Shire of Chapman Valley
Love the Rural Life

COASTAL MANAGEMENT STRATEGY AND ACTION PLAN

SHIRE OF CHAPMAN VALLEY

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This project was funded jointly by the Shire of Chapman Valley Council (one third) and the Department of Planning (two thirds) via the Coastal Management Plan Assistance Program (CMPAP).

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executive summary

This document presents the Coastal Management Strategy and Action Plan (CMSAP) for the Shire of Chapman Valley. The purpose of the report is to identify current land uses, values and issues along the Shire's coast and to make recommendations for future management.

The Study Area extends from Drummond Cove at the southern boundary of the Shire to Woolawar Gully within the Shire of Northampton. It is primarily used for low-key recreational pursuits such as camping, water sports and off-road driving. There is some residential development located adjacent to the southern boundary and land zoned for future residential development located between Drummond Cove and Buller River. The Oakajee Port and industrial development has previously been considered in the area.

Planning for coastal zone land is about balancing these often competing needs and desires in a way that takes into account the values of the coastal zone, which include its scenic, aesthetic and ecological qualities; recreational opportunities; and social, indigenous, cultural and economic importance. In addition, the presence of coastal hazards is also an important consideration. There is also growing pressure on coastal resources as the state's population increases, coastal-based industries expand and technological changes make remote areas more accessible.

The overall effect of these values contributes to the psychological wellbeing and health of the local and regional community. Successful coastal planning today will ensure that current and future generations can benefit from the opportunities presented by the values and resources of the coast.

In recognition of these values and resources the Shire of Chapman Valley, together with the Shire of Northampton identified the need to prepare a Coastal Management Strategy to guide future coastal uses along the coast between Drummond Cove and Woolawar Gully in 2007. To ensure its continuing relevance to land use planning objectives it was recommended that this Strategy be reviewed within a 10 year timeframe.

The strategic vision of the report is:

To manage the unique recreational resources of the study area taking into account risk from coastal hazards and sea level rise whilst recognising that a section of this coast is identified for port and industrial land uses.

This vision was developed through consideration of existing and emerging issues as well as recent planning reports and new State and local government policy guidance.

To achieve the vision a number of objectives are identified within the document including:

- **Objective 1** – To manage the recreational resources to retain the broad range of recreational opportunities, environmental values and sense of isolation unique to the area
- **Objective 2** – To achieve cohesive and effective coastal land management considering the fragmented nature of land ownership
- **Objective 3** – Ensure management and protection of the coast is undertaken in a sustainable manner
- **Objective 4** – Adequate consideration of coastal hazards and ensure management is undertaken in accordance with SPP 2.6
- **Objective 5** – To adequately consider future coastal industry, urban growth and tourism and the effects this may have on recreational use of the study area
- **Objective 6** – Should the proposals for the Oakajee Industrial Estate be realised in the near future, to restore equilibrium, where practical, through the provision of alternative facilities so as to minimise the longer term impacts of the Oakajee Strategic Industrial Estate on recreational choices along the study area.
- **Objective 7** – To retain, protect and enhance areas of historic value within the study area
- **Objective 8** – To increase community awareness and participation in coastal management and maintain successful relationships between stakeholders and coastal landowners.

The Coastal Management Strategy and Action Plan aims to provide a framework for the achievement of these objectives.

Through development of this new strategy and action plan, a number of issues have been identified which require

unified management and stakeholder commitment in order to be addressed. These issues include:

- The fragmented nature of land ownership of this section of coast which results in difficulties in achieving coastal management objectives and actions
- Addressing climate variability and the potential for impacts resulting from climate change in the medium to longer term
- Appropriate management of recreational land uses to reduce and mitigate environmental degradation
- Provision of permanent access to the coast
- Intensifying usage of the coast due to population and urban growth and the need to cater for this but at the same time maintain the areas unique 'tranquillity and isolation'
- Protection and enhancement of recreational activities popular in the area such as windsurfing, kiteboarding and longboarding
- The need to consider within coastal management the future development of the Oakajee Port and Industrial Estate; The need to identify provision of facilities with appropriate controls to sustainably provide for tourist and recreational demands
- Appropriate management of negative externalities associated with camping in the study area;
- Appropriate sustainable management of off-road vehicles within the area
- The need for more policing at certain sites to help manage land use
- Consideration of heritage assets and values within the area
- The need to continue and enhance community involvement in coastal management, particularly coastal land owners as well as user groups and community groups with an interest in coastal management issues.

To address these important issues, the report provides 'Coastal Management Strategies' for themes covering the entire study area such as **Coastal Tenure, Coastal Processes and Climate Change, Environmental Management, Access, Landuse and Facilities, Heritage and Community Involvement**.

The purpose of this is to establish an over-arching management framework that can be applied to the entire study area. The strategies were derived in a similar way to the development of the recommendations in the Action Plan for each Coastal Management Sector – through consideration of the recommendations in the 2007 Strategy, through consultation with the Steering Group, stakeholders and community, from observation of the coast through site visits and from the literature review. The strategies also aim to achieve the objectives for the study area (discussed above).

Following the coastal management strategies, the study area is divided into six distinct coastal management sectors (CMS), each having defined directions, objectives, management issues as well as actions and recommendations. These six coastal management sectors are:

- **CMS 1 – Drummond Cove**
- **CMS 2 – Buller River**
- **CMS 3 – Spot X and Oakajee River**
- **CMS 4 – Coronation Beach**
- **CMS 5 – Oakabella Creek**
- **CMS 6 – Woolawar Gully**.

This Coastal Management Strategy and Action Plan identifies the specific actions needed, as well as their timing and responsibilities, to ensure the assets and values identified by the community and stakeholders of this highly valued coastline are secured for the long term whilst avoiding actions that might conflict with long term strategic State planning directions (please refer to Chapter 2 for the Strategies and Chapter 3 for Action Plans). The implementation section of this report (Chapter 4) provides further detail regarding responsibilities, monitoring, timeframes and funding options.

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acknowledgements

The preparation of this report was a collaborative process which included input from the Shire of Chapman Valley and various stakeholders. It was prepared with valuable assistance from the following people:

- John Collingwood (Shire of Chapman Valley President)
- Kirrilee Warr (Shire of Chapman Valley Councillor)
- Maurice Battilana (Shire of Chapman Valley)
- Simon Lancaster (Shire of Chapman Valley)
- Peter Duplex (Mid West Ports Authority)
- Kasey Green (LandCorp)
- Jessica Stingemore and Mic Payne (Northern Agricultural Catchments Council)
- Kate Watson (Geraldton Windsurfing Club)
- Deborah Millener (Department of Planning)
- Vivienne Panizza (Department of Planning)
- Ryan Carvell (Department of Planning)
- Hayley Williams (Shire of Northampton)

This project was funded jointly by the Shire of Chapman Valley Council (one third) and the Department of Planning (two thirds) via the Coastal Management Plan Assistance Program (CMPAP). The recommendations and background information from the Shire of Chapman Valley draft Coastal Management Strategy 2007 (Shire of Chapman Valley and Koltasz Smith, 2007) provided valuable input into this Strategy as well as other resources prepared by the Shire of Chapman Valley, Landcorp, Mid West Ports Authority, Department of Planning and NACC.

defintions and abbreviations

Definitions

Amenity – those factors which combine to form the present character and likely future character of an area.

Biodiversity – the variety of life: the different plants, animals and microorganisms and the ecosystems of which they are a part.

Coastal foreshore reserve – the area of land on the coast set aside in public ownership to allow for coastal processes and provide protection of ecological values, landscape, visual landscape, indigenous and cultural heritage, and public access, recreation and safety.

Conservation – the protection, management, sustainable use and enhancement of the natural environment.

Development – any change to land use, including housing, any demolition, erection, construction, alteration of or addition to any building or structure on the land and any excavation or other works.

Dieback – the common name given to the pathogen Phytophthora cinnamomi which is a soil borne water mould that invades and destroys the root systems of many native flora species in WA.

Ecological linkage – a series of (both contiguous and non-contiguous) natural areas that, within a landscape context, connect larger natural areas by forming stepping stones of habitat that allow the movement of organisms and genetic material between these larger natural areas.

Ecology – study of the relationships of animals and plants, particularly of animal and plant communities, to their surroundings, living and non-living.

Ecosystem – a term used to describe a specific environment to include all the biological, chemical and physical resources and the inter-relationships and dependencies that occur between those resources.

Landscape values – natural and/or cultural landscape features that are highly valued, as defined by documented research.

Off-road vehicle – an un-registered vehicle that has the ability to be used off road (e.g. quad bike, dune buggy, trail bike).

Remnant vegetation – stands of remaining native vegetation indigenous to a locality.

Reserves – may be either land classified in local planning schemes for public purposes or areas of Crown land reserved for public purposes as determined by the Land Act 1933 and the Land Administration Act 1997.

Road Registered Vehicle – A licensed, road registered vehicle that has the ability to be used off road (e.g. 4WD, motor bike, licensed quad bike).

Sustainability – meeting the needs of current and future generations through the integration of environmental protection, social advancement and economic prosperity.

Threatened Ecological Community – communities which consist of native vegetation which are poorly represented and in danger of extinction.

Threatened Flora – Rare and priority flora protected under the Environmental Protection Act 1986.

Threatened Fauna – Fauna protected under the Wildlife Conservation Act 1950.

Vehicle – A vehicle is propelled by an engine or other mechanical source of power.

