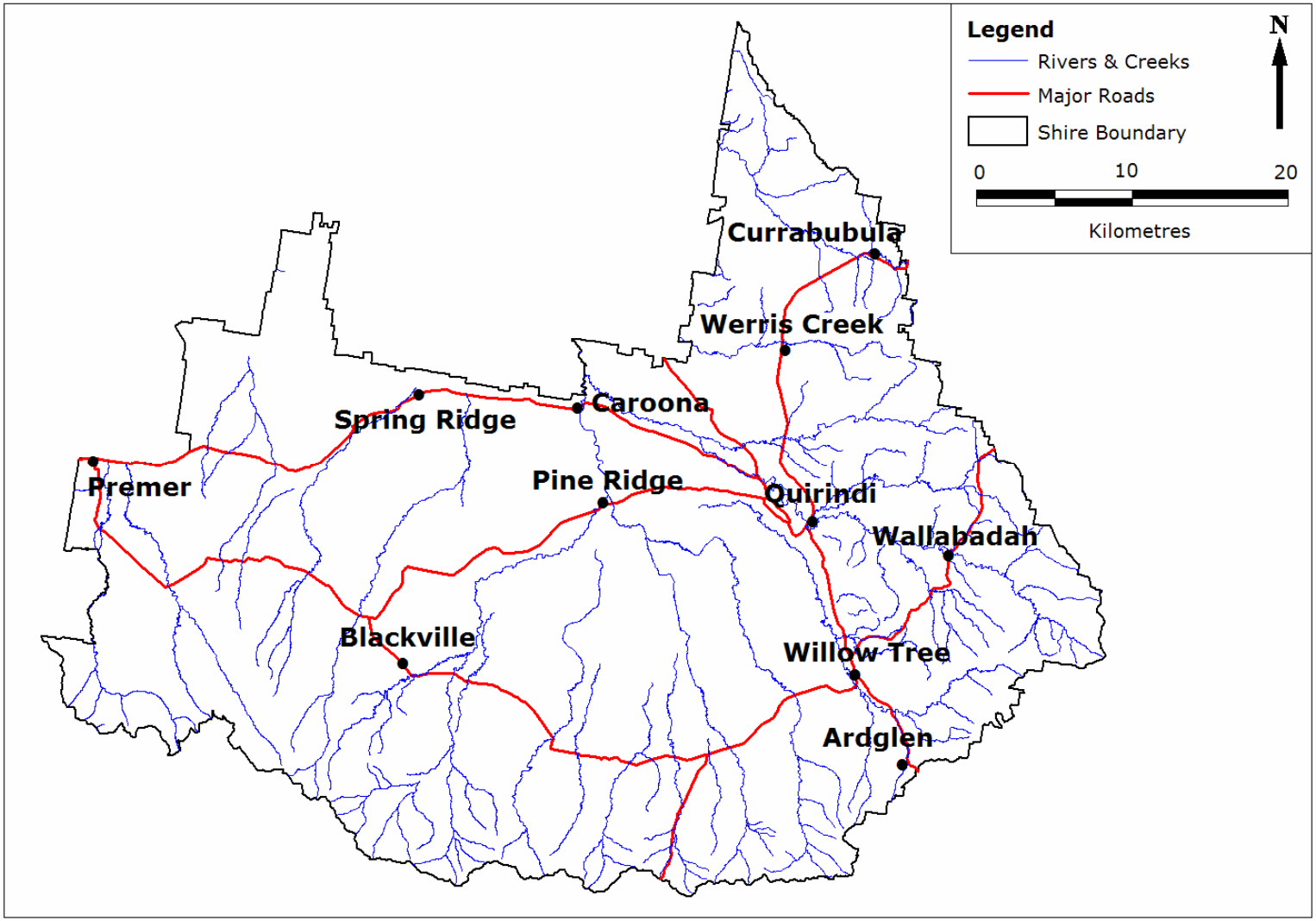
Liverpool Plains Shire has a range of physical and environmental characteristics which combine to give it its unique qualities. They can be categorised into the Natural Environment and the Built Environment. They will be discussed briefly below.

Natural Environment

2.2.1. Water Catchments

Liverpool Plains Shire is part of the Namoi Valley Catchment, which in turn is part of the Murray Darling Basin. Map 2.1 shows the drainage pattern of the Shire. There is one major river flowing through the Shire which is the Mooki River. Photo 2.1 shows the Mooki River at Caroona.

Photo 2.1: The Mooki River at Caroona
Date of Photo: March 2005



Map 2.1: Rivers and Creeks

There are also a number of smaller creeks that traverse the Shire. These creeks can be divided into 2 categories:

1. Ones that flow through the flat Liverpool Plains and have their headwaters in the Ranges to the south. The main land use of these catchments is cropping on the plains and grazing in the ranges. Photo 2.2 shows Warrah Creek near Pine Ridge before it joins the Mooki River. These creeks include the following:

    - ⇨ Cox's Creek
    - ⇨ Bundella Creek
    - ⇨ Coomoo Coomoo Creek
    - ⇨ Yarraman Creek
    - ⇨ Phillips Creek
    - ⇨ Big Jacks Creek
    - ⇨ Warrah Creek
    - ⇨ Borambil Creek

Photo 2.2: Warrah Creek near Pine Ridge
Date of Photo: March 2005

2. Ones that flow through the undulating to steep land in the east and south of the Shire and then end up in the flat land in the west and north of the Shire. The main use of these catchments is grazing. Photo 2.3 shows the eastern catchment. These include the following:

    - ⇨ Chilcotts Creek
    - ⇨ Quirindi Creek
    - ⇨ Jacob and Joseph Creek
    - ⇨ Quipolly Creek
    - ⇨ Werris Creek
    - ⇨ Currabubula Creek

Photo 2.3: Eastern Catchments
Date of Photo: March 2005

There are many waterways in the Shire. Some are merely drainage depressions and only flow when it rains. Others, like the Mooki River, the Quirindi, Warrah, Borambil and Yarraman Creeks and tributaries are extremely important because of their size and location. This is not to infer that the drainage depression is not as important as the larger creeks and rivers. A key objective of Total Catchment Management (TCM) is to ensure that landuses do not have a detrimental impact on the quality of the water in streams. It is also important to strive to improve the quality of water by ensuring that the surrounding land uses are sustainable and conform to the principles of ESD.

2.2.2. Geology and Soils

The information provided in this section has been taken from the Department of Natural Resources (DNR) publications titled *Soil Landscapes of the Tamworth, Murrurundi, Blackville and Curlewis 1:100,000 Sheets*.

The geology of the Shire varies from a deep alluvial material to hard rock. The deep alluvial material is found on the Liverpool Plain and there are some sandstone outcrops as well as basalt intrusions found on the Liverpool Range.

There are a number of broad soil landscape types in the Shire, as identified by the DNR and are as follows:

- *Alluvial*. These are based on the broad level floodplains of the Liverpool Plains. They are fertile and have few limitations to plant growth.
- *Residual*. These are deep soils formed from weathering of the parent material. They are mainly level to undulating landforms and have some erosion hazards but are generally fertile and suited to cropping and grazing. They are located to the north and east of the Melville Range.
- *Colluvial.* These are mostly on hill slopes and steep land. They are not very fertile and are located on the Melville Range and associated hills to the north of Tamworth.

- *Erosional*. These are downslope of the colluvial soils and consist of steep to undulating hill slopes.
- *Transferral*. These are deep deposits of material mostly along the drainage lines. They have good fertility and are suited to cropping and grazing.

2.2.3. Topography

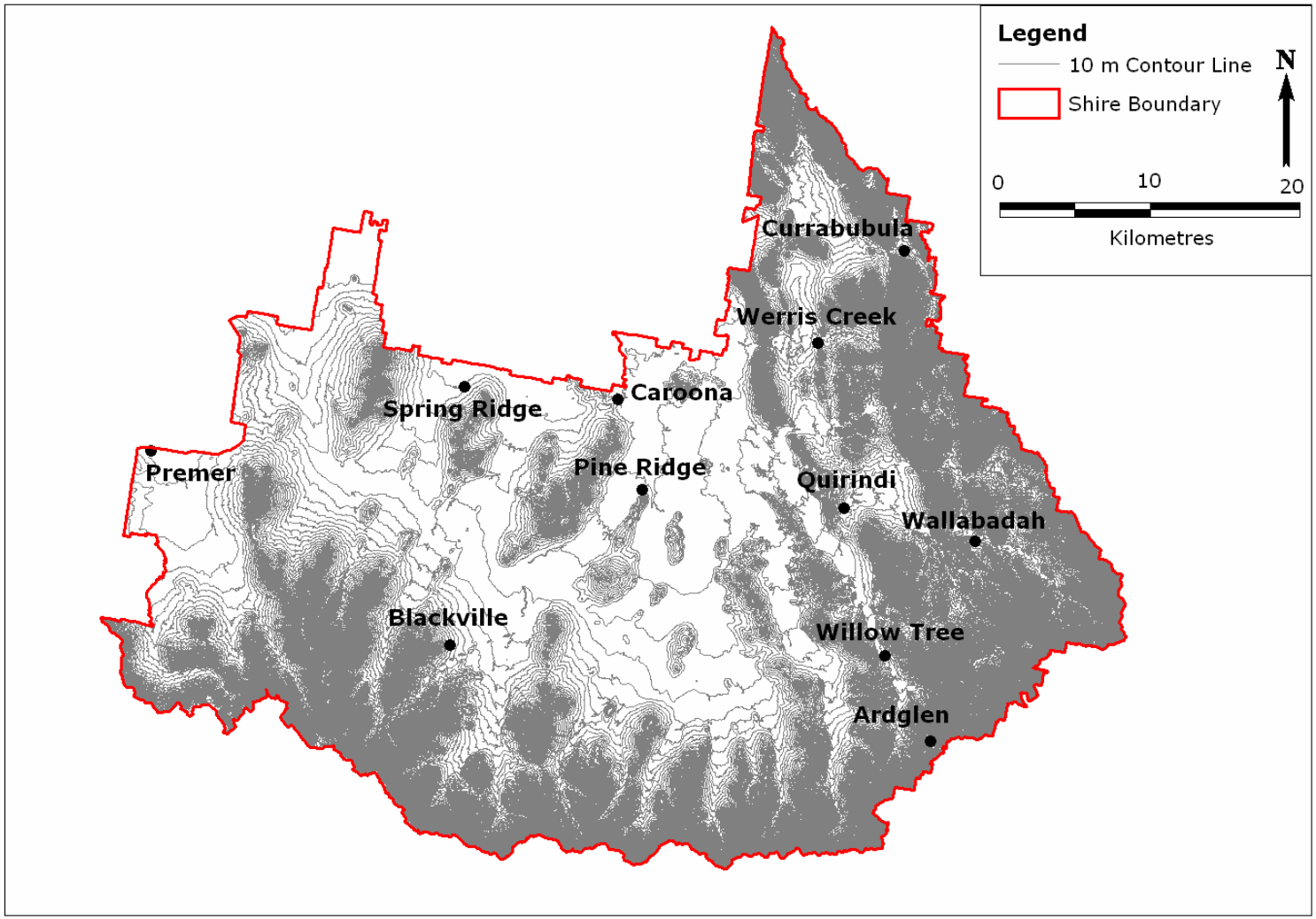
The topography of Liverpool Plains Shire can be described as being in three basic landforms as follows:

- Steep to undulating land in the northeast, east and south
- Flat land to the northwest and west

Map 2.2 shows these broad topographic features. The grey areas are the hilly parts and the white are the flat land.

Photos 2.4 and 2.5 show the varying topography of the Shire.

Photo 2.4: Typical topography in the south.
Date of Photo: March 2005



Map 2.2: Broad Topographic Features

Photo 2.5: Typical topography in northwest
Date of Photo: March 2005

2.2.4. Native Vegetation and Biodiversity

The native vegetation of the Shire is an important resource that is essential to ecological and land management as well as contributing to the visual landscape of the Shire.

There are 2 major bioregions that have been identified covering the Shire as outlined in the *Liverpool Plains draft Regional Vegetation Management Plan*. They are as follows:

- Brigalow Belt South
- Nandewar

The Brigalow Belt South Bioregion covers most of the Shire. The Liverpool Plains subregion is characterised by undulating hills and sloping plains with alluvial floodplains. This provides highly fertile soils. The Liverpool Range subregion is characterised by plateaux with steep land and long footslopes.

The Nandewar Bioregion covers a small part of the Shire to the east of Willow Tree and Quirindi along the Melville Range. It extends in a northerly direction to the Queensland border. The Peel subregion is characterised by low peaked hills with north westerly alignment and capped with basalt outcrops with moderate slopes. It also has flat river valleys with alluvium deposits which makes it fertile.

The *Liverpool Plains draft Regional Vegetation Management Plan* was prepared in 2003 and covered the Liverpool Plains and Gunnedah Shires. It provides some description of the vegetation of the Shire. A detailed mapping project was undertaken which identified 22 Native Vegetation Associations which are as follows:

- Brigalow association
- Grassy River Red Gum association

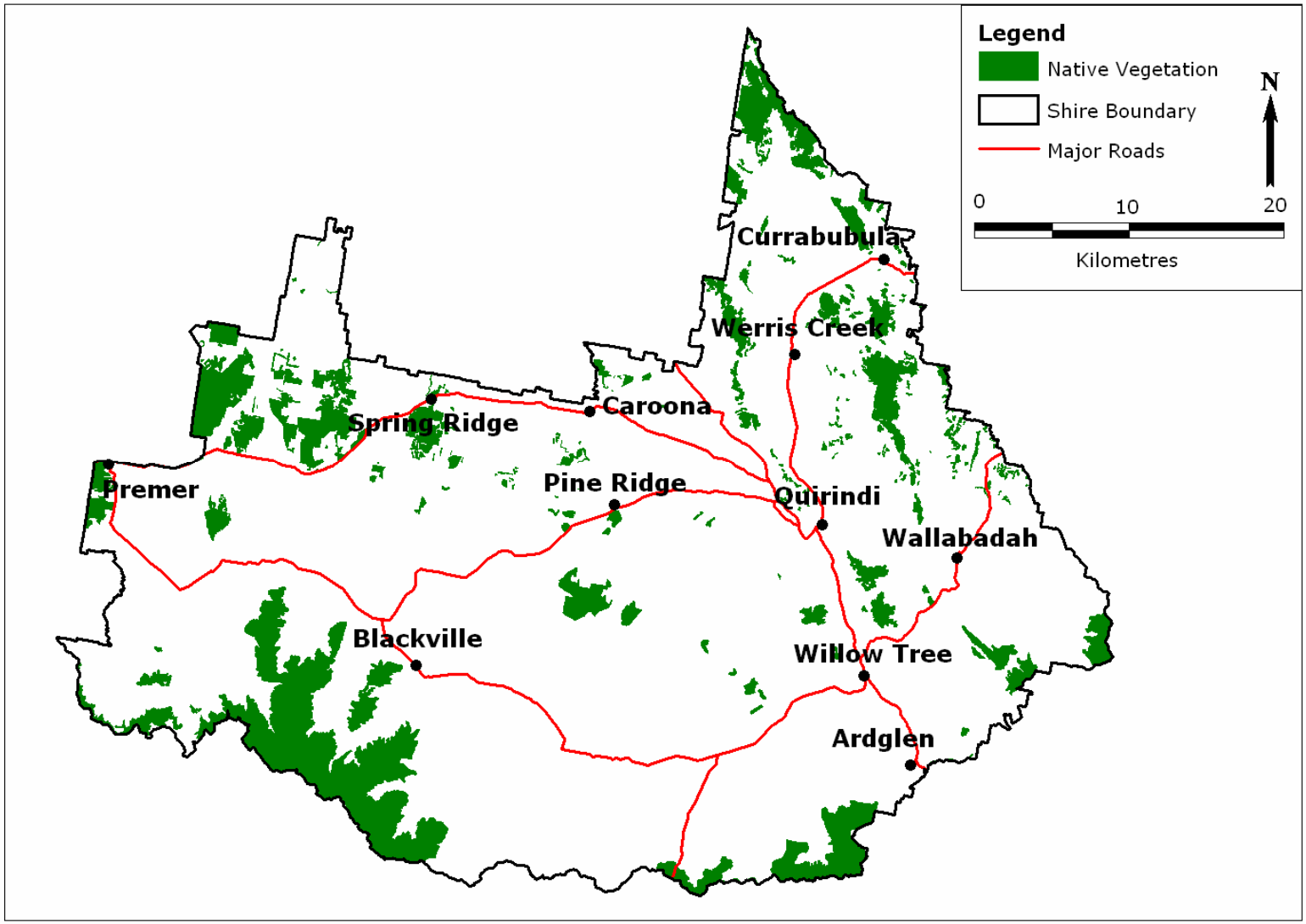
- Grassy White Box association
- Plainsgrass association
- Predominantly Bimble Box association with areas of Grassy White association and Yellow Box association
- Predominantly Bimble Box association with bands of River Red Gum association in low lying areas
- Predominantly Eastern Grey Box association with areas of Stringybark / Gum association
- Predominantly Ironbark/Box/Bull Oak association with areas of Narrow Leaved Ironbark/White Cypress Pine association
- Predominantly Plainsgrass association with areas of Grassy White Box association and Myall association on the upper slopes
- Predominantly Shrubby White Box association with areas of Yellow Box association
- Predominantly Shrubby White Box association with areas of Stringybark / Gum association and Dry Rainforest in gullies and passes at higher altitudes
- Predominantly White Box/White Cypress Pine association with areas of Dry Rainforest in gullies and passes
- Predominantly White Box/White Cypress Pine association with areas of Narrow Leaved Ironbark/White Cypress Pine association
- Predominantly White Box/White Cypress Pine association with areas of Narrow Leaved Ironbark/White Cypress Pine association at lower altitudes and with areas of Stringybark / Gum association and Dry Rainforest in gullies and passes at higher altitudes
- Predominantly White Box/White Cypress Pine association with areas of Ironbark/Box/Bull Oak association
- Predominantly White Box/White Cypress Pine association with areas of White Box association
- River She Oak/Rough Barked Apply association
- Shrubby White Box association
- Shrubby White Box / Bimble Box association
- Stringybark / Gum association with areas of Dry Rainforest in gullies and passes
- Tumbledown Gum / White Box association
- Yellow Box association

There has not been any vegetation mapping done specifically for the Liverpool Plains Shire, but a Roadside Vegetation Management Study was done for the former Quirindi Shire in 2004. This study found that there was 196 km of roadside reserve that had communities that are considered to be of medium conservation value and 100 km that were considered to be of high conservation value. This signifies that there is some significant vegetation within the Shire. There has been however, some mapping done which has been associated with the Brigalow Belt South Bioregion as well as the Liverpool Plains Native Vegetation Plan. Map 2.3 shows the areas of native vegetation in the Shire.

As a general statement, it can be said that most native vegetation is associated with the steeper land and the State Forests. It is more prevalent therefore in the east and north east and southern parts. There have not been any studies of the native vegetation to ascertain its structure and make up and this is needed to identify the important parts that need to be conserved. Photos 2.6 and 2.7 show the extent of the vegetation.

Photo 2.6: Native Vegetation on the steep land to the south
Date of Photo: March 2005

Photo 2.7: Native vegetation on the ridgelines on the plains
Date of Photo: March 2005



Map 2.3: Land covered in Native Vegetation

The former Quirindi Council participated in a Roadside Vegetation Management Planning project with other Councils in the Northwest of the State. Although the document related to the former Quirindi Shire, it is considered to be representative of the whole Shire because of similar land forms and soil landscapes. This document states the following about the vegetation in the Shire:

> *"The Quirindi Shire area is a mosaic of open forest, species diverse woodlands, woodlands, riparian woodlands, open woodland with grassy under storey and patches of closed grassland and originally large expanses of closed grassland dominated by plains grass."* (p5)

Biodiversity is the variety of all life forms - the different plants, animals and micro-organisms, the genes they contain and the ecosystems of which they form part (Commonwealth of Australia, 1996).

The biodiversity of the Shire is an important resource, which is yet to be studied in any detail. It is an indicator of the importance of the biodiversity of the Shire and the need to study it in more detail. There is also a considerable amount of the biodiversity habitat associated with roadside vegetation and the travelling stock reserves that extend throughout the Shire.

The Shire straddles 2 subregions of the Namoi CMA area for the purposes of the Threatened Species Conservation Act. They are the Liverpool Plains and Peel. The Melville Range is the basic divide between these in the Shire. Within the Liverpool Plains subregion the register shows the following listings:

- 8 Endangered Ecological Communities
- 9 marsupials (2 endangered and 7 vulnerable),
- 29 birds (9 endangered and 20 vulnerable)
- 3 reptiles (all vulnerable)
- 5 bats (all vulnerable)
- 1 fish (vulnerable)
- 1 aquatic invertebrate (endangered)
- 8 plants (3 endangered and 5 vulnerable)

Within the Peel subregion there are the following listings:

- 3 Endangered Ecological Communities
- 8 marsupials (1 endangered and 7 vulnerable),
- 28 birds (5 endangered and 23 vulnerable)
- 2 reptiles (both vulnerable)
- 6 bats (all vulnerable)
- 1 fish (vulnerable)
- 1 amphibian (endangered)
- 1 aquatic invertebrate (endangered)
- 10 plants (5 endangered and 5 vulnerable)

2.2.5. Bushfire Risk

The abundance of native vegetation and the topography of the Shire make it prone to bushfire. This can be from grasslands in the flatter terrain to the west, southwest and north to major forest fires in the steep land in the south, east and northeast.

The prevailing bushfire direction is from the west and northwest, especially when hot dry winds are experienced. There are also some 'escape burns' from land management and machinery at harvest time. There are some naturally occurring fires as a result of lightning strikes in the ranges. These are hard to fight because of the inaccessibility of the terrain.

The Rural Fire Service has prepared a map showing the bushfire prone land within the Shire and this is reproduced as map 2.4.

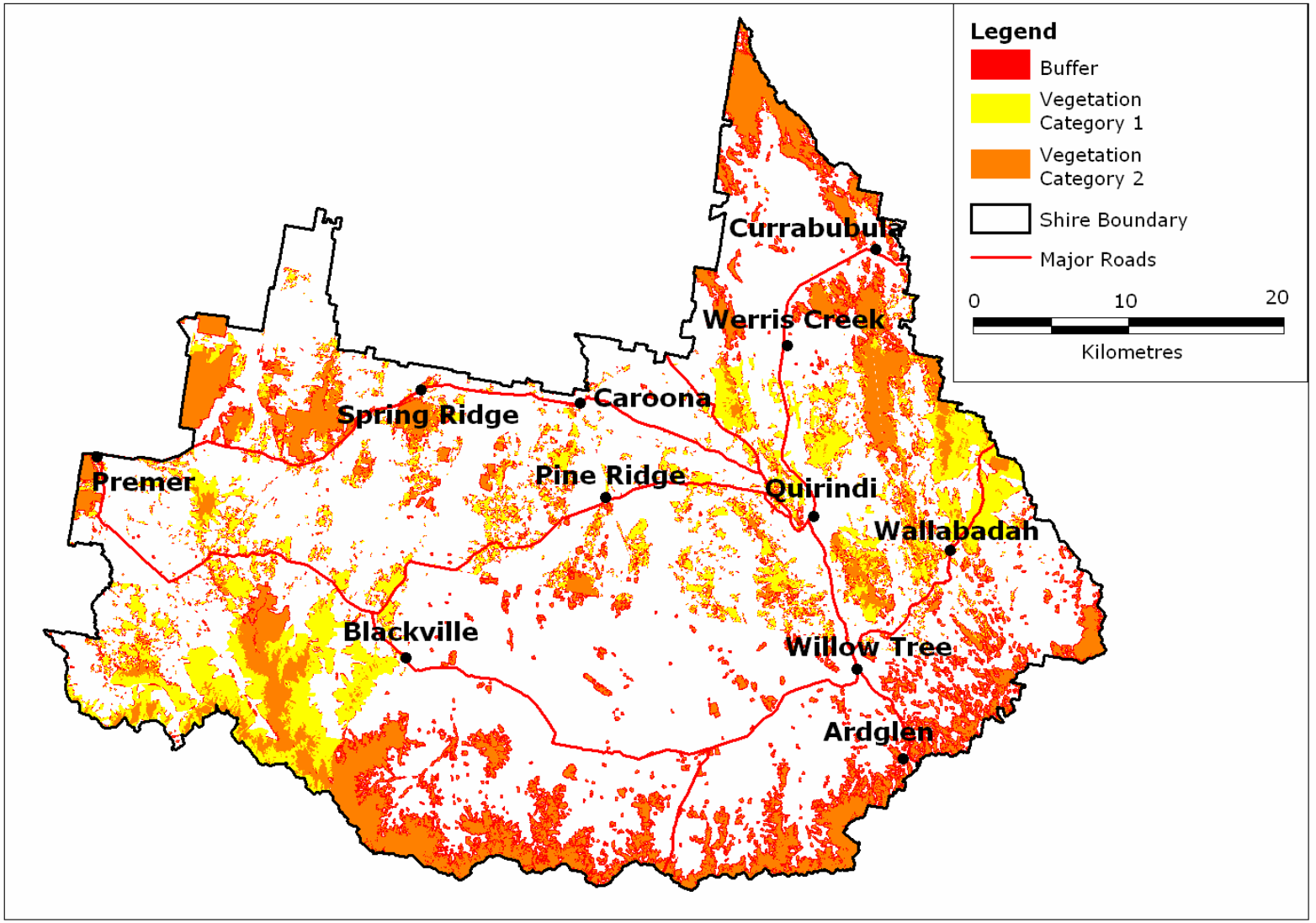
2.2.6. Salinity

Salinity can be a symptom of environmental change resulting from natural processes as well as human impacts. It can also exist without any interference. In NSW it is an existing process that is exacerbated by human activity, particularly European farming techniques, land clearing and urban development. It is the result of past and present land management practices, which have dramatically changed the way water is cycled through the environment.

A report has been prepared by Sinclair Knight Merz (SKM) for the former Department of Infrastructure, Planning and Natural Resources on the Groundwater Flow Systems of the Barwon Region. One of the objectives of the report was to assess the salinity risk of the groundwater flow systems of the region. The report describes 4 main Groundwater Flow Systems for the Shire:

- Liverpool Plains
- Upper Narrabri Formation (Liverpool Plains)
- Goran Lake
- Carboniferous Metasediments
- Lava Fields

These 2 Groundwater Flow Systems and their characteristics are presented in table 2.1.



Map 2.4: Bushfire Prone Land

Table 2.1: Summary of Groundwater Flow Systems and Salinity

Parameter	Upper Narrabri formation (Liverpool Plains)	Liverpool Plains	Goran Lake	Carboniferous Metasediments	Lava Fields
Average Depth to Water Table (m)	> 10	5 – 10	<2	Unknown	Unknown
Landform	Flat	Flat	Flat	Undulating	Undulating to steep
Average Groundwater Salinity (dS/cm)	Very saline	Fresh to saline	Moderate to high	1 - 5	0.4 - 10
Salt Store	Very high	Low to moderate	Very High	Moderate	High
Salinity Occurrence	Drainage lines, eroded areas	Highly variable	Break of slope and valley floor	Hillside slopes, valley floors, break of slope	Geological boundary Break of slope and foot slope;
Impacts	Localised and pump induced salinisation	Localised in shallow watertables	Soil and stream salinity	Stream salinity, infrastructure	Soil salinity (localised outbreaks)
Salinity Hazard Ranking	High	Low	Very high	Low but locally high	Low to very High
Salinity Risk Rating	High	Moderate	High	Moderate	Moderate to High
Responsiveness to Management Options	Moderate to fast	Slow to Moderate	Slow to slow	Slow/moderate to fast	Fast

Source: Adapted from SKM 2003

It is noted that the salinity risk rating of the Upper Narrabri Formation (Liverpool Plains) and Goran Lake is high and the Liverpool Plains and Carboniferous Metasediments and Lava fields is moderate. The report notes that the known salinity occurrences is localised and spatially variable for the Liverpool Plains formation and that discharge occurs in association with drainage lines and eroded sites. The management options for both include cropping, pasture-crop rotations and retaining and increasing native vegetation.

The land management practices that are a source of salinity include, but are not limited to the following:

- *Rainfall and irrigation*. Rainfall contains some small quantities of soluble salts particularly near the coast and this is sometimes considered to be a cause of soil salinity. Irrigation of crops occurs in parts of the shire and poses a greater risk to salinity than rainfall. Irrigation water contains a lot more soluble salts than rainfall and may result in soil salinity in relatively short time.
- *Shallow water table*. The clearing of land for agriculture and residential developments cause the water table to rise. The shallow roots of the crops

that have been planted in the place of the deep rooted native vegetation can bring the water table to within 2 m of the surface. The capillary action in the soil combined with transportation by plants and evaporation at the surface bring the saline water to the surface and concentrate the salt. Irrigation of crops and watering of gardens as well as general urban run-off exacerbate the situation further.

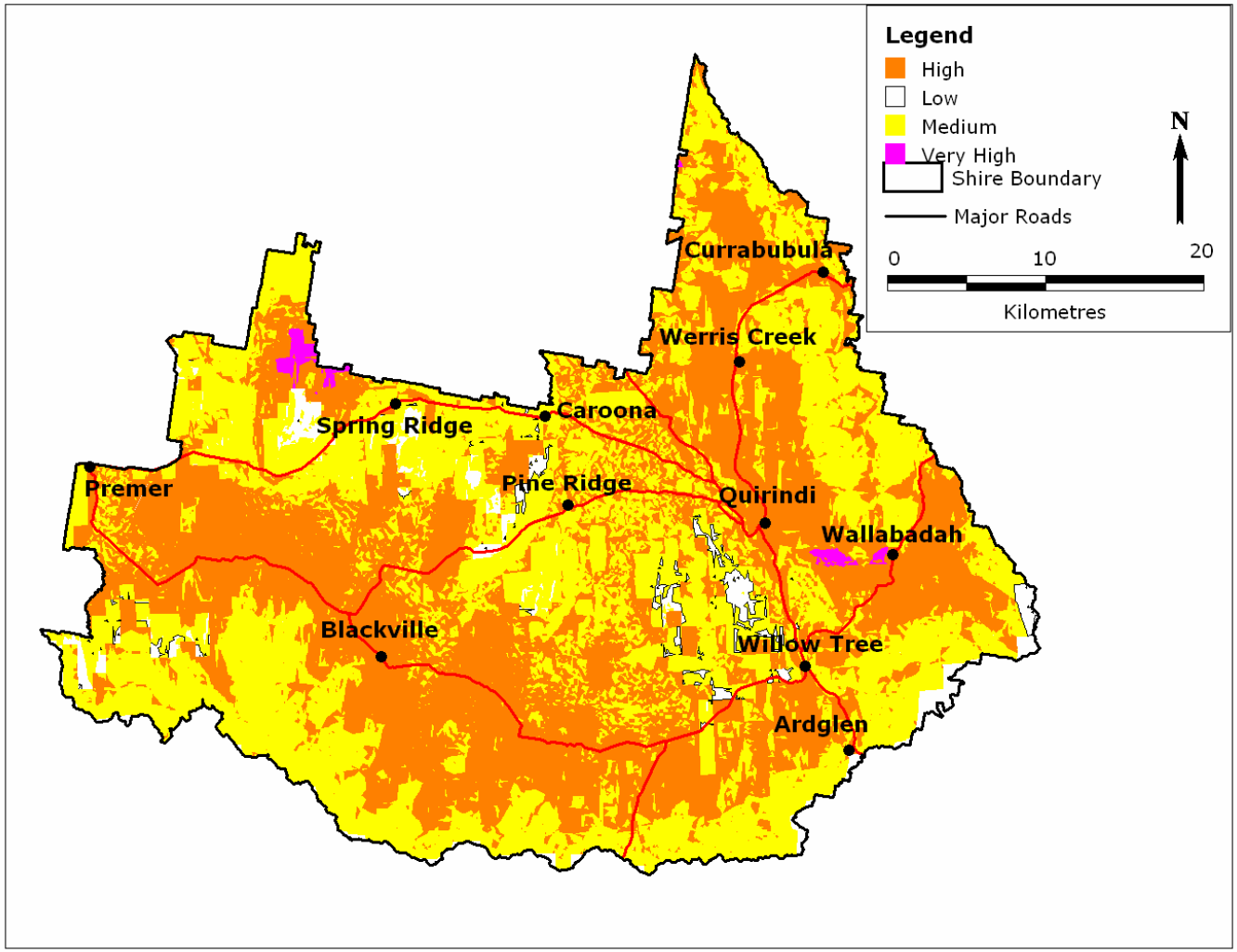
- *Weathering*. The weathering of soil can release salts which accumulate in the soil over time. However it must be pointed out that this is not an immediate source of salts causing salinity.
- *Dryland salinity* is determined by number of factors in the local area such as geology, soil type, farming practices and vegetation cover.
- *Urban salinity* is a combination of dryland salinity and irrigation salinity. Urban salinity causes damage to buildings by eroding bricks, mortar and concrete, the erosion of roads, bridges and pathways as well as the failure of septic systems by corrosion of pipes. It also has an impact on the landscape value by killing the grasses and trees.
- *River salinity* is caused by saline discharges from dryland, irrigation and urban salinity into creeks and rivers.

Information provided by the Department of Natural Resources has stated that the occurrence of dryland salinity in the Shire is localised and spatially highly variable. It noted groundwater salinity in the area ranges from fresh to saline with some localised shallow water tables having extreme salt levels. Eight unique flow systems have been identified, within the Liverpool Plains Shire that are predisposed to salinisation, in a study of the Barwon Region by Sinclair Knight Mertz in 2004 and these are summarised in table 2.2.

The removal of native vegetation and its replacement with shallow rooted plants has caused a rise in the watertable. This has caused salt to accumulate in parts of the rural landscape and is called dryland salinity. This can be seen from photo 2.8 which shows a scalding of the landscape in the North West part of the Shire. Irrigation salinity can be described as soil salinity in the root zone of crops and pastures and is caused by irrigation of land with saline water. Another form of salinity in the Shire is streams which have high levels of electrical conductivity. These are located at the foot of the Liverpool Range and on the western slopes of the Melville Range. A salinity map has been produced by the Department of Natural Resources and this is shown as map 2.5

Photo 2.8: Dryland Salinity Scalding
Date of Photo: March 2005

Urban salinity is the impact of salt and water on infrastructure such as roads, buildings, pipes, parks and gardens located in urban and rural areas. Urban land use and management as well as infrastructure may also cause or exacerbate salinity. The construction of urban infrastructure such as roads can involve significant changes to the landscape resulting in subsequent changes to the amount of water and salt in the landscape, how they move and where they accumulate. Urban salinity can also be exacerbated by the discharge of waste water onto land or into rivers. This waste water can also contain salts that are a by-product of processing and industrial waste. At present there are no occurrences of urban salinity within the Shire, however Quirindi has been identified as a potential site for urban salinity as a result of known soil types that exist in these areas, the position in the landscape and results obtained from groundwater monitoring.



Map 2.5: Salinity Hazard
Source: DNR

2.2.7. Flooding

There are 2 distinct flooding regimes in the Shire as follows:

- Flooding of the Liverpool Plains
- Urban flooding of Quirindi and other urban settlements

Floodplain Management Plans have been prepared for the following Creek systems in the plains:

- Blackville in 2003
- Upper Cox's Creek in 2005
- Upper Yarraman Creek in 2006
- Caroona to Breeza in 2006

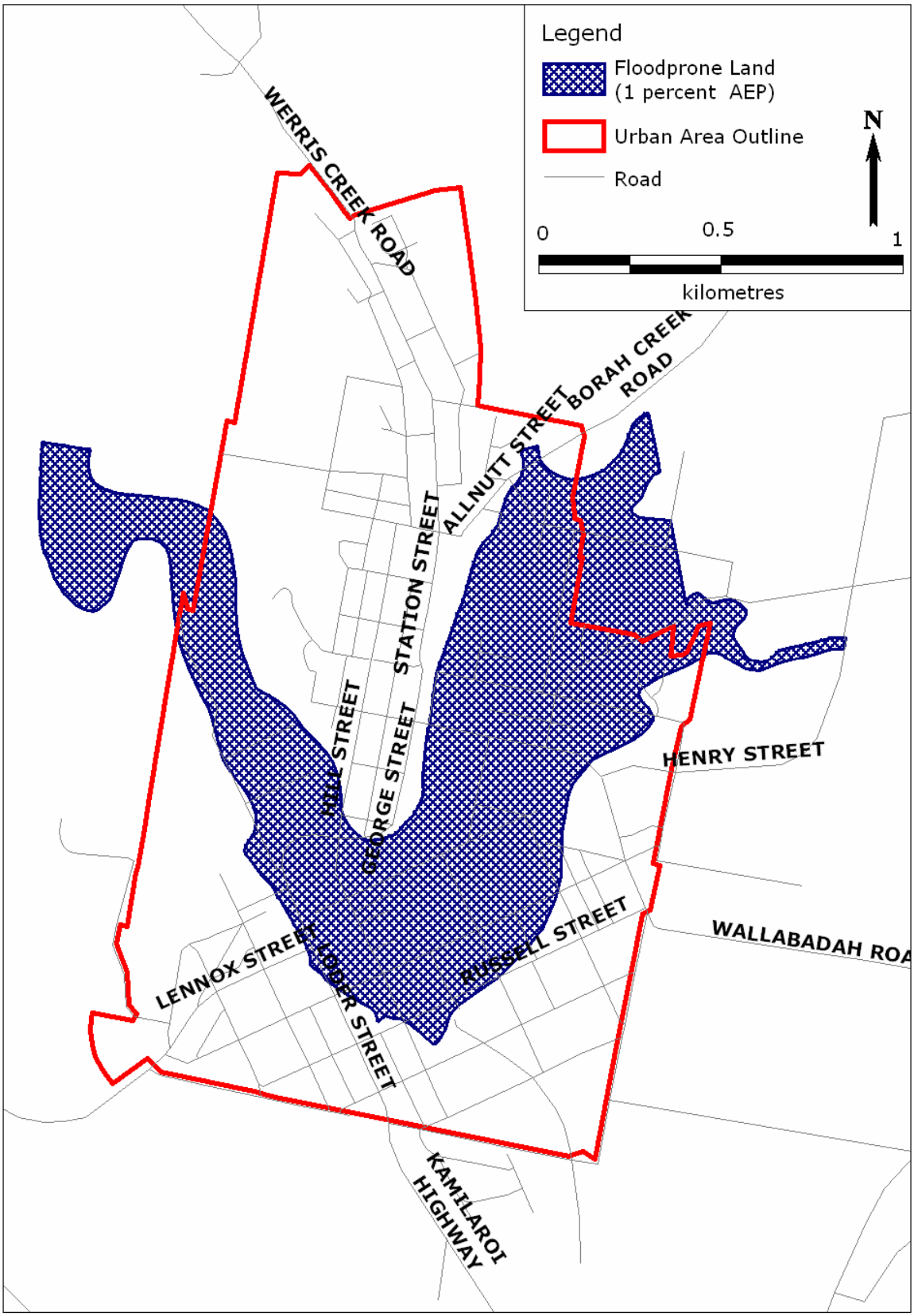
The Warrah Creek and Lower Cox's Creek plans are currently under preparation.

All of these reported that the flooding when it occurs creates localised road closures and property isolation. They also report that the clearing of land for cultivation has altered the flow patterns and caused some of the bank erosion to be exacerbated. There have also been some uncoordinated construction of earthworks which have also affected flood behaviour.

A flood study has recently been completed for the flooding in Quirindi, which includes the Quirindi Creek and its main tributary – Jacob and Joseph Creek. This is the starting point of the process to prepare a Floodplain Risk Management Plan. Flooding in the town of Quirindi occurs from high flows in the Quirindi and Jacob and Joseph Creeks. Both of these creeks have their headwaters in the steep land to the east of Wallabadah. The floodwaters rise very quickly after heavy rainfall and there is little warning time of the imminent flooding. Most of the flood prone land within the town is parks and reserves, however there is some residential development in the Pryor Street and Henry Street areas east of the railway which would be flood affected during major floods as well as some industrial premises in the Loder Street area and near the railway bridges. The study describes the flood behaviour within the town as follows:

> *"Floodwaters break out from Quirindi Creek at a low point on the right bank at the end of Milner Parade. These flows are conveyed by a flood runner which heads in a south westerly direction over the area known as the Polo Grounds and crosses Pollock Street. Midway between Young Street and Pryor Street, this flood runner is joined by a breakout from a low point in the left bank of Jacob and Joseph Creek, which leaves that Creek the intersection of Pollock Street and Young Street. The combined flows head southwards and join Jacob and Joseph Creek just upstream of the Henry Street Bridge."* (Lyall and Associates (2005) p9

Major flooding has occurred in Quirindi in February 1955, 1971 and in January 1984. The 1955 flood was the largest experienced in living memory in Quirindi. Map 2.6 shows the floodprone land in Quirindi as outlined in the Flood Study.



Map 2.6: Quirindi Floodprone Land

2.2.8. Landscape

Liverpool Plains Shire has 2 distinctly different landscape forms which are as follows:

- Flat open plains to the west and north with some small vegetated hills
- Steep and undulating, mostly vegetated land in the northeast, east and south

The flat open plains are characterised by a mixture of cropping and grazing whilst the hills are mostly heavily vegetated with some cleared land that is used for grazing of sheep and cattle.

The broadscale visual catchment of the Shire is limited to the east and south by the steep escarpment of the Great Dividing Range. The northeastern limit is defined by the Melville Range. The northern and western boundaries are not defined as this land is characterised by flat open plains with no defined edges.

The varying topography is the dominant visual feature of the landscape as it provides a framework for other elements such as vegetation, agriculture, viewpoints and the location of major transport and communication corridors. The topography also defines the broader visual catchment of the Shire, which is generally enclosed to the east, northeast and south by hills.

Photos 2.9 and 2.10 show the landscape features.

Photo 2.9: Flat undulating plains
Date of Photo: March 2005

Photo 2.10: Steep rugged hills
Date of Photo: March 2005

2.2.9. Mineral and Extractive Resources

Mineral and extractive industry resources are important to the Shire and information from the Department of Mineral Resources shows that there are the following resources and potential resources:

- Coal
- Manganese
- Dimension Stone
- Zeolite
- Hard Rock Aggregate
- Construction sand and gravel
- Shale

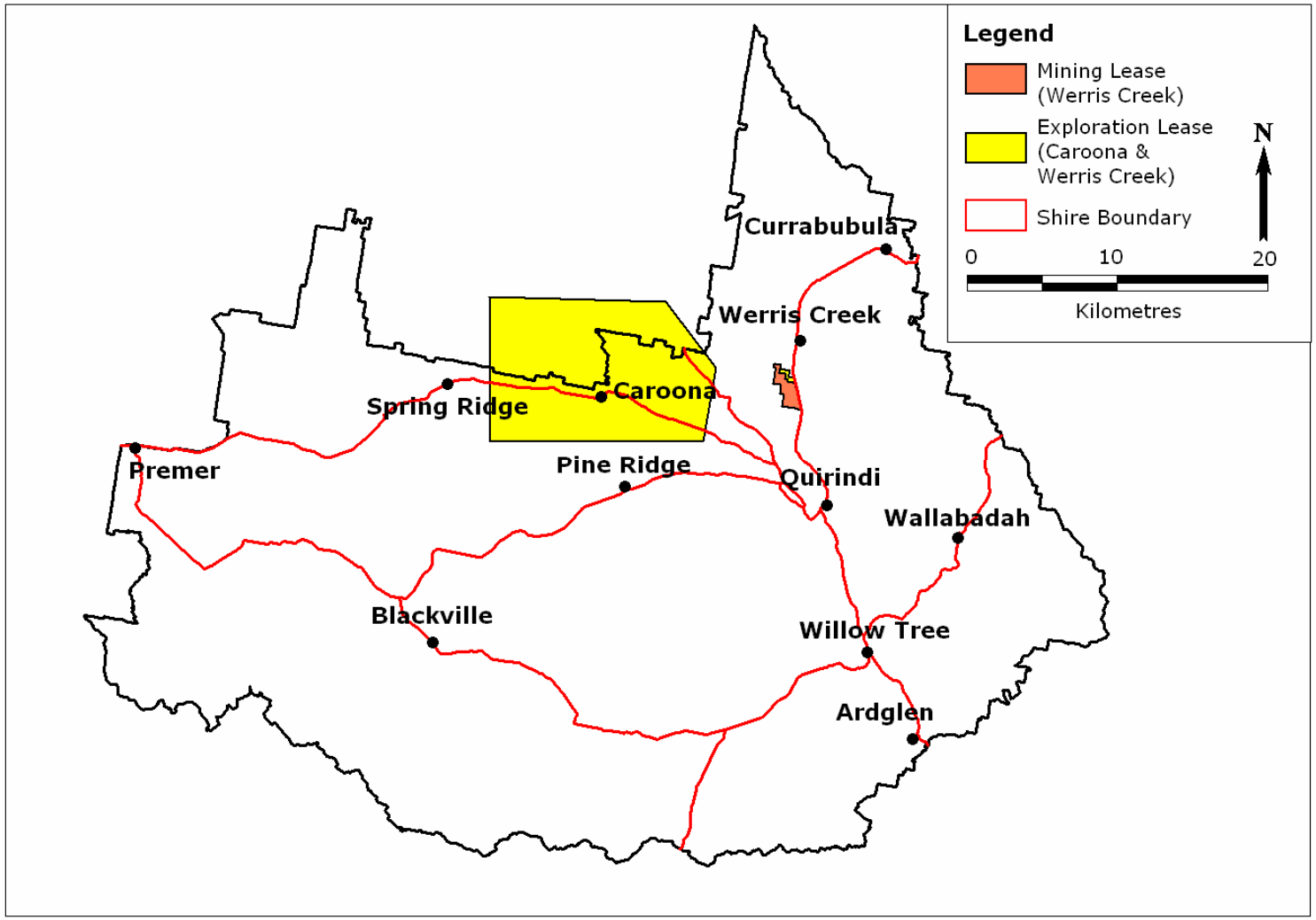
The Werris Creek Coal mine which is located to the south of Werris Creek has recently commenced operation. Photo 2.11 shows the Werris Creek Coal mine and Photo 2.12 shows the hard rock quarry at Ardglen in the south of the Shire.

BHP Billiton was granted an exploration lease (EL 6505) in April 2006 over land at Caroona that straddles the Shire boundary with Gunnedah Shire. This lease is shown on map 2.7. Exploration is currently being carried out by BHP Billiton who will then make a determination whether to continue in the process which entails lodging a Development Application (DA). If it gets to this stage, a comprehensive environmental assessment will be undertaken which will consider all physical, social and economic aspects of the project. Applications for new mines are assessed by the Department of Planning under the provisions of Part 3A of the Environmental Planning and Assessment Act. The Caroona area is believed by the Department of Primary Industries to contain more than 500 million tonnes of potentially mineable export underground coal. Exploration is in the early phase and if it is decided to proceed to lodge a DA, all of the necessary studies will be undertaken and this is anticipated to take 4 – 5 years to complete.

In addition to these minerals, there are substantial exploration leases for gas and petroleum covering most of the black soil plains area of the Shire. These leases are currently being assessed for their potential for gas and petroleum reserves.

Photo 2.11: Werris Creek Coal Mine
Date of Photo: August 2006

Photo 2.12: Ardglen Hard Rock Quarry
Date of Photo: March 2005



Map 2.7: Coal Leases

Built Environment

2.2.10. Settlements

There are a total of 10 settlements in the Shire . They range in size from a small collection of houses to approximately more than 1,000 houses. The population and number of dwellings in each is shown in table 2.2.

Table 2.2: Settlements in the Shire

Settlement Name	Population 2006	Dwellings 2006
Quirindi	2,608	1,029
Werris Creek	1,189	474
Wallabadah	181	86
Willow Tree	168	75
Caroona Walhallow	178	39
Spring Ridge	80	36

Source: ABS 2006 Census Basics
Note: Not all settlements were separately counted at the Census and for this reason, not all are mentioned in this table.

Most of them have some type of shopping facility, usually a general store / petrol station. Those without any shopping facilities are Ardglen, Blackville and Pine Ridge. Photo 2.13 shows the Caroona General Store which has a full range of shopping facilities as well as other services.

Photo 2.13: Caroona General Store
Date of Photo: February 2005

There are also a number of rural centres scattered around the Shire which are marked by a hall or bushfire shed. Examples of these are Warrah Creek, Bundella and Mount Parry.

Photo 2.14 shows the Warrah Creek Hall.

Photo 2.14: Warrah Creek Hall
Date of Photo: February 2005

2.2.11. Water and Sewerage Infrastructure

Reticulated water is provided to most of the larger settlements in the Shire and is provided by the Council. Table 2.3 shows the provision of water for each of the settlements.

Table 2.3: Provision of reticulated water

Settlement Name	Reticulated Water Provision
Quirindi	Sourced from a gravel aquifer on the Borambil Creek west of the town
Werris Creek	Sourced from Quipolly Dam.
Willow Tree	Raw bore water supply
Wallabadah	Raw bore water supply
Caroona / Walhallow	Raw bore water supply
Spring Ridge	Raw bore water supply
Premer	Raw bore water supply
Blackville	Raw bore water supply
Ardglen	No reticulated supply
Currabubula	No reticulated supply
Pine Ridge	No reticulated supply

Quirindi Water Supply

Quirindi draws its town water supply from bores located in the Borambil Creek Aquifer system located in Zone 1 as defined under the Upper Namoi Groundwater Water Sharing Plan .The Quirindi Town water supply entitlement of 1,650 Mega Litres (ML) and the Willow Tree town water supply entitlement of 102 ML represents 83% of the 2100 ML Ecological Sustainable Yield (ESY) for the Zone. The current water sharing plan for Zone 1 now lists the sustainable yield at 2400 ML.

The system supplies groundwater mainly for irrigation, stock and domestic and Town supply purposes .Recharge to the aquifer is mainly rainfall dependant. Borambil Creek also recharges the aquifer when there is sufficient flow. Other contributions are groundwater inflows from the upstream portion of the catchment. There is no significant recharge component from upward leakage from the underlying bedrock of the associated fault system.

A 1995 study indicates that the saturated thickness for the aquifer ranges from 37m in the centre of the basin to 22m towards the north of the basin. The saturated thickness along the edge of the alluvium reduces to less than 11 meters. The regional groundwater flow in the Borambil Creek alluvium is from south to north.

In 1987, Council undertook major augmentation works being:

- The development of two new high production bores in the Borambil basin to complement an existing bore. The total pumping capacity being designed for 90 litres / second.
- Construction of a Balance Tank with aeration treatment and provision for future chlorination plant at Borambil Creek.
- Construction of a 200 mm rising main through Bolah Gap to the town reservoir located north of Quirindi

Currently, Quirindi uses on average 1.9 ML / day or 680 ML / annum with a peak of 4 ML / day or 845 ML / annum. Based on current demand Quirindi water use could double and the Borambil Basin still meets sustainable yield requirements.

Werris Creek Water Supply

Werris Creek originally obtained its early water supply from Quipolly No 1 Dam however due to the gradual siltation of the storage an alternative water supply source was required. The Quipolly No 1 Dam is located in the upstream end of the catchment but its reservoir is completely silted up.

Quipolly No 2 Dam was constructed in 1955, to replace Quipolly No 1 Storage to supply Werris Creek. The reservoir which is formed on Quipolly Creek by the Quipolly No 2 Dam has the following characteristics**:**

- Full Supply Level (FSL) 416.1 m
- Storage surface area 1.5 km² at FSL
- Storage capacity 5,400 ML at FSL

The catchment area is formed by the catchments of Back and Quipolly Creeks and their tributaries and has an area of 103 km². The catchment area can best be

described as steep gully country at the top end changing to undulating open grazing varying in elevation from 800 m at the top end to 400 m at the dam site. The dam has sufficient storage capacity for the current and future demand for water for Werris Creek.

Reticulated sewerage is provided only for Quirindi and Werris Creek. Both towns have their own sewerage treatment plants. All other settlements within the Shire have onsite disposal.

2.2.12. Domestic Waste Disposal

Domestic Waste Disposal is provided by a private contractor who collects kerbside waste in the following settlements Quirindi, Werris Creek, Currabubula, Wallabadah, Willow Tree and the rural residential environs of Quirindi.

Other areas do not have any collection and the residents are responsible for taking their waste to the locally provided disposal or landfill facilities. These are located at the following centres:

- Caroona
- Spring Ridge
- Premer
- Blackville
- Willow Tree
- Pine Ridge
- Willow Tree
- Werris Creek
- Wallabadah (Transfer Station)

2.2.13. Rural Land Uses

There are a variety of land uses within the Shire. They include urban, agricultural, native vegetation, rural residential, extractive industries, commercial and light industrial uses. They all have an impact on each other as well as the environment. Finding the balance between these often competing desires is the key to planning for rural land uses.

There are basically two forms of land use within the rural areas of the Shire – ones based on agriculture and ones that do not have an agricultural base.

Agriculture

The uses, which are based on agriculture, include the following:

- Poultry
- Sheep and Cattle Grazing
- Lucerne
- Grain Crops
- Market Gardens
- Orchards
- Forestry
- Olives
- Horse Studs
- Farm Homestays
- Bed and Breakfast
- Vineyards

In the western and northern part of the Shire is the open plains country, where there is a mixture of cropping and grazing. The major crops that are grown include Oats, Wheat, Barley, Canola and grain Sorghum as well as some irrigated cotton and fodder crops. The grazing of cattle and sheep are the main forms of animal production in the Shire. There are also some goats in the Shire.

Photo 2.15 shows the land used for cropping in the west and north of the Shire.

Photo 2.15: Land used for Cropping
Date of Photo: February 2005

Poultry farming is an intensive form of animal keeping industry in the Shire and is located in Currabubula and Wallabadah for meat production. There is also a breeder farm near Colly Blue.

The open flat floodplains provide some areas which are used for irrigated agriculture particularly fodder crops using central pivot irrigators as well as some cotton. Photo 2.16 shows the irrigated cotton farming in the northwest of the Shire.

Photo 2.16: Cotton farming
Date of Photo: March 2005

To the south and east of the Shire the main form of agriculture is grazing of sheep and cattle. Photo 2.17 shows the typical grazing country in the South of the Shire.

Photo 2.17: Grazing Country
Date of Photo: February 2005

Agriculture is also practiced on small rural holdings scattered across the Shire. This type of agriculture is generally of a part-time style and scale. It includes some of the more niche forms such as, olives and some small scale grazing.

Non-Agricultural Uses

Uses that do not have an agricultural base include the following:

- Rural Residential
- Extractive Industry
- Mines
- Industrial Uses
- Tourist related uses

Land Use Survey

A detailed landuse survey has been carried out within the Shire. Its purpose is to give an understanding of the landuse pattern within the rural areas so that appropriate decisions can be made having regard to the mixture of landuses throughout the area as well as to identify those localities that have a predominance of a particular landuse in terms of the number of lots. The survey counted the number of lots that were used and these were amalgamated into holdings which have been counted to provide the details below. This survey was carried out in February 2005. A detailed description of the methodology used for the landuse survey is contained in Appendix 2. The landuses were categorised into the following landuse types which also have been defined in Appendix 2:

- Rural Residential
- Irrigated Plants
- Intensive Animals
- Extensive Agriculture
- Vacant Cleared
- Native Vegetation
- Extractive Industries
- Public Use
- Urban

Within each of these categories there are a number of sub categories relating to the specific use of the land. These are also outlined in Appendix 2. It should be pointed out that the landuse survey categorised the primary use of the property and where a property had a number of uses, the dominant use was chosen.

The details of the landuse for each locality within the Shire are outlined in Chapter 4, which deals with the existing development pattern. There are a total of 13,245 lots within the Shire that were counted in the landuse survey. The overall landuse for the Shire is shown in Figure 2.1 and figure 2.2 shows the area that is taken up by each of the rural land uses. Map 2.8 shows the land use in broad terms.

The landuse survey has revealed the variety of uses in the rural area. They can be categorised in to agricultural uses, non-agricultural uses and rural residential uses. Table 2.4 lists the variety of uses observed in the rural areas.

Table 2.4: Variety of Rural land uses.

Agricultural Uses	Non-agricultural uses	Rural Residential Uses
Cattle and Sheep	Service Stations	Dwellings
Cropping	Caravan Parks	Truck activities
Orchards	Farm Produce stores	Horses
Irrigated cropping	Churches and Schools	Home based businesses
Equine	Cemeteries	
Intensive Agriculture	Tourist facilities	

Table 2.5 lists the total number of uses and the percentages and figure 2.1 shows them in graphical form.

Table 2.5: Number of Primary Land Uses in the Shire

Uses	Number of Uses	Percentage of Total
Urban	1,889	42.20
Extensive Agriculture	1,176	26.30
Vacant (urban)	585	13.10
Rural Residential	314	7.00
Commercial	172	3.80
Public Uses	153	3.40
Native Vegetation	130	2.90
Irrigated Plants	26	0.60
Intensive Animals	12	0.30
Industrial	12	0.30
Extractive Industry	5	0.10
Total Uses	**4,474**	**100.00**

It can be seen from the graph that urban use is the dominant use but extensive agriculture is the dominant rural use, as would be expected. The vacant land in the urban areas are the next as well as some rural residential lots. Native vegetation uses form 2.9% of the lots. It can be seen that intensive agriculture forms only a small

number of lots, however as they are more intensive they are a more significant land use.

The details of the contribution of each of the combined localities to the land use is provided in detail in chapter 4.

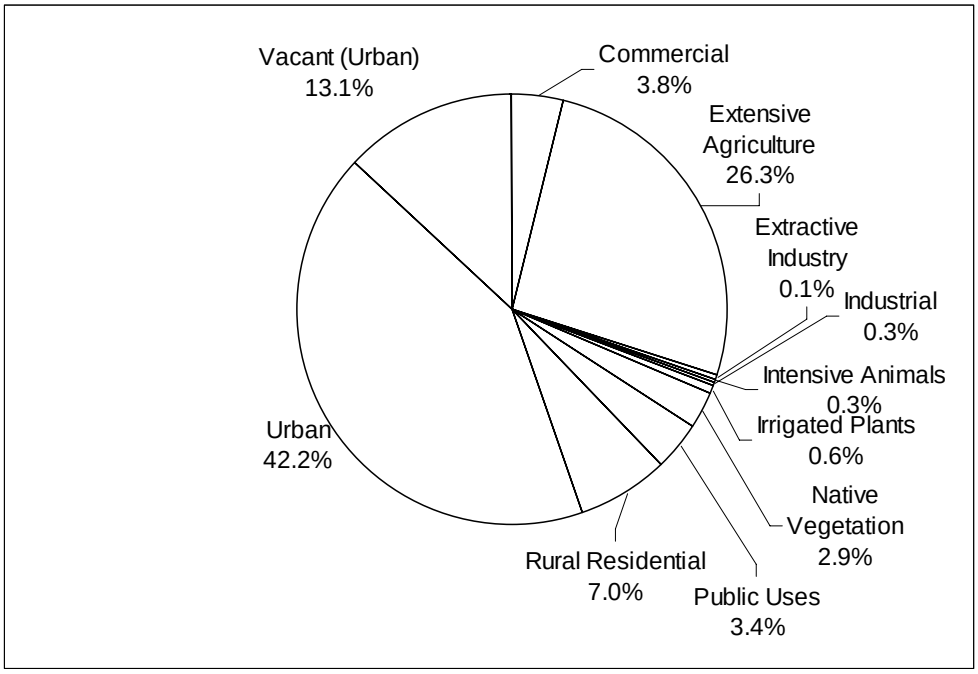


Figure 2.1: Land Use within the Rural Land
Source: Liverpool Plains Land Use Survey

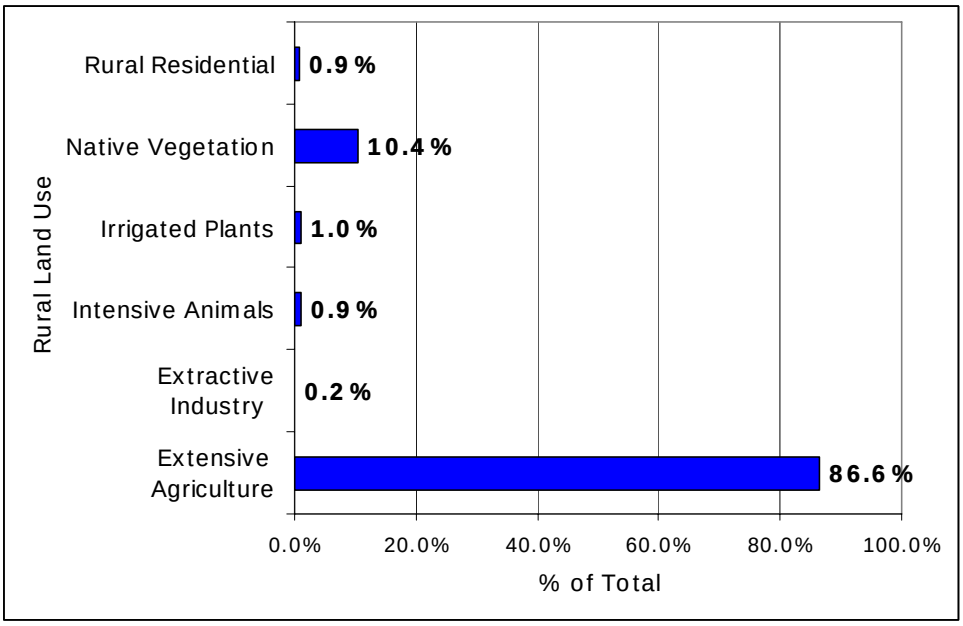
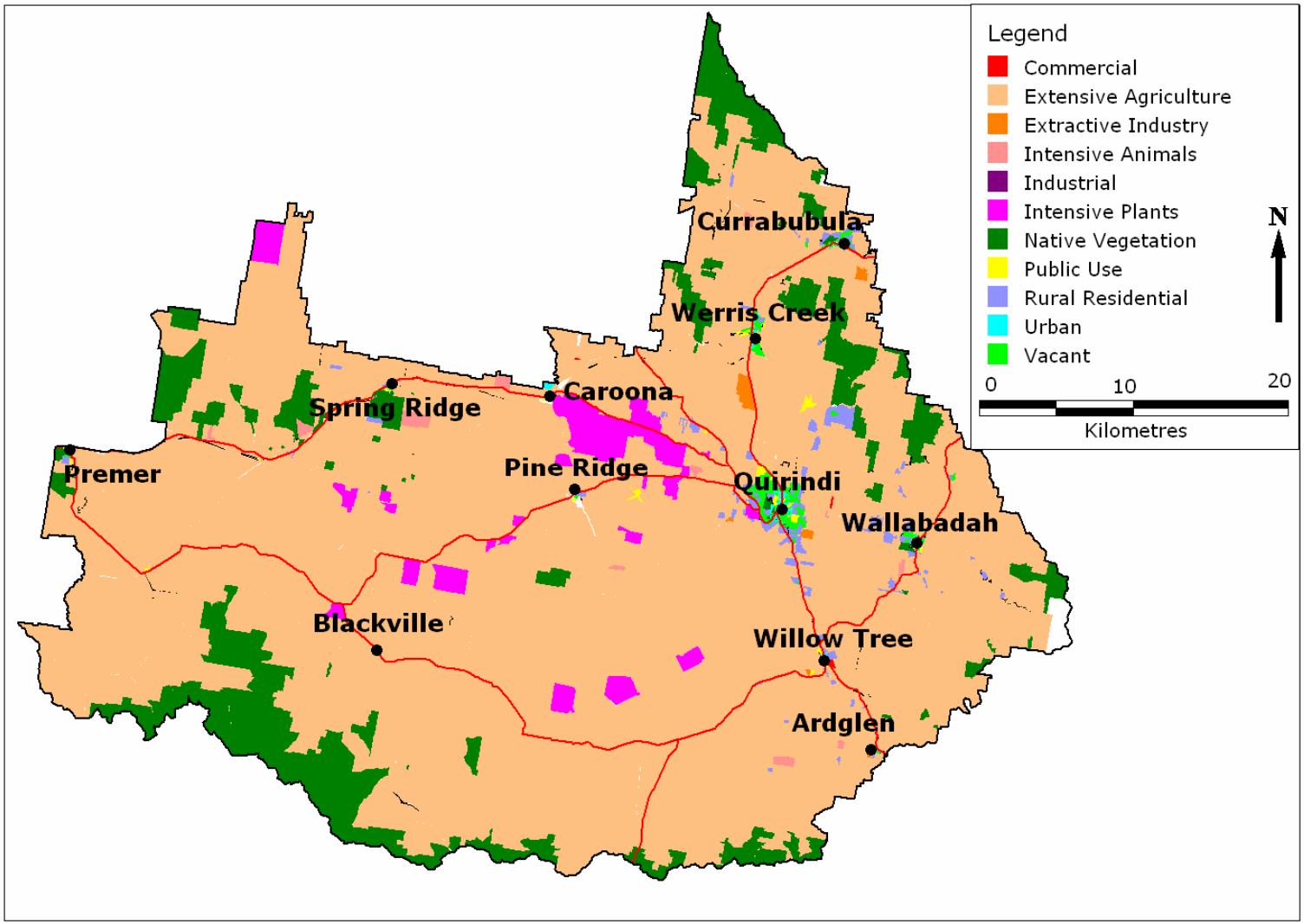


Figure 2.2: Area of Rural Land Use
Source: Liverpool Plains Land Use Survey



Map 2.8: Rural Land Use

2.2.14. Rural Holding Sizes

The size of rural holdings in an area is a reflection on the degree of fragmentation and is also an indicator of potential rural land use conflicts. One matter to be considered is the difference between holdings and individual lots. In an area such as Liverpool Plains Shire, there are a number of large holdings that are made up of a number of smaller lots. These are mainly agricultural uses and not the rural residential uses which are nearly all in single ownership.

A detailed lot size and holding size analysis has been carried out as part of the land use survey and has shown that the area is quite fragmented. Figure 2.3 shows the holding sizes graphically and map 2.9 shows them spatially.

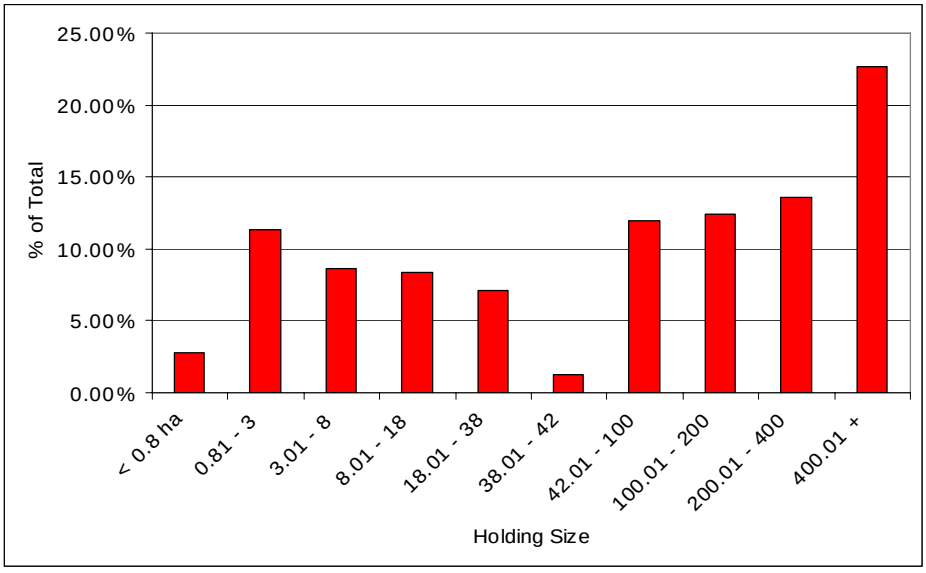
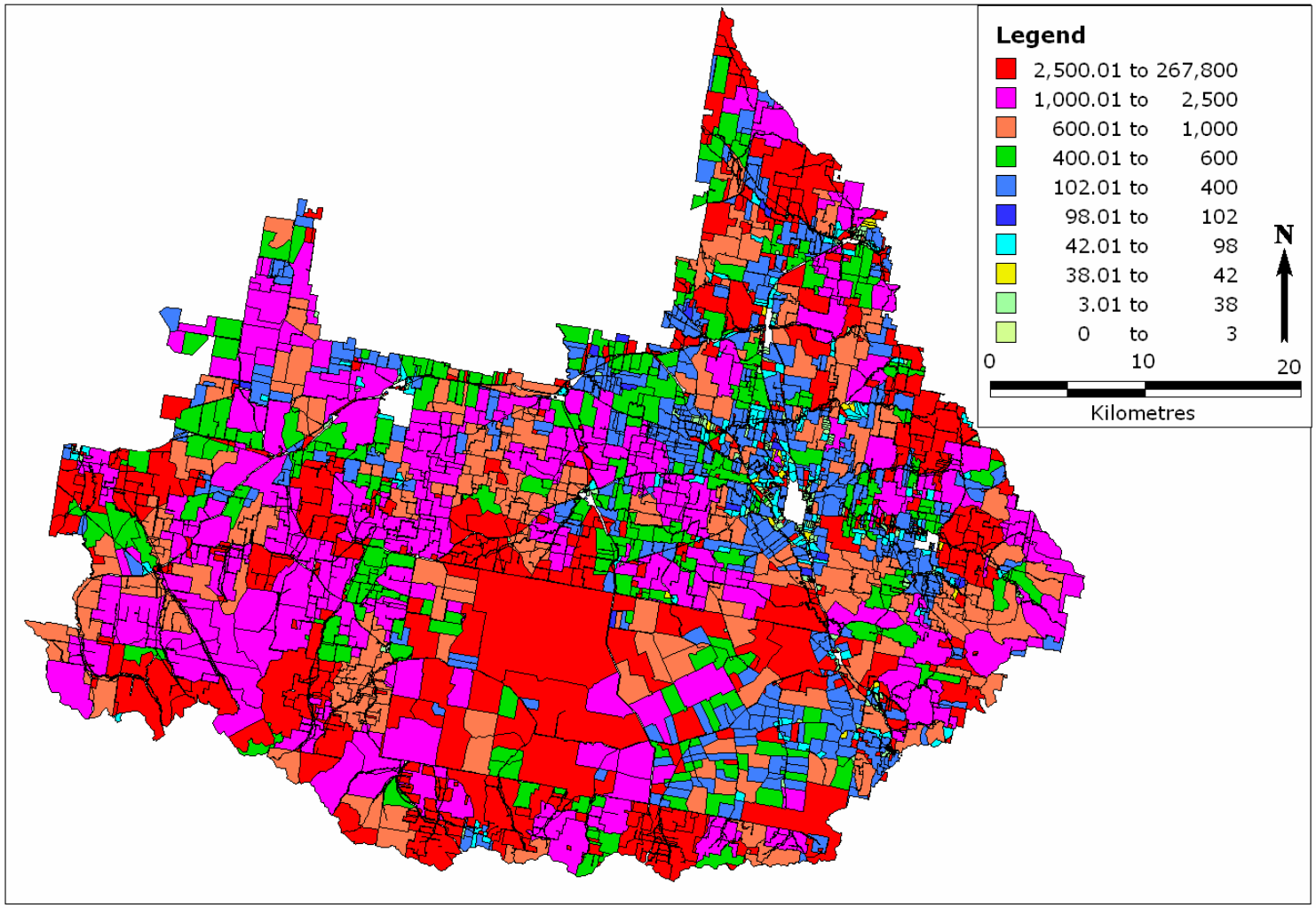


Figure 2.3: Holding Size Analysis
Source: Council GIS and Property System

It can be seen from figure 2.3 that there is a high proportion of the holdings in the 0.8 to 3 ha range and a high percentage of holdings in the greater than 400 ha range. When all holdings greater than 100 ha are totalled, the result is 51.4% and between 100 and 400 ha 26% and over 400 ha 22.7%. Bearing in mind that Liverpool Plains is a rural Shire, this points to the relatively high fragmentation of the Shire. However, as can be seen from map 2.9, the highly fragmented land is mostly in the eastern more hilly parts and the large holdings are on the flat and fertile black soil plains.

Chapter 4 provides the analysis of the holding size range for each locality and it can be generally said that the larger holdings are located in the flat open plains area in the western half.



Map 2.9: Rural Holding Size

2.3 Social Profile

This section provides a broad overview of the social structure of the Shire focussing on its demography and current provision of community facilities and services. It identifies key social sustainability indicators and provides a preliminary assessment of identified social issues facing the community.

2.3.1. Demographic Profile

The demographic analysis presents data and discussion on the population and housing characteristics of the shire.

The 2006 Census of population and housing provides details of the population and housing characteristics.

The population of the Shire is 7,310 which is a decrease of 42 people from 2001. There were 3,041 occupied private dwellings which is an increase of 90 dwellings from 2001. The occupancy rate (number of people per household) for the Shire was 2.4.

Whilst these figures show a decrease in the population of the Shire, this has to be considered in relation to the recent drought which has seen a decrease in the farming sector, which employs a significant number of residents. Figure 2.4 shows the change in population since 1986 (with adjustments made for the changes in the Shire boundaries) it can be seen that the decline in the population has slowed to nearly stable. Figure 2.5 shows the dwelling change which shows that there has been an increase in the number of occupied dwellings. Figure 2.6 shows the change in the occupancy rate since 1991 for the Shire, the Northern Statistical Division and NSW to show that it is a State-wide trend. This falling occupancy rate also accounts for some of the population loss.

