

Cullulleraine Structure Plan

Mildura City Council

March 2006



Cullulleraine Structure Plan

Prepared for

Mildura City Council

Prepared by

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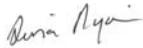
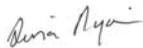
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1.0 Introduction

Maunsell Australia Pty Ltd (Maunsell) in association with Sunraysia Environmental Pty Ltd has been engaged to undertake the preparation of the Cullulleraine Structure Plan. Since Mildura Rural City Council (MRCC) has now completed a significant portion of the strategic planning and urban design projects for the municipality such as *Industrial Land Use Strategy (2003)*, *Review of Retail Strategy (2004)*, *Rural Residential Strategy (2003-2004)*, *Urban Design Advice* and currently undertaking the *Rural Areas Strategy*, it is now timely to undertake the structure planning work for Cullulleraine as the overall strategic direction for the municipality has now been set.

Cullulleraine is a small township located on the Sturt Highway about 58 kilometres west of Mildura and 60 kilometres from Renmark. The Murray River lies 8 kilometres to the north where a weir at lock 9 regulates river level and flow.

The township is located on the edge of the Murray River floodplain, which in this area is referred to as the Murray Scroll Belt. To the south lies the so called Millewa Land System, characterised by a pattern of dunes and swales.

The permanent population of the township is now about 100 people. Lake Cullulleraine lies immediately to the north of the town and is now managed for the purposes of providing a reliable stock and domestic and irrigation water supply for Millewa and Cullulleraine district as well as Werrimull and Meringur. It is a former natural ephemeral wetland that would have occasionally receives water from the Murray River during a major flood. The lake is maintained at a level with minimum variation, being supplied by an earth delivery channel from the Murray River with a pumped take-off.

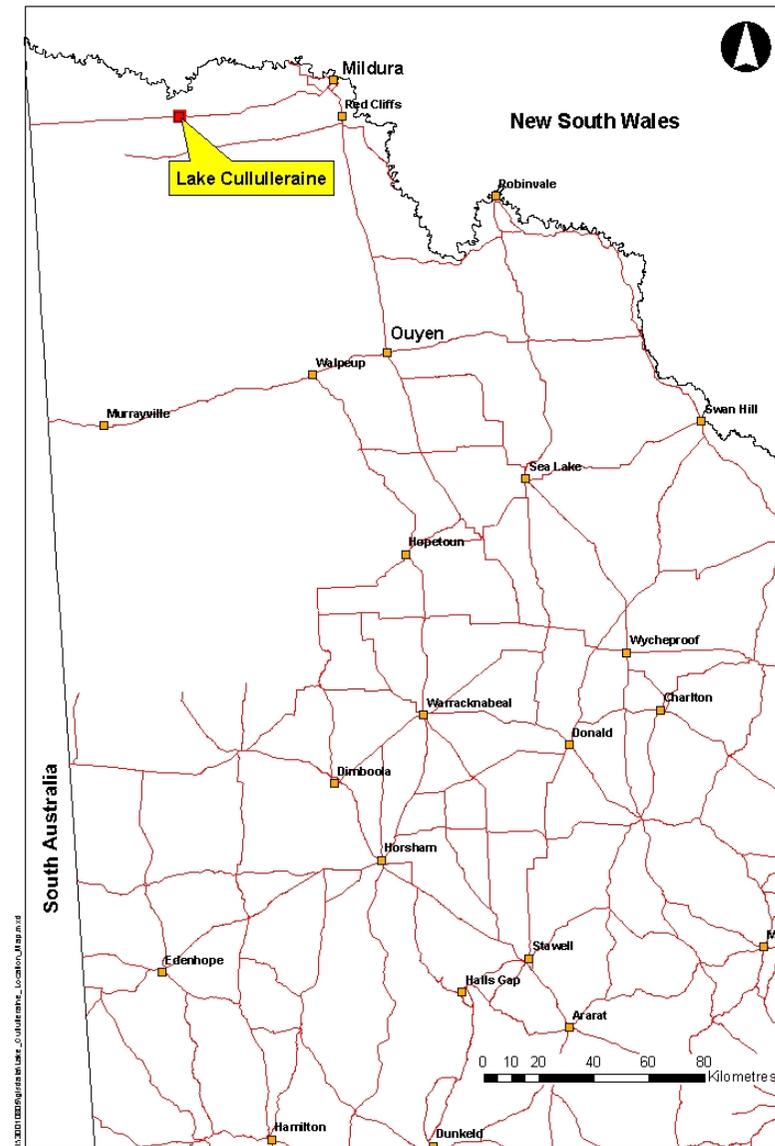


Figure 1 Regional Context

just upstream of Lock 9. The primary purpose of the Lake is for water supply.

Cullulleraine continues to develop as the recreation centre of the Millewa and provides water related recreation facilities at Lake Cullulleraine for visitors, tourist and schools. Thousands of school children use the RSL camp each year for environmental and outdoor education, with up to 100 visitors accommodated.

Cullulleraine's residential area attracts retired local farmers leaving the farming industry and other residents providing services. There appears to be a constraint in a shortage of housing or available land to enable new urban development. Land to the north and west of Cullulleraine is largely public land characterised by scattered low bushland, while on the south of the Sturt Highway there is ample cleared land currently used for dry land farming. The land immediately to the east of the Crown land is now used for horticulture.

All roads in the immediate area of Cullulleraine, except the road to Lock 9 are of reasonable standard . Lock 9, the Old Pumping Station (Heritage listed) and Lock 9 Lodge attract hundreds of tourists every year as well as anglers and caravaners, and the condition of the road is very poor. The Millewa Advisory Group are in the process of printing a Tourism booklet promoting the above attractions, so we feel that Lock 9 road should be upgraded to cater for extra tourist traffic.

In 1989 the Victorian Government through the Land Conservation Council adopted the Final Recommendations for the Mallee Area Review. The review declared Lake Cullulleraine, approximately 250 ha in area for Water Storage and Drainage (OI). The Crown Land immediately adjacent to the lake was classified as a Recreation Reserve (L5).



View of Lake Cullulleraine



Sports ovals at Lake Cullulleraine

1.1 Aim of Study

The aim of the Structure Plan is to provide a planning and staging blueprint for management and development of Cullulleraine Township. The Structure Plan identifies, researches and accommodates the long term planning requirements for Cullulleraine and sets the direction for future consolidation and expansion of residential/commercial and agricultural uses within and immediately beyond the Cullulleraine Township. General comments and recommendations will be made in regard to particular provisions of land within Cullulleraine Township.

The preparation of the Structure Plan involves a review and analysis of all relevant documentation, a thorough investigation regarding opportunities and constraints for residential, commercial, rural and identification of existing environmental, servicing, transportation and planning constraints and opportunities, and a community consultation process with both government and private stakeholders, including landowners within the study area.

This Structure Plan includes:

- Identification of areas for development in the short, medium and long term where appropriate.
- Identification of key land use precincts.
- Identification of future development opportunities of irrigated areas.
- Overview of viticulture industry.
- Identification of infrastructure services and potential gaps in service delivery.
- Identification of environmental issues
- Identification of transport and traffic management issues.
- Provision of a secure vision for and statement of intent for the land for future developers, investors and land managers, articulated graphically promoting the various development opportunities associated with the Structure Plan.

- Review of the provisions of the Mildura Planning Scheme and modifications where appropriate.



Windmills at Lake Cullulleraine

1.2 Study Area

The study area as it relates to the Cullulleraine Township is illustrated Figure 2. The Cullulleraine Township is situated on the Sturt Highway, approximately 58 kilometres west of Mildura and 60 kilometres from Renmark in South Australia.

The area is within the Rural City of Mildura and subject to the provisions of the Mildura Planning Scheme.

The study area comprises a range of land uses including town centre sporting and leisure facilities such as sporting ovals, tennis facilities, yacht club, Lake Cullulleraine caravan parks, state and national parks to the north and west of the township and viticultural activities to the south and east of the township.