Abbreviations

2WD ..... Two Wheel Drive

4WD..... Four Wheel Drive

CMS ..... Coastal Management Sector

CMSAP ..... Coastal Management Strategy and Action Plan

DAFWA..... Department of Agriculture and Food Western Australia

DER..... Department of Environment and Regulation

DPaW ..... Department of Parks and Wildlife

DoL ..... Department of Lands

DotE..... Department of the Environment

DAA. ..... Department of Aboriginal Affairs

DoP..... Department of Planning

DSD ..... Department of State Development

DoW. ..... Department of Water

EPBC..... Environmental Protection and Biodiversity Conservation

MWPA ..... Mid West Ports Authority

NACC ..... Northern Agricultural Catchments Council

ORV ..... Off Road Vehicle

RRV ..... Road Registered Vehicle

SCV ..... Shire of Chapman Valley

SoN ..... Shire of Northampton

SPP ..... State Planning Policy

LPS ..... Local Planning Scheme

UCL..... Unallocated Crown Land

WAPC..... Western Australian Planning Commission

YMAC ..... Yamatji Marpla Aboriginal Corporation

Priorities have been classified as follows:

- S: Short term – within the next 2 financial years
- M: Medium term – within the next 5 years
- L: Long term – 5+ years
- O: Ongoing – as required

1.0 INTRODUCTION

introduction

1.1 BACKGROUND AND PURPOSE

In 2007 the Shire of Chapman Valley Coastal Management Strategy was prepared. A review of the Strategy is required to address new issues and changing social, economic and environmental factors within the study area. The project is funded by the Department of Planning under the Coastal Management Plan Assistance Program (CMPAP) and the Shire of Chapman Valley.

Since the previous Strategy was prepared in 2007, a significant amount of planning has been undertaken for the Oakajee Mid West Development Project including the Oakajee Industrial Estate Structure Plan (Landcorp, 2012) and Oakajee Port Master Plan (Mid West Ports Authority, formally the Geraldton Port Authority, 2011). These documents make recommendations in terms of coastal management and access. The review is required as a result of the developing pressures (such as population growth, increased use of the coast for recreation and the possibe future development of Oakajee Port) and the need to integrate long term recreational and tourism requirements with the impacts of potential future industrial and port activities at Oakajee.

Other considerations that need to be incorporated into the Coastal Management Strategy and Action Plan include:

- State Planning Policy 2.6 State Coastal Planning which was gazetted on the 30th July 2013
- The Council's resolution at its meeting on the 16th September 2009 not to proceed with the boat launching facility at Coronation Beach
- The recent climate change adaptation documents and policies which have been prepared (Climate Change Adaptation Action Plan (Batavia Region Organisation of Councils, 2010))
- Increasing pressures through off-road vehicle use such as additional tracks, rubbish, fire risk etc.
- Land use and management of the coast between Buller River and Coronation Beach if the Oakajee Port is not developed in the short term
- Relevant information from local strategic and statutory documents including the Shire's Local Planning Strategy and Local Planning Scheme
- Pertinent information from relevant technical studies for this portion of coastline such as The Coast of Shire of Coorow to Northampton, Mid West Western Australia (DoT/DoP, 2012)
- Changes to the key participants/responsible agencies (for example the Mid West Ports Authority now have management of much of the coast)
- External funding options

This document presents the Coastal Management Strategy and Action Plan (CMSAP) for the Shire of Chapman Valley coastline and the southern part of the Shire of Northampton coastline. The purpose of the CMSAP is to identify the current land uses, values and issues and to make recommendations in regards to the future management of the Shire's coast. The report was prepared with the view that natural environments have limited capacity to absorb land use pressures before they start to degrade and their capacity for regeneration is reduced. The process involved a thorough consultation process with landowners and stakeholders, a review of new information and site assessments to determine relevant actions.

The focus of the CMSAP is on the recreational value and use of the study area. Detailed planning for tourism, industry and urban growth is undertaken separately to this project. Nevertheless, the CMSAP takes existing planning proposals into account and provides recommendations which focus on management of the coast so it can continue to be used by the community as a recreational resource.

The following broad steps were taken during the preparation of this document:

- Review of the Shire of Chapman Valley draft Coastal Management Strategy 2007
- Review documents which have been released since 2007 such as the Oakajee Industrial Estate Structure Plan (Department of State Development, Landcorp and RPS, 2012) and Oakajee Port Master Plan (Geraldton Port Authority and GHD, 2011)
- Regard for SPP 2.6 (WAPC, 2013)
- Detailed site assessment of coastal nodes
- Consultation with the Steering Group, landowners, stakeholders, government agencies and community
- Identification of current issues and development of strategies and actions to address them.

To address important issues, the report provides overarching 'Coastal Management Strategies' for themes covering the entire study area such as:

- Coastal Tenure
- Coastal Processes and Climate Change

- Environmental Management
- Access
- Land Use and Facilities
- Heritage
- Community Involvement

The purpose of this is to establish an over-arching management framework that can be applied to the entire study area. The strategies were derived in a similar way to the development of the recommendations in the Action Plan for each Coastal Management Sector – through consideration of the recommendations in the 2007 Strategy, through consultation with the Steering Group, stakeholders and community, from observation of the coast through site visits and from the literature review. The strategies also aim to achieve the objectives for the study area (discussed below in Chapter 1.3).

Following the coastal management strategies, the study area is divided into six distinct coastal management sectors (CMS), each having defined directions, objectives, management issues as well as actions and recommendations. These six coastal management sectors are:

- CMS 1 – Drummond Cove
- CMS 2 – Buller River
- CMS 3 – Spot X and Oakajee River
- CMS 4 – Coronation Beach
- CMS 5 – Oakabella Creek
- CMS 6 – Woolawar Gully.

The recommendations in the Action Plan have been formulated from a thorough consultation process with landowners and stakeholders and the Steering Group, as well as a review of existing and new information and site assessments to determine relevant actions. The actions aim to achieve the objectives for each coastal management sector.

This CMSAP identifies the specific actions needed, as well as their timing and responsibilities, to ensure the various assets and values identified by the community and stakeholders of this highly valued coastline are secured for the long term (please refer to Chapter 2 for the Strategies and Chapter 3 for Action Plans). The implementation section of this report (Chapter 4) provides further detail regarding responsibilities, monitoring, timeframes and funding options.

1.2 STUDY AREA

The CMSAP applies to the coastal area stretching from Drummond Cove at the southern boundary of the Shire of Chapman Valley, to Woolawar Gully (Shire of Northampton) to the north and stretches for a distance of approximately 18.5km (Figure 1.1). The study area has been divided into Coastal Management Sectors (based on the 2007 Strategy) and separate Action Plans are provided for each sector.

Tenure along the coastline is primarily freehold (predominantly owned by LandCorp) and reserve for the purposes of the Port Authority Act 1999. Three small reserves are vested with the Shire at Coronation Beach for the purposes of camping and recreation. Freehold land is located at Coronation Beach and Buller. A narrow strip of the beach north of Coronation Beach to Woolawar Gully is UCL and further inland is freehold. Some of the coastal area between Drummond Cove and Buller River is also UCL.

The Chapman Valley coastline comprises predominantly sandy beaches backed by relatively steep dunes and protected by a near shore reef system. The area is associated with an open, exposed coastline subject to the full force of sea conditions, particularly during storms. The marine system in the vicinity of the study area is in near pristine condition. The shallow water habitats, such as the high reef, low reef and shallow limestone pavement, are important areas of primary productivity and form a refuge for marine fauna including a wide range of reef fish and a large number of invertebrates including juvenile and adult rock lobsters.

1.3 STRATEGIC VISION AND OBJECTIVES

The strategic vision for the study area is as follows:

To manage the unique recreational resources of the study area taking into account risk from coastal hazards and sea level rise whilst recognising that a section of this coast is identified for port and industrial land uses.

The strategic vision is based on the vision in the 2007 Strategy and has been updated to align with the current economic, social and environmental situation. It has been created based on the current issues and trends derived from consultation and a review of recent literature.

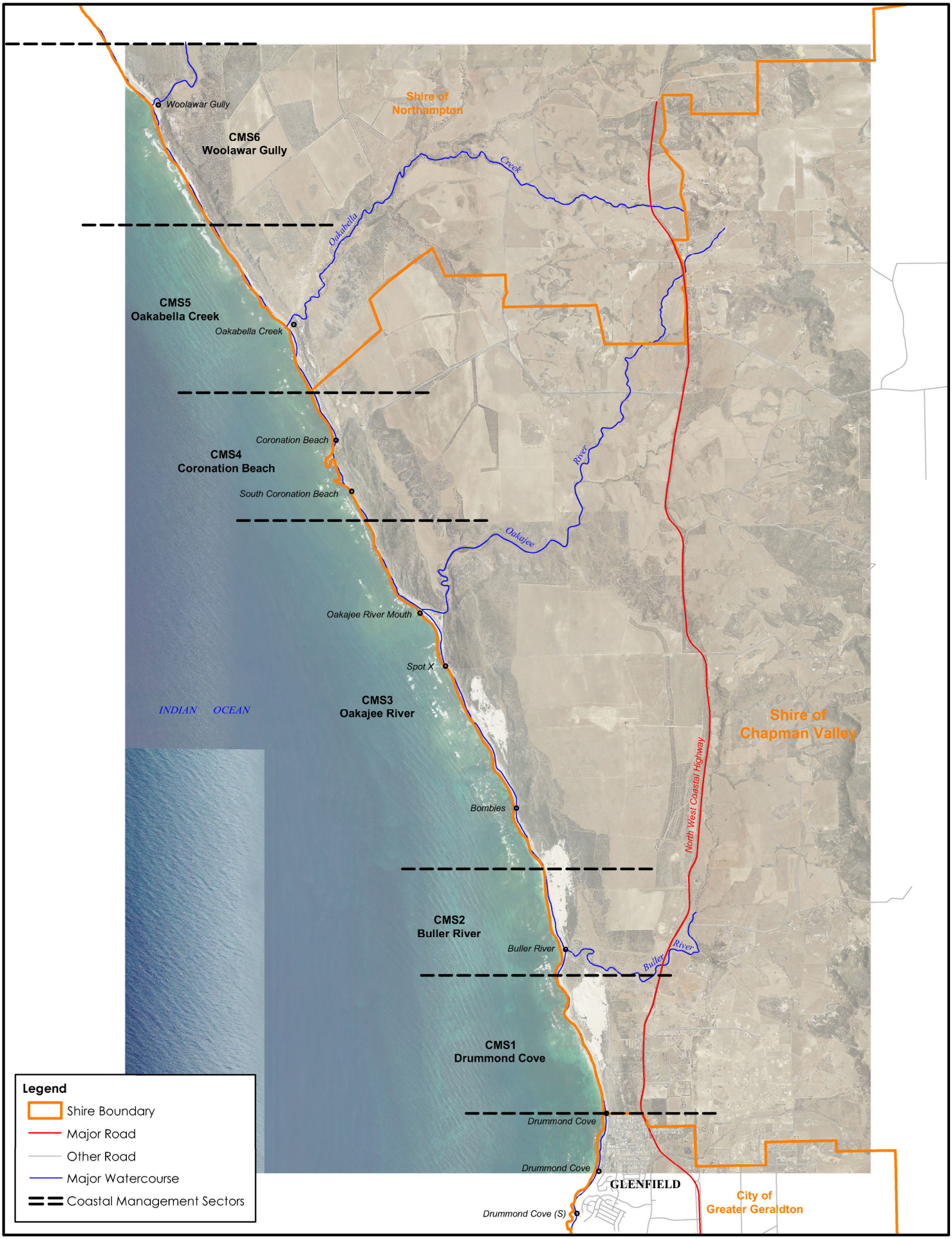
The objectives of the CMSAP are below. These are based on the objectives in the 2007 Strategy and have been revised to take into consideration current issues and trends.

