



MURRAY SHIRE

Strategic Land Use Plan

2010-2030



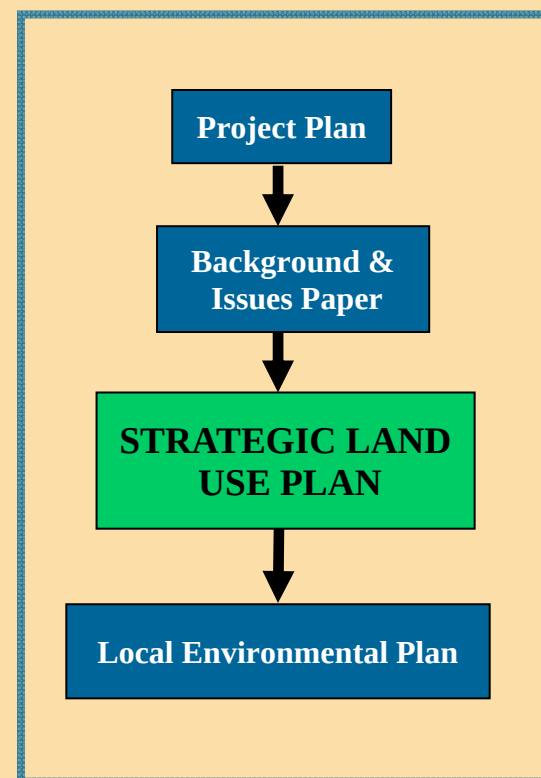
Council's vision for land use planning is "to ensure that the Shire's natural environment is carefully managed and that its natural and built assets are protected from inappropriate rural and urban development that would prejudice the agricultural, heritage and urban attributes of the Shire."



Introduction

Contents

1. Introduction
2. Murray Shire
3. Moama
4. Mathoura
5. Other settlements
6. Rural & environment



Context

This document is a Strategic Land Use Plan (SLUP) for the Murray Shire.

The SLUP is applicable to the whole of the NSW local government area of Murray.

In 2004 the State government announced a series of reforms to the planning system in NSW. One objective of the reforms is to:

Improve strategic assessment and planning in order to tackle growth and land use pressures, better coordinate infrastructure provision, and provide State level guidance and direction for local planning.

The SLUP is in response to these reforms and has been jointly funded by the State government and Murray Shire Council.

Vision

Within the context of land use planning and looking to the future, Council's vision is for a prosperous community with a diversified economy integrated with a sustainable and productive natural resource base.

This vision seeks to ensure that the Shire's natural environment is carefully managed and that its natural and built assets are protected from inappropriate rural and urban development that would prejudice the agricultural, heritage and urban attributes of the Shire.

Purpose

The overall purpose of the SLUP is to guide the future development and use of land within the Shire for the next 20 years and beyond. More specifically the purpose of the SLUP is to assist in:

- preparing a new Shire-wide Local Environmental Plan;
- providing the community with a degree of certainty for the location of various land uses in the future;
- maintaining in production agricultural land not required for urban expansion;
- protecting the riverine environment from use and development detrimental to it;
- separating incompatible land uses;
- reducing development speculation;

- considering tourist development proposals; and
- discouraging development on flood prone land.

Process

The process for delivering a new Local Environmental Plan for the Shire (see flowchart opposite) commenced with the adoption of a *Project Plan* in conjunction with the Department of Planning that outlines the steps to be taken. This was followed by extensive research of land use planning related information applicable to the Shire and the consultation of numerous government agencies with an interest in land use planning. A record of this consultation and research on the Shire is contained within a separate *Background and Issues Paper*.

A draft of the *Background and Issues Paper* was released for public exhibition and comment in May 2006. During exhibition a number of community consultations were undertaken at various locations around the Shire as well as individual interviews. Following consideration of submissions, the *Background and Issues Paper* was finalised and adopted by Council.

The SLUP is informed by the *Background and Issues Paper* and particularly the identification of land use planning issues arising. The draft SLUP will also be subjected to a round of referrals and consultation prior to adoption by Council.

The SLUP then becomes the basis for the preparation of a Local Environmental Plan.

Content

The content of the SLUP is structured to address land use planning issues in the Shire in a strategic context. It is designed to simply and clearly convey Council's intentions for the future development of townships and rural areas in the Shire for the next 20 years. If more detail is desired for a particular location or issue then the more comprehensive *Background and Issues Paper* should be consulted.

The SLUP addresses the principal townships within the Shire as well as the rural areas separately as it is anticipated most users of the document are likely to be location focussed rather than issue focussed.

Implementation

Principally the SLUP is implemented via a Local Environmental Plan that applies a range of zones and particular provisions

relating to land use and development. The Local Environmental Plan is supported by a Development Control Plan that provides more detailed controls relating to specific land use and development issues. The SLUP itself will become a chapter within this Development Control Plan.

When preparing amendments to the Local Environmental Plan or assessing development applications, Council must consider whether the particular proposal is consistent with the SLUP.

Monitoring & review

Clearly with the time frame addressed by the SLUP (20 years), it is almost inevitable that circumstances will arise that require adjustments to be made to strategy. It is important if the SLUP is to remain relevant that it is amended if necessary in response to any changes that potentially affect future land use planning in the Shire.

To assist in identifying the need to adjust the SLUP, the following matters will be monitored by Council:

- the types of development being undertaken;
- the rate of land consumption by various land use types;
- the supply of land for various land use types;
- the standard and capacity of infrastructure;
- environmental impacts; and
- community views.

It is recommended that the SLUP be monitored on an ongoing basis and reviewed by Council every three years.

Key references

Key references referred to in the preparation of the SLUP include:

Habitat Planning (2006) – *Background and Issues Paper* for preparation of new Local Environmental Plan for Murray Shire

Murray Shire Council (2005) - *Moama Development Strategy*

Earth Tech Engineering Pty Ltd (2005) - *Moama West Infrastructure – Strategy for Stormwater Drainage, Sewerage*

Sinclair Knight Merz (1999) - *Moama Floodplain Management Study*

Murray Local Environmental Plan 1989 & Development Control Plan

Murray Shire

Overview

Context

The Murray Shire is located within the southern Riverina region of New South Wales adjoining the Victorian border (see location map below). It extends approximately 90km from east to west and 80km north to south and has an area of 4,345 square kilometres. The Shire's terrain is relatively flat and typical of that within the mid-Murray Valley.

Generally, climatic conditions are seasonal and typical of inland southern Australia with dry hot summers, cool winters and the highest rainfall occurring in the late winter/early spring. The average annual rainfall is around 440mm.

The Shire was first occupied by local Aborigines followed by European settlement commencing in the 1840's with squatters following the route of the overlanders as they drove cattle from Sydney to Adelaide. From the 1860's onwards selectors, mainly from Victoria, moved onto the squatter's land and commenced farming.

In 1852 the Mary Ann became the first paddlesteamer to reach Moama along the Murray River and with the rail connection to Melbourne established, by the late 1800's Echuca had become the largest inland port in Australia serviced by a 1,200 metre long wharf (which is actually located within Murray Shire). Since the demise of the river trade in the early 1900's, the



Shire has functioned principally as a rural local government area with an economic base in agriculture. However during the latter part of the 20th century the Shire has evolved into a much more diverse community with tourism and lifestyle opportunities complimenting the agricultural sector.

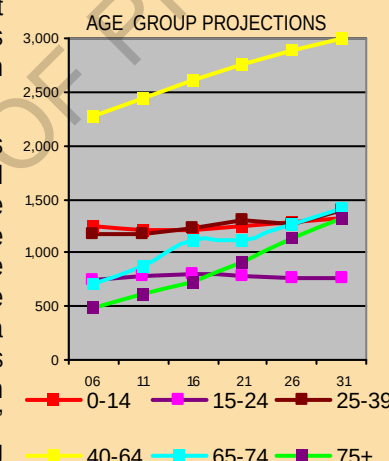
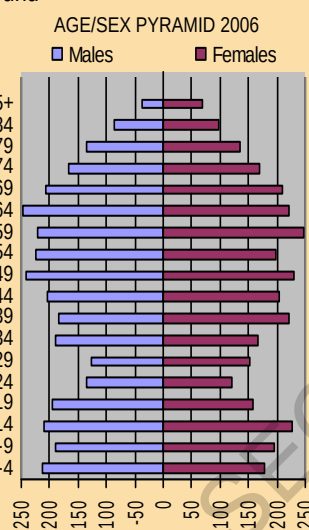
Population

The Shire had an estimated population in 2008 of 7,076 persons and based on recent growth rates, is estimated to almost double by 2030 to around 13,000. Although growth is expected across all age groups, the population is expected to reflect an increasing older profile with the passing of time (see chart below).

The strong population growth that has occurred in recent times has placed the Shire at the top of local government area growth rates in NSW.

The main settlements within the Shire are Moama (which accounts for almost two-thirds of the population) and Mathoura with smaller established settlements in Bunnaloo, Womboota, Picnic Point and Cummeragunja. The Deep Creek marina development west of Moama is emerging as a new small settlement in the Shire.

The Shire's population is ageing in line with national trends - that is, the proportion of the population in older age groups is increasing. The trend is caused by a number of factors including a declining birth rate, the 'baby boomer' generation now reaching



late-middle age and an increasing life expectancy. The trend is perhaps exacerbated in rural communities with the departure of young people (see age/sex pyramid opposite) in search of higher education, employment opportunities or lifestyle, many of whom don't return.

The challenge for Council is to make sure it adjusts to accommodate the changes demanded by its ageing population including housing, transport, facilities and services. Typical of rural areas, the dominant type of housing in the Shire is 'single detached' (82%) with average household size having declined to just over two persons in 2006. The majority of households (73%) consist of families with single person households accounting for a further 25%.

