

SHIRE OF JERRAMUNGUP LOCAL PLANNING STRATEGY

2010 Limited Review

Modified June 2011

Modified December 2011

Finalised December 2012

Modified 25 January 2018

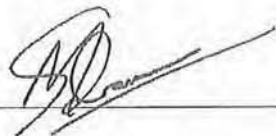
Acknowledgement

A Local Planning Strategy for the Shire of Jerramungup was endorsed by the Western Australian Planning Commission on 13 June 2006. Preparation of the 2006 Local Planning Strategy was finalised by Gray & Lewis Landuse Planners however it was largely based a draft Local Planning Strategy prepared for the Shire by SJB Planners (with mapping provided by Harley Global). The Strategy was prepared to support Draft Local Planning Scheme 2.

SHIRE OF JERRAMUNGUP
LOCAL PLANNING STRATEGY
AMENDMENT 1

CERTIFICATION FOR ADVERTISING

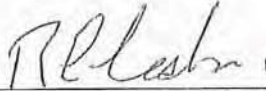
Certified for advertising by the Western Australian Planning Commission on
28 March 2017.



Planning Director SW Regions

COUNCIL RECOMMENDED / SUBMITTED FOR APPROVAL

Supported for submission to the Western Australian Planning Commission for
endorsement by resolution of Shire of Jerramungup at the ORDINARY Meeting of
Council held on the 18th OCTOBER 2017



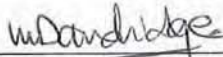
MAYOR/SHIRE PRESIDENT



CHIEF EXECUTIVE OFFICER

ENDORSEMENT OF LOCAL PLANNING STRATEGY

Endorsed by the Western Australian Planning Commission on



an officer of the Commission duly authorised by the Commission
(pursuant to the Planning and Development Act 2005)



TABLE OF CONTENTS

1.0	INTRODUCTION	1
1.1	Background	1
1.2	Strategy Review	1
1.3	Role and Purpose	1
1.4	Relevant Considerations	3
2.0	STATE AND REGIONAL PLANNING CONTEXT	3
2.1	State Planning Framework	3
2.2	State Planning Strategy	3
2.3	State Planning Policies	5
3.0	LOCAL GOVERNMENT CONTEXT	5
3.1	Shire of Jerramungup Strategic Plan	5
3.2	Local Planning Policies	6
4.0	PROFILE AND KEY ISSUES	7
4.1	General	7
4.2	Heritage	8
4.2.1	A Brief History of the District	8
4.2.2	Municipal Heritage Inventory	10
4.2.3	State Significant Heritage Places	10
4.2.4	Aboriginal Heritage	10
4.3	Population and Settlement Patterns	11
4.4	Settlement Pattern and Infrastructure	12
4.4.1	Jerramungup Townsite	12
4.4.2	Bremer Bay	14
4.4.3	Boxwood Hill	17
4.4.4	Needilup	18
4.4.5	Gairdner	18
4.4.6	Other Settlements	18
4.5	Transport and Communications	19
4.6	Education	19
5.0	THE ECONOMY AND EMPLOYMENT	22
5.1	General Rural Development	22
5.2	Aquaculture	23
5.2.1	Mariculture Potential	23
5.2.2	Freshwater Aquaculture Potential	23
5.3	Horticulture	24
5.4	Floriculture	25
5.5	Silviculture	25
5.6	Tourism	26
5.6.1	Jerramungup	26
5.6.2	Bremer Bay	27
5.6.3	Tourist Accommodation	28
6.0	PHYSICAL FEATURES AND THE ENVIRONMENT	29
6.1	Geology	29
6.2	Climate and the Growing Season	29
6.3	Soils	31
6.4	Salinity	31
6.5	Soil Acidification	32
6.6	Soil Erosion	33
6.7	Surface Water	33
6.7.1	Rivers	33
6.7.2	Wetlands	35
6.7.3	Coastal Lagoons and Inlets	36
6.8	Values and Management of Wetlands, Rivers, and Estuaries	38
6.8.1	Potential Environmental Pressures on Wetlands	39
6.8.2	Management	39
6.9	Coastal	40

6.9.1	Regional Coastal Management	40
6.9.2	Local Coastal.....	41
6.9.3	Management Plans and Other Relevant Documents	42
6.10	Groundwater Resources.....	43
6.11	Flora.....	44
6.11.1	Vegetation Systems.....	44
6.11.2	Species Richness and Diversity.....	46
6.11.3	Threatened Flora.....	46
6.11.4	Plant Disease.....	47
6.11.5	Weeds	47
6.11.6	Management.....	48
6.12	Fauna	49
6.12.1	Richness and Diversity	49
6.12.2	Threatened Fauna.....	49
6.12.3	Feral Animals and Pest Species	50
6.12.4	Corridor Concepts	50
6.12.4.1	Management.....	51
6.13	Conservation Areas.....	51
6.13.1	Reserves and National Parks	52
6.13.2	Representative Reserve System	53
6.13.3	Protection and Management.....	53
6.13.4	Impacts of Recreation	53
6.14	Fire	54
6.14.1	Bush Fire Management	54
6.15	Potential for Minerals	55
6.15.1	General.....	55
6.15.2	Southdown Mine – Grange resources	56
6.16	Water Supply.....	56
6.16.1	Private and Farm Water Supply.....	56
6.16.2	Public Water Supply	57
6.16.3	Licence Areas	58
7.0	STRATEGIC PLANNING CONSIDERATIONS.....	59
7.1	Special Control Areas	59
7.2	Rural.....	59
7.2.1	General Background	59
7.2.2	Rural areas adjacent to coast.....	60
7.2.3	Rural areas in Jerramungup.....	62
7.3	Rural Residential	62
7.3.1	Existing Rural Residential Areas	62
7.3.2	Issues for strategic planning/ future Rural Residential areas	64
7.4	Residential	65
7.4.1	Bremer Bay – existing residential areas	65
7.4.2	Jerramungup – existing residential areas.....	66
7.4.3	Needilup – existing residential areas	67
7.4.4	Boxwood Hill – existing residential areas.....	67
7.5	Tourism.....	68
7.6	Rural Industry	69
7.7	Conservation.....	69
8.0	THE STRATEGY – FUTURE TOWNSITE EXPANSION	70
8.1	Bremer Bay	70
8.1.1	Vision	70
8.1.2	Constraints	70
8.1.2.1	Water Corporation Buffers	70
8.1.2.2	Priority Areas and Protection Zones	71
8.1.3	Bremer Bay Strategy Plan.....	73
8.1.3.1	Area 1: Bremer Bay Town Centre	74
8.1.3.2	Area 2: Medium to long term infill residential development.....	75
8.1.3.3	Area 3: Short to Medium term infill residential development	75
8.1.3.4	Area 4: Medium term residential development	76

8.1.3.5	Area 5: Short to Medium Term residential (north Freeman Drive).....	76
8.1.3.6	Area 6: Short to Medium Term residential (Lot 109 – northern portion) ...	78
8.1.3.7	Area 7: Long term residential.....	79
8.1.3.8	Area 8: Long Term Residential (and Area 8A: Industrial Investigation)....	82
	Area 8a - Industrial Investigation.....	82
8.1.3.9	Area 9: Long Term (potential) Residential.....	83
8.1.3.10	Area 10: Long Term Investigation Area	83
8.1.3.11	Area 11: Long Term Residential	84
8.1.3.12	Area 12: Long Term Rural Residential	84
8.1.3.13	Area 13: Short to Medium Term Farmlet and Rural Enterprise	84
8.1.3.14	Area 14: Medium to Long term Farmlet and Rural Residential lots	85
8.1.3.15	Area 15: Tourist Development / Accommodation in the long term	86
8.1.3.16	Area 16: Tourist Development / Accommodation in the long term	86
8.1.3.17	Area 17: Existing and short term Rural Residential (Point Henry Peninsular).....	86
8.1.3.18	Area 18: Existing and short term Rural Residential	89
8.1.3.19	Area 19: Potential Rural Residential infill	89
8.1.3.20	Area 20: Tourist Accommodation / Existing Caravan Park	90
8.1.4	Strategies and Actions for Bremer Bay.....	91
	Strategy 1:	91
	Strategy 2:	91
	Strategy 3:	92
	Strategy 4:	92
	Strategy 5:	92
8.2	Jerramungup.....	93
8.2.1	Vision	93
8.2.2	Constraints	93
8.2.2.1	Effluent Ponds	93
8.2.3	Jerramungup Strategy Plan.....	94
8.2.3.1	Area 1: Short to Medium term residential	94
8.2.3.2	Area 2: Travellers facilities	94
8.2.3.3	Area 3: Light Industry	94
8.2.3.4	Area 4: Town Centre	95
8.2.3.5	Area 5: General Industry.....	95
8.2.3.6	Area 6: Short to Medium term residential	95
8.2.3.7	Area 7: Long term Residential	96
8.2.3.8	Area 8: Medium to Long term Residential	96
8.2.3.9	Area 9: Medium to long term Rural Residential	96
8.2.3.10	Area 10: Development Investigation	96
8.2.4	Strategies and Actions for Jerramungup townsite.....	97
	Strategy 1:	97
	Strategy 2:	97
	Strategy 3:	97
	Strategy 4:	98
	Strategy 5:	98
8.3	Boxwood Hill.....	99
8.3.1	Vision	99
8.3.2	Constraints	99
8.3.2.1	Area 1: Existing short to medium term townsite growth	99
8.3.2.2	Area 2: Long Term expansion.....	100
8.3.3	Strategy and Action for Boxwood Hill townsite	100
	Strategy 1:	100
9.0	CONCLUSION	100

LIST OF FIGURES

FIGURE 1 :	Shire of Jerramungup Regional Location
FIGURE 2 :	Jerramungup potable water licence area
FIGURE 3 :	Bremer Bay potable water licence area
FIGURE 4 :	Bremer Bay sewerage licence area
FIGURE 5 :	Bremer Bay major aquiculture licences
FIGURE 6 :	Average rainfall
FIGURE 7 :	South Coast Regional Management area
FIGURE 8 :	Vegetation Systems
FIGURE 9 :	Special Control Areas shown on extract of Scheme zoning map
FIGURE 10 :	Examples of lots adjacent to the coastline
FIGURE 11 :	Doubtful Island – shown on extract of Scheme zoning map
FIGURE 12 :	Existing Residential areas in Bremer Bay shown on extract of Scheme zoning map
FIGURE 13 :	Existing residential areas in Jerramungup shown on extract of Scheme zoning map
FIGURE 14 :	Existing residential area in Boxwood Hill shown on extract of Scheme zoning map
FIGURE 15 :	Constraints for Bremer Bay (A3 plan)
FIGURE 16 :	Water Corporation buffers in Bremer Bay
FIGURE 17 :	Map extract from the Bremer Bay Water Reserve Draft Drinking Water Source Protection Plan
FIGURE 18 :	Bremer Bay Strategy Map Index (A3 plan)
FIGURE 19 :	Bremer Bay townsite and immediate surrounds (A3 plan)
FIGURE 20 :	Bremer Bay - Point Henry Peninsular (A3 plan)
FIGURE 21 :	Existing residential area (Freeman Drive north) shown on extract of Scheme zoning map
FIGURE 22 :	Ultimate infill potential (Freeman Drive north)
FIGURE 23 :	Existing zoning of Area 6 (Lot 109) shown on extract of Scheme zoning map
FIGURE 24 :	Plan from Local Planning Strategy (2006)
FIGURE 25 :	Point Henry Subdivision Guide Plan
FIGURE 26 :	Cadastral Plan of Lot 9007 and extract of Shires existing Scheme No 2 zoning map
FIGURE 27 :	Subdivision Guide Plan approved by the Shire in 1999
FIGURE 28 :	Constraints for Jerramungup (A3 plan)
FIGURE 29 :	Jerramungup Strategy Map
FIGURE 30 :	Boxwood Hill Strategy Map (A3 plan)
FIGURE 31 :	Existing Townsite zone in Boxwood Hill shown on scheme zoning map

LIST OF TABLES

TABLE 1:	Population Projections
TABLE 2:	Bremer Bay school enrolments
TABLE 3:	Gairdner school enrolments
TABLE 4:	Jerramungup high school enrolments
TABLE 5:	Landuse and Agricultural Production
TABLE 6:	Approximate relationship between length of growing season and agricultural areas
TABLE 7:	Approximate extent of soil salinity
TABLE 8:	Condition of rivers
TABLE 9:	Major Wetland Groups
TABLE 10:	Major Wetland and Lagoons in the Jerramungup Region

1.0 INTRODUCTION

1.1 Background

Landuse planning provides a mechanism for careful allocation and ordering of land for activities and purposes in a way to cater for strategic growth and to minimise landuse conflict.

The landuse planning system in Western Australian is based on the Planning and Development Act 2005.

A Local Planning Strategy was prepared for the Shire of Jerramungup as part of a review of the Shire of Jerramungup Town Planning Scheme No 1, and formed the basis for preparation of the current Shire of Jerramungup Local Planning Scheme No 2. The original Strategy was endorsed by the Western Australian Planning Commission on the 13 June 2006.

The Shire of Jerramungup Local Planning Scheme No 2 is the statutory document that currently controls zoning, residential densities, landuse permissibility and development control.

1.2 Strategy Review

A limited review of the Shire of Jerramungup Local Planning Strategy has been undertaken due to a range of major changes and important factors including;

1. A need to identify and provide Industrial land to service business needs and demand in Bremer Bay. The original Strategy identifies those locations for rural residential or residential uses to the west of Bremer Bay townsite should not be committed prior to resolving issues relating to Industrial land supply. The Strategy needs to resolve this issue before landuse decisions can be determined for land on the fringe of the Bremer Bay townsite.
2. The existing Strategy and Town Planning Scheme recognises Public Drinking Water Source Areas (PDWSA). The PDWSA's have been reviewed as part of the Bremer Bay Water Reserve Draft Drinking Water Source Protection Plan (by the Department of Water). Potential decreases in land affected by Priority 1 and Priority 2 areas and protection zones influence future opportunities for growth in the Bremer Bay townsite.
3. The need to plan for potential increases in population associated with a planned mine (between Albany and Bremer Bay).
4. The need to review existing land availability to cater for a range of lifestyle and accommodation needs.
5. Existing and proposed scheme amendments which are outside of the current identified strategy growth areas.
6. A need to ensure the Local Planning Strategy is updated, remains current, and continues to operate effectively to guide strategic planning decisions by the Shire of Jerramungup and the Western Australian Planning Commission.

1.3 Role and Purpose

Provision for preparation of a Local Planning Strategy exists under the Town Planning Regulations 1967.

Local Planning Strategies are non statutory strategic planning tools which set out Council's general objectives, aims and intentions for long term growth and change.

The underlying objective for the Local Planning Strategy is to provide for existing and anticipated land uses, to enable new land requirements to be appropriately accommodated as they arise, and to ensure that natural resources are protected and managed for the present and future needs of the community.

The objectives of the Strategy are:

- Provide general planning direction for the Shire of Jerramungup for the next 15 – 30 years. Due to the extent of constraints surrounding Bremer Bay townsite, strategic planning for Bremer Bay identifies opportunities in the available corridor west of the townsite, in order to protect and guide ultimate long term expansion which may be beyond a 30 year period.
- Identify key components of the long-term direction for townsites within the Shire of Jerramungup that are crucial to those town's orderly growth and development and recommend strategies to pursue these.
- To protect and encourage the viable use and development of cleared land for traditional farming and agricultural purposes.
- To protect current planning options for the long-term urban development of the region and explain the strategic direction for growth and development to all stakeholders.
- Provide the basis for coordinated decision making on future servicing of the local government area by local, state government and any other service agencies.
- To preserve and protect the existing rural character of the area, and protect areas of high landscape interest.
- To protect regional resources such as water supply, mineral resources, basic raw materials and heritage elements, i.e.; wetlands, landforms, vegetation, fauna, cultural, educational, and scientific values.
- To provide for more intensive use of land in environmentally and socially suitable areas for uses such as intensive agriculture, rural/residential retreats, and urban expansion.
- To provide for rural land requirements for rural industries and other activities ancillary to the rural use of land, tourism, and recreational facilities where appropriate
- To provide opportunities for a broader economic base, future industrial land and increased business opportunities.
- To ensure that land use and development are related to the physical capability and suitability of the land to accommodate such development without environmental degradation, and are undertaken in a manner that protects the overall amenity of the subject area.
- To protect and enhance the key natural, cultural and biodiversity assets of the Shire.
- To maintain and enhance the livelihood and lifestyle of residents as far as possible.
- To provide for a variety of lifestyles and residential needs through the provision of a range of lot sizes.
- To ensure as far as possible that all residents have access to a wide range of community services and facilities.
- Give direction to the Shire of Jerramungup, the Department of Planning, Western Australian Planning Commission, the Minister and the State Administrative Tribunal in assessment of amendments, subdivision, development, applications for review and provide strategic planning support for this decision making.

1.4 Relevant Considerations

The Shire of Jerramungup is characterised by a large land area and a small population clustered into two main centres. The remainder of the Shire is sparsely populated with a significant proportion of the land area in Crown Reserves outside the management and responsibility of the Council. It is isolated by distance from the regional centre at Albany some 180km away.

The combination of these factors has evolved into a different way of life for residents in the Shire compared to that of larger local governments in Western Australia. Residents of the Shire have an expectation and desire for sensible but minimal control over their way of life and an undercurrent of reluctance for rapid insensitive change. Such a level of control is within the resources of the Council, unlike a prescriptive planning regime necessary for higher-density living elsewhere.

This Local Planning Strategy seeks to achieve these aspirations by the logical and understandable framework of future development proposed, to engender interest and ownership of the Strategy amongst the local community.

2.0 STATE AND REGIONAL PLANNING CONTEXT

2.1 State Planning Framework

The State Planning Framework unites existing State and regional policies, strategies and guidelines within a central framework which provides a context for decision-making on land use and development in Western Australia.

The policy was initially gazetted on 22 December 1998 as Statement of Planning Policy No 8. Subsequently, a variation to the policy, Statement of Planning Policy No 1 (Variation No 1) State Planning Framework Policy, was gazetted on 30 May 2000.

The Statement of Planning Policy was further updated to include additional regional strategies, regional and sub-regional structure plans, strategic policies and operational policies that have been endorsed by the WAPC since May 2000.

The general principles for land use and development which originally formed part of State Planning Policy No 1 have been incorporated into the more current State Planning Strategy.

2.2 State Planning Strategy

The State Planning Strategy is a land use planning strategy for Western Australia's development up to 2029. The Strategy provides a vision to assist strategic decision-making and a set of principles by which coordinated, sustainable development will be implemented.

The Strategy is not a fixed blueprint, but provides a framework for strategic planning and identifies five key principles for all state and regional plans, policies and strategies as follows:

Environmental principle: To protect and enhance the key natural and cultural assets of the State and deliver to all Western Australians a high quality of life which is based on environmentally sustainable principles.

Community principle: To respond to social changes and facilitate the creation of vibrant, accessible, safe and self-reliant communities.

Economic principles: To actively assist in the creation of regional wealth, support the development of new industries and encourage economic activity in accordance with sustainable development principles.

Infrastructure principle: To facilitate strategic development by ensuring land use, transport and public utilities are mutually supportive.

Regional development principle: To assist the development of regional Western Australia by taking account of the region's special assets and accommodating the individual requirements of each region.

The Strategy sets out a vision for each administrative region along with specific regional strategies and actions in the context of that regions land use planning and development.

There are no statutory region schemes or regional strategy plans, which include the Shire of Jerramungup. However the Shire of Jerramungup forms part of the Great Southern Region for which the Strategy states:

- As an alternative residential location will accommodate growth through a range of expanded towns and range of lifestyles.
- Development of intensive agriculture production and processing, timber production and processing, tourism, and niche businesses.
- Sustainable resource management and protection of coastal, forest and mountain range environments.
- Development of stronger inter-regional air, road, and rail transport links.

The relevant planning strategies from the State Planning Strategy for the Shire are to:

- Coordinate the timely provision of regional infrastructure in the areas identified for development under the Country Land Development Program.
- Ensure townsite development strategies are prepared and that land identified for future urban development is included in each local government Local Planning Scheme.

Relevant actions recommended by the State Planning Strategy for the Great Southern Region (in which the Shire is located) include:

- Identify environmentally significant areas, which should have restricted surrounding land uses reflected in Local Planning Schemes.
- Ensure that prime agricultural areas are protected from Rural Residential uses.
- Priority groundwater areas and surface catchment areas to be protected by catchment gazettal and if necessary Local Planning Schemes.
- Protect culturally significant places through Local Planning Schemes.
- Recognise tourism as a legitimate land use compatible with a range of existing land uses and incorporate into future regional planning strategies and Local Planning Schemes.

2.3 State Planning Policies

State planning policies are prepared and adopted by the WAPC under statutory procedures set out in Part 3 of the Planning and Development Act 2005. The process of preparing a state planning policy also includes public consultation and consideration by the Planning Minister and the Governor.

The WAPC and local governments must have regard to the provisions of state planning policies when preparing or amending local planning schemes, and when making decisions on planning matters.

There a wide range of state planning policies which guide subdivision and development. There is no need to replicate the information contained in State Planning Policies within this Strategy, however a list of current Policies most relevant to the Strategy and Shire of Jerramungup are listed below for ease of reference.

- State Planning Policy 2 – Environment and Natural Resources
- State Planning Policy 2.4 – Basic Raw Materials
- State Planning Policy 2.5 – Agricultural and Rural Landuse Planning
- State Planning Policy 2.6 – State Coastal Planning
- State Planning Policy 2.7 – Public Drinking Water Source Policy
- State Planning Policy 2.9 – Water Resources
- State Planning Policy 3 – Urban Growth and Settlement
- State Planning Policy 3.1 – Residential Design Codes
- State Planning Policy 3.5 – Historic Heritage Conservation
- State Planning Policy 3.6 – Developer Contributions for Infrastructure
- State Planning Policy 4.1 – State Industrial Buffer Policy
- State Planning Policy 5.2 – Telecommunications Infrastructure

State Planning Policies can be reviewed, revoked or new Policies produced from time by the Western Australian Planning Commission (WAPC). The status and current versions of State Planning Policies should be checked and obtained through the WAPC direct.

3.0 LOCAL GOVERNMENT CONTEXT

3.1 Shire of Jerramungup Strategic Plan

The Mission Statement of the Shire of Jerramungup Strategic Plan (2009 – 2014) is '*A united workforce dedicated to providing quality services to our Community.*'

It states that '*to achieve our mission we will;*

- *Treat each other with respect.*
- *Act honestly and with integrity at all times.*
- *Be accountable for our own actions.*
- *Use our initiative.'*

The Strategic Plan Vision is that '*the Shire of Jerramungup will provide leadership to maintain our identity by promoting social and economic development whilst embracing our unique natural environment.*'

The Plan identifies three key focus areas as follows;

Key Focus Area One: Ongoing social, economic and financial viability -

The Shire of Jerramungup will continue to grow and prosper whilst maintaining its identity and sense of place by:

- Identifying alternative revenue sources.
- Providing a range of recreational and sporting opportunities.
- Establishing partnerships with neighbouring councils to achieve service delivery efficiencies.
- Ensuring that the availability of residential, industrial and commercial land meets demand.
- Recognising our heritage and the contribution that war settlement and indigenous people have made to the community.

Key Focus Area Two: Service delivery and the environment - The Shire of Jerramungup will deliver a range of excellent community services whilst minimising our impact on the environment by:

- Ensuring that growth occurs in a controlled and sustainable manner.
- Developing innovative approaches to minimise fossil fuel consumption and the community reliance on reticulated water services.
- Ensuring that the service delivery process is supported by appropriately skilled, qualified and enthusiastic staff members.
- Supporting a range of community services that enhances the community fabric.
- Working in partnership with key agencies to deliver environmentally responsible services.

Key Focus Area Three: Building and road infrastructure - The Shire of Jerramungup will provide the community with quality road and building infrastructure by:

- Ensuring that built infrastructure is well utilised and maintained.
- Adopting whole of life asset management principles.
- Keeping abreast of new technology and industry best practice.

3.2 Local Planning Policies

The Shire has the ability to develop and adopt Local Planning Policies in accordance with the Scheme. Local Planning Policies are guidelines used to assist the Shire in making determinations under the Scheme.

Council is to have due regard to its Local Planning Policies when assessing new developments and proposals. The Shire had a number of Local Planning Policies which had been adopted under the Shires Town Planning Scheme No 1. The Shire has reviewed, updated and adopted a number of Local Planning Policies under the Shire of Jerramungup Local Planning Scheme No 2 including:

- Local Planning Policy No 1 R2/15 Flexible Coded Areas
- Local Planning Policy No 3 Design Guidelines and Detailed Area Plan
- Local Planning Policy No 4 Advertising Signs
- Local Planning Policy No 5 Use of Reflective Building Materials
- Local Planning Policy No 6 Tourist Accommodation
- Local Planning Policy No 7 Kent Location 95 Dillon Bay and Kent Location 839 Millers Point
- Local Planning Policy No 8 Parking and Repair of Commercial Vehicles in Residential Zones
- Local Planning Policy No 9 Feed Lots

- Local Planning Policy No 10 Agroforestry and Plantations
- Local Planning Policy No 11 Public Consultation for Development Applications
- Local Planning Policy No 13 Extractive Industries
- Local Planning Policy No 15 Transported Buildings
- Local Planning Policy No 16 Outbuildings

Note: The list of Local Planning Policies in this Strategy was valid in September 2010.

It should be noted that Policies may be reviewed, modified or revoked by Council, therefore current and draft Local Planning Policies should be obtained from the Shire.

4.0 PROFILE AND KEY ISSUES

4.1 General

The Shire of Jerramungup was created on 1 July 1982 and covers 6,740 square kilometres. The local government was excised from the eastern part of the Shire of Gnowangerup that was approximately twice this size. The Shire of Gnowangerup was experiencing difficulties in the management of the eastern part of that Shire due to the distances from the administrative centre in Gnowangerup.

The Shire of Jerramungup is located in the Great Southern Region, and has its administrative centre in Jerramungup. The town is approximately 422 kilometres southeast of Perth, and 180 kilometres from the regional centre of the Great Southern Region in Albany. Figure 1 shows the location of the Shire and major towns in the region.

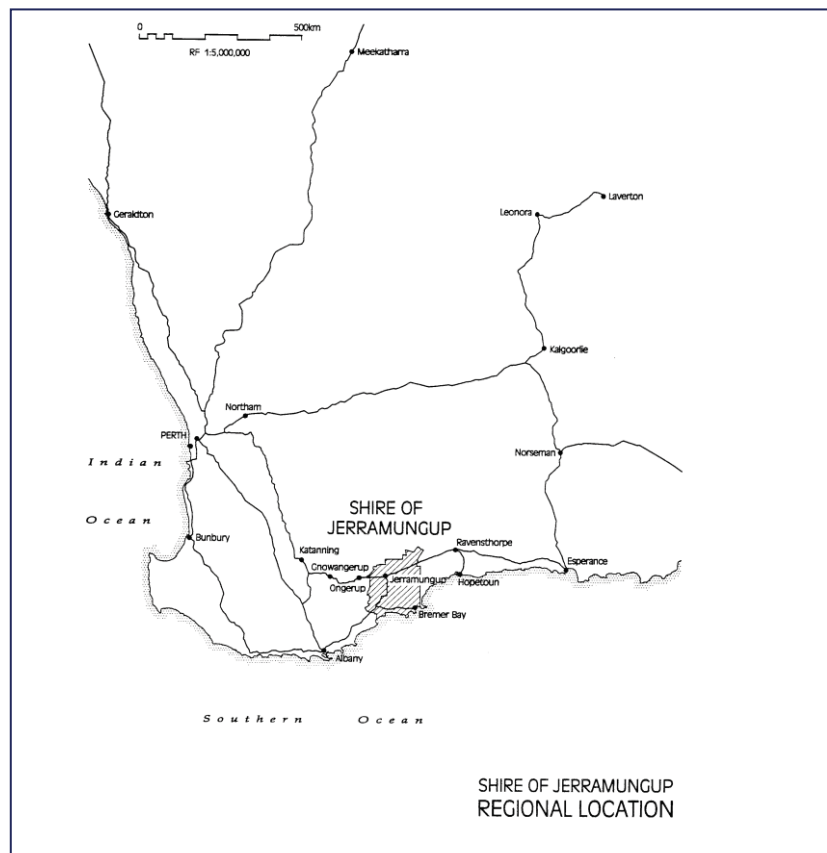


FIGURE 1 : Shire of Jerramungup Regional Location

The Shire has four gazetted townsites: Jerramungup, Bremer Bay, Boxwood Hill, and Needilup. The latter two have not developed to any significant degree from the original survey of town lots.

Jerramungup is located on National Highway 1, which also links Albany and Esperance, and lies at a junction of the major Esperance-Perth route. The town is ideally placed to tap into the tourist potential created by such attractions as the protected coastline nearby and the Fitzgerald River National Park.

Bremer Bay is the other significant townsite in the district. The town is some 100 kilometres southeast of Jerramungup and encompasses 1,200 hectares extending from the Wellstead Estuary in the north to Fishery Beach in the south. Bremer Bay is best known for fishing and tourism.

Together with Hopetoun to the east in the neighbouring Shire of Ravensthorpe, the attractions of an extensive coastline and Fitzgerald River National Park offer the residents of a large hinterland and visitors to the region an outstanding tourism experience. The district is likely to become increasingly important and popular as a tourist destination in the future.

4.2 Heritage

4.2.1 A Brief History of the District

Before farming was introduced to the region, lands in the Jerramungup area were extensively used as hunting grounds by several Aboriginal tribes.

The place name 'Jerramungup' is believed to have originated from several stands of lofty yates amongst the low scrub of the eastern sand plains of the district. The location was easily identifiable by Aboriginals due to the flat-topped vegetation on the trees.

The word Yerra-mo-up means literally 'watch for the upstanding yate tree'. The name was later referred to in several derivations (such as Jerramungup), however ultimately became Jerramungup.

Seafarers were first attracted to the region in the early 1800s. The main activities in the area were centred on the Great Australian Bight; initially whalers and seal hunters used various natural ports as bases in their land hopping along the coast. This led to an increase in sandalwood cutting that in turn promoted exploration and eventual settlement.

John Septimus Roe first surveyed the townsite of Bremer Bay in 1848, with initial settlement by the Wellstead family occurring at nearby Peppermint Grove in the 1850s. The Wellstead Estuary takes its name from this pioneer family, whose 2 storey English style home at Peppermint Grove is still occupied by members of the family.

The pioneer of the Jerramungup area was Captain John Hassell who in 1849 built the "Homestead" (8 kilometres east of the existing townsite). The Hassell's cleared the land initially for timber and eventually used the cleared paddocks for sheep grazing. The Hassell estate continued to expand until 1951 when the last of the 20,000 acres (8,094 ha) was sold by the family.

Although not then established as Jerramungup, there is a former homestead and barn situated 6 kilometres east of the town. The buildings were constructed in 1861 and are now registered by the National Trust for their architectural and historical value.

Bremer Bay was chosen as a site for a telegraph station, as part of the Overland Telegraph Line linking Albany to Adelaide, with construction being completed before the end of 1875. The original telegraph station was a wooden structure that has been demolished and replaced by a stone building, known as the 'Old Telegraph Station', near the Bremer Road.

The Old Telegraph Station was built in the latter part of the 19th century and the building is a significant architectural feature in the landscape, with a style typically Australian. It is constructed of local stone in random rubble walls, and was originally covered by corrugated iron roof sheeting. There are verandas on four sides with an interesting entrance and balustrade, characteristic of its former use as a post office and telegraph station. The building has been classified by the National Trust in a 'C' classification, and is currently used as a dwelling. This is the only building remaining within the townsite that is currently considered to have historic significance.

Qualup Homestead, which was constructed in the 1880s about 17 kilometres north of the town, is also registered by the National Trust.

The growth of the district was encouraged by the extension of the railway in 1912 from Tambellup to Gnowangerup, Borden, and Ongerup.

By 1914 Ongerup, Needilup, and Jacup had small settlements and by 1922, the first telephone connection was made, to the Hassell Homestead.

The first subdivision in what is now the Shire of Jerramungup was applied for in October 1940 by R. B. Davies, the owner of Pt. Loc. 32.

The townsite of Bremer Bay was first gazetted under the name "Wellstead" in 1951, but by popular demand was changed to "Bremer Bay" in 1957. The town takes its name from the coastal feature known as Bremer Bay, which was named in 1849 in honour of Sir Gordon Bremer, who, as Captain of HMS Tamar, contributed to the early settlement of Western Australia.

In 1948, the Hassell property, by then largely under pasture for grazing 20,000 sheep, suffered almost total loss through a rabbit invasion from the eastern regions.

In 1949, the War Service Land Settlement Scheme (WSLSS) was introduced into the Jerramungup region. Mr. Colin Cameron supervised the Scheme that took over the area while it was still infested with rabbits. The Scheme at that time was considered daring and ingenious due to the remoteness and isolation of the district.

By 1951, the WSLSS had purchased the Hassell holdings for the purpose of the Scheme. In 1953, Mr. Cameron returned to the area to oversee the inoculation of about 3,000 rabbits with *Myxomotis* and within a few months, the disease was widely spread. Once the rabbits were under control, contractors were called in for clearing and planting crops. Often prospective settlers and newly arrived immigrants were employed.

The first crops were planted in 1952-3 and the programmed clearing was completed by 1957.

There were 34 farms originally established in the Jerramungup area ranging from 2,500-3,000 acres. No farm had fewer than 1,800 acres cleared and under pasture by the time, the settlers arrived.

In 1956, the WSLSS was superseded by Conditional Purchase agreements between the Government and prospective purchasers. Conditions included additional clearing and continuous farming of the properties. Several properties today are still occupied on a similar basis.

In 1956, a school was built in what was later to be gazetted as the Jerramungup Townsite. The school opened with 17 pupils and by the end of the year there were 26 pupils. On 16 August 1957 an area 6 kilometres west of the Hassell Homestead was declared as the official townsite of Jerramungup.

In 1958, following the construction of the school, a town hall was completed, followed shortly after by a store and post office. At that time, streets were laid out and surveyed. The street names were selected by the R.S.L., which was obviously very strongly supported at the time by the recipients of the War Service Scheme. The names were significant to the experiences of local settlers in the Second World War.

In 1962 construction of the Marra Bridge across the Pallinup River facilitated the road transportation of super phosphate from Albany.

Steadily over the years, there has been an increase in recreational activity along the coastal areas. This activity has led to the establishment of settlements (at Bremer Bay) and, to a lesser extent, at Dillon Bay and at Millar's Point on the Beaufort Inlet. The Millar's Point occupiers are squatters as the land is included in a Crown Reserve for Recreation and Camping.

4.2.2 Municipal Heritage Inventory

The Shire has prepared a local Municipal Inventory, which identifies areas of cultural heritage significance:

1. Original Wellstead Home - Bremer Bay
2. Wellstead Homestead - Bremer Bay
3. Bremer Bay Telegraph Station
4. First House - Bremer Bay townsite
5. Bark Hut - Bremer Bay
6. Qualup Homestead
7. Hassell Homestead and barn- Jerramungup
8. Jerramungup School
9. Shire of Jerramungup Council Offices
10. Jerramungup Town Hall
11. C. Cameron's office - now Fitzgerald Biosphere Group office
12. Jerramungup Powerhouse
13. Second Jerramungup Homestead
14. Reid Homestead

4.2.3 State Significant Heritage Places

The Heritage Council of WA has identified two places within the Shire as being of state significance:

- Quaalup Homestead group in the Fitzgerald River National Park and;
- Wellsteads Homestead group on Wellstead Road, Point Henry Peninsular.