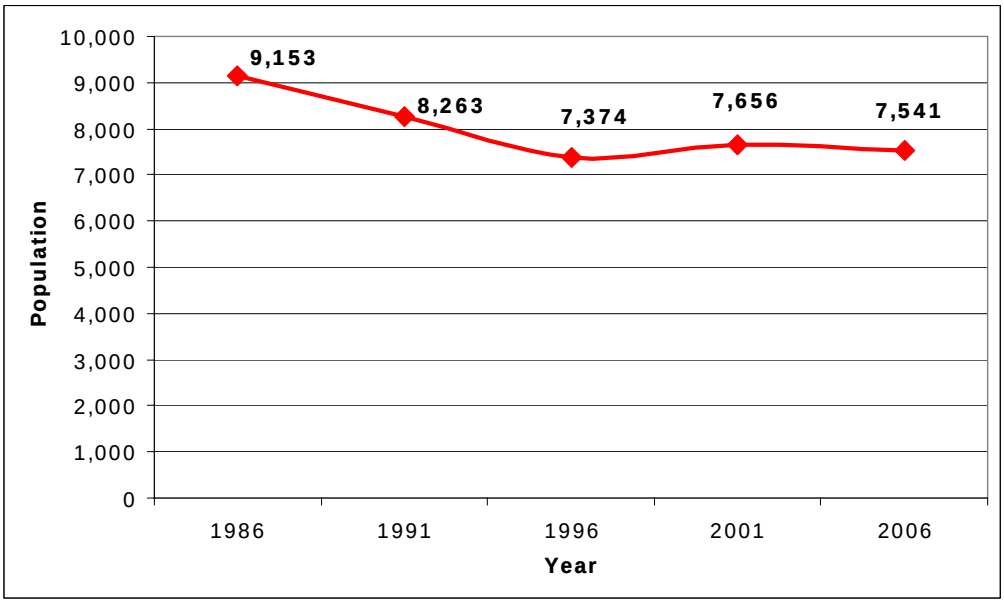


Figure 2.4: Population Change 1986 - 2006
Source: ABS Census of Population and Housing and KPMG

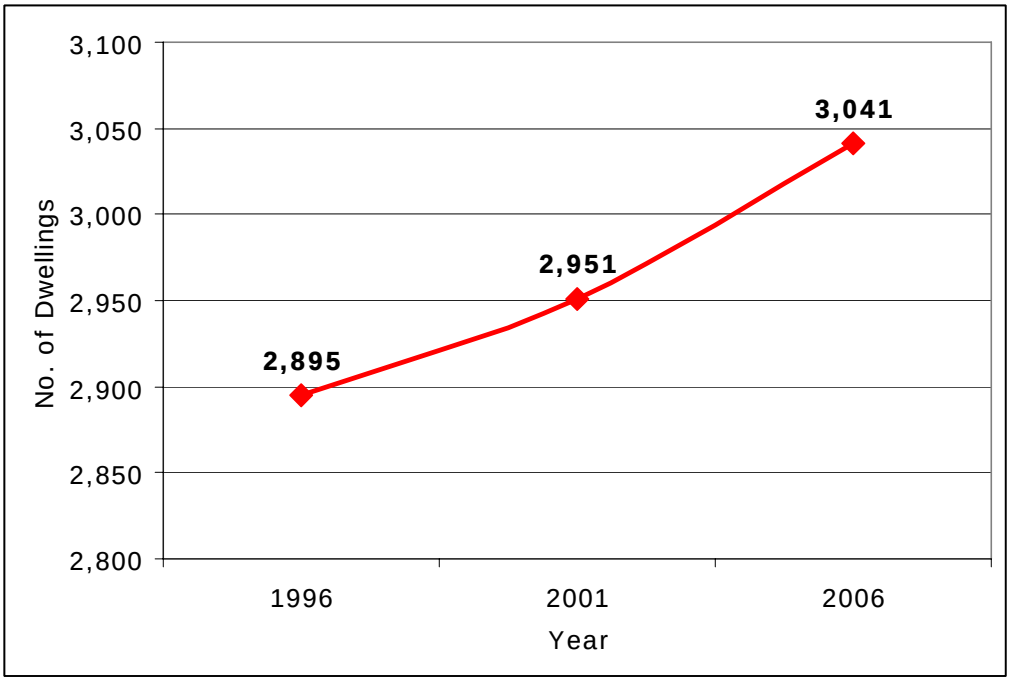


Figure 2.5: Dwelling Change 1996 - 2006
Source: ABS Census of Population and Housing

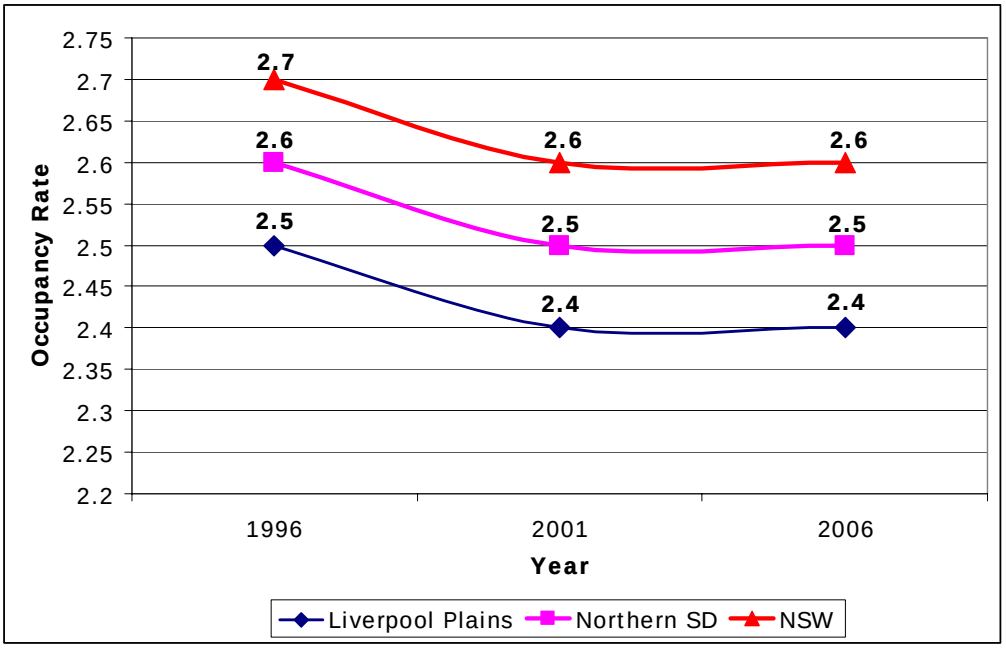


Figure 2.6: Changing Occupancy Rate 1991 - 2006
Source: ABS 2001 Census Basics and 2006 Census Data

This falling occupancy rate means that there will be less people in each household which means that for the same number of households, there will be less people in the Shire.

The demographic analysis presents data and discussion on the population and housing characteristics of the shire.

The age of the population is increasing with the median age increasing to 43 in 2006 from 40 in 2001, 38 in 1996. This is expected to continue. Figure 2.7 shows the population pyramid which reveals the age structure of the population. It can be seen that the pyramid is more 'hour glass' shaped than a pyramid. This shows that the population of Liverpool Plains Shire is ageing. Figure 2.8 shows the change in the age structure from 2001 to 2006. It shows that there were decreases in every age group up to 45 and increases for age groups older than this.

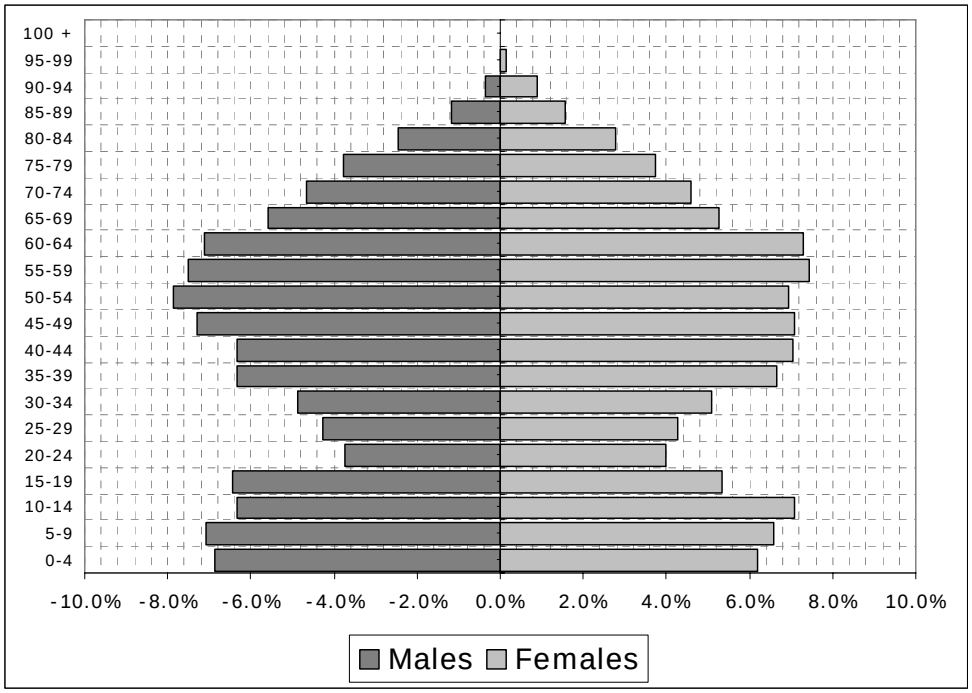


Figure 2.7: Population Pyramid 2006
Source: ABS Census of Population and Housing 2006
Note: The negative values for the males are a formatting process and do not have any other significance.

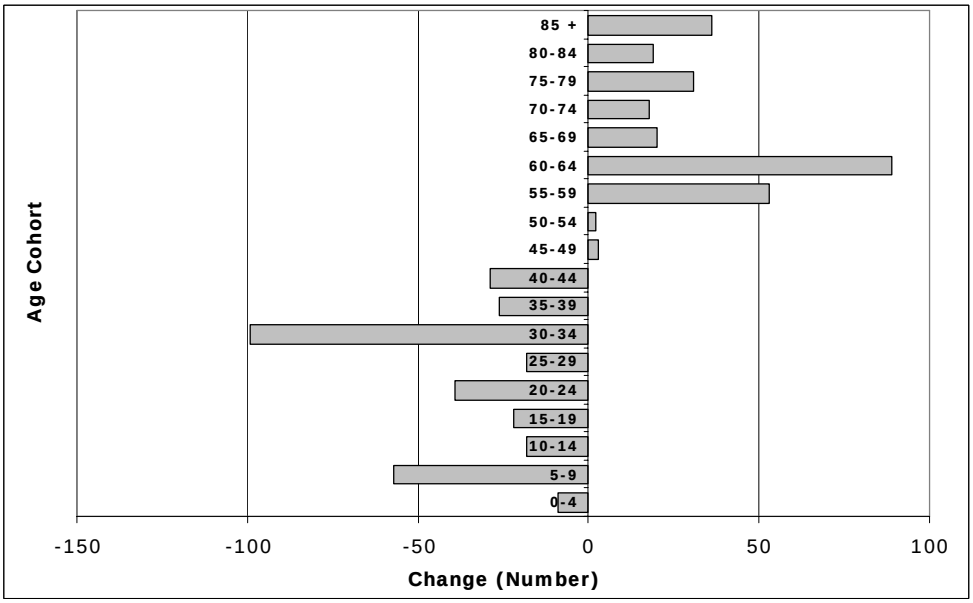


Figure 2.8: Age Structure Change 2001 - 2006
Source: ABS Census of Population and Housing 2006

Figure 2.9 shows the comparative age structure of Liverpool Plains Shire and NSW to put the changes into some sort of perspective. It shows that the Shire has more children less than 10 than NSW. It also shows that the Shire has less than the NSW average for the age groups from 10 – 50 and then slightly more for all age groups older.

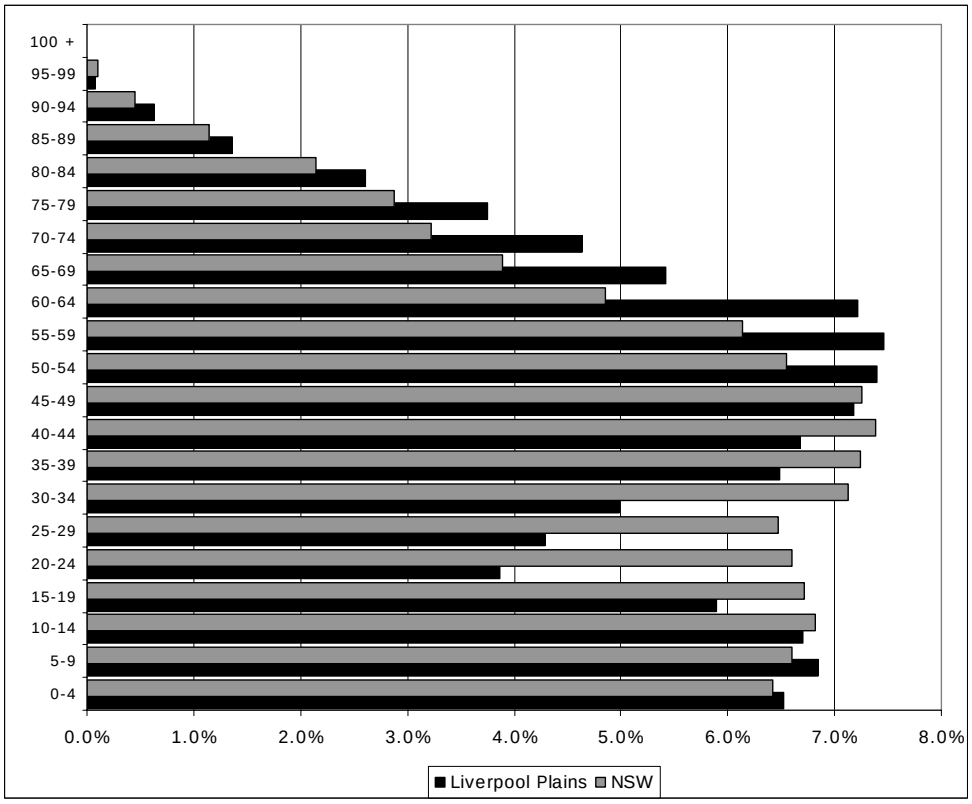


Figure 2.9: Age Structure of Shire and NSW
Source: ABS Census of Population and Housing 2006

Employment data shows that there has been a decrease in the number of people employed within the Shire from 2001 – 2006. Figure 2.10 shows the change in workforce between 2001 and 2006. Table 2.6 shows how the employment has changed since 1996.

It can be seen that agriculture, forestry and fishing; transport, postal and warehousing and health care & social assistance were the sectors that lost the most people. The agriculture and transport sectors would be related to the drought. The other sectors are also related to the drought – retail and wholesale suffering from the lack of people who will purchase goods and services in the Shire.

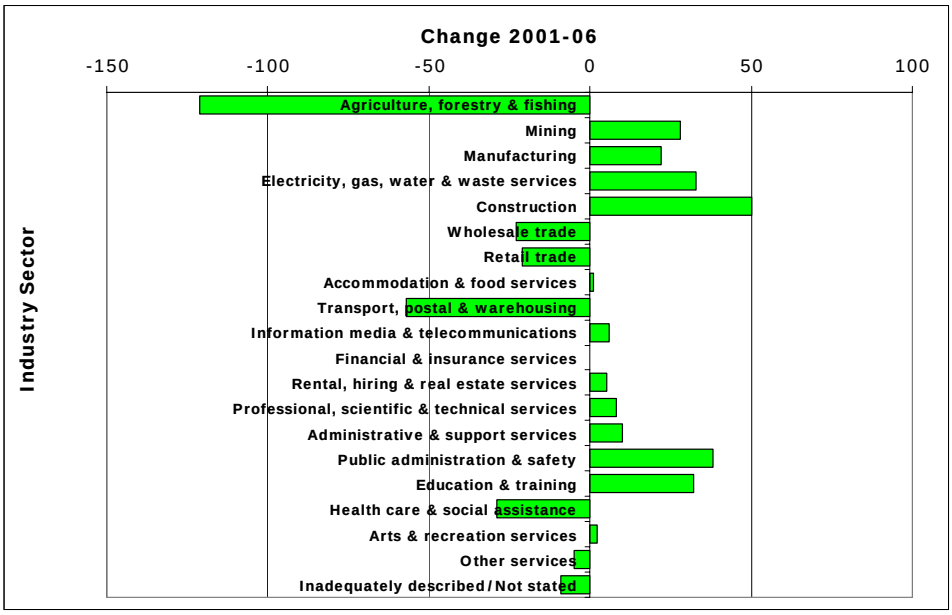


Figure 2.10: Workforce Change 2001 - 2006
Source: ABS Census of Population and Housing 2006

Table 2.6: Industry Sector of Workforce 1996 - 2006

Industry Sector	Persons		
	1996	2001	2006
Agriculture, forestry & fishing	904	935	814
Mining	19	14	42
Manufacturing	103	136	158
Electricity, gas, water & waste services	30	19	52
Construction	126	107	157
Wholesale trade	117	110	87
Retail trade	242	271	250
Accommodation & food services	111	115	116
Transport, postal & warehousing	333	277	220
Information media & telecommunications	21	16	22
Financial & insurance services	43	28	28
Rental, hiring & real estate services	22	14	19
Professional, scientific & technical services	60	76	84
Administrative & support services	22	40	50
Public administration & safety	122	118	156
Education & training	170	172	204
Health care & social assistance	233	293	264
Arts & recreation services	14	12	14
Other services	87	99	94
Inadequately described/Not stated	104	102	93
Total	**2,883**	**2,954**	**2,924**

Source: ABS Census of Population and Housing 2006

The 2006 Census of population and housing provides details of the population and housing characteristics. Table 2.7 shows the basic statistics as well as comparative information for the Shire, the Northern Statistical Division (which includes Armidale Dumaresq, Glenn Innes Severn, Gunnedah, Gwydir, Inverell, Moree Plains, Narrabri, Tamworth, Tenterfield, Uralla and Walcha Councils) as well as NSW. It should be

noted that the Shire is a newly created one and its boundaries have been altered since the census and that the details provided below have been determined by combining the collector districts. The following are the main features:

- The proportion of males was 49.5% females was50.1%, which is higher than the Northern Region for males and less for females(49.7% males and 50.3% females) and NSW (49.4 % males and 50.6% females).
- The urban areas of the Shire had 61.9% of the population which was an increase over 2001 where it was 59.1%. The rural areas had 38.1% of the population which decreased from 40.9% in 2001.
- 9.5% of residents are Aboriginal / Torres Strait Islanders (714 residents) which is higher than the Northern Region (7.0%) and much higher than NSW average of 1.9%. This is a decrease from 2001 where there was 9.8% and 747 persons
- 1.5% of the population are from non-English speaking backgrounds (110 residents) less than the Northern region (5.5%) and much less than NSW (18%). This is an increase from 2001 which was 1.5% and 87 residents.
- The residents are less mobile than the Northern Region (37.9%) and less mobile than NSW (35.5%) with only 30.9% of the population having lived at a different address from the last Census.
- 53.4% of working age residents are working or actively seeking employment (ie workforce participation rate) which is less than the Northern Region (57.3%) and NSW (58.7%).
- The unemployment rate in 2006 was 3.2% for the Shire which is less than the Northern Region (4.2%) and slightly less than NSW (3.5%).
- There are a total of 2,899 occupied private dwellings. These are comprised of 2,761 separate houses, 76 flats, units or apartments, 14 caravans or cabins, 4 improvised homes or tents and 22 houses attached to a shop or office.
- Median weekly household incomes were $666, which is less than the Northern region ($753) and the NSW household income of $1036.
- Data on household structure highlights that the majority of households are couples with no children (44.1% of households) and couples with children (39.1%) and single parent households (15.4%). These are similar to the region with 40.5% of families being couples with no children, 41.1% being couples without children and 16.6% are single parent households. The State data is different with most of the households being couples with children (46.2%) followed by couples without children (36%) and single parent households (16.1%). It is significant to note that the household structure has changed from 2001 with more couple families without children. Figure 2.11 shows the changing family structure between 2001 and 2006.
- Access to private transport is a key issue in many communities and only 3.8% of households do not have access to a motor vehicle compared with 3.9% for the Northern Region and 3.9% for the state.

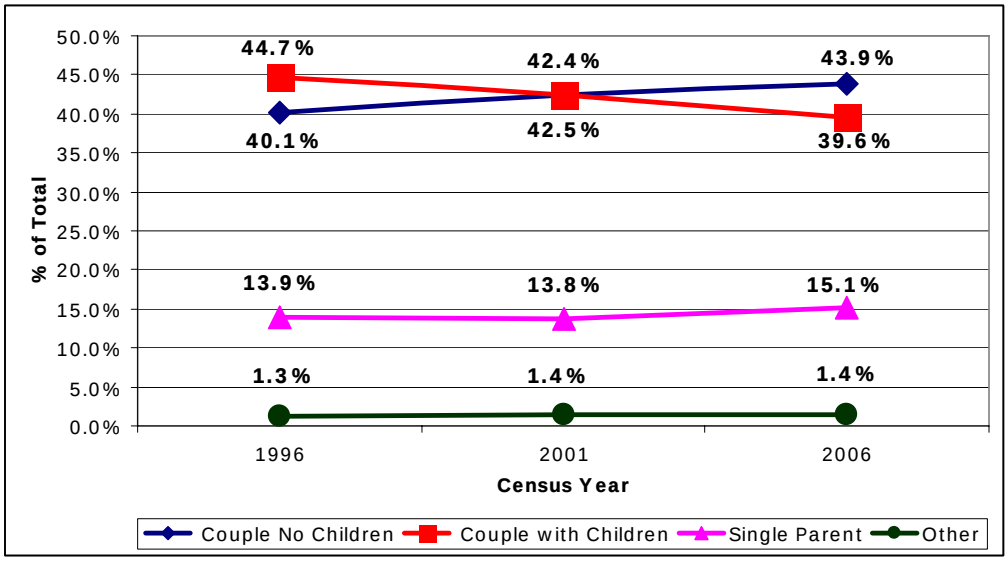


Figure 2.11: Family Structure Change 2001 - 2006
Source: ABS Census of Population and Housing 2006

Since the census in 2001 there has been an increase in the number of dwellings and subdivision activity which is expected to continue. Figure 2.12 shows the number of new dwellings that have been approved in the Shire since 1999. It can be seen that growth is continuing to be high.

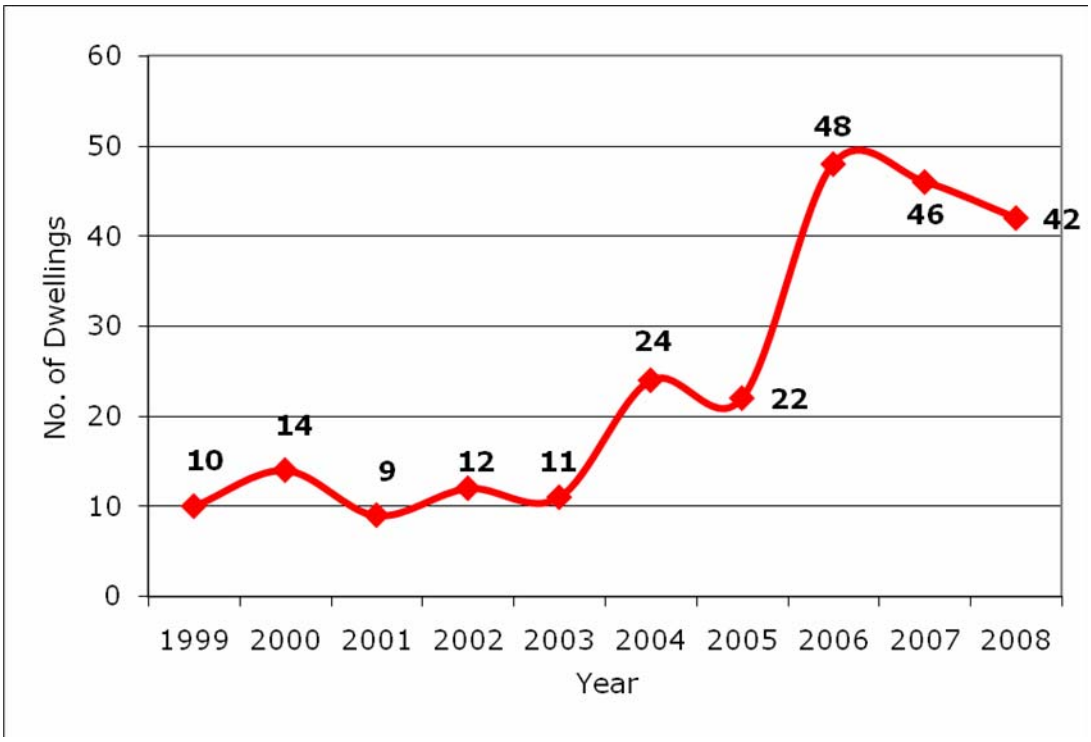


Figure 2.12: Dwelling Approvals 1999 to 2008
Source: Council Records

Table 2.7: Selected Comparative Characteristics

Settlement	2001 Population	2006 Population	2001 - 2006 Difference	% of Total Population 2001	% of Total Population 2006
Quirindi	2,540	2,608	68	32.1%	36.1%
Werris Creek	1,446	1,189	-257	18.2%	16.5%
Wallabadah	181	197	16	2.3%	2.7%
Caroona - Walhallow	147	178	31	1.9%	2.5%
Spring Ridge	132	80	-52	1.7%	1.1%
Currabubula	125	121	4	1.6%	1.7%
Urban Total	4,571	4,373	-198	59.1%	60.5%
Rural Total	3,164	2,853	-311	40.9%	39.5%
Shire Total	**7,735**	**7,226**	**-509**	**100.0%**	**100.0%**
Northern SD	172,862	172,396	-466		
NSW	6,371,745	6,549,178	177,433		

Settlement	0 - 4 year olds	5 - 14 year olds	15 - 24 year olds	15 - 65 year olds	65 +year olds	Median Age	Indig-enous	Occu-pancy Rate
Quirindi	6.4%	12.1%	11.1%	58.2%	23.3%	273	11.8%	2.3
Werris Creek	5.8%	12.0%	10.6%	62.6%	19.6%	134	11.0%	2.3
Wallabadah	4.6%	16.3%	7.7%	64.8%	14.3%	42	5.1%	2.3
Caroona - Walhallow	12.3%	17.3%	8.4%	60.3%	10.1%	33	57.5%	2.8
Spring Ridge	0.0%	15.0%	10.0%	70.0%	15.0%	45	0.0%	2.3
Currabubula	9.2%	10.8%	8.3%	71.7%	8.3%	45	5.0%	2.2
Urban Total	6.4%	12.5%	10.6%	60.4%	20.8%		12.8%	
Rural Total	7.3%	14.9%	8.4%	64.1%	13.6%		2.9%	
Shire Total	**6.7%**	**13.4%**	**9.7%**	**61.9%**	**17.9%**	**0**	**8.9%**	**2.6**
Northern SD	6.6%	14.9%	12.8%	63.0%	15.5%	38	7.9%	2.5
NSW	6.4%	13.4%	13.3%	66.3%	13.8%	37	13.6%	2.6

CD Name	Total Dwellings	Different Address 1 year ago	Different Address 5 years ago	Employed in Agri-culture	Employed in Retail / Tourist Industry	Employed in Health & Education	Worked at Home
Quirindi	1,029	14.3%	33.5%	7.4%	20.1%	21.0%	5.0%
Werris Creek	474	12.2%	31.7%	16.3%	14.4%	14.7%	8.5%
Wallabadah	86	12.2%	37.1%	11.0%	18.3%	3.7%	11.0%
Caroona - Walhallow	39	7.3%	5.6%	28.6%	7.1%	35.7%	0.0%
Spring Ridge	36	17.5%	21.3%	18.5%	11.1%	0.0%	0.0%
Currabubula	53	8.3%	36.4%	5.9%	27.5%	11.8%	0.0%
Urban Total	1,717	13.3%	31.9%	10.7%	18.2%	18.1%	5.9%
Rural Total	1,086	11.2%	29.3%	49.4%	7.9%	11.9%	29.1%
Shire Total	**2,803**	**12.4%**	**30.9%**	**29.1%**	**13.3%**	**15.2%**	**17.0%**
Northern SD	63,833	15.5%	34.6%	16.9%	17.6%	20.1%	10.2%

NSW	114,076	14.2%	33.7%	2.7%	17.7%	18.0%	4.8%

Source: ABS Census of Population and Housing

2.3.2. Demography of Rural Communities

The Census collector districts (CDs) provide some details of the individual parts of the Shire. The names given to the CDs do not match accurately with the localities cited but are approximate and have been provided to allow people to see the population and demographic break up of the Shire . Table 2.8 provides an overview of demographic characteristics for each CD. It should be noted that the age group data is provided as a percentage of the total for that age group. It highlights that:

- The most populated rural communities which are based on the Census Collector districts (apart from the settlements) are Pine Ridge - Warrah (341), Caroona - Borambil (315), Gowrie - Currabubula (304) Currabubula - Piallaway (301) and Quipolly (282).

- The least populated part of the Shire is Wallabadah Rural which is to the east of Wallabadah and had 98 people.

- The highest proportion of unoccupied private dwellings was in Blackville (37.4%) followed by Chilcotts Creek (30.1%) whereas the lowest proportion of unoccupied dwellings was in Spring Ridge where all dwellings are occupied. The Shire average is 14.1%.

- The area with the highest proportion of the working population working at home was Jacks Creek (9.3%) which is usual for such a rural locality. However, it is significant to note that 7.6% of Quirindi's working residents work from home.

Table 2.8: Selected Characteristics of the Community

CD Name	2001 Popu-lation	2006 Popu-lation	2001 - 2006 Diff-erence	% of Total Popu-lation 2001	% of Total Popu-lation 2006	0 - 4 year olds	5 - 14 year olds	15 - 24 year olds	15 - 65 year olds	65 +year olds	Median Age	Indig-enous
Quirindi Urban NW	164	176	12	2.3%	2.3%	5.1%	7.9%	9.0%	58.2%	28.8%	53	8.5%
Quirindi Urban W	553	514	-39	6.8%	6.8%	6.4%	10.3%	8.2%	50.7%	32.6%	50	5.8%
Quirindi Urban SW	711	733	22	9.7%	9.7%	6.8%	14.9%	11.2%	59.0%	19.3%	39	15.0%
Quirindi Urban NE	375	409	34	5.4%	5.4%	8.3%	12.0%	12.5%	58.8%	20.8%	43	11.0%
Quirindi Urban N	413	470	57	6.2%	6.2%	5.1%	11.1%	13.0%	61.1%	22.8%	46	14.5%
Quirindi Urban SE	324	306	-18	4.1%	4.1%	5.6%	12.5%	11.8%	63.9%	18.0%	42	13.1%
Boomera Blackville	238	226	-12	3.0%	3.0%	10.2%	13.3%	5.8%	67.3%	9.3%	41	4.9%
Premer Colly Blue	217	187	-30	2.5%	2.5%	5.4%	14.5%	7.5%	66.1%	14.0%	42	0.0%
Spring Ridge Windy	179	170	-9	2.3%	2.3%	8.2%	13.5%	8.2%	62.4%	15.9%	41	8.2%
Pine Ridge Warrah	341	309	-32	4.1%	4.1%	8.4%	14.9%	8.1%	61.5%	15.2%	40	2.9%
Caroona Borambil	315	329	14	4.4%	4.4%	7.3%	16.8%	12.2%	66.4%	9.5%	36	4.6%
Quipolly	282	282	0	3.7%	3.7%	8.2%	15.2%	7.8%	66.0%	10.6%	42	5.0%
Braefield	190	160	-30	2.1%	2.1%	5.0%	16.4%	11.9%	65.4%	13.2%	44	3.8%
Wallabadah Urban	181	197	16	2.6%	2.6%	4.6%	16.3%	7.7%	64.8%	14.3%	42	5.1%
Wallabadah Rural	98	113	15	1.5%	1.5%	8.8%	15.0%	8.0%	55.8%	20.4%	45	5.3%
Spring Ridge Urban	132	80	-52	1.1%	1.1%	0.0%	15.0%	10.0%	70.0%	15.0%	45	0.0%
Caroona Walhallow Urban	147	178	31	2.4%	2.4%	12.3%	17.3%	8.4%	60.3%	10.1%	33	57.5%
Currabubula Piallaway	301	273	-28	3.6%	3.6%	7.4%	10.7%	11.8%	66.5%	15.4%	42	1.8%
Werris Creek Urban N	549	572	23	7.6%	7.6%	6.5%	11.5%	8.7%	60.0%	22.0%	45	11.5%
Werris Creek Urban SE	494	494	0	6.5%	6.5%	5.5%	12.6%	10.3%	59.7%	22.3%	46	14.6%
Werris Creek Urban SW	403	422	19	5.6%	5.6%	5.2%	12.1%	10.2%	63.5%	19.2%	46	12.8%
Currabubula Urban	125	121	-4	1.6%	1.6%	9.2%	10.8%	8.3%	71.7%	8.3%	45	5.0%
Currabubula Gowrie	115	109	-6	1.4%	1.4%	3.7%	23.1%	13.0%	69.4%	3.7%	36	2.8%
Blackville	203	179	-24	2.4%	2.4%	9.5%	14.5%	6.7%	65.4%	10.6%	41	0.0%
Jacks Creek	227	245	18	3.2%	3.2%	8.2%	16.3%	6.5%	63.3%	12.2%	42	0.0%
Willow Tree Urban	190	168	-22	2.2%	2.2%	0.0%	16.1%	6.5%	61.9%	22.0%	39	3.6%
Chilcotts Creek	268	123	-145	1.6%	1.6%	6.5%	16.3%	9.8%	65.9%	11.4%	43	0.0%
Shire Total	**7,735**	**7,545**	**-190**	**100%**								**9.4%**

CD Name	Occ-upancy Rate	Total Dwellings	Unocc-upied Dwellings	% Unocc-upied Dwellings	Different Address 1 year ago	Different Address 5 years ago	Employed in Agri-culture	Employed in Retail / Tourist Industry	Employed in Health & Education	Worked at Home
Quirindi Urban NW	2.3	74	10	13.5%	13.1%	31.3%	13.3%	12.0%	16.0%	2.3%
Quirindi Urban W	2.2	195	34	17.4%	15.8%	34.8%	10.8%	24.6%	22.2%	1.2%
Quirindi Urban SW	2.4	279	47	16.8%	13.8%	32.9%	7.5%	15.7%	21.7%	2.6%
Quirindi Urban NE	2.4	156	17	10.9%	13.4%	32.3%	4.6%	16.0%	22.1%	2.4%
Quirindi Urban N	2.2	199	11	5.5%	15.7%	34.5%	6.4%	25.5%	19.1%	1.1%
Quirindi Urban SE	2.3	126	6	4.8%	13.1%	34.3%	3.5%	25.2%	22.6%	1.3%
Boomera Blackville	2.7	80	30	37.5%	7.1%	26.5%	59.8%	5.4%	5.4%	24.8%
Premer Colly Blue	2.3	76	19	25.0%	7.5%	34.8%	77.5%	0.0%	8.1%	23.5%
Spring Ridge Windy	2.5	70	23	32.9%	14.1%	18.8%	59.2%	8.7%	2.9%	20.6%
Pine Ridge Warrah	2.7	117	20	17.1%	9.7%	23.3%	41.8%	9.1%	17.6%	13.9%
Caroona Borambil	2.6	113	9	8.0%	6.4%	25.8%	44.7%	5.3%	12.9%	14.0%
Quipolly	2.6	110	24	21.8%	9.6%	32.6%	39.6%	11.1%	13.2%	11.7%
Braefield	2.6	65	13	20.0%	8.1%	32.5%	29.1%	11.4%	13.9%	7.5%
Wallabadah Urban	2.3	86	7	8.1%	12.2%	37.1%	11.0%	18.3%	3.7%	4.6%
Wallabadah Rural	2.4	40	0	0.0%	10.6%	25.7%	70.4%	0.0%	5.6%	19.5%
Spring Ridge Urban	2.3	36	0	0.0%	17.5%	21.3%	18.5%	11.1%	0.0%	0.0%
Caroona Wallhallow Urban	2.8	39	0	0.0%	7.3%	5.6%	28.6%	7.1%	35.7%	0.0%
Currabubula Piallaway	2.4	106	16	15.1%	16.1%	37.4%	35.9%	12.4%	14.5%	10.3%
Werris Creek Urban N	2.2	208	17	8.2%	14.7%	30.9%	5.5%	13.8%	23.4%	0.9%
Werris Creek Urban SE	2.2	209	24	11.5%	7.9%	28.1%	5.0%	21.3%	16.3%	0.6%
Werris Creek Urban SW	2.2	159	10	6.3%	14.7%	32.2%	7.6%	7.6%	12.7%	1.2%
Currabubula Urban	2.2	53	0	0.0%	8.3%	36.4%	5.9%	27.5%	11.8%	0.0%
Currabubula Gowrie	2.9	38	9	23.7%	9.2%	39.4%	18.8%	12.5%	18.8%	3.7%
Blackville	2.6	65	61	93.8%	18.4%	36.9%	77.2%	5.9%	7.9%	21.2%
Jacks Creek	2.5	76	4	5.3%	6.5%	15.5%	62.0%	4.1%	7.4%	16.7%
Willow Tree Urban	2.5	75	15	20.0%	17.3%	41.1%	0.0%	20.5%	9.1%	1.8%
Chilcotts Creek	2.2	51	11	21.6%	17.1%	35.0%	57.1%	0.0%	24.5%	14.6%
Shire Total	**2.6**	**2,901**	**437**	**15.1%**	**12.3%**	**30.7%**	**27.9%**	**13.1%**	**15.4%**	**6.5%**

Source: ABS Census of Population and Housing

2.3.3. Assessment of Existing Community Infrastructure

The following information has been taken from the Liverpool Plains Shire Social Plan 2004 – 2005 and from discussions with representatives of the local communities and workers in the area.

Council plays a number of important roles in the provision of community services. These include provision of core facilities such as parks and recreation areas as well as provision of community services such as libraries and halls. It should be noted that community services provide much more than welfare. They contribute to the local economy providing 9.8% of all jobs, they improve the general quality of life of people living in the Liverpool Plains Shire as well as encouraging an active community where people work together to solve problems.

In a Shire like Liverpool Plains, which is spatially and topographically diverse, the provision of facilities and services to the 10 communities (some of which are relatively isolated) and the rural landholders surrounding them presents some unique dilemmas. Each community utilises the services within a larger centre - these being Tamworth, Quirindi or Gunnedah. For this reason the provision of a number of community facilities and services are provided by these centres. This is particularly so for health and welfare services provided by State and Federal Governments which are mainly provided within Tamworth being the larger regional centre.

Council has prepared a Social Plan which has investigated the needs of the community and how they are being met. Overall the report found that the social needs of the people living within the Shire are being reasonably well met. Those residents that have lived in the Shire for some time are happy with the services and facilities provided across the Shire and they are positive about the future. It noted that families are being drawn to the Shire because it offers an affordable alternative to city living, with many self-funded retirees moving in and bypassing the more expensive coastal regions. The prospect of new industry and jobs is also expected to bring more working aged people and their families to the area. The Social Plan notes that the proximity to Tamworth and access to specialist medical services, schools, shopping centres and employment are providing further incentives for people to relocate to the Shire and overall both its existing and new residents are recognising the benefits of living within the Liverpool Plains Shire.

The social plan has identified a number of areas where the needs are not being met and which deserve attention. These areas are as follows:

- *Recreational opportunities.* The needs of younger people is a high priority and if these people can be kept happy and involved in the community it can help them develop into caring and responsible adults.
- *Indigenous access to the community.* The Aboriginal community needs to have access to the economic resources and services that are essential to meeting their basic needs and improving their quality of life. The inclusion of Walhallow (at Caroona) into the Shire has magnified the need for increased participation and consultation with the indigenous community.
- *Community development and participation*. Community development requires the engagement and participation of all sectors within the community. The council can play a role in this by communicating with the community,

providing scholarships, grants, information sources and various employment opportunities. It is noted that there is a need for stronger volunteer participation within the community and that currently these volunteers belong to the 'older persons' demographic group. The Social Plan notes that stronger community driven leadership will encourage participation from organisations and individuals to contribute to the Shire in a more positive and productive way.

- *Maintain health care services.* The report notes that the health care services in the area have been maintained and have not declined. Quirindi has 4 doctors and 3 dentists as well as a Community Acute Health Service which provides for acute care, medical services, obstetrics and paediatrics. The hospital has a 24 hour Emergency Medical Department and operating theatre.
- *Obstetrics facilities at Quirindi hospital.* Obstetrics services in Quirindi have been relocated to Tamworth which can have an impact on the ability of younger families to relocate to the area and have children at the local hospital.
- *Maintain Home and Community Care (HACC) Services*. The current HACC programme provides support for the less independent in the community and provides help for the frail aged, younger people with disabilities and their carers so they can remain at home and avoid inappropriate or premature admission to a residential care facility.
- *Increase cultural opportunities.* It is acknowledged that various cultural activities exist within the Shire however there is room for improvement. Examples include making better use of The Basement (in the library building) for smaller performances as well as exploring opportunities to increase the profile of the local cinema. Council has recently acquired the Royal Cinema and is developing a works program for its redevelopment.
- *Promote natural resource management and build on the Shire's environmental record*. The work of the Shire in promotion of land care and river restoration projects should continue as there are closer links between the natural environment, economic prosperity and social well-being.
- *Prepare an information package for new residents*. A comprehensive information package is made available for new residents. This includes information on Council, State Government, emergency services, community and sporting organisations as well as other relevant local information. It is noted that the council has recently updated its community services directory and is preparing an economic development package for potential investors in the Shire.
- *Maintain aged care facilities and services*. There is a need to maintain the current level of aged care facilities as well as planning for more in the future. This will include expansion of existing nursing homes as well as potential new facilities and the continuation of the Home and Community Care programme. Quirindi Retirement Homes Ltd has recently commenced the construction of a new facility adjacent to the Quirindi Hospital.

2.4 Economic Factors

2.4.1. Introduction

Economic Development in the Shire is based mostly on agriculture (irrigated agriculture and extensive agriculture) as well as the Quirindi town centre and its retail and commercial uses. Tourism is becoming a significant contributor to the economy.

The information for this section has been derived from 2 reports prepared for the Council. One is a report titled *Projecting Liverpool Plains Economy and Population* prepared by the Centre for Agricultural and Regional Economics (CARE) in July 2005. The other one is for the Quirindi Town Centre and was prepared in November 2003 by Castlecrest Consultants titled *Economic Impact Assessment of the Quirindi Town Centre*, which was prepared to analyse the potential impact of a new supermarket in the town. This report carried out a detailed analysis of the town centre and analysed the shopping patterns as well as the commercial catchment area of the centre. The Council subsequently approved the supermarket and it was completed in 2008. Both of these reports found that the economic future of the Shire was positive with growth in all sectors of the economy predicted, which is a result of the increase in dwelling approvals and population since 2001.

2.4.2. Agriculture

The shire has a very diverse agricultural industry which is focused on the following activities:

- Cropping;
- Grazing industries;
- Other products.

Each of these is discussed below.

The agriculture employment data provided in the economic report show that these are important industries for the region with the grains and beef cattle industries being dominant. The pig and poultry industries have generally been declining over time although they still have significant location quotients. The large local grain and fodder industries provide a basis for further expansion if the returns are sufficient to justify it. The sheep industry is of little significance and is likely to remain so. Other agriculture covers the cotton industry, various horticulture activities, nurseries and fodder production (including lucerne). These activities could also expand in the future as farmers seek to develop specialist, niche market enterprises.

What is notable is the significant services to agriculture industry. This is a reflection of the increasing application of knowledge and specialist capital to agriculture. This trend is likely to continue and provide additional high-value employment positions for the Shire.

Within agriculture, the CARE report found that there is a trend toward a more diversified set of activities, specialisation on particular activities on farms and, where possible, a more intensive agriculture. Examples include the production of a larger array of grains, oilseeds and legumes, sometimes for particular purposes (eg. corn for

pop corn), the operation of a range of intensive livestock and poultry enterprises and specialist crops such as lucerne chaff and cotton. Some of these developments take advantage of the irrigation opportunities that exist in the Shire. These trends would increase employment relative to the extensive grain and grazing operations. Further, these trends lead to increased off-farm employment in the marketing, processing, transport and storage of those products. The Shire has considerable capacity in those activities and it is likely to expand further.

An analysis of the data compiled for the 2005-06 Agricultural Census compiled by the ABS reveals the following characteristics:

- There were 555 respondents operating 501,747 ha of land (derived from the responses of those in the census).
- The main pattern of land use was as follows:
    - Crops: 190 operators & 93,841 ha
    - Pastures: 497 operators & 321,490 ha
    - Fallow: 178 operators & 60,856 ha

  (Note that these are not mutually exclusive categories and so the totals will be different.)

- The livestock and poultry sales are as follows:
    - Sheep and lambs: 125 operators & 156,394 head
    - Cattle: 461 operators & 149,432 head
    - Horse Studs: 33 operators & 464 head

This data indicates the dominance of cattle and sheep production. Sheep as an industry is declining in importance as is poultry. However, there is a possibility of growth in poultry given the rising importance of the Tamworth area as a centre for poultry production, especially meat. Horse production may also increase along with a similar trend in the Upper Hunter.

The above information is complemented by the estimates of the value of agricultural production shown in table 2.9. This highlights the dominance of cereal and cattle production. Overall production in 2005-06 was under the influence of relatively poor seasonal conditions. On the other hand, the value of cattle production does not appear to reflect the production from the two feed lots in the area which is likely to lead to estimates of cattle production of in excess of $50m.

Table 2.9: Composition of the Value of Agricultural Production

Commodity	Gross Value	% of Northern Region
Agriculture	$160,901,877	9.0%
Crops	$61,421,137	6.2%
Crops cut for hay	$4,086,897	10.3%
Crops (excluding hay)	$57,334,240	6.1%
Vegetables	$8,887	0.2%
Fruit	$21,525	0.2%

Livestock slaughterings	$91,675,246	13.7%
Livestock products	$7,805,494	5.8%

Source: ABS Agriculture Census

An important related activity for the Liverpool Plains Shire is that of agricultural tourism, and this is also discussed below, together with some suggestions as to activities that could be undertaken to support the further development of agricultural activities in the Shire.

2.4.3. Quirindi Town Centre

The Quirindi town centre has gone through somewhat of a transformation over the past 2 to 3 years. The main physical manifestation of this change is the new streetscape improvements which were completed in mid 2004. Another change has been the development of a large IGA supermarket ($6 million) on the southern part of the CBD. During the assessment of the Development Application, Council commissioned Castlecrest Consultants to prepare a report on the commercial impact of the supermarket

The Castlecrest report found that the township of Quirindi continues to act as a significant sub-regional service centre. It has an extensive range of retail and commercial businesses as well as social and community facilities. The report found that the primary trade area or retail catchment extended approximately 20 km and includes all of the towns within the Shire and the secondary trade area extends 40 km and includes such towns as Nundle and Breeza outside the Shire boundaries. With the exception of Tamworth, Quirindi dwarfs the economic and social fabric contained in towns within a 65 km radius. This extends to well beyond the primary and secondary trade area boundaries. The report found that there is a latent opportunity for Quirindi to strengthen its position and firmly establish itself as the sub-regional service centre for this relatively extensive, albeit, sparsely populated area.

The retail analysis, including a shopper survey and demographics contained within this report, reveal some important facts which are reproduced below:

- The existing township retail businesses are predominantly servicing the local convenience shopping needs of the population in the trade area.
- Quirindi appears to be deriving the majority of its trade from the local area and under trading to its potential for the secondary trade area of outlying towns and settlements.
- The shoppers and population are highly mobile and reliant upon the motor vehicle, allowing them ability to travel elsewhere to complete food and non-food group shopping.
- Based on the outcomes of the shopper survey, 76% of respondents identified Quirindi as their main centre for food shopping. 85% complement food shopping in Quirindi by shopping elsewhere. Only 32% of shoppers use Quirindi as their main centre for non-food shopping whilst nearly 80% choose a centre elsewhere to complement shopping in non-food categories.

- 34% of shoppers identified convenience and proximity as one of the likes of shopping in Quirindi. A further 23% nominated friendly service and another 16% the village atmosphere as positives about Quirindi.
- 33% of respondents had no dislikes about shopping in Quirindi. However, 25% nominated a lack of variety and range and a further 16% the prices as dislikes for shopping in Quirindi.
- 29% of shoppers identified clothing and footwear shops as lacking in Quirindi. 15% nominated the need for another supermarket whilst 18% a need for a major non-food store. 14% of respondents indicated that no change or improvements were required to shopping facilities in Quirindi.
- The population's high level of mobility facilitates the ability to travel elsewhere to complete food and non-food shopping. The trade area population's median age exceeds 40 with a relative under representation of population between the ages of 15 and 30.
- From a retail perspective the population characteristics do not indicate there will be significant change within the trade area for the foreseeable future.
- Based on the population characteristics for the Quirindi Primary and Secondary Trade Areas, it was estimated that in 2003 the total available retail spending for food groups is $25.06m and for non-food groups $61.82m.
- Assessing the current likely trading pattern of existing retailers in Quirindi, Castlecrest Consultants estimated the market leakage to be approximately 72% in total comprising $15.36m or 62% in food and $46.85m or 76% in non food expenditure in 2003.
- They estimated that the capacity and capability exists to increase the trade capture from 39% to 63% for food and from 24% to 28% for non food retail in 2006.
- They estimated that on current trading levels the Quirindi Town Centre requires about 45% of total available retail spending from households in the primary trade area to support the floor space presently trading. Including the total available retail spending from the STA, the percentage decreases to 28%.

The supermarket was approved and the new supermarket opened in mid 2008. This is an indicator of the strength of the local economy.

2.4.4. Tourism

Tourism is an increasing component of the local economy and one which the Council is promoting. They have identified it as a major facet of the economic development strategy

The Council has recently published a map that directs tourists to a variety of 'country drives' around the Shire.

One aspect of the tourist industry that is increasing is the farm based tourism. Tourists focused on farm-based activities demand authentic experiences that enable them to experience an environment or culture not tainted by 'mass market' approaches. Thus, tourists will be looking for personal contact with the producers and local people, rather than a replica of what they can see for themselves any day in the city. To be successful, tourism operators (and this includes wineries) must offer a REAL experience i.e. one which is Rewarding, Enriching, Adventurous and offers a Learning experience.

Farms wishing to service this market should be able to meet the following criteria:

- A well-presented facility, with accessible interpretation of activities for visitors;
- An interesting program of activities which allows for a visit of 60 – 90 minutes;
- A technical expert available for at least some part of the visit time (for example, the winemaker, the grower, the jam maker);
- Be available and accessible every day of the year – or be clearly seasonal (eg fruit picking and harvesting would be a seasonal activity) – as tourists need to have some degree of certainty when planning their programs;
- Have staff trained in hospitality skills eg 'Aussie Host' or similar; and, if necessary,
- Be prepared to provide commissions for agents who book group visits.

Some visitors who are attracted by these activities will be day-trippers, or will stay in traditional hotel/motel accommodation. However, there is another group that is looking for an authentic regional experience and want to see something different or unique to the area.

Accommodation for this market segment generally falls into three categories:

- On-farm for families;
- On-farm for larger groups (eg school or club groups); and
- B&B accommodation.

To be successful in this market, on-farm accommodation must be on a real working property – not just a place with a few animals and a scenic view. Whilst this may be perfect for the people looking for B&B experiences, families and groups generally want a more interactive environment.

Whatever the type of accommodation, it must offer quality surroundings at a price that reflects the standard being provided. Hosts must be friendly and knowledgeable, and prepared to go that extra length to meet guest's needs. They need to make visitors feel at ease, but not be over-friendly or intrusive.

Operators need to establish strong networks both within their industry sector and across the region. Marketing intelligence is available from many sources and operators should make sure they have a thorough understanding of consumer expectations. Working together across the region will ensure visitors have a consistent and quality experience and will add to future visitor numbers.

Whilst there are a number of hotel style accommodation venues, there are few motel style accommodation locations in the Shire. There is a need to provide more of these in the future to cater for the future tourist market.

2.4.5. Other Sectors of the Economy

The other sectors of the economy include other primary industries, manufacturing, utilities, building and construction, trade, business services, public services and personal services. Each will be discussed below which is a summary of the information provided in the report prepared by CARE. The information below is based on current

and anticipated employment data provided by the ABS and supplemented by other data.

- *Other Primary Industries* include forestry and mining. Whilst not a major sector at present, this is expected to change as a result of the following:
    - ⇨ The development of a new coal mine near Werris Creek
    - ⇨ Expansion of the zeolite mine
    - ⇨ The prospect of sourcing gas from the coal seams that underlie much of the area
    - ⇨ Residents working in the Nundle-Walcha forestry areas to harvest and haul plantation softwood logs to the sawmill (currently being built) in Quirindi.
- *Manufacturing*, whilst not being a major commodity it is stable and expected to grow as the population increases.
- Utilities sector growth is related to the growth in the population and this sector is expected to grow in employment.
- *Building and Construction* employment has been steady over the past 20 years and this is anticipated to increase as the population increases.
- *Trade* includes both retail and wholesale and like the building sector has been relatively constant over the past 20 years. It appears likely that there will be a considerable improvement in the level of retail services and accommodation and restaurants. This should arise from:
    - ⇨ The construction and operation of the new supermarket in Quirindi.
    - ⇨ The refurbishment of the Main Street that will attract more customers to a more congenial environment.
    - ⇨ The recovery of some of the retail trade that is presently leaking from the Quirindi area.
    - ⇨ The attraction of more visitors to Quirindi.
    - ⇨ In total, these activities are expected to be a significant growth area, particularly in Quirindi. It may also lead to less commuting to jobs elsewhere.
- *Business Services* include those that serve the needs of the households and are anticipated to increase in line with the anticipated population increases.
- *Public Services* employment has been relatively stable particularly with education and health. This sector is expected to grow in line with the increase in the population.
- *Personal Services* includes entertainment, libraries, sport and gambling etc. The sector has shown some growth which is anticipated to continue with the anticipated population growth.

It should be noted that BHP are currently assessing the potential for a major coal mine in the Caroona locality. This has been addressed elsewhere in this document. However it needs to be recognised that this could have a major economic impact on the Shire.

2.4.6. Population and Economic Forecasts

This section has been provided by CARE as part of its report. The analysis brings together information about the development prospects for the various industry categories. The projections are based on the following information:

- There is no net growth in employment in agriculture with increasing intensity offsetting the growth in labour productivity.
- The development and operation of a new sawmill that will reach full production in 2009 resulting in the employment of 50 people
- The development of a new coal mine near Werris Creek that employs 50 people plus a further 6 people in transport.
- The additional construction work associated with these projects is assumed to increase employment in that industry by 25 people now and then to increase in line with population growth.
- A new supermarket commenced in 2008.
- Substantial renovation of the main street in Quirindi has been undertaken with plans for completion of stage 2 in the next 3 years.
- The above developments are expected to enhance the capacity of local retailing to service the needs of the LP residents. Thus, it is assumed that the population employment ratio (PER) for the retail sector will decline from 23 to 20 leading to a growth in employment in the retail sector. This factor represents the capture of some of the retail spending that is presently leaking from the Shire.
- Up to 2005, the remaining industries (including retail and manufacturing) in the Shire grow at 1% annually (about 30 jobs per year). Since 2001 around 15 new houses have been built each year which would suggest an increase in population of around 36 (15 by 2.4 persons per household) of which 40% are working (about 15 which is half of the 1% overall growth). Thus, this growth appears to be happening already.
- From 2005 until 2015, the annual growth is assumed to double to 2% per year. The identified growth from the projects noted above has not taken into account flow-on effects. The higher annual growth is designed to take this into account as well as a continuation of the growth that is already occurring.

There will be other sources of growth that have not been taken into account explicitly. These include:

- An increase in visitor numbers to the area, particularly Quirindi and Werris Creek due to tourist attractions such as the Rural Heritage Village, First Fleet Memorial Gardens and the Australian Railway Museum and Monument.
- Further developments in manufacturing.
- Growth in the transport and related activities.
- The journey to work data indicates that there are significant numbers of Quirindi residents working outside the previous boundaries. Thus, Quirindi is filling a role as a residential area. The attraction of Quirindi in that respect will improve given the growth in commercial activities and population. The improved depth and quality of retailing and community services (e.g. the childcare centre) will tend to attract residents, or discourage them from leaving.
- There are also a number of people working in Quirindi but living in other LGAs. A more attractive Quirindi is likely to attract some of these people to move their residence to where they work.

On the above basis, a set of estimates of the growth in employment has been compiled by major industry groups as indicated in Table 2.10. This indicates employment increasing from 3059 in 2001 to 3822 in 2015. Based on a constant employment to population ration of 0.4, this translates into a population for LP of 9556 in 2015, an increase of 25% over the level in 2001.

Table 2.10: Estimated Employment, 2001 to 2015

Liverpool Plains Industry Groups	Comments	2001	2005	2010	2015
Agriculture, Forestry and Fishing	No growth in employ	999	999	999	999
Mining	New mine, 2007 +50	18	19	71	71
Manufacturing	Sawmill 2007 +80	147	153	249	275
Electricity, Gas and Water Supply		9	9	10	11
Construction	2005, +25	102	127	140	155
Wholesale Trade		124	129	142	157
Retail Trade	2006, PER declines 23 to 20 (2005 pop)	331	379	418	462
Accommodation, Cafes and Restaurants		95	99	109	121
Transport and Storage	Mine +6	247	257	290	320
Communication Services		31	32	36	39
Finance and Insurance		34	35	39	43
Property and Business Services		123	128	141	156
Government Administration and Defence		106	110	122	134
Education		180	187	207	228
Health and Community Services		299	311	344	379
Cultural and Recreational Services		29	30	33	37
Personal and Other Services		77	80	88	98
Non-classifiable economic units		18	19	21	23
Not stated		90	94	103	114
Total Employment		**3059**	**3198**	**3563**	**3822**
	Underlying compound employment growth rate 1% pa to 2005 Underlying rate 2% pa from 2005				
	Population(=emp/0.4)	7648	7995	8907	9556
	% increase over 2001		105	116	125
	Retail employ = 20 (=pop/20)	382	400	445	478

The trend shown indicates an accelerating rate of growth over the period. This is a common characteristic in rural areas where it proves to be difficult to effect a turnaround from a long-term decline such as that experienced by Quirindi. However, once growth becomes evident and looks to be sustainable, then further investment is stimulated. The Council in Quirindi has made considerable efforts over recent years to stimulate growth (additional industrial and residential land development, housing and the childcare centre) that has succeeded in stimulating new industries, new residences and additional population.

This has stimulated further development with plans for a number of urban and rural residential subdivisions planned for Quirindi and surrounds. Further, most of the existing industrial land has been purchased with a view to business establishment (as distinct from speculation) and those new developments are likely to eventuate in coming years – such as some that plan to be linked to the sawmill development.

At the same time, the forces that have led to the sharp reductions in employment and population over recent decades appear to have abated. These include:

- A slowdown in the rationalisation and consolidation in agriculture to achieve scale economies. There is another trend which involves the application of more capital and technology in farming that provides production and employment growth. Some of that employment growth is in the form of specialist services to agriculture as well as on-farm labour.
- The rationalisation that occurred in rail transport, communications, electricity distribution and banking appears to have run its course. These changes resulted in massive losses of jobs throughout regional areas and are no longer the force they were in the 1990s.
- There is a strong move to shift more freight onto rail transport. This has involved a restructuring of the way the system is operated (privatisation)

and future moves to develop a north-south inland rail link. Even if that does not involve Werris Creek directly, it will be part of a link to any new inland rail development. The area should then see a net growth in rail transport employment, something that has been absent for several decades. That may entail some reduction in the rate of growth in road transport, but that will be mainly long-haul operations. Existing capacities in the Shire are not likely to be impacted from these developments.

One major source of employment growth has been under the CDEP program (included in community services). This program currently accounts for 70 people in Quirindi and 66 in Walhallow. The CEDP arrangements are likely to be changed in the review of all employment and indigenous programs by the Federal Government. This may mean that the employment growth shown for the health and community service industry group may not be achieved.

The estimates shown in Table 2.9 are in marked contrast to those compiled by the Department of Planning. These projections are based on the population change from 1996 – 2001 and are shown in Table 2.11.

Table 2.11: Department of Planning Population Projections

Period	Persons	Per cent
2001-06	-30	-0.4%
2006-11	-30	-0.4%
2011-16	-30	-0.4%
2016-21	-20	-0.3%
2021-26	-20	-0.3%
2026-31	-20	-0.3%

These estimates generally reflect recent trends, and especially those of the 1990s when employment in Quirindi LGA declined by 0.7 % per year. The decline was most severe in the early part of the 1990s and in the 1996 to 2001 period had slowed to an annual rate of 0.4 %.

The Department estimates are not considered to be realistic as they do not take into account the significant abatement of many of the structural changes in banking, communications, transport and electricity distribution noted above. While change is a continuing process, the dramatic employment effects seen in the 1990s is unlikely to recur post 2000. Indeed, the evidence from a number of regional areas suggests a significant reversal in employment trends or at least a stabilisation that is not accounted for in the methods used for the Department projections. The growth in the number of dwelling houses since 2001 as outlined in section 2.3 along with the establishment of the numerous new employment generating businesses in the Shire give confidence in the future prospects for the Shire's growth and prosperity.

Chapter 3: Planning and Policy Framework

3.1 Introduction

The management and control of land uses within Liverpool Plains Shire are guided by a number of policy and legal processes. These are Acts of Parliament and Regulations as well as Plans and Policies prepared under the provisions of those Acts and Regulations.

The State Government has overall authority for the statutory processes applicable to the management of land within the Shire. The Council has the day to day decision making powers which are carried out under the auspices of the various acts of Parliament which will be outlined below. The Federal Government plays a role in the conservation of biodiversity under the auspices of the Environmental Protection and Biodiversity Conservation Act 1999.

The main Act dealing with landuse within Liverpool Plains Shire is the Environmental Planning and Assessment Act 1979 (EP&A Act). The Local Government Act 1993 also controls the manner in which Local Government is carried out in New South Wales and also requires that Councils adhere to the policies of Ecologically Sustainable Development (ESD) with all decisions that are made. It is not the purpose of this document to outline fully the provisions of the EP&A and Local Government Acts, suffice to say that they have a major bearing on the planning of land within Liverpool Plains Shire. The EP& A Act makes provision for three levels of planning policies which are:

- State Environmental Planning Policies (SEPPs)
- Regional Environmental Plans (REPs)
- Local Environmental Plans (LEPs)

3.2 State and Regional Plans and Policies

3.2.1 State Environmental Planning Policies

The State Environmental Planning Policies that are relevant to the Shire are as follows:

- SEPP No. 1 – Development Standards
- SEPP No. 4 – Development without Consent and Miscellaneous Complying Development
- SEPP No. 6 – Number of Stores in a Building
- SEPP No. 21 – Caravan Parks
- SEPP No. 22 – Shops and Commercial Premises
- SEPP No. 30 – Intensive Agriculture
- SEPP No. 32 – Urban Consolidation
- SEPP No. 33 – Hazardous and Offensive Development
- SEPP No. 36 – Manufactured Home Estates
- SEPP No. 44 – Koala Habitat
- SEPP No. 55 – Remediation of Land
- SEPP No. 60 – Exempt and Complying Development

- SEPP No. 62 – Sustainable Aquaculture
- SEPP No. 64 - Advertising and Signage
- SEPP No. 65 – Design Quality of Residential Flat Development
- SEPP Seniors Living 2004
- SEPP Building Sustainability Index BASIX 2004
- SEPP Repeal of Concurrence and Referral Provisions 2004
- SEPP State Significant Development 2005
- SEPP Major Projects 2005
- SEPP Temporary Structures and Places of Public Entertainment 2007
- SEPP Mining, Petroleum Production and Extractive Industries 2007
- SEPP Infrastructure 2007
- SEPP Rural Lands 2008

3.2.2 Regional Environmental Plans

The Orana REP No. 1 Siding Springs Observatory plan aims to encourage the use of land within the area to which this plan applies in a way which will preserve optimum conditions at the Observatory for astronomical observations. Whilst this plan does not apply to the Shire at present, the State Government is reviewing the provisions of the REP and investigating appropriate mechanisms to protect observing conditions at Siding Spring Observatory near Coonabarabran, Australia's most important optical observatory. The plan will require all lights to point down, not up, because upward light affects the observatory's work. The Siding Spring Observatory Dark Skies Region was gazetted on 31 October 2003 and includes the whole of Liverpool Plains Shire.

The Hunter Regional Environmental Plan applies to the former Murrurundi Shire and therefore applies to the south eastern part of the Liverpool Plains Shire as shown in map 1.1. The aims and objectives of the REP are as follows:

(1) T The aims of this plan are:
  (a) to promote the balanced development of the region, the improvement of its urban and rural environments and the orderly and economic development and optimum use of its land and other resources, consistent with conservation of natural and man made features and so as to meet the needs and aspirations of the community,
  (b) to co-ordinate activities related to development in the region so there is optimum social and economic benefit to the community, and
  (c) to continue a regional planning process that will serve as a framework for identifying priorities for further investigations to be carried out by the Department and other agencies.

(2) The aims will be implemented in this plan by specifying:
  (a) objectives for the future planning and development of the region,
  (b) regional policies to guide the preparation of local environmental plans and development control plans, to control development and to control activities in the region, and
  (c) principles relating to future needs of the region, future development opportunities and requirements and the manner in which the effects of growth and change are to be managed.

The REP also list a number of requirements for the preparation of plans and strategies for the following matters:

- Housing
- Health, education and community services
- Economic development
- Industrial development
- Commercial development
- Tourism
- Land use and settlement
- Rural land
- Urban land
- Transport
- Roads, railways and public transport
- Ports and airports
- Mineral resources and extractive materials
- Soil, water and forest resources
- Environment protection
- Pollution control
- Waste disposal
- Environmental hazards
- Tall buildings
- Conservation and recreation
- Natural areas
- Recreation

It is noted that the area of the former Murrurundi Shire that is now in Liverpool Plains is a mixture of grazing and cropping land, some steep vegetated land as well as 2 small settlements of Willow Tree and Ardglen. Therefore, it is considered that the provisions of the Rural SEPP and other Government Policy documents dealing with natural resources and native vegetation cover the matters raised in the Hunter REP.

3.2.3 Directions for LEP Preparation

The Minister for Planning has the power under section 117 of the EP&A Act to issue directions to Councils that require the inclusion of provisions or provide the principles to be observed in the preparation of local environmental plans in order to achieve or give effect to particular planning principles, aims, objectives or policies.

The directions are listed below:

1 Employment and Resources
- 1.1 Business and Industrial Zones
- 1.2 Rural Zones
- 1.3 Mining, Petroleum and Extractive Industries
- 1.4 Oyster Aquaculture
- 1.5 Rural Lands

2 Environment and Heritage
- 2.1 Environmental Protection Zones
- 2.2 Coastal Protection
- 2.3 Heritage Conservation
- 2.4 Recreation Vehicle Areas

3 Housing, Infrastructure and Urban Development
- 3.1 Residential Zones
- 3.2 Caravan Parks and Manufactured Home Estates
- 3.3 Home Occupations
- 3.4 Integrating Land Use and Transport
- 3.5 Development near Licensed Aerodromes

4 Hazard and Risk
- 4.1 Acid Sulfate Soils
- 4.2 Mine Subsidence and Unstable Land
- 4.3 Flood Prone Land
- 4.4 Planning for Bushfire Protection

5 Regional Planning
- 5.1 Implementation of Regional Strategies

5.2 Sydney Drinking Water Catchments
5.3 Farmland of State Significance on the NSW Far North Coast
5.4 Commercial and Retail Development along the Pacific Highway, North Coast
5.5 Development in the Vicinity of Ellalong, Paxton and Millfield (Cessnock LGA)
5.6 Sydney to Canberra Corridor
5.7 Central Coast
5.8 Second Sydney Airport: Badgerys Creek

6 Local Plan Making
6.1 Approval and Referral Requirements
6.2 Reserving land for Public Purposes
6.3 Site Specific Provisions

3.2.4 Rural Land and Planning Policies

The State Government has 3 policies and a SEPP that are relevant to the future planning of the Shire. They are as follows:

- SEPP Rural Lands 2008
- Rural Land Use Policy
- Policy on Sustainable Agriculture
- NSW Policy for Protection of Agricultural Land, 2004

The *SEPP Rural Lands 2008* was gazetted on 9 May 2008. It applies to the State except for those Councils in the Sydney Metropolitan Region. The aims of the Policy are as follows:

(a) to facilitate the orderly and economic use and development of rural lands for rural and related purposes,
(b) to identify the Rural Planning Principles and the Rural Subdivision Principles so as to assist in the proper management, development and protection of rural lands for the purpose of promoting the social, economic and environmental welfare of the State,
(c) to implement measures designed to reduce land use conflicts,
(d) to identify State significant agricultural land for the purpose of ensuring the ongoing viability of agriculture on that land, having regard to social, economic and environmental considerations,
(e) to amend provisions of other environmental planning instruments relating to concessional lots in rural subdivisions.

The Department has also released a Planning Circular (PS 08-002) to accompany and describe the SEPP. This states that the aims of the SEPP will be achieved by:

- introducing rural planning principles to provide guidance for local councils when preparing new comprehensive LEPs or amending LEPs in respect to rural and environment protection zones
- introducing rural subdivision principles to provide guidance for local councils which seek to vary existing minimum lot sizes in rural and environment protection zones
- enabling subdivision of rural land for the purpose of primary production below the minimum lot size without allowance for a dwelling

- introducing heads of consideration for the assessment of land use conflict when councils consider development applications in rural areas
- removing concessional lot provisions from LEPs to minimise land use conflicts and fragmentation of rural lands
- enabling the Minister to identify State significant agricultural land and limit certain types of development on such land
- enabling the Minister to establish rural lands planning panels to provide advice to the Director-General on developments that propose to vary development standards.

A set of Rural Planning Principles has been outlined in clause 7 of the SEPP and the Planning Circular provides an explanation of them. This is reproduced below:

(a) The promotion and protection of opportunities for current and potential productive and sustainable economic activities in rural areas.
In planning for rural areas councils should ensure that zoning and development controls within LEPs protect the range of current rural uses, i.e. agriculture, forestry and extractive industries, which contribute to the local, regional and State economy. Planning controls should be flexible to provide opportunities for changes in agriculture, existing industries and potential economic activities. This can be achieved through adopting a range of appropriate zones, minimum lot sizes and land use that support current and future rural land uses.

(b) Recognition of the importance of rural lands and agriculture and the changing nature of agriculture and of trends, demands and issues in agriculture in the area, region or State.
Economic activities in rural areas make a significant contribution to the NSW economy. Agriculture, itself, contributes approximately $7.3 billion to the economy of NSW (2006–07). Future planning for these areas is key to the social, economic and environmental sustainability of rural areas. Planning for rural areas should recognise the trends and ongoing change to agriculture including changing farm sizes, agricultural sector restructuring, and changes in farm practices and productivity and provide appropriate controls in LEPs to achieve this outcome.

(c) Recognition of the significance of rural land uses to the State and rural communities, including the social and economic benefits of rural land use and development.
The proper management and development of rural areas have significant social and economic benefits to local rural communities and the broader State community. Planning for rural areas should recognise the significance of rural land uses and provide a range of planning responses, such as zoning, land uses and strategically planned housing opportunities that do not conflict with rural uses. The role of agriculture, including new and innovative forms, and appropriately located rural housing in facilitating the social and economic rejuvenation of local communities is an important factor to consider.

(d) In planning for rural lands, to balance the social, economic and environmental interests of the community.
Rural lands have a range of social, economic and environmental values including agriculture, extractive resources, water resources, environmental

services (such as water quality management), tourism, housing, conservation, landscape values and sustaining rural communities. At times these values may compete with each other, however sound strategic planning can avoid conflict. For instance introducing appropriate farm-based tourism uses to rural zones can permit tourism activity and the associated economic benefits while at the same time complement the existing agricultural activity. Planning for these areas should seek to ensure a balance is achieved between these values to achieve the proper management of rural land and reinforce opportunities for rural communities.

(e) The identification and protection of natural resources, having regard to maintaining biodiversity, the protection of native vegetation, the importance of water resources and avoiding constrained land.

Planning for rural areas should ensure that appropriate environmental values and natural resources are identified in the planning process and protected appropriately through zoning and planning controls, including the use of environment protection zones to protect important rural landscapes where soundly justified. This includes protection, management and restoration of areas of high ecological, scientific, cultural or aesthetic values (such as areas of native vegetation, riparian areas and habitats of native flora and fauna, including threatened species, populations and ecological communities). The new Standard Instrument (Local Environmental Plan) Order 2006 reinforces the importance of environment protection zones in promoting and protecting environmental conservation and management. The range of land uses which are appropriate in environment protection zones should reflect the characteristics and capability of the land. The Department is drafting a practice note on the use of environment protection zones in Standard LEPs.

(f) The provision of opportunities for rural lifestyle, settlement and housing that contribute to the social and economic welfare of rural communities.

Rural areas are increasingly under pressure for lifestyle housing opportunities. This demand for rural housing has both social and economic advantages and disadvantages for rural communities. Planning should identify a range of housing choices within rural areas including urban areas, rural lifestyle and housing associated with rural activities. Housing opportunities should be determined through a strategic planning process to avoid land use conflict, avoid constraints, fragmentation of rural land and provide access to appropriate infrastructure and services. The provision of a reasonable quantity of rural lifestyle development opportunities in strategically appropriate locations can be an important factor in reducing the pressure for lifestyle housing on important agricultural land.

(g) The consideration of impacts on services and infrastructure and appropriate location when providing for rural housing.

In planning for housing in rural areas the costs and impacts to the community, councils and State government of providing access to services and infrastructure needs to be considered. The costs to local councils for basic services such as roads (including maintenance), water, garbage collection etc, should be a significant factor in considering proposals in remote locations.

(h) Ensuring consistency with any applicable regional strategy of the Department of Planning or any applicable local Strategy endorsed by the Director-General.
Where an applicable regional strategy or endorsed local strategy provides outcomes and actions relevant to rural areas for the preparation of a LEP, councils should ensure LEPs are consistent with and implement those outcomes and actions.

A set of Rural Subdivision Principles has been outlined in clause 8 of the SEPP and the Planning Circular provides an explanation of them. This is reproduced below:

(a) Minimisation of rural land fragmentation.
Unplanned rural subdivision through inappropriate planning controls can result in fragmentation of rural lands which can result in lots sizes which do not reflect the needs of rural land uses, potential conflict with existing agriculture, and land prices reflecting residential demand rather than agricultural potential. Future planning should avoid controls which result in fragmentation of rural lands. A range of lot sizes can be considered based on agricultural suitability and capability, trends in agriculture, land ownership patterns, commercial sustainability, impact of current lot sizes on future land uses, environmental constraints, and infrastructure provision.

(b) Minimisation of rural land use conflicts, particularly between residential land uses and other rural land uses.
Residential and non rural uses in rural areas often result in land use conflicts with existing rural uses, such as agriculture, extractive industry, forestry, food processing, or transport. Planning for rural areas should consider possible land use conflicts at both the land use planning (LEP) and development application stage. Consideration of the location of future urban and rural residential areas, existing rural uses, a range of lot sizes, permissible land uses within zones, setbacks and buffers should be undertaken when preparing new LEPs and reviewing lot sizes. The heads of consideration in clause of 10 of the SEPP are also relevant in this regard.

(c) The consideration of the nature of existing agricultural holdings and the existing and planned future supply of rural residential land when considering lot sizes for rural lands.
A review of lot sizes should consider the size and pattern of existing rural holdings and their related economic activities. A review may result in a range of lot sizes that meet the requirements for primary production, existing and future, and rural housing opportunities. Future opportunities for rural residential development should be strategically planned and located to avoid potential land use conflicts, be easily serviced and provide for a sufficient quantity and range of rural housing needs.

(d) The consideration of the natural and physical constraints and opportunities of land.
A review of rural lot sizes should have regard to existing environmental values and natural resources, including the agricultural viability of the land. Future controls for lot size should reflect such constraints and be developed to reflect these constraints and opportunities where appropriate.
These considerations should also aim to:

- *minimise impacts on the natural environment, including avoiding increased fragmentation of native vegetation and habitats of threatened flora and fauna (including threatened species, populations or communities)*
- *avoid inappropriate development in areas which may be constrained due to biodiversity, land and water values.*

(e) Ensuring that planning for dwelling opportunities takes account of those constraints.

Any review of minimum lot sizes that will permit the subsequent erection of dwellings should ensure that lot sizes are an adequate size to permit dwellings and manage any constraints, including the need for appropriate buffers to any surrounding agricultural uses.

It is should be noted that the dwelling entitlements of the existing approved subdivisions have been retained in the SEPP.

