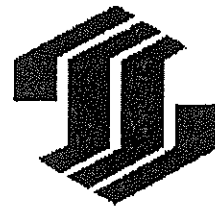


East Gippsland Shire Council

LOW DENSITY LIVING STUDY

October 1997



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1. INTRODUCTION

1.1 Objectives of the Study

East Gippsland Shire Council is currently in the process of reviewing its planning strategy and land use controls. The Shire's zoning controls are being updated and reviewed according to the controls prescribed by the Victorian Planning Provisions (VPPs). In this context the Shire has commissioned this study to review the need for low density residential living across the Shire.

More specifically, the objectives of this study are to determine whether there is a need for low density residential living in the Shire and, if so, identify areas which can meet that need *"without impacting adversely on agricultural or environmental sustainability"*.

The term 'low density living' is used here to describe all land uses which have a low density, non-urban residential use. This definition applies to a range of uses which can be classified as rural residential, hobby farm, environmental living, lakeside living, coastal living and the like. The VPPs allow for such uses in the Low Density Residential, Rural Living and Environmental Living zones. This study focuses on these uses and zones.

1.2 Structure of the Report

This report comprises another five chapters detailing background research through to policy development and policy statements. It is expected that the policies outlined in this report will be used by East Gippsland Shire for the forward planning of rural living areas in the Shire. Chapters 2-5 are summarised below:

- Chapter 2 - Background Analysis - This Chapter provides a summary of relevant past studies, policies, strategies and planning controls to gain a background understanding of the Shire and the main issues confronting its low density residential conditions. The Chapter provides a starting point from which to prepare the land capability assessments to be subject of the following Chapter.
- Chapter 3 - Land Capability - This Chapter looks at the land capability features of freehold parts of the Shire to determine which areas should or should not be considered for low density living development now or at some point in the future. To this end, the Chapter provides an outline of high quality agricultural land and soil

issues, environmental significance, waterways and water catchment issues, landscape or visual quality issues and infrastructure issues.

- Chapter 4 - Supply and Demand Analysis - This Chapter reviews the existing zoned and subdivided low density living land supply and, using Department of Infrastructure forecasts, estimates likely demand for such land across the Shire in the next 14 years or so. This Chapter outlines if there is likely to be a need for low density living lots and, if so, gives an indicative assessment the number of lots required.
- Chapter 5 - Policy Development - This Chapter brings the foregoing work together to outline the main issues confronting low density living arrangements in the Shire, where appropriate locations for low density living are and to detail policy statements for the use of assessing low density living development applications as they arise from time to time.

1.3 The Study Team

East Gippsland Shire commissioned Spiller Gibbins Swan Pty Ltd (SGS), urban economists and planners, in conjunction with Keaney Planning & Research and Ag-Challenge, to undertake this study and prepare this report. The study team:

- East Gippsland Shire - project management.
- Spiller Gibbins Swan - policy development, strategic planning, consultation and research.
- Keaney Planning & Research - statutory planning expertise.
- Ag-Challenge - agricultural research and planning.

2. BACKGROUND ANALYSIS

2.1 Introduction

The following background analysis reviews recent studies, existing policies and strategies, existing land use controls and introduces the VPPs. The Chapter provides a historical examination of documents which relate to rural residential issues in areas now controlled by the East Gippsland Shire. The documents are reviewed in chronological order.

2.2 Review of Recent Studies, Existing Policies and Strategies

The policy issues that arise from the literature review are:

Natural Resources and Agricultural Land

- The increase in rural subdivision was acknowledged as early as 1979 as 'the most controversial change in the pattern of natural resources use' in East Gippsland (TCPB, 1979).
- The loss of high quality agricultural land as a result of urban growth pressures is a significant threat to the viability of the agricultural sector. Rural residential development is acknowledged as being a threat to productive agricultural land by fragmenting rural lots and creating rural and residential land use conflicts (Shire of Bairnsdale and MPE, 1986; DA and DCE, 1991)
- It is recognised that rural residential land uses can be used as an interface or buffer between intensive agricultural and residential land use activity (Shire of Bairnsdale and MPE, 1986).

Environment and Landscape Quality

- Rural residential development can have an adverse impact on the landscape and visual quality of areas (Shire of Bairnsdale and MPE, 1986).
- Rural residential land uses should be located in areas which do not have significant conservation or scientific value (Shire of Tambo, 1987).
- Widespread urban development is recognised as a threat to the health of the Gippsland Lakes environment. There is a need to balance

development pressure at the Lakes with environmental sustainability objectives (DPUG and DCE, 1990).

Water Catchments and Soils

- The Cassilis Valley area is prone to soil instability erosion. The Valley is not suitable for intensive development (Rees, 1995).

Fire Hazard

- The threat of fire should be considered when planning decisions are made about rural residential development approval (Shire of Orbost, 1991).

Infrastructure and Community Facilities and Services

- It has been recommended that rural residential areas be located where infrastructure can be provided (Shire of Bairnsdale and MPE, 1986).
- Many people who chose low density living arrangements have an expectation that they will get the full array of urban infrastructure services at some point in time. This is however not a realistic expectation in most cases (Shire of Tambo, 1990).
- The problem of isolation and poor access to social infrastructure as a result of low density non-urban living is recognised. The siting of rural residential lots should therefore take into account access to services (Shire of Tambo, 1990).

Supply and Demand

- Demand for rural residential lots near Lakes Entrance has been strong for some time, especially those lots which have access to urban services, such as electricity, water, sealed roads and schools (Shire of Tambo, 1990).
- As a general rule, 0.2 to 2.0 hectare lots are the most sought-after rural residential lots by people seeking a semi-rural, hobby farm lifestyle. Lots around or greater than 4.0 hectares tend to require too much maintenance for people seeking such lifestyles (Shire of Tambo, 1990).

More detailed notes on these reports, policies and strategies are included in Appendix A

2.3 Existing Low Density Residential Zones

This Section of the study documents relevant low density living zones in East Gippsland Shire.

There are about 12 zones across East Gippsland Shire which qualify for low density living uses. These are documented in the table below. Minimum lot sizes outlined for each zone are indicative.

Low Density Living Type Zones

<i>Planning Scheme</i>	<i>Low density Living Zone</i>	<i>Minimum Lot Size</i>
<i>Bairnsdale City</i>	Rural Residential 'A'	0.6
	Rural Residential 'B'	1.5
	Rural (General Purposes)	2.0
<i>Bairnsdale Shire</i>	Low Density Residential (Newlands Arm)	0.4ha
	Residential Farm Zone	8.0ha
	Rural 'C'	0.5ha
<i>Tambo Chapter 1</i>	Rural Residential	0.4ha
	Residential 'C'	0.3ha
<i>Tambo Chapter 2</i>	Rural 'B' (Hobby Farm)	2.0ha
	Rural Residential	0.4ha
<i>Orbost Planning Scheme</i>	Rural Residential	0.5ha
	Lakeside Development	As per ODP

Location of Zones

Most of these zones are concentrated in the south-western part of the Shire. The Bairnsdale, Paynesville and Lakes Entrance districts have the bulk of these zones (see - Low Density Living Zones and Sub-markets Map).

The areas in the Bairnsdale district which have such zones are Bullumwaal, Lindenow, Lindenow South, Newlands Arm, Banksia Peninsula, Eastwood, Wy Yung, Lucknow, Bairnsdale, Sarsfield, Nicholson, Claybank, Bruthen, Eagle Point and Raymond Island.

Areas in the Lakes Entrance district which have these land uses are Metung, Nungurner, Kalimna, Lakes Entrance and Lake Bunga, Swan Reach, Colquhoun, Nowa Nowa and Buchan.

There are also some isolated low density living type zones near Orbost, Marlo, Mallacoota and Omeo.

2.4 The Victorian Planning Provisions

The Victorian Planning Provisions provide the framework for State planning policy. VPPs set out standard zones, overlays and related provisions for the whole State.

The VPPs allows individual councils to insert their own local planning policy framework (consisting of Municipal Strategic Statements and local policies) as required to accommodate the particular needs and special requirements of each area.

Some zones have an attached schedule allowing for local provisions on a range of issues including minimum lot size.

The 'new' zones most relevant to this study are Low Density Residential and Rural Living. These zones are defined as follows:

Low Density Residential - "This zone is intended for areas which are shown to be appropriate for subdivision into lots which are both large enough, in the absence of reticulated sewerage, to contain all wastewaters on site (0.4 ha minimum) and small enough to be maintained without the need for agricultural techniques or equipment (2.0 ha maximum)".

Rural Living Zone - "This zone provides for predominantly residential use in a rural environment provided appropriate land management is undertaken. This zone should only be used where this type of use exists or where such a use can be strategically justified. A schedule to the zone allows the lot size and a number of other matters to be specified".

In addition, in Chapter 5, Policy Development, consideration is given to subdivision requirements for all rural related zones.

3. LAND CAPABILITY

3.1 Introduction

This Chapter reviews the land capability features of freehold parts of East Gippsland Shire. The assessment looks at land capability issues, bushfire risk, environmental and hydrological issues and infrastructure issues.

3.2 Land Capability Issues

3.2.1 Agricultural Land

Land that is inherently productive for agriculture and/or is suited to a wide range of agricultural uses is a valuable natural resource and needs to be recognized as such during the regional planning process.

Swan and Volum (1984) used available natural resource data to delineate the high quality agricultural land in Gippsland. The class 1 and class 2 land of their report reflects the inherently productive and versatile agricultural land of Gippsland, and can be taken to be either prime or high quality agricultural land.

Since the publication of their assessment, more detailed and accurate data on the inherent quality of agricultural land in some parts of East Gippsland has become available through the release of a number of land system surveys (Aldrick et al 1992, Rowan 1990, Rees 1996). While these data does not conflict with the assessment of Swan and Volum, it has provided more accurate delineation of the quality agricultural land. These land system surveys have been used to compile a map that delineates the prime and high quality agricultural land for the Shire of East Gippsland which is included as an attachment to this report.

Within the Shire of East Gippsland, prime agricultural land is found in the Mitchell and Snowy river valleys and high quality land is found at Bruthen, Sarsfield, Cann River and west of Paynesville. The specific characteristics of these areas of land are:

- Well drained and well structured soils such that they are suitable for irrigation with few if any management problems and also suited to regular cultivation.
- Availability of water for supplementary irrigation.
- Free from problems of high water table and salinity.

- They may have inherent natural productivity, although the deep sands west of Paynesville are not naturally fertile. Fertility can be developed with the use of fertilizers.
- Existing infrastructure - roads, markets, technical support.

Most of the areas identified can be used for vegetable cropping, but current use is affected by markets. Dairying is an option for all areas, again subject to markets. The best farm land has a broad range of potential uses and the informed manager will manipulate his enterprise to maximize the current available marketing opportunities.

There are two main groupings of land that have been delineated as prime or high quality agricultural land. One group includes the major river valleys and flood plains of the Mitchell, Tambo, Snowy and Cann Rivers, and a series of other minor valleys which present the same or similar soils. The other group consists of sand sheets west of Paynesville which have abundant and good quality artesian or sub artesian water available within reasonable distance from the ground surface.

The land use on prime and high quality agricultural land includes vegetable cropping, lucerne, seed production, dairying, and grazing of beef cattle. Some of the land is intensively used, while other areas are currently well under-utilized. The availability of markets, infrastructural support for high value products and current tenure currently affect the productivity of some areas. However markets tend to come and go and infrastructure soon develops once a market for a specific product starts to consolidate. The Shire has comparatively small and discontinuous areas of quality agricultural land and it is important that these are not lost from future agricultural use by urban and rural residential subdivision during one of the cyclic downturns in agricultural products.

Much of the quality agricultural land within the Shire are lineal features along river flood plains. This lineal nature makes this land particularly vulnerable to inappropriate planning in adjacent and contiguous areas. Urban or rural residential development may affect a farmer's ability to expand and develop the farm enterprise, and may even affect basic farm management.

An example would be a dairy farmer in the Sarsfield area, where 80 per cent of his farm was on high quality land along the Nicholson River, and 20 per cent was by choice along the lower quality undulating hills adjacent to the valley floor. Expansion of the enterprise may be better suited to acquiring more hill country to establish increased winter grazing and feeding areas away from the flood plain, but rural residential development may put the price of this land out of reach for dairying. Further, if opportunities redevelop for growing beans or broccoli so that

the farm is converted to a vegetable cropping enterprise, the proximity of a rural residential development may cause problems with aerial spraying, use of organic manures and other concerns which affect the ability to farm. Packing sheds are often located on undulating or higher land adjacent to river flats, leaving the better quality land for growing crops.