4.2.4 Aboriginal Heritage

Places of Aboriginal significance have not been included in the Municipal Inventory however this is an important heritage issue that the Shire considers as part of any scheme amendment or development proposal, in consultation with the Department of Indigenous Affairs (DIA). The DIA has a range of key functions including preserving and protecting Indigenous heritage by supporting the work of the Aboriginal Cultural and Material Committee.

In regard to heritage places, the Department of Aboriginal Affairs has undertaken a search of its Register system over the Shire area. The search shows 156 sites in the Jerramungup local government area (September 2010).

Further sites are likely to exist than are recognised or entered on the Register system and all sites may not be known by the Department. The Aboriginal Heritage Act 1972 ('the Act') protects and preserves Aboriginal Heritage and culture in Western Australia, including or site or object that is of significance to Aboriginal people, or has historical, anthropological or ethnographic interest.

The Act protects Aboriginal sites whether they or not they have previously been reported or recorded. It is an offence under Section 17 of the Act to excavate, destroy, damage, conceal or in any way alter an Aboriginal site. Prosecution may incur fines of \$20,000 for an individual or \$50,000 for a company.

Areas near water, wetland and river systems are likely to have Aboriginal association or significance.

The Department of Aboriginal Affairs prefers that development plans be modified to avoid damaging or altering any site. If this is not possible and in order to avoid a breach of the *Aboriginal Heritage Act 1972*, the land owner should submit a Notice under Section 18 of that Act to the Aboriginal Cultural Material Committee, seeking prior written consent from the Minister for Aboriginal Affairs to use the land.

The DIA has a 'Summary of Developers Obligations' under the Aboriginal Heritage Act 1972. The Shire refers all Scheme Amendments to the DIA for advice, and can refer developments to the DIA if considered appropriate.

4.3 Population and Settlement Patterns

There are 4 gazetted townsites in the Shire, with Jerramungup and Bremer Bay being the most significant. Boxwood Hill and Needilup have not substantially developed and they may be unlikely to alter significantly in the future, except perhaps as the focus for forms of rural residential or cultural development.

In the 2001 census the Shire had a population of 1208; Jerramungup townsite had a population of 273, and Bremer Bay 241. Based on the 2006 population census there has been no major changes in population.

The Australian Bureau of Statistics have estimated resident populations for regional areas based on local government areas, which are included in Table 1 below with historic projections from WA Tomorrow.

Year	2001	2002	2003	2004	2005	2006	2009	2011	2016	2021
ABS	1244	1245	1236	1228	1249	1196	1186			
WA Tomorrow	-	-	-	1200	-	1200	-	1200	1200	1200

TABLE 1 - Population Projections (Source: ABS and WAPC 'WA Tomorrow')

The WAPC and ABS projections project a static population however they do not recognise a number of factors including;

- In Bremer Bay there is a reasonably high level of absentee owners who do not occupy houses for the full year. There are therefore variations of population numbers throughout the year.
- There is a general lifestyle trend for people to move to outer areas that are located on the coast (especially retirees). Bremer Bay is considered a hidden gem and its many attractions could result in population increases, and further increases in absentee owners.
- Population figures do not represent population pressure caused by service populations such as tourists and seasonal workforces. Bremer Bay, in particular, experiences peak pressures due to seasonal tourism.
- In regional areas such as the Shire of Jerramungup population growth can occur suddenly as a result of new or emerging industries (eg mining). It is therefore important to provide 'development ready' land to maximise future growth opportunities. The Southdown mine near Wellstead is anticipated to bring population growth to Bremer Bay in particular both during the construction phase and during full time operations afterward. Estimates for the Southdown Mine include up to 2000 workers during the construction phase and a permanent workforce of 650. Therefore the 'high end' estimates for additional population in Bremer Bay are an increase of up to 300 families in the medium term.
- The Rural Residential area at Point Henry has been largely developed, does not cater for aged population needs, and is mainly limited to bush lots. This warrants a review of existing and future needs for larger lifestyle lots.
- There is a planned new Town Centre and Industrial area for Bremer Bay which will generate employment opportunities. There are also proposed townscape improvements for Jerramungup. As services and facilities increase both towns they have potential to attract additional population.
- As Bremer Bay and Jerramungup are largely constrained, there is an increasing need to forward plan for longer term expansion.
- There has been development pressure on the Shire to create new residential and rural residential areas. A review of the Strategy will assist in identifying appropriate areas for future development and expansion.
- Demand, population growth and increased tourists can be difficult to predict. Planning needs to facilitate new subdivision to allow for future growth.
- Generally farms are increasing in size and some slow growth may occur as farmers retire and relocate to town.

4.4 Settlement Pattern and Infrastructure

4.4.1 Jerramungup Townsite

Jerramungup townsite is characterised by the range of activities of a type normally found in a small rural centre. As well as serving as a residential centre, the town services the local farming community. Uses such as fuel depot, service station, tyre sales, and small engineering works are typical.

Many of the services relate to the activities of government, including Police services, post office, Telstra, Western Power, Department of Agriculture and Food WA (DAFWA), and schools.

The existing residential areas of the town are well established and there are some limited areas available for expansion. Currently there are no larger lifestyle lots available in the town, therefore housing choice is limited to typical urban lots.

The existing commercial centre comprises a range of services including rural agencies, machinery dealership, depot, and hardware store. The Truscott Street area has developed in a piecemeal fashion and was the subject of a redesign by RDL (then DOLA). The nature, scale, and spacing of commercial enterprise in rural towns are critical to the establishment and success of a thriving centre.

Abutting the two main road boundaries of the town are strips of Parkland and Public Recreation Reserves approximately 80 metres wide. These Reserves are only interrupted by the Hospital site reserve and the section between Tobruk and Vasey Streets that is occupied by the Hotel/Motel, and Service Station. The Reserves have been left uncleared and form an effective visual buffer.

There are 3 main active recreational areas within the townsite: the greater sports ground (Reserve 25568 of 121.4 hectares) off Derrick Street in the southwest corner of the townsite; Reserve 27494 (7.4 ha) off Monash Avenue and the Gnowangerup-Jerramungup Road; and the District High School Reserve 24772 (14.5 hectares) off Lancaster and Memorial Roads that also has an oval and tennis courts at the rear of the school buildings. This site, although larger than required, allows for shared recreational facilities, both with the primary school and sporting bodies in the town. The school oval is watered by a rainwater collection dam near Derrick and Cutler Streets.

The Council is responsible for community buildings such as the Hall, Library, recreational facilities, entertainment centre, and the church. An ambulance station is situated in Spitfire Avenue close to the town park. There is an Infant Health Centre, Halls, Hospital, Rectory, Church, and Civic purpose buildings. The town cemetery is located approximately 4km west along the Gnowangerup Road.

There is a gravel airstrip equipped with night landing lights on Reserve 41532 off Jerramungup Road North to the north of the town.

Jerramungup has a fully constructed and sealed road system. Surface stormwater run-off is collected in the shoulders of the roads and channelled into a large dam located to the south of the town. The water is used for watering and reticulation of the greater sports ground to the south off the end of Derrick Street. Another dam has been constructed on the southern side of the school site. The water collected there is used in summer to water the school oval and grounds.

Historically there has been a focus on road construction and maintenance programs, and the Shire recognises that visual amenity of the town has decreased gradually over a number of years.

The Shire is pursuing funding to invest in and implement a Town Centre Revitalisation Project for Jerramungup aimed to stimulate local investment, economic development and improve visual amenity and streetscapes. Improvements to the town have potential to make the area more attractive for future investment and potential residents.

All dwellings are connected to a limited sewerage system operated by the Shire. The Shire has an operating licence from the Economic Regulation Authority (ERA) for sewerage and non potable water services.

Leachate from septic tanks is gravity fed to an evaporation pond located south of Sydney Street off Derrick Street and the Highway. Although not an ideal system, it adequately services the town.

In the absence of complaints the Shire has no plans to replace the pond and buffer separation of the pond from sensitive uses do not currently apply. A significant build up of population and further residential development in the vicinity will stimulate consideration of improvements to the sewerage system.

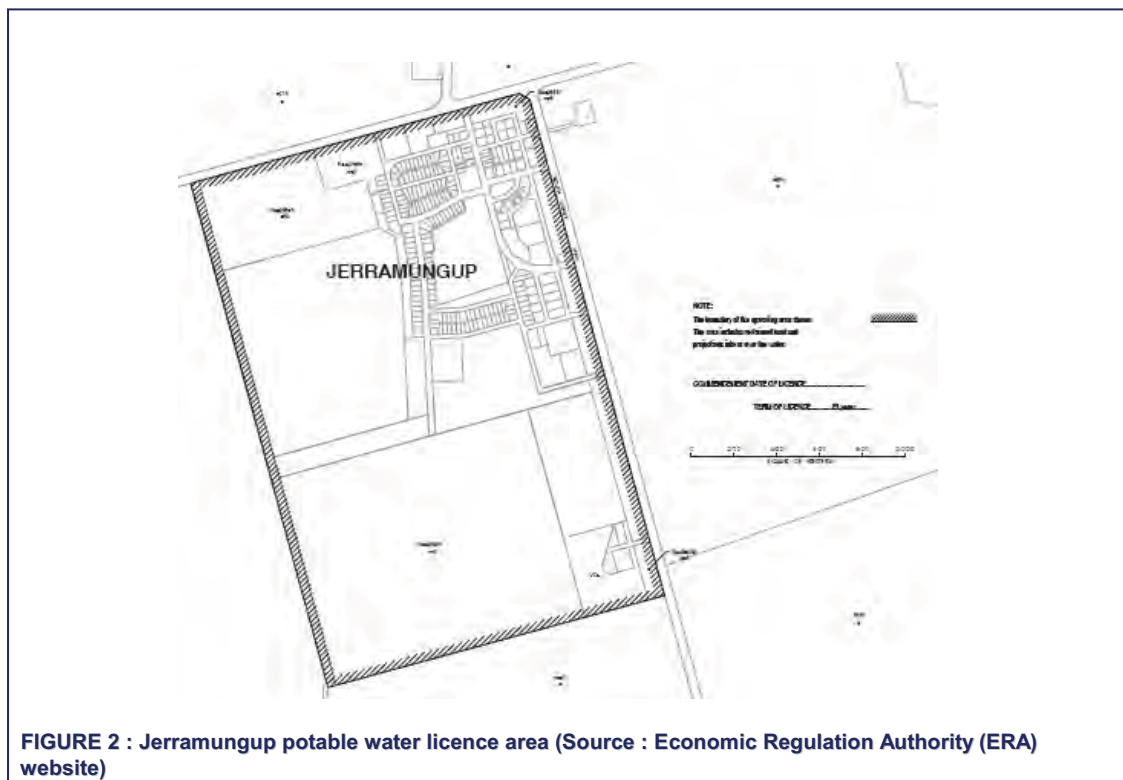
Both the irrigation dam within the school site and the southern effluent disposal site are poorly located with respect to future residential extension to the south. It has been recognised that existing lots in Sydney and Cuttler Streets would be under threat from overflow. Four of these lots will not be available for residential release as they are the overland flow path from the irrigation dam.

The Shire is investigating feasibility of construction of a second pond in the north portion of Reserve 36173 however it is subject to budget considerations. There is no immediate need for any increase in capacity however a second pond would allow for pond rotation consistent with best practice.

The Council operates a solid waste collection service with disposal at a site west of Chittowurup Road (west side of townsite). The Council depot is located in Bennett Street in the town's industrial area.

About 25% of the Jerramungup townsite is reserved for Water Supply Purposes (Reserve 28505 of 95.9097 hectares off the Gnowangerup-Jerramungup and Chittowurup Roads). A large dam with a sealed catchment area is located in the north western sector of the townsite, and there is a Catchment Protection plan for this source. Water is treated and chlorinated and pumped to an elevated service tank.

The previous Water Corporation licence area (potable water supply) is shown in Figure 2.



4.4.2 Bremer Bay

Bremer Bay in the Shire of Jerramungup is a unique, attractive coastal town with scenic attributes. Whilst subdivision has continued, the town has maintained a rural character and been developed in a manner that complements and maintains the natural environment.

The current permanent resident population of Bremer Bay is approximately 210. There are approximately 270 dwellings in the town, with about one third currently occupied on a permanent basis, and the rest on a seasonal or semi-permanent basis. The maximum residential population is approximately 650, based on the existing number of dwellings.

Forty seven building licences were issued by the Shire between 2007 and 2009 resulting in an average increase of 15 dwellings per year in Bremer Bay.

Bremer Bay still has the potential to increase in population as a centre for retirees. The rate of this population increase is expected to be slow for at least the next 5 to 10 years. Much of the land within the Shire and neighbouring local governments was taken up in the 1960s and 1970s by persons in their 30s and 40s and as this population ages to retirement within the next 5 - 15 years, many are likely to relocate close to the coast.

There is also potential for population growth as a result of the proposed Southdown mine located between Bremer Bay and Albany (by Grange Resources). The Shire has been in discussions with Grange Resources who have positively advised that the planned mine will be proceeding.

Preliminary information indicates that approximately 2000 workers will be required for construction of the mine site, and once established, there is a potential workforce of approximately 650 people.

Some workers may choose to commute to Albany however it is believed that a substantial portion will be accommodated in Bremer Bay as it is closer to the proposed mine site.

There is also a probability that workers will travel to areas such as Bremer Bay for recreational and weekend activities. Whilst there are no projections for the number of workers who would commute to Bremer Bay, the Shire can conservatively plan for approximately 250-300 dwellings based on the anticipated workforce.

The seasonal trend of visitor population on Bremer Bay is dramatic. Figures recorded by the Council indicate that the sum of the occupancies in the caravan park and camping grounds exceeds 20,000 people per month. This peak is experienced in January, during a school vacation period and the most suitable holiday weather. Besides this peak, and perhaps a month either side, the visitor population drops substantially to less than 1,000 in the 'off season' months.

Due to this extreme variation in population, it is difficult to service economically all the needs of the community and local businesses throughout the year.

The town has a reasonably high transient population due to its attraction as a holiday venue and lifestyle 'getaway', however there is still enormous potential for further townsite expansion. As the population increases it is anticipated that there will be increased services and opportunities for greater employment diversity.

Major projects being undertaken by the Shire, such as development of a Town Centre, are also likely to act a stimulus for building activity, and offer a location for new business investment.

The planned new Industrial area to the west of town (Old Myamba) will broaden the local economic base and create employment opportunities in the local community.

Primary School facilities were initially provided in Bremer Bay in 1953 in private buildings, with an enrolment of 8 pupils. A school site of 4 hectares was allocated in 1958, and initial development of a one-room school and quarters constructed in 1959. The Education Department has no plans to expand the existing school in the near future.

There is no resident Police Officer in Bremer Bay however the town is served by patrols from Jerramungup. Officers are stationed in the town temporarily during the Christmas and Easter periods at times of high seasonal population. A nursing post and community health facility are provided, as is an Ambulance service. The airstrip has been upgraded and is suitable for access for the Flying Doctor.

The town is served by a Water Corporation water supply scheme commissioned in 1975 that extracts water from a borehole network to the west of the townsite. The Water Corporation considers the system adequate to service the existing licence area.

The previous water licence area for Bremer Bay was limited and covered the existing established residential areas, planned infill north of Freeman Drive and Lot 231 Bremer Bay Road which has a subdivision approval – Figure 3.

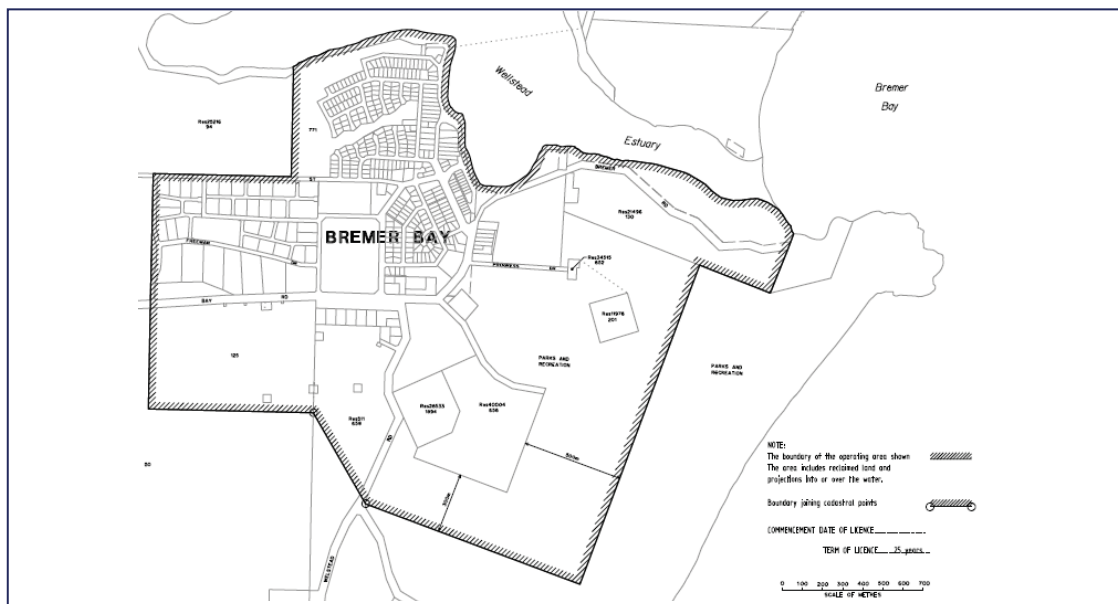


FIGURE 3 : Bremer Bay potable water licence area (Source : Economic Regulation Authority (ERA) website)

A sewerage system has been installed in the town and services most residential lots. The wastewater treatment plant is adjacent to the golf course on Reserve 40004. It has a 500 metre buffer as shown on the Strategy Map – refer Figure 19.

Any future expansion will be to the south of the existing ponds. Except for the existing hotel/motel complex the Water Corporation will not support any incompatible land use within the buffer. Any expansion of the hotel/motel would need to be to the north along Bremer Bay Road.

The Water Corporation would give serious consideration towards developing a wastewater re-use scheme. The Shire may consider the feasibility of such a scheme in consultation with the Water Corporation.

The historic Water Corporation sewerage operating licence area is shown in Figure 4.

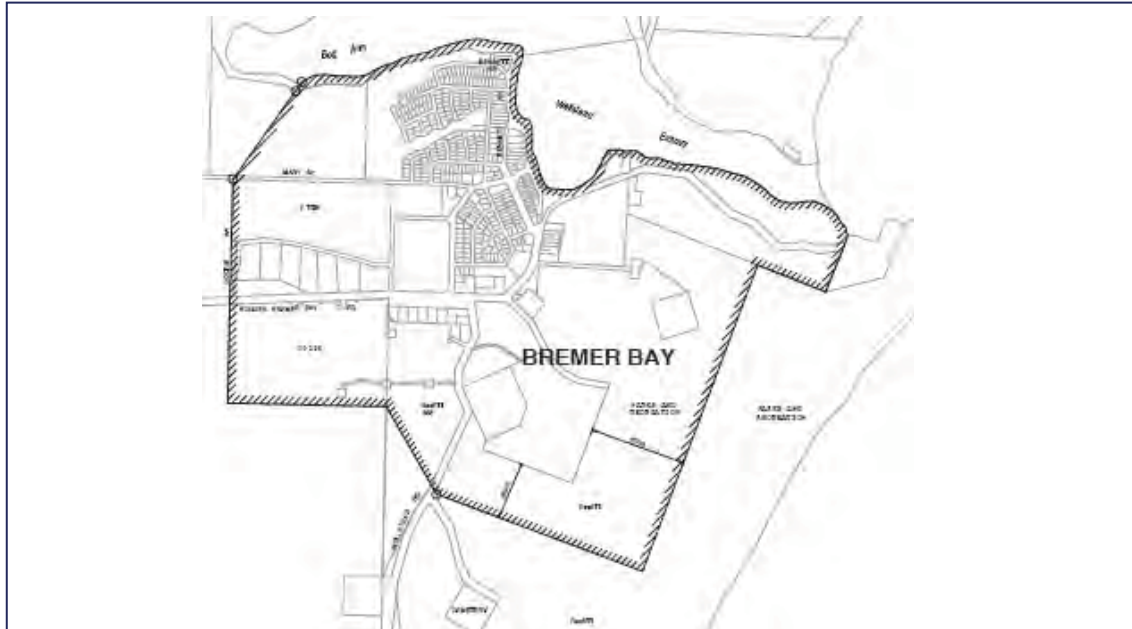


FIGURE 4 : Bremer Bay sewerage licence area (Source : Economic Regulation Authority (ERA) website)

The Council collects solid wastes for disposal at a site on the western side of Wellstead Road. Electricity is supplied from the main grid system.

DPI (LAMS) has excised approximately 4 hectares from Reserve 511 (off Bremer and Wellstead Roads, vested for Recreation) for a Cemetery Site for the town.

A significant part of the townsite is Crown Land. Subdivision and release of Crown Land has occurred over a number of years, according to demand. Significant areas of Crown Land within Bremer Bay include:

- Reserve 4120 - North Shore of John Cove on the Wellstead Estuary “Camping” approximately 44 hectares.
- Reserve 27093 – Cuneo Drive. South Shore of John Cove on the Wellstead Estuary “Public Utility, Recreation and Parking” approximately 7 hectares.
- Reserve 511 - off Bremer and Wellstead Roads south of town. “Recreation” approximately 800 hectares.
- Lot 650 - White Trail Road, a new Cemetery Site of nearly 4 hectares.
- Reserve 26382 - between Mary and Garnett Roads. “School Site” approximately 4 hectares.
- Reserve 31611 - between Garnett and Bremer Roads. “Recreation” approximately 10.5 hectares.
- Reserve 28533 - Wellstead Road. “Sanitary and Rubbish Disposal” approximately 8 hectares.

4.4.3 Boxwood Hill

Boxwood Hill is a largely undeveloped townsite however has some community and recreational facilities. The combined convenience store/service station provides for local convenience needs and has a dual function as it services visitors requiring petrol and a stopover for refreshments. Recreational facilities are available at the golf course/country club.

Despite this, growth of Boxwood Hill remains slow due to its relative isolation and lack of potential for servicing surrounding areas. The population within its reasonable services sphere (30km) is probably less than 170 persons.

Depending on servicing capacity, there may be some opportunity for Boxwood Hill to provide some workers accommodation associated with the proposed mine by Grange Resources. Whilst Bremer Bay is likely to be more attractive to prospective residents, Boxwood Hill is located closer to the proposed minesite.

4.4.4 Needilup

Needilup townsite includes a small group of residential lots with a church site, town hall, golf course, and a small park. This area remains largely undeveloped. There is a market 1 day a week.

4.4.5 Gairdner

There is a school, hall, oval, tennis courts, ambulance, and 2 houses.

4.4.6 Other Settlements

There are 2 other settlements, both of which have grown because of tourist pressures over the years. The first is near Millers Homestead near Dillon Beach and comprises a group of about 26 mostly low grade dwellings.

The Dillon Bay settlement is on land leased from the Crown, and each cottage is under a sub-lease.

The second settlement is at Millers Point on the Beaufort Inlet where there is a squatters settlement with about a dozen holiday houses of a reasonable quality that have been erected by local residents over the years.

The Millers Point Settlement is a squatter's settlement on Location 839 owned by the Shire, but to date Council has not taken any action to evict the squatters.

It is Councils ultimate objective for Kent Location 95 Dillon Bay to return to a rural use (without multiple occupancy), and for Kent Location 839 Millers Point to be retained for holiday accommodation and recreation use (limiting permanent development to those existing structures).

The Council has adopted Local Planning Policy No 7 under Local Planning Scheme No. 2 to address the issue of these settlements.

4.5 Transport and Communications

Historically the major form of transport and communications for the region was by sea. However, with the construction of a comprehensive network of sealed roads this role has diminished to a seasonal source of income for a few fishermen, and recreation. A small boat harbour has been completed at Bremer Bay.

Rail and air services are not warranted for the sparsely distributed population, nor are the towns located on important service lines, so these forms of transport play little to no part in the day to day operations of the Council.

The road network in the district serves agriculture and rural industry for stock, fertilisers, and grain transport.

The location of Jerramungup on both National Highway 1 and the Esperance-Gnowangerup-Katanning-Perth route will ensure that it continues to benefit from passing trade as well as being a focal point for tourist traffic.

Bremer Bay, on the other hand, is located at the end of a terminating road, a factor that tends to limit its attraction to mobile tourists. Some local interests have been expressed for a possible long-term coastal route linking Bremer Bay with Hopetoun, but no detailed investigations have been carried out. Rather than provide a coastal route the State Government has committed to sealing the road out to Point Ann and linking Point Ann to Hopetoun to the east via a world class walk trail. The Shire is investigating extending this walk to terminate at the future Bremer Bay town centre.

Main Roads WA is responsible for the following State Highways and Main Roads in the Shire:

- Gnowangerup-Jerramungup Road
- South Coast Highway, and
- Bremer Road

Main Roads WA, in conjunction with local government, has prepared road development strategies to meet the future needs of road users to the year 2020. The development of each regional road strategy examined a wide range of social and environmental factors, as well as economic issues.

“Roads 2020” proposals for the Shire include:

- Major improvement work should commence prior to 2020 on the Gnowangerup-Jerramungup Road, South Coast Highway, Gairdner Road South, and Bremer Road;
- Widening of the South Coast Highway east of Jerramungup as a Priority “A” (high priority) proposal;
- Widening of the South Coast Highway south of Jerramungup as a Priority “B” (medium priority) proposal, and
- Widening of Gairdner Road South and Bremer Road as Priority “C” (low priority) proposals.

4.6 Education

Three government schools operated by the Department of Education and Training in the Shire are:

Bremer Bay Primary School	Reserve 26382 4.1557 ha	Lot 1 Mary Street, Bremer Bay
Gairdner Primary School	Reserve 25791 6.1184 ha	South Road Gairdner River
Jerramungup District High School	Reserve 24772 12.0067 ha	Lot 375 Lancaster Rd. Jerramungup

The Department of Education and Training has advised of the following requirements for government schools:

Primary School: 4.0 hectare site for every 1,500 single residential lots/dwellings.

Secondary School: 10.0 hectare site for every 4 to 5 primary schools (6,000 to 7,500 single residential lots/dwellings).

District High School: 6.0 hectare site to be provided in country areas where separate high and primary schools are not warranted.

It is not expected provision of land for additional schools in the Shire will be required in the short term. Longer term requirements will be determined by the scale of future residential development in the Shire.

Enrolments at the schools in recent years are in Tables 2 to 4.

TABLE 2 - BREMER BAY PRIMARY (School Enrolments)			
Numbers of Students			
Year	Total	Pre-Primary	Primary
1994	38	4	34
1995	38	4	34
1996	33	7	26
1997	44	8	36
1998	34	6	28
1999	33	6	27
2000	38	10	28
2001	38	10	28
2002	44	7	37
2003	50	16	34
2004	46	13	33
2005	46	9	37
2006	41	10	31
2007	30	5	25
2008	41	7	34
2009	40	11	29
2010	41	7	34
2011 (projected)	41	7	34

TABLE 2 – Bremer Bay school enrolments (Source: Department of Education and Training)

TABLE 3 - GAIRDNER PRIMARY			
Numbers of Students			
Year	Total	Pre-Primary	Primary
1994	53	7	46
1995	48	4	44
1996	54	9	45
1997	55	11	44
1998	54	7	47
1999	55	17	38
2000	50	10	40
2001	50	8	42
2002	47	9	38
2003	48	11	37
2004	48	15	33
2005	45	13	32
2006	46	8	38
2007	44	9	35
2008	45	9	36
2009	43	8	35
2010	46	10	36
2011 (projected)	49	10	39

TABLE 3 – Gairdner school enrolments (Source: Department of Education and Training)

TABLE 4 - JERRAMUNGUP DISTRICT HIGH)				
Numbers of Students				
Year	Total	Pre-Primary	Primary	Secondary
1994	196	34	106	56
1995	179	27	101	51
1996	197	32	117	48
1997	188	28	106	54
1998	184	28	111	45
1999	190	33	111	46
2000	178	32	103	43
2001	166	19	107	40
2002	135	5	92	38
2003	134	24	77	33
2004	142	26	82	34
2005	137	18	78	41
2006	130	20	73	37
2007	111	15	66	30
2008	93	13	57	23
2009	96	17	49	30
2010 (projected)	98	23	54	21

TABLE 4 – Jerramungup high school enrolments (Source: Department of Education and Training)

Notes:

- Updated Statistics for 2006-2010 are based on Semester 1 figures for Tables 2-4.
- Slight variations exist between statistics for each semester.
- Statistics for 2010 are projected.
- Information on areas required for school sites is based on advice from DET in October 2010 so it should be acknowledged that requirements may change from time to time.

5.0 THE ECONOMY AND EMPLOYMENT

Agriculture is the main economic activity of the district but there is a growing tourism industry, especially in Bremer Bay.

Since the original settlement in Bremer Bay, the emphasis of its economic base has shifted from the fishing industry to tourism. Even though it is seasonal, tourism provides a year-round livelihood for commercial activities in Bremer Bay. Fishing continues to be important, and an aquaculture venture is established at Back Beach.

Throughout the region, there is a trend towards fewer, larger farms in the broad-acre farming areas, with increasing numbers of small holdings in the local government areas of Albany, Denmark and Plantagenet due to subdivisions for more intensive agriculture.

The number of farms in the Shire declined by nearly 9% between 1986 and 1993, and the average farm size increased by about 50ha in the five years 1990 to 1994.

Between 1995/96 and 2005/06 farm numbers were reduced from 192 to 160. During this time the average farm size increased from around 1980ha to 2460ha. Also from 1995/96 to 2005/06 the total number of beef cattle increased from 11,000 to 16,350. The number of adult sheep declined from 500,000 in 1995/96 to 277,000 in 2001/02 but increased to 454,000 by 2005/06.

Along with these changes to sheep numbers wool production went from 3500 tonnes to 1995/96 to 2122 tonnes in 2001 and back to 3425 tonnes in 2005/06.

Agricultural land use and production for the Shire is summarised in Table 5.

TABLE 5 – Land Use and Agricultural Production		
Statistic	1998/1999	2005/2006
Total area holding (ha)	327,876	393,364
Wheat area (ha)	44,899	41,693
Wheat production (t)	92,931	88,677
Barley area (ha)	44,044	48,252
Barley production (t)	80,414	102,383
Oats (ha)	1,793	2,503
Oats (t)	3,007	5,054
Lupin area (ha)	7,154	3,295
Lupin production (t)	7,831	4,805
Canola area (ha)	27,096	27,176
Canola production (t)	34,884	37,295

TABLE 5 – Landuse and Agricultural Production (Source: Department for Agriculture & Food WA)

5.1 General Rural Development

Rural land in the Shire is mainly used for cropping and the stocking of sheep. In recent years, this has been expanded in a few suitable locations for the production of seed potatoes, wildflowers, and more recently viticulture and silviculture (*E.globulus* plantations) in the higher rainfall areas closer to the coast.

Increasing economic pressures will see diversified land uses into horticulture, floriculture, and silviculture on many farms.

The Council generally supports rural diversification into other rural or related ventures (which comply with the Scheme and any relevant Local Planning Policy). The Shires prime consideration is continued protection of traditional agriculture as the main industry in the area, and ongoing support for farming.

5.2 Aquaculture

The *Bremer Bay Coast Aquaculture Feasibility Study* was a strategic planning study initiated by the Council to determine the opportunities and constraints for the development of marine and freshwater aquaculture in the Bremer Bay area. There is some abalone aquaculture near Bremer Bay and the Council intends to continue to facilitate aquaculture development within the Shire – refer Figure 5.

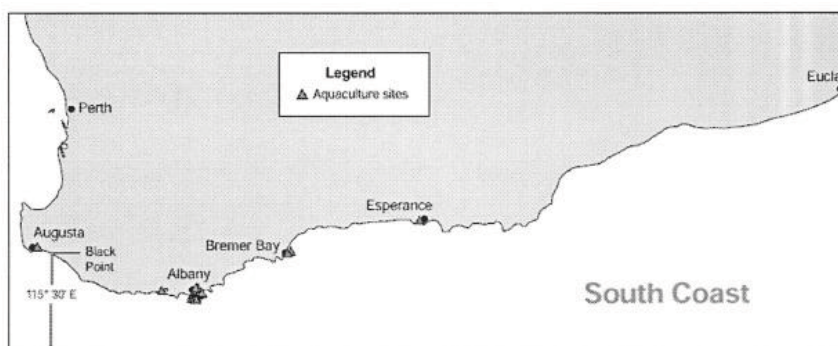


FIGURE 5 : Bremer Bay major aquaculture licences (Source: State of Fisheries report 2007/08)

Increased development of aquaculture would supplement the existing fishing and fish processing industry, and in association with other primary production activities, diversify employment and economic opportunities.

5.2.1 Mariculture Potential

Mariculture is the cultivation of marine species that could be either fish species, (for example salmon or tuna), or molluscs (such as abalone or mussels). Cultivation of species can be conducted in sea cages anchored in sheltered locations offshore or in land based facilities utilising sea water exchanged with the ocean.

Criteria used to determine the suitability of the Bremer Bay coast for mariculture are:

- physical features;
- biological and ecological features;
- economic factors; and
- land use, tenure, and social environment.

In recommending sites and suitable species, the Feasibility Study assessment aimed to achieve the best balance of these criteria.

5.2.2 Freshwater Aquaculture Potential

The farming of brackish and freshwater species in farm dams or specially constructed ponds on existing rural properties is an acceptable diversification of farming, subject to checks to ensure that no unacceptable environmental damage is caused through discharges. These discharges may arise through normal operations as water is not

changed over as frequently as ocean-based systems, and therefore may have elevated nutrient or chemical levels.

Applications are to address potential impacts on surrounding farmland water bodies or reserves, and the need for separation from adjoining land to avoid any potential harm to the development from spray drift or dust from established farming activities.

Approval for on-farm aquaculture will be referred to agencies such as Department of Environment and Conservation (DEC), Department of Water and Department of Fisheries depending on location of the proposed aquaculture in relation to water bodies and reserves.

Applications for aquaculture enterprises should address the following:

- (i) adequate remaining foreshore reserve for recreation purposes and storm surge protection;
- (ii) environmental assessment of the development including visual impact, land capability, and management of wastewater discharge;
- (iii) access to the site;
- (iv) pipe and infrastructure requirements.

5.3 Horticulture

Although the district is not a recognised area for horticulture, there are many places where a combination of good soils and/or water harvesting will allow the production of horticultural crops.

The 2 broad categories of horticultural crops (annual and perennial) each have quite distinct requirements. Annual crops such as seed potatoes ¹ are proving to be a successful diversification where soil and water conditions are suitable. Perennial crops such as grapevines, berries, or orchards can be grown in a greater range of conditions with an equally varying level of success.

Generally the Shire is not a suitable area for the production of all fruits due to specialised growth condition requirements and the relative distance to markets for produce.