The *Rural Land Use Policy* covers the following matters:

- The need to preserve the rural land as a resource including the following matters:
  - to minimise the loss or fragmentation of agricultural land or holdings
  - to maintain and promote agricultural activities and uses and to provide opportunities for a greater variety of agricultural uses in the future
  - to protect the productive capacity of agricultural land
  - to minimise landuse conflicts and environmental impacts
  - to protect and maintain the scenic and landscape values of rural lands
  - to protect and restore the natural resource base on which agriculture and other land uses depend
- Planning for settlements are to include the following:
  - to ensure supply of new housing relates to demand
  - to plan for rural residential development in the context of a rural release or settlement strategy
  - to maximise use of existing infrastructure in the provision of urban and rural residential lots
  - to conserve or use land in a way that will not prejudice future urban purposes
  - to minimise impact on the existing and potential productivity of agricultural land
  - to minimise landuse conflicts and environmental impacts
  - to protect and maintain scenic landscape values
  - to provide for a variety of urban and rural living opportunities
  - to ensure settlement relates to the physical, social and service catchments
  - to ensure coordination on a regional level and between adjoining local government areas

The purpose of the *Policy for Sustainable Agriculture* in NSW is to facilitate a coordinated approach to achieving an ecologically and economically sustainable agricultural sector in New South Wales. The Policy provides an agreed goal for sustainable agriculture in New South Wales, common objectives, and strategies that should guide a wide range of stakeholders towards this goal. It also provides a framework within which individual agencies and interest groups can develop specific position statements and action plans. The policy develops objectives and strategies for the following areas:

- Agricultural production
- Land management
- Water use and quality
- Nature conservation on farms
- Rural communities
- Integrated management

It is a whole of Government Policy which is to be implemented by all government departments.

The former Departments of Agriculture and Urban Affairs and Planning (now part of the Department of Primary Industries and Department of Planning respectively) in 2001 developed the following policy on the development of LEPs for rural areas:

- Minimum lot sizes for subdivisions that may be eligible for a dwelling consent should be determined based on the area required to sustain a farming enterprise typical for that locality. This approach recognises the role of off farm income and that smaller parcels of agricultural land can be traded, however no dwelling rights are attached to these smaller lots.
- Concessional allotments are an inappropriate form of subdivision and should be progressively removed from plans across the State.
- Rural lifestyle opportunities should be provided for in a planned way, based on rural residential strategies and zones.
- Intensive forms of agriculture need to be catered for in the planning process. Determining allotment sizes for sustainable intensive agricultural developments will need to carefully consider potential environmental impacts as well as return on capital invested

This policy has been formalised in the 2001 report to the Premier of NSW by the NSW Sustainable Agriculture Review Group.

The *Policy for Protection of Agricultural Land* was adopted in May 2004. It provides detail on the provision of advice concerning the preparation of Environmental Planning Instruments – State Environmental Planning Policies (SEPP), Regional Environmental Plans (REPs) and Local Environmental Plans (LEPs). It references the policy on Sustainable Agriculture. The document promotes a strategic approach to the preparation of planning instruments which is openly consultative with the local communities as well as being transparent.

There are 3 major policy focuses to protect agricultural land, according to the policy. They are as follows:

- Environmental planning instruments

- Conversion of land
- Minimum size of holdings for a dwelling entitlement

The Policy states that *Environmental Planning Instruments* should be structured to:

- promote the continued use of agricultural land, particularly prime crop and pasture land, for commercial agricultural purposes, where that form of land use is sustainable in the long term;
- avoid land use conflicts;
- protect natural resources used by agriculture;
- protect other values associated with agricultural land that are of importance to local communities, such as heritage and visual amenity;
- provide diversity of agriculture opportunities, including specialised agricultural developments, at appropriate locations to provide scope for development in rural areas; and
- allow for value adding and integration of agricultural industries into regional economies.

The *conversion of land* used by agricultural enterprises to other uses should only take place where fully justified and after consideration of alternative sites and options. Any decisions to convert agricultural land to non agricultural uses should consider the optimal agricultural use of the land and alternative ways to structure the agricultural business. This is to ensure that competing land uses are located so as to maximise the benefit to the community. It requires the determination of the economic, environmental and social contributions from agricultural land uses, preferably through a local or regional rural land study.

Criteria in environmental planning instruments to determine the *minimum size of holdings necessary for a dwelling entitlement* should be developed to suit local needs and conditions. The objective is to reduce opportunities for conflict with commercial agricultural enterprises by minimising residential uses that are not directly associated with commercial farms. The policy goes on to state that setting a large minimum is a disincentive to life style purchasers but the size also needs to allow for entry by young farmers and the criteria should also allow for more intensive forms of agriculture where appropriate. The policy also notes that specifying a minimum area for a dwelling entitlement has been an effective strategy that is easily understood and is efficiently implemented, Councils should also consider other approaches to achieving the goal of minimising conflict in agricultural production zones so that farms can operate without unnecessary restrictions.

The Policy states that the minimum area for a dwelling entitlement and other provisions in Environmental Planning Instruments to regulate subdivisions should take account of the following factors:

- the agricultural productivity and suitability of the land in question;
- the nature and requirements of agricultural industries in the area being considered;
- the risk of creating land use conflict;
- the current distribution of property sizes; and
- cumulative impacts.

A 2001 report of the Sustainable Agriculture Review Group on the implementation of the NSW Policy for Sustainable Agriculture reported that the following matters were required to be considered for major LEP reviews:

1. Minimum lot sizes for subdivisions that may be eligible for a dwelling consent should be determined based on the area required to sustain a farming enterprise typical for that locality. This approach recognises the role of off farm income and that smaller parcels of agricultural land can be traded, however no dwelling rights are attached to these smaller lots.
2. Concessional allotments are an inappropriate form of subdivision and should be progressively removed from plans across the State.
3. Rural lifestyle opportunities should be provided for in a planned way, based on rural residential strategies and zones.
4. Intensive forms of agriculture need to be catered for in the planning process. Determining allotment sizes for sustainable intensive agricultural developments will need to carefully consider potential environmental impacts as well as return on capital invested.

3.3 Catchment Management Authority

The Shire is part of the Namoi Catchment Management Authority (CMA). One of the main functions of the CMA is to prepare a Catchment Action Plan (CAP). The Catchment Action Plan sets the direction over the next 10 years for investment in natural resource management in the catchments. The CAP outlines a number of Catchment and Management Targets to improve the natural assets such as water, soil, native vegetation, cultural heritage and biodiversity. The CAP also addresses issues such as salinity and promotes the value of people and communities in the catchment.

The Namoi CAP consists of 2 documents:

- Part A – Policies and Procedures for Quality Natural Resource Management
- Part b – Natural Resource Management Plan

Part A outlines the operation and business polices and procedures of the CMA to achieve the Actions and Part B details the Management Targets and their intent as well as outlining the Management Actions and activities required to achieve the Targets. The vision for the catchment is:

> *"Vibrant communities and landscapes for the Future"*

The CAP has set management targets for the 4 key aspects of the catchment which are outlined in the document as follows:

- People and their communities
- The landscape
- Surface and groundwater ecosystems
- Native plants and animals

The catchment targets for each of these are as follows

- People and their communities: "*From 2006, there will be continual improvement in the ability of the people in the catchment to implement the Namoi Catchment Action Plan (CAP).*"
- The Landscape: "*From 2006, there will be an increase in the extent of the landscape managed sustainably.*"
- Surface and groundwater ecosystems: "*From 2006, there is an improvement in the condition of surface and ground water ecosystems*."
- Native plants and animals: *From 2006, there will be an improvement in the extent and condition of native plants and animals, and the environments in which they live, within each Interim Bio-Regional Assessment (IBRA) sub-region of the Namoi*.

The CAP is an important strategic document for the Liverpool Plains Shire and its various actions should be considered by the Council and adopted where appropriate.

3.4 Acts of Parliament

There are also a number of other acts that affect the management of land within Liverpool Plains, which are listed below:

- Commons Management Act, 1989
- Contaminated Lands Management Act 1997
- Crown Lands Act 1989
- Crown Lands (Continued Tenures) Act, 1989
- Environmental Protection Biodiversity Conservation Act, 1999 (Commonwealth)
- Protection of the Environment Operations Act 1998
- Fisheries Management Act 1994
- Fisheries Management Amendment Act 1997
- Forestry Act 1916
- Heritage Act 1977
- Mining Act, 1992
- Native Vegetation Act, 2003
- Noxious Weeds Act, 1993
- Threatened Species Conservation Act 1995
- National Parks and Wildlife Act 1974
- Petroleum (Onshore) Act 1992
- Rivers and Foreshores Improvement Act 1948
- Rural Fires Act 1997
- Rural Lands Protection Board Act,
- Water Act, 1912
- Water Management Act 2000

3.5 Local Environmental Plans

There are 4 different Local Environmental Plans that apply to Liverpool Plains Shire. They area as follows:

- Quirindi LEP 1991 applies to all of the former Quirindi Shire which is the northern and western part of the Shire
- Murrurundi LEP 1993 applies to the southern part of the Shire

- Parry LEP 1987 applies to the north western part including the town of Werris Creek and the village of Currabubula.
- Gunnedah LEP 1998 applies to the area to the north of Caroona and includes the village of Walhallow.

For the purpose of description, the Quirindi, Parry and Murrurundi LEPs will be outlined as they apply to the majority of the Shire.

The aim of the Quirindi plan is to consolidate and update the existing planning controls in the Shire of Quirindi.

The aims and objectives of the Murrurundi LEP are as follows:

- to encourage the proper management, development and conservation of natural and man-made resources within the Shire of Murrurundi by protecting, enhancing or conserving:
    - prime crop and pasture land,
    - timber, minerals, soil, water and other natural resources, and
    - the land's environmental heritage, and
- to achieve the requirements of the *Hunter Regional Environmental Plan 1989* and *Hunter Regional Environmental Plan 1989 (Heritage)* by consolidating and updating the existing planning controls within the Shire of Murrurundi into a single local environmental plan.

It should be noted that pursuant to clause 3 of the Hunter REP Heritage, the REP does not apply to the Murrurundi Shire.

The Quirindi LEP makes provision for the following zones and objectives:

- Zone No 1 (a) (Rural "A" Zone)
    a) to encourage the productive and efficient use of land for agricultural purposes,
    b) to prevent inappropriate development of prime crop and pasture land for purposes other than agriculture,
    c) to control subdivision of land having regard to the efficient use of land for agricultural purposes,
    d) to ensure that the type and intensity of development is appropriate, having regard to the characteristics of the land, the rural environment and the cost of providing public services and amenities, and
    e) to protect the natural and scenic resources of the Shire.
- Zone No 1 (c) (Rural (Small Holdings) Zone)
    a) to provide for, and to maintain, areas that are suitable for rural small holdings or hobby farms,
    b) to encourage a type and intensity of development that does not create unreasonable or uneconomic demand, or both, for the provision or extension of public amenities or services, including road access,
    c) to ensure that development maintains the rural character of the locality,
    d) to protect the natural and scenic resources of the Shire of Quirindi, and
    e) to maximise housing choice.
- Zone No 1 (f) (Rural (Forestry) Zone)
    a) The objective of this zone is to identify land suitable for development for forestry purposes.

- Zone No 2 (v) (Village Zone)
    a) to promote development in existing villages in a manner which is compatible with their urban function,
    b) to enable development for retail, commercial and service purposes for the local and nearby rural community in appropriate locations within the zone where the scale and type of development is compatible with living areas,
    c) to encourage a range of housing in appropriate locations, and
    d) to control, by means of a development control plan, the location, form and density of development.
- Zone No 4 (a) (Industrial (General) Zone)
    a) to encourage development of land for the purpose of industry which will contribute to economic growth and employment opportunities within the Shire of Quirindi,
    b) to enable certain other forms of development compatible with or ancillary to the industrial use of the land,
    c) to provide opportunities for non-industrial commercial activities that may reasonably be located in an industrial zone, and
    d) to ensure that industrial or other permitted development is carried out in a manner which is compatible with any residential development in the vicinity.
- Zone No 5 (a) (Special Uses Zone)
    a) to identify land required for the effective provision of public utility services and community facilities, and
    b) to enable associated and ancillary development.
- Zone No 6 (a) (Open Space Zone)
    a) The objective of this zone is to ensure the conservation of existing public open space and recreation areas.
- Zone No 7 (a) (Environment Protection (Conservation) Zone)
    a) to provide for the conservation of areas of environmental significance, and
    b) to provide for the control of the use of areas of environmental significance, and
    c) to prohibit development which could destroy or damage areas of environmental significance, and
    d) to ensure that any area of environmental significance is covered by a plan of management.

The Murrurundi LEP makes provision for the following zones and objectives:

- Zone No 1 (a)--(Rural "A" Zone)
    a) to encourage the productive and efficient use of land for agricultural purposes,
    b) to control subdivision of land having regard to the efficient use of land for the purposes of agriculture,
    c) to ensure that the type and intensity of development is appropriate, having regard to the characteristics of the land, the rural environment and the cost of providing services and amenities, and
    d) to protect, conserve and enhance the natural and scenic resources of the Shire.
- Zone No 1 (c)--(Rural Small Holdings "C" Zone)
    a) The objective of this zone is to promote the development of land for

rural residences and hobby farms throughout the Shire in a way which maximises housing and lifestyle choices without creating unreasonable or uneconomic demand for the provision or extension of public amenities or services.

- Zone No 2 (v)--(Village "V" Zone)
  a) to encourage the development and expansion of business activities which will contribute to the economic growth of and employment opportunities within the Shire,
  b) to maintain the existing character of the villages of Blandford, Murrurundi and Willow Tree, and
  c) to encourage a broad range of housing in appropriately serviced locations.

The Parry Local Environmental Plan 1987 makes provision for the following zones and objectives:

- 1(a) General Rural
  (a) Rural land use and occupation and encourage consolidation of existing undersize allotments and their conversion into productive commercial farm holdings;
  (b) To ensure that development is carried out on land within the zone in a manner which conserves, enhances and does not adversely affect the environmental and scenic qualities of the land;
  (c) To conserve crop and pasture land in units or holdings which may be efficiently used for forms of agriculture common in the locality.
  (d) To ensure that new rural holdings created by subdivision are of a suitable size for their proposed use;
  (e) To enable other secondary forms of development which are associated with rural activities, or which support tourism, to be accommodated in environmentally acceptable manner;
  (f) To permit the development of mines and offensive and hazardous industries, where required, in an environmentally acceptable manner; and
  (g) To permit the development of intensive commercial horticulture and specialised agriculture where fertile land and a reliable water supply are available.

- 1(b) General Agriculture
  (a) To enable the continuation of traditional forms of rural land use and occupation and encourage consolidation of existing undersized allotments and their conversion into productive commercial farm holdings;
  (b) To conserve prime crop and pasture land in units or holdings which may be efficiently used for forms of agriculture common in the locality;
  (c) To discourage fragmentation of landholdings into holdings which are inadequate to support commercial farming practices;
  (d) To enable other forms of development which are associated with rural activities and which require an isolated location, or which support tourism, and recreational activities to be accommodated in an environmentally acceptable manner.

(e) To ensure that the type and intensity of development is appropriate, having regard to the characteristics of the land, the rural environment, and the cost of providing public services and amenities;
(f) To permit the development in an environmentally acceptable manner of mines and offensive and hazardous industries where required ; and
(g) To permit the development of intensive commercial horticulture and specialised agriculture where fertile land and a reliable water supply are available.

- 1(c) Hobby Farms
  (a) To enable development for the purpose of hobby farms and other less intensive small rural holding activities to be carried out on land which is suitable for those purposes and accessible to existing urban centres and services;
  (b) To enable intensive rural residential development to be carried out on land which is suitable for the purpose and accessible to existing urban centres and services;
  (c) To provide for the creation of rural residential allotments with a variety of allotment sizes;
  (d) To encourage the planning of the size and shape of hobby farms and small rural holdings with regard to views, soils, topography, vegetation, winds and the location of services;
  (e) To ensure that development maintains and contributes to the rural character of the landscape and to agricultural productivity; and
  (f) To permit development of hobby farms accessible to existing urban centres and services; and
  (g) To enable other forms of development to be carried out on land within the zone if it is in keeping with the rural character of the locality and is compatible or associated with the use of existing or likely future holdings.

- 1(f) Forests
  The objectives of this zone are to enable the continuance or expansion of forestry and development for associated purposes.

- 2(v) Village

  (a) To enable future development appropriate to the function and character of existing villages; and
  (b) To enable development to occur in accordance with a development control plan, where appropriate.

- 6(a) Existing Open Space

  The objectives of this zone are to identify and to protect land intended for public open space.

A new LEP has been prepared and exhibited for the former Parry Shire, however, at the request of Liverpool Plains Shire, the LEP does not apply to the land now in Liverpool Plains Shire.

3.6 Liverpool Plains Development Control Plans

There are a number of Development Control Plans (DCPs) and Contributions Plans that apply to Liverpool Plains, which cover a range of matters and the previous Shires, including the following:

- Quirindi Township DCP 1991
- Quirindi DCP No. 1 Industrial Development Code
- Quirindi Shire Council Section 94 Contributions Plans
- Quirindi Shire Council DCP – Exempt and Complying Development 1999
- Parry DCP No. 6 – Poultry Development
- Parry DCP No. 9 – Landscaping Guidelines
- Parry DCP No. 10 – Notification and Advertising of DAs
- Parry DCP No. 12 – Residential Development
- Parry s. 94 Contributions Plan No. 1 – Roadworks
- Parry s. 94 Contributions Plan No. 2 – Bushfire Brigade Services
- Parry s. 94 Contributions Plan No. 3 – Mines and Extractive Industries
- Murrurundi s. 94 Contributions Plan – Bushfire Contributions

Chapter 4: Existing Development Pattern

This Chapter presents selected data and characteristics of the combined localities of the Shire as well as a map of the localities. To make the understanding of the data more manageable, the localities have been combined into areas of similar topographic features and land use. Table 4.1 shows the combined localities.

Table 4.1 Combined Localities

Combined Name	Localities Included
1. Currabubula	Currabubula, Gowrie and Piallaway (parts)
2. Werris Creek – Quipolly	Werris Creek and Quipolly
3. Quirindi – Braefield	Quirindi, Borambil and Braefield
4. Wallabadah	Wallabadah
5. Willow Tree - Ardglen	Willow Tree, Chillcotts Creek, Blandford and Ardglen
6. Warrah Creek – Parraweena	Warrah Creek, Warrah, Big Jacks Creek and Little Jacks Creek, McDonalds Creek, Parraweena and Cattle Creek
7. Blackville - Bundella	Blackville, Yarraman, Coomoo Coomoo, Bundella
8. Premer – Windy	Premer, Yannergee, Tambar Springs, Colly Blue, Spring Ridge, Caroona, Pine Ridge, Warrah Ridge, Windy

Map 4.0 Shows the combined localities.

Details presented includes the following:

- Population
- Number of dwellings
- Total number of rural holdings
- Number of primary uses
- Agricultural land classification
- Land use and lot size graphs
- General comments

The population data is based on the 2001 Census. It is based on the Collector Districts which relate in a broad sense to the boundaries of the combined localities.

The number of rural lots does not include the land within the villages, and includes extensive agriculture, native vegetation, intensive plants and intensive animals.

The land use details come from the land use survey carried out as part of this study and the lot size graph data is based on Council's property system. Most of the irrigated plants are irrigated cropping and nearly all of the intensive agriculture is poultry.

The rural land capability has been taken from the NSW Rural Land Capability Map for the Liverpool Plains Shire. Class 1 is the best land and class 8 the least productive. Classes 1 to 3 are considered to be high class agricultural land.

The number of primary uses in each locality are provided.

The holding analysis does not include the villages.

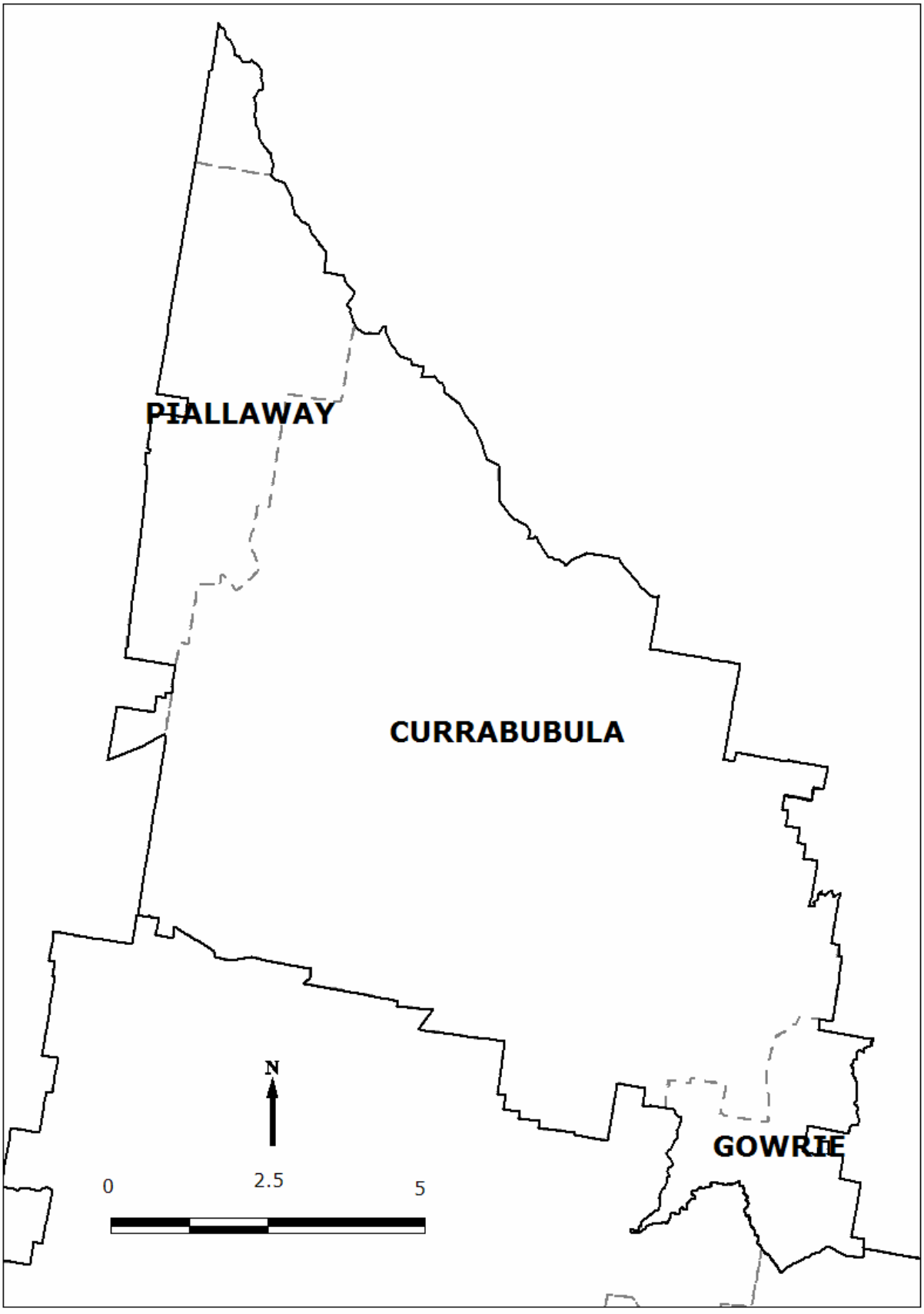
Vacant land refers to the land in villages and an existing rural residential subdivision

Land use and holding size graphs are provided to give an indication of the land uses in each locality as well as the lot size range.

The map shows the boundaries of the combined localities as well as the individual localities which make up the combined ones.

Due to data base incompatibility, the land use counts the number of lots and the holding size counts the holdings. For this reason, the total number of lots in the land use survey differs from the totals for the holdings.

Map 4.0: Combined Localities



Map 4.1: Currabubula

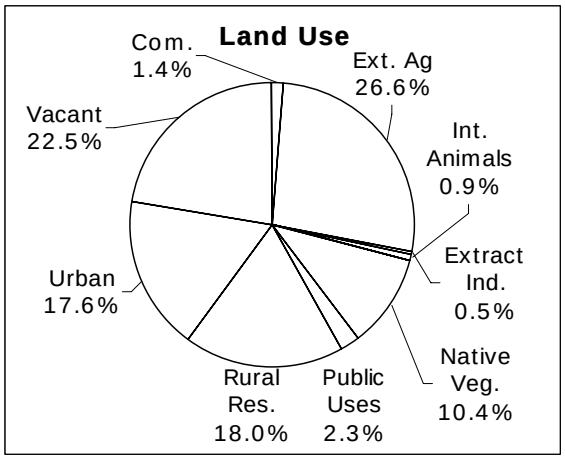
4.1 Currabubula

General Characteristics

Total Number of Rural Lots	101
Number of Agricultural Lots	61
Number of Rural Residential Lots	40

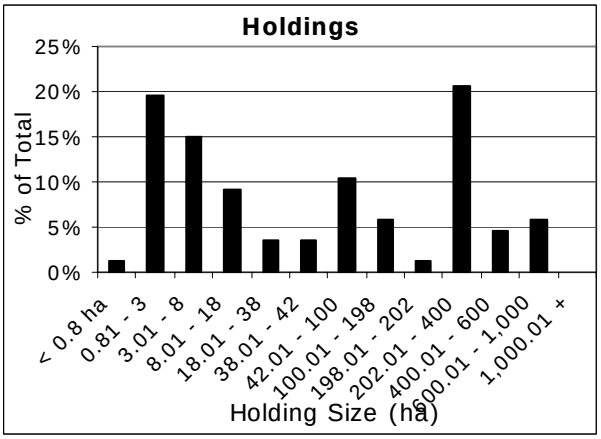
Number of Properties in Each Category

Land Use	Number
Rural Residential	40
Extensive Agriculture	59
Native Vegetation	23
Urban	39
Vacant (Urban)	50
Public Use	5
Irrigated Plants	0
Extractive Industry	1
Intensive Animals	2



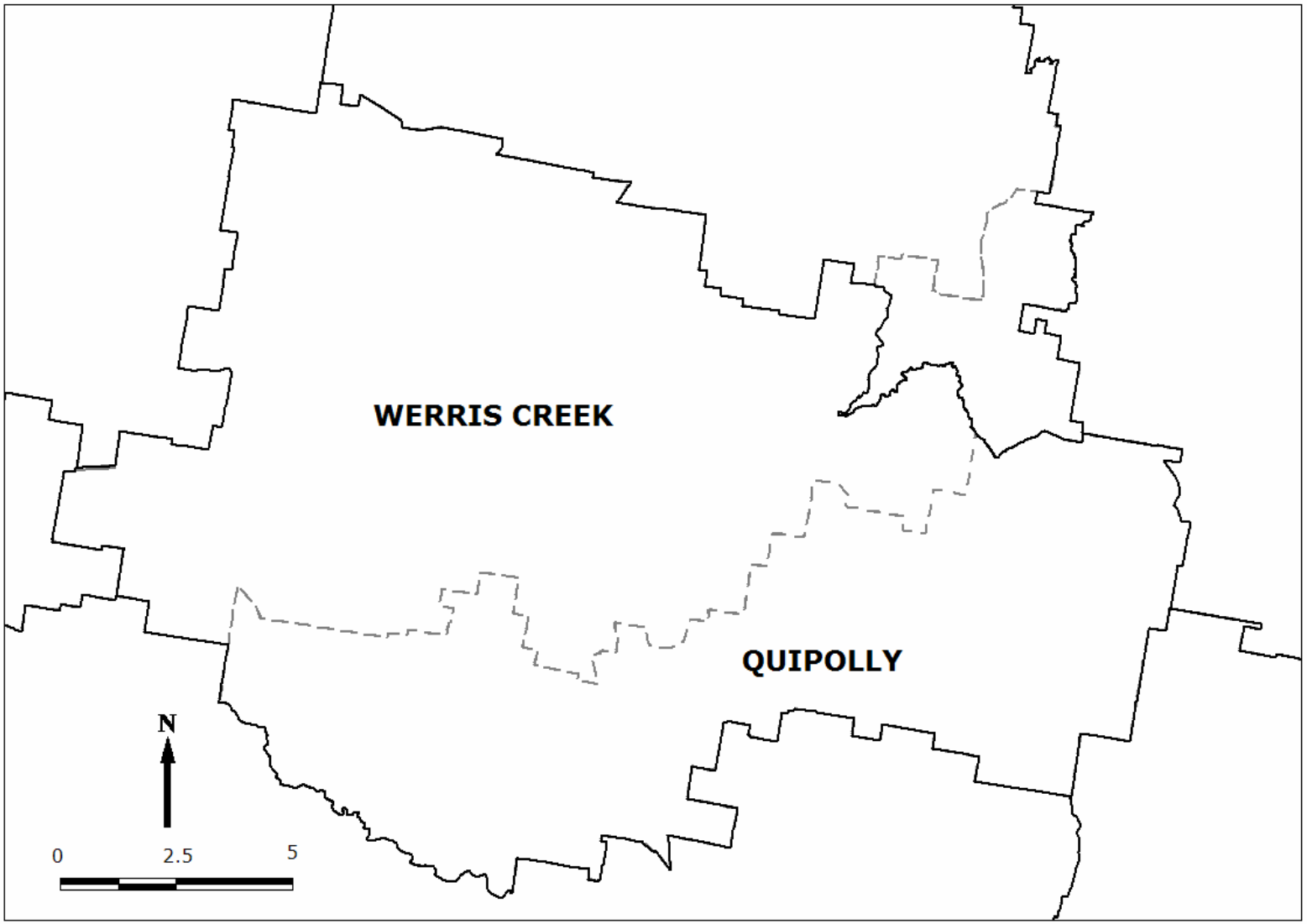
Rural Land Capability

Class	Location
Class 1- 3	Flat land in south and central part.
Class 4 -5	Hilly land in east and north
Class 6 -8	Steep land in east and north



General Comments

- Rural land uses mostly extensive agriculture with some cropping but mostly grazing on hilly land. Intensive agriculture (poultry) is near Currabubula.
- Holdings are spread across the range with most above 200 ha but significant amount in 0.8 – 8 ha range as well as 42 -100 ha range.
- Currabubula village has limited services but is close to Werris Creek and Tamworth



Map 4.2: Werris Creek - Quipolly

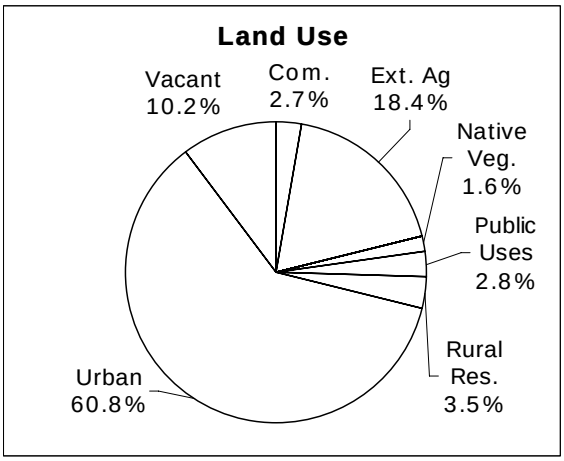
4.2 Werris Creek - Quipolly

General Characteristics

Total Number of Rural Lots	208
Number of Agricultural Lots	175
Number of Rural Residential Lots	33

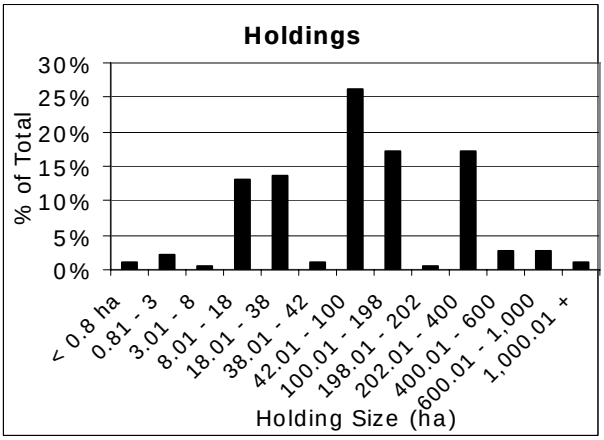
Number of Properties in Each Category

Land Use	Number
Rural Residential	33
Extensive Agriculture	175
Native Vegetation	15
Urban	579
Vacant (Urban)	97
Public Use	27
Irrigated Plants	0
Extractive Industry	1
Intensive Animals	0



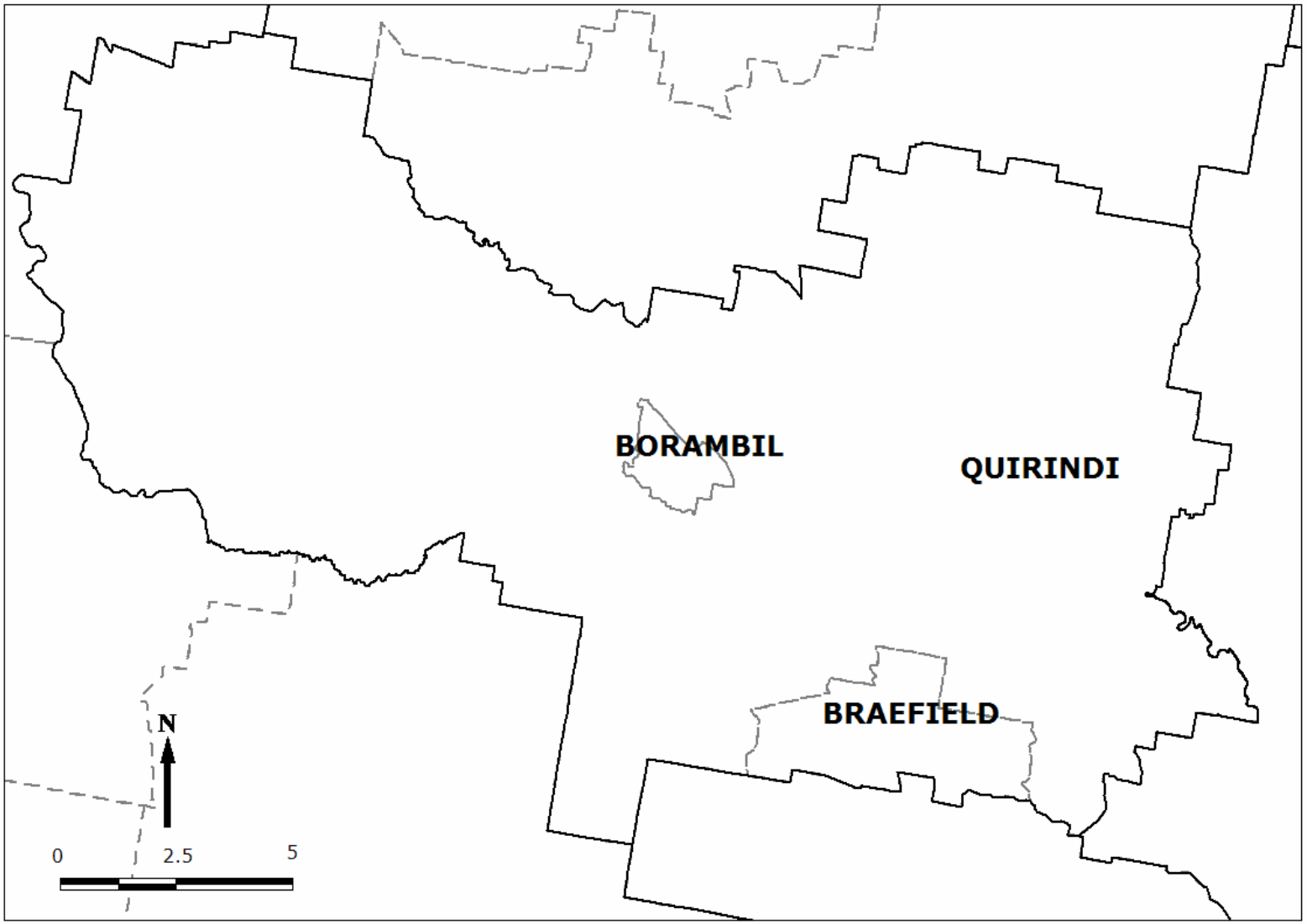
Rural Land Capability

Class	Location
Class 1- 3	Flat land in centre and west
Class 4 -5	Hilly land in west and east
Class 6 -8	Steep land



General Comments

- Agriculture is mostly extensive with some cropping and grazing on hilly land.
- Large proportion of holdings in 42 – 100 ha range and 100 – 198 ha range and 200 ha and above. Also some in 8 to 40 ha range.
- Werris Creek has adequate level of services and facilities.



Map 4.3: Quirindi - Braefield

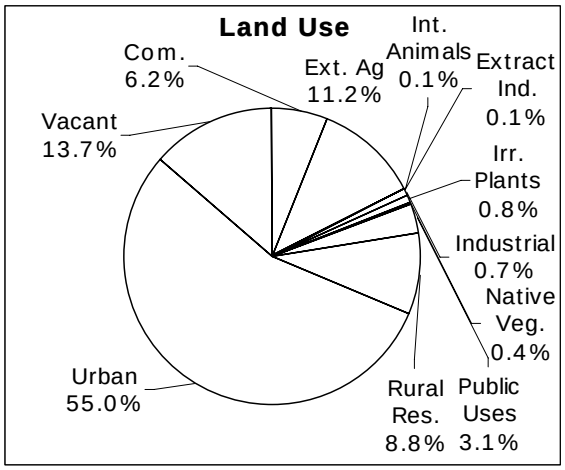
4.3 Quirindi – Braefield

General Characteristics

Total Number of Rural Lots	376
Number of Agricultural Lots	218
Number of Rural Residential Lots	158

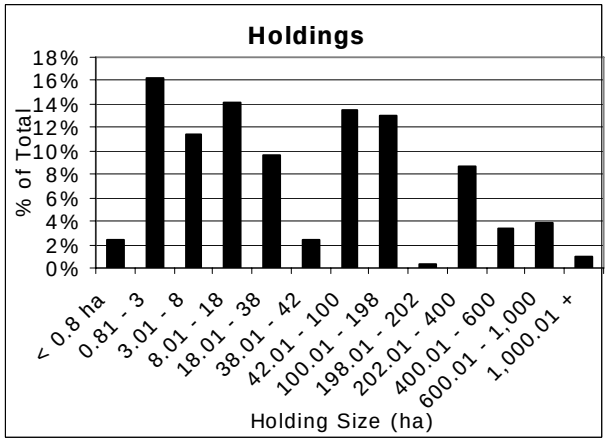
Number of Properties in Each Category

Land Use	Number
Rural Residential	158
Extensive Agriculture	202
Native Vegetation	7
Urban	992
Vacant (Urban)	247
Public Use	56
Irrigated Plants	14
Extractive Industry	2
Intensive Animals	2



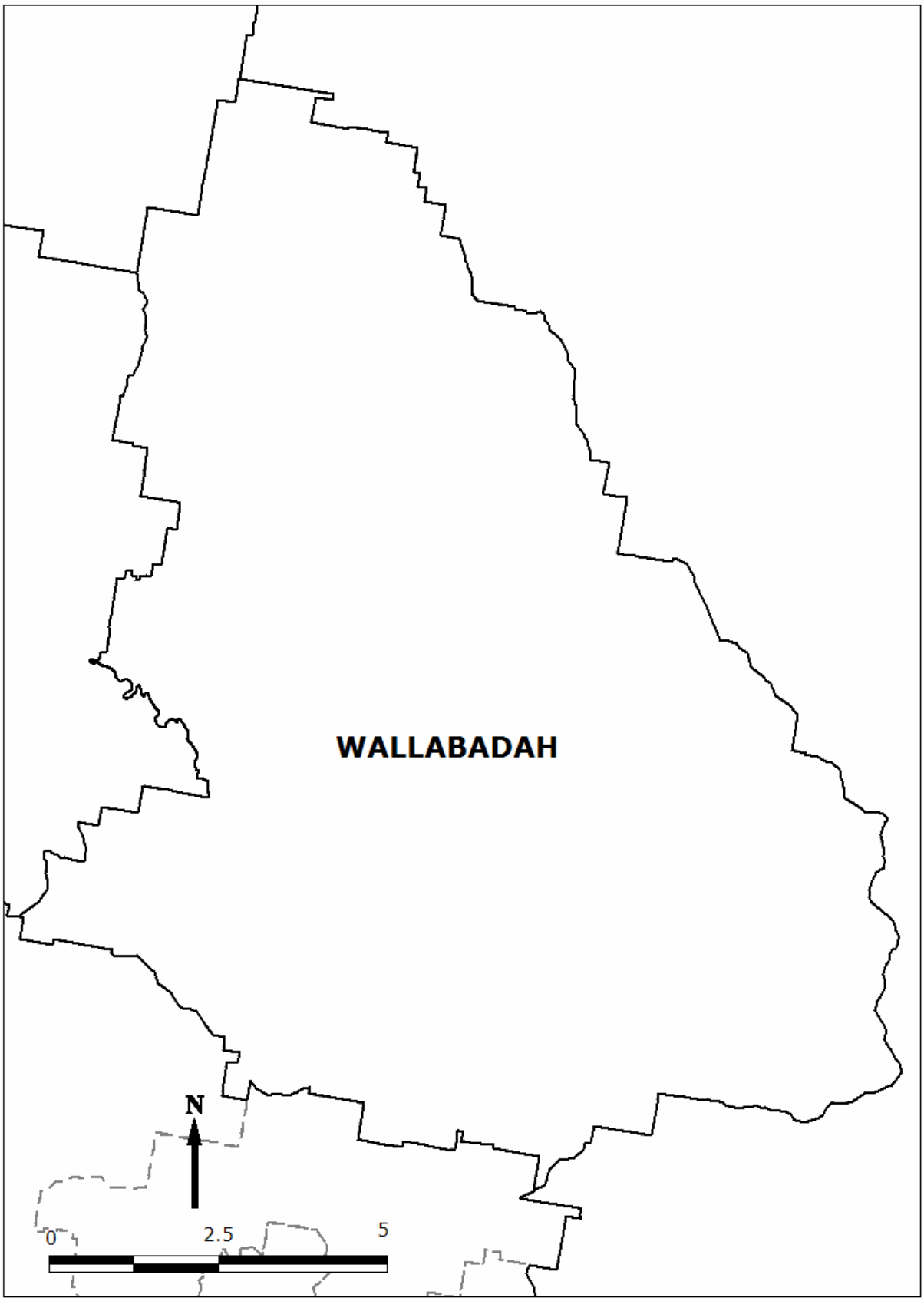
Rural Land Capability

Class	Location
Class 1- 3	Most of the area on the flat land
Class 4 -5	Hilly land in the east
Class 6 -8	Steep land in the south



General Comments

- Agriculture is a mixture of cropping and grazing with some irrigated uses in the western part. Cattle feed lot near Borambil.
- Holdings are spread over the range with a significant proportion less than 100 ha.
- Quirindi has full range of services and facilities



Map 4.4: Wallabadah

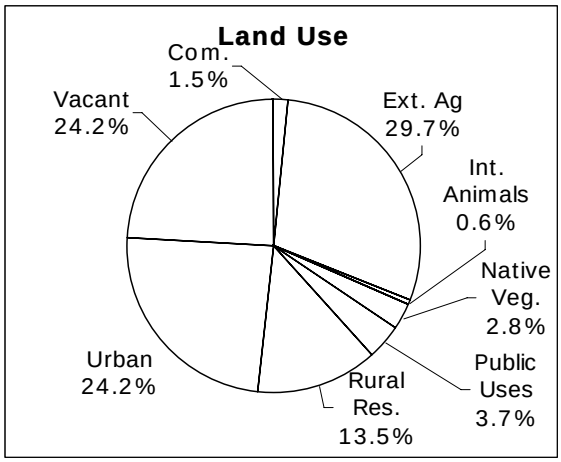
4.4 Wallabadah

General Characteristics

Total Number of Rural Lots	143
Number of Agricultural Lots	99
Number of Rural Residential Lots	44

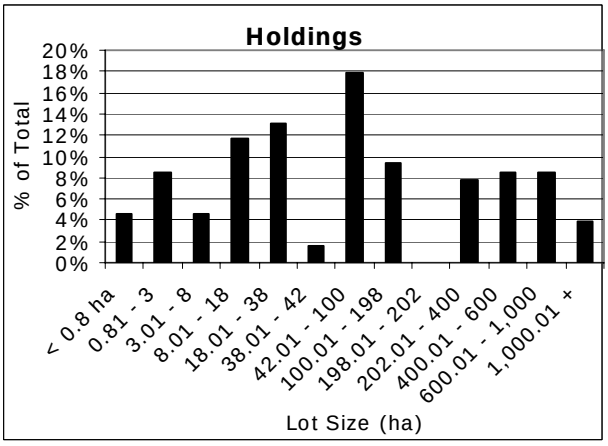
Number of Properties in Each Category

Land Use	Number
Rural Residential	44
Extensive Agriculture	97
Native Vegetation	9
Urban	79
Vacant (Urban)	79
Public Use	12
Irrigated Plants	0
Extractive Industry	0
Intensive Animals	2



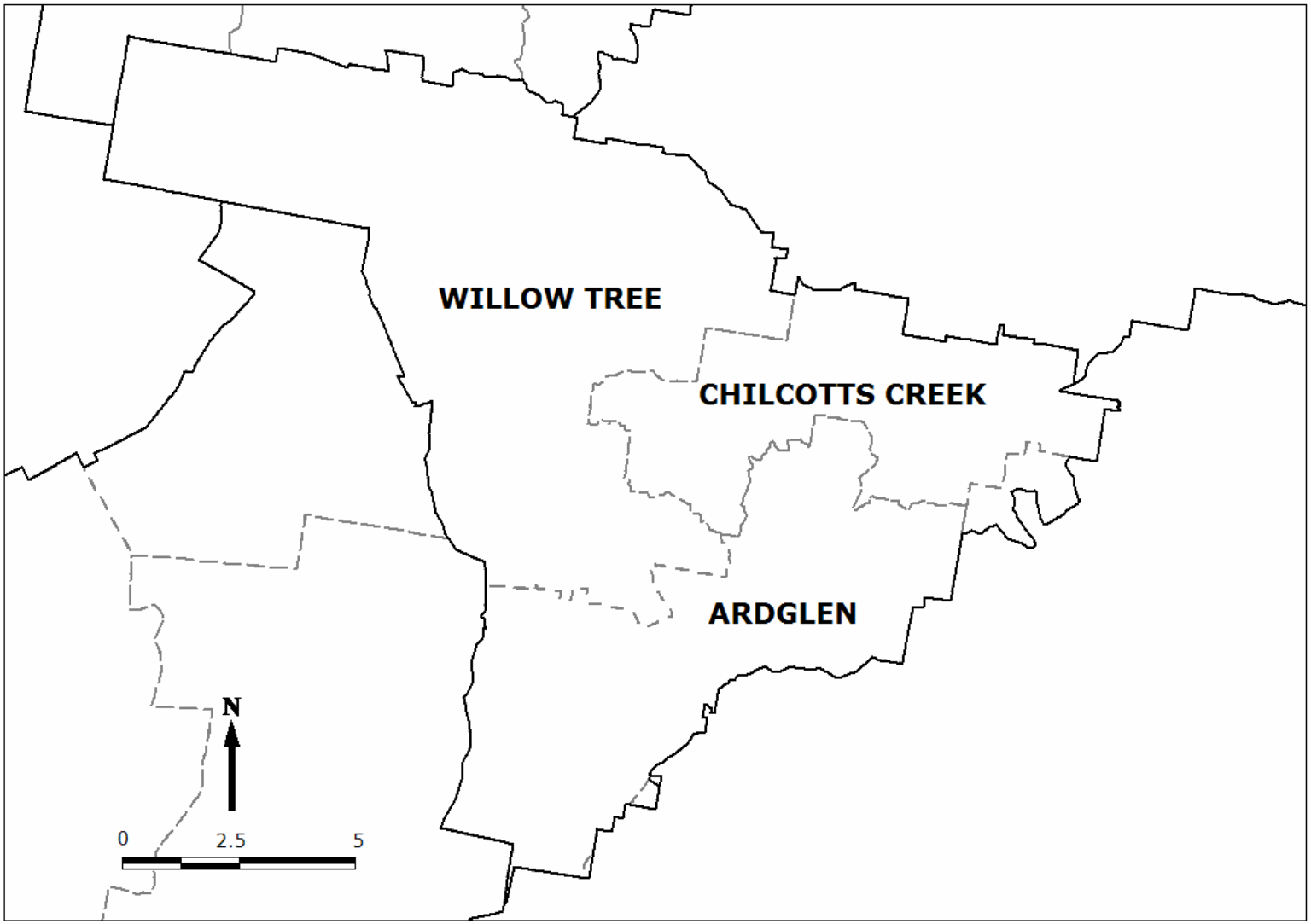
Rural Land Capability

Class	Location
Class 1- 3	Small areas in valleys
Class 4 -5	Most of the locality
Class 6 -8	On steep land in east and south



General Comments

- Agriculture mostly grazing.
- Holdings mostly between 200 and 1,000 ha with significant proportion in 42 – 100 ha range as well as less than 42 ha.
- Wallabadah has minimal services and facilities but has good access to Quirindi and Tamworth.



Map 4.5: Willow Tree - Ardglen

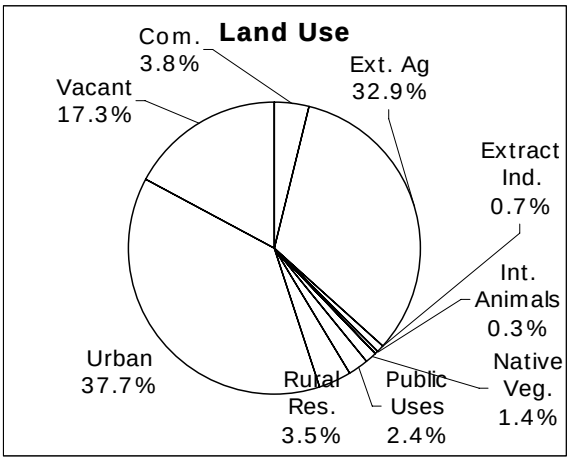
4.5 Willow Tree – Ardglen

General Characteristics

Total Number of Rural Lots	106
Number of Agricultural Lots	96
Number of Rural Residential Lots	10

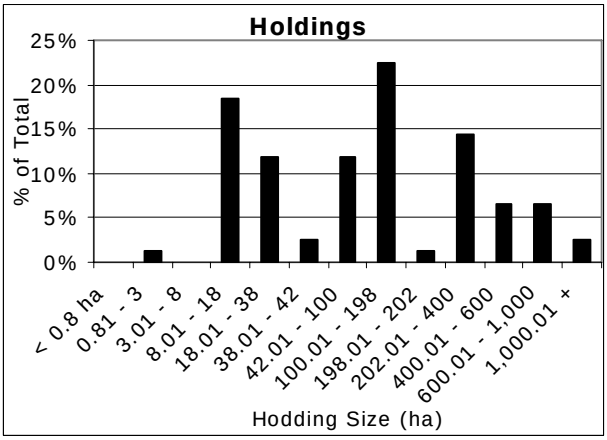
Number of Properties in Each Category

Land Use	Number
Rural Residential	10
Extensive Agriculture	95
Native Vegetation	23
Urban	109
Vacant (Urban)	50
Public Use	7
Irrigated Plants	0
Extractive Industry	2
Intensive Animals	1



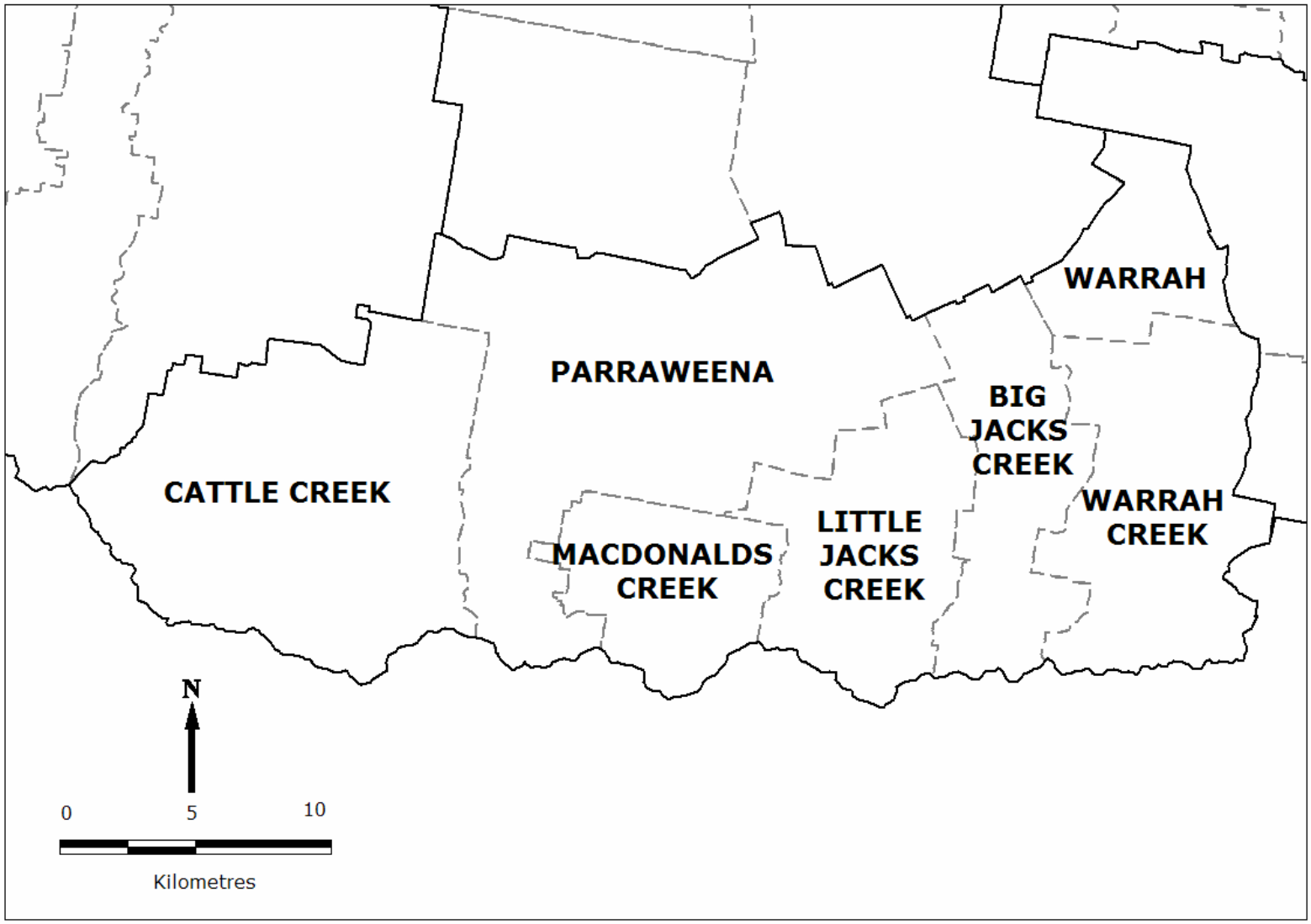
Rural Land Capability

Class	Location
Class 1- 3	Flat land in the Willow Tree are to the west
Class 4 -5	Hilly land in the south and north
Class 6 -8	Steep land in the south and north



General Comments

- Agriculture mostly grazing in the east with some cropping on the flatter land to the west.
- Holdings mostly greater than 200 ha but significant proportion less than 200 ha
- Willow Tree has limited services and facilities but has good access to Quirindi.



Map 4.6: Warrah Creek – Parraweena

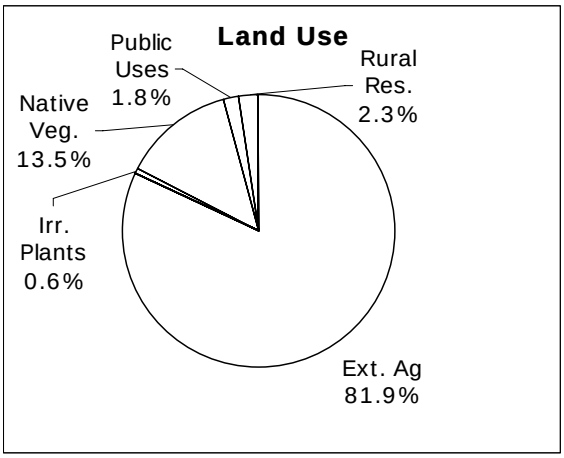
4.6 Warrah Creek – Parraweena

General Characteristics

Total Number of Rural Lots	145
Number of Agricultural Lots	141
Number of Rural Residential Lots	4

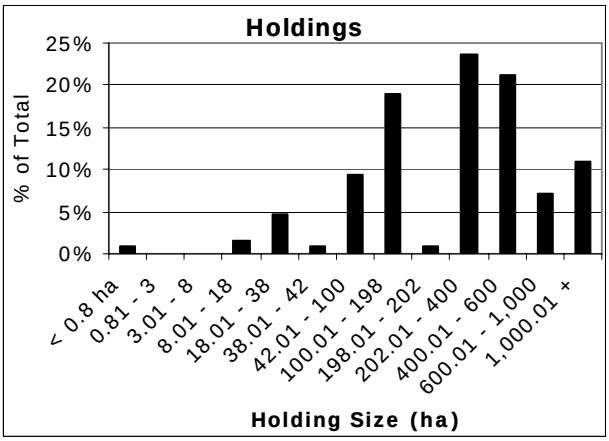
Number of Properties in Each Category

Land Use	Number
Rural Residential	4
Extensive Agriculture	140
Native Vegetation	23
Urban	0
Vacant (Urban)	0
Public Use	3
Irrigated Plants	1
Extractive Industry	0
Intensive Animals	0



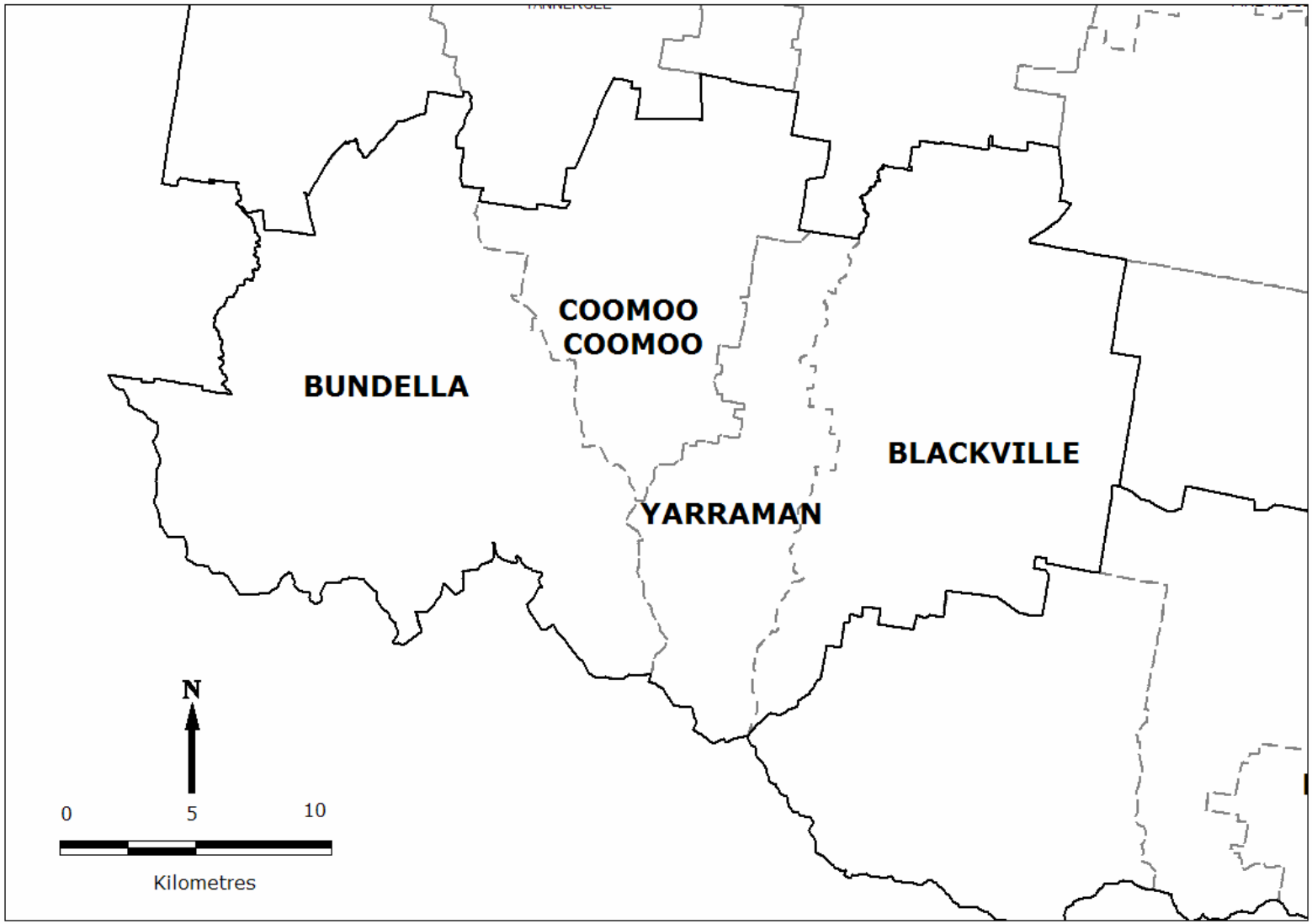
Rural Land Capability

Class	Location
Class 1- 3	Flat land in the north
Class 4 -5	Hilly land on footslopes of Liverpool Range in south
Class 6 -8	Steep land in the south



General Comments

- Agriculture mostly large scale cropping in the north with some grazing on hilly land in the south
- Holdings mostly greater than 200 ha with significant proportion greater than 1,000 ha
- No settlements or services or facilities in these localities. Isolated from Quirindi.



Map 4.7: Blackville – Bundella

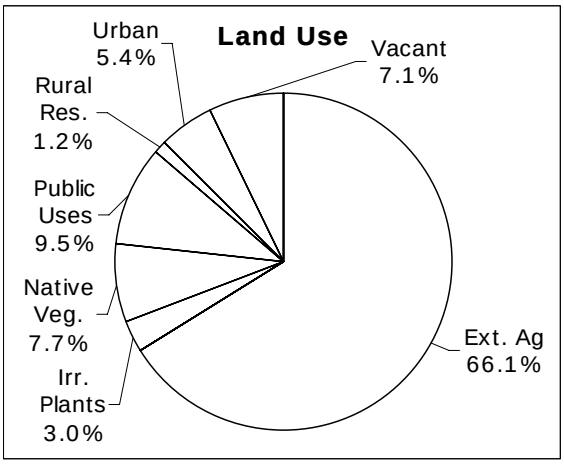
4.7 Blackville – Bundella

General Characteristics

Total Number of Rural Lots	118
Number of Agricultural Lots	116
Number of Rural Residential Lots	2

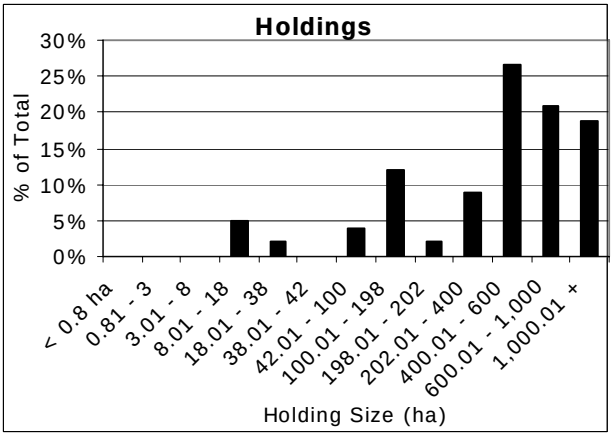
Number of Properties in Each Category

Land Use	Number
Rural Residential	2
Extensive Agriculture	111
Native Vegetation	13
Urban	9
Vacant (Urban)	12
Public Use	16
Irrigated Plants	5
Extractive Industry	0
Intensive Animals	0



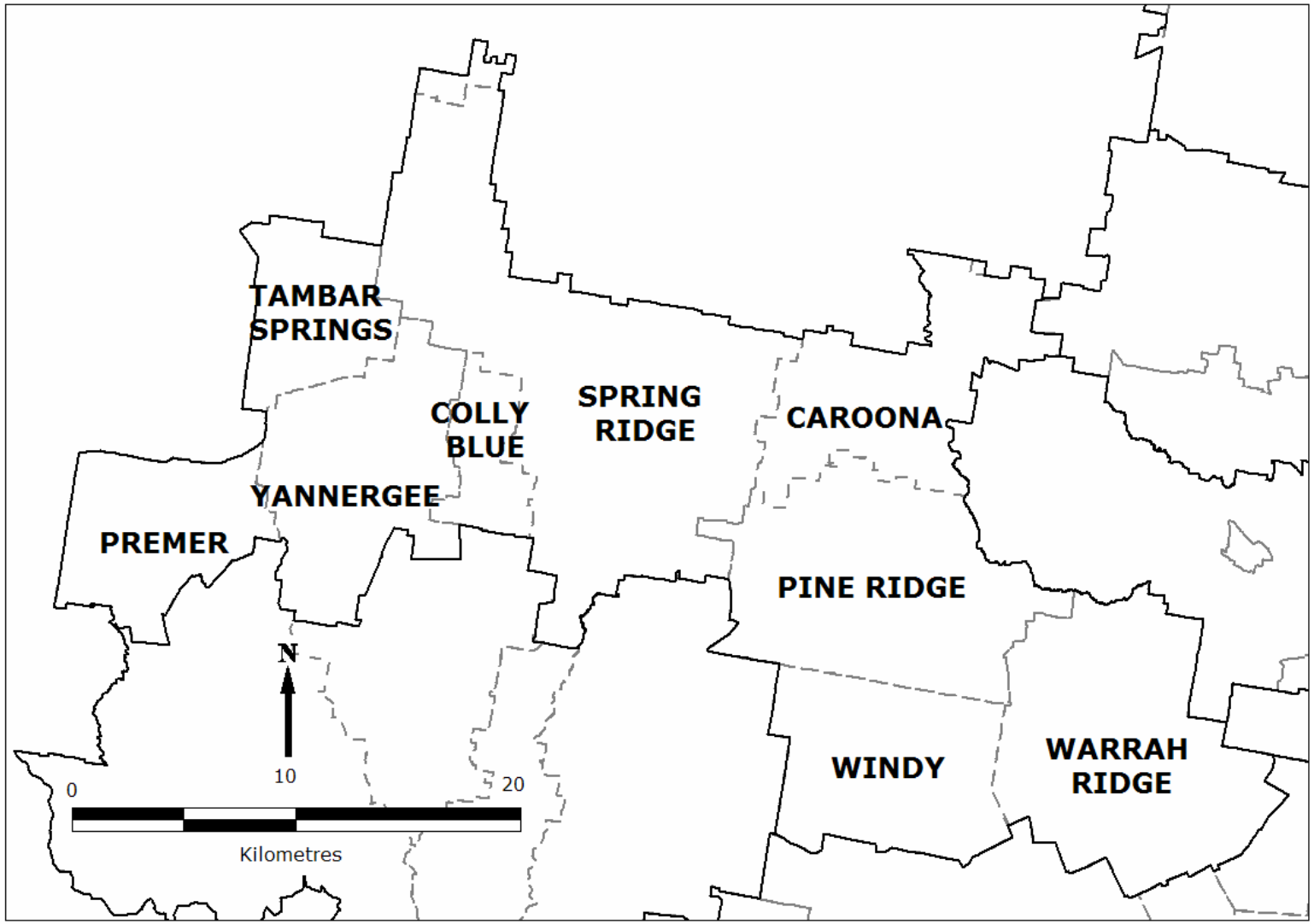
Agricultural Land Classification

Class	Location
Class 1- 3	Flat land in north
Class 4 -5	Hilly land on footslopes of Liverpool Range in south and centre
Class 6 -8	Steep land in south



General Comments

- Agriculture mostly large scale cropping on flat land with grazing on hilly land in the south
- Holdings mostly greater than 200 ha with significant proportion greater than 1,000 ha.
- Blackville has limited services and facilities. Isolated from Quirindi.



Map 4.8: Premer – Windy

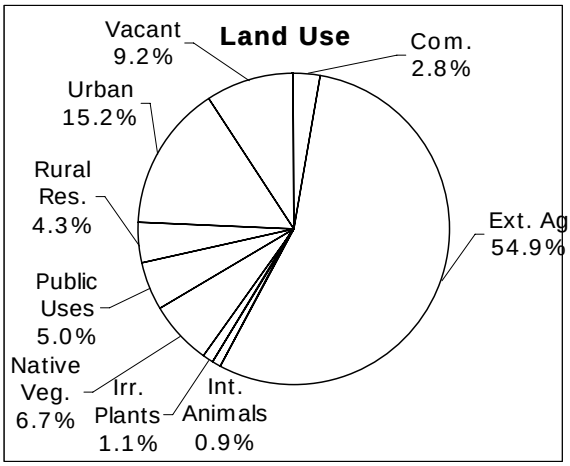
4.8 Premer – Windy

General Characteristics

Total Number of Rural Lots	331
Number of Agricultural Lots	308
Number of Rural Residential Lots	23

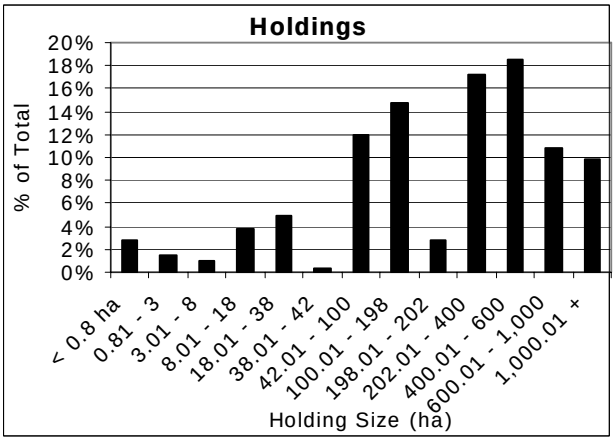
Number of Properties in Each Category

Land Use	Number
Rural Residential	23
Extensive Agriculture	297
Native Vegetation	36
Urban	82
Vacant (Urban)	50
Public Use	27
Irrigated Plants	6
Extractive Industry	0
Intensive Animals	5



Agricultural Land Classification

Class	Location
Class 1- 3	Most of the area except for ridges west of Premer, Colly Blue Spring Ridge, Pine Ridge and Warrah Ridge
Class 4 -5	On ridges
Class 6 -8	North of Colly Blue



General Comments

- Agriculture mostly large scale cropping with some intensive agriculture – both irrigated plants and intensive animals (poultry and cattle feed lot).
- Holdings mostly greater than 200 ha with significant proportion greater than 1,000 ha.
- Villages of Premer, Spring Ridge and Caroona have limited services and facilities.

Chapter 5: Ecologically Sustainable Development

5.1 Introduction

> *"Sustainability is a direction, more than a fixed destination. It is most effective when embraced voluntarily by people living together in cooperation and democracy. The term is now being used worldwide, in every language, to express this critical concept for the future of human societies on earth: that to survive, we need to better understand the consequences of current growth and development patterns on future generations and to pay attention, now, to the linkages that make the environment, economy and society interdependent. The challenge is to learn to continually work with this delicate balance through changing times. The concerns range from local needs and regional limits to global impacts, but the work is here, now, day by day. And it involves everyone."* (Sustainable Seattle 2000)

Ecologically Sustainable Development (ESD) is an important matter to consider when discussing the future of the Liverpool Plains Shire.

5.2 Ecologically Sustainable Development

Ecologically Sustainable Development or ESD is a set of principles that have been adopted by all levels of Government in Australia. In 1995 the Intergovernmental Agreement on the Environment was signed and this included Local Government. The discussion that follows outlines ESD and puts it into the context of why it is important for the Council to consider ESD when making decisions about the Shire.

The National Strategy on Ecologically Sustainable Development defines ESD as

> *'using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased'*. (Commonwealth of Australia, 1992 p1)

Put more simply, ESD is development which aims to meet the needs of Australians today, while conserving the ecosystems for the benefit of future generations. To do this, there is a need to develop ways of using those environmental resources that form the basis of the economy in a way which maintains and, where possible, improves their range, variety and quality. At the same time there is a need to utilise those resources to develop industry and generate employment.

The goal for ESD is :

> *Development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends.* (Commonwealth of Australia, 1992 p1)

The Strategy lists the core objectives of ESD as follows:

- *To enhance individual and community well being and welfare by following a path of economic development that safeguards the welfare of future generations.*

- *To provide for equity within and between regions.*

- *To protect biological diversity and maintain essential ecological processes and life support systems.*

The guiding principles of ESD are outlined in the Strategy as:

- *Decision-making processes should effectively integrate both long and short-term economic, environmental, social and equity considerations.*

- *Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.*

- *The global dimensions of environmental impacts of actions and policies should be recognised and considered.*

- *The need to develop a strong, growing and diversified economy which can enhance the capacity for environmental protection should be recognised.*

- *The need to maintain and enhance international competitiveness in an environmentally sound manner should be recognised.*

- *Cost-effective and flexible policy instrument should be adopted, such as improved valuation, pricing and incentive mechanisms.*

- *Decisions and actions should provide for broad community involvement on issues that affect them.*

(Commonwealth of Australia, 1992 pp 2-3)

The Council of Australian Governments has adopted these as the Intergovernmental Agreement on the Environment, which was adopted in 1995, and it endorsed a concept of ESD.

The New South Wales Local Government Act defines ESD as follows:

> *Ecologically sustainable development requires the effective integration of economic and environmental considerations in decision-making processes. Ecologically sustainable development can be achieved through the implementation of the following principles and programs:*
>
> *(a) the precautionary principle—namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:*

(i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and

(ii) an assessment of the risk-weighted consequences of various options,

(b) inter-generational equity—namely, that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations,

(c) conservation of biological diversity and ecological integrity—namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,

(d) improved valuation, pricing and incentive mechanisms—namely, that environmental factors should be included in the valuation of assets and services, such as:

(i) polluter pays—that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,

(ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,

(iii) environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

One of the aims of the Local Government Act is to require Councils, Councillors and Council employees to have regard to the principles of ecologically sustainable development in carrying out their responsibilities. The Act also lists a charter, which identifies the principles under which Councils must function. This charter has as one of its components the following, which deals with ESD:

> *" to properly manage, develop, protect, restore, enhance and conserve the environment of the area for which it is responsible, in a manner that is consistent with and promotes the principles of ecologically sustainable development."*

Liverpool Plains Shire Council therefore is legally obliged to consider the above policies and definitions when carrying out its functions in relation to the Shire.

5.3 Biodiversity

The purpose of this section is to explain the wider concept of biodiversity and the reason why Liverpool Plains Shire Council is bound to consider it for the decisions to be made for the Shire.

Definition

Biodiversity, as defined by the NSW Biodiversity Strategy, is:

> *"The variety of life forms, the different plants, animals and micro-organisms, the genes they contain, and the ecosystems they form. It is usually considered at 3 levels: genetic diversity, species diversity and ecosystem diversity.* "(NSW p4)

The 3 levels of biodiversity are as follows:

- *genetic diversity* - the variety of genetic information contained in all of the individual plants, animals and microorganisms that inhabit the earth. Genetic diversity occurs within and between the populations of organisms that comprise individual species as well as among species;
- *species diversity* - the variety of species on the earth; and
- *ecosystem diversity* - the variety of habitats, biotic communities and ecological processes.