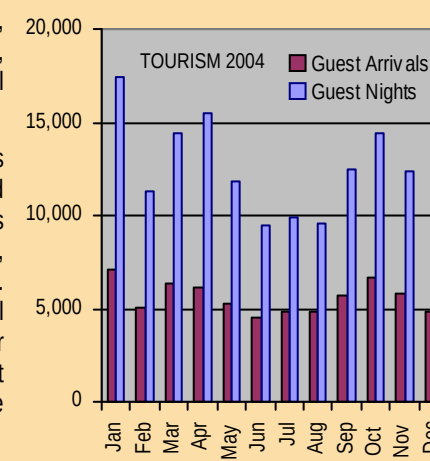
There is a wide range of housing types required (including that which is affordable) to meet the needs of the community. Types range from serviced aged care, one and two bedroom units, three plus bedroom houses on small and large urban lots and rural residential. It is important that the SLUP recognises this range and provide for its development in appropriate places.

Economy

The Shire's labour force at the time of the 2006 census amounted to 3,016 persons. Although the extent is not known, it is reasonable to presume a significant proportion of the labour force is employed outside the Shire in areas such as Echuca.

With the Shire comprised mainly of rural land, it is not surprising that agriculture is the largest industry sector for employment accounting for around 18% of the Shire's workforce in 2006. Other significant employment sectors include 'retail' (11%), 'accommodation and food services' (12%), 'manufacturing' (11%) and 'health and social assistance' (9%).

Most tourist accommodation in the Shire is provided for by motels, caravan parks and holiday cabins. Other accommodation is available in bed and breakfasts, home stays, houseboats, camping and group facilities. The peak period for tourism is during school holidays falling within the warmer time of year (see chart opposite). At its absolute peak, it is possible up to 5,000 visitors may be spending the night within the Shire.



According to the most recent agricultural census in 2005/06 there was approximately 385,000ha of land within the Shire used for agriculture distributed across 393 properties. The main form of agriculture in the Shire is cropping or grazing. The last 15 years has also seen the introduction of viticulture to the Shire which is concentrated in an area on the western side of Moama. The Murray Irrigation Limited Deniboota and Wakool irrigation schemes, as well as a number of smaller private schemes cover most of the Shire west of the Cobb Highway and are used to irrigate pasture and crops such as rice when water is available.

Environment

There are six State Forests covering a large area of the Shire (Bama, Moira, Millewa, Gulpa Island, Perricoota and Werai) that all relate to significant riverine environments. The Barmah-Millewa Forest is the collective name given to the area east of the Cobb Highway and covers about 66,000ha, forming the largest River Red Gum forest in Australia. The forest provides habitat for numerous threatened plant and animal species, including birds, fish and reptiles, and supports colonies of breeding waterbirds during appropriate seasonal conditions.

The Murray River is arguably the most important inland waterway in Australia. It provides a source of irrigation for thousands of hectares of many different types of agriculture as well as being a significant attractor of visitors to the region. More recently the importance of the river to the health of the riverine environment has also been recognised and steps have been taken to ensure sufficient flows are made available to sustain the natural environment. Other waterways within the Shire include the Edward and Wakool Rivers as well as the Gulpa, Tuppal, Bullatale, Yallakool and Colligen Creeks, all of which are an important part of the Murray system.

The Shire has a rich history both from the pre-European settlement period and post-settlement with agriculture and the river trade.



Moama

Overview

Context

Moama is situated on the Murray River directly opposite the Victorian city of Echuca and is the Shire's main urban centre.

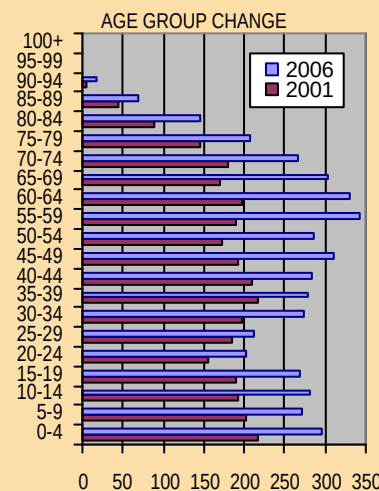
The town was first known as Maiden's Punt when an inn was established on the northern bank of the river at the site of a ferry service around 1845. The town was gazetted as 'Moama' in 1851. Moama was the first cattle crossing on the Murray River and with the developing river trade associated with a railway link to Melbourne, Echuca-Moama became a major inland transport focus. Following the demise of the river trade in the early 20th century, Moama functioned principally as a service centre for the surrounding agricultural area. Towards the end of the century Moama evolved into more of a 'tourist town'.

Population

Based on census data, there were 4,642 people recorded in Moama in 2006 representing a substantial 20% increase over the 2001 figure (see chart below). Related evidence such as dwelling approvals since 2006 (see chart opposite) indicate that this high rate of growth may have slowed since. Moama is one of the fastest growing inland townships in NSW. The median age of persons (the point at which half the population is older and half younger) in Moama in 2006 was 40-44 years which is generally higher than that for larger centres.

The structure of Moama's population is similar to the Shire as a whole and that of most country towns with a noticeable under representation of persons in the 20-29 age groups. An increase in numbers was experienced in Moama across all age groups between 2001 and 2006. The most significant increases were in the 'middle ages' between 45 and 69 years.

There were 2,155 residences recorded in Moama at the 2006 census of which 13% were unoccupied. This high vacancy rate probably reflects the tourist nature of the town. The most



popular form of abode is a 'separate house' with 79% falling into this category. 73% of households are represented as 'families', 9% as 'lone person' and 2% as 'groups'. The average household size in the township is 1.8 persons. According to the previous two censuses (2001, 2006) the total number of dwellings increased by 20% from 3,877 to 4,642.

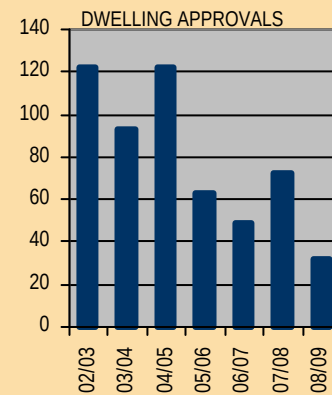
Moama has experienced a decline in new residential building activity in recent years (see chart opposite). New dwellings in the urban area east of the Cobb Highway account for up to 70% of approvals for new dwellings in Moama. The remainder were created in lower density areas along Perricoota Road. It is expected West Moama will account for a greater proportion of residential development in the future as 'east' Moama becomes fully developed.

Economy

Up until around 1980, Moama functioned principally as a service centre for the surrounding agricultural area, and in a subservient role to the larger adjoining centre in Echuca. Since that time tourism has become the principal economic activity in Moama. The town has also become a popular location for retirees (reflected by the median age of its population) and with this growth has come the demand for an expanded range of commercial services.

Moama has a range of retail and service activities although the depth of this range is constrained by the close proximity of Echuca. Most commercial activity is situated on Meninya Street with a greater density at the southern end closer to the bridge. A new retail development (including a supermarket) is has been developed at the corner of Perricoota Road and the Cobb Highway.

There are a number of industrial premises within and surrounding Moama most of which are located in Moama's Industrial Estate within the northeast corner of the town. A new industrial estate has recently been established on the Cobb Highway at the northern entrance to Moama. This area is dominated by the large Byford Engineering enterprise.



Community

Community facilities available in Moama include a pre-school, a primary school, a private primary/secondary school, churches, post office, land fill and recycling depot, community centre, service clubs, senior citizens community centre, fire station, medical centre and court house. There is no hospital. As for recreation facilities, many community facilities accessed by Moama residents are located in Echuca (and vice versa).

Moama, in conjunction with Echuca, provides a broad range of open space and recreational facilities for residents and visitors. The large Moama Recreation Reserve in Perricoota Road is the focus for recreation with 45ha dedicated for this purpose. The Reserve includes a main sports oval (Australian football/cricket), a rectangular sports field area (soccer, touch football, cricket), Jack Eddy Oval – a multipurpose use sports oval (soccer, rugby union, athletics), two netball courts, a velodrome, a disused harness racing track, an adventure playground and Botanic Gardens area (currently being established).

Rich River Golf Club and the Moama Bowling Club are two of the larger sporting clubs in Moama that provide extensively embellished private open space in the town. These clubs are well established and service residents and visitors alike. Other licensed clubs include the RSL and Moama Sports Club.

More passive open space is provided for in local parks around the township and large Crown Land reserves on the Murray River such as the Five Mile and Horseshoe Lagoon adjacent to the bridge to Echuca. Most of this land is flood prone and heavily timbered with remnant vegetation.

Infrastructure

Moama's sewerage system is owned and operated by Council. The treatment plant is located approximately 6kms north of Moama, adjacent to the Cobb Highway and is a gravity aeration system designed for 11,000 EP's (equivalent persons). Current usage is around 5,000 EP's peaking at about 9,000 EP's during busy holiday periods.

Moama features a dual water system with raw and treated water provided to most residents. The reticulated water network is the responsibility of Council. The Moama Water Treatment Plant was upgraded in 2001 and designed to treat 6ML of water per day, which caters for an equivalent of 20,000 EP's. The plant currently treats on average 1.5ML/day, which

caters for approximately 5,000 EP's, and a holiday peak of 3ML/day catering for approximately 10,000 EP's.

Solid waste disposal is undertaken at a Council facility north of the township. This facility is not constrained for development and will not be affected by the growth of Moama within the life of this SLUP.

Electricity and telecommunications are readily available and not considered to be a constraint to the future development of Moama. Reticulated natural gas is provided to the Echuca-Moama area by Origin Energy and extends along Perricoota Road and Twenty-four Lane.

Generally traffic has at least doubled on all main roads in and around Moama over the past 10 to 15 years. The biggest increase has been on Perricoota Road west of the Cobb Highway intersection, which is the result of new residential development being undertaken in West Moama. The existing two lane historic iron bridge linking the town with Echuca caters for more than 20,000 vehicles per day.

The Moama area is relatively flat with drainage being generally in a westerly direction. However there are a number of natural and man-made features that affect flow and capacity of the area to retain stormwater. Whilst the area has a relatively low annual rainfall, during extreme events there is the need to cater for overland flow, including retention prior to any discharge to the Murray River. The *Moama West Infrastructure Development Strategy* recognises that stormwater run-off will increase with development and consequently measures need to be implemented to provide a coordinated response to drainage.