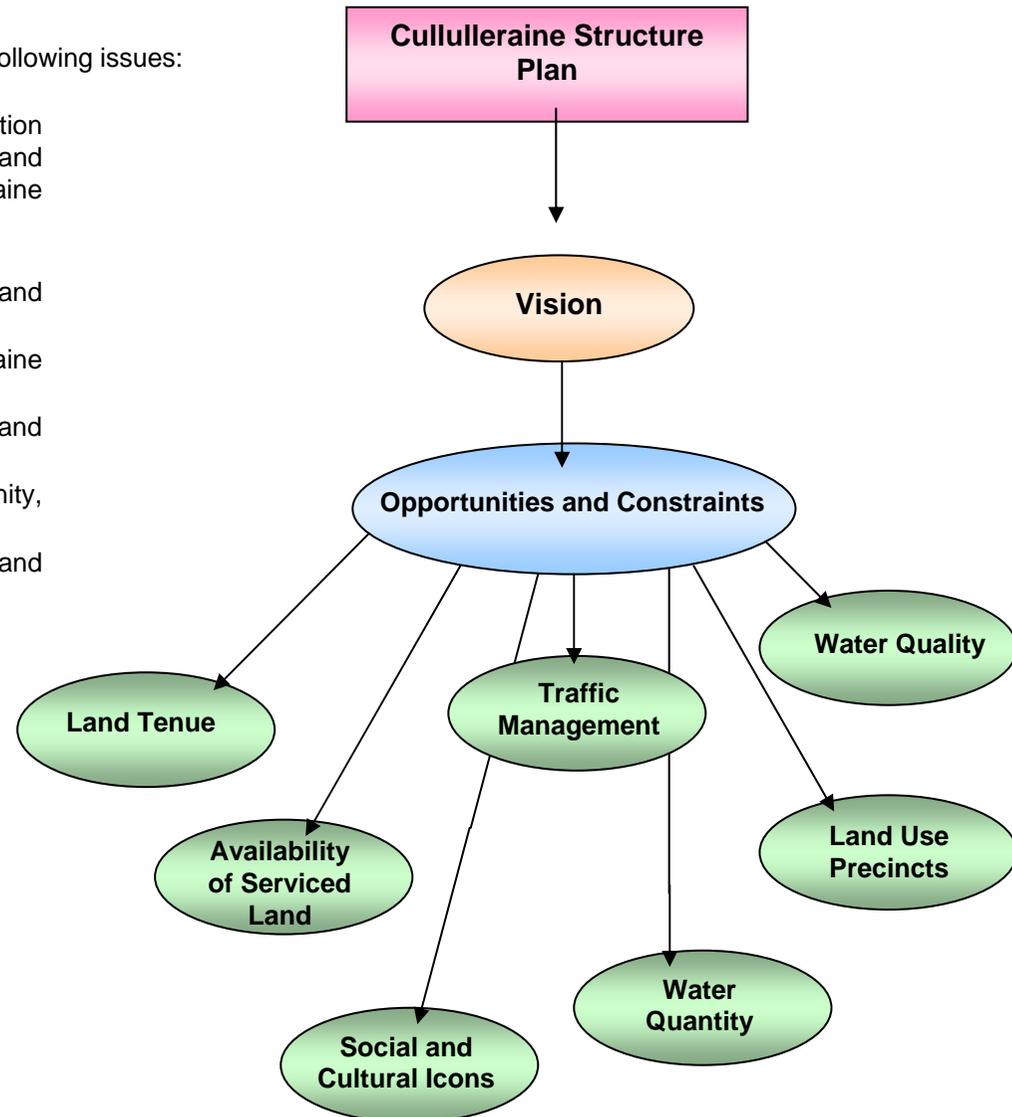


Figure 2 Study Area

1.3 Key Issues

In undertaking the Structure Plan, consideration has been given to the following issues:

- Development of vision for Cullulleraine which provides clear direction for future planning and growth of residential, commercial, and community/tourism related uses in and around the Cullulleraine Township;
- Future development opportunities of irrigated areas;
- Maintenance of water quality and supply for irrigation, recreation and stock and domestic purposes from Lake Cullulleraine;
- The availability and demand for residential land in the Cullulleraine area;
- The management arrangements of Lake Cullulleraine and recreational resources;
- Identification of environmental constraints such as salinity, groundwater, flora and fauna, soils and native vegetation;
- Identification of opportunities to improve infrastructure provision and services; and
- Formalisation of existing traffic management issues.



2.0 Profile and Context Setting

The Cullulleraine Township has prime position in the Mildura Murray Outback region, midway between Mildura and Renmark. The Murray River lies 8 kilometres to the north where a weir at Lock 9 regulates river level and flow.

The township is regularly used as a “rest stop” for travellers along the Sturt Highway during holiday periods. There is an excellent further opportunity to capitalise and promote Lake Cullulleraine as a visitor break point.

The township is located on the edge of the Murray River floodplain, which in this area is referred to as the Murray Scroll Belt. To the south lies the so-called Millewa Land System, characterised by a pattern of dunes and swales. The dunes run in an east – west direction and consist of reddish sandy loam soils. The climate is semi arid with an average rainfall of 250 mm with a variable winter growing season.

Murray-Sunset National Park located south and west of Cullulleraine offers recreational activities such as nature study, walking, fishing and camping. The “Millewa Pioneer Village” community project attracts 10,000 visitors annually.

The Mildura region offers a warm climate and numerous attractions and recreational activities including vineyards and citrus groves, houseboats on the Murray, fishing, golf, horse racing, craft, wineries, antiques, galleries, museums and historic buildings.

2.1 Places of Interest and Annual Events

Cullulleraine Township supports activities conducted on and around Lake Cullulleraine. Key events included sailing regattas, annual sporting carnivals and school camps. Other key areas of interest include in the region

- Lock 9;
- Historic Millewa townships;
- Lake Cullulleraine;
- RSL School Camp;
- Sunset Country (Desert Wildflowers);
- Murray River; and
- Natural wetlands.

Accommodation is available in two caravan parks that have both camping and on-site accommodation.

2.2 Settlement

The area west of Mildura was occupied in the 1850’s by graziers for large sheep runs utilising the saltbush – bluebush shrub lands on the Murray River floodplain and the grassy woodlands that were less common on the less sandy soils south of the floodplain.

Cullulleraine is one of three small remaining townships in the farming area known as the Millewa, which was cleared and settled in the 1920’s under a Government sponsored scheme by about 800 farmers. The other remaining centres - Meringur and Werrimull are situated on the former Millewa railway where six-grain silos continue to receive local cereals at harvest time. The predominant primary industries for 70 years in the Millewa have been wheat and sheep. As a result of a compulsory restructure of farms in the 1940’s after years of drought, rabbit plagues and economic hardships, property size in the Millewa has dramatically

increased since settlement. There are now fewer than 100 family farms in the Millewa, and as a consequence some services to the community have diminished as the population has declined. Other services such as telephone, water supply and roads have in the long term improved.

Prior to the intensive settlement of the Millewa, the only permanent water supply for the sheep stations was the Murray River where livestock relied on direct access to the highly variable flow. However the construction of the weir at Lock 9 in 1927 along with a steam pump and supply channel to Lake Cullulleraine ensured a more reliable water source. Government then constructed an earthen channel delivery system for stock and domestic water to most of the farms in the Millewa. A steam pumping station was constructed at Lake Cullulleraine to provide the initial lift to the gravity channel system. The pumping station was converted to electric pumps after the Millewa was connected to the State power grid in the 1960's. The stock and domestic channel system was converted to a pressurised pipeline by the mid 1970's.

Cullulleraine assumed importance as a residential centre during the 1920s when many families would have resided there to construct the infrastructure to deliver water, and to clear the Millewa for farming. A school was established at Cullulleraine in 1924 reflecting a concentration of population in the area at that time. On completion of the construction period, Cullulleraine decreased to a maintenance and operation centre until the Shire of Mildura centralised recreation facilities for the Millewa at Cullulleraine in circa 1952. The Cullulleraine school was closed in 1948 coinciding with the year of the Millewa farm restructure, which became necessary after many farms had been abandoned during the 1930s and 40s.