There is good potential for wine grapes in the Shire. Wine grapes will grow on a wide variety of soil types provided that:

- At least 750mm of soil is available for root growth before a root restricting layer is encountered
- The soil is well drained and not susceptible to either waterlogging or salinity
- Soil has an ECE of less than 400mS/m

¹ The “Code of Practice for Environmentally Sustainable Vegetable and Potato Production in Western Australia” 2002 was prepared by the DAFWA in conjunction with The Potato Growers Association of WA (Inc), WA Vegetable Growers Association, Department of Environmental Protection, Department of Environment, Western Potatoes, and Horticulture Australia. The Code sets out the industry and government’s expectations of growers for environmental management. It covers the production of annual horticultural crops in Western Australia, including potatoes, melons, strawberries, and vegetables such as cauliflowers, carrots, onions, sweet corn, broccoli, tomatoes, cucurbits and pumpkins.

- Adequate water is available for establishment and irrigation (generally 1500-2250kl/ha/yr)
- Water quality is better than 200mS/m with a Sodium Absorption Ratio (SAR) less than 6.

Diversification into wine grapes has the potential to cause some conflicts in the rural area due to the sensitivity of grapes to some commonly used herbicide sprays such as 2,4-D. Grape vine damage through over spray has been reported in the Margaret River area and the use of high pressure spraying equipment that produces some mists can be detected up to 10km from the site of origin.

New viticulture projects should be developed in accordance with the *Environmental Management Guidelines for Vineyard*² (2001) to ensure environmentally sensitive vineyard management.

Horticulture and urban development are not compatible land uses due to potential spray drift, odour, and noise. The draft Department of Environmental Protection *Guidance Statement No. 3 – Industrial – Residential Buffer areas (Separation Distance)* (1997) recommends a 500 metre buffer between horticulture and urban areas.

There is an established winery operating on Lot 50 Wellstead Road, Bremer Bay.

5.4 Floriculture

Floriculture is the production of flowers, stems, or other plant matter for commercial purposes. This can range from cut flowers to the production of oils (not oil mallees), and the possible range of species grown can be equally varied.

Climate, water availability, and the distance to markets will tend to skew the potential in the Shire towards the production of native flowers for fresh or dried display, although there remains the potential for some small areas of exotic bulb production (such as daffodils, freesias etc) or cut flowers from these bulbs.

5.5 Silviculture

There is potential for commercial timber and associated products in the Shire, but the choice of species is restricted to well defined ranges due to soil type and rainfall.

Another emerging plantation industry is the establishment of carbon plantations to create carbon offsets through the establishment and management of plantations dedicated to that purpose.

These carbon plantations are not subject to harvesting and may be left in place for 70 years. The accumulated carbon dioxide in these plantations is 'traded' with entities that have an obligation to reduce their greenhouse gas emissions profile (such as vehicle manufactures and petroleum companies). Carbon dioxide sequestered by these plantations needs to be certified under the National Greenhouse Friendly Program of the Commonwealth Government Department of Climate Change.

For these carbon plantations to be certified, they must be established on land that was not vegetated (forest) prior to 1 January 1990. This means the focus is on cleared farmland to ensure there is no clearing of remnant vegetation.

² Prepared by the Wine Industry Association of WA; Grape Growers Association of WA (Inc);DAFWA; Department of Environmental Protection; and former Department of Environment.

The environmental benefits of such plantations are obvious and include lowering of water tables (and salinity levels), improved biodiversity (including habitat linkages), improved soil conservation and reduced sediment loads in waterways. Also from a local government perspective, additional road construction and maintenance is not required as the plantation may never be harvested.

However, carbon plantations do generate areas of concern particularly from a local government perspective. After the initial planting and other than annual firebreak maintenance, nothing is returned to the local community. There is essentially no production of food from the land which once was carrying livestock and/or being used for cropping. There is the real potential that extensive areas planted to carbon plantations will lead to the depopulation of rural areas which in turn will mean small towns will not be sustainable due to population drift potentially leading to the closure of many small rural towns. This loss of agricultural production could have a negative impact on the Australian gross domestic product.

Similar potential negative impacts were raised when the blue gum plantation industry was commenced in the late 1980's however, that industry with harvesting occurring every 10 years has meant rural populations have stabilised. On the other hand, the carbon plantations are not to be harvested meaning the land is lost from food production and the population drift will occur.

The potential impact of whole farm plantings and broader issue of loss of agricultural land has caused some local community and Shire concern due to an increase in carbon sequestration applications. The Shire has good conditions for growing trees and reasonably cheap land (from an international viewpoint) and this leads to high chance that large areas of the Shire will be swallowed up by carbon plantations if additional controls are not introduced.

The Shire has adopted a Local Planning Policy on plantations to be used as guide for applications and assessments, with the aim of securing the environmental benefits that carbon sequestration plantations can bring, whilst looking to avoid the negative impacts of loss of population and the subsequent social issues for the Shire.

5.6 Tourism

The tourist attractions for each main townsite in the Shire are as follows;

5.6.1 Jerramungup

- **Lions Park, Tourist Information Bay & Heritage Trail** - An attractive tree-shaded park with electric barbecue, picnic facilities, tourist information board and public toilets (disabled facilities provided). This area is also the designated coachline pickup and drop off point, and the starting point for the Jerramungup Heritage Trail.

The Jerramungup Heritage Trail visits the following points of interest:

- Tourist Information Centre
- Old Powerhouse
- Former War Service Office
- Jerramungup Town Hall
- Major Colin Cameron Plaque in Roe Park
- All Saints Community Church
- Shire of Jerramungup Administration Building

- **Town Hall** - Known as the “Root Pickers Hall”, opened in April 1958 adjacent to the CWA Hall. The nickname developed because the Hall was paid for through volunteers picking mallee roots.
- **All Saints Church** - The church was built in 1967 and is interdenominational. Service times are displayed on a notice board in the Church gardens.
- **Roe Park** - Named after John Septimus Roe who was the first Surveyor-General. A memorial plaque to Major Colin Cameron, War Service Land Services Supervisor, is in the southeast corner of the park. The Park is in the process of being substantially upgraded.
- **Fitzgerald River National Park** - The Park derives its name from the Fitzgerald River and can be accessed 20 kms east of Jerramungup turning south along Quiss Road from the South Coast Highway.

The Fitzgerald River National Park is one of the largest national parks in Australia containing 20% of the State's described plant species.

The park covers an area of 329,039 ha and is one of the most diverse botanical regions in the world, featuring more than 1,800 species of plants. 75 of these are found nowhere else in the world. There are 184 bird species, 22 mammal species, 41 reptile species and 12 frog species living in the park.

The park is an internationally recognised Biosphere Reserve under the UNESCO Man and Biosphere Program. Some attractions include:

- Wildflowers : Wildflower season in the park peaks during Spring (September to November), however some wildflowers can be seen in bloom throughout the year.
- Whale Watching : From July to October at Point Ann in the Fitzgerald River National Park. Disabled access is available to the whale-watching platform.
- Bushwalking : including West Mount Barren, Point Ann Heritage Trail, Twertup Walk, East Mount Barren and West Beach Point.
- Camping : Vehicle based camping is available at Four Mile Beach, Hamersley Inlet, Quoin Head, Fitzgerald Inlet and Saint Mary Inlet.
- **Monkey Rock** - Local legend is that an aboriginal called Monkey used to camp near the rock and was murdered there. Monkey Rock is situated on Monkey Rock Road (5kms east of town off South Coast Highway).
- **Mile Rock** - This was an aboriginal camping ground and meeting place. It is located on private property on the northern side of the South Coast Highway, 6 kms east of Jerramungup.
- **Hassell Homestead** - Home to a pioneering family occupying land for over a century. The house is on private property but can be seen north from the Gairdner River Bridge 5 kms east of town on the South Coast Highway.

5.6.2 Bremer Bay

- **Fisheries Beach Marina** - Opened in March 1997 by Minister for Transport Eric Charlton and used by the professional fishing industry, the Marina also offers

excellent facilities for recreational boat launching, with two concrete ramps, ample parking and easy access. The natural bay is ideal for sheltered swimming.

- **Quaalup Homestead and Museum** - Situated approximately 45kms from Bremer Bay in the Fitzgerald River National Park, the Quaalup homestead was built in 1858 and is open to the public, with guided tours and easy access to the Gairdner River.
- **Wellstead Museum** - Situated 3kms south of Bremer Bay is the original settlement in the region (built in 1850). Guided tours are available.
- **Gnornbup Winery** – Located on Bremer Bay Road on the way into town the winery is open for tastings and retail sales.
- **Paperbarks Picnic Area** - Opposite Change rooms at John Cove, facilities include gas barbeque and play equipment.
- **Water Activities** – Due to the extensive coastline and access to pristine beaches, recreational activities such as fishing, diving, snorkelling, scuba diving, surfing and fishing are popular.

Numerous beaches such as Little Boat Harbour, Blossoms Beach, Short Beach as well as Fishery Beach at the Marina are excellent swimming spots. John Cove is the main swimming only area, where classes are held in summer. Dependant on conditions and swell, waves for surfing can be found at Native Dog Beach, Peppermint Beach, Bremer Beach and Blossoms Beach (which is suitable for beginners). Beach, deep sea and river fishing can be enjoyed throughout Bremer Bay.

5.6.3 Tourist Accommodation

There is a wide range of tourist accommodation in the Shire including;

- Bremer Bay Caravan Park
- Bremer Bay Beaches resort
- Bremer Bay Resort
- Jerramungup Hotel/Motel
- Jerramungup Caravan Park
- Jerramungup Farmstay B & B
- Glentarkie Farmstay
- Eularna Farmstay
- Bremer Bay Accommodation
- Bremer Bay B & B
- Kybra House Holiday Accommodation
- Quaalup Homestead Wilderness Retreat
- Wellstead Museum Cottage
- Bremer Bay Family Accommodation - Riverview
- Bennett Street Cottage
- Breakaway

Under the Shire of Jerramungup Local Planning Scheme No 2 there is flexibility to consider tourist accommodation in a range of zones including residential, townsite, town centre, and rural.

There are opportunities for further eco-tourism developments however the Shire would particularly encourage accommodation that incorporates facilities which can attract visitors in off peak / winter periods.

Where tourist accommodation is proposed the Shire needs to be satisfied that the development can be easily accessed, will have economic benefits, can be adequately serviced without compromising local environment, scenic areas or general amenity. In some areas vegetation retention and fire management are issues that need careful consideration. The appropriateness of the proposed density for any accommodation and its suitability for the location are also important factors.

6.0 PHYSICAL FEATURES AND THE ENVIRONMENT

6.1 Geology

Western Australian Geological Survey has described the geology in investigations for the Bremer Bay, Newdegate, and nearby 1 : 250 000 map sheets.

The basement consists of Archaean granite and gneiss of the Yilgarn Craton in the north and Proterozoic gneiss and metasedimentary rocks of the Albany-Fraser Orogen in the south. These have been eroded over geological time to form an undulating basement that rises to granite hills such as Tooleburrup Hill. Ancient deep valleys were cut into the basement by rivers flowing to the south. These valleys were infilled during incursions of the sea during the Tertiary when shallow water marine sediments of the Plantagenet Group were deposited.

The most notable is the Pallinup Siltstone that consists of interbedded siltstones and spongolite with lesser amounts of conglomerate, lignite, and sandstone.

Widespread laterisation occurred during the Tertiary and into the Cainozoic Periods when gravels, duricrust, and sand plains formed on the flat erosion surfaces.

Mild uplift along the south coast tilted the Tertiary sediments slightly, rejuvenating the south-trending drainage and cutting valleys through the earlier Tertiary sediments.

Superficial deposits of aeolian sand, colluvium, lacustrine deposits of thin clay and silt of Cainozoic age intermittently cover the remainder of the Shire.

Calcareous shelly sandstone that may be correlated to coastal limestones of other coastal areas crops out along the coast between the headlands. Recent vegetated and active coastal dune sands overlie the tower units.

6.2 Climate and the Growing Season

The average annual rainfall for the region varies from 360 mm in the north increasing to over 600 mm near the south west coast. The average annual rainfall distribution in the Shire is shown on Figure 6 (overpage).

Even though two-thirds of the annual rain falls in the six months between May and October, rainfall has a relatively more even distribution compared to other agriculture areas. The Shire also experiences fewer hot dry winds, and increased cloud cover.

The average annual Class A pan evaporation varies from 1,600mm near the coast to about 2,000mm in the north of the Shire. The length of the growing season drops from 8 months on the coast to 5.5 months inland.

Average temperatures in summer range from maxima of 27 to 30 °C down to minima of 16 °C. Winter average temperatures are 14 °C down to 7 °C maximum and minimum. The frequency of frost risk is reduced by the high frequency of winter/spring cloud cover.

There are 16,960 ha of cleared land in the sub-region receiving an average of more than 500mm of annual rainfall. This rainfall allows more than 6 months of growing season, making this land more suitable for long season cereal crops.

Land in the rainfall zone also has a good potential for perennial pastures and possibly for economic yields of *Pinus pinaster*. Niche areas in the Bremer Bay landscape are suitable for wine grapes because it has a similar climate to successful vineyards in the Mount Barker area.

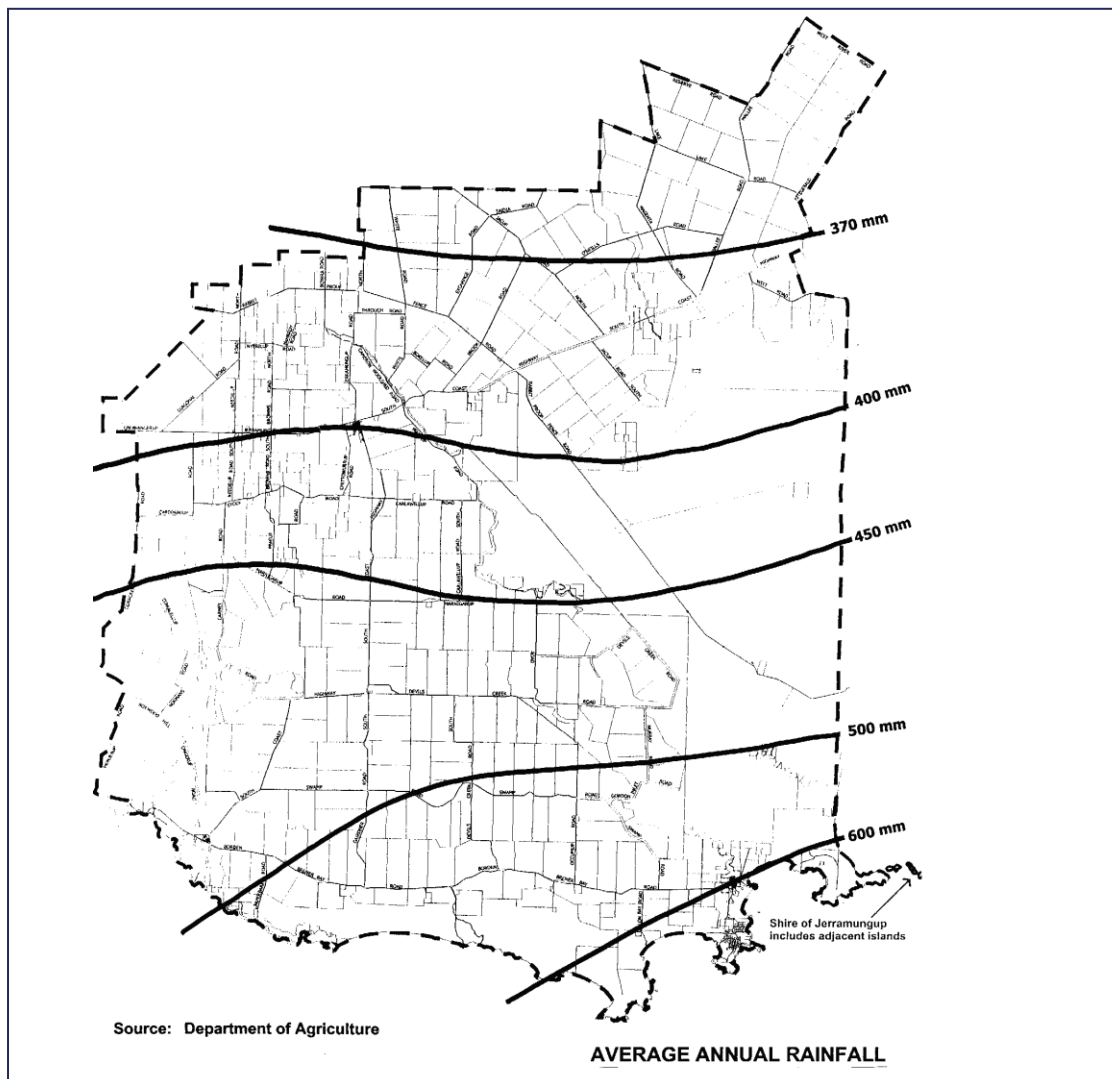


FIGURE 6 : Average rainfall (Source: Department of Agriculture and Food WA)

TABLE 6 - Approximate Relationship Between Length of the Growing Season and Agricultural Areas.		
Average annual rainfall (mm)	Length of the growing season (months)	Cleared area (ha) based on rainfall isohyets
301 - 350	< 5	29,632
351 - 400	5 – 6	210,308
401 - 500	6 – 7	335,368
501 - 600	7 – 8	16,960

TABLE 6 – Approximate relationship between length of growing season and agricultural areas

6.3 Soils

Soils of the Shire consist of loams and clays developed on basement with sands or duplex sand over clay on the superficial geological materials.

Medium duplex loams over clay soils (35% of area) are the main soils used for cropping. They are less prone to waterlogging than the sandy loam duplex soils (12% of area) because they are moderately deep. However, there can still be widespread production losses in wet years.

Grey loams and clays are the second most common soil type (15% of area). These soils are difficult to manage because they have elevated sodium levels and are thus classified as sodic. However, when well managed the soils can be highly productive.

The Northern Sandplain soils between North Jerramungup and West River (10% of area) are sandy yellow soils that can be susceptible to wind erosion in some years.

Deep sands (8% of area) are found throughout the Shire but are most common closer to the coast where the sands tend to be finer.

The red brown loams (8% of area) are associated with younger soils developed on basement rocks in the river valleys. These soils can be very productive.

Many of the soils in the Shire have formed on ancient surfaces that have been exposed to long periods of weathering and are thus naturally infertile. The application of phosphate fertilisers since clearing has increased the P levels and total exchange capacity in the surface soils. In addition, various trace elements have been added and nitrogen has been applied either as a fertiliser or naturally with nitrogen fixing crop and pasture species.

The protein content of wheat produced in parts of the sub-region is low indicating that nitrogen levels may be inadequate because of unsuitable pasture rotations, insufficient applications of nitrogenous fertilisers, waterlogging, or timing of fertiliser applications not matched to soil conditions. Some improvements may be possible.

Because of research and monitoring the average wheat yield in the Shire has been steadily increasing through better cropping practices. Stock carrying capacity as measured by dry sheep equivalents per winter grazed hectare has also been increasing.

6.4 Salinity

Salinity has the potential to significantly impact on the Shire. In percentage terms, the area that could potentially experience the greatest increase in salinity is the level to very gently undulating land on crystalline basement. This zone lies in the uppermost part of catchments that drain either into ancient drainage flats or directly into the southerly flowing rivers. Outflow from these areas is confined to flood situations.

Soils in the lower elevations of the upper, more dissected catchments are at risk and the area of salinity may possibly double. A similar potential doubling of the areas of salt affected soils is possible downstream.

Increases in salinity will lead to changes in fringing vegetation especially around currently fresh wetlands, creeklines and riparian vegetation.

South of Gairdner there are 80,000 ha of swampy sandplain flats formed over Tertiary sediments in which salinity is relatively minor (10%). Salinity in these areas could increase.

Gently undulating Tertiary areas with defined depressions over shallow bedrock in the Wellstead area on the southern boundary of the Shire (in the City of Albany), is underlain by saline groundwater that is rising by about 0.2m per year. About a quarter of this zone has potential to become affected by salinity.

Actions are being coordinated through the Regional Catchment Council (South Coast NRM) and the Fitzgerald Biosphere Group to address salinity issues with relevant specialist advice to farmers and tree planting programs, where sufficient funding is available.

TABLE 7 - Extent Of Soil Salinity in Hydrological System (HS) of the Jerramungup Region				
Hydrological System	1994 salt- affected area		Potential salt affected area.	
	(%)	(ha)	(%)	(ha)
Level to very gently undulating landforms	25	44750	45	80550
Ancient draining flats	25	19500	40	31200
Very gently to gently undulating plains	20	29400	30	44100
Swampy sandplain flats	10	3300	25	8250
Undulating areas that are close to dissected V- shaped valleys	10	29700	20	59400
High level sandplains adjacent to dissected valleys	3	810	15	4050
Broad crests	0	0	7	6540
Undulating sandplains adjacent to coastal belts	3	1290	7	3010
Total of the region	15.2	128750	28.1	237100

TABLE 7 – Approximate extent of soil salinity (Source: ABS Statistics 1993/94)

6.5 Soil Acidification

Soil acidification occurs in response to increased nitrogenous fertiliser input and the growth of legume crops. At low pH soil nutrient imbalances occur reducing the yield of crops. Crop rotations and liming may assist in reducing acidity.

6.6 Soil Erosion

Soil erosion from wind is a potentially major problem for the sandy and duplex sand over clay duplex soils. Without adequate soil cover topsoil can readily be lost, particularly in autumn when strong northerly winds ahead of a cold front can strip significant amounts of topsoil within a very short time.

Water erosion is also a potential problem during heavy rainfall events, when non-wetting sands are removed by floodwaters and dumped in drainage lines.

Whilst surface sheet and rill erosion commonly removes (non-wetting) surface sands during epi-sodic / seasonal storm flooding events, the most significant cause of water erosion across the Jerramungup area is a result of the hyper-sodic clays dispersing (melting) during storm events, especially where there has been a progressive loss of topsoil through agriculture since clearing. The dispersing clays commonly form deep gullies. Sediment lost through water erosion often forms sediment or sand slugs in drainage tributaries causing problems with road engineering structures (culverts, etc) and also impacting invertebrate biodiversity in ephemeral rock pools and streams.

Land management techniques such as minimum tillage, claying, stubble retention, reduced stubble burning together with monitoring soil health / soil condition, windbreaks, contour banks, and the like can provide increased erosion resistance.

6.7 Surface Water

6.7.1 Rivers

There are four large river systems within the region;

- Bremer and Gairdner, which run through the centre of the Shire
- Fitzgerald and Sussetta which spend much of their courses within the Shire but enter the sea to the east
- Pallinup that lies to the west of the Shire is fed by a number of tributaries from the Shire. Forms the southwestern border of the Shire.

The four large river systems previously mentioned all run through virtually continuous corridors of un-cleared native vegetation which in turn provide an important connectivity conservation function across the landscape. The Pallinup/Corackerup Creek system and the Fitzgerald River corridor which connects between Lake Magenta Nature Reserve and the Fitzgerald River National Park, are each recognized as strategic macro-corridors for the South Coast Region (Wilkins et al 2006). The Bremer and Gairdner Rivers do not provide linkages between conservation reserves however they provide the 'backbone' to an extensive network of tributaries with extensive land care and creek revegetation projects that have been steadily consolidated over several decades.

All arise on the Yilgarn Plateau, about 300m above sea and run for between 50 and 100km to the coast in a south to southeasterly direction. These rivers and other smaller creeks and streams have cut deep gorge-like valleys through the softer

Tertiary sediments, before discharging into coastal lagoons that are connected to the sea by a sandbar.

Streams generally only flow strongly for a few days or weeks each winter after very heavy or prolonged rainfall. At this time the rivers may swell their inlets, bursting the ocean bars and discharging to the sea. However, in most years flow is very low or negligible. In spite of this the rivers retain considerable permanent aquatic habitat in the form of deep and often very long, permanent river pools that tend to be larger in the lower reaches.

Although all major rivers are regarded as saline because they drain saline areas in the headwater catchments, flows become brackish or quite fresh during heavy flow events.

Many of the rivers carry large sediment loads that have increased following clearing within the catchments, leading to progressive filling of the coastal lagoons. The *State of the Environment Report 1998* shows the sediment loads of the watercourses as predominantly Medium to High. Nutrient loads are rated as Low to Medium.

A unique feature of the rivers of the southwest is their broad, if somewhat broken, vegetation corridors along their banks in agricultural land. The *State of the Environment Report* lists the status of the fringing vegetation as either Good or Very Poor. Good areas exist for example where the Fitzgerald River passes through the Fitzgerald River National Park (FRNP).

The current condition of rivers is summarised in Table 8 and the following symbols apply:

- A: Near pristine - river section and upstream catchment contained within natural bush.
- B1: Relatively natural - river section in natural bush but some portion of the upstream catchment cleared.
- B2: Corridor river - river section in a substantial corridor of vegetation
- B3: Habitat river - river section retains significant riparian vegetation
- C: Agricultural drain - river section with no, or sparse, riparian vegetation

TABLE 8 - Current Condition of Rivers in the Jerramungup Region		
Drainage System	Condition	Comments
Pallinup River/Corackerup Creek	Mainly B2, ranging from B1 to C.	Only the Corackerup Creek, a major northeastern tributary of the Pallinup River and related tributaries lie within the sub-region. Its catchment is less cleared than the Pallinup's (84% cleared). The lower and middle reaches of the creek lie mainly within a naturally vegetated corridor and broad areas of remnant bush.
Hunter River	A	The stream lies within the FRNP. Proposed to be excised from the FRNP and added to the Doubtful Island Coastal Reserve, managed by the Shire of Jerramungup.
Kelly's Creek	A	A small creek about 8 km long that drains through coastal dunes directly to the coast where it has formed a small lagoon. Wholly contained within a Nature Reserve.

Gairdner River	Mainly B1 grade, but with A tributaries draining the Park and B3 to C grade sections and tributaries in cleared farmland.	The middle to lower reaches of the Gairdner River run along remnant bush connected to the FRNP through a broad vegetative corridor.
Bremer River	B1 and B3 in the headwater tributaries with B2 in the middle portion and A in the lower reaches.	The headwater tributaries of the Bremer River drain farmland, with the middle portion well protected within wide vegetation corridors, and the lower reaches included in the FRNP.
Boondadup and St Mary Rivers and the unnamed tributary of Lake Nameless	A	All three are in the FRNP but only the headwaters lie within the Shire.
Fitzgerald River	Main channels are mainly B1 grade, with substantial sections of B2 and A tributaries. Headwater streams in farmland are C to B2.	About 40% of the catchment has been cleared. 30km of the upper river channel passes through substantial remnant bushland and bush corridor connecting with the large Lake Magenta Nature Reserve. A significant portion of the river lies within National Park, Nature Reserve, or remnant bush. Exits to the east of the Shire.

TABLE 8 – Condition of rivers

6.7.2 Wetlands

The wetlands of the region are extensive and consist mainly of broad areas of small to medium seasonal and permanent lakes and swamps, with some large permanent lakes. Most wetlands are located within cleared agricultural land and are being affected by salinity and altered hydrology. A number of wetland systems located in the Fitzgerald River National Park (FRNP) are largely undisturbed by human activity and are in good condition.

Based on general location, eight major groups of wetland are identified and the condition is summarised in Table 9. Four categories of wetland are recognised:

- A: wetland in a large National Park or Nature Reserve
- B: wetland in a small Nature Reserve or large block of remnant vegetation
- C: some remnant vegetation surrounds or links wetland
- D: wetland cleared or no fringing vegetation remaining.

TABLE 9 - Major Wetland Groups in the Jerramungup Region		
Wetland Group	Condition	Comment
Bremer River wetland group	None of the wetlands are in Nature Reserves and all fall in the C and D categories. Most of the smaller wetlands are category D.	Broad, low-lying area of internal drainage between the Pallinup and Bremer Rivers east of the South Coast Highway. Numerous small (<500 m across) to medium (500-1000 m) intermittent lakes and swamps and areas subject to inundation. Two large (>1000 m across) permanent lakes including Lake Torrup, and two large swamp systems, Yendinnup and Yellilup. Yellilup Yate Swamp is recognised as an important wetland, both for waterbird habitat and as a fine example of a wooded swamp.
Gairdner River wetland group	Larger wetlands, including Pullitup and Tooregullup Swamps, are located in the National Park and are therefore category A. There are also more than 20 small C and D category wetlands	Medium to small, permanent, and seasonal swamps near the Gairdner River and to the northeast of the Bremer River.
Mallee Road wetland group	Most of the smaller wetlands are category D but the medium sized ones are generally associated with large bush blocks (C).	Numerous tiny lakes and swamps and a few medium sized ones in a low lying area south east of Lake Magenta on the headwaters of the Hamersley River

TABLE 9 – Major Wetland Groups

6.7.3 Coastal Lagoons and Inlets

The coastline of the region has a number of shallow intermittent estuaries or permanently closed lagoons, ranging in area from under 1km² to over 12 km². The larger ones include the Beaufort (Pallinup River), Wellstead (Bremer River), Gordon (Gardiner River); with St Mary's and Fitzgerald lying just east of the Shire boundary. With the exception of St Mary's, all estuaries have basins in excess of 2km², and all are in an advanced state of siltation, probably accelerated for those inlets with agriculture in their catchments, and none are more than a few metres deep. (*South Coast Regional Land And Water Care Strategy 1997*).

A Wellstead Estuary Management Plan has been developed in partnership with the Shire.

The lagoons are often dry in summer and only fill after heavy winter rain or unseasonal storms. Floodwaters may breach the ocean bars for a few weeks or months following heavy rainfall events, thus connecting the lagoons to the sea. In the case of the Wellstead Inlet the bar may stay open for a few years. Artificial breaching is sometimes used.

When connected to the sea, marine fish, mainly sea mullet, may enter the estuaries and thrive for a period, providing significant commercial and recreational fishing opportunities. Once the ocean bars have reformed, the estuaries become increasingly saline and shallow through evaporation, until the marine fish die. Overall, only true estuarine fish species can survive in the inlets by using the permanent brackish pools in the lower reaches of most of the rivers.

Apart from symptoms of eutrophication exhibited by some inlets, all have retained most of their original habitat and landscape value with little clearing of estuarine vegetation. As such, the inlets represent important natural or relatively natural ecosystems with considerable conservation, scientific and recreational value. The current condition of wetlands and lagoons is summarised in Table 10.

TABLE 10 - Wetlands and Lagoons in the Jerramungup Region		
Inlet	Condition	Comment
Beaufort Inlet	Seriously enriched with nutrients and silted, but retains extensive areas of estuarine vegetation along its margins and waterbird habitat throughout. The Pallinup River carries high sediment loads.	Pallinup River discharges into this inlet, which covers an area of 4.5km ² and is surrounded by natural remnant bushland. It is popular for recreational fishing and is commercially fished.
Wellstead Inlet	Showing signs of nutrient enrichment	The Inlet has an area of 2.5km ² and lies between Crown lands and the Fitzgerald River National Park. The relatively small Bremer River, which drains large areas of agricultural land discharges into it. The inlet retains extensive fringing vegetation and has considerable habitat and recreational value. The condition has changed significantly in recent years from a macrophyte (seagrass) dominated estuary to a phytoplankton dominated system.
Hunter River and Kelly's Creek lagoons	Pristine condition	North-east of the Wellstead Inlet a number of very minor creeks, known as the "Hunter River", have formed a small "V" shaped lake, with arms about 2km long, impounded behind a marl bar covered by sand. Kelly's Creek lagoon is located about 2km south of the mouth of the Gordon Inlet. The lagoon is about 1km long and is occasionally connected to the sea via a narrow, 1.5km channel. Kelly's Creek has substantial wetland vegetation and therefore habitat.
Gordon Inlet	Lies within the Fitzgerald River National Park to the east of the Shire. Much of its catchment passes through cleared land within the Shire. The inlet is showing signs of eutrophication and sedimentation	This inlet is very shallow and quickly dries out when river flows cease. The riverine reaches provide substantial permanent aquatic habitat, although it becomes hypersaline at times. There are extensive stands of fringing vegetation and habitat values are high which is reflected by high waterbird use and periodic heavy fishing.

Boondadup River and St. Mary's River lagoons	Catchments for both lagoons drain part of the FRNP. The estuaries that lie to the east of the Shire are in good condition; the St Mary's Inlet is in pristine condition	The Boondadup and St Mary's Rivers give rise to two small intermittent estuaries south of the Fitzgerald Inlet. The basin of the St Mary's River estuary is about 1km long and 250m wide and has extensive fringing vegetation. The Boondadup Estuary consists of little more than a long river pool about 50m across and 500m long.
--	---	--

TABLE 10 – Major Wetland and Lagoons in the Jerramungup Region

Apart from symptoms of eutrophication exhibited by some inlets, all have retained most of their original habitat and landscape value with little clearing of estuarine vegetation. As such, the inlets represent important natural or relatively natural ecosystems with considerable conservation, scientific and recreational value.

Most of the estuaries listed in Table 9 are monitored by the Department of Environment and Conservation and / or Department of Water, but for most there is no prescribed Management Plan (except Wellstead Estuary). The status and condition of the Bremer River and Devils Creek (2003), Fitzgerald River (2003), and Beaufort Inlet (2003) are documented in River Action Plans.

The Department of Water has assisted the Shire to implement sandbar opening policies for Wellstead and Beaufort Inlets. The policies guide sandbar openings to ensure the ecological condition of the estuary is not compromised.

6.8 Values and Management of Wetlands, Rivers, and Estuaries

Wetlands consist of rivers, swamps, depressions that hold water, wet areas, estuaries, and the like. They have many functional values.

- Water in the landscape and catchment sustains the estuarine, riverine, lake and swamp ecosystems.
- Water extraction by harvesting from dams, pumping from a bore or water body is utilised for agricultural pursuits and human activities.
- Water-based recreational pursuits include all water-skiing, swimming and fishing, and activities such as picnicking, bush walking, nature tours, and bird watching.
- Wetlands have long been major foci for scientific research but those of the region have received little attention, probably due to the long distances from major research institutions. The Department of Environment sample 3 wetlands biannually, and monitor some of the rivers. From time to time the Department of Fisheries and WA Museum have conducted surveys of the inlets. And aspects of the water systems have been subjected to university research.
- An Inventory and Management Plan has been prepared by the former Water and Rivers Commission and Green Skills for the "Bremer Wetlands".
- Water bodies were important food gathering sites for aboriginal communities because they attract animals in summer, and may thus have archaeological or ethnographic significance.

- Wetlands, rivers and estuaries are especially important as habitat and as refugia for water birds and shore birds.

6.8.1 Potential Environmental Pressures on Wetlands

In addition to being representative of unique systems the functional values of wetlands include habitat and fauna refuge. A number of potential impacts may impinge on wetlands.