Environment

The *Moama Floodplain Management Study* confirms that most of the land east of the Cobb Highway and flood levee around Moama is flood prone. This severely constrains the eastern expansion of Moama for urban purposes and essentially confirms the future growth of the township can only be in a north-westerly direction generally between Perricoota Road and the Cobb Highway.

Moama's history and pace of development over time (lack of pressure for redevelopment within the town) has resulted in the retention of many older buildings. Council completed a Shire-wide Heritage Study in 2008 that has identified a number of new heritage items in Moama.

Moama

Based on the analysis of Moama undertaken in the *Background and Issues Paper* (including consultation with the community and government agencies), the following planning issues have been identified for consideration in the SLUP. The strategic response to the issues are depicted on the Strategic Plan for Moama.

Current local planning controls

The effectiveness of the current local planning regime is identified as an issue for the SLUP. The current LEP was drafted in 1989 and the older it has become the less relevant it is proving to be in providing for and controlling development in Moama. Providing for appropriately zoned land to accommodate development has been ad hoc in recent times due to a lack of strategic land use planning.

The response to this issue is to provide a Strategic Plan that will guide future development in the town for the next 20 years and beyond. The SLUP will inform the new LEP in regards to the location and extent of land use zones required for the future. The LEP will be based on a standard instrument provided by the Department of Planning.

The existing LEP utilises four land use zones in Moama. The 2(v) Village Zone is a general township zone that provides for all urban land uses. Although the new flood levee on the eastern side of Moama will create additional area for this zone (principally residential), the current zoned area is insufficient to accommodate Moama's growth. Additional zoned land for residential, commercial and industrial land uses will be required.

Additional zoned land for rural residential development needs to be carefully planned in the SLUP as it is a rapid consumer of land and a potential impediment to sustainable urban development. The SLUP proposes to isolate most rural residential development west of Twenty-four Lane and thereby preserving land closer to the town centre for urban development.

Fragmented context

Although the older part of Moama is relatively contained, a proportion of the town's development over the last 25 years has occurred haphazardly between the Cobb Highway and Twenty-four Lane. This has led to a fragmented urban form with the perimeter of the town being far broader than necessary to accommodate the current population and growth in the short to medium term. To address this issue the SLUP aims to give Moama a more cohesive form by nominating urban land uses between the two extremities of the town. It is recognised that to

achieve the urban form suggested by the SLUP may take in excess of 50 years but it is considered important that preferred future land uses are identified now rather than continue to leave undefined 'gaps' within the urban environment.

Population growth

Moama's population increased by around 150 persons per annum between 2001 and 2006. It is anticipated Moama's population will be approaching 10,000 within the 20 year horizon of this SLUP. Recent growth is generally being accommodated on the northern fringe of the town as well as on both sides of Perricoota Road between Layfield and Twenty-four Lanes. A significant proportion of population growth is being driven by the 'baby boomer' generation who will place increasing demands on aged care services and health facilities over the next 20 years as they age and live longer.

This issue is addressed by making provision for an adequate supply of residential land to accommodate this population growth. The SLUP identifies land to the west of the Cobb Highway for this purpose as well as the additional land made available by the new flood levee on the eastern side of Moama.

Residential form

Like most urban areas, Moama provides a range of different residential environments ranging from relocatable homes, to units to substantial rural residential developments. Although the market generally determines the

type of housing that gets built in the community, it is still a desirable planning objective for a range of types to be provided. However it is not the SLUP's role to determine where various residential types should be built with the exception of rural residential because of its land consumptive characteristics and ability to hinder urban development if not carefully planned for. The SLUP identifies the area west of Twenty-four Lane as suitable for rural residential development and an extension of like development in this location. The area between Perricoota

Road and Cobb Highway is preferred exclusively in the SLUP for residential development whereas land to the west of Perricoota Road can co-exist with tourist development.

The residential market has become more sophisticated in recent times with the demand for larger residential lots being met more by lots in the range 1,000 to 1,500m² rather than the 'traditional' 4,000m² rural residential allotment. Some of the older and much larger rural residential development (e.g. Maidensmith Drive) should be considered for redevelopment at an urban density to



Habitat Planning
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ALBURY NSW 2640
www.habitatplanning.com.au

**PREFERRED SEQUENCE FOR RELEASE
OF RESIDENTIAL LAND IN MOAMA**

Murray Shire Council
PO Box 21
MATHOURA NSW 2710
www.murray.nsw.gov.au



Moama

make more efficient use of land closer to Moama's centre.

Manufactured homes are also beginning to find acceptance in the residential market due to their improving quality. Although the SLUP does not differentiate between housing types (with the exception of rural residential) it is desirable that gradual transitions and/or buffers be provided between precincts of like development. This is best achieved via the Development Control Plan and approvals process.

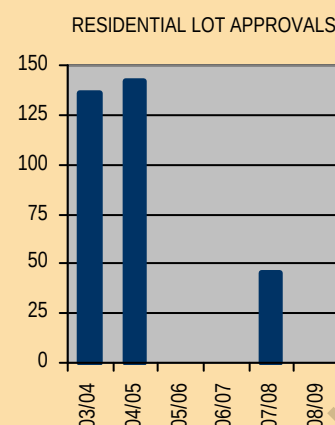
Supply of residential land

The supply of 'conventional' vacant residential land in Moama is currently being provided as infill development between the flood levee and existing urban area. This area will be expanded with the new levee to the east as well as allow for a smaller area east of the railway line also becoming flood protected and therefore available for development (once rezoned). It is expected that all residential land east of the Cobb Highway will be consumed within the next 5 to 10 years.

Larger residential lots are being provided either side of Perricoota Road within the current 2(v1) zone but supply is limited. The supply of rural residential lots within the 1(c) zone is currently exhausted.

Because of the fragmented settlement characteristics of Moama the area within the nominated town boundary is extensive. At current rates of growth it would take possibly up to 50 years for all of this land to be developed for urban purposes. Although a land use strategy would not normally project this far into the future it is considered appropriate for Moama to avoid potential ad hoc development within the town boundary that may prejudice its ability to continue growing efficiently in the long term. It is also important for development of land within the town boundary that a preferred sequencing be indicated to ensure the orderly provision of infrastructure and services (see plan on previous page).

The Residential Release Plan shows that infill development east of the Cobb Highway (and within the flood levee) and that north of the Recreation Reserve is preferred for residential development in the short term. When the



supply of zoned residential land falls below 15 years land further to the north and either side of Martin Road should be made available (i.e. appropriately zoned) for residential development. This area will require some 'pre-planning' before rezoning to address such things as drainage and road network. In the longer term land between the golf course and industrial estate as well as that west of Twenty-four Lane along Perricoota Road is suitable for residential development. This will ensure residential development options are kept open for the long term future of the town (or city as it will be by then) and avoid the potential for 'land locking' by non-residential land uses.

The land to the west of Perricoota Road accessed by Merool and Winbi Lanes also has potential to contribute to the future supply of residential land in Moama. The extent of this supply will be determined by the availability of infrastructure, the alignment of the approach to the western option for the second river crossing and amount of land taken up for tourist developments.

The strategic response to this issue is to firstly identify land preferred for residential development in the SLUP followed by the allocation and maintenance of around 15 years supply of zoned land in an LEP.

Commercial development

Moama's commercial 'centre' has traditionally been in Meninya Street (between Blair and Echuca Streets) although commercial activities can be found all the way up to Perricoota Road. Beyond the centre, the commercial activity lacks cohesion and this is detrimental to its efficiency in serving the local community and visitors.

The new 'stand-alone' supermarket and associated speciality shops at the corner of the Cobb Highway and Perricoota Road are likely to create a new commercial focus in Moama and detract from Meninya Street. This could provide the opportunity for businesses at the southern end of Meninya Street to reposition themselves in the commercial market with a more tourism flavour (e.g. cafes, souvenir/craft shops, etc.). The new supermarket complex also creates an opportunity for other new commercial activities to establish in proximity.

In the longer term a secondary and smaller commercial centre will be required in Moama West to service the future growth in this area. The local commercial node should be located at the intersection of Martin Road and Twenty-four Lane.

The strategic response to commercial development is to maintain recognition of the commercial activities within the existing town centre (i.e. the main commercial area of Moama) and provide for additional commercial opportunities in the future

around the intersection of Cobb Highway and Perricoota Road.

Land use conflicts

Land use conflicts potentially exist on a number of different fronts. Moama's older industrial area is well contained within the township and does not create significant problems with the adjoining residential area. The second and more recent industrial front on the Cobb Highway was established in a 'greenfields' situation and will require the establishment of buffers in the future to development along its western boundary.

As Moama continues to grow the existing poultry farm on the Cobb Highway may need to relocate because of the extensive buffers required to residential land use. Likewise for the existing viticulture enterprises west of the Cobb Highway where residential development is already beginning to encroach. Land upon which these activities are undertaken will eventually increase in value to the point that the non-residential land use ceases to be the 'highest and best use' of the land. The strategic response to this issue is to recognise this and identify the land for urban development in the future.

Other rural land use within and abutting Moama is mainly dryland cropping and grazing—two activities that present few problems for urban activities.

Industrial development

Industrial development in Moama is undertaken on three fronts being the older area on the eastern side of the town abutting the railway line and the more recent Council-sponsored area on the Cobb Highway to the north and Hillside Lane further out. Whilst there remains some limited infill opportunities within the older area, the Cobb Highway location is superior (mainly for its accessibility) and can be expected to cater for most industrial development in Moama into the future.

The strategic response is to provide choice and options for industrial activities by continuing to all locations. However the focus for future growth should be at the Cobb Highway location for non-hazardous and non-offensive activities and consequently land needs to be both identified and appropriately zoned. This location can also cater for highway business type activities.