Following the commencement of water trade in Victoria in 1994, Southcorp established a large irrigated vineyard near Cullulleraine. Three other companies (Hardy Wines, Tandou and the Hopkins family) have since followed Southcorp's lead into the local area with grapevines now located on both sides of the Sturt Highway to the east of the township. Almonds and melon crops have more recently been established by the Hopkins family on the south side of the Highway to the east of Southcorp. There

are no processing facilities located in the local district apart from grain storage handling.

Lake Cullulleraine

Lake Cullulleraine lies immediately to the north of the town and is now managed for the purposes of providing a reliable stock and domestic and irrigation water supply for the Millewa and Cullulleraine district as well as Werrimull and Meringur. It is a former natural ephemeral wetland that would have occasionally received water from the Murray River during a major flood. The Lake is maintained at a level with minimum variation, being supplied by an earthen delivery channel from the Murray River with a pumped off take just upstream of Lock 9.

2.3 Demographic Snapshot

The permanent population of Cullulleraine is approximately 100 persons.

Age Group and Household Size (Is this Section Relevant ???)

Key issues emerging from the stakeholder consultation included the need for a more diverse range of housing to accommodate change in demographic profile of the population. In particular, as illustrated in Table 1 and 2 households are getting smaller and older. This has implications in terms of housing choice as smaller and older households typically require low maintenance, smaller dwellings with easy access to services and facilities. Although, these figures relate to the rural balance of Mildura, they are useful as they provide a pattern for what is occurring in the rural areas.

Table 1 Age Group % Rural Balance Mildura

Age Group (Years)	1981	1986	1991	1996	2001
0-4	8.5	8.7	8.6	7.9	7.5
5-17	26.7	24.1	22.3	23.5	23.5
18-24	11.8	9.9	8.9	6.7	6.9
25-34	15.3	15.8	15.3	13.3	12.0
35-49	18.6	20.4	22.9	25.2	25.2
50-59	10.0	10.8	10.6	11.2	12.6
60-74	7.1	8.3	9.2	9.7	9.7
75+	1.9	2.2	2.1	2.6	2.7
TOTAL	100.0	100.0	100.0	100.0	100.0

Source: Towns in Time 2001

Table 2 Household Size % Rural Balance Mildura

Household Size	1981	1986	1991	1996	2001
1 person	11.3	15.4	15.4	17.3	17.2
2 persons	24.0	25.9	29.2	30.4	32.2
3 persons	17.4	17.7	17.5	17.5	15.5
4 persons	21.1	19.8	20.8	18.1	19.3
5 persons or more	26.1	21.2	17.0	16.6	15.8

Source: Towns in Time 2001

Labour Force and Employment

In the development of the Structure Plan it is imperative to have an understanding of the key characteristics of the labour force. Table 3 and 4 provide an overview of these characteristics, which are summarised below.

As outlined earlier this information is useful as a guide only in establishing employment patterns in rural areas.

Table 3 Labour Force

Labour Force	1981	1986	1991	1996	2001
Employed	6,718	6,286	6,508	6,665	7,611
Unemployed	432	678	774	464	336

Labour Force	1981	1986	1991	1996	2001
Unemployment rate (%)	6.0	9.7	10.6	6.5	4.6
Participation Rate (%)	70.4	69.7	71.6	69.4	71.3

Source: Towns in Time 2001

Table 4 Employments by Industry

Employment by Industry	1981	1986	1991	1996	2001
Agriculture, Forestry and Fishing	53.9	5.2	46.2	40.0	36.7
Mining	0.2	0.3	0	0.1	0.2
Manufacturing	4.6	4.3	5.9	7.6	9.9
Electricity, Gas and Water Supply	1.1	1.4	1.3	0.1	1.1
Construction	4.7	3.8	3.8	4.4	5.2
Wholesale Trade	5.1	4.2	4.8	7.6	5.6
Retail Trade	8.8	9.7	10.0	10.0	11.3
Accommodation, Cafes, Restaurants	2.2	2.3	2.7	2.5	2.4
Transport and Storage	2.0	2.3	2.6	3.3	3.3
Communication	0.9	1.0	0.9	0.9	0.8
Finance and Insurance	1.3	1.3	1.7	1.3	1.2
Property and Business Services	2.7	2.0	2.8	3.7	4.6
Government Admin and Defence	2.2	2.8	2.7	2.2	2.2
Education	5.1	5.1	5.4	5.5	6.4
Health and Community Services	5.0	5.1	6.3	6.9	6.6
Cultural and Recreational Services	0.8	0.7	1.1	1.3	0.9
Personal and Other Services	1.6	1.3	1.6	1.8	2.2
TOTAL	100	100	100	100	100

Source: Towns in Time, 2001

The Council valuer was contacted for advice on the residential and or other demand for land at Cullulleraine and the types of properties that had been sold in the last five years.

Table 1:- Sale Figures at Cullulleraine from 2000-2004

YEAR	No. OF SALES ¹
2000	5 Residential Houses
2001	1 Residential House
2002	3 Residential Houses, 1 Vacant Lot
2003	3 Residential Houses, 1 Vacant Lot
2004	Nil

Note 1:- Sale Figures provided by Mildura Rural City Council. There are a total of 39 residential properties (including vacant residential land) on the register.

The valuer noted that the number of sales did not necessarily indicate demand for land. A good indicator is 'turnover' time. That is the time elapsed from when a residential property enters the market to when it is purchased.

Elders was contacted for advice on the sales and demand for land at Cullulleraine. They advised that in their opinion there was a demand for residential land from two sources. There is a demand from Millewa farmers wishing to retire in Cullulleraine. The other source of demand comes from people looking for affordable holiday houses. Elders did not have figures available which outlined the turn over rate of properties at Cullulleraine

3.0 Land Use Audit

3.1 Cullulleraine

3.1.1 Land Uses

The land uses at Cullulleraine are a mix of rural industry and commercial uses as illustrated in Figure 3 & 4. The types of activities located in the Cullulleraine Township include:

- Water authority depot;
- Rural Municipal depot;
- Two Caravan Parks
- Petrol supplies (retail);
- Residential dwellings
- Transfer Station;
- Recreational facilities (Sports oval, football, tennis and netball, yachting, fishing, speed boating, walking trail etc.);
- Educational facilities;
- Irrigation related infrastructure such as irrigation pumps and Millewa Stock and Domestic Pump; and
- Boat Ramp facilities.
- Telstra communications tower

Key Land Uses surrounding the Cullulleraine Township include rangeland grazing, dryland cropping and irrigated horticulture.