Thus it is important to maintain a buffer of rural land around all areas of high quality land to protect the intrinsic quality of this land and avoid conflict.

The critical mass of farming land is also relevant within East Gippsland Shire. The loss of one dairy farm at Bruthen or Cann River may affect the willingness of milk factories to continue to send a milk tanker to pick up milk from the remaining farms in the area. The quantity of land suitable for growing broccoli may affect the commitment or otherwise of a packer or processor setting up operations within the Shire. Loss of high quality or prime agricultural land, including loss of integrity due to adjacent developments, should not be considered lightly, even if these losses appear to be quite small.

Wherever possible, further housing development on prime agricultural land should be discouraged, even where the dwelling is associated with the farming activity. There may be justification for subdivision of some rural holdings to permit smaller more intensive enterprises, but such subdivisions should be without dwellings.

3.2.2 Erosion

The deterioration of land from soil erosion results in a permanent detrimental effect of land quality. Reclamation works can be instigated, usually at considerable expense, but the land can never be restored to its former state once erosion has occurred.

Inappropriate subdivisions can result in quite serious erosion. A number of mechanisms are involved. Unsealed roads may wash out, table drains may become major gullies, and batters may slump to destroy the road pavement. Diversion of water due to road or building construction may initiate gully erosion and/or mass movement. Badly sited property boundaries will exacerbate soil erosion along fence lines. These are just some examples of the problems encountered.

The Shire is currently preparing an erosion management overlay which will delineate areas of moderate or high erosion hazard. Reliable information at a mapping scale of 1:100,000 and suitable for incorporation into the planning process is available for part of the Shire (*Erosion Hazards Swifts Creek Sheet, Bairnsdale Sheet, Nowa Nowa Sheet*, Department of Natural Resources, 1997).

For other parts of the Shire information for referral is available at a scale of 1:500,000 (*Susceptibility to Water Erosion {Sheet and Rill} within East Gippsland Shire, Susceptibility to Water Erosion {Tunnel and Gully} within East Gippsland Shire, Susceptibility to Mass Movement {Landslip} within East Gippsland Shire, Centre For Land Protection Research, Department of Natural Resources and Environment. Slightly more detail is available from land system surveys (Aldrick et al 1992, Rees 1996 and Rowan 1990) and these can be interpreted by a skilled person to give quite accurate estimates of the hazard risks and measures to reduce them for specific subdivision proposals. Highly detailed information on erosion hazards is available in two land capability surveys (Howe & Poutsma, *Gippsland Lakes Environs Land Capability Study* and Rees, *Cassilis - Swifts Creek Land Capability Study*).*

In the absence of an erosion management overlay for the whole of the Shire, a number of general principles apply for determining whether an area presents a significant erosion risk if zoned and developed for rural residential use:

- Is the landform such that individual allotments will possess building envelopes of land that is not prone to erosion (less than 8% slopes)?
- Is the construction of access roads and access track to building envelopes likely to create an erosion hazard?
- Are the soils inherently prone to either gully erosion or sheet and rill erosion? Refer to land system surveys.
- Is the area subject to mass movement? Is there evidence of active or inactive landslips in the vicinity?
- Are there general areas apart from the building envelopes with slopes above 15%? If so, are the soils only slow to moderately permeable, such that sheet and rill erosion are probable with overgrazing?
- Will subdivisional boundaries be placed along the fall line? Are there other ways in which subdivision can be undertaken?

FIGURE A: LAND CAPABILITY RATING FOR ON-SITE EFFLUENT DISPOSAL
Areas capable of being used for on-site absorption of all-waste septic tank effluent from a single family dwelling

LAND FEATURES AFFECTING USE	CAPABILITY CLASS				
	1	2	3	4	5
SLOPE (1)	0 to 5%	5% to 8%	8% to 15%	15% to 30%	More than 30%
SITE DRAINAGE	Excessively well drained, Well drained	Moderately well drained	Imperfectly drained	Poorly drained	Very poorly drained
FLOODING (2)	None	-	-	Less than once in 25 years	More than once in 25 years
DEPTH TO SEASONAL WATER TABLE	More than 150cm	150cm to 120cm	120cm to 90cm	90cm to 60cm	Less than 60cm
PERMEABILITY (3)	Faster than 1.0m/day	1.0m/day to 0.3m/day	0.3m/day to 0.1m/day	0.1m/day to 0.02m/day	Slower than 0.02m/day
DEPTH TO ROCK OR IMPERVIOUS LAYER	More than 200cm	200cm to 150cm	150cm to 100cm	100cm to 75cm	Less than 75cm
GRAVEL (Fragments 2mm to 75mm in soil profile)	Less than 5%	5% to 20%	20% to 40%	40% to 75%	More than 75%
STONES (Fragments 75 mm to 250 mm in soil profile)	Less than 2%	2% to 10%	10% to 30%	30% to 60%	More than 60%
BOULDERS (Fragments over 250 mm on surface)	Less than 0.02%	0.02% to 0.2%	0.2% to 2%	2% to 10%	More than 10%
ROCK OUTCROP	Less than 0.01%	0.01% to 0.1%	0.1% to 1%	1% to 5%	More than 5%
SHRINK SWELL POTENTIAL	Less than 4%	4% to 12%	12% to 20%	More than 20%	-

NOTES:

- (1) SLOPE: Reduce class limits by half in slope failure hazard areas.
- (2) FLOODING: Upgrade one class if floods are low velocity shallow and easily diverted with banks.
- (3) PERMEABILITY: Based on determination of hydraulic conductivity, "K". Where K exceeds 6.0m/day, risk of polluting water bodies must be considered.

(Source: Soil Conservation Authority, 1980)

In order to use the land system survey data for determining erosion risk, it is necessary to initially identify the land system that applies by reference to the map. Within the description of each land system, the erosion processes and susceptibilities of each component of the land system are assessed.

For example land north of Bairnsdale and to the east of Wy Yung township is mapped as the Salt Creek land system. Reference to Aldrick et al land system description reveals that 50% of this land system has short steep slopes (typically 10% to 20%) but up to 50% (component 1) with an high risk sheet and rill erosion. Twenty per cent of the land system has gentle slopes of 3% to 5% gradient (component 2) with moderate risk of sheet and rill erosion and moderate risk of gully erosion. And the risk of gully erosion in drainage lines (component 3) is moderate to high. The area is definitely erosion prone and rural residential development needs to be designed so that each lot has an area of component 2 for building envelopes, that roads and tracks are kept away from steep areas, and subdivisional boundaries are not along drainage lines. From assessment of this land system description, some parts of this land system would not be suitable for rural residential development.

Assistance with the interpretation of land system information can be obtained from the Department of Natural Resource and Environment.

3.2.3 Suitability of Soils for Septic Tanks

Within significant parts of the Shire, the soils are not suited to more intensive development for rural residential because of the inability of the soils to adequately handle septic absorption from domestic septic systems. This is particularly so in the Cassilis Valley and parts of the Gippsland Lakes margins (Howe & Russell, Howe & Poutsma) which are the only areas in the Shire that have been assessed in detail. There are significant other areas of the Shire with the same very poor capability.

The guiding principles for suitability for septic tank operation have been published by the Soil Conservation Authority in a number of Land Capability Studies (Howe, Castello and Russell, 1979) and have been reproduced for reference (Figure A).

The issue of septic performance at high altitude is often raised as an issue due to odours present within ski villages and whether septic systems will perform in Victoria alpine resorts. Provided that sufficient depth of soil is available, the soils in Victorian alpine areas do not freeze except at the surface and the septic absorption will continue to function provided it has been designed to cope with the full occupancy level of the building to which it is attached. A conventional household absorption trench will not be adequate for a lodge which holds 30 beds and is fully occupied for a

week or more. Inadequate design and poor maintenance are the reasons why systems do not function properly at high altitude (or at any altitude).

3.3 Wildfire

East Gippsland is highly vulnerable to destructive bushfires and grassfires. The combination of high flammability of native eucalypts, frequency of extreme hot and windy weather, seasonal drought, steep forested slopes and remoteness of many areas for fire control result in periods of extreme fire danger in this region in most summers. East Gippsland rates along with California as the most bushfire prone regions in the world (R. McGregor, CFA Bairnsdale).

There is a long history of disastrous bushfires in East Gippsland, and they will continue to be part of the environment. Bushfires are a grave danger to landowners who live within the area affected by the fire, and to fire fighters who attempt to control the fire, save property or rescue people trapped within the fire path. There is a strong interaction between the frequency of wildfires within a region and the concentration of people in rural residential and/or urban areas (*Fire Statistics, CFA Region 11*, CFA Risk Management Department, April 1995).

Rural living and low density residential zones should be either precluded or subject to special building codes in areas of high fire hazard and/or high potential fire intensity. A full delineation of areas of high fire hazard is currently in progress and specific enquiries should be referred to the CFA Bairnsdale until this mapping becomes available. Areas of high potential fire intensity have been identified by the Risk Management Department of the CFA, and in general all land north of a line from Glenaladale to Buchan, and to the north part of the Cann Valley has high to extreme potential fire intensity. The notable exception is the Tambo valley and Benambra district where a combination of good access, aware rural communities and extensive open areas reduce the fire risk. The coastal scrub areas along the coastline, particularly east of Lake Tyers also have high to extreme fire danger. All high fire risk areas of the Shire should preferably be precluded from rural residential development unless specific referral and approval is granted by the CFA.

The Country Fire Authority (CFA) is the administrative body responsible for ensuring that any development, subdivision or change in land use is undertaken with due regard to potential fire hazard of the area. The CFA is a referral authority for the planning scheme.

Within the proposed high fire risk area it should become the responsibility of any proponent for development or subdivision of land to submit:

- A detailed analysis of the fire concern factors affecting the site and the area within which the land is located.
- A comprehensive fire protection plan which complies with the CFA fire protection guidelines. These guidelines are available in the publication *Planning Conditions and Guidelines for Subdivisions*, CFA 1991.

Outside of the high fire risk area, the threat of serious bushfires is still significant. It is relevant to note that the brigade areas with the highest number of bushfires are outside the area. It is important that person(s) wishing to subdivide land consult with the CFA to establish their requirements for fire mitigation.

3.4 Environmental and Hydrological Issues

3.4.1 Environmental Assets

East Gippsland Shire Council, in conjunction with the Department of Natural Resources and Environment, is in the process of mapping and documenting biological assets across the Shire. A preliminary draft of that work (i.e. Areas of Special Biological and Ecological Value) forms the basis of this Section of the Report.

Large areas of biological and ecological significance are found in a range of coastal, river, valley and mountain areas across East Gippsland Shire. These areas have important or endangered species or habitats.

It is not possible at this stage to precisely establish the nature of each identified area's significance.

The Council and DNRE's work shows areas "*which should receive special attention when decisions about land use are being considered*". So although the nominated areas are significant in some way, their identification does not necessarily preclude low density living development.

Areas identified as being significant are shown on the Map: Areas of Biological and Ecological Significance.

3.4.2 Water Catchments

Victoria is divided into a number of drainage divisions and basins. It is useful to use these divisions and basins when discussing catchments in East Gippsland. These divisions are catchment boundaries defined by the Australian Water Resources Council (Figure B). The catchment unit is

useful for describing water quality, flooding, recharge areas and land use characteristics.

The relevance of this analysis to rural residential development comes with understanding the sensitivity of water environments. Much demand exists for waterside land and land with a view of water. In East Gippsland's case, it is the lakes network that is subject to most development pressure, however some rivers also could potentially be under similar pressure.

There are four basins that approximately cover the extent of the East Gippsland Shire. These basins cover all of the bodies of water (and surrounding land) which is subject to development pressure, including those areas that may be desired for rural residential living in future, within East Gippsland.

The basins are:

- **Basin 21 - East Gippsland**

The main streams and waterways in this basin are the Tamboon Inlet, Wingan Inlet, Mallacoota Inlet, Lake Barracoota (all within the confines of national parks); and Sydenham Inlet (near Bemm River).

There are no significant flooding risks in this basin.