Second river crossing

This is perhaps the planning issue with the greatest potential to influence Moama's future urban form. Compounding the issue is

Key planning issues (cont.)

that no location has yet been decided for the second bridge. Council's preferred location is to the west of Moama at the end of Merool Drive that would link up with the Cobb Highway at Martin Road. The approach to a bridge in this location would effectively split the large area designated for the future growth of Moama but would also divert a significant proportion of traffic away from town centre and the existing old iron bridge. A corridor would be required for an approach to this bridge location to ensure adequate buffers to the road for residential development. Major intersection works would be required at Perricoota Road as well as the Cobb Highway.

The alternative bridge location is alongside the existing bridge with the approach taken along the rear of properties on the western side of Meninya Street. This route will maintain highway traffic through Moama although traffic levels in Meninya Street will still be reduced.

The strategic response to this issue is to recognise both new bridge locations and their approaches until such time as a decision on one is made.

Tourist development

Moama features a wide range of tourist accommodation and related facilities and has experienced a boom in this type of development over the past 10 years. It is reasonable to presume that tourist activities and accommodation will continue to expand in Moama.

More recently there has been a trend away from the traditional caravan park type establishment to developments incorporating 'upmarket' cabins that are more akin to residential units. To maximise the tourist benefit, the larger of these developments generally seek to locate on the river and this can create potential infrastructure problems for Council and environmental impacts. There are few sites remaining within Moama suitable for tourist development that are in close proximity to the river and above the flood level.

The strategic response is to identify land within and around Moama that is below the 1 in 100 year flood level and restrict its use through an LEP. Although tourist development can generally co-exist with residential development without too many problems, it is considered good strategy to nominate areas preferred exclusively for residential. This allows for tourist development to be focussed on particular precincts and minimise the risk of land use conflict.

Water & sewerage



Moama

The Moama Water Treatment Plant has the capacity to treat 6ML per day providing for an equivalent of 20,000 persons. It already services the areas proposed for future urban development in the Moama Strategy Plan. Even at the peak tourist time the plant currently operates at approximately half its capacity. With Moama's population projected to be approaching 10,000 within 20 years and tourism also expected to continue to grow, it is unlikely the capacity of the water plant will be exceeded within the 20 year horizon of this SLUP. However, it is important Council continues to monitor the demand for water and plan for further augmentation well before the need for such arises. Moama also provides a raw water network for its residents and this reduces the demand for treated potable water. Another option is to encourage the collection and re-use of stormwater.

Moama's Sewerage Treatment Works is designed to accommodate an equivalent of 11,000 persons and at peak tourist times is currently catering for up to 9,000 persons. Reticulated sewer is already provided to the area shown for future urban growth in Moama in the SLUP. Based on the anticipated growth for Moama in the future, the capacity of the STW will need to be addressed by Council in the not too distant future. The *Moama West Infrastructure Development Strategy* in 2005 also identified the previous practice of allowing private sewerage infrastructure such as pumping stations as a problem in that this worked against the provision of a cohesive and efficient system.

It is not the role of a land use strategy to ensure the future provision of infrastructure to service a growing population other than to identify it as an issue for Council to address.

Road network

Moama's current road network functions relatively well with the exception of the existing bridge to Echuca and its approaches. Perricoota Road and the Cobb Highway are the two key arterial roads servicing Moama and both are functioning adequately. Direct access from properties to these roads needs to be restricted to ensure their ongoing function as arterial roads is not compromised. Perricoota Road in particular will require upgrading (including intersection works) from time to time in response to increased traffic from urban growth in this direction. The creation and/or upgrading of interconnecting roads between these two arterials, such as Martin Road, need to be planned for and implemented as the urban boundary approaches. The approach from the Cobb Highway to the nominated location for the second bridge across the Murray River will also need to be accounted for in planning for the future road network.

With more than 20,000 vehicle movements per day across the existing iron bridge to Echuca, this road at peak times, is operating beyond its capacity. Consequently a second river crossing between Moama and Echuca is a priority in the short term.

The strategic response to the road network is to identify the key roads within and around Moama and ensure their status as such is maintained.

In addition to roads, the provision of cycle paths both from a tourism and resident perspective, is seen as a desirable objective. Council has prepared Bicycle Action Plans for both Moama and Mathoura.

Viticulture

There are a number of vineyards in and around the confines of Moama and to the extent that the area is now formally recognised as a wine region. At the time of their establishment it is unlikely that the rapid growth Moama has experienced this century was envisaged. Vineyards are generally regarded as incompatible with urban land uses, particularly residential, mainly because of the use of chemical sprays. The issue is whether to continue to acknowledge and protect these viticultural activities even though some are located directly in the path of future residential development. To plan urban development around the vineyards is problematic both from an infrastructure efficiency perspective as well as the 'sterilisation' of large areas of land required for effective buffers. As is the case for growing urban areas, rural areas are consumed as town boundaries expand, and this generally occurs regardless of the agricultural activity is being undertaken.

Looking forward 20 years the SLUP identifies the land currently occupied by vines as preferred for residential and/or tourist use. This means that to implement the SLUP it will require sooner or later the relocation of the vines. The value of the land upon which the vines are located is likely to be the catalyst for their removal. Until such time as the vines are removed, their existence is supported by the SLUP and this may require specific planning

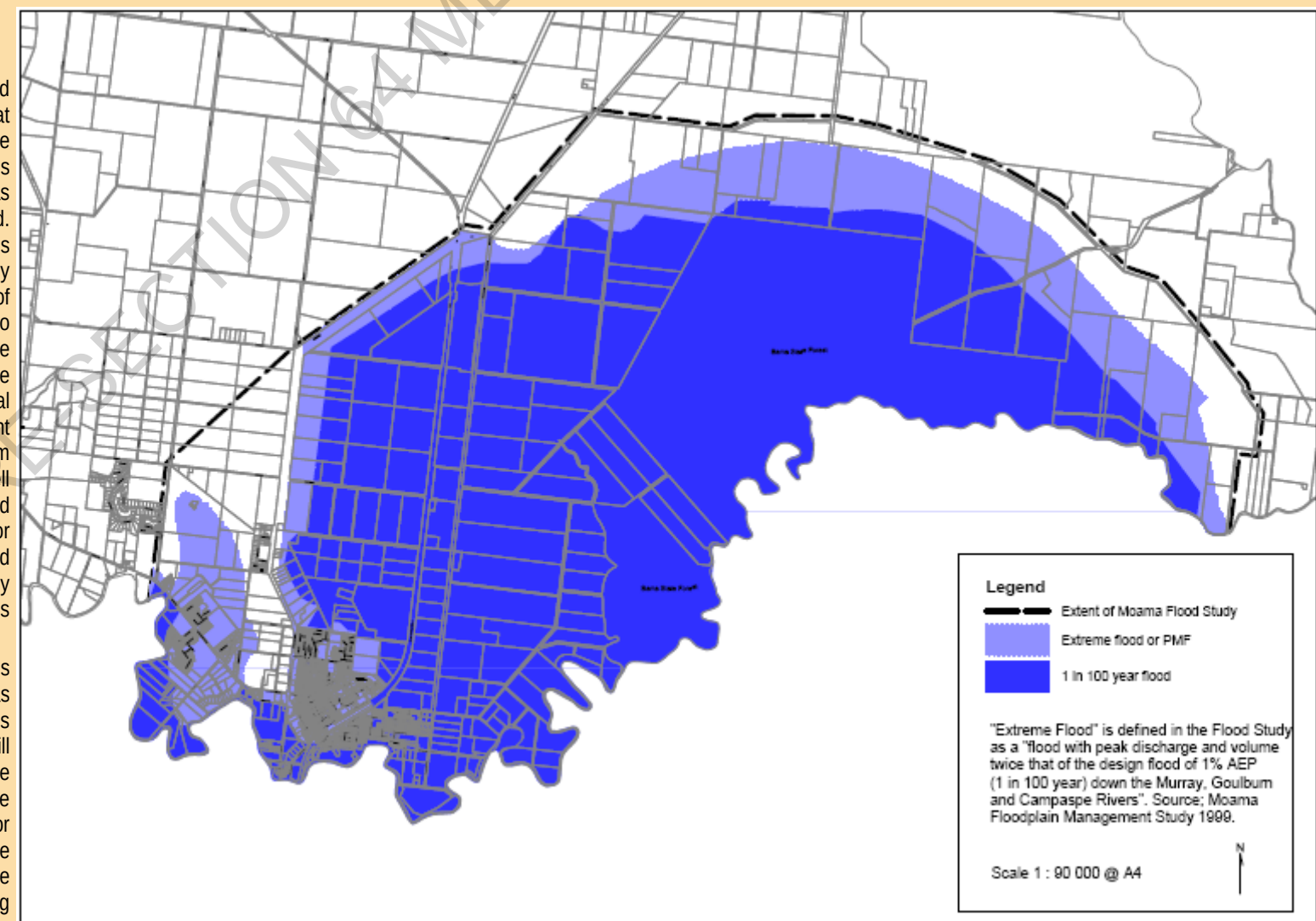
controls to ensure their growing and harvesting isn't compromised.

Flood prone land

Being located adjacent to the Murray River, it is perhaps not surprising that flooding is an issue in Moama. The map opposite is taken from the 1999 *Moama Floodplain Management Study* and other known flood information for land west of Twenty-four Lane. The map shows the extent and nature of flooding expected in a 1 in 100 year average recurrence interval or ARI

for rainfall as well as that for the higher but highly unlikely "extreme flood" (also referred to as Probable Maximum Flood or PMF). The map shows land to the east of Moama and the Cobb Highway as substantially affected by flooding in a 1 in 100 year event whereas to the west it is less so. Whilst some areas within the floodplain contain rural levees, these have not been designed, constructed or intended to protect land in a major flood event.

A substantial levee bank around the eastern edge of the Moama urban area protects the town from flooding up to a 1 in 100 year event. Development east of this levee is a mix of old buildings relating to Moama's past, newer residences built with floors above the flood level and tourist establishments. More recently



Moama

Key planning issues (cont.)

proposed developments within the floodplain have been subjected to greater scrutiny, particularly in regards to water and sewer infrastructure as well as the impact of flooding on access and buildings. Most land in West Moama is situated above the 1 in 100 year flood level and does not require a levee bank for protection. In the unlikely event of an extreme flood (PMF) all of Moama would be inundated with the exception of a strip of land on the western side of the Cobb Highway, extending north from Perricoota Road.