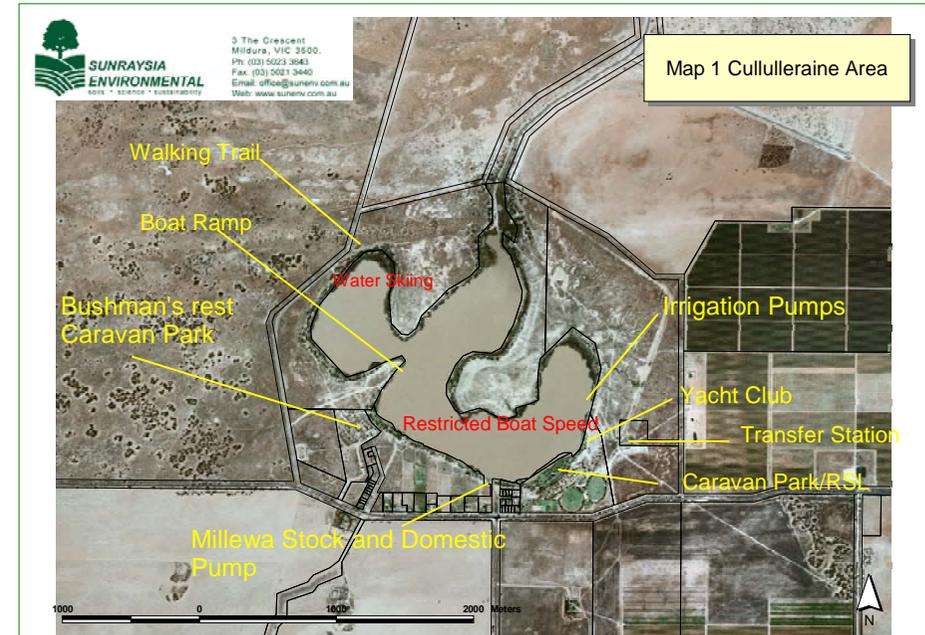
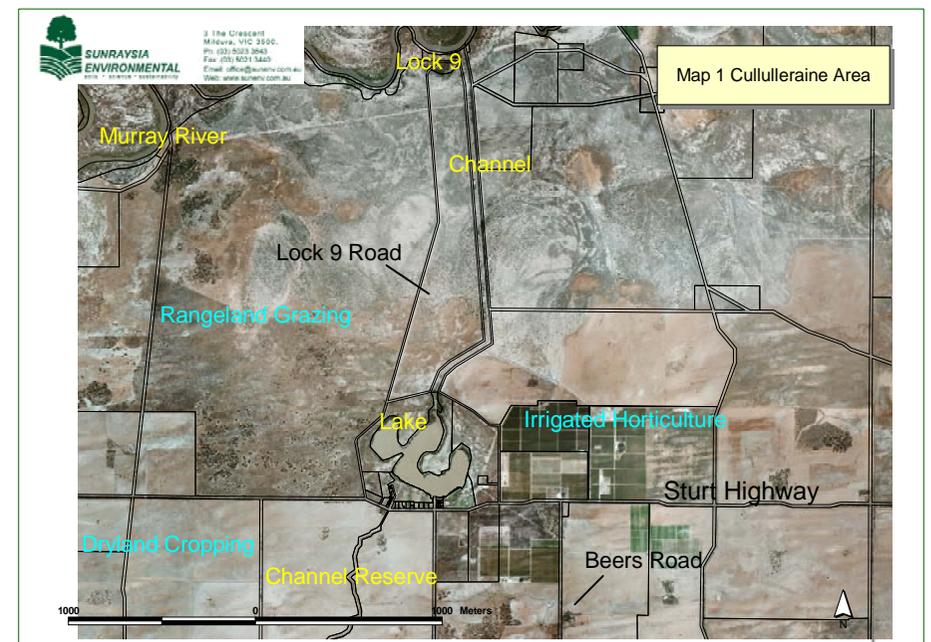


Figure 3 and 4 Land Use Plans



3.1.2 Zoning

Pursuant to Mildura Planning Scheme, Figure 5 shows the land use zoning in the Cullulleraine area.

The majority of the Cullulleraine Township is within the Township zone. The area surrounding the township zone is within a rural zone to the east and south and Public Parks and Recreation zone to the northwest.

Lake Cullulleraine is zoned Public Use – Schedule 1 Service and Utility.

The area immediately to the east of Lake Cullulleraine is zoned Public Conservation and Resource Zone.

The values, threats and management issues of Lake Cullulleraine are described in detail in the SKM 2000 Millewa Wetlands Operational Plans.

A search of environmental and cultural heritage features for Lake Cullulleraine was conducted using the Department of Environment and Heritage's *Environment Protection and Biodiversity Conservation (EPBC) Protected Matters Search Tool* and *Australian Heritage Database* and the Heritage Council of Victoria's *Heritage Register Online*. The search results are summarised below.

Lake Cullulleraine is located about 20 kms from the Murray Sunset National Park. No Commonwealth or State reserves were identified in the immediate area.

Lake Cullulleraine is situated within the catchment of three Ramsar wetlands sites:

- Banrock Station Wetland Complex
- Hattah-Kulkyne Lakes
- Riverland.

Buloke Woodlands of the Riverina and Murray-Darling Depression Bioregion, an endangered ecological community may occur in the area although none exist within 10 kms of Lake Cullulleraine. Cypress pine / Belar trees are however are found throughout the Millewa.

The following table summarises potential EPBC threatened species that may occur within the area.



Figure 5 Zoning Map

Threatened Species	Status	Type of Presence
Birds		
<i>Leipoa ocellata</i> Malleefowl	Vulnerable	Species or species habitat likely to occur within area
<i>Pachycephala rufogularis</i> Red-lored Whistler	Vulnerable	Species or species habitat may occur within area
<i>Polytelis anthopeplus anthopeplus</i> (incorrect subspecies) Regent Parrot (eastern)	Vulnerable	Species or species habitat likely to occur within area
<i>Rostratula australis</i> Australian Painted Snipe	Vulnerable	Species or species habitat may occur within area
Fishes		
<i>Craterocephalus fluviatilis</i> Murray Hardyhead	Vulnerable	Species or species habitat may occur within area
<i>Maccullochella peelii peelii</i> Murray Cod	Vulnerable	Species or species habitat may occur within area
Frogs		
<i>Litoria reniformis</i> Southern Bell Frog	Vulnerable	Species or species habitat may occur within area
Plants		
<i>Lepidium monoplacoides</i> Winged Pepper-cress	Endangered	Species or species habitat likely to occur within area
<i>Swainsona pyrophila</i> Yellow Swainson-pea	Vulnerable	Species or species habitat likely to occur within area
Migratory Terrestrial Species – Birds		
<i>Haliaeetus leucogaster</i> White-bellied Sea-Eagle	Migratory	Species or species habitat likely to occur within area
<i>Hirundapus caudacutus</i> White-throated Needletail	Migratory	Species or species habitat may occur within area
<i>Leipoa ocellata</i> Malleefowl	Migratory	Species or species habitat likely to occur within area
Migratory Wetland Species – Birds		
<i>Gallinago hardwickii</i> Latham's Snipe	Migratory	Species or species habitat may occur within area

Threatened Species	Status	Type of Presence
<i>Rostratula benghalensis s. lat.</i> Painted Snipe	Migratory	Species or species habitat may occur within area
Listed Marine Species – Birds		
<i>Apus pacificus</i> Fork-tailed Swift	Listed – overfly marine area	Species or species habitat may occur within area
<i>Ardea alba</i> Great Egret	Listed – overfly marine area	Species or species habitat may occur within area
<i>Ardea ibis</i> Cattle Egret	Listed – overfly marine area	Species or species habitat may occur within area
<i>Gallinago hardwickii</i> Latham's Snipe	Listed – overfly marine area	Species or species habitat may occur within area
<i>Haliaeetus leucogaster</i> White-bellied Sea-Eagle	Listed – overfly marine area	Species or species habitat likely to occur within area
<i>Hirundapus caudacutus</i> White-throated Needletail	Listed – overfly marine area	Species or species habitat may occur within area
<i>Merops ornatus</i> Rainbow Bee-eater	Listed – overfly marine area	Species or species habitat may occur within area
<i>Rostratula benghalensis s. lat.</i> Painted Snipe	Listed – overfly marine area	Species or species habitat may occur within area

The Lock Nine Pumping Station, located 10km north of Cullulleraine on the southern bank of the Murray River was listed on both the *Australian Heritage Database* (Place ID 4149) and the *Victorian Heritage Online Register* (H0549). The small scale steam pumping station was constructed in 1924 (Historical Society records) and contains pumps and equipment that are unusual in their operation compared with standard types.

Cullulleraine Farm Ruins (H7229-0001) located off the Sturt Highway are also listed in *Victorian Heritage Online Register*.

3.1.4 Infrastructure

The following comments are related to infrastructure provision:

- Origin Energy has indicated that natural gas mains pressure could be available to the Cullulleraine Township.