> *"It is not static, but constantly changing; it is increased by genetic change and evolutionary processes and reduced by processes such as habitat degradation, population decline, and extinction. The concept emphasises the interrelatedness of the biological world. It covers the terrestrial, marine and other aquatic environments."* (Commonwealth Government 1996 p5)

It is this mixture of things that makes the environment that people live in and enjoy. Biodiversity is vital in supporting human life on Earth. It provides many benefits, including all our food, many medicines and industrial products and supplies clean air and water, and fertile soils. Australia is one of the biologically richest countries in the world and many industries such as tourism, agriculture, forestry and fisheries depend directly upon biodiversity. Therefore its conservation is very important – socially, economically and environmentally. Over the past 200 years, however, the Australian environment has been modified dramatically.

Reasons for Preserving Biodiversity

The four main reasons for preserving biodiversity relate to the following:

- *Ecosystem Processes*: Biodiversity is often taken for granted, however it does provide the critical processes that make life possible. A healthy and functioning ecosystem is necessary to maintain the quality of the atmosphere as well as maintaining and regulating the climate, freshwater, soil formation, cycling of nutrients and disposal of wastes. This is often referred to as the ecosystems services. Biodiversity is also essential for controlling pest plants, animals and diseases, for pollinating crops and for providing food, clothing and many raw materials that are used in the manufacturing of products used on a day-to-day basis. The conservation of biodiversity can also have a positive impact on water quality.

- *Ethics*: all species have an inherent right to exist. Biodiversity belongs to the future as well as the present and no species or generation has the right to take away this inherent right by destroying the existence of a species.

- *Aesthetics and Culture*: Biodiversity has a range of intrinsic values such as beauty, tranquillity and isolation. Many Australians place a high value on the presence of native plants and animals. This has contributed to the sense of cultural identity and is important for the spiritual enrichment of the community as well as providing for recreation.

- *Economic*: some components of biodiversity have an economic value that can be used to generate wealth. The variety of plants and animals in Australia provide an attraction for tourism, as well as providing food, medicines and other pharmaceutical products and energy and building materials.

Pressures on Biodiversity

The major pressure on biodiversity today comes directly and indirectly from the increasing demand from population growth and human settlement and the lifestyle and expectations of the residents of those settlements and the way in which the population disperses throughout the environment. This includes the needs and desires for food, water, housing, energy, transportation, recreation and many other aspects of modern living. Figure 5.1 illustrates the impacts of human populations on biodiversity. The modification of habitats, particularly the clearing of vegetation for urban development has been and still is the most significant cause of the loss of Australia's biodiversity. The high proportion of Australians living in and around the large metropolitan centres and on the coastal fringe generates a range of pressures on biodiversity throughout the continent which includes the destruction of natural habitat, harvesting of plants and animals, the spread of exotic diseases and pollution. At the time of European settlement there were 283 species of birds believed to have occurred here. Of these, 11 species are now extinct, 76 have decreased in range and/or abundance and only 39 have increased in range and/or abundance. (State of the Environment Advisory Council, 1996 p 4-9). As well, 5 Australian species have invaded the area because the changes imposed on the landscape suited them and 20 exotic birds were deliberately released and have established viable populations.

The pressure on the biodiversity of Liverpool Plains comes mainly from land clearing associated with development and agriculture.

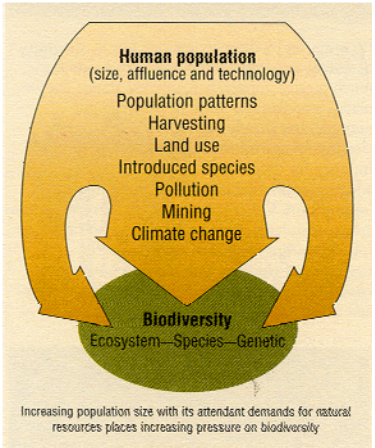


Figure 5.1: Major pressures on biodiversity
Source: SoEAC, 1996, p 4-9.

National Biodiversity Strategy

The National Biodiversity Strategy was prepared in response to these pressures. "Its aim is to bridge the gap between current activities and the effective identification, conservation and management of Australia's biological diversity." (SoEAC., 1996 p 4-

39). The document recognises the need to change the way that society thinks, acts and make decisions so as to ensure that economic development is ecologically sustainable. It is recognised that human activities are having a significant impact on the fundamental ecological processes of the planet. "If we are to achieve a sustainable future in which food, shelter, health and other basic needs of the growing global population are met, we must act now to change so that we live within the Earth's carrying capacity." (Commonwealth of Australia, 1996, p4). The strategy's goal is as follows:

> *"The strategy recognises that:*
>
> - *The conservation of biological diversity provides significant cultural, economic, educational, environmental, scientific and social benefits for all Australians.*
> - *There is a need for more knowledge and better understanding of Australia's biological diversity.*
> - *There is a pressing need to strengthen current activities and provide policies, practices and attitudes to achieve conservation and sustainable use of biological diversity.*
> - *We share the Earth with many other life forms that have intrinsic value and warrant our respect, whether or not they are a benefit to us*." (Commonwealth of Australia, 1996, p5).

It acknowledges the core objectives of the National ESD Strategy and accepts the guiding principles of that strategy. The National Biodiversity Strategy contains 9 principles which are to be used for its implementation. These are as follows:

1. *Biological diversity is best conserved in-situ.*
2. *Although all levels of Government have clear responsibility, the cooperation of conservation groups, resource users, peoples and the community in general is critical to the conservation of biological diversity.*
3. *It is vital to anticipate, prevent and attack at source the causes of significant reduction or loss of biological diversity.*
4. *Processes for and decisions about the allocation and use of Australia's resources should be efficient, equitable and transparent.*
5. *Lack of full knowledge should not be an excuse for postponing action to conserve biological diversity.*
6. *The conservation of Australia's biological diversity is affected by international activities and requires actions extending beyond Australia's national jurisdiction.*
7. *Australians operating beyond our national jurisdiction should respect the principles of conservation and ecologically sustainable use of biological diversity and act in accordance with any relevant national or international laws.*
8. *Central to the conservation of Australia's biological diversity is the establishment of a comprehensive, representative and adequate system of ecologically viable protected areas integrated with sympathetic management of all other areas, including agricultural and other resource production systems.*
9. *The close, traditional association of Australia's peoples with components of biological diversity should be recognised, as should the desirability of sharing equitably benefits arising from the innovative use of traditional knowledge of biological diversity.*

(Commonwealth of Australia, 1996, p6).

NSW Biodiversity Strategy

The NSW Biodiversity Strategy details actions to conserve the biodiversity of NSW. The focus is on:

- community consultation, involvement and ownership;
- conserving and protecting biodiversity;
- addressing threats to biodiversity and their management;
- natural resource management; and
- improving our knowledge.

The National Local Government Biodiversity Strategy was adopted in 1998. It represents an agreed Local Government position at the national level on the management of Australia's biodiversity.

The strategy recognises that:

- Conservation and sustainable use of our natural resources will only be achieved through local area planning and management, along with community education and participation.

- There is a willingness of Local Government across Australia to play a lead role in dealing with our most pressing and complex conservation issue—the loss of biodiversity.

- A clear and co-operative partnership arrangement is required between the 3 spheres of Government.

The strategy addresses 5 key issues and identifies relevant actions for each key issue. The Strategy recognises that these actions will require varying degrees of support from all spheres of Government, and regional organisations. The issues are as follows:

- Awareness, Training and Education
- Local Government Resourcing
- Regional Partnerships and Planning
- Legislative Frameworks
- Information and Monitoring

As this has been adopted at the national level, it has relevance for the biodiversity policies of Liverpool Plains Shire Council because Liverpool Plains Shire Council is part of the organisation which signed the Strategy (the NSW Local Government and Shires Association).

Incentives for Biodiversity Conservation

A lot of the significant biodiversity is on land that is held in public ownership, however there is a significant amount of it on private land. It is this land that needs to be conserved in addition to the publicly owned land. The large amount of vegetation linkages within Liverpool Plains signifies the biodiversity value of the private land. However, to ensure that biodiversity is conserved on private land there should be some incentives in addition to regulations to allow this to occur. These incentives can take the form of economic or financial and non-financial. It must be recognised

however that the conservation of biodiversity has costs associated with it. These can be as little as providing fencing, to labour associated with planting of trees, to taking land out of production and therefore losing the productive potential of the land. Whether this has a detrimental impact on the overall value of the land however, is not known.

Non-financial incentives for biodiversity conservation are likely to be in association with people's lifestyle choices and enjoyment of land.

Economic, or financial mechanisms for conserving biodiversity are being developed both in Australia and in other countries around the world. Some economic mechanisms are as follows:

- *Environmental pricing* includes charges levied and the setting of prices to fund conservation of biodiversity. These are rare in Australia and are really only used for fees for Park use, trail access and other uses within the reserves. Some Councils have implemented an environmental levy on the ratepayers. Funds raised in this way are used to fund environmental rehabilitation and other matters associated with the improvement of the natural environment.

- *Conservation easements or agreements* such as those that are provided for under the National Parks and Wildlife Service Act bind current and future landowners to a set of conditions on the use of the land. This can include limitation on clearing, fencing of important areas and restricting grazing on the property. These can be complicated and take some time to draw up and come into force.

- *Funding arrangements*. A revolving fund is one of several ways to maximise the use of funds for managing biodiversity. This concept involves purchasing land and placing a conservation agreement over it (as a caveat on the title) to ensure that it is managed for conservation purposes. The land is then sold to somebody who agrees to abide by this agreement and the money is used to purchase more land, which is then conserved and sold.

- *Taxation*. There are some income tax deductions available for control of land degradation however they are narrowly defined and do not reflect the concerns of conservation of biodiversity. Land that has a conservation agreement over it can be differentially valued so that the conserved land is valued differently from the non-conserved land. A system of rate rebates can be applied to land for biodiversity conservation purposes (for this to occur in New South Wales however there is a need to amend the rating provisions of the Local Government Act because there is no category for biodiversity conservation). In South Australia, under the Native Vegetation Act 1992 rate rebates apply and further reductions are available under a heritage agreement.

- *Transferable Development Rights* (TDR). This mechanism is designed to limit development in conservation areas without affecting the underlying value of the individual asset. Transferable development rights enable people who own areas of valuable habitat to sell the clearing rights to others who own land of a lesser biological importance and need development rights in order to proceed with a proposed development. This mechanism currently is used in the City of Sydney for the preservation of heritage sites in conjunction with building height limits. In this case, developers are able to purchase a heritage building and transfer the height

allowance to another site thereby creating a site with double the normal height limit.

- *Purchase of Development Rights* is a scheme whereby the rights to develop private land are purchased by a Government body or non-government land trust. A valuation of the land for its development potential is arrived at and this is subtracted from the valuation of the land for no development potential. The difference is given to the landowner in exchange for a restriction on the title of the land that it can only be used for biodiversity conservation, for example. This scheme is not in use in Australia, however it is used widely in United States of America for agricultural land as well as biodiversity conservation.

- *Financial assistance* forms part of many voluntary management schemes offered by State Governments. They usually take the form of payment to assist with the cost of purchasing materials associated with the works required such as a fencing subsidy, the provision of plants or the provision of money for the hire of plant and equipment.

Incentives, therefore are needed to encourage people to conserve the biodiversity of their areas. They are a positive tool and can be used in conjunction with statutory mechanisms such as regulations on land use.

5.4 ESD and Biodiversity in Liverpool Plains Shire

There are 3 programs in the Shire that address this issue. There are however, many opportunities to introduce a number of other programs and mechanisms to address these key concepts to ensure that the future actions are sustainable.

The Shire employed a Landcare facilitator up to 30 June 2005 to work with landholders and the Catchment Management Authorities to address overall land degradation issues in the Shire. This program is now facilitated by the Namoi Catchment Management Authority.

A plan of management has been prepared for the Grassy White Box Woodland, an endangered ecological community, at the Wallabadah Common and the Currabubula Cemetery. These plans of management will ensure that this endangered ecological community will be preserved for the future.

The Pine Ridge Land Care Group has been established since 1993 and has a common desire to resolve the land degradation and use issues to protect the productivity of the catchment. Its main focus is preventing salinity and they have taken a ‘2 pronged approach’ by

- Reducing the amount and duration of water lying on the land
- Using as much soil moisture as possible by maximising crop and pasture growth and strategically planting native trees and shrubs in key areas.

An example of tree planting can be seen from photo 5.1 which is on Cattle Lane south of Pine Ridge.

Photo 5.1: Tree Planting in Cattle Lane, Pine Ridge
Date of Photo: January 2005

5.5 Indicators of Sustainability

As noted on earlier, sustainability is a set of principles to achieve a desired end state of the development process. However without some form of measurement of this sustainability there is no way of knowing whether a certain type of development is sustainable in the long-term. The concept of indicators of sustainability, (that is, the measuring of development impact and feeding back these measurements into the plan making process) is a desirable goal.

It should be noted that the Natural Resources Commission has been tasked with the job of preparing a set of standard state wide targets for natural resources. They address the major issue areas of:

- Biodiversity
- Water
- Land
- Community

The following discussion can relate to these targets but is about setting a set of indicators which can be monitored by local government.

5.5.1. Developing the Indicators

Indicators can be developed that will give an assessment of the health of a catchment as well as the quality of life of the residents within an area. The discussion that follows has been based on research into the preparation of catchment health indicators and this has been modified to develop a set of quality of life indicators. These indicators are sometimes called environmental indicators and catchment health indicators. It is suggested that the term “catchment health” indicators are more accurate for the land use planning area. It is more understandable and also is something that Councils can have an impact upon – the health of the local catchment and the impact of land use on that health. Similarly, it is suggested that the term “Quality of Life” indicators be

used to provide an assessment of the social issues for a community. If the social issues are being addressed adequately, the residents will have a good quality of life and if not the quality of life will not be good. It is also easier to understand. The indicators have to be considered in the context of ESD.

> *"In both rural and urban landscapes, environmental changes due to various human activities, … are being increasingly felt and raising our perceptions of the environmental costs of these activities. People in the cities have experienced smogs, some rivers and beaches no longer fit for recreational use, loss of favourite natural areas to suburban and coastal development, and so on. Farmers and rural inhabitants have seen the losses in soil, wind and water erosion; they are aware of areas no longer able to be farmed because of gully development, of the declining crops and pastures in saline areas, and of paddocks with unhealthy trees and no regeneration." (Williams, et al 1998 p 99)*

Changes are continually occurring within catchments and some of them are a result of the development process taking place. In fact it could be said that all development has an impact on a catchment. "These visible undesirable changes in condition of the atmosphere, land and water are indicators of degradation - degradation that is being brought about through a change in the environmental processes by human activity." (Williams, et al 1998 p 99) There is a need therefore to develop indicators of the health of a catchment and then identify ways of measuring these so that appropriate management policies can be put in place.

> *"Finding an appropriate set of indicators of sustainable development for a community, a city, a region, a country or even the world is not an easy task. It requires knowledge of what is important for the viability of the systems involved, and how that contributes to sustainable development. The number of representative indicators should be as small as possible, but as large as essential."*(Bossel 1999 p xi)

Council has a great opportunity to actually measure the sustainability of the policies that are written. Introducing catchment health indicators and quality of life indicators into the planning process can do this. These can then be measured by the State of the Environment reporting (which is publicly reported) and used as a guide to the adequacy and efficiency of land use policy.

Indicators can be developed for catchment health and quality of life. Catchment health indicators will enable the monitoring of the physical catchment whilst the quality of life indicators will give an indication of the quality of life and lifestyle of those people who live in the catchment.

Figure 5.2 provides a flow chart showing the methodology for identifying the indicators and determining the measuring protocol and reporting requirements for that indicator.

The first stage is to identify the issue that an indicator is to be prepared for. This could be identified in the strategy as an objective heading that needs to be considered with a policy response required or can be identified by another strategy or needs analysis.

The second stage is to analyse this issue having regard to its current status, the pressures that are placed upon it and finally the planning responses that are available to ameliorate the pressures. It is then necessary to identify ways that the responses can be measured. This will lead to the identification of the indicator. It is then possible to identify the measuring protocol as well as the reporting procedure for that indicator.

For example, the strategy identifies the need to conserve biodiversity. Indicators of the current state of biodiversity in Liverpool Plains Shire have been identified. One of the pressures on biodiversity conservation can be said to be the number of rural residential developments that are occurring and placing a pressure on vegetation due to clearing thereby removing the habitat and an element of biodiversity. A response to this would be to prepare a policy that will encourage the preservation of the wildlife linkages. Such a policy could be a Local Environmental Plan or Development Control Plan. The measure is to find out whether the linkage is being enhanced or degraded. Therefore the indicator is the wildlife linkage. A measuring protocol for the wildlife linkage could be to utilise aerial photography to find out whether the linkage has been enhanced or degraded. This could be done every 2 years as part of the State of the Environment Report and thus is reported publicly to enable a review of the policy when it is required.

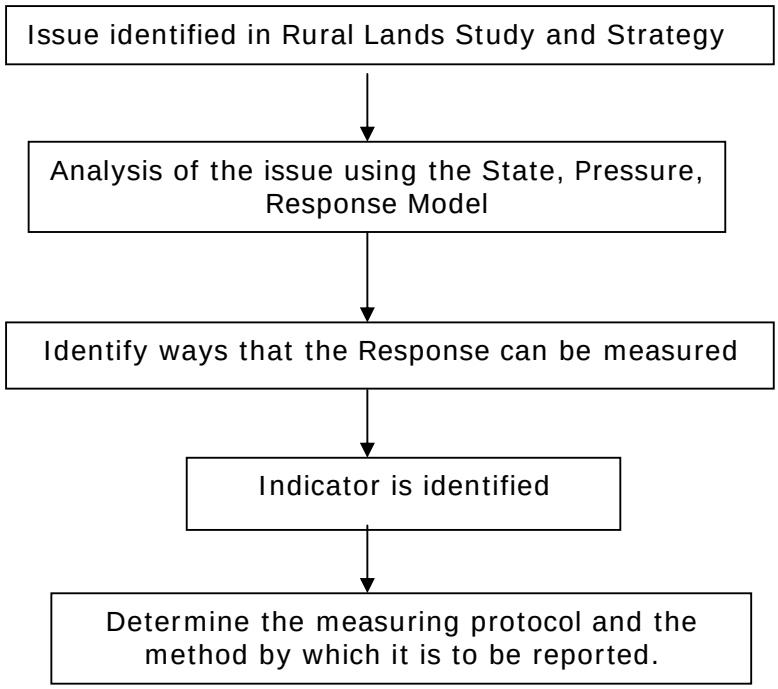


Figure 5.2: Methodology to Determine Indicators
Source: Penrith Rural Lands Study, p166.

5.5.2. Catchment Health Indicators

A set of catchment health indicators has been developed as an example of how they could work for the Shire. They are listed in Table 5.1.

The indicators and measures don't have to be rigorously scientific because they are indicators of an unhealthy catchment. They should be used as a trigger for further

detailed study if required. The response to an indicator of an unhealthy catchment is to identify the source of the problem. If it is a matter that requires development consent, the first thing to look at is the development control process and to identify if implementing a condition of consent can solve it. If this cannot be used to solve the problem, it may be necessary to alter a DCP or LEP to require consent for the land use or put management controls in place to ensure that it does not continue to cause an unhealthy catchment.

Table 5.1: Catchment Health Indicators

Indicator	Measure	Method
Water Quality	Turbidity of waterway	An inspection is carried out on a regular interval at a specific location and if the water is turbid (that is brown) it is an indicator of unhealthy catchment. However if the stream is clear it is an indicator of a healthy catchment.
	Presence of BOD, E Coli, etc	Water testing is carried out on a regular basis at specific measuring points
	Number of Macro invertebrates	Water testing is carried out on a regular basis at specific measuring points
	Recreational Water Quality for Primary Contact Recreation being Good	Analysis of the Water Quality Monitoring results on a regular basis.
	Nutrient build up in the waterways	Regular inspections are carried out and photographs taken of streams to assess the amount of algae and weed growth.
	Onsite Effluent Disposal failures	A register is kept of the number of notices issued to upgrade onsite effluent disposal systems by catchment.
Biodiversity	Number of Bird Sightings	Bird sightings are collated by bird watchers in the community.
	Amount of Illegal Native Vegetation Loss	A register is kept of the number of complaints and occurrences of illegal land clearing in each locality.
	Preservation of Linkages	Linkages are measured every 2 years with the aid of aerial photography to see if the linkage has been enhanced or degraded.
	Community Involvement in Bushcare	Records are kept of the number of people who are involved in Landcare activities and trees planted on private and public land.
	Enhancement of Linkages	Photos are taken at regular intervals of areas where a linkage has been planted as well as an inspection.
Soil Erosion and Sedimentation	Number of occurrences	A register is kept of the number of occurrences of soil erosion and sediment build up on public and private land.
Landscape	Obtrusive Buildings	Photos are taken at regular intervals from a standard point to see if any new buildings are intruding into the landscape.

Indicator	Measure	Method
Weed Growth	Amount of weeds present in streams and on the banks of streams	Visual inspection and photographs are taken of specified streams to determine the amount of weed growth.
Illegal Waste Dumping	Number of Complaints and incidences	A register is kept of the number of incidents of illegal waste dumping in each locality.
Illegal Landfill	Number of Complaints and incidences	A register is kept of the number of incidents of illegal land filling in each locality.
Land Contamination	Number of remediated sites	A register is kept of the number of sites that are remediated under the provisions of SEPP 55.
Air Quality	Number of days of Exceedence of NH&MRC Goals	Analysis of the Pollution Indices issued by the EPA to ascertain the number of days that it exceeds 50 being the recommended level by the National Health and Medical Research Council (NH&MRC).
	Number of Complaints received by Council.	A register is kept of the number of complaints received in each locality.
Land use Conflict	Number of Complaints	A record is kept of the number of complaints made about noise, dust and odour in each locality

5.5.3. Quality of Life Indicators

Based on the framework outlined above, the following indicators (Table 5.2) have been used as determinants of social sustainability for communities. These indicators are based on research on social sustainability as outlined in the attached references.

Table 5.2: Quality of Life Indicators

Indicator	Measure	Method
Social Justice	Concentrations of population.	Identify the adequate population base for each service type.
	Appropriate services available to all residents	For each target group count services available, method of access and rate of utilisation by target group. Consult with target group and service providers to determine services not provided and service issues.
	Adequate transport systems	Determine the utilisation of public transport and other sustainable transport modes by rural residents. Monitor traffic congestion on main rural roads.
	Adequate service capacity	Assess the ability of the service to expand or change to meet future demand.
	Access to	Assess the distribution, type and quality of

Indicator	Measure	Method
	appropriate information	information provided to the community. This should include the needs of people from non-English speaking backgrounds, those living in more remote areas and those requiring access to particular services.
	Provision of a range of housing choices	Assess the provision of affordable housing in the Shire.
	Networking within the community	Count the number and breadth of the networks and organisations that exist in the community
Economic Development	Provision of local employment opportunities.	Determine the proportion of rural residents who work in the LGA through monitoring journey to work data from the ABS Census of Population and Housing.
	Support for local businesses.	Count the increase in new local businesses by surveying the Chamber of Commerce.
	Employment opportunities available	Survey the number and range of employment opportunities in rural areas. This should include number of employees, age profile, educational level etc.
	Productive links between rural communities and the urban area	Provide information on the benefits of the rural areas to the urban community and then periodically survey the urban residents to assess their understanding of the rural areas.
Environment	Key environmental features of the community protected and enhanced	Assess the adequacy of protection by LEP and DCP of the key environmental features such as the rivers, and biodiversity linkages within the rural areas.
	A physically attractive community with its identified lifestyle features maintained.	Assess the views of the community of the maintenance of the key features that the community find enhances their lifestyle.
	Integrated approach to addressing environmental, economic and social needs	Undertake regular Quality of Life surveys to determine whether all these issues are being addressed

5.5.4. Linking Indicators to the Planning System

Indicators can be linked into the planning system via the use of Strategy, LEPs / DCPs and development consents. In this way you can require a proponent to provide data to be used to measure the indicators. The following has been developed as part of the work being carried out in Shellharbour Council area for the Rural Lands Project which encompasses a Strategy, LEP and DCP.

The Strategy sets the overriding goals which are then translated into the LEP via the Plan aims and the zone objectives. A clause makes reference to the Indicators of Sustainability and the indicators are included as a schedule to the LEP. In this way, the Council can impose conditions on the development consent requiring the proponent to provide data which can be used to measure the indicator and which is published in the SoE Report. Liverpool Plains Shire Council in conjunction with Tamworth Regional along with Gunnedah and Narrabri Shires and the Namoi CMA have begun a project which flowed from the adoption of a Sustainability Plan to prepare a comprehensive Catchment State of Environment Report. The Councils are currently considering the adoption of indicators and will approach a consultant to finalise the report to be released in 2009. Figure 5.3 on the following page outlines how they can be integrated in an ongoing manner. It also shows how the management plan and development assessment components of the Council are linked.

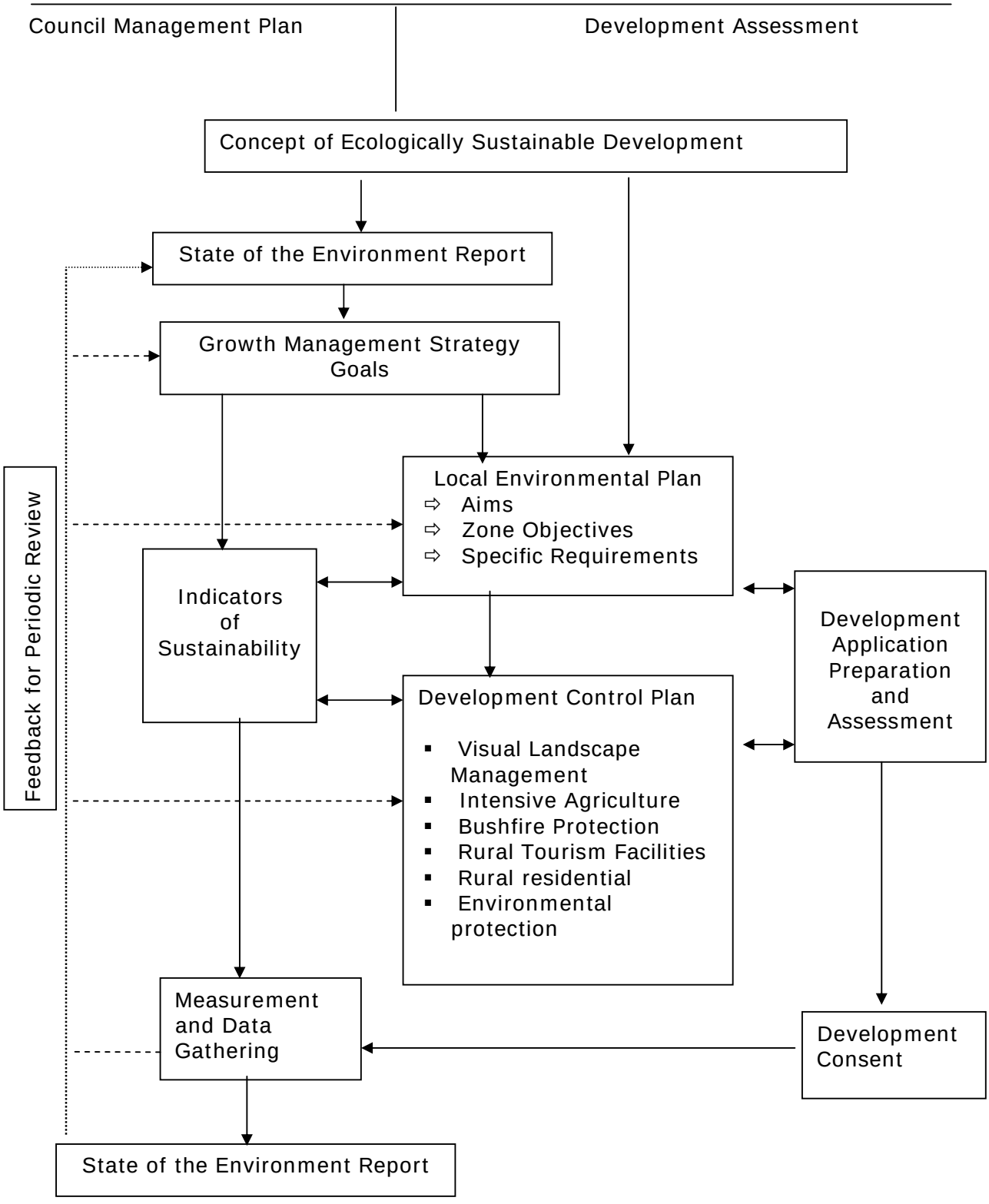


Figure 5.3: Linking Indicators of Sustainability to the Planning System

Chapter 6: Community Consultation

6.1 Introduction

Community consultation is an integral component of the project. Consultation gives the Council an opportunity to listen to what the community desires for the future of the area as well as allowing the Council to explain to the community the development issues and wider context of policy development within the Northern region and NSW. It is also important to recognise that the community is vitally interested in the future of the area and as such should have input into the development of policies for the future. The Council sees community consultation as a major component of the Strategy.

A series of workshops were held with the community throughout the Shire to identify their visions for the future as well as the Action that could be taken to achieve this vision.

It is important to engage the community in a way that allows them to identify the issues that affect the Shire as well as suggesting ways in which these issues can be addressed as possible outcomes. Consultation with the community is important as well as with the surrounding Councils and the State Government.

A total of 9 workshops were held throughout the Shire. A total of 142 people attended the workshops. The location, date and attendance is listed below:

Workshop Location	Date	Number of Attendees
Werris Creek	Tuesday 15 February	19
Quirindi	Wednesday 15 February	31
Currabubula	Thursday 17 February	13
Wallabadah	Monday 21 February	19
Willow Tree	Tuesday 22 February	21
Premer	Wednesday 23 February	10
Spring Ridge	Thursday 24 February	5
Caroona	Wednesday 2 March	7
Blackville	Thursday 3 March	17

They were held in these locations to ensure that the views of the different areas of the Shire were obtained.

The workshop used a technique of group consensus. The attendees were seated at tables in groups of 4 to 6 with other people from the same area. This enabled group discussion of the issues and provided a group focus for the workshop. Following the group discussion feedback from each table was written down on butcher's paper and shared with the rest of the workshop participants. This technique was used for all of the workshops, except for the Spring Ridge one where the facilitator wrote down the responses of the community because of the low numbers attending.

The workshop was facilitated by an independent facilitator who gave an overview of the workshop.

> *"Tell me and I'll forget,*
> *Show me and I may remember,*
> *Involve me and I'll understand"*
> Anon.

The next step in the workshop was to ask the participants to think about their vision for their part of the Shire in 10 to 20 years time. Questions to be answered to help define this vision were as follows:

- Do you want to see Rural Residential and Urban Development in your area? If so, where should it go?
- Do you want to see more economic development in Quirindi and Werris Creek? If so, what types?
- Are there any services or facilities that you need in your area?
- Are there any environmental attributes that should be conserved? What are they?
- What types of future land uses would you like to see?
- Are there any uses that are inappropriate? Which ones?

The participants were encouraged to write down their own individual answers to these questions to identify for themselves their own vision. Then people were asked to discuss their vision within the group around their table to come up with a group consensus and to write the group consensus views down on the butcher's paper provided. These were then shared with the whole workshop by a group spokesperson.

The participants were then asked to consider the Action that could be taken to achieve the vision. They were asked specifically what they as a community could do to achieve the vision and what the Council could do. These were also written down on the butcher's paper and presented to the whole workshop.

In addition to the workshop participants providing their comments on the vision and action for the future of the Shire, a technique was used to provide the Council with feedback on particular photographic images of elements of the Shire. The photographs were mounted on pieces of paper, which were placed on the walls. Participants were asked to write what the photographs meant to them on the paper surrounding the photographs during the workshop.

A summary of the outcomes of each workshop group is presented in the separately published Community Consultation Report. There are a number of themes that run through the workshop responses, which are listed in no particular order below:

- Preserve the black soil plains – State significant agricultural lands
- Provide for alternative agriculture including value adding
- Promote tourism in towns and rural areas
- Provide better water supplies in villages
- Provide sewerage in Willow Tree and Wallabadah
- Light industry and retail needed in villages
- Keep the rural character
- Provide roadside garbage service in villages

- Concentrate economic development in Quirindi and Werris Creek being places for major employment generating industries
- Preserve heritage values
- Improve electricity and telephone services in rural areas
- Maintain the peace and quiet of the area
- Keep small villages small with some to be expanded
- Provide a range of rural residential uses around villages
- Improve roads and drainage
- Provide a wide range of community services and facilities
- Improve health services especially for aged

The photo board technique was used to find out the community's views on a number of images that are representative of the Liverpool Plains Shire.

The images included:

- Shops
- Rural Roads
- Creeks
- Rural Landscapes
- Buildings
- Travelling Stock Routes
- Train Station
- Recreation areas
- Irrigated cropping
- Broadacre cropping
- Native Vegetation areas
- Schools
- Hospital
- Grain Silos
- Community Halls

The detailed responses from each of the photo boards is included in the Community Consultation Report. As a general statement it can be said that the community wants to keep the shops and pubs in the villages as well as the towns. Unsealed rural roads need upgrading and better access across the floodplains needs to be provided. Creeks are an important part of the rural area and erosion of banks needs to be minimised. The rural landscapes need to be preserved and old buildings should be maintained. Travelling Stock Routes should be preserved. Rail is important and needs to be improved. Recreation areas are important to the community. Irrigated cropping was seen as important but there is a need to ensure that the water is used sustainably. Broadacre cropping and the grain silos are important and should be supported and kept. Schools, hospitals and community halls are all needed and should be supported rather than lowering the levels of service provided.

The Community Consultation Report provides a full description of the outcomes of the workshops and has been published as a separate report which can be found on Council's website.

Chapter 7: Development and Planning Issues

7.1 Introduction

The issues, which have to be considered when we discuss the future of Liverpool Plains Shire, can be grouped into two broad headings of:

- Environmental Opportunities and Constraints
- Social and Economic Factors

There are a number of uses and issues which influence the settlement pattern of Liverpool Plains Shire. The resources necessary to use the land are finite and need to be conserved. There are a number of constraints to the use of the land and the resource.

Underlying all of the issues are the philosophies of Ecologically Sustainable Development (ESD) and Total Catchment Management (TCM). It is shown graphically in figure 7.1. The figure illustrates the interconnectedness of the issues and the fact they all must be considered in relation to each other and cannot be considered in isolation.

ESD embodies the three concepts of:

- Environmental conservation
- Social equity
- Economic prosperity

All three are interrelated and have to be considered as such. The environment in which we live has to be treated carefully so we can ensure it is left in a good state for the future generations. However, for there to be future generations, we must have settlements in which to live – be they urban areas or rural residential use or in houses scattered throughout the countryside. If we are going to live in an area, there also must be a market economy. There is a need to find the balance between these three so we can have a sustainable future and can leave an intact environment to the future generations.

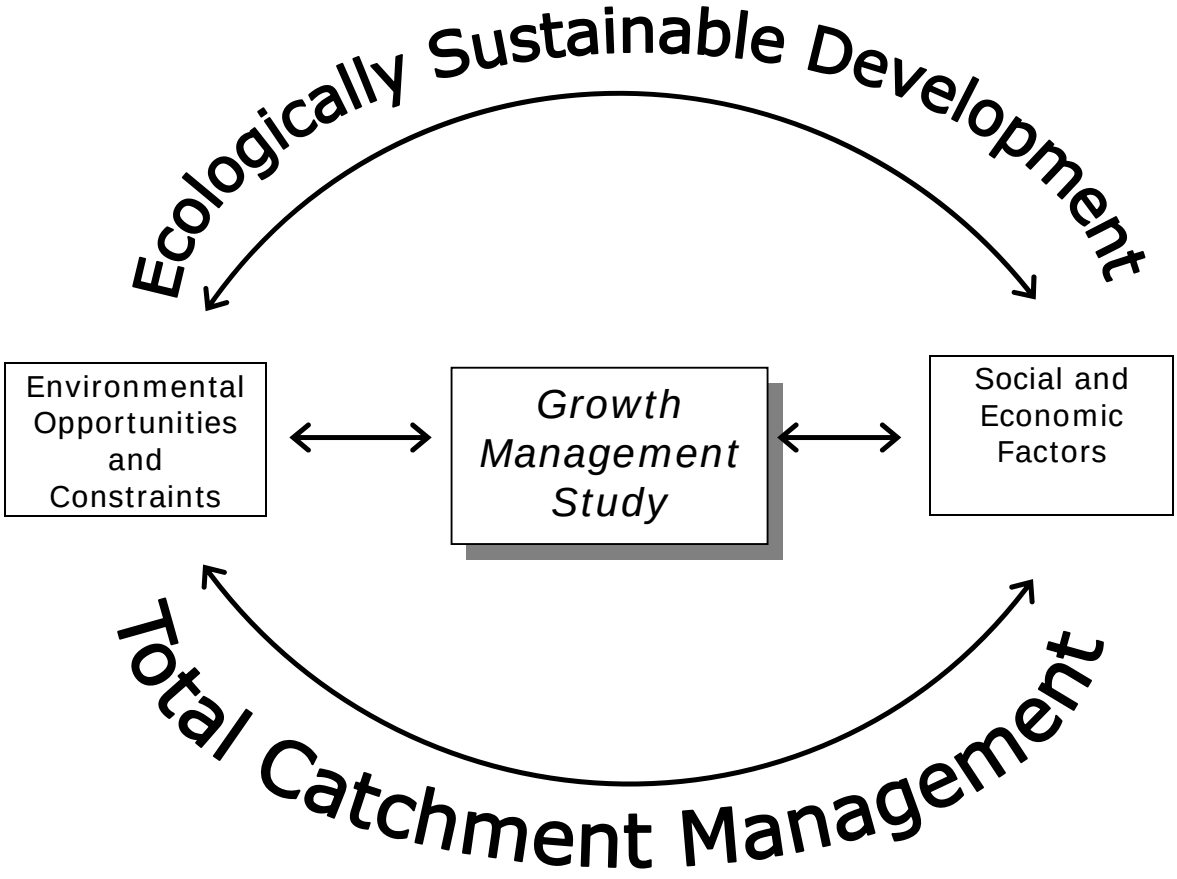


Figure 7.1: Issues and Themes for the Growth Management Study
Source: Sinclair 2002d

7.2 Environmental Opportunities and Constraints

The resources to enable the land to be used have to be conserved so that future generations can also enjoy and use the area. The principles of ESD and TCM are implicit to this section. ESD is discussed in detail in chapter 4.

All land is within the various water catchments. Therefore, all development will have an impact on these catchments. Some uses have the potential to cause harm whilst others do not. Potentially harmful uses can be designed to minimise the impact of the use on the catchment.

The philosophy of Total Catchment Management (TCM) is one that should underlie all planning for rural land and settlements. As such, it is an issue which is very important to the Liverpool Plains Growth Management Strategy.

The following is a discussion of the physical constraints for settlement of and development in rural areas of Liverpool Plains Shire. It considers the range of matters that have to be looked at before any decision is made as to the future use of the land. Some also have implications to the current management of the land.

7.2.1. Climate Change

> *"An overwhelming body of scientific evidence now clearly indicates that climate change is a serious and urgent issue. The Earth's climate is rapidly changing, mainly as a result of increases in greenhouse gases caused by human activities"* (Stern, 2007 p3)

The recently published document titled *The Economics of Climate Change – the Stern Review* provides a good overview of the climate change issue, particularly how it may have an impact on the sustainability of the Shire. The document notes the following points:

- Climate models show that the Earth's temperature is likely to rise by 2 - 5^{o} Celsius in global mean temperatures between 2030 and 2060;
- Warming of the Earth is very likely to intensify the water cycle, which will have the impact of more droughts and floods;
- Rainfall is likely to increase in high latitudes whilst regions with Mediterranean climates (like South eastern Australia) will have significant reductions in rainfall;

> *"As the world warms, the risk of abrupt and large scale changes in the climate system will rise"* (Stern, 2007 p3)

The CSIRO have recently released a report dealing with the impacts of climate change on the Australian continent. The key findings of the document, titled *Climate Change in Australia* are as follows:

- Australian average temperatures have increased by 0.9^{o}C since 1950, with significant regional variations;
- The east coast, Victoria and south west Australia have all experienced substantial declines in rainfall since 1950;
- Between 1920 and 2000 the estimated average sea level rise around Australia has been 1.2 mm per year;
- Substantial warming has occurred in the 3 oceans around Australia;
- Recent droughts have been accompanied by higher surface temperatures;
- There has been an increase in the frequency of warm days and warm nights and a decrease in the number of cool days and cool nights;
- By 2030 it is estimated that there will be a 1^{o} C increase in temperature from that observed in 1990. This is estimated to increase to 1.2^{o} C – 2.2^{o} C by 2050 and 1.8^{o} C to 3.4^{o} C by 2070;
- By 2030 it is estimated that precipitation will decrease in southern Australia by 5%. By 2050 precipitation is estimated to decrease by 7.5%. By 2070 it is estimated to decrease by 10% in southern Australia;
- There is estimated to be an increase in solar radiation in southern Australia, a decrease in relative humidity and an increase in evapotranspiration by 2030 and increasing in magnitude by 2050 and 2070;
- Drought occurrences are projected to increase;
- Fire weather risk is likely to increase with more risk of bushfires over the period;
- Global sea level is expected to rise by 18 – 59 cm by 2100.

The NSW Government and the CSIRO have also recently prepared a series of reports about the impact of climate change on each of the Catchments of NSW. The document titled *Climate Change in the Namoi Catchment* applies to Liverpool Plains Shire and

was published in November 2006. It was based on work done in 2004 by the CSIRO and the Bureau of Meteorology that predicted that the following in would occur by 2030:

- NSW is likely to become warmer than it was in around 1990.
- There will be more hot days over 35°C and fewer frost days below 0°C.
- Annual rainfall is likely to decline.
- Rainfall runoff and stream flows will be reduced.
- Droughts are likely to become more severe.
- The risk of bushfires is likely to increase.
- Extreme rainfall may become more intense in central and southeast NSW.

The report predicts the following for the Namoi catchment which is based on the following current details:

- average annual temperatures for Gunnedah and Tamworth of 16 – 32° C, and Walgett of 17 to 35° C;
- 13 days with temperatures below 0° C for Gunnedah and Walgett;
- 19 days above 35° C for Gunnedah and 56 days for Walgett;
- No days per year above 40° C for Gunnedah and 13 days for Walgett;
- 636 mm average annual rainfall for Gunnedah, 673 mm for Tamworth and 475 mm for Walgett; and
- 2 droughts per decade for Gunnedah and Walgett;

It is predicted that the following will occur in the Shire (the closest centre identified in the report is Gunnedah):

- Temperature is predicted to increase by 0.2° C to 2.1° C by 2030 and 0.7° C to 6.4° C by 2070;
- Gunnedah is predicted to have 1 – 3 days below 0° C and Walgett 4 – 11 days by 2030 and Gunnedah is predicted to have 0 – 2 days and Walgett 0 – 8 days by 2070;
- Gunnedah is predicted to have 22 – 40 days above 35° C and Walgett 61 – 87 days by 2030 and Gunnedah is predicted to have 29 – 103 and Walgett 71 – 153 days by 2070;
- Gunnedah is predicted to have 1 – 3 days above 40° C and Walgett 10 – 23 days by 2030 and Gunnedah is predicted to have 2 – 26 days and Walgett 16 – 83 days by 2070;
- Annual average precipitation is predicted to vary from – 13% to +7% by 2030 and -40% and +20% by 2070;
- Evaporation is predicted to increase by 2 – 13% by 2030 and 4 – 40% by 2070;
- Number of droughts per decade is predicted to increase by 2 – 4 by 2030 and 1 – 8 by 2070.

The impacts of this on the catchment "… suggests that there will be more hot days, bushfires, droughts and intense storms. These can all place human life, property and natural ecosystems at increased risk" (CSIRO, 2007a p5). Other impacts are as follows:

- There is likely to be less water in streams and rivers, leading to reductions in water allocations;

- There will be positive and negative impacts on the types of crops that will be grown.
- Increases in carbon dioxide are likely to increase plant growth, but the protein content of the plants are expected to be lower;
- Increases in temperature can lead to extended growing seasons but rises in very hot days can have a detrimental impact on crops;
- Dryland grazing is expected to benefit from better growing conditions but this may be offset by higher temperatures;
- Changes in climate will have a significant impact on plants and animals, particularly aquatic species.
- Warmer winters are likely to reduce cold-related illnesses but hotter summers can increase heat-related illnesses, particularly for the elderly;
- The built environment is also vulnerable – in addition to impacting on homes and their design, it will also affect infrastructure, commercial buildings and other physical assets.
- Increases in the intensity of heavy rainfall events will lead to increases in flash flooding which can have an impact on water and sewerage infrastructure;
- Higher temperatures and lower average rainfall are likely to lead to increased pressure on urban water and energy supplies.
- The increase risk of natural hazards like flooding and bushfires may lead to an increase in insurance premiums.

It is clear from the above data that there is a need to change the current practices and adapt to this climate change. It should be noted that there is the opportunity to reduce the negative impacts and take advantage of the new opportunities that may arise. If changes are made and movement towards adaptation are taken, there is the potential to lessen some of the social ,economic and environmental impacts of climate change.

People living in rural Australia have had a history of adaptation to the changing environmental conditions, however the changes are happening faster now. There are some potential adaptation measures outlined in the CSIRO document which are as follows:

- Improving water-use efficiency
- Changing to crops and pastures that are more tolerant of heat and drought.
- Changing planting times and practices for crops and pastures.
- Providing more shade and cooling for livestock and windbreaks to reduce wind speed and evaporation.
- Providing migration corridors for vulnerable animal species.
- Reviewing flood and fire management arrangements.

Whilst it is acknowledged that Liverpool Plains Shire Council cannot do a lot to directly impact on climate change, it can help in spreading the message about the issue and leading by example.

7.2.2. Water Catchments

There is one major river flowing through the Shire which is the Mooki River. This enters the Namoi River and the shire is wholly within the Namoi Catchment. There are also a number of smaller creeks that traverse the shire. Photo 7.1 shows the Mooki River.

Photo 7.1: Mooki River
Date of Photo: January 2005

The provision and conservation of water is a major issue for the future of the Shire. There is a need to ensure that the integrity of the waterways are protected from inappropriate landuses.

There are many things that can cause the waterways to become stressed. Some are as follows:

- Nutrient from rural residential, waste disposal and intensive agriculture;
- Dams and water diversions;
- Extraction from rivers and streams – both licensed and unlicensed;
- Turbidity caused by soil erosion;
- Filling of land;
- Inappropriate development controls on existing uses.
- Loss of indigenous riparian vegetation.

The issue of preserving the natural flows of rivers is one that is impacted upon by a number of issues, including the number of rural dams which have the effect of holding back and trapping a large amount of water, especially during and after a long period of dry weather. The NSW Farm Dams Policy has been introduced to address this. It will only have an impact on new dams and not existing ones.

The protection and preservation of riparian land and its management is a major issue that has to be considered. Riparian vegetation is an important part of the catchment as it provides a filter for the waterway by trapping sediments and nutrients that may have otherwise entered the water system. It also provides for bank stability as well as a habitat for wildlife.

The groundwater resources of the area are an issue that needs to be considered in a regional context, but one that the use of land in the Shire can have an impact on.

Groundwater is also part of the wider ecosystem and any changes to it will impact upon other aspects of the environment.

The catchments have varying degrees of settlement which includes towns and villages as well as rural subdivision. This is an indicator of the amount of stress that the catchment is being placed under.

Quipolly Dam is located to the east of Werris Creek and to the north-east of Quirindi. It provides the water supply to Werris Creek and is also being considered as a back up supply for Quirindi. There is a need to ensure that the catchment of this water supply dam is protected from inappropriate development.

The Catchment Action Plan to be prepared by the Namoi CMA should address these issues.

7.2.3. Native Vegetation and Biodiversity

Native vegetation is an important component of the Shire. It provides habitat for native flora and fauna as well as being a landscape and visual feature. This can be seen from Photo 7.2 which is in the south western part of the Shire.

Photo 7.2: Native Vegetation
Date of Photo: January 2005

Major pressures on native vegetation in the Shire arise from clearing the land for a dwelling site, agriculture and service infrastructure. Secondary impacts of human activities such as the spread of garden weeds, domestic pet and livestock damage and pollution from on-site sewage systems all need to be considered in a strategic approach to the planning of Shire.

In the context of Liverpool Plains Shire, it is important to recognise that all landuse decisions will have an impact on the biodiversity of the area. It is important therefore to take into consideration the impact on biodiversity when thinking about changing the use of the land. There is also a need to monitor the impact of development. The

Biodiversity Planning Guide for NSW Local Government notes that effective conservation of biodiversity requires integrated environmental assessment and management. It lists key issues that need to be considered in making landuse decisions and these are as follows:

- Protection of biological diversity is essential for achieving ecologically sustainable development.
- Biodiversity provides "ecosystems services" of inestimable and economic value such as flood control, erosion control, water quality control, insect control, carbon absorption and climate stabilisation.
- Natural areas, which are larger, less disturbed and more connected, are more likely to retain a higher degree of biological diversity in the long-term.
- Biodiversity is, as an expression of the unique Australian environment, an intrinsic part of the Australian culture. It supports recreation, tourism and national identity.
- Biodiversity maintains the gene pool of wild plants and animals. This is a useful resource for future generations.
- Greater biodiversity provides more resilient environments that are capable of better withstanding unpredictable events.
- All parcels of land are important for protection of biological diversity, not just those of greater significance.
- Ecosystems are characterised by local uniqueness and complexity. Landscapes are a non repeating mosaic displaying individual site specific responses.
- Ecosystems interact and change over time. They have the ability to sustain themselves and to reproduce, migrate in space and evolve in response to changing conditions.
- Maintenance of natural assets and habitat is required across the landscape, not just within national parks and other reserves. All land parcels within natural areas have a role, not just those of greatest significance or pristine qualities.
- Most species diversity is found amongst invertebrates, fungi, and micro-organisms. Such organisms are critical to the growth and productivity of whole ecosystems.
- Corridor systems can provide landscape connectivity. They require retention and maintenance of existing links, and the restoration of links.
- Current trends in species decline and extinction result from land use practices that have occurred over long periods. The full effects of recent decisions may not become manifest for many decades.

The biodiversity of Liverpool Plains Shire needs to be protected when carrying out any planning exercise. This means that any decisions to reduce the subdivision minimum have to consider the impact on the biodiversity of the area. This also holds true for clearing of land for extractive industries, agricultural uses as well as other rural uses. There are also implications for the conservation and expansion of existing wildlife corridors or linkages. There is significant vegetation and biodiversity habitat in road reserves and travelling stock routes which should be conserved as they can form wildlife linkages. Large areas of bushland remain on private land. In addition the Native Vegetation Act helps to conserve the vegetation.

7.2.4. Topography

The topography of the shire varies from steep land in the east and south to flat open plains to the west southwest and north. Photo 7.3 and 7.4 show these.

The topography of an area is important because land with a slope can become unstable and when the soil is disturbed, can lead to erosion. A lot of sloping land is also heavily vegetated and so this has to be considered.

Effluent disposal on sloping land can cause it to become damp which can lead to erosion and slippage.

The variety of landforms within an area can contribute to the rural landscape character and provide a setting for the settlement areas.

In an area like Liverpool Plains, which is relatively flat in the west, the topography can have an impact on drainage.

Photo 7.3: Topography in the east of the Shire
Date of Photo: January 2005

Photo 7.4: Topography in the west of the Shire
Date of Photo: January 2005

7.2.5. Soils

The maintenance of soil is a major consideration and there is a need to consider the impacts of land degradation, especially soil erosion and salinity. It is both a management issue as well as being associated with the future development of the land.

The soils of the flat land to the west, north and south of the Shire are very fertile and are considered to be some of the best soils for agriculture in the State. They are significant from a State and National perspective. Since the early 1950s considerable soil conservation works have been undertaken to sustain and increase the productivity of the soils on the Liverpool Plains.

Soil erosion and sedimentation is an issue which becomes worse, as the uses become more intensive and where inappropriate land management occurs. It is also an issue for the more steeply sloping land and the construction of dwellings, particularly rural residential uses which tend to be on smaller lot sizes.

Soil erosion becomes more of a problem in areas where the soil is of a poor quality and any disturbance of them often leads to more rapid land degradation.

Land capability is an important aspect of development and its impact on soils. Development should only be done on land that is capable of supporting it. For this reason, land that is steep or prone to erosion should be avoided. In addition, land on the banks of rivers and creeks should only be developed if there has been adequate ameliorative measures put in place to ensure that it does not have any impact on the quality of the water in the waterways. Farming will be the use that has the most impact on land capability. For this reason, it is important to encourage the use of best practice in farming, such as using minimum or no tillage when planting crops. This will ensure that the health of the soils is improved.

This is an issue for the environmental as well as the human impact of development.

7.2.6. Landscape Character

The predominant rural character of Liverpool Plains Shire is created by the numerous rural activities, large lot sizes, vegetation and expansive views. The landscape changes with the varying topography of the Shire – it is open and flat in the south and in the north has some hills which create different landscapes.

The unique landscape character of the Shire is a visual resource as it generates tourism, development and environmental management. The visual resource also plays an important role in promoting environmental awareness and well being for residents and visitors. This varies from the steep vegetated areas to the simplicity of grazing lands and formal patterns of agricultural crops.

The retention of roadside vegetation is an issue which may require future negotiations with service providers.

Controls which may be considered for retaining the rural character include:

- Planting controls for screening undesirable elements and incorporating buffers to significant environmental communities,
- Building controls for siting and advertising,
- Planning controls for lot sizes, the design and siting of residential dwellings and ancillary buildings, in relation to the visual amenity of road corridors.

It is important to recognise the visual amenity of open paddocks, post and rail fencing, distant views, heritage items and rural activities.

It can be seen therefore that the preservation of the landscape character of the Shire is of importance.

7.2.7. Bushfire Hazard

The protection of the identified community assets is a key issue as is the preservation of biodiversity within the Shire.

Managing the bushfire risk is noted as the key factor in dealing with the bushfire hazard. One of the management options is risk avoidance and therefore, land that is prone to bushfires should not be rezoned and subdivided where an adequate fire protection zone cannot be established.

Bushfire Risk Management includes the identification of the level of risk posed by bushfires to the assets and establishing strategies to protect those assets from the adverse effects of the fires. The purpose of bushfire risk management is to protect the community and its values from the adverse effects of wildfire. One key element of bushfire management is to achieve better integration of community preparedness and prevention strategies.

The Rural Fire Service has recently published a new set of guidelines titled *Planning for Bushfire Protection*. The guideline was produced by the NSW Rural Fire Service with Planning NSW to guide development in bushfire-prone areas. Planning for

Bushfire Protection brings all the development planning protection measures into one publication. It provides councils and developers with information on bushfire protection from plan-making to development design, development control, construction certificates, and property maintenance.

Key features of *Planning for Bushfire Protection* include:

- identification of bushfire-prone areas;
- planning principles to be considered when councils are rezoning;
- latest hazard assessment method to work out appropriate setbacks;
- location of developments in areas of bushfire hazard based on latest CSIRO research on bushfire behaviour;
- appropriate level of building construction relevant to setback distances;
- special setback distances for special use developments (such as aged care facilities).

Photo 7.5 shows a house that was burnt in the 2001 - 2002 bushfires in the Sydney Region. It points out the need for an adequate asset protection zone.

Photo 7.5: The devastating impact of Bushfires in Warragamba
Date of Photo: December 2001

The Shire is located in the Liverpool Ranges Zone of the Northern Region of Operations for the Rural Fire Service. This zone includes the Shires of Upper Hunter, Liverpool Plains and Gunnedah and is headquartered at Willow Tree. The Shire has a well established network of Rural Fire Service brigades with tankers and volunteer bushfire fighters.

7.2.8. Flood Prone Land

Flooding in the Shire is a considerable issue. It is of particular importance in the west of the Shire on the flat plains where roads can become impassable and washed away by floods. There is also some local flooding in Quirindi and Werris Creek that causes some concern.

The New South Wales Government has recently published an updated floodplain management manual titled *Floodplain Management Manual April 2005: the Management of Flood Liable Land*. This manual outlines a procedure that Councils must follow to prepare a Floodplain Risk Management Plan and introduce appropriate controls within planning instruments. The resulting Floodplain Risk Management Plans are to address existing, future and continuing flood risk for flood prone land. It also requires an assessment of the probable maximum flood and the decision to address it recognises that these rare events should not preclude or unnecessarily hamper development within these areas.

The Council has prepared a Flood Study for the town of Quirindi but have not yet prepared a flood plain management plan. The flood study identifies the land inundated by the 1% and 5 % Annual Excedence Probability (AEP) Floods and will be a constraint for future development areas in the town of Quirindi.

The Rural Floodplain Management Plans outlined in chapter 2 provide the basis for approving private flood control works under the provisions of the Water Act. These Plans control all works on the floodplains. These are licensed works under the provisions of the Water Act and Water Management Act.

7.2.9. Salinity

Salinity is a threat to the health and productivity of many catchments, and to the rural and urban communities that live in them. It is affecting rural landholders, urban developments, infrastructure (roads and bridges), water users and the environment. In NSW, between 120,000 and 174,000 hectares of land are estimated to be affected by dryland salinity. If land is continued to be used the way it is now, by 2050 the area of affected land in the NSW part of the Murray-Darling Basin could increase to 2-4 million hectares. Irrigation salinity is estimated to affect 320,000 ha, or 15% of irrigated land. About 70-80% of irrigated land in NSW is threatened by rising watertables and associated salinity problems. Many NSW rural towns are also experiencing the effects of rising watertables causing salinity and waterlogging. This is resulting in corrosion damage to buildings, amenities and infrastructure such as roads, paths, pipes and bridges. (NSW Salinity Strategy).

Salt is an inherent part of the landscape, however there are a number of factors that are going to contribute to the development of salinity. Factors such as position in the landscape, soil type change, change in slope, geological constrictions will all contribute to the natural development of salinity. When there are human-induced interference through obstruction of natural drainage, exposure of saline subsoils, erosion, increased sub-surface and surface flow, then these natural processes can be increased so that salinity develops quicker. In addition where additional salts or water are added from urban and industrial activities the development of salinity can be increased.

In a study by Murray-Darling Basin Commission of the Namoi catchment, local governments were found to incur costs of at least $1.42 million per annum as a result of salinity (Wilson 2002). Within the Namoi Catchment there are a number of towns where urban and industrial salinity is already expressing itself. The Department of Infrastructure, Planning and Natural Resources (pers. comm.) indicates that parts of Tamworth, Gunnedah, Manilla, Barraba and Narrabri are expressing signs of salinity. Other towns, including Quirindi, have been identified as potential sites for urban salinity as a result of known soil types that exist in these areas, position in the landscape and results obtained from groundwater monitoring.

The occurrence of dryland salinity in the Liverpool Plains Shire is localised and spatially highly variable. Salinity hazard mapping has shown areas of high salinity hazard are located on the footslopes of the Liverpool Ranges and the associated alluvial floodplains along the Willow Tree to Blackville Road. Similarly the footslopes from Wallabadah through Quirindi to Werris Creek are also of high salinity hazard. Groundwater salinity in the area ranges from fresh to saline, with some localised shallow watertables having extreme salt levels.

7.2.10. Contaminated Land

This issue is related to the previous use of land. It is an issue because of a lack of understanding of the issue in the past. It is important to recognise in rural areas because of the potential health risks to future residents of the land, especially that land which is to be used for rural residential use rather than continue as purely rural.

The State Government has released a State Environmental Planning Policy (SEPP 55) which sets a procedure to be followed for both development and rezoning issues.

The Council has guidelines on contaminated land that explains the issue. The guidelines have been prepared to outline the objectives, standards and procedures for the assessment and remediation of contaminated land and land suspected of being contaminated due to the past land uses or land fill. The guidelines are based on “Managing Land Contamination – Planning Guidelines” prepared by Planning NSW and NSW EPA.

7.2.11. Environmentally Sensitive Areas

The Departments of Environment & Climate Change, Primary Industries and Water & Energy have prepared a set of maps of environmentally sensitive areas to aid in the management of natural resources. This set of spatial information has been provided to assist Councils to identify environmentally sensitive land.

The maps will show the location of areas which have significant land, water or biodiversity constraints. Development should avoid these environmentally sensitive areas and the maps can be used as a strategic tool when identifying areas for more intensive development – urban and rural residential as well as rural dwellings.

The Environmentally Sensitive Land maps can also be used when assessing development applications. The maps can identify land that may require further assessment or investigation or that should be avoided.

The Environmentally Sensitive Land has been grouped into 3 categories of land, water and biodiversity. The detailed mapping is not yet available from the Departments and its accuracy cannot be guaranteed for detailed application for overlays or zoning purposes in a LEP. It is understood that they have been prepared from base mapping that was captured some years ago using paper mapping and has not yet been verified or checked for accuracy using satellite or aerial photography. This means it cannot be used for zoning or overlay purposes because of the potential legal issues involved with using inaccurate mapping in a LEP which will create land use controls on land. However they are useful as a guideline for determining basic constraints which can be further investigated or as a guide in assessing a development application.

7.2.12. Weeds

Weeds are one of the most serious threats to Australia's natural environment and primary production. They can destroy the native species, contribute significantly to land degradation and reduce farm and forest productivity. The National Weeds Strategy has identified the problem and states that the cost of weeds to Australia is approximately $3.3 billion per annum. The New South Wales weeds strategy estimates the value of control and lost production at $600 million per annum. Both the National and State strategies identify funding, education and better coordination of control programs as being important.

There is a need therefore to consider the preparation of Weed Management Plans for developments that have the potential to cause the spread of weeds by clearing large tracts of land or that generate effluent in sufficient quantities that may kill native vegetation which then allows for the weeds to invade the bushland.

There are a number of weeds within the Shire that are becoming a problem. Council has an active Noxious Weeds division that undertakes approximately 50 property inspections per year. Control Plans have been developed for Noxious Weeds and the Council is developing partnerships with the Namoi CMA to control emerging environmental weeds.

7.3 Social and Economic Factors

The interaction of humans with the environment is an important component of any strategy dealing with the future of the Shire.

7.3.1. Land Use

There are a variety of land uses in the Shire. The main one is agriculture which is made up of cropping (wheat, barley, sorghum, maize, oats, canola, soy beans, sunflower, cotton and lucerne) and grazing (sheep and cattle). Other uses include tourism related and agricultural service and processing uses and grain silos. There are also urban (residential, commercial and industrial) uses but not many small rural holdings (rural residential uses) compared to other Council areas.

All of these uses have an impact on each other and the environment. This is an important issue and the resultant rural land use conflict from some of them is perhaps one of the most important issues to be addressed by the Conservation and Development strategy. Finding the balance between these often competing desires for rural land is the key to planning for rural areas.

7.3.2. Agriculture and the Black Soil Plains

The majority of the land in the Shire comprises the 'black soils' of the Liverpool Plains which are characterised by black cracking clay soils. This basically covers all of the flat land in the Shire and its features are as follows:

- Low surface gradients with slopes less than 2% being common. The impact of these wide plains of low surface gradient is slow moving surface water flows along the depression lines, more so than defined watercourses.
- Variation in the depth of the alluvium is known to exceed 40m.

These soils extend along the whole Namoi Valley catchment and this makes it one of the most productive areas of Australia and has the highest yields per hectare for cropping in the country.

Since the early 1950s to today the State Government, land holders and local Councils have invested heavily in soil conservation works to sustain and increase the productivity of the soils of the Liverpool Plains. Farmers have also adopted conservation farming practices such as strip cropping, stubble retention and zero till cropping systems utilising specialised cropping equipment. This has enabled the farming enterprises of the Liverpool Plains to become efficient, sustainable, high yielding and typically grow summer and winter crops.

The black soils of the Liverpool Plains are reputedly one of the only areas in the country where such a wide spectrum of broadacre winter and summer crops can be grown. These crops include wheat, barley, oats, triticale and corn, sorghum (which is typically 50% of NSW total crop from the Shire), cotton, the oilseeds soya beans, sunflowers, canola and pulses mung beans, chick peas and faba beans. The soils are also able to withstand irrigation and there is a significant amount of irrigated cropping. The Liverpool Plains Shire does not have as much irrigation as Gunnedah or Narrabri Shires to the west but it is still a significant part of the cropping. These cropping activities also provide feed for a number of more intensive animal uses like cattle feedlots, poultry, pigs and dairy cattle. There are a number of major grain milling uses in the region that source their produce from the local area. The area is also a large user of farm inputs including fertilizers, farm chemicals, seed products, and general farm merchandise. This all adds value to the importance of the black soil plains.

The Liverpool Plains is often compared to the highly productive 'corn belt' of the USA. Sorghum crops grown on the Liverpool Plains can set the world commodity prices.

There is a need to ensure that this resource is not depleted and that agriculture should remain as the major commodity that is produced on the Liverpool Plains. The threats include subdivision into non-sustainable agricultural holdings as well as competition for resources such as coal mining. This will be discussed later in the chapter.

7.3.3. Rural Land Use Conflicts

The presence of agriculture and non-rural land use in the one location can often generate conflict due to their potential incompatibility. This is particularly evident with intensive agriculture such as poultry, cattle feedlots and irrigated farming. Agriculture

can affect adjoining non-rural uses, such as mining and small rural lots used for residential purposes. Similarly, the presence of mining and small rural lots creates an adverse influence on the continued operation of the agricultural enterprise. The issue of land use conflict can arise when there is no separation between incompatible uses, let alone the misunderstanding, which may exist about the purpose and character of a district. Land use conflicts may arise in such situations through noise, odour, farm chemicals, access, land degradation due to mining, light, visual amenity, dogs, and stock damage and weed infestation, to name just a few.

Land use conflict can occur between forms of rural land use.

One issue that has to be addressed is the basic planning principle of the new use blending in with the current one. This has not happened in the past with dwelling houses being permitted to locate next to boundaries with no consideration of the impact it may have on the agricultural use on the next door property. This leads to rural land use conflict and experience in other areas has led to the agricultural use having to move or mining use cease.

7.3.4. Rural residential development

> *"The residential use of rural land is called rural residential development; that is, people live on rural lots, but use the land primarily for residential rather than agricultural purposes. Although some engage in 'hobby farming', most derive their income from pursuits not carried out on the land. The main distinction between urban housing and rural residential housing is bigger lot size and larger distances between dwellings. This creates a sense of openness and of living in the landscape rather than in an urban area.*
>
> *Rural residential development can be divided into two main categories: rural fringe and rural living. Rural fringe development is characterised by single detached houses and dual occupancies on lot sizes of approximately 4000 square metres to 1 hectare laid out in an estate. This estate usually joins or is in close proximity to an urban area. Rural living, on the other hand, features single detached houses and dual occupancies on lot sizes between 1 hectare and 40 to 100 hectares and can adjoin farmland or vegetated areas. People living on these lots use the land primarily for residential purposes, although they may graze some cattle or have horses. This requires lot sizes of more than 2 hectares if land degradation is to be avoided. The lots do not adjoin townships or villages and are scattered throughout the rural landscape."* (Sinclair and Bunker, 2007 p)

These lots are "… inhabited by an essentially urban population … in these pleasant homesteads dotting the landscape … the new country residents are commuters and weekenders rather than farmers." (Auster and Epps, 1993, pp 77-78)

Rural residential development has both positive and negative impacts. It has to be said that the negative impacts outweigh the positive ones. However, it provides a choice of housing and therefore should be provided but in appropriate areas which do not take away good quality and productive farmland as well as areas of high biodiversity value.

On the positive side it provides for a lifestyle choice for a number of people. It also provides for a place of business for residents who run home offices and for tradespeople who need land to store plant and equipment as well as supplies. It can also contribute to the local economy. Anecdotal evidence is also that the newer purchasers of rural residential lots have a higher income and more time to devote to the local schools and community groups.

The negative impacts can be broken into financial, community and environmental. These impacts become more problematical as the lots get smaller.

There have not been any recent studies into the costs of providing rural residential development in Australia. However, a study in the United Kingdom compared clustered and dispersed growth. This found that overall, the annual costs would be one third higher for the dispersed settlement pattern than a concentrated one. The study also found that, in terms of public costs, a scattered settlement pattern is 395% more expensive for capital and 236% for ongoing costs than a concentrated one.

There are community costs associated with rural residential development. They include the provision of services and facilities to the areas that are normally located some distance from towns and villages.

The environmental costs associated with rural residential development are related to the initial development and ongoing use of the land. During construction of a rural residential area, especially rural urban fringe development, there can be soil erosion and land degradation.

The provision of water for rural residential development in Liverpool Plains is for it to be supplied with a low pressure reticulated water supply (where available) which is usually sourced from groundwater or a minimum size tank for potable purposes. The Department of Infrastructure, Planning and Natural Resources has put an embargo on the extraction of water from groundwater from alluvium, which is associated with the Mooki river catchment in the south of the Shire.

The ongoing impacts of rural residential development stem from the onsite effluent disposal, soil and water management and domestic pets. Most rural residential development has onsite effluent disposal and this can be a concern if there is not a large enough area of land available for disposal. There is also a concern about the cumulative impact of having a large number of onsite systems in one area as can occur with rural urban fringe. There can be impacts on adjoining bushland from the nutrients coming off the site as well as from weeds and groundwater pollution. Native wildlife can be eaten by domestic pets.

The building of houses and associated structures in the rural area can have an impact on the landscape, especially when the land is hilly. The introduction of a number of new buildings can detract from the landscape quality of an area.

Rural residential development can also cause rural land use conflict if it is located in close proximity to intensive agricultural, mines and quarry uses. Siting the house too close to the agricultural uses can cause this.

In a majority of cases, the people who buy a lot used for rural residential are not aware of the issues associated with it as outlined above. Issues such as the need to service the on site effluent disposal system and the impact of pets on wildlife and weed eradication are common ones where the people don't fully understand.

7.3.5. Coal Mining

Liverpool Plains Shire is in the Gunnedah Basin, which has been labelled- as the 'New Coal Frontier'. Whilst it is acknowledged that coal mining has occurred in the basin for more than 120 years, the recent strong demand for coal in the world marketplace has stimulated investment in the Gunnedah Basin's coal resources. The Basin is estimated to contain 12% of NSW total Coal reserves. (DPI 2006, p63). Having regard to the fact that the reserves in the Gunnedah Basin have not yet been mined to any great extent, it makes it an important coal area in the future.

Coal mining is an emerging industry in the Shire. There is one mine at Werris Creek which is a small open cut mine that is producing approximately 1 million tonnes per annum. As outlined in chapter 2, in August 2006, BHP Billiton has been granted an exploration license for a significant area of sandstone ridges and the black soil Liverpool Plains in the Caroona area to the north west of Quirindi. The company is currently undertaking exploration of the area in order to determine the extent of the resource. The company is also conducting an environmental assessment of a number of aspects of the local environment including water and noise, flora and fauna and cultural heritage. Community consultation has occurred and a number of newsletters published.

Coal mining has the potential to be a major contributor to the local economy. This includes jobs as well as for ancillary industry and the multiplier effect of this on the local economy. The coal mine currently operating in Werris Creek has had a positive impact on the local economy, although this cannot be quantified in detail. Should coal mining be approved at Caroona and at other sites further down the Valley in Narrabri and Gunnedah Shires, there will be a positive economic impact on the Shire's economy. However, as there has been no determination of the extent of the resource yet, it is not considered that any concrete action be taken to address any economic development strategies for coal from the Caroona site.

Coal mining can also have a detrimental impact on the local environment. This can include tree removal, loss of soil and subsidence. One of the major concerns about coal mining under the black soil Liverpool Plains is the potential for it to have an impact on the groundwater. There is also concern about impact on surface flows, particularly if long wall mining is to occur and surface flow paths are altered due to subsidence. Under the provisions of the EP & A Act 1979, the environmental impacts of a proposed coal mine must be evaluated during the assessment of a development application. The Department of Environment and Climate Change (DECC) publication *'Guidelines for the Assessment and Management of Groundwater'* notes that in Appendix 2 major aquifers of drinking water quality include the Upper Namoi and that these require protection. The Upper Namoi aquifer provides drinking water for the towns of Quirindi and other villages as well as the many rural properties in the Shire. Groundwater is used for a variety of purposes such as town water supplies, stock and domestic water for farmland, irrigation and industrial uses. For this reason the Council has asked that the full impact on the local environment be examined prior to any

consent being issued for coal mining at Caroona. It is the Council's view that any application to mine in the Liverpool Plains must address the following:

- Sustainable management of any mining to ensure that the inherent capacity of the groundwater and soil resources of the black soil plains is preserved for future generations.
- Detailed environmental assessment to address regional impacts, particularly the groundwater resources.
- Clearly demonstrate the public costs/benefits of mining on the black soil plains, given its inherent agricultural capacity.
- Provide a mechanism, should pollution occur, to enable affected parties to seek compensation from companies or individuals protected under the defence of statutory authority.

The mining of coal and its associated activities including processing, transport and rehabilitation have significant environmental impacts that will present many challenges for environmental protection and conservation.

Any more production of coal within the entire Gunnedah basin (including Gunnedah and Narrabri Shires) will create a need to upgrade the rail transport network from the Liverpool Plains to the port of Newcastle. A new rail corridor could be required to be established through the Liverpool Ranges and this will create local concerns. Australian Rail Track Corporation (ARTC) has undertaken a feasibility study for route selection. Already concerns have been expressed regarding the delays at level crossings and the impact of longer trains as well as coal dust from open coal rail carriages.

A strong and active residents group has formed in response to the announcement of the exploration license for the Caroona coal project. The goals of the Caroona Coal Action Group as stated on its web site are as follows:

- *"To recognise and acknowledge the concerns of the landholders, residents and stakeholders of the proposed mining area and give them a united voice.*
- *Champion the need for a full ranging and independent hydrological study of the complex series of aquifers that exist in the exploration area.*
- *Ensure that the heritage, both cultural and spiritual, of landholders and residents are acknowledged by BHP Billiton in their quest for coal.*
- *Encourage all stakeholders to investigate fully their legal rights in this process.*
- *Provide a wider representation of the local landholders than the 4 positions that have been provided for through the community consultation process to be chaired by Garry West.*
- *Push forward the message of significant environmental damage to the alluvial aquifers that may occur in the process of removing the estimated 500 million plus tonnes of coal." (*Caroona Coal Action Group Website www.ccag.org.au)

The Department of Primary Industries (DPI) has established the Caroona Coal Consultative Committee to provide a forum for discussion between the company carrying out the exploration (BHP Billiton), community representatives, other interested stakeholders and relevant Government Agencies. The process includes exchange of information, identification and addressing potential concerns and to act as a conduit to assist BHP Billiton to improve communication, education and notification of the general community.

The current world demand for coal is steady and continues to rise. The New South Wales Government will continue to seek to recover the State's resources. It has called for tenders for an exploration area at Breeza known as Watermark, which is in the Gunnedah Shire.

Also of note is the increased interest and activity in the exploration and recovery of coal bed methane in the Shire.

If coal mining projects currently under exploration are approved, they will have a significant impact on the Shire and the strategy May need to be revised if any approvals are granted.

7.3.6. Towns and Villages

There are a number of villages and rural settlements in the Shire which have been outlined in Chapter 2.

There are also a number of areas that have a community hall or bushfire shed which have a vital role as a focal point for the community which lives in the surrounding area.

In order to understand the relationship between the settlements and to provide a strategic context for them, it is appropriate to adopt a hierarchy of settlements. This should be based on the facilities provided in the settlement and the role that it plays, rather than purely population. The shopping facilities that are available are a good starting point. There are three basic shopping trips:

- *Convenience shopping* relates to the daily shopping needs of bread and milk as well as newspapers and emergency purchases not done at other times.
- *Weekly shopping* is for the basic food and household shopping needs and is usually done in a chain supermarket.
- *Comparison shopping* is the shopping trips done for larger items of household and personal items such as whitegoods, furniture and clothing.