- **Objective 1 – To manage the recreational resources to retain the broad range of recreational opportunities, environmental values and sense of isolation unique to the area**
- **Objective 2 – To achieve cohesive and effective coastal land management considering the fragmented nature of land ownership**
- **Objective 3 – Ensure management and protection of the coast is undertaken in a sustainable manner**
- **Objective 4 – Adequate consideration of coastal hazards and ensure management is undertaken in accordance with SPP 2.6**
- **Objective 5 – To adequately consider future coastal industry, urban growth and tourism and the effects this may have on recreational use of the study area**
- **Objective 6 – Should the proposals for the Oakajee Industrial Estate be realised in the near future, to restore equilibrium, where practical, through the provision of alternative facilities so as to minimise the longer term impacts of the Oakajee Strategic Industrial Estate on recreational choices along the study area**
- **Objective 7 – To retain, protect and enhance areas of historic value within the study area**
- **Objective 8 – To increase community awareness and participation in coastal management and maintain successful relationships between stakeholders and coastal landowners.**

1.4 DOCUMENT STRUCTURE

The document consists of two parts – Part A contains strategies and actions for management of the study area and Part B contains background information relating to policies, environmental features and social characteristics. The reports and policies which provide the planning, social and environmental context for the study area are discussed in more detail in Chapter 5 in Part B.

The coastal management strategies provide an over-arching management framework that can be applied to any of the coastal sites. Further to this, each coastal sector has a suite of recommendations which are specific to that site. A plan is provided to show diagrammatically where the actions relate.



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Note: All boundaries subject to survey.

NORTH

Shire of Chapman Valley
COASTAL MANAGEMENT STRATEGY
Figure 1.1
Study Area

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SCALE: 1:90,000 (A4) Plan No: 965-01 Date: May 2016

PART A. STRATEGIES AND ACTION PLANS

2.0 COASTAL MANAGEMENT STRATEGIES

coastal management strategies

2.1 BACKGROUND

This chapter considers a range of coastal management issues and provides overarching 'Coastal Management Strategies' for themes covering the entire study area such as:

- coastal tenure
- coastal processes
- environmental management
- access
- land use and facilities
- heritage
- community involvement.

Each of the above themes are discussed in further detail below and strategies are provided which can help to manage the issues associated with each theme. The purpose of the strategies is to establish an over-arching management framework that addresses the issues and that can be applied to the entire study area. They were developed by a thorough analysis of the issues relating to coastal management of the study area and thorough consultation with the community and stakeholders. The strategies presented below aim to be practical and achievable through implementation of this CMSAP.

2.2 KEY ISSUES

A number of key issues were identified through the consultation process and are outlined below. These key issues were considered in development of the over-arching coastal management strategies and included:

COASTAL TENURE

- The fragmented nature of land ownership of this section of coast which results in difficulties in achieving coastal management objectives and actions

COASTAL PROCESSES

- Addressing climate variability and the potential for impacts resulting from climate change in the medium to longer term

ENVIRONMENTAL MANAGEMENT

- Appropriate management of recreational land uses to reduce and mitigate environmental degradation

ACCESS

- Provision of permanent access to the coast

LAND USE AND FACILITIES

- Intensifying usage of the coast due to population and urban growth and the need to cater for this but at the same time maintain the areas unique 'tranquillity and isolation'
- Protection and enhancement of recreational activities popular in the area such as windsurfing, kiteboarding and longboarding
- The need to consider within coastal management the future development of the Oakajee Port and Industrial Estate
- The need to identify provision of facilities with appropriate controls to sustainably provide for tourist and recreational demands
- Appropriate management of negative externalities associated with camping in the study area
- Appropriate sustainable management of off-road vehicles within the study area
- The need for more policing at certain sites to help manage land use

HERITAGE

- Consideration of heritage assets and values within the area

COMMUNITY INVOLVEMENT

- The need to continue and enhance community involvement in coastal management, particularly coastal land owners as well as user groups and community groups with an interest in coastal management issues.

The above key issues are discussed further in Table 2.1 below.

Table 2.1 – Key Issues

ISSUE	COMMENT
Land Tenure and Ownership The land tenure and ownership along the coastal area varies considerably from state ownership, reserves vested with the Mid West Ports Authority, land under private ownership, Unallocated Crown Land and a small area vested with the Shire of Chapman Valley at Coronation Beach. This fragmented and varied ownership can make coastal management difficult without agreement and cohesive decision making between all parties.	This report aims to gather the desires and ideas from all responsible land managers to create a list of actions that are agreed upon and which can be realistically achieved over time.
Coastal Hazards It is suggested that, in the context of the coast of the Chapman Valley Shire, the potential impacts of natural climatic variability may be equal or more significant to immediate planning objectives than the impacts of climate and sea level change associated with the greenhouse effect which may well be superimposed on the broader climatic patterns. Therefore, it is advisable to maintain a significant reserve between the shoreline and any permanent, substantive development.	Any development proposals should be in accordance with SPP 2.6.
Environmental management Appropriate management of recreational land uses to reduce and mitigate environmental degradation.	This can be achieved through environmental management strategies recommended in this report and through the implementation of strategies relating to land use management.
Provision of Access Access to coast for surfing, kitesurfing, windsurfing and longboarding. It is important that the coastline continues to be managed in such a way that protects and enhances this activity. Access to Buller River is restricted and, while a private gravel track provides access from the highway, it is entirely located on Landcorp land. The only other way to access the river is by driving north through the dunes from Drummond Cove or by driving along the river, however access is also through private property. Improving access to Buller River will require an agreement with Landcorp and consultation and approval from Main Roads WA in respect of formalisation and upgrading of public access to Buller River.	The CMSAP includes a number of strategies and actions which focus on protection and enhancement of the coast for these popular uses. Recommendations have been provided in the context of the Oakajee Port not being developed in the short term and some actions are included should the Oakajee Port be constructed in the near future. The Strategy makes recommendations with regards to access to Buller River, in particular the activities required to consider the financial and logistical elements of the proposal.
Population Growth and Demand Resource driven population growth has intensified the demand for accessible coastal opportunities and leads to further growth in demand for recreational experiences. Anticipated pressures will be from recreational activities (i.e. larger number of people using the coast for swimming, fishing, diving, snorkelling, surfing, kitesurfing and windsurfing) and overnight stays such as camping. Anticipated pressures from population growth and increased tourism. Land north of Drummond Cove and south of Buller River is likely to be developed for future residential. The tourist potential of the coastal sites is high. The Shire is in close proximity to Geraldton and provides a regional escape without having to drive long distances.	These anticipated pressures have led to the need to review and update the 2007 Strategy. This report makes recommendations to address anticipated use and demand.

ISSUE	COMMENT
High Recreational Value The community highly value the coastal area as a recreational resource for its proximity, the tranquillity and sense of isolation afforded, the broad range of recreational choices; opportunities for "wilderness" camping (particularly for family groups) and the value of the section of coast to local and international tourism. As a result, the community have expressed that the Shire's coastal area requires sensitive management to preserve the current values and opportunities which are generally regarded by the community to be fairly well balanced at present.	This issue is addressed in the overall objectives for the management of Shire's coast and in the strategies and actions provided.
Consideration of Possible Port Development Should the Oakajee Port be developed sometime in the future, the Oakajee Industrial Zone over the Oakajee Strategic Industrial Estate and associated Special Control Area (Buffer Area) precludes any temporary / short term residential activities including camping, but continue to allow day use recreational activities. Development of Oakajee Port will have considerable impact on the recreational use of the coast. A majority of the coastline is currently undeveloped and has traditionally been used for low-key, wilderness camping experiences. This is likely to be impacted by the development of Oakajee Port. Some locations will be inaccessible to the public once the port is developed and it is expected that there will be increased pressure at Coronation Beach and the Buller River Mouth in particular. For example, the popular windsurfing and kitesurfing location known as Spot X will no longer be accessible. Coastal sites north and south of the Port (Coronation Beach and Buller River Mouth) are to be protected and managed to retain environmental and recreational values.	This is particularly an issue when it comes to Buller River which is currently used as an informal camping site (i.e. no facilities are currently provided). The Oakajee Port proposals have been considered during formulation of recommendations for the entire coastal area should development commence at some point in the future. This issue will need to be further considered should the proposals for the Oakajee Port resurface. In the short to medium, the impacts from the proposed Port will most likely not be an issue and existing land uses along the coast will not be significantly disturbed.
Provision of Facilities Camping is a popular activity along the Shire's coast, typically in association with other main beach activities such as surfing or fishing, particularly during peak holiday periods. Buller River and Coronation Beach are the most popular camping locations. With the exception of Coronation Beach, there are no facilities at Buller River or elsewhere along the coast. The absence of any controls on camping and facilities at Buller River is an emerging problem.	Camping is a popular activity, particularly at Buller River and Coronation Beach, however there are no facilities at Buller River and access requires upgrading and formalisation. It is anticipated that Buller River will be developed as a day use area only and that camping is focused at Coronation Beach. The report makes recommendations relating to land use at Buller River which is considered a main issue requiring management along the Shire's coast.

