



Rural Land Strategy

Final Report

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RMCG
Consultants for Business, Communities & Environment

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Executive Summary

Introduction

The Colac Otway Shire is a diverse municipality including the coast, Great Ocean Road and the recently declared Great Otway National Park in the south, and the volcanic lakes of the north. It covers a geographical area of 3,500 square kilometres and has a population of approximately 21,000, half of which live in the town of Colac (Colac Otway Shire 2003). The Shire economy is underpinned by strong agricultural and forestry industries.

The Shire recognises the importance of protecting high agricultural quality land, encourage agricultural diversity and develop a sustainable forestry and timber industry as well providing opportunities for tourism and rural living to ensure the Shire continues to grow. However, it is important that this growth is managed sustainably and the environmental, landscape and agricultural assets that attract businesses, tourists and residents are protected.

In 2005, the Colac Otway Shire commenced a comprehensive review of its Planning Scheme. A component of this work was a review of the rural land within the municipality to inform new rural policy and implementation of the new Rural Zones. This report details the outcomes of the review of rural land. The outcomes of the project will assist the Shire in its review of the planning scheme and the translation of the new Rural Zones.

Agricultural Industries in the Colac Otway Shire

The most significant industries in the Colac Otway Shire are agriculture and forestry and the associated manufacturing industries. In 2001/2002, the contribution made by agriculture (gross value of agricultural production) to the Colac Otway economy was estimated to be \$250 million (18% of total) and directly employing 1,468 people with most of this generated by the dairy industry. The forestry industry contributed \$82 million from gross value of production and \$74 million from timber processing to the Shire economy in 2001/2002 and employed 392 people directly in forest production and a further 315 people in timber processing.

A detailed analysis of the agricultural industries and farm businesses within the Shire found that:

- Agriculture is one of the greatest economic contributors to the Shire with the dairy and beef industries the most significant in terms of land use and economic contribution to the Shire;
- Farm amalgamation has seen the total number of farms within the Shire decline by over 40% in the last 20 years and this trend is likely to continue;
- Over 60% of farms within the Shire are not viable businesses in their own right. These businesses may have to get larger or look to more intensive, alternative enterprises. Some may look to obtain off-farm income if they have not already done so;
- Dairy farms account for 65% of the total contribution made by agriculture to the Colac Otway economy and, along with other forms of broadacre agriculture, will require access to affordable land for future growth and expansion. Future land use planning should enable opportunities for expansion of the medium to large farms;
- Future rural land use in the Colac Otway Shire is likely to comprise a few large farms, some medium family farms and an increasing number of small or part-time farms;
- There has been an increase in demand for rural lifestyle properties;
- There has been an increase in demand for tourism based activities in rural areas;

- The diversity of land uses resulting from change in rural land use may bring conflict between agriculture and land uses;
- Proliferation of dwellings for lifestyle / hobby farm purposes in the Farming Zone will compromise the long term viability of farming in Colac Otway Shire; and
- Proliferation of tourism-based activities in the Farming Zone will compromise the long-term viability of farming in Colac Otway Shire.

As a response to these conclusions it is recommended that the Shire consider the following:

- Identify candidate areas for rural residential development and consider the introduction of the Rural Living Zone focusing on areas with moderate to low agricultural capability, immediately adjacent to townships and that meet the requirements of Ministers Direction 6;
- Consider appropriate dwelling and subdivision provisions for rural areas of the Shire that ensures a strict interpretation of the Farming Zone provisions to ensure incompatible land uses (including dwellings) do not negatively impact on the ability to farm. This will include use of the schedule to the Farming Zone to introduce appropriate minimum subdivision area and an appropriate minimum area for which no permit is required for a dwelling.
- Introduce the Rural Activity Zone to selected areas, which better provide for uses and development, which are compatible with agriculture and the environmental and landscape characteristics of the area with a focus on areas with moderate to low agricultural capability and in close proximity to the coast to provide for tourism.

Minimum Lot Sizes

The current minimum lot size schedule was reviewed to determine if it appropriately reflected the current circumstances. This review recommended that:

- The current minimum lot size provisions as they apply in the Schedule to the Farming Zone be retained;
- In areas identified as candidate for application of the Rural Activity Zone, specify a 40 hectare minimum lot size; and
- A review be undertaken of lots of less than 8 hectares in the context of their agricultural capability, level of dwelling development and proximity to townships with a view to applying the Rural Living Zone in appropriate locations consistent with Minister's Direction 6.

Agricultural Capability

Agricultural capability is one of the key considerations in application of the rural zones. The agricultural capability of the Shire was mapped drawing on a number of existing data sets to identify areas of high medium and low agricultural capability.

The agricultural mapping and analysis of lot sizes and agricultural industries was used to identify farmland of strategic significance.

Forestry Plantations

An analysis of the forestry industry within the Colac Otway Shire found that:

- Timber production and processing is a significant contributor to the economy of the Colac Otway Shire;
- The proclamation of the Great Otway National Park will result in reduced harvesting of native timber and a significant impact on local processors and employment is forecast;
- The growth in timber plantations is not necessarily a driver of rural decline but one of the indicators of the land use change resulting from rural decline;

- Expansion of plantation timber through land purchase of farming land has been found to temporarily inflate land prices which may encourage some farming families to leave farming and reduce opportunities for other farming businesses to expand and grow;
- Expansion of timber plantations on land of lower agricultural capability can provide an opportunity for a farming family to leave farming potentially with a greater sum than would otherwise have been expected;
- Timber plantation expansion through lease arrangements can provide an alternative source of farm income, which for small farms on lower agricultural capability land, may ensure that the farm continues to be used for primary production;
- A significant expansion in the area of timber plantations on farmland of strategic significance could be of concern due to the impacts of higher land prices on farm viability;
- A Land Use Determination for the Gellibrand River notes the importance of consideration of plantation forestry on subcatchment hydrology;
- Barwon Water and Wannon Water would prefer that timber plantation development be limited in declared water supply catchment areas to protect water quality and water yields; and
- GORRLAS provides recommendations to amend the planning scheme to protect views and sight lines from timber harvesting practices.

As a response to these conclusions, it is recommended that the Shire consider the following recommendations:

- Continue to encourage the forestry industry within the Shire due to its significant contribution to the Shire economy and employment.
- Introduce a permit trigger for timber production on land in excess of 40ha in areas identified as being 'farmland of strategic significance' (Map6-2);
- Introduce a permit trigger for timber production on land in excess of 40ha in Declared Water Supply Catchments within the municipality
- Introduce the recommendations of the GORRLAS:
 - Amend the Schedule to the Farming Zone to require a permit for timber production over 40 hectares abutting a Road Zone Category 1.
 - Insert appropriate guidance in the MSS to require protection of indigenous or native vegetation buffer (minimum depth of 20 metres) for timber plantations abutting a Road Zone Category 1.

Environmental Assets and Threats

A broad assessment of environmental assets and threats found that:

- Native vegetation on private land is comprised of many scattered, small remnants which are vulnerable to further decline;
- Salinity is a significant threat, particularly in the northern half of the Shire, to water quality and urban infrastructure;
- Landslides are a significant hazard in the southern end of the Shire associated with steep slopes and high rainfall;
- Water quality of rivers and streams north of the Otway Ranges is generally poor due to the impacts of land clearance and development;
- Flooding is a significant threat north of the Otway Ranges particularly associated with the Barwon River and the lakes system of the Volcanic Plains; and

- Planning scheme recommendations need to ensure that the future use of land for agriculture is adaptable enough to respond to the impacts of climate change.

There is an opportunity to modify existing overlays with more recent mapped data to reflect these findings.

Rural Residential Considerations

The report identified that there is increasing demand for rural lifestyle opportunities and currently there are no areas of land zoned for Rural Living purposes in the Shire. This demand is resulting in *de facto* rural living in the Farming Zone. Candidate areas that have potential for further and more detailed analysis for rezoning to Rural Living were identified at:

- Kewarren;
- Barongarook;
- Gellibrand;
- Forrest;
- Beech Forest;
- Lavers Hill; and
- Elliminyt.

It is recommended that Council prepare a Rural Living Strategy to investigate opportunities for rural residential development in these candidate areas and other small towns across the Shire.

Planning Scheme Recommendations

Based on the analysis in the report, the following recommendations are made:

- Maintain the current minimum lot size provisions in the schedule to the Farming Zone for subdivision.
- Introduce a permit trigger for timber production on land in excess of 40ha in areas identified as being 'farmland of strategic significance' (Map6-2);
- Introduce a permit trigger for timber production on land in excess of 40ha in Declared Water Supply Catchments within the municipality
- Introduce the recommendations of the GORLASS:
 - Amend the Schedule to the Farming Zone to require a permit for timber production over 40 hectares abutting a Road Zone Category 1.
 - Insert appropriate guidance in the MSS to require protection of indigenous or native vegetation buffer (minimum depth of 20 metres) for timber plantations abutting a Road Zone Category 1.
- Maintain the Rural Conservation Zone.
- Apply the Rural Activity Zone to the Apollo Bay Hinterland (Map 10-1) excluding the Coastal Strip and subject to detailed assessment of the impact on landscape character and the environment.
- Specify 40 hectares as the minimum lot size in the schedule to the Rural Activity Zone within the Apollo Bay Hinterland.
- Discuss the application of the Rural Living Zone candidate areas identified in this report with DSE.
- Prepare a Rural Living Strategy to identify appropriate locations for rural residential development across the Shire, including an evaluation as per the rural residential guidelines of Ministerial Direction No. 6 to refine (expand or contract) the candidate rural living areas nominated in this report;

- Introduce a minimum lot size in the Rural Living Zone in the candidate areas in accordance with the existing settlement pattern.
- Review the boundaries of small towns in conjunction with the preparation of the Rural Living Strategy;
- Review the environmental significance and vegetation protection overlays in the rural areas to incorporate more recent mapping of native vegetation and the findings of the Corangamite River Health Strategy.
- Consider the introduction of the Salinity Management Overlay to identified areas as part of the Planning Scheme Review amendment.
- Introduce a Rural Subdivision and Housing local policy.

1 Introduction

The Colac Otway Shire is a diverse municipality including the coast, Great Ocean Road and the recently declared Great Otway National Park in the south, and the volcanic lakes of the north. It covers a geographical area of 3,500 square kilometres and has a population of approximately 21,000, half of which live in the town of Colac (Colac Otway Shire 2003). The two largest towns within the municipality are Colac and Apollo Bay (Map 1-1).

The Shire's Municipal Strategic Statement recognises the importance of agriculture and forestry to the region and the need to protect high agricultural quality land, encourage agricultural diversity and develop a sustainable forestry and timber industry. The Shire also recognises the importance of providing opportunities for tourism and rural living to ensure the Shire continues to grow. However, it is important that this growth is managed sustainably and the environmental, landscape and agricultural assets that attract businesses, tourists and residents are protected.

In 2005, the Colac Otway Shire commenced a comprehensive review of its Planning Scheme. A component of this work was a review of the rural land within the municipality to inform new rural policy and implementation of the new Rural Zones. The suite of new Rural Zones was introduced into the Victorian Planning Provisions via Amendment VC24 in July 2004. The Rural Zones consists of a new Farming Zone, a new Rural Activity Zone, a new Rural Conservation Zone and a revised Rural Living Zone.

Amendment C46 to the Colac Otway Planning Scheme was gazetted on 9 November 2006, which translated the former Rural Zone to the Farming Zone and the former Environmental Rural Zone to the Rural Conservation Zone. This amendment did not compromise this Rural Land Strategy, as an outcome of this Strategy is to review zonings and determine the most appropriate application of rural zones throughout the Shire, including the Farming, Rural Conservation, Rural Activity and Rural Living Zones.

This report details the outcomes of the review of rural land. The review had four major tasks:

- Review the biophysical and environmental aspects of the Shire including land use, soils land suitability, water, salinity, flooding, erosion and minerals;
- Review the agricultural industries including farm viability and rural activities;
- Review the timber plantation industry; and
- Provide appropriate planning scheme responses.

The outcomes of the project will assist the Shire in its review of the planning scheme and confirm the translation of the new Rural Zones. The report is in a form which:

- Creates maps showing agricultural capability and environmental constraints;
- Provides recommendations on the application of the rural zones and minimum lot sizes; and
- Prepares a local policy for rural land issues.



Map 1-1 Colac Otway Shire

2 Process

The Shire of Colac Otway appointed RM Consulting Group to undertake the study in collaboration with Keaney Planning and Research.

2.1 Study Brief

The brief for the study was to update the Colac Otway Planning Scheme with respect to rural land use management. The key tasks involved in this review included:

- Review of the biophysical and environmental aspects of the Shire including land use, soils and land suitability, water, salinity, flooding, erosion and minerals;
- Review of the agricultural industries including farm viability and rural activities;
- Review of the timber plantation industry; and
- Provide appropriate planning scheme responses.

The study was undertaken in the context of the review of the Municipal Strategic Statement and the application of the new rural zones.

It should be noted that the study commenced in June 2005 and that the new Farming Zone and Rural Conservation zones were introduced into the Colac Otway Planning Scheme via Amendment C46 in November 2006.

2.2 Project Stages

The project was carried out in the following stages:

June 2005	Project commencement
July to November 2005	Research and analysis
February 2006	Stakeholder Consultation
May 2006	Draft Report
January 2007	Targeted Consultation (undertaken by Council)
June 2007	Final Report for Public Exhibition

Council exhibited the strategy prior to formal adoption. Adoption will be followed by the amendments to the Colac Otway Planning Scheme, which will be subject to a formal planning scheme amendment process.

3 Planning Policy

The key purpose of the study is to update the Colac Otway Planning Scheme with respect to rural land use management. This chapter of the report summarises the current policy position on rural land use.

3.1 State Planning Policy

The State Planning Policy Framework has the following Objectives relevant to rural land. The recommendations of this report identify Strategies and Actions that will seek to implement these Objectives.

Agriculture

Ensure that the State's agricultural base is protected from the unplanned loss of productive agricultural land due to permanent changes of land use and to enable protection of productive farmland that is of strategic significance in the local or regional context.

Forestry and Timber Production

Facilitate the establishment, management and harvesting of plantations, harvesting of timber from native forests and the development of forest based industries consistent with the National Forest Policy Statement.

Intensive animal industries

Facilitate the establishment and expansion of cattle feedlots, piggeries, poultry farms and other intensive animal industries in a manner consistent with orderly and proper planning and protection of the environment.

Coastal Areas

Protect and enhance the natural ecosystems and landscapes of the coastal and marine environment, ensure sustainable use of natural coastal resources, achieve development that provides an environmental, social and economic balance and recognise and enhance the community's value of the coast.

Tourism

Encourage tourism development to maximise the employment and long-term economic, social and cultural benefits of developing the State as a competitive domestic and international tourist destination.

Rural Residential Development

Control development in rural areas to protect agriculture, landscapes and environmental values.

Encourage the consolidation in existing settlements and discourage development of isolated small lots in rural zones from use for rural living.

Great Ocean Road Region

Protect the landscape and environment and manage the impact of development on catchments and coastal areas and environmental values.

Encourage sustainable tourism and resource use by supporting the land use needs of key regional industries including tourism.

3.2 Local Planning Policy

In recognition of the key features of the Shire previously identified, the Council has adopted an overall vision for the future:

"That the Colac Otway Shire be a safe, balanced and sustainable environment that provides the opportunity for a diversity of people to live, work and visit."

The current strategic objectives of the Colac Otway Planning Scheme for agriculture and rural land are:

Primary Industry

The key objective is to build on existing strengths by promoting development which is environmentally responsible whilst facilitating the development of new value-adding processes and encouraging diversification into "niche" markets, especially those providing links to the tourist industry. (Refer 21.04-05)

Natural Resources and Cultural Heritage Management

The key objective is to manage the natural and cultural resources of the Shire in a sustainable manner to balance the needs of the future with protection for the key elements of the natural and cultural environment which are fundamental to the prosperity of the Shire. (Refer 21.04-02)

Tourism

The key objective is to encourage growth in tourism in a way that assists diversification in the economy and ensures the protection of those key environmental features that are the basis of the attraction to the area. (Refer 21.04-07)

Otway Ranges and foothills

The key objective is to protect those key environmental features and catchment areas which are of National and Regional significance whilst facilitating key primary industries and a range of developments to add to the economic base of the Shire. (Refer 21.04-02)

Northern Plains and Lakes

The key objective is to maintain the viability of large scale agriculture and the retention of high quality land, recognising the environmental significance of key sites while allowing limited diversification into new uses and providing for the accommodation of tourist related development. (Refer 21.04-02)

These strategic directions are implemented through the Planning Scheme by:

- Applying the Farming Zone of the majority of the rural area, with subdivision sizes and lot sizes for dwellings based on minimum areas for farming system sustainability with sizes ranging from 40ha to 80ha.
- Applying the Rural Conservation Zone to those areas that have special environmental characteristics;
- Applying the Environmental Significance Overlay, Vegetation Protection Overlay and Significant Landscape Overlay to those areas that have special environmental and landscape significance;
- Using Policy and the exercise of discretion with respect to house lot excisions in rural areas to ensure that the creation of small lots and excision of dwellings is consistent with the zone objectives and with Council's strategic objectives

3.3 New Rural Zones

The State Government introduced new rural zones in June 2004 through Amendment VC24 to the Victorian Planning Provisions. The new rural zones consist of the:

- *Farming Zone* that replaces the Rural Zone and is the main zone for agricultural areas. The purpose of the Farming Zone is to encourage retention of productive agricultural land and discourage uses that may have adverse impacts on agriculture.
- *Rural Activity Zone*, a new zone that provides for agriculture and other uses. The purpose of the Rural Activity Zone is to provide for agriculture and other uses that are compatible with the agricultural, the environmental and landscape values of the area
- *Rural Conservation Zone* that replaces the Environmental Rural Zone for land with significant environmental values; and
- *Rural Living Zone* that upgrades the existing Rural Living Zone and provides for rural residential areas.

The Colac Otway Planning Scheme incorporated the new suite of Rural Zones in November 2006 via a direct translation of Rural Zoned land to the Farming Zone and Environmental Rural Zoned land to Rural Conservation Zone. The examination of the rural strategy will seek to confirm the outcomes of the direct translation and identify candidate areas for application of the Rural Activity and Rural Living Zone.

4 Agricultural Industries in the Colac Otway Shire

4.1 Economic value of industries in the Colac Otway Shire

Traditionally the major industries in the Colac Otway Shire have been agriculture, forestry, food processing and tourism. Agriculture and associated manufacturing industries (food and timber processing) make the greatest contribution to the Shire's economy and is the Shire's most significant employer. A breakdown of the contribution made by major industries to the Colac Otway Shire economy is shown in Table 4-1. Employment figures are outlined in Table 4-2

In 2001/2002, the contribution made by agriculture (gross value of agricultural production) to the Colac Otway economy was estimated to be \$250 million (18% of total) and directly employing 1,468 people. Of this, \$130 million (9% of total) is generated by the dairy industry, which directly employs 797 people. There is a significant added benefit from the food processing industry based around milk production, ice cream, yoghurt, cheese and meat processing which contributes \$179 million to the Shire and employs 580 people.

The forestry industry contributed \$82 million from gross value of production and \$74 million from timber processing to the Shire economy in 2001/2002. The forestry industry employed 392 people directly in forest production and a further 315 people in timber processing in 2001/2002 representing 9% of all jobs in the Shire.

Table 4-1: Estimated contribution made by major industries to the Colac Otway Shire economy in 2001/2002*

Industry	Direct contribution to the Colac Otway Shire economy (\$millions)	Direct contribution to the Colac Otway Shire Economy (%)
Total Manufacturing	314	23%
Food processing	(179)	(13%)
Timber processing	(74)	(5%)
Retail	268	19%
Agriculture & forestry	250	18%
Dairy	(130)	(9%)
Forestry	(82)	(6%)
Professional services	172	12%
Tourism	159	12%
Trades services	137	10%
Health and Community service	87	6%
Total	1,387	100%

* Regional Innovation et al 2004

Table 4-2: Direct employment in agricultural and timber industries in the Colac Otway Shire*

Industry	Jobs	% of total
Total Manufacturing	1,160	13%
Food processing	(585)	(7%)
Timber processing	(315)	(4%)
Total Agriculture and forestry	2,350	27%
Dairy	(797)	(9%)
Forestry	(392)	(5%)
Other industries	5,223	60%
Total	8733	100%

* Regional Innovation et al 2004

4.2 Colac Otway Shire Agricultural Industries

An analysis of the agricultural industries within the Shire was undertaken to provide insights into the trends within industries and across the agricultural sector that may influence the recommendations for application of the rural zones. This included an analysis of the:

- Industry sectors i.e. the types of agricultural industries;
- Trends in farm business size (production levels and farm size);
- Farm viability;
- Viable farm size; and
- Changes and trends in Victorian agriculture.

It is important to note that the agricultural industry data used in this report is an historical snapshot of average economic conditions and therefore there will be local examples that differ, for example income per hectare or the amount of gross sales generated to make a viable farm. The data is used primarily to demonstrate trends and importantly identifies the requirements for and type of planning scheme responses to address these trends

4.3 Agricultural Industry Sectors

More than half the properties in the Shire are dairy farms with beef production the next most common industry. The dairy industry is focused primarily west and north west of Colac, while the beef industry is focused to the east and north east of Colac. The dairy and beef industries make the most significant contribution of all agricultural industries to the Colac Otway Shire economy. Table 4-3 lists the number of properties, area and gross value of agricultural production for each agricultural industry within the Shire.

Table 4-3: Number of producers, area and gross value of agricultural production by agricultural industry in 2001 (Australian Bureau of Statistics)

Industry	Total number of producers	Area of commodity (ha)	Average area / producer (ha)	Area of commodity as a percentage of total farmed area	Gross value of agricultural production (\$ millions)	Gross Value of agricultural production as a percentage of total
Dairy	381	49,500	130	44%	100.5	65%
Beef	436	37,900	87	33%	36.8	24%
Vegetables	15	259	17	2%	7.2	5%
Pigs	9	Not available			2.8	2%
Sheep (wool)	136	18,200	134	17%	4.7	2%
Poultry	3	Not available			Not available	
Plant nurseries	7	9	1	<1%	0.9	<1%
Grain	75	4,149	55	4%	2.2	2%
Cut flowers	2	4	2	<1%	0.2	<1%
Total	1,064	110,021	103	100%	155.3	100%

4.3.1 Trends in Farm Businesses over Time

Data in Table 4-4 provides an indication of the number of farms, hectares of crop or number of animals and production by agricultural commodity for the years 1983 and 2001, which were full agricultural census years. This data shows that:

- The number of dairy cows has changed little, but the number of dairy farms has dropped by 44% indicating a significant amalgamation of dairy farms;
- The number of beef cows has increased by 19%, but the number of beef farms has dropped by 38% again indicating significant amalgamation of beef holdings;
- The area of grain has increased slightly and there are fewer grain growing properties but there has been a significant increase in production possibly attributable to improved techniques such as raised bed cropping;
- Wool production and vegetable production have decreased significantly in all aspects; and
- Total farm number has decreased by 43% between 1983 and 2001.