A hierarchy of settlements can be based on this as well as other factors and for an area like Liverpool Plains should take the following form:

- *Regional Centre* This provides a wide range of employment, entertainment and recreational opportunities, a full range of local services and higher order services such as Major Hospital, TAFE College as well as a high school and major indoor recreation facility and often has a University campus. It also has regional offices of State Government Departments. It has a large mixed commercial area providing service, retail and office uses with a large chain supermarket and a discount department store. It caters for convenience, weekly and comparison shopping. It draws its catchment from the surrounding Local Government Areas.

- *District Centre.* This provides a range of employment, entertainment and recreational opportunities, a full range of local services and some higher order services such as high school and health care as well as a major indoor recreation facility. It has a large mixed commercial area providing service, retail and office

uses with a large chain supermarket. It would cater for convenience, weekly and limited comparison shopping. It is the principal centre of the Shire.

- *Town.* This provides a range of local services and variety of employment opportunities in tourism and retail but relies on the District Centre for other opportunities. It has shopping for weekly and convenience shopping.

- *Village*. This provides only for convenience needs and typically has only a general store / post office.

- *Rural Centre*. This is a focal point for the surrounding community and usually has a community hall or bushfire shed. There are generally no shopping facilities or other services in this area.

The establishment of a hierarchy will enable the protection of the town centre of Quirindi. This should be linked to town centre improvement and ensuring that the retail facilities of the town are located in the town centre. It should be noted that the Council has recently undertaken a town centre improvement program.

7.3.7. Economic Development

The economic base of rural Shires like Liverpool Plains is a very important component of its future viability and sustainability.

Economic development is an important component of any strategy. There is a need for the area to have a vibrant and diverse economy for it to survive. The Liverpool Plains Shire economy is heavily based on the agriculture sector as well as tourism to an extent. There is a need to protect the existing businesses as well as attracting new ones.

The Shire is currently attracting some significant employment generating developments with a major softwood sawmill under construction in Quirindi, a large coal mine has commenced south of Werris Creek as well as other mineral extraction in the Shire and other manufacturing uses being proposed for Quirindi. There is also the new supermarket built in Quirindi. At Werris Creek, there is the Australian Rail Monument and Museum with a major festival each October as well as other tourist attractions. The Council has spent a considerable amount of money upgrading the main street of Quirindi and this is attracting more people to stop in the town.

7.3.8. Retail Facilities

The Shire has a wide range of retail facilities with the greatest range in Quirindi, the largest town. These will be detailed in the Growth Management Study which will include a detailed land use survey. The range of facilities includes the following:

- Supermarket
- Newsagent
- Furniture
- Hardware
- Restaurants and Hotels
- Clothing and giftware
- Car sales

These are considered to be adequate for the size of the population at present and there is considerable escape expenditure to Tamworth for higher order goods and comparison shopping.

7.3.9. Current Land Use Zoning

Zoning is introduced into an area to provide a separation between often disparate land uses and to reduce the incidence of land use conflict.

However, there needs to be a discussion about the current land use zoning to determine if it is adequate. For example, the Shire is currently experiencing an increase in employment generating land uses (the sawmill, mining, new supermarket and other industrial uses). An assessment has to be made whether this increase in activity is going to continue and also whether there is sufficient industrial and commercially zoned land to accommodate the likely increase. A flow on from this is the adequacy of residential and rural residential living opportunities.

An assessment also has to be made of the current settlement hierarchy as outlined above and whether there is a need to increase the size of any of the villages in the Shire.

7.3.10. Agricultural Water Supply

The provision of water is an important aspect of the agricultural industry. Irrigation water is used for the cropping, lucerne and intensive agriculture. However, it is a finite supply with the amount to be extracted from groundwater and the rivers being restricted by the Department of Infrastructure, Planning and Natural Resources under the new water sharing plans and the farm dams policy. This will have a major bearing on the future of these water dependant commodities.

Water sharing plans are a specific type of management plan that can be prepared under the Water Management Act 2000. They are designed to establish:

- environmental water rules,
- requirements for basic landholder rights,
- requirements for water extraction under access licences, and
- bulk access regime for extraction licences.

The bulk access regime is the water sharing rules that will determine how much water will be available for extraction by licensed water users. Trading in water licences and water entitlements is governed by access and licensing principles
.
Plans are currently being produced to guide the long-term management of natural resources in NSW. A plan has been prepared for the Mooki River and Quirindi and Warrah Creeks which covers parts of the Shire. It is not proposed to list the details of the water sharing plan. It will have an impact on the availability of water for irrigation particularly.

7.3.11. Sustainable Agriculture

Some of the agriculture in the Shire is becoming more intensive as the value of land increases and hence the need to use it for higher yielding commodities. These are mainly related to the intensive animal uses like poultry and cattle feedlots and some dairies.

For agriculture to remain in the Shire, it must become sustainable. Sustainability in this context embraces the concept of Ecologically Sustainable Development or ESD, which is discussed in detail in Chapter 5.

Sustainable agriculture, from a land use planning point of view, must embrace environment, economics and social concepts (ESD). A definition of sustainable agriculture therefore is as follows:

> *"use of land … which can be maintained and managed so that the land remains*
>
> - *environmentally sustainable (that is, environmental pollution and land degradation arising from the use is minimised);*
> - *socially sustainable (that is, land use conflict and loss of amenity of the surrounding area arising from the use is minimised); and*
> - *economically sustainable (that is, there is a capability of making a net farm profit from the use"* (Sinclair, 1999)

A use may be economically sustainable, that is it makes a living for the farmer, but it may be on a lot that is not large enough to allow it to manage the nutrients or odour and may have an impact on the amenity of the neighbourhood. It is therefore unlikely to be sustainable. Unsustainable practices include market gardening on small lots, hydroponics on small lots, overgrazing of land by cattle and the loss of topsoil through erosion. Photo 7.6 shows a good example of this from Llandilo in the Penrith LGA. The three separate market gardens in the middle foreground are planted from boundary to boundary with no buffer strips and there is also no buffer between the creek. There is no way to manage the soil and water on the three farms.

Photo 7.6: Example of non-sustainable agriculture
Date of Photo: December 1999
Please note that this photo has been taken from outside the Shire.

It is important to note therefore, that for an agricultural activity to be sustainable it has to meet all 3 of the criteria outlined in the definition.

The sustainability of agriculture will vary with the different agricultural landscapes within the Shire and the responses will also be different. There are a number of factors that affect the sustainability of agriculture which include the following:

- size of holding – generally, for extensive agriculture there is a need to have large holdings,
- proximity to settlement areas and rural residential development will cause rural land use conflict which can affect the sustainability of agriculture
- farming practices such as minimal tillage and not overstocking the land
- maintaining riparian vegetation and biodiversity.

A more detailed discussion on this subject will be included in the Study.

7.3.12. Domestic Effluent Management

This is perhaps the most important impact of human settlement on the water quality of the surrounding streams and the general environment.

Most of the rural residential areas are not served by reticulated sewerage nor are they planned to be. As discussed in chapter 2, only Quirindi and Werris Creek have reticulated sewerage and all of the other settlements rely on onsite disposal.

The NSW Government has released Environment and Health Protection Guidelines for On-site Sewage Management for Single Households, which have to be complied with for all new on-site effluent disposal systems.

The Council has prepared an On-site Sewage Management Strategy which is to provide a framework to allow Council to regulate and manage the installation, operation and maintenance of all on-site sewage management systems.

This will be an important issue to be looked at when considering urban and rural residential development.

7.3.13. Heritage

It is important to consider the heritage of the area when looking at the future of the Shire. This includes both European and Aboriginal heritage values. There is a significant number of listed sites of European heritage but not much is known about the Aboriginal heritage.

The impact of European settlement on the Aborigines within Liverpool Plains Shire is an issue that needs to be considered but does not form a major component of the strategy.

Aboriginal settlement has provided a rich diversity of sites and cultural information, which needs to be investigated and respected for any future options for the Shire. Prior to this occurring, to ensure that the cultural heritage of the Shire is conserved, the following procedure can be instigated with development applications:

- Identify the most sensitive areas of the Shire in broad terms (this is to be done in conjunction with the Local Aboriginal community)
- Require an Aboriginal Archaeology study to be prepared for these areas
- All other areas are to have an assessment done in conjunction with the Local Aboriginal Community to ascertain whether a detailed archaeological investigation is required.

By doing this, the most significant areas of Aboriginal significance can be identified and conserved.

The Council has adopted its Community Based Heritage Study. This highlights the importance of heritage in towns like Quirindi and particularly Werris Creek where there is a rich resource of railway heritage of state significance. The Australian Railway Monument and Museum is an example where heritage is being used to provide an economic resource and base for future economic development. The Study also recommends a number of items to be preserved by the provisions of a LEP. This will be discussed in more detail in chapter 8.

7.3.14. Emerging Social Issues

An assessment has been made of the social issues apparent in the Shire. It has been based on interviews with Council officers and analysis of the 2001 census data.

- *Isolation* – long distances between communities together with relatively poor local roads further exacerbates the isolation many rural residents experience. For some, isolation is desirable and / or acceptable, but for others this isolation only further compounds their problems.
- *Strong local identity* – the residents do have a strong local identity with many people strongly associating with local villages and localities. There are many small community organizations with the Rural Fire Service and Progress Associations being particularly strong. This strong identity is important and highlights that the potential exists to use these networks to improve local communication and develop more local services appropriate to community needs.
- *Lack of transport networks* – with little public transport except for the school bus and often uncertain road conditions (due to flooding, etc), access to Tamworth and Quirindi for shopping and services can be irregular and limited. This is even more difficult for residents with limited access to a motor vehicle such as older residents, children, youth and households with only one car.
- *Need for community infrastructure* - there is a need to provide community infrastructure. These residents require equitable access to services and facilities provided by Council and other government agencies. Many rural residents have poor access to services based in Tamworth not only because of the distance but also due to social, financial and cultural issues.
- *Traditional village infrastructure has helped to sustain and support these residents* – many residents use the services and support provided in traditional villages such as Willow Tree and Wallabadah. This traditional village infrastructure, which may include a general store, school, community hall, sportsground and local park, are essential components of community life which play an important role in sustaining these communities.
- *Social disadvantage* **–** as a result of the varying socio-economic profiles of those living in the rural areas, there are a significant number of people suffering social disadvantage. Compared to both Regional and NSW averages, the rural areas

have a low weekly household income, low level of formal qualifications and low workforce participation rate. This suggests that some residents may be significantly disadvantaged. This is supported by local service agencies who have identified that many residents do have significant social problems particularly related to low incomes, family breakdowns and other crisis situations.

It can be seen therefore that there are a number of emerging social issues related to the Shire that need to be addressed to ensure that the residents enjoy an acceptable quality of life which is similar to those who live in Tamworth for the provision of basic services and facilities.

In order to address these issues, there is a need for more infrastructure to be provided locally or for better transport services to enable people to get to either Quirindi or Tamworth. It should be noted that the provision of better transport is only one aspect but it is a major issue for people living in areas like Liverpool Plains Shire.

7.3.15. Infrastructure

Infrastructure such as roads, water, electricity, telephone is necessary for the provision of human settlement areas. The Shire is well served by electricity and telephone.

Water and Sewerage provision is the responsibility of the Council. It is provided in the towns of Werris Creek and Quirindi. The villages rely on a raw bore water supply and onsite collection and storage as well as effluent disposal. The water supply to Quirindi and Werris Creek has some issues that are currently being addressed by the Council. These issues are as follows:

Quirindi

- Inadequate Peak Day Demand storage (the ability to cater for delivery of water without the reliance on flawless pump operation)
- A single water source without alternate in the case of contamination or depletion
- Lack of storage in the east of the town for delivery into identified growth corridors
- Lack of storage in the north of the town for delivery into identified growth corridors
- Lack of alternate delivery main options into the east of town
- Undersized mains capacity for fire fighting, delivery to the Industrial Subdivision, and along identified growth corridors

Werris Creek

- A single water source without alternate in the case of contamination or depletion
- Aged treatment plant infrastructure with low capacity
- Aged rising main from dam to water treatment plant
- Inadequate flood capacity standard at Quipolly Dam
- Inadequate storage in High Zone reservoir

The Council has adopted a Regional Water Supply Strategy which is currently being implemented as identified and funded in Council's 10 year management plan. This has been discussed in section 2.2.11.

The standards of some of the rural roads is considered to be less than satisfactory, particularly in the rural small holding zones where the combination of steep land and the underlying geology make it difficult to maintain and build the roads. This is a result of previous Quirindi Council policy not to require bitumen sealing with rural residential subdivision but it is now a requirement.

The RTA have developed a set of principles for managing retial and commercial development along the State Highways. There are 2 highways traversing the Shire – the New England and Kamilaroi. These principles are as follows:

- *Principle 1:* The function of the nominated highways is to operate as primary inter- and / or intraregional road traffic routes. That is, the purpose of the highways is regional transport, not retailing.
- *Principle 2:* The safety and efficiency of the nominated highways, and the public expenditure invested in making and keeping those highways safe and efficient, should be protected.
- *Principle 3:* Travellers on the nominated highways should have the opportunity to obtain ready-to-eat food, vehicle service and rest needs in convenient locations. These travellers' needs should only be accommodated within towns through which the highways pass, unless the highways go for long distances without passing through a town, in which case the needs of travellers may be provided in dedicated highway service centres.
- *Principle 4:* The role of highway service centres should be differentiated from the role of commercial areas in towns. Highway service centres should only provide services essential to travellers on the highway. Other retail or commercial development should not relocate from town centres (where they can best serve the populations of the towns) to highway service centres, new town by-passes or other highway-oriented sites.
- *Principle 5:* Other than highway service centres, retail or commercial development should not occur near the nominated highways in out-of-town locations.

Chapter 8: Strategic Environmental Analysis

8.1 Introduction

The urban and rural lands of Liverpool Plains Shire provide an important resource for the Shire as well as the wider region. This consists of a number of components:

- Rural Landscapes
- Productive Agricultural Lands
- Native Vegetation
- Habitat linkages
- Living Areas – towns, villages, rural residential and farm housing.
- Rivers and creeks as well as other water bodies

Each of these is important in its own right but it is the sum of them that provides the resource for the future.

This chapter presents a strategic environmental assessment of the issues identified in Chapter 7 and discusses options that can be pursued in the strategy document. In essence, this chapter sets the framework for the Growth Management Strategy.

A strategic environmental assessment is an assessment of a set of strategic options. It can be defined as the formalised, systematic and comprehensive process of evaluating the environmental impacts of an action and its alternatives. (Therivel et al)

> *"Strategic environmental assessment is the term used to describe the application of environmental assessment to various stages in the planning process that occur prior to the consideration of specific projects. It may be given another name, depending on the nature of the planning stage involved.*
>
> *Regardless of the terminology used, strategic assessment primarily differs from project-specific assessment in terms of scale and timing. In regard to scale, strategic assessment:*
>
> > *i) incorporates a number of potential developments as opposed to a single project;*
> > *ii) considers a broader range of alternatives;*
> > *iii) involves a wider geographic area; and,*
> > *iv) addresses environmental impacts at a more aggregated level.*
>
> *In terms of timing, the period between the conduct of a strategic assessment and the resulting environmental impacts will be longer than is the case with project-specific assessments."* (OECD, 1999 p5)

In a recent book published by the United Nations Development Program (UNDP) and the Organisation for Economic Cooperation and Development (OECD) titled *Sustainable Development Strategies – A Resource Book*, sustainability is described as being all about achieving "... positive economic and social development, without excess environmental degradation, in a way that protects the rights and opportunities

of coming generations and contributes to compatible approaches elsewhere." (Dalal-Clayton and Bass, p5). There is a need to take a strategic approach in order to achieve a sustainable outcome. This also needs to be " ... both long-term in its perspective and integrated or joined up in linking various development processes so that they are as sophisticated as the challenges are complex." (Dalal-Clayton and Bass, p6).

> *"At the heart of the concept is the belief that social, economic and environmental objectives should be complementary and interdependent in the development process. Sustainable development requires policy changes in many sectors and coherence between them. It entails balancing the economic, social and environmental objectives of society- the three pillars of sustainable development - integrating them wherever possible, through mutually supportive policies and practices and making trade-offs where it is not."*(Dalal-Clayton and Bass, p12).

This is described in figure 8.1.

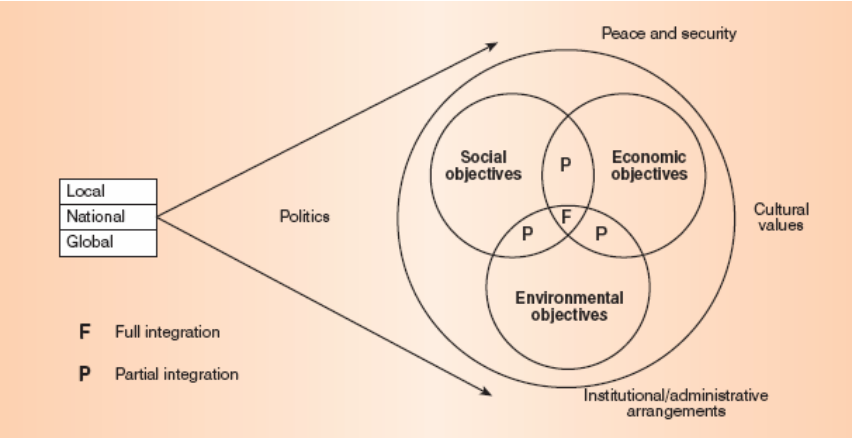


Figure 8.1: The System of Sustainable Development
Source: (Dalal-Clayton and Bass, p12).

Dalal-Clayton and Bass have described the practical outcomes of sustainable development processes in 2 categories:

1. *Institutions and mechanisms which produce decisions to balance social, economic and environmental objectives, and which ensure that they are implemented. For example: particular planning and policy processes and procedures such as environmental impact assessment and stakeholder participation.*
2. *Activities on the ground which add good environmental, social and / or economic practice to what might otherwise have been narrower goals. For example: new forms of natural resource management or integrated development projects.* (p12)

In achieving sustainability, there is a need to recognise the complementary complexity of the issues – are all linked to each other and the policy responses need to be holistic and multi faceted and not single issue focused.

The following sections provide a discussion of the options available to achieve a sustainable future for the Liverpool Plains Shire. The discussion builds on the discussions in the previous chapters. It will lead onto the strategies for the future. It is acknowledged that land use is a key aspect of any strategy for the future of the Shire, however to achieve a sustainable outcome and ensure that all issues are addressed there is a need to address a number of other interrelated matters. These can be grouped into 10 headings – 5 under the Social and Economic factors categories and 5 under the Environmental Opportunities and Constraints categories outlined in chapter 7. They are as follows:

Social and Economic Factors	Environmental Opportunities and Constraints
▪ Growth Management	▪ Water Catchments
▪ Land Use Planning	▪ Ecological Management and Biodiversity
▪ Community Services and Quality of Life	▪ Scenic Landscapes
▪ Economic Growth	▪ Heritage and Culture
▪ Infrastructure	▪ Natural Hazards

8.2 Key Issues for the Future

The following is a brief discussion about the key issues for the future of the Shire. They will need to be addressed in order to achieve a sustainable future. However, it is the responsibility of all levels of Government as well as the community to work together, not just Liverpool Plains Shire.

- *Resources (Water)* – Water is the most important aspect for the future of the Shire. This includes the surface and underground water. Water is needed for agriculture – irrigated plants, intensive animals as well as extensive cropping and grazing. Water is also important to the biodiversity – aquatic and terrestrial plants and animals and their habitats. Coal mining, industry and housing also need water. Climate change will have an impact on this and there is a need to conserve existing water usage and to invest in water saving technology.
- *Resources (Coal)* – The coal industry has potential to make a major contribution to the future economic prosperity of the Shire. There will be a need to monitor the impact as it occurs. The impact on the agricultural and other industries will also have to be monitored.
- *Sustainability of Agriculture* – Agriculture in the Shire should continue to carry out the practices of minimum tillage, water conservation and salinity awareness as it is currently doing. It should also address the issues of climate change and water usage, especially for the irrigated plant uses like cotton.
- *Natural Hazards* – Flooding, bushfire and salinity are the main natural hazards. There is a need to ensure that dwellings are not built in flood prone areas where they are likely to be inundated by fast flowing flood waters. Bushfire is a major threat and like flooding, houses should not be built in bushfire prone areas. Salinity is an issue affecting the whole catchment and needs to be addressed in both the rural and urban contexts.
- *Infrastructure* – There needs to be infrastructure to ensure that produce like crops and livestock as well as coal can be efficiently transported to their markets. This is mainly by rail and the rail infrastructure needs to be upgraded and maintained into the future. There is also a need for a good road system to enable

the produce to be delivered to the railway lines. Settlements also need to have adequate levels of infrastructure. This includes water and sewerage (where practical), electricity and communications as well as health, education and socials and recreation services and facilities.

- *Biodiversity* – in any growing area there is a need to ensure that the biodiversity of the area and its habitat is not impacted on by development. This will mean that development will have to ensure that it has minimal impact on waterways, native vegetation and land degradation.
- *Heritage and Culture* – In any growing area there is a need to ensure that the heritage is conserved – both Aboriginal and European. There also needs to be adequate provision for the continuation of cultural activities.

All of these need to be addressed to allow for the expansion of the economy and provision of social services and facilities. There will also need to be effective governance and leadership.

8.3 Growth Management

Growth Management is concerned with ensuring that the growth of an area occurs in such a manner that addresses the social, economic and environmental aspects – in other words, it is sustainable. It needs to be recognised, however, that managing growth does not mean that all parts or settlements of the Shire will grow. One aspect of sustainability is to ensure that adequate regard is taken of the constraints – social, economic and environmental. When the constraints are taken into consideration, it becomes evident that some areas will not have subdivision or growth because of physical limitations (productive agricultural land, flooding, slope, presence of native vegetation, etc) or lack of provision of social services (health, education, community services, etc).

This section will deal with the settlement hierarchy, settlement sustainability, growth of Quirindi and Werris Creek as well as preserving rural land.

8.3.1. Settlement Hierarchy

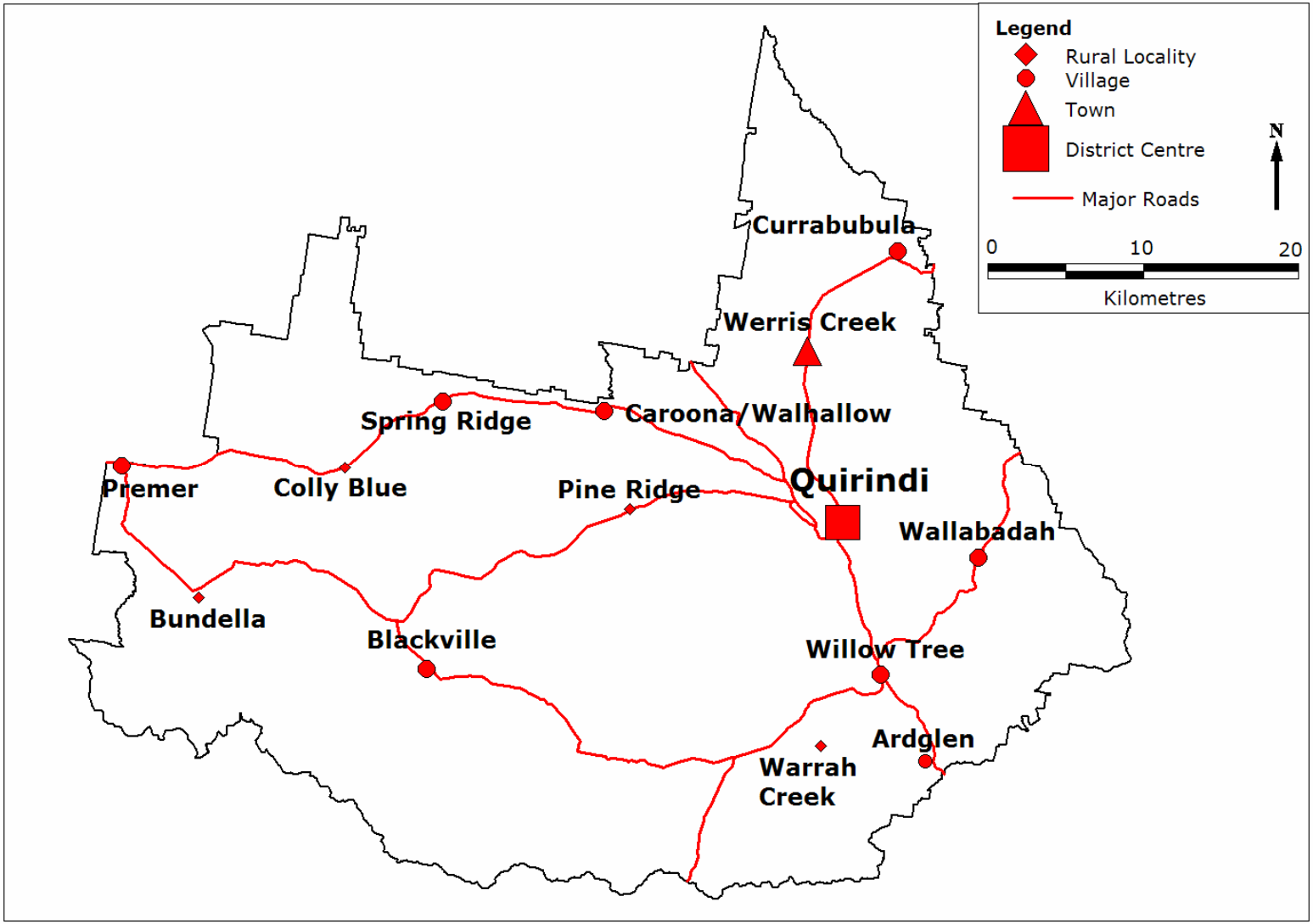
This has been discussed in chapter 7 in the section dealing with towns and villages.

A five-order hierarchy is suggested for Liverpool Plains Shire. It is based on the criteria listed in chapter 7 and is as follows:

Regional Centre	➡	Tamworth
↕		
District Centre	➡	Quirindi
↕		
Town.	➡	Werris Creek
↕		
Village.		Ardglen, Blackville, Caroona, Currabubula, Premer, Spring Ridge, Wallabadah, Walhallow and Willow Tree
↕		
Rural Locality.	➡	Bundella, Colly Blue, Pine Ridge Warrah Creek

Map 8.1 shows the hierarchy and photos 8.1 to 8.4 show examples of each of the settlements in the hierarchy for the Shire.

The purpose of the hierarchy is to acknowledge that some settlements, because of their lack of services and facilities or physical constraints are not able to expand. For a settlement to be able to expand there is a need for basic services and facilities including weekly shopping and a school. The regional centre, district centre and towns are usually able to grow with a mixture of rural residential and urban development subject to constraints and the villages and rural centres, because of the lack of services and facilities, don't have the potential to grow.



Map 8.1: Recommended Settlement Hierarchy

Photo 8.1: Quirindi – the District Centre
Date of Photo: March 2005

Photo 8.2: Werris Creek – a town
Date of Photo: March 2005

Photo 8.3: Premer – a village
Date of Photo: March 2005

Photo 8.4: Warrah Creek – a rural locality
Date of Photo: March 2005

8.3.2. Settlement Sustainability

In order to ensure that a settlement is sustainable it should not have any adverse impacts on its social, economic and environmental aspects. This means that it should provide for an adequate level of social services and facilities so that the residents can enjoy an adequate quality of life. It should also provide a broad base of economic activity as well as not causing pollution of surrounding waterways by ensuring that domestic effluent is disposed of in an acceptable manner and there is not any significant impact on biodiversity. It should not be in an area susceptible to natural hazards such as on flood prone land or bushfire prone land.

The growth of a settlement can be both within the existing boundaries (infill development) and an expansion of the existing boundaries. In order for it to be sustainable, the growth should be a combination of both of these.

Having regard to this as well as the matters discussed in previous chapters, the major issues for the potential of a centre to expand are as follows:

- Ability to provide for social services and facilities;
- Physical constraints;
- Existing form and character;
- Diverse economic base with a range of commercial and retail uses;
- Provision of reticulated water and sewerage;
- Provision of adequate access to the higher order centres (road and public transport);
- Impact on scenic landscape amenity of the surrounding land; and
- Presence of unconstrained land surrounding the settlement (no areas of native vegetation and biodiversity habitat, no floodprone or bushfire prone land, no steep land, etc)
- Supply of and demand for residential land.

Social Services and Facilities

The provision of social facilities and services is crucial for the future of a settlement. People should have access to things like schools, hospitals, community services and facilities. The main services and facilities in each settlement are shown in table 8.1. It can be seen that the centres identified as towns and district centre in the settlement hierarchy have a full range of services and facilities and the villages only have limited services and facilities.

Table 8.1: Facilities and Services Provided in each Settlement

Service and Facility	Ardglen	Blackville	Caroona / Walhallow	Currabubula	Pine Ridge	Premer	Quirindi	Spring Ridge	Wallabadah	Werris Creek	Willow Tree
Government Offices							✓				
Hospital							✓			✓	
Council Offices							✓				
Primary School		✓		✓		✓	✓	✓	✓	✓	✓
High School							✓				
Shopping Centre							✓			✓	
General Store			✓	✓		✓		✓	✓		✓
Post Office			✓	✓		✓	✓	✓	✓	✓	✓

Service and Facility	Ardglen	Blackville	Caroona / Walhallow	Currabubula	Pine Ridge	Premer	Quirindi	Spring Ridge	Wallabadah	Werris Creek	Willow Tree
Oval		✓		✓		✓	✓	✓	✓	✓	✓
Community Centre / Hall		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Clubs / Hotel				✓		✓	✓	✓	✓	✓	✓
Bushfire Brigade		✓	✓	✓		✓	✓	✓	✓	✓	✓
Water Reticulation		✓	✓	✓		✓	✓	✓	✓	✓	✓
Sewer Reticulation							✓			✓	
Waste Collection				✓			✓		✓	✓	✓

Physical Constraints

The physical constraints of a settlement include bushfire and flooding, native vegetation and impact on water quality as well as proximity to agricultural production, particularly intensive forms of agriculture.

Bushfire and flooding are natural hazards which have been discussed in detail in chapter 7. It is not considered to be good planning practice to put development in areas that flood regularly or that is subject to bushfire risk by being heavily vegetated. Current Government policy also restricts development in flood prone and bushfire prone land.

Native vegetation has biodiversity and habitat values, which are considered to be a constraint to development if they are of significance. Proximity of developments to water ways can lead to a degradation in the water quality of rivers and streams and for that reason development should not be permitted to be too close to water bodies.

The proximity of good agricultural land and agricultural uses needs to be considered. Settlements should not be expanded or encouraged in areas which are close to agricultural land (especially intensive forms like feedlots or irrigated cotton) particularly as it may cause rural land use conflict, which can cause problems with the continuation of the agriculture if there are complaints.

Settlement Character and Landscape Setting

The existing form and character of settlements in the Shire can be described as being 2 towns with a number of small villages. This is one of the key characteristics of the Shire and contributes to the country town / village atmosphere that was one of the themes that came out of the community consultation as being one that was wanted for the future.

The landscape setting of a settlement is important. This creates the character of the settlement and adds to its appeal as a living area as well as its tourist potential.

Diversity of Economy

A diverse economic base is necessary to ensure that the area has sufficient capacity to generate employment. There should also be a sufficient range of shopping facilities within reasonable distance of travel. In addition there should be a range of other economic activities such as service, industrial and some tourism activities.

Water and Sewerage

Water and sewerage reticulation is considered to be necessary. A reticulated water supply allows the residents to have access to a regular and reliable supply of potable water. Provision of reticulated sewerage is considered to be necessary for urban development because of the adverse environmental impacts of onsite effluent disposal on small areas of land.

Access to other Centres

Settlements should have adequate access to the higher order centres and this includes by road using private vehicles as well as by public transport – buses mainly but also by train if possible.

Land Capability for Development

The capability of land to have residential development includes a number of matters. The main constraints are considered to be flooding, slope and presence of native vegetation / bushfire risk.

Land Supply

The supply of land has been derived from the Land Use Survey and is shown in Table 8.2. It needs to be noted that the data presented in the table represents the realistic potential supply based on all land being subdivided.

The table is described as follows:

- The settlements are the towns and villages of the Shire as outlined in the Settlement Hierarchy.
- The number of dwellings were those counted in the land use survey.
- The subdivision potential of the land with dwelling houses has been taken only from lots of greater than 4,000 m^2 lots. This is because of the fact that most people will only subdivide their land if they can obtain a number of lots and therefore 4,000 m^2 has been chosen because it is will achieve an adequate number of lots. The existing dwellings were subtracted from the total to only count the additional potential dwellings.
- The number of vacant lots were those counted in the land use survey.
- The subdivision potential of vacant land has been analysed based on the maximum potential subdivision (1,000 m^2 and 600 m^2);
- The total potential additional lots has been calculated by adding the subdivision potential of the lots with dwellings on them and those that are vacant.

The supply of vacant land which is zoned residential / village should be considered when assessing the potential for expansion of an urban area. This can be seen from photo 8.5 which shows the village of Wallabadah with the residential 2(v) Village zone. Note the amount of vacant land, particularly in the top left hand corner and bottom of the photo.

Table 8.2: Supply of Dwellings and Vacant land in settlements

Settlement	Existing Dwellings	Subdivision Potential (Lots with Dwellings)	Vacant Land	Subdivision Potential (Vacant Land)
Blackville	11	7	24	15
Premer	28	30	30	52
Quirindi	894	409	173	1,272
Spring Ridge	42	98	73	27
Wallabadah	84	48	104	361
Werris Creek	577	618	102	1,211
Willow Tree	115	31	41	23
Total	**1,751**	**1,241**	**547**	**2,961**

* Note: Minimum size for unsewered areas is 1,000 m^2 and for sewered areas of Quirindi and Werris Creek a minimum of 600 m^2 has been used.
Source: Land Use Survey and Council GIS

Photo 8.5: Wallabadah showing vacant land
Date of Photo: March 2005

Demand for Development

Demand for residential land can be measured by dwelling house applications in each of the settlements. This data is provided in figure 8.2.

The supply and demand figures can be used to estimate the number of years supply of residential land in each settlement. The demand for Quirindi and Werris Creek can be estimated to be between 15 and 25 dwellings per year. This is based on the new dwelling figures as well as the future prospects for development in these towns. Wallabadah and Willow Tree are estimated to grow slowly at between 2 and 5 dwellings per year and the rest of the villages are expected to grow at the rate of 1 dwelling every 2 to 3 years. The results of this analysis is shown in table 8.3. It is acknowledged that these figures are estimates based on past growth and potential future growth. There is a need to set in place a system to monitor the dwelling and subdivision activity so that the supply can be altered and land brought on prior to it being needed. It is good planning practice to have 10 years supply of zoned residential / village land.

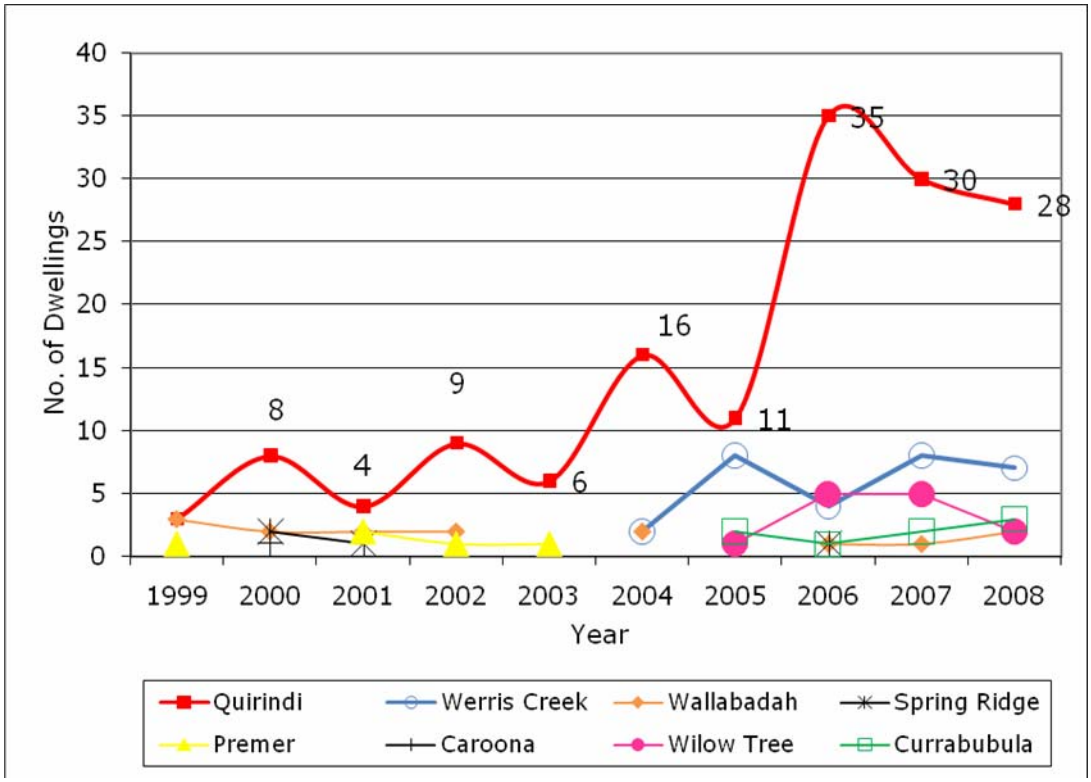


Figure 8.2: Dwelling Houses in Urban areas 1999 – 2008
Source: Council Property System

Table 8.3: Demand and Supply of Residential Land

Settlement	Demand in Years (Low)	Demand in Years (High)	Supply in Years (Low Demand)	Supply in Years (High Demand)
Blackville	0.25	0.50	88	44
Premer	0.25	0.50	328	164
Quirindi	15.00	25.00	95	57
Spring Ridge	0.25	0.50	500	250
Wallabadah	2.00	5.00	205	82
Werris Creek	10.00	15.00	183	122

Willow Tree	2.00	5.00	27	11

Source: Land Use Survey and Council GIS

Sustainable Settlement Growth

The settlement sustainability criteria outlined on page 157 have been applied to each of the settlements of the Shire. This has produced a number of villages that are not considered suitable for expansion. However, they will retain the existing facilities and character, which is something that was mentioned in the consultations as being desired by some residents. It should be noted that these residents will still be able to grow within the existing village zone boundaries. The villages and the reasons are provided in Table 8.4.

Table 8.4: Villages to grow within the existing boundaries

Village	Constraints to Expansion
Ardglen	No reticulated sewerage or water and no community or shopping facilities.
Blackville	No reticulated sewerage or water and no community or shopping facilities.
Currabubula	No reticulated sewerage and limited water supply. Limited community facilities. Drainage and slope constraints.
Caroona / Walhallow	No reticulated sewerage and limited water supply. Limited community facilities and distance from Quirindi and Werris Creek.
Pine Ridge	No reticulated sewerage or water and no community or shopping facilities.
Premer	No reticulated sewerage and limited water supply. Limited community facilities and distance from Quirindi and Werris Creek
Spring Ridge	No reticulated sewerage and limited water supply. Limited community facilities and distance from Quirindi and Werris Creek
Wallabadah	No reticulated sewerage. Limited community facilities. Drainage and slope constraints.
Willow Tree	No reticulated sewerage and limited water supply. Limited community and shopping facilities. Drainage and slope constraints.

The settlements that have the potential for expansion are as follows:

- Quirindi
- Werris Creek

These 2 towns, although having some capacity for expansion, do have some constraints that have to be taken into consideration. These are discussed in detail in the next sections.

Rural Residential Development

Rural Residential Development has been discussed in chapter 7 and the desire for it to be created has been shown by the community consultation discussed in chapter 6. The physical constraints affecting future rural residential development are as follows:

- Impact on prime agricultural land
- Rural Land Use conflict
- Proximity to town
- Flooding
- Impact on native vegetation
- Environmental issues (salinity, water quality, land degradation, etc)

Liverpool Plains Shire is located on the Liverpool Plains, an area considered to be amongst the most fertile agricultural land in Australia. It has deep alluvial soils which are suited to cropping – both dryland and irrigated. This resource should not be fragmented by rural residential subdivision.

Rural land use conflict mostly occurs from proximity of residential development to intensive agricultural uses like cattle feedlots and cotton farms and to a lesser extent extensive cropping operations. Cattle feedlots cause some odours that are considered to be offensive to adjoining residential and rural residential uses and should be avoided. Similarly extensive agricultural cropping can cause noise and dust nuisance and the spraying of cotton crops using low flying aircraft will cause a nuisance to adjoining rural residential land uses and, therefore should be avoided.

The proximity to urban areas is a constraint for people who live in rural residential areas because they mostly will work in the urban area or have to travel to the urban area on a regular basis. Public transport is not provided to these areas and therefore to ensure that vehicle trips are kept to a minimal distance, it is considered that it should be as close as possible to the nearest urban area.

Flooding is a major physical constraint for the location of rural residential development in the Shire. Therefore, any future rural residential land should not be floodprone.

Impact on native vegetation is considered to be a constraint because of the potential to impact on habitat and threatened species. As discussed in chapter 2, there is not a lot of native vegetation in the Shire, however it is considered appropriate to avoid such areas.

Environmental issues such as salinity, water quality and land degradation are a constraint to rural residential development. Rural residential development uses onsite effluent disposal and it is important that these do not pollute waterways. For this reason, rural residential areas should be sited away from watercourses. Effluent disposal should also not use sub-surface drainage because it can exacerbate salinity and therefore should use spray irrigation types. Rural residential development causes land to be disturbed which can lead to further degradation of already degraded land. For this reason, any areas that are currently degraded should be avoided.

In order to ensure that rural residential development is sustainable and does not create any adverse social, economic or environmental impacts a set of criteria can be

developed to ensure that any future rural residential development is as sustainable as possible. These criteria apply to rural fringe and rural living development.

The criteria can be categorised into exclusionary and management criteria. Exclusionary criteria cover those issues considered to be of such magnitude that it should be used to exclude land from future rural residential development. Management criteria, however, covers issues that can be dealt with on a site by site basis.

Exclusionary criteria and the reasons for it being listed as such are as follows:

- *Slope of land – greater than 20%*. Land with steep slopes is not considered appropriate for rural residential development because of erosion potential and scenic impact on the landscape. This includes land that has to access over 20 % slope.
- *Flooding and Drainage*. Land that is floodprone, poorly drained or close to a drainage line or creek is not considered appropriate because of potential flooding. Land that has its access over floodprone land or a stream that is susceptible to flooding should also be excluded.
- *Native Vegetation*. Native vegetation provides a biodiversity and habitat resource and areas that are heavily vegetated should not be developed because of the potential impact on the biodiversity and habitat from the clearing of that land.
- *Proximity to towns*. The proximity to services is a key consideration for rural residential development. Land should be adjoining the urban area and have good road access to the town, particularly the commercial centre.
- *Utility servicing*. This includes water, sewer, electricity and telephone. Water and sewerage service is provided on site.
- *Road surface*. All roads to be accessed by rural fringe development should be sealed. This includes all roads between the subdivision and the urban areas.

Management Criteria and the matters that have to be addressed are as follows:

- *Domestic Effluent Disposal*. The method of domestic effluent disposal has a major bearing on the size of the lot to be subdivided. A soil and water test will be necessary to ascertain the minimum area for effluent disposal which in turn will impact on the size of the lot. For lots less than 1 ha, reticulated sewerage will be required.
- *Road Alignment and access.* The road alignment and access should have adequate sight lines so that any potential impact with other vehicles travelling on the road are minimised.

8.3.3. Quirindi

This section considers the future planning for the town of Quirindi. It discusses and provides recommendations on the following:

- Constraints to Development
- Future Residential development areas
- Future Rural Residential development areas
- Retail development
- Industrial development

Each will be discussed in detail below.

Constraints to Development

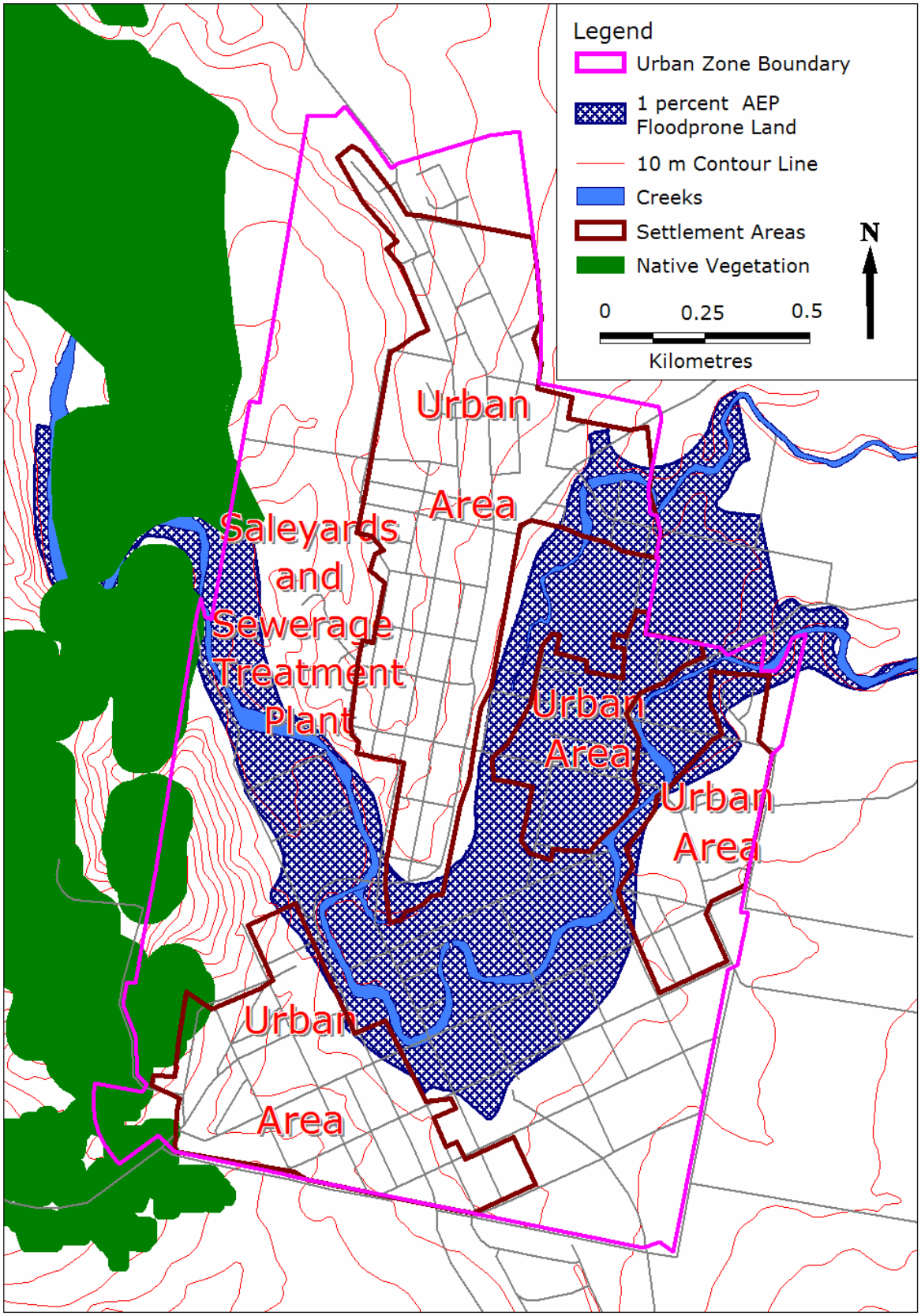
Quirindi has slope constraints to the west. These are the Who'd a Thought It hill in the south which is steep and also has significant amounts of vegetation on it. There is a ridge running in a north south direction to the west of the main part of town. The land to the west of this ridge is not as steep as the Who'd a Thought It hill but is still a constraint. There are not any slope constraints to the north, south or east immediately adjoining the urban area. Map 8.2 shows the constraints to development for Quirindi.

The flood plain of the Joseph and Jacob and Quirindi Creeks runs through the town. These 2 creeks meet just south of the bridge at the Nelson and Hill Streets corner. The flood behaviour within the town has been described in chapter 2 and this creates a significant constraint to development. The land that is flood prone is shown on map 8.2. The sewerage treatment plant and former saleyards are located to the west of the town. These also create a constraint to development because of the need for appropriate buffers from residential development.

These physical constraints have created 4 separate areas of urban settlement in the town. These can be seen from map 8.2.

In addition to the physical constraints, the location of the industrial zone to the south of town along the Kamilaroi Highway is a land use constraint for further residential expansion in the south east of the town. This strategy provides for the expansion of the industrial area, making it the prime industrial development site for the town of Quirindi. It is essential for the future sustainability of the industrial area to not introduce any land uses that are likely to cause conflict with the operation of the industries located there. A new residential subdivision is likely to cause land use conflict because of the potential for noise, odour or dust to emanate from any of the current and potential future land uses, which would cause amenity issues with the residents. This could lead to restrictions being placed on the operations of the industrial area – despite the fact that the industrial uses were located there first. Therefore, it is not recommended that any future residential development is located to the south of the town that will have a detrimental impact on the future sustainability of the industrial area.

The supply of water to Quirindi is also a constraint to development. The water supply for Quirindi is sourced from a gravel aquifer on the Borambil Creek to the west of the town. It is then transferred to reservoirs and reticulated to the town. The capacity of the reservoirs to store water is limited and there is a need to duplicate existing reservoirs as well as providing a new reservoir on the eastern side of the town. The eastern part of the town is served by one water main that runs along Henry Street. However there is no secondary supply main to the eastern part of the town, which can cause difficulties with water supply if any work has to be done on that main. These issues are being addressed by the Regional Water Supply Strategy which is discussed in section 8.7 and is not anticipated to be an issue for the short term as it will be in place by the time any future land is developed.



Map 8.2: Quirindi Constraints

The sewage treatment plant is located on Pryor Street on the western side of the town. It is located at the base of the hill and drains into the Quirindi Creek. The capacity of the sewage treatment plant is 3000 EP (equivalent persons) and is currently utilising 1700 EP. There is therefore capacity within the existing sewage treatment plant.

The Council has commissioned an Ecological Constraints Assessment of this area which has concluded that there are 10 broad vegetation communities which included a large amount of Box Gum Woodland which are an Endangered Ecological Community (EEC) under the provisions of the Threatened Species Conservation Act. A total of 48 fauna species were recorded, 2 of which are listed as threatened species under the Threatened Species Conservation Act – the turquoise parrot and the diamond firetail. There were also a number of habitat features, which mostly comprised of fallen timber, dead trees and hollow bearing trees as well as some rock outcrops, creeks, wetlands and dams. These sites have been ranked and the highly constrained sites are considered to form significant habitat linkages in addition to the presence of EECs. However, the Assessment also found that most sites have some potential for development with appropriate controls.

Future Residential Development

Based on the supply and demand figures, there is sufficient supply for the foreseeable future. However, there is a need to consider the floodprone land as well as a rationalisation of the existing residential village zone.

The constraints mapping (map 8.2) has shown that there is a considerable amount of floodprone land in the existing urban area. A large amount of this is large lots, most of which are vacant. This has the effect of over inflating the amount of land that is available for subdivision. This is shown more graphically on map 8.3 which shows the floodprone land as well as the vacant land.

It can be seen from the map that there is not as much vacant land as appears because of the large amount of flood prone land as well as steep land which limits its ability to be subdivided for residential development. In addition, there are subdivision applications approved for the currently vacant land to the north of the former saleyards and west of the urban area (80 lots) and the land to the north of Fairburn Street (40 lots).

The current residential boundary of Quirindi includes some land that is not considered appropriate for residential use as well as land that is currently being subdivided for rural residential use (this is discussed in the next section). The inappropriate areas for development include the steep land on the base of the Who'd-a-Thought-It hill as well as the sewerage treatment plant – all on the south west of the town. There is also an amount of steep land in this area to the west of the town which, with the floodprone land, separates this land from the existing urban area, and is therefore not appropriate to develop this area for residential. Land in the south eastern part of the town between the railway line, the racecourse and the industrial area is low lying in part and has areas of continually boggy ground. This makes it unsuitable for residential development and the fact that the land has not been subdivided supports this assertion. Therefore, it is proposed to rationalise the urban boundary to take this land out of the residential area. The proposed new boundary as well as the current one is shown on map 8.4.

The current subdivision minimum for sewered residential land is 600 m^2, which is considered to be small for a rural area. Analysis of the lots that are currently being subdivided shows that lot sizes are 700 to 1,000 m^2. Experience from other areas which have smaller lot sizes shows that it is increasingly difficult to plant trees in the back yard of lots of 600 m^2 and smaller. It is noted that the planting of trees in the back yards tends to break up and soften the streetscape of newly constructed residential areas. It is considered appropriate to adopt a minimum of 700 m^2 for all residential and village zones.

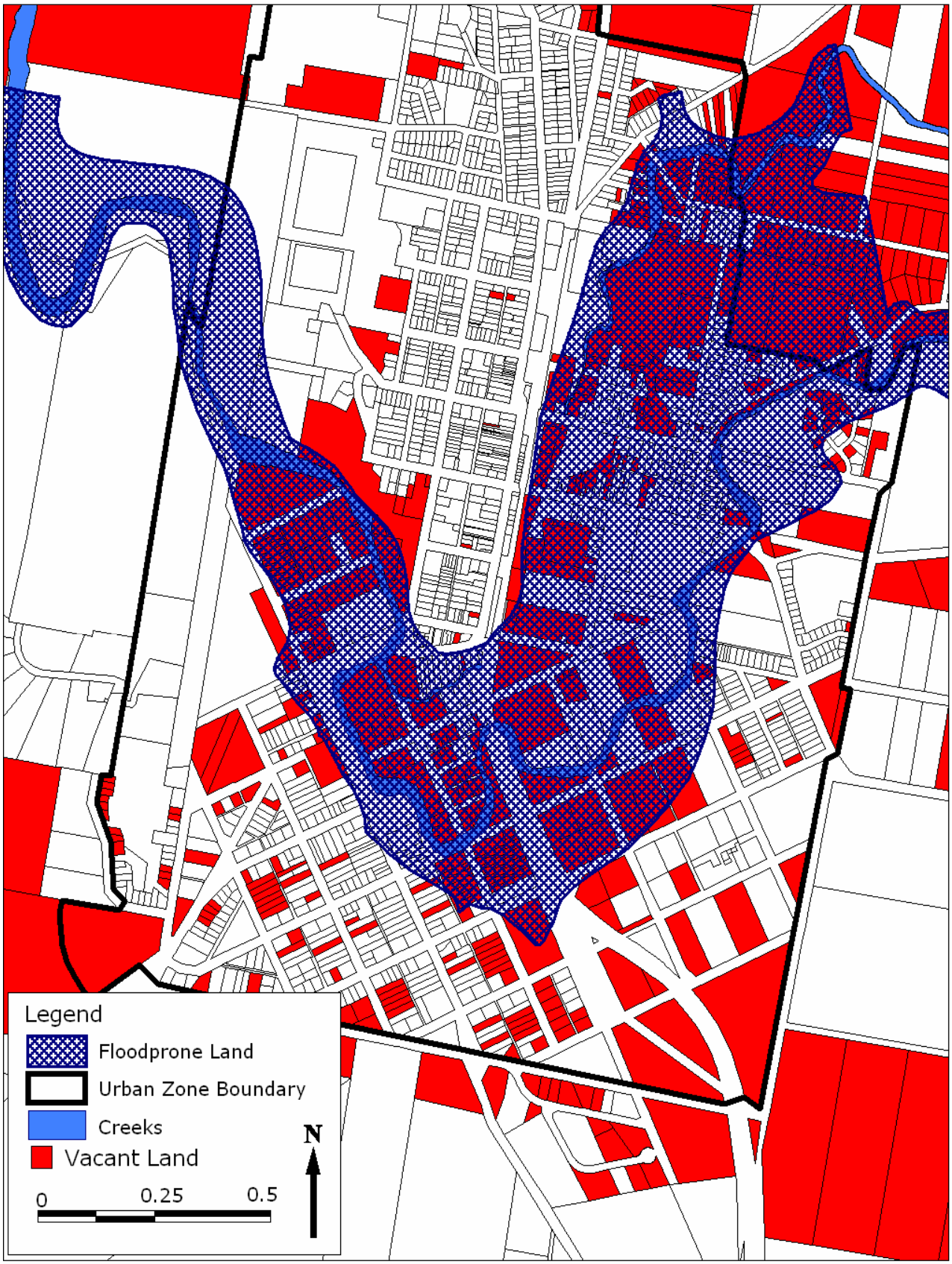
It can be seen from table 8.5, that the dwelling yield for the town of Quirindi has been reduced by the recommended introduction of a higher minimum lot size as well as the reduction in the size of the residential zone. It also shows that the town is running out of subdividable residential land. On the current demand figures of 15 - 20 dwellings per year, using the flood free area only, there is approximately 3 – 4 years supply of zoned land. One also has to consider the land ownership and it is considered appropriate to have vacant land provided in a number of ownerships, thereby ensuring that some of the land will be developed.

Table 8.5: Quirindi Residential Yields

Precinct	Dwellings	Vacant Lots	Total Lots	Subdivision Potential Vacant (Additional Lots - 600 sq m)	Subdivision Potential Vacant (Additional Lots - 700 sq m)
Urban Area Designation Floodprone	187	171	358	648	508
Urban Area Designation Flood Free	907	114	1,021	111	104
Total	**1,094**	**285**	**1,379**	**759**	**612**

It is noted that there is a considerable amount of land that is flood prone. It is considered that all of the land that is vacant within the boundaries of the 1% AEP flood (noted on the maps as floodprone land), unless access can be gained to flood free land should not be built on. The Quirindi Flood Study 2005 had identified low and high hazard flow areas. It also showed the low hazard flow areas which can be built on as long as access to flood free land can be gained (subject to the floor level being higher than the 1% AEP flood).

There is also a need to set a direction for growth in the future. Having regard to the constraints of the town and to the ability to provide services, it is considered that the best land for future residential subdivision is on the eastern side of town to the south of the Quirindi Creek and to the north of the town along the Werris Creek Road. The subdivision of both of these areas should be staged so that the development may proceed in an orderly manner. In addition, the Council is of the opinion that a third residential area should be created to the south of South Street between Simpson and Lenox Street. The Council is also of the opinion that this will not have a detrimental impact on the future of the industrial zone.



Map 8.3: Quirindi Floodprone Land

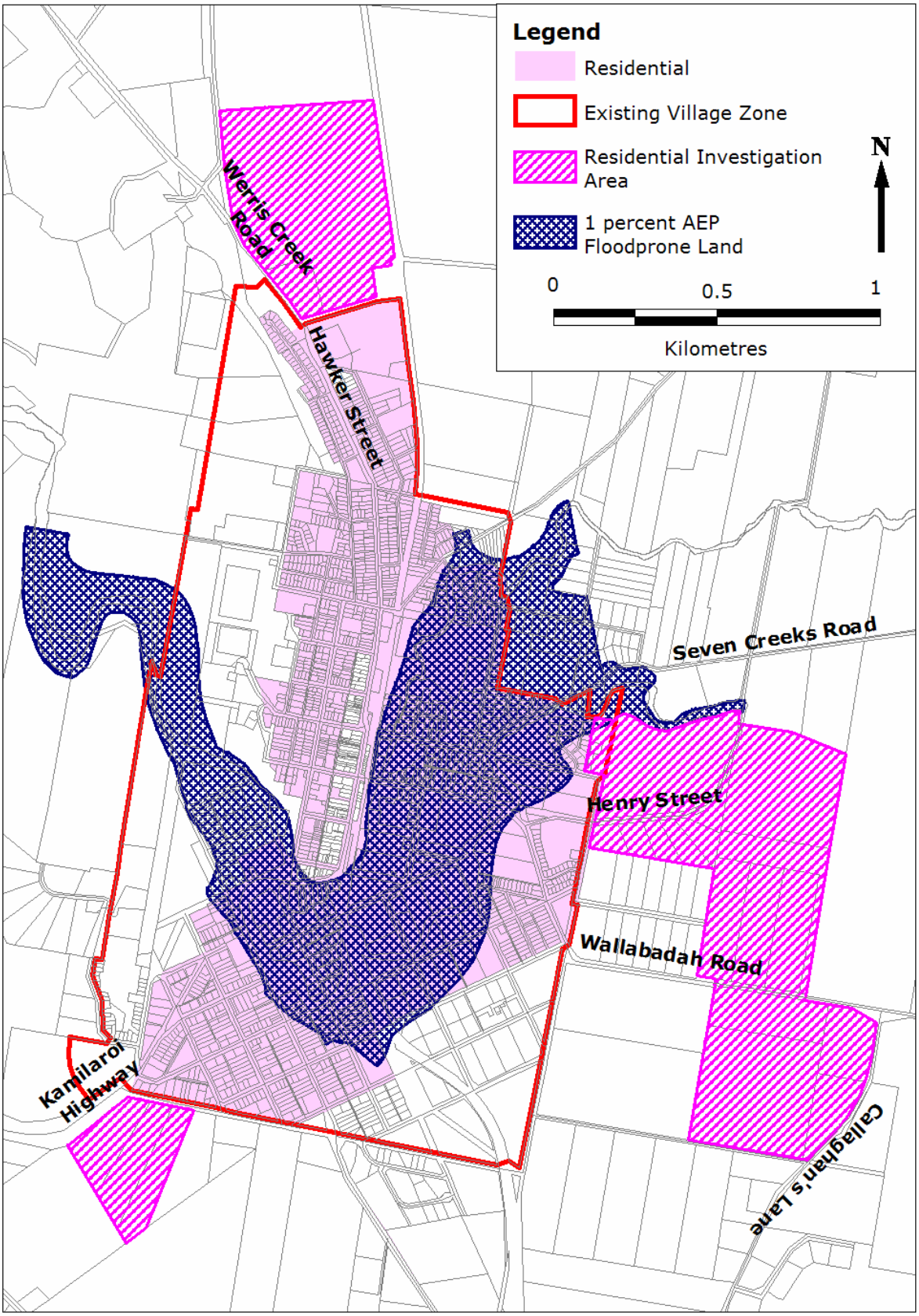
The estimated numbers of lots that will be created by this release are shown in table 8.6. The table shows that the area of each stage has been reduced by 25% to arrive at the subdividable area to take into account the amount of land needed for roads, open space, etc. If the growth assumptions shown above are applied, it can be seen that there is 94 to 187 years supply of land.

Table 8.6: Quirindi Future Residential area Dwelling Yield

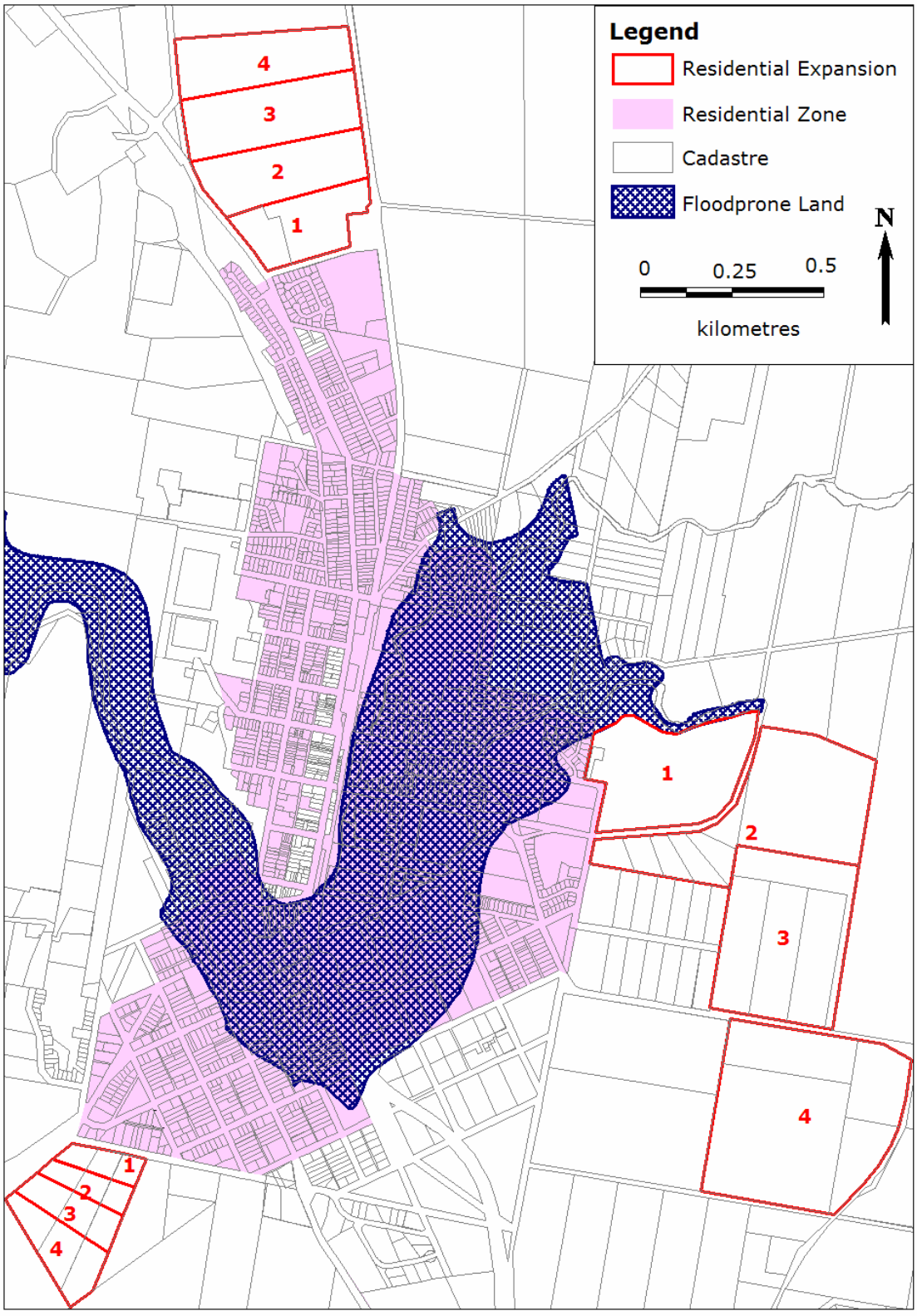
Stage	Area (ha)	Subdividable Area (ha)	Lot Yield 700 m^2	Years Supply Low (15 lots per year)	Years Supply High (30 lots per year)
East Stage 1	29	22	310	21	10
East Stage 2	41	31	435	29	15
East Stage 3	40	30	422	28	14
East Stage 4	59	44	630	42	21
Total	**168**	**126**	**1,797**	**120**	**60**
North Stage 1	18	13	188	13	6
North Stage 2	18	13	188	13	6
North Stage 3	18	13	188	13	6
North Stage 4	18	13	188	13	6
Total	**70**	**53**	**752**	50	25
South Stage 1	4	3	43	3	1
South Stage 2	4	3	47	3	2
South Stage 3	7	5	71	5	2
South Stage 4	9	7	100	7	3
Total	**24**	**18**	**261**	17	9
Stage 1 Total	51	38	541	33	17
Stage 2 Total	63	47	670	42	21
Stage 3 Total	64	48	681	41	20
Stage 4 Total	86	64	918	55	27
Quirindi Total	**262**	**197**	**2,810**	**187**	**94**

This land is shown on map 8.5 and photo 8.6 shows the first stage of the East Quirindi expansion area..

The Council has commissioned an Ecological Constraints Assessment of this area which has concluded that there are some areas of Box Gum Woodland which are an Endangered Ecological Community (EEC) under the provisions of the Threatened Species Conservation Act. They are located along the creek line to the north of the proposed rezoning area and is floodprone. There are some patches of it to the south. The recommendation is to put these into public reserves to conserve them. The rest of the site is considered appropriate for development subject to retaining mature trees.



Map 8.4: Quirindi Proposed Residential Designations



Map 8.5: Quirindi Residential Expansion Area Staging

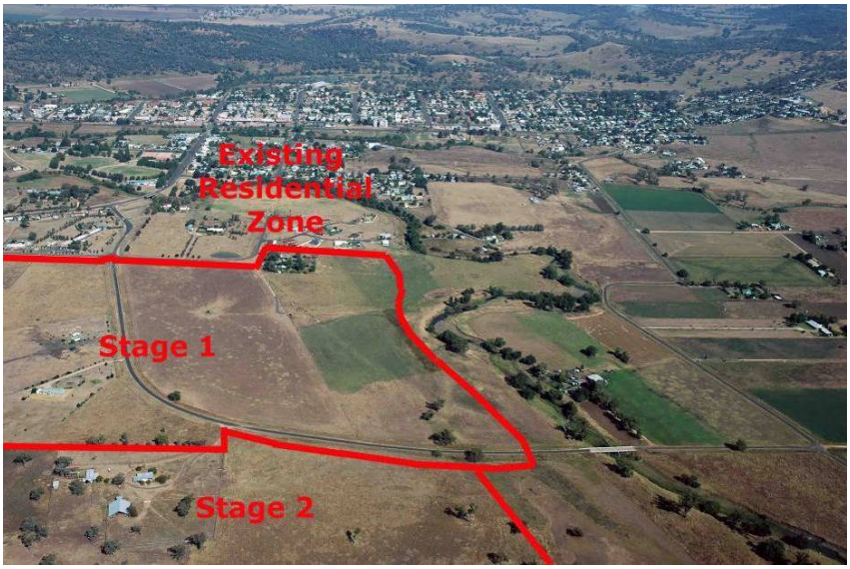


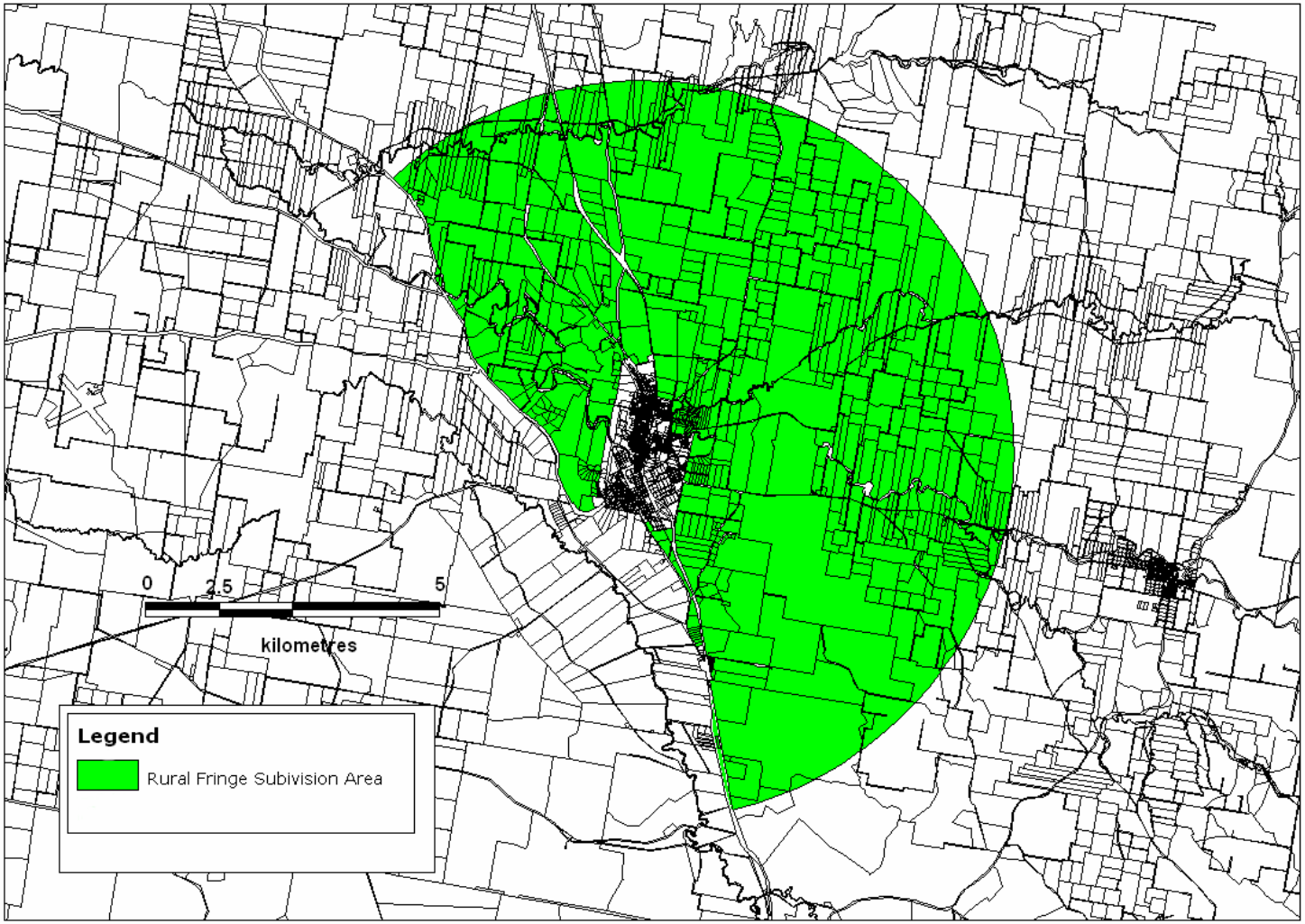
Photo 8.6: Quirindi Residential Expansion Area East Stage 1
Date of Photo: March 2005

Future Rural Residential development areas – Rural Fringe

The 2 types of rural residential development have been described in section 7.3.3 as being rural fringe and rural living.

Currently, rural fringe development is permitted by a clause in the LEP rather than a specific zone. This clause permits subdivision to 2 ha on any land that is not prime crop and pasture land (Classes 1 – 3 Agricultural Suitability) within 10 km radius of Quirindi. It should also be in accordance with the capability of the land and not cause rural land use conflict, not detract from the rural landscape values and have flood free access. The land covered by the clause is shown on map 8.6. It can be seen that it is a very large area of land that could be subdivided for rural fringe 2 ha lots. Analysis of this has shown that there are 792 existing lots with an area of 18,137 ha which could yield 8,656 lots, however this is considered unlikely. This clause promotes a scattered type of development pattern and one that is difficult to provide services such as roads and water. It is therefore considered to be unsustainable and should be replaced with a specific zone which will allow this type of development. It is also noted that there have been very few subdivisions in this area over the past 10 years. The Standard Instrument LEP does not make provision for such a clause as exists at the moment and therefore land must be specifically zoned to allow this type of development.

When considering the location of land for such a zone it is necessary to consider the constraints and the criteria outlined in the previous section. The land directly to the north of Quirindi has a travelling stock reserve and a large amount of crown land as well as some private land. There is also the Quirindi Waste Depot. The private land is steep and not considered to be appropriate for development. It is also appropriate to have a buffer for the waste depot as it creates some odours which are not conducive to future rural residential development. North of the waste depot is the Golf Club on the western side of the road and opposite this is the Quirindi Rugby Club. Directly to the north of the Golf course is a new subdivision that is currently under construction.