- Recharge and runoff from the catchments has increased significantly following clearing of vegetation and further clearing may alter water regimes.
- Additional recharge is now causing waterlogging in susceptible parts of the catchments.
- Water that was once consumed by extensive woodland and heath is now coming to the surface, carrying salt with it and through evaporation is leading to salinisation of some soils.
- Increased salinity has seriously affected all surface waters except those that are wholly contained within the Fitzgerald River National Park.
- Increased salinity is impinging on remnant vegetation, wetlands and fringing vegetation.
- Water extraction by harvesting in dams, pumping from a bore or water body can reduce environmental flows.
- Increased catchment discharge is raising the long-term water levels of lakes, drowning existing fringing vegetation, and leading to the potential colonisation of pasture by wetlands species into newer habitats.
- Increased runoff caused by clearing and soil compaction has caused increased erosion, with increased sediments being carried by creeks and streams, leading to significant siltation along many waterways and estuaries. For example the Pallinup River, which is largely unvegetated in its middle and upper reaches, discharged about 100,000 tonnes of sediment to the Beaufort Inlet during a major summer flood in 1982.
- The loss of nutrients, organic matter, and soil from farmland leads to increased nutrient loading and threatens to pollute waterways of the region. Nutrients and organic matter collect in the wetlands, river pools, and closed inlets. The nutrients encourage an excessive growth of algae and decaying organic matter depletes the levels of dissolved oxygen.

Potentially toxic algae blooms including cyanobacteria, have occurred in the Wellstead and Beaufort Inlets, and in the Hunter River. The Wellstead and Beaufort Inlets are considered highly eutrophic.

6.8.2 Management

A number of land management activities can be encouraged to assist wetland maintenance.

- Higher water-using crops, perennial pastures, and reforestation all assist in reducing recharge in catchments. However, care needs to be exercised when using exotic perennial species near wetlands as these may invade such areas, increasingly compete with the native vegetation and start to impact upon fauna habitat.
- Harvesting water in the upper catchment areas using shallow drains and banks also reduces recharge.
- Soil management to minimise the loss of nutrients, soil, and sediment will assist. Activities such as catchment management techniques of contour banks, minimum tillage, stubble retention, the use of vegetation filter strips, rehabilitation of waterways, and the matching of fertiliser application to needs will assist.
- Riparian zones and fringing vegetation needs to be managed to maintain stability, resist bank erosion, and assist in the filtration of nutrients and sediment. In this way nutrients are assimilated by the fringing vegetation and thus reduce the causes. Organic matter trapped by the vegetation can break down in the air where it causes fewer problems, rather than decomposing in deep river pools where it would lead to oxygen depletion.
- Existing broad corridors of bushland along the major rivers are generally a feature that should be maintained.
- Wetlands within nature reserves and the Fitzgerald River National Park generally are well protected, however wetlands in cleared catchments often have little or no remnant fringing vegetation. They are also not generally protected and where applicable rehabilitation of these wetlands could be commenced. Funding for landholders may be required.

6.9 Coastal

6.9.1 Regional Coastal Management

It is recognised that each group of users, such as government bodies, businesses, natural resource management groups and volunteers, is active in planning and managing various aspects of the marine environment and its resources however there is a lack of overall regional coastal management.

Through a partnership of Government, community and stakeholder groups, south coast regional marine planning aims to establish and promote a scientific framework that (1) enhances cooperation and integration between sectors; (2) recognises the importance of social, cultural and economic values that the marine environment can provide for current and future generations; and (3) protects and maintains ecological integrity and biological diversity.

The south coast marine planning area includes coastal areas adjacent to the Shires boundary. The government has released a Draft South Coast Regional Marine Strategic Plan which is being advertised for public comment (until December 2010).



FIGURE 7 : South Coast Regional Management area (Source: Draft South Coast Regional Marine Strategic Plan)

There are a range of other useful state documents relating to regional coastal planning including:

- Southern Shores 2009-2030: a strategy to guide coastal zone planning and management in the South Coast Region of Western Australia (Coffey Environments).
- Coastal Management Specification Manual 2010: a guide for the construction of coastal management infrastructure (Green Skills).
- Coastal Management Specification Manual: a guide for the construction of coastal management infrastructure (Green Skills).
- Southern Shores 2001-2021: a strategy to guide coastal and marine planning and management in the South Coast Region of Western Australia (Barb Green).

6.9.2 Local Coastal

The coast in the Shire stretches from Beaufort Inlet in the west to Gordon Inlet in the east. The coast consists of a long stretch of sandy beach from east of Beaufort Inlet with two main rocky headlands on either end of Reef Beach, and the major headlands at Cape Knob, Tooleburrup Hill, and Doubtful Islands.

The *Jerramungup Coastal Management Plan, 1995*, thoroughly researched the coast and has made extensive management recommendations regarding the use of the coast.

Most beaches in the area are used for commercial fishing, recreational fishing, or holiday and recreation activities. Associated with this use there are a large number of indiscriminate coastal tracks that need rationalisation.

Professional fishermen's camps have been located at Dillon Bay, Bremer Bay, and Doubtful Island for over 45 years. There are also a number of squatter's shacks near fishermen's areas.

Currently there is no formal rubbish disposal in the coastal areas and that is creating an impact. There is also uncontrolled access and camping that requires rationalisation.

There is potential for tourist and eco-tourism activities that could impact on coastal areas. In considering any development near the coast the Shire may liaise with the Department for Planning over appropriate coastal setbacks. Significant sections of the coast are adjacent to Recreation and Open Space reserves.

6.9.3 Management Plans and Other Relevant Documents

The Shire of Jerramungup falls under the South Coast region for Natural Resource Management, and the 'Southern Prospects 2004-2009' strategy has been developed.

On a broad scale, the South Coast Regional Strategy for Natural Resource Management examines sustainable use of natural resources (such as coastal areas), protection of natural and cultural values. It provides a framework for natural resource management (NRM) for the region and guides investment in, and delivery of, priority on-ground actions for the sustainable management of the region's natural resources. A range of funding opportunities for NRM projects currently exist.

There are a number of management plans and other relevant documents that address recreation and rehabilitation for virtually the whole of the coastline in the region. From west to east these include;

- Draft Management Plan Pallinup/Beaufort Inlet Area (Newbey 1987)
- Beaufort Inlet and Gordon Inlet Study (EPA 1988)
- Shire of Jerramungup Coastal Management Plan (Belton – Taylforth Planning & Environmental Consultants and CoastWise South 2005).
- Fitzgerald River National Park Management Plan (Department of Environment and Conservation 1991 – 2001). This plan is under review (2010) having regard for proposed upgrading of facilities.
- Wellstead Estuary Management Plan (2006, Former Dept of Environment)
- Bremer River and Devils Creek River Action Plan (Government WA / the then Waters & Rivers Commission).
- Integrated Coastal Plan Fisheries Beach (South Coast Management Group/ Shire of Jerramungup)
- Foreshore Management Plan for Stage 1 and Stage 2 of Lot 231 Bremer Bay Road.

These plans provide an opportunity to implement the necessary protection and management actions. A number of organised and volunteer groups are involved in implementation of some of these management plans, and many actively pursue funding opportunities for specific projects which contribute towards improved management.

Landcare groups have been active in the Shire and provide advice and assistance to the farming community. Other groups such as 'The Friends of the Fitzgerald River National Park' (FFRNP) consists of volunteers who assist in the upkeep and conservation of the park.

Apart from the Fitzgerald River National Park, a number of groups have actively worked to increase biodiversity and protect remnant vegetation for specific management areas such as Fitzgerald Biosphere Group and Friends of the Wellstead Estuary Groups (who have implement projects under the Wellstead Estuary Management Plan).

The South Coast Management Group (SCMG) has a close working partnership with South Coast NRM.

The Implementation of Southern Shores project has provided SCMG with a number of opportunities to gather stakeholders and community members to discuss coastal management issues, develop strategies and plans and implement on-ground works at coastal sites. SCMG developed an Integrated Coastal Plan for Fisheries Beach in consultation with users, stakeholders and the Shire to plan for sustainable activities, including rehabilitation of degraded areas and implementation of coastal management infrastructure.

The Council supports the initiatives and objectives outlined in these plans and will assist with their implementation where possible.

The Shire has to have regard for existing major projects, community benefits, ongoing maintenance issues and available funding required for works associated with implementation of management plans. Priority works for Management Plans need to be identified in context of other projects requiring implementation by the Shire, and ongoing maintenance responsibilities.

6.10 Groundwater Resources

Groundwater is variable in quantity and quality across the Shire, but generally flows from the northwest towards the coast. There are many local variations in this trend where flow is to local wetlands.

The basement is overlain, in part, by sedimentary rocks of the Tertiary Plantagenet Group that are the most porous of the area and are thus considered the best aquifers. The aquifers occupy broad flat depressions, and locally lie within palaeochannels on the uneven basement palaeosurface.

The main aquifer in the region is the Werillup Formation. Yield within this main aquifer has large variations in both potential yield and salinity. Occasional fractured zone aquifers occur within the granitic basement but these are hard to locate, and their size is very variable.

Quaternary sediments that cover much of the southern areas are generally unsaturated, except at the coast and within alluvium and lacustrine deposits. Potential for significant groundwater storage within the Quaternary sediments is limited to the coast, southwest of Bremer Bay, where potable groundwater exists.

Groundwater is predominantly brackish to saline, ranging from less than 1,000 mg/L TDS in the Quaternary coastal sediments, to more than 35,000 mg/L TDS in inland weathered and fractured basement aquifers. Groundwater salinity increases to the north and east as rainfall decreases.

Brackish to stock-quality groundwater (1,000 to 7,000 mg/L TDS) is generally restricted to the southern parts of the Shire, south of the South Coast Highway, west of the Pallinup River and near Bremer Road in the east. Further north and east the water tends to be brackish to saline.

Owing to higher rainfall and greater recharge, more potable groundwater occurs within Quaternary coastal sediments and the Pallinup Siltstone in near coastal environs than other parts of the Shire.

The pH of the groundwater ranges from 6 to 8.4 in the available data. Nitrate levels are low, except for the Stream Beach sample at 53 mg/L, which indicates contamination.

6.11 Flora

6.11.1 Vegetation Systems

There are 6 vegetation systems defined by Beard (1976) in the Shire, aligned approximately parallel to the coast.

They are: Hyden, Bremer, Qualup, Jerramungup, Chidnup, and Barren Ranges. This alignment reflects the influence of climate, geology, topography, and soil types. The vegetation systems are shown on Figure 8.

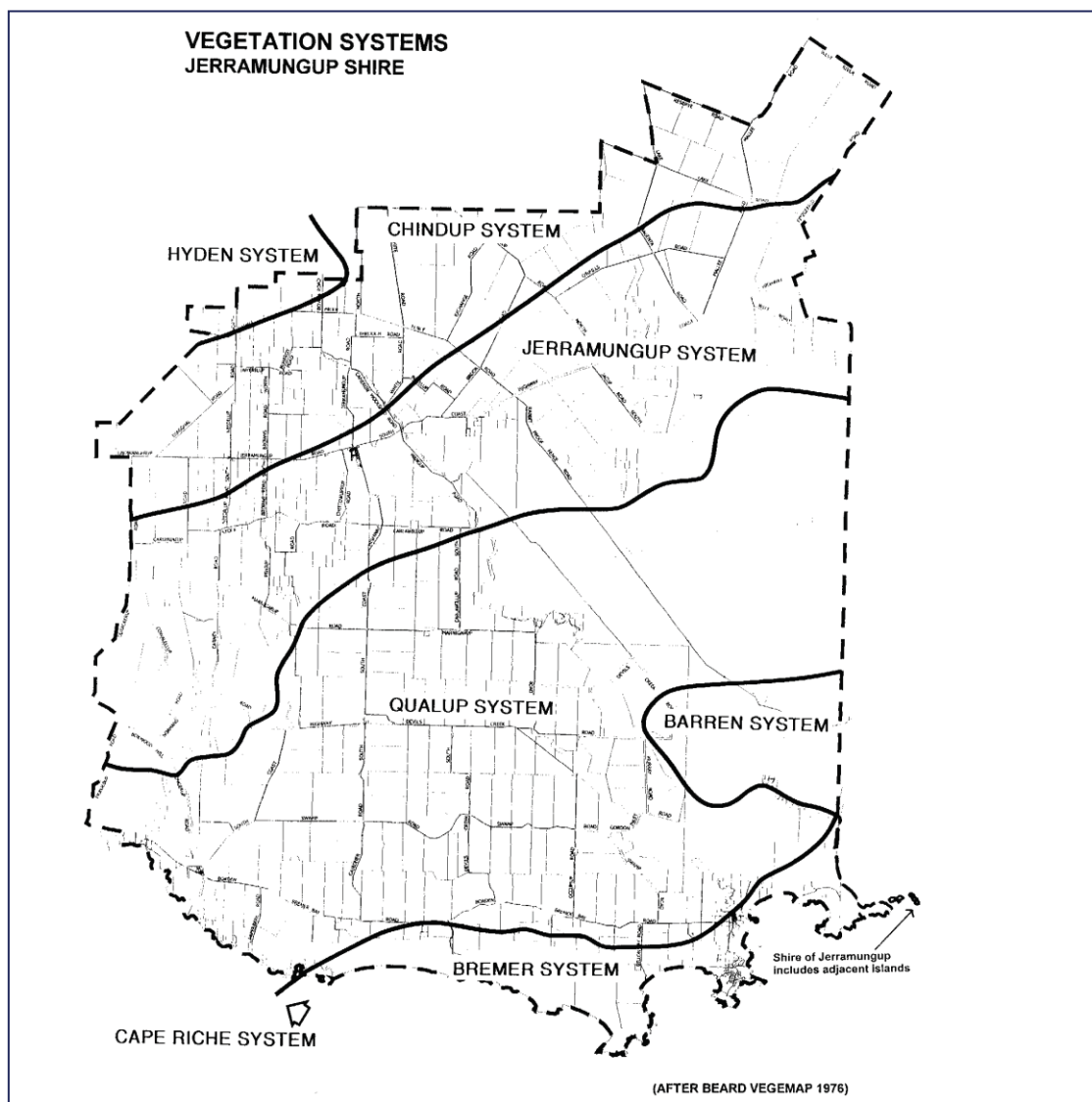


FIGURE 8 : Vegetation Systems

The coast vegetation consists of 2 of these systems, Cape Riche and Bremer, which have an intricate mosaic of mallee-heath, coastal dune scrub on drift sand, and low scrub on granite-gneiss outcrop. The exception is the occurrence of yate woodland along the coast south of Cape Riche.

North of the coastal vegetation, much of Bremer Bay is cleared for agriculture, except for the area bounded by the Fitzgerald River National Park.

Native vegetation survives in nature reserves, road reserves, around isolated swamps, and in small private remnant vegetation areas.

The 3 vegetation systems inland of the coastal vegetation are divided roughly by geologic and topographic boundaries. The Qualup system extends inland from the coastal vegetation system to the edge of sand plain and consists essentially of mallee and mallee-heath shrub lands and sporadic mallee and yate woodland.

The many swamps and small depressions of the sand plain support either yate woodland or paperbark scrub.

The Jerramungup system covers the coastal sloping hills of the granite-gneiss rock and consists of mallee and mallee-heath and patches of yate woodland in valleys.

The Chidnup system occurs on the edge of the wheatbelt plateau, where the average elevation is 300m AHD and the topography is flat to gently undulating. This system consists of mallee with some valleys of eucalypt woodland and mallee on the watershed between the south-draining rivers of Bremer Bay. The northward-draining Hyden system touches the northwestern corner of the Shire. In this system the surface sands are yellow, the lakes saline, and the vegetation has more inland characteristics.

The Fitzgerald River National Park consists of the Qualup system of mallee and mallee-heath and the unique Barren Ranges system, which harbours a number of endemic eucalyptus species within mallee-heath, mallee, and coastal scrub.

The **Bremer** vegetation system is located along the coastal strip between Beaufort Inlet and Gordon Inlet and includes the coastal chain of granite bosses and wind blown sands between them. Plant communities are low scrub and coastal scrub.

Agonis flexuosa (Weeping Peppermint) is a dominant species on the dunes and varies in height with shelter and influence of fire. A sequence of communities is present on the coastal dunes with typical coastal species on exposed fore dunes with *Agonis flexuosa* and coastal mallee in coastal scrub on the sheltered sides of the dune. Inland, mallee (*E. decipiens*) heath occurs on weathered and leached sand.

The **Qualup System** is found on the Plantagenet marine sediments that extend along the coast behind the coastal dunes and ranges. The predominant vegetation type is mallee heath with *E. tetragona* (blue mallee). Numerous small roughly circular lakes and swamps occur across the land surface mostly supporting Yate Woodland or Paperbark scrub. Woodland of *E. loxophleba* and/or *E. occidentalis* is sometimes found on the young soils of steeply cut river valleys.

In areas of deeper sand the mallees are replaced by Banksias. *Nuytsia* and *Banksia attenuata*, in tree form occur up to 4.5 metres, and *B. coccinea*, *B. baxteri*. *Hakia cucullata*, *H. victoria*, and *Lambertia inermis* occur as large shrubs.

The **Barren Ranges System** covers the Barren Ranges, their pediments and small adjacent areas of coastal plain, river trenches and coastal sand drift.

The massive quartzite peaks and ridges such as East Mount Barren, West Mount Barren, and Annie's Peak have associations that include *Regelia velutina*, *Calothamnus validus*, and *Banksia quercifolia* var *integrifolia*. On the lower slopes and pediments where the soil is composed of a mixed detritus the dominant species are *Eucalyptus preissiana* and *Banksia quercifolia*. The composition of the thicket

varies locally with the soil, and in sandy areas *Banksia baxteri*, *B. baueri*, *B. coccinea*, *B. violacea*, and *Lamertia inermis* are key components. The Barren Ranges support a number of endemic species including *E. coronata*, *E. sepulcralis*, *E. burdettiana*, *Regelia velutina*, and *Adenanthos ellipticus*

Outcrops of greenstone support mallee heath with key species such as *Eucalyptus cernua*, *E. gardneri*, *E. uncinata*.

The **Jerramungup System** occupies the seaward slope descending from the plateau formed on the granite basement. A number of communities are present with granite outcrops occupied by dense shrub thickets of *Melaleuca elliptica* and *Calothamnus quadrifidus* with *M. uncinata*, *M. hamulosa* and *Casuarina campestris* taking over further back. Further from the outcrops are extensive areas of dense shrub layer 1-2 metres in height, dominated by *Casuarina campestris* with patches of *Melaleuca uncinata*, *M. hamulosa* and *Thryptomene australis*. Patches of closed heath occur.

Mallee dominated by *E. eremophila* - *E. obesa* usually found on lateritic soil (sand over lateritic gravel) and *E. redunca* - *E. uncinata* on sand over clay in the valleys. *Eucalyptus occidentalis* occurs on clay soils mainly along creeks and valley slopes.

The **Chindup System** lies on higher plateau ground behind the Jerramungup Mallee with similar composition to the Jerramungup System with patches of *Eucalyptus platypus* thicket occurs in depressions. Mallee Heath is dominated by *Eucalyptus tetragona*.

Numerous circular winter wet depressions support *E. occidentalis* and/or *Melaleuca parviflora* and occasionally *E. salmonophloia*.

Broombush thickets with *Casuarina campestris* are the most common and most characteristic species together with *Calothamnus quadrifidus*, *Melaleuca uncinata* and *Melaleuca elliptica*. *Eucalyptus eremophila* is dominant on loam soils with a *Melaleuca* understorey. Low forest occurs on clay soils and consists of *E. platypus*, *E. spathulata* and *E. annulata* in dense stands.

The **Chindup System** grades to the Hyden system in the northwestern corner of the Shire.

6.11.2 Species Richness and Diversity

The Fitzgerald River area contains high species diversity, containing some 25% of Western Australia's described vascular flora with the National Park alone containing around 20%. The National Park includes some 42% of the known species for the South West Botanical Province and supports 75 endemic species mainly associated with the unique habitats provided by the quartzite ranges. (CALM 1991).

The Fitzgerald River area is recognised as being one of three nodes of species richness in the state (the others being Mt. Lesuer and the Stirling Range).

The major plant families represented in the Fitzgerald River area are Myrtaceae, Proteaceae Asteraceae and Cyperaceae.

The National Strategy for the Conservation of Australia's Biological Diversity recognises the need to maintain biodiversity and provides guideline for doing so.

6.11.3 Threatened Flora

There are 250 rare plant species in the region occurring mainly in the Fitzgerald River National Park. A large number of priority flora species are listed for the region. The unique habitats provided by the quartzite ranges contribute significantly to the high numbers of rare or threatened plants.

6.11.4 Plant Disease

Dieback is caused by the pathogen *Phytophthora* of which there are several species. The fungus infects, rots, and often kills the entire root system and lower stems of susceptible plants. About one-third of the species in Western Australia's southwest flora are adversely affected.

P. cinnamomi and *P. megasperma* are both present in the region and are known to seriously affect vegetation in some areas. These pathogen are spread by the movement of spores in water and are thus particularly mobile in winter and in wet areas. The pathogen are also spread rapidly by people transporting soil from infected to uninfected areas. Vehicles, especially when driven off tracks or roads, can carry infected soil on their tyres or under body and so spread the disease. Summer rain provides warm, moist soil conditions that favour the survival and spread of these pathogen.

P. cinnamomi is prevalent west of the Pallinup River and there is a major infection associated with the Bell Track in the Fitzgerald River National Park that is severely affecting *Banksia baxteri* and *B. coccinea* scrub heath.

East of the Pallinup River, most dieback is caused by *P. megasperma*. This species is present in both the western and eastern ends of the National Park. Infections are associated with the old track network throughout the Park.

Other diseases such as lerp and Armillaria, amongst others, have the potential to impact on vegetation communities and habitat.

Dieback is not simply a nature conservation issue. It is also a community issue with severe implications for some commercial crops, and for the wildflower and tourism industries.

A South Coast Regional Strategy was developed for combating dieback disease (CALM 1994), and a Dieback Working Group was formed in 1996 as an initiative to improve communications between state government agencies, local governments, and community groups. Guidelines for local government have been developed.³

A more recent dieback strategy has been produced by South Coast Natural Resource Management (South Coast NRM, 2010).

The Department for Environment and Conservation has carried out major works in the Fitzgerald including the Bell Track containment, wash-down upgrades, improved hygiene, containment and eradication trials at Pabelup to try and control dieback.

6.11.5 Weeds

Weed species have the potential to seriously reduce nature conservation values. For example over 100 species of weed are known in the Fitzgerald River National Park,

³ "Managing Phytophthora Dieback: Guidelines for Local Government" Dieback Working Group 2000

although many of these have only localised impact. Some species are well established in the river systems such as African Boxthorn in the Phillips River, and Bridal Creeper in the Gairdner River.

6.11.6 Management

About 56% of the area of the Shire has been cleared, and about 70% of remnant vegetation is on Crown Reserves including the Fitzgerald River National Park.

Regulation 4 of the *Soil and Land Conservation Regulations 1992* was repealed and replaced by amendments to the *Environmental Protection Act 1986* (EP Act) in 2004. Under this legislation, clearing is not generally permitted where the biodiversity values, land conservation and water protection roles of native vegetation would be significantly affected.

All clearing of native vegetation requires a permit. There are exemptions for some day-to-day activities that have a low environmental impact. Exemptions do not apply in any environmentally sensitive areas.

The Environmental Protection Authority Position Statement No. 2 *Environmental Protection of Native Vegetation in Western Australia* (2000) addresses the clearing of native vegetation with particular reference to the agricultural area within which the Shire is located. The Position Statement notes that “...rom an environmental perspective the EPA is of the view that it is unreasonable to expect to be able to continue to clear native vegetation ... other than relatively small areas and where alternative mechanisms for protecting biodiversity are addressed.”

Relevant government authorities have signed a Memorandum of Understanding for the retention of remnant vegetation. The Environmental Protection Authority and DEC has a clear presumption against further clearing of land in rural areas.

There have been important initiatives by the local and nearby communities for the preservation of flora and remnant vegetation with the creation of the Fitzgerald River National Park initially being driven by the community.

Many community, volunteer and non profit environmental groups carry out projects that assist to protect and enhance remnant vegetation areas such as defining walk trails, providing educational signage, rehabilitation, weed control etc.

Greening Australia and Bush Heritage Australia are co-ordinating work together to reconnect the Stirling Range and Fitzgerald River National Parks, currently separated by only 70km of mainly cleared land. This forms part of the Gonwana Link project which aims to protect and restore land between the States south west and the Nullarbor.

The Council has an objective to protect environmental values and there is a general presumption against further land clearing which is balanced by considering other planning issues such as zoning, community needs, representation of species in the wider regional area, offsets, development opportunities, specialist studies, advice from the DEC etc

The retention and enhancement of wetlands, remnant vegetation, wildlife corridors, reserves, biodiversity, and fringing vegetation is regarded as a priority.

Monitoring of weeds is recommended within conservation areas. Research into biological control options are continuing.

Edge effects can also be a source of weeds where cleared land or pasture abuts remnant vegetation. The edges are commonly the source of weeds along tracks and firebreaks through remnant vegetation from which they add to the seed store in the soil. Horses moving along these tracks and firebreaks are an additional source of weeds. Weeds are opportunistic and can rapidly gain a hold following disturbance from damage or fire.

6.12 Fauna

The region is rich in vertebrate fauna. The richest sites for mammal and reptile species are the uplands, with the inlets, rivers, swamps, and lakes providing for the greatest diversity of bird species.

A considerable survey and research effort has been conducted in the area by Chapman and Newbey 1995, who determined that the Fitzgerald River National Park supports more species of vertebrate fauna than any other conservation reserve in the south west of WA.

6.12.1 Richness and Diversity

In addition to containing 20% of the State's described vascular flora, the National Park has a richer fauna than any other conservation reserve in the south west of WA. Particularly important species include the Bristlebird, Western Ground Parrot, Dibbler, Heath Rat, Western Mouse, and Red-tailed Phascogale all of which are listed as threatened.

6.12.2 Threatened Fauna

The northern part of the Fitzgerald River National Park supports a small remnant of the formerly widespread and rich fauna of the Wheatbelt and now protects an important concentration of rare mammal and bird species such as the Western Ground Parrot and Western Bristlebird. There are other important threatened fauna species including Black Cockatoos, Dibbler, Chudith etc

The *State of the Environment Report 1998*, list no larger animal taxa as being extinct on the coast but between 2 and 3 away from the coast. However between 4 and 7 taxa are listed as threatened.

The Malleefowl Preservation Group is a community-based group working for the protection of the Malleefowl in the Ongerup area. This project has been developed with great enthusiasm and has achieved notable success in raising awareness and protection of the Malleefowl (Orsini 1994). This focus on the protection of the Malleefowl and its habitat obviously contributes to the protection of other species and fosters a strong empathy for the protection of bushland.

A number of marine mammal species such as the New Zealand Fur Seal, and Australian Sea lion make intermittent use of the coastline and there are the wholly marine species of whale and dolphins that inhabit the coastal waters.

6.12.3 Feral Animals and Pest Species

Foxes are present throughout the region. In the past fox control programs have occurred across the south coast under the banner of “Operation Western Shield”.

Fox baiting has also been an integral part of the Malleefowl project. Baiting on private property is being conducted throughout the region through land conservation district committees co-ordinated by DAFWA.

Rabbit control is also a top priority. This pest is responsible for inestimable damage to vegetation and is a major impediment to revegetation and management of remnant vegetation. Numbers have however reduced following the release of the rabbit Calicivirus in Western Australia. Feral goats and cats have been present in the Fitzgerald River National Park and other bushland.

6.12.4 Corridor Concepts

Many rivers, major creeklines and most roads in the region have corridors of vegetation. These corridors vary from narrow and degraded to wide and pristine, the latter being associated with more recently established major roads, river foreshore corridors and an almost continuous wide strip of vegetation along the coastline.

Extensive vegetation corridors within the region include;

- Corackerup/Peniup Creek system and the lower Pallinup River,
- Coastal reserves between the FRNP and Pallinup River
- The upper Fitzgerald River Corridor between FRNP and Lake Magenta Nature Reserve,

Significant macro corridors also occur within the Shire, notably the coastal corridor from Albany to Esperance, the Corackerup corridor which runs from just south of Jerramungup to the mouth of the Pallinup River and the Fitzgerald River corridor between the Fitzgerald River National Park and Lake Magenta Nature Reserve.

Other minor corridors exist for example on the upper reaches of Twertup Creek and along the Bremer River.

Vegetated corridors offer the only means whereby fragments can be connected to permit movement of the less mobile and shy species of animals or for genetic interchange. Isolation of the smaller remnants by fragmentation may lead to local extinctions. Most animals need the opportunity to move on a daily, seasonal or intermittent basis to seek food, shelter or breeding sites. (Saunders et al, 1993)

However in the south west of WA most animal species will use corridors primarily as habitat in its own right and secondarily for long-term dispersal of population expansion.

Use of corridors by animals for short term “commuting” is rare in the Australian context. Small mammals such as dunnarts, bush rats, western mice, echidnas, pygmy and honey possums use corridors only where they are big enough to provide habitat and are often recaptured in the same area. Most reptiles such as geckos and skinks (with the exception of large goannas, bobtails, blue tongues, tiger snakes and dugites) will not move beyond native vegetation through open paddocks.

A few small mammals such as the brush tailed Phascogale and Chuditch are known to cross open farmland to reach shelter or food. For example, species that can feed in paddocks were more common in road verges than species that were more reliant upon dense natural vegetation. The latter species were generally smaller creatures such as thornbills, whistlers, robins and shrike thrushes and require dense cover and are more common in the interiors of larger reserves. (Saunders and Hobbs 1991).

Larger, more mobile species such as ducks, ringneck parrots, crested pigeons, wagtails, miners, magpies and galahs use the bigger roadside trees for nesting and roosting, as habitat in its own right and not primarily for protective cover of movement.

6.12.4.1 Management

The best protection for fauna and biodiversity is to protect and enhance habitats. To this end the Council will, in addition to the protection of remnant vegetation, provide guidance and assistance where possible to the protection of terrestrial, aquatic, and coast fauna. This could be through appropriate community groups such as Landcare, Malleefowl Preservation Group “Friends” groups, and the like.

With the support and assistance of DEC, fox, rabbit and feral animal control, weed control programs, and the protection/provision of habitats and corridors is a major Council focus.

6.13 Conservation Areas

Regionally significant flora and fauna resources of the Shire include:

- High biological diversity
- Threatened species
- Research and monitoring opportunities
- Major conservation reserves
- Landscape values associated with reserves

Nature conservation opportunities:

Opportunities for protection and enhancement of nature conservation within reserves include:

- Establishing a representative system of conservation reserves, buffer areas and corridor links.
- Protecting and managing the system through a strong partnership between governments and the community.
- Dieback control and fire protection.
- Co-ordinated fox, rabbit and other pest control programs.
- Managing rehabilitation and recreation, particularly in the coastal zone.

The following areas are considered to have conservation value:

- Wetlands
- Fitzgerald River National Park
- The Coastline
- Reserve 29500 Cowalellup and Marnigarup Roads
- Reserve 26793 Boxwood Hill–Ongerup/Normans/Cowalellup Roads

- Pallinup River and Valley System
- Bremer River
- Corackerup Creek
- Gairdner River
- Fitzgerald and Susetta Rivers
- Lake Magenta Nature Reserve which lies on the northern boundary of the Shire
- Corridors connecting existing reserves and remnant vegetation (such as the Gondwana Link).
- Coastal reserve system between Fitzgerald River National Park and Pallinup River
- The Corackerup/Peniup area and its links to Pallinup River
- The Fitzgerald River corridor link to the National Park.
- The Coastal corridor from Albany to Esperance where it passes through the Shire between the Pallinup River and Gordon Inlet.
- Other major corridor links and 'stepping stones' between the Stirling Range National Park and the Fitzgerald River National Park.
- The Fitzgerald River corridor link between Lake Magenta Nature Reserve and the Fitzgerald River National Park.

The DEC has advised that Fitzgerald River National Park and nature reserves are vested in the Conservation Commission of Western Australia and managed by the Department of Environment and Conservation. Other areas of Crown land which are either Unallocated Crown Land (UCL) or unmanaged reserves (UMR) are partially managed by DEC for protection of conservation values (mainly fire management, weed control and feral animal control) subject to available resources through a memorandum of understanding with the Department of Regional Development and Lands. Some areas of Crown land are vested in or under the management control of the Shire. Other areas are under private ownership but conservation protection may be enhanced through arrangements between Government agencies and landowners. The primary State act for the protection of flora and fauna (the *Wildlife Conservation Act 1950*) applies across all lands and State waters.

The Fitzgerald Biosphere Reserve is recognised nationally and internationally as a model biosphere reserve in the world network. (Parker 1993; Watson 1995; Watson *et al.* 1995).

6.13.1 Reserves and National Parks

The major Reserves in the Shire are:-

- Fitzgerald River National Park
- The Coastline
- Reserve 29500 Cowalellup and Marnigarup Roads
- Reserve 26793 Boxwood Hill-Ongerup Road/Cowalellup Road
- Peniup Reserve (an unvested Reserve for "Government Requirements" and proposed nature reserve).
- Pallinup River and Valley System
- Bremer River
- Corackerup Creek
- Gairdner River
- Fitzgerald and Susetta Rivers
- Lake Magenta Nature Reserve

These can be viewed from the major tourist routes of South Coast Highway, Gnowangerup - Jerramungup Road, and Bremer Road. The impact of new land uses and development on these areas and the views from major tourist routes should be considered during the determination by the Council of land use and/or development applications under the Local Planning Scheme.

The State and Federal government has committed significant funding to enhance tourist access and facilities in the Fitzgerald River National Park. The *Fitzgerald River National Park Improvement Project* aims to assist economic and social development in local communities. The project includes a number of initiatives in the Shire of Jerramungup and Shire of Ravensthorpe such as;

- Sealing 16 km of existing roads from Culham Inlet to Hamersley Inlet
- Sealing 66 km of existing roads from Bremer Bay Road to Point Ann
- Redeveloping associated spur roads, car-parks, day use areas and camping facilities
- Enhancing signage and interpretive information
- Developing a coastal walk trail linking Hamersley Inlet to Point Ann. The Shire is actively working toward extending this walk to terminate in the Bremer Bay town centre.

6.13.2 Representative Reserve System

A system of conservation reserves was identified in the *South Coast Regional Plan 1992 - 2002 (CALM, 1992)*. This is complemented by coastal Reserves, in particular between the Fitzgerald River National Park and Pallinup, and by many significant areas of remnant vegetation (including several important wetlands) in private ownership.

Furthermore, there is an opportunity to enhance nature conservation values and combat edge effects by improving the vegetation in buffer zones and along watercourses.

There are a number of significant vegetation corridors in the region that require coordinated management and protection. These are the upper Fitzgerald River corridor, the Corackerup-Peniup Creek system (Watson 1994a) linking with the Pallinup River, and the coastal lands west of Bremer Bay (Saunders 1996). Important works have also been undertaken by a range of groups working towards establishing the Gondwana Link along the north east axis via Jerramungup through to the Fitzgerald River National Park.

Formal recognition of the value of these areas and co-ordinated management will ensure the viability of these links between major conservation areas.

6.13.3 Protection and Management

The conservation reserve system is primarily protected under the CALM Act (1984) and are now managed by DEC. However, other government agencies notably DAFWA and the Council also play key roles.

Community support for improved nature conservation has grown significantly. This involvement has led to greater awareness of species on local areas and their conservation, both on Crown Land and on private land.

6.13.4 Impacts of Recreation

The major recreation impacts occur along the coastline, associated waterways, and in the Fitzgerald River National Park. Direct damage to the sensitive coastal zone, particularly the primary and secondary dune systems, are of major concern. There are numerous examples of serious erosion problems, including major sand 'blowouts' which have been caused by pedestrian or vehicle access, especially 4WD vehicles.

Managing access is critical to the maintenance of coastal areas where poorly located tracks on slopes and fragile soils are easily eroded leading to the development of alternative alignments.