These trends within the municipality reflect the wider trends of increasing average farm size and decline in total farm number observed throughout Victoria (Barr 2005).

Table 4-4: Area, production (tonnes or number of animals) and number of farms for each agricultural industry in 1983 and 2001

Commodity	Area, production and number of farms	1983	2001	Change
Dairy	Number of cows	94,264	99,062	5%
	Number of farms	681	381	-44%
Beef	Number of cows	47,758	56,918	19%
	Number of farms	706	436	-38%
Vegetables	Hectares	573	259	-55%
	Tonnes	12,732	6,656	-52%
	Number of farms	68	15	-79%
Sheep	Tonnes of wool	1,235	852	-31%
	Number of sheep shorn	365,171	218,699	-40%
	Number of farms	273	136	-50%
Nurseries/Cut flowers	Hectares	0	13	
	Number of farms	0	9	
Grain	Hectares	3,504	4,149	18%
	Tonnes	2,523	14,992	500%
	Number of farms	114	75	-34%
Total Farm Number		1,842	1,053	-43%

Planning Scheme Implications

The implications of these trends may include a continuing decline in the population in rural areas of the Shire and an increase in the number of vacant farm dwellings as farms are amalgamated. As discussed further in Section 10.4, Council may want to consider its local policy and provisions regarding dwellings in rural areas based on the clear evidence of farm amalgamations and the need to increase farm sizes to remain economically viable.

The trends also suggest that in order to assist farm amalgamation, Council may have to consider policy directions on subdivision of rural land, especially small lot excisions, to ensure subdivision and excisions do not negatively impact upon the future amalgamation and growth of farms.

Both of these trends will require a strict interpretation by Council of the Farming Zone provisions to ensure incompatible land uses (including dwellings) do not negatively impact on the ability (or 'right') to farm.

4.3.2 Farm Viability

For a full-time farming household, business viability is based on its capacity to:

- Generate sufficient disposable income to pay living expenses, invest in farm production and service debt; and
- Support more than one household as the farm is passed to the next generation.

For the purposes of this report, a farm is considered to be:

- Land not less than 2 hectares that is used primarily for agricultural purposes;
- A business that has a significant and substantial commercial purpose or character and seeks to make a profit on a continuous or repetitive basis from its activities on the land;

- Is making a profit from its activities on the land, or has a reasonable prospect of making a profit from its activities on the land if it continues to operate in the way that it is operating.

Note this definition is consistent with that in the *Valuation of Land Act 1960*.

RMCG has a significant database of agriculture and horticulture benchmarking data. This suggests that a viable farm should generate a minimum gross annual income of between \$270,000 and \$300,000. Note that these figures are based on national averages and there will be individual cases where a viable farm generates more or less than \$300,000 gross sales. The income from farm businesses across the Shire has been segmented based on the Estimated Value of Agricultural Operations sourced from the Australian Bureau of Statistics Census (2001) and is shown in Table 4-5.

Table 4-5: Estimated Value of Agricultural Operations by Agricultural Industry

Industry	Part Time Properties (<\$100k)	Small Properties (\$100k – 200k)	Medium Properties (\$200 - \$500k)	Large Properties (\$500k - \$1 mill)	Dynamic Properties (>\$1 mill)	Total Properties
Dairy	53	124	170	36	3	386
Beef	178	13	7	0	0	198
Mixed Livestock	34	6	9	1	0	51
Vegetables	2	2	8	1	1	15
Mixed Cropping	2	2	6	2	0	12
Pigs	0	0	1	1	1	3
Sheep	15	2	2	1	0	21
Poultry	0	0	0	0	1	1
Plant nurseries	4	1	1	1	0	7
Grain	0	2	1	0	0	3
Horses	4	0	0	0	0	4
Cut flowers	4	0	0	0	0	4
Deer	2	0	0	0	0	2
Grapes	1	0	0	0	0	1
Total	299	152	205	43	6	705
% of Total	42	22	29	6	1	100

Note that these statistics represent a snapshot in time and are average figures only and there will be individual cases where a viable farm generate more or less gross sales.

This data indicates that 64% of farms within the Shire generate less than \$200,000 per annum placing them in the part time and small farm category. These would include lifestyle farms where some income is generated off-farm and older farm businesses with little or no debt. This suggests that a significant number of farms within the Shire will need to expand, change operation, look to alternative land uses such as plantation forestry, farm-based tourism or find off-farm income to remain viable.

The impact of these trends was noted during the ground survey of the Shire. South of the Otway Ranges, there was a trend towards farming for lifestyle purposes as well as agricultural based

tourism. This trend is linked to the agricultural capability of the area (discussed further in Section 6) and the proximity to the Great Ocean Road and coast.

Other points to note from this table are:

- 45% of dairy farms fall into the part time and small farm category indicating that there may be further amalgamation of dairy farms in the near future;
- Only seven of the 198 beef properties are considered economically viable with the rest falling into the part time and small property categories. This may be associated with a large number of 'lifestyle' properties; and
- Of the 20 sheep producers, only three are considered economically viable with 17 falling into the small and part time category.

Planning Scheme Implications

Rural land traditionally used for farming is being used for lifestyle purposes in the absence of land zoned for Rural Living. The Shire needs to consider identifying land for Rural Living purposes to prevent unplanned Rural Living in the Farming Zone and the associated problems of increasing property values inhibiting farm growth, servicing, provision of infrastructure and conflict with adjoining land uses.

Property owners may seek alternative land uses such as intensive animal husbandry, farm based-tourism and plantation forestry to supplement farm income. The Shire may need to consider which uses it will seek to encourage or discourage and preferred locations for these uses, along with the possible application of the Rural Activity Zone to better provide for other uses and development which are compatible with agriculture and the environmental and landscape characteristics of the area including (but not limited to) tourism based activities such as group accommodation.

4.3.3 Changes and trends in Victorian agriculture

In the report *The changing social landscape of rural Victoria* (Barr 2005), the drivers of change in the social landscape across rural Victoria are identified and discussed. This report provides insights into the changes observed in farming across Victoria but also the likely trends in farming and rural communities that can be expected into the future.

The key points from this report are summarised below.

- Declining terms of trade due to the rate of increased agricultural production outstripping the rate of increase in demand resulting in reduced product prices;
- Increase in farm size to increase productivity and maintain income;
- Fewer farms - an average 1.5% decline in the number of farm across Australia;
- Large farms – the largest 10% of farms produce over 50% of the agricultural production;
- Competition for land from other land purchasers; and
- Inevitable population decline both on farms but also in small towns as the farm sector is decoupled from the small town economy and the absence of other industries.

The report identifies the Colac Otway Shire as an amenity and transitional landscape due to its landscape values, proximity to water and the coast, moderate climate and proximity to major urban centres and as a result migrants are attracted to this area. This is likely to have a number of consequences for agriculture in the Shire:

- Land values may increase higher than a broadacre farm can afford resulting in reduced viability and families will explore other paths to productivity that do not require land purchase;
- To remain viable, farming families must either intensify production from the existing land base eg horticulture, farm-stay tourism, leasing of land for plantation forestry or find off-farm work;
- Younger farmers will seek off farm work and older farmers may continue on the farm with little prospect of passing on the farm to future generations;
- This change may result in better prospects for small towns;
- Alternative new land uses such as timber plantations have raised land values and offered the opportunity for farmers to leave the industry with a sum that exceeded their expectations;
- Retirees and lower income migrants are moving to small rural towns; and
- The diversity of land uses may bring conflict between production, amenity and forestry.

More specifically, the following trends were predicted in the Colac Otway Shire:

- On land with moderate to low agricultural capability which has fewer options for diversification we may see the following:
 - Farm businesses expanding to secure long term viability but only where there is access to affordable land; or
 - Farm businesses may look to alternative forms of land use to generate income, eg. tourism or plantation forestry;
 - Conversion of farms from primary production to lifestyle or boutique land uses.
- In areas with high agricultural capability, farms are likely to expand and be fewer in number.

The trends noted in the Barr study closely reflect those identified in the previous sections of this report indicating that what is occurring in the Colac Otway Shire is not unusual and is consistent with rural land use change occurring across the State.

Planning Scheme Implications

Introduction of the Farming Zone can provide a level of confidence to farmers when making long-term farm business decisions.

Provision of planned rural living estates can assist in preventing land use conflict, problems of servicing and infrastructure provisions and inflation of land values above the productive value of the land.

The Shire will need to consider its position on alternative uses of farming land including tourism, intensive animal husbandry and plantation forestry and introduce planning responses in appropriate area, including the Rural Activity Zone, to assist diversification of land uses.

4.4 Conclusions

From the analysis of agricultural activity in the Colac Otway Shire and the statewide trends in agricultural land use, the conclusions can be summarised as follows:

- Agriculture is one of the greatest economic contributors to the Shire with the dairy and beef industries the most significant in terms of land use and economic contribution to the Shire;
- Farm amalgamation has seen the total number of farms within the Shire decline by over 40% in the last 20 years and this trend is likely to continue;
- Over 60% of farms within the Shire are not viable businesses in their own right. These businesses may have to get larger or look to more intensive, alternative enterprises. Some may look to obtain off-farm income if they have not already done so;
- Dairy farms account for 65% of the total contribution made by agriculture to the Colac Otway economy and, along with other forms of broadacre agriculture, will require access to affordable land for future growth and expansion. Future land use planning should enable opportunities for expansion of the medium to large farms;
- Future rural land use in the Colac Otway Shire is likely to comprise a few large farms, some medium family farms and an increasing number of small or part-time farms;
- An increase in demand for rural lifestyle properties is predicted;
- An increase in demand for tourism based activities in rural areas is predicted;
- The diversity of land uses resulting from change in rural land use may bring conflict between agriculture and other uses;
- Proliferation of dwellings for lifestyle/hobby farm purposes in the Farming Zone will compromise the long term viability of farming in Colac Otway Shire; and
- Proliferation of tourism-based activities in the Farming Zone will compromise the long-term viability of farming in Colac Otway Shire.

4.5 Planning Scheme Recommendations

As a response to these conclusions it is recommended that the Shire consider the following:

- Identify candidate areas for rural residential development and consider the introduction of the Rural Living Zone focusing on areas with moderate to low agricultural capability, immediately adjacent to townships and that meet the requirements of Ministers Direction 6;
- Consider appropriate dwelling and subdivision provisions for rural areas of the Shire that ensures a strict interpretation of the Farming Zone provisions to ensure incompatible land uses (including dwellings) do not negatively impact on the ability to farm. This will include use of the schedule to the Farming Zone to introduce appropriate minimum subdivision area and an appropriate minimum area for which no permit is required for a dwelling.
- Introduce the Rural Activity Zone to selected areas, which better provide for uses and development, which are compatible with agriculture and the environmental and landscape characteristics of the area with a focus on areas with moderate to low agricultural capability and in close proximity to the coast to provide for tourism.

5 Minimum Lot Sizes

The Colac Otway Shire requested that the minimum lot sizes as they currently apply in the Farming Zone be reviewed.

The schedule to the Farming Zone currently states:

Minimum subdivision area (hectares)	Land south of Princes Highway and land west of Ballarat Road.	40 hectares
	Land north of the Princes Highway and land east of Ballarat Road	80 hectares
Minimum area for which no permit is required to use land for a dwelling (hectares)	Land south of Princes Highway and land west of Ballarat Road.	40 hectares
	Land north of the Princes Highway and land east of Ballarat Road	80 hectares
Minimum area for which no permit is required to use land for timber production (hectares)	Land south of Princes Highway and land west of Ballarat Road.	None specified
	Land north of the Princes Highway and land east of Ballarat Road	None specified

Future growth and expansion of agriculture can be supported through the planning scheme by maintaining a supply of larger lots through an appropriate minimum lot size in the Farming Zone. The schedules to the Farming Zone, the Rural Activity Zone and the Rural Living Zone provide an opportunity for municipalities to nominate minimum lot sizes for subdivision. Unless the Shire nominates a minimum lot size, the default is 40 ha in the Farming Zone and 8ha in the Rural Living Zone. There is no default minimum lot size in the Rural Activity Zone.

It is notable that there at present there is no restriction placed on the use of any land in the Shire for timber production. The schedule to the Farming Zone is the appropriate place to insert such a restriction if it can be justified. This is discussed further in Section 7 of this report.

This section of the report intends to provide some guidance to nominating minimum lot sizes for the Farming Zone and Rural Activity Zone, which both have agriculture as the primary use.

5.1 Lot Sizes across the Shire

Table 5-1 and Map 5-1 shows the distribution of parcel sizes (including crown allotments) within the Farming Zone across the Colac Otway Shire. The data in Table 5-1 indicates that there is already a large supply of small lots with most parcels (88%) being 40 hectares or smaller. In this context, it is important to note that any identification of land for the Rural Living Zone will not add to the number of small parcels, as it would only be applied to areas that have already been subdivided meaning that it will not increase the supply of small lots significantly.

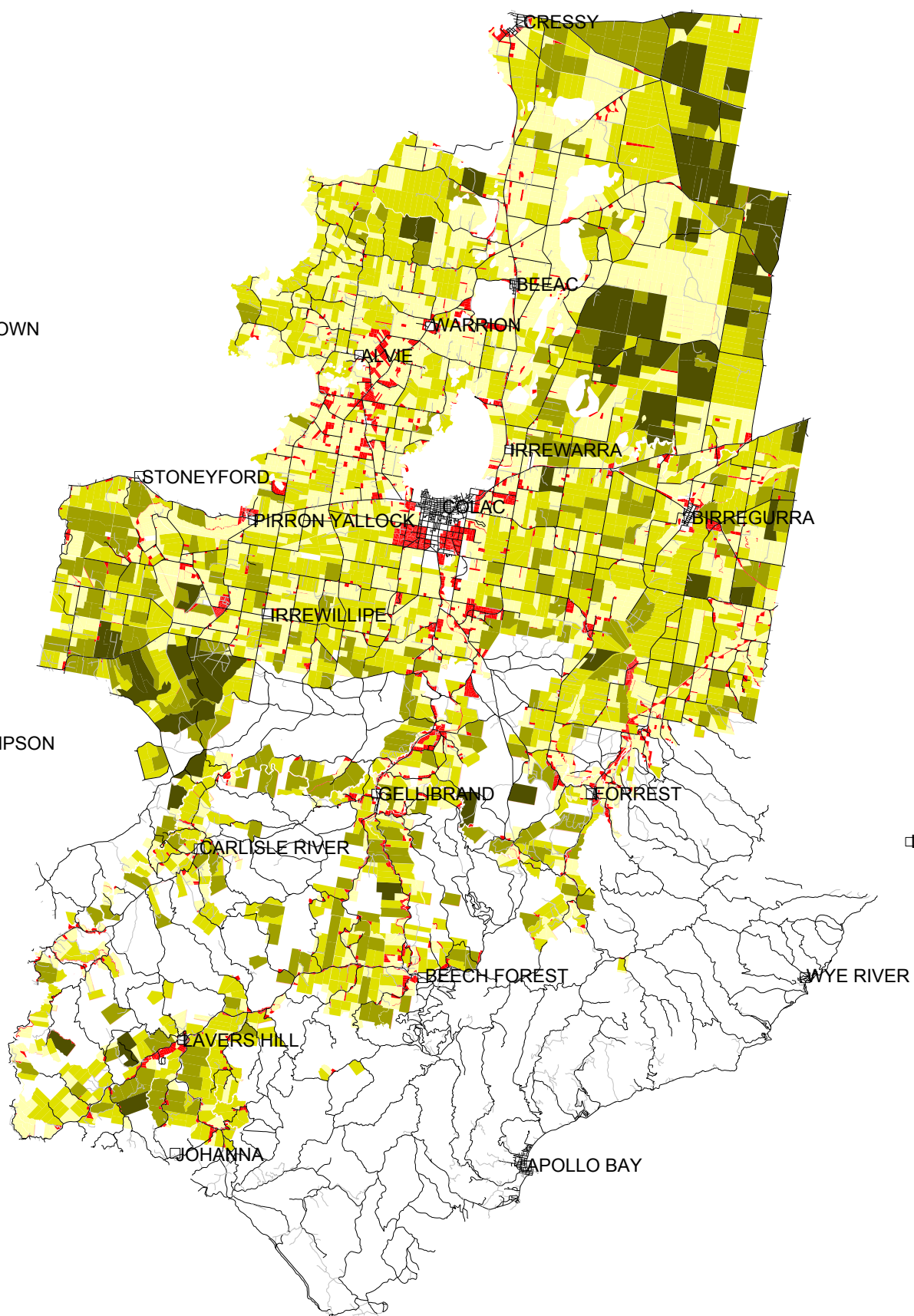
The DSE Planning Practice Note “Applying the Rural Zones” (March 2007) identifies that the existing size or pattern of allotments is not, of itself an appropriate basis for applying a particular zone. The Practice Note offers the example of the Rural Living Zone on small lot subdivisions, as often a viable farm may encompass several small lots (eg crown allotments). The Practice Note does however go on to state that where an area is substantially subdivided and developed for dwellings, it may be suitable for the Rural Living Zone.

Section 4.5 of this report has also identified that the Rural Activity Zone may have specific application for those parts of the Shire which provide for use and development which is compatible with agriculture as well as with the environmental and landscape characteristics of the area.

It is noted that this analysis relates much more to the 'use' of the land than it does to the 'subdivision' of the land. Indeed, no justification has emerged for a change in the minimum lot size irrespective of the zoning of the land, hence it is recommended that, in the event of a rezoning, the schedule to the Rural Activity Zone specify that the minimum lot size remain at 40 hectares.

Table 5-1: Distribution of parcel sizes (ha)

Lot size	Number of parcels	Number of parcels as a % of total parcel number
<160 ha	62	1
80 – 160	313	3
40 – 80	1249	14
8 – 40	3010	33
2 - 8 ha	1556	17
0.1 - 2ha	2940	32



Rural Zone Parcel Size Analysis 2006

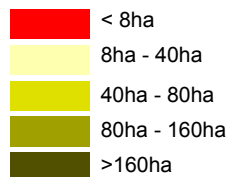
Cadastral Information from Land Victoria,
Department of Sustainability & Environment.

Disclaimer Note

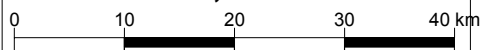
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Parcel Size Category



Scale 1:687,036



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5.2 Viable Farm Size

While viable farm size *per se* is not a useful indicator of minimum lot size, it can be used to assess the lot sizes that will facilitate farm growth and expansion over time.

Agriculture faces a long term decline in the terms of trade and farm businesses need to increase productivity or expand to remain viable, usually both. In the face of this decline, property size will need to double approximately every 20 years for farm businesses to remain viable into the future. If farming businesses cannot expand, then the enterprises must change to generate more income from the same area. Therefore, future land use planning should enable opportunities for expansion of the medium to large farms.

Different farming systems require different land areas to generate \$300,000 gross sales. For example a beef farm generating \$400/effective hectares will require 750 ha of land to generate \$300,000; a dairy farm generating \$4,000/effective hectares will require 75 ha. Some farm businesses, e.g. vegetables will be able to conduct their activities on smaller holdings. For part time farms, supported as they are by off farm income, there is less emphasis on the need to have available land for expansion.

The farm size required to support a viable business for a range of enterprises is outlined in Table 5-2. To double in size every 20 years, farms will need to expand on average by 5% per year to remain viable. In reality most farms expand at higher percentages but every few years (eg 25% expansion every 5 years). The area for 25% growth every five years for various enterprises is outlined in Table 5-2. A dairy farm will need to acquire 40 hectares every 5 years and a grazing business, 160 hectares every 5 years.

This suggests that the minimum lot sizes as they currently apply in the Schedule to the Farming Zone should be retained. There is sufficient supply of small lots to meet demand for intensive agricultural businesses such as vegetables.

Table 5-2: Estimate of viable farm size and annual growth

Enterprise	*Average Income/ha	Farm Size (ha) to generate \$300,000	Area for 25% growth every 5 years
Dairy	1,500	200	40
Beef/Sheep	400	750	160
Vegetables (numerous)	15,000	20	5

Note: These statistics represent a snapshot in time and are average figures only. There will be individual cases where income per hectare differs from these figures and where a viable farm generates more or less than \$300,000 gross sales. *Note also that income/ha is dependant on a range of factors, which may vary significantly between any season and any farm. It does not necessarily equate to profit. This has been collected from a range of industry sources including South West Monitor Project 2004-2005, Department of Primary Industry; Australian Dairy 2005: Production Systems, Productivity and Profit, Dairy Australia.

This study demonstrates that where there is a pattern of small lot subdivision on land with low to moderate agricultural capability, viable farming will not be possible.

5.3 Planning Scheme Recommendations

In response to the issues raised in relation to lot sizes and viable farm size, it is recommended that the Shire consider the following:

- Retain the current minimum lot size provisions as they apply in the Schedule to the Farming Zone;
- In areas identified as candidate for application of the Rural Activity Zone specify a 40 hectare minimum lot size; and
- Review lots of less than 8 hectares in the context of their agricultural capability, level of dwelling development and proximity to townships with a view to applying the Rural Living Zone in appropriate locations consistent with Minister's Direction 6.

6 Agricultural Capability

6.1 Assessment of Agricultural Capability

The Planning Practice Note: Applying the Rural Zones (2007) notes that the Purpose of the Farming Zone is to provide for the use of land for agriculture and to encourage retention of productive agricultural land. Productive agricultural land is defined in the Practice note as having one or more of the following characteristics:

- Suitable soil type
- Suitable climatic conditions
- Suitable agricultural infrastructure, in particular irrigation and drainage systems
- A pattern of subdivision favourable for agricultural production.

This section of the report outlines the approach taken to the analysis of soil types in the Shire and the classification of agricultural capability.

The Rural Land Use Mapping Project – Shire of Otway (Ministry for Planning and Environment) documents and maps the agricultural quality of land from the Otway Ranges to the coast at a scale of 1:50,000. The classification of the agricultural quality was based on land use, productivity, versatility and other attributes such as proximity to infrastructure.