ISSUE	COMMENT
4WDs and Off-road Vehicles ORV use (including unlicenced vehicles and road registered vehicles), along the study area is becoming increasingly popular and requires management to help prevent land use conflict and environmental degradation. Historically this use was fairly low-key, however the coastal area is experiencing increased use of ORVs and RRVs, particularly dune buggies, trail and quad bikes which are a lot more affordable in recent years. Increased use is generating an increased safety problem as a consequence of the speed at which they travel along the beach and access tracks. MWPA signage permits access to their land by registered 4WD vehicles only (i.e. no quad bikes, trail bikes or dune buggies). The land north of Drummond Cove and south of Buller River has been identified for future residential purposes in the Buller Local Structure Plan which may impact on the recreational utilisation of the dunal area forward of the area by ORVs and RRVs.	ORV use has recently been investigated by the NACC in "Off-Road Vehicle Areas in the Northern Agricultural Region of Western Australia Feasibility Study" which considers the options for management of ORV use along the region's coast. It proposes further investigation of two ORV areas at Buller River. The report makes recommendations to address anticipated population growth and increased use in this area, particularly in relation to increased surveillance, improved access and management.
Policing There is an increasing requirement for active "policing" of the coast as a consequence of irresponsible off-road activities and the need for management of longer term camping activities; which will only be exacerbated by future population growth and increased utilisation of the study area.	This issue will need to be considered particularly in the future use and management of Buller River. Management and surveillance of this area is necessary in order reduce the current level of destruction and littering. This could be achieved through increased ranger presence, landowner presence or through the establishment of a caretaker or community group responsible for the area.
Historic Sites Coastal management will need to have regard for the ethnographic and archaeological sites on Coronation Beach Road, along the fringes of the Oakajee River, Buller River and sites in the dunes between the Buller and Oakajee Rivers.	The CMSAP aims to protect sites with heritage value and significance and has identified where these areas are where possible. Recommendations relating to increased surveillance and management, particularly along Buller River aims to address this.
Community Involvement Involvement of the local community in coastal management will help lead to a greater sense of ownership and care of the coast. There are opportunities to create community coastal care groups and ways to involve the community more in management.	Suggestions are provided regarding ways to increase community involvement in coastal management.

2.3 COASTAL TENURE

ISSUE & DESCRIPTION

Tenure and land management along the coastal area is fragmented and varies from state ownership, reserves vested with the Mid West Ports Authority, land under private ownership, Unallocated Crown Land and a small area vested with the Shire of Chapman Valley at Coronation Beach (See Figures 2.1a – 2.1g). This makes it difficult to achieve cohesive and effective coastal management unless all land managers are in agreement as to how areas are to be managed.

In order to overcome this issue, the preparation of this report has included a comprehensive consultation process with major land managers and stakeholders (to ensure agreement on major issues and recommendations) and responsibilities have been noted against each action. Another option is to appoint a leading authority who would oversee the implementation of the actions. Seeing as the majority of the study area is within the Shire of Chapman Valley and the CMSAP is the Shire's document, it would make sense that the Shire could be the leading authority should they wish.

There are some areas of UCL (south of Buller River and north of Coronation Beach stretching to Woolawar Gully) which are currently vested with DoL, although this is not an ideal scenario for effective on-ground management. A majority of the time, issues on areas of UCL, such as stranded vehicles or emergency situations, are dealt with by local government. Similarly, the Shire of Northampton has a lot of its coast as UCL, however they have expressed that Oakabella Creek and Woolawar Gully are too remote to take on responsibility at this point in time. Identification of a responsible land manager for the areas of UCL could help achieve better coastal management outcomes, however taking this on would mean expenditure of more resources and greater responsibility (i.e. liability). Changes to management orders of UCL also have native title claim issue requirements that must be addressed.

Tenure and land management for each Coastal Management Sector is described further below:

- CMS1 (Figure 2.1b) – A majority of the coastal strip from Drummond Cove towards Buller River is located in UCL, including most of the 4WD access track. Inland from the UCL area is privately owned land subject to the Buller Local Structure Plan.
- CMS 2 (Figure 2.1c) – The coastal area south and north of Buller River, including the actual river mouth, is reserved under the management of Mid West Ports Authority. Landcorp own a large proportion of the Buller River area, the river and the land north and south.
- CMS 3 (Figure 2.1d) – A large portion along the central portion of the study area stretching from south of Buller River to South Coronation Beach is reserved (R25300) for the purposes of the Port Authority Act 1999. The land use is described as harbour purposes. Management orders for this area are with the Mid West Ports Authority. Inland from the reserve is owned by Landcorp. Oakajee River and Spot X are located on land reserved by the Mid West Ports Authority. Inland from this is owned by Landcorp, including a portion of the creek and the access track from Coronation Beach Road.
- CMS 4 (Figure 2.1e) – The only coastal section with management orders with the Shire are the coastal reserves at Coronation Beach which extend across the existing camping area. Three separate reserves are located at Coronation Beach for the purposes of Camping and Recreation and Public Recreation. The lot to the east of Coronation Beach (Lot 169) and to the north (Lot 171) are privately owned. The beach and foredune area north of Coronation Beach is UCL. South Coronation Beach is located on the Mid West Ports Authority Reserve.
- CMS5 and 6 (Figure 2.1f and 2.1g) – The narrow strip of beach and foredune areas from Coronation Beach north to Woolawar Gully is UCL. The Oakabella Creek camping node is located in UCL. Lot 20 to the south and Lot 49 to the north are privately owned. The Woolawar Gully coastal area is also located in UCL and Lot 48 to the south and Lot 47 to the north are privately owned. road reserves cross through private property from the highway to the coast, however no access tracks are provided. These road reserves should be closed.

GOALS

To retain the focus of coastal reserve management on recreation and conservation of natural values.

STRATEGIES

The purpose of the strategies presented below is to establish an over-arching management framework that can be applied to the entire study area. The strategies related to Coastal Tenure are presented in Table 2.2 below. They relate to the following objectives:

- Objective 1 – To manage the recreational resources to retain the broad range of recreational opportunities, environmental values and sense of isolation unique to the area
- Objective 2 – To achieve cohesive and effective coastal land management considering the fragmented nature of land ownership
- Objective 3 – Ensure management and protection of the coast is undertaken in a sustainable manner

Table 2.2 – Coastal Tenure Strategies

Strategy	Description	Priority	Responsibility
CT1	Consider amending the reserve boundaries and management authority boundaries where appropriate (such as the South Coronation Beach area) to reflect land use and responsible authorities.	O	SCV, SoN, MWPA, DSD Landcorp, Landgate, DoL
CT2	Consider the application of management order and purpose for UCL or prepare a Memorandum of Understanding (MOU) between agencies.	S – M	SCV, SoN, Landgate, DoL, native title parties
CT3	Close/re-align the road reserves identified from the North West Coastal Highway to Oakabella Creek and Woolawar Gully..	S	SoN, DoL

2.4 COASTAL PROCESSES AND CLIMATE CHANGE

ISSUES AND DESCRIPTION

COASTAL PROCESSES

The coastline is constantly changing due to the effects of winds, waves and storms. Waves constantly change the shape of the coastline as part of a natural cycle of beach erosion and accretion. Winds act on dune areas and impact on the severity of wave energy. A more detailed description of the coastal geomorphology, coastal processes, on-shore environment and nearshore environment is provided in Part B, Chapters 7.3 – 7.6. This description is based on the best available information and it should be noted that gaps may exist and that updated data may be required to give a better picture of the coastal hazards and risks along the study area. For this reason it is recommended that a CHRMAP is prepared. The information in this report about coastal processes is largely based on the text in the 2007 Strategy (Shire of Chapman Valley and Koltasz Smith, 2007) as well as relevant information from Geology, Geomorphology and Vulnerability of the coast between the Shires of Coorow and Northampton (Eliot I, Gozzard JR, Eliot M, Stul T and McCormack G. 2012) and Coastal Sediment Cells for the Northampton Region between Glenfield Beach and the Murchison River (Stul T, Gozzard JR, Eliot IG and Eliot MJ, 2014). The last two reports were prepared at a broad scale.

Two sediment cells for this study are located in the report being Buller River and Coronation Beach. Both cells were identified as having a moderate rating for susceptibility, instability and vulnerability (Eliot I, Gozzard JR, Eliot M, Stul T and McCormack G. 2012). Moderate vulnerability may present a moderate constraint to coastal management.

Natural hazards that may directly affect a coastal site include erosion, marine inundation, king waves, rip currents and tsunami. Runoff flooding, bushfires, landslides and earthquakes may affect the site directly, but may also be significant indirectly, by disrupting site access. Site characterisation includes a classification for natural hazard risks based on a relative comparison of different types of coastal sites and their use. In general, more populated sites are expected to have a lower likelihood of being affected by natural hazards, although this may be offset by more intensive hazard mitigation. Day use sites have no population except visitors and a low value of infrastructure

that implies a high tolerance for natural hazard risk. This applies to the coastline within this study area.

Consideration of coastal setbacks has been given due regard in the Buller Local Structure Plan and a setback area has been shown on the plan to account for erosion and sea level rise in accordance with SPP 2.6. Setbacks, consistent with SPP 2.6, should also be considered in any development or planning applications within the study area.

The objectives of SPP 2.6 are listed in Table 2.3 below, along with comment as to how this Strategy will help to achieve them.