- Powercor indicated that power supply to Cullulleraine would be able to meet expectations. Southcorp indicated the need for future expansion
- Lower Murray Water provides non-potable water supply to a small number of residents. The majority of households have direct supplies from Lake Cullulleraine.
- No reticulated sewerage services are available, apart from the common disposal to some public buildings on the eastern side and individual septic tanks.
- Stormwater is fully contained on site. There is no reticulation system in place. Surface stormwater runoff drains to the lake depression.
- Telstra advised that telecommunications services available to the area.

3.1.5 Transportation and Traffic Management

Regional Context

Cullulleraine is located on the Sturt Highway approximately 58 kilometres west of Mildura. The Sturt Highway is the main road transport link between Sydney and Adelaide.

Cullulleraine Township is developing as a service centre and the district is a road transport generator from agricultural, horticultural and pastoral properties.

Commercial passenger bus services are available from Cullulleraine to Mildura, Adelaide and Sydney.

Freight

The main freight movement along the Sturt Highway corridor is the transportation of agricultural products to and from the Sunraysia area, and general freight between Sydney, Adelaide and Perth.

Other important freight movements along the Sturt Highway include:

- Fruit & vegetables and other non-cereal crops to Melbourne and Adelaide;

- Cattle, sheep and pigs to abattoirs in a number of centres;
- Grapes from the Cullulleraine wineries to Mildura and South Australia; and
- Sand, gravel and quarry products for road construction.

In summary, the Sturt Highway serves a number of important industries in the region, which include agriculture (cereal grains, vegetables, orchard fruit, wool, livestock), viticulture, food processing, winemaking and tourism. The Sturt Highway in particular forms an important link for these industries to markets and ports in the south of the state, South Australia and NSW.

Internal Road Network & Local traffic Management

Most of Cullulleraine's internal roads are fully constructed rural sealed roads. Road drainage is generally collected in swale type drains, which when activated discharge to the lake.

There are three main access routes to residential and recreational areas.

Traffic movements within Cullulleraine are generally satisfactory although a number of issues exist. These include:

- The use of the informal unsealed road on the north side of the Sturt Highway to access private properties;
- Vehicle movements near entering and existing the service station / general store.
- Lack of formalised parking for buses and caravans. A dedicated off Highway parking area for buses and caravans should be explored.
- Access arrangements from Sturt Highway to Lock 9 Road.
- Right hand turn lane from Sturt Highway to the Lake Cullulleraine Public Recreation Reserve and caravan park.

It is important to note there is no linkage from Lake Cullulleraine to the northern side of the Murray River.

Pedestrians

Pedestrian movement in Cullulleraine is generally satisfactory at a local level, with well-defined and maintained footpaths in the commercial, public and recreational areas.

There are number walking trails located around the perimeter of Lake Cullulleraine. However the existing paths including signage and information display needs to be upgraded.

The unsealed road on the north side of the Sturt Highway is a major pedestrian link between the public reserve and convenience store, also used as vehicular access to properties abutting the Sturt Highway. Whilst vehicle movements are not significant, there appears a need to restrict vehicle access along the track on the grounds of pedestrian safety. The track should also be upgraded with an all weather surface.

4.0 Stakeholder Consultation

An important input to this study has been, and will continue to be consultation with stakeholders. This has facilitated an understanding of the key issues in the study area.

The consultation was conducted in three stages. The initial stage included the attendance at an ordinary meeting of the Lake Cullulleraine Progress Association. The intention of attending the meeting was to introduce the Town Structure Plan project and to attempt to gain some understanding of the local issues.

The second stage of the consultation included meeting with key government agencies and industry. Key government agencies and industries were identified and approached independently. Meeting with each key government agency and industry bodies were carried out over a two-week period.

The third stage of the project included a wider community consultation. This included holding a public meeting at Cullulleraine to summarise the issues raised to date and to gain feedback and identify other community issues that should be considered in the development of a Town Structure Plan.

All parties were asked set questions to identify issues relevant to a Town Structure Plan. Questions included the standard of water quality, recreational usage, impact of the expansion of horticultural development, Council management, land tenure and appropriate usage of the land in the local area.

All parties were also invited to raise any issues that they felt should be considered in a town structure plan.



Internal Local Roads



View towards residential dwelling occupying frontage to Sturt Highway at Cullulleraine

Outlined below is an overview of the key issues raised during these consultation activities.

4.1 Traffic Management

VicRoads is responsible for all highway maintenance and construction throughout Victoria. Cullulleraine is situated adjacent to and north of the Sturt Highway. The Sturt Highway has National status and is one of the main links between Sydney and Adelaide, carrying a steady volume of interstate and local heavy vehicles and at certain times agricultural machinery. VicRoads has a depot within the Cullulleraine Township

VicRoads advised that there is no broad strategy for upgrade of the Sturt Highway or highway lighting at Cullulleraine with the exception of the following minor safety works:

- Improve delineation of along the Sturt Highway and widen the corner of the pavement at the Werrimull North Road intersection to enable B Double vehicles to more easily turn in Merrimull North Road, and
- Improve the sight distance for vehicles turning right from the Sturt Highway into Lock 9 Road by lowering the embankment on the south side of the Sturt Highway as you approach the intersection from the east.

There are State guidelines, which aim to minimise access points to and from the highway. There is currently a dirt track being used by locals as a service road connecting most properties along the northern side of the highway. VicRoads is not responsible for constructing or maintaining service roads. It was noted that there are many access points to the highway from this track.

All highway maintenance projects compete for priority.. One project is to upgrade the turnoff from the highway to Lock 9 Road. Currently there is a slight bend at this point of the highway and this limits site distance from the right hand turn lane on the highway looking west. The proposal would cut

the batter to the south to improve site distances for right hand turning traffic turning to Lock 9 Road.

. The speed limit through the township on the Sturt Highway is 80 kph and this would remain unchanged even if development occurred to the south of the highway. Outside the built up area the speed limit on the highway is 110 kph.

The standard of the service road on the northern side of the Sturt Highway was raised as an issue. The service road provides access to the residents adjacent to the highway, and is used by guests including many children, staying at the RSL camp to walk to the store, post office and public phone. The track could be levelled and upgraded provided it was for residential/local use only. Speed should be controlled along the service road if the road were to be upgraded.

An integrated signage strategy is required to clearly high light picnic areas and park facilities. Signs should be located at the Recreation Reserve entrance and advanced warning signs and displays to be located at truck lay-overs on east approach and on the Adelaide approach. The truck lay-over on the Mildura approach should be lengthened by approximately 30 m and upgraded to accommodate additional signage.

Additional signage around the lake walking trails is required (no signs exist at the moment). Signage on Highway to direct to Lake foreshore and to information board currently located within the park precinct.

Signage along the highway needs to be improved to more clearly identify visitor access points to the main recreation areas. Signage should also better identify the Information Bay, which is currently being established by the Lake Cullulleraine Progress Association.

The existing service road / access track running parallel to the Sturt Highway performs a number of important traffic related functions including pedestrian access between the public reserve and convenience store and vehicular access to properties abutting the Sturt Highway. Whilst vehicle movements are not significant, it would be desirable to restrict vehicle access along the track on the grounds of pedestrian safety. The track

should also be upgraded to an all weather surface, the dimensions of which reflecting its restricted use. In addition, residents identified the following traffic issues during our review:

- The turnoff to the Bushman's Rest Caravan Park is considered a dangerous point on the Sturt Highway. The sight distance to the park entrance for vehicles travelling from east is limited by a curve in the road prior to the entrance.
- "No Through" signs at Boronia Drive and Mullroo Drive should be relocated to more prominent positions to advise tourist traffic.
- The Cullulleraine Progress Association has approached VicRoads to place proper School Bus Stop Ahead signs on the Sturt Highway, to warn motorists that the School bus turn right off the highway into the west side of Millewa Motors. Appropriate signs need to be erected.
- The intersection at the Werrimull South Road requires upgrading. The pavement width to the east of the intersection needs widening to safely accommodate B Double turning movements.