A similar study was not undertaken for the land north of the Otway Ranges. The agricultural capability of this land has been mapped in conjunction with this study using soils data documented and mapped in:

Soil and landforms of south-western Victoria Part 1. Inventory of soils and their associated landscapes (1987) Maher, J.J. and Martin, J.J. Department of Agriculture and Rural Affairs; and

A study of land in the catchment of the Otway Range and Adjacent Plains (1981) Pitt, A.J. Soil Conservation Authority.

While these are excellent resources in describing the various soil types across the Shire, the associated mapping is at a very broad scale (1:250,000 and 1:100,000). At this scale, there is considerable variation within each mapped soil unit and the agricultural capability would reflect the attributes of the dominant soil type.

The agricultural capability for this study has been mapped at 1:100,000, which is considered the minimum for providing broad-scale recommendations to the strategic planning framework. The mapping was groundtruthed by visual inspection.

The rural areas of the Shire north of the Otway Ranges were classed as high, medium or low agricultural capability based on the criteria in Table 6-1.

Table 6-1: Agricultural Capability Classes and Criteria for Classification

Criteria	Agricultural Capability Classes		
	High	Medium	Low
Soil type*			
Topsoil depth	>20cm	10-20cm	<10cm
Topsoil texture	Loam and lighter	Clay loam and lighter	Light clays and lighter
Subsoil texture	Light-medium clays and lighter	Medium – heavy clays and lighter	All
Slope	0 – 5%	5-10%	>10%
Erosion hazard	Low	Medium	High

* Appendix 2 has a full description of the soils of the study area.

Land of high agricultural capability is generally suited to a wider range of agricultural uses than land of medium and low agricultural capability. Land of high agricultural capability can generally support more intensive uses e.g. dairying, horticulture, where as land of medium agricultural capability is more suited to less intensive industries such as grazing and cropping and low agricultural capability land has few options other than grazing.

Map 6-1 shows the agricultural capability of land within the Colac Otway Shire combining the mapping output from the Rural Land Mapping Project and from this project. Note that the scale of mapping north of the green line is 1:100,000 and south of the green line 1:50,000.

The high agricultural capability soils are generally associated with the grey calcareous and gradational soils of the undulating plains to the north, west and south of Colac and are mainly used for dairying. A large area of medium capability land north east of Colac is used extensively for grazing and is associated with black duplex and grey calcareous soils of the plains to the north-east of Colac. This land is generally used for grazing with some raised bed cropping. Note that on the eastern shores of Lake Corangamite, the dominant soil type is of high agricultural capability, but is interspersed by rocky outcrops and small volcanic lakes, which reduce the agricultural capability of the area. This is not recorded in the mapping due to the broad scale.

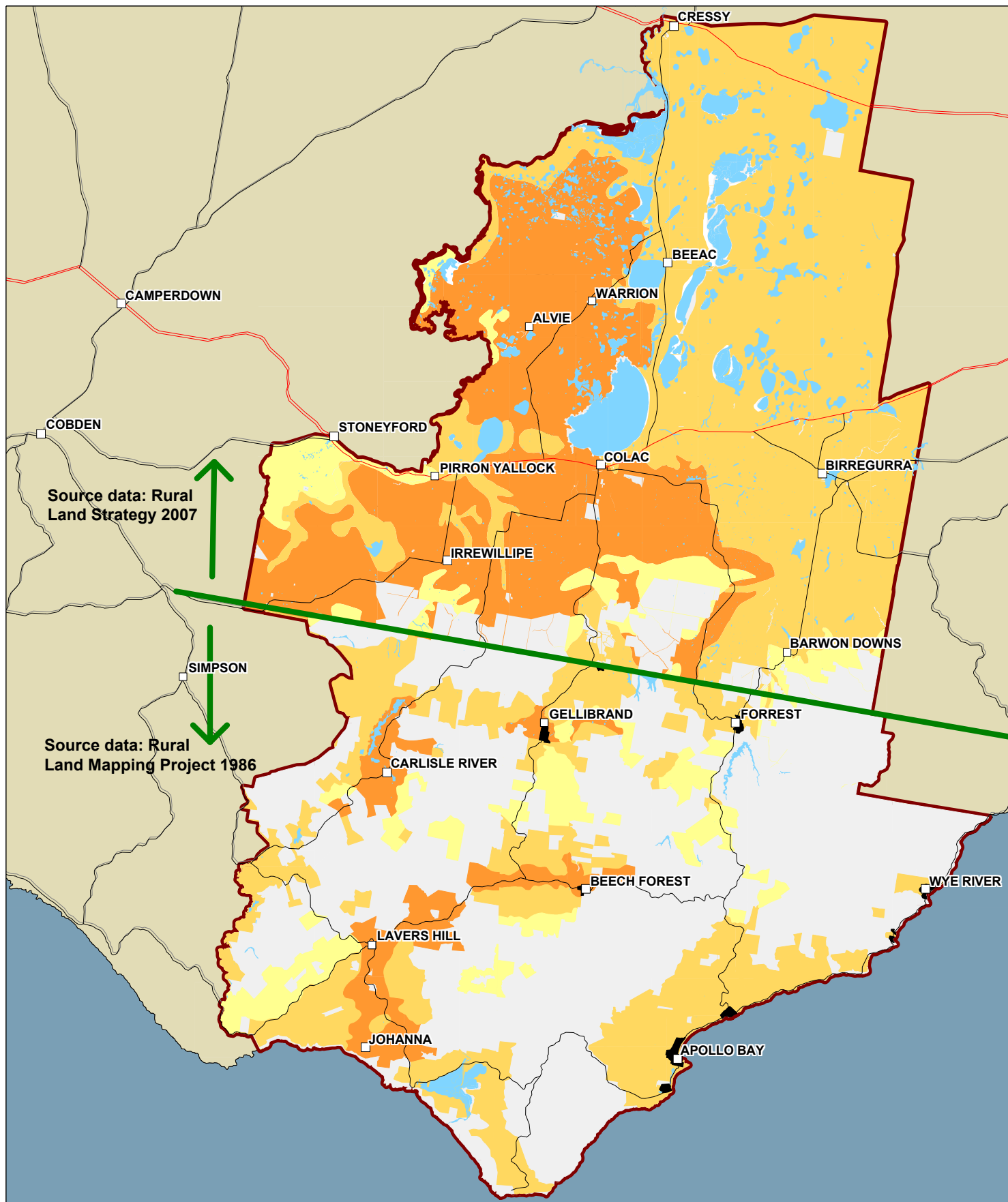
South of Colac, as the landscape becomes more undulating, agricultural capability is generally medium to low. Through the Otway Ranges, the land is very steep and agricultural capability is generally low. Note that there are some areas of high agricultural capability close to Beech Forest and Lavers Hill.

Along the coastal fringe of the Shire, there is a mix of mainly medium and low agricultural capability land interspersed with areas of medium and high agricultural capability e.g. the river valleys. The medium and low agricultural capability land can be gently to steeply undulating and is generally used for grazing. On the high and some of the better medium agricultural capability land, dairying and potato production were quite common in the past. However, grazing and lifestyle/boutique farming seems to predominate through these areas. Plantation forestry is also emerging as a common land use.

Information presented previously in this report and assessment of agricultural capability (including groundtruthing) indicates a shift away from agriculture in some areas of the Otway Ranges, particularly in areas of low to moderate agricultural capability. This shift has been towards other income generating activities such as tourism and is linked with the natural environment and landscape characteristics of the area. This is a key consideration in determining the appropriate zone for these areas, especially the Rural Activity Zone.

Planning Scheme Considerations

That agricultural capability mapping be utilised to assist in the application of the Farming Zone, Rural Living Zone and Rural Activity Zone.



Agricultural Capability

Cadastral Information from Land Victoria,
Department of Sustainability & Environment.

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Legend

- High Agricultural Capability
- Medium Agricultural Capability
- Low Agricultural Capability
- Lakes/reservoirs
- Public Land



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6.2 Farmland of Strategic Significance

As noted in Section 3.1, the SPPF Objective for Agriculture is to:

Ensure that the State's agricultural base is protected from the unplanned loss of productive agricultural land due to permanent changes of land use and to enable protection of productive farmland that is of strategic significance in the local or regional context.

In reviewing rural land use, Council sought to identify areas within the Shire that were of local or regional significance which may require specific planning outcomes. To identify farmland of strategic significance the following criteria were applied to all land currently zoned Farming:

- Areas of high quality agricultural land;
- Areas with a pattern of allotments and settlement conducive to agriculture; and
- Economic contribution of an area to the Shire economy.

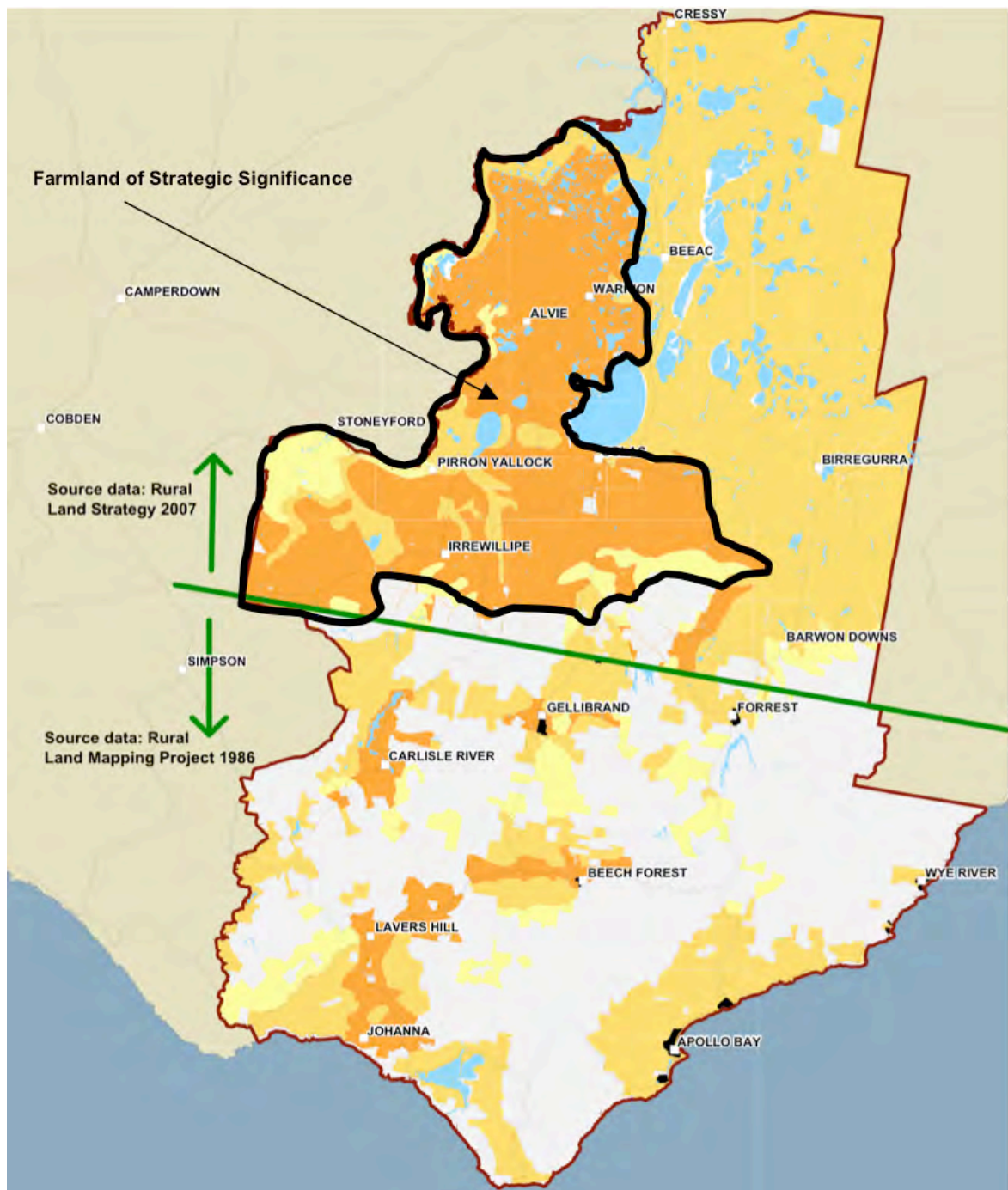
Based on Map 6-1 Agricultural Capability and Map 5-1 Lot size distribution across the Colac Otway Shire and the analysis of agricultural industries at Section 4 of this report, areas of farmland of strategic significance are identified in Map 6-2. This area is considered "farmland of strategic significance" regionally due to the high value dairying and associated manufacturing which provides significant economic benefit to the region. It has a pattern of subdivision favourable for sustainable agricultural production and the current land use, agricultural capability and rainfall provides an environment in which farm businesses are able to respond quickly to market signals and capitalise on seasonal opportunities.

Note that other areas of the Shire were considered for inclusion as 'farmland of strategic significance,' for example, high agricultural capability land in the Otways. The economic value of agricultural production from other areas is currently not sufficiently significant to merit their inclusion as 'farmland of strategic significance.'

Planning Scheme Considerations

That the map of farmland of strategic significance be considered in the application of schedules to the Farming Zone.

Map 6-2 Farmland of Strategic Significance



7 Forestry Plantations

Plantation forestry on private land is emerging as a significant segment of the forestry industry in the Colac Otway Shire. A review of the forestry industry, focussing on plantations on private land, was undertaken to determine the need for and type of planning scheme response.

7.1 Forestry Industry in Central Victoria and Colac Otway

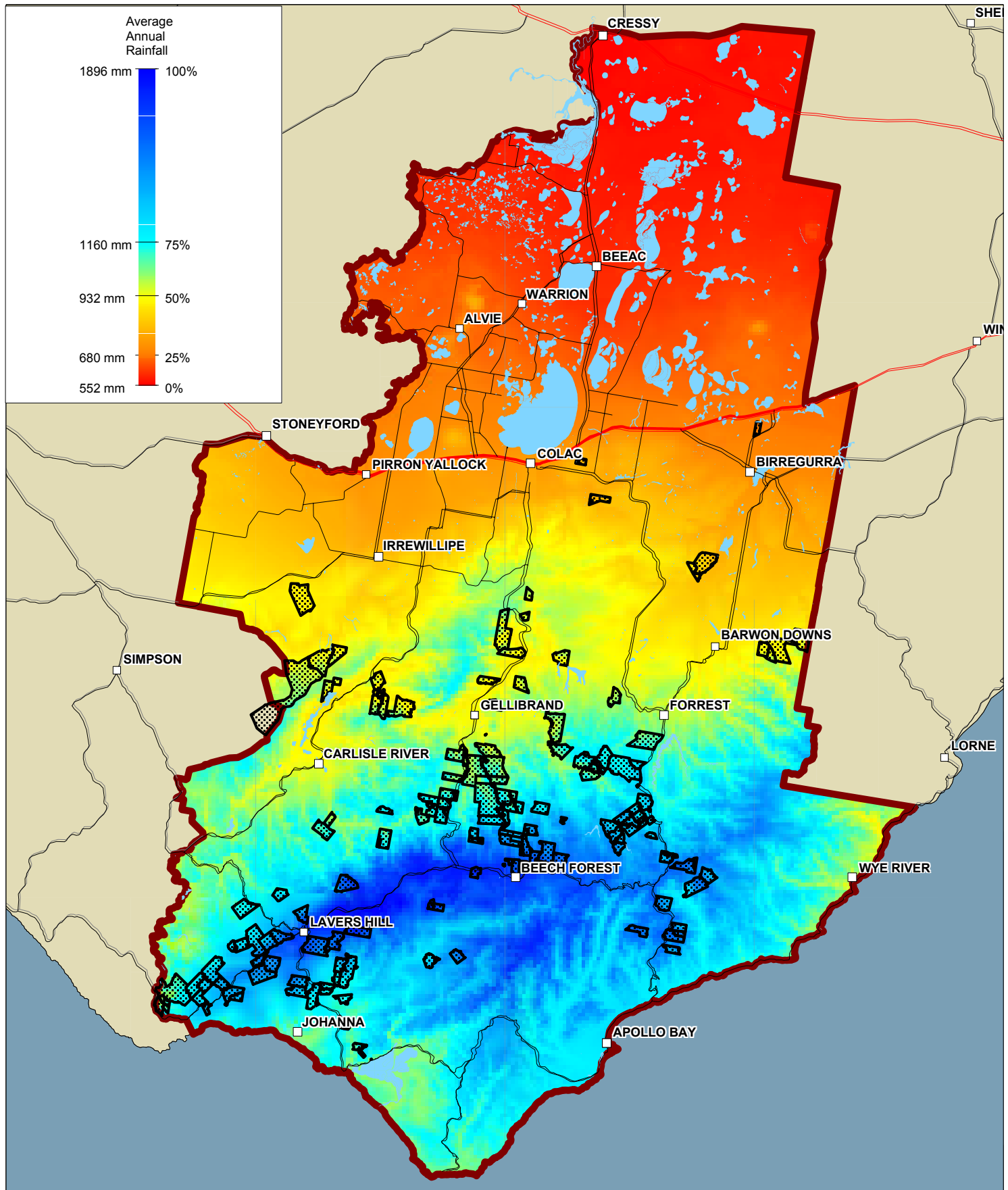
As noted in Section 4.1 of this report, forest production and timber processing are significant industries in the Colac Otway Shire. There are three main forestry industries in Central Victoria (which includes the municipalities of Colac Otway, Corangamite, Surf Coast, Geelong, Pyrenees, Ballarat, Hepburn Springs, Macedon Ranges, Moorabool, Golden Plains, Wyndham, Melton and Hume): softwood plantations, hardwood plantations and native forest harvesting. The value of production and employment generated by the forestry industry in central Victoria is outlined in Table 7-1.

Table 7-1: Area, value of production and employment of forestry in Central Victoria*

Industry	Area (ha)	Value of Production (\$million)	Employment
Softwood plantations	32,705	160.2	608
Hardwood plantations	20,282	4.6	78
Native forest	70,990	68.6	290
Total	123,977	233.5	976

* From Socio economic study of the forestry industries in Central Victoria (URS 2003)

Within the Colac Otway Shire, it is estimated that forestry industries generate \$82 million value of production, provides 392 jobs. Forestry operations are located mainly in the southern part of the Shire in the areas of higher rainfall (Map 7-1). Jobs associated with management, harvesting and processing of the forestry resource are predominantly located in Colac. Local processors include AKD, Shelton Timber, Murnanes, Calco, and Hutton.



Timber Plantations & Rainfall

Cadastral Information from Land Victoria,
Department of Sustainability & Environment.

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Legend

Timber Plantation



10 0 10 20 km



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7.2 Future Trends

The forestry industry is undergoing a period of rapid change driven by Australian and State Government policy. Plantations for Australia: The 2020 Vision (1997) outlines the strategic partnership between the Australian and State governments and the plantation timber industry. The initiatives outlined in the strategy are aimed at achieving a trebling of the area of commercial tree crops by 2020. Following the launch of the strategy, there was a period of rapid expansion, mainly in hardwood plantations, with private capital in managed investment scheme plantations projects. This expansion in the hardwood and pulpwood plantations sector has slowed since its peak in the late 1990's, reflecting a general slow down in plantation prospectus companies (URS 2003). A major influence on the viability of ongoing new plantation establishment will be the price of land.

In the Colac Otway Shire, the recent declaration of the Great Otway National Park will see native forest harvesting operations cease by 2008. As a result the native forestry industry will undergo considerable change due to reductions in the availability of the public forest resource for commercial production. This is likely to have a significant impact on native timber processors and employment as the expansion in hardwood and softwood plantation will not be sufficient in the short term to offset the reduction in the native forest resource.

URS (2003) assessed the potential impacts of these trends across Central Victoria and found that the reduced availability of native forests will result in a decrease in income generated from native forestry in Central Victoria by around one third (\$23 million) and employment will be halved (137 jobs). As most forestry businesses servicing Central Victoria are based in Colac and Geelong, this is likely to have a significant impact on the viability of Colac based processing businesses and forestry industry employment.

7.3 Issues

The expansion in the establishment of plantations on private land has caused concern within the broader community. These concerns relate to:

- Loss of farming families from local communities;
- Decline in rural services with reduced population;
- Loss of "prime" agricultural land;
- Perceived conflicts between land uses; and
- Water yields in water supply catchments

Figure 7-1 shows the change in area of farmed land and area of plantation forestry in the Colac Otway in the last 25 years. The area of farmed land has reduced by 29,000 hectares and the area of plantation has grown by 4,400 hectares. Clearly, rural decline and conversion of farming land to non-farming uses has not been driven by the expansion in the plantation industry alone. As discussed in Section 4.3.3 of this report, rural decline and farm amalgamation is not specific to the Colac Otway Shire but is a statewide phenomenon driven by a range of factors. In some situations, plantation expansion is more likely to be a response to rural decline than a cause of it. For example, in Western Australia, in localities where large areas of plantations have been established, school enrolments tended to be declining at a higher than average rate before rapid expansion occurred (Bureau of Rural Sciences 2005). For some farming families, plantation forestry can provide an opportunity to retire or move off the farm with a greater sum than they would generally have expected.

Farm purchase for farm amalgamation or by a plantation company for plantation establishment will still result in a loss of a farming family from an area. Reduced services in rural areas also cannot be directly attributed to expansion in plantations but is linked to the more general rural decline and loss of farming families from rural communities and the movement of services into larger regional centres.