The SLUP responds to flooding by not identifying any land in Moama below the 1 in 100 year flood level and not protected by the town flood levee, as suitable for future urban development. Major infrastructure and essential services should also not be located on land affected by the PMF.

Heritage & archaeology

Moama features a number of heritage items that are listed on various registers, with most included in the current LEP. Council completed a Shire-wide Heritage Study in 2008 that identifies a number of additional heritage items, including many in Moama. These items will be included in the heritage schedule within the new LEP.

Although the Echuca wharf and its environs are generally associated with that town, the Shire boundary actually extends to the state border (which is located on the Victorian bank of the river) and consequently much of the extensive heritage of this precinct is the concern of Council. This has largely been ignored in the past and does not feature in the current LEP.

Moama has a rich Aboriginal history and this is borne out by the identification of more than 100 archaeological items in and around Moama recorded on the Department of Environment and Climate Change data base. Most of these sites are within the floodplain and therefore are at low risk of damage or destruction as a result of development.

The response to this issue in the SLUP is to identify heritage as an important element of Moama's future and encourage Council to be proactive in the identification and protection of heritage items.

Echuca

Moama, in conjunction with the city of Echuca across the river, forms a regional centre of some significance with a population of around 16,000, of which Moama accounts for about one-quarter. Both centres are experiencing strong growth and neither can really be considered in isolation of the other in terms of land use planning because of the strong interrelationship between the

two.

Based on recent growth rates the conurbation of Echuca/Moama is projected to exceed 19,000 by the next census in 2011 and 21,000 by 2016. Whilst Moama's growth rate in the future is expected to continue to be higher than that of Echuca (3% p.a. against 1.5%p.a.), 60% of new residents and new dwellings will be accounted for by Echuca.

As is the case for many 'twin cities' straddling the Murray River, one centre is generally dominant of the other in terms of population and function. This is the case for Moama in terms of its relationship with its larger neighbour in Echuca. For example a centre the size of Moama could be expected to have a hospital of some description but this service is provided by the Echuca Hospital. The retail and commercial facilities within Moama are also under-provided to some extent for its population size through the influence of Echuca whose CBD is only two kilometres away. Moama does however provide a range of recreational facilities for the population of Echuca that is not available in Victoria such as the golf club. Also some of Moama's residential growth can be attributed to the proximity of Echuca and what it offers (e.g. employment).

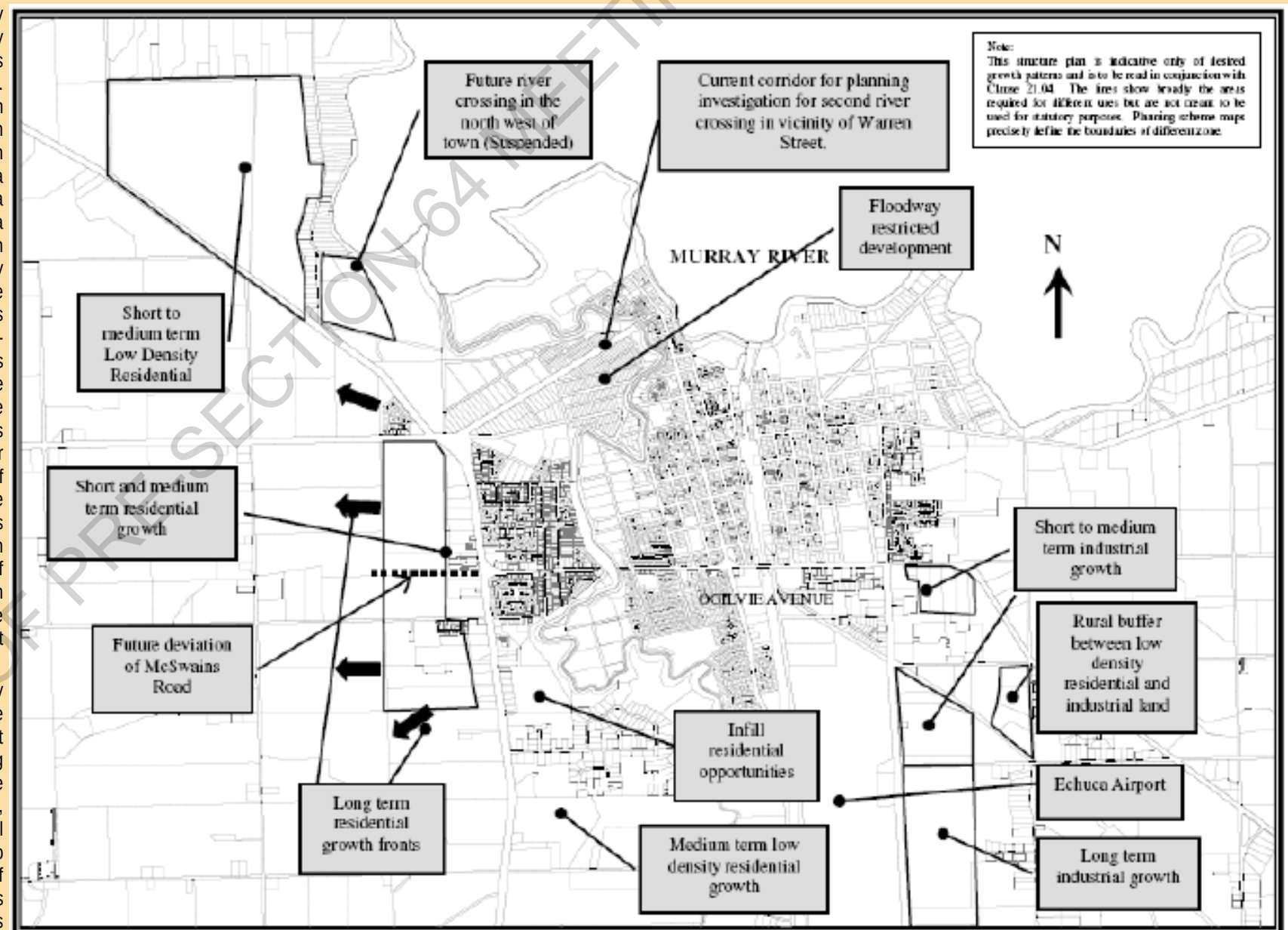
The future land use strategy for Echuca is expressed in the Municipal Strategic Statement of the Campaspe Planning Scheme and shown on the plan opposite. In summary, the bulk of future residential growth will be undertaken to the west of the city because of development constraints expressed on other fronts

such as flooding, low density residential development and industrial uses.

The focus for future prime commercial activity in Echuca remains on the existing central business district rather than for a satellite centre on the edge of town as is often the case for centres of this size. This will continue to benefit the residents of Moama since the Echuca CBD is in close proximity.

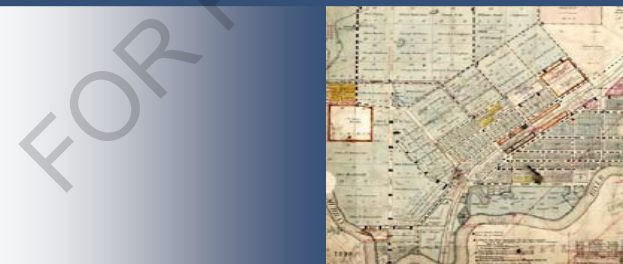
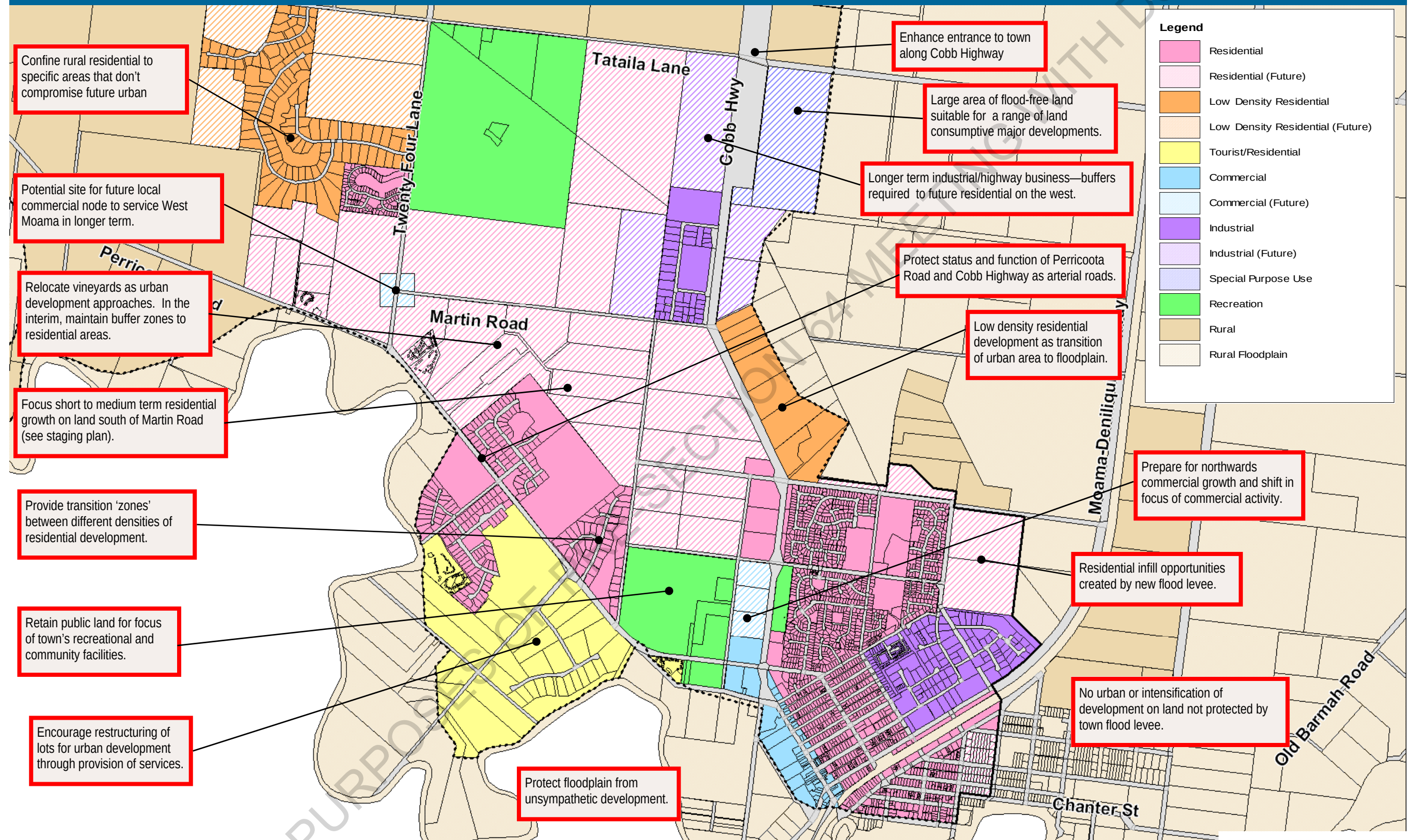
The need for a second river crossing between the two urban areas is well documented and there has been difficulty with the site selection process. The route currently under investigation is approximately two kilometres downstream of the existing bridge.