- **Basin 22 - Snowy**

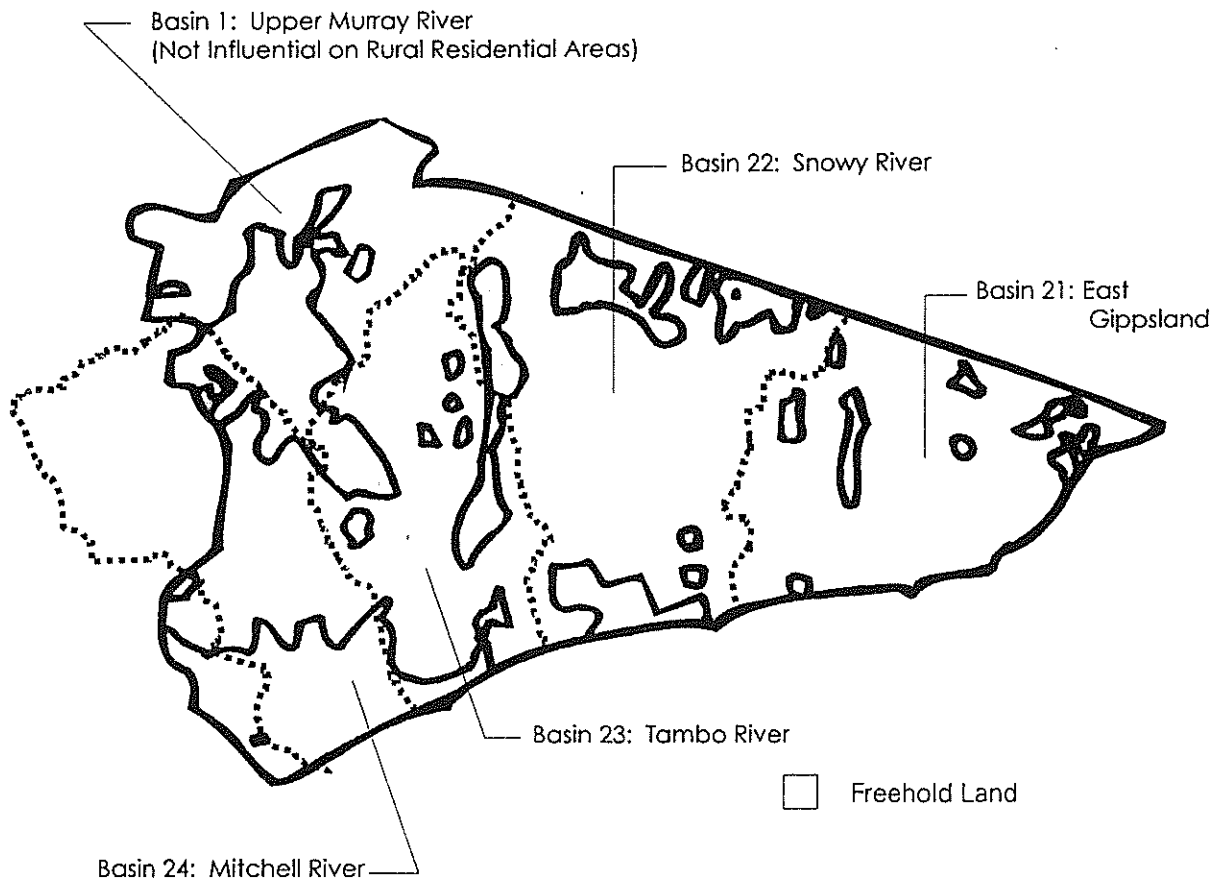
The main streams and waterways within the Snowy Basin are Lake Curlip, Lake Wat Wat, Lake Corringale, and lower reaches of the Snowy River.

The lower reaches of the Snowy River are flood prone, including the lakes system and the Brodribb River.

- **Basin 23 - Tambo**

The main streams and waterways here are Lake Tyers, Tambo River and Nicholson River.

FIGURE B



There are areas of flooding susceptibility in the southern reaches of Tambo and Nicholson Rivers and on the northern perimeter of Lake Tyers.

- **Basin 24 - Mitchell**

The main streams and waterways in this basin are Lake Victoria, King Lake and the Mitchell River.

The lower reaches of the Mitchell River and the perimeters of the major lakes are prone to periodic flooding.

3.4.3 Flooding Frequency

Any areas where there is the potential for flooding more frequently than once in one hundred years should be excluded from any proposed residential development.

Low lying areas, particularly land surrounding the lakes, are subject to periodic inundation, and have been as recently as 1990 and 1970. The urban areas of Lakes Entrance, Metung, Seaspray, Paynesville, Raymond Island, and Loch Sport are likely to be subject to flooding from changes in sea levels caused by global warming. The risk of stream flooding in the Lakes system compounds the situation. The irony is that some of the most popular areas for rural residential settlement are in this 'at risk' region.

3.4.4 Water Table

Land that is subject to seasonally or cyclically high watertable presents problems for rural residential development. Soils are waterlogged for significant periods of time, such that septic absorption pits fail and there is both a risk to human health and a risk of point source pollution from the failed system.

Areas subject to seasonally or cyclically high water table are found in:

- The major river valleys, particularly those of the Mitchell, Tambo, Nicholson, Metung and Snowy Rivers.
- Along the lake margins of the Gippsland Lakes, specifically below the 20 metre contour. Significant areas are south of Bairnsdale, south of Nicholson, south of Johnsonville and Swan Reach, and south of Goon Nure.

For effective operation of septic absorption pits, the watertable should remain at a minimum of 1.2 metres below the soil surface during the wetter periods of the year. Site inspection may be required.

3.5 Infrastructure Issues

3.5.1 Water Supply Sewerage and Drainage Infrastructure

According to the East Gippsland Water Authority (EGWA) most major towns in the East Gippsland region have reticulated water systems in place. The effectiveness and possible expansion of these systems to rural

residential development are subject to limitations dependent on existing pipelines.

New subdivisions within or near to towns may require a water mains extension, the effectiveness of which depends on pressure limitations. In cases of large subdivision development, the provision of a new pumping station and/or holding basin may be required.

The EGWA does not have a policy on preferred or designated areas for development. There is no formal structural way of assessing water provision for subdivision. Assessment of suitability is carried out on a case by case basis, where economic cost and willingness for the developer/user to pay are the main criteria for choice. Technically water can be provided to any place located in a town or rural setting, as long as the developer meets the costs which include:

- pipeline provision/works (100% contribution);
- a mains extension possibly (100% contribution);
- a pump station where pressure limitations exist possibly (100% contribution);
- a holding basin possibly (100% contribution); and
- headworks (variable contribution).

The extent of the economic cost from Council's perspective needs to be weighed against the cost of the provision of other services to any subdivision, costs such as power supply, roads, septic tanks or sewers, and council policy on the feasibility of any subdivision, having taken the full range of costs into account.

Council and the VPPs have certain requirements in terms of what water provisions people must allow for their land. Properties may be required to hook up to water reticulation systems of nearby towns or provide a dam or water tank with sufficient capacity to serve the property during an emergency such as a bushfire.

There are some rural residential areas served by mains pipelines of nearby towns. Lakes Entrance, for example is served by the Sarsfield supply, which also branches off to pick up smaller towns along the way. Other towns such as Bairnsdale has a mains system as well as several pipeworks which branch into surrounding areas.

The following table summarises the state of water and waste water provision for towns throughout the East Gippsland Region. It should not be assumed that rural residential development near the towns listed are serviceable at relatively low cost. However, it is more likely that there is the potential to expand services to areas near these towns, at a cost:

Towns served by East Gippsland Water and Wastewater Schemes

	Towns Served (1)	Water Supply System (Source)	Connections (3)	Wastewater System	Connections
1	Bairnsdale	Mitchell River	5,602	Bairnsdale	5,043
2	Lindenow	Mitchell River	309	Lindenow	133
3	Paynesville Area	Mitchell River	2,484	Paynesville Area	2,129
4	Sarsfield	Nicholson River	145		
5	Nicholson	Nicholson River	265	At Planning Stage	
6	Johnsonville	Nicholson River	76	At Planning Stage	
7	Swan Reach	Nicholson River	152	At Planning Stage	
8	Metung	Nicholson River	649	Metung	423
9	Lakes Entrance (2)	Nicholson River	3,025	Lakes Entrance	2,939
10	Lake Tyers Beach	Nicholson River	391	Lakes Entrance	149
11	Nowa Nowa	Boggy Creek	91		
12	Bruthen	Tambo River	351		
13	Buchan	Buchan River	94		
14	Swifts Creek	Tambo River	109		
15	Omeo	Butchers Creek	216	Omeo	16
16	Dinner Plain	Groundwater	182	Dinner Plain	189
17	Orbost	Rocky River & Brodribb River	1,410	Orbost	1,201
18	Newmerella	Rocky River & Brodribb River	109		
19	Marlo	Rocky River & Brodribb River	330	Orbost	162
20	Cann River	Cann River	179		
21	Bemm River	Bemm River	68		
22	Mallacoota	Betka River	756	Mallacoota	606
	Total	13	16,993	9	12,990

(1) Schemes often include service to extensive rural areas.

(2) Includes Kalimna/Kalimna West and Lake Tyers Aboriginal Trust.

(3) Each tenement within a multi-tenemented property has been included individually.

Source: East Gippsland Water Authority.

Another issue to consider is ground water and river contamination caused by seepage from underground septic tanks. This problem threatens the Lakes area particularly. Careful attention should be paid to this which may lead to a requirement that extensive further development near the Lakes should be connected to reticulated sewerage systems as opposed to allowing a substantial increase in septic tank waste systems. Note that the Lakes Entrance wastewater system is operating close to its capacity.

Considerations for Policy

- Most towns in East Gippsland are serviced by water and wastewater infrastructure.

- There is likely to be some spare capacity within the areas already serviced. Ideally, this surplus should be used up before any further expansion.
- Rural residential development near towns is more likely able to be serviced by water and waste-water systems at reasonable cost to the developer.
- Rural residential development is not dependent on the provision of water and waste-water services. These services can be provided on the property.
- Remote properties could theoretically be provided with services, if the developer is able and willing to meet the costs associated with provision.

3.5.2 Other Infrastructure Issues

With the corporatisation and/or privatisation of many infrastructure providers nationally and in Victoria, the nature of infrastructure provision has changed. As is the case with water supplies, power, gas supply and telecommunications provision is demand-led, with expansion decisions made based on economic considerations. Strategic planning and ad hoc expansion feature less and less as the 'privatised' structures of providers rationalise asset acquisition and development. As a result, it can be expected in the medium term that systems will not be expanded outside of settled urban areas, except in the event that a user is willing to meet a large proportion of the cost of supply to an area currently unserved.

Secondary and minor road development and maintenance presents an issue for Council, particularly relating to rural residential development and access. Road development and maintenance costs increase as development densities increase (as is the case with rural residential development) but conversely can be exacerbated by the approval of many dispersed locations for residential development.

If Council allows extensive development in poor or undeveloped access areas of the Shire, it will need to have a development contributions policy in place if it wishes to recoup costs from developers. Rural residential subdivisions should be required to pay the council a charge to cover road construction if this is required to service the new development. Depending on the standard of roads provided and demanded, these charges could be quite high. An alternative is to avoid allowing development in poor or undeveloped access areas.

In areas close to towns which are suitable for low density residential development Council should also consider the preparation of a development contribution scheme to cover the cost of infrastructure required by new development including new urban development.

4. SUPPLY AND DEMAND ANALYSIS

4.1 Introduction

This chapter of the report outlines East Gippsland Shire's low density living land requirements to meet predicted demand to 2011. The Chapter has the following format:

- Section 4.2 outlines the different low density living regions or sub-markets in the Shire;
- Section 4.3 documents the existing supply of land zoned for low density living by type in the various sub-markets and looks at the Shire's demographic and dwelling trends and projections to determine the demand for low density living land in the various sub-markets to 2011; and
- Section 4.4 documents how much additional, if any, low density living land will be required to 2011.

4.2 Low density Living Sub-Markets

The Shire of East Gippsland covers some 21,000 square kilometres and has a wide range of landscapes and landforms. The market for low density living in East Gippsland Shire is as a consequence fragmented into a range of regions or sub-markets. The different sub-markets provide people with different locational and lifestyle choices. Hence supply and demand issues for low density living land in East Gippsland must be considered at the sub-market level.