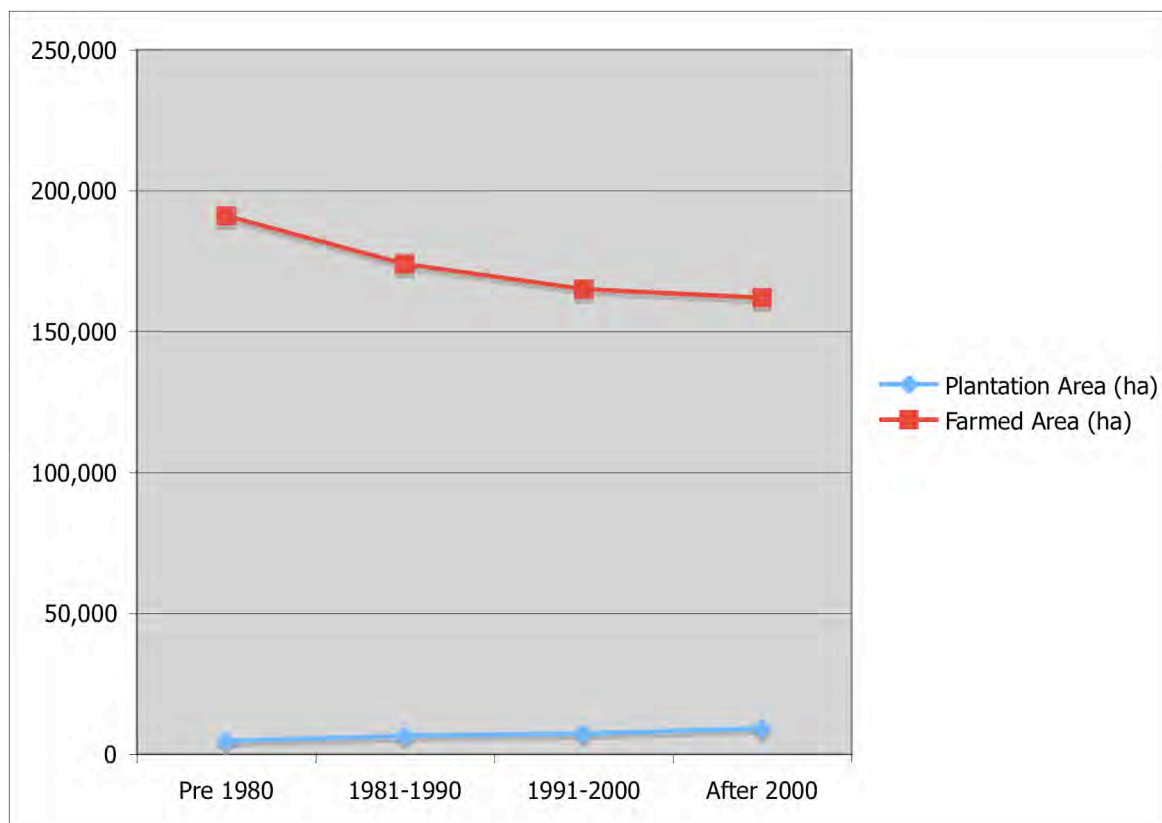


Figure 7-1: Change in area of farming land and forestry plantation within the Colac Otway Shire (Data sourced from Central Victorian Farm Plantations Inc 2004).

Map 7-1 shows that most of the expansion in plantation forestry has occurred in the southern, higher rainfall end of the Shire and generally not on land of high agricultural capability.

Of concern would be a significant expansion in plantations through acquisition or leasing of land in areas identified as farmland of strategic significance. Map 6-2 shows the areas of the Shore considered to be farmland of strategic significance. This land is also on the fringe of the high rainfall zone (> 600mm per annum) favoured for plantation forestry (Agriculture Victoria, 1997).

As discussed in Section 4.2, dairying is the major contributor to the Shire in direct and indirect economic benefits and employment. A significant expansion in the area of plantation forestry in farmland of strategic significance has the potential to escalate land prices above farm value reducing the opportunity and confidence of farming businesses to grow and expand. A study of the socio economic impacts of plantation forestry in Western Australia and New South Wales by the Bureau of Rural Sciences (2005) found that land prices in areas of plantation development increased at a higher rate than land prices in other agricultural areas during the period of rapid plantation expansion. This occurred through direct land purchase by plantation companies, while leasing of land may reduce the number of properties being sold and hence lead to a more competitive land market and rising prices.

If such an expansion was to occur in the Colac Otway Shire, it is beyond the scope of this report to predict the outcomes on the agricultural sector with respect to changes in production levels, economic value and employment. However, as discussed previously, access to affordable land is the key factor to the continuing viability of dairying and grazing in the Colac Otway Shire.

7.4 Code of Forest Practice

The purpose of this Code of Forest Practices is to ensure that commercial timber growing and timber harvesting operations are carried out on both public land and private land in such a way that:

- Promotes an internationally competitive forest industry;
- Is compatible with the conservation of the wide range of environmental values associated with the forests; and
- Promotes the ecologically sustainable management of native forests proposed for continuous timber production.

The Code lays down Statewide goals and guidelines that apply to timber harvesting, timber extraction, roading, regeneration, and reforestation in native forests; as well as to the establishment and management of softwood and hardwood plantations to ensure that:

- Land managed for forestry is adequately regenerated and managed following timber harvesting;
- Reforestation is achieved efficiently and with environmental care;
- Environmental values (including soil, landscape, flora, fauna, archaeological, historic, and cultural) are conserved, and water supply catchments are protected; and
- Opportunities are provided for recreation, scientific study and education. (emphasis added)

Compliance with this Code on private land is required through Planning Schemes administered under the provisions of the *Planning and Environment Act 1987*.

The Code has been incorporated into the State Section of all Planning Schemes at Clause 81 and the planting and harvesting of commercial forests on private land must be conducted in accordance with the Code. The Secretary of the Department of Sustainability and Environment (DSE) is specified in the State Section of Planning Schemes as a Referral Authority in relation to certain matters concerning private forests, and a developer of private land for commercial forestry purposes must comply with the Code to the satisfaction of the Council.

The Code recognises that plantations are established primarily for timber production. Thus planning controls concerned with the development of plantations must explicitly permit their subsequent management and harvesting. It is also recognised that these operations must be carried out in the manner provided for in this Code.

The responsible authority under the *Planning and Environment Act 1987* is responsible for ensuring compliance with the planning scheme (including this Code if applied in accordance with the scheme or with a permit issued under a scheme) on private land. The scheme or a permit under the scheme may require things to be done to the satisfaction of a Minister administering another Act, a public authority or public body corporate.

7.5 Statewide Policy

The Victorian Competition and Efficiency Commission's Final Report *Regulation and Regional Victoria: Challenges and Opportunities (2005)* documented and made recommendations with

regard to the regulatory barriers to regional economic development. With regard to forestry the VCEC report recommended:

“That DPI develops a new approvals process for the establishment of plantations in which accredited operators would be deemed to comply with planning provision. The process should be (1) based on accreditation and ongoing compliance with an enhanced Codes of Forest Practice, (2) consistent with best practice principles of regulation, and (3) developed in consultation with key stakeholders including industry, environmental groups, DSE and local government.”

The Victorian Government’s Response to the VCEC report (2005) supports in-principle this recommendation. DPI in collaboration DSE is conducting a review of the existing regulatory framework to streamline approval processes. The outcome of this review is due in July 2007.

7.5.1 Water Yields

There are six Declared Water Supply Catchments in the Colac Otway Shire and three of these have Special Area Plans: Gellibrand River, Gellibrand River (South Otway) and Upper Barwon. A Special Area Plan is a catchment land use and management plan specifying where various land uses may be undertaken and how they should be undertaken, to minimise any adverse effects on water related values. Under Special Area Plans, Land Use Conditions may be invoked if a particular land use activity is likely to result in deterioration in water quality and impose a health risk to domestic water supplies.

A Special Area Plan for the Gellibrand River Catchment (1983) provides guidelines for the establishment of plantation areas. With regard to water yield, the Determination states:

“Where large areas are proposed for treatment, consideration should be given in the planning stages to the effects which clearly may have on local hydrology. Coupe sizes should be generally limited to about 20 ha, particularly when much of the land is in one such catchment”

The Report on the Upper Barwon Water Supply Catchment (Rothols and Rowe 1961) makes no specific determinations in relation to water yield.

It is understood that the Department of Primary Industry is undertaking hydrological modelling to assess the impacts of plantation forestry on water catchments (H Vaughan, DPI pers comm.). The Corangamite Catchment has been included in the modelling but the outcomes of the modelling are currently unavailable. It would be valuable to this discussion in regard to water yields if this work was available to the community and stakeholders.

Barwon Water and Wannon Water have both advised that their preference is to limit timber plantations in declared water supply catchments from a water quality and quantity perspective. The only mechanism to achieve this is by requiring a planning permit on land in excess of 40ha in declared water supply catchments and subsequent referral to the relevant water corporation. This will enable an assessment of applications against issues such as water quality and yield and the cumulative impact of plantations in water supply catchments to be considered by the relevant water corporation and potentially provide for planning permit conditions above and beyond the requirements of the Code of Forest Practice.

7.5.2 Landscape

The Great Ocean Road Region Landscape Assessment Study (GORRLAS 2005) which is State government policy, identifies the potential for timber plantations to have a negative impact on the

nationally significant Great Ocean Road Region landscape. Landscape is an issue that is not addressed to a significant degree by the Code of Forest Practice.

GORRLAS, including the precinct packages and Colac Otway Municipal Toolkit, made a number of recommendations in relation to protection of significant views and sightlines from timber harvesting practices including:

- Amend Local Policy 22.01 Main Roads/Scenic Routes to include a requirement to protect indigenous or native vegetation buffer (minimum depth of 20 metres) for timber plantations abutting a Road Zone Category 1;
- Amend the Schedule to the Rural Zone (now Farming Zone) to require a permit for timber production over 40 hectares abutting a Road Zone Category 1.

Colac Otway Shire is currently reviewing the Colac Otway Planning Scheme. As a result of this it is anticipated that the local policy 22.01 Main Roads / Scenic Routes is to be deleted with its content inserted into relevant sections of the MSS. It is therefore recommended that this aspect of the GORRLAS recommendation be implemented through insertion of an appropriate strategy in the relevant section of the MSS. This will also require further case-by-case consideration as to whether 20 metres is an adequate buffer given the topography of much of the land.

7.6 Conclusions

- Timber production and processing is a significant contributor to the economy of the Colac Otway Shire;
- The proclamation of the Great Otway National Park will result in reduced harvesting of native timber and a significant impact on local processors and employment is forecast;
- The growth in timber plantations is not necessarily a driver of rural decline but one of the indicators of the land use change resulting from rural decline;
- Expansion of plantation timber through land purchase of farming land has been found to temporarily inflate land prices which may encourage some farming families to leave farming and reduce opportunities for other farming businesses to expand and grow;
- Expansion of timber plantations on land of lower agricultural capability can provide an opportunity for a farming family to leave farming potentially with a greater sum than would otherwise have been expected;
- Timber plantation expansion through lease arrangements can provide an alternative source of farm income, which for small farms on lower agricultural capability land, may ensure that the farm continues to be used for primary production;
- A significant expansion in the area of timber plantations on farmland of strategic significance could be of concern due to the impacts of higher land prices on farm viability;
- A Land Use Determination for the Gellibrand River notes the importance of consideration of plantation forestry on subcatchment hydrology;
- Barwon Water and Wannon Water would prefer that timber plantation development be limited in declared water supply catchment areas to protect water quality and water yields; and
- GORRLAS provides recommendations to amend the planning scheme to protect views and sight lines from timber harvesting practices.

7.7 Planning Scheme Recommendations

As a response to these conclusions, it is recommended that the Shire consider the following recommendation:

- Continue to encourage the forestry industry within the Shire due to its significant contribution to the Shire economy and employment.
- Introduce a permit trigger for timber production on land in excess of 40ha in areas identified as being 'farmland of strategic significance' (Map6-2);
- Introduce a permit trigger for timber production on land in excess of 40ha in Declared Water Supply Catchments within the municipality
- Introduce the recommendations of the GORLASS:
 - Amend the Schedule to the Farming Zone to require a permit for timber production over 40 hectares abutting a Road Zone Category 1.
 - Insert appropriate guidance in the MSS to require protection of indigenous or native vegetation buffer (minimum depth of 20 metres) for timber plantations abutting a Road Zone Category 1.

8 Environmental Assets and Threats

This chapter provides a broad scale assessment of the environmental assets and threats of the Shire. The findings of this assessment will be taken into account in recommending strategies for the use and development of rural land.

8.1 Corangamite Regional Catchment Strategy

The Corangamite Regional Catchment Strategy (RCS) describes the land, water and biodiversity assets of the region and provides a planning framework for the protection and restoration of these assets. This is an umbrella strategy that sits above some issue-specific strategies that provide further detail on assets and environmental threats such as:

- Floodplain Management Strategy;
- Corangamite Regional Nutrient Management Plan;
- Waterway Health Strategy;
- Native Vegetation Plan;
- Corangamite Weed Action Plan;
- Corangamite Rabbit Action Plan; and
- Corangamite Salinity Action Plan.

Information in this chapter was derived primarily from the Corangamite RCS, specific issue strategies, and Victorian Resources Online (<http://www.dpi.vic.gov.au/dpi/vro>).

8.2 Native Vegetation

The Corangamite Native Vegetation Plan (2003 – 2008) provides a strategic plan for protection, enhancement and restoration of native vegetation across the Corangamite Region. The majority of native vegetation is found on public land within the Colac Otway Shire with small remnants on private land. The Plan estimates 78 per cent of the region's original native vegetation is now cleared. Of the 22 per cent remaining vegetation, about half of this is found on private land or on linear strips such as roadsides and disused railway lines and much of this is considered threatened. Remnant vegetation on private land is generally small in size and therefore particularly vulnerable to degradation from pests, disease or disturbance.

Ecological Vegetation Class is the basic mapping unit used for vegetation planning and conservation assessment. Currently, the Shire has a number of Vegetation Protection Overlays based on Bioregional Conservation Status of vegetation across the Shire. More recent mapping of Ecological Vegetation Classes undertaken by DSE has superseded this data. DSE and the Corangamite CMA are currently seeking funding to introduce this data to municipal Planning Schemes and to assist in refinement of Vegetation Protection and Environmental Significance Overlays.

Planning Scheme Recommendations

Update the current Vegetation Protection and Environmental Significance Overlays within the Colac Otway Planning Scheme to incorporate more recent data and mapping

8.3 Salinity

At present 20,538 hectares of salinity are mapped in the Corangamite CMA region and includes both primary and secondary salting. Water quality in rivers and streams as well as lakes and wetlands has declined since European settlement due to increasing salinity and reduced flow regimes.

Primary salinity refers to the salinisation of land and water by natural physical and chemical processes and it is estimated that at least 50% of the mapped salinity in the Corangamite region is primary in origin. Primary salting has had a significant influence on the diversity of the environmental assets of the region including the saline waterways and lakes and associated flora and fauna.

The spread of secondary salinity in the past 200 years is believed to have doubled the area of land salting and made some waterways saline. Secondary salting has arisen from factors such as:

- Changes to soil waterlogging and soil structure;
- Land-use changes, where excessive water may have caused excessive soil waterlogging and shallow, temporal water flows in the near-surface;
- Management of water resources such as groundwater extraction, surface water harvesting and drainage schemes, both regional schemes and smaller scale schemes; and
- Changes to the hydrologic balance created by urban development.

The Draft Corangamite Salinity Action Plan (2003 – 2008) identifies salinity as a significant threat to agricultural production and biodiversity, especially in the lakes and plains area north of Colac. The key management actions to address salinity relevant to the Colac Otway Shire focus on the impacts of salinity on infrastructure and the urban environment and includes: developing plans with local government to guide infrastructure placement and urban subdivision; developing baseline mapping on all urban salinity and provide this information to local government and assets managers and developing treatment options for the protection of existing urban areas from salinity.

The Corangamite CMA and Colac Otway Shire have completed a Salinity Management Overlay for the entire municipality.

Planning Scheme Recommendations

The Salinity Management Overlay project recommendations be reviewed and considered for inclusion in the planning scheme.

8.4 Erosion - Landslides

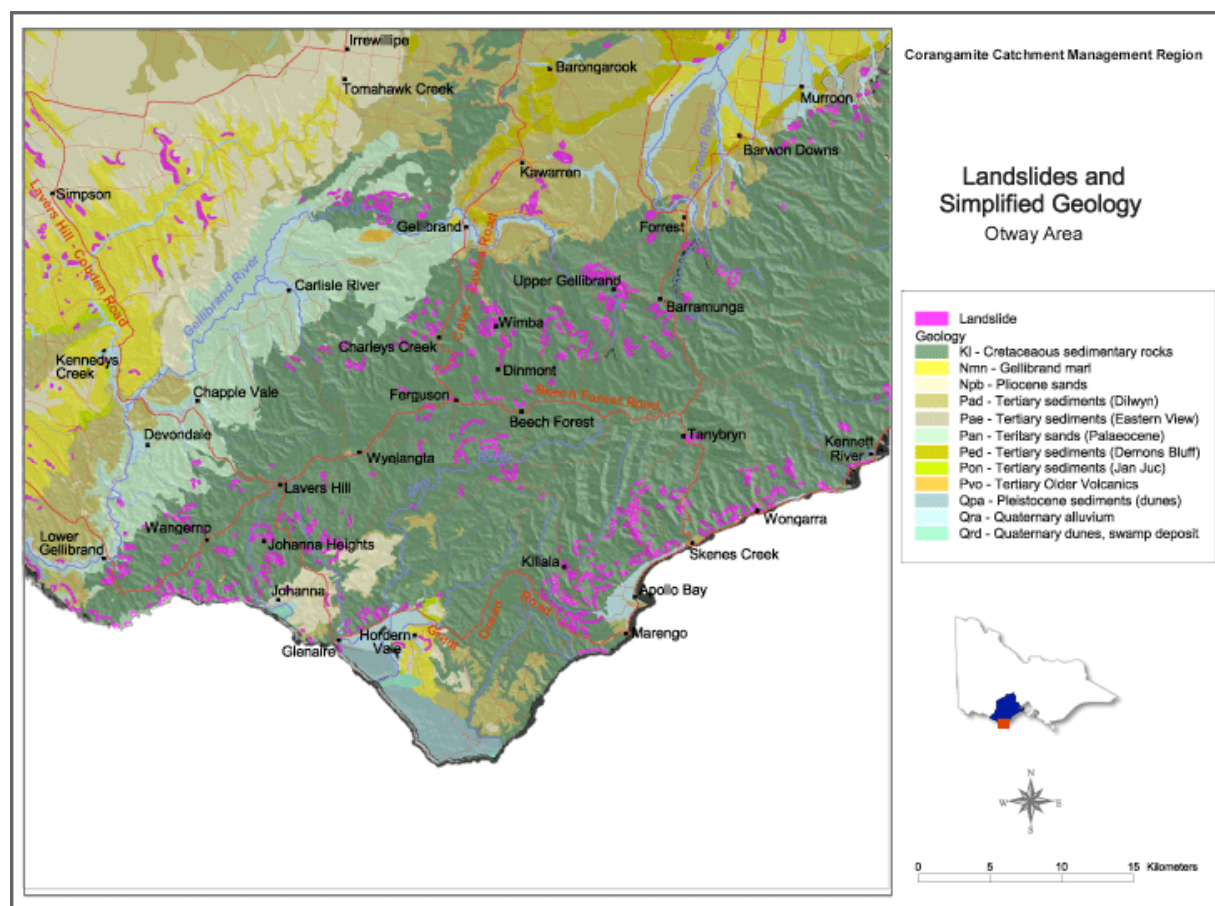
Landslides are a significant land hazard in the Otway Shire and have been a regular event in the natural evolution of landscapes in the Corangamite Region. The Victorian Resources Online identified that over 1,400 landslides have been mapped in various studies within southwest Victoria and it is estimated that thousands more, of varying sizes, exist. All mapped landslides have occurred south of the western Victorian Volcanic Plain, where the geology, steeper terrain slopes and climate combine to provide the conditions required.

Landslides are triggered by prolonged and/or intense rainfall, man-made changes to the landscape primarily through clearance of native vegetation and rare earthquake events. Map 8-1 indicates the areas where landslides have occurred within the Otway Area. Map 8-2 identified various slope categories across the municipality. Land of more than 20% slope is considered to be at significant risk of erosion.

The Corangamite CMA and Colac Otway Shire have completed a review of the Erosion Management Overlay for the entire municipality.













Planning Scheme Recommendations

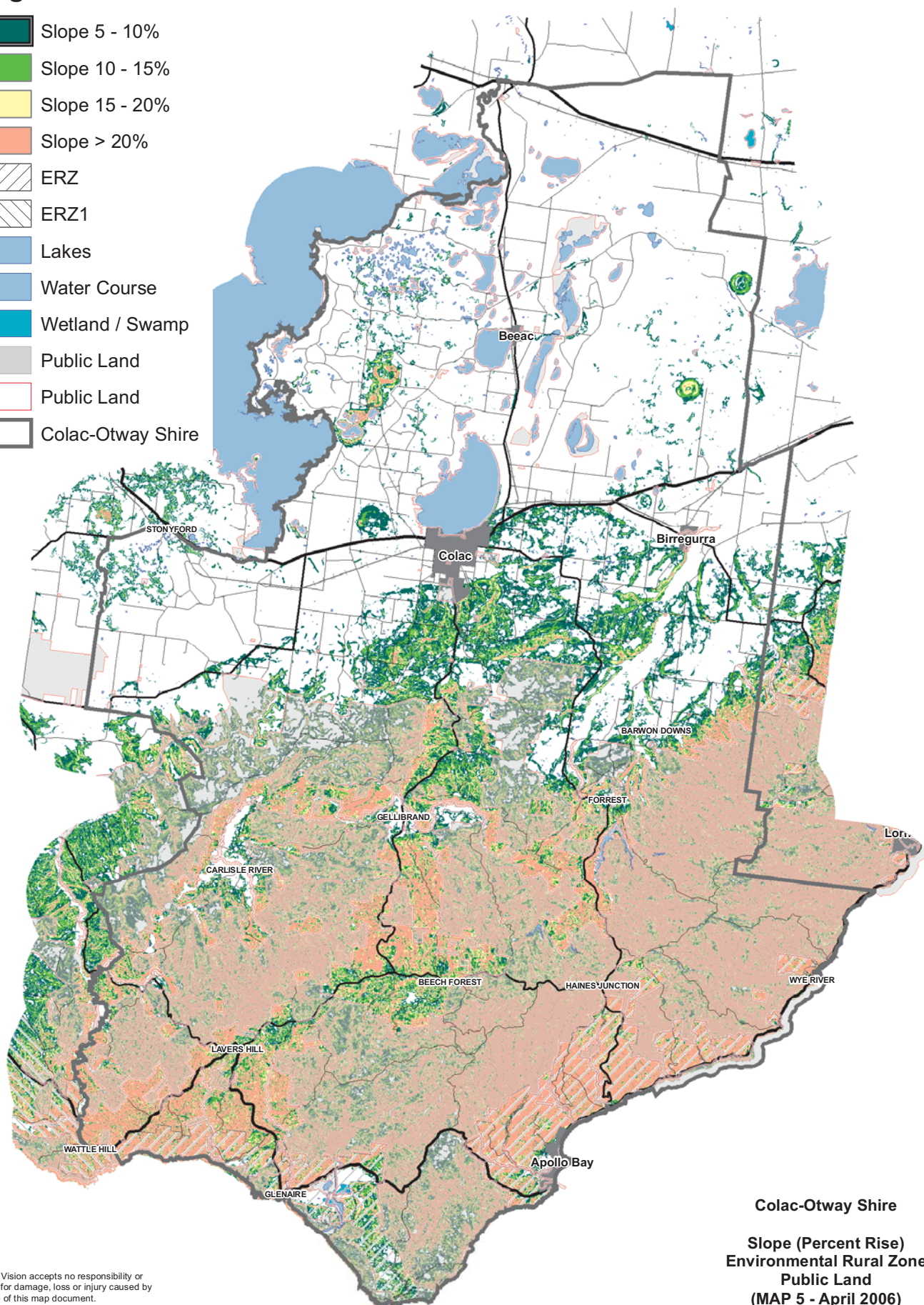
Update the current EMO within the planning scheme to include more recent data and mapping.