The strategic response for Moama in regards to Echuca is to acknowledge the latter's influence in shaping its future and to ensure that the future directions for each centre compliments rather than conflicts with the other.



Moama

Strategic Land Use Plan



Mathoura

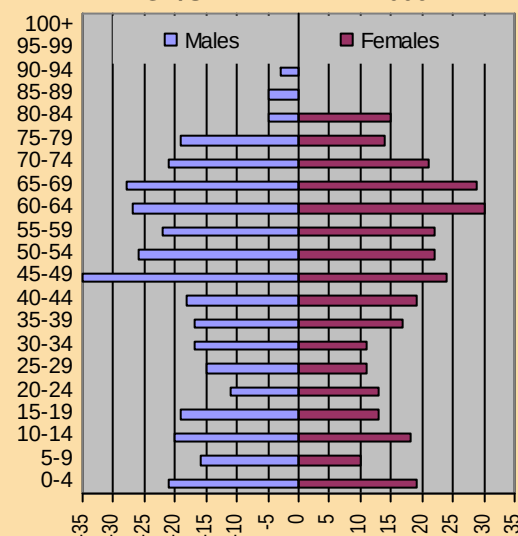
Key planning issues

Overview

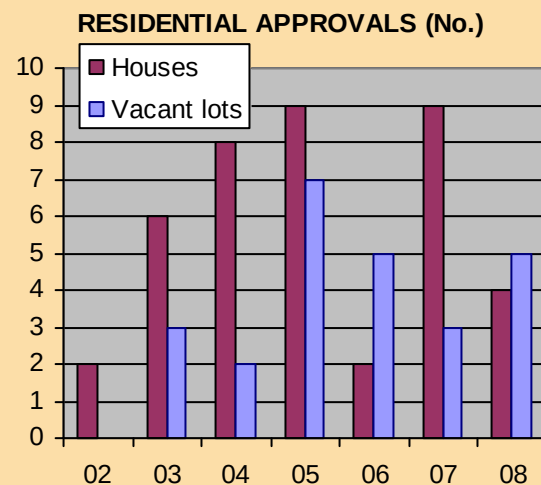
The Mathoura township is located on the Cobb Highway approximately mid-way between Deniliquin and Moama. It has a population of about 650 and functions principally as a service centre for the surrounding agricultural district and tourists associated with the Barmah-Millewa State Forest (including Picnic Point).

The population has essentially remained stable since the census in 2001. The median age of persons (the point at which half the population is older and half younger) in Mathoura in 2006 was 45-49 years which is older than the Shire as a whole. The higher median age in the population would indicate a lower proportion of families (with dependent children) in Mathoura compared to other larger centres such as Moama and Deniliquin.

AGE/SEX PYRAMID 2006



There were 347 residences recorded in Mathoura at the 2006 census of which 53 or 15% were unoccupied (which is slightly less than that for the Shire as a whole). The most popular form of abode is a 'separate residence' with 93% falling into this category. 76% of households are represented as 'families', 16% as 'lone person' and 1% as 'groups'. The average household size in the township is 2.2 persons which is lower than the Shire's average and also reflects lower proportion of families.



In recent years residential approvals in Mathoura have averaged around five per annum (see chart above). There has been a recent increase in the number of residential lots approved that indicates some confidence in the future of the town.

Most basic commercial activities are available in Mathoura and generally service the local township and rural community as well as Picnic Point. Industrial activities are limited and generally on a small scale. The head offices of the Murray Shire Council are located in Mathoura.

Community facilities include most mainstream sporting codes as well as basic services such as a Police and Fire Station as well as a Post Office, Public Hall and a number of churches. A tourist information centre is located in Moama Street to assist visitors to the town and surrounding area with a rest area catering for travellers on the Cobb Highway. The Bowling Club is well patronised and is a major focus for community activities.

Mathoura's water supply and sewerage treatment is provided by Council. The sewerage treatment plant is a gravity aeration system and designed for 1,100 EP's (equivalent persons). Current usage is around 700 EP's. In terms of water supply, Mathoura has a treated reticulated water system with a raw water system supplied to parks, clubs and a few homes. The mains water is sourced from Gulpa Creek, treated and then pumped to the reservoir adjacent to the swimming pool for reticulation around the town. There is no capacity to upgrade this plant.

Key planning issues & strategic response

Based on the analysis of Mathoura undertaken in the *Background and Issues Paper* and consultation with the community and government agencies, the following planning issues have been identified for consideration in the Strategic Land Use Plan. The strategic response to the issues are depicted in the Strategic Plan on the following page.

Zoned land

Mathoura is currently contained within two land use zones. The 2(v) zone is a general village zone designed to cater for a broad range of urban activities. This zone is generously supplied with large undeveloped areas (particularly in the southern part), and numerous infill opportunities although a significant proportion of this is owned by the Crown and not readily available. Two areas of land zoned 1(c) provide for a maximum yield of 29 (unsewered) rural residential lots the opportunity for which only a few have been taken. Given that the town boundary of Mathoura has been in place for some time, the appropriate strategic response to this issue is to maintain current zone boundaries. However, it is important for a town the size of Mathoura that there are several options for future development distributed across a number of different landowners to avoid relying on a few individuals to either undertake subdivision themselves or release land to developers. Often this means oversupplying the amount of zoned land.

Residential development

The generality of the 2(v) zone effectively allows the market to determine the type of residential development that is undertaken in Mathoura and single detached dwellings are the dominant form. The pie chart opposite shows the majority of occupied dwellings in Mathoura contain more than two persons although single person households still represent a significant portion of the residential market. The SLUP can have little effect in influencing the residential market in small towns like Mathoura but is a worthwhile objective to at least encourage a range of residential types. Based on the lack of choice in location, there is some justification for an expansion of rural residential type development. The location of this additional zoned land could be determined by the preparedness of landowners to undertake development and proximity to the

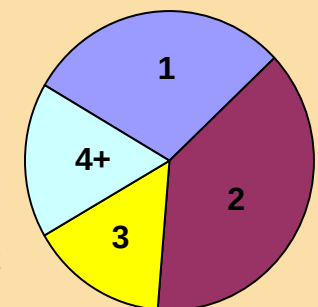
town itself.

Demographics

Mathoura has been identified as having an older age profile (half the population is older than 45) and the 2006 census reveals there is a distinct absence of young adults in the community (see age/sex pyramid opposite). This age profile will continue to get older in line with national demographic trends as the 'baby-boomer' generation matures. Consequently the character of Mathoura is unlikely to change significantly over the life of this Plan. This means on a per capita basis there is a higher demand for services required of older generations than in Moama. Whilst the SLUP cannot influence the provision of these services, it can identify it as an issue for Council and other service providers.

Recent census results indicate Mathoura's population is stable although recent building approvals would suggest some growth since 2006. It is unlikely the town will experience substantial growth (such as that experienced by Moama) in the future but it can position itself as an alternative living environment to Echuca/Moama and Deniliquin in a way that at least maintains the status quo. This 'alternative' can be driven by property values, the sense of community or quietness only a small town can offer. The strategic response to Mathoura's future population is to ensure there is an adequate supply and choice of zoned land to respond to any growth.

PERSONS PER HOUSEHOLD



Commercial & industrial

Commercial and industrial development are not key planning issues for Mathoura because any expansion is likely to be minimal. However there is always the possibility of a large industry wanting to establish in the town and this can have a significant impact on all aspects of the urban environment. However, an event such as this cannot be relied upon and therefore it is difficult to account for in a future SLUP and

Mathoura

Strategic Land Use Plan

subsequent LEP. The flexibility of the general Village Zone and availability of vacant land should allow most proposals along these lines to be accommodated within the town if need be.

Infrastructure

Based on recent trends, Mathoura's sewerage system has adequate capacity to accommodate future growth in the short to medium term. Council will need to monitor any growth to ensure that any augmentation works are planned for in advance.

Water is an issue for the town's future and one that will need to be addressed by Council in the event Mathoura begins to experience substantial growth.