Table 2.3 - State Planning Policy 2.6 Objectives

Objective	Comment
Ensure that development and the location of coastal facilities takes into account coastal processes, landform stability, coastal hazards, climate change and biophysical criteria.	The recommendations in this Strategy take into consideration coastal processes where information is available, however as there is a lack of information on these topics it is recommended that further work is undertaken in this area as required (Chapter 2.4).
Ensure the identification of appropriate areas for the sustainable use of the coast for housing, tourism, recreation, ocean access, maritime industry, commercial and other activities.	As is discussed in the Introduction (Chapter 1.1), detailed planning for tourism, industry and urban development is undertaken separate to this Strategy. However, reference is made to existing planning documents where relevant.
Provide for public coastal foreshore reserves and access to them on the coast.	Provision for public foreshore reserves is considered in detailed planning which is separate to this Strategy, however the Strategy acknowledges existing planning documents and reference made to the creation of new foreshore reserves (such as those associated with the Buller Local Structure Plan).
Protect, conserve and enhance coastal zone values, particularly in areas of landscape, biodiversity and ecosystem integrity, indigenous and cultural significance	The strategies and actions contained in this CMSAP have a particular focus on conservation and enhancement of the coastal zone values. Landscape and environmental values are addressed in Chapter 2.5 and heritage is addressed in Chapter 2.8.

A number of rivers are located throughout the study area and informal camping is popular at the river mouths (such as Buller River, Oakajee River, Oakabella Creek and Woolawar Gully). The hazards associated with remote camping within rivers is the risk of inundation due to high rainfall and flooding. Signs should be located in these areas to warn coastal users of the risks and the emergency evacuation plan. The information available on the topic of inundation is limited.

An important consideration is the location of formal camping areas and whether these areas are at risk from coastal hazards in the future. The only formal camping area is Coronation Beach. There is little reliable information available on coastal hazards and risks, therefore it is recommended that a Coastal Hazard and Risk Management Adaptation Plan (CHRMAP) is prepared for the study area to identify important assets, areas at risk and future actions. The majority of coastal infrastructure that would be at risk is located at Coronation Beach which has been deliberately developed by the Shire to a low-key, nature-based standard only. Most of this infrastructure is relatively minor in nature and could easily be replaced in future if required as part of normal capital expenditure as items reach their end of life and are due for replacement. The 'Coronation Beach Nature Based Camping Ground and other coastal nodes Evacuation Plan' provides evacuation procedures for the Coronation Beach camp site. The Batavia Local Emergency Management Committee is also available to provide assistance in the event of an emergency.

CLIMATE CHANGE

It is generally well-known that the Mid West region of WA is likely to face a range of climatic changes in the coming decades including increased temperatures, reduced rainfall and increase in severe storms (BROC, 2010). The

Climate Change Adaptation Action Plan was prepared by the Batavia Regional Organisation of Councils (BROC) in 2010 to undertake a climate change risk assessment and to develop an action plan for the councils in response to higher temperatures, reduced rainfall and sea level rise. The study identified a number of high climate change risks including increased maintenance, loss of natural heritage, damage to coastal assets, increased repair and increased foreshore widths.

High priority actions identified in the Climate Change Adaptation Action Plan (BROC, 2010) relating to coastal areas include protection of local properties from sea level rise and bushfire risks and protection of at risk coastal and other habitats. It is considered that a majority of the high priority actions apply to coastal areas with hard infrastructure and formal facilities such as boat ramps, jetties, groynes, limestone walls and buildings. The only hard structures in the study area are the facilities at Coronation Beach which comprise of toilets, gazebos and shades and this Strategy recommends that this facility be maintained as a low-key nature based camping area. The distance from the high water mark to the nearest facilities has not been accurately determined, but it is considered a relatively short distance which could be an issue in the short to medium term with regards to sea level rise and coastal erosion. A detailed CHRMAPwould need to be undertaken to more accurately determine the risk.

GOALS

Ensure responsible land managers are well-equipped to adapt to issues associated with coastal processes which might arise from climate change and strategically plan appropriate facilities at coastal nodes considering the future risk from natural hazards and the requirements of SPP 2.6 (which requires consideration of sea level rise for a 100 year timeframe).

STRATEGIES

The purpose of the strategies presented below is to establish an over-arching management framework that can be applied to the entire study area. The strategies related to Coastal Processes are presented in Table 2.4 below. They relate to the following objectives:

- Objective 1 – To manage the recreational resources to retain the broad range of recreational opportunities, environmental values and sense of isolation unique to the area
- Objective 3 – Ensure management and protection of the coast is undertaken in a sustainable manner
- Objective 4 – Adequate consideration of coastal hazards and ensure management is undertaken in accordance with SPP 2.6

Table 2.4 - Coastal Processes Strategies

Strategy	Description	Priority	Responsibility
CP1	Give due regard to SPP 2.6 and the Buller Local Structure Plan to ensure that the location of coastal facilities and development takes into account coastal processes, appropriate coastal setbacks are implemented and that structures are built to the appropriate standard over appropriate planning timeframe (i.e. 20 – 50 years). It should be noted that future industrial development may include hard engineering coastal treatments that are not envisaged by SPP 2.6 and which could involve different setbacks.	O	SCV, SoN, MWPA, Landcorp, DoP
CP2	Implement the actions from the Climate Change Adaptation Action Plan prepared by the Batavia Regional Organisation of Councils (2010).	O	SCV, SoN, DoP
CP3	Conduct regular monitoring of infrastructure and recreational facilities along the beach.	O	Responsible land managers

Strategy	Description	Priority	Responsibility
CP4	Undertake a Coastal Hazard and Risk Management Adaptation Plan (CHRMAP) for the study area, including the consideration of trigger levels for actions with respect to sea level rise.	S	SCV, SoN, Landcorp, MWPA,
CP5	Ensure coastal users are adequately informed of natural hazards and risk such as flooding and inundation through the use of signs.	O	Responsible land managers

2.5 ENVIRONMENTAL MANAGEMENT

DESCRIPTION AND ISSUES

INTRODUCTION

There are a number of components of the environment that need to be considered in the environmental management of the coast, including the following:

- Aesthetics and landscape
- Vegetation and dune erosion
- Bushfire
- Plant Diseases
- Invasive Weeds
- Feral Animals

This CMSAP aims to address the requirements of State Planning Policy 2 (SPP2) Environmental and Natural Resources Policy through the recommendations and strategies included below. The objectives of SPP2 and how the Strategy aims to address these objectives is addressed in the table 2.5 below.

Table 2.5 – State Planning Policy 2 Objectives

Objective	Comment
To integrate environment and natural resource management with broader land use planning and decision-making.	The strategies recommended in this Chapter consider protection, conservation and enhancement of the study area's natural resources and should be considered by decision-makers in future projects and actions along the coast.
To protect, conserve and enhance the natural environment.	The strategies recommended in this Chapter consider protection, conservation and enhancement of the study area's natural resources.
To promote and assist in the wise and sustainable use and management of natural resources.	Protection of the study area's natural resources through implementation of the strategies recommended in this chapter will assist with the sustainable use of the coast.

AESTHETICS AND LANDSCAPE

The coastal environment is always highly valued for its visual appeal and aesthetics. This is reflected in the popularity of housing near coastal areas and the high recreational and tourism values of these areas. It is therefore important that where possible the coast's aesthetic qualities are protected from unsightly development and degradation.

The landscape contributes to the visual appeal of a place. Landscapes along coastal areas vary from low-lying lagoons and estuaries, undulating dunes, steep cliffs, peninsulas and bays. The landscape within the study area is typical of the Mid-West region and consists of a low narrow foredune immediately behind the beach and then a series of large blow-outs (or mobile dunes) and stable parabolic dunes.

VEGETATION AND DUNE EROSION

The vegetation along the coast is largely undisturbed owing to the low-level of development and to low-key nature of most of the sites. There are some localised areas where vegetation has been disturbed and revegetation and management is required and these areas are typically associated with high use areas such as Coronation Beach and Buller River. For example, there is evidence of vehicles driving through the dunes at the Buller River mouth. Multiple vehicle tracks are also located south of Buller River from Drummond Cove. Vegetation and dune erosion has become more of an issue in recent years as off-road vehicles such as dune buggies, quad bikes and trail bikes are becoming cheaper and more accessible to a larger percentage of the population which leads to an increase in this activity.

Disturbance is largely caused by uncontrolled pedestrian and vehicle access. While dune vegetation is naturally sturdy to survive the relatively hostile coastal conditions, they are susceptible to severe damage if disturbed by foot or vehicle. Removal and death of vegetation is not only an issue from a conservation point-of-view, but it also exposes dunes which become susceptible to erosion. This can lead to major erosion issues such as dune blowouts. It is possible for dune blowouts to become so large that they threaten to cover roads and structures. While this hasn't occurred in the study area, it could be a concern as more development occurs over time.

It is important that vehicles and pedestrians are controlled to ensure they keep to designated roads and paths to avoid unnecessary vegetation damage. This can be achieved through signage, fencing, revegetation, patrolling the area and through driver education. Providing formal areas for ORVs and RRVs in the Shire has also been considered in the NACC Feasibility Study (NACC, 2015). The purpose of these areas will be to encourage drivers to use designated sites rather than driving through other areas. While it is likely that a minority may attempt to drive where they want, it is hopeful that the majority will use the designated areas which will lead to a significant reduction in dune damage. The investigation of Permitted ORV Areas will need to have regard to issues such as Aboriginal Heritage sites (and possible Section 18 approval), appropriate access from gazetted roads, costs associated with their creation and ongoing maintenance and management of these areas. Various agencies will need to collaborate to resolve these issues.

Dunes can be restabilised using a number of different coastal rehabilitation techniques including:

- Brushing – laying branches of native coastal vegetation on dunes which will bury seed on the branches and encourage germination of plants
- Matting – placing fibre matting over dunes like a carpet to suppress weeds and to stablise dunes from wind erosion
- Replanting Coastal Species – planting seedlings or transplanting cuttings of native coastal species rapidly aids in dune stabilization
- Removing the source of disturbance such as pedestrians and vehicles.