For the purposes of this exercise the Shire has been divided up into seven units based on geographic and environmental conditions¹, freehold land areas and population numbers and pressures. The seven sub-markets are:

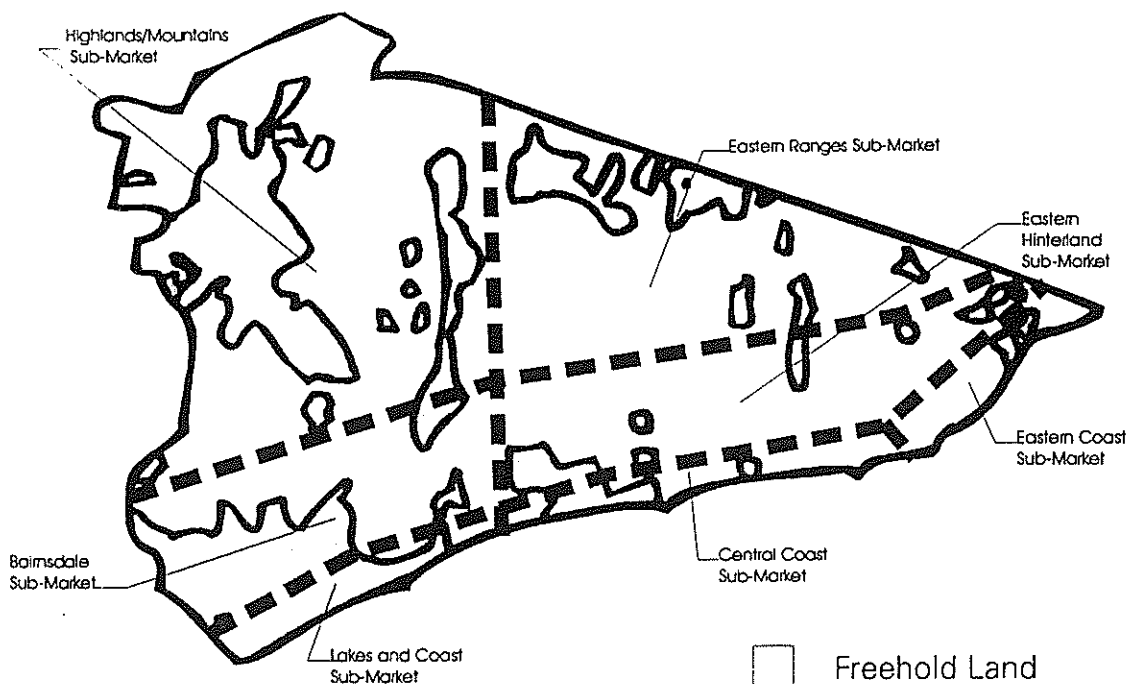
1. Highland Sub-Market - this high quality mountain area in the Shire's north-west includes the towns of Omeo and Swifts Creek. This area is an increasingly popular visitor destination and residential location.
2. Eastern Ranges Sub-Market - this hilly bushland area in the Shire's remote north-east is sparsely populated. The sub-market has a number of small logging and agricultural townships.
3. Bairnsdale Region Sub Market - this sub-market consists of the inland south-west portion of the Shire. The sub-market consists of the Shire's largest town and biggest population base. The hinterland landform is comprised of agricultural plains between the lakes/coast and hills.

¹ The Draft East Gippsland Planning & Development Strategy (March 1997) provided a useful starting point to dissect the Shire into regions based on geographic and land use features.

4. Eastern Hinterland Sub-Market - this is a sparsely populated forest and agricultural plains area. The sub-market includes Orbost and other small inland towns.
5. Lakes & Coast Sub-Market - this south-west area has environmentally unique and sensitive coast, lake and river systems. The area includes the popular Paynesville-Lakes Entrance region.
6. Central Coast Sub-Market - this coastal area has a small portion of freehold land which includes the small towns of Marlo and Bemm River.
7. Eastern Coast Sub-Market - the far south-eastern coastal part of the Shire has a small pocket of freehold land near the increasingly popular Mallacoota.

The seven sub-markets are shown indicatively on Figure C

FIGURE C



4.3 Supply and Demand Analysis

The methodology applied to estimate supply and demand for large lot residential development in rural areas is explained in Appendix C.

The estimates of low density living lots required to meet demand to 2011 are set out below. It should be noted that this analysis of supply and demand is based on a range of estimates, assumptions and projections. The results provide one scenario of what might occur to 2011.

Based on a preliminary supply and demand analysis, the Shire is about 1,300 lots short of meeting demand for low density living to the year 2011. The results for each sub-market are shown in the table below and summarised as follows:

- The Lakes & Coastal Sub-Market is estimated to be about 530 lots short of meeting demand for low density living to 2011. This represents a requirement to release an average of around 35 lots per year.
- The Bairnsdale Sub-Market is estimated to be about 460 lots short of meeting demand for low density living lots to 2011. This also represents a requirement to release an average of around 35 lots per year.
- The Highland Sub-Market is an estimated to be about 120 lots short of meeting demand for low density living to 2011.
- The Eastern Coast Sub-Market is an estimated 110 lots short of meeting demand for low density living to 2011.
- The Eastern Hinterland Sub-Market is an estimated 70 lots short of meeting demand for low density living to 2011.
- The Eastern Ranges and Central Coast Sub-Markets appear to have a broad balance between supply of and demand for low density living lots to 2011.
- Overall it is estimated that the Shire will require around 1300 lots or an average release of about 90 lots per year for the next 15 years.

Estimate of Low Density Living Lots Required by Sub-Market to 2011

<i>Sub-Markets</i>	<i>Existing Supply</i>	<i>Demand to 2011</i>	<i>Estimated Additional Lots Required to 2011</i>	<i>Average Annual Lot Release to 2011</i>
1 Highland Sub-Market	0	123	123	8.8
2 Eastern Ranges Sub-Market	0	6	6	0.4
3 Bairnsdale Sub-Market	435	894	459	33
4 Eastern Hinterland Sub-Market	0	72	72	5
5 Lakes & Coast Sub-Market	112	638	526	38
6 Central Coast Sub-Market	15	15	0	0
7 Eastern Coast Sub-Market	11	119	108	8
Total	573	1,867	1,294	92

5. POLICY DEVELOPMENT

5.1 Introduction

This chapter includes draft policies for a range of issues associated with large lot residential development. It is envisaged that these policies will be included in the Municipal Strategic Statement, in the schedules to zones or in Clause 22 as local policies.

5.2 Policies

5.2.1 Subdivision and House Entitlements Policy

This policy applies to land within the Low Density Residential zone, the Rural Living zone, the Environmental Rural zone and the Rural zone.

Policy Basis

Within the rural areas of the municipality there is land with varying capabilities for subdivision or housing.

Policy Objectives

- To ensure that land is not subdivided into parcels which:
 - reduce agricultural viability/sustainability
 - overdevelop areas thereby requiring excessive demand for services
 - fragment the land resource
 - increase residential densities close to farming
 - jeopardise landscape and environmental values
- To maintain areas of prime agricultural quality for agricultural purposes.

Policy

It is policy that:

- The minimum lot sizes for subdivision in the Low Density Residential, Rural Living, Environmental Rural and Rural zones are as follows:

Zone	Subdivision Minimum Lot Size	House Entitlements Per Lot	
		No Permit Required	Permit Required
Low Density Residential	0.4 ha	=> 0.4 ha. *	< 0.4 ha.
Rural Living (2 ha.)	2 ha.	=> 2 ha. *	< 2 ha.
Rural Living (4 ha.)	4 ha.	=> 4 ha. *	< 4 ha.
Rural Living (8 ha.)	8 ha.	=> 8 ha. *	< 8 ha.
Environmental Rural	50 ha.	Permit required for all houses	
Rural (100 ha.)	100 ha.	=> 30 ha. *	< 30 ha.
Rural (50 ha.)	50 ha.	=> 30 ha. *	< 30 ha.
Rural (30 ha.)	30 ha.	=> 30 ha. *	< 30 ha.
Rural (15 ha.)	15 ha.	= > 15 ha. *	< 15 ha.
Rural (Prime Agricultural Policy Area)	No Minimum	Permit required for all houses but no permit can be granted if the lot is less than 20 ha.	

* Unless otherwise required due to an overlay

- Minimum lot sizes are a guide and in some areas lots larger than the minimum may be required to satisfy other policy requirements such as waste disposal capacity.

Policy References:

- Shire of East Gippsland, East Gippsland Planning and Development Strategy - 1997 - 2010, Sept. 1997.
- Spiller Gibbins Swan, Ag-Challenge and Keaney Planning and Research, East Gippsland Low Density Living Study, 1997

5.2.2 Large Lot Residential Rezoning Policy

This policy applies to all land.

Policy Basis

Opportunities for different forms of residential development on the fringe of urban areas and in rural areas will be provided in the Shire. For the purpose of this policy, residential development in rural areas means:

- Low density residential living on lots of 0.4 ha. to 2 ha. with access to all urban services except water, sewerage and drainage.
- Rural living on lots 2 ha. to 8 ha. without access to urban services.

Policy Objectives:

- To provide different forms of residential development on the fringe of urban areas subject to demand.
- To provide for rural living opportunities.

Policy

It is policy that:

- Opportunities for residential development in rural areas and on the fringe of urban areas will be provided as follows:
 - Low density residential - in areas where urban services except for water, sewerage and drainage are provided
 - Rural living - in areas where the land is capable of agricultural pursuits and can contain waste water within the boundaries of the site.
- Low density residential and rural living opportunities will be discouraged in areas identified as:
 - Prime agricultural land
 - High bushfire risk
 - High environmental significance
 - Aquifer recharge
 - High water table
 - High cultural significance
 - High landscape quality
 - Water supply catchments
 - Flood prone or subject to inundation
 - Having capacity for servicing with full urban services
 - Required for the expansion of urban areas
- Low density residential and rural living will be discouraged unless there is adequate water supply for households, stock (if applicable) and fire protection and waste water cannot be retained on site.
- At the time of rezonings for large lot residential development, development contributions plans will be prepared.
- In considering a request to rezone land for low density residential or rural living purposes the planning authority will have regard to Ministerial Direction No. 6 especially with respect to supply and demand.
- In considering a request to rezone land for low density residential or rural living the planning authority will have regard to appropriate separation between such zones and the following areas:

Area	Reason
Prime agricultural land	<ul style="list-style-type: none"> To minimise impacts on residential areas from agricultural practices. To minimise impacts on areas of prime agricultural land from residential related activities. To ensure that adequate areas of non prime agricultural land are provided around prime agricultural land to allow maximum flexibility in agricultural operations and sites for buildings and works.
High wildfire risk	<ul style="list-style-type: none"> To minimise risk to residential areas from fires To minimise risk to fire fighters when protecting residential areas from fire.
High environmental significance	<ul style="list-style-type: none"> To minimise impacts on areas of high environmental significance from residential related activities.
High cultural significance	<ul style="list-style-type: none"> To minimise impacts on areas of high cultural significance from residential related activities.
Aquifer recharge areas	<ul style="list-style-type: none"> To minimise pollution of aquifers.

Policy References:

- Shire of East Gippsland, East Gippsland Planning and Development Strategy - 1997 - 2010, Sept. 1997.
- Spiller Gibbins Swan, Ag-Challenge and Keaney Planning and Research, East Gippsland Low Density Living Study, 1997

5.2.3 Prime Agricultural Land Policy

This policy applies to all land identified on the Prime Agricultural Land Map incorporated in the MSS or Clause 81 of the planning scheme.

Policy Basis

Prime agricultural land is an important economic resource at both the regional and State levels. There are areas of the Shire which have been identified as prime agricultural land mainly along the river plains (Mitchell, Tambo, Snowy and Cann Rivers) and sandy rises around Paynesville West which have good quality and high volumes of water supply from aquifers.

Prime agricultural land is generally characterised by well drained, stable structure soils and is free from salinity and a high water table. It is naturally fertile relatively and has access to water for supplementary irrigation.

The land along river plains requires adjacent higher land to be maintained for agricultural purposes to provide drier areas for stock at wet times of the year and provide sites for ancillary development so that the high quality areas are not taken out of production.

Policy Objectives

- To preserve areas of high inherent agricultural productivity and versatility for agricultural production.
- To ensure that areas of sufficient size for sustainable agricultural production are maintained.
- To discourage other uses, housing and buildings and works, even if associated with agriculture, that removes prime agricultural land from agricultural production.
- To allow small lot subdivision for agricultural purposes provided no house entitlement is created.
- To ensure adjoining higher land is maintained in agricultural use.

Policy

It is policy that:

- Prime agricultural land will not be rezoned for low density residential, environmental rural, rural living or urban purposes.
- Prime agricultural land is not to be used or developed for urban purposes.
- Timber production is discouraged.
- Subdivision will be considered on its merits provided it is for: agricultural purposes; the agricultural resource is maintained; and, there is no associated entitlement to a dwelling if the lot size is less

than 20 ha. and this commitment is confirmed by a S. 173 legal agreement.

- Dwellings and other buildings are strongly discouraged.
- Dwellings will not be approved on lots less than 20 ha.