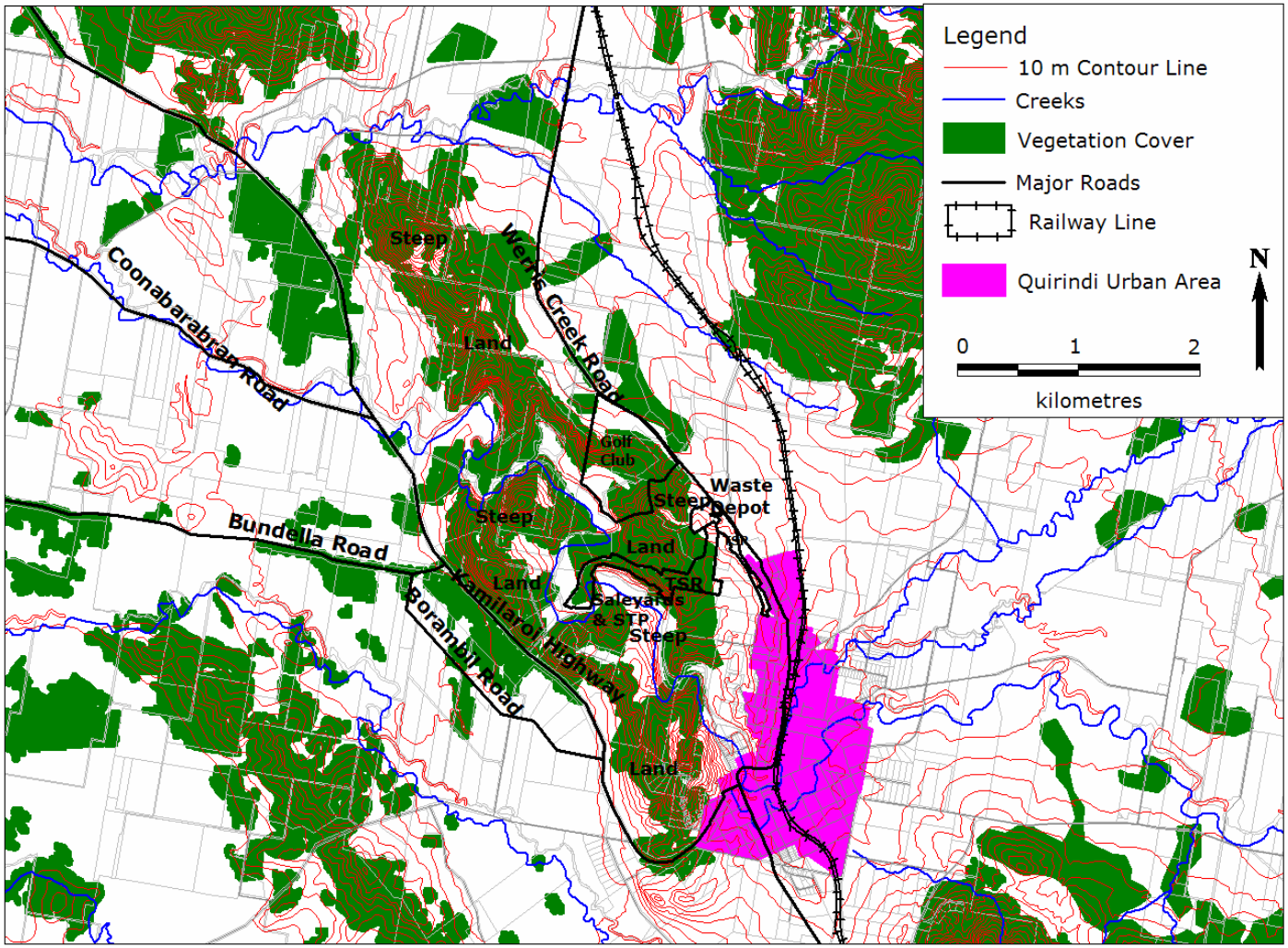
Map 8.6: Current Rural Fringe Development Area

There is a ridge of steep land to the west which creates a good boundary for rural fringe development. It is appropriate to develop the land between the ridge and the Werris Creek Road as a future rural fringe area. The constraints shown on map 8.7 have been taken into consideration and the following reasons are given:

- The Who'd A Thought It Hill steep land and the Quirindi Creek floodplain are a constraint to the west and south west;
- The industrial land and the railway are a constraint to the south of town;
- The future residential land on Wallabadah road and low lying land to the north of the road and steep land to the south are not conducive for this style of development as it is considered to be too far away from the town. In addition the Zeolite mine is to the south of Wallabadah Road.
- The floodplain of the Quirindi and Jacob and Joseph Creeks limits development to the east and north east.
- The land along the Werris Creek Road already has some rural fringe development on it and it has good access to the urban area and is also close to the urban area

There are 4 separate areas proposed which are shown on map 8.8 and are as follows:

- *Quirindi north west* shown as number 1 on map 8.8. Located immediately to the west of the current urban area boundary. This land already has a subdivision consent and is considered more suited to rural fringe than residential because of the slope of the land. Access can be gained from Munro Street to the south and via Werris Creek Road to the north.
- *Quirindi west* shown as number 2 on map 8.8. This land is already subdivided into a number of lots ranging in size from 2 ha to 7 ha. There is also some steep land that is unlikely to be subdivided because it is steep and vegetated. This proposal is to recognise the rural residential nature of the land.
- *Werris Creek Rd* shown as number 3 on map 8.8. This land is on both sides of Werris Creek Road. On the west side it is north of the Golf Club and on the eastern side it adjoins the proposed new urban expansion area and extends to Taylors Lane. The land to the west has been subdivided and has a good northerly aspect as well as being able to be served by Werris Creek Road and Taylors Lane. The land to the east has access from Bells Gate Rd. Limited access should be permitted from Werris Creek Road and this only to be for roads – there should not be any direct access onto Werris Creek Road.
- *Stanley Crescent – Wallabadah Road* shown as number 4 on map 8.8. This land is currently already subdivided into lots of 2 ha all of which have dwellings on them. It is therefore merely a confirmation of the existing use of the land

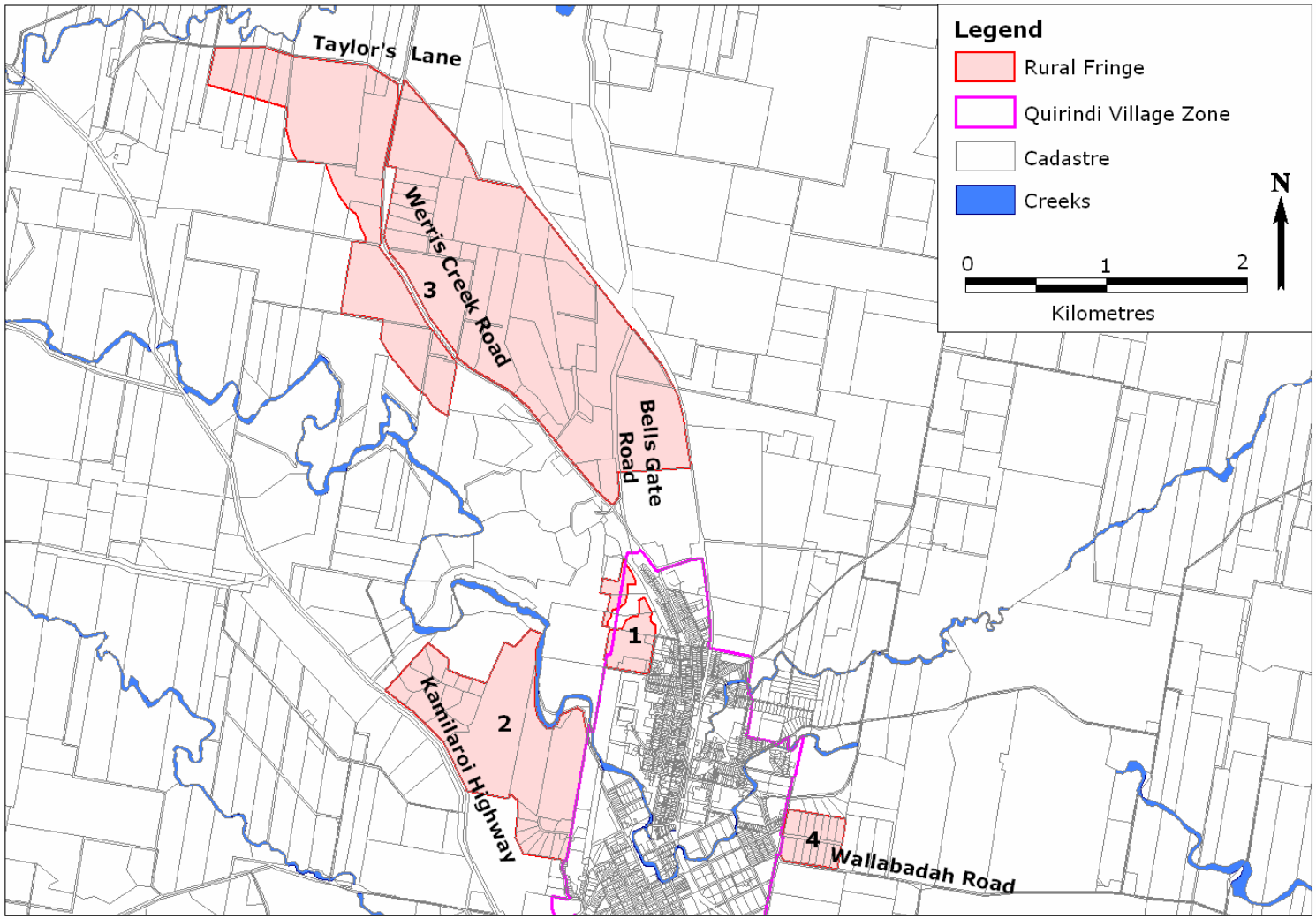


Map 8.7: Quirindi Rural Fringe Constraints

The Council has commissioned an Ecological Constraints Assessment of this area which has concluded that there are some areas of Box Gum Woodland which are an Endangered Ecological Community (EEC) under the provisions of the Threatened Species Conservation Act. The EEC is present in all of the proposed areas and the proposed designation boundaries have been altered to avoid these areas. The report has classified the land into high, moderate and low constraints and it is the highly constrained land that has been recommended for retention in either public land or not zoned and kept as primary production / rural as it is currently. The following comments are made on each of the proposed rural fringe designations:

- *Quirindi Northwest* – this land currently has a subdivision approval for the southern part and the EEC has been taken out of the land to be designated rural fringe. This land is shown as Area 1 on Map 8.8.
- *Quirindi West* – this land is currently subdivided and it is not anticipated that there will be any further subdivision. The land is steep and has some vegetation on it and these constraints will prevent further subdivision. The designation merely clarifies and confirms the existing subdivision pattern which is a rural fringe area. Photo 8.7 shows this area. This land is shown as Area 2 on Map 8.8.
- *Werris Creek Rd* – This land has a significant amount of EEC in the middle of the proposed designation. It is considered appropriate that a contour line of 400m be used to delineate the boundary between the land which is to be included in the rural fringe designation and the land which is to be taken out. Whilst it is acknowledged that this will leave some of the EEC in the proposed rural fringe area it is considered that the land below 400 m can be developed in accordance with the recommendations which are that vegetation clearing be controlled to only the building envelope, building envelopes be mapped and sited on the development application and that the lots be larger than 2 ha. It is considered that this can be placed as a specific component of the development control plan for the site. This land is shown as Area 3 on Map 8.8.
- *Stanley Crescent – Wallabadah Road* – this land is currently already subdivided into lots of 2 ha all of which have dwellings on them. It is therefore merely a confirmation of the existing use of the land. This land is shown as Area 4 on Map 8.8.

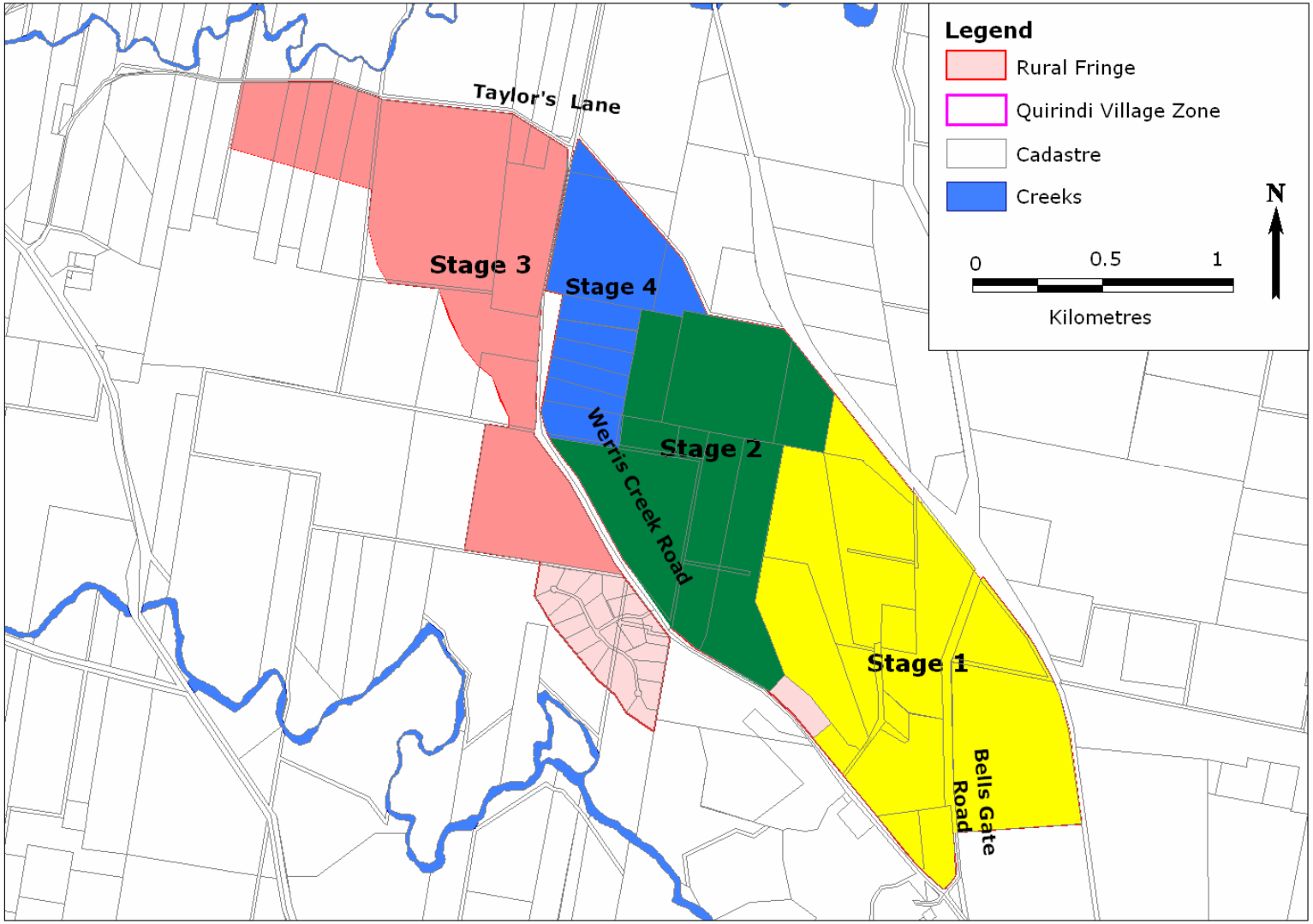
Photo 8.7: Quirindi West Rural Residential
Date of Photo: March 2005



Map 8.8: Proposed Quirindi Rural Fringe Designation

The rural fringe areas have the ability to cater for a range of lot sizes to reflect the desired development density and environmental constraints affecting the area. It is considered that an appropriate development density for the 4 rural fringe areas would be in the order of 2 ha. However, to ensure a range of lot sizes can be created to cater for site variability and environmental constraints, a 1 ha minimum lot size is considered appropriate. In order to ensure that the development density is managed it is proposed to establish design guidelines and concept plans for the 4 rural fringe areas in a DCP.

Analysis of the land shows that there is a potential supply of 424 lots. This is considered to be sufficient supply for at least 20 years based on 20 lots per year as a maximum demand and 40 years supply at 10 lots per year. However there is a need to ensure that the land is released in a logical and sustainable manner. This will be done by way of staging the actual zoning of the land. It is noted that 3 of the areas will not yield a large number of lots being clarification of an existing subdivision pattern (areas 1, 2 & 5). The only area where there is anticipated to be a large amount of subdivision is the area to the north of Quirindi along the Werris Creek Road – both east and west. This is shown on map 8.9. Stage 1 will yield approximately 140 lots which will be sufficient for approximately 14 years supply at 10 dwellings per year. If the demand is greater, the second stage can be rezoned with sufficient lead time. In order to manage the timely release of land for development it is proposed to establish a land register to provide the necessary supply and demand figures to Council.



Map 8.9: Quirindi Rural Fringe Designation Staging

Future Rural Residential development areas – Rural Living

Currently there are no specific areas set aside for the rural living style of development. As outlined in Chapter 7, this type of development is for larger lots and it is considered that 40 ha should be the minimum lot size for subdivision. However, the land that has been identified as being suitable also has some lots in it that are vacant and it would be appropriate to provide a dwelling entitlement for these lots as well as it will provide a variety of lot sizes.

The criteria for rural residential development outlined in section 8.3.2 has been applied to the land around Quirindi and 3 areas have been identified. Map 8.10 shows them in relation to the town of Quirindi and the Villages of Wallabadah and Willow Tree and map 8.11 shows the Wallabadah Rd area in detail and map 8.12 shows Bora Creek Rd area and map 8.13 shows the Willow Tree area in detail. The reasons for choosing them is discussed below:

- *Wallabadah Road* – This proposed area is located on the Wallabadah Road approximately 4 km east of Quirindi and 4.5 km west of Wallabadah. It is on the southern side of the road which is slightly undulating land with scattered vegetation. There are 3 creeks running through the area – Kangaroo Creek and Quirindi Creek in the east around Hamilton's Road and Two Mile Creek runs through the western part. In addition, Rocky Gully Creek drains from a small part of the southern area. It has sealed road access to Wallabadah and Quirindi and there are 2 roads that provide access to the existing lots – Carinya and Hamilton's Roads. This area has a number of lots that are less than 40 ha and there is not anticipated to be any subdivision, however a dwelling entitlement is proposed to be given to each of the lots in the designation. This will be done via a specific clause in the LEP to allow dwellings on already created undersized lots in the specific zone only. There are a total of 44 lots of which 7 already have dwellings on them giving a supply of 37 lots. If a demand of 5 lots per year is used, this will provide 7 years of supply, which is considered adequate having regard to the fact that it is a new area which may take some time to develop. The ecological investigations found that there would be no impediment to the rezoning provided the following recommendations were taken into account:

    - ⇨ Retain mature trees
    - ⇨ controlling provisions to prevent grazing 'moderate' land (the hilly areas)
    - ⇨ larger lifestyle blocks should contain the woodland and riparian areas

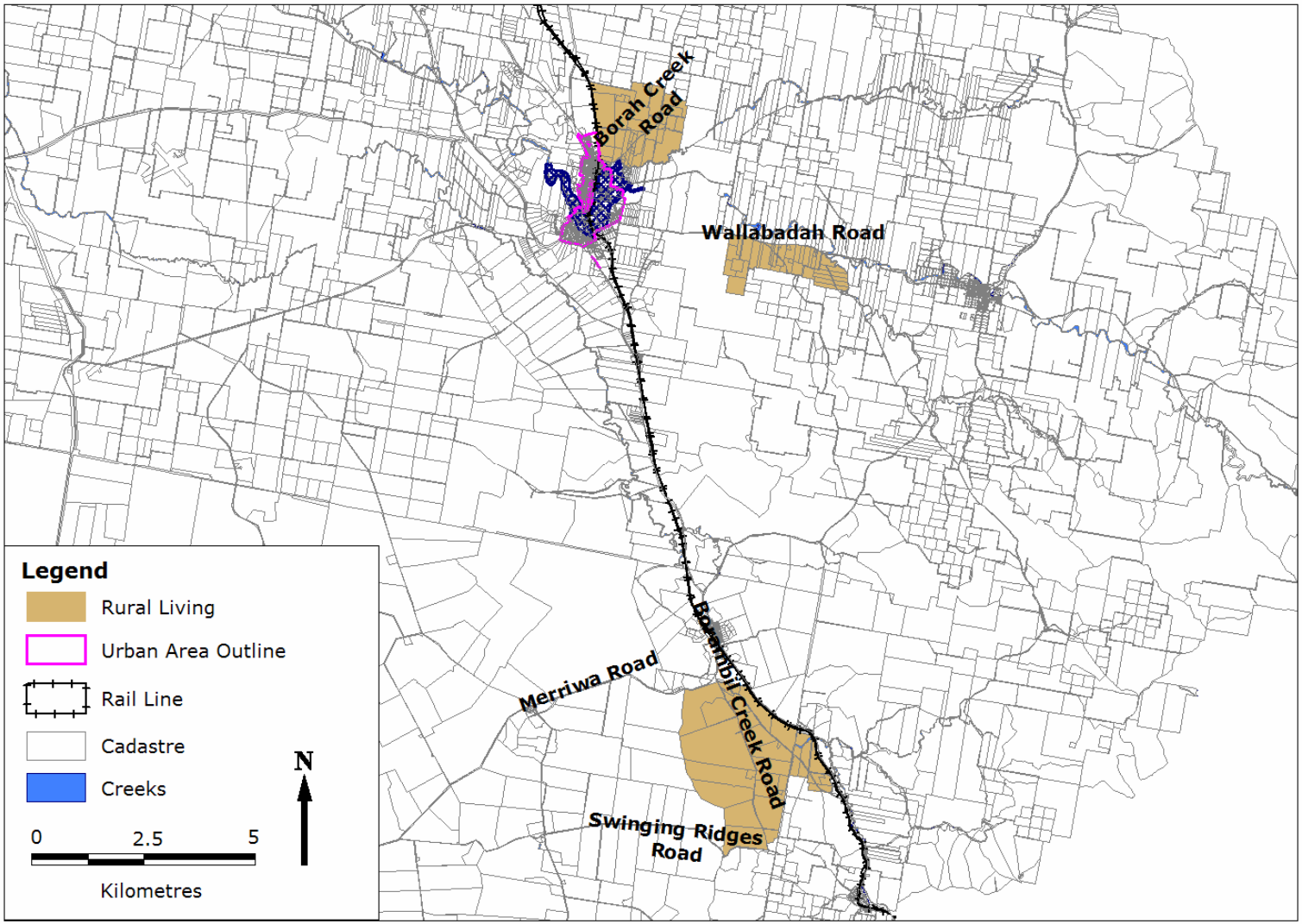
- Bora Creek Road – this proposed area is located adjacent to the Quirindi urban area along Bora Creek Rd. It is on both sides of the road and the topography is flat to slightly undulating with sparsely scattered vegetation. This area has a number of lots that are less than 40 ha and there is not anticipated to be any subdivision, however a dwelling entitlement is proposed to be given to each of the lots in the designation. This will be done via a specific clause in the LEP to allow dwellings on already created undersized lots in the specific zone only. It will yield 31 additional dwellings on a range of lot sizes from approximately 2 ha to 50 ha. There are 15 dwellings in the area already There are only 2 lots that are larger than 80 ha and so these lots will be the only ones able to be subdivided. If a demand of 5 lots per year is assumed, it will provide a for 6

years supply which is considered adequate having regard to the fact that it is a new area which may take some time to develop.

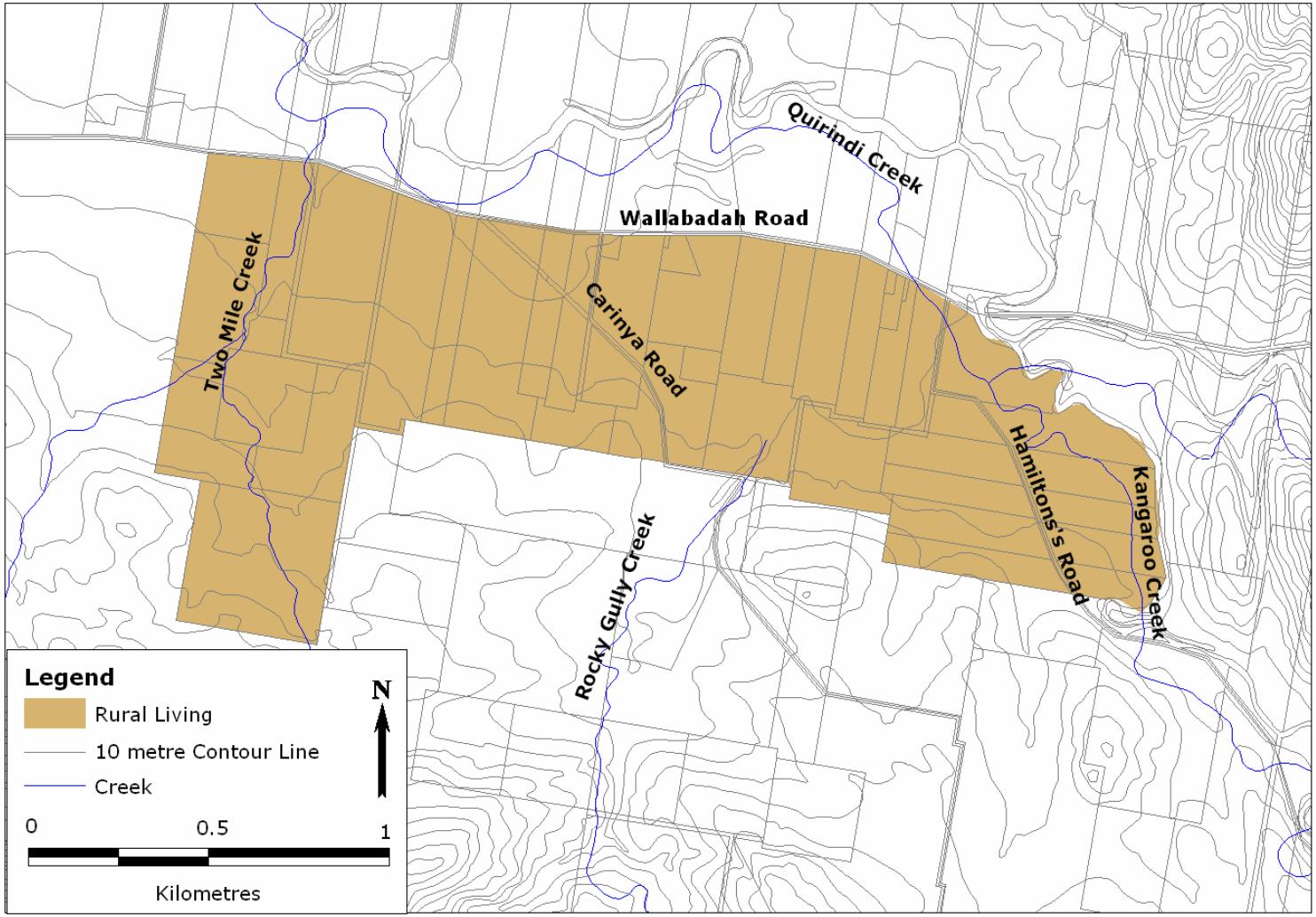
- *Willow Tree* – This proposed area is located approximately 1 km south of Willow Tree which is 13 km from Quirindi and 16 km from Murrurundi. Its boundaries are Merriwa Rd in the north, Swinging Ridges Road in the south with Borambil Creek and Glenaylla Roads providing access. To the east is the Railway line and the western boundary is a ridgeline. The land is flat in the east rising to undulating land in the west. There are 2 creeks that run through the area - Borambil Creek and Chilcotts Creek. Vegetation is sparse to the east of Borambil Creek Road with some riparian areas along the creeks. The vegetation becomes more scattered and dense to the west of Borambil Creek Road and this is part of an Endangered Ecological Community (Box-Gum Woodland). All of the roads are sealed except for Swinging Ridges Road and this is not expected to have much additional traffic on it because most of the traffic will be using the other roads. The area is a mixture of lots smaller than 40 ha with some larger ones. The lots that are less than 40 ha are proposed to be given a dwelling entitlement. This will be done via a specific clause in the LEP to allow dwellings on already created undersized lots in the specific zone only. There could be a lot yield of 46 lots of which 8 have existing dwellings leaving an additional 38 potential dwellings. If a demand of 5 lots per year is used, this will provide 7 years of supply, which is considered adequate having regard to the fact that it is a new area which may take some time to develop. The ecological investigations found that there would be no impediment to the rezoning provided the mature trees are retained, providing minimal grazing on the hilly areas and maintaining the areas of woodland and riparian land. The land to the west of Borambil Creek Road is classified as highly constrained because of the presence of the Box-Gum Woodland. In these areas the ecological investigations found that the land may be suitable for this type of development as long as the following recommendations are taken into account:

    - ⇨ further investigations are undertaken to investigate the presence of threatened species;
    - ⇨ controlling provisions to retain all vegetation;
    - ⇨ controlling provisions to prevent grazing and other high disturbance activities;
    - ⇨ if possible, retain 'High' constrained land within single lots

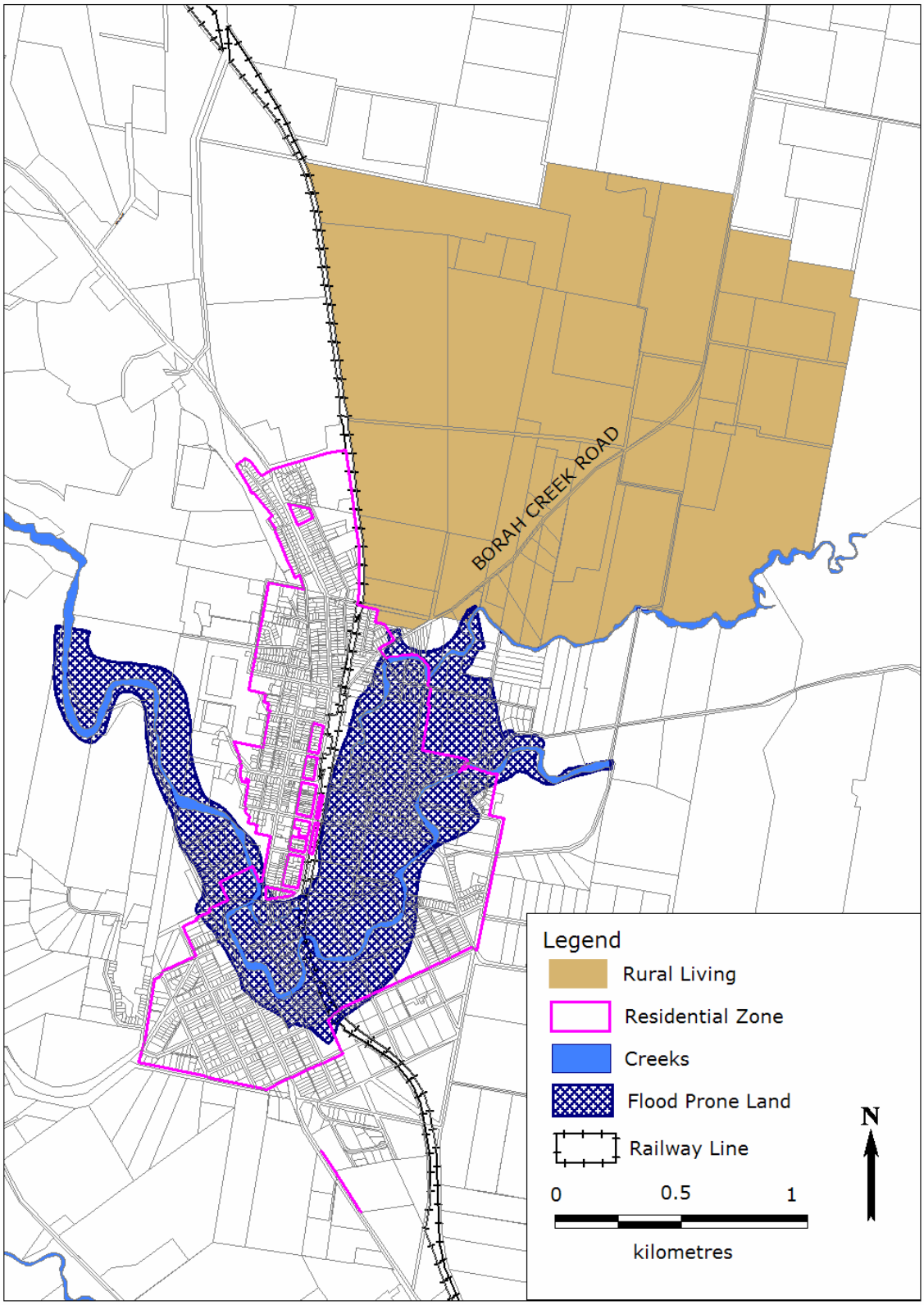
  It is considered that these recommendations can form part of the Development Application process.



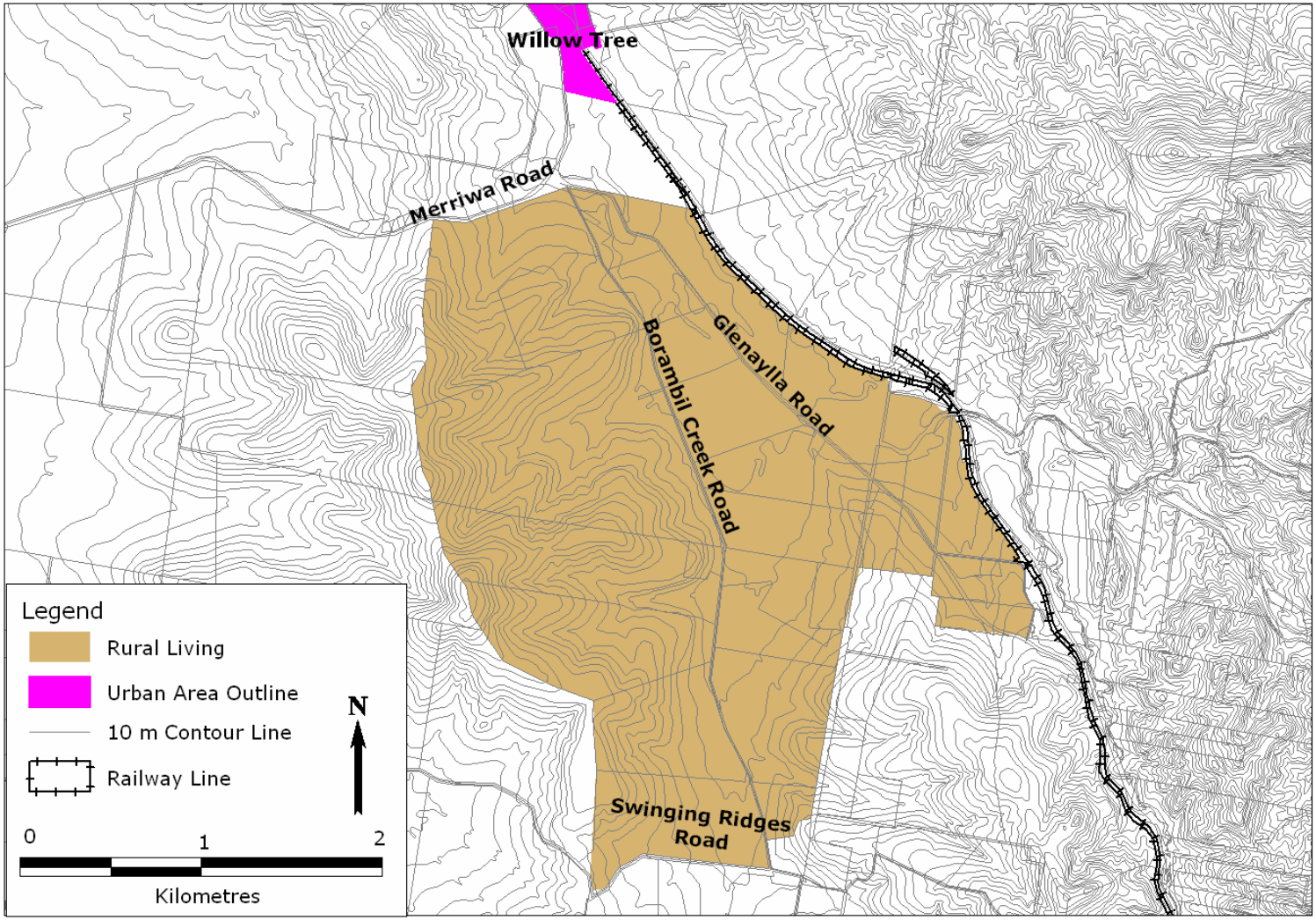
Map 8.10: Proposed Rural Living Designations



Map 8.11: Proposed Rural Living Designation – Wallabadah Road



Map 8.12 Proposed Rural Living Designation – Borah Creek Road



Map 8.13: Proposed Rural Living Designation – Willow Tree

Retail development

Analysis of the commercial centre of Quirindi has been carried out by Castlecrest Consultants in a report for the Council prepared when it was considering the proposed new supermarket. This has been referred to in section 2.4.3.

As a result of the new supermarket, it is envisaged that the retail area does not need any expansion. The report by Castlecrest identifies that there is a market leakage of 72%. The supermarket has now been completed and it is anticipated to 'plug' a great deal of this leakage of expenditure.

Bulky goods retail has not yet established itself in Quirindi but it is a type that is anticipated to be developed over the next 5 – 10 years as the town grows. This type of development should be accommodated in the industrial area on the southern side of the town. However there will be a need for appropriate controls to ensure the primacy of the CBD as the main area for commercial development. This could be done via a DCP provision. The reason for this is that it provides good access and also has sufficient land to allow for the parking and large scale of building. There is not considered to be sufficient land in the existing commercial area nor would the scale of such a building be in keeping with the streetscape character of the town centre.

One aspect of the commercial area that is good is its relatively compact nature. However, there might be pressure brought to bear on a future Council to allow for a lateral (north – south) expansion of the commercial area. This is not considered appropriate because it will further elongate the centre. One option that should be explored is development of land to the west of the current area fronting Church Avenue between Pryor and Henry Streets. This land is shown on map 8.14 and photo 8.8.

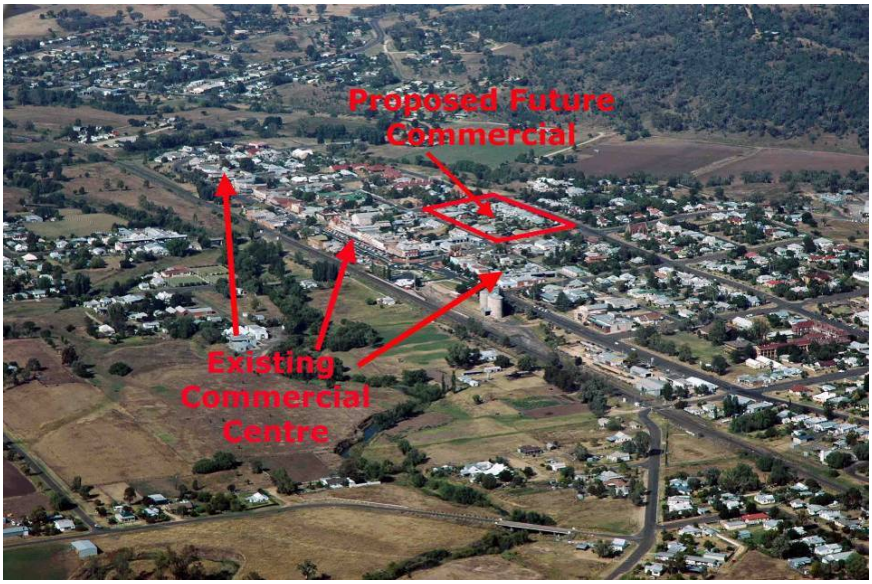
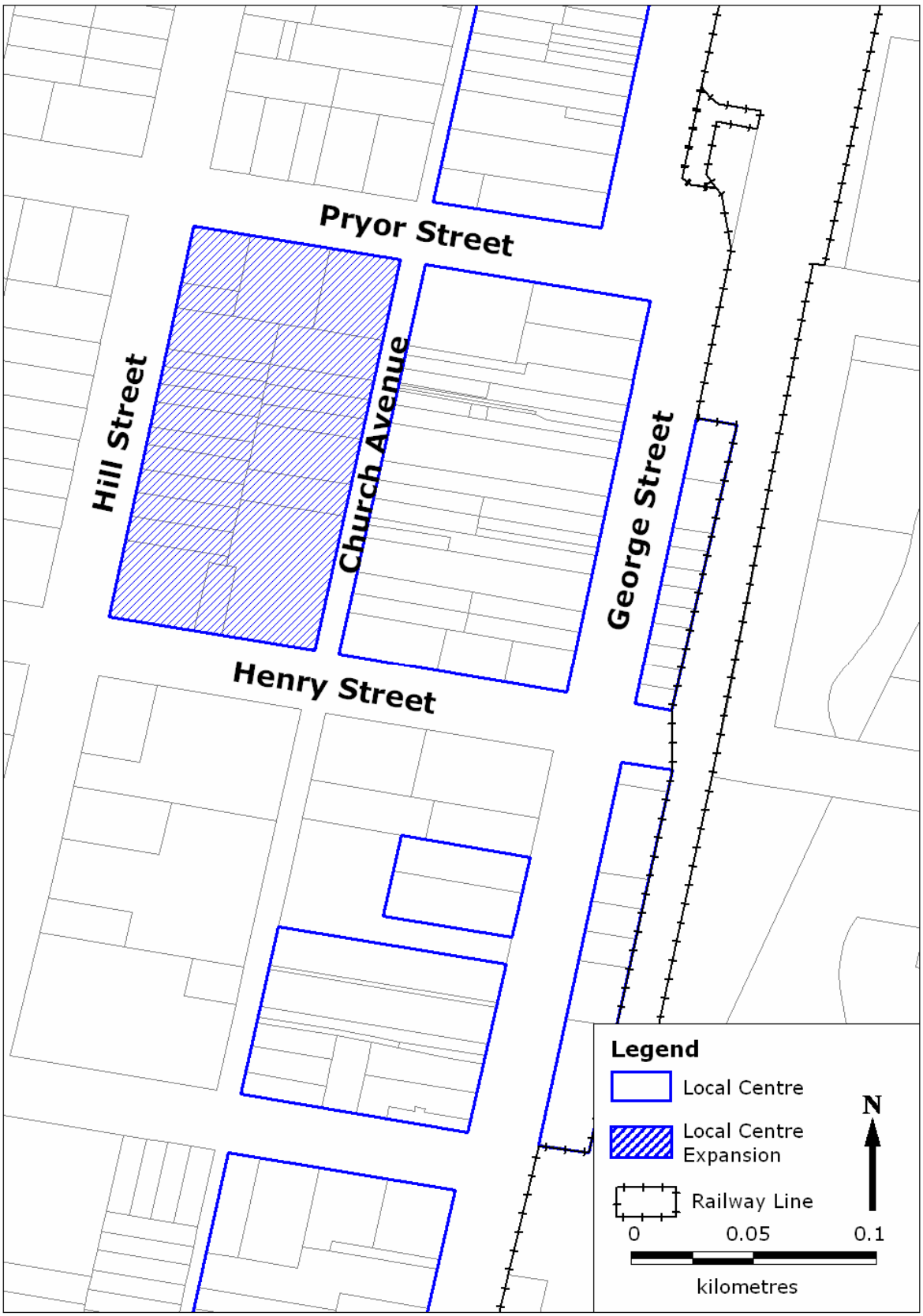


Photo 8.8: Quirindi Commercial Area Expansion
Date of Photo: March 2005



Map 8.14: Quirindi Commercial Area Expansion

Industrial development

The industrial development in Quirindi is in 2 areas – to the south of the town in the vicinity of South Street and also to the north of the town on the east of Werris Creek Road. The land to the south is zoned as industrial and the land to the north is part of the village zone.

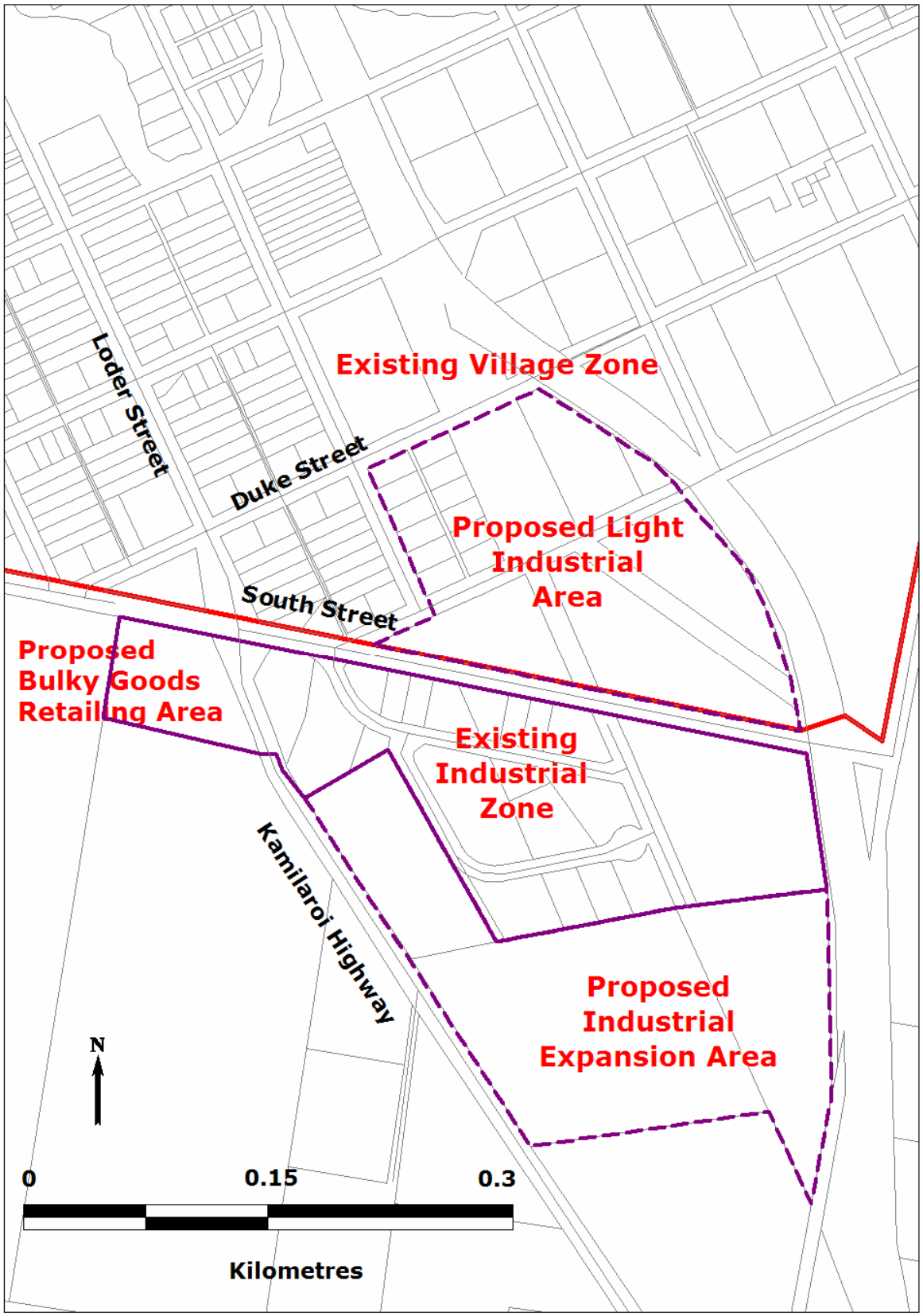
The land to the south has recently been developed and has a number of new uses located on it. The main developments are a major sawmill, concrete batching plant and warehousing. Photo 8.9 shows the industrial zone.

Photo 8.9: Quirindi Industrial Zone
Date of Photo: March 2005

The land to the south is the most appropriate for an expansion of the industrial zone. The reasons for this are as follows:

- Located on the southern extremity of the urban area;
- Good access to Kamilaroi Highway via South Street;
- Existing large industrial uses such as sawmill being developed;
- Mixed residential and industrial uses to the immediate north of the land;
- Land to north of town is surrounded by residential development;

There is land to the north east of the existing southern industrial zone which is currently vacant and near to the railway line. It would be more appropriate to change the zoning of this land as light industrial rather than residential. It will also help to reduce potential conflict between residential and industrial development because the land adjoining to the north is flood prone which means it has larger lots as well as being a mixture of light industrial and residential style uses. The existing and proposed industrial areas are shown on map 8.15 and photo 8.10.



Map 8.15: Proposed Industrial Area Quirindi South

Photo 8.10: Existing and Proposed Industrial Zone Quirindi South
Date of Photo: March 2005

The land extending from the former Saleyards in Pryor Street to the Council depot in Davies Street has an industrial character and should be zoned as such. The steep land between the residential land and the proposed industrial land creates a 20 m height differential which is a good buffer. The proximity to the Sewage Treatment Plant (STP) is not conducive for it to be developed for residential which is its current zone. There is a buffer of 100 – 150 metres from the STP to the boundary of the zone and the STP is also 10 metres lower than the proposed industrial zone. The land to the north of the saleyards is vacant and has potential for investigation as a light industrial area in the future. The land is shown on photo 8.11 and map 8.16.

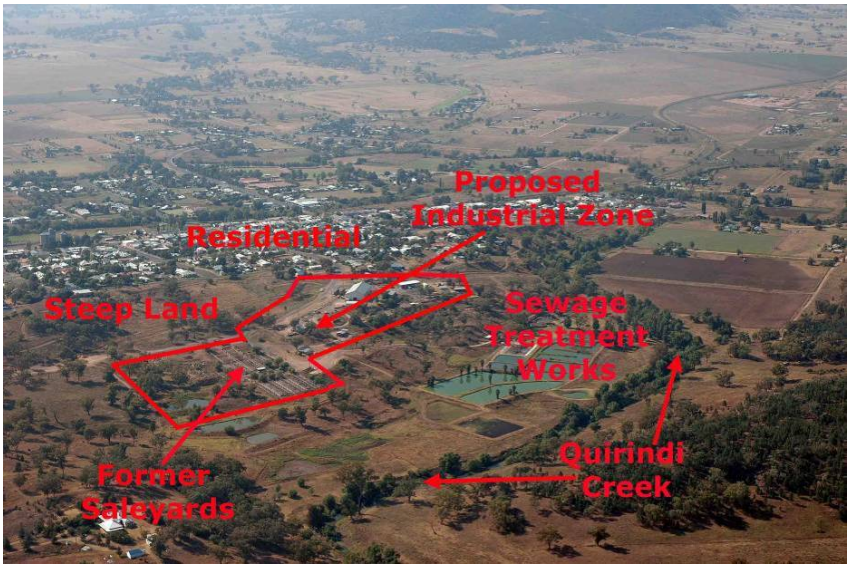
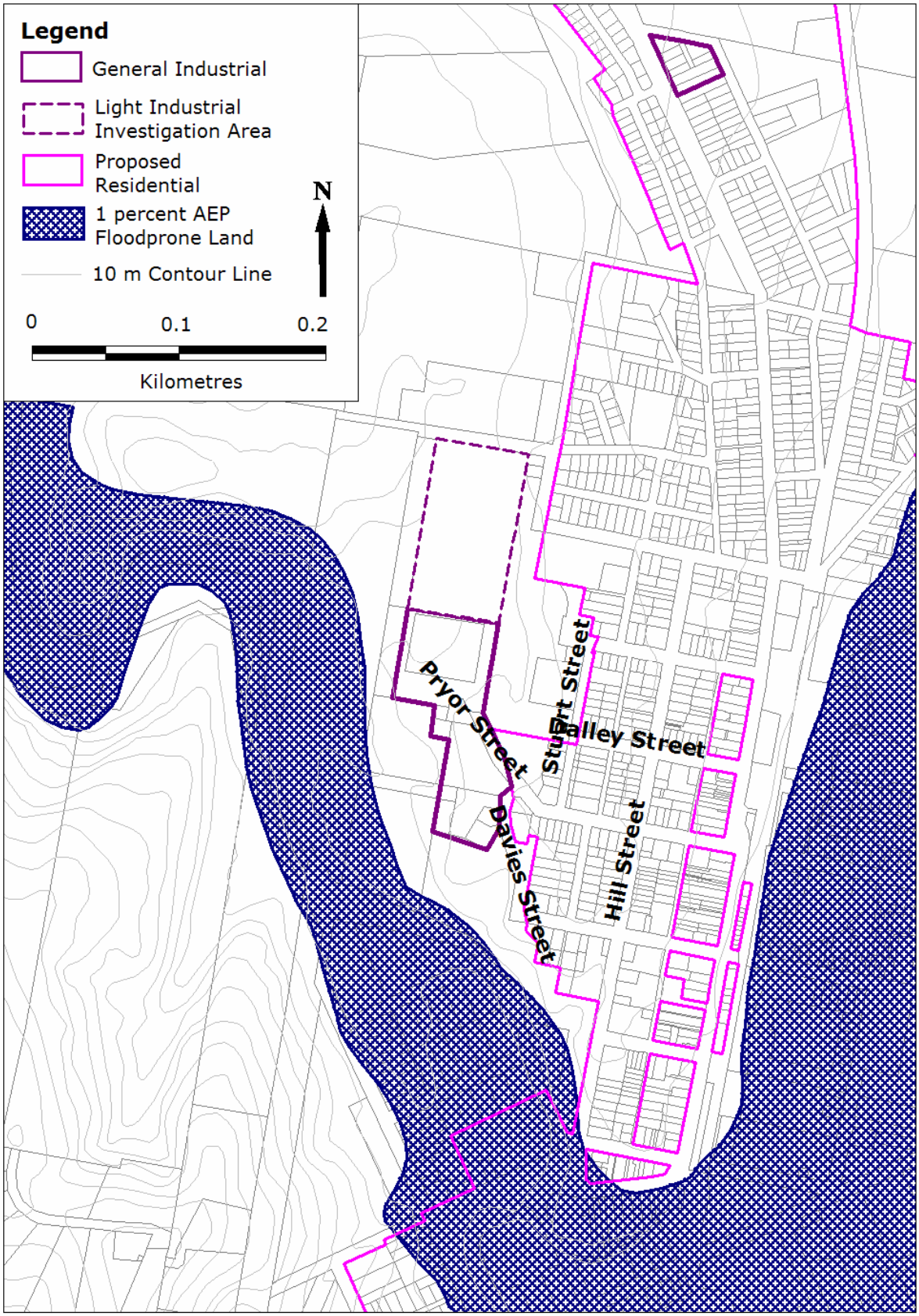


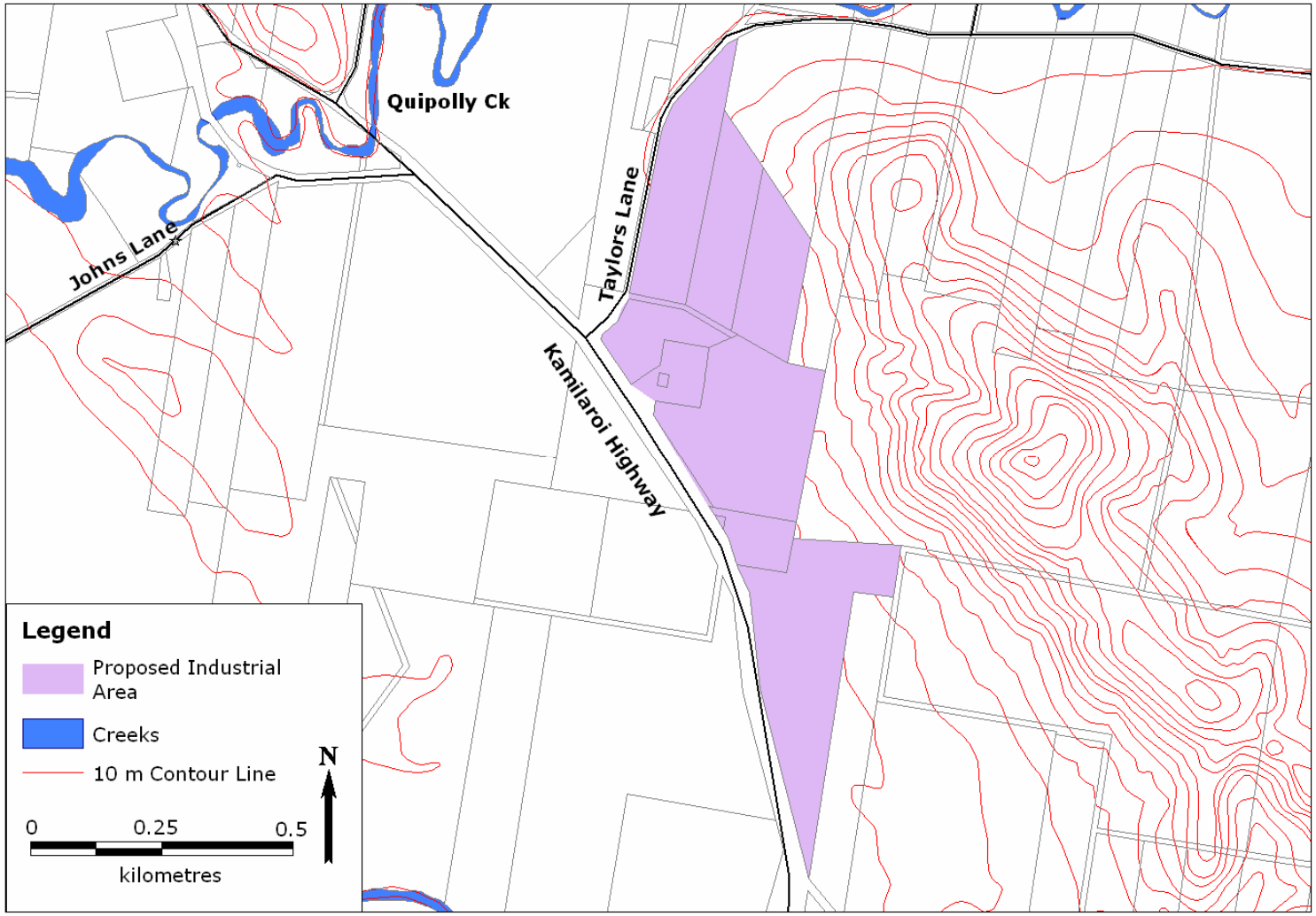
Photo 8.11: Proposed Industrial Zone Quirindi West
Date of Photo: March 2005



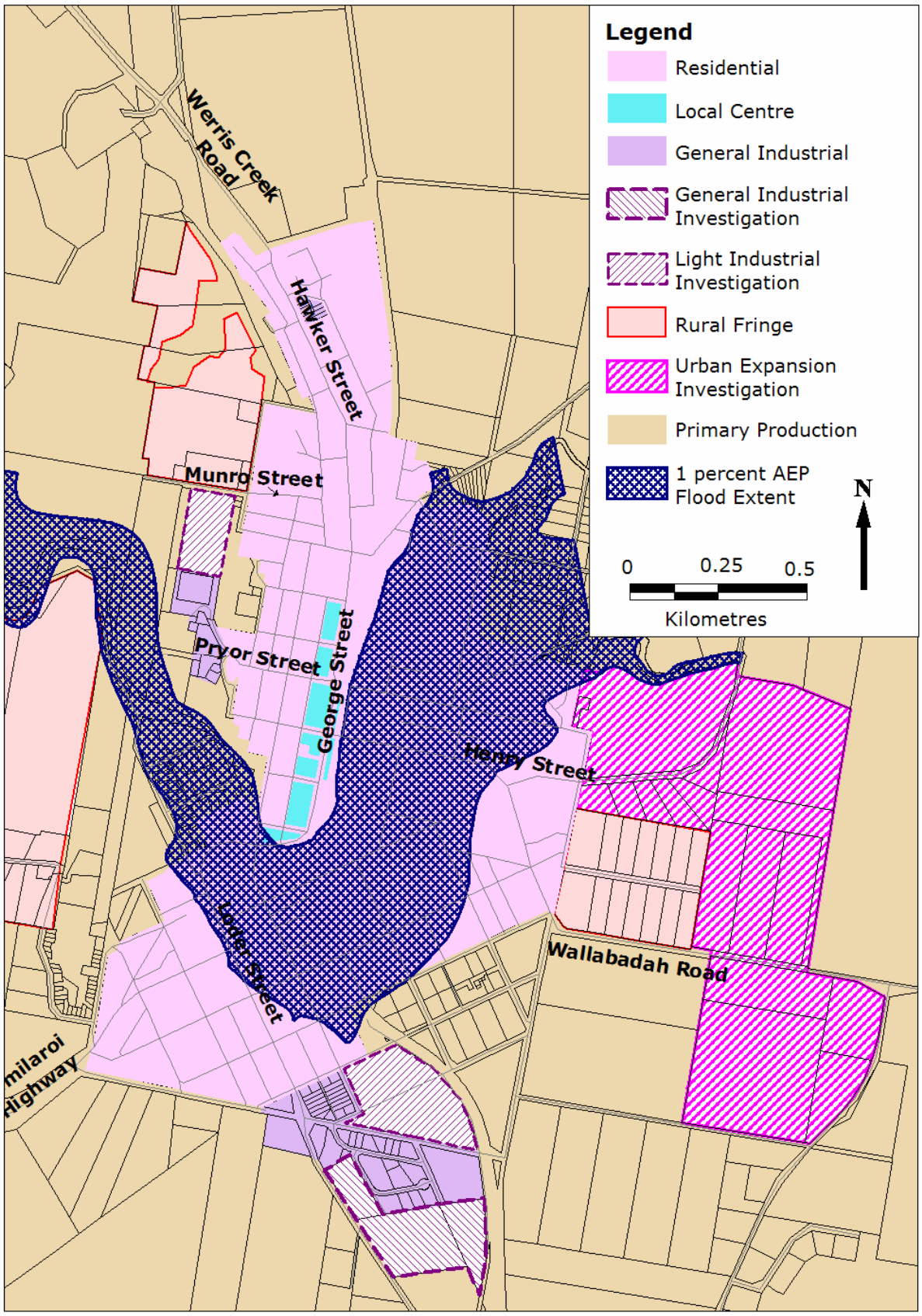
Map 8.16: Proposed Industrial Area Quirindi West

If the Gunnedah Coal Resource is developed to its full extent, there would appear to be some justification to consider the development of some greenfield industrial land to cater for the larger type of industry that could be attracted to the area. A possible area would be the land fronting the Kamilaroi Highway at Taylors Lane. There would have to be Service upgrading in the form of water, sewer treatment plant and electricity. Access can be gained from Taylors Lane which has a good access with the Kamilaroi Highway, thereby eliminating the need for access to the Kamilaroi Highway. It is noted that it is against the RTA policy to allow access for traffic generating developments from highways like the Kamilaroi. However, this site could be worthy of consideration in the future. This site is shown on map 8.17.

The totality of the recommended changes to Quirindi's land use designations are shown on map 8.18.



Map 8.17: Proposed Industrial Area Taylors Lane



Map 8.18: Quirindi Urban Designations

8.3.4. Werris Creek

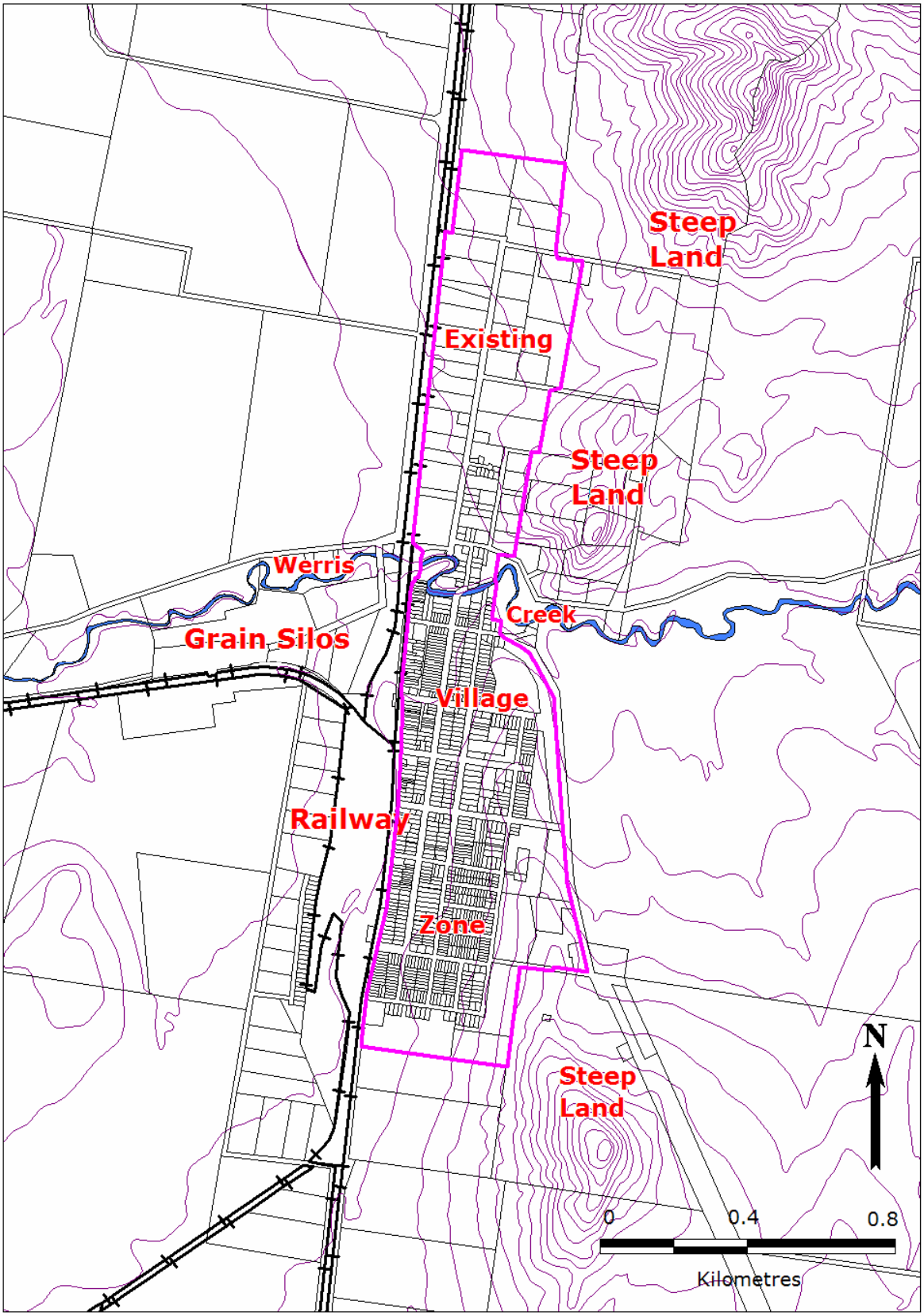
Constraints to Development

The southern part of the Werris Creek urban area is situated on the side of a hill which slopes to the west. The Werris Creek runs through the town in an east – west direction. The northern part of the urban area slopes in a southerly direction to the creek. There are 3 areas of steep land directly outside the existing urban zone – to the north, in the centre just north of the creek and to the south. This can be seen from map 8.19.

The railway line and station provide a western boundary to the town with the Werris Creek road between the railway and the urban area. There is a considerable area of land devoted to the railway line and buildings. A newly constructed Australian Rail Monument and Museum also forms part of this barrier to the west of the town. The Werris Creek grain silo also forms a barrier. These can be seen from photo 8.12.

The drainage between the houses (inter allotment drainage) has not been placed in the roadways and consequently, after periods of heavy rain, there is some localised flooding of backyards as the rainfall drains along the natural watercourses down the hill. This presents a constraint to future development on the eastern side of the town as there would have to be appropriate drainage put in place. Council has commissioned consultants to develop a drainage strategy.

The Council has commissioned an Ecological Constraints Assessment of this area which has concluded that there are 10 broad vegetation communities which included a large amount of Box Gum Woodland which are an Endangered Ecological Community (EEC) under the provisions of the Threatened Species Conservation Act. A total of 48 fauna species were recorded, 2 of which are listed as threatened species under the Threatened Species Conservation Act – the turquoise parrot and the diamond firetail. There were also a number of habitat features, which mostly comprised of fallen timber, dead trees and hollow bearing trees as well as some rock outcrops, creeks, wetlands and dams. These sites have been ranked and the highly constrained sites are considered to form significant habitat linkages in addition to the presence of EECs. However, the Assessment also found that most sites have some potential for development with appropriate controls.



Map 8.19: Werris Creek Constraints

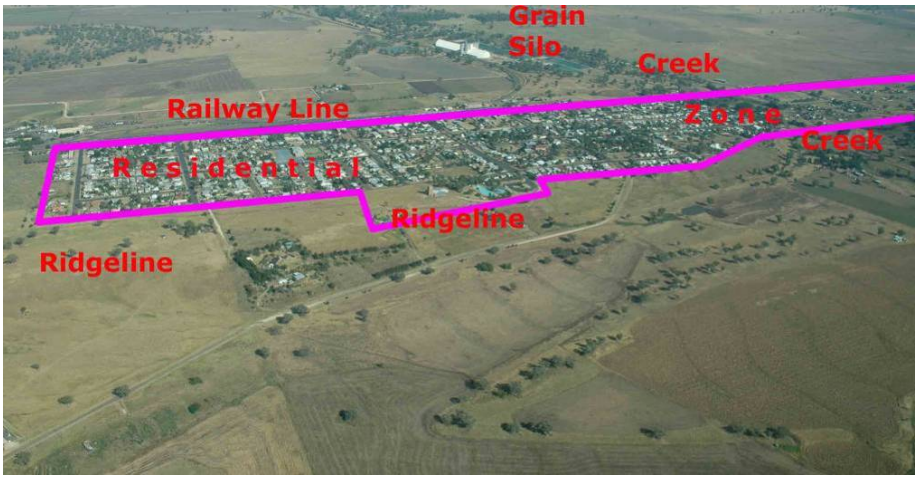


Photo 8.12: Werris Creek Constraints
Date of Photo: March 2005

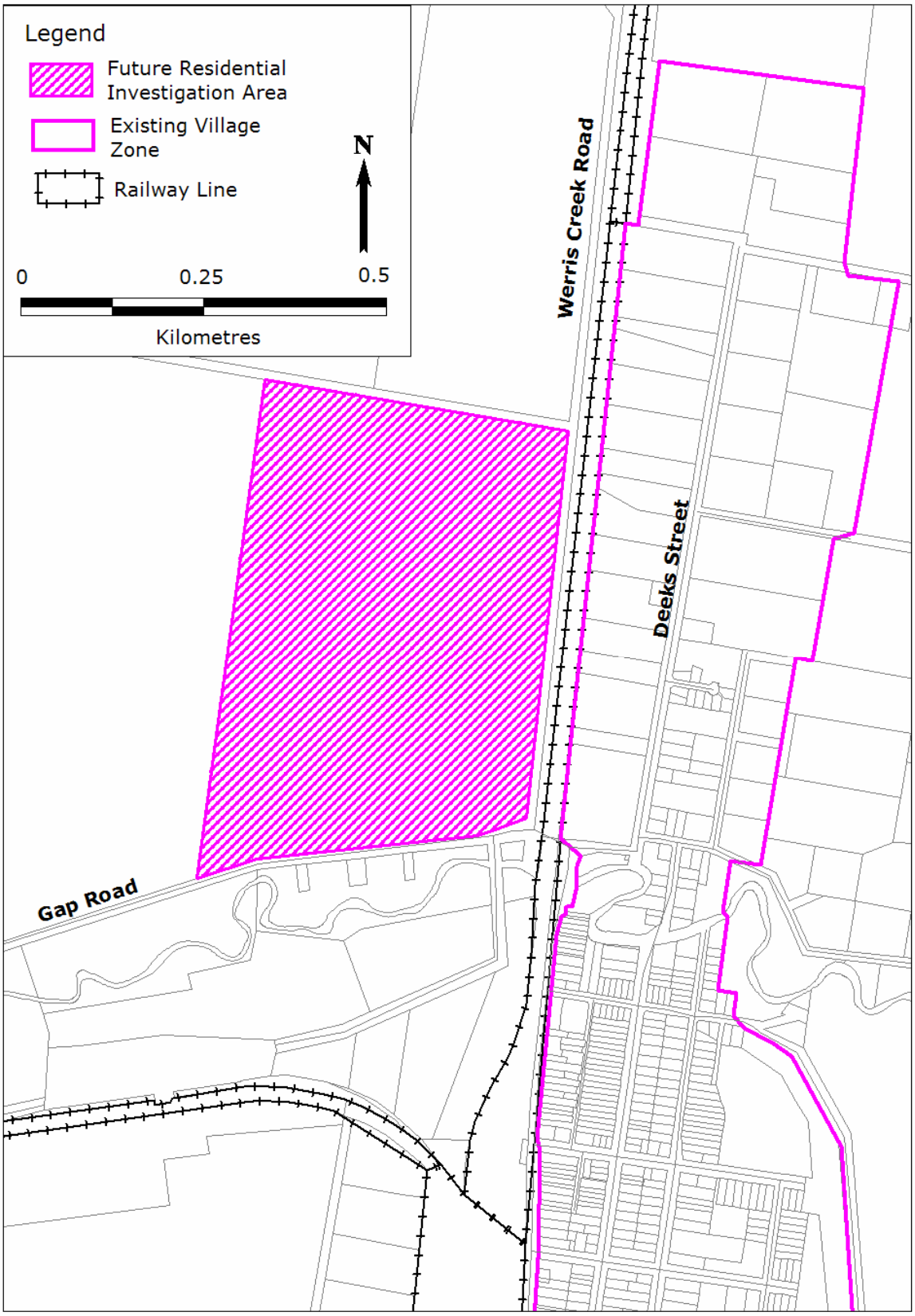
Future Residential Development and Investigation Area

Based on the supply and demand figures, there is sufficient supply for the foreseeable future – particularly in the northern part of the town. It is acknowledged that the estimates of growth are low and if the assumptions are doubled (to 20 – 30 dwellings per year) this brings the supply to between 39 and 59 years. However, it would be prudent to identify an area for long term residential expansion of Werris Creek. Land has been identified on the western side of Werris Creek Rd and north of Gap Road. This site has been chosen for the following reasons:

- The industrial uses and railway line as well as the coal mine to the south make land adjoining the town to the south unsuitable;
- The railway line makes the land to the west of town south of Werris Creek unsuitable as it forms a barrier to access as well as being noisy;
- The steepness of the land to the south east makes it unsuitable;
- The land to the south east has drainage issues as well as being good agricultural land;
- The land to the north east is steep as well as having the Gum Box EEC situated on it.
- The land can be served by water and sewer and is close to the existing urban area.

It should be noted that the first stage of the investigation would be to hold discussions with Australian Rail Track Corporation as the land is across the road from the railway line. The investigations will also have to cover detailed analysis into access to the site, impacts on the railway line, servicing for water, sewer, etc.

It is shown on map 8.20.



Map 8.20: Werris Creek Future Residential Investigation Area

Future Rural Residential development area – Rural Fringe

The 2 types of rural residential development have been described in section 7.3.3 as being rural fringe and rural living.

There is currently no zone catering for rural fringe style of development in Werris Creek. The former Parry Shire did not have a clause similar to Quirindi which allowed scattered development to be permitted. There is demand for rural fringe and having regard to the constraints of the land identified in the previous section, the land that is best suited is that along the western side of Black Gully Road on the eastern side of the urban area. This land has been chosen for the following reasons:

- It is close to the urban area and has good road access;
- Land to the south of the town is too close to the industrial, railway and mining uses and this would cause loss of amenity for anyone who lives there;
- Land to the west is cut off by the railway and too close to the industrial, mining and railway uses;
- Land to the north east is steep and has the Gum Box EEC on it;
- Land to the north of the urban area is considered to be too steep and close to the railway line
- Land on the eastern side of Black Gully Road is low lying and good agricultural land.