Dune rehabilitation between Drummond Cove and Buller River

Areas in need of dune stabilisation should be rehabilitated using an appropriate technique as defined by best practice management. The Coastal Planning and Management Manual by the WAPC (2003) should be referred to for methods on dune rehabilitation. Dune brushing has already been undertaken in areas where there has been disturbance and where weed removal has occurred by NACC.

BUSHFIRE

Fire is a natural phenomenon in the Mid West Region which is largely caused or influenced by summer droughts and lightning storms. Bushfire management is important as a means to reduce risk to human lives and property and to reduce significant destruction to native vegetation. Bushfire is always a risk in coastal areas as the vegetation is prone to becoming dry during the hot summer months and the level of vegetation cover provides fuel for fire to spread. A majority of bushfires occur during the summer period and can be started by lightning strikes, campfires or are deliberately lit. Fire management procedures include:

- Prescribed burning
- Strategic firebreaks
- Use of barbeques rather than open campfires
- Prohibited burning period
- Adequate signage at coastal sites
- Fire risk assessments
- Fire Management Plans.

It is essential that any new development proposals along the coast adequately consider fire management in accordance with the WAPC guidelines, specifically SPP 3.7 Planning for Bushfire Management (WAPC, 2015) and the Australian Standards AS 3959. This is particularly important in areas recognised as having a significant or high bush fire risk. Responsible land managers along the coast should have appropriate fire management procedures in place. The Shire should have bushfire safety measures in place for their coastal reserves at Coronation Beach such as evacuation procedures.

PLANT DISEASES

Dieback is the name given to a fungal disease that affects over 2300 native plant species. Phytophthora cinnamomi is the most common form of dieback. Vehicles, pedestrians

and animals are the main transporters that spread the dieback fungi spores. Certain plant families such as Proteaceae and Epacridaceae are particularly susceptible.

While there is no evidence of dieback occurring within the study area, landowners and the Shire should be vigilant of this issue and should any signs of dieback occur that appropriate action takes place. Signs which should be looked for include browning and chlorosis of the leaves and branch death.

The Dieback Working Group have a number of publications available such as Managing Phytophthora Dieback Guidelines for Local Government 2009 which can be referred to if signs of dieback become evident. The best course of action is to prevent the spread from infected areas to non-infected areas so they should be blocked from access if possible to prevent the spread of soil particles and drainage managed appropriately to prevent its spread in water.

INVASIVE WEEDS

A weed is a plant growing where it is not wanted. Weeds will compete with local native vegetation for light, nutrients, space and water. Often weeds are naturalised into the coastal environment from gardens. In the past, plants such as Pyp Grass were purposely introduced as a rehabilitation species and have ended up becoming a weed.

One of the more invasive weeds in the study area is African Boxthorn (Lycium ferocissimum) which was originally introduced into Australia from South Africa. All boxthorn species in Australia are perennial thorny shrubs which produce berries, with white or purple flowers and petals joined in a tube at the base. African Boxthorn is considered a major problem because it invades native vegetation, alters habitat and the thorny spikes can puncture tyres. It forms dense, impenetrable thickets that exclude other plants; provides shelter and food for feral animals such as foxes, rabbits, rats, starlings and sparrows and reduces access for stock, native animals, people and vehicles.

NACC has undertaken an extensive African Boxthorn management program which has involved poisoning individual plants and, once dead, removing plants to allow native vegetation to regenerate. This program has been undertaken all throughout the study area from Drummond Cove to Coronation Beach. Some locations still require management and control will be ongoing and NACC should continue to be supported in their efforts.

Management of African Boxthorn at Drummond Cove

FERAL ANIMALS

Feral animals such as rabbits, foxes, goats and cats can cause general disturbance to coastal areas including dune erosion, destruction of native vegetation and the spread of weeds. They also compete with native fauna for habitat and resources. Control of rabbits, foxes, rats and feral cats can be achieved through baiting, trapping and poisoning. Landowners should work with the Department of Agriculture and Food (DAFWA) to undertake feral animal control where necessary.

GOALS

Protect the landform, dune systems, vegetation, fauna and marine environment from future disturbances caused by human impacts and to restore degraded areas through rehabilitation, access control, management and monitoring.

STRATEGIES

The purpose of the strategies presented below is to establish an over-arching management framework that can be applied to the entire study area. The strategies related to Environmental Management are presented in Table 2.6 below. They relate to the following objectives:

- Objective 1 – To manage the recreational resources to retain the broad range of recreational opportunities, environmental values and sense of isolation unique to the area
- Objective 2 – To achieve cohesive and effective coastal land management considering the fragmented nature of land ownership

- Objective 3 – Ensure management and protection of the coast is undertaken in a sustainable manner
- Objective 5 – To adequately consider future coastal industry, urban growth and tourism and the effects this may have on recreational use of the study area

Table 2.6– Environmental Management Strategies

Strategy	Description	Priority	Responsibility
E1	Visual Landscape Planning in WA: A manual for evaluation, assessment, siting and design, (WAPC, 2007) should be referred to during visual assessments and planning for recreational elements along the study area.	O	SCV, SoN
E2	Encourage the design of coastal car parks, roads and buildings that minimise the visual impact on the surrounding environment.	O	SCV, SoN
E3	Encourage access to the coast along formal tracks and pathways through the use of fencing and signage where dune degradation is an issue.	O	SCV, SoN, MWPA, Landcorp
E4	Monitor dunes located around formal and informal camping areas and high use sites (such as Spot X and South Coronation Beach) for signs of degradation. Close and revegetate informal tracks as they occur and in accordance with the programme of works developed by the responsible landowner.	O	SCV, SoN, MWPA, Landcorp
E5	All key landowners within the study area to communicate and cooperate when undertaking environmental management such as weed control, revegetation, fire management and monitoring to ensure a consistent and coordinated approach across lot boundaries.	O	SCV, SoN, MWPA, Landcorp, DoL, private landowners
E6	Support efforts by the local community to conduct dune rehabilitation where required within the study area.	O	SCV, SoN, MWPA, Landcorp
E7	Continue to support NACC with weed control efforts, particularly African Boxthorn along coastal areas,	O	SCV, MWPA, Landcorp, NACC, private landowners
E8	Encourage local nurseries to grow coastal plants suitable for dune rehabilitation.	O	SCV, SoN, NACC
E9	Should signs of Dieback be detected in the study area, establish a dieback monitoring program to monitor and manage areas susceptible to the spread of dieback for signs of infection.	S	SCV, SoN, MWPA, Landcorp, NACC
E10	Follow the Management of Pytophthora Dieback Guidelines for Local Government by the Dieback Working Group (2009) in the event that dieback is detected.	O	SCV, SoN, MWPA, Landcorp, NACC

Strategy	Description	Priority	Responsibility
E11	Seek assistance from the Department of Agriculture WA for the eradication of feral rabbits, foxes and cats from the study area.	O	SCV, SoN, MWPA, Landcorp
E12	Encourage the eradication of rabbits, foxes and feral cats by private landholders.	O	SCV, SoN, MWPA, Landcorp, NACC
E13	Ensure that good and responsible planning is undertaken with consideration of the principles and objectives of SPP2.	O	Responsible land managers

2.6 ACCESS

ISSUES AND DESCRIPTION

VEHICLE ACCESS

Vehicle access throughout the study area is limited and mainly restricted to 4WDs which are able to drive through the dunes. The only formal 2WD access to the beach is via Drummond Cove Road at Drummond Cove (located south of the study area) and Coronation Beach via Coronation Beach Road.

A gravel track leads to Buller River from the North West Coastal Highway, however this is not situated within a road reserve, it is closed to the public and exists across Landcorp land. The remainder of the coast is accessible from informal 4WD tracks through the dunes and along the beach.

The lack of public access to Buller River is an issue to the community. Buller River is a popular recreational spot and it is understood that the community want public access opened to Buller River from the highway. Currently, the only way to access Buller River is from 4WD tracks leading south and north along the coast and from following the river bed. Not only are these access routes inaccessible to 2WDs, they cross private land and UCL.

The creation of public access along the gravel track leading to Buller River mouth must first resolve issues relating to public liability, maintenance costs, management responsibility and the safety of access from the highway. In addition, opening access from the highway will make Buller River more accessible to the public and whilst this will improve the ability to manage and police Buller River, it will also place additional pressures on this area. Buller River is also located on land owned by Landcorp and reserved with the MWPA so access and use is only provided with their permission. Increased use may place more pressure on the Shire, Landcorp and the MWPA to provide facilities for day use which in turn will lead to maintenance and management costs. Additional use of the area will require increased surveillance and policing, placing more pressure on the Shire and land managers. There are therefore a number of issues which need further consideration before the access is opened. Recommendations relating to vehicle access are provided in the Buller River Action Plan in Chapter 3.3. It should be noted that that while the ultimate

recommendation for the access between the highway and Buller River is for sealed access, there may be a possibility that as an interim measure the access could be to a gravel standard with the exception of the section leading to the highway intersection that will need to be construction to a sealed standard as part of the review and upgrading (and realignment if necessary) process that must be undertaken to the approval of Main Roads WA.

Gravel track leading to Buller River

Vehicle access to Buller River site from the river has been blocked off (left-hand side of the photo) but a new informal track has been established around it (right-hand side of the photo).

Some amendments are proposed to the internal vehicle access at Coronation Beach nature based camping area to improve traffic flow and safety. Making these amendments to the vehicle access will separate the day use vehicles from the camp site and will also mean that vehicles trying to access the sand road leading to South Coronation Beach will not need to travel through the camp site. These vehicles will be able to by-pass the caravan park by driving through the day use area. This should improve safety for the camp site users.