Map 8-1 Landslides in the Colac region (Victorian Resources Online)

Legend

-  Slope 5 - 10%
-  Slope 10 - 15%
-  Slope 15 - 20%
-  Slope > 20%
-  ERZ
-  ERZ1
-  Lakes
-  Water Course
-  Wetland / Swamp
-  Public Land
-  Public Land
-  Colac-Otway Shire

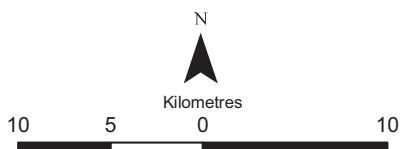


Colac-Otway Shire
Slope (Percent Rise)
Environmental Rural Zone
Public Land
(MAP 5 - April 2006)

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Information Source
 Department of Sustainability and Environment
 Colac-Otway Shire
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8.5 Water

The Draft Corangamite River Health Strategy identifies waterways of national, state and regional importance and these have been summarised below. The Colac Otway Planning Scheme currently recognises the significance of these assets with Environmental Significance overlays applying to lakes, wetlands and streams across the municipality.

8.5.1 Lakes

The saline lakes of the Volcanic Plain north of Colac are a significant feature of the region. These lakes are of international significance because of the number of threatened species and migratory species, which depend on the sites. Management of these lakes including Lake Corangamite and Lake Beeac in the Colac Otway Shire are subject to the Convention on Wetlands (Ramsar Convention), the Convention on Migratory Species (Bonn Convention) and international migratory bird treaties with Japan (JAMBA) and China (CAMBA) (Corangamite RCS (2003), Victorian Resources Online).

8.5.2 Rivers and Streams

The Corangamite Regional Catchment Strategy identifies three River Basins - Lake Corangamite, Barwon, and the Otway Coast fall partly into the Colac Otway Shire. Only the last of these Basins is completely hydrologically separate from the others. Within each of the basins there are several significant river systems including the Aire, Barwon, Gellibrand, and Woody Yaloak Rivers.

The Barwon River system occupies most of the eastern volcanic plain, and drains the high-rainfall upper slopes of the Otway Range to the south (Barwon River) and the Central Highlands to the north (Leigh-Yarrowee River). In its lower reaches the Barwon is joined by the Leigh then the Moorabool Rivers, and passes through Geelong and Lake Connemara before arriving at its estuary at Barwon Heads.

The majority of streams in the Barwon Basin are in marginal to poor condition. The few streams that are in excellent or good condition occur predominately in the water supply catchment areas in the south of the Basin. More than 85% of the landscape is cleared and there are many threats to the waterways in the catchment, including high urban water resource demand, urban development, sedimentation and algal blooms.

The Barwon system is separated from the Lake Corangamite Basin to its west by only a shallow north-south divide on the volcanic plain. This can overflow during high rainfall/ runoff events, or when water is transferred into the Barwon Basin by the operation of two drainage schemes.

The Lake Corangamite Basin has no natural outlet to the sea, but drainage works have established two interconnections to the Barwon Basin. This landlocked basin is dominated by a series of saline lakes, into which all its watercourses run. Damming of lava flows and depressions in many craters have formed a large number of lakes and swamps. There are a total of 758 wetlands greater than one hectare within this basin.

The streams in the Lake Corangamite Basin are either in marginal or very poor condition. Most of the catchment is cleared for agricultural pursuits and many wetlands are drained.

The Otway Coast Basin is formed by a divide on its northwestern boundary with the Lake Corangamite Basin, and then follows the Otway ridge north eastwards, finally abutting the Barwon Basin near the coast, west of Torquay. The southern boundary is the coastline from near Peterborough and the Curdies River estuary to Breamlea, a distance of some 150km. The Basin contains many short south-flowing rivers.

Unlike other Basins in the Corangamite Region, about 60% of the Otway Coast Basin is covered by forest. Consequently, there are a significant proportion of streams that can be classed as being in good or excellent condition. Most of the streams of high quality are in the central section of the Basin, which contains many high ecological values. Streams that are in marginal, poor and very poor condition and are generally located in the western and eastern sections of the Basin.

Planning Scheme Recommendation

Update the Environmental Significance Overlay on completion of the Corangamite River Health Strategy in 2006/2007.

8.5.3 Declared Water Supply Catchments

Catchments supplying water for domestic, irrigation or other purposes within Victoria can be protected under the *Catchment and Land Protection Act 1994*. These catchments have significant values as a source of water supply, both for domestic and for stock and domestic use. Once a catchment is declared, approvals for activities conducted under other statutes and statutory planning schemes must be referred to the responsible land management authority (CMA or DSE) for approval.

There are six declared water supply catchments in the Colac Otway Shire (Map 8-3). The declaration recognises the importance of these catchments for domestic water supply and the need to protect the water quality from activities such as timber harvesting and road and building construction.

The Colac Otway Planning Scheme recognises the importance of these catchments and includes the Gellibrand River, West Barham, Upper Barwon, Skenes Creek, Pennyroyal Creek, Matthews Creek and Gosling Creek catchments within Environmental Significance Overlay (Schedule 3) to the Scheme with the following statement of significance and environmental objective:

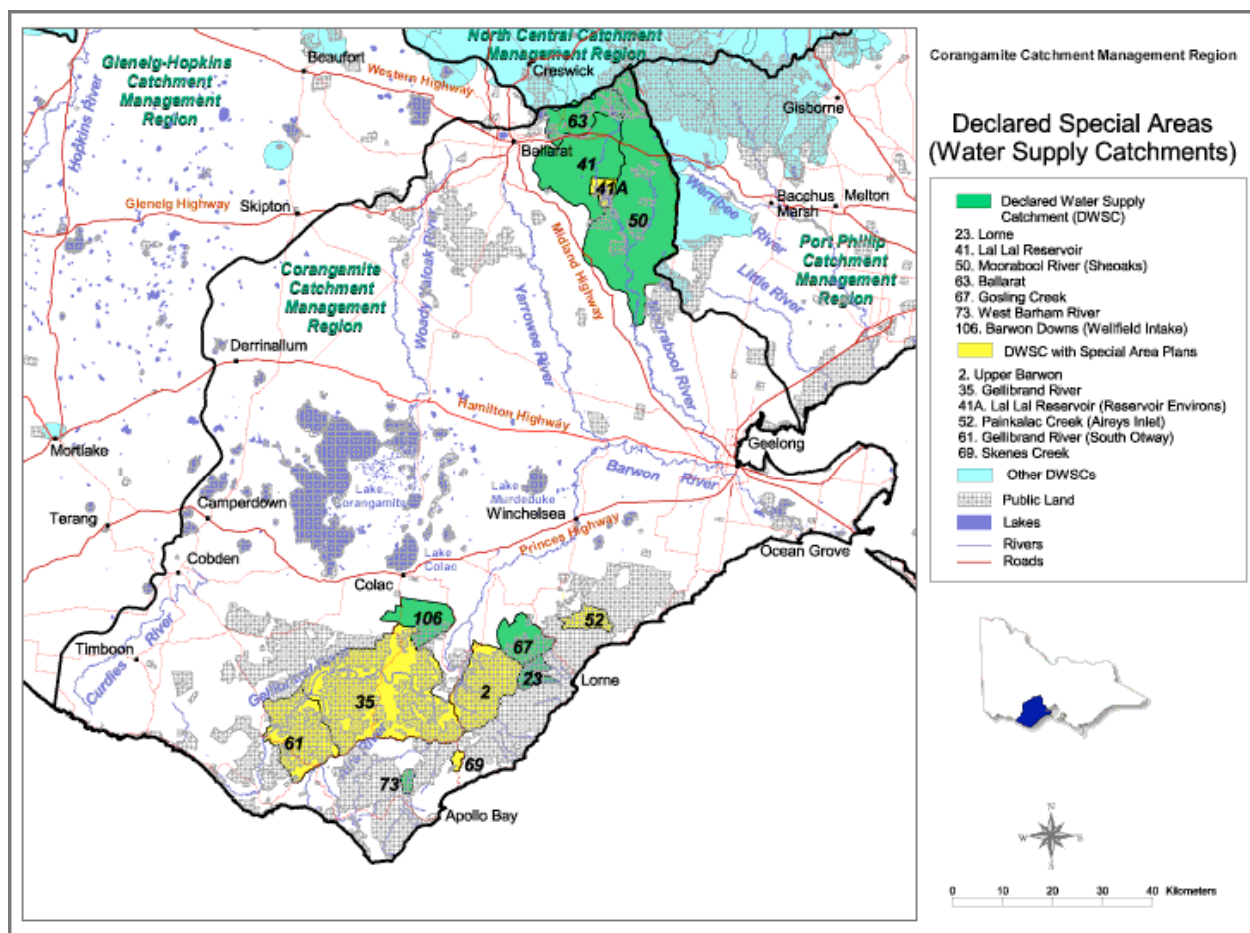
Statement of environmental significance

- *Maintenance of high quality water catchments is vital for the continued provision of domestic water supply to the community.*

Environmental objective to be achieved

- *To protect and maintain water quality and water yields in the Gellibrand River, West Barham, Upper Barwon, Skenes Creek, Pennyroyal Creek, Matthews Creek and Gosling Creek catchments.*

As discussed at Section 7.5.1, the hydrology impacts of land use within proclaimed water catchments has been a relevant consideration under the Colac Otway Planning Scheme for some time. Barwon Region Water and Wannon Regional Water have both advised that their preference is to limit timber plantations in declared water supply catchments from a water quality and quantity perspective.



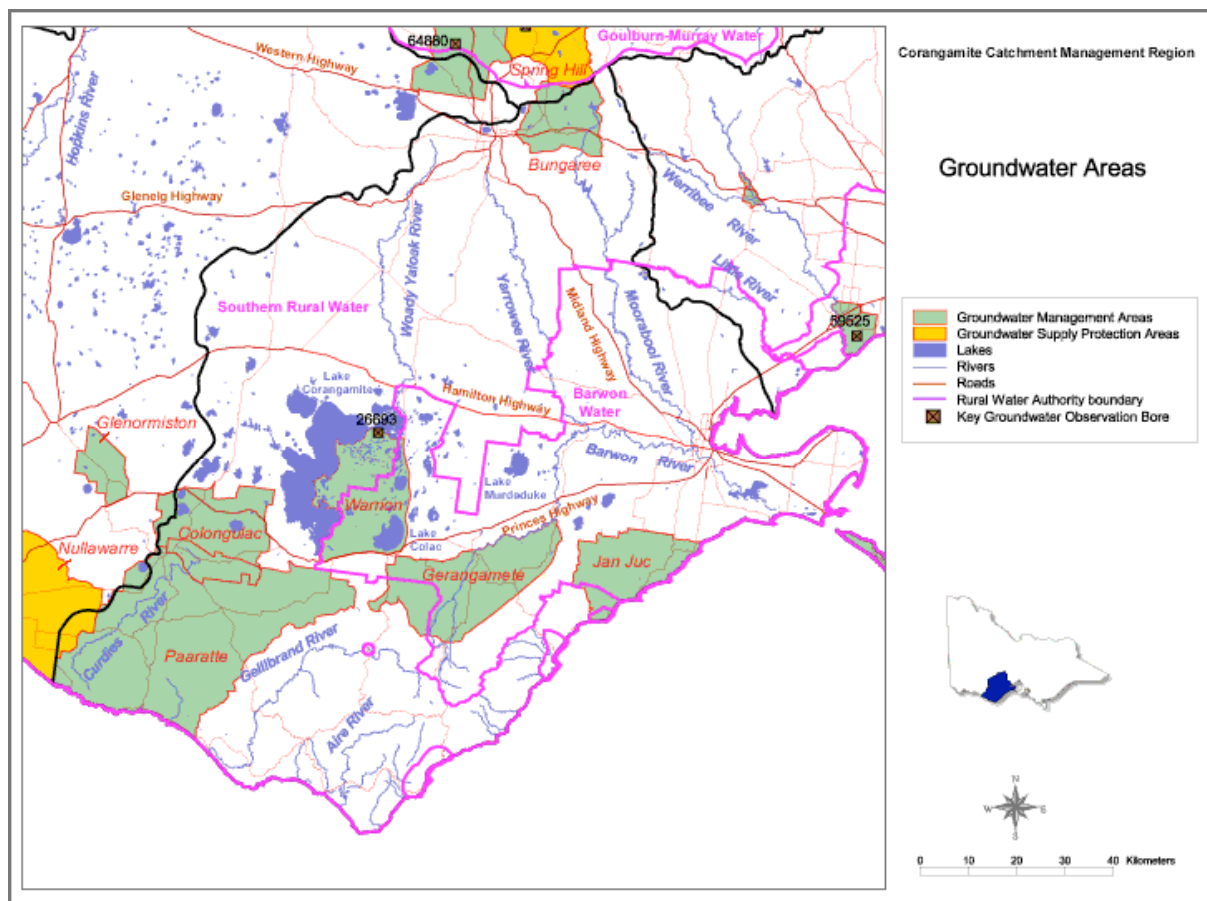
Map 8-3 Declared Special Area (Water Supply Catchments) in the Corangamite Region (Victorian Resources Online)

8.5.4 Groundwater

Southern Rural Water is the responsible authority for management of groundwater diversion. Three groundwater management areas have been declared in the Colac Otway Shire: the Warrion, Paaratte and Gerangamete (Map 8-4). Groundwater Management Plans describe the nature of these groundwater areas and outline their management to ensure long-term sustainability. The Colac Otway Planning Scheme currently has an Environmental Significance Overlay that applies to the Barwon Downs Wellsfield Intake area south of Colac in the Barongarook area. The other groundwater management areas are located largely on public land and hence the Planning Scheme does not trigger the need for a planning permit.

Planning Scheme Recommendations

There are no planning Scheme recommendations for groundwater management



Map 8-4 Groundwater Management Areas in the Corangamite Region (Victorian Resources Online)

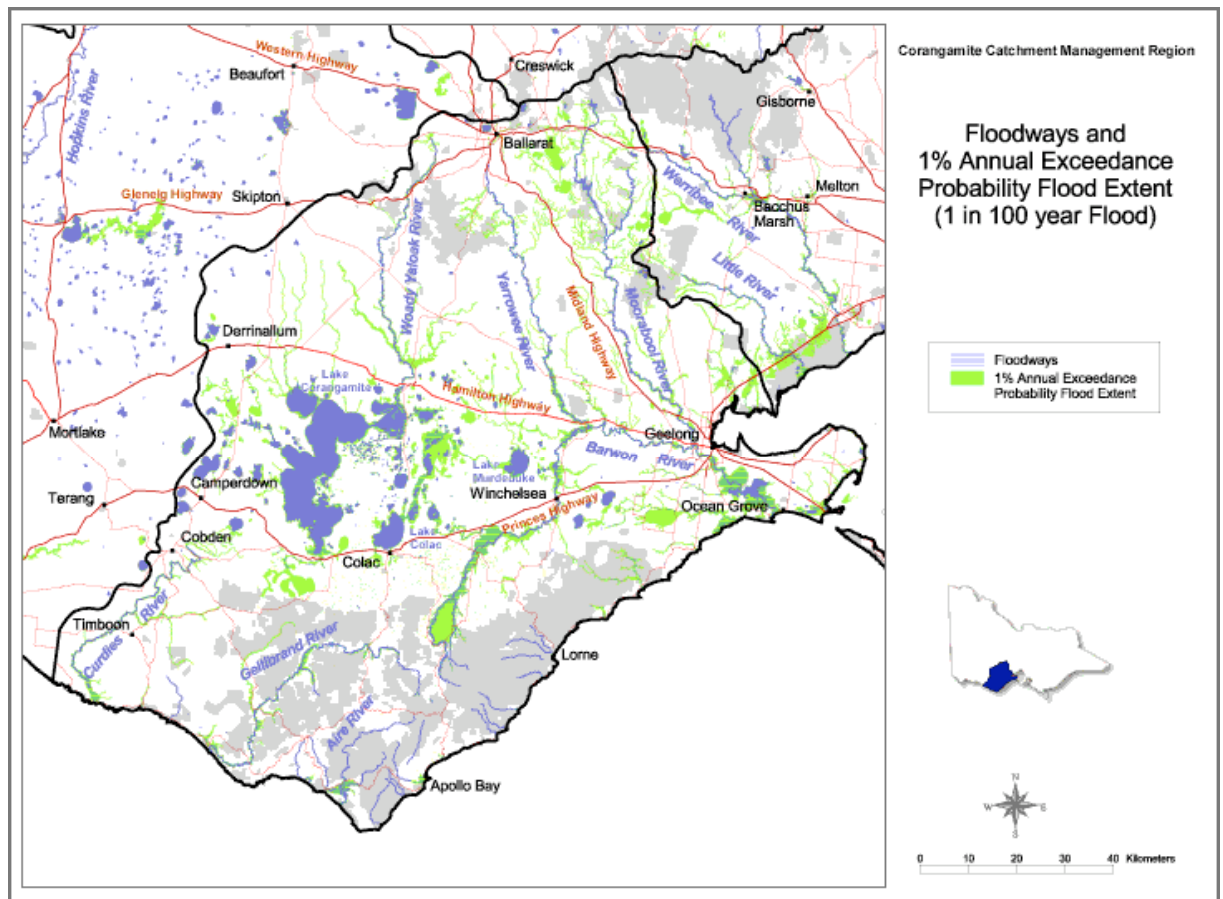
8.6 Flooding

Floodways generally comprise the most hazardous parts of the floodplain and are often associated with fast flowing floodwater and/or areas of relatively deep flooding. The 1% Annual Exceedance Probability (AEP) flood event is one in which the applicable flood flow has a probability of 1% (or 1 in 100) of being equalled or exceeded (Victorian Resources Online) and is shown in the Corangamite Region in Map 8-5. The Barwon River valley and the volcanic lakes north of Colac are the main areas where the 1% Annual Exceedance Probability flood event applies in the Colac Otway Shire.

The Colac Otway Planning Scheme currently has a Land Subject to Inundation Overlay that reflects the floodways in the Shire (Map 8-6). The Corangamite CMA has indicated that there has been an update to flood mapping in the Shire and therefore an amendment to the Land Subject to Inundation Overlay is required.












Planning Scheme Considerations

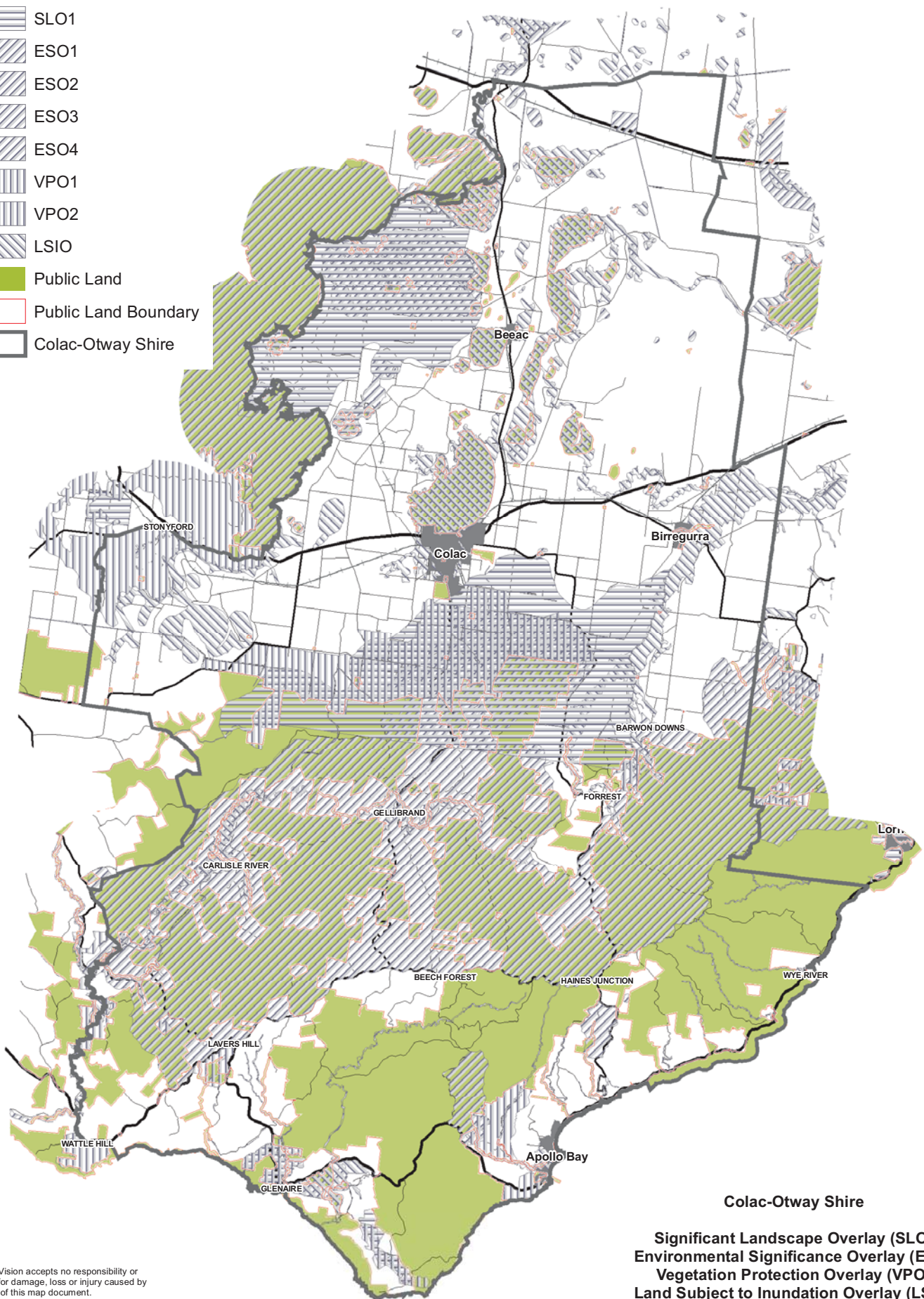
Update the current LSIO with more recent data and mapping.