These lots can be connected to the reticulated water and sewer and would have an area of 4,000 m^2. It is estimated that there will be a lot yield of 20 lots from the 9.5 ha of land.

The ecological investigations found that the area had moderate constraints (adjacent to an Endangered Ecological Community and having Threatened Species Habitat) and that there should be no impediments to the use of the land for rural residential development as long as the following recommendations are taken into account:

- retain mature trees;
- controlling provisions to minimise grazing on 'Moderate' constrained land;
- larger blocks should be used to encompass any woodland and riparian areas

It is considered that these recommendations can be addressed as part of the Development Application process.

The land is shown on map 8.21.

Future Rural Residential development area – Rural Living

Currently there are no specific areas set aside for the rural living style of development. As outlined in Chapter 7, this type of development is for larger lots and it is considered that 10 ha should be the minimum lot size for subdivision as opposed to the other areas to the south. This is because of the proximity to Werris Creek and Tamworth.

The criteria for rural residential development outlined in the previous section has been applied to the land around Werris Creek and 1 area has been identified as can be seen from map 8.21. This land has been chosen for the following reasons:

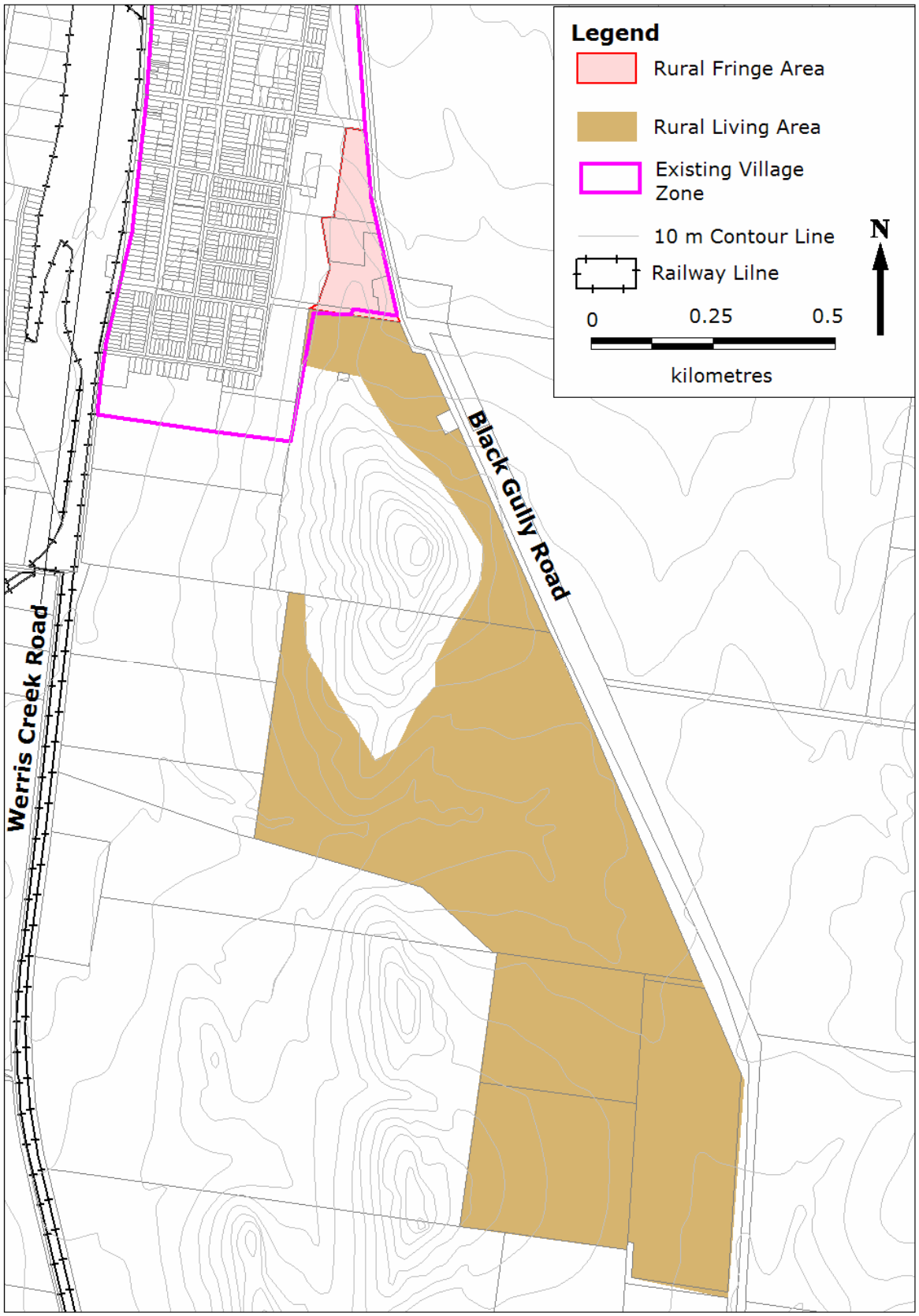
- the land has frontage to Black Gully Road which has direct access to the town of Werris Creek
- is gently undulating with some steep land in the northern part and this land should be subdivided into larger lots of 10 ha
- the steep land should not be included
- the land is sparsely vegetated except for the more hilly land that has an Endangered Ecological Community (Box-Gum Woodland) on it.

There are 7 lots of varying sizes and no dwelling houses on the land. It could yield approximately 20 lots which is considered appropriate and using a demand of 5 per year would have sufficient supply for 5 years.

The ecological investigations found that there would be no impediment to the rezoning provided the following recommendations were taken into account:

- Retain mature trees
- controlling provisions to prevent grazing 'moderate' constrained land (the hilly areas)
- larger blocks should be used to encompass any woodland areas

The steeper land which has the Box-Gum Woodland on it is 'highly' constrained because of endangered ecological community mentioned above and this area would be suitable for larger lots. However it is considered that the steep land should not be within the zone. It has therefore been excluded.



Map 8.21: Werris Creek Rural Fringe and Rural Living Area

Industrial development

There are some industrial uses in Werris Creek at present but are interspersed throughout the urban area. The size of the town and the development of the coal mining industry (proposed exploration areas at Caroona and Watermark) as well as the location on the railway line mean that there is an opportunity to create some industrial zoning and make Werris Creek the location for heavy type industrial uses and rail based uses (it being noted that there is an approval for a rail freight terminal on the Werris Creek Gap Road). There is also a mineral processing facility to the south west on Escott Road.

It is therefore considered that the future industrial uses for Werris Creek should be in 2 different types:

- Light industrial area to serve the needs of the town; and
- Larger industrial area to be used for larger heavy industrial uses and rail based uses.

They are shown on map 8.22. The light industrial area has been chosen because of proximity to the town as well as the presence of other light industrial uses in the area. It also has good road access and sight distances for efficient traffic management.

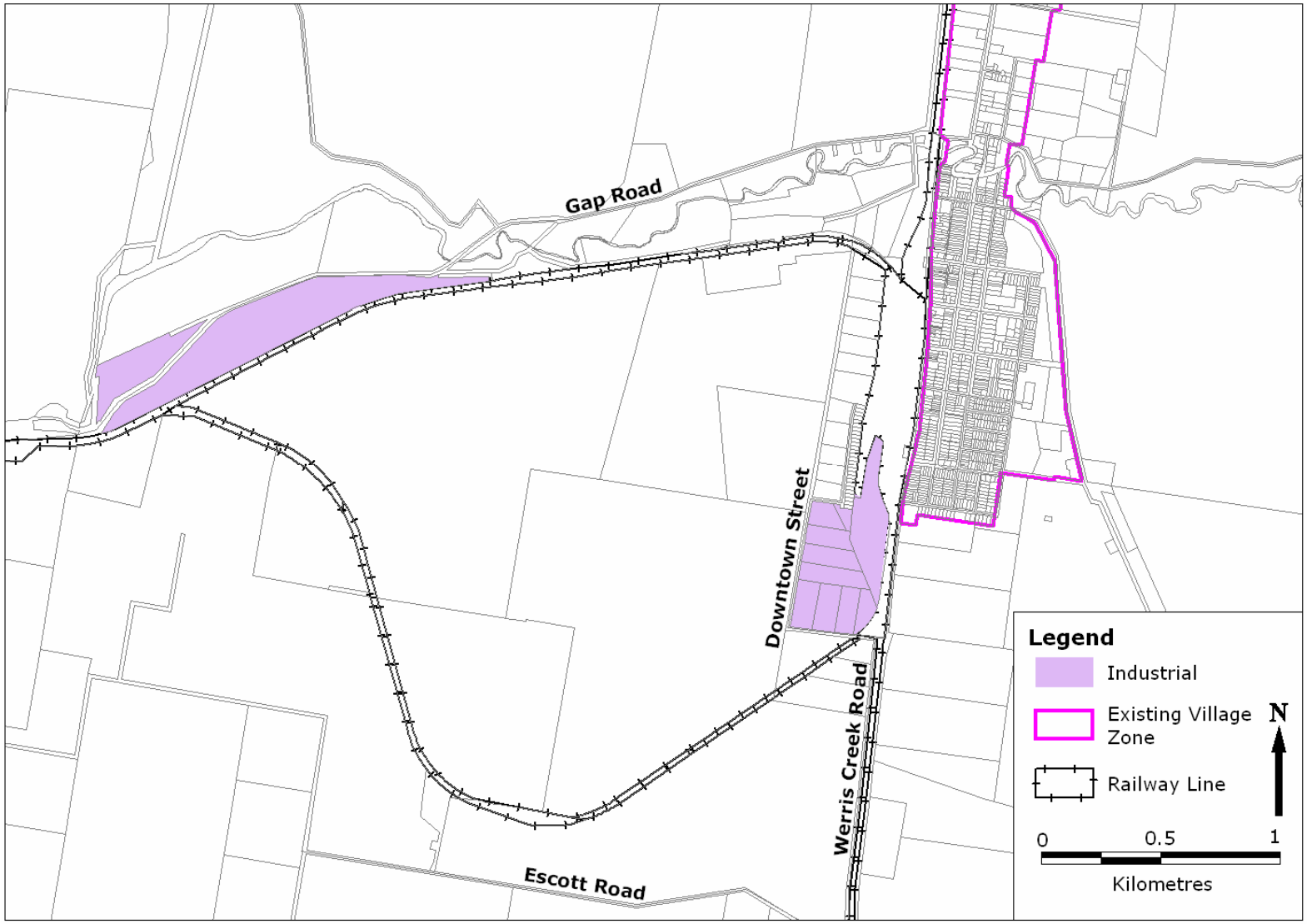
The heavy industrial area has been selected because it is adjacent to the current rail operations and therefore having access to the railway infrastructure. It is also located away from the existing urban area and noise attenuation can be added in any development application to have less impact on the residential area of Werris Creek.

The existing coal mine at Werris Creek and potential future mining at Caroona present some opportunities for service / support industries to establish themselves. It is considered that Werris Creek has good locational attributes for such industries to establish. It is considered that these could be accommodated in the area identified above for heavy industries.

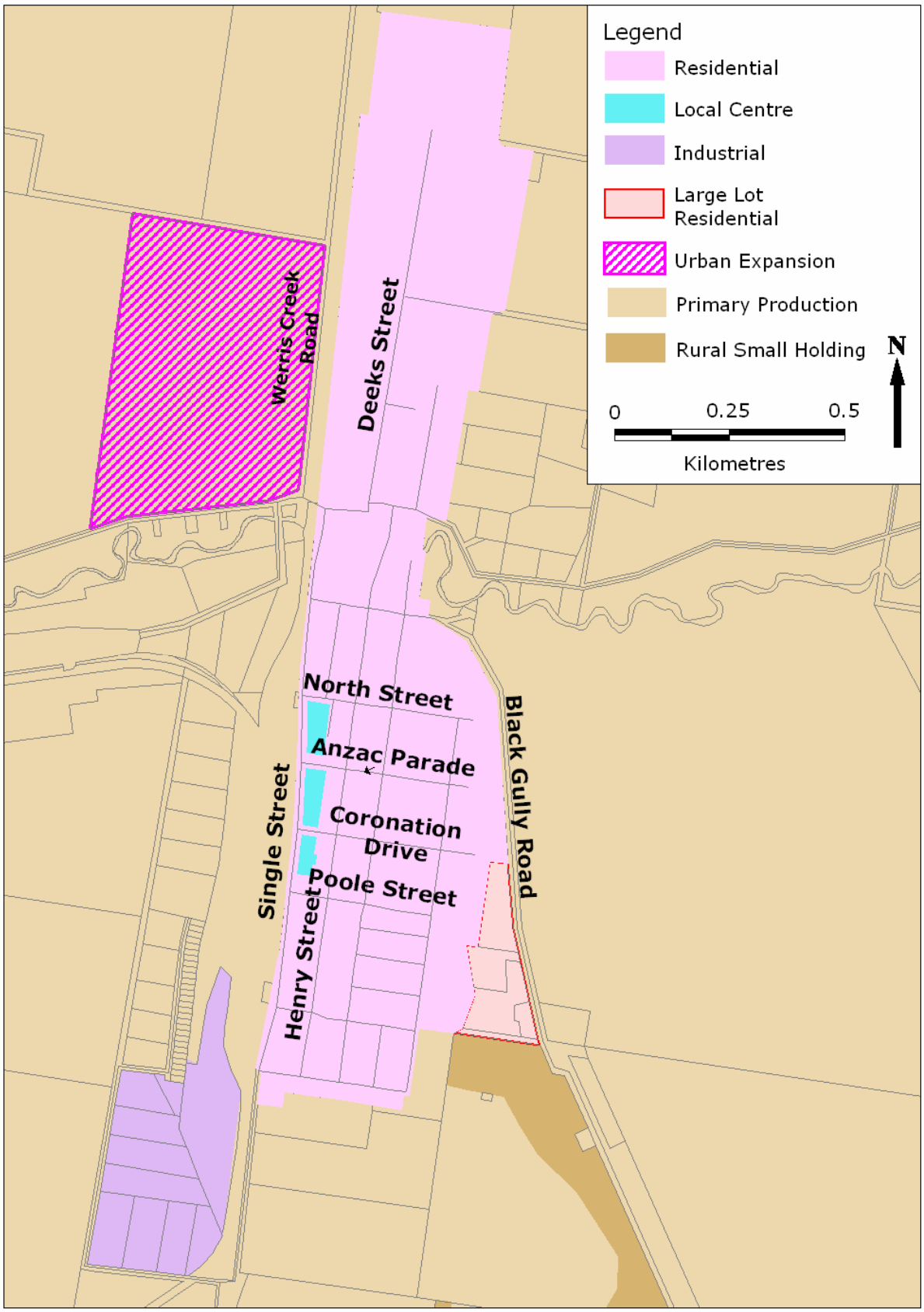
It is noted that the railway line forms a 'loop line' south of the township which meets up with the main line to the west near the proposed rail freight terminal – this line feeds the current coal mine as well as the mineral processing facility in Escott Road. It would be appropriate for the land inside this loop be an area to be preferred for any other heavy type of industrial use – making use of the railway and road access that already exists.

Retail Development

Werris Creek has a defined commercial business district. It stretches along Single Street from North St to Poole Street. It does not extend to have any frontage to Henry Street. This is considered to be sufficient for the foreseeable future having regard to the new supermarket that has recently opened in Quirindi and the proximity to Tamworth. The town has a supermarket, and other convenience shopping facilities and it is not anticipated that there will be any higher order shopping facilities than already occurs. It would be appropriate for this are to be zoned as an appropriate business zone and the proposed Local Centre designation is shown on map 8.23.



Map 8.22: Werris Creek Industrial Designations



Map 8.23: Werris Creek Urban Designations

8.3.5. Preserving Rural Land

Rural land has 3 productive components. It is a source of food, fibre and resources (like water and minerals), a biodiversity resource and a place for people to live. These relate to the three components of ESD in the following manner:

Source of Food, Fibre & resources	➔	Economic
Biodiversity Resource	➔	Environment
Place to live	➔	Social Equity

They combine to form the rural landscapes that are a mixture of flat land, hilly land and land covered by native vegetation. There is a need to find the balance between all three of these components.

Agricultural land is a resource, it is not a commodity. It is a resource that is dwindling in NSW as productive land is converted to residential and rural residential use. It is acknowledged that this is not happening to a large degree in the Shire, except for land around Quirindi where there have been some recent subdivision of land in to 2 ha lots. There is, therefore a need to allow farms to continue by not permitting unnecessary fragmentation of them.

> *"Prime agricultural soils represent the highest level of agricultural productivity; they are uniquely suitable for intensive cultivation with no conservation hazards. It is extremely difficult to defend agricultural lands when their cash value can be multiplied tenfold by employment for relatively cheap housing. Yet the farm is the basic factory - the farmer is the country's best landscape gardener and maintenance workforce, the custodian of much scenic beauty. The market values of farmland do not reflect the long-term value or the irreplaceable nature of these living soils. An omnibus protection of all farmland is difficult to defend; but protection of the best soils in a metropolitan area would appear not only be sensible, but clearly desirable." (McHarg, 1992 p 60)*

One major issue with planning for the preservation of agricultural land is the size of the holdings that currently exist. The smaller the lot the more likely it is to be used for a residential use and when there is a mixture of rural residential (this can range from 1 – 2 ha to 40 ha) and agriculture – both extensive and intensive – this can lead to rural land use conflict. Where there are a number of larger lots it is easier to protect the resource for agricultural use because of the ability to locate any dwellings away from the agriculture that is practiced on the adjoining land. There is also a higher probability that the land will be used for agriculture rather than rural residential if it is a larger size.

It should be recognised that this desire to subdivide is based on the farmers' belief that they should be permitted to subdivide the land or that they have a 'right' to subdivide. At no time has there been any indication from the Council or State Government that they would be able to subdivide some time in the future. It is a resource that can be utilised in the future if it is not subdivided. However, experience has shown that once land is subdivided, even into rural residential lots of 10 to 20 ha to 40 ha and even up to 100 ha, the ability for it to be used for agricultural use is lost. It can be sold as an intact holding which can then be used as a rural residence if

desired as an interim use, but the important thing to note is that the resource has been preserved.

As planners seek to balance the needs of agricultural producers with those of rural residential dwellers and biodiversity habitat, they must also bear in mind the importance of preserving the rural landscape. In Australia, planning policy and regulation are the main mechanisms for doing this, but overseas research (Daniels and Daniels 2003) shows that there is a need to balance these mechanisms with incentives, economic development initiatives and farming infrastructure while encouraging community engagement, communication and education. There is also a need to understand and take advantage of the linkages between these three components. An effective policy regime for preserving important rural landscapes requires the application of all these elements, as outlined in figure 8.3.

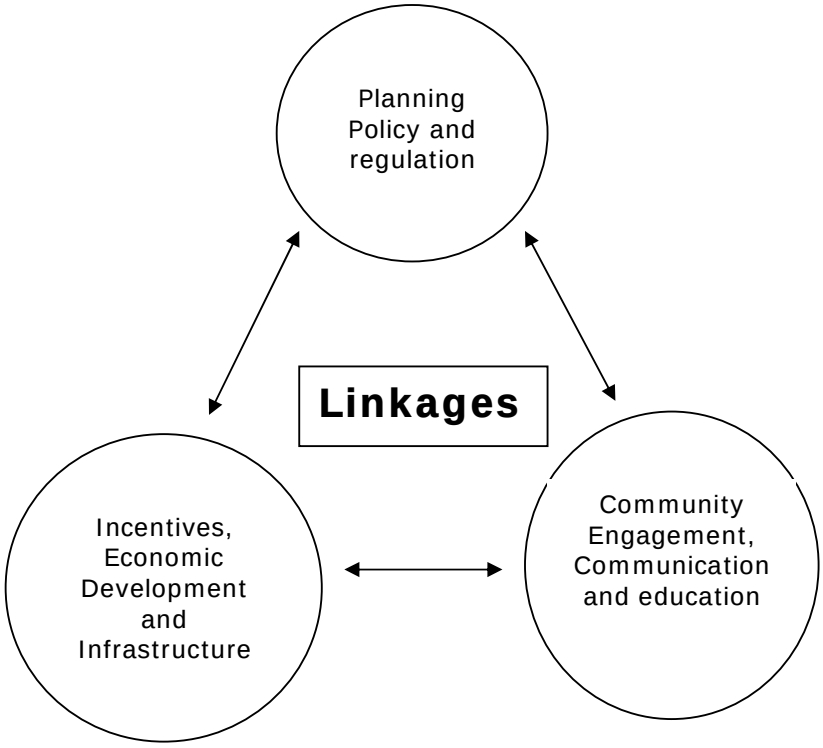


Figure 8.3: Policy responses to preserving rural landscapes
Source: Sinclair and Bunker (2007)

It is not intended to discuss these aspects in detail here, suffice to say that to be effective, there is a need to address all of them and not only one or 2, as is the case at present where there has traditionally been an emphasis on zoning and regulation and the linkages to incentives, economic development and the need for farming infrastructure as well as techniques to engage the community, communicating with the community and educating the community of the benefits of preserving farmland. It is acknowledged that Local Government can play a role in promoting agriculture, for example or publishing information about the issues surrounding rural land use conflict, they are mostly issues of State Government responsibility.

8.4 Land Use Planning

Land Use planning is one of the key aspects of this strategy. It is one of the main drivers of the future of the Shire – rural land as well as the towns and villages.

8.4.1. Rural Land Uses

This section provides a discussion on the following land uses that have been identified in the research and discussions conducted in the formulation of this strategy as requiring specific management due to particular issues:

- Agricultural Uses
- Rural Tourist Development

Each will be discussed separately.

Agricultural Uses

From a land use planning perspective, there are 3 broad agricultural uses in NSW:

- Intensive plant agriculture,
- Intensive animal keeping and
- Extensive agriculture.

It follows, therefore that there is a need define these uses separately. Both of the intensive uses should require consent and extensive agriculture should not as it is considered that it does not, generally, cause major land degradation or water quality problems (unless it is associated with major land clearing), it generally occupies land already cleared and used historically for that purpose.

The Standard LEP which is to be used as the basis for the preparation of the Liverpool Plains Shire LEP defines these 3 uses as follows:

> ***extensive agriculture*** means:
>
> (a) the production of crops or fodder (including irrigated pasture and fodder crops), or
>
> (b) the grazing of livestock, or
>
> (c) bee keeping,
>
> for commercial purposes, but does not include any of the following:
>
> (d) animal boarding or training establishments,
>
> (e) aquaculture,
>
> (f) farm forestry,
>
> (g) intensive livestock agriculture,
>
> (h) intensive plant agriculture.
>
> ***intensive livestock agriculture*** means the keeping or breeding, for commercial purposes, of cattle, poultry, goats, horses or other livestock, that are fed wholly or substantially on externally-sourced feed, and includes the operation of feed lots, piggeries, poultry farms or restricted dairies, but

does not include the operation of facilities for drought or similar emergency relief or extensive agriculture or aquaculture.

intensive plant agriculture means any of the following carried out for commercial purposes:

(a) the cultivation of irrigated crops (other than irrigated pasture or fodder crops),

(b) horticulture,

(c) turf farming,

(d) viticulture.

The new definitions will be in the LEP which is to be one of the outcomes of this process. It is recommended that extensive agriculture be permitted without consent in the agricultural areas and that horticulture and intensive livestock agriculture require consent. The reasons will be outlined separately as follows:

- The **extensive agriculture** definition uses as its basis cropping and grazing for commercial purposes that does not need the continual application of water or feed not occurring naturally. It is also is practiced on a broad scale with the area used being hundreds and in some cased thousands of hectares. Periodic feeding for drought and water application is considered to be included in this. Irrigated pasture (growing oats) and the growing of irrigated fodder crops (lucerne) are considered to be an extensive form of agriculture because the inputs and the extensive nature of the activity are not considered to be a major cause of nutrient export or land degradation when compared to market gardening or turf farming.

- The **intensive livestock agriculture** definition relies on a feeding method based wholly or substantially on externally-sourced feed. This type of use is also traditionally intensive and can cause some form of external impact which has the potential to cause land degradation, water quality problems or land use conflict. Therefore there is a need to require development consent so that there is the ability to ensure that the impact can be minimised. It is noted that this is the case with the current LEPs.

- The **intensive plant agriculture** definition identifies forms plant growing that traditionally can cause some form of external impact which has the potential to cause land degradation, water quality problems or land use conflict. It has also traditionally been grown on a smaller scale than extensive agriculture. Therefore there is a need to require development consent so that there is the ability to ensure that the impact can be minimised. However it is not clear if it applies to irrigated farming on a broadacre scale like cotton, wheat, sorghum, etc. It is noted that this occurs in the Shire on a large scale. It is not intended that this form of irrigated plant agriculture should require development consent.

The term “sustainable agriculture” has many connotations and is linked to the concept of Ecologically Sustainable Development, which embodies the 3 themes of Environment, Economics and Social.

A definition of sustainable agriculture in the ' Strategic Plan for Sustainable Agriculture - Sydney Region' is

> *"Agriculture that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends"*

Another definition is provided by the Standing Committee on Agriculture of the Australian Agriculture Council Working Group on Sustainable Agriculture:

> *"Sustainable Agriculture is the use of farming practices and systems which maintain and enhance the economic viability of agricultural production; the natural resource base; and other ecosystems which are influenced by agricultural activities*

All of these definitions embrace the concepts of environmental and economic issues, but do not consider the social aspects of sustainable agriculture. These include the capacity of agriculture to meet the demands of the population for healthy and fresh food and fibre products, as well as its ability to have a minimal impact on the amenity and peace of mind of community members, thus reducing rural land use conflict.

New definitions for sustainable agriculture should be incorporated and be as follows:

> Sustainable Agricultural use of land *means the use of land for animal boarding or training establishments, cattle feedlots, extensive agriculture, intensive horticulture, intensive livestock keeping establishments, opportunity feedlots or turf farming, which can be maintained and managed so that the land remains*
>
> - *environmentally sustainable (that is, environmental pollution and land degradation arising from the use is minimised);*
> - *socially sustainable (that is, land use conflict and loss of amenity of the surrounding area arising from the use is minimised); and*
> - *economically sustainable (that is, there is a capability of making a net farm profit from the use).*(Wollondilly Shire Council)

Rural Tourist Development

It has been recognised that rural tourism can provide a boost to the economic development in the rural area. There is a need therefore to encourage it by ensuring that the planning controls have sufficient flexibility in them.

Most current LEPs adopt a definition of tourist facilities to accommodate resort style of developments which are different to motels or hotels. In addition, there is not any definition of caravan parks, and these would have to be defined as commercial premises as well.

This issue has been considered by the Standard LEP where it has taken the approach to separately define the component parts rather than having one definition of 'tourist facility' as this can be too all encompassing. It is noted that definitions are provided for the following

- Backpackers accommodation
- Bed and Breakfast accommodation.

- Caravan Park
- Farmstay accommodation
- Function centres
- Hotel or motel accommodation
- Restaurant
- Tourist and visitor accommodation

8.4.2. Rural Dwelling House Minimum

Subdivision for Dwelling Houses

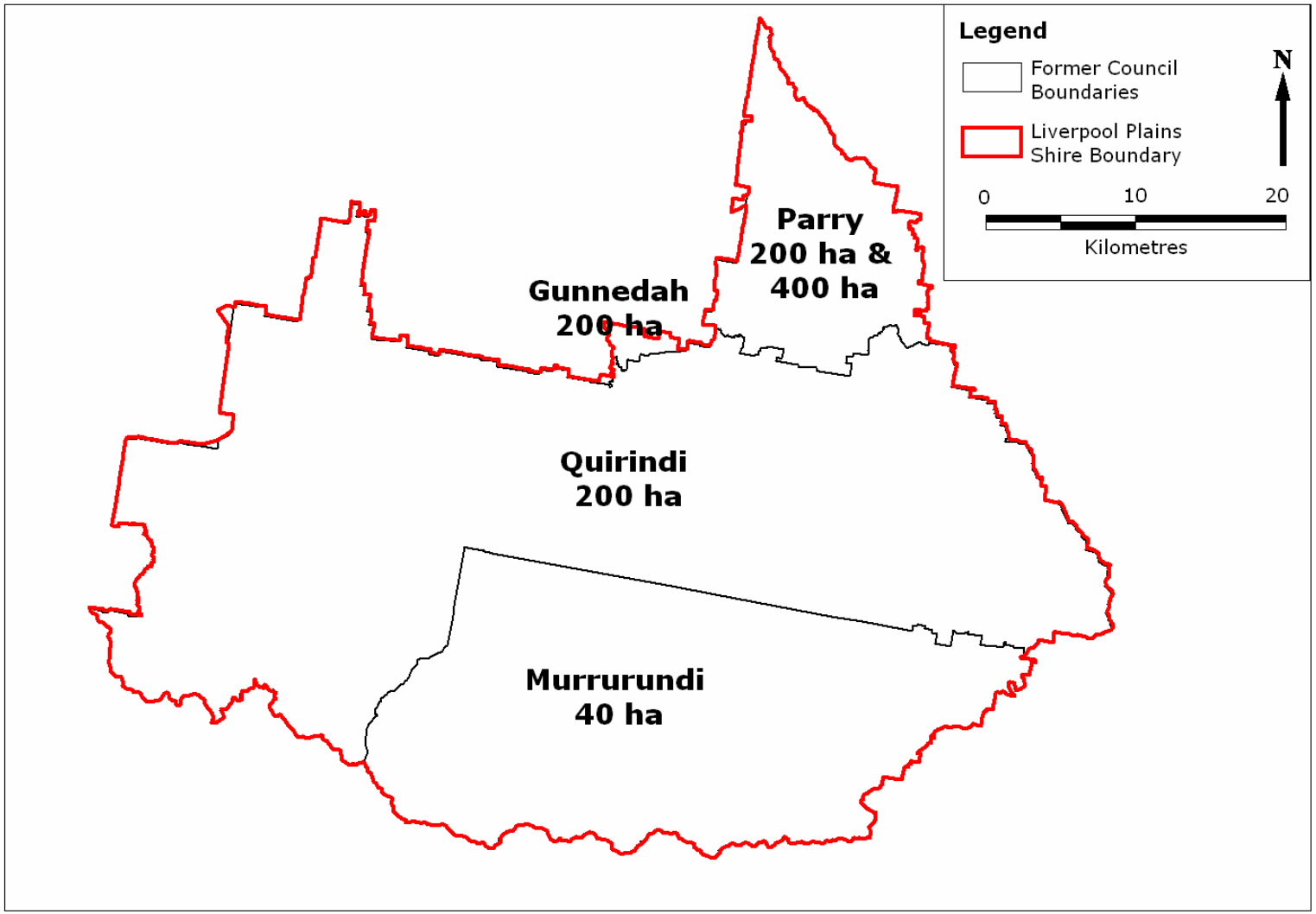
The SEPP Rural Land 2008 allows the Council to retain its existing rural subdivision provisions. It is noted that the current rural subdivision provisions allow for a minimum of 40 ha in the previous Murrurundi Shire, 200 ha in the former Quirindi Shire and 200 ha and 400 ha in the former Parry Shire. These are shown on map 8.24. This is not considered to be an appropriate mix of dwelling house minimums because of the large potential for subdivision in the former Murrurundi Shire, which covers a significant part of the Black Soil Plains, which are a very significant agricultural resource.

It has also acknowledged that there is a desire for subdivisions of rural land to create lots for rural living style of development. This demand is for both 10 and 40 ha lots. The Growth Management Strategy has responded to this demand and proposed the establishment of these in the area around the towns of Quirindi and Werris Creek. These have been discussed and recommended in section 8.3.

In accordance with the provisions of the Rural SEPP and the recent Section 117 Direction, when changing the existing rural minimum lot size on land within a rural zone, the recommended minimum lot size for a dwelling house must be consistent with the Rural Planning and Subdivision Principles outlined in the Rural Lands SEPP. These have been outlined in chapter 3. This will be addressed later in this section.

The Council has carried out an analysis the holding sizes of its rural land to determine its characteristics as well as the potential impact of a range of subdivision scenarios. This analysis was carried out in an attempt to meet the requirements of the previous Policy of the State Government which was to review the subdivision policies of rural land based on its economic potential. This methodology has since been abandoned by the Government.

The following analysis has been carried out on the current holding patterns, subdivision scenarios as well as the average holding patterns for the Shire.



Map 8.24: Former Shires' Minimum Size for Dwelling Houses

The holding size ranges for the rural land are shown in figure 8.4. The range of holdings allows for an assessment of the spread of the holdings for agriculture and rural residential uses. This is done because most of the rural residential uses are on the lower end and agriculture is on the higher end of the holding range. It can be seen that the range with the largest numbers is 42.01 to 100 ha range, followed by the 100.0 to 200 ha range. The holdings in the 42 to 100 ha range are likely to be rural residential and not agriculture. This suggests that the agricultural holdings start to become sustainable at 100 – 200 ha. There are only 41.8% of all holdings greater than 200 ha which is the current minimum. There is also a considerable amount of holdings less than the 200 ha minimum, which signals a fragmented rural area. However this fragmentation is mostly in the hilly land to the east.

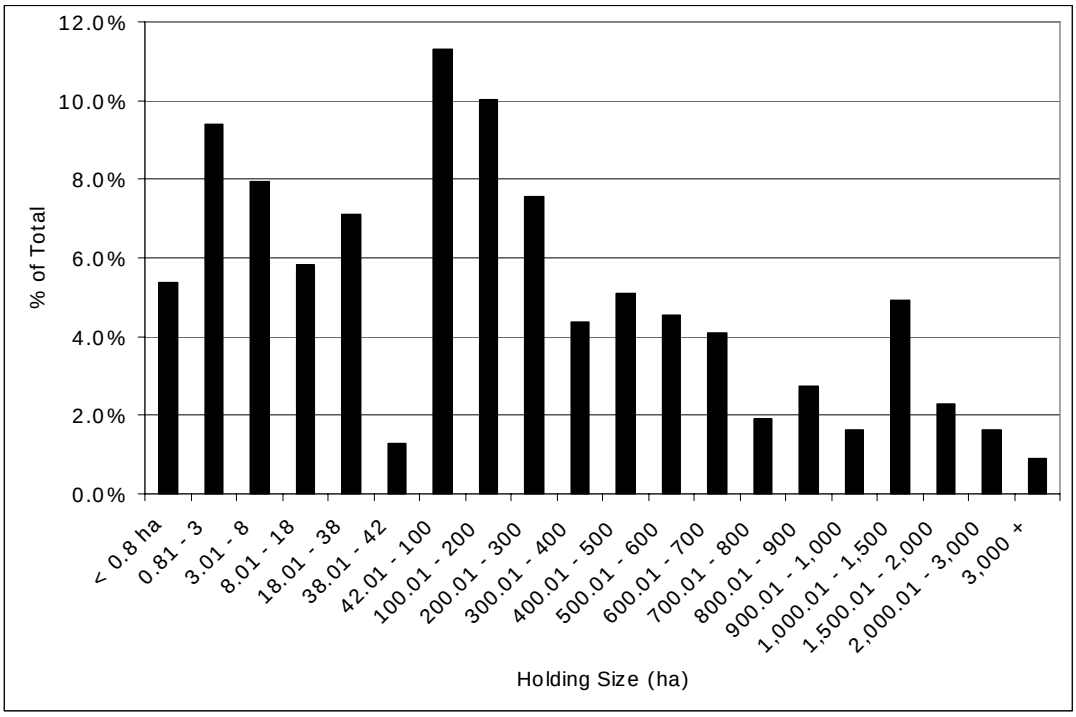


Figure 8.4: Holding Range for Agriculture Designation
Source: Council Property System

Analysis has also been carried out of current average holding size. Table 8.7 shows this. The table shows the average for all holdings in the Shire as well as using some gradations to take out smaller holding patterns as well as the larger holdings. The 28 large holdings greater than 2,000 ha have been taken out. This means that on the analysis of holdings, using the 200 ha as the start of an agricultural holding then the average holding size is between 561 ha and 768 ha (using 100 ha as the smallest and taking out properties greater than 3,000 ha.

Table 8.7: Average Holding Sizes

Holding Size	Total Number of Lots	Total Number of Holdings	Total Area	Average Holding size
All Holdings	7,504	1,099	405,188	369
10 ha to 2,000 ha	5,940	807	315,746	391
40 ha to 2,000 ha	5,627	674	312,837	464
100 ha to 2,000 ha	5,234	542	304,266	561
200 ha to 2,000 ha	4,741	433	288,287	666
300 ha to 2,000 ha	4,339	349	268,034	768

Source: Council Property System
Note: * Holdings are made up of a number of individual lots.

The number of potential lots that could be created if all current holdings were subdivided to the existing minimum in the LEP has been assessed. A range of holding sizes below and above the current minima has also been analysed. The results of this analysis are provided in figure 8.5.

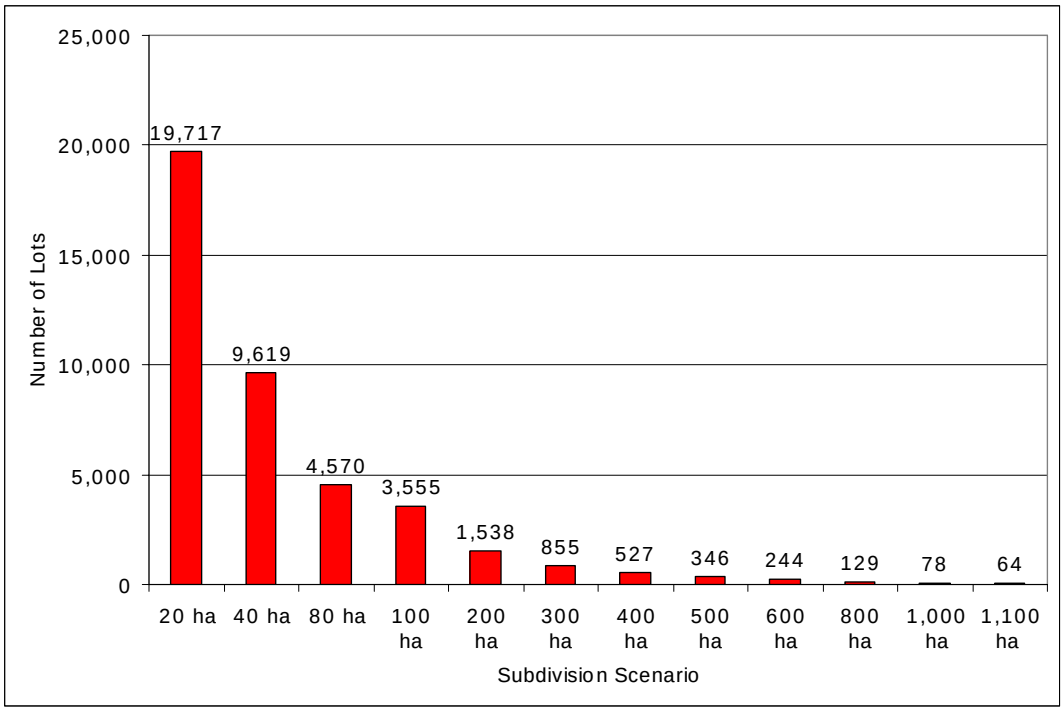


Figure 8.5: Subdivision Scenarios
Source: Council Property System

It is difficult to give an accurate figure for the potential subdivision as there have been 3 different minimums – 40 ha for the former Murrurundi Shire, 200 ha for the former Quirindi Shire and 200 and 400 ha for the former Parry Shire. However it can be seen that 40 ha is too small and will result in a huge number of additional lots. It should be noted that the higher number of potential subdivisions can cause a drain on the Council's resources, particularly for road repairs and reconstruction. It should also be

noted that the majority of the large holdings are on the black soil plains where there has not been any subdivision of the land for some time.

The number of farms that are above a range of holding sizes has been analysed to provide an indication of the current number of farms that could be said to be sustainable. It is acknowledged that there are a number of other matters that make a farm sustainable but this section is addressing the minimum lot size. This data is presented in figure 8.6.

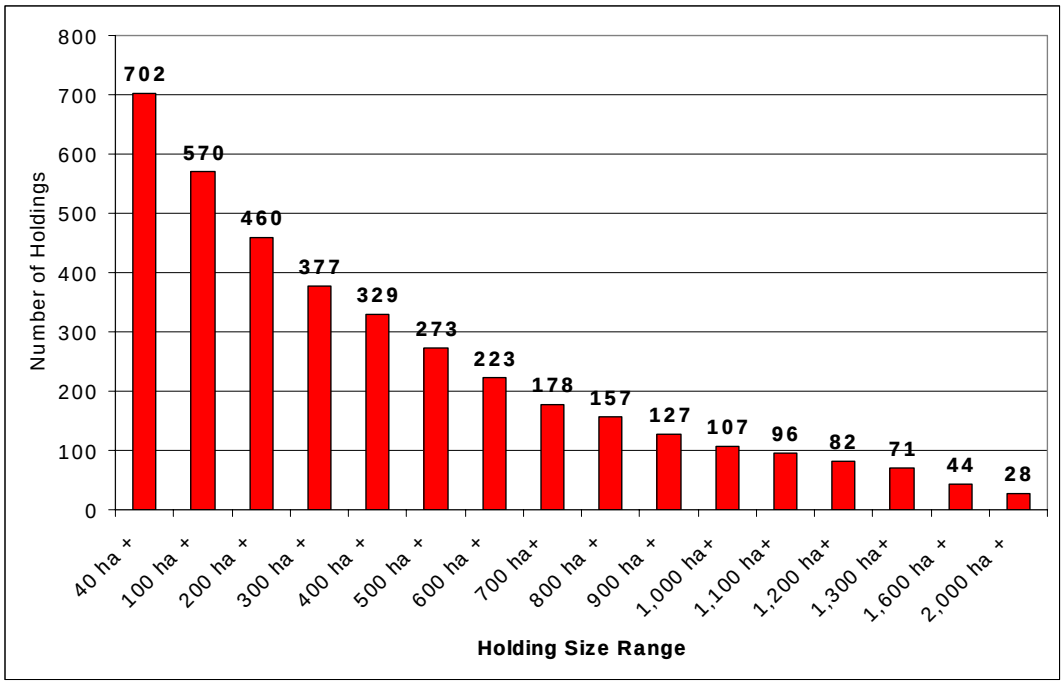


Figure 8.6: Number of Farms in holding size ranges

The percentage of holdings that are below the existing minimum lot size for dwelling houses provides an indication of the current fragmentation of the Shire. This is shown in figure 8.7 for the Black Soil Plains, Eastern Hills and the Shire Total. It can be seen that 70.2% of all farms in the Shire are below 400 ha and that 58.2% are below 200 ha. The graph also shows that the Black Soil Plains have not been heavily fragmented but that the eastern hills area has been subdivided into smaller farms.

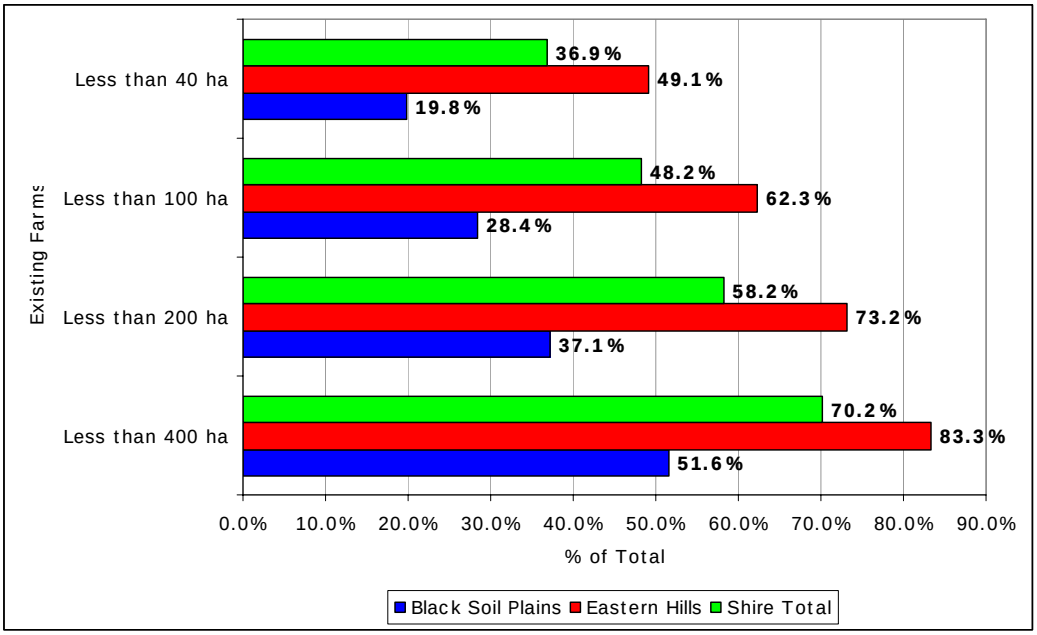


Figure 8.7: Number of Farms below Current Dwelling House Lot Sizes

In summary it can be seen that there are a range of holding sizes within the Shire. The fact that the land on the Black Soil Plains (most of which has had a 40 ha minimum for some time) has not been subdivided shows that the land is used for farming. The graph on holding sizes throughout the Shire (figure 8.3) shows that the highest group of holdings is in the 100 – 200 ha size which suggests that this is the size when farms are becoming sustainable. This will also leave 570 farms within the Shire greater than 100 ha. The subdivision Scenarios show that although at 200 ha there could potentially be 1,538 lots created, the fact that the Black Soil Plains are not being subdivided shows that this is not likely to occur. The Black Soil Plains are also where most of the large holdings are as can be seen from the holdings map shown in chapter 2 (map 2.9). It is therefore recommended that a 200 ha minimum for a dwelling house be adopted for all rural land. It is considered that this will allow for an equitable spread of holdings throughout the Shire. It is also noted that the former Murrurundi Shire has a minimum of 40 ha and the former Quirindi Shire had a minimum of 200 ha. The former Parry Shire had a minimum of 200 ha for the flat valley floor land and 400 ha minimum for the hilly land around the Melville Range. This land contains hilly and vegetated land that is currently in large holdings and it is not considered to be a major issue if the subdivision minimum is lowered from 400 ha to 200 ha. It is considered to be more appropriate to increase the minimum in the former Murrurundi Shire to a more realistic minimum. The Council also has resolved to have a minimum lot size of 200 ha and this was resolved on 25 July 2007.

State Environmental Planning Policy (Rural Lands) 2008

The SEPP (Rural Lands) identifies 'Rural Planning Principles' and 'Rural Subdivision Principles' so as to assist in the proper management, development and protection of rural lands for the purpose of promoting the social, economic and environmental welfare of the State. The 'Rural Planning Principles' and 'Rural Subdivision Principles' must be addressed where a council prepares a draft LEP that affects land within an existing or proposed rural or environmental protection zone or where the exiting minimum lot size of rural or environmental protection land is changed.

Council proposes to alter the existing minimum lot size on rural land across the Shire to provide a consistent approach and rural land planning. Council, by virtue of the three LEPs operating in the Shire, currently has three minimum lot sizes for rural land – 40ha (former Murrurundi Shire area), 400ha (part of former Parry Shire area) and 200ha (former Quirindi and part of former Parry Shire area). As discussed previously, Council has resolved to have a minimum lot size of 200ha across the Shire. This is supported by the findings of this Strategy.

In accordance with the requirements of the SEPP (Rural Lands) 2008 the 'Rural Planning Principles' and 'Rural Subdivision Principles' are addressed below.

Rural Planning Principles

The recommendation for a 200 ha minimum lot size for a dwelling house is consistent with the rural planning principles outlined in clause 7 of the Rural Lands SEPP. The principles and reasons for the consistency are as follows:

(a) *The promotion and protection of opportunities for current and potential productive and sustainable economic activities in rural areas.*
Comment: The introduction of a 200 ha minimum lot size for a dwelling house will provide for a whole range of productive and sustainable economic activities by allowing for small farms to establish. The proposed objectives of the zones will help to maintain the productive capacity of the land. The 40ha minimum lot size is not considered appropriate as it does not provide for a sustainable broadacre agricultural farming operation. The 400ha minimum lot size would prevent potential new productive farming operations (new / young farmers) from establishing in the Shire.

(b) *Recognition of the importance of rural lands and agriculture and the changing nature of agriculture and of trends, demands and issues in agriculture in the area, region or State*,
Comment: The recommendation for a minimum of 200 ha for a dwelling house across the entire Shire, in association with the proposed zone objectives is consistent with this clause because it recognises that some farming practices do not need a high minimum to be sustainable. The 40ha minimum lot size does not recognise the importance of rural lands and agriculture due to the potential for residential style land uses to establish and land use conflicts with agriculture to be exacerbated. The 400ha minimum lot size does not provide the level of flexibility required to cater for the changing nature of agriculture or emerging trends in more intensive agricultural practices.

(c) *Recognition of the significance of rural land uses to the State and rural communities, including the social and economic benefits of rural land use and development,*
Comment: The introduction of a 200 ha minimum will help to achieve this by ensuring that there is a range of holding sizes to encourage a diversity of rural land uses thereby ensuring that the future socio-economic makeup of the community is preserved. The 40ha minimum lot size is not considered appropriate as it does not recognise the significance of rural land uses due to the rural residential nature that this lot size promotes. Similarly, the 400ha minimum lot size limits the social and economic benefits of rural land

uses due to the inflexibility to cater for a variety of lot sizes, new and emerging agricultural practices and other rural developments.

(d) In planning for rural lands, to balance the social, economic and environmental interests of the community,
Comment: The introduction of a 200 ha minimum lot size for a dwelling house is consistent with balancing the social, economic and environmental interests of the community. It will allow for a range of farms to establish which will allow new and young farmers to purchase land at an affordable price. It will also ensure that there is minimal environmental impact because the large minimum lot size for a dwelling is sufficient to locate any improvements away from environmentally sensitive land. The 40ha and the 400ha minimum lot size do not balance the social, economic or environmental interest of the community as they both preclude new farming enterprises establishing.

(e) *The identification and protection of natural resources, having regard to maintaining biodiversity, the protection of native vegetation, the importance of water resources and avoiding constrained land*,
Comment: The minimum of 200 ha for a dwelling will be large enough to ensure that natural resources will be protected. The proposed objectives of the zone will also ensure consistency. The 40ha minimum lot size does not provide enough scope for the protection of natural resources within each lot. The 400ha minimum lot size would provide greater opportunity to protect natural resources but is considered that other factors outweigh the need for a larger minimum lot size (i.e. a 200 minimum lot size would provide similar opportunities).

(f) The provision of opportunities for rural lifestyle, settlement and housing that contribute to the social and economic welfare of rural communities,
Comment: Areas have specifically been identified within rural lands for rural lifestyle settlements and housing.

(g) The consideration of impacts on services and infrastructure and appropriate location when providing for rural housing,
Comment: Areas have specifically been identified within rural lands for rural lifestyle settlements and housing with servicing and infrastructure requirements considered appropriate for the varying styles of rural residential / lifestyle development.

(h) Ensuring consistency with any applicable regional strategy of the Department of Planning or any applicable local strategy endorsed by the Director-General.
Comment: At the time of writing there are no applicable regional or local strategies.

Rural Subdivision Principles

The recommendation for a 200 ha minimum lot size for a dwelling house is consistent with the rural subdivision principles outlined in clause 8 of the Rural Lands SEPP. The principles and reasons for the consistency are as follows:

(1) *Minimisation of rural land fragmentation*. The 200 ha minimum for a dwelling house will achieve this by stopping any further fragmentation of the rural land. However it has to be recognised that 58% of all farms within the Shire are currently less than 200 ha but that most of these are on the eastern hills area and not the black soil plains. The fact that the black soil plains are not being fragmented suggests that they are unlikely to be further fragmented. A 40ha minimum lot size would promote the fragmentation of rural land due to the rural lifestyle nature of such a lot size. A 400ha minimum lot size would prevent further fragmentation of rural land but would limit options by new farmers/enterprises from emerging.

(2) *Minimisation of rural land use conflicts.* The 200 ha minimum for a dwelling house will reduce rural land use conflicts because this is a large lot for people to use as a rural residential lot due to its size and the cost of purchasing such land. In addition, specific rural residential zones have been identified for 2 ha, 10 ha and 40 ha lots to cater for those people who wish to have these sized lots. A Shire wide 40ha minimum lot size would lead to ongoing rural land use conflicts due to the nature of the probable use of such lots as rural lifestyle developments. A 400ha minimum lot size would minimise rural land use conflict but is not considered to have a significantly better outcome than a 200ha minimum lot size.

(3) *Nature of existing agricultural holdings and future rural residential land.* The majority of the larger agricultural holdings are located on the black soil plains where there is minimal fragmentation when compared to the eastern hills. The adoption of a 200 ha minimum for a dwelling house is not considered to have an impact on the existing rural holdings and their economic activities because it will allow farming to remain sustainable by not allowing any more fragmentation of this important resource. This Strategy recommends the establishment of a number of rural residential zones and lot sizes which will cater for the expected rural living and rural fringe demand. A 40ha minimum lot size is not considered to represent the nature of existing agricultural holdings in the shire. A 400ha minimum lot size is generally reflective of agricultural holdings on the black soils but not so of other areas of the Shire.

(4) *Natural and Physical constraints and opportunities.* The information on the natural environment provided in chapter 2 shows that there is a significant area of hilly land which is also most of the area that is covered in native vegetation. The holding map also shows that the land in the east that is heavily vegetated and hilly is also in large holdings at present. A 200 ha minimum size for a dwelling house is not considered to have an impact on this as 200 ha is not considered an appropriate size for a rural residential lot in this area because of its cost as well as cost of maintenance. Bushfire and access issues are also an issue. It is unlikely that the land would be subdivided because of the requirements for bushfire regulations and access. A variety of lot sizes have been proposed in this Growth Management Strategy in specific areas that have been identified due to their ability to address key physical constraints and development opportunities. The reduction of the 400ha area to a 200ha minimum lot size does not limit the development opportunities or how physical constraints are addressed on rural land.

(5) *Planning for dwelling opportunities.* A 200 ha minimum size for a dwelling house will allow for adequate separation of dwelling houses from adjoining land uses as well as allowing for onsite effluent disposal, vegetation, slope and potential impact on water quality. Rural dwelling opportunities have been catered for in a variety of lot sizes and areas. The reduction in the 400ha area to a 200ha minimum lot size increases rural dwelling opportunities but does not increase the rural land use conflict issues associated with smaller lots.

Boundary Adjustments

Boundary adjustments occur when one landowner wishes to sell part of the land to an adjoining owner. There is no additional dwelling entitlement created but the areas to be transferred are often less than the subdivision minimum which creates an undersized lot in the zone without a dwelling entitlement. Ordinarily, such a lot cannot be created because of the minimum lot size criteria. However, if the clear intention is to create the lot for agriculture purposes and this can be proven, it can lessen any potential for the new lot to be sold and a request being made for a dwelling house on the lot.

Subdivision for Intensive Agriculture

The LEP allows for the creation of lots less than the minimum if the land is to be used for an intensive agricultural purpose. Clause 13 lists a number of criteria that have to be met and these are as follows:

(1) the allotment to be created is intended to be used for the purpose of specialised or intensive agriculture, which may consist of intensive horticulture or animal husbandry, and is of a size capable of being used for that purpose, and
(2) creation of the allotment will not adversely affect the agricultural viability or potential of the residue of the land subdivided and the residue is capable of economically supporting an agricultural use of a type common in the locality, and
(3) the proposed use to which the allotment will be put is an efficient agricultural use, having regard to the size and layout of the allotment, and
(4) an adequate water supply is available or can be made available to the proposed allotment and is of a suitable capacity for the proposed use, and
(5) the soil, topography, drainage and other physical characteristics of the land are suitable for the proposed use, and
(6) adequate all-weather vehicular access is available or can be made available to the land, and is of a suitable standard and capacity, and
(7) the proposed use will not adversely affect the amenity of the land surrounding the proposed allotment.

This can cause fragmentation of the land and lead to rural living style uses if the land is on sold and the new owner does not intend to use the land for intensive agriculture and instead uses it for a residential use. This can lead to rural land use conflict and have a detrimental impact on the surrounding farming activities, which are being carried out on larger holdings. It is difficult to ensure that a prospective owner will carry out intensive agriculture per se. One way to ensure that the land is in fact used for the purpose of agriculture is to first require the submission of a report stating the

economic sustainability of the enterprise as well as requiring that a dwelling can only be erected after the establishment of the use and its operation for a 12 month period. This will ensure that the subdivision is a bona fide subdivision for an intensive agricultural use and is not going to be used for a rural residential use.

8.4.3. Land Use Designations

Rural Land Units

Landuse surveys and lot size analyses have been used to identify land with common features as a foundation for future zoning. The landuse survey is used because it provides an overview of the existing landuse pattern within an area and therefore gives an indication of the predominant landuses which should be conserved. It is important to consider the size of the lots and holdings within an area because the existing fragmented lot patterns contribute to rural land use conflicts and the ability of the area to be protected from such rural landuse conflicts.

The methodology used identifies a series of land units as the basis for the land use designations. These land units are areas, which are contiguous, have similar characteristics and are generally homogenous in nature. These characteristics can be topographical, the abundance of vegetation, the similarities in landuses, land tenure, landscape character or the like. They have also been based on an understanding of the issues affecting the Shire as well as a review of planning policies of other local government areas. Comments from the community were also taken into consideration. Particularly those outlined in the community consultation report. In particular is the desire of the community for lifestyle and conservation of vegetation and the natural features and environmental qualities of the area as well as the continuation of agriculture. It is important to note that these units are based on the existing land uses and landforms and that no attempt has been made at this stage to consider the policy and planning provisions that relate to the land. This is the next step.

The methodology is described in Appendix 3. Based on this methodology, there are 5 broad land units within the Shire. The land units are outlined on Map 8.25 and are as follows:

- Agriculture
- Agriculture Landscape
- Native Vegetation
- Rural Residential
- Towns & Villages

The *Agriculture* land unit is based on the high class agricultural land in the Liverpool Plains used for cropping as well as the sloping land that is used for grazing. Photo 8.13 shows the land unit.

Photo 8.13: Agriculture Land Unit
Date of Photo: March 2005

The *Agricultural Landscape* land unit is based on the steeper land in the south east and east of the Shire. Photo 8.14 shows the land unit.

Photo 8.14: Agricultural Landscape Land Unit
Date of Photo: March 2005

The *Native Vegetation* land unit consists of the land that is covered by a significant amount of native vegetation which is scattered across the Shire. The land is mostly steep land or land that is poor in soil quality which makes it unsuitable for agriculture. It does provide a rich source of biodiversity. Photo 8.15 shows the land unit. Some of it is also used for sheep and cattle grazing.

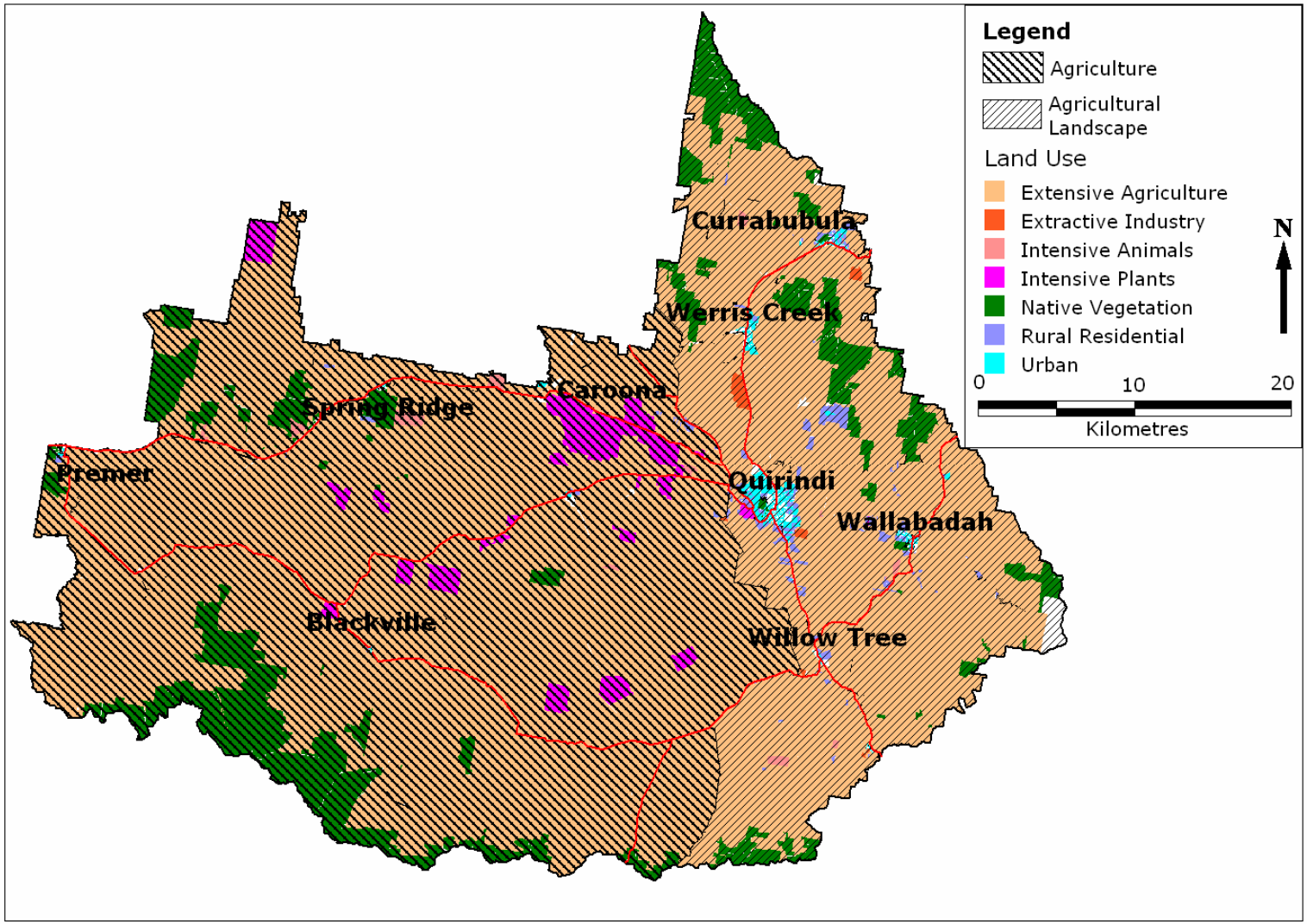
Photo 8.15: Native Vegetation Land Unit
Date of Photo: March 2005

The *Rural Residential* land unit covers the existing rural residential subdivisions surrounding Currabubula, Werris Creek, Quirindi Wallabadah and Willow Tree. The land is not all subdivided and has a diversity of topography and areas of native vegetation. Photo 8.16 shows part of this land.

Photo 8.16: Rural Residential Land Unit
Date of Photo: March 2005

Town and Village land unit is the current urban areas of Blackville, Caroona, Currabubula, Premer, Quirindi, Spring Ridge, Wallabadah, Werris Creek and Willow Tree. Photo 8.17 shows the village land unit.

Photo 8.17: Town and Village Land Unit – Spring Ridge
Date of Photo: March 2005



Map 8.25: Rural Land Units

Rural and Urban Land Designations

The land units can be translated into future zones. However, as this is a strategy and does not zone the land, the term land use designation has been used to describe them. In determining the boundaries of the land designations, the potential for the expansion of existing agricultural activities, such as irrigated plant and animal growing, as well as urban and rural residential areas has been taken into consideration. It is important to consider the future needs of these activities as well as the traditional agricultural uses of cropping and grazing.

The utilisation of landuse zoning to segregate landuses is a commonly used practice in New South Wales. In rural areas however there has generally been one or 2 generic type zones that have been called a "rural" zone. One of the major reasons for zoning an area is to preclude or regulate specific uses that are considered to be not in keeping with the general amenity of the area.

Zone names such as residential, commercial and industrial are used to identify a list of specific land uses that are permissible in a particular location. Rural zones are often less specific. The term rural describes a character, not a use. It is therefore appropriate to use a zone name that provides an indication of the uses that are carried out within that area.

Zoning can also be used to identify the major objective for any future as well as existing development in an area for example, if an area is of high conservation status then a zone name outlining this is also appropriate.

A sieve methodology has been used to determine the land use designations. It is described in Appendix 3.

The recommended designations (which are consistent with those outlined in the Standard LEP) are as follows:

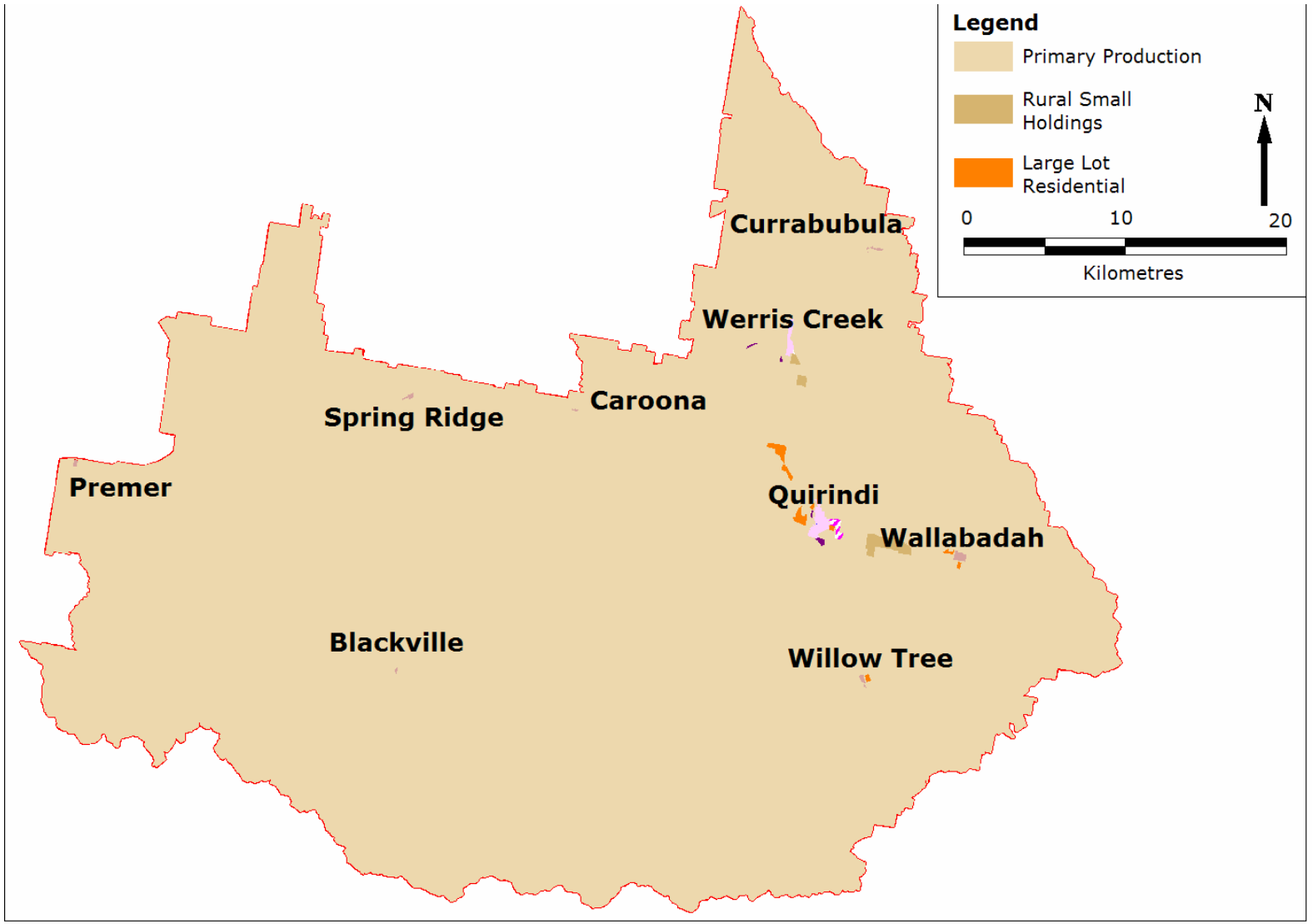
- Primary Production
- Forestry
- Rural living
- Village
- Rural fringe

Whilst it is acknowledged that there is a significant area of native vegetation, its status is not fully known and so it is not considered appropriate to recommend designations at this stage. Once the status of it is known, it may be considered appropriate to create a specific zone.

The rural designations are outlined on Map 8.26 and are discussed below.

The towns of Quirindi and Werris Creek have grown to such a size that it is considered that there should be specific zoning for the residential, commercial and industrial areas. For this reason, the following land use designations have been added:

- Residential
- Business
- Industrial



Map 8.26: Land Use Designations

Primary Production

It is considered that there should be one designation for all of the rural land in the entire Shire as both the agriculture and rural landscape land units are productive areas.

Cropping will be encouraged because of the high soil quality on the flat land to the west and grazing will be the dominant use on the more hilly land to the east. Dwellings should be located so that they are not, as far as possible, located on the high class agricultural land. It is noted that there are currently not a lot of dwellings on the land.

The subdivision minima would be 200 ha.

A set of desired future character statements (which can ultimately become the zone objectives) should be prepared for the designation and it should include the following matters (the first 4 are the objectives as stated in the Standard LEP):

- To encourage sustainable primary industry production by maintaining and enhancing the natural resource base.
- To encourage diversity in primary industry enterprises and systems appropriate for the area.
- To minimise the fragmentation and alienation of resource lands.
- To minimise conflict between land uses within the zone and land uses within adjoining zones.

In addition to these, it is considered that the following could be included.

- To protect and enhance native vegetation and the quality of existing waterways and water resources.
- To ensure that development does not:
  - ⇨ generate significant additional traffic, or create or increase a condition of ribbon development on any road, relative to the capacity and safety of the road, and
  - ⇨ create unreasonable or uneconomic demands for the provision or extension of public amenities or services.
- To ensure that development has proper regard to the environmental constraints of land and minimises any off and on site impacts on biodiversity, water resources and natural landforms.

One aspect of this land is that it is considered to be some of the best agricultural land in the State. Consideration should be given to requesting the State Government to declare it as State Significant Agricultural land. It is acknowledged that the Black Soil Plains extend into the adjoining Council areas as well as further down the Namoi Valley. It would be appropriate to seek the views of the adjoining Shires and those further down the Namoi Valley to have the Black Soil Plain in those Shires also declared State Significant Agricultural Land.

Forestry

This designation refers to the State Forests..

A set of desired future character statements (which will ultimately become the zone objectives) should be prepared for the designation and it should include the following matters:

- To enable development for forestry purposes.
- To enable other development that is compatible with forestry land uses

Rural living

This designation covers the 3 areas outlined in section 8.3 which are located to the south of Werris Creek, east of Quirindi and south of Willow Tree.

A set of desired future character statements (which will ultimately become the zone objectives) should be prepared for the designation and it should include the following matters (the first 4 are the objectives as stated in the Standard LEP):

- To enable small-scale sustainable primary industry and other compatible land uses.
- To maintain the rural and scenic character of the land.
- To ensure that development does not unreasonably increase the demand for public services or public facilities.
- To minimise conflict between land uses within the zone and adjoining zones.

In addition, it is considered that the following should apply:

- To provide for a restricted range of employment generating development opportunities that are compatible with adjacent or nearby residential and agriculture development.
- To protect and enhance native vegetation and the quality of existing waterways and water resources.
- To ensure that development does not:
  - ⇨ generate significant additional traffic, or create or increase a condition of ribbon development on any road, relative to the capacity and safety of the road, and
  - ⇨ create unreasonable or uneconomic demands for the provision or extension of public amenities or services.
- To ensure that development has proper regard to the environmental constraints of land and minimises any off and on site impacts on biodiversity, water resources and natural landforms.

Controls should also be placed on the height of dwellings as well as the impact they have on the landscape by way of location and appearance. For example, they should be located below ridgelines and be of colours that blend in with the surrounding environment.

Consideration should be given to placing controls on the clearing of land and preservation of areas of known biodiversity habitat and important habitat linkages. There is also a need to prohibit any further intensive forms of agriculture to minimise any future rural land use conflict.

Village

There are a number of villages that exist which are zoned as such. They each have a special character which needs to be preserved. The designation of them as village will help to preserve this.

A set of desired future character statements (which will ultimately become the zone objectives) should be prepared for the designation and it should include the following matters:

- To provide for a range of land uses, services and facilities that are associated with a rural village.
- To restrict development to small scale developments which are compatible with the general residential character of village areas and which are unlikely to prejudice the viability of established shopping and commercial centres
- To ensure that development has proper regard to the environmental constraints of land and minimises any off and on site impacts on biodiversity, water resources and natural landforms

The uses that would be permitted without consent, require consent and which would be prohibited for this designation would be those that currently apply to the Residential 2 Village Zone.

General Residential

This designation is to apply to the residential areas of Quirindi and Werris Creek. Both of these towns have become large enough to require the delineation of specific zones.

A set of desired future character statements (which will ultimately become the zone objectives) should be prepared for the designation and it should include the following matters:

- To provide for the housing needs of the community.
- To provide for a variety of housing types and densities.
- To enable other land uses that provide facilities or services to meet the day to day needs of residents.
- To permit a range of low and medium density housing
- To permit other development which:
  - ⇨ is compatible with the surrounding residential environment, and
  - ⇨ is unlikely to adversely affect the amenity of residential development within the zone, and
  - ⇨ is unlikely to place demands on services and infrastructure beyond the level reasonably required for low-scale housing development.
- To ensure that development has proper regard to the environmental constraints of land and minimises any off and on site impacts on biodiversity, water resources and natural landforms.

The range of uses that would be permitted would be ones that would not detract from the amenity of the area for living purposes.

Rural fringe

This applies to the proposed new areas at Quirindi and Werris Creek as discussed in section 8.2 and shown on map 8.7 (Quirindi), map 8.17 (Werris Creek).

A set of desired future character statements (which will ultimately become the zone objectives) should be prepared for the designation and it should include the following matters (the first 4 are the objectives as stated in the Standard LEP):

- To provide residential housing in a rural setting while preserving, and minimising impacts on, environmentally sensitive locations and scenic quality.
- To ensure that large residential allotments do not hinder the proper and orderly development of urban areas in the future.
- To ensure that development in the area does not unreasonably increase the demand for public services or public facilities.
- To minimise conflict between land uses within the zone and land uses within adjoining zones.
- To ensure that development has proper regard t the environmental constraints of land and minimises any off and on site impacts on biodiversity, water resources and natural landforms.

The minimum subdivision size would be varying as discussed in sections 8.3.3 and 8.3.4.

The uses that would be permitted without consent, require consent and which would be prohibited for this designation would be those that currently apply to the Residential 2(v) Village Zone.

Business – Local Centre

This designation is to apply to the business and commercial areas of Quirindi and Werris Creek.

A set of desired future character statements (which will ultimately become the zone objectives) should be prepared for the designation and it should include the following matters:

- To provide a range of retail, business, entertainment and community uses that serve the needs of people who live in, work in and visit the local area.
- To encourage employment opportunities in accessible locations.
- To maximise public transport patronage and encourage walking and cycling.
- To generally conserve and enhance the unique sense of place of business centre precincts by ensuring that new development integrates with the distinct urban scale, character, cultural heritage and landscape setting of those places.
- To ensure that adequate provision is made for infrastructure that supports the viability of business centre precincts, including public car parking, traffic management facilities, public transport facilities, cyclist facilities, pedestrian access paths, amenities, facilities for older and disabled people and general public's conveniences.