The sand track south from Coronation Beach extends along the foredune to South Coronation Beach and the popular long-boarding area. A number of very small parking areas have been created along the sand track spaced intermittently along the beach. Some of the car parks are only large enough for one or two cars. Some have been marked out with bollards. It is proposed that the car parks in this area are rationalised to create an area large enough for a number of cars and to prevent the creation of more car parks along this section of the dune (before too much vegetation is cleared and the area turns into one large blow out). It is understood that this location is popular during long-board competitions and a large number of people (in the hundreds) access the area during these events.

The sand track along the foredunes at South Coronation Beach

The sand track north extends from Coronation Beach to another wind-surfing and kitesurfing location a few hundred metres north (known as 'Windmills'). Vegetation has been disturbed to provide room for vehicles to turn around. It is proposed that this area is formalised as a car park with signage to enable windsurfing. The intention of this is to help protect the surrounding dunes and vegetation from further damage.

PEDESTRIAN ACCESS

There are no formal pedestrian access paths within the study area and no hard surfaces such as timber boardwalks or concrete. This is due to the low-key nature of the

study area and the low relief of the sand dunes meaning that steps are not required. There are no pathways or boardwalks provided at any of the coastal sites. A sand pedestrian access path is provided at Coronation Beach from the car park and there are no issues with the location of this pathway, erosion or damage. The sand car parks at South Coronation Beach are located on the foredunes and pedestrians can access the beach from any of these locations by walking over the dunes. Pedestrian pathways are recommended in the Buller Local Structure Plan (GHD, 2015) to provide connections from the new urban area to the beach. .

DISABLED ACCESS

The Shire of Chapman Valley has a Disability Access and Inclusion Plan which provides a number of strategies and tasks which aim to ensure that people with disabilities have equal access to facilities and services. Outcome 2 of this strategy is particularly prevalent to this CMSAP which states that people with disabilities have the same opportunities as other people to access the buildings and other facilities of a public authority. One strategy in particular says to improve access to beaches and the sea for people with disabilities.

Disabled access can sometimes be difficult in coastal areas due to the natural topography and landform which can be too steep and dangerous to provide access. The topography of the study area does not include steep cliffs or dunes and the majority is quite low-lying. As long as the areas can be accessed with a vehicle (whether it's 4WD or 2WD), the majority of the study area is accessible to people with disabilities. The only coastal site managed by the Shire of Chapman Valley is Coronation Beach. The camp sites, day use area, beach and facilities can be accessed by people with disability, except for the lookout located on the cliff which can only be accessed via a staircase.

OFF-ROAD VEHICLES AND ROAD REGISTERED VEHICLES

There are two types of vehicles that drive on the beach, Road Registered Vehicles (RRV) and Off Road Vehicles (ORV). RRVs are licensed vehicles which have the ability to be used off road. ORVs are unlicensed vehicles which can be used off road (such as quad bikes, dune buggies etc.).

Environmental damage occurs when vehicles are driven over the dunes and through vegetation which causes severe erosion and dune blowouts. This process is exacerbated when multiple tracks are created and drivers leave their tyres at full pressure. The damage caused eventually reduces the environmental quality of the area. It is a significant challenge managing vehicle use within coastal areas, particularly when some drivers do the right thing while others can cause damage. Other issues include the spread of dieback (which can be introducted to the area from vehicles and footwear which bring infected soil into the area) and cause an increase in risk to safety. It is important that tracks are rationalised so that multiple tracks aren't created through the same areas and vehicles are discouraged from driving through the Aboriginal heritage sites at Buller River (as discussed in Chapter 2.8).

The Control of Vehicles (Off Road Areas) Act 1978 applies to land owned by the State of WA and areas designated by Local Government Local Laws for off road vehicles (unregistered) only. Registered Road Vehicles are managed under the Road Traffic Act 1978 and Local Government Local Laws.

The NACC Feasibility Report (NACC, 2015) has considered options for the creation of Permitted ORV Areas under the Control of Vehicles (Off Road Areas) Act 1978. The intention of these areas is to concentrate off-road driving to certain areas rather than allowing vehicles to drive anywhere along the coast. While this may not have been a significant problem in the past, it's becoming more of an issue now with the increase in ORVs, particularly dune buggies, quad bikes and trail bikes which are now cheaper and more accessible. The investigation of Permitted ORV Areas will need to have regard to issues such as Aboriginal Heritage sites (and possible Section 18 approval), appropriate access from gazetted roads, costs associated with their creation and ongoing maintenance and management of these areas. Various agencies and stakeholders will need to collaborate to resolve these issues.

BOAT LAUNCHING

There are no formal boating facilities within the entire study area, however boat users launch and retrieve small boats and dinghies at Coronation Beach (informal boat launching). The size of the boats able to be launched is limited to small boats and dinghies with shallow draughts and to users who own 4WD vehicles. An action within the Coastal Management Strategy (Shire of Chapman Valley and Koltasz Smith, 2007) identified Coronation Beach as a location for a boat launching facility:

CMS 4.4.2: A boat ramp be installed at the northern beach access for use by recreation fishers with provision of trailer parking shared on a reciprocal basis with kite and windsurfers.

A boat ramp feasibility study was undertaken in 2009 by M. P. Rogers and Associates to investigate the boat ramp options and to undertake consultation. It considered a range of options including a simple boat ramp, caravan park boat launching service, piled boat ramp, breakwater and development in conjunction with the Oakajee Port.

The feasibility study was presented to the Shire of Chapman Valley Council on the 16th September 2009 who resolved to endorse 'Development in Conjunction with Oakajee Port' as its preferred option based on its social, economic and environmental advantages in meeting demand for boat launching facilities in this area and not to proceed with Stage 2 of planning. The Council decision was influenced by the recommendations of the feasibility study which identified that a range of markers would be required to be installed in the ocean to meet the necessary safety requirements and this would have conflicted with Coronation Beach's primary function of catering for kite and windsurfing, particularly in the event that the development of Oakajee Port removed access for these activities to occur at Spot X.

SIGNAGE AND SAFETY

Signs provide a way to inform people about the location they are in and the interesting features. It also provides a means of informing people about dangers, rules and regulations and directions. The types of signs can be categorised as follows:

- Name – identifying the location
- Risk – signs describing dangers at the beach eg. rips, swells, cliff hazards, sharks
- Directional – to point directions to a beach, direction to toilets, camp areas, barbeques etc.
- Rules – particularly for camp areas eg. ground fires, camp fees, dogs, rubbish etc.
- Facilities – what facilities are provided at the site eg. toilets, barbeques, campsites
- Recreational – what can this beach offer eg. good for surfing, swimming, walking dogs etc.
- Interpretative – signage describing certain aspects of the area eg. environmental, historical.

Due to the low-key nature of the coastal area, the number of signs is heavily reduced in comparison to high use sites. Signs are located at Coronation Beach to inform campers and day use visitors of safety, regulations, directions and facilities. Warning signs are located at Drummond Cove and Buller River to inform visitors and rivers of the risks and dangers of driving along the beach and through the dunes. These signs (with the exception of the Coronation Beach campground which has a caretaker presence) regularly suffer from vandalism and are replaced on a regular basis. Other signs located throughout the study area inform visitors of dune rehabilitation areas, particularly at Buller River, in an effort to keep visitors off the dunes.

Risks to visitor safety along coastal areas include rock falls, slippery rocks, rips, big swells, off-road vehicles and uneven steps or paths. It is important that landowners are aware of their obligation to manage coastal hazards and to implement preventative actions where appropriate such as erection of signage and fencing off dangerous areas. Signage can be used to inform visitors of coastal hazards and risks and how to avoid them. While it is acknowledged that signage is prone to damage in some locations, it is still important to keep signage in these areas and possibly find other ways to communicate visitor safety (through range officer/caretaker presence, community flyers and brochures and other community education).

It has been the Shire's experience that signs that advise of access restrictions can occur less incidence of vandalism or removal if they explain the basis for seeking to restrict the access and this could be explored further in future actions if the signage relates to rehabilitation, public safety or Aboriginal heritage (particularly with burial sites found in the study area).

Signs at the entrance of the track leading to South Coronation Beach

Signage at the track entrances at Drummond Cove

GOALS

Implement access control and reduce the level of disturbance to the environment caused by vehicles and pedestrians.

STRATEGIES

The purpose of the strategies presented below is to establish an over-arching management framework that can be applied to the entire study area. The strategies related to Access are presented in Table 2.7 below. They relate to the following objectives:

- Objective 1 – To manage the recreational resources to retain the broad range of recreational opportunities, environmental values and sense of isolation unique to the area
- Objective 2 – To achieve cohesive and effective coastal land management considering the fragmented nature of land ownership
- Objective 3 – Ensure management and protection of the coast is undertaken in a sustainable manner
- Objective 5 – To adequately consider future coastal industry, urban growth and tourism and the effects this may have on recreational use of the study area

Table 2.7 – Access Strategies

Strategy	Description	Priority	Responsibility
A1	Maintain roads which provide access to coastal sites such as Coronation Beach Road.	0	SCV, SoN, Landcorp
A2	Rationalise the access roads where they pass through private property with a road reserve located close by.	0	SoN, Landgate
A3	Give due regard to SPP 2.6 which provides for public access to foreshore areas and apply when considering future options for access.	0	SCV, SoN, MWPA, Landcorp
A4	Investigate opportunities for more formal disabled access when facilities are provided. Ensure disabled access and inclusion planning is considered when designing and implementing the actions recommended in this plan and that the Shire's Disability Access and Inclusion Plan is referred to.	0	SCV, SoN, Landcorp
A6	Encourage cooperation with user groups and key stakeholders such as Roadwise and Road Safety Council regarding off-road vehicle use.	0	SCV, SoN, MWPA, Landcorp

Strategy	Description	Priority	Responsibility
A7	Continue to monitor boat launching activities, especially during peak holiday periods.	0	SCV, SoN
A8	Maintain signs throughout the study area, including those that inform drivers of the risks driving along the beach and through the dunes.	0	Responsible land managers
A9	Ensure appropriate signs are provided at coastal sites, including hazard and warning signs identifying evacuation procedures in the event of inundation or fire, interpretative and historic information, locational information, safety information, directions and identification of land use permissions and prohibitions.	0	Responsible land managers

2.7 LAND USE AND FACILITIES

ISSUES

RECREATIONAL USES

Beaches and the near shore marine environment are popular for a variety of recreational purposes including camping, ORV and RRV use, fishing, walking, sightseeing, kitesurfing, wind surfing, long boarding and other water-based activities. Coronation Beach and Spot X are renowned kitesurfing, wind surfing and long board locations. Each of these activities is discussed further in the sections below.