Map 8-5 Corangamite Floodways and 1% Annual Exceedance Probability Flood Extent Map.

Legend

-  SLO1
-  ESO1
-  ESO2
-  ESO3
-  ESO4
-  VPO1
-  VPO2
-  LSIO
-  Public Land
-  Public Land Boundary
-  Colac-Otway Shire



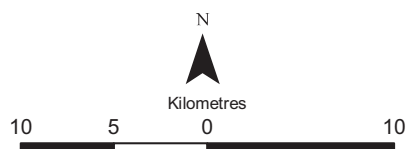
Colac-Otway Shire

Significant Landscape Overlay (SLO)
Environmental Significance Overlay (ESO)
Vegetation Protection Overlay (VPO)
Land Subject to Inundation Overlay (LSIO)
Public Land Type

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8.9 Climate Change

A report by DSE (2004), Climate Change in the Corangamite Region, provides the following projections for climate change for the Corangamite region:

Temperature

- Annual warming of 0.2 to 1.4°C by 2030 and 0.7 to 4.3°C by 2070
- Day time maximum temperatures and night time minimum temperatures will warm at a similar rate
- Warming will be similar throughout the seasons
- A 10 to 50% increase in the number of hot summer days (over 35°C) by 2030 and a 20 to 400% increase by 2070
- A 10 to 40% reduction in the number of frost days by 2030 and a 35 to 100% decrease by 2070

Precipitation

- Annual precipitation decreases likely (changes of +3 to -10% by 2030 and +10 to -25% by 2070) in all seasons
- Extreme heavy rainfall events may become more intense

Drought

- Droughts are likely to become more frequent and longer, particularly on late winter to early spring
- Dry conditions that currently occur on average one in every five winter springs may increase to up to one in three years by 2030
- Due to hotter conditions, droughts are likely to become more intense

Water resources and fire

- Increase evaporation rates
- Drier soil likely, even if precipitation increases
- Decreased average runoff in streams
- Hotter, drier conditions likely to increase bushfire risk

Winds, storms and sea level rise

- Winds are likely to intensify in coastal regions of Victoria, particularly in winter as a result of more intense low-pressure systems. Low pressure systems off the east coast of Australia may become more frequent
- Sea level rise of 7cm to 55cm by 2070 (0.8 to 8.0 cm per decade)

The report goes on to assess the impacts of climate change. *In the Corangamite region the impacts on dryland grazing (beef, sheep and dairy) may include some benefit from the higher CO₂ but this will be offset by the effect of higher temperature. For high rainfall pastures, the risk of an overall negative impact on production is higher if substantial rainfall decreases accompany the warming, and may lead to declines in animal production.*

It is appropriate to apply the precautionary principle in response to climate change by ensuring that planning scheme recommendations will provide for adaptability to any unforeseen problems created by climate change. In this regard discouraging dwellings and subdivision in areas of high agricultural capability and high rainfall is considered appropriate to ensure land is protected for agriculture into the future.

It is anticipated that as the specific impacts of climate change on agriculture at the local and regional level are better understood, the State Government will also review relevant sections of the State Planning Policy Framework related to climate change.

Planning Scheme Recommendations

There are no planning scheme recommendations in relation to climate change at this stage.

8.10 Summary of Key Issues

- Native vegetation on private land is comprised of many scattered, small remnants which are vulnerable to further decline;
- Salinity is a significant threat, particularly in the northern half of the Shire, to water quality and urban infrastructure;
- Landslides are a significant hazard in the southern end of the Shire associated with steep slopes and high rainfall;
- Water quality of rivers and streams north of the Otway Ranges is generally poor due to the impacts of land clearance and development;
- Flooding is a significant threat north of the Otway Ranges particularly associated with the Barwon River and the lakes system of the Volcanic Plains; and
- Planning scheme recommendations need to ensure that the future use of land for agriculture is adaptable enough to respond to the impacts of climate change.

9 Rural Residential Considerations

While this report does not analyse in any detail candidate areas for rural residential living, it has identified that there are increasing demands for rural lifestyle opportunities within the Shire to take advantage of its many and varied attributes. However there are, at present, no areas of land within Colac-Otway Shire, which are specifically zoned for “Rural Living” purposes.

The Rural Living Zone is one of a suite of rural type zones, which a Council is entitled to apply to lands for the following purposes:

- *Provide for residential use in a rural environment.*
- *Provide for agricultural land uses, which do not adversely affect the amenity of surrounding land uses.*
- *Protect and enhance the natural resources, biodiversity and landscape and heritage values of the area.*
- *Encourage use and development of land based on comprehensive and sustainable land management practices and infrastructure provision.*

The DSE Practice Note “Applying the Rural Zones” (March 2007) includes the following with respect to the Rural Living Zone:

This zone provides for residential use in a rural environment. It is designed to cater for lots in a rural setting that are large enough to accommodate a dwelling and a farming use. The farming use is likely to be carried on for ‘lifestyle’ reasons and is unlikely to provide significant source of household income.

In addition to this, there is also the Low Density Residential Zone (LDRZ), which is a zone, which caters for residential uses on lots of at least 0.4ha.

Apart from the zones themselves, there are two other important state level documents that provide the framework for the consideration of rural residential options.

9.1 State Planning Policy Framework (SPPF)

The following relevant clauses of the SPPF need to be considered by Council, DSE, a Planning Panel, and ultimately the Minister in any considering rural residential opportunities.

Clause 12 (Metropolitan development) that, while it is principally focussed on metropolitan Melbourne, also includes objectives and strategies that influence rural and regional areas. It is to be taken into account where relevant including at **Clause 12.03 (Networks with regional cities)** that includes the following strategies in relation to **rural living development**.

To control development in rural areas to protect agriculture and avoid inappropriate rural residential development by:

- *Reducing the proportion of new housing development provided in rural areas and encouraging the consolidation in existing settlements where investment in physical and community infrastructure and services has already been made.*

- *Ensuring planning for rural living avoids or significantly reduces adverse economic, social and environmental impacts by:*
 - *Maintaining the long-term sustainable use and management of existing natural resource attributes in activities such as agricultural production.*
 - *Protecting existing landscape values and environmental qualities such as water quality, native vegetation, biodiversity and habitat.*
 - *Minimising or avoiding property servicing costs carried by local and State governments.*
 - ***Discouraging development of isolated small lots in rural zones from use for rural living or other incompatible uses.***
 - ***Encouraging consolidation of existing isolated small lots in rural zones.*** (emphasis added)

Clause 16 of the SPPF is focussed on the various housing options in the state and **Clause 16.03** specifically deals with **rural living and rural residential development** and includes the objective:

- *To identify land suitable for rural living and rural residential development.*

Clause 16.03 also introduces the need to have reference to the **Minister's Direction No 6, Rural Residential Development** that applies to the preparation of any planning scheme amendment, which will allow rural residential development. **Clause 16.03** specifies that:

- *Land should only be zoned for rural living or rural residential development where it:*
 - *Is located close to existing towns and urban centres, but not in areas that will be required for fully serviced urban development.*
 - *Can be supplied with electricity and water and good quality road access.*
- *Land should not be zoned for rural living or rural residential development if it will encroach on high quality productive agricultural land or adversely impact on waterways or other natural resources.*

Clause 17.05 of the SPPF deals with **Agriculture** and it includes the objective:

To ensure that the State's agricultural base is protected from the unplanned loss of productive agricultural land due to permanent changes of land use and to enable protection of productive farmland that is of strategic significance in the local or regional context.

The Clause includes the following references to implementing the objective.

- *Land capability is a fundamental factor for consideration in rural land use planning.*
- *.....*
- *Permanent removal of productive agricultural land from the State's agricultural base must not be undertaken without consideration of its economic importance for the agricultural production and processing sectors.*
- *.....*
- ***Subdivision of productive agricultural land should not detract from the long-term productive capacity of the land.*** (Emphasis added)
- *In assessing rural development proposals, planning and responsible authorities must balance the potential off-site effects of rural land use proposals (such as degradation of soil or water quality and land salinisation), which might affect productive agricultural land against the benefits of the proposals.*

In considering a proposal to subdivide or develop agricultural land, the following factors must be considered:

- *The desirability and impacts of removing the land from primary production, given its agricultural productivity.*
- *The impacts of the proposed subdivision or development on the continuation of primary production on adjacent land, with particular regard to land values and to the viability of infrastructure for such production.*
- *The compatibility between the proposed or likely development and the existing uses of the surrounding land.*
- *Assessment of the land capability.*

9.2 Minister's Direction No 6 – Rural Residential Development

New "Rural Residential Development Guidelines" (the "Guidelines") were issued in October 2006, which outline the strategic and land capability requirements that any Council needs to demonstrate so as to comply with Minister's Direction No 6 (MD6). The Guidelines define "rural residential development" as:

Land in a rural setting, used and developed for dwellings that are not primarily associated with agriculture. Some agriculture may take place on the land; however, it will be ancillary to the use for a dwelling. It is likely to be carried on for 'lifestyle' reasons and is unlikely to provide a significant source of household income. Rural residential land is typically also used for non-agricultural home occupations or for large gardens. These lots are larger than typical residential lots, but are usually too small for agricultural use.

Because of its primarily residential function, rural residential development requires access to most of the normal services and infrastructure provided in urban settlements. Typically it also generates urban residential amenity expectations.

The key objective of Minister's Direction No 6 (MD6) is to manage the provision of sustainable rural residential development so that it supports sustainable housing and settlements and does not compromise Victoria's agricultural, natural, environmental, landscape and infrastructure resources.

Ministerial Direction No. 6 (MD6) applies to any planning scheme amendment that provides for the:

- Rezoning of land to the Low Density Residential Zone, Rural Living Zone, or Green Wedge A Zone.
- Introduction of a lot size less than 8ha to the schedule to the Farming Zone, Rural Activity Zone, Green Wedge Zone, Green Wedge A Zone, Rural Conservation Zone, Rural Zone or Environmental Rural Zone "that provides for rural residential development".

Minister's Direction No 6 requires a planning authority to demonstrate that the proposed rural residential development:

- Is consistent with the housing needs and settlement strategy of the area
- Is supported by and supports sustainable and viable settlements and communities
- Does not compromise the sustainable future use of existing natural resources, including productive agricultural land, water, mineral and energy resources
- Protects existing visual and environmental qualities of the area, such as landscape, water quality, native vegetation, habitat and biodiversity values

- Avoids predictable adverse environmental processes and effects, such as flooding, erosion, landslip, salinity or wildfire
- Can efficiently be serviced by social and physical infrastructure, at an acceptable and sustainable community cost.

The new Guidelines make it clear that any proposed rural residential rezoning must be accompanied by a site analysis, documenting the opportunities and constraints of the site in terms of landform, vegetation coverage and surrounding land uses and an explanation of how the proposal responds to the site analysis. The Guidelines note that a site analysis should include:

- *Topography of the land (including ridgelines, landscape, geography, slope gradients and erosion areas)*
- *Soil capability*
- *Vegetation (ecological vegetation class), quality (habitat hectare assessment) and location*
- *Any significant environmental features including habitat corridors, threatened species, wetlands, watercourses, fire or flood prone and saline areas*
- *Drainage lines and dams*
- *Land liable to inundation by floodwaters*
- *Weather conditions including wind patterns*
- *Views*
- *Road access*
- *Available infrastructure including power, water and telecommunications*
- *Existing buildings and works*
- *Adjoining land uses and neighbouring buildings and works*
- *Any other matter relevant to the site and its environment*

The Guidelines then list the typical zones that will usually be applied to rural residential land as:

*The **Low Density Residential Zone (LDRZ)** is a 'residential' zone. It comprises lots above 0.4 hectares used for residential purposes.*

*The **Rural Living Zone (RLZ)** is a 'rural' zone. It normally applies to lot sizes around eight hectares and provides opportunities for some rural uses to occur.*

*The **Green Wedge A Zone (GWAZ)** is a 'rural' zone. It provides for lot sizes of eight hectares and above. It applies to non-urban land outside the Urban Growth Boundary to protect and recognize the area's agricultural, environmental, historic or recreational values or mineral and stone resources.*

The Guidelines also note that rural residential development can occur in other rural zones when the minimum lot size is less than eight hectares.

The Guidelines outline the strategic and land capability requirements that need to be demonstrated to comply with the requirements of MD6.

The Guidelines as released in October 2006 have changed significantly from the previous Guidelines. Firstly, the revised MD6 makes no reference to the Guidelines. Secondly, MD6 and the

former Guidelines for Rural Residential Development had previously required that relevant amendments must be accompanied by a report that addresses the following:

- State Planning Policy Framework;
- Local Planning Policy Framework;
- Regional Catchment Strategies;
- Urban Area Integration;
- Supply and Demand; and
- Agency Comments.

In relation to Supply and Demand, the 'Guidelines' had previously required the following:

The supply of and demand for rural residential lots within the municipality and the general locality must be assessed with respect to the:

- *Impact of the proposed additional supply (eg 'blighting' of land, restriction of future planning options).*
- *Orderly planning of the area.*

Market demand must be estimated with adequate justification of inbuilt assumptions. References must be made to the trend in building approvals for houses on rural residential lots over the past 5 years.

An amendment must not provide for rural residential use or development of land which would increase the supply of rural residential land to more than that required to meet a 10 year demand for rural residential lots (including vacant lots in the existing supply), based on annual building approvals over at least the past five years or other suitable basis.

It is a notable modification to the new Guidelines that the 'supply/demand' analysis is no longer required and that the critical assessment is whether or not the proposed 'rural residential' rezoning:

- Fits into the overall strategic planning for the municipality;
- Provides appropriate housing diversity and choice to meet housing needs.

Demonstrating consistency with a settlement strategy requires assessment against state, regional and local strategic planning policies and objectives for the area. The Colac Otway Planning Scheme municipal strategic statement and local policy will set the local objectives for settlement, subject to consistency with state policy.

In terms of housing need, it is necessary to demonstrate how much rural residential development is required to provide appropriate housing diversity and choice to meet housing needs. Specific information required includes:

- Population projections;
- Number of new households required;
- Given the number of existing dwellings, how many additional dwellings will be required to meet population and household projections; and
- How many of these additional dwellings will be in the form of rural residential.

Also of relevance in considering application of the Rural Living Zone is the DSE Practice Note "Applying the Rural Zones". The purpose of the practice note is to provide guidance about the

strategic work required to apply the new rural zones and the purpose and features of each zone and where they can be applied.

The Practice Note identifies that the Rural Living Zone is designed to be applied to areas where:

- *The rural land has a primarily residential function.*
- *Farming may take place on the land but this is subordinate to the residential use.*
- *Residents require certainty about the residential amenity of the area and are protected from potentially incompatible land uses.*
- *Farming is of a nature or scale that will not conflict with housing.*
- *Residents will have access to most of the normal services and infrastructure provided in urban areas.*

The Practice Note identifies examples of possible Rural Living Zone areas as being:

- *Rural areas that have been substantially subdivided and developed for dwellings in proximity to an urban area or township with a range of urban services and infrastructure*
- *Rural land adjacent to an urban area or township which meets the key strategic and land capability requirements of Minister's Direction No. 6*

9.3 Rural Residential Options

As noted earlier, there are no areas of land zoned for Rural Living purposes in Colac Otway Shire. This report acknowledges that there is however rural lifestyle demands in the Shire that is resulting in unplanned *de facto* rural living within the Farming Zone. The report notes that:

Rural land traditionally used for farming is being used for lifestyle purposes in the absence of land zoned for Rural Living. The Shire needs to consider identifying land for Rural Living to prevent unplanned Rural Living in the Farming Zone and associated problems of increasing property values inhibiting farm growth, servicing, provision of infrastructure and conflict with adjoining land uses.

The report includes an explicit recommendation (Section 4.5) to:

Identify candidate areas for rural residential development and consider the introduction of the Rural Living Zone focusing on areas with moderate to low agricultural capability, immediately adjacent to townships and that meet the requirements of Ministers Direction 6.

However, no explicit analysis in accordance with Minister's Direction 6 for the specific application of the Rural Living Zone has been undertaken as part of this report. The report does however identify specific principles that should guide the identification of Rural Living Zone candidate areas. Principles to consider include:

- Subdivision pattern;
- Amount of existing dwelling development (i.e. dwelling density);
- Proximity to a town; and
- Low to moderate agricultural capability.

While these principles are consistent with the requirements of MD6, the new Rural Residential Guidelines and the Practice Note "Applying the Rural Zones," to now introduce the Rural Living Zone to candidate areas requires further justification in terms of settlement strategy and housing need.

This report also notes the degree to which there is already a vast 'pool' of small lots in the Farming Zone with Table 5-1 indicating that there are 2940 lots in the Shire that are less than 2ha in area. These lots are distributed throughout the Shire but are located primarily within proximity of Colac township as well as smaller rural townships such as Barongarook, Cororooke, Coragulac,

Birregurra, Kwarren, Gellibrand, Beech Forest, Forrest and Lavers Hill. It is unclear how many of these lots are developed with a dwelling, although it is known that a significant number are old crown allotments that are part of larger, productive farms. This supply pool is relevant in terms of MD6, yet also demonstrates that applying the Rural Living Zone to clusters of existing, small lot subdivisions where there is existing dwelling development on low to moderate agricultural capable land will not result in a significant increase in supply as it will not enable a significant amount of new rural residential development.

Council has now received some related strategic work, independent of this report, which recommends the application of the Rural Living Zone on the southern outskirts of Colac Township to land which has already been subdivided to lot sizes consistent with a Rural Living outcome and where a significant number of dwellings already exist. The Colac Structure Plan (*Connell Wagner – February 2007*) notes the following (pages 5 and 6):

...much of the Farming Zoned land between Colac and Elliminyt is also held in fragmented titles formed via historical subdivisions. These fragmented parcels have undermined the rural status of this land which draws greater value from larger, unrestrained parcels devoid of development to protect its rural productivity.

This Farming zoned land is located close to services, infrastructure and facilities (within the Barwon Water Sewer District) which are valuable assets for land that can be developed more intensively. As there is ample Residential 1 zoned land available, the Colac Structure Plan has promoted two areas of this fragmented, serviced rural land as appropriate for 'rural living' on the basis that this land is highly sought after land within close proximity to town centres and which fits an immediate form that need not be further subdivided. Policies restricting subdivision in this zone to a minimum of 2 hectares and no more than 1 dwelling per lot would be promoted to ensure the low density nature of rural living can be achieved and sustained.

The Structure Plan recommended the following:

Rezone allocated areas of current Farming zoned land between Elliminyt and Colac (east and west of Colac-Lavers Hill Rd) to Rural Living zone.

9.4 Other Rural Residential Candidate Areas

A recommendation in Section 4.5 of this report is to:

Identify candidate areas for rural residential development and consider the introduction of the Rural Living Zone focusing on areas with moderate to low agricultural capability, immediately adjacent to townships and that meet the requirements of Ministers Direction 6.

Adopting the principles of subdivision pattern, amount of existing dwelling development and proximity to a town the following candidate areas have some potential for further and more detailed analysis:

- Kwarren (south side);
- Barongarook;
- Gellibrand;
- Forrest (south side);
- Beech Forest (north and south side); and
- Lavers Hill.

Maps in Appendix 2 show the potential candidate areas for the Rural Living Zone.

Community consultation on the Draft Strategy highlighted that no candidate areas were identified north of the Princes Highway and that based on the same principles, other areas may have merit for rural residential development.

It is recommended that Council prepare a Rural Living Strategy to identify appropriate locations for rural residential development across the Shire, including an evaluation as per the rural residential guidelines of Ministerial Direction No. 6 to refine (expand or contract) the candidate rural living areas nominated in this report;

It is noted that while Birregurra satisfies many of the above principles, it is already serviced by an existing area of Low Density Residential Zone that provides for rural residential style living opportunities. Further review of the Township Zone and rural residential development options for Birregurra is expected to occur in 2007 as part of the preparation of a structure plan for Birregurra.

The Apollo Bay Hinterland was also assessed for potential candidate areas for the Rural Living Zone however there is no pattern of existing subdivision and dwelling development that would warrant the application of the Rural Living Zone.

9.5 Rural Residential Limitations

While the report recognises that there are rural lifestyle demands in the Shire, the application of the Rural Living Zone is only one of the options available to meet this demand. The other options are:

- Consideration of new dwellings on all small lots in rural areas; or
- Approval of small lot 'excisions' of existing dwellings in rural areas; or
- Preparation of detailed assessment criteria for either of the above options.

It is acknowledged that these options have the potential to create conflict between rural activities and rural lifestyles that potentially undermines the objective of protecting the agricultural base of the Shire. In the absence of any Rural Living Zoned land, Council will need to develop local policies to assist them in determining applications for dwellings in the Farming Zone and applications for small lot excisions in the Farming Zone. These policies are discussed at Section 10.4. The Rural Living Zone is considered to be the most transparent and appropriate use of the Victorian Planning Provisions to cater for rural lifestyle demands. Development of local policies for the Farming Zone (in the absence of any Rural Living zones) will not completely remove the risk of unplanned rural living.

It is also considered most unlikely that Council will be able to have a liberal policy position on dwellings and excisions in the Farming Zone, while also providing extensive new areas of land zoned Rural Living.

10 Planning Scheme Implications.

The key planning scheme implications arising from the report are as follows.

10.1 Municipal Strategic Statement (MSS)

The current MSS contains strategic directions relevant to agriculture at Clause 21.04-2 (Nature of the Land) and Clause 21.04-5 (Primary Industry).

While these directions remain of some relevance, they need to be replaced by the updated material arising from the analysis in this report and under the themes of:

- Agricultural industries in the Shire;
- Agricultural capability;
- Forestry plantations;
- Rural Living opportunities; and
- Environmental considerations.

In particular, the following position statement needs to be included in the MSS and be supported by the conclusions of this report as detailed in 2 and 7.

The Shire recognises the importance of agriculture and forestry to the region and the need to protect high agricultural quality land, encourage agricultural diversity and develop a sustainable forestry and timber industry. The Shire also recognises the importance of providing opportunities for tourism and rural living to ensure the Shire continues to grow. However, it is important that this growth is managed sustainably and the environmental and landscape assets that attract tourists and new residents alike are protected.