- To ensure that development has proper regard to environmental constraints and minimises any off and on site impacts on biodiversity, water resources and natural landforms.
- To ensure that new development has regard to the character and amenity of adjacent and nearby residential areas.

All commercial and retail uses would be permitted and residential development would be acceptable as long as it is in conjunction with a business type use.

General Industrial

This designation is to apply to the current Industrial areas of Quirindi and a new area at Werris Creek.

A set of desired future character statements (which will ultimately become the zone objectives) should be prepared for the designation and it should include the following matters:

- To provide a wide range of industrial and warehouse land uses.
- To encourage employment opportunities.
- To minimise any adverse effect of industry on other land uses.
- To ensure that development has proper regard to environmental constraints and minimises any off and on site impacts on biodiversity, water resources and natural landforms.

8.5 Social Issues and Community Well Being

An integral component of ESD is social sustainability. Defining social sustainability has been the subject of considerable debate but has broadly focussed on ensuring *quality of life* or *community wellbeing.* It is considered as being achieved through a balance of economic, social and environmental issues resulting in a better *quality of life* for the existing and future community. The NSW Office of Social Policy (see Office of Social Policy, *Quality of Life - A Social Policy Approach*, July 1994) recommends that the following factors are integral to achieving this balance:

- *Social justice* needs such as equal access to education, health, welfare, personal safety, housing and broader community and cultural services and facilities
- *Economic development* particularly in terms of employment, quality of working life and personal economic situation
- *Environmental policy* related to the physical aspects of communities such as livability, community values and ecological sustainable development.

More recent work undertaken by Wills (2001) identifies seven key outcomes for achieving *quality of life* and *community wellbeing.* These focus on social/cultural, economic and environmental outcomes and are described as:

- *Livability* – natural and built environments for healthy and easy living
- *Equity* – equal opportunity for the development of human potential
- *Conviviality* – people living well together
- *Adequate prosperity* – consuming less but with sufficiency
- *Sustainability* – sufficient development without threatening viability

- *Viability* – remaining within the ecological limits and maintaining species diversity
- *Vitality* – resulting from activity, participation and interaction between people

For the rural areas of the Shire it is important to ensure that social sustainability is a key component of the strategic planning framework for this community. Quality of life and community wellbeing are key outcomes to be integrated into a holistic planning approach for this community. However, it should be pointed out that a lot of people move to the rural areas for a lifestyle knowing that certain facilities and services are not there.

To be socially sustainable, the Growth Management Strategy should address the issues raised above and provide adequate level of services in the rural areas for those residents.

8.5.1. Liverpool Plains Social Plan

The most recent social plan provides an analysis of the current quality of life issues within the Shire, and which has been discussed in detail in Chapter 2.

The social plan has identified a number of areas that require attention. They are:

- Recreational opportunities.
- Indigenous access to the community.
- Community development and participation.
- Maintain health care services.
- Maintain Home and Community Care (HACC) Services.
- Increase cultural opportunities.
- Promote natural resource management and build on the Shire's environmental record.
- Prepare an information package for new residents.
- Maintain aged care facilities and services.

It is appropriate to include recommendations for these issues in the Strategy.

8.6 Economic Development and Tourism

Economic development is an important component for the Growth Management Strategy. It is important to recognise the contribution of the existing rural economy to the Shire and the Council should take positive steps to encourage this. It can also provide policies that will allow them to expand.

The area produces a variety of produce which can be sold to the local residents as well as the tourist. This can be done through the establishment of farmers markets. Alternatively, promotion of the local produce can be done through specific events in Sydney, such as the Pyrmont and Fox Studios' Farmers Markets. These could be expanded. The Hawkesbury Harvest Farm Gate Trail concept could be modified and used, particularly during the Country Music Festival.

There are 2 main areas that should be addressed. They are as follows:

- Strengthening the Economic Base
- Tourism

Each will be discussed separately.

8.6.1. Strengthening the Economic Base

The current economic base of the Shire is strong with a reasonable level of diversity. However there are always areas for improvement.

Therefore, it is considered that the drivers of the economy for the future should be as follows:

- Agriculture
- Manufacturing
- Transport and storage
- Tourism
- Mining

Strategies should be developed to ensure that the economic benefits from these sectors that drive the economy are maximised in the future. This will therefore require a more diverse economy. There are ways to provide more diversity to the economic base of the Shire including:

- Continue the economic strength of the agriculture sector;
- Continue to broaden the economic base of the Shire. This can be done by developing larger markets that are not agriculture dependent, such as manufacturing, transport and storage;
- Preventing leakages of expenditure by Shire residents and businesses;
- Providing a good level of service locally to prevent local residents and businesses from doing business elsewhere;
- Improving visitor services and amenities;
- Maximising multiplier effects from economic activities.

This can be done by 2 actions:

- Firstly, existing businesses that have products and services that can be supplied into other markets (particularly major city markets) should be identified and assisted to expand. An 'economic gardening' program could be initiated supported by both Council and the Promotion and Development Board. Some further details are provided on a possible program in Appendix 5.
- Secondly, if there are few businesses with growth potential, then business attraction will be necessary. To be successful, business attraction has to evolve from a broad economic development strategy and be carefully focused, planned and implemented. Few businesses are prepared to relocate, especially to relatively remote rural locations. Thus, businesses have to be attracted on the basis that it is part of an overall business/industry development strategy that is built on competitive advantage and has growth potential.

The holding of festivals and events is another way to introduce economic development into the Shire. Festivals and events can be held in conjunction with a specific theme or brand that the town is known for. Farmers Markets are another event that can be used – they also allow local producers to sell their produce directly to the local consumers, thus providing a linkage between the two. These markets should be held once a month to begin with and at certain times during the year – when produce is being harvested – they can be run more frequently. Successful markets are held in other centres throughout the region.

8.6.2. Tourism

A strategy to capitalise on the existing and future traffic on the New England and Kamilaroi Highway corridors should be developed as a key aspect of any strategies addressing tourism.

The town and district have great heritage values as well as having scenic landscapes. These 2 aspects should be capitalised on to give the town a unique attraction. This could also be a selling point for the future marketing of the Shire. This would build on the natural assets of the towns.

There is also a need to improve the entrances to the town. It is important to provide a good impression as the visitor enters the town –"you never get a second chance at a first impression". This includes some urban design treatment and landscaping along the roadsides. Signage needs to be addressed. This signage should be simple and effective.

The marketing of the town and Shire, public domain works and capital works needs to capitalise on these aspects of the heritage, the dual main streets, lake and parkland setting of the town.

8.6.3. Mining

Mining is already occurring in the Shire and currently makes a significant contribution to the Shire's economy both through direct and indirect means.

There is currently an investigation into a mine at Caroona and this could, if approved have a major impact on the Shire.
In New South Wales, before any mining can commence, a Mining Title (Mining Lease) must be granted pursuant to the Mining Act of 1992 by the Minister for Primary Industries. A precondition is that development consent must be obtained under the EP&A Act by the lodgement of a development application. Assessment of mining development applications is undertaken by the Minister for Planning under the provisions of part 3A. of the EP&A Act. The part 3A process involves the applicant preparing an environmental assessment in accordance with any requirements stipulated by the Director-General of the Department of Planning. The Council, as a regulatory authority is consulted by the Department of Planning and will provide details of its requirements having regard to its areas of responsibility. The assessment will identify environmental impacts and measures proposed to avoid and mitigate these.

If approval is granted under part 3A other approvals that may be required for the project must not be refused by the relevant authority and must be substantially consistent with the terms of project approval issued by the Minister for Planning.

Mining, because of its scale, can have significant impacts and the main environmental impacts of mining within the Liverpool Plains Shire are considered to be (but not limited to) as follows:

- Subsidence if underground mining occurs;
- Loss of biodiversity;
- Water quality and quantity - both underground and surface;
- Noise and blasting;
- Land use conflicts;
- Air pollution;
- Transport;
- Rehabilitation;
- Greenhouse gas emissions;
- Cultural heritage;
- Waste overburden.

Whilst approval, management of mining and rehabilitation are outside Council's legislative powers, it is important that the regulatory authorities such as the Departments of Environment and Climate Change, Planning and Primary Industries recognise and take a whole of Government approach to ensure that environmental performance is such that the sustainability and landscapes of the black soil agricultural lands are not compromised.

Council and the community are seeking a strategic approach to the development and assessment of proposals to develop the coal resources of the Gunnedah basin.

8.6.4. Community Economic Development Community Strategic Plan

The Council, in conjunction with the Department of State and Regional Development has prepared a strategic plan for 4 communities – Premer, Quirindi, Werris Creek and Willow Tree.

The document has carried out a situation analysis of what is occurring in the Shire. It then identifies the 4 community economic development programs. A set of Community Value statements has been identified. Then the document identifies vision and mission statements along with key result areas, issues and objectives. These focus on business and tourism development, physical development as well as events and social development.

8.7 Infrastructure

The provision of infrastructure is an important aspect of any Strategy for the future. This includes roads, water and sewer, community and recreation facilities, transport, telecommunications and electricity. These are outlined in Council's management plan, which provides for the management of the current resources.

The current level of infrastructure is mostly adequate for the needs of the current population, with the exception of town water for Quirindi and public transport.

Council manages a large number of roads within the Shire, a number of which are unsealed. There is a need to ensure that the road system is utilised to its maximum capacity and that development occurs in areas that have good access and preferably sealed roads. There are a large amount of roads and bridges that need to be continually repaired and upgraded. The black soil plains, because of their large shrink / swell capacity present special issues for road construction and the increased costs over other soil types is 100 %. This impacts on Council's financial capacity to undertake large scale road improvements.

The RTA has developed a set of 5 principles for managing development along the Kamilaroi and New England Highways, which were outlined in chapter 7. It would be appropriate for the Council to adopt these as part of this Strategy.

The water and sewerage reticulation systems for the towns of Quirindi and Werris Creek are considered to be adequate for the present and will need to be monitored over the coming years to ensure that demand is managed. There is a need however, to provide for the augmentation of the supply for Quirindi and consideration is being given to utilising Quipolly Dam. There is also a need to construct a new main from the existing reservoir on Who'd A Thought It Hill to link up with a new reservoir to be built to the east of town. This work will also help in the provision of a secondary water main for the eastern part of the town.

As part of Council's Strategic Planning Process options for water infrastructure provision to meet future growth demands have been examined. The Strategy has been developed in a manner to provide Council with options.

The strategy envisages:

- Quirindi continues to draw its Town Supply from the underground aquifers of the Borambil Basin
- Construction of a new 5 ML reservoir east of the identified growth corridor along the Wallabadah Road. Construction of a new 200 mm rising main to service the Quirindi South industrial area and the new reservoir. This pipeline provides an alternative supply to east Quirindi in that it does not cross the rail line or Creek system
- Construction of a new 5 ML reservoir at Quirindi North adjacent to the existing reservoir. This would provide capacity to meet peak daily demand and provide water to service the Quirindi- Werris Creek rural residential corridor and the proposed Greenfield industrial site at the corner of Taylors lane and the Kamilaroi Highway.
- Extension of a service main along the Quirindi –Werris Creek Corridor

In addition:

- Quipolly Dam wall is raised up to a further 2 meters above the existing top water mark to increase capacity from 5,400 ML to 8,300 ML
- Construction of a new Treatment plant with increased capacity and a new rising main to Werris Creek.
- Construct a new rising main to the Reservoir at Quirindi North

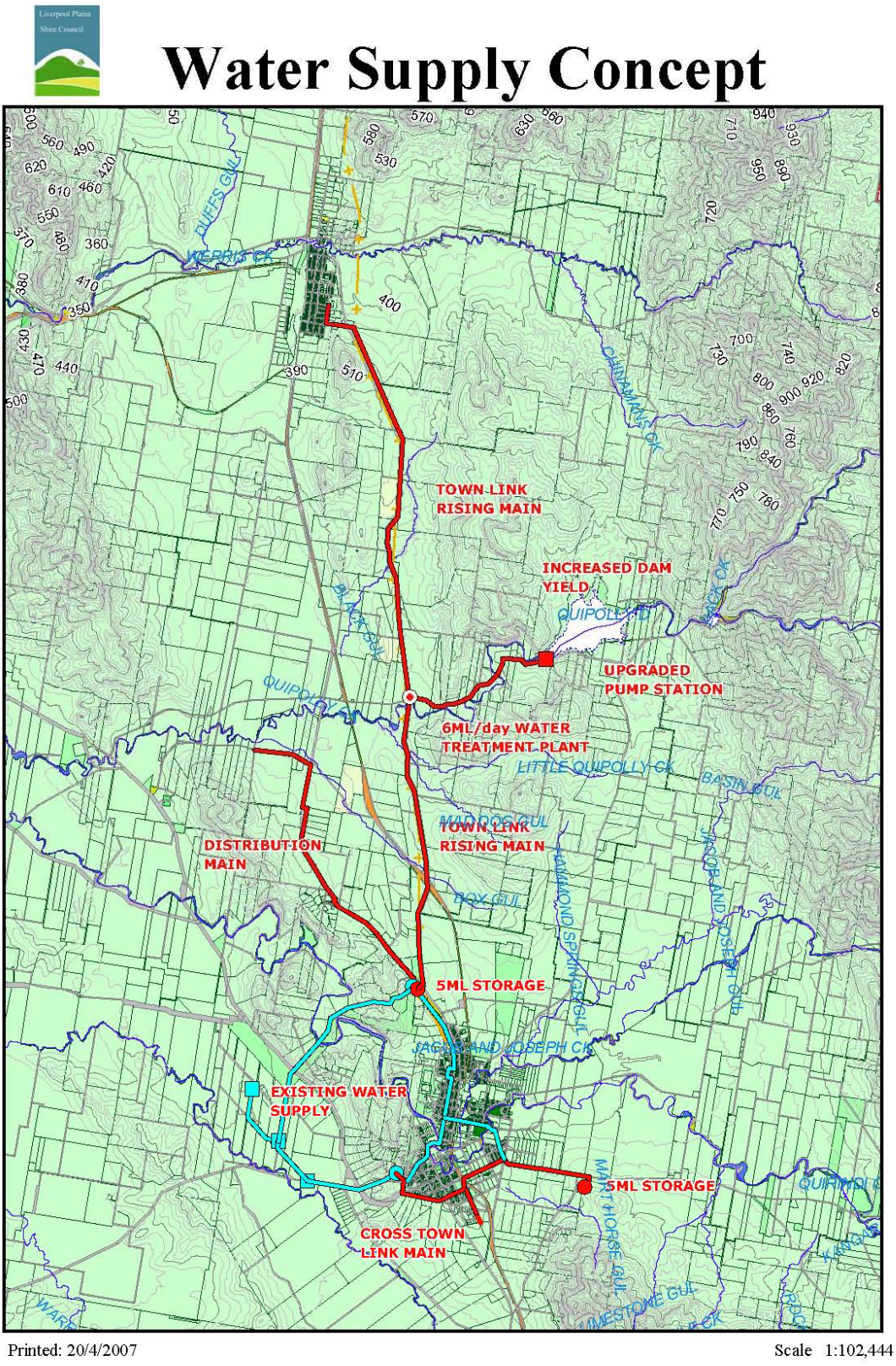
The water supply Strategy map is shown as map 8.27.

An increased storage in the dam permits each town to have an alternative water supply source however, it is subject to approval being obtained from various government agencies. To fund any adopted upgrading works Council will be required to maximize Developer Servicing contributions and Government Funding. Future scenario planning also needs to examine the opportunity for recycling sewer water and the harvesting of storm water

Community and recreation facilities are considered to be adequate for the current population. There will be a need to continually manage and improve the level of community and recreation facilities to ensure that they meet the needs of the future populations.

Telecommunications and internet access is a key issue in rural NSW. Broadband internet access is something that is more commonly required for businesses, Councils, Government Agencies, health and educational institutions as well as for personal use. This is currently only available in the towns of Quirindi and Werris Creek and not in the rural areas.

Public Transport provision to the Shire and within it is barely adequate. The only form of public transport is buses and taxis within the Shire. There is a train service which links to Tamworth and Sydney, however its frequency does not allow for commuter use between the Shire and Tamworth. One of the major problems with bus transport in rural communities is that there are often not sufficient paying passengers for the distance travelled to make it viable. Concentrations of population which are easy to service are an important requirement for bus transport. For older people and people with a disability this access to bus transport and quality pedestrian and cycle facilities within the town is important. This includes the provision of dropped kerbs, road crossing facilities and bus stop infrastructure (eg shelters, seating, timetable information and lighting) with all facilities to meet access guidelines and be suitable for motorised scooters.



Map 8.27: Quirindi Werris Creek Water Supply Strategy

8.8 Catchment Management

All land is within a catchment and the impact of development on the land downstream has to be considered. Liverpool Plains Shire is in the Namoi River Catchment. These rivers and their many tributary creeks and drainage lines flow through the Shire. It is a source of non-potable water for the town of Quirindi as well as for irrigation. There are many irrigators who have access to the river and the water is used to irrigate many crops as well as being used for stock and domestic water supplies.

Water Quality in the river and its catchments is very important and there is a need to ensure that development does not have any adverse impact on the water quality. One strategy that could be employed is to ensure that all development has a net improvement in the quality of the water downstream. This would ensure that development is striving to achieve the principles of sustainable development. Domestic effluent disposal and urban and rural runoff and pollution have the potential to adversely impact on the water quality. To ensure that development is sustainable, it should be setback from the river and creeks and effluent disposal and other pollutants should not be permitted to drain into the river and creek system. In order to minimise the impact of onsite effluent disposal on small lots it is considered that there should be a minimum lot size of 1 ha for all newly created non-sewered lots in urban and rural land. This will ensure that any lots created that are less than 1 ha will be connected to a reticulated sewerage system. It is also important to reduce sediment loadings in the system by ensuring that erosion does not occur. This can be prevented by ensuring that there is an adequate riparian buffer strip of grass and other vegetation to slow down the water and sediment, thus capturing it before it enters the river system.

Riparian buffers are an important aid in maintaining and improving water quality. There is a need to encourage riparian buffers to be maintained and, where possible improved. It needs to be noted that the width of the buffer should vary in relation to the slope of the land, erodibility of soils and size of the waterway. As a general rule, the Department of Primary Industries recommends that a 50m buffer apply to key fish habitats and 10 – 20m to first and second order and unmapped streams. It is acknowledged that this is a major issue to address, particularly on private land and it is recommended that the Council enter into discussions with the DPI and the Namoi CMA to address this matter. As an interim measure, an objective can be inserted into the draft LEP and relevant zone to ensure that the protection of riparian areas is considered when assessing Development Applications.

The Shire is located in the Namoi CMA which has prepared a Catchment Action Plan (CAP).

This Growth Management Strategy can be used to help implement the CAP where appropriate.

The NSW Government has developed a set of Water Quality Objectives which are the agreed environmental values and long-term goals for NSW's surface waters. They set out the following:

- the community's values and uses for the State's rivers, creeks, estuaries and lakes (i.e. healthy aquatic life, water suitable for recreational activities like swimming and boating, and drinking water); and

- a range of water quality indicators to help us assess whether the current condition of our waterways supports those values and uses.

The Water Quality objectives for the Namoi River Catchment have been developed by the Department of Environment and Climate Change. They have been developed to ensure the long term health of the waterways of NSW so that there can be a healthy future for both the environment and the economy. Environmental problems are widespread in the river systems and, in many cases, can also affect economic development of the areas adjoining the rivers. These problems include algal blooms, rising salinity, carp and declining numbers of native fish. NSW also needs to meet its inter-governmental obligations to improve river health, such as in the Murray-Darling basin. There are a number of water quality objectives that apply. Each is based on providing the right water quality for the environment and the different uses people have for water. They are based on measurable environmental values for protecting aquatic ecosystems, recreation, visual amenity, drinking water and agricultural water.

Each of the inland River Flow Objectives deals with how water moves down rivers and streams. Each objective aims to improve river health by recognising the importance of natural river flow patterns. The Objectives are based on achieving improved environmental results from managing the riverine system.

The objectives for Water Quality and River Flow are outlined in Table 8.8. The information provided in the table is the heading for the objectives that apply.

Table 8.8: Water Quality and River Flow Objectives

Priority Area	Water Quality Objectives	River Flow Objectives
Town water supply sub catchments	Aquatic ecosystems:	Protect pools in dry times
	Visual amenity:	Protect natural flows
	Drinking water	Maintain wetland and floodplain inundation
		Manage ground water for ecosystems
		Minimise effects of weirs and other structures
Mainly Forested Areas	Aquatic ecosystems	Protect pools in dry times
	Visual amenity	Protect natural flows
	Primary and secondary contact recreation	Maintain natural flow variability
	Drinking Water	Manage ground water for ecosystems
	Aquatic foods	Minimise effects of weirs and other structures
Waterways Affected by urban development	Aquatic ecosystems	Protect pools in dry times
	Visual amenity	Protect natural flows
	Primary and secondary contact recreation	Mimic natural drying in temporary waterways
		Maintain natural rates of change in water levels
		Minimise effects of weirs and other structures
Uncontrolled	Aquatic Ecosystems	Protect pools in dry times

Priority Area	Water Quality Objectives	River Flow Objectives
Streams	Visual amenity	Protect natural flows
	Primary and secondary contact recreation	Protect important rises in water levels
	Livestock water supply	Maintain wetland and floodplain inundation
	Irrigation water supply	Manage groundwater for ecosystems
	Homestead water supply	Minimise effects of weirs and other structures
	Drinking water	
	Aquatic foods	
Major regulated rivers	Aquatic ecosystems	No river flow objectives recommended
	Visual amenity	
	Primary and secondary contact recreation	
	Livestock water supply	
	Irrigation water supply	
	Homestead water supply	
	Drinking water	
	Aquatic foods	
Controlled rivers with reduced flow	Aquatic ecosystems	Protect pools in dry times
	Visual amenity	Protect natural flows
	Primary and secondary contact recreation	Protect important rises in water levels
	Livestock water supply	Maintain wetland and floodplain inundation
	Irrigation water supply	Mimic natural drying in temporary waterways
	Homestead water supply	Maintain natural flow variability
	Drinking water	Maintain natural rate of change in water levels
	Aquatic foods	Manage Groundwater for ecosystems
		Minimise effects of weirs and other structures
		Minimise effects of dams on water quality

There are other issues with the catchment that should be addressed. They are covered to a degree by the CAP and other programs of the Government and the Namoi CMA. They are as follows:

- Algal blooms;
- Decline in native fish species and an increase in exotic species;
- Increasing salinity – both riverine and dryland;
- Loss of native vegetation
- Decline in the health of wetlands
- River regulation and its impact on the native biota (particularly fish) and wetland ecosystems.

8.9 Native Vegetation and Biodiversity

It is noted in chapter 5 that the Council is legally obliged under the provisions of the Local Government Act to consider Ecologically Sustainable Development (ESD) in the carrying out of all functions in relation to the rural lands. It is noted that the Quirindi, Parry and Murrurundi LEPs do not mention this and it should be amended to incorporate the concepts of ESD.

It is important therefore to provide a policy framework in which the biodiversity of the Shire can be conserved. This includes both terrestrial and aquatic biodiversity. It is noted in chapter 5 that the Council is legally obliged under the provisions of the Local Government Act to consider Ecologically Sustainable Development (ESD) in the carrying of its duties and that biodiversity conservation is a key component of ESD.

First of all there needs to be an assessment of the value of the biodiversity. Once this has been done the Council can consider the implementation of a number of policy options, which are as follows:

- A specific zone in a Local Environmental Plan (LEP).
- Environmentally Sensitive Overlays
- Provisions within a Development Control Plan (DCP).
- Identification of linkages.
- Incentives.

Each will be discussed as options to be considered. However, there is the potential to put an overlay over the areas of dense vegetation which have been identified in the land use survey to act as an initial step towards a more comprehensive biodiversity conservation mechanism.

It is also necessary to recognise that the LEP is not the only mechanism for biodiversity conservation and that the control of native vegetation clearing is the responsibility of the CMA through the provisions of the Native Vegetation Act. The Department of Environment and Climate Change also play a key role, as do the members of the community. There is a need therefore for a partnership approach to be taken to the conservation of biodiversity within the Shire.

8.9.1. Zone in LEP

An Environmental Conservation / Management Zone within an LEP could contain certain provisions that would ensure the preservation of significant habitats (both terrestrial and aquatic) with identified biodiversity values. It could also relate to the riparian vegetation. This zone could place restrictions on the uses that would be permissible to be carried out on such land. This could be seen as being a drastic step and could have a significant impact on the future use of the land. It would have to be backed up by a specific study of the area that would identify the land and its biodiversity value. The identification of land as an environmental conservation / management zone could also be used as a requirement for some form of incentive scheme that will be discussed below.

One issue that needs to be considered is that extensive forms of agriculture (grazing and cropping) do not require consent in most zones and should a zone be introduced, it would be difficult to prove that these uses, especially grazing would constitute a

new use requiring consent, rather than a continuing use. It must be recognised that land use controls can only affect future uses, not uses that are currently undertaken or have been undertaken in the past.

An alternative way to conserve the biodiversity and not specifically zoning the land is to have a zone that reflects use or character of the land – Primary Production for example – and create an overlay hatching of the significant biodiversity areas. This would be tied to a clause in the LEP that would have restrictions on the uses and activities that can be carried out on the land. This has the advantage of not creating a specific zone, but the disadvantage of not highlighting the biodiversity significance of the land in question.

The boundaries of these zones or hatchings need to recognise the topography and vegetation boundaries rather than merely following a cadastral (lot) boundary. The benefit of this approach is that it allows the land to be protected and the other land to be used for appropriate agricultural uses, rather than restricting a large part of land or allowing significant vegetation areas to be degraded by inappropriate land management practices.

Consideration could be given to implementing such zoning restrictions as part of the consideration for the draft LEP. However, the need to require consent for all uses (including extensive cropping and grazing) and the problems outlined above need to be recognised. It is also noted that the Department of Primary Industries is in the process of preparing maps showing the location of 'key fish habitats' and 'key fish migration routes' which should make the identification of those areas for consideration of conservation easier. This matter needs to be discussed with the Departments of Environment and Climate Change, Department of Primary Industries and the Namoi CMA before any firm recommendation can be made.

The draft LEP can have an objective relating to terrestrial and aquatic biodiversity as an interim measure whilst the issues being addressed above are discussed.

8.9.2. Environmentally Sensitive Overlay

There are parts of the Shire that are environmentally sensitive such as wetlands, endangered ecological communities and areas of native vegetation as well as wetlands and waterways. These are scattered throughout the Shire and zoning may not be considered to be an appropriate tool to conserve them. The option exists to create an overlay map which will highlight them and a specific clause can be included in the LEP that places restrictions on the use of the land or clearing of the vegetation.

At present this is not considered to be an option that Council should include in its revised LEP but it should be discussed with the Namoi CMA and Department of Environment and Climate Change to undertake the appropriate studies to investigate this for consideration with future LEPs.

8.9.3. Provisions in a DCP

Provisions within a Development Control Plan could provide specific details on the preservation of biodiversity within the area. This could include issues such as the construction of fences, the proximity of buildings to native vegetation areas as well as clearing of land.

8.9.4. Habitat Linkages

It is noted that there are a number of existing habitat linkages within the Shire. It should also be noted that these habitat linkages are terrestrial as well as aquatic and that streams and rivers are habitat linkages for aquatic species.

The presence of these linkages provides the ability of wildlife to move between one area and another and therefore contribute to the preservation of biodiversity within the Shire and wider region. The conservation of biodiversity within the Shire is integral to the future of the rural land and the wildlife linkages therefore are also integral with any rural planning policy to be prepared. The identification and protection of these linkages via a DCP would be a mechanism and would also put the wildlife linkages in the context of the rural landuses within the whole of the Shire. There is also a need to provide some detail as to how these linkages can be preserved and maintained as well as identifying specific ones that may need to be enhanced. This can be done by way of specific provisions within a DCP.

Incentives for biodiversity conservation are discussed in the next section, which deals with the whole issue of incentives.

It should be pointed out that one mechanism alone will not achieve the desired end of preservation of biodiversity and that a combination of two, three or all four of the above mechanisms may be required.

8.9.5. Education and Incentives

Education of the community about the need for biodiversity conservation and incentives to encourage farmers and other land users to conserve areas of biodiversity are key components of any policy response to biodiversity conservation.

The range of incentive mechanisms have been outlined in section 5.3 of this report. Education can include preparing information about the importance of biodiversity in the form of brochures that can be made available to landowners to conducting workshops on the ground about such things as riparian vegetation and threatened species. This is something that needs to be discussed in detail with the relevant agencies.

Education and incentives are best done in partnerships – between Council and the State Government Agencies (Departments of Environment and Conservation) as well as Natural Resources and the CMAs can all play a role. These agencies have access to more resources – both staff and data than Council.

8.10 Natural and Working Landscapes

The landscapes within the Shire can be divided into natural landscapes and working landscapes (Daniels and Daniels 2003). The natural landscapes include the vegetated hills as well as the river and its associated vegetation. The working landscapes are those that have been cropped or that grow pasture for animals to graze on. This has been discussed in Chapters 2 and 7.

The unique landscape character of the Shire is a visual resource as it generates tourism, development and environmental management. The visual resource also plays

an important role in promoting environmental awareness and well being for residents and visitors. This varies from steep vegetated areas to the simplicity of grazing lands and formal patterns of agricultural crops.

The retention of roadside vegetation is an issue which may require future negotiations with service providers.

Controls which may be considered for retaining the landscape and minimising impact of development include:

- Planting controls for screening undesirable building elements and incorporating buffers to significant environmental communities,
- Building controls for siting and advertising,
- Planning controls for lot sizes, the design and siting of residential dwellings and ancillary buildings, in relation to the visual amenity of road corridors.

It is also important to recognise the visual amenity of open paddocks, post and rail fencing, distant views, heritage items and rural activities.

It can be seen therefore that the preservation of the landscape character of the Shire is of importance.

8.11 Heritage and Culture

The heritage and cultural resources of the Shire include both Aboriginal and European heritage.

There is the potential for any significant indigenous cultural sites to become disturbed by development proposals – either knowingly or unknowingly. The Council should carry out an Aboriginal Heritage Study to ensure that the Aboriginal heritage and culture of the Shire is conserved and recognised.

The European heritage resources are better known and documented. They add to the economic development of the towns and Shire by being a component of the tourism attractions and adding to the streetscapes. However, there is a need for a heritage study to be carried out for the entire Shire to ensure that the heritage resources are protected. The Community Based Heritage Study makes recommendations for a number of heritage item to be preserved by listing in the LEP. It is recommended that this list be incorporated in the draft LEP.

8.12 Natural Hazards

Natural Hazards include the following:

- Flooding
- Bushfire Risk
- Salinity

Of these, flooding is the most severe in both extent and impact on the town of Quirindi and surrounding rural land. The Council has undertaken Floodplain Management Studies and plans.

Bushfires are a natural hazard that has an impact on development of the Shire. The bushfire prone land map shows that there is a significant bushfire risk throughout the Shire, which is related to the topography. It has been noted in Chapter 2 that the fire risk is from forest fires as well as grassland fires. Grass fires can have a major threat to property and life, especially during harvest in the summer months. The relevant provisions of Planning for Bushfire Protection should be incorporated into both the LEP and DCP to be prepared, it being noted that the Standard LEP makes provision for such a clause.

Salinity is a threat to the health and productivity of many catchments, and to the rural and urban communities that live in them. It is affecting rural landholders, urban developments, infrastructure (roads and bridges), water users and the environment. In the Shire it is an issue in the urban areas as well as in the rural areas. It would be appropriate, therefore to include provisions in the draft LEP dealing with salinity – both as an objective as well as a specific clause.

Chapter 9: Strategy

9.1 Vision

A vision for the Shire is stated in the current Strategic Plan and it is considered appropriate to adopt it for the Growth Management Strategy. It is as follows:

That the Liverpool Plains Shire area achieves higher levels of growth and generates improved quality of life through expanded opportunities for economic and social development being realised within an ecologically and financially sustainable framework.

The preparation of a set of specific strategies for the Shire will help to achieve the stated vision of the Council.

This vision can be achieved by the adoption of the growth management philosophy, development principles, objectives, implementation strategies and policy actions that have been provided in this document. It will also be achieved by the Council's Community Strategic Plan which was adopted in 2007.

9.2 Growth Management Philosophy

Growth Management is the mechanism by which the growth of an area can be managed. It has to consider the rural and urban areas. The growth management philosophy should consider the broader policy framework of plans and policies affecting land use. It also must consider Ecologically Sustainable Development and Total Catchment Management.

The growth management philosophy for the Shire is as follows:

- Limit expansion to the towns which have the capacity for growth;
- Encourage a wide range of agricultural and other complementary rural uses such as tourism having regard to environmental impact.
- Ensure that communities have an adequate level of facilities and services to ensure a good quality of life for all residents
- Protection and ongoing sustainability of the Black Soil Plains
- Embody the concepts of:
    - Ecologically Sustainable Development
    - Catchment Management, including the Actions in the Namoi Catchment Action Plan

9.3 Conservation and Development Principles

When considering the preparation of a strategy for the future of the Shire, it is necessary to outline a series of principles under which development should take place. These are intended to be used by Council when it is considering development applications and proposals for the rezoning of land. They are set out below and are grouped into categories that match the categories for the strategies outlined later in this chapter.

Growth Management

- Embody the concepts of Ecologically Sustainable Development;
- Provide a choice of living opportunities and types of settlement;
- Establish and adhere to a settlement hierarchy;
- Limit expansion to those settlements that have the capacity for growth;
- Avoid development in areas of conservation significance;

Land Use Planning

- Develop a land use framework that provides certainty for the residents;
- Allow for there to be flexibility in the implementation of land use policies;
- Ensure that current and future agriculture is not compromised by fragmentation of rural land
- Ensure that there are sufficient land stocks to meet the residential needs of the community;
- Establish a retail hierarchy that retains the regional significance of Tamworth whilst allowing for appropriate levels of retail use in other centres in accordance with the settlement hierarchy;

Community Services and Quality of Life

- Ensure that settlements have access to an appropriate level of community services and facilities

Economic Growth

- Provide for a diversity of employment opportunities which capitalise on the economic strengths of the Liverpool Plains Shire;
- Develop strategies to retain the existing businesses;
- Ensure that the current diversity of economic activity continues;
- Build on the industry sectors that have been identified as the drivers of the future economy;
- Encourage a wide range of agricultural and other compementary rural uses such as tourism having regard to environmental impact;
- Target job opportunities and education that allows for the retention of young people in the community;

Infrastructure

- Ensure that there is appropriate infrastructure provided to the towns and villages as outlined in the settlement hierarchy;
- Plan for population growth to minimise the impact of development on the road system;
- Ensure that where necessary, adequate upgrading of roads, recreation and community facilities occurs in association with development;
- Coordinate with the relevant Government Authorities to ensure provision of Police, Ambulance, Health and Education services and facilities in association with development;
- Ensure that there is adequate transport infrastructure (road and rail) to transport the commodities produced in the Shire to markets.

Water Catchments

- Embody the concept of Catchment Management, including the actions in the Namoi Catchment Action Plan.
- Protect the water quality of the Namoi River and its tributaries;
- Where possible, improve the water quality of rivers, creeks and other water bodies;
- Protect the quality and quantity of the underground water resources of the Namoi Valley.

Ecological Management and Biodiversity

- Enhance and maintain the ecological integrity of the Shire;
- Protect and conserve the biodiversity of the region;
- Ensure that habitat of flora and fauna is conserved;

Scenic Landscapes

- Protect the integrity of both working and natural landscapes;
- Ensure that development has regard to the natural values and features;

Heritage

- Identify, preserve the heritage and culture of Liverpool Plains Shire

Natural Hazards

- Recognise the impact of natural hazards on the future settlement pattern and rural land uses.

9.4 Strategies

The strategies listed below outline the matters that need to be considered when looking at the future of the Shire. They incorporate objectives, implementation strategies and policy actions.

The strategies have been grouped into the two categories outlined in Chapter 2 and are as follows:

Social and Economic Factors	Environmental Opportunities and Constraints
▪ Growth Management	▪ Water Catchments
▪ Land Use Planning	▪ Ecological Management and Biodiversity
▪ Community Services and Quality of Life	▪ Scenic Landscapes
▪ Economic Growth	▪ Heritage and Culture
▪ Infrastructure	▪ Natural Hazards

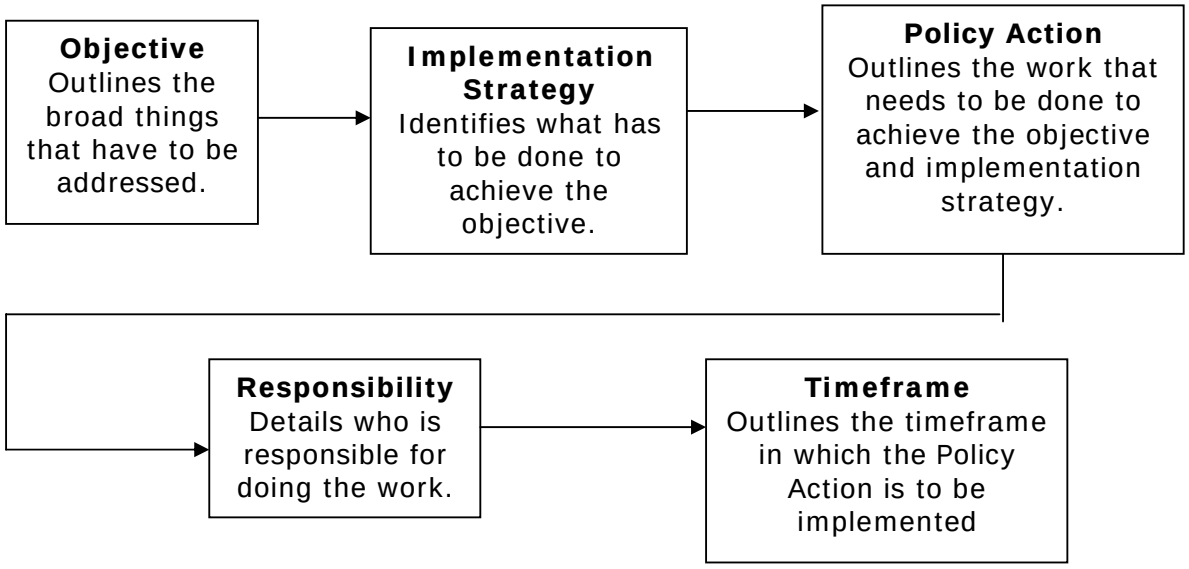
The implementation strategies contained in this section expand on the objectives and state how they are to be achieved and point towards the policy and actions that are

required to carry out the strategy. The policy actions outline the detail of the strategies and provide an indication of what work is required.

This section is laid out so that it is easy to identify what actions are required for the strategies which are outlined. The following chart shows how it is to be read.

The timeframe has been selected to allow them to be built into the State and Local political processes and are broken into three sections:

- *short term* which is nought to two years,
- *medium term* which is two five years, and
- *long-term* which is five years and beyond.



9.5 Social and Economic Factors

9.5.1. Growth Management

Objective: Provide for coordinated and effective and sustainable growth the economic, social and environmental aspects of the Shire.

Implementation Strategy	*Policy Action*	*Responsibility*	*Time-frame*
1. Promote a balanced approach to growth that provides for sustainable growth management.	1.1 Adopt the growth management philosophy and development principles outlined in section 9.2 and 9.3 of this document	Council	Short term and ongoing
2. Acknowledge that Climate Change may have positive and negative impacts on the Shire	2.1 Form a partnership with the Department of Environment and Climate Change and the Namoi CMA to prepare some educational documents about the impacts of climate change on the Shire.	Council, DECC and Namoi & BD-G CMA	
3. Prepare a hierarchy of settlements.	3.1 Adopt the settlement hierarchy outlined in section 8.3.1 of this document and as outlined below: *Regional Centre:* Tamworth *District Centre* Quirindi *Town:* Werris Creek *Villages:* Ardglen, Blackville, Caroona, Currabubula, Premer, Spring Ridge, Wallabadah, Walhallow and Willow Tree *Rural Localities:* Bundella, Colly Blue, Pine Ridge, Warrah Creek, Walhallow 3.2 Allow for the growth and future development of the towns and villages.	Council and Government Agencies	Short to medium term

Implementation Strategy	*Policy Action*	*Responsibility*	*Time-frame*
	3.3 Provide for rural residential development in areas that have adequate access to services and facilities. 3.4 Provide a mix of housing opportunities which includes urban, rural residential and farm housing.		
4. Provide for the economic, social and cultural growth and in particular, maintain and enhance rural job opportunities.	4.1 Prepare Strategies for the economic and social growth in Liverpool Plains Shire.	Council	Short Term
5. Ensure that land is released in an effective and efficient manner.	5.1 Prepare a land release monitor for residential land.	Council	Short to medium term

9.5.2. Land Use Planning

Objective: Develop a land use framework that will give a level of certainty to the people who live in the Liverpool Plains Shire

Implementation Strategy	*Policy Action*	*Responsibility*	*Time-frame*
1. Develop a new suite of land use designations.	1.1. Adopt the following land use designations as outlined on maps: ▪ Primary Production ▪ Rural living ▪ Rural fringe ▪ General Residential ▪ Business ▪ Industrial ▪ Village 1.2 Prepare a draft LEP to formalise these as statutory zones, in accordance with the Standard draft LEP.	Council and Department of Planning	Short term

Implementation Strategy	*Policy Action*	*Responsibility*	*Time-frame*
2. Include in each land use designation a set of desired future character statements which will provide the basis for the objectives of each zone.	2.1. Prepare a set of desired future character statements for each of the land use designations which address the following matters: *2.1.1. Primary Production* ▪ To encourage sustainable primary industry production by maintaining and enhancing the natural resource base. ▪ To encourage diversity in primary industry enterprises and systems appropriate for the area. ▪ To minimise the fragmentation and alienation of resource lands. ▪ To minimise conflict between land uses within the zone and land uses within adjoining zones. ▪ To protect and enhance native vegetation and the quality of existing waterways and water resources. ▪ To ensure that development does not: ⇨ generate significant additional traffic, or create or increase a condition of ribbon development on any road, relative to the capacity and safety of the road, and ⇨ create unreasonable or uneconomic demands for the provision or extension of public amenities or services. ▪ To ensure that development has proper regard to the environmental constraints of land and minimises any off and on site impacts on biodiversity, water resources and natural landforms. *2.1.2. Rural living* ▪ To enable small-scale sustainable primary industry	Council	Short term

Implementation Strategy	*Policy Action*	*Responsibility*	*Time-frame*
	and other compatible land uses. ▪ To maintain the rural and scenic character of the land. ▪ To ensure that development does not unreasonably increase the demand for public services or public facilities. ▪ To minimise conflict between land uses within the zone and adjoining zones. ▪ To provide for a restricted range of employment generating development opportunities that are compatible with adjacent or nearby residential and agriculture development. ▪ To protect and enhance native vegetation and the quality of existing waterways and water resources. ▪ To ensure that development does not: ⇨ generate significant additional traffic, or create or increase a condition of ribbon development on any road, relative to the capacity and safety of the road, and ⇨ create unreasonable or uneconomic demands for the provision or extension of public amenities or services. ▪ To ensure that development has proper regard to the environmental constraints of land and minimises any off and on site impacts on biodiversity, water resources and natural landforms. *2.1.3. Rural fringe* ▪ To provide residential housing in a rural setting while preserving, and minimising impacts on,		

Implementation Strategy	Policy Action	Responsibility	Time-frame
	environmentally sensitive locations and scenic quality. ▪ To ensure that large residential allotments do not hinder the proper and orderly development of urban areas in the future. ▪ To ensure that development in the area does not unreasonably increase the demand for public services or public facilities. ▪ To minimise conflict between land uses within the zone and land uses within adjoining zones. ▪ To ensure that development has proper regard to the environmental constraints of land and minimises any off and on site impacts on biodiversity, water resources and natural landforms. *2.1.4. Village* ▪ To provide for a range of land uses, services and facilities that are associated with a rural village. ▪ To restrict development to small scale developments which are compatible with the general residential character of village areas and which are unlikely to prejudice the viability of established shopping and commercial centres ▪ To ensure that development has proper regard to the environmental constraints of land and minimises any off and on site impacts on biodiversity, water resources and natural landforms *2.1.5. General Residential* ▪ To provide for the housing needs of the community.		

Implementation Strategy	*Policy Action*	*Responsibility*	*Time-frame*
	▪ To provide for a variety of housing types and densities. ▪ To enable other land uses that provide facilities or services to meet the day to day needs of residents. ▪ To permit a range of low and medium density housing ▪ To permit other development which: ⇨ is compatible with the surrounding residential environment, and ⇨ is unlikely to adversely affect the amenity of residential development within the zone, and ⇨ is unlikely to place demands on services and infrastructure beyond the level reasonably required for low-scale housing development. ▪ To ensure that development has proper regard to the environmental constraints of land and minimises any off and on site impacts on biodiversity, water resources and natural landforms. *2.1.6. Business – Local Centre* ▪ To provide a range of retail, business, entertainment and community uses that serve the needs of people who live in, work in and visit the local area. ▪ To encourage employment opportunities in accessible locations. ▪ To maximise public transport patronage and encourage walking and cycling. ▪ To generally conserve and enhance the unique		

Implementation Strategy	Policy Action	Responsibility	Time-frame
	sense of place of business centre precincts by ensuring that new development integrates with the distinct urban scale, character, cultural heritage and landscape setting of those places. ▪ To ensure that adequate provision is made for infrastructure that supports the viability of business centre precincts, including public car parking, traffic management facilities, public transport facilities, cyclist facilities, pedestrian access paths, amenities, facilities for older and disabled people and general public's conveniences. ▪ To ensure that development has proper regard to environmental constraints and minimises any off and on site impacts on biodiversity, water resources and natural landforms. ▪ To ensure that new development has regard to the character and amenity of adjacent and nearby residential areas. ▪ *2.1.7. General Industrial* ▪ To provide a wide range of industrial and warehouse land uses. ▪ To encourage employment opportunities. ▪ To minimise any adverse effect of industry on other land uses. ▪ To ensure that development has proper regard to environmental constraints and minimises any off and on site impacts on biodiversity, water		

Implementation Strategy	*Policy Action*	*Responsibility*	*Time-frame*
	resources and natural landforms.		
3. Identify minimum lot sizes that will enable the continuation of the use of the land for agriculture.	3.1. Adopt a minimum lot size for subdivision and dwelling houses of 200 ha 3.2. Permit agriculture on smaller lots as long as it is in conjunction with an agricultural use and total farm management plan and that the use must be established for 12 months before a dwelling house can be constructed on the property.	Council	Short term
4. Make provision for the future development of the towns of Quirindi and Werris Creek	4.1. Adopt the revised residential, business and industrial designations as shown on map 8.16 for Quirindi and 8.21 for Werris Creek urban areas. 4.2. Adopt the rural fringe designations as shown on map 8.8 for Quirindi and 8.19 for Werris Creek. 4.3. Adopt the rural living designations as outlined on map 8.9 for Quirindi and Willow Tree and 8.19 for Werris Creek	Council	Short term
5. Ensure that there is adequate provision for tourist facilities	5.1. Provide for tourist accommodation in urban areas ensuring that they do not detract from the amenity of the area. 5.2. Provide for tourist accommodation and resort style development and for small-scale bed and breakfast accommodation and tourism activities in Rural zonings which are consistent with the environment capacity of the area.		
6. Prepare management guidelines for land uses in the Shire.	6.1. Prepare a Development Control Plan to provide effective and appropriate land use management guidelines for rural and urban land.	Council	Short term

9.5.3. Community Services and Quality of Life

Objective: Ensure that residents have adequate access to and equity for the provision of services and facilities.

Implementation Strategy	*Policy Action*		*Responsibility*	*Time-frame*
1 Assess the adequacy of the services and facilities provided to the people who live in Liverpool Plains Shire.	1.1	Carry out a survey and consultation program with the people living in rural areas to ascertain their needs. This is to be done in conjunction with the Social Plan.	Council and State Government	Short to medium term
2 Ensure that there is adequate levels of service for senior living developments	2.1	Prepare a strategy to provide for seniors living facilities.	Council	Short to medium term
3 Improve the delivery of services and facilities to provide for an adequate quality of life for the residents	3.1	Improve the amount of aged accommodation, public transport, youth employment opportunities.	Council	Short to medium term
4 Recognise and support the cultural diversity of Liverpool Plains Shire .	4.1	Develop plans to ensure that the cultural diversity of the Liverpool Plains Shire is preserved and fostered.	Council	Short to medium term
5 Monitor the provision of services and facilities for the people who live in rural areas to ensure that they are receiving adequate level of service.	5.1	Prepare a set of Quality of life indicators which can be measured and used to assess the level of service provided to the people of rural areas. This is to be done in conjunction with the Social Plan.	Council and State Government	Short to medium term

9.5.4. Economic and Employment Opportunities

Objective: To provide for economic development opportunities that is in keeping with the character of Liverpool Plains Shire

Implementation Strategy	*Policy Action*	*Responsibility*	*Time-frame*
1 Prepare an Economic Development Strategy for the Shire	1.1 Focus economic development on the key sectors of Retail, Tourism, Industrial use, and Agriculture. 1.2 Implement the Community Economic Development Community Strategic Plans	Council	Short Term
2 Facilitate the broadening of the economic base of the Shire	2.1 Implement the recommendations outlined in section 8.6.	Council and Community groups	Medium and ongoing
3 Facilitate a wider tourism focus for the Shire	3.1 Implement the recommendations outlined in section 8.6.	Council	Short term and ongoing
4 Collaborate with local organisations to develop a plan for the future economic prosperity of the Shire	4.1 Liaise with the local community business groups to identify common issues that can be pursued together	Council	Short Term and ongoing
5 Continue to promote and support the existing businesses	5.1 In conjunction with Regional Business Enterprise services and local Chambers of Commerce advise the existing businesses of relevant opportunities and provide updates on best business practices, funding opportunities, etc. 5.2 Encourage the Chambers of Commerce to investigate adopting the Economic Gardening concept	Council, and Government Agencies	Ongoing

9.5.5. Infrastructure Requirements

Objective: Provide an adequate level of infrastructure for the people who live and work in the Liverpool Plains Shire.

Implementation Strategy	*Policy Action*		*Responsibility*	*Time-frame*
1 Provide adequate levels of service for public transport	1.1	Encourage the use of trains, buses and airlines.	Council and State Government	Short term and ongoing
2 Provide development only in areas that have adequate road access	2.1	Prepare a plan to ensure that there is adequate levels of access to each of the villages in the settlement hierarchy	Council	Short term and ongoing
3 Ensure that development does not have a detrimental impact on the safe operations of the State Highways within the Shire	3.1	Adopt the 5 Principles for Managing land uses along the highways as outlined in chapter 7.	Council and RTA	Short term and ongoing
4 Ensure that there are adequate Community facilities to house the required level of social services.	4.1	Develop and implement action plans for the rural villages and centres to ensure that the appropriate levels of infrastructure are provided.	Council and Government Agencies	Short to medium term
5 Ensure that Recreation facilities are adequate to serve the needs of the residents of rural areas.	5.1	Develop and implement action plans for the rural villages and centres to ensure that the appropriate levels of infrastructure are provided.	Council and Government Agencies	Short to medium term

9.6 Environmental Opportunities and Constraints

9.6.1. Water Catchments

Objective: To ensure that the quality of surrounding waterways is not adversely affected by development.

Implementation Strategy	*Policy Action*	*Responsibility*	*Time-frame*
1. Consider the cumulative impact of development on the catchment.	1.1 Establish a set of Catchment Health Indicators by which the cumulative impact of development can be measured and managed. This is to be done in conjunction with the State of the Environment Reporting.	Council and, CMA & DECC	Short Term
2. Ensure that the groundwater resource within the Shire is managed in a sustainable manner	2.1 Preserve and protect the groundwater resource and ensure its sustainable management and use.	Council, CMA DWE and DPI	Short to medium term
3. Work in partnership with the Catchment Management Authority to ensure that the catchments of the Shire remain sustainable	3.1 Implement, where practicable, the relevant actions of the Namoi Catchment Action Plan.	Council and CMA	Short to medium term
4. Ensure new development is located so it does not have a detrimental impact on nearby watercourses.	4.1 Adopt the NSW Water Quality Objectives for the Namoi River and include them, where possible in the draft LEP. 4.2 All development to be located an appropriate distance from waterways and develop means of protecting riparian zones. 4.3 Provide planning guidelines to protect wetlands and their catchments from development 4.4 Maintain adequate groundcover on Council managed land. 4.5 Hold discussions with the Namoi CMA and the	Council	On-going

Implementation Strategy	*Policy Action*	*Responsibility*	*Time-frame*
	DPI about the most appropriate method to conserve the riparian land throughout the Shire. 4.6 Ensure that aquatic habitat is adequately conserved.		
5 Ensure that the most appropriate sewage disposal system is provided for all land in the rural and urban areas	5.1 Adopt a policy of not permitting subdivision of rural land less than 1 ha unless it can be connected to a reticulated sewerage system.	Council	Short to medium term
6. Ensure development does not increase the sedimentation load in surrounding water bodies.	6.1 All development is to utilise best management practices for soil and water management on the site.	Council & CMA	On-going
7. Ensure new development is located so it does not have a detrimental impact on nearby watercourses.	7.1 All development to be located an appropriate distance from waterways and develop means of protecting riparian zones.	Council	On-going
8. Ensure Domestic and other forms of Effluent Disposal does not have a detrimental impact on water quality.	8.1 On-site effluent disposal is to be in accordance with a DCP dealing with On-site Sewage Management and the NSW Environment and Health Protection Guidelines for On-site Sewage Management for Single Households.	Council	On-going

9.6.2. Ecological Management and Biodiversity

Objective: To ensure that the ecological integrity of the rural lands are enhanced and maintained.

Implementation Strategy	*Policy Action*	*Responsibility*	*Time-frame*
1 Recognise and understand the biodiversity values of the rural and urban lands of the Shire.	1.1 Prepare plans linking core areas of remnant vegetation to facilitate species migration. 1.2 Establish a land use and management approach consistent with State, regional, local biodiversity goals, including Regional Vegetation Management Plans and Catchment Blueprints 1.3 Consider the implementation of environment protection zones and other measures to protect significant biodiversity areas.	Council and Government Agencies in partnership with the community	Short term and ongoing
2 Preserve the existing biodiversity habitat on private lands throughout rural areas.	2.1 Identify and protect significant linkages of native vegetation.	Council	Short term
3 Encourage the State Government to continue to investigate and identify the biodiversity values of Liverpool Plains Shire	3.1 Implement actions in the NSW Government Biodiversity Strategy and Australian Local Government Biodiversity Strategy that have identified Liverpool Plains Shire Council as a lead organisation.	Council and Government Agencies in partnership with the community	Short term and ongoing
4 Increase awareness and involvement in identifying, protecting and enhancing biodiversity.	3. Prepare guidelines for tree / vegetation evaluation including use of the 7 part test for significance under the provisions of the Threatened Species Conservation Act (for DA Assessment).	Council and Government Agencies	Short term and ongoing

9.6.3. Natural and Working Landscapes

Objective: Ensure that development has a minimal impact on the natural and modified scenic landscape of Liverpool Plains Shire

Implementation Strategy	*Policy Action*	*Responsibility*	*Time-frame*
1 Incorporate the preservation of landscape into a development control plan for the Shire .	1.1 Ensure that dwelling houses in rural areas are classified as local development under the provisions of the Environmental Planning and Assessment Act. 1.2 Develop guidelines for the siting and design of buildings in the rural landscape.	Council	Short term and ongoing

9.6.4. Heritage and Culture

Objective: To preserve the rural heritage and culture of Liverpool Plains Shire.

Implementation Strategy	*Policy Action*	*Responsibility*	*Time-frame*
1. Ensure that the heritage resources of Liverpool Plains Shire are protected	1.1 Implement the recommendations of the Community Based Heritage Study.		
2. Protect and enhance the recognised heritage values.	1.2 Prepare guidelines to ensure that the heritage values of the landscape are preserved and not harmed by development and incorporate these into a LEP and / or DCP.	Council	Short term
3. Identify the Aboriginal Heritage significance of Liverpool Plains Shire	1.3 Carry out an assessment of the Aboriginal Heritage of the Shire, in consultation with local Aboriginal groups, with the aim to prepare planning guidelines to ensure that it is		

Implementation Strategy	*Policy Action*		*Responsibility*	*Time-frame*
		protected.		
4. Promote and support the rural culture of the Shire	1.4	Publish information on heritage items and include in community and tourist information	Council	Short term
	1.5	Support cultural and tourist activities which promote rural heritage eg local shows, agricultural days, heritage tourist trails etc		
5. Provide incentives to protect the heritage values.	1.6	Encourage landowners to carry out a heritage curtilage study and conservation plans of historic homesteads including homestead gardens.	Council	

9.6.5. Natural Hazards

Objective: Recognise the impact of natural hazards on future land use and settlement.

Implementation Strategy	*Policy Action*		*Responsibility*	*Time-frame*
1. Consider the impact of climate change on the environment of the Shire.	1.1	Liaise with the CMA and other Government agencies to address the possible responses to climate change on water demand, energy requirements and the cost of living in the Shire in the future.	Council, CMA and Government Agencies	Short term and ongoing
2. Ensure bush fire risk is considered in all future settlement areas.	2.1	Ensure that all future rezoning of land adheres to the principles of Planning for Bushfire Protection 2006.	Council and Government Agencies	Short term
	2.2	Provide information on the Bushfire regulations covering Liverpool Plains Shire.		
	2.3	Provide information on the Emergency Services Disaster Management and Response Plan.		
3. Ensure that land degradation is minimised.	3.1	Do not allow development to occur on land where vegetation clearing will result in	Council and Government	

Implementation Strategy	*Policy Action*	*Responsibility*	*Time-frame*
	unacceptable levels of erosion. 3.2 Ensure developers and residents are aware of best land management practices for maintenance of ground cover and thus minimising erosion.	Agencies	
4. Minimise the potential of salinity to cause a hazard	4.1 Liaise with Namoi Catchment Management Authority.	Council and Government Agencies	
5. Identify the flooding of land as a constraint to future development.	5.1 Implement the provisions of the Quirindi Floodplain Risk Management Plan 5.2 Ensure that localised flooding is taken into account when assessing DAs for dwellings that have access over watercourses. 5.3 Identify flood prone lands within the Shire and particularly those areas where flooding poses a significant risk to new development or productive land management. 5.4 Identify areas where flooding could be exacerbated by inappropriate development in the locality or upstream. 5.5 Provide information on the Emergency Services Disaster Management and Response Plan.	Council and Government Agencies	

Chapter 10: Conclusion

Liverpool Plains has traditionally been an agricultural area based on the cropping and grazing forms of agriculture, with some increasing areas of irrigated cropping.

The granting of an exploration licence to BHP Billiton to explore the Caroona coal deposit and the continued development of the Gunnedah Basin coal reserves heralds a new era of challenges for the local community in managing the environment. During the progress of this study and Strategy, the impacts and significance of the black soil plains has been one constant theme.

There is a need to plan for the future of the Shire to ensure that it is conserved for future generations and so that the environmental, social and economic issues can all be addressed to achieve a balanced and sustainable future.

This document has outlined the existing situation with regards to the physical, social and economic environment of the Liverpool Plains Shire. It has discussed the following as it relates to the Shire:

- The variety of physical, social and economic features of the Shire
- The planning policy framework;
- The existing development pattern; and
- Ecologically Sustainable Development;
- Community Consultation
- Development and Planning Issues
- Strategic Environmental Assessment

A growth management philosophy has been outlined which reinforces the desire to remain sustainable. A set of development principles have been prepared to guide future development to ensure that it achieves the balance between a productive economy, social sustainability and minimising environmental impacts. The strategies prepared canvas the areas of social and economic factors and environmental opportunities and constraints within the local government area.

It is now necessary for the Council to implement the strategies outlined in this document so that development in the Shire can be sustainable into the future and the Shire lands continue to make a positive contribution to the identity and social, environmental and economic sustainability of Liverpool Plains Shire.

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Appendix 1: Brief

BRIEF
STUDY AND STRATEGY DEVELOPMENT FOR LIVERPOOL PLAINS SHIRE COUNCIL

BACKGROUND

Liverpool Plains Shire Council is located in north-western New South Wales and is a multipurpose Local Government Authority which administers an area of some 5000 square kilometres.

The Council was created by proclamation on the 17 March 2004 and contains part of the following local government areas:

- Quirindi Shire Council;
- Parry Shire Council;
- Murrurundi Shire Council;
- Gunnedah Shire Council;

The Shire has a resident population of 7,800 persons and the major urban settlements are Quirindi, Werris Creek and Willow Tree. Other smaller settlements include Currabubula, Premer, Spring Ridge, Caroona, Walhallow, Blackville, Pine Ridge and Wallabadah.

The Shire has a relatively diverse agricultural sector which directly and indirectly contributed 52 percent of total employment. Agriculture is mainly based on broad acre grazing and cereal production with some irrigation on parts of the Liverpool Plains. There is also several intensive livestock industries including poultry and beef cattle.

The economic outlook for the Shire is positive with major investment ($10 million) planned in a soft wood plantation processing facility in Quirindi, utilizing timber from the Nundle and Walcha and a 2 million tonne/annum open-cut coal mine near Werris Creek. These developments coupled with the possible spill overs from the Hunter Valley will only strengthen the local economy.

Council has obtained funding under the Planning Reform Program (PRFP).

The aim of the PRFP is to:

- Promote the development of strategic LEPs that reflect State and Regional priorities;
- Strengthen and modernise local plan making and development controls to improve certainty and consistency;
- Improve the comprehension of plans and access to planning information via electronic web based planning information;
- Incorporate sustainability objectives into the planning system.

LAND TO WHICH THE STRATEGY APPLIES

The strategy will apply to all land in the Liverpool Plains Shire Council local government area.

PLANNING CONSIDERATIONS

The strategy should also provide linkages to biodiversity conservation and protection and enhancement of native vegetation.

It is expected that by the time the Strategy is prepared that further natural resource management, eg legislation, specifically the Native Vegetation Act 2003, will have come into force. Council's consultant should ensure that they are aware of such changes. The strategy should also take into account the NSW Government's Sustainable Agricultural Policy and Rural Lands Policy when considering new provisions for rural land in the Shire.

LOCAL ENVIRONMENTAL PLANS

The following Plans will require consideration:

- Quirindi Local Environmental Plan 1991;
- Parry Local Environmental Plan 1987, Amendment No. 3;
- Gunnedah Local Environmental Plan;
- Murrurundi Local Environmental Plan 1991;

Regional Environmental Plans

- Orana REP No. 1 – Siding Springs (Covers LPS).

DEVELOPMENT CONTROL PLANS

The following Development Control plans apply to parts of the LGA:

- Quirindi Township DCP 1991;
- Quirindi DCP No. 1 Industrial Development Code
- Quirindi Shire Council s.94 Contributions Plan;
- Quirindi Shire Council DCP – Exempt and Complying Development 1999;
- Parry DCP No. 6 – Poultry Development;
- Parry DCP No. 9 – Landscaping Guidelines;
- Parry DCP No. 10 – Notification and Advertising of DA's;
- Parry DCP No. 12 – Residential Development;
- Parry S.94 Contributions Plan No. 1 – Roadworks;
- Parry S.94 Contributions Plan No. 2 – Bush Fire Brigade Services;
- Parry S.94 Contributions Plan No. 3 – Mines and Extractive Industries;
- Murrurundi DCP s.94 Contributions – Bushfire Contributions.

PROJECT OBJECTIVES

Council is seeking to develop a strategy and plan that coordinates goals and policies across its various activities to guide the future development of the shire by linking social, economic and environmental issues under the *Environmental Planning and Assessment Act 1979,* whilst recognizing local planning within its state and regional context.

The project objectives are:

- To provide a focus on strategic planning at the local level within a State / Regional context;
- To implement a set of modern planning controls for Liverpool Plains Shire to meet the contemporary needs of the community that:
    - Provides electronic delivery
    - Recognises natural resource management issues
    - Identifies and protects the Shire's heritage assets
    - Contains a rural landuse strategy
    - Provides for urban development opportunities

- To engage an experienced environmental planning consultant to assist Council to undertake a study, develop a strategy and draft an appropriate plan including maps and associated support documentation;
- To undertake extensive consultation with the community and agencies to ensure the adopted plan is relevant to the needs of the Shire;
- To develop a single local environmental plan for Liverpool Plains Shire as part of the local government boundary reform process;
- To undertake sub-regional planning of the Namoi catchment in particular with the Namoi Catchment Management Authority, Department of Infrastructure, Planning and Natural Resources and other agencies with responsibility for land management;
- To implement best practice land use management for rural lands given the importance of the "black soils" for agriculture.
-

The final strategy will contain:

- Agreed community goals, visions and aspirations;
- Criteria to guide rural and urban development;
- A preferred plan to guide settlement;
- Actions to achieve the preferred plan;

LOCAL PROFILE

The strategy will contain a local profile (within a regional context) to:

- Assess the performance of the rural provisions of the LEPs applying to the shire and determine their impact on supply and pattern of rural settlement;
- Undertake a mapping analysis of potential land use potential and constraints considering land use requirements within the shire; and
- Calculate the demand of rural small holding and residential lots and identify investigation areas.

MATTERS FOR CONSIDERATION

The following matters, which are not necessarily exclusive, should be incorporated into the study:

- A review of the legislation that impacts on land use control in the shire;
- A review of infrastructure needs;
- A review of industrial development and identification of land to be rezoned;
- The identification of areas having environmental constraints for development including flooding, wetlands, erosion, bushfire risk, and cultural value;
- The effect of flooding on existing zones;
- A review of rural development controls and provide recommendations for appropriate provisions 'including lot sizes and strategies to manage land use conflict and rural settlement particularly in regard to the current Clause 17 provisions of the QLEP;
- An assessment of the adequacy of the existing residential (village) zones;
- A review of likely land use conflict between farming activities and the protection of prime agricultural land and in particular the Black Soil Plains;
- The need to develop appropriate Development Control Plans.

COMMUNITY CONSULTATION

A fundamental component in the development of the strategy will be community consultation to develop the vision for the shire. It will be through this consultative process that the community and

Council will work towards common and diverse goals to prepare the strategy and ultimately the development of a Local Environmental Plan for the Shire.

It is intended that the vision will be developed by utilising a collaborative community wide participatory process to formulate a long range and goal oriented framework. While visions are long range goals, they are not static and as a result, the strategy will need to be prepared in such a manner to enable flexibility wherever possible.

Provision should be made to conduct meetings at the following locations:

- Currabubula;
- Werris Creek;
- Quirindi;
- Wallabadah;
- Willow Tree;
- Premer;
- Spring Ridge;
- Caroona;
- Blackville.

Council will also establish a LEP Working Group and provision should be made to meet with this Committee as required during the process.

The Draft Strategy will be advertised for public comment prior to adoption by Council.

REQUIRED CONSULTATION

The following authorities are to be consulted as part of the strategy:

• Department Infrastructure Planning Natural Resources	• Department of Environment and Conservation (EPA and NPWS)
• NSW Agriculture	• NSW Police
• Department of Mineral Resources;	• Rail Access Corporation
• Roads and Traffic Authority;	• State Emergency Service
• Namoi Catchment Management Authority;	• Siding Springs Anglo-Australasia Observatory
• NSW Rural Fire Service;	• State Forests of NSW
• NSW Fire Brigades;	• Local Aboriginal Lands Council
• NSW Health;	• NSW Heritage Office
• Country Energy;	• Murray Darling Basin Commission
• Telstra;	• Civil Aviation Authority
• Department of State and Regional Development;	• Department of Community Services
• Tamworth Regional Council;	• Rural Lands Protection Authority

• Upper Hunter Shire Council;	
• Gunnedah Shire Council;	
• Coolah Shire Council;	
• Coonabarabran Shire Council;	

PROJECT TIME LINE

Milestones	Timeline*	Project Requirements
Prepare Brief and Engage Consultant	1 August – 17 September 2004	Brief to be endorsed by DIPNR
Prepare Study	17 September 2004 – 1 January 2004	Progress Report to be submitted and findings endorsed by DIPNR prior to progressing to next Milestone (i.e. Preparation of Issues Paper)
Preparation and exhibition of Issues Paper	1 January – 31 March 2004	Draft Issues Paper to be submitted to DIPNR and endorsed prior to public exhibition.
Preparation and exhibition of Strategy	1 April – August 2005	Draft Strategy to be submitted to DIPNR and endorsed prior to public exhibition
Prepare local Environmental Plan	1 July – December 2005	
* timeline may be amended only in consultation and agreement with DIPNR and Council.		

COUNCIL SUPPORT

Council has limited staff resources, however it is prepared to assist with the undertaking of the community visioning exercises, the provision of base data statistics and other general information.

Details regarding the demands on Council resources should be provided in response to this brief.

STUDIES/REFERENCES

• Parry Shire Heritage Study;	• Various Rural Flood Studies
• Parry Shire Social Plan;	• Liverpool Plains Shire Council – Social Plan
• Parry Shire Rural Settlement Strategy;	• Various State of Environment Reports
• Parry Shire Bush Fire Risk Management Plan;	• Liverpool Plains Shire Council Community Heritage Study
• Parry Shire State of the Environment Report;	• Quirindi Economic Profile

• Werris Creek Main Street Study;	• Water Sharing Plan for Phillips Creek, Mooki River, Quirindi Creek and Warrah Creek Sources 2003
• Namoi Catchment Blueprint	• Water Sharing Plan for Upper and Lower Namoi Groundwater sources

PLANNING FOCUS MEETING

Provision should be made to conduct a Planning Focus Meeting at Quirindi.

PROJECT BUDGET

To be determined.

RESPONSIBILITIES OF THE CONSULTANT

The consultant shall prepare the Strategy which will comprehensively address the issues contained in this brief and will also undertake the following:

- Attend meetings in Quirindi with elected members of Council, senior Council officers and other meetings that may be required to discuss procedures or matters arising during the preparation of the strategy;
- Submit a written monthly reports to Council detailing the progress of the strategy;
- Present 25 hard copies of the final strategy and an agreed electronic version.
- Attend public meetings and workshops;

PROJECT MANAGEMENT

The project will be managed by the Director - Environment and Community Services, Bob Stewart.

Contact details are:

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Quirindi NSW 2343

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Attachment: Shire Map

Appendix 2: Land Use Survey Methodology

A major component of this study has been a land use survey of all of the land within the rural parts of the Shire. The purpose of the land use survey is to gain an indication of the land use trends.

The preparation of a land use survey is one of the most important components when zoning rural land. Each parcel of land within the Shire has been inspected and given a land use designation. This has been entered into Council's Property Information database and mapped using a GIS.

The first step was to identify a set of spatial boundaries which would form the basic level of data representation. The geographical localities were used. This has two benefits, the first being that the area is generally mapped and can be identified easily and secondly it is easier for the public to understand the data once it has been collected and published.

The next step is to identify the categorisation of the land uses to be surveyed. The land use has been categorised into primary and secondary land use categories. The primary land use categories are as follows:

- Rural Residential
- Irrigated Plants
- Intensive Animals
- Extensive Agriculture
- Vacant
- Commercial
- Extractive industries
- Public Use
- Village
- Native Vegetation

Definitions of each use which were used for the purpose of identifying the land uses are as follows:

- *Rural Residential* means a house on a lot that is greater than 1 ha generally, and is in a rural environment where the main source of income is from other sources than agriculture use of the land.
- *Irrigated plants* means the growing of vegetables and ornamental plants for commercial gain using the application of irrigated water and includes market gardening, protected cropping structures, orchards, vineyards, and other similar uses.
- *Intensive Animals* means the rearing of animals using a feeding method other than natural grazing and includes poultry and piggeries mainly.
- *Extensive Agriculture* means the growing of plants using natural rainfall or the rearing of animals using grazing as a feeding method. It also includes the growing of fodder crops and irrigated pasture.
- *Vacant* land is land that is mostly cleared of native vegetation and which does not have any dwellings or other structures on it.
- *Commercial* uses are uses that are used for a commercial or industrial type of use and which do not have any dwellings associated with them.
- *Extractive Industry* means a use that extracts material from the land and includes sand and clay mining and quarrying of sandstone and other stones.

- *Public Uses* mean a use that is commonly used and or operated by a public authority or associated body. It includes community facilities, golf courses and Government owned uses of the land
- *Native Vegetation* means a lot that has no dwellings or structures on it and which has the majority of the land covered in native vegetation.

The detailed categorisation is presented in the following table:

LAND USE SURVEY CODES

PRIMARY		SECONDARY	
Description	**Code**	**Description**	**Code**
Rural Residential	RR	Dwelling	DW
Vacant	VA	Cleared Land	CL
Native Vegetation	NV	Native Vegetation	NV
		National Park	NP
Irrigated Plants	IP	Irrigated	IR
		Orchard	OR
Intensive Animals	IA	Cattle Feedlot	CF
		Horse Stud	HS
		Piggery	PI
		Poultry	PO
Village	VI	Urban	UR
Extractive Industry	EI	Hard Rock	HR
		Limestone	LI
Extensive Agriculture	EA	Grazing	GR
Public Use	PU	Bushfire Brigade	BF
		Church	CH
		Council	CL
		Crown Land	CR
		Electricity	EL
		Hall	HL
		School	SL
		Telstra	TL
		Travelling Stock Route	TS

There are 3 components to the carrying out of the land use survey as follows:

- Preliminary identification of land use.
- Study area inspection.
- Data entry and mapping.

Preliminary identification of land use occurred in the office prior to the field inspection. Aerial photography was used to identify the land use. The major things to be picked out are extensive Agriculture, irrigated plants (particularly vineyards), Horse Studs, dwellings on small lots, vacant land, lots which are totally covered with native vegetation, and extractive industries. Only one major land use was identified. An assumption can be made that a dwelling house rural residential uses except where they are vacant. An assumption was also made that lots less than 20 ha which did not have an intensive agricultural or commercial, industry, public or government use were rural residential.

This information was entered into the database using the coding that has been identified for the primary and secondary land uses.

The study area inspection was carried out by windscreen survey of all of the roads within the rural parts of the Shire. This was done to check the primary land use categories and also to enter secondary ones that could not be identified from the aerial photos. As each road is driven on the land use is clarified against the preliminary identification. Signage, which gives an indication that the property may be use for a secondary use such as a home business or a commercial use was also noted.

The data was entered into the Council property information database using the coding. However this was not always possible because of the lack of street numbering in the database and only those uses, which could be identified from the database, were entered. This did not affect the integrity of the data as the primary uses are the ones used in the identification of the land use designations.

Appendix 3 – Methodology to Assess the most appropriate Land Use Designation for Rural Land

The following method is used to identify the land units and designations discussed in chapter 3.

1. Data Gathering

- Land Use Survey
- Lot size analysis
- Slope mapping
- Fauna And Flora Study / Vegetation cover
- Soils mapping
- Drainage and Catchments
- Agricultural land classification
- Landscape features
- Water quality and quantity

2. Identify Constraints

- Urban expansion areas
- Rural residential areas
- Intensive agricultural uses
- Land use conflicts
- Native vegetation areas
- Water courses
- Steep land

3. Identify Land Units

- Similar topographic features
- Clusters of land uses

4. Assess Agricultural Potential

- Identify high class land
- Rank areas for land uses
- Identify lot sizes and land uses

5. Consider the Appropriate Zone

- Agriculture
- Mixed Use / Agricultural landscape
- Nature conservation
- Rural living
- Rural urban fringe