Policy References:

- Shire of East Gippsland, East Gippsland Planning and Development Strategy - 1997-2010, Sept. 1997.
- Spiller Gibbins Swan, Ag-Challenge and Keaney Planning and Research, East Gippsland Low Density Living Study, 1997
- Swan I.R. and Volum A.G., Assessment of Agricultural Quality of Land in Gippsland, Res. Proj. Series No 134, Dept of Agric. Vic. Aug. 1984.
- Aldrick et al, 1992 A Study of the Land in the Catchment of the Gippsland Lakes, TC17 Department of Conservation and Natural Resources, Victoria.
- Rowan J.N., 1990 Land Systems of Victoria, Department of Conservation and Environment.
- Rees D.B., 1996 Land Inventory of East Gippsland - A Reconnaissance Survey, Tech Report No. 23 Department of Conservation and Natural Resources.
- Howe D.F. and Poutsma T., Gippsland Lakes Environs Land Capability Study, Department of Conservation and Environment, Folio Report.

5.2.4 Sites of Environmental Significance Policy

This policy applies to all land identified on the Sites of Environmental Significance Map incorporated in Clause 81 of the planning scheme.

Policy Basis

There are areas throughout the Shire which contain sites of environmental significance because of their special biological or ecological values. A number of bushland, grassland, river, wetland and coastal areas have representative and/or rare habitats and/or species.

Sites of environmental significance are likely to be put at risk if residential development is allowed on-site or nearby because of increased bushfire risk, clearing of vegetation, pollution and the impact from domestic animals.

Policy Objectives

- To preserve sites of special biological or ecological value that are the basis for the various sites of environmental significance across the Shire.
- To allow development on and adjacent to sites of environmental significance only if it increases the prospects for sustaining these areas as sites of environmental significance.

Policy

It is policy that:

- Sites of environmental significance be protected and enhanced.
- Subdivision, buildings and works for residential purposes on or adjacent to sites of environmental significance will be discouraged unless it increases the prospects for sustaining the relevant biological or ecological value which forms the basis of these sites.

Policy References:

- Shire of East Gippsland, East Gippsland Planning and Development Strategy - 1997 - 2010, Sept. 1997.
- Spiller Gibbins Swan, Ag-Challenge and Keaney Planning and Research, East Gippsland Low Density Living Study, 1997
- Areas of Special Biological Value for Planning Consideration, Draft-October 1996 - Department of Natural Resources and Environment (Orbost and Bairnsdale)

5.2.5 Landscape Quality Policy

This policy applies to all land identified in the MSS as being within an area of high landscape quality.

Policy Basis

Several areas within the municipality have been identified by the National Trust as having high landscape quality. These areas, on both public and private land include:

- Gippsland Lakes
- Lake Tyers and Lake Bunga
- East Gippsland including Upper Snowy, Mt. Tingaringy, Middle Snowy and tributaries, Errinunda Plateau, Mt. Kaye, Mt. Coopracambra and Croajingalong.
- Areas identified on the planning scheme maps as being within a Significant Landscape Overlay

Policy Objectives

- To protect areas of high landscape quality from visual intrusion caused by the inappropriate siting or appearance of building or works.
- To encourage development which is consistent with the high landscape qualities of the area
- To protect and enhance important views and vistas

Policy

It is policy that;

- Council will prepare a detailed landscape quality assessment and strategy and will implement the outcomes in a Significant Landscape Overlay.
- Council will implement the recommendations of the National Trust Landscape Quality assessments.
- Subdivision within this policy area will be discouraged unless it can be demonstrated that buildings, works, roadworks and vegetation clearance can be achieved without a detrimental impact on the existing landscape quality.
- Vegetation removal will be minimised in association with any buildings, works or subdivision proposals especially those related to low density residential rural living.
- Council will protect view corridors within this policy area especially along important tourist routes, view points and trails.
- Council will give preference to development and subdivision proposals which are located in areas of lesser landscape quality.

Policy References:

- National Trust of Australia (Victoria) Gippsland Lakes Significant Regional Landscape
- National Trust of Australia (Victoria) East Gippsland
- National Trust of Australia (Victoria) The Middle Snowy and Tributaries
- National Trust of Australia (Victoria) The Errinundra Plateau
- National Trust of Australia (Victoria) Mt. Kaye - Mt. Coopracambra Region
- National Trust of Australia (Victoria) Croajingalong
- National Trust of Australia (Victoria) Landscape Classification Report - Lakes Entrance
- National Trust of Australia (Victoria) Classification Report - Lake Tyers and Lake Bunga

5.2.6 Cultural and Heritage Significance Policy

This policy applies to all land identified on the Heritage Overlay and to other sites considered to be of cultural or heritage significance.

Policy Basis

There are important areas and sites of aboriginal and non-aboriginal cultural and heritage significance within the municipality. These sites provide important links to our history that should be preserved for cultural, social and economic reasons.

Policy Objectives

- To preserve and enhance the natural and built heritage of the municipality.
- To encourage the conservation of sites and areas of cultural and heritage value.

Policy

It is policy that:

- Sites and areas of cultural and heritage significance be preserved.
- Council continue to investigate and review policies aimed at protecting and enhancing the aboriginal and non-aboriginal heritage of the Shire.
- Any application for use, development or subdivision of a site or area of cultural or heritage significance be referred to the appropriate authorities.

Policy References:

- National Trust of Australia (Victoria) Gippsland Lakes Significant Regional Landscape
- National Trust of Australia (Victoria) East Gippsland
- National Trust of Australia (Victoria) The Middle Snowy and Tributaries
- National Trust of Australia (Victoria) The Errinundra Plateau
- National Trust of Australia (Victoria) Mt. Kaye - Mt. Coopracambra Region
- National Trust of Australia (Victoria) Croajingalong
- National Trust of Australia (Victoria) Landscape Classification Report - Lakes Entrance
- National Trust of Australia (Victoria) Classification Report - Lake Tyers and Lake Bunga

5.2.7 Mineral and Stone Resource Protection Policy

This policy applies to all land considered to be within or close to sites of mineral and stone resources.

Policy Basis

There are valuable mineral and stone resources within the shire that are being extracted or need to be preserved for future extraction. It is also likely that new deposits will be discovered in the future. Inappropriate use and development of land on or adjacent to such sites may prejudice the utilisation of these resources but conversely, mineral and stone resource exploitation may compromise other important resources. Balance between exploitation of such resources and the value of other resources likely to be adversely affected needs to be considered when rezoning and permit decisions are made.

Policy Objectives

- To protect mineral and stone resources for future exploitation.
- To avoid conflict between incompatible land uses
- To ensure that other valuable resources are not compromised by the exploitation of stone and mineral resources

Policy

It is policy that:

- Rezoning of land for residential, low density residential and rural living purposes on or near to sites of stone or mineral resources is discouraged.
- Appropriate setbacks for residential, low density residential and rural living uses from sites of stone and mineral resource extraction or potential future extraction should be provided.
- Subdivision for lots less than the minimum size for the zone is permitted if a permit has been granted to use the site for extraction of mineral and/or sand resources; there is no associated entitlement to a dwelling; and, the site will be consolidated with the parent title when the mineral or stone extraction use is finished and these commitments are confirmed by a S. 173 legal agreement.
- Mineral and stone extraction is discouraged in areas of environmental, cultural and heritage and landscape significance and on prime agricultural land.
- Mineral and stone extraction in water supply catchments and aquifer recharge areas should only be carried out where adequate measures are taken to protect water resources from pollution.
- In considering proposals for mineral and stone resource exploitation where there is conflict with other resources a social-economic cost-benefit analysis assessment will be required.

Policy References

- Shire of East Gippsland, East Gippsland Planning and Development Strategy, Sept. 1997.
- Spiller Gibbins Swan, Ag-Challenge and Keaney Planning and Research, East Gippsland Low Density Living Study, 1997

5.2.8 Water Supply Catchment and Aquifer Recharge Area Policy

This policy applies to all land in a water supply catchment or an aquifer recharge area.

Policy Basis

The supply of quality water for a range of uses including human consumption, domestic and industrial uses and agricultural activities depends on sound management of water supply catchments. As most water supply catchments are large and water take-off tends to occur low down in the catchments it is particularly important that land use and development close to take off sources is strictly controlled.

Similarly, aquifer recharge areas are an important resource for water supply as well as the maintenance of ground water tables for the benefit of hydrological, soil and vegetation systems.

Natural and undeveloped water supply catchments and aquifer recharge areas provide the highest quality supply of water to above and below ground water bodies.

Policy Objectives

- To protect the supply and quality of water to domestic water storage's and aquifers.
- To minimise residential and intensive farming activity in water supply catchments and aquifer recharge areas, particularly near water supply take off points.

Policy

It is policy that:

- Subdivision and intensive farming activities in water supply catchments, especially the lower areas of water supply catchments near water take off points is discouraged.
- Subdivision, intensive farming activities (including the location of dairies) in aquifer recharge areas is discouraged.

Policy References

- Shire of East Gippsland, East Gippsland Planning and Development Strategy - 1997 - 2010, Sept. 1997.
- Spiller Gibbins Swan, Ag-Challenge and Keaney Planning and Research, East Gippsland Low Density Living Study, 1997
- Department of Water Resources, Water Victoria: An Environmental Handbook, 1990

5.2.9 Erosion Prone Areas Policy

This policy applies to all land considered to be prone to serious erosion.

Policy Basis

There are substantial areas of the shire which are subject of erosion risk. The risk varies depending on the character of the area and includes tunnel and gully erosion, sheet and rill erosion and landslip (mass movement). Major problems caused by inappropriate use and development in erosion prone areas include wash out of tracks and roads, table drains washing away and becoming gullies, road batters slumping and destroying road pavements and surfaces and cut and fill for development sites causing mass movement.

Policy Objectives

- To ensure that the soil and land resources of the Shire are sustained.
- To minimise pollution of streams and water ways
- To minimise the risk of damage to buildings and works due to poor development techniques which lead to slumping and mass movement.
- To encourage stabilization and reinstatement of erosion affected areas.

Policy

It is policy that:

- Construction of buildings on slopes less than 8% is encouraged.
- Construction of access tracks and roads across slopes is discouraged.
- Buildings and works should be avoided on erosion prone land regardless of slope.
- Prior to approval of buildings and works on land prone to mass movement an assessment of the susceptibility of the land to mass movement should be carried out and where the risk of such movement is considered to be too great the development should not be allowed.
- Subdivision lot lines should not be created along slopes in erosion prone areas.

Policy References

- Shire of East Gippsland, East Gippsland Planning and Development Strategy, Sept. 1997.
- Spiller Gibbins Swan, Ag-Challenge and Keaney Planning and Research, East Gippsland Low Density Living Study, 1997
- Rowe R.K., Howe D.F. and Alley N.F., Guidelines for Land Capability Assessment in Victoria - unpublished report, Soil Conservation Authority, Victoria, 1978
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- Aldrick et al, 1992 A Study of the Land in the Catchment of the Gippsland Lakes, TC17 Department of Conservation and Natural Resources, Victoria.
- Rowan J.N., 1990 Land Systems of Victoria, Department of Conservation and Environment.
- Rees D.B., 1996 Land Inventory of East Gippsland - A Reconnaissance Survey, Tech Report No. 23 Department of Conservation and Natural Resources.
- Howe D.F. and Poutsma T., Gippsland Lakes Environs Land Capability Study, Department of Conservation and Environment, Folio Report.
- D.B. Rees, Cassilis - Swifts Creek Land Capability Study, 1997

5.2.10 Wild Fire Policy

This policy applies to all land which is considered to be of high wild fire risk.

Policy Basis

East Gippsland has been assessed as one of the most bushfire prone areas in the world. The Country Fire Authority has carried out preliminary investigations into the level of risk across the Shire and generally the northern bushland half of the Shire has the highest fire intensity rating. Dwellings in high bushfire risk areas endanger property, the safety of occupants and firefighters. The northern part of the Shire is also the most difficult to service from a CFA perspective. Other bushland and grassland areas in the Shire have moderate to low wild fire risk and are more suitable for residential uses.

Policy Objectives

- To direct subdivision and residential development to areas which have a low wild fire risk to property, residents and firefighters.
- To ensure that dwellings are not constructed in areas of high wild fire risk so as to avoid an unacceptable level of fire risk to residents, fire fighters and property.
- To ensure that the road design and layout of subdivisions allows for a high standard of fire truck access and egress and resident escape.
- To ensure that subdivisions in rural areas have adequate water supply for fire fighting purposes.

Policy

It is policy that:

- Subdivision and residential development in areas assessed as having high wild fire risk is discouraged.
- All rural living subdivisions or rezonings for low density residential and rural living are to be referred to the CFA for fire risk assessment.
- In areas considered suitable for subdivision and residential development:
 - Roads must be designed and constructed in accordance with CFA requirements and standards.
 - Subdivisions must contain, as a condition of approval, fire fighting water supply tanks or dams in accordance with CFA requirements and standards.
 - A detailed analysis of the fire concern factors affecting the site and the area within which the land is located must be supplied with any proposal for rezoning or permit for subdivision.
 - A comprehensive fire protection plan which complies with the CFA fire protection guidelines will be required as a condition of any rezoning or permit.