Indirect impacts of recreation can be serious in terms of nature conservation values, particularly the spread of dieback and fire.

6.14 Fire

The impact of wild fires on fauna and habitat can be devastating for isolated remnant vegetation, as there are no safe havens or adjoining areas from which re-colonisation can occur.

Lightning strikes in December 1989 caused fires in Fitzgerald River National Park to burn an area of approximately 140,000 ha or about half the National Park, mostly in the first 10 hours.

Research indicates that many of the threatened fauna species are associated with long unburnt vegetation (Chapman and Newbey 1995 a & b). This is true for the Dibbler, Heath Rat, Western Mouse, Bristle Bird, Western Ground Parrot, and Malleefowl, and has implications for the management of bushland across the region.

Fire frequency also impacts on some species of plants that may be destroyed before they are able to become sexually productive when fires are too frequent.

Fire management plans are current for the Fitzgerald River National Park and Jerramungup Coastal Reserve. Plans for the remaining large tracts of Crown Land need to be developed to reduce the risk of extensive fires affecting these areas.

The challenge is to keep fires to as natural a frequency as possible without risking either loss of nature conservation values or community assets in the process.

Fire and its potential impact on biodiversity was considered in Biodiversity Series No 8, Department of Environment, Sport and Territories, 1996 (*Berrett et al 2009*).

6.14.1 Bush Fire Management

Bush fire management is an important consideration for preserving remnant vegetation and for areas abutting reserves and the National Park.

Fire protection has been addressed on a district-wide basis with a specific fire plan for the Fitzgerald River National Park and strategic planning for the balance of the Shire.

There is a strong local bush fire brigade system backed by good support from the Fire and Emergency Services Authority (FESA) and DEC.

As community interest in nature conservation increases there is a growing awareness of the undesirability of frequent fires and of burning the whole of one vegetation remnant in one fire event.

Planning for bush fire protection is now a major requirement associated with rural residential and residential development in or near fire prone areas. Guidelines have been prepared jointly by Western Australian Planning Commission and FESA for the management of fire to be addressed during the planning process.

This policy requires detailed fire management plans to be prepared and implemented through the rezoning and Structure Plan / Outline Development Plan Stage (ODP). Fire management plans are required to address overall fire protection measures having regard for the ultimate development of an area, as well as detailed fire protection measures for specific stages of development.

Fire Management Plans prepared in association with rezoning or Structure Plans / ODP's are required to address the 'Planning for Bushfire Protection Guidelines' (Edition 2 – or any subsequent revisions). Fire Management Plans will also be required to meet any guidelines outlined in any Local Planning Policy adopted by the Shire.

Implementation of the plans is to be achieved principally through the subdivision approval process whereby action must be taken before clearances by the appropriate authorities, prior to final endorsement of a plan of subdivision by the Western Australian Planning Commission.

In addition to fire safety Council will have regard for issues such as environmental and visual impacts. For example, when examining strategic fire break locations Council may have regard for topography, potential erosion, vegetation removal, visual impact on major tourist routes/ places etc.

The Shire will require strategic firebreaks to provide legal vehicular public access for use in an emergency situation and for maintenance. Strategic firebreaks will be required to provide legal access as a public road, right of way or through public easements in gross registered on certificate of title(s).

In accordance with existing Scheme provisions for Rural Residential areas, the Council will require all owners to contribute on an annual basis to the fund that will be administered by the Council and used for the maintenance of the standpipe facilities and fire fighting equipment.

6.15 Potential for Minerals

6.15.1 General

Four quarries within the Shire have produced three types of granite blocks for dimension stone. The Albany Green and Laguna Green varieties in particular have been used in well known sites such as the Australian War Memorial at Hyde Park Corner in London and Aurora Place in Sydney. These quarries, which are shown on the attached map are currently not operational, but may resume operations in the future.

Gold is known in a number of localities of the Yilgarn Craton within the Shire, and there are active Exploration Licences presumably targeting gold. However, a deposit of gold has not yet been discovered.

Base metals (of Broken Hill type) and precious metals are known to occur in the Albany-Fraser Orogen rocks and some of the Exploration Licences in the area may be targeting these minerals.

Minor occurrences of carbonate lead ore have been reported 8 km to the north of Bremer Bay. Copper has also been recorded 4 km to the north of Jerramungup. These deposits are not regarded as economic.

Heavy mineral deposits occur at Gordon Inlet and on some other coastal beaches, but these deposits are relatively small and would require further investigation in addition to environmental assessment prior to development.

Spongolite from the Pallinup Siltstone has potential for use as dimension stone.

There is potential for the production of salt in the saline depressions from evaporation of saline groundwater as part of a salinity management plan.

Limestone is present in the Plantagenet Group sedimentary rocks, similar to that found in the Nanarup area. An Extractive Industry Licence for extraction of limestone is known in the Shire, and another limestone quarry is known at Reserve 27546 south of Saltbush Hill. However, there is no information on the resource of limestone available in these areas. The demand for limestone is likely to increase due to the steady rise in demand for aglime.

Wherever practicable the Shire will extract gravel from private land. There has been some interest in sand extraction for a local concrete batching plant.

6.15.2 Southdown Mine – Grange resources

The Southdown Magnetite Deposit is located approximately 90 kilometres northeast of the Port of Albany on the south coast of Western Australia. It is approximately 12 kilometres in length, with the western 6 kilometres held by Grange Resources Limited under three granted mining leases (an area of over 1700 hectares).

Indications to date are that the planned mine will be proceeding in the short to medium term to mine the Southdown Magnetite deposit using proven open pit mining methods. An ultimate production rate of 6.6 million tonne per annum (Mtpa) is anticipated.

The proposed Southdown Mine presents great opportunities for additional populations and workers to be attracted to areas within the Shire.

6.16 Water Supply

6.16.1 Private and Farm Water Supply

Near the coast conventional dams are the main source of water for livestock although there are good supplies of groundwater such as soaks and small lakes. Rooftop rainwater catchment is the main source of domestic water.

In more inland sandplain areas the main source of domestic water is rainwater, supplemented by dam water where lower quality water is acceptable. Farm dams that often incorporate contour banks to increase water harvesting provide most of the stock water. There are also dunal soaks nearer the coast and some freshwater lakes between Jerramungup and Gairdner. Salination and eutrophication are the major problems, complicated by a lack of suitable on-farm building materials for the construction of new dams.

In the east, rainwater is the main source of domestic water. Small gully wall dams with unimproved catchments are the main source of farm water. Problems include an unreliable rainfall and leaky dams.

Larger dams with improved catchments are possible and existing dams may be made more productive through regular maintenance

6.16.2 Public Water Supply

Much of this information was obtained from the Water Resources Allocation Committee- Inventory of Water Allocation (as part of the original Strategy), and sections have been updated with advice from the Department of Water;

(a) Total Surface Water Resources

The Department of Water monitors two rivers in the Shire of Jerramungup, being the Pallinup and Bremer River. There is one gauging station on each river. Most rivers in the Shire flow intermittently, but the Pallinup River has significant groundwater input, so this river flows most, if not all the year.

(b) Divertible Supplies

It has been estimated that the annual divertible surface water resource (for domestic purposes) of the region is in the order of 6-12 gegalitres (1GL = 1,000ML). However, developing streams for water supply may only be feasible in conjunction with groundwater because the flow is unreliable. Although no dam sites are known, some may be available but are unlikely to give yields better than 10 to 20% of mean annual flow. Artificial recharge of coastal aquifers could be a potential use for the water.

Wetlands south of Bremer Road tend to be fresh compared to those north of the road. This is a reflection of recharge from the dunal system along the coast. There may be some potential for development of groundwater sources from south of Bremer Road.

(c) Public Drinking Water Sources

Groundwater is available in limited quantities from coastal aquifers for domestic purposes. These have been assessed locally and developed to supply Bremer Bay on a needs basis. The Bremer Bay area has an available supply of 220 ML per year of which about 52% is currently allocated. The quality of the water is fresh to marginal.

The water supply for Bremer Bay town is derived entirely from groundwater from the Bremer Bay Water Reserve that is proclaimed under the *Country Areas Water Supply Act 1947*. By-laws under CAWS Act 1947 enable the Department of Water to control potentially polluting activities and regulate land use in PDWSA.

Clearing of native vegetation is regulated by the Department of Environment and Conservation. A permit is required to clear any native vegetation within the water reserve (or for any land).

Water Corporation has capacity to service the old licence area including residential infill and the planned Bremer Bay Town Centre.

The Water Corporation is reviewing the Bremer Bay water capacity and it is anticipated that estimates for the aquifer will substantially increase and may double. Additional infrastructure to access water may be required and will likely require developer funding.

The Bremer Bay public drinking water source is close to the built-up townsite, and it is therefore important that the water source is protected from inappropriate development.

The Bremer Bay borefield has 8 equipped production bores, 4 of which are active, and 12 monitoring bores of which 9 are equipped, there are 20 in total. Water Corporation are licensed to abstract 60,000 kL/annum from the borefield however actual abstraction is generally well below this volume.

The sustainable yield of the northern and southern wellfields is estimated to be almost 200 ML/yr. (Draft Bremer Bay DWSPP November 2008).

The Shire has liaised with the Water Corporation who is undertaking a review of Jerramungup townsite water use in a detailed study in 2011. It is understood that water supply for Jerramungup is near capacity, and the Shire will have to negotiate any new planned lot releases in close consultation with the Water Corporation.

6.16.3 Licence Areas

Maps showing the historic licence areas are included in Section 4.4.1 and 4.4.2 of this Strategy.

It should be noted that in the past for any modifications or changes to licence areas the Water Corporation required specific approval by the Economic Regulation Authority (ERA).

The Corporation was not able to legally provide services to new development areas outside Operating Licence Areas (OLA) and applications for OLA extensions/new licences had to follow a formal process defined by the ERA, including a public advertising period. This sometimes placed constraints on future subdivision as even the most minor change involved feasibility investigations and business cases to be compiled.

There is now greater flexibility as the ERA has approved a new Water Corporation licence (2011) which extends the Corporations operating areas to match the State's controlled area boundaries for water supply and sewer services. In effect, this modification removes the need for Water Corporation to make separate applications to the ERA for extensions to the old operating licence areas.

7.0 STRATEGIC PLANNING CONSIDERATIONS

7.1 Special Control Areas

Special Control Areas apply to issues affecting land uses or development that overlap Local Reserves or Zones. They are intended to apply a consistent planning response to that issue across the Local Reserves or Zones.

Water supply for Bremer Bay is from a borefield in the Bremer Bay Water Reserve. A Special Control Area (SCA) exists under the current Scheme to protect P1 and P2 areas from use and/or development which may adversely affect public drinking water supplies.

The extent of the current water reserve is reflected by the SCA on the Shires Scheme map – refer Figure 9. The P1 and P2 areas are under review - refer Section 8.1.2.2.

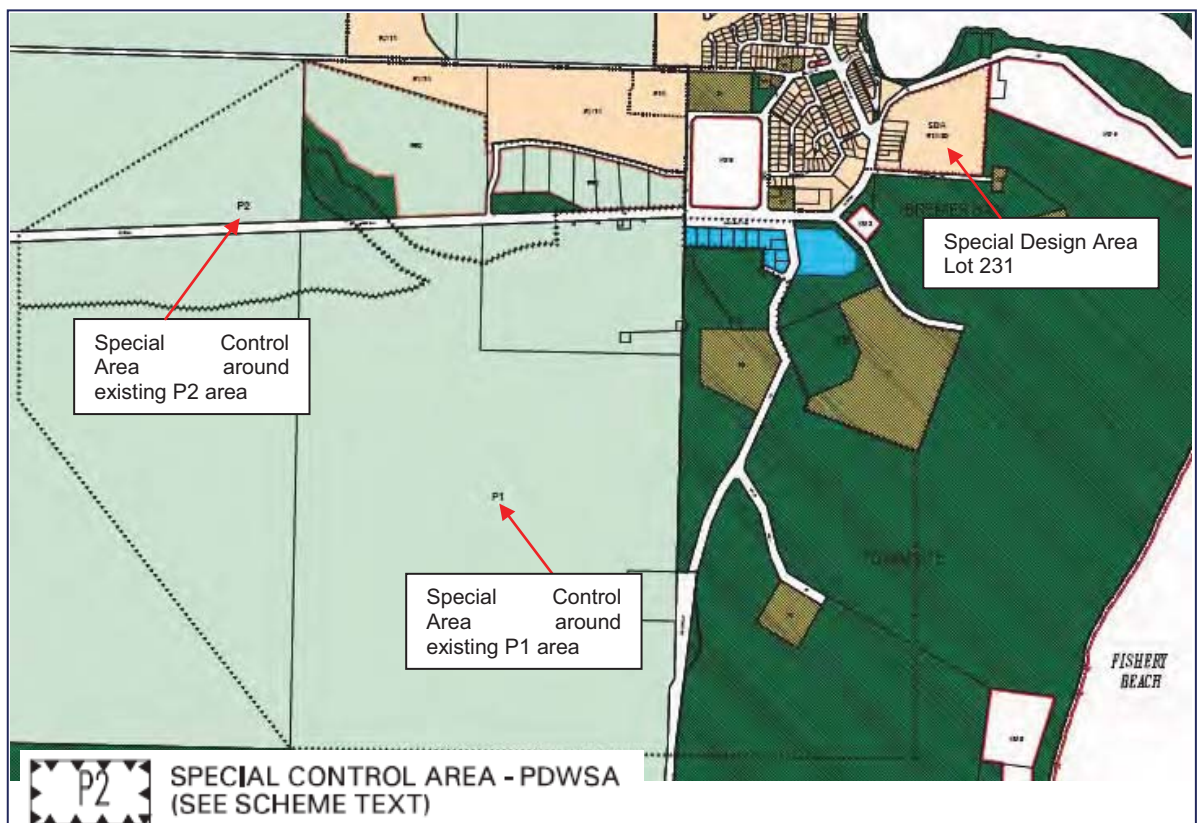


FIGURE 9 : Special Control Areas shown on extract of Scheme zoning map (Source: WAPC)

A Special Control Area also applies to a Special Design Area for land in the Residential Zone south of Bremer Road and north of Progress Drive (Lot 231 which has subdivision approval).

7.2 Rural

7.2.1 General Background

The main principles underlying this Strategy are to preserve agricultural land, protect natural resources, and protect sensitive and significant environmental areas.

It is important for the local community and economy that rural land is maintained for agricultural production, and it should be recognised that apart from tourism traditional farming is the main primary industry in the Shire.

Rural activities currently include sheep and beef cattle grazing, and cropping. In more recent times there has been a diversity of new ventures, including marron farming, aquaculture, vineyards, tree plantations, and horticulture.

These contemporary rural uses, and the more traditional rural activities, should be encouraged throughout the Shire and located according to land capability, and location and servicing needs. An overriding consideration is that there should be no adverse impacts on the surrounding land and rural activities.

7.2.2 Rural areas adjacent to coast

A small number of rural zoned properties are adjacent to the coast including a number of lots which are unallocated crown land or have additional uses under the Scheme – Figure 10.

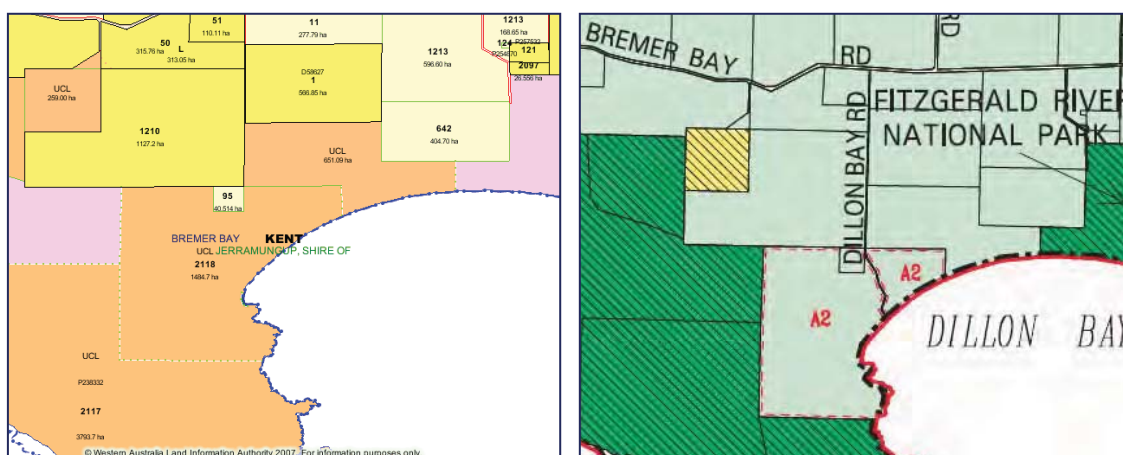


FIGURE 10 : Examples of lots adjacent to the coastline

These areas are environmentally and visually sensitive. They are considered too remote and isolated from the Bremer Bay town centre to be suitable for lifestyle lots or subdivision, however opportunities may exist for high quality eco-tourist accommodation if designed to be sympathetic to the sensitive nature of the sites, be responsive to topography, and promote sustainable development.

Council would need to be satisfied that any development can be supported with land capability analysis and can be adequately serviced to a high standard.

The Department of Environment and Conservation do not generally support land clearing. Retention and enhancement of remnant vegetation areas would be examined as part of any development.

In considering a proposal for new use or development the Council will have regard to visual impact on the rural amenity or character as seen from the main roads and tourist routes. Appropriate coastal setbacks would also need to be addressed and the Shire may liaise with the Department for Planning in this regard.

There is a substantial private landholding (approximately 1,500 ha) to the south and south east of Fitzgerald River National Park and west of Doubtful Island Bay without public road access. Four wheel drive access is gained through the Fitzgerald River National Park and a major issue is the lack of formal gazetted road access.

The land has frontage to both Peppermint Beach and House Beach, and is popular for free-camping and fishing. The private landholdings are commonly referred to as 'Doubtful Island' due to their proximity to the islands off the coast to the east – Figure 11.

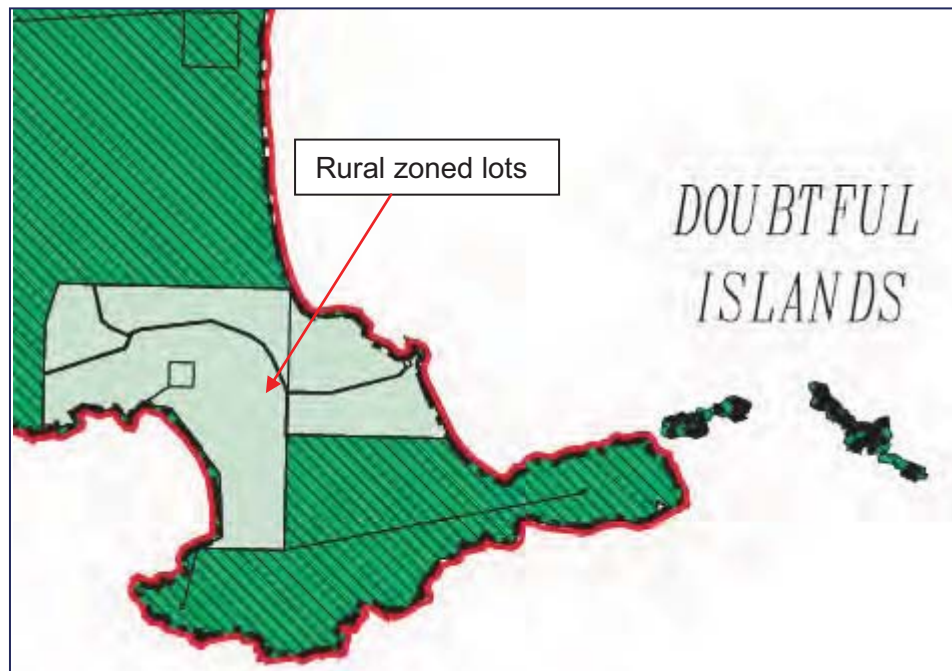


FIGURE 11 : Doubtful Island – shown on extract of Scheme zoning map (Source: WAPC)

The land has been cleared only in parts, and further cleaning for general agriculture is unlikely to be approved. The land is considered too remote from Bremer Bay for lifestyle lots or subdivision.

Whilst there may be potential for some low scale eco-tourism development (responsive to the natural landscape and environment), there are significant issues to be addressed for any development relating to access, bush fire risk management, servicing, environmental management, visual impact, foreshore management and aboriginal heritage. The Shire would need to be satisfied that any development would not adversely impact on the role of the Bremer Bay townsite, have any environmental implications for management of Fitzgerald River National Park and can be fully serviced.

Several small isolated rural properties are surrounded by the Fitzgerald River National Park. These detract from the integrity of the National Park and pose fire and disease risk to flora and fauna. Ideally these areas should be incorporated into the Park by purchase or land exchange. Alternatively, the properties could be considered for low key, sensitively designed tourist facilities, integrated with the surrounding environments that add to the experience of the National Park.

The Shire would need to undertake extensive consultation for development of any rural coastal lots including the Department of Conservation and Environment, Fire and Emergency Services, Department for Planning coastal branch, Department for Water and servicing authorities.

There needs to be appropriate controls on land use and development of areas adjoining the coast. This issue may be considered as part of any future scheme amendments or reviews. Introducing additional special control areas could be a suitable option for some coastal sites such as Doubtful Island, as the existing Rural zone does not adequately recognise the sensitive nature of the lots location. A future review of the adequacy of Scheme provisions for sensitive coastal sites would also be appropriate.

7.2.3 Rural areas in Jerramungup

Jerramungup is a war service settlement area and rural lots are generally about 800-1,200 hectares. It has not been possible for a farmer to subdivide to sell off portion of a farm to cover debt and continue to farm; or for a farmer to acquire additional land (other than in original parcels of about 800-1,200 hectares, which is cost-prohibitive). Land assembly is almost impossible due to very large rural lot sizes, and constraints on subdivision.

All subdivision is subject to the relevant State Planning Policies applicable to rural subdivision as developed and reviewed (from time to time) by the Western Australian Planning Commission (WAPC). The WAPC is the determining authority for subdivision applications.

7.3 Rural Residential

7.3.1 Existing Rural Residential Areas

Currently rural residential land is limited to the Bremer Bay area where conservation or bush lots are available on and near to the Point Henry Peninsular, and a smaller array of cleared lots.

There is opportunity for new rural residential subdivisions on Lot 400 Wellstead Road (Rural Residential 4) and Lot 89 Point Henry Road (Rural Residential 5) which were re-zoned through Amendment 1 and Amendment 5 to the Shires Local Planning Scheme No 2. However, these will be vegetated 'bush' lots and there is anecdotal evidence of demand for, and a lack of supply of, cleared Rural Residential lots.

Provision of some larger cleared lots would provide for a different lifestyle choice and cater for people who do not seek to live in bushfire prone areas, but still seek space to accommodate larger dwellings, outbuildings, boats and have land for hobby purposes, fruit trees, revegetation etc

Larger lots still need to have good access links to the townsite (and services) so new residents form part of the local community. The Strategy aims to give highest priority to infill development and subdivision of land already serviced and zoned under the Shire of Jerramungup Local Planning Scheme No 3.

Areas for future expansion are examined for strategic planning purposes however will be subject to adequate planning, studies, demonstrated demand and servicing.

Areas for future rural living have been designated on the Strategy maps having regard to a number of factors including:

1. Access to major roads such as Borden - Bremer Bay Road and proximity to existing townsites;
2. It is considered that there is potential to attract new residents in Bremer Bay who may seek to live in a more country-feeling rural environment, rather than immediately adjacent to potential urban areas. Planning for some areas with good links to town via main transport routes would maintain access to local services, will not create isolation from the main town centre and can easily take advantage of nearby coastal areas for recreation.
3. The areas closer to the townsite should not be too constrained as they may be required for future residential expansion.
4. The landholdings closest to the Bremer Bay townsite are in two ownerships only, both of who appear to be content farming the land for the immediate foreseeable future.
5. The Shire has supported an industrial area on the corner of Swamp Road in Bremer Bay and it is expected that people will want to live in reasonable proximity to this employment centre.
6. The Shire has identified land near the Jerramungup townsite suitable to cater for future rural residential lifestyle lots.

Currently there are limited areas for keeping of animals or hobby farms as those uses are not appropriate for smaller Rural Residential lots which contain remnant vegetation and are close to the coast. There are existing larger lots available near Freeman Drive, however most have future 'infill' subdivision potential so landowners likely have a high expectation that they will be able to further subdivide in future.

The Shire has already supported a Scheme Amendment No 6 for Rural Residential lots and Farmlet lots on Lot 1321 Bremer Bay Road (known as 'Old Myamba') to achieve greater variety and accommodate some hobby farm uses. The amendment has not yet been granted approval by the Minister, however is supported by the Shire and this Strategy.

For any proposed amendment or subdivision adjacent to broad acre farming activities, mechanisms need to be in place for landuse compatibility such as vegetation buffers, and notifications on title to advise of prospective nuisance associated with normal rural activities. Land capability would be required to ensure that the proposed lot sizes can be sustained with all soil testing (for effluent disposal) in winter.

Opportunities for future rural residential expansion or larger farmlet lots are varied in the Shire but should be concentrated adjacent to existing and established townsites (with good vehicle access / road connections to town). The recognised demand for Rural Residential lots has been limited to Bremer Bay but there may be some demand close to Jerramungup.

No further subdivision of lots created under the approved Subdivision Guide Plans for Point Henry will be supported. Any new Rural Residential development on existing undeveloped lots on Point Henry Peninsula need to address impacts on the flora and fauna, specifically with respect to clearing for development, access, and bush fire management (as required in the Scheme). A visual impact assessment may be required to address the siting of buildings in view from public beaches.

As a guide, the Shire will support the clustering of development to reduce environmental and visual impacts provided the average minimum area on the SGP is to be maintained.

7.3.2 Issues for strategic planning/ future Rural Residential areas

Rural Residential and similar landuses will only be considered in those areas designated in the Local Planning Strategy (refer Figures 19 and 27).

Identification of land in the Local Planning Strategy is not justification in itself for any scheme amendment, and zoning proposals will only be considered where;

- The land is recognised as having potential under Figures 19 and 27 of the Local Planning Strategy or is consistent with the Point Henry Limited Rural Strategy; and
- The land has strong transport links, has excellent road access and the developer demonstrates it can be serviced; and
- The proposed lot sizes are responsive to land capability, characteristics of the land and complement any similar nearby subdivision. Larger lot sizes and 40 metre vegetation buffers would generally be required adjacent to Rural zoned land and farming activities; and
- Adequate buffers can be maintained to manage environmental impact on the coastline, remnant vegetation, Reserves, the Fitzgerald River National Park, visual amenity, wetlands, and the like; and
- Adequate buffers are provided to any existing landuses such as Industrial, feedlots, wineries, intensive agricultural activities, extractive industries etc having regard for the Environmental Protection Authority Draft 'Guidance for the Assessment of Environmental factors (in accordance with the Environmental Protection Act 1986) – Separation Distances between Industrial Uses and Sensitive Landuses'; and/or
- A Water Management Strategy is provided at Scheme amendment stage or as a scheme provision for any structure plan / outline development plan where the land contains any watercourses, creeklines, major drainage lines, has potential drainage problems, wet soils or is deemed necessary by the Shire (having regard for advice from Department of Water); and
- If the land contains any creeklines or water bodies, adequate setbacks and buffers to be provided. Subdivision design should minimise the number of lot boundaries crossing any significant watercourse; and
- Adequate protection of native vegetation occurs (balanced with the need for fire management) and opportunities for revegetation and vegetation corridors be identified; and
- The lots have been tested in late winter and adequate provision can be made for effluent disposal to the satisfaction of the Department for Health of WA; and
- The lot sizes are appropriate in the opinion of Council having regard for existing available land supply and location. The Shire intends to gauge supply and demand for Rural Residential land by establishing a monitoring system in consultation with affected landowners; and
- The lot layout meets the requirements of 'Planning for Bushfire Protection' (Edition 2 or revised versions) released by the WAPC / FESA; and
- If land is covered with remnant vegetation, development would:
 - Maximise vegetation protection and be clustered to reduce impacts on flora and fauna values; and
 - provide for the setting aside of a significant portion of the site for protection of flora and fauna having regard for the extent of clearing required for fire management.

7.4 Residential

7.4.1 Bremer Bay – existing residential areas

There is an established Residential area in the main Bremer Bay townsite which was zoned 'R30' under the Shire of Jerramungup Town Planning Scheme No 1. A flexible code of 'R15/R30' was introduced under the Shires Local Planning Scheme No 2 and densities above the base code are required to meet specific scheme requirements (including connection to sewer and public consultation).

Some of the criteria for higher densities as listed under Clause 5.3 (a) of the Scheme are difficult to assess such as *'the lot is suitable located close to services and facilities'* (as there are currently limited facilities in Bremer Bay). The flexible code causes some uncertainty as it involves discretion by Council.

The Scheme also includes a criteria for higher density that *'the local government considers the design of the development will enhance the amenity of the local area'*. This can also be difficult to assess as (1) design is subjective and currently there are no specific Policy design criteria and (2) many applications lodged are for subdivision and not grouped dwelling applications. At subdivision stage Council has no control over future design of dwellings.

There is potential for infill development however strong anecdotal evidence suggests that many local residents prefer to maintain larger lots. This is supported by the fact that only a limited number of infill subdivisions have occurred and during public consultation there have been objections to subdivisions in the area. There is some potential for limited expansion to the west on Lot 771 Mary Street.

Mainly larger lots have been created in the 'R2/R15' residential zone north of Freeman Drive and these have infill potential as sewer becomes available. Each lot is expected to provide for the extension of the deep sewer system and the upgrading and extension of footpaths, local road systems and drainage systems. The land includes a small pocket of R15 which has been subdivided – Figure 12.

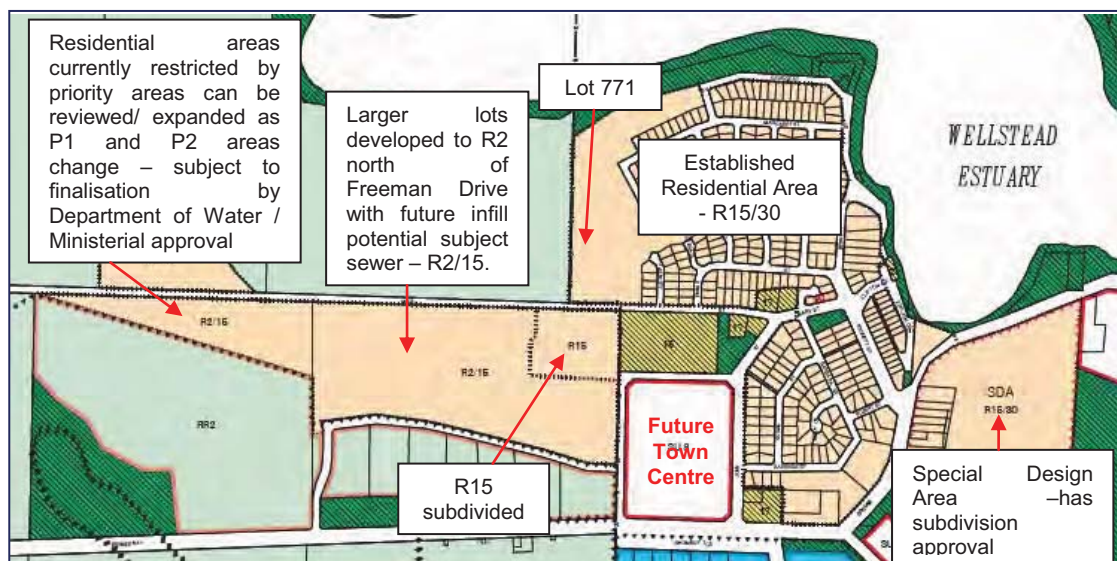


FIGURE 12 : Existing Residential areas in Bremer Bay shown on extract of Scheme zoning map (Source: WAPC)

New residential lots will be created on Lot 231 Bremer Bay Road, and there is some potential for residential in the future Bremer Bay Town Centre (zoned Special Use 8).

There is some undeveloped residential zoned land west of the townsite/Freeman Drive and these areas can be reviewed due to changes proposed to priority areas by Department of Water. Importantly, a residential corridor extends through the north of Lot 109 to facilitate the future extension of the Bremer Bay residential area to the west.

7.4.2 Jerramungup – existing residential areas

Jerramungup has a slow growth rate with only 2 - 3 dwellings constructed per annum.

Despite this low growth, land must be identified to protect future expansion of the town particularly as future urban growth is severely constrained due to water catchments areas and reserved land which surrounds the town – refer to Figure 13.

The Shire endeavoured to re-zone the old oval site (Reserve 27494) to facilitate residential development however it was not supported by the Water Corporation and was refused by the Minister for Planning (Amendment 2).

There is unallocated crown land which is already zoned residential, and the Shire is liaising with State Land Services to seek management of these, including Lot 205 Memorial Road and land north of Cutler Street. – refer to Figure 13.

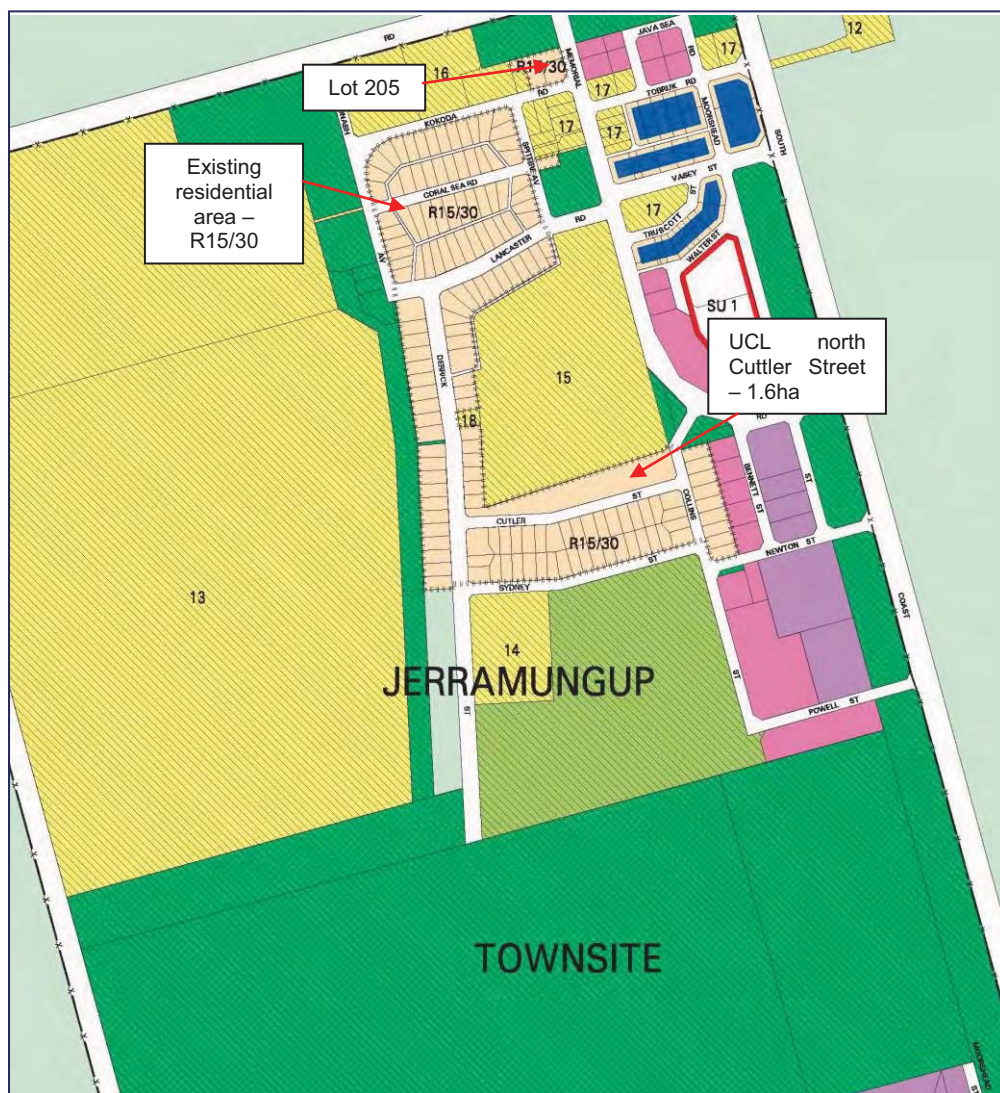


FIGURE 13 : Existing residential areas in Jerramungup shown on extract of Scheme zoning map (Source: WAPC)

There is potential for future development of about 100 lots south of Sydney Street, between the built-up areas of the town and the town's recreation facilities. A vegetation assessment will be required to address matters raised by the Environmental Protection Authority having regard for its Position Statement No. 2. Any residential use will require rezoning in an Amendment to the Scheme however in the past DEC has opposed clearing of any remnant vegetation.