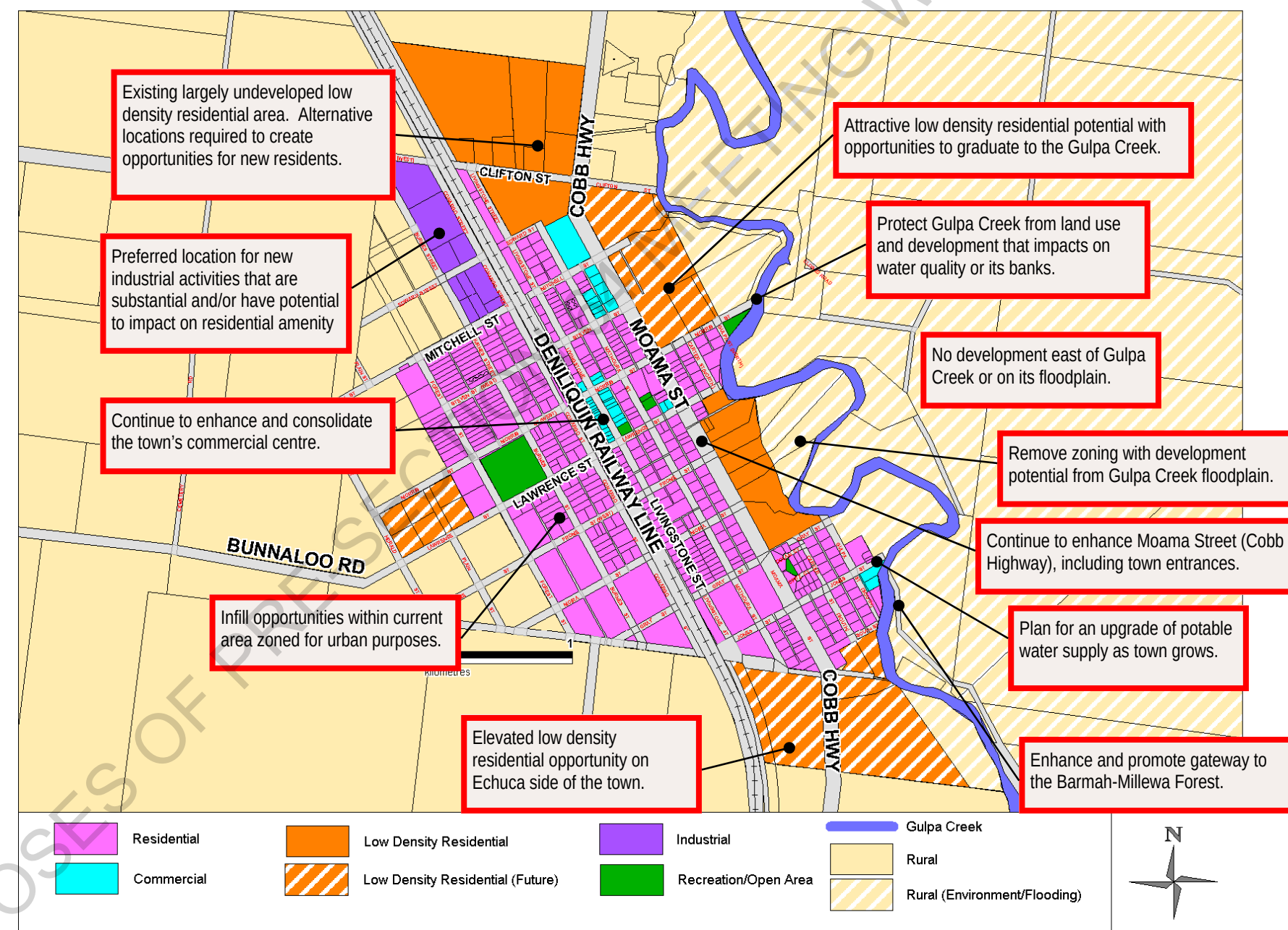
Heritage & archaeology

The current LEP does not list any heritage items in Mathoura. The strategic response to this issue is, resources permitting, that any heritage study undertaken by Council should include Mathoura to ensure heritage items are acknowledged and protected.

As for built heritage, the 98 Aboriginal archaeological items so far identified in DECC's register as being in and around the town will need to be accounted for in the event they are threatened with destruction by development. The majority of these sites are on the opposite side of Gulpa Creek to the town within the floodplain and therefore are unlikely to influence future development.

Environment

Mathoura is located on the edge of one of the most significant Red Gum forests and river systems in the country. With the amount of growth anticipated in and around the town, there is little threat to this precious environment. The strategic response is not to nominate any land within the riverine environment as suitable for development.



Bunnaloo, Womboota & Cummeragunja

Overview

Bunnaloo, Womboota and Cummeragunja are all small settlements in the Shire established around 1900.

Bunnaloo is currently zoned 2(v) indicating its availability for urban development despite there being little supportive infrastructure. The settlement is located in the western part of the Shire on the de-commissioned Moama-Balranald railway line. It features a large silo/shedding complex associated with grain storage (up to 20,000 tonnes per annum) and transport. Bunnaloo features a relatively modern community centre located within the sportsground that is the focus for the surrounding population. Bunnaloo Public School features four teachers and clerical support. There is a small amount of commercial activity including a fuel supplier, engineering works, piggery and transport operator. With improvements to road transport and communications in the latter half of the 20th century, combined with the gradual de-population of rural areas, the role of Bunnaloo in serving its local community has diminished.

Womboota was established around the same time as Bunnaloo and at one time had a school, baker, butcher and general store. Womboota features a number of churches and the old school building is now a residence and winery. The local community in recent times have been actively involved in restoration projects of some of the old buildings in the village. The village is situated between Bunnaloo and Moama on the Barham Road. There are no commercial facilities. Like Bunnaloo, Womboota has little prospect of developing having regard for the characteristics of modern day living.

Cummeragunja is an Aboriginal settlement on the Murray River near Barmah in the east of the Shire. The settlement has a population of approximately 100 housed in 30 dwellings and like the other small settlements has contracted in the modern era. Land at Cummeragunja is not subdivided.

There is little demand for development in all these settlements and limited urban infrastructure to accommodate any growth.

Key planning issues & strategic response

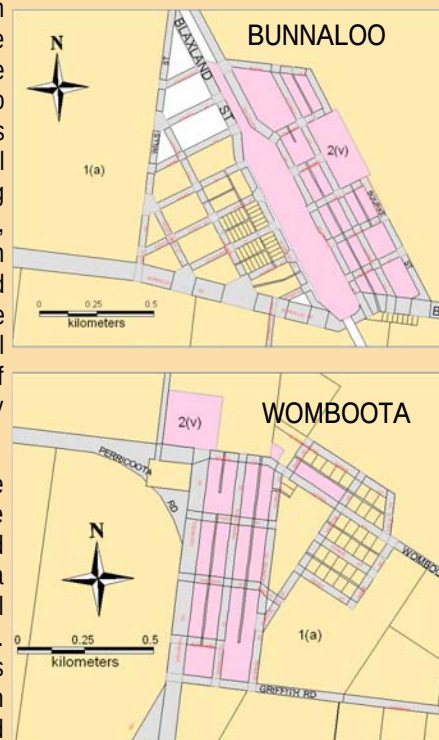
Based on the analysis undertaken in the *Background and Issues Paper* and consultation with the community and government agencies, the following planning issues have been identified for inclusion in the SLUP.

Only Bunnaloo and Womboota currently feature an urban zoning covering 53ha and 30ha respectively. Both settlements feature a number of (large) urban size lots but few of these are developed. Although the 2(v) zone allows for wide range of urban land use activities there is no infrastructure available to support development at an urban scale. Whilst the demand for development in these settlements is very low, it is not considered necessary to return them to the underlying rural zone as this will only reinforce their decline. The strategic response to this issue is to recognise that some settlement does exist and that this can be reflected in some form of low density residential development. This would acknowledge that the settlements are not going to evolve into urban areas yet allow for some form of residential development within a community context if the demand for such exists.

The SLUP on its own is incapable of increasing the population of these settlements or making provision for infrastructure and services. Their future rests mainly with the communities they serve.

Cummeragunja is essentially an Aboriginal community the area of which is not zoned for urban purposes despite there being a number of residences at an urban density. Whilst this small settlement is, like the others in the Shire, in decline it is an appropriate strategic response for the type of development undertaken to be reflected by an appropriate land use zone.

Whilst all these settlements have few prospects from a development perspective, they should still be recognised in the SLUP for their historic and current role in the Shire. Any heritage study undertaken in the future will need to also have regard for these three settlements.



Picnic Point & Deep Creek

Overview

These two localities are considered together because of their common characteristic of existing principally as small tourist/residential centres on the Murray River. However their history is quite different in that Picnic Point has been established for some time whereas Deep Creek developed more recently. In addition, the tourist markets each locality serves are quite different. Picnic Point caters more for the passive tourism experience set amongst a largely unspoilt natural environment whereas Deep Creek provides for a more active experience based on river activities such as house boating and water skiing.

Picnic Point is located deep within the Moira State Forest amongst one of the few areas in NSW of privately owned land with Murray River frontage between Tocumwal and Barmah. The area has a relatively small number of permanent residents that are situated on large lots between Picnic Point and Poverty Point downstream. It is in close proximity to Mathoura with good access along a mostly sealed road. Tourist accommodation is the other type of land use in this locality and ranges from older style traditional caravan parks to more modern cabin-type accommodation. Picnic Point has limited urban infrastructure and much of it is flood prone.

Deep Creek is located on the Murray river some 20km west of Moama on Perricoota Road. It currently features a 121-berth houseboat marina with some residential land use and associated activities such as a general store and tavern. The locality is serviced with reticulated water and a modern sewerage treatment plant provides for wastewater treatment and disposal both from the land based activities and the houseboats. The site is also provided with an enhanced telecommunications system to ensure access to the mobile phone network and broadband.

Deep Creek has established itself on the basis that it is the only commercial off-river mooring facility for river boats between Yarrawonga and Torrumbarry. With a moratorium on new moorings within the river in place, Deep Creek's future in this regard would appear to be secure. The facility has been the subject of major development proposals that would effectively give Deep Creek status as a new urban centre in the Shire.

Key planning issues & strategic response

Based on the analysis undertaken in the *Background and Issues Paper* and consultation with the community and government agencies, the following planning issues have been identified for inclusion in the SLUP.