4.2 Infrastructure

There are a number of impediments to growth in relation to infrastructure.

There is no potable water supply or sewerage reticulation available to Cullulleraine.

Lower Murray Water is considering options to improve the quality of the stock and domestic water supply by treatment, in particular for Cullulleraine and the two other townships in the Millewa. For example, the use of settlement ponds to reduce turbidity levels of the water is an option. Lower Murray Water advised that they have considered utilising the Crown land adjacent to the southern end of the Lake for a water treatment plant. Lower Murray Water has advised the DSE who manage the Crown land and licensing of the land, not to proceed with sale of the land until all options for water treatment and siting of the plant, if any, have been investigated.

A treatment plant in this area could potentially provide potable water, although it was noted that the level of treatment would depend on the funding available for capital works and operation and maintenance.

DSE noted that they support the issuing of up to 25,000ML of annual diversions from Lake Cullulleraine under the current management arrangements. Additional diversions however, above 25,000ML, would require an *Outline Development Plan* to be created specifying pumping sites around the lake, pipeline locations and other future infrastructure requirements. It is crucial that the first few irrigation developments do not compromise further development due to insufficient land being made available for infrastructure requirements, namely pipelines and pumping facilities.

Diesel pumps are utilised by adjacent landholders for domestic and small scale irrigation water supply. Replacing the existing diesel pumps with electric pumps would remove the risk to water quality at the lake from potential oil spills.

Security of water supply is essential for ensuring future growth. Non-potable water supplies are currently provided either through an arrangement with Lower Murray Water or by private pumps and lines. Future land subdivision may require agreement with Lower Murray Water for the installation of a reticulated supply



Old Pump

4.3 Opportunities for Cullulleraine

Cullulleraine Township has prime position in the Murray Sunset region. The area's permanent water supply, its proximity to the Murray River and irrigation infrastructure has transformed large areas of dry-land farming into irrigated viticulture.

Wheat production still remains the dominant agricultural activity in the region and should be promoted.

Opportunity exists to promote Cullulleraine as Australia's emerging viticultural region and gateway to the Murray Sunset National Park and wetlands.

The key challenge for the community is to ensure long-term security of water supply and water quality for residential expansion, to retain existing agricultural activities and to attract additional agricultural activities to Cullulleraine..

Town centre runs parallel to the Sturt Highway and requires safer separation from through traffic.

There is an informal car / bus parking area with associated facilities located west of the service station on the Sturt Highway. Council should formalise the area and provide display information in relation to the region.



Site of New Boat Ramp



View towards Crown Land

Other

Southcorp was consulted and raised a number of issues relevant for future horticultural development in the area.

Water quality and supply was generally considered to be 'good' for irrigation. The water quality had increased substantially with increased irrigation usage. There are some issues with suspended solids in the water, however, it was noted that a filter system could generally remove the silt.

Southcorp advised that for up to six months of the year they employ up to thirty five people. Labourers generally travel from Mildura as the standard of accommodation and services available are considered better than those in Cullulleraine. Labourers utilise services provided at Cullulleraine for daily needs (i.e. lunches) and petrol. Southcorp noted that the Company had considered providing labourers with accommodation on site. They advised that they were not in favour of any residential expansion on the south side of the highway as this may potentially cause a conflict between land uses and restrict some of their operating hours and or management techniques.

Beers Road is the major haulage route from the property through to Werrimull. The Hopkins property, which is currently leased to produce melons, also uses this road to transport fruit. Southcorp noted that an upgrade to this road would substantially improve their haulage routes.

4.4 Cullulleraine Town Centre

4.4.1 Residential

There is a shortage of residential accommodation and serviced building allotments in Cullulleraine. The Crown land abutting Lake Cullulleraine located between existing residential land and the Lake edge has been suggested as suitable for accommodating potential residential development. In addition Crown land located between the Sturt Highway

and Lakeside Drive has also been identified as suitable for further residential development.

There is also vacant freehold land located at the west end of the township.

DSE advised that the current town planning zoning should be altered to more accurately reflect the potential land use. It was suggested that a public use zoning may be more applicable than the current township zone, the latter theoretically allowing for residential development on the land which is unlikely to be permitted by DSE.

If the Crown land was ever to be sold as freehold title it is normal procedure that current holders of an annual licence would be given first option to purchase the land.

DSE pointed out parcels of Crown land that could potentially be made available for private use. These parcels of land are illustrated on the Structure Plan. The administrative process of allowing Crown land to become available for private purchase would take a minimum of six months to complete.

4.5 Community Consultation

Key issues raised from the public meeting are summarised below.

Water quality

Water quality was raised as an issue both within the Lake and also for domestic use.

Firstly the amount of Cumbungi within the Lake and its rapid expansion was raised as a management issue. Cumbungi restricts access to the Lake for speedboats and swimmers. The water level of the Lake is managed by Lower Murray Water at a roughly constant level to satisfy pump suction pipes (within a 400mm range).

Lowering water levels in the lake would cause an issue for domestic use as a large number of residents maintain individual pipelines and pumps at the Lake for some domestic use.

The second issue raised was that the water quality for domestic use could be improved. A potable water supply would be required to enable expansion of the residential and business area.

Land Management and future land use

The public meeting raised the issue of land management and future land use of land directly adjacent to the Lake. The meeting advised that the land was originally leased to the landholders and that the occupancies extended to the Lake. When the walking track around the Lake was constructed, the boundary of the occupied Crown land was moved back from the Lake. Where Crown land is not leased to landholders in the area there is a question of who maintains the land. The meeting noted that currently residents maintain much of this land. A query was raised as to how the new boundary for leased Crown land was defined and why the area does not extend closer to the walkway and Lake.

The meeting advised that it felt there was a demand for residential land in the area. The meeting noted that there was a strong demand for residential land from retired farmers in the area. There are never many vacant homes and if residential houses become available for sale they are generally purchased within a week of entering the market. All houses were thought to have changed hands over 17 years (that is approximately 28-29 properties with residential houses).

It was noted that there are currently two vacant houses at Cullulleraine.

The lots directly adjacent to the south side of the Sturt Highway were not considered suitable for additional subdivision to provide additional residential land. VicRoads, under normal circumstances would not permit direct access to individual residential lots from the Sturt Highway. A service road would be required to service residential properties.

If further residential development did occur, areas that were considered suitable included the area of Crown land already zoned township directly adjacent to the Lake. An alternative or additional option was to allow for residential land on the south side of the Sturt Highway opposite the existing residential strip. The meeting noted some concern that a proposed water treatment facility could potentially be located adjacent to the Lake. It was suggested that this land would be more suitable for residential land use and/or for urban expansion.

It was noted that if the land adjacent to the Lake were to become available for development local residents should be able to purchase the land for development. It was confirmed that it is normal practice for the people that are leasing the land and adjoining landholders to have first option to buy crown land if it becomes available.

Lake Foreshore

There is a commonly held view amongst the community and lake users that the lake foreshore has been neglected over the period of time resulting in the spread of weed (cumbungi) growth along sections of the lake foreshore. Cumbungi makes water access difficult and dangerous and limits the use of previously accessible locations. Evidence suggests spraying (with Roundup) could be used to remove weeds. Such action would require stakeholder consultation.

Clear signage should be placed at intervals showing the direction of the trail and the trail start and finish. The trail surface need to be upgraded to a safe standard and cleared of fallen trees and braches. The boat ramp on the west side of the lake should be provided with basic park infrastructure such as bins, table and seat and toilet facilities.

Council Rates

The high Council rates were raised as an issue at Cullulleraine for the services that the area received. There is, for example, no garbage collection and no filtered water supply (sic). Residents would prefer a package treatment plant to treat sewerage but would like surety that any sewerage treatment will not impact on the water quality of the Lake. There

was some positive comment received on the Transfer Station, which is used by the residents to dispose of waste into a large hopper.