The centre of Jerramungup has a mix of residential, service commercial, and commercial uses. The "Town Centre" Zone that provides for a range of residential, offices, commercial, and other compatible uses is appropriate for this area.

7.4.3 Needilup – existing residential areas

There is an existing streetblock zoned 'Residential R10'. Expansion of residential development is not encouraged by the Council, as the servicing costs for such a relatively remote site from Jerramungup cannot be justified.

7.4.4 Boxwood Hill – existing residential areas

Considering its remoteness from surrounding towns such as Jerramungup and Bremer Bay, Boxwood Hill has a reasonably amount of existing residential land zoned 'Residential R10' – refer Figure 14.



FIGURE 14 : Existing residential area in Boxwood Hill shown on extract of Scheme zoning map (Source: WAPC)

7.5 Tourism

Tourism will remain important to the economy of the Shire, based mainly around the attractions of the Fitzgerald River National Park, coastal areas, and Bremer Bay. There is significant potential for farmstay, bed and breakfast accommodation, or chalets throughout the Shire.

Although the Council does not have direct management involvement in the Fitzgerald River National Park it will continue to support the Department of Environment and Conservation in its management of the park wherever possible and as funds permit.

A number of freehold lots remain along the Gardiner River surrounded by the park. Following discussions with the owners and DEC, the Council may facilitate enhanced management of these lots for either tourism or conservation.

Bremer Bay has the greatest potential for increased tourism development within the Shire. Currently visitor numbers exceed 20,000/month during the peak month of January, and the challenge for the Council is to provide mechanisms for the orderly expansion of tourist facilities without compromising either the very reasons that tourists visit Bremer Bay, or the existing amenity of the town for its permanent residents. The ways in which this can be addressed include:

- Possible short term (<10 years) expansion of current caravan parks and camping grounds, including the Youth Camp, where land area and environmental constraints permit.
- Consider provision of long term Council support (>10years) for a further caravan park adjacent to the golf course on Reserve 511 which lies between Bremer and Wellstead Roads, where servicing (sewer, water, power etc) can be provided and management controls adequately address environmental and conservation issues.
- Consider support for the development of an environmentally and aesthetically sensitive chalet development on Reserve 21496 off Bremer Road.
- Support regional tourist development schemes that have the ability to attract more tourists into the area by increasing recognition.
- Actively encourage high quality eco-tourist (short term) accommodation proposals at appropriate densities suited to the site location, and which incorporate facilities which can assist in attracting more tourists into the area during off-peak times to better utilise the existing infrastructure and create more opportunities for development.
- Encourage the diversification of tourist opportunities on rural land in the Jerramungup and Bremer Bay area provided that no land use or environmental conflicts arise.

Away from the main townsites there are alternative tourist opportunities based on different attractions such as farmstay, wildflowers etc. The Council will encourage diversification wherever environmental and planning constraints allow. Any development must be responsibly planned and managed, with designs that respond to the lands attributes, local character and environment.

The existing Scheme allows flexibility as 'tourist accommodation' is a discretionary use in the Residential, Townsite, Town Centre, and Rural zone.

There have been some informal proposals and discussions over some potential large scale tourist accommodation proposals in the Shire however these have caused concerns over the scale, form, density and lack of design initiative responsive to the environment.

The Shire has developed a general Local Planning Policy to guide decision making on tourist accommodation, which may require future review if pressures significantly increase. On one hand the Shire seeks to encourage development however it also wants to ensure that all development is of a high quality.

7.6 Rural Industry

The Council will consider applications for rural industry in the Rural zone on their merit (in accordance with the Scheme) however will need to carefully consider landuse compatibility and the need to maintain buffers to any sensitive landuse, future expansion areas or areas of environmental significance. Controls will be required for provision of landscaping, protection of amenity, and containment of emissions.

The following matters will be assessed alongside with normal planning considerations such as buffers, landuse compatibility, traffic, visual impact and amenity:

- Development is to be separated from waterways, and areas of significant remnant vegetation with conservation value;
- Controls on potential wastes and emissions;
- All drainage is to be into a separate pond or dam isolated from waterways to ensure that off-site movement of wastes is minimised;
- Significant landscaping, if deemed necessary, is established and maintained as required in accordance with a landscaping plan approved by the Council;
- Vehicular entry and egress from the site onto major roads must satisfy standard sight line criteria;
- Any trade displays, signs or hoardings must be approved by the Council and not be unsightly or adversely affect the amenity of the area;
- A fire management plan is prepared to the satisfaction of the Council, and adequate precautions taken to ensure that the use does not represent a fire hazard to surrounding areas; and
- The site is maintained in an orderly state at all times.

7.7 Conservation

The Shire contains areas of world conservation significance in the Fitzgerald River National Park. There are also a number of nature reserves such as Corackerup Nature Reserve.

There are large areas of coastal reserves. As many of the areas of high conservation value are under the management of DEC, and the Council has minimal resources, it most often can only take a supporting role in management. This can be in the form of assisting with fire suppression in adjacent areas, providing mechanisms for linkages between areas of significance, and development control and actively managing and planning coastal protection in Crown Reserves for which the Council holds Management Orders.

Within the limitations of its human and financial resources, the Council will continue to promote conservation of remnant vegetation, protection of waterways, and sensitive development in areas adjacent to high value conservation areas.

8.0 THE STRATEGY – FUTURE TOWNSITE EXPANSION

8.1 Bremer Bay

8.1.1 Vision

Through effective governance, leadership, management and the support of the community, Bremer Bay is a safe, attractive, healthy, diverse and unique place to live, work, retire or visit.

This Strategy seeks to continue to recognise the special attributes of Bremer Bay including its history, unique coastal areas, its natural environment (containing many scenic places of rare beauty), Fitzgerald River National Park, popularity as a tourist destination, and its friendly relaxed town atmosphere.

Future expansion is to be planned for in a manner that preserves the areas local character, culture, and quality of life enjoyed by its community.

The Shire seeks to provide Bremer Bay with improved access to a town centre, services, facilities and places that generate employment opportunities to complement existing and future residential areas. The Shire also seeks to cater for a wide range of lifestyle choices, and attract additional population growth.

8.1.2 Constraints

It is important to recognise the main constraints for townsite expansion in Bremer Bay, and factors that will limit the location of future growth areas.

Future urban expansion of the town is limited to a westerly direction due to the eastern coastline, Fitzgerald River National Park to the north, existing Rural Residential areas, priority water areas and buffers.

Due to the extent of constraints it is clear that only a limited western corridor is available to cater for all future growth of Bremer Bay townsite. It is the Shires intention to clearly earmark future opportunities within the western corridor for long term strategic planning which may extend beyond the 15-30 year horizon of the Strategy.

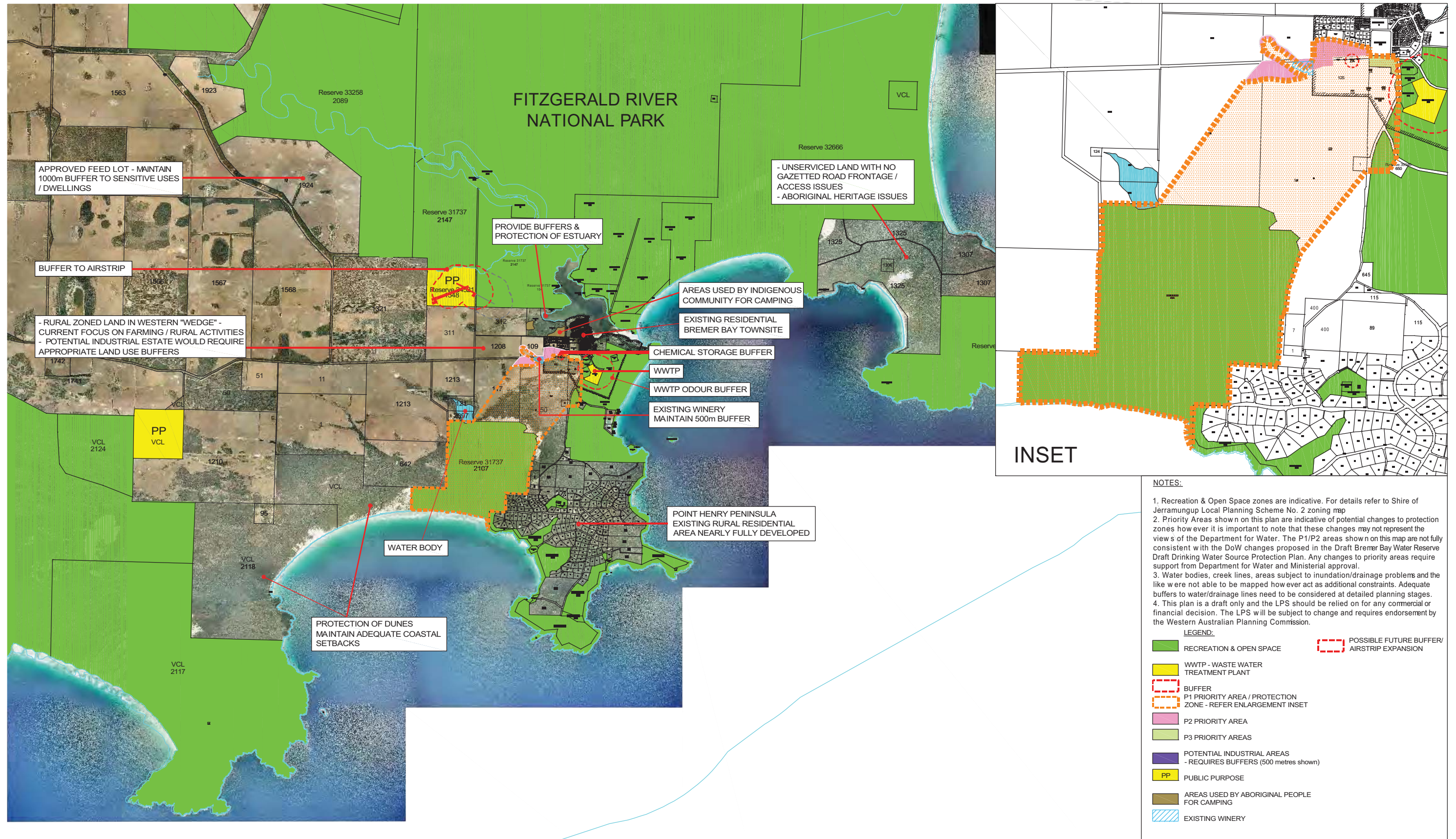
A summary of the main constraints are included in Figure 15. The majority of these constraints are self explanatory however additional information on priority areas and buffers warrants highlighting.

8.1.2.1 Water Corporation Buffers

The Water Corporation has established a 500m buffer for the Bremer Bay wastewater treatment plant, and a 100 metre “chlorine” buffer around the Bremer Bay ground water treatment plant.

The 100 metre buffer reflects a minimum safety setback requirement and is measured from where chlorine gas is stored in two large pressurised containers near the centre Reserve 29980 (Lot 1934).

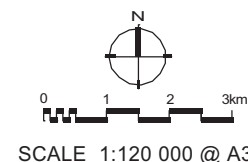
Both buffers are indicatively shown in Figure 15 however more detail is shown at a larger scale in Figure 16.



CONSTRAINTS - BREMER BAY **JERRAMUNGUP LOCAL PLANNING STRATEGY REVIEW**

JOB REFERENCE: 100797 DATE: 28th JUNE 2018

THE DOCUMENT MAY ONLY BE USED FOR THE PURPOSE FOR WHICH IT WAS COMMISSIONED AND IN ACCORDANCE WITH THE TERMS OF ENGAGEMENT FOR THE COMMISSION. UNAUTHORISED USE OF THIS DOCUMENT IN ANY FORM WHATSOEVER IS PROHIBITED.



GRAY & LEWIS
LAND USE PLANNERS

Figure 15

Suite 5, 2 Hardy Street
South Perth, WA 6151
T (08) 9474 1722
F (08) 9474 1172
perth@graylewis.com.au

The waste disposal site on the western side of Wellstead Road has been converted to a transfer station. Management and remediation of this site is required and is being investigated as part of a regional waste management strategy.

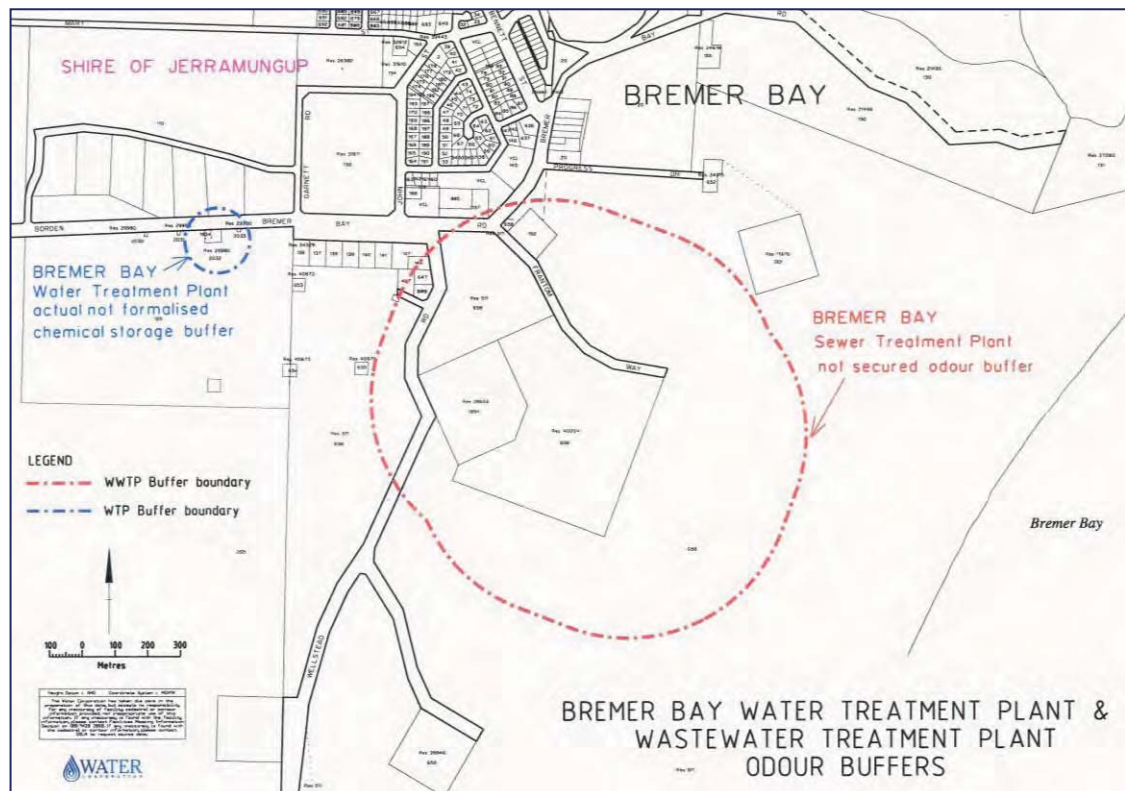


FIGURE 16 : Water Corporation buffers in Bremer Bay

8.1.2.2 Priority Areas and Protection Zones

Currently there are constraints over extension of residential development to the immediate west of Freeman Drive, although a subdivision application is being pursued by the owner of Lot 109 Borden Bremer Bay Road, Bremer Bay ('Lot 109').

The existing P1 and P2 areas are reflected on the Shire of Jerramungup Local Planning Scheme map as explained in Section 7.1, however these are under review by the Department of Water who have released the 'Bremer Bay Water Reserve Draft Drinking Water Source Protection Plan' ('the Draft Plan').

Under the Draft plan the existing P2 area is being dramatically decreased, however final changes are undergoing further refinement and require Ministerial approval – refer Figure 17.

The Special Control Areas will likely be radically decreased on the Scheme map once the final review outcome is known. At this stage the Strategy maps can only reflect draft changes which require Ministerial approval and may be subject to change.

Due to the extent of changes proposed to the P1 and P2 areas, the Shires Scheme will need to be amended to reflect the amended priority areas (once they are finalised).

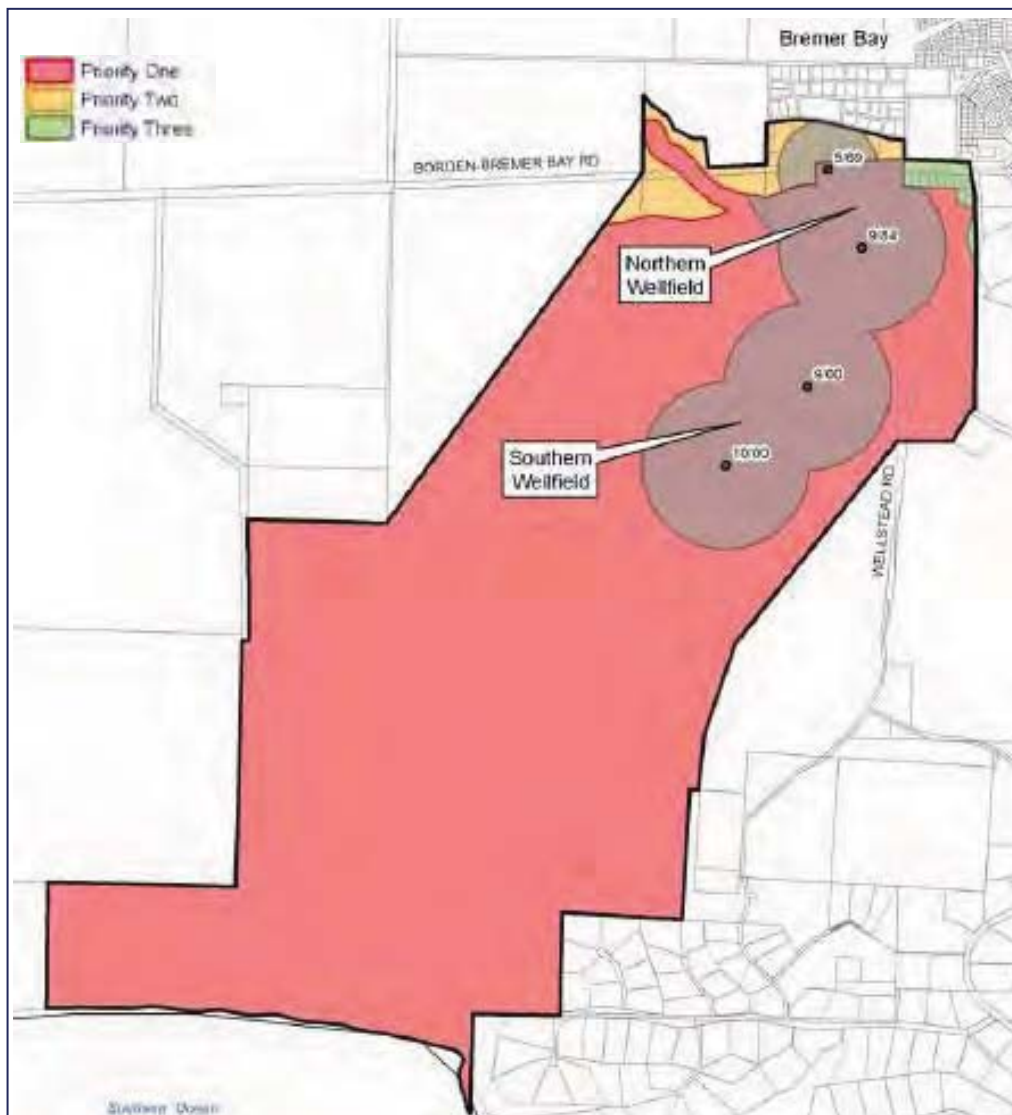
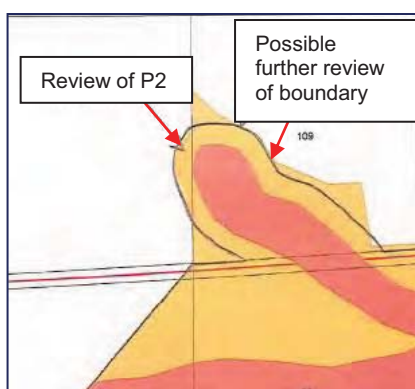


FIGURE 17 : Map extract from the Bremer Bay Water Reserve Draft Drinking Water Source Protection Plan



Under the Draft Plan the P2 area on Lot 109 follows the existing 'Recreation and Open Space' reserve boundary.

The priority boundary can be further reviewed as the Scheme can be amended to alter / reduced the 'Recreation and Open Space' boundary (depending on the outcome of the final review of the P1 and P2 boundaries). There are indications that the boundary may be considered for possible reduction (particularly affecting Lot 109).

The Shire of Jerramungup supports deviation of the P2 boundary from the Recreation and Open Space' reservation if based on sound environmental and scientific assessment (by Department of Water). The Shire does not consider that the 'Parks and Recreation' boundary needs to influence the P1/ P2 boundary location. Ultimately an amendment to the Scheme will reflect changes approved at a Ministerial level.

There is some possibility that some of the Priority 1 areas may be 'downgraded' to Priority 2 by the Department of Water as part of the review process. If this occurs, constraints on Rural Residential development will be substantially decreased for some areas. Lots of 2 hectares and above are 'conditionally acceptable' in Priority 2 areas under 'Water Quality Protection Note – Landuse Compatibility in Public Drinking Water Source Areas' published by the Department of Environment (and now implemented by Department of Water).

8.1.3 Bremer Bay Strategy Plan

The Local Planning Strategy for Bremer Bay has been separated onto two maps to cover the main Bremer Bay townsite and surrounds, and Point Henry Peninsular – refer to the Strategy plan index - Figure 18.

The two Strategy Plans have been divided into a number of areas for simplicity and easy reference.

The Shire seeks to ensure that land to the west of the Bremer Bay townsite is planned for at this early juncture due to the nature of extreme limitations and extent of constraints for future growth.

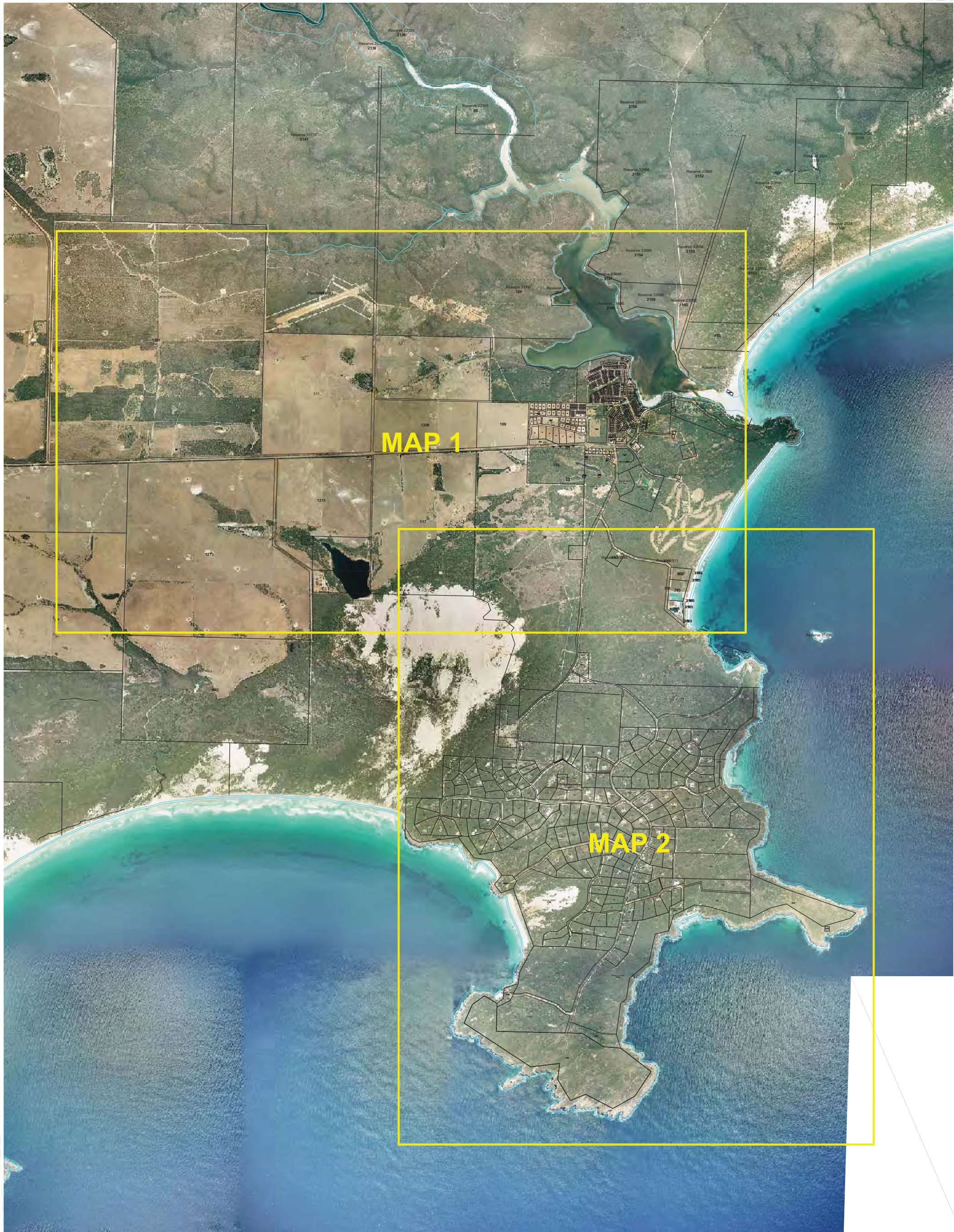
Whilst relatively significant areas have been identified in the Strategy for expansion along the western corridor, the Shire considers it essential to pro-actively plan for this area and protect it for future townsite expansion.

The Shire intends to develop an overall broad district structure plan for the western corridor to ensure future subdivision is co-ordinated, and a quality development outcome is achieved. Although expansive areas west of town are earmarked for eventual (and ultimate) growth in the Strategy, it is recognised that growth will likely be gradual, occur in stages, react to demand or new industries, and will need to contemplate normal planning considerations such as land capability.

The Shire proposes to develop a comprehensive Local Planning Policy to guide future scheme amendments for rural residential areas, which will include a schedule / monitoring system to gauge supply and demand. As part of policy development, the Shire will consult extensively with affected landowners to ascertain their long term aspirations, and seek input from the Western Australian Planning Commission.

Whilst the Strategy indicates timeframes in which areas may be developed (short, medium or long term), this is not intended to be strictly applied to dictate future land release or the timing of scheme amendments. Ultimately the Local Planning Policy and schedule will identify the order in which rural residential areas are developed based on factors such as;

- Proximity to services, amenities, employment and facilities (having regard for driving time rather than concentrate on distance);
- Land suitability and capability;
- Environmental value and risks;
- Potential for land use conflict and impacts on adjacent landuses;
- Buffers associated with specific landuses in accordance with relevant EPA guidelines;
- Provision of lifestyle choice to cater for a wide range of community needs;
- Landowner willingness to develop;
- Relevant State Planning Policies; and
- Any other factors considered relevant by Council.



LOCAL PLANNING STRATEGY - INDEX MAP BREMER BAY SHIRE OF JERRAMUNGUP

JOB REFERENCE: 100797 DATE: 8th OCTOBER 2010
 THE DOCUMENT MAY ONLY BE USED FOR THE PURPOSE FOR WHICH IT WAS COMMISSIONED AND IN ACCORDANCE WITH THE TERMS OF ENGAGEMENT FOR THE COMMISSION. UNAUTHORISED USE OF THIS DOCUMENT IN ANY FORM WHATSOEVER IS PROHIBITED.

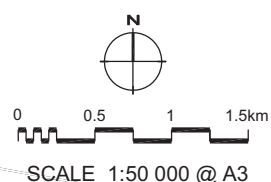
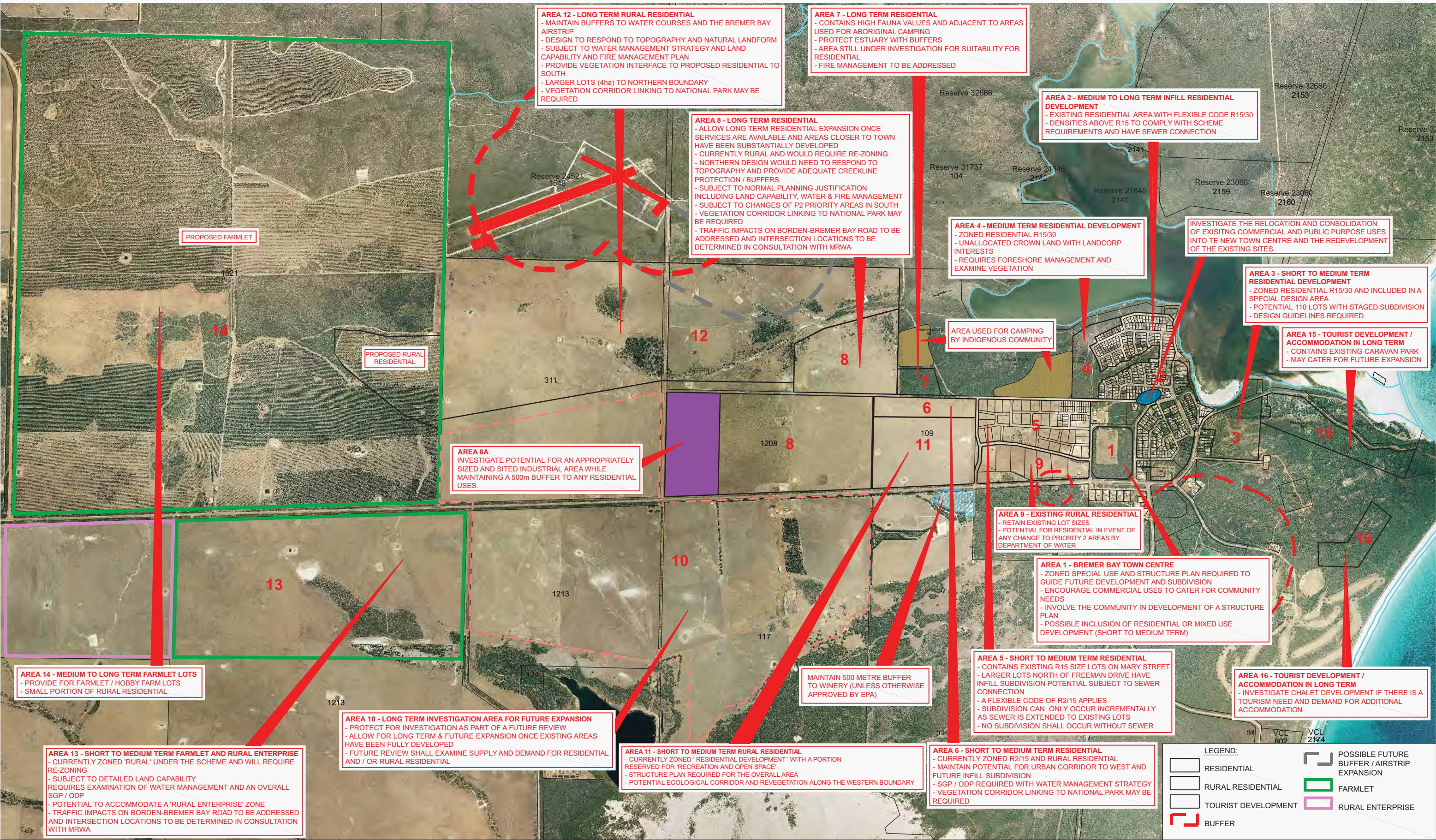


Figure 18

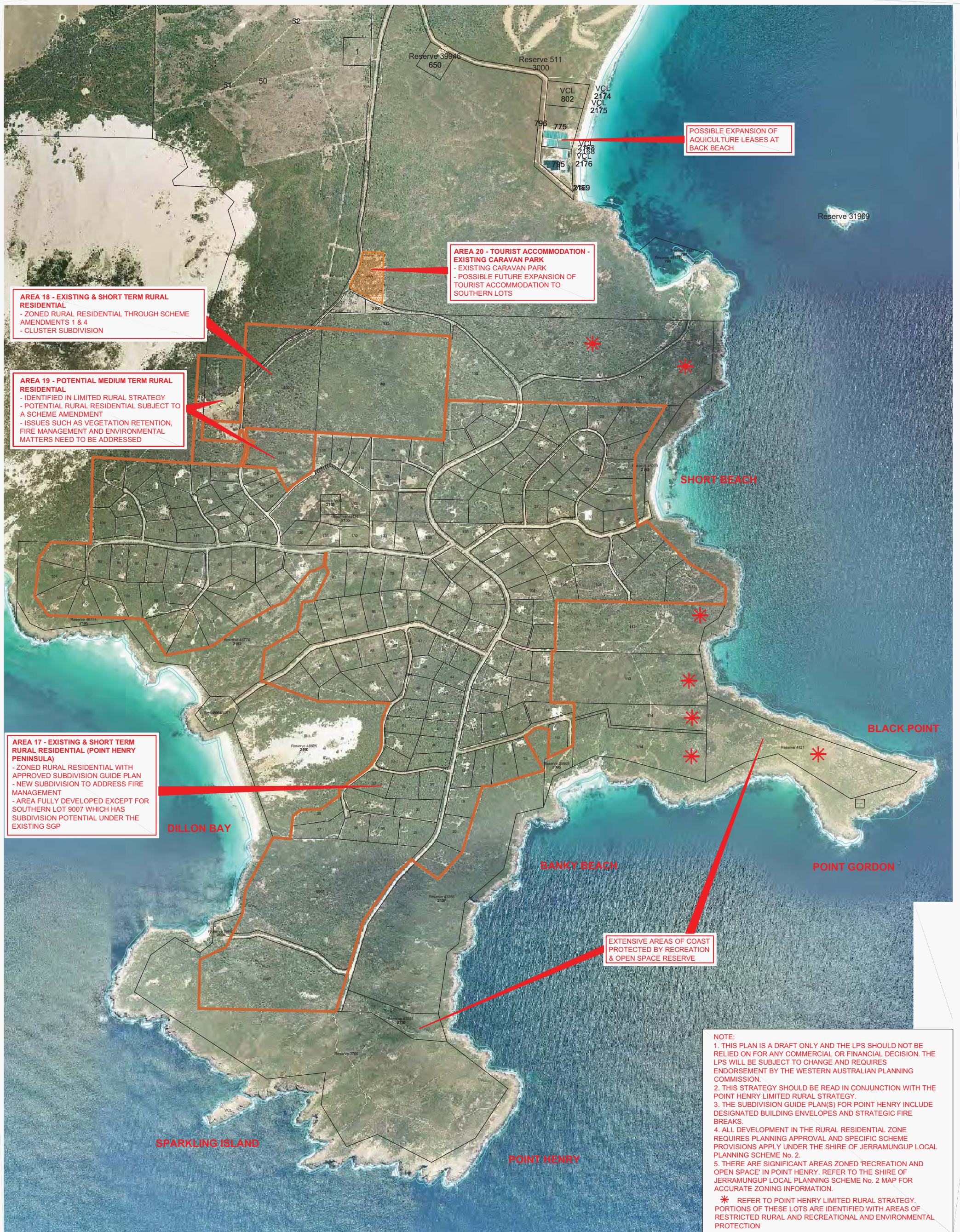
Suite 5, 2 Hardy Street
 South Perth, WA 6151
 T (08) 9474 1722
 F (08) 9474 1172
perth@graylewis.com.au



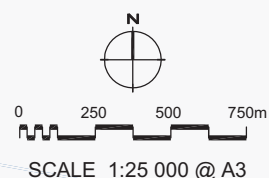
LOCAL PLANNING STRATEGY

BREMER BAY TOWNSITE AND SURROUNDS

SHIRE OF JERRAMUNGUP



LOCAL PLANNING STRATEGY POINT HENRY PENINSULA SHIRE OF JERRAMUNGUP



GRAY & LEWIS
 LAND USE PLANNERS

Figure 20
 Suite 5, 2 Hardy Street
 South Perth, WA 6151
 T (08) 9474 1722
 F (08) 9474 1172
 perth@graylewis.com.au

Like many smaller regional areas, subdivision will be largely landowner and developer driven. A number of owners within the western corridor may seek to continue with rural activities and broad acre farming.