Picnic Point is constrained for further development because of poor infrastructure, flooding and the sensitive natural river environment. Consequently it is not identified in the SLUP as having potential for intensification or expansion of development. The future for Picnic Point is to consolidate and perhaps upgrade existing development as the opportunity arises to reduce the current impacts on the surrounding natural environment. The locality should continue to focus on its natural attributes in attracting visitors to the area.

The circumstances of Deep Creek are such that it is considered to have potential for expansion into a fully self-contained and sustainable village in its own right. However, any expansion would need to be undertaken in a intensively planned and controlled environment having regard for the locality's remoteness from Moama and the riverine environment within which it is located. Utilising modern construction and land management techniques, there is no reason why such a proposal could not be entertained. Being essentially a new village on a 'greenfields' site, there is also the opportunity to implement current urban design principles as a means of achieving the best possible living environment for its residents and ensuring its sustainability.

The strategic response to this issue is that before Council (and various government agencies) could consider putting in place an appropriate zone to formalise Deep Creek as an urban area, an extensive Environmental Study would need to be undertaken to ascertain the impacts of such a proposal. A detailed Master Plan should accompany the Environmental Study to show the form and content of the village as well as the staging of development.



Rural & environment

Key planning issues

Overview

By far the majority of the Shire's land area is utilised for non-urban purposes with more than 99% of the 4,345km² zoned either 1(a) Rural or 1(f) State Forest (see land use classification map below). Whilst from a land use planning perspective there is little pressure for development in these areas and consequently less need for analysis, they are still an important component of a strategy looking to the future.

Agriculture

In 2001 farms in the Shire across 370,000ha generated approximately \$88 million of rural produce. Based on Council's rate assessments there are 1,049 agricultural holdings in the Shire with an average size of 415ha. Parts of the rural area have access to irrigation and these properties are more productive per hectare and therefore tend to be smaller.

A significant 23% of the Shire's workforce was employed in the agriculture, forestry and aquaculture industries in 2001. The number of persons employed in this sector has been growing which is generally against the national trend. Despite this the number of people residing in rural areas is declining with a greater proportion opting to live in urban areas.

Under normal conditions, wheat and rice growing are the major agricultural activities (see chart opposite) producing almost half of the total value of farm output. In addition to the vagaries of rainfall for dryland farming (see rainfall map), the availability of irrigation water has a significant impact on agricultural activities such as rice growing. For example the area grown to rice in the Deniboota Irrigation District declined from 8,400ha to 480ha between the 2001/02 and 2002/03 seasons largely due to a lack of water. Other significant agricultural products in the Shire include barley, wool and beef.

Trends in agriculture in the Shire over the past decade has seen an increase in the production of wheat, barley, canola, triticale, rice, olives, pigs and cows and a decline in oats, wool and citrus. Since 2001 there has been a growth of intensive agricultural activities within the Shire, particularly in the wine and specialist livestock industries such as feedlots. There are now six wineries in the Shire, all of which are located within the broader town boundary of Moama and officially identified as the Perricoota wine region.

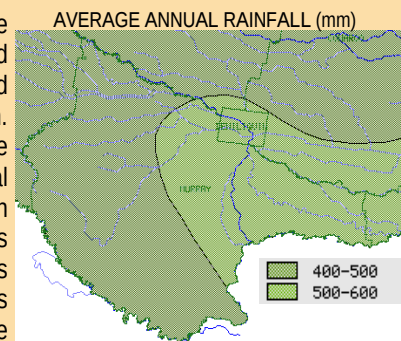
It is the Department of Primary Industries (Agriculture) policy objective to support the retention of agricultural land,

particularly prime crop and pasture land for commercial food and fibre production. To this end the fragmentation of rural land through subdivision is generally seen as working against this objective as is the approval of dwellings

on rural land. The current Murray LEP that has been in place since 1989 has proven to be reasonably effective in supporting the government's policy for sustainable agriculture. Generally, the minimum size for a lot created by subdivision in the General Rural Zone is 40ha or 120ha if it includes an existing dwelling. Smaller lots can be created in some circumstances such as for horticulture if irrigation is available. Generally, a dwelling can only be considered on a lot larger than 500ha, although depending on the circumstances of the lot in question or the availability of irrigation, smaller lots can be considered.

In particular the opportunities for rural living within the rural zone are very limited. Most subdivisions approved in the rural zone have been for tourism or industry related purposes within proximity to urban areas or the Murray River.

The SLUP recognises the importance of agriculture to the Shire and the need to ensure it is protected from forces detrimental to its ongoing operation. From a town planning



perspective, there are two main interrelated threats to agriculture—land use conflict and loss of land available for such activities.

The most common source of conflict is between residential and agricultural land use, and then it is generally residential activity being undertaken on small rural holdings because these are already within the rural environment. Fortunately in Murray Shire there is very little rural living land use with the majority of non-rural residents located within urban areas. This reduces the demand for small lot subdivision and therefore assists in maintaining rural land in commercial agriculture.

Both these issues can be dealt with via controls relating to subdivision (minimum lot size) and rural dwellings. Given the effectiveness of existing controls in this regard, an appropriate response would be to continue with such in the new LEP as much as the standard instrument will allow.

Irrigation

The Deniboota Irrigation District was established in 1957 and extends over 132,000ha in the western part of the Shire. It is one of four irrigation districts now under the control of Murray Irrigation Limited (MIL). The district provides irrigation for 23,700ha of agricultural land across 270 farms. The eastern part of MIL's Wakool Irrigation District also extends into the Shire between the Wakool and Edward River. The East Cadell private irrigation scheme adjoins Deniboota on the eastern side and extends to the Murray and Edward Rivers. This irrigation scheme services approximately 400 farms.

Landscape

Much of the natural landscape of the Shire is characterised by the openness of irrigated and dryland farming areas. Areas of high landscape quality are generally found within the riverine environments of the Murray, Edward and Wakool Rivers and Gulpa, Tuppall, Bullatale, Yallakool and Colligen Creeks. Significant parts of these waterways are contained within the six State Forests within the Shire including the Bama, Moira, Millewa, Gulpa Island, Perricoota and Wera. Wetlands associated with the Moira Lakes area have significant conservation value for native flora and fauna and are of national and international significance (listing on the Ramsar convention). The group of forests in the east of the Shire are collectively known as the Barmah-Millewa Forest and cover an area of 66,000ha making it the largest Red Gum forest in Australia. Many of the Shire's road reserves also contain

significant remnant vegetation.

Protection of the Shire's remnant vegetation will assist in the survival of many native species of flora and fauna. The extent of indigenous remnant vegetation of the Shire has been reduced since European settlement and to the extent that most remaining remnant native vegetation is of significance.

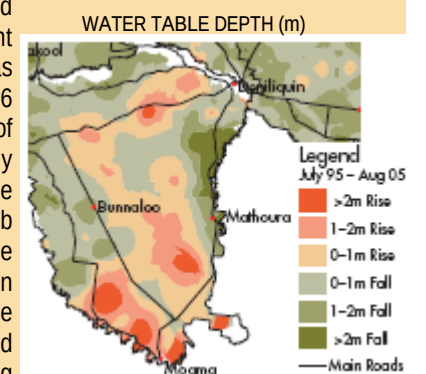
Flora & fauna

There are two Endangered Ecological Communities within the Shire declared under the NSW Threatened Species Conservation Act 1995. The first is the *Aquatic ecological community in the natural drainage system of the lower Murray River catchment* that includes 23 native fish species and over 400 recorded native invertebrate species within the Shire's waterways. The second is the *Myall Woodland in the Darling Riverine Plains, Brigalow Belt South, Cobar Peneplain, Murray-Darling Depression, Riverina and NSW South western Slopes bioregions* invariably includes *Acacia pendula* (Weeping Myall or Boree) as one of the dominant species or the only tree species present. In addition to ecological communities there are currently 10 bird, two mammal, four plant and six fish species listed under the TSC Act as either 'vulnerable' or 'endangered' in the Shire.

Environment protection

The management of the Shire's natural land and water resources is an important issue as it is central to the economic base and the social well being of the community. Members of the community have been involved with wider catchment communities in the formulation of strategies and reports concerned with salinity, flooding, water quality, drainage and catchment management.

The Cadell Land and Water Management Plan (LWMP) was implemented in 1996 and covers an area of approximately 300,000ha within the Shire west of the Cobb Highway including the Deniboota Irrigation District private irrigation schemes and dryland farming



Rural & environment

Strategic Land Use Plan

enterprises. The Cadell LWMP is a partnership between the government and the local community and is a response to rising water tables in the irrigation area (see map below). The overall aim of the Cadell LWMP is to achieve environmental, economic and social sustainability in the area.

For Moira Lake the NSW Murray Wetlands Working Group, in conjunction with NSW State Forests and the Department of Natural Resources have developed a rehabilitation plan for the wetland system aimed at counter-acting the impacts of river regulation. Engineering works involving the construction and of a regulator the excludes regulated river flows from Moira Lake during summer has been completed. It is expected the re-establishment of the natural cycle of drying and re-flooding will gradually restore native fish and waterbird habitats throughout the wetlands.

Rivers

The river environments of the Shire are the principal attraction for visitors and in recent times there has been an increase in demand to accommodate them in locations adjacent to or near the water. Given the sensitivity of the riverine environment, it is essential that any development undertaken within it is done so in a manner that has at best nil environmental impact. Activities that have potential to impact detrimentally on the environment are bank disturbance (either directly through excavation and use or indirectly through increased boat movements creating wash), effluent disposal and just a human presence (if located within a natural environment). To provide support for tourist developments, it is preferred they are located within proximity to urban areas so that the infrastructure and services they offer can be tapped in to. Consequently tourist developments that are remote from services and facilities are less preferred.

The strategic response to this issue is to adopt land use controls via an LEP and DCP to protect the rivers and their immediate environs in the Shire. These controls should reflect the principles of *Murray Regional Environmental Plan No. 2—Riverine Land* and specifically address tourist developments and dwellings as it is these land use activities that often seek out river locations in non-urban areas. Since it is possible in most cases to undertake environmentally sustainable development, a merits-based approach to tourist development is preferred to a blanket ban or nomination of suitable sites at the expense of others.