10.2 Zones

The current Colac Otway Planning Scheme contains the Farming Zone and the Rural Conservation Zone. These zones have recently replaced the Rural Zone and Environmental Rural Zone following the State Government 'Rural Zones Review'. The zoning options and their respective roles were outlined in the Advisory Note that accompanied Amendment VC24 in June 2004 when the new zones were introduced:

*The **Farming Zone** replaces the Rural Zone and the **Rural Conservation Zone** replaces the Environmental Rural Zone. Extensive strategic justification is not required to apply these zones where the zone is applied to land already zoned Rural or Environmental Rural. Councils are encouraged to apply the new zones immediately to benefit from the improved provisions.*

*The application of the **Rural Activity Zone** will require a planning scheme amendment. The normal strategic justification and amendment process will apply.*

The Advisory Note also stated that the **Rural Living Zone** upgrades the existing zone of the same name and will be the main zone for rural residential areas.

In detail, the Advisory Note describes the main features of the new zones as follows.

*The main feature of the **Farming Zone** is its recognition of agriculture as the dominant land use in rural Victoria. The purpose of the zone articulates the encouragement of agriculture as a future*

sustainable land use. Most agricultural uses do not need a planning permit. Agricultural uses that require a permit will need to consider the environmental effects and potential land use conflicts with surrounding agricultural uses.

*The **Rural Activity Zone** is designed to be applied to selected areas where agricultural activities and other land uses can co-exist. A wider range of tourism, commercial and retail uses may be considered in the zone. Agriculture has primacy in the zone, but other uses may be established if they are compatible with the agricultural, environmental and landscape qualities of the area.*

*The **Rural Conservation Zone** will protect and enhance the natural environment for its historic, archaeological, scientific, landscape, faunal habitat and cultural values. Agriculture is allowed in the zone provided it is consistent with the environmental and landscape values of the area.*

*The revised **Rural Living Zone** provides for residential use in a rural environment. While the zone provides for agricultural activities the amenity of residential living must be protected.*

These options are now considered in detail with respect to the outcomes of this report.

10.2.1 Farming Zone

The Farming Zone (and schedule) was introduced to the Colac Otway Planning Scheme on 9 November 2006, replacing the Rural Zone.

This report identifies rural land as being of either 'High', 'Moderate' or 'Low' capability and recommends lot sizes that reflect this. The suggested lot sizes maintain the current two-tiered regime of lot sizes at 40ha and 80ha being:

Minimum subdivision area (hectares)	Land south of Princes Highway and land west of Ballarat Road.	40 hectares
	Land north of the Princes Highway and land east of Ballarat Road	80 hectares

These lot sizes are currently included in the schedule to the Farming Zone, although it is recommended that the layout of the schedule be modified to the format of the Macedon Ranges Planning Scheme Schedule to the Farming Zone by including a map identifying where minimum subdivision areas apply.

It is also recommended that the schedule to the Farming Zone include an appropriate minimum area for which no permit is required for a dwelling that matches the above subdivision minima.

The community consultation highlighted areas currently zoned Farming, but considered to be within town boundaries. It is recommended that these areas be considered in a review of township boundaries of small towns across in conjunction with the further strategic work required for the Rural Living Strategy

10.2.2 Rural Conservation Zone

There has been a straight translation from the Environmental Rural Zone to the Rural Conservation Zone in those areas of the Shire where the Environmental Rural Zone applied.

10.2.3 Rural Activity Zone

This zone is the newest in the suite of zones introduced as a result of the Rural Zones review. In March 2007, DSE released a 'Practice Note' on applying the rural zones that noted that the RAZ would require a specific planning scheme amendment based on detailed strategic justification. The Practice Note stated that:

The main feature of the Rural Activity Zone is the flexibility that it provides for farming and other land uses to co-exist. In this zone:

- *The zone purpose and provisions support the continuation and growth of farming but provide the opportunity for non-farming uses to be considered in appropriate locations.*
- *A wider range of tourism, commercial and retail uses may be considered, compared to the Farming Zone and Rural Conservation Zone.*
- *Farming uses are encouraged to establish and expand with as little restriction as possible, subject to proper safeguards for the environment.*
- *A planning permit is always required to use land for a dwelling.*

The mix of uses that a planning authority may want to encourage in the zone is wide-ranging and could include:

- *Farming, rural industry and associated agribusiness uses.*
- *Farming and tourist facilities.*
- *Intensive animal husbandry and associated rural processing industries.*
- *Nature-based tourism and recreation facilities.*
- *Agricultural and environmental education and research facilities.*

.....

The mix of uses that is encouraged in the zone should complement the environmental and landscape values of the land, and support the Council's overall urban and rural settlement strategies. It would be inappropriate to apply the zone to encourage a rural mixed-use area if the land is required for urban development in the future, or if the particular uses would be better located in an existing town, where there is access to a wider range of urban services and infrastructure.

The zone should not be mistaken for a quasi-rural residential zone. Housing is only one of a number of uses that may be considered in the zone, and, in some circumstances, it may be incompatible with the particular mix of uses that the planning authority is seeking to achieve.

In reaching a decision on proposals in the Rural Activity Zone, the responsible authority must consider whether the use or development will support and enhance agricultural production and other matters relating to protecting and enhancing farming. However, the weight that is given to these considerations will need to be balanced with other social, environmental or economic objectives and policies identified for the land in the scheme

The schedule to the Rural Activity Zone requires the planning authority to nominate an appropriate minimum lot size. This will vary depending on the physical attributes of the land, the type of agricultural activities being encouraged and the mix of non-farming land uses being sought. The minimum lot size should promote effective land management practices and infrastructure provision and could be large or small.

Based on the advice from the 'Practice Note', it is considered that there is some justification provided in this report and in the agricultural analysis for the limited application of the Rural Activity Zone.

The assessment of agricultural industry sectors (Section 4.3), specifically identifies trends in farm businesses over time, farm viability and changes and trends in Victorian agriculture, and concluded that the failure to provide appropriate zones in appropriate locations (specifically the Rural Activity Zone and Rural Living Zone) will compromise the long-term viability of farming in Colac Otway Shire.

The report has identified a shift away from agriculture in some areas around the Apollo Bay Hinterland, particularly areas of low to moderate agricultural capability. This shift has been towards other income generating activities such as tourism and is linked with the natural environment and landscape character.

According to the outcomes of the report, the candidate area for application of the Rural Activity zone is limited to the Apollo Bay Hinterland (Map 10-1) especially so as to promote tourism related activities.

Apollo Bay has been identified in the Great Ocean Road Region strategy as an area where development is expected to occur outside of current township boundaries. The Apollo Bay Structure Plan and State Policy such as the Victorian Coastal Strategy and Coastal Spaces reports clearly indicate that any such development must be respectful of landscape character and environmental characteristics of the land. In this regard, opportunities for additional, small scale tourist related development in the hinterland is limited in a spatial context.

In assessing appropriate locations for additional tourist related development in the hinterland of Apollo Bay, which requires the application of the Rural Activity Zone to ensure that tourist related uses do not have to be "in conjunction with" agriculture, rural industry or winery, the spatial extent of relevant policy constraints was assessed. The key policy constraints are as follows:

- GORRS - setback development a substantial distance from the Great Ocean Road (therefore properties fronting the Great Ocean Road were excluded from application of the RAZ)
- - Coastal Spaces, GORRLAS, Apollo Bay Structure Plan - limit development in the foothills to the rear of Apollo Bay
- - Declared Water Supply Catchments / ESO5 - restrict the intensification of development in the Barham River catchment
- - Apollo Bay Structure Plan - protect remnant vegetation west of Marengo.

When these policy constraints are mapped, the only area of land in the hinterland of Apollo Bay that remains is the area identified for application of the Rural Activity Zone.

It is appropriate that a wider range of uses than the Farming Zone and Rural Conservation Zone be considered within the Apollo Bay Hinterland, provided that they are compatible with agriculture and the environmental and landscape characteristics of the area. This is particularly the case for the Apollo Bay Hinterland where any development will have to be consistent with the Great Ocean Road Region Landscape Character Assessment Study (GORLASS).

The DSE Practice Note "Applying the Rural Zones" identifies the Rural Activity Zone as being suited to rural areas where commercial, tourism or recreation development will complement and benefit the particular agricultural pursuits, landscape features or natural attractions of the area. The map below indicates broadly the areas within the Apollo Bay hinterland that are recommended to be rezoned from Rural Conservation Zone to Rural Activity Zone so as to facilitate the objective of

commercial, tourism or recreation development which will complement and benefit the particular agricultural pursuits, landscape features or natural attractions of the area. Importantly, there is also broad policy support within both the Local & State Planning Policy Framework for this recommendation. It is noted however that a detailed assessment of the Apollo Bay Hinterland proposal will be required to ensure consistency with landscape character and environmental protection objectives of State and Local policy.

This scenario relies on the need to have a more flexible attitude to “use” applications than the present Rural Conservation Zones has. It is noted that the report supports this more liberal approach for “use” but not for “subdivision”. **No justification has been provided to alter the current regime of minimum lot sizes.**

Therefore this report does not conclude that the minimum lot size contained in the schedule to the Rural Conservation Zone as it applies to the Apollo Bay Hinterland (40 hectares) is inappropriate. The introduction of the Rural Activity Zone to the Apollo Bay Hinterland does not aim to increase rural living opportunities, but aims to facilitate commercial, tourism or recreation development that will complement and benefit the particular agricultural pursuits, landscape features or natural attractions of the area. In this regard it is recommended that the minimum lot size for subdivision in the schedule to the Rural Activity Zone be 40 hectares.

The preferred mix of uses in the Rural Activity Zone in the Apollo Bay hinterland includes:

- Agriculture
- Tourist and recreational activities
- Group accommodation with tourist or recreational activities (including backpacker accommodations, camping and caravan park, cabins, etc)
- Restaurant, but only in association with a tourist/recreational activity

All development and use should be:

- Of a scale relevant to the land size and surrounding uses;
- Subservient to the landscape so as not to detract from the quality of the landscape;
- Of high quality design and style relevant to the surrounding land uses;
- Capable of net gain environmental outcomes;
- Self sufficient in the provision of relevant infrastructure and associated development costs.

Uses that would not be supported include an equestrian supplies, motor racing track, hotel, landscape gardening supplies, tavern and similar uses.



Map 10-1 Candidate area for application of the Rural Activity Zone

10.2.4 Tourism in the Otways

Consistent with other Great Ocean Road municipalities, there is increasing interest in tourism in the coastal hinterland in the Colac Otway Shire. While an area for application of the Rural Activity Zone has not been nominated, Council will consider proposals for application of the Rural Activity Zone to provide for tourism facilities in the Otways on a case-by-case basis. The preferred mix of uses includes:

- Ecotourism
- Agriculture
- Tourist and recreation facilities
- Group accommodation with tourist or recreational activities (including backpacker accommodations, camping and caravan park, cabins, etc)
- Restaurant, but only in association with a tourist/recreational activity

All development and use should be:

- Of a scale relevant to the land size and surrounding uses;
- Subservient to the landscape so as not to detract from the quality of the landscape;
- Of high quality design and style relevant to the surrounding land uses;
- Capable of net gain environmental outcomes;
- Self sufficient in the provision of relevant infrastructure and associated development costs.

Uses that would not be supported include an equestrian supplies, helipad, motor racing track, hotel, landscape gardening supplies, tavern and similar uses.

10.2.5 Rural Living Zone

While this report repeatedly recognises that there are opportunities for application of the Rural Living Zone to meet the rural lifestyle demands of the Shire, no explicit analysis of the application of the Rural Living Zone under Ministerial Direction No. 6 has been undertaken.

The report identifies that:

Rural land traditionally used for farming is being used for lifestyle purposes in the absence of land zoned for Rural Living. The Shire needs to consider identifying land for Rural Living to prevent unplanned Rural Living in the Farming Zone and associated problems of increasing property values inhibiting farm growth, servicing, provision of infrastructure and conflict with adjoining land uses.

The report includes an explicit recommendation (Section 4.5) to:

Identify candidate areas for rural residential development and consider the introduction of the Rural Living Zone focusing on areas with moderate to low agricultural capability, immediately adjacent to townships and that meet the requirements of Ministers Direction 6.

Sections 9.3 and 9.4 identify candidate areas for the Rural Living Zone.

10.3 Overlays

The current Colac Otway Planning Scheme contains the following overlays:

- Significant Landscape Overlay (SLO);
- Land Subject to Inundation Overlay (LSIO);
- Environmental Significance Overlay (ESO);
- Erosion Management Overlay (EMO); and
- Vegetation Protection Overlay (VPO).

While no additional overlays flow from the outcomes of this report it is noted that a separate report has recommended the very wide application of the Salinity Management Overlay (SMO). In addition, a number of the existing overlays (SLO, VPO, ESO) will need to be modified to take account of further strategic work undertaken by Council or as a result of consultation as part of the three-year review.

10.4 Local Policy

Under the Farming Zone in the Colac Otway Planning Scheme, a permit is required for a dwelling on any lot less than 40ha in area (other than in the north east area of the Shire where it is 80ha).

Under the Colac Otway Planning Scheme a planning permit is also required to subdivide any land in the Farming Zone. A schedule to the Farming Zone prescribes that the minimum size of a lot is again 40ha (other than in the north east area of the Shire where it is 80ha).

However, the Farming Zone provides exceptions for the subdivision of land into lots less than that specified in the schedule. These exceptions are variously referred to as either excisions or boundary realignments. In both cases (and for dwellings), the Planning Scheme enables such applications to be made but the Farming Zone specifies (at Clause 35.07) the matters **which must be considered** by Council in determining whether to grant a permit or not. These matters include (but are not limited to):

- The potential for the proposal to lead to a concentration or proliferation of dwellings in the area and the impact of this on the use of the land for agriculture.
- Whether the use or development will support and enhance agricultural production.
- The potential for the use or development to limit the operation and expansion of adjoining and nearby agricultural uses.
- Whether the dwelling will result in the loss or fragmentation of productive agricultural land.

In addition to the decision guidelines in the Farming Zone, and so as to provide guidance to all stakeholders on its attitude to applications which might be lodged for dwellings, excisions or boundary realignments, Council has for some time had a 'local policy' in its planning scheme (at Clause 22.04-3) which recognises that *"house lot excisions can be detrimental to the continued maintenance and efficient operation of farming land and sustainable agriculture"*. In furthering that position, the policy specifies that (in summary):

- Lots will be at least 2ha;
- Excised dwellings are habitable;
- Dwellings will not restrict agricultural production;
- Concentrations of small lots will be avoided;
- Subdivisions in water supply catchments and recharge areas are to be avoided; and
- A legal agreement may be required.

This policy has been extensively used in the first six years of the operation of the scheme and has been the subject of numerous VCAT decisions (see *Great Southern Plantations Pty. Ltd. V. Colac Otway Shire Council – P2977/2005*; *Midway Pty. Ltd. V. Colac Otway Shire Council – 2006 VCAT 15*).

It is understood that the policy has only been of limited value with anecdotal evidence suggesting that about 25 excision applications are approved every year; and that about 50 permits for new dwellings in rural areas are also approved every year. It is acknowledged that in the event of a permit issuing, it is usual for Council to impose a condition requiring a legal agreement limiting further subdivision and further dwellings. Nevertheless, using these figures, it is evident that at least 50 dwellings per year may be being added to the 'pool' of rural lifestyle opportunities in the Shire. In this context, it is clear that, in a '*defacto*' sense, Council is adequately providing for rural living opportunities.

The maintenance of such an approach by Council would undermine the agricultural objectives of the report and it would certainly jeopardise the prospects of applying the Rural Living zone to any areas given the 'supply pool' of lots and dwellings permitted annually under the current policy.

It is considered that one option for Council to pursue is of a 'policy' that treats each application on its merits strictly in accordance with the decision guidelines in the Farming Zone. In the event of Council being satisfied as to the merits of such an application (be it a dwelling or a small lot subdivision) it is suggested that such an approval must be contingent on a legal agreement prohibiting further subdivision and a further dwelling being erected on the vacant parcel.

The attraction of this option is that in the event of an excision being approved, the value of the remainder of the land will not be distorted by the presence of a house, but will be priced to reflect that the land has no further potential for a house. Given that the remainder of the land will have no housing potential, this may be the incentive for the land to be retained and consolidated in agricultural use.

It is considered that the existing policy clearly does not provide enough direction on recurrent issues facing the Shire as identified in the report including:

- Rural subdivision; and
- Rural housing.

The clear evidence of farm amalgamations and the need to increase farm sizes to remain economically viable indicates that policy and provisions relating to dwellings and small lot subdivisions in rural areas will require a strict interpretation of the Farming Zone provisions to ensure incompatible land uses (including dwellings) do not negatively impact on the ability to farm.

Accordingly, based on the outcomes of this report, it is considered that there is the need to develop a new policy at Clause 22 being a “Rural subdivision and housing” policy to reflect the above outcomes.

10.5 Planning Scheme Recommendations

Based on the analysis in the report, the following recommendations are made:

- Maintain the current minimum lot size provisions in the schedule to the Farming Zone for subdivision.
- Introduce a permit trigger for timber production on land in excess of 40ha in areas identified as being ‘farmland of strategic significance’ (Map6-2);
- Introduce a permit trigger for timber production on land in excess of 40ha in Declared Water Supply Catchments within the municipality
- Introduce the recommendations of the GORLASS:
 - Amend the Schedule to the Farming Zone to require a permit for timber production over 40 hectares abutting a Road Zone Category 1.
 - Insert appropriate guidance in the MSS to require protection of indigenous or native vegetation buffer (minimum depth of 20 metres) for timber plantations abutting a Road Zone Category 1.
- Maintain the Rural Conservation Zone.
- Apply the Rural Activity Zone to the Apollo Bay Hinterland (Map 10-1) excluding the Coastal Strip and subject to detailed assessment of the impact on landscape character and the environment.
- Specify 40 hectares as the minimum lot size in the schedule to the Rural Activity Zone within the Apollo Bay Hinterland.
- Discuss the application of the Rural Living Zone candidate areas identified in this report with DSE.
- Prepare a Rural Living Strategy to identify appropriate locations for rural residential development across the Shire, including an evaluation as per the rural residential guidelines of Ministerial Direction No. 6 to refine (expand or contract) the candidate rural living areas nominated in this report;
- Introduce a minimum lot size in the Rural Living Zone in the candidate areas in accordance with the existing settlement pattern.
- Review the boundaries of small towns in conjunction with the preparation of the Rural Living Strategy;

- Review the environmental significance and vegetation protection overlays in the rural areas to incorporate more recent mapping of native vegetation and the findings of the Corangamite River Health Strategy.
- Consider the introduction of the Salinity Management Overlay to identified areas as part of the Planning Scheme Review amendment.
- Introduce a Rural Subdivision and Housing local policy.

Appendix 1. Soil Descriptions

Map Code	Land System	Landform	Predominant Soil types	Landform element	Topsoil Depth (cm)	Topsoil Texture	Subsoil Texture	Subsoil Sodicity (ESP)	Slope	Erosion Hazard
	Tomahawk Creek	Deeply dissected plateau remnants	Yellow brown gradational soils		30	Sandy loam	Medium clay	5 - 8	15% (8-20)	Dispersible subsoils of low permeability are prone to gully and tunnel erosion and to landslips and slumping
			Mottled yellow and red gradational soils with ironstone		60	Sandy loam	Silty Clay	4	1% (0-3)	
Gh	Porcupine Creek	Undulating Plain	Grey sand soils with uniform texture	Crest	60	Loamy sand	Loam fine sandy	<1	21% (9-38)	High permeability and on steeper slopes are prone to sheet, rill and scour gully erosion
			Grey sand soil with hardpans, uniform texture	Upper slope	60	Loamy sand	Loam fine sandy	<1	9% (2-12)	Hardpans restrict drainage leading to seasonal waterlogging
Yo	Ferguson Hill	Undulating hills and ridges	Yellow gradational soil, weak structure	Slope	30	Sandy loam	Clayey sand	3	14% (5-37)	Weakly structure surface on steeper slopes are prone to sheet erosion
			Grey sand soil with hardpans, uniform texture	Crest	60	Sandy loam	Clayey sand	3	5% (2-9)	Weakly structure sands on hardpans are prone to sheet erosion and seasonal waterlogging
	Yahoo Creek	Dissected hills	Yellow brown gradational soils, coarse structure	Crests, upper slope	30	Sandy clay loam	Medium clay	5-8	15% (2-30)	Soils of low permeability on the steeper slopes are prone to sheet and rill erosion. Dispersible subsoils are prone to gully erosion
			Stony brown gradational soils	Steep slopes	10	Fine sandy loam	Sandy clay loam	2	50% (20-70)	Stony shallow soils with weak structure and low water holding capacity on steep slopes and prone to sheet erosion and land slides

Map Code	Land System	Landform	Predominant Soil types	Landform element	Topsoil Depth (cm)	Topsoil Texture	Subsoil Texture	Subsoil Sodicity (ESP)	Slope	Erosion Hazard
Yq (west)	Kennedys Creek	Undulating Plain	Yellow brown gradational soils, coarse structure	Middle slopes	30	Fine sandy loam	Medium clay	5-8	10% (4-20)	Highly dispersible clay subsoils are prone to gully and tunnel erosion. Periodic saturation leads to landslips. Steeper slopes are prone to sheet erosion.
			Mottled yellow and red gradational soils	Upper slopes and crests	10	Fine sandy loam	Loamy clay – medium clay	5	9% (4-15)	Steep slopes lead to sheet erosion
Pf	Chapple Vale	Dissected hills	Grey sand soils, uniform texture	Crest, slope	90	Loamy sand	Loamy sand	2	20% (5-45)	Steeper slopes with compacted soils are prone to sheet, rill and scour gully erosion
			White sand soils, uniform texture	Crest, slope	30	Coarse sand	Loamy coarse sand	1	25% (10-35)	Steeper slopes with compacted soils are prone to sheet, rill and scour gully erosion
			Grey sand soils with hardpans, uniform texture	Broad depressed area of impeded drainage	60	Sandy loam	Loam fine sandy	<1	15% (5-20)	Hardpans restrict drainage leading to seasonal waterlogging
Gi	Bunker Hill	Dissected Hills	Brown gradational soils	Steep lower slope	20	Loam	Medium clay	7	45% (30-65)	Steeper slopes are prone to sheet and rill erosion. Clay subsoils subject to periodic saturation are prone to landslips.
			Yellow gradational soils, weak structure	Slope	50	Sandy loam	Sandy clay loam	3	30% (20-35)	Weakly structured surface soils are prone to sheet erosion on steeper slopes