It is for this reason that the Strategy needs to be flexibility and maximise opportunities for 'development' ready land which can be re-zoned as necessary. It is important that the strategy be a tool which will support the Council's needs to re-zone land as required, without being unreasonably unfettered.

There have already been a number of developments which have been supported by Council, however have been constrained by the 2006 Local Planning Strategy which contained uncertainty over the location for future Industrial land, and the extent of priority water protection areas which are under review.

The Shire has experienced developer pressure and has anecdotal evidence of demand for additional cleared rural residential land, and also considers that it needs to be in a position where it can provide for new subdivision opportunities as they arise.

Population pressures in regional areas can change substantially as a reaction to new industries (such as mining). Future land release that may benefit the existing and future community should not be too constrained by the Strategy. Whilst land may be identified in the Strategy for possible expansion, it needs the capability of facilitating subdivision as driven by the market, landowners and developers. Some areas may remain undeveloped for an extended period, however are important to identify in the Strategy for long term strategic planning.

The Strategy Plans are included as Figure 19 and Figure 20 and each area is described below.

8.1.3.1 Area 1: Bremer Bay Town Centre

The Local Planning Strategy identifies a 10 hectare site as the Bremer Bay Town Centre. The Bremer Bay Town Centre Structure Plan (BBTC) addresses vegetation retention, road layout, servicing networks and guides development staging.

The existing 'Town Centre - Special Use 8' Scheme zoning is considered to be appropriate. The land is contained within a Special Use Zone No 8 under the Shire of Jerramungup Local Planning Scheme No 2 ('the Scheme'). It is specifically designated for Town Centre allowing for uses such as civic use, offices, community purpose, shops, and medium density residential with the following objectives:

- (a) To ensure the Bremer Bay town centre is the principal place for civic, retail, business and administration within the town, whilst allowing flexibility for non-commercial uses.
- (b) To encourage a high standard of development through design guidelines for buildings, landscaping, and car parking.
- (c) To encourage development of the town centre as an attractive place and varied area to visit, conduct business and reside.
- (d) To preserve remnant vegetation along the eastern boundary of the town centre as a north-south ecological corridor linkage.

The key recommendation from the analysis of commercial drivers during the design and preparation of the Structure Plan is that all retail and office and civic activity trades should be restricted to a single street.

The existing civic uses are situated on the northern side of Mary Street. The existing “general store” is zoned in the Scheme as 'Residential R15/30', with 'Additional Use A1' allowing for a shop or convenience store.

In order to successfully implement the Structure Plan it is necessary to investigate the relocation and consolidation of the existing civic and commercial uses to the new town centre, including examining alternative development options which do not conflict with the residential character of the surrounding area.

8.1.3.2 Area 2: Medium to long term infill residential development

The majority of existing residential zoned land in the Bremer Bay townsite has a flexible code of R15/30. The base Code is Residential R15 which allows for a minimum and average lot size of 580m² and 666m² respectively (as per the Residential Design Codes).

Council has the discretion to support densities up to a maximum of R30 which allows for a minimum lot size of 270m² and average lot size of 300m² respectively.

Any development or subdivision proposing a density above the R15 base code would be assessed having regard for the Scheme criteria including a requirement for connection to sewer, advertising of the proposal for public comment, amenity, landuse compatibility and examining the proximity of the lot to services and facilities.

As explained in Section 7.4.1 there has been some community opposition to medium density development and although the flexible code was introduced as part of Local Planning Scheme No 2, there has only been a few subdivision applications lodged over the past few years in Bennett Street and Emma Street.

There has been evidence of some community resistance to smaller lot sizes through advertising of subdivision and developments in the area. Some residents perceive that new development may adversely change the streetscape and they bought properties in the area due to the larger lots.

There are a high percentage of lots within the flexible coded area which have subdivision potential and infill development would maximise efficient use of existing infrastructure. Notwithstanding the above, many residents enjoy the benefits associated with a larger lot which can accommodate a sizeable storage shed, boat parking and the like. It is for this reason that it is considered likely that infill will only occur incrementally and over a long period of time.

The Shire has developed a Draft Local Planning Policy on flexible codes which is under review. Once a Local Planning Policy is finalised, the existing scheme provisions may be reviewed having regard for the results of public consultation undertaken with the Local Planning Policy Review. Any Scheme Amendment should consider issues such as protection of amenity for those residents seeking to maintain larger residential lots, and balancing the need to provide for subdivision and medium density development in areas close to services.

There may be opportunity to concentrate medium densities within walking distance of areas such as the planned Town Centre or established services, shops or beaches.

8.1.3.3 Area 3: Short to Medium term infill residential development

Area 3 consists of Lot 231 Bremer Bay Road comprised of 13.3 hectares.

In November 2008 the Planning Commission gave conditional approval for the subdivision of Lot 231 Bremer Bay Road (Seadunes Pty Ltd) into 110 lots ranging between 453m² to 855m². The approved subdivision sets aside approximately 4.8 hectares for recreation reserve, and is subject to a number of conditions including preparation of detailed design guidelines.

This area will be developed in approximately five stages. Stage 1 planning and detailed design has substantially progressed in 2010 therefore is anticipated to meet any short term demand. Subsequent stages 2-5 will likely be available in short to medium term.

8.1.3.4 Area 4: Medium term residential development

Land to the immediate west of the developed residential area in Bremer Bay (north of Mary Street) is zoned Residential R15/30.

Although short term growth could occur as the land is already appropriately zoned, it is anticipated that it is more likely to be developed in the medium term as it is unallocated crown land, is not under management by the Shire, contains vegetated areas, foreshore areas and needs to undergo the native title process.

The Minister for Lands has granted an extension of time to Landcorp (to 7 August 2012) for a notice of intention to enable disposal to Landcorp for residential development, including areas for parkland, drainage and foreshore reserve.

The Shire has to further liaise with Landcorp over timing for residential development through the Regional Development Assistance programme.

The land includes a vegetated corridor between Gunn Place/ Qualup Court through to Roderick Street which may be valued by the community as an informal open space area.

8.1.3.5 Area 5: Short to Medium Term residential (north Freeman Drive)

A north east pocket of Area 5 has a flat density code of R15 under the Scheme, and has been subdivided – refer Figure 21.

The balance of Area 5 located to the north of Freeman Drive has a flexible code of R2/15 and can be subdivided to a maximum density of R15 subject to connection to sewer.

The Scheme provisions do not allow for any subdivision unless the new lots are able to be connected to sewer (irrespective of density), which avoids ad hoc larger lot subdivision and assists in achieving sewer extensions as infill development occurs.

Approximately 42 residential lots have been created in the north east portion of Area 5 ranging from 619m² to 736m².

The remaining area consists of approximately 31 lots exceeding 5000m² – these have potential for future residential infill development under the existing zoning. Existing right of ways need to be converted to public roads to provide future lots with gazetted road frontage, and are to be constructed at the developers cost.

Ultimately subdivision in this area will be landowner driven – the timing, proposed lot sizes, and ultimate layout is unknown. Subdivision can occur incrementally as the sewer is extended to each existing larger 'superlot'.

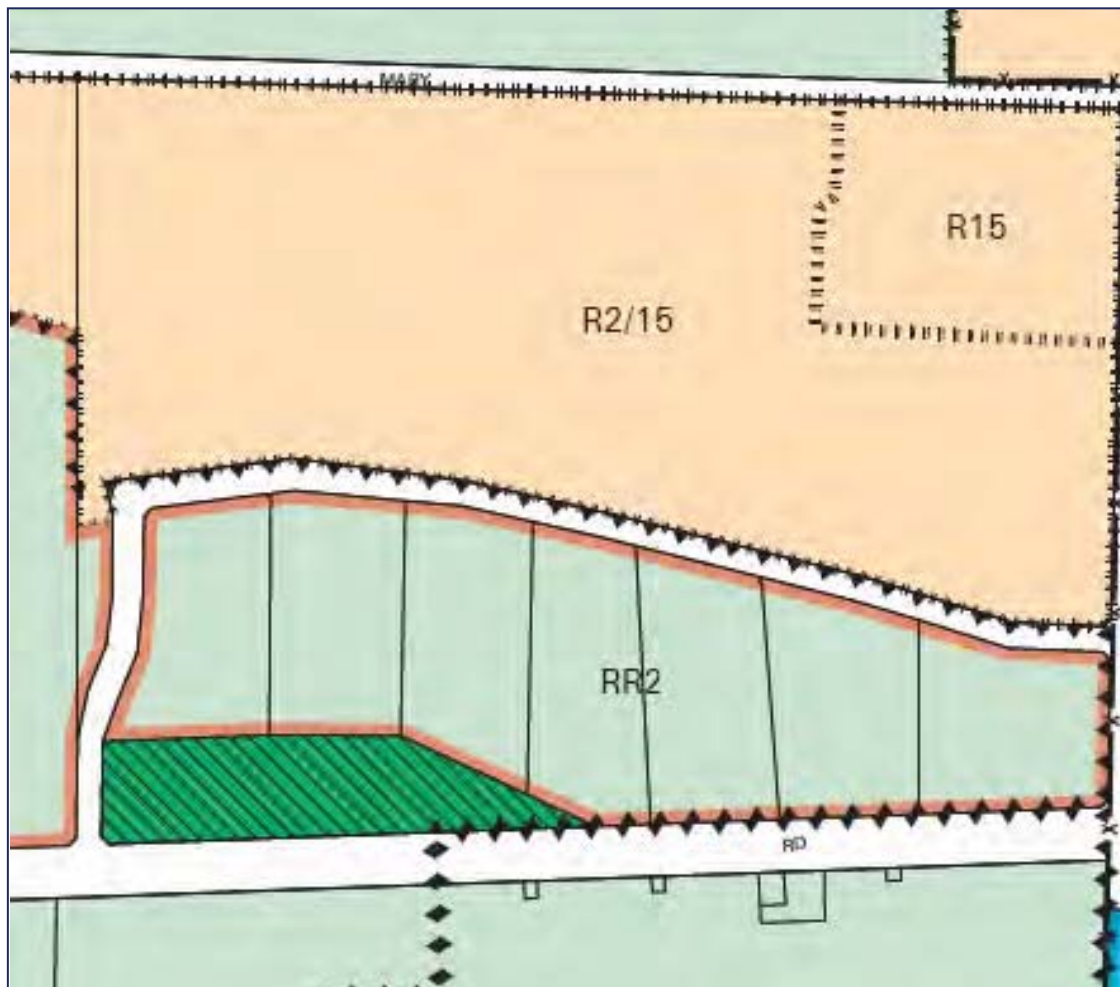


FIGURE 21 : Existing residential area (Freeman Drive north) shown on extract of Scheme zoning map
(Source: WAPC)

If a landowner in a key location does not seek to subdivide, then it may prevent the roll out of sewer and limit the future release of lots. There is anecdotal evidence that landowners in this area have a high expectation that subdivision will occur, however it is not known whether some landowners will seek to retain larger lots rather than develop at the highest density of R15.

Due to the number of landowners involved and the constraint that some of the existing lots are remote from the main sewer line, it is anticipated that future residential infill will occur gradually over a short to medium term.

To date there has only been limited subdivision approvals in the area. If the area is subdivided at the maximum density of R15, it has potential for creation of a further 244 lots according to a Subdivision Guide Plan lodged with the original large lot subdivision proposal - Figure 22.



FIGURE 22 : Ultimate infill potential (Freeman Drive north)
(Source: Planwest WA Pty Ltd / Shire of Jerramungup)

The Shire has experienced some problems with the flexible code in Area 5 for a number of reasons including that there is a high owner expectation that they can subdivide immediately (however many lots do not yet have access to sewer), there has been pressure over maintenance of the right of ways, and there is uncertainty over the ultimate lot pattern as landowners may decide create larger lifestyle lots.

There are also difficulties in dealing with subdivision standards. Drainage and road construction requirements for residential subdivision are higher than exists for the “as constructed” existing large lots.

The Shire is considering development and adoption of a Local Planning Policy for Area 5 which will include the existing Subdivision Guide Plan (Figure 22), and establish expectations for infrastructure upgrades required to service future subdivision.

8.1.3.6 Area 6: Short to Medium Term residential (Lot 109 – northern portion)

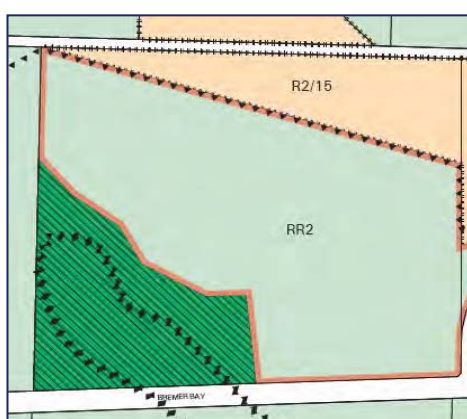


FIGURE 23: Existing zoning of Area 6 (Lot 109)
extract of Scheme zoning map (Source: WAPC)

A triangular northern portion of Lot 109 is currently zoned ‘R2/15’ under the Scheme, and the southern portion is zoned ‘Rural Residential 2’ and ‘Recreation and Open Space’.

The existing zoning is shown in Figure 23 and is currently constrained by the Priority water boundaries; however these are under review and will likely afford greater flexibility. The ‘triangular’ configuring of the R2/R15 zone would result in an undesirable subdivision pattern and would be difficult to design for.

The Shire supported a scheme amendment (No. 3) to zone Area 6 from ‘Rural Residential’ to ‘Residential Development zone’ to facilitate future residential subdivision of Lot 109. The amendment was refused by the Minister for Planning

mainly due the lack of reticulated water supply, as Lot 109 is currently outside of the Water Corporation licence area. The licence area would need to be extended to provide reticulated water for residential development.

Due to the Ministers refusal of Amendment 3, the Shire has been placed in a difficult position as the owner is pursuing residential subdivision approvals through the Western Australian Planning Commission. It is considered undesirable for Rural Residential subdivision to proceed on Lot 109 without providing for a substantial residential corridor across the northern portion of the property to allow for the serviced, equitable expansion of the Bremer Bay residential area to the west as it would effectively limit future urban expansion of the town.

Area 6 will allow for contained residential subdivision in the medium term, and the extension of services such as sewer and reticulated water to service anticipated long term urban growth along a relatively unconstrained western corridor.

A regular shaped northern residential corridor for a portion of Lot 109 will facilitate improved design opportunities, and road connections to the west need to be provided.

It is recognised that there is sufficient residential land available in Bremer Bay to service demand in the short to medium term, however there is still development pressure for larger lots in the 4000 – 5000m² range and a need to cater for a range of lot sizes and potential population increases associated with the Southdown mine.

Whilst the Shire understands the Ministers reasons for refusal of Amendment 3, it is considered that there remains sound planning argument for continuation of an urban corridor along Mary Street. If sewer is extended to Lot 109 then there may be opportunity for future infill opportunities. Until sewer is available only larger lot sizes are recommended.

The Western Australian Planning Commission issued conditional subdivision approval for Lot 109 on the 29 April 2011 (WAPC Reference :142080). The subdivision proposes 80 lots ranging from approximately 3767m² to 5000m².

A condition of subdivision approval requires revegetation along the western boundary with local native species. The Department of Environment and Conservation has identified opportunities for a vegetation corridor to be extended to the north.

The Shire may pursue a new amendment to its scheme to control future subdivision and development of Lot 109, reflect the Local Planning Strategy and the approval granted by the WAPC.

Area 6 is anticipated to be developed in the short to medium term as there have been a number of subdivision proposals lodged with WAPC and the owner has expressed interest in proceeding with development immediately to meet demands for cleared larger residential lots.

8.1.3.7 Area 7: Long term residential

Reserve 25216 Mary Street, Bremer Bay, lies just to the west of an area that has progressively been developed by LandCorp, which has advised that the characteristics of the soil (clay, rock, etc) is a problem and may render the land unsuitable for development. Accordingly LandCorp considers further investigation of Reserve 25216 would be needed to determine its potential suitability for development.

Flora and fauna surveys conducted over the Reserve found that:

- Generally the Reserve contains a diverse range of both flora and fauna species and that its protection would be of considerable benefit for protection of the area's biodiversity values;
- Setting aside a 200 metre strip along the estuary would protect the area of highest fauna biodiversity and provide a buffer from the adverse impacts from adjacent urban areas (e.g. domestic pets, weed invasion, road noise and light from streetlights and housing) - area north of dotted blue line on Figure 24; and
- The area within the red dotted line on Figure 24 indicates where the highest flora values occur. A vegetated buffer area is also required to protect the areas.

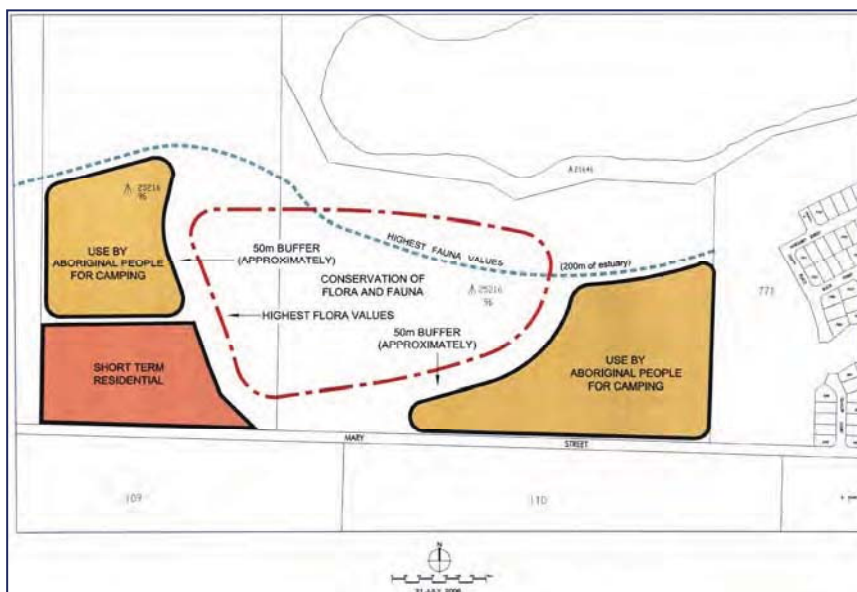


FIGURE 24 : Plan from Local Planning Strategy (2006). The 'short term' residential area is already zoned 'Residential'.

The original Local Planning Strategy (2006) suggested that significant portions of the Reserve be retained for conservation however suggested that a small portion on Mary Street may be suitable for future short term residential expansion – refer Figure 24.

The south west portion of the reserve is zoned 'Residential R2/15' under the Scheme which allows for future residential development.

Notwithstanding the above, it should be recognised that this land is relatively remote from sewer, is likely to be subject to high to extreme fire risk, and has large areas of remnant vegetation.

Residential development can be further investigated by Landcorp (in accordance with the existing zoning), however in order to meet current 'Planning for Bushfire Protection' requirements and provide for adequate hazard separation zones, larger lots or conservation lots may be more appropriate to allow for on-site water tanks, accommodate sufficient hazard separation, firebreaks, allow for greater vegetation retention and be compatible with the higher conservation values of the surrounding land.

There are other cleared areas available for future urban expansion of Bremer Bay townsite. Due to the need for lots to be serviced (with reticulated water and sewer), residential development in the short term may not be a practical option.

If the land is deemed suitable for residential it may be more long term due to the need for further detailed investigation, extension of services, and need to liaise with the Department for Environment and Conservation (over clearing and due to proximity to Fitzgerald River National Park).

The approved 2006 Local Planning Strategy noted that the option of allowing some urban development in Area 7 with the balance area to provide for conservation had a number of benefits including;

- Provide for conservation of the majority of the biodiversity values in accordance with government policy including WAPC Statement of Planning Policy No 2 “*Environment and Natural Resources Policy*” and EPA Position Statement No 2 “*Environmental Protection of Native Vegetation in WA*” (EPA 2000);
- Provide potential benefits for the health of Wellstead Estuary, which is showing signs of nutrient enrichment and sedimentation resulting from land use on cleared areas of the catchment (catchment 80% cleared);
- Provide for retention of community, social and recreational values. For example, the Bremer Bay school uses the Reserve for nature study, and community enjoyment of the area could be facilitated by the establishment of walk trails with interpretive displays at entry points detailing flora and fauna values, identification tags on flora species along the walk, and the erection of bird hides in key locations;
- Assist with mitigation against salinity. The Reserve and surrounding land is located within the “Bremer system” land management unit in which a number of land degradation risks, including moderate salinity, apply; and

- May be more likely to be supported by the community. The results of a past survey of community attitudes to Wellstead Estuary indicate that the local community is likely to be supportive of the compromise between use of the area for conservation/recreation and urban development. It should however be noted that awareness of conservation and environmental issues has increased and the local community has been active in promoting vegetation retention in dealing with other development areas (such as the Town Centre).

The Shire has previously supported the release of Reserve 25216 to the South West Aboriginal Land and Sea Council for use by aboriginal people for camping;

It is recommended that the portion of Reserve 25216 reserved for recreation under the Scheme for conservation of flora and fauna, and use by aboriginal people for camping continue to be protected as shown on Figure 24.

8.1.3.8 Area 8: Long Term Residential (and Area 8A: Industrial Investigation)

The 2006 Local Planning Strategy identified Area 8 as being suitable for short and long term residential and rural residential development. However, it did not seek to commit to residential landuses until such time as it had been determined whether a portion of the area may be needed for industrial purposes.

Consistent with the 2006 Strategy residential growth will occur in the long term, as Bremer Bay is currently well serviced by existing and planned residential subdivision.

The land in this area will need to be re-zoned to facilitate future residential expansion and it is anticipated it will cater for growth for the next 30-40 years. Residential development within Area 8 should not be considered until the area can be serviced to an urban standard, and short to medium term residential areas to the east have been substantially developed and dwellings constructed.

Any scheme amendment needs to be accompanied by a water management strategy, land capability and servicing report. A buffer to the nearby winery also needs to be maintained.

A Structure plan will also be required to guide future development of the long term residential areas in Area 8, including identification of any commercial and open space requirements. Opportunities for a native vegetation corridor may be identified as part of structure planning.

Area 8a - Industrial Investigation

The 2012 Strategy recommended that potential for industrial development be investigated in Area 10. However, the main constraint is that the land on the southern side of Borden Bremer Bay Road is a Priority 2 water protection area. Amendment 6 proposed to rezone Lot 1321 (further to the west) to 'Farmlet' and 'General Industry', but the rezoning was not approved by the Minister, partially due to land capability constraints to viable industrial development.

In 2013, Council considered the following potential locations for an industrial area in Bremer Bay:

- a) Part Lot 117 Borden Bremer Bay Road,
- b) Part Lot 1213 Borden Bremer Bay Road, and
- c) Part Lot 311 Borden Bremer Bay Road.

Part Lot 311 on the western side of Don Ende Drive (Area 10) is preferred mainly due to its proximity to the airstrip. A portion of Lot 1208 (on the eastern side of Don Ende Drive) has since been identified as a more suitable potential industrial area (Area 8a).

8.1.3.9 Area 9: Long Term (potential) Residential

The land south of Freeman Drive is zoned 'Rural Residential' and is constrained to larger lot sizes as it is affected by the Priority 2 water protection boundary (as determined by Department of Water).

In the event that the Priority 2 boundary changes in the future as part of reviews by the Department for Water, then this land has potential for residential development due to proximity to the Bremer Bay Townsite and planned Bremer Bay Town centre.

Any future subdivision or development is contingent on servicing including reticulated water and sewer. As Area 5 becomes fully developed for residential, services can extend south to Area 9.

Infill residential development of Area 5 is a higher priority as the land is already zoned.

8.1.3.10 Area 10: Long Term Investigation Area

Area 10 is earmarked for long term investigation and will be re-examined as part of a future Local Planning Strategy review.

The immediate priority is to develop existing serviced areas, however due to constraints for future expansion it is important to protect land west of Bremer Bay Townsite for potential residential or rural living.

The majority of the northern section of Area 10 is cleared, and may have potential to cater for future longer term Residential growth.

There may be future potential for Residential or Rural Residential development to occur south of Borden Bremer Bay Road on cleared land (subject to land capability, adequate services and fire management).

A Water Management Strategy would be required to support any scheme amendment due to proximity to the coast and water protection areas. The southern portion of Lot 1213 is not suitable for residential development due to inundation and vegetation.

Currently a major constraint is that the land is partially contained within Water Reserve Priority 1 area, therefore any future investigation and review will require close consultation with the Department of Water.

Vegetation on the southern portion of Area 10 should be retained, and there is potential for a vegetation corridor along the eastern boundary of Lot 117 linking to a planned macro – corridor on Lot 109 to the north east.

As the land is currently zoned 'Rural' and is farmed, any future development would be contingent on landowner aspirations, land capability, priority water boundary constraints, and addressing environmental issues. Area 10 is identified only to protect it from inappropriate landuses.

8.1.3.11 Area 11: Long Term Residential

This area is designated as 'short to medium term residential', and requires the preparation of a structure plan that provides for full servicing prior to rezoning and further subdivision. The south west portion of this area is reserved for 'Recreation and Open Space' in the Scheme, and is part of the PDWSA Special Control Area. There is an opportunity for an ecological macro-corridor link through the area and the Department of Parks and Wildlife has identified opportunities for a vegetation corridor to be extended to the north. This would require the revegetation along the western boundary with local native species.

8.1.3.12 Area 12: Long Term Rural Residential

Similar to Area 9, the 2006 Local Planning Strategy identified Area 12 as being suitable for long term residential and rural residential development, however it did not seek to commit to residential landuses until such time as it had been determined whether a portion of the area may be needed for an industrial.

Larger lot sizes for Rural Residential subdivision will be required on Lot 312 and the northern portion of Lot 311 to provide adequate protection to remaining pockets of vegetation, maintain a buffer to natural drainage lines, and accommodate buffers to the Bremer Bay airstrip. Drainage, land capability and effluent disposal will be important considerations in future planning of this area.

A native vegetation buffer to residential areas, the airstrip and Fitzgerald River National Park should be required and DEC should be consulted over species.

8.1.3.13 Area 13: Short to Medium Term Farmlet and Rural Enterprise

The Shire has been approached with a preliminary proposal for a scheme amendment and rural residential subdivision on a portion of Pt Lot 11 Borden Bremer Bay Road, Bremer Bay.

The proposal was initially only given preliminary consideration by the Shire as the land lies outside of the 2006 Local Planning Strategy area. The Shire sought to consider any proposal in context of wider strategic planning matters being re-examined as part of this Strategy.

Following consultation with Department for Planning, a Farmlet designation is proposed in the Local Planning Strategy as a more appropriate settlement form having regard for adequate current land supply and envisaged demand. It will allow for larger cleared hobby farm and lifestyle lots with rural surrounds.

It should be noted that there is no immediate pressure for cleared lots as larger lots will remain north of Freeman Drive (until sewer allows for infill development). There is anecdotal evidence of demand for cleared lifestyle lots.

The Shire sees particular benefits in creating a "Rural Enterprise" zone within at least a portion of Area 13 to allow for a dwelling unit and a small business to co-locate on the same lot, particularly as the location has reasonable road exposure and connections to the existing Bremer Bay townsite to the east.

A Rural Enterprise zone would cater for small industrial businesses that cannot sustain purchase of a separate residential premises, are of a contained scale

compatible with residential and could also cater for small businesses and tradespersons.

An amendment to the Scheme would be required to implement a new 'Rural Enterprise' zone. The extent of any amendment area would be dependent on service availability and demand. Issues such as amenity, interface with proposed farmlet lots and managing landuse compatibility would need to be carefully addressed.

It is noted that a similar zoning allowing for co-location of dwellings and businesses exists in the Shire of Plantagenet as an 'Enterprise' zone. In addition, the Draft WAPC State Planning Policy 2.5 makes allowance for an Enterprise zone which combine light industry and ancillary housing *"provided they are carefully planned close to urban areas, are serviced and have suitable design features and buffers that address amenity issues."*

Development of Area 14 ahead of Area 13 is a higher priority. However release of land is largely determined by the landowners intentions, therefore the Shire would be prepared to support re-zoning of Area 13 if it incorporates a 'Rural Enterprise' zone.

8.1.3.14 Area 14: Medium to Long term Farmlet and Rural Residential lots

There is potential for this land to cater for Farmlet and Rural Residential lots in the medium to long term, however it is contingent on a Scheme Amendment with supporting information such as land capability.

The Rural Residential component of the amendment is consistent with the 2006 Local Planning Strategy.

The Shire seeks to introduce new scheme provisions to guide future subdivision and development in Area 14.

Since development and advertising of the Local Planning Strategy (Limited Review), ownership of this land has changed. The new owners have indicated an intention to continue existing landuses for the medium to long term.

Future rezoning of this land is therefore dependent on the landowners aspirations.

8.1.3.15 Area 15: Tourist Development / Accommodation in the long term

Area 15 contains an existing caravan park and the site is zoned 'Special Use 4' under the Shires Scheme which allows for *'Caravan Park and ancillary uses including kiosk, art gallery and cafe, chalet development'*.

To date there has only been minor new development on this site. Future development is well controlled by the existing Local Planning Scheme provisions which require minimisation of clearing of native vegetation for development, and any proposals for expansion to be referred to the Environmental Protection Authority (EPA).

Due to the amount of native vegetation cover it may be difficult to obtain approvals for extensive expansion, and it is likely that a vegetation survey would need to be undertaken in liaison with the DEC.

In light of these issues it is considered that any significant expansion may be more long term.

8.1.3.16 Area 16: Tourist Development / Accommodation in the long term

Area 16 was identified in the original 2006 Local Planning Strategy as a potential caravan park site.

A caravan park in this location would be close to the beach and assist to cater for any increased tourism, however the need for an additional caravan park warrants re-examination in the medium to long term if planning approvals are issued for any new tourist accommodation developments.

The current Scheme has flexibility as it allows Tourist Development as a discretionary use for land zoned Residential, Townsite, Town Centre and Rural. If chalet or tourist developments occur elsewhere in the Shire then it may lessen the need for Area 16 to be planned for a caravan park site.

8.1.3.17 Area 17: Existing and short term Rural Residential (Point Henry Peninsular)

Area 17 is shown on Figure 20. Subdivision has occurred in accordance with a Subdivision Guide Plan for Point Henry with a range of lot sizes that respond to land capability, topography and are large enough to retain substantial areas of vegetation.

The Subdivision Guide Plan has been approved by the Shire, endorsed by the Western Australian Planning Commission and has created approximately 141 lots – refer Figure 25.

No further 'infill' subdivision will be approved in Area 17 beyond that allowable under the existing approved SGP's. The land in Point Henry is subject to high fire risk, and strategic fire breaks throughout the area have been based on the SGP design.

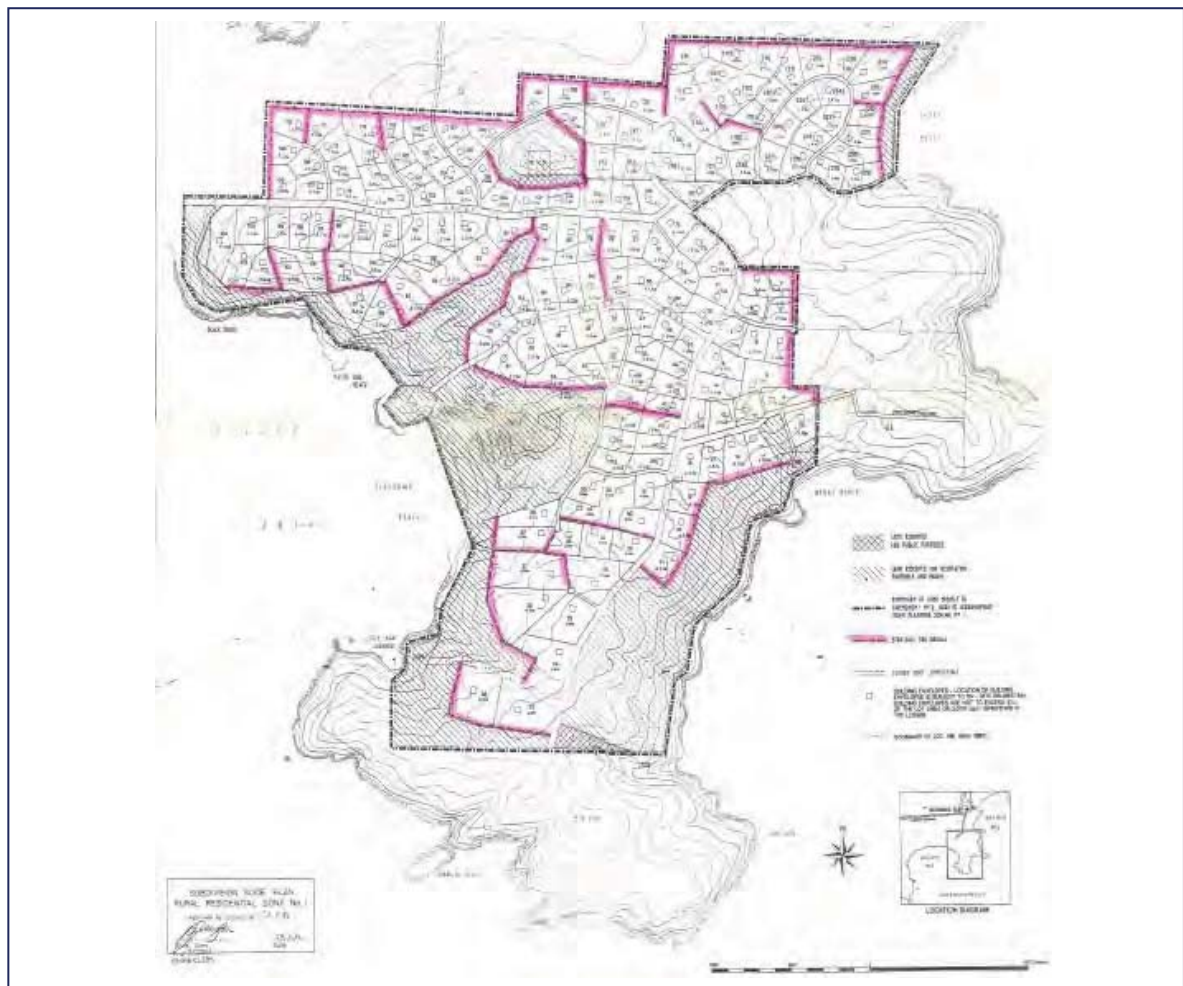


FIGURE 25 : Point Henry Subdivision Guide Plan approved by the Shire in 1992, and endorsed by the WAPC.