Policy References

- Shire of East Gippsland, East Gippsland Planning and Development Strategy - 1997 - 2010, Sept. 1997.
- Spiller Gibbins Swan, Ag-Challenge and Keaney Planning and Research, East Gippsland Low Density Living Study, 1997
- Country Fire Authority, Fire Intensity and Frequency Maps - CFA Bairnsdale
- Country Fire Authority, Planning Conditions and Guidelines for Subdivisions, 1991
- Country Fire Authority - Risk Management Department, Fire Statistics, CFA Region 11, April 1995

5.2.11 Flood Prone Areas Policy

This policy applies to all land identified on the Physical Framework Plan as being flood prone.

Policy Basis

Many parts of the Shire are susceptible to flood risk especially along the river valleys and plains. The Floodplain Management Unit of the Department of Natural Resources and Environment is currently carrying out detailed mapping of the Shire in order to designate land as being appropriate for inclusion within a Urban Floodway zone; a Rural Floodway overlay; or a Land Subject to Inundation overlay. In the meantime Council will identify areas which have the greatest risk of being affected by flooding.

Policy Objectives

- To ensure that urban and rural areas which have the greatest risk and frequency of being affected by flooding are identified.
- To ensure that urban and rural areas which are liable to inundation by overland flow, sheet flooding or land affected by the 1 in 100 year flood are identified.
- To ensure that any use or development maintains the free passage and temporary storage of floodwater, minimises flood damage, will not cause any significant rise in flood level or flow velocity and is compatible with flood hazard, local drainage conditions and the minimisation of soil erosion, sedimentation and silting.
- To protect water quality and waterways as natural resources.

Policy

It is policy that:

- A permit is required to construct a building or to construct or carry out works including a solid or paling fence within the policy area.
- A permit is required to subdivide land within the policy area.
- Subdivision within areas identified as being high flood risk will be discouraged.
- Buildings and works within areas identified as being high flood risk will be discouraged.
- In considering any application for use, development or subdivision, or in considering a request to rezone land, Council shall have regard to the likelihood of the land being flooded.
- In considering any application for use, development or subdivision, or in considering a request to rezone land, Council shall refer applications or request to the Floodplain Management Unit of the Department of Natural Resources and Environment.

Policy References

- Shire of East Gippsland, East Gippsland Planning and Development Strategy - 1997 - 2010, Sept. 1997.
- Spiller Gibbins Swan, Ag-Challenge and Keaney Planning and Research, East Gippsland Low Density Living Study, 1997

5.2.12 Water, Sewerage and Drainage Policy

This policy applies to all:

- Rezoning or permit applications for the use and development of land for low density or rural living purposes.
- Rezoning, use and development of land for other purposes where the land is provided with water, sewerage and drainage infrastructure or can readily be provided with water, sewerage and drainage infrastructure through extension of existing systems.

Policy Basis

The community makes substantial investments in water, sewerage and drainage infrastructure for urban development. It is in the community's interest that this investment be most effectively and efficiently used. Generally speaking, low density residential development is an inefficient use of such infrastructure, particularly sewerage and drainage infrastructure.

Policy Objectives

- To ensure that the community receives the best return on its investment in water, sewerage and drainage infrastructure.
- To protect areas which have or can readily be supplied with water, sewerage and drainage infrastructure and which are suitable for urban development from rezoning and development for low density residential or rural living

Policy

It is policy that:

- Low density residential and rural living development is discouraged in areas which are served by water, sewerage and drainage infrastructure which has the capacity to accommodate more intensive urban development.
- Areas which are served by water, sewerage and drainage infrastructure and have the capacity to accommodate urban development are not used or developed for purposes which preclude such development.
- Areas which are readily able to be supplied with water, sewerage and drainage infrastructure and are suitable for urban development must

not be developed for purposes which preclude urban development without a social-economic cost benefit analysis being completed.

- Where applicable, development contributions plans will be prepared for to help recoup the cost of water, sewerage and drainage infrastructure.

Policy References

- Shire of East Gippsland, East Gippsland Planning and Development Strategy, Sept. 1997.
- Spiller Gibbins Swan, Ag-Challenge and Keaney Planning and Research, East Gippsland Low Density Living Study, 1997

5.2.13 Electricity Supply Policy

This policy applies to all land.

Policy Basis

Supply of electricity (both overhead and underground) to low density residential or rural living development can have undesirable environmental consequences due to vegetation removal and excavations to bury cables. Overhead cables can also have undesirable visual impacts and increase the risk of wildfires particularly in bushland areas. Line maintenance costs are increased where overhead cables are located in bushland areas.

Policy Objectives

- To ensure that the development of low density residential or rural living does not lead to undesirable environmental or visual impacts or increase bushfire risk from the supply of electricity.

Policy

It is policy that:

- Low density residential or rural living subdivision and development in bushland areas is discouraged.
- Electricity supply to low density residential and rural living areas must be provided in a way that minimises undesirable environmental effects and does not unduly increase bushfire risk.

Policy References

- Shire of East Gippsland, East Gippsland Planning and Development Strategy - 1997 - 2010, Sept. 1997.
- Spiller Gibbins Swan, Ag-Challenge and Keaney Planning and Research, East Gippsland Low Density Living Study, 1997

5.2.14 Telecommunications Policy

This policy applies to all land.

Policy Basis

Advances in telecommunications technology is increasing the potential for home based businesses in urban and non-urban areas. The supply of telecommunications can have undesirable environmental consequences due to vegetation removal and visual impact.

Policy Objectives

- To ensure that the provision of telecommunications infrastructure does create undesirable environmental and visual impacts.

Policy

It is policy that:

- Telecommunications supply must be provided in a way that minimises undesirable vegetation removal and visual impact.
- Telecommunications facilities are encouraged to co-locate with existing facilities.
- Freestanding mobile telephone towers:
 - are encouraged in business and industrial areas;
 - are discouraged in residential areas;
 - must not be located within or adjoining pre-schools, child care, maternal and child health centres, children's playgrounds; and,
 - if located in public parks are encouraged to locate on existing infrastructure such as grandstands, light towers and pavilions.

Policy References

- Shire of East Gippsland, East Gippsland Planning and Development Strategy - 1997 - 2010, Sept. 1997.
- Spiller Gibbins Swan, Ag-Challenge and Keaney Planning and Research, East Gippsland Low Density Living Study, 1997

5.2.15 Rural Roads Policy

This policy applies to all rezoning or permit applications for the use and development of land for low density or rural living purposes.

Policy Basis

The design and construction of roads in rural areas can affect bushfire risk, maintenance costs and erosion risk. If good design and construction techniques are applied the community and residents of rural areas will benefit through reduced maintenance costs and lower bushfire and erosion risk.

Policy Objectives

- To ensure that bushfire risks are not increased because of poor subdivision and road layouts.
- To ensure that roads in rural areas are designed and constructed to achieve the most cost effective maintenance obligation for Council relevant to the type of road best suited to the nature of development proposed.
- To ensure that erosion risks from road construction are minimised.
- To ensure that the costs of roads required by low density residential and rural living development is recouped from developers where appropriate.

Policy

It is policy that:

- Low density residential development should be located close to main and secondary roads which provide ready access to urban areas.
- Roads in rural areas must be designed and constructed with a low cost maintenance objective.
- Construction of roads and access tracks across slopes and in areas of high erosion risk is discouraged.
- Road layouts for subdivision must be designed with the objective of minimising bushfire risk.
- Applications for subdivision in rural areas must be referred to the Country Fire Authority.
- Where applicable, development contributions plans will be prepared to help recoup the cost of roads.

Policy References

- Shire of East Gippsland, East Gippsland Planning and Development Strategy, Sept. 1997.
- Spiller Gibbins Swan, Ag-Challenge and Keaney Planning and Research, East Gippsland Low Density Living Study, 1997

5.2.16 Waste Water Disposal Policy

This policy applies to all rezoning or permit applications for the use and development of land for low density residential or rural living.

Policy Basis

In many parts of the Shire land and soils are not suitable for septic tanks. Areas of particular concern are Cassilis Valley, at the edge of Gippsland Lake, close to streams and other major water bodies and within aquifer recharge areas. Contrary to popular opinion, septic tanks will function properly in Victoria at high altitudes - the soil does not freeze except close to the surface. Poor design and limited capacity at peak times is usually the problem. Land with a high water table creates pollution potential and absorption problems. Areas with seasonally and generally high water tables are river valleys and around the edges of lakes.

To ensure that water resources are not polluted, sewage and sullage must be absorbed within site boundaries. Thus development must be on sites which have the capacity to handle septic tanks or alternative waste treatment systems are used which have equivalent or better environmental consequences.

Treatment works for urban waste water and solid waste disposal sites can be offensive to residential development. Thus adequate separation between such activities should be maintained.

Policy Objectives

- To ensure that development for residential use where there is no sewerage system is located on land that has the capacity to absorb waste water within the boundaries of the lots available for development.
- To ensure that development for residential use outside town boundaries is located where it will be provided with a solid waste collection service.
- To encourage recycling of domestic waste.
- To ensure that residential development is not located too close to sewerage treatment works and solid waste disposal sites

Policy

It is policy that:

- Low density residential must be on land with:
 - well drained, permeable soils with low shrink-swell potential;
 - low to moderate slopes;

- none or very low flood risk;
- soil depth to the water table greater than 1.2m;
- soil depth to bedrock greater than 1.5m;
- soils with low levels of gravel, stone and boulders.
- Lots created by any subdivision must be large enough to ensure site containment of waste water even though the minimum lot size for the zone may be less than the necessary size.
- Septic tanks must not be installed in aquifer recharge areas.
- Instead of septic tanks, alternative waste water disposal and treatment systems to the satisfaction of the responsible authority may be provided but such methods must be referred to the Environment Protection Authority prior to approval.
- Solid waste disposal sites and sewerage treatment works must be separated or buffered from residential development to ensure that offensive odours and other offsite effects do not adversely affect the amenity of the residential areas.
- New residential subdivisions must include a condition of approval which requires composting facilities to be provided and composting of domestic waste from the household on site to be carried out by residents.

Policy References

- Shire of East Gippsland, East Gippsland Planning and Development Strategy, Sept. 1997.
- Spiller Gibbins Swan, Ag-Challenge and Keaney Planning and Research, East Gippsland Low Density Living Study, 1997
- Rowe R.K., Howe D.F. and Alley N.F., Guidelines for Land Capability Assessment in Victoria - unpublished report, Soil Conservation Authority, Victoria, 1978
- Howe D.F. and Poutsma T., Gippsland Lakes Environs Land Capability Study, Department of Conservation and Environment, Folio Report.
- Howe D.F., Castello R.T., Russell L.D., 1979, Land Capability for Urban and Related Uses in the Berwick Pakenham Area and the Shire of Hastings, Soil Conservation Authority.

5.2.17 Community Facilities and Services Policy

This policy applies to all rezoning or permit applications for the use and development of land for low density or rural living purposes.

Policy Basis

Community facilities are fixed infrastructure assets like schools, sports centres, senior citizens centres and child care centres. Community services are mobile assistance programs like domiciliary care, home help

and meals-on-wheels. Community facilities and services make up a community's social infrastructure which is almost always funded by the public sector.

Social infrastructure is provided in areas where there is a clear need (i.e. critical population mass) for the facility / service. Hence such infrastructure is provided in towns and growth areas. Residents from remote areas are expected to commute to the nearest town for community facilities and services. This includes public transport.

Community facilities and services will continue to be provided where the demand is greatest, not necessarily in rural and low density living areas. It is costly and inefficient to provide social infrastructure in remote, low population areas.

Some existing community facilities and services may be used at levels well below capacity yet in other areas usage may be at or beyond capacity. It is desirable that available capacity be utilised before development is approved which creates threshold demand for new social infrastructure.

Policy Objectives

- To ensure that the use of existing community facilities and services is maximised, especially for those facilities and services which are currently operating below capacity.
- To ensure that development in remote areas does not create threshold demands for additional local social infrastructure and require the provision of such infrastructure unless a social economic cost benefit analysis is completed which shows that the proposed development is desirable.
- To ensure that residents have reasonable access to community facilities and services.
- To ensure that the cost of community facilities required by low density residential and rural living development is recouped from developers as appropriate.