Housing Stock

There is no housing stock currently available in the township of Cullulleraine (28 houses). Houses tend to sell between people within the community. People wishing to relocate would find it difficult to purchase either a constructed residence or building block. During the public consultation phase, the issue of available housing stock was raised. The owner of land on the south side of the highway has floated the idea of subdividing 20 – 30 lots abutting the Stuart Highway. The land has a rural zoning allowing for subdivision of 10 hectare lots. Re zoning would be required for smaller residential lots. A number of authorities would need to be consulted including, VicRoads, Lower Murray Water, Powercor and most importantly MRCC. It is unlikely that there would be merit in supporting A rezoning of this nature.

Access Roads

Access roads were discussed at the meeting. The standard of the service road on the northern side of the Sturt Highway was raised. The service road provides access to the residents adjacent to the highway, and is used by guests including many children, staying at the RSL camp to walk to the store, post office and public phone. The track could be levelled and upgraded provided it was for residential/local use only. Speed should be controlled along the service road if the road were to be upgraded.

Directional Signage

Signage along the highway needs to be improved to more clearly identify visitor access points to the main recreation areas (Johansen Recreation Reserve). Improved signage should also be located at the Reserve entrance to better identify the Information Bay location within the reserve, which is currently being established by the Lake Cullulleraine Progress Association.

Upgraded signage on the Sturt Highway detailing direction and distance to Mildura and Adelaide is required at the intersection of Sturt Highway the Werrimull North Road. Additional signage is required at this location to show direction of Information Bay and public facilities.

Other

The management of the recreational facilities by Council was discussed, in particular watering of the grass facilities, which it is suggested, could be improved. The ovals and tennis courts need more water, however, the pump is considered too small to service 24 hectares.

Public toilets in the caravan park recreation reserve could also be upgraded. These toilet facilities are heavily utilised by tourists and current maintenance / cleaning arrangements may not be adequately resourced.

The rainwater tanks at the football club are no longer used as the guttering system is not cleaned of leaves and the water quality is therefore poor. Water is transported from Mildura for drinking purposes.

The meeting was asked to provide estimates of the number of people that utilised the recreational facilities on site. The following estimates were put forward:-

- Up to 40 Naval Cadets use their facilities every two weeks;
- The Millewa Tennis Club has approximately 90 members which use the facilities during summer season;
- Three football clubs use the facilities. Combined estimate is that up to 100 members plus family and guests use the facilities each weekend through the football season;
- One cricket team with approximately 20 members and plus family and guests who use the facilities alternating weekends in season; and
- Approximately 20 powerboats (plus water-skiers) use the Lake during summer.

No concerns were raised in relation to the potential for the area to undergo further horticultural development.

Water Bases Activities

Concerns were raised about the current water areas available for water skiing. The consensus is that the area available for water skiing is not sufficient for the number of boats using the lake compared to that available for sailing. The contention is that this matter requires review by MRCC in view of the changing use requirements. It is recommended that a lake user study be undertaken and changes made to current regulations in line with study recommendations.

Irrigation of Public Facilities

The Cullulleraine Progress Association would like the existing irrigation pump capacity upgraded to meet increased watering demands of the grassed public reserve and sporting fields.

Lake Users

The Lake Cullulleraine Yacht Club has recently completed new clubroom facilities. Club members are drawn from the surrounding areas, with many members coming from Mildura.

The RSL School Camp is used extensively, not only by school groups from Mildura and the surrounding areas, but many diverse groups that use the lake facilities to meet.

5.0 Draft Structure Plan

Following discussions with key stakeholders, site investigations, review of relevant strategies a draft Structure Plan has been developed which is intended to provide guidance to all stakeholders in relation to the future strategic direction and growth of Cullulleraine.

The Structure Plan aims to set the strategic and future land use framework for Cullulleraine having regard to the, recreational, residential, servicing and environmental opportunities and constraints within the study area. The recommendations made within this Structure Plan have taken into consideration feedback from landowners and have also had regard to general market trends associated with Cullulleraine's Growth.

5.1 Vision

The vision for Cullulleraine needs to reflect the regional and local context and identity by building on and reflecting the foundations and key aspirations of the community.

Cullulleraine is located on the Sturt Highway which provides an important link for:

- Industries accessing markets and ports in the south of the state, South Australia and NSW.
- All recreational users of the Lake including school, camps, users of Caravan Parks, Boating and Sporting Facilities from surrounding region.
- Murray Outback tourism region.

The key challenges for Lake Cullulleraine include:

- The protection of the water resource in relation to water quality and supply of water for irrigation, recreation, stock and domestic purposes.
- The availability and demand for residential land in Cullulleraine area;
- The management of Lake Cullulleraine and the recreational resources in the area.

The vision for Lake Cullulleraine needs to promote the area as an important recreational and community precinct for visitors offering a range of sporting and leisure activities set in unique bush-outback environment whilst providing a critical water resource to stakeholders.

It is also important to note, that a number of day-trippers, campers from the Murray River and tour groups stop at Lake Cullulleraine as part of broader tours to the region.

Key components of the Lake Cullulleraine Structure Plan are described below.

5.2 Gateway Treatment

As illustrated in figure 7 to further encourage and promote visitors to Cullulleraine requires improved exposure of both the eastern and western approaches along the Sturt Highway.

Figure 7 provides for the development of Gateway Concept at two locations which are aimed at increasing the exposure of Cullulleraine for commuters seeking a short term breaking point and capture visitors travelling to the broader region.

It is understood that Lake Cullulleraine Progress Association is also developing an Information Bay with MRCC.

An Information Display Board about Lake Cullulleraine at the Shell Service Station would also add value in terms of drawing potential commuters to the area. There would be an opportunity for the Lake Cullulleraine Progress Association to provide input into this process.

It cannot be emphasised strongly enough the strategic importance on investing in the creation of a gateway which draws people travelling along the Sturt Highway into Lake Cullulleraine.



Limited directional signage to Lake Cullulleraine

5.3 Cullulleraine Redevelopment

5.3.1 Lake Cullulleraine

The water body that forms Lake Cullulleraine is the single most important economic driver for sustainable development of Cullulleraine and its environs. It is vital that the integrity of the Lake in terms of security of water supply and protection of the water quality is critical for regional development.

The Lake supports irrigated areas to the east and south of the Cullulleraine, the three townships within Millewa district including Cullulleraine and 100 farms.

As illustrated in Figure 7 the protection of Lake Cullulleraine as providing quality water resource for irrigation, recreation, stock and domestic purposes is of critical importance to ensure the long-term viability of the area.

To further promote and manage the unique role that Lake Cullulleraine provides to all stakeholders including the local community, recreational and leisure users, irrigators, the following modifications have been incorporated into Figure 7:

- Upgrade perimeter walking track for pedestrian and cyclists, this may include upgrading crossing of Lake to the north;
- Open and protect vistas to Lake;
- Encourage co-location of irrigation infrastructure; and
- Provide basis amenities to improve visual setting for Boat Ramp.



Willow Trees obstructing vistas to Lake



View towards Lake from camp areas.



Johansen Memorial Reserve



Lindemans Irrigated Vines

5.4 Traffic

Lake Cullulleraine ensures a pleasant experience for local and visitors. To further promote and build on the attributes of this area the following modifications have been incorporated into figure 7 Lake Cullulleraine Structure Plan:

- Upgrade turn off from Sturt Highway into Public Recreation Reserve, sporting ovals and caravan park;
- Upgrade access to the Shell service station/road house in the centre of township;
- Upgrade Service Road on the northern side of Sturt Highway; and
 - Facilitate the easy and convenient access for buses/caravans by formalising parking arrangements in the Memorial Recreation Reserve.

- Upgrade truck lay-over on the Mildura approach to accommodate additional signage.



View of residential and informal service road from Sturt Highway



Example of typical internal road.