Map Code	Land System	Landform	Predominant Soil types	Landform element	Topsoil Depth (cm)	Topsoil Texture	Subsoil Texture	Subsoil Sodicity (ESP)	Slope	Erosion Hazard
Yq (central)	Kawarren	Rolling hills	Mottled yellow and red gradational soils	Crest, slope	10	Fine sandy loam	Medium clay	4	9% (1-15)	
			Yellow gradational soils, weak structure	Steep slope	50	Sandy loam	Clayey sand	3	20% (10-45)	Clay soils on steep slopes subject to periodic saturation are prone to landslips. Steep slopes are prone to sheet and rill erosion.
Mg	Wonga	Undulating plain	Mottled yellow and red gradational soils	Crest, upper slope	10	Sandy loam	Medium clay	4	7% (0-12)	
			Grey sand soils, structured clay underlay	Undulating plain	20	Sandy loam	Clay loam	<1	7% (1-16)	Low permeabilities lead to seasonal waterlogging and soil compaction.
			Yellow brown gradational soils, coarse structure	Lower slope	30	Sandy loam	Medium clay	5-8	10% (4-14)	Dispersible clay subsoils of low permeability are prone to gully erosion. Steeper slopes are prone to sheet erosion.
Ya	Barongarook	Undulating to rolling plain	Mottled yellow and red gradational soils	Crest, upper slope	10	Loam	Medium clay	4	5% (0-10)	
			Grey sand soils, weakly structured clay underlay	Lower slope	20	Sandy loam	Clay loam	<1	7% (1-15)	Low permeability and seasonal perched waterlogging and soil compaction.
Yo	Yeodene	Rolling plain	Grey sand soils, uniform texture	Crest slope	90	Loamy sand	Loamy sand	<1	9% (1-15)	
			Yellow gradational soils, weak structure	Crest, slope	50	Sandy loam	Clayey sand	3	8% (1-15)	Weakly structured surface on steeper slopes are prone to sheet erosion
			Grey sand soils weakly structured clay underlay	Slope	20	Loamy sand	Clay loam	<1	15% (5-20)	Weakly structured surface and low permeabilities lead to sheet erosion on steeper slopes

Map Code	Land System	Landform	Predominant Soil types	Landform element	Topsoil Depth (cm)	Topsoil Texture	Subsoil Texture	Subsoil Sodicity (ESP)	Slope	Erosion Hazard
Yf	Deepdene	Undulating plain	Mottled yellow and red duplex soils with ironstone	Broad crest	30	Sandy loam	Medium clay	2	1% (0-2)	
			Yellow brown sodic duplex soils, coarse structure	Gentle upper slope	60	Fine sandy loam	Sandy clay	17	5% (2-10)	Dispersible clay subsoils of low permeability are prone to gully and tunnel erosion.
Yp	Pennyroyal	Hillslopes with gentle crests	Mottled yellow and red duplex soils	Gentle broad slope	30	Fine sandy loam	Medium clay	7	3% (0-7)	
			Yellow-brown duplex soils, coarse structure	Gentle upper slope	30	Fine sandy loam	Sandy clay loam	10	5% (2-10)	Dispersible clay subsoils of low permeability are prone to gully erosion and tunnel erosion.
Ge	Barwon River	Flood plain	Grey gradational soils	Flat plain	30	Fine sandy clay loam	Clay loam	6	1% (0-2)	High seasonal watertable leads to waterlogging, soil compaction and salting. Dispersible clay subsoils are prone to gully and tunnel erosion.
	Forrest	Deeply dissected hills	Brown duplex soils	North and west facing slopes	30	Loam	Heavy clay	4	45% (25–65)	Dry aspect, steep slopes and weakly structured surfaces lead to sheet erosion. Clay subsoils on steep slopes subject to periodic saturation are prone to landslips
			Brown gradational soils	South and east facing slopes	30	Loam	Heavy clay	3	45% (25–65)	Steep slopes are prone to sheet erosion. Clay subsoils on steep slopes subject to periodic saturation are prone to landslips.
Ya	Birregurra	Flat plain	Yellow brown calcareous sodic duplex soil, coarse structure	Flat plain	15	Fine sandy loam	Heavy clay	21	1% (0-3)	Dispersible clay subsoils of low permeability are prone to gully and tunnel erosion. Seasonal high watertables lead to soil salting.
Yf	Winchelsea	Flat to gently undulating plain	Grey calcareous sodic duplex soils, coarse structure	Mostly flat or undulating slope	-	Clay loam	-	-	1% (0-3)	Soil of low permeability are prone to waterlogging and to salting where high watertables occur.

Map Code	Land System	Landform	Predominant Soil types	Landform element	Topsoil Depth (cm)	Topsoil Texture	Subsoil Texture	Subsoil Sodicity (ESP)	Slope	Erosion Hazard
St	Mooleric	Undulating plains with volcanic cones	Grey calcareous sodic duplex soils, coarse structure	Gentle slope	-	Fine sandy loam	-	-	1% (0-3)	Sodic clay subsoils of low permeability with seasonally high watertables are prone to soil salting
			Grey calcareous sodic clay soils uniform texture	Plain depression	-	Clay	-	-	0% (0-3)	Soils of low permeability and with sodic clay subsoils are prone to waterlogging, soil compaction and soil salting.
Gf	Carlisle	High level river terraces	Grey sand soils, structured clay underlay	Mildly dissected alluvial terrace	20	Sandy loam	Clay loam	<1	3% (0-5)	Low profile permeability and perched seasonal watertable lead to waterlogging
			Mottled yellow and red gradational soils	Mildly dissected alluvial terrace	10	Sandy loam	Loamy clay – medium clay	3	7% (1-10)	
			Grey sand soils with hardpans, uniform texture	Mildly dissected alluvial terrace	60	Silty loam	Loam fine sandy	<1	5% (0-9)	Hardpans restrict drainage, leading to seasonal waterlogging

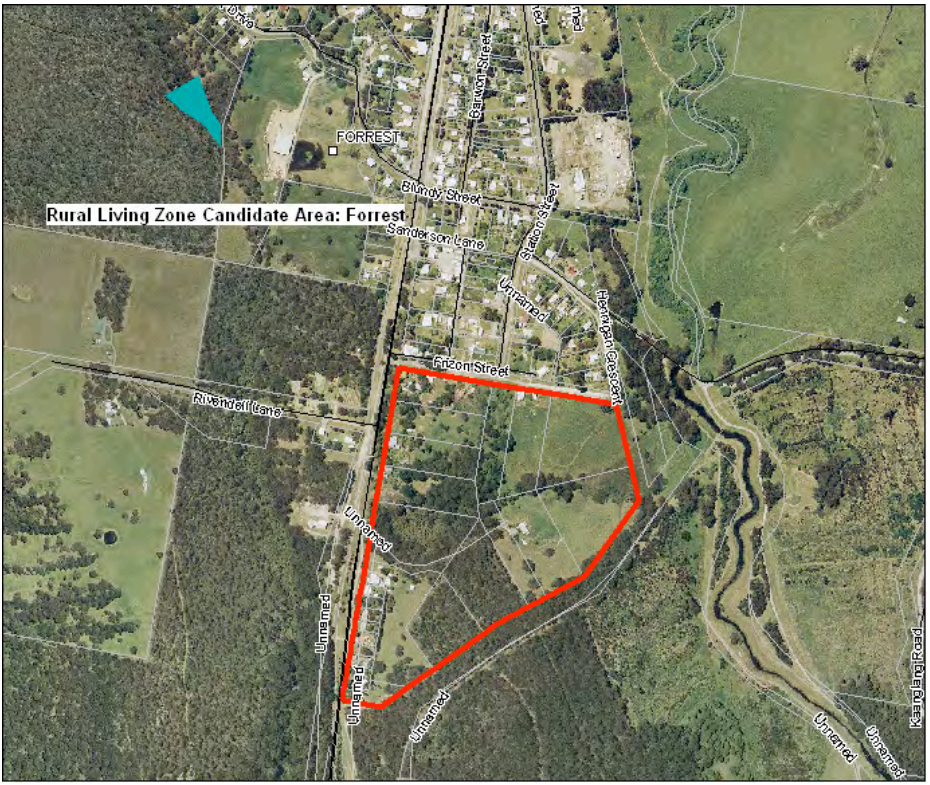
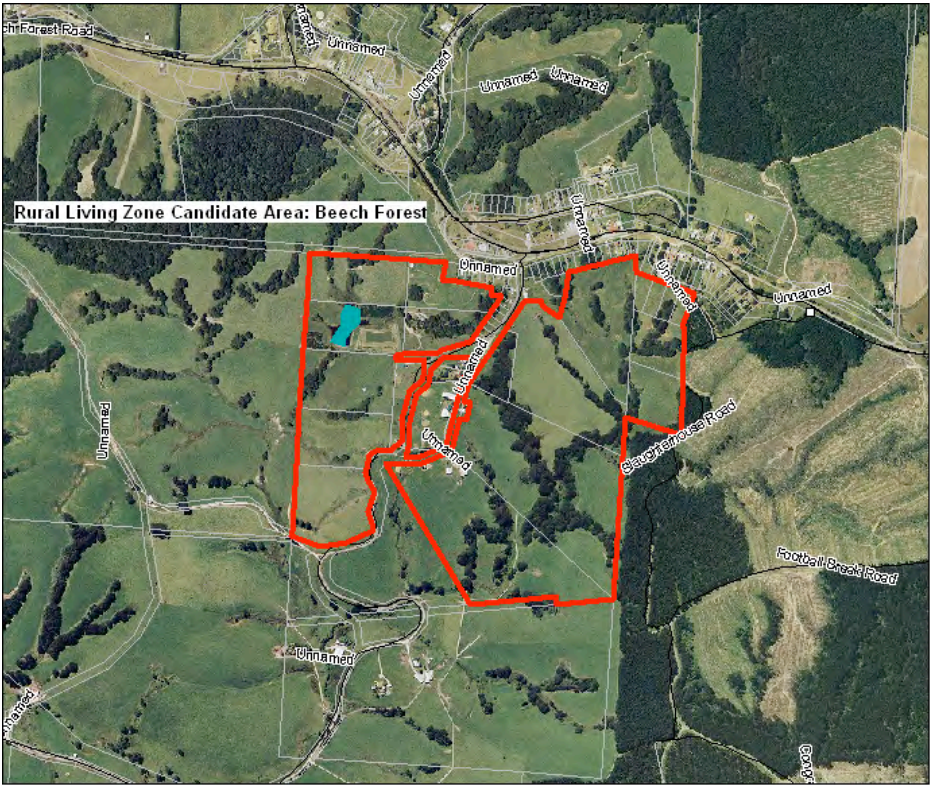
Map Code	Land System	Landform	Predominant Soil types	Landform element	Topsoil Depth (cm)	Topsoil Texture	Subsoil Texture	Subsoil Sodicity (ESP)	Slope	Erosion Hazard
Yo	Junction Track	Dissected hills, broad gentle hill cappings	Yellow gradational soils, weak structure	Crest, slope	30	Sandy loam	Loamy clay	19	12% (2-25)	Weakly structured soils on steeper slopes are prone to sheet erosion
			Grey sand soils with, uniform texture	Crest, slope	90	Loamy sand	Loamy sand	2	15% (2-35)	Steeper slopes with compacted soils are prone to sheet, rill and scour gully erosion
			Grey sand soils with hardpans, uniform texture	Lower slope	60	Loamy sand	Loam fine sandy	<1	9% (3-12)	Hardpans restrict vertical drainage leading to seasonal waterlogging.
	Rivernook	Deeply dissected uplifted plain	Mottled yellow and red gradational soils with ironstone	Upper slope, crest	60	Sandy loam	Silty clay loam	1	5% (1-14)	Weakly structured surfaces and impeding ironstone layers lead to sheet erosion on steeper slopes.
			Grey sand soils with hardpans, uniform texture	Dissected slope	60	Loamy sand	Loam fine sandy	<1	5% (0-9)	Weakly structured surface overlying hardpans on steeper slopes are prone to sheet and rill erosion.
			Yellow brown gradational soils, coarse structure	Lower slope	30	Sandy loam	Medium clay	5-8	7% (4-12)	Highly dispersible soils are prone to gully and tunnel erosion. Weakly structured surface over slowly permeable subsoils are prone to sheet and rill erosion.
	Lorne	Deeply dissected hills	Brown gradational soils	South and east facing slopes	30	Fine sandy clay loam	Heavy clay	1	45% (5-65)	Steep slopes and weakly structured surface lead to sheet erosion. Clay subsoils n steep slopes subject to periodic saturation are prone to landslips
			Brown duplex soils	Upper gentle slope	30	Fine sandy clay loam	Medium clay	8-12	30% (15-45)	Dispersible soils on moderate slopes are prone to sheet erosion. Periodic saturation of dispersible clay subsoils leads to landslips and slumping of road batters
Bj	Aire	Deeply dissected hills	Brown gradational soils	Upper and middle slope	30	Loam	Heavy clay	1	40% (25-80)	Clay subsoils on steep slopes subject to periodic saturation are prone to landslip. Steep slopes are prone to sheet and rill erosion.

Map Code	Land System	Landform	Predominant Soil types	Landform element	Topsoil Depth (cm)	Topsoil Texture	Subsoil Texture	Subsoil Sodicity (ESP)	Slope	Erosion Hazard
Ee	Hordern Vale	Undulating coastal plain	Brown gradational soils	Rise	30	Fine sandy loam	Heavy clay	1	8% (2-20)	
			Red sandy loam soils, uniform texture	Rise	-	Loamy sand	-	-	30% (3-45)	Steep slopes with weakly structured soils are prone to some sheet erosion.
			Mottled yellow and red gradational soils with ironstone	Rise, upper slope	60	Gravelly sand	Silty clay loam	1	5% (1-15)	
Gf	Gellibrand River	Floodplain	Grey gradational soils	Poorly drained lower reaches	-	Fine sandy loam	-	-	1% (0-2)	High discharge rates along watercourses lead to flooding and siltation. High seasonal watertable and low permeabilities lead to seasonal waterlogging and soil compaction
			Brown gradational soils, weak structure	Well drained upper reaches	70	Fine sandy loam	No subsoil	2	0% (0-1)	High discharge rates along watercourses lead to flooding and siltation.. Weakly structured soils are prone to surface compaction
Pb	Cape Otway	Elevated coastal dunes	Red yellow calcareous sand soils, uniform texture	Inland dune	-	Loamy sand	-	-	25% (3-60)	Weakly structured sand soils with low water holding capacity are prone to wind erosion.
			Brown calcareous sand soils, uniform texture	Dunes	15	Loamy sand	Loamy sand	-	25% (5-50)	Weakly structured sand soils with low water holding capacities, subjected to strong on-shore winds are prone to wind erosion.
	Beech Forest	Rolling hills	Brown gradational soils	Crests and slope	30	Clay loam	Heavy clay	1	12% (1-20)	Steep slopes are prone to sheet erosion. Clay subsoils on steeper slopes subject to frequent saturation are prone to landslips
Yr	Mount Mackenzie	Dissected hills	Yellow gradational soils, weak structure	Slope, crest	30	Sandy loam	Light clay	19	33% (4-63)	Weakly structured soils on steep slopes are prone to sheet rill, scour and gully erosion and landslips.
			Red gradational soils, weak structure	Slopes, crests	20	Sandy loam	Silty clay loam	2	37% (31-49)	Weakly structured soils on steep slopes are prone to sheet and rill and landslips.

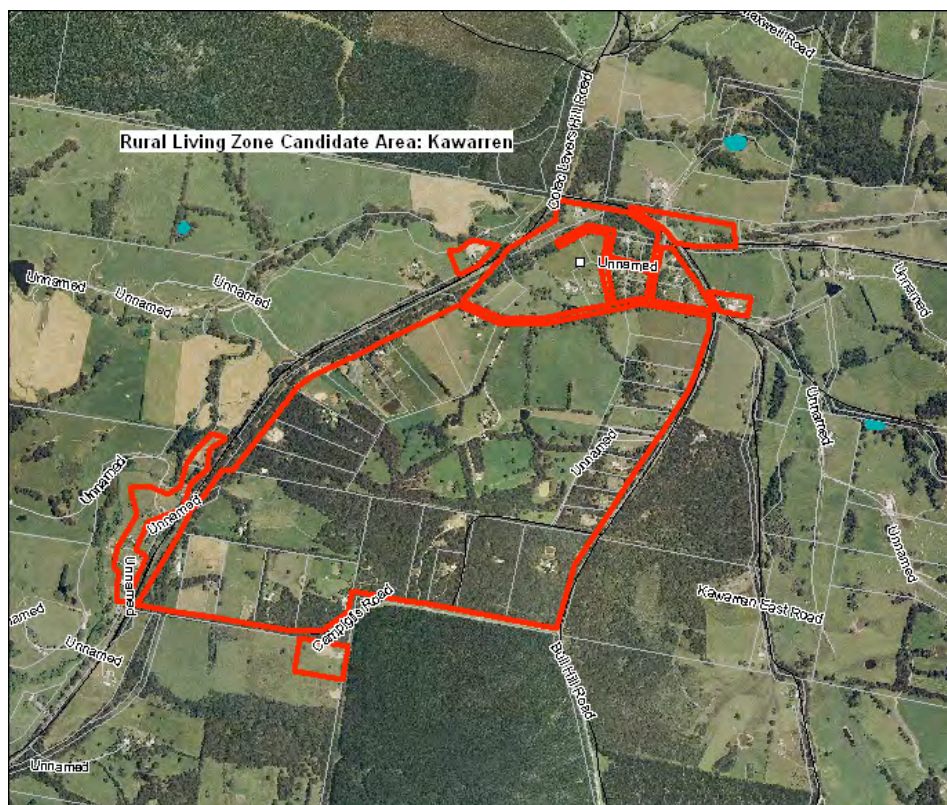
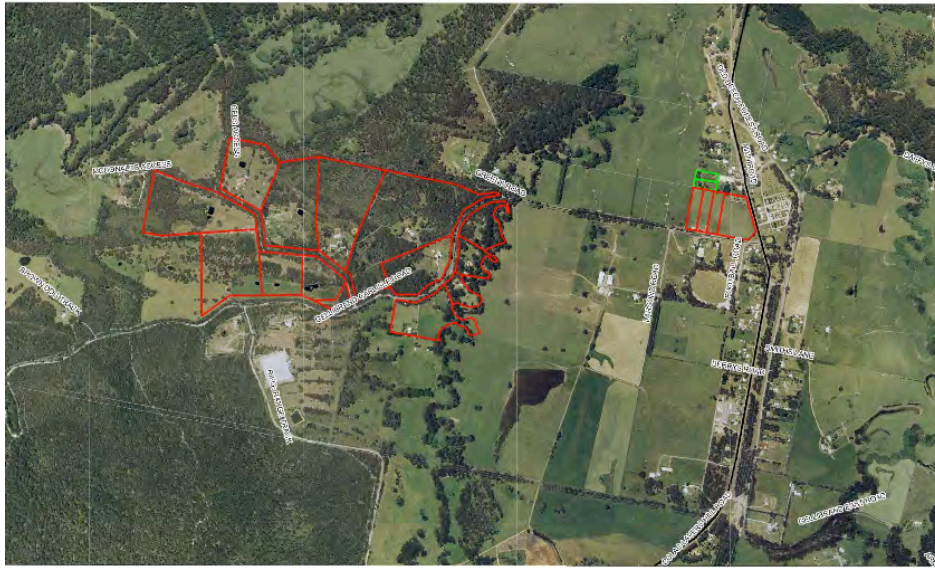
Map Code	Land System	Landform	Predominant Soil types	Landform element	Topsoil Depth (cm)	Topsoil Texture	Subsoil Texture	Subsoil Sodicity (ESP)	Slope	Erosion Hazard
Yk		Gently undulating plains	Hard pedal mottled black duplex soils	-	60	Fine sandy clay loam	Heavy clay	Free carbonate at depth	-	
Gf		Alluvial plains	Black self mulching cracking clays	-	20	Light to medium clay	Medium to heavy clay	Free carbonate at depth	-	Significant cracking on drying
Bd		Plains	Hard pedal mottled black duplex soils	-	65	Fine sandy clay loam	Medium to heavy clay	Free carbonate at depth	-	-
St		Stony rises	Shallow stony earths	Rises	30	Clay loam	No B	-	-	-
			Shallow black self mulching clays	Plains	20	Light – medium clay	Medium to heavy clay			

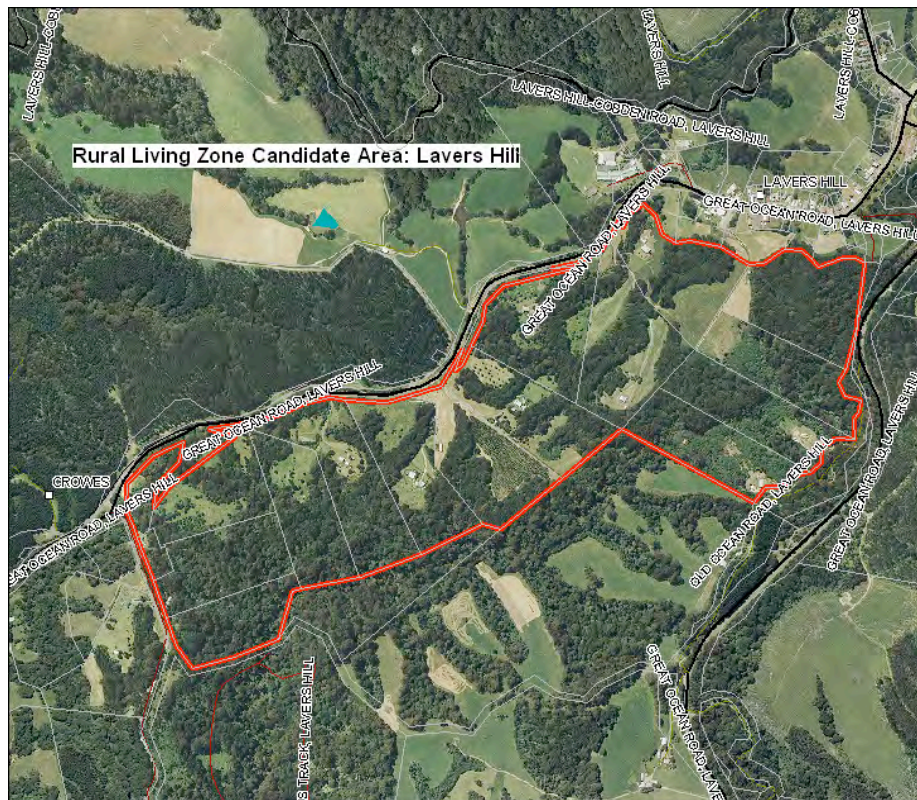
Appendix 2 Rural Living Candidate Areas





Rural Living Zone Candidate Area: Gellibrand





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