Policy

It is policy that:

- Subdivision and development for low density residential and rural living is encouraged in areas where the use of existing community facilities and services is at under-capacity.
- Subdivision and development for low density residential and rural living uses is encouraged in areas adjacent to towns and urban areas so as to maximise access to community facilities and services.
- Low density residential and rural living in remote parts of the Shire is discouraged.

- Where applicable, development contributions plans will be prepared to help recoup the cost of community facilities.

Policy References

- Shire of East Gippsland, East Gippsland Planning and Development Strategy - 1997 - 2010, Sept. 1997.
- Spiller Gibbins Swan, Ag-Challenge and Keaney Planning and Research, East Gippsland Low Density Living Study, 1997

5.2.18 Highland Living Policy

This policy applies to all land in the high altitude (above ???m.) bushland areas of the Shire.

Policy Basis

There are bushland areas at higher altitudes in the Shire that are attractive for 'retreat/weekend' living. This land is zoned environmental rural or rural but generally speaking it is not suitable for agricultural pursuits. The bushland environment needs to be protected because of its sensitivity and environmental value but the development of a house and associated buildings and works is appropriate provided the site is large enough to absorb the development without compromising the environmental values of the land. The layout and size of subdivisions and the siting of buildings and works can have important implications for environmental management, bushfire risk and service provision.

Policy Objectives

- To provide for residential development in high altitude, bushland environments.
- To encourage better subdivision design and layout and better siting and design of buildings and works in high altitude, bushland areas.
- To ensure that high altitude bushland environments are maintained and enhanced if residential development occurs.

Policy

It is policy that:

- Agriculture and fencing are discouraged, including boundary fencing.
- A permit is required for all buildings and works and vegetation removal.
- Dwellings and associated buildings and works must be designed and located so that the bushland environment is sustained and enhanced as an ecological system across the balance of the site
- Clearing of vegetation other than for the site of a dwelling and associated buildings and works is discouraged.

- Siting of buildings and works on prominent ridgelines and escarpments is discouraged

Policy References

- Shire of East Gippsland, East Gippsland Planning and Development Strategy, Sept. 1997.
- Spiller Gibbins Swan, Ag-Challenge and Keaney Planning and Research, East Gippsland Low Density Living Study, 1997

5.2.19 Development Contributions Policy

This policy applies to all land zoned for urban purposes plus land zoned low density residential and rural living.

Policy Basis

Council intends to prepare Development Contributions Plans for inclusion in the planning scheme at Clause 44.06. In the meantime, in areas where no such plan exists, this policy will guide Council decisions about development applications.

Policy Objectives

- To allow Council to negotiate with developers about appropriate contributions towards the cost of providing infrastructure in areas where there is no approved development contributions plan.
- To ensure that decisions about negotiated development contributions in areas without approved development contribution plans are made in a consistent manner.
- To ensure that when land is rezoned for urban purposes or for low density residential or rural living a development contributions plan is prepared and incorporated in the planning scheme.

Policy

It is policy that:

- Council will prepare development contributions plans for all land zoned for urban purposes, low density residential and rural living which is not yet developed.
- In preparing development contributions plan and negotiating contributions towards the cost of infrastructure in areas without such plans Council will have regard to the principles set out in the

Guidelines for Development Contributions, Department of Planning and Development, Dec. 1995.

- In the absence of incorporated development contributions plans, Council will negotiate with developers about an appropriate contribution to the cost of necessary infrastructure and that these negotiations will be formalised in a legal agreement under Section 173 of the Planning and Environment Act.

Policy References

- Guidelines for Development Contributions, Dept. of Plann. and Dev., Dec. 1995.

5.3 Recommended Low Density Residential Development Areas

The areas recommended for low density residential and rural living have been nominated on the draft planning scheme maps. These areas generally reflect existing areas with similar zonings although there have been extensions and modifications in some areas.

In principle however, it is recommended that the Shire not attempt to designate new areas for low density residential or rural living at this stage, as the supply and demand analysis shows in Section 4 there is likely to be sufficient land zoned for such purposes until well into the next century, although there may be scope for some rezonings in some areas. The recommended approach is to consider applications on their merits based on the policy principles outlined in Section 5.2.

5.4 Schedules to Rural Zones

The policy outlined in Section 5.2.1 has been converted to draft schedules for the rural zones and these are included as Appendix C. These schedules provide some overlap with the policy but it is important that the policy be maintained as it provides a comprehensive cover which is lacking in the VPPs.

APPENDICES

Appendix A - Review of Studies, Policies and Strategies

East Gippsland Regional Planning Committee (1978) *Rural land Use in East Gippsland*

This is a comprehensive report exploring the issue of increasing rural subdivision and the implications of this for rural land use generally in East Gippsland. It does not provide any area specific recommendations focusing more on the long term policy scene.

The report is an initial attempt to establish a consistent rural land use policy base for the East Gippsland region. Many of the factors which it points to for determining policy direction remain relevant today. This document should carry some weight for guiding the development of current policy, as its broad scale view of the Shire's rural land use is not dissimilar to the objectives of the current study.

Town and Country Planning Board (1979) *East Gippsland Regional Study*

This study identifies the increase in rural subdivision as the 'most controversial change in the pattern of natural resource use' in East Gippsland. Figure 13 is an interesting depiction of regional rural subdivision rates though the figures are well out of date.

It makes no recommendations on area specific treatments of rural residential subdivision. It provides only a shallow overview of the issues.

Shire of Bairnsdale and Ministry for Planning and Environment (1986) *Paynesville to Nicholson Strategy Plan Review and Analysis*

This plan does not examine the issue of rural residential development in much depth but does refer briefly to the agricultural costs associated with increasing rural residential development. The review acknowledges many of the issues that arise concerning rural residential development.

Shire of Bairnsdale and Ministry for Planning and Environment (1986) *Paynesville to Nicholson Strategy Plan*

The strategy plan outlines a policy approach for rural residential land but does not describe any conditions or criteria in detail. The points made are:

- Rural residential land uses adjacent to Paynesville to function as a buffer/interface between urban development and broadscale rural land.
- Provide new opportunities for rural residential development in areas with an appropriate level of service infrastructure and in areas which will have minimal impact on visual, landscape and agricultural qualities.

Interestingly, a recommendation is made to identify new rural-residential opportunities outside the report's study area.

The policy directions were arrived at after consideration of paper by the Ministry for Planning and Environment which summarises most of the predominant issues concerning rural residential land use. A set of criteria for consideration can be found on pp. 48-49.

Shire of Tambo (1987) Lakes Entrance Strategy Plan

The strategy earmarks two areas for rural residential zoning (fig. 4.2, p.48). This is in reaction to the lack of provision for larger residential lots despite some demand for them. The issues are not fully explored by the strategy but section 4.3.2 does make recommendations for rezoning of some land to rural residential, simply stating that the council would need to 'ensure that this area of bushland has no significant conservation or scientific value before commencing the amendment.' There is also a requirement that the new zone should 'prevent the total loss of vegetation from a residential allotment but allow sufficient clearing for a building envelope and for a fire buffer.'

Shire of Tambo (1990) Rural Residential Strategy Plan

Section 2 of this study creates a brief but accurate outline of the issues associated with rural residential development. Some interesting observations are :

- 4 ha size lots appears to be too large for people seeking rural lifestyle living, as unexpected expenses for owners are created particularly by land maintenance issues.
- social problems have been identified because of isolation from some services, particularly in situations where residents who initially accept the lack of services and facilities later request services and facilities that are not normally available for non-urban residences.

Section 3 of the report is an excellent overview of rural residential development issues, using a set of development criteria to assist land and location analysis. The criteria are: physical features, social aspects,

environmental considerations, services, and supply and demand. The services section contains a discussion of the costs of road maintenance, demonstrating the need for a clear understanding of the actual cost of servicing rural subdivisions.

A brief summary of Section 3:

- physical features such as topography, flooding, land capability, agricultural quality and fire hazard will determine what land is most favoured for rural residential development.
- social aspects such as access to 'hard' and 'soft' services will mean that development needs to be relatively close to services and only efficiently serviceable land
- environmental aspects like effluent disposal, visual impacts and tree clearance will also play a part in restricting development to certain areas
- servicing costs will need to be minimised but there is an expectation that services will be provided
- the availability of reticulated water supply to rural residential lots should be a necessary precondition in determining the location of rural residential zones
- supply issues are clear but establishing demand levels is not so easy. Real estate agents were surveyed to establish the level of demand. A strong demand for 0.4 to 2 ha lots exists, for lots with reticulated electricity and telephone, reticulated water (desirable but not essential), sealed roads (preferable), close to schools or a school bus route, with many enquiries for land from young middle aged couples, who are not necessarily retirees.

Section 9 of the report makes specific area conclusions and recommendations. Lakes Entrance and Nungurner have areas which this particular study suggest would be suitable for rural residential development. These are shown on maps 7 and 8. This section of the report should be referred to when assessing land allocations near these two towns.

Dept. of Planning and Urban Growth and Dept. of Conservation and Environment (1990) *Gippsland Lakes Strategy* Victorian State Government

This document is insightful and provides a deep analysis of the issues which threatens the Lakes, and relates a strategy that protects them, while allowing for some development. The document is well researched. Policy directions are based on a sound foundation of factual analysis. The report deserves due status for the purposes of the current study.

The first part of the report sets out a background which details the physical setting, the social and economic context, policy context, recent trends, and issues.

The second part of the report details a strategy which addresses environmental protection and management, urban settlement around the Lakes, tourism, boating and fishing, and non-urban land.

The report generally has a strong environmental focus. It examines the history of the degradation of the Lakes through unnatural impacts and natural processes. The first part of the report sets out arguments for controlling wide-spread urban development to areas that are least sensitive. A cautious scene is set as it is apparent that the Lakes are highly sensitive to a range of impacts caused by human uses of the Lakes and the surrounding environment. This part of the report also recognises however that there are development pressures on the Lakes and thus a need for the area to be prepared to absorb future demand. Of course, the aim is to achieve this strategically, balancing the needs of the environmental sensitivity of the area with demand for development.

Department of Agriculture and Department of Conservation and Environment (1991) *A Review of Rural Land Use in Victoria* Victorian State Government

The prime purpose of this document is to examine the loss of high quality land across Victoria and postulate policy directions and issues for rural land use in the State.

The document's usefulness for the current study is general. The report highlights the need for sensitive approaches to the use of rural land by providing a broad coverage of the pressures placed on rural land by urban expansion and settlement, amongst other things.

Section 3.1 of the report discusses the effects of settlement patterns as a factor that is changing rural land use. While the entire section is a useful overview of reasons why urban/rural conflicts are undesirable, 3.1.3 'Rural Living and Subdivision' is a short but accurate exploration of the issues that relate directly to the current study.

It recognises that:

- rural residential demand is lifestyle-based, reflected in changing settlement patterns due to societal shifts;
- allotment sizes for rural residential are usually between 0.4 to 2 hectares;

- subdivision of rural land will potentially change the land use and remove agricultural usefulness;
- agricultural potential is determined by land quality, size of allotments and ownership;
- the change over from agricultural use to residential use is usually irreversible because of investment in infrastructure and services;
- environmental impacts are increased by the need to alter land to meet residential use needs and mismanagement of larger tracts of land; and
- landscape quality can be jeopardized by insensitive development and extensive development.

P. 14 provides some figures regarding the proportional increase in rural populations. There is little empirical evidence in the report regarding general demand for rural residential living.

The report outlines general policy responses regarding rural land use. Amongst a number of recommended planning actions there is a direction to revise the approaches to provision of and controls over rural residential and related development adopted by planning authorities, and the general protection of good agricultural land by limiting urban growth and restricting low density rural living areas, where necessary.

Shire of Orbost, 1991 *Shire of Orbost Planning Study Part 1: Strategic Overview and Structure Plan.*

This strategic overview covers the former Orbost Shire region, inclusive of Orbost and Mallacoota.

Section 2 discusses non-urban areas within the Shire. It examines the issues of small lot and rural residential developments. 2.4 is a brief discussion of small lot development. The discussion recognises increased demand for rural residential lots of all sizes. It also discusses the requirements of hobby farmers, and the Department recommendation that lots sizes should not exceed 2 ha. The discussion also recognises the needs of genuine farmers and the potential loss of good agricultural land to rural residential.

2.7.3 (a) outlines criteria for a Rural Residential Zone within the strategy. The criteria (from the Marlo-Bemm River Strategy) can be found on pp. 12-13, and they cover the issues of agricultural land protection, services and infrastructure provision, fire hazard provision, and topography including soil type. Point 9 is the most interesting:

"Land zoned for rural residential purposes should be located to avoid interfering with possible future expansion of the townships."