The Rural Residential areas covered by existing Subdivision Guide Plans in Point Henry have been subdivided to their full potential with the exception of some land in the southern portion. Lot 9007 traverses Little Boat Harbour Road and has an area of approximately 118 hectares - Figure 26.

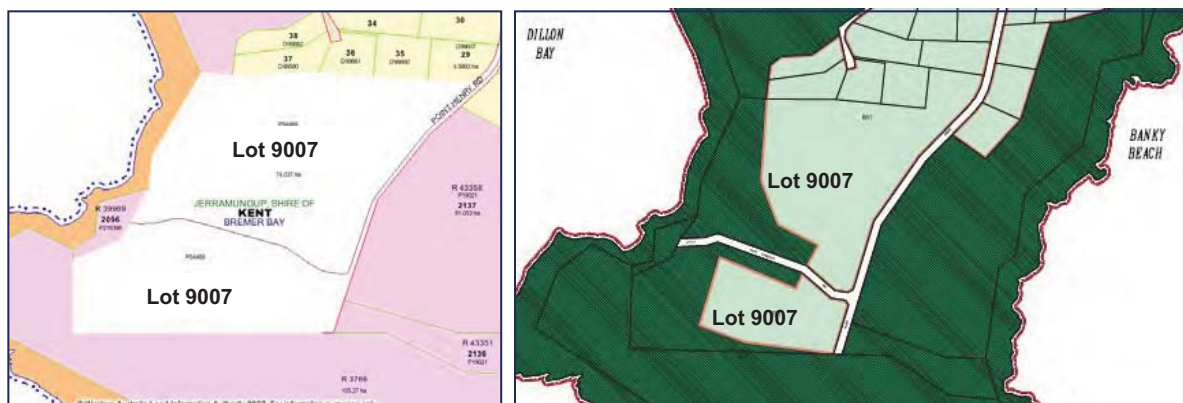


FIGURE 26 : Cadastral Plan of Lot 9007 and extract of Shires existing Scheme No 2 zoning map

Lot 9007 has some subdivision potential under the existing Point Henry SGP however a secondary emergency egress and fire management would need to be addressed.

A substantial portion is zoned 'Recreation and Open Space' under the Shires Scheme therefore the reserved land would be required to be ceded free of cost to the crown as a condition of any subdivision approval.

A separate Subdivision Guide Plan exists for land south of Short Beach Road and this land has been subdivided - Figure 27.

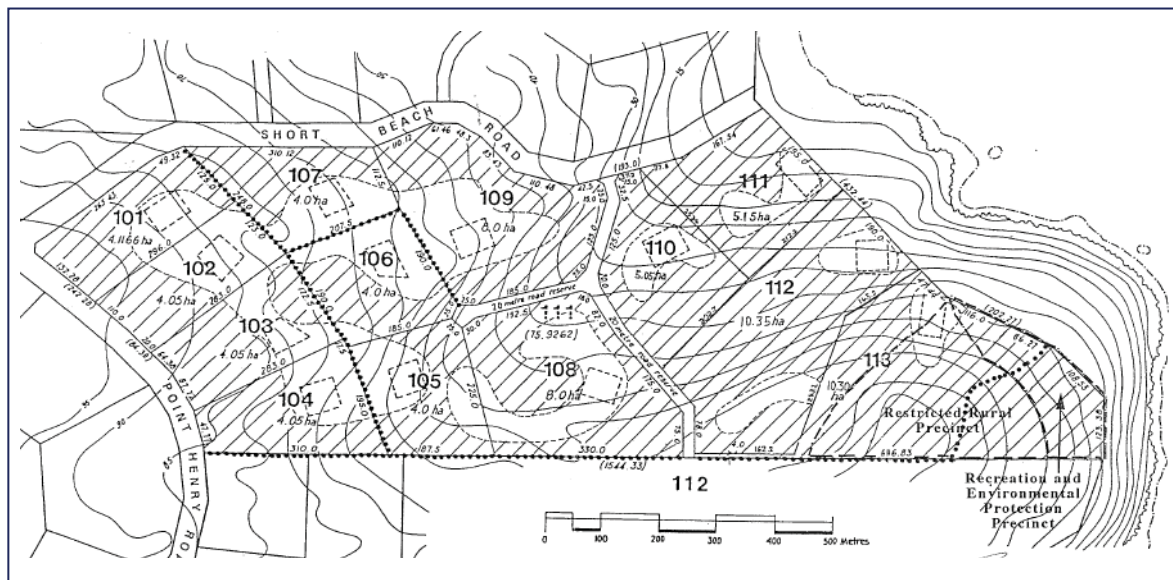


FIGURE 27 : Subdivision Guide Plan approved by the Shire in 1999 (and endorsed by WAPC).

The uptake of Rural Residential lots in Point Henry has been steady and a substantial number of lots have been developed. Lots are serviced with on site rainwater tanks and the existing Scheme has requirements relating to retaining vegetation, contributions towards fire management, and aesthetics of development. All development in Point Henry requires planning approval under the Shires Scheme No 2.

NOTES:

1. The comments in section 8.1.3.17 only apply to the land contained in Area 17 as shown on Figure 20, and not to the Point Henry Peninsular as a whole.
2. Historically, proposed scheme amendments and zonings for land in Point Henry has been assessed in accordance with the Shire of Jerramungup Limited Rural Strategy.
3. There are a number of lots on the Point Henry Peninsular which may still have re-zoning and subdivision potential under the Limited Rural Strategy. These lots are shown on Figure 20 with an asterisk. Any proposals for these lots will be assessed in accordance with the existing Limited Rural Strategy. A number of these lots are constrained and portions may be affected by 'Restricted Rural' and 'Recreational and Environmental Protection' designations under the limited Rural Strategy.
4. Any proposal for re-zoning, development or subdivision for those lots under the Limited Rural Strategy (discussed above) would have to comprehensively address issues such as an environmental assessment, land capability, visual impact, effluent disposal capability, water management and drainage, servicing, coastal setbacks etc.

8.1.3.18 Area 18: Existing and short term Rural Residential

The Shire and Minister for Planning has supported Amendments (1 and 4) to the Shire's Scheme to allow for further Rural Residential subdivision in Bremer Bay consistent with the Shire's Point Henry Limited Rural Strategy.

Area 18 includes Lot 400 Wellstead Road and Lot 89 Point Henry Road, Bremer Bay – refer Figure 20. Subdivision Guide Plans were prepared for both lots to co-ordinate future development and fire management.

The Subdivision Guide Plan for Lot 400 proposes a cluster of 8 Rural Residential lots along the southern boundary, and one larger northern lot that has potential for tourist accommodation with limited chalets. The portion of Lot 400 to the north Wellstead Road will be conserved as Recreation/ Open Space.

The Subdivision Guide Plan for Lot 89 will allow a continuation of the subdivision pattern approved for Lot 400, and will create approximately 20 lots along the south and eastern boundary and a larger conservation lot to the north.

It is anticipated that in the longer term Rural Residential may spread to the immediate east of existing Lot 89, subject to an amendment addressing vegetation retention, land capability and fire management. Further subdivision to the east of Point Henry Road is unlikely as it is identified in the Limited Rural Strategy as 'Restricted Rural' and 'Recreation and Environmental Protection'.

Area 18 may result in some small population increases.

8.1.3.19 Area 19: Potential Rural Residential infill

Area 19 comprises of Lots 9012 and Lot 2. Lot 9012 contains the original farm homestead (including museum and associated tourist uses).

The lots are identified for potential Rural Residential in the Shire of Jerramungup Limited Rural Strategy.

Land to the immediate south is already zoned 'Rural Residential' and Lot 400 to the north is also zoned 'Rural Residential'. Future Rural Residential development in this location would effectively be infill and allow a rounding off of the existing Rural Residential zone.

Notwithstanding the above, any Rural Residential subdivision design needs to carefully balance the need to maximise vegetation retention with the need to clear building envelopes and ensure adequate fire safety. Fire Management is an important consideration which needs to be addressed "up front" as part of any scheme amendment process.

Any Scheme Amendment will need to be supported by an environmental assessment report addressing flora / fauna, land capability and effluent disposal capability, a detailed service and drainage report, a comprehensive Fire Management Plan by a suitably qualified consultant to the Shires satisfaction, and a detailed subdivision guide plan which clearly outlines fire management requirements, building envelopes and any vegetation to be cleared.

Fire management needs to be addressed at the earliest stage of the planning process so that when any scheme amendment is referred to the Environmental Protection Authority, the full extent of environmental issues can be considered.

This area requires further investigation and whilst it is included in the Strategy, support for Rural Residential is contingent on significant supporting information and addressing environmental issues.

Recognition of Lots 9012 and Lot 2 in the Strategy should not be construed as sufficient justification in isolation for support of a scheme amendment by the Shire. Council will not initiate any scheme amendment until all issues have been satisfactory addressed, and will undertake preliminary consultation with relevant authorities such as the Fire and Emergency Services Authority (FESA), the Heritage Council of WA, Department of Water, and Department of Planning. This will ensure that all relevant information can be provided to the EPA for their consideration as part of any formal scheme amendment process. The Shire will recommend that the EPA consult with DEC over any proposal.

The Shire will rely on advice from the Department of Water as to the appropriate level of information required on water management and drainage.

8.1.3.20 Area 20: Tourist Accommodation / Existing Caravan Park

Area 20 contains an existing caravan park which is zoned 'Special Use 5' under the Shires Scheme allowing for '*caravan park and ancillary uses including kiosk*' subject to specific conditions.

As part of any future amendments or scheme review the Shire may consider reviewing the scheme provisions to more clearly define the types of permissible ancillary uses to be considered for caravan parks, and if services allow, allow flexibility for other types of tourist accommodation / facilities.

In the short to medium term it is possible the caravan park or tourist accommodation could be developed on lots to the immediate south if issues such as servicing and fire management can be addressed – refer Figure 20.

8.1.4 Strategies and Actions for Bremer Bay

Strategy 1:

Maintain Bremer Bay as place where people can enjoy a quality relaxed living environment with a range of housing opportunities and lifestyle choices that are developed on good design principles and enhance the existing townsite.

Actions

- Provide for a range of opportunities catering for future residential, rural residential and farmlet lots in the Local Planning Strategy.
- Require Subdivision Guide Plans, Land Capability reports and Service Reports as appropriate for all proposed Scheme Amendments.
- Require all Subdivision Guide Plans to incorporate sound planning design principles and adhere to relevant local and state planning policies.
- Maintain a high level of consultation with DEC over structure plans, and examine opportunities for vegetation corridors and conservation connectivity.
- Maximise opportunities for further serviced residential development in close proximity to the existing townsite.
- Maximise opportunities to respond to demand for new cleared Rural Residential lots that offer alternative lifestyle living than bush lots, in close driving proximity to the existing townsite.
- Develop a Local Planning Policy and monitoring schedule for rural residential lots that focuses on existing land supply, landowners ambitions and aspirations, demand, timing for land release, take up of lots etc.
- Consider opportunities to include a residential component in the proposed town centre through residential subdivision or provision for mixed use development.
- Examine opportunities for annual local awards for best streetscapes and gardens.

Strategy 2:

Maintain and improve the quality of life in Bremer Bay Townsite.

Actions

- Continue to seek funding for upgrading of roads, community facilities and services.
- Progress future planning and a structure plan for the proposed Bremer Bay Town Centre to provide a community gathering place and focus for the town.
- Develop a marketing strategy and / or brochures to promote the attributes of the Shire and attract new residents and businesses to the area.
- Conduct surveys or workshops to gather information required for forward planning that meets local community needs.
- Liaise with relevant servicing authorities to ensure future development areas are catered for in forward planning, and recognise service constraints.
- Seek any necessary upgrading of services to ensure the Shire has a sound, stable infrastructure that meets the needs of residents, tourists, visitors and local businesses.
- Promote the Shire as a desirable place to live and explore funding opportunities for marketing and tourism promotion.
- Foster a sense of community by promoting local community events and Council services.

- Pursue the creation of an Industrial area to broaden the economic base and provide for diversified employment opportunities.

Strategy 3:

Continue to cater for tourists and promote Bremer Bay as a desirable tourist destination offering a variety of attractions.

Actions

- Continue to promote and support tourist related uses.
- Actively encourage tourist developments in appropriate locations that include facilities and services which will attract tourists in non peak periods.
- Liaise with relevant tourist authorities on available funding opportunities for marketing and promoting the Shire or to develop a tourist strategy.
- Promote local recreational and cultural activities.
- Continue to raise awareness of the profile of the Shire.
- Seek funding opportunities for recreational development, urban design /streetscape works and public art to beautify the Shire.
- Recognise the importance of tourism and it's on local infrastructure.

Strategy 4:

Encourage and attract an increased permanent population to support business development with a focus on the town centre.

Actions

- Continue to pursue development of a town centre needed as a community hub.
- Assist developers in promoting any new subdivisions to potential purchasers.
- Examine funding opportunities for marketing and promoting the Shire as an attractive lifestyle choice for singles, families and aged persons.
- Develop a profile of the Bremer Bay townsite aimed at encouraging businesses to locate in the townsite.
- Develop and promote the planned Industrial area.
- Support local businesses through annual business awards and / or recognition of quality new developments.

Strategy 5:

Protect, conserve and enhance the environmental values and visual natural landscape of Bremer Bay for the benefit of current and future generations while providing appropriate development opportunities to promote the local economy.

- Require vegetation, flora and fauna reports where appropriate for Scheme Amendments, structure plans, and significant subdivision or development proposals. Such reports should be provided at the earliest possible stage in the planning process.
- Special environmental features are to be identified at the rezoning or structure planning stages. Larger lot sizes and / or building envelopes may be required to allow for protection of the special environmental features.
- Encourage revegetation where practical as part of the planning process and establishment of vegetation corridors and links.
- Generally support land use change and development that demonstrates positive environmental outcomes or reduces the degree of negative impact on the

environment (balanced against the objectives of the relevant zone and compliance with any relevant Local Planning Policy).

- Give due consideration to land capability and suitability when making decisions about the future use and development of land within the Shire that has potential to have environmental impacts.
- Support community involvement in environmental groups and rehabilitation of the natural environment.
- Maintain a high level of consultation with relevant agencies over specific issues and future strategic planning.

8.2 Jerramungup

8.2.1 Vision

Jerramungup is the main townsite in the Shire of Jerramungup and is strategically located west of the Fitzgerald River National Park. The town has an ambient rural character which needs to be maintained, and services a diverse agricultural area.

The town has potential to cater for any gradual increase in population and offers opportunities for new businesses, light and general industry. The Shire will be pursuing townsite improvements for streetscape and amenity purposes, which will further enhance the local town features.

8.2.2 Constraints

The main constraints for future growth of Jerramungup townsite include;

- The townsite is bound by a significant Water Supply Reserve to the west, Recreation and Open Space reserve to the south, and major roads to the north and east, being Gnowangerup Jerramungup Road and the South Coast Highway.
- There are two existing effluent ponds which have not caused nuisance but should be considered in terms of landuse capability. There are sufficient areas available in the event that any new ponds need to be constructed in the longer term;
- The town is surrounded by significant areas of vegetation and 'Recreation and Open Space' reserve;
- Large areas of land within the townsite are Unallocated Crown Land. While this land may be zoned in the Scheme for specific uses, development is constrained by tenure and remnant vegetation. This is particularly relevant to the land zoned for Light and General Industry.
- The town water supply scheme is close to capacity with little ability to service additional development. As noted in the Great Southern Regional Planning and Infrastructure Framework (Section 3.3) one of the main development issues in the region is identifying alternate solutions for essential services.
- There is virtually no vacant freehold industrial-zoned land available for development.
- Most of the existing freehold industrial lots are small in size and not suited to transport-associated industries.
- The existing Light and General Industry zones have very little separation distances to adjacent residential and other sensitive land uses including the high school and caravan park.

A summary of the main constraints are included in Figure 28.

8.2.2.1 Effluent Ponds

There are existing effluent ponds servicing Jerramungup however as recognised in the 2006 Strategy they adequately service the town and there has been an absence of any complaints. The performances of existing ponds are independently audited regularly and have sufficient capacity to cater for any short to medium term growth. Audits to date have not identified any need to increase the capacity of the ponds.

There is sufficient land area in the northern portion of Reserve 36173 to construct a second pond in the future if required. The Shire is investigating construction of a second pond in the long term to achieve 'best practice' as operating two ponds allows them to be rotated and one can be left to completely dry out.

It should be noted that although the ponds are referred to as 'effluent ponds' they do not have any odour impact and do not contain any waste materials.

Effluent from development is captured in septic tanks, and overflow water is directed to the ponds by pipe. This water can be utilised for irrigation if treated with chlorine.

Buffer separations have not been applied consistent with the approved 2006 Strategy. There are no generic buffers for end ponds in the EPA 'Guidance for the Assessment of Environmental Factors – Separation Distances between Industrial and Sensitive Landuses'.

The Water Corporation commonly apply buffers to Waste Water Treatment Plans however have not monitored buffers for final ponds.

Shire Officers have examined the ponds and have not observed any odour impacts. Similarly there have never been any complaints about the pond locations, operation or an identified impact.

8.2.3 Jerramungup Strategy Plan

The Strategy Plan for the Jerramungup townsite is included as Figure 29 and each area is described below.

8.2.3.1 Area 1: Short to Medium term residential

The existing residential area in Jerramungup has a flexible R15/30 code which allows development up to a maximum density of R30 subject to compliance with Clause 5.3(a) of the Shires Local Planning Scheme.

There is a substantial infill development potential based on existing lot size. For any significant increases in lots or population upgrading of the existing limited sewerage system operated by the Shire may be required.

It is anticipated that infill residential development at a medium density will only occur if there is reasonably significant population pressure. Growth in the town to date has been relatively marginal.

8.2.3.2 Area 2: Travellers facilities

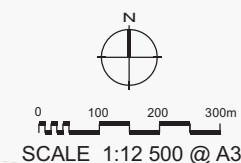
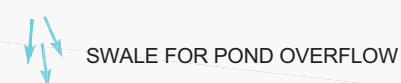
Area 2 is in a Special Use zone and listed in Schedule 4 of the Shires Scheme as 'service station'. In the longer term there is potential to further develop the land with ancillary tourist accommodation / travellers facilities, given the prime location on the intersection of Gnowangerup-Jerramungup Road and South Coast Highway.

8.2.3.3 Area 3: Light Industry



LOCAL PLANNING STRATEGY **JERRAMUNGUP TOWNSITE** **SHIRE OF JERRAMUNGUP**

LEGEND:



GRAY & LEWIS
LAND USE PLANNERS

Figure 29

Suite 5, 2 Hardy Street
South Perth, WA 6151
T (08) 9474 1722
F (08) 9474 1172
perth@graylewis.com.au

The vacant Light Industry zoned land predominantly consists of Crown Land (UCL and Reserves) which have large areas of remnant vegetation. There is little potential for further growth and expansion within the existing Light Industry zone.

In order to improve the separation distance between the High School, caravan park and industrial areas, consideration will be given to reserving Lot 420 (UCL) Memorial Road (currently zoned 'Light Industrial') as Parks and Recreation.

At development stage, the interfaces should be examined for lots on Bennett Street which share boundaries with Residential zoned land.

Additional industrial land can potentially be provided by expanding existing on Java Sea Road into the adjoining R26887 (Lot 148) (see Area 10).

8.2.3.4 Area 4: Town Centre

There is an opportunity to consolidate the town centre and provide it with a clearer identity through continued improvements.

The size is sufficient to service this population. The Shire is committed to improving the aesthetics and general streetscapes in the town.

There is a general planning objective to consolidate land use within townsites as well as providing for a range of services. As there is no significant residential development within the Town Centre zone the opportunity is there to consider minor service type businesses which will not detract from the amenity of the town centre while providing opportunities for more businesses.

The Scheme Zoning Table should be examined to consider the suitability of small scale service commercial/industrial uses such as mechanical repairs.

8.2.3.5 Area 5: General Industry

There are developed General Industry lots however there is still further development potential. It is important to consider recommended EPA buffers in examining any new industrial applications. All of the northern General Industry zone is cleared of native vegetation and has good access to the South Coast Highway.

The general industry zoned land to the south east of the existing golf course is currently unallocated crown land, and the Shire has approached the Department of Regional Development and Lands (RDL / State Land Services) for management of this land.

8.2.3.6 Area 6: Short to Medium term residential

There are existing lots generally bound by Derrick Street, Cuttler Street, Collins Street and Sydney Street which are currently zoned for Residential development (with a flexible R15/30 density code).

The Shire is currently in the process of servicing four residential lots facing Collier Street as the first stage in developing this area. It is anticipated these lots will be available in late 2011.

Due to the limited options for future townsite expansion the extension of services to these lots is imperative in the medium to long term. As outlined in section 7.4.2, the Shire has approached the Department of Regional Development and Lands (RDL /

State Land Services) for management over unallocated crown land to the north of Cuttler Street.

8.2.3.7 Area 7: Long term Residential

There is potential for some future limited residential expansion to the south. The land is currently reserved 'Conservation' therefore would require an amendment to the Scheme to a suitable residential zone, and it is likely a vegetation assessment would need to be undertaken.

8.2.3.8 Area 8: Medium to Long term Residential

Area 8 is currently zoned 'Rural' however is being investigated by the Shire for future residential as it is adjacent to existing residential zones (and infrastructure), will allow for a natural expansion of residential along Sydney Street and has gazetted road frontage. It is currently unallocated crown land and the Shire is liaising with RDL.

8.2.3.9 Area 9: Medium to long term Rural Residential

Currently there is limited lifestyle and housing choice in Jerramungup townsite therefore the Shire is investigating suitability and land capability of land that may be suitable for future rural residential.

Land capability assessment for a portion of Lot 1407 South Coast Highway is being conducted. Area 9 will need to be re-zoned in order to facilitate future rural residential or hobby farm subdivision.

This Strategy cannot identify the full extent of proposed rural residential as it will be responsive to demand, and lot yield will depend on land capability results. Area 9 which is under investigation has been included on the Strategy map as an insert – Figure 29.

As part of future design and development of an Outline Development Plan, land within part of Lot 1407 needs to be identified as required for any infrastructure including drainage and any necessary effluent ponds. Area 9 as shown on the Strategy map outlines the maximum area under investigation for Rural Residential area. The actual area available for rural residential lots may be reduced as portions of the land may be required for infrastructure and services.

8.2.3.10 Area 10: Development Investigation

Additional industrial land can potentially be provided by expanding existing development on Java Sea Road (Area 3) into the adjoining R26887 (Lot 148).

Due to the constraints identified in 8.2.2 there is no land currently available or suitable for a possible farm service centre or dealership. Any such facility will require a large area of land and the most suitable location for this is likely to be on the eastern side of the South Coast Highway (northern portion of R30388), subject to further investigation and rezoning.

The northern portion of (R30388) Lot 208 is to be investigated for potential industrial development.

The portion of R30388 (Lot 208) south of Newton Street has high quality remnant vegetation and should not be developed.

Any rezoning of these Reserves will require careful examination of potential constraints, including remnant vegetation and bushfire management, to ensure appropriate design. A Special Use zone may be required in order to have appropriate development control.

8.2.4 Strategies and Actions for Jerramungup townsite

Strategy 1:

Develop a successful service centre for the district by consolidating the town and improving services and facilities offered to residents and visitors.

Actions

- Continue to encourage development of the town centre as the principal place for retail, commercial, civic and administrative functions in the district.
- Ensure development will not adversely affect local amenities and encourage upgrading of older developments.
- Provide for the efficient and safe movement of vehicles (including trucks, buses, and caravans) and pedestrians.
- Provide sufficient parking spaces for cars, caravans, and buses without compromising pedestrian movements.
- Provide an increased level of public amenities including public toilets, shaded areas, public art and street furniture.
- Pursue funding opportunities for projects relating to revitalisation of the Jerramungup town centre.
- Identify tourism sites and opportunities in the townsite.
- Prepare and implement a townscape improvement plan and / or streetscape improvements that are complementary to the rural character of the area.
- Seek funding opportunities for public art and/or entry statements into the Shire.

Strategy 2:

Facilitate business opportunities and industrial development which will deliver diverse employment opportunities and support development in the district.

Actions

- Maximize the development potential of existing lots and encourage new developments by streamlining planning processes.
- Provide for the needs of light and general industry to support the community.
- Provide appropriate buffers and/ or treatments between industry and any sensitive land uses, so as to avoid land use conflicts.
- Seek funding opportunities to liaise with key stakeholders and major businesses and actively promote Jerramungup as a small business centre.
- Continue to pursue partnerships Federal and State bodies for business development and promotion.
- Investigate and identify sites which may be suitable for the development of a large agricultural machinery dealership / farm service centre.

Strategy 3:

Provide for residential development, increased housing choice and future expansion where residents have convenient access to services and facilities offered in the townsite.

Actions

- Supply a range of lot sizes by maintaining flexible codes in existing residential areas, and continue to pursue opportunities for expansion to the north west (old oval site).
- Ensure any new subdivisions incorporate sound planning design principles and adhere to relevant local and state planning policies.
- Continue to liaise with RDL and seek management of land suitably zoned for residential development.
- Continue to investigate and conduct land capability assessment to identify areas suitable for rural residential / lifestyle lots.

Strategy 4:

Liaise with relevant servicing authorities to continue to maintain and extend infrastructure to service current and future community needs.

Actions

- Seek necessary upgrading of services to ensure the Shire has sound infrastructure that meets the needs of existing and future residents and businesses.
- Liaise with servicing authorities through advertising of the Townsite Expansion Strategy to allow for future growth and planning.
- Continue to seek funding for upgrading of roads, community facilities and services.
- Investigate the ability to develop 'dry industries' in response to the limited capacity of the reticulated water supply.

Strategy 5:

Maximise tourist opportunities and promotion of local attractions.

Actions

- Continue to support the operation of the local tourist centre.
- Tap into the tourist potential created by such attractions as the protected coastline nearby and the Fitzgerald River National Park.
- Promote local attractions through cost effective advertising, updated photo galleries on the Shire website and liaison with relevant tourist authorities.
- Seek funding opportunities for continual updating of tourist brochures, development of local walk trails, plaques for key attractions and the like.

8.3 Boxwood Hill

8.3.1 Vision

The convenience store/service station at Boxwood Hill plays an important role and provides a fuelling and stop off point for visitors and local residents. Due to the lack of infrastructure and relative isolation, it is envisaged that Boxwood will remain a relatively small townsite, and that the existing zoned land will cater sufficiently for low growth which may occur over a long time period.

There may be some opportunity for workers accommodation as a result of the Grange Resources mine, however Bremer Bay is more likely to be more attractive to potential future residents and workers. The Boxwood Hill Strategy Plan is shown as Figure 30.

8.3.2 Constraints

The main constraints for Boxwood Hill are the lack of infrastructure and remoteness from services. Whilst the town is surrounded by attractive features, such as flora/fauna values, views across the Pallinup River valley, and views to the Stirling Ranges, the greatest drawback is the relative remoteness from Jerramungup (60km), Bremer Bay (60km), and Albany (120km).

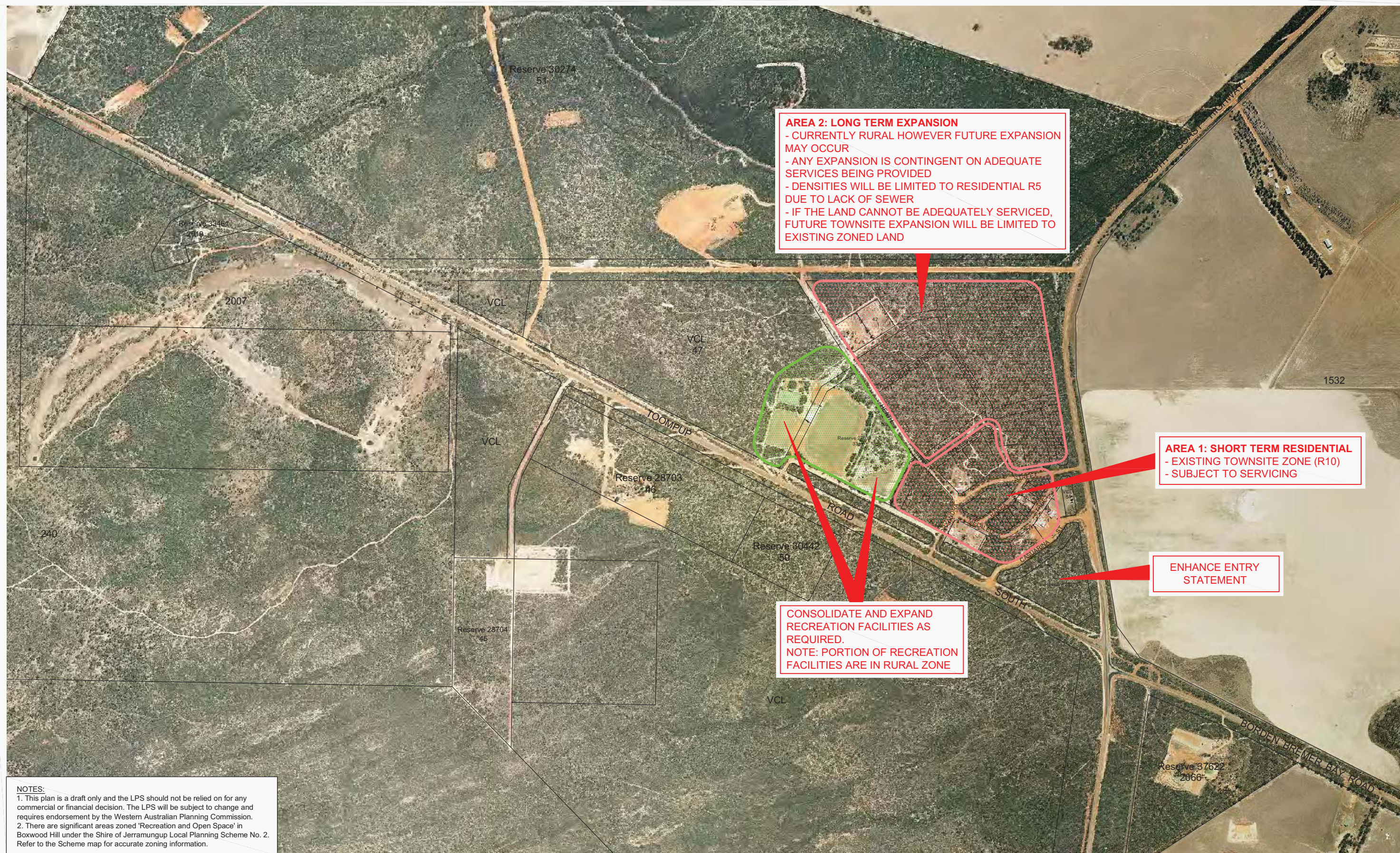
8.3.2.1 Area 1: Existing short to medium term townsite growth

Area 1 is zoned 'Townsite' under the Shire of Jerramungup Local Planning Scheme No 2 and contains the existing service station / convenience store – refer Figure 31.

The Townsite zone provides flexibility for future growth as it caters for a wide range of uses normally associated with a small town. This area could cater for any immediate future residential demand and a density code of R10 applies. The main constraint would be servicing of any new subdivision.



FIGURE 31 : Existing Townsite zone in Boxwood Hill shown on scheme zoning map (Source: WAPC)



LOCAL PLANNING STRATEGY **BOXWOOD HILL TOWNSITE** **SHIRE OF JERRAMUNGUP**

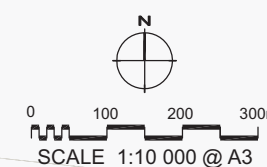


Figure 30

Suite 5, 2 Hardy Street
 South Perth, WA 6151
 T (08) 9474 1722
 F (08) 9474 1172
 perth@graylewis.com.au

8.3.2.2 Area 2: Long Term expansion

In the event that Boxwood Hill did experience population pressure as a result of new industries in the area, and the existing townsite zone became fully developed, then there would be opportunities to consider further expansion to the north subject to examination of vegetation values, land capability and servicing abilities.

Due to lack of sewer future residential development would be limited to an R5 density and would be contingent on addressing servicing including the need for water supply. Future expansion will be limited to the existing zoned areas unless services can be provided.

8.3.3 Strategy and Action for Boxwood Hill townsite

Due to the size and low growth rate for Boxwood Hill, the existing zoned areas will likely cater for the towns needs for the next 10-15 years. As such, there are limited strategies required for Boxwood Hill.

Strategy 1:

Maximise attractiveness of existing businesses and the townsite

Actions

- Continue to support the operation of the local service station.
- Provide an entry statement into the townsite and ensure it is well sign posted.
- Seek funding opportunities for townscape improvements
- Continue to maintain local recreation facilities.
- Promote tourist attractions in the surrounding area and Boxwood Hill as an important fuel outlet servicing tourist.

9.0 CONCLUSION

The 2006 Local Planning Strategy provided a sound basis for strategic planning for the Shire of Jerramungup, however it is important that Strategies are reviewed periodically in order to remain current and valid planning tools. Many of the recommendations of the 2006 Strategy were incorporated into the current Shire of Jerramungup Local Planning Scheme No 2.

Due the extent of constraints on future growth of both Bremer Bay and Jerramungup townsite, it is considered that the Local Planning Strategy needs to plan for up to the next 30 years to ensure land is identified for long term residential and rural residential growth. The location of new Rural Residential and Farmlet/ hobby farm areas should not unduly constrain potential for long term urban expansion.

V1 Drafted October 2010	18 October 2010
V2 Modified to include Shire changes	15 December 2010
V3 Modified to include WAPC changes	30 June 2011
V4 Draft with recommended changes after advertising – for Council consideration	20 December 2011
V5 Final Local Planning Strategy to include WAPC modifications 16 November 2012	14 December 2012
V6 Local Planning Strategy modified with LPS Amendment No.1	26 June 2018