Upgrade to access to Shell Service Station

5.5 Residential

As illustrated in figure 7 the land neighbouring the northern perimeter of Lake Cullulleraine would provide excellent opportunities to accommodate future residential development with an area 11.37 hectares. The local community in particular the residents whose properties adjoin this land expressed an interest in purchasing this crown land to incorporate as part of their existing properties which would provide direct access to the recreational reserve abutting the Lake.

Lower Murray Water has expressed an interest in this land as a potential site for their Water Treatment Plant which would provide potable water for domestic purposes. It is recommended that MRCC work with Lower Murray Water to investigate other more suitable locations for possible Water Treatment away from existing residential community. Allowing a Water Treatment Plant in this location would cause a visual escarpment on the pleasant lakeside landscape for the existing residential community and all users of the Lake

Through MRCC working with Lower Murray Water to identify options which could accommodate a future Water Treatment Plant, this would facilitate the path for commencement of negotiations with DSE.

The Cullulleraine Residential Association has indicated a strong preference for any future treatment plant to be located away from the perimeter of the lake.

As illustrated in figure 7 two other potential areas for residential development have been identified as follows:

- Existing crown land in the residential community on the eastern side of Werrimull North Road.

This area is well located and provides the opportunity to create and promote sustainable living communities through the adoption and commitment to sustainable development practices such as

incorporation of water sensitive development techniques into overall design, use of local materials for building design and indigenous planting for landscaping and development of pedestrian friendly linkages to Lake Cullulleraine.

DSE has supported the potential conversion of these land parcels to freehold land. The administrative process would take over six months.

- Freehold land to the west of the existing residential development between Mullroo Drive and Bushman's Caravan Park entrance..



Existing Crown land – potential suitable for residential development



Crown land with potential for private/residential use

5.5.1 Recreation and Community Precinct

The promotion and management of the recreation and community precinct is important to reinforce the role and function of Lake Cullulleraine as captured in the vision. As illustrated in figure 7 the following modifications have been incorporated into the Structure Plan:

- Incorporation of clear directional signage;
- Removal of weeds from lake frontage;
- Upgrade of existing walking tracks;
- Upgrade to existing Information Display;
- Upgrade toilet facilities as Caravan Park/RSL; and
- Removal of disused water tanks from Football Oval;

In addition, a review of existing restrictions on water activities should be undertaken in light of changing lake usage patterns, i.e. competing interests of power craft with sail boats.



Opportunity to upgrade signage to Memorial Reserve



Opportunity to upgrade existing signage.



Opportunity to upgrade existing facilities within camping area

5.5.2 Infrastructure

An assessment of Cullulleraine's infrastructure and services is documented in the following sections. The collected information and stakeholder consultation suggests that existing infrastructure does not have sufficient capacity to service the current short term or projected long term projected population or future residential development.

In the short term services will require upgrading or development of new ones to sustain projected development. The structure plan recognises and accommodates these infrastructure requirements.

Wastewater and Water Supply

No sewerage reticulation or end of line treatment is currently available to Cullulleraine. Sewage is treated through septic tank installations and interceptor trap installations for industrial waste.

There is an opportunity to provide sewerage facilities through the installation of a package treatment plant to treat sewerage.

Lower Murray Urban and Rural Water Authority manage Lake Cullulleraine for irrigation and stock and domestic water supply. No potable water supply is currently available to residential areas.

Lower Murray Water advised that there had been a number of enquiries from developers to develop horticultural land particularly to the south of the Sturt Highway. It was noted that the Lake and associated supply system has additional capacity to supply water.

The capacity of the Lake water supply system could be increased. There are plans to locate an additional pump on the river and to replace the existing pump. The existing pump could be retained and used as a backup if required.

The second issue raised was that the water quality for domestic use could be improved. Potable water is currently supplied by rainwater capture or bulk transportation. A non - potable water supply agreement with Lower Murray Water would be required to enable expansion of the residential and business area.

Lower Murray Water is considering options to improve the quality of the stock and domestic water supply by treatment, in particular for Cullulleraine and the two other townships in the Millewa. For example, the use of settlement ponds to reduce turbidity levels of the water is an option. Lower Murray Water advised that they have considered utilising the Crown land adjacent to the southern end of the Lake for a water treatment plant.

A treatment plant in this area could potentially provide potable water, although it was noted that the level of treatment would depend on the funding available for capital works and operation and maintenance. As part of this Structure Plan it is recommended that Lower Murray water be encouraged to identify alternative locations for Water Treatment Plant.

Whilst the water and sewage treatment options are both feasible, the construction of treatment plants is highly contingent on available funds.

The management of the recreational facilities by Council was discussed, in particular watering of the grass facilities, which could be improved. The ovals and tennis courts need more water, however, the pump is considered too small to service 24 hectares.

Gas

Piped natural gas services currently exist within the study area (The Mildura Pipeline). The natural gas pipeline is located on the south side of Sturt Highway and extends from South Australia along the Sturt Highway to Mildura. Envestra owns the pipeline. A commercial case could be put forward to provide reticulated gas to Cullulleraine.

Power Supply

The primary power infrastructure feature is the Powercor supply network from the Merbein Substation.

A 22KV distribution power line originates at Merbein to provide power for the town and the surrounding rural area. This power line follows the Sturt Highway.

The overall power infrastructure within the Cullulleraine area has the capacity for development but is not unlimited. The basic transmission system is relatively strong but this does not necessarily transfer too the distribution network.

Parts of the distribution network may have to be upgraded to cater for additional large residential or commercial loads. It is envisaged that this

would occur over a long period of time and that the network would keep pace with future development within the structure plan.

Potential future development of land releases around the town will require extension of the existing distribution network into new development schemes.

Power supply in the district would need to be upgraded to support further expansion of the irrigated areas.

Telecommunications

At present there are no known plans for major Telstra network upgrades within the study area. In all cases headworks may be required to supply infrastructure to any new developments in the area.

Telstra have advised there is copper cable available within the study area. Future development of land within the township is easily serviced from existing networks or extension of existing networks. There is no fibre optic cable available within the study area.

Stormwater Drainage

There appears to be no formal stormwater drainage network at Cullulleraine. Stormwater drainage in the town generally runs along road verges and discharges into Lake Cullulleraine.

Whilst the MRCC Stormwater Management Plan makes no specific reference to storm water issues in Cullulleraine, stormwater management strategies focus on a number of management actions aimed at improving the way Council manages stormwater. Council recognises the importance of Best Practice Urban Stormwater Management Practices in environmental management and improving the quality of stormwater runoff.



Internal Road Network

There is an opportunity to adopt Water Sensitive Urban Design techniques i.e. bioretention filters, constructed wetlands to improve water quality and encourage greater biodiversity and passive recreational activities. New residential development should be encouraged to adopt water sensitive urban design at both lot level and subdivision level.

In addition there is an opportunity to adopt WSED techniques to alter the function of the existing open drainage channels to act as bioretention filters whilst conveying stormwater.

There would appear to be no natural wetlands located within the study area. There may be an opportunity to redesign existing storage basins to incorporate wetlands

Road Network

Council manages all internal roads within its municipal road construction and maintenance program. Cullulleraine has an adequate network of roads. All internal roads have chip seal carriageway but no concrete kerb and channel to collect stormwater run off. Refer to section 5.4 traffic.



Service Station Entrance from Highway



Informal Access Road Parallel to Highway

5.5.3 Irrigated/Horticultural Areas

Lake Cullulleraine provides an important water resource to an expanding irrigation industry.

The majority of infrastructure associated with irrigation for these large commercial enterprises is privately funded. In relation to these irrigated/horticultural areas the Structure Plan recommends:

- Protection of water resource for irrigation purposes;
- Consolidation of irrigation infrastructure; and
- Upgrade of Beers Roads.



View towards Lindemans vineyards

5.5.4 Cullulleraine Airstrip

Clarification is needed for the future role of the Cullulleraine Airstrip. The airstrip requires upgrading to meet current safety and design requirements

The airstrip currently managed by Committee of Management.

Further investigations with Council and Committee of Management will be necessary to establish the future role of the this important strategic asset.