Map 3 of the report identifies locations that have potential to be rural residential zones based on the criteria that is set out. 2.7.3 (b) and (c) on p.14 describe more specific ideals for location and lot size provision, and the inclusion of service provision zone requirements. There are no surprises here.

Perrot Lyon Mathieson Pty Ltd (1992) *Eagle Point to Paynesville Local Structure Plan*

This study follows on from the Gippsland Lakes Study, which suggested that the land between Eagles Point and Paynesville could be a potential site for a major resort development and limited urban development.

The report details a structure plan which includes an allocation of a rural living precinct which would act as a visual and land use buffer between the two centres. Its purpose is to retain a rural feel on the land between the two centres, avoiding incremental development and eventual 'conurbation'. The plan states that the average lot size should be 2 ha.

The location of the rural living precinct is outlined on map 5, between pp. 10 and 11.

Rees, David B. (1995) *A land capability study of the Cassilis Valley, Swifts Creek*. Centre for Land Protection Research, Dept. of Conservation and Natural Resources

In response to development pressure on the Cassilis Valley, this land capability assessment examines the variety of land forms. The objective is to understand land capability in order to allow the most appropriate uses on the land, protecting vital qualities while reducing erosion and topographical damage.

The study does not make any recommendations on what types of land uses are most suitable, but it does provide a well researched analysis of the management issues associated with the land, with implications for potential land uses.

The Cassilis Valley prone to erosion and has some soil stability problems. It would therefore be unwise to expose the land to any intense development.

East Gippsland Shire Council 1997 *East Gippsland Planning and Development Draft Strategy*

The strategy sets out a Land Use and Development Framework which defers an in depth exploration of rural residential development to the preparation of local structure plans. The strategy stipulates that the

extent and location of rural residential lots (low density and 'farmlet' sizes) will be reviewed during local structure plan development.

The strategy calls for a review of development and use of rural residential lots over the most recent 10 year period. The strategy also establishes a set of guiding strategic principles for specified regions within the Shire, though none of these tend to be explicit about rural residential development, but more focussed on residential development generally.

Appendix B - Methodology for Calculating Supply and Demand for Large Lot Residential Development

The following process was followed to estimate supply of and demand for low density living lots by zone and sub-market in East Gippsland Shire:

1. Determine the number of low density living lots in each sub-market.
 - Relevant zones were superimposed on a series of current cadastral maps of the Shire and the number of lots was counted.
 - The results are shown in column 1 on the Table: Supply and Demand Analysis.
2. Determine the number of vacant low density living lots in each sub-market.
 - The Country Fire Authority's Rural Directory for East Gippsland (1994 Edition), which shows location of dwellings in rural areas, and the most recent aerial photographs of the Shire (1990) were scrutinised to estimate the development status of lots.
 - Column 2 on the Table (Supply and Demand Analysis) provides estimates of the number of vacant low density living lots for 1994. These results are indicative only.
 - The next step involved updating this development status information to 1997.
 - Council planning department information was reviewed to assess the number of dwellings approved for each sub-market for the years 1994-96. This is shown on the table below. Information for 1997 was estimated based on existing trends.
 - Information for development type (i.e. low density, high density, etc.) is estimated from subdivision trends. These show low density lot creation as a proportion of all lots. It is assumed that this proportion is representative of development trends.
 - The development of low density living lots between 1994 and 1997 was calculated by multiplying the number of dwelling permits by low density subdivision proportions for each sub-market.
 - The results are shown below and in column 3 on the Table: Supply and Demand Analysis.

Estimating Low Density Living Development by Sub-market, 1994-97

Sub-Markets	New Dwelling Permits					Subdivision Trends			Development Estimate
	1994	1995	1996	1997*	Total 1994-97	Total Lots Created 1990-96	Low Density Lots** Created 1990-96	Prop. (%)	Estimated No. of Low Density Lots Developed Between 1994-97
1 Highland Sub-Market	15	18	16	16	65	138	82	59.4%	39
2 Eastern Ranges Sub-Market	7	5	4	5	21	25	10	40.0%	9
3 Bairnsdale Sub-Market	174	132	151	152	609	1,033	532	51.5%	314
4 Eastern Hinterland Sub-Market	21	15	15	17	68	133	47	35.3%	24
5 Lakes & Coast Sub-Market	215	206	169	197	787	914	315	34.5%	271
6 Central Coast Sub-Market	7	10	9	9	35	42	29	69.0%	24
7 Eastern Coast Sub-Market	26	22	13	20	81	60	28	46.7%	38
Total	465	408	377	417	1,667	2,345	1,043	44.5%	718

*Estimate derived from average of 1994-96

**0.2 ha to 15 ha

Source: East Gippsland Shire Council

- By subtracting the estimated number of low density living lots developed between 1994-97 from the 1994 estimate of vacant low density living lots, we arrive at the 1997 estimate of vacant low density living land for each sub-market.
- The results are shown in column 4 on the Table: Supply and Demand Analysis.

3. Estimate the demand for vacant low density living lots to 2011 by sub-market.

- Department of Infrastructure household trends and forecasts for East Gippsland Shire are shown on the table below.
- The number of households in the Shire increased from just under 12,000 in 1981 to nearly 18,000 in 1996. Most of this growth has occurred in the Lakes & Coastal and Bairnsdale sub-markets.
- The total number of households is expected to increase a further 5,000 by 2011. Both south-western sub-markets are expected to accommodate most growth in the number of households to 2011. Growth in household numbers is expected between 22% and 30% in all but the Hills and Central Coast sub-markets.
- The second last column of the table below shows the change expected in the total number of households by sub-market to 2011. These figures were multiplied by the low density development proportions used above to estimate how many households are likely to demand low density living sites in the next 14 years.
- The results are shown in column 5 on the Table: Supply and Demand Analysis.

Household Trends and Projections by Sub-Market, 1981-2011

Sub-Markets	1981	1986	1991	1996	2001	2006	2011	Change Between 1996 and 2011	
1 Highland Sub-Market	419	571	624	714	782	854	923	209	29%
2 Eastern Ranges Sub-Market	159	177	173	179	184	188	193	14	8%
3 Bairnsdale Sub-Market	5,434	6,466	7,163	7,912	8,467	9,061	9,632	1,720	22%
4 Eastern Hinterland Sub-Market	1710	1730	1919	2010	2077	2149	2218	208	10%
5 Lakes & Coast Sub-Market	3,503	4,434	5,259	6,053	6,640	7,270	7,875	1,822	30%
6 Central Coast Sub-Market	201	214	223	233	240	247	254	21	9%
7 Eastern Coast Sub-Market	422	486	605	684	743	805	866	182	27%
Total	11,848	14,078	15,966	17,785	19,133	20,574	21,961	4,176	23%

Source: East Gippsland Shire Council

4. Determine whether there is a surplus or deficit of low density living lots in each sub-market to 2011.
 - This is calculated by subtracting demand of low density living lots (to 2011) from existing supply (1997).
 - The results are shown in column 6 on the Table: Supply and Demand Analysis.
 - Column 7 shows the annual release of low density living lots required to meet demand to 2011 where supply is insufficient.

Supply and Demand Analysis

	1: Total Zoned Low Density Living Lots in 1997	2: Estimated No. of Vacant Low Density Living Lots in 1994	3: Estimated No. of Low Density Living Lots Developed Between 1994-97	4: Estimated Supply of Vacant Low Density Living Lots in 1997	5: Estimated Demand For Low Density Living Lots to 2011	6: Surplus or Deficit of Low Density Living Lots to Meet Demand to 2011	6a: Average Annual Lot Release Required to Meet Demand to 2011
1. Highland Sub-Market							
Total	0	?	39	0	123	-123	8.8
2. Eastern Ranges Sub Market							
Total	0	?	9	0	6	-6	0.4
3. Bairnsdale Region Sub-Market							
Bullumwaal (Bairnsdale Shire Planning Scheme)							
Rural Residential	42	27	?	?	?	?	?
Lindenow (Bairnsdale Shire Planning Scheme)							
Rural Residential	3	2	?	?	?	?	?
Lindenow South (Bairnsdale Shire Planning Scheme)							
Rural Residential	14	14	?	?	?	?	?
Ellaswood (Bairnsdale Shire Planning Scheme)							
Residential Farm	56	44	?	?	?	?	?
Wy Yung - Ellaswood (Bairnsdale Shire Planning Scheme)							
Rural Residential	138	81	?	?	?	?	?
Wy Yung North (Bairnsdale Shire Planning Scheme)							
Rural Residential	133	95	?	?	?	?	?
Lucknow (Bairnsdale Shire Planning Scheme)							
Residential Farm	55	31	?	?	?	?	?
Wy Yung (Bairnsdale City Planning Scheme)							
Rural Residential	41	27	?	?	?	?	?
Bairnsdale East (Bairnsdale City Planning Scheme)							
RU2	32	16	?	?	?	?	?
Bairnsdale South (Bairnsdale City Planning Scheme)							
RU2	18	17	?	?	?	?	?
Sarsfield West (Bairnsdale Shire Planning Scheme)							
Rural Residential	33	21	?	?	?	?	?
Sarsfield East (Tambo Planning Scheme Chapter 2)							
Rural 'B' (Hobby Farm)	86	32	?	?	?	?	?
Nicholson North (Bairnsdale Shire Planning Scheme)							
Rural Residential	76	57	?	?	?	?	?
Nicholson (Tambo Planning Scheme Chapter 2)							
Rural 'B' (Hobby Farm)	33	1	?	?	?	?	?
Claybank (Tambo Planning Scheme Chapter 2)							
Rural 'B' (Hobby Farm)	187	75	?	?	?	?	?
Bruthen (Tambo Planning Scheme Chapter 2)							
Rural 'B' (Hobby Farm)	38	19	?	?	?	?	?
Rural Residential	17	5	?	?	?	?	?
Swan Reach Nth (Tambo Planning Scheme Chapter 2)							
Rural 'B' (Hobby Farm)	9	4	?	?	?	?	?
Cokquhoun (Tambo Planning Scheme Chapter 2)							
Rural 'B' (Hobby Farm)	54	15	?	?	?	?	?
Nowa Nowa (Tambo Planning Scheme Chapter 2)							
Rural 'B' (Hobby Farm)	137	98	?	?	?	?	?
Buchan (Tambo Planning Scheme Chapter 2)							
Rural 'B' (Hobby Farm)	120	68	?	?	?	?	?
Total	1,322	749	314	435	894	-469	32.8
4. Eastern Hinterland Sub-Market							
Orbost (Orbost Planning Scheme)							
Rural Residential	12	5	?	?	?	?	?
Total	12	5	24	0	72	-72	5.1
5. Lakes and Coast Sub-Market							
Eagle Point (Bairnsdale Shire Planning Scheme)							
Rural Residential	62	30	?	?	?	?	?
Eagle Point South (Bairnsdale Shire Planning Scheme)							
Residential Farm Zone	29	9	?	?	?	?	?
Newland West (Bairnsdale Shire Planning Scheme)							
Low Density Residential	14	14	?	?	?	?	?
Newlands Arm (Bairnsdale Shire Planning Scheme)							
Low Density Residential	48	40	?	?	?	?	?
Banksia Peninsula (Bairnsdale Shire Planning Scheme)							
Rural 'C'	12	2	?	?	?	?	?
Raymond Island (Bairnsdale Shire Planning Scheme)							
Rural 'C'	60	39	?	?	?	?	?
Metung (Tambo Planning Scheme Chapter 2)							
Rural 'B' Hobby Farm	132	87	?	?	?	?	?
Nungurner (Tambo Planning Scheme Chapter 2)							
Rural 'B' Hobby Farm	72	36	?	?	?	?	?
Kalimna (Tambo Planning Scheme Chapter 1)							
Residential 'C'	22	12	?	?	?	?	?
Lakes Entrance Nth (Tambo Planning Scheme Ch. 2)							
Rural Residential	22	21	?	?	?	?	?
Lake Bunga (Tambo Planning Scheme Chapter 1)							
Residential 'C'	112	93	?	?	?	?	?
Total	585	383	271	112	638	-526	37.6

- Continued -

6. Central Coast Sub-Market							
Mario (Orbost Planning Scheme)							
Rural Residential	44	39	?	?	?	?	?
Total	44	39	24	15	15	0	0.0
7. Eastern Coast Sub-Market							
Malacoota (Orbost Planning Scheme)							
Rural Residential	31	24	?	?	?	?	?
Lakeside Development	25	25	?	?	?	?	?
Total	56	49	38	11	119	-108	7.7
Total East Gippsland Shire	2,019	1,225	719	573	1,867	-1,294	92.4