CAMPING

It is common for campers to want the experience of camping in an isolated area where there are no restrictions and other campers do not surround them. Attempting to attain this experience is becoming more common, as increasing numbers of people own off-road vehicles that can access isolated areas and choose to go camping more regularly. Consequently small isolated camp spots become informally established. Public and school holidays are peak times when informal camping can be a major problem.

One example of this is Buller River which isn't a formal campsite but is very popular for camping, especially during holidays. Buller River is located on land owned by Landcorp and the river mouth/coastal area is on land vested with the MWPA. No facilities are provided and no caretaker is present which can result in damage to the environment, rubbish, unsanitary practices, fire risk and antisocial behaviour.

Issues associated with informal camping include:

- Vegetation removal and dune degradation – the lack of allocated camping bays makes it difficult to control where people can camp and this can result in people camping on dunes and removing vegetation to make space and for firewood. This is particularly a problem where sites are popular and there is a lack of space. Removal of vegetation is a particular issue at Buller River where camping is informal.
- Health risks – people disposing of human waste and food waste in sand dunes.

- Fauna habitat destruction – removal of vegetation destroys habitat and the presence of numerous people (and their pets) scares off some animals including ground nesting birds, small mammals, lizards and insects.
- Dieback and weed transportation – dieback and weeds can be transported into an area by vehicles.
- Resource costs – trying to maintain numerous camping locations to minimise coastal degradation and provide facilities is costly both in financial and human resources. A limit to the number of sites has to be defined, otherwise resources are spread too thinly and the campgrounds become poorly managed
- Bush fire risk – the use of camp fires, particularly during the hot summer months, cause risk of bush fires.

Coronation Beach is the only formal campsite in the study area. The campsite is located on reserves vested with the Shire of Chapman Valley. A caretaker is located on the site full-time and is able to monitor the camp site conditions, keep an eye on the campers, collect camping fees and undertakes maintenance work. A number of facilities are provided by the Shire including shelters, ablution facilities, lookouts/viewing platforms, marked camping bays, rubbish bins and BBQs. The site is very well-maintained.

Other sites are used for 'wilderness camping' such as Oakabella Creek, Oakajee River and Woolawar Gully. This is reflected in the comments received from the community survey. No facilities are provided at these sites and campers set up in the river mouth and dunes. Although use is generally low-key, there is potential that these sites could experience higher use in the coming years as population pressures increase and access to remote areas becomes easier with a higher proportion of ORVs owned by the population.

Coronation Beach camp ground

PUBLIC TOILETS

The provision of public toilets along the coast is important for public health reasons, particularly popular sites and areas where camping is permitted. In terms of the types of toilets which can be provided this can vary depending on the demand, the soil types, water availability, the ability of the Shire to maintain toilets, initial costs and maintenance costs. They can vary from simple toilets such as long-drop toilets to compost toilets and sewered toilets. However, the provision of toilets should be carefully considered because they essentially create an additional facility which needs to be appropriately managed and maintained. Therefore, toilets should only be provided after careful consideration of the need, demand, resources, ability to service as required and the toilet options available.

The only toilets provided within the study area are at the Coronation Beach camp site. This is to provide for the campers and day users. The toilets are long drop and connected to sealed concrete tanks with chemical odour inhibitor applied. The toilets are ventilated and pumped at regular intervals. There do not appear to be any issues with the existing toilets which would require replacement or repairs.

PICNIC FACILITIES AND BARBECUES

Coronation Beach is the only coastal site which offers public facilities such as picnic benches, BBQs and shelters. The facilities are generally well-maintained and relatively new.

Just as the provision of toilet facilities, there are pros and cons to providing picnic facilities and barbecues. Providing these facilities is beneficial as visitors are less likely to have an environmental impact, by stripping of coastal vegetation to fuel open campfires for barbeques. Vegetation is often stripped faster than it grows and this results in an eventual reduction in vegetation and shade.

Gas barbecues are particularly important at remote campgrounds, as people tend to forget to bring fuel with them. Gas barbecues are currently only provided at Coronation Beach nature based camping area.

Picnic and BBQ facilities at Coronation Beach

RUBBISH AND WASTE

The only coastal site which is serviced with rubbish bins is Coronation Beach. This is the only formal camping area and the only reserve vested with the Shire. Providing rubbish bins helps to manage waste and reduces littering in the surrounding coastal environment.

Rubbish was identified as a major issue in the community survey, and rubbish was observed at Buller River mouth during the site visits. Sites with rubbish issues include areas vested with MWPA and owned by Landcorp at Buller River mouth and north and south along the coast. Oakabella Creek and Woolawar Gully camping areas are primarily located on UCL but are regularly managed by the Shire of Northampton.

Conducting regular community beach clean up days will create a sense of ownership amongst the community and facilitate behavioural change. Seeing as it is the community who primarily use these remote coastal areas, the hope is that it will reduce the amount of littering. It would also help create some accountability if some members of the community are active at coastal management and can hold other community members responsible for littering or other destructive activities. Community groups which could be targeted include:

- Drummond Cove Progress Association
- Geraldton 4WD Club
- Geraldton Windsurfing Club
- Geraldton Longboard Club
- Geraldton Angling Club
- Parkfalls Residents Association
- Mens Shed
- Yamatji Marpla Aboriginal Corporation and Native Title claim groups.

LAND USE CONFLICTS

Land use conflicts occur when different land uses take place in close proximity and can cause dangers and safety issues, such as vehicles on beaches which are also popular for swimming and walking. In these situations it is best practice to separate conflicting activities to reduce safety risks (which can be assisted through the use of signage). It is not considered necessary to implement land use zones within the study area to segregate land uses as there has not been an indication that significant issues in this regard. Due to the low key recreational use of the study area, there has been no indication of conflicts between beach users and vehicles driving along the beach. While there are planning controls in existence, such as the Oakajee Port noise buffer, it is wholly located on land owned by either Landcorp and MWPA and camping is not permitted on these properties. It is considered that day use only activities proposed at Buller River is compatible with the noise buffer. With regards to urban development in close proximity to coastal areas, the only area planned for urban development in the near future is at Buller River. This area has been thoroughly planned for and is adequately separated from between Drummond Cove and Buller River coastal recreational node and it is not considered that either land use will have a significant land use conflict with the other.

As is discussed in further detail in the chapters below, there is an increasing need for the presence of an authority figure (such as a ranger or caretaker) at some coastal sites. This is due to increased use and pressure which sometimes leads to vehicles driving through Aboriginal Heritage sites or not sticking to existing tracks, environmental damage (such as at Buller River) and littering. It would be beneficial to have an authorised person present who can help monitor land use and behaviours to help manage land use in a sustainable way. The presence of a caretaker at Coronation Beach for example has been beneficial and helps manage and maintain the area. The cost of a ranger or caretaker will need to be discussed further between all responsible land managers. A Memorandum of Understanding (MOU) between agencies can be prepared to help achieve this.

GOALS

To encourage sustainable land uses along the study area with minimal environmental impact to provide adequate facilities to accommodate visitor populations over the next 10 years.

STRATEGIES

The purpose of the strategies presented below is to establish an over-arching management framework that can be applied to the entire study area. The strategies related to Land Use and Facilities are presented in Table 2.8 below. They relate to the following objectives:

- Objective 1 – To manage the recreational resources to retain the broad range of recreational opportunities, environmental values and sense of isolation unique to the area
- Objective 2 – To achieve cohesive and effective coastal land management considering the fragmented nature of land ownership
- Objective 3 – Ensure management and protection of the coast is undertaken in a sustainable manner
- Objective 5 – To adequately consider future coastal industry, urban growth and tourism and the effects this may have on recreational use of the study area
- Objective 6 – Should the proposals for the Oakajee Industrial Estate be realised in the near future, to restore equilibrium, where practical, through the provision of alternative facilities so as to minimise
- the longer term impacts of the Oakajee Strategic Industrial Estate on recreational choices along the study area.

Table 2.8 – Facilities Strategies

Strategy	Description	Priority	Responsibility
F1	Ensure coastal areas are adequately serviced with rubbish bins, amenities, seating, shelters etc. according to the level of use, resource availability and when necessary.	O	SCV, SoN, MWPA, Landcorp
F2	Maintain the amenities at all coastal locations (public amenities, picnic areas, lookouts, seating, shelters, etc.), and update facilities according to the level of use, resource availability and when necessary.	O	SCV, SoN, MWPA, Landcorp
F3	Maintain the public camp site and day use facilities at Coronation Beach, including camp bays, parking areas, fencing, bollards, signs and grassed areas, and barbeques.	O	SCV
F4	Continue to provide rubbish facilities (including consideration of composting bins and recycling) at Coronation Beach and consider the provision of rubbish facilities at other coastal nodes (such as Buller River – subject to improved access) particularly during peak periods such as school holidays and public holidays.	O	SCV (Coronation Beach), MWPA, Landcorp (Buller River)
F5	Use of signs to encourage people to take their rubbish with them at all coastal sites.	O	SCV, SoN, MWPA, Landcorp

Strategy	Description	Priority	Responsibility
F6	Undertake occasional rubbish clean-ups at all coastal reserves in association with community groups, i.e. Clean Up Australia Day.	O	SCV, SoN, MWPA, Landcorp
F7	Make resources available to the public (such as signs, tourist information and through the Driver/Coastal Education Program) on the appropriate use of coastal reserves, including off-road vehicle use, road registered 4WDs, the extent of the Oakajee Port noise buffer and ways to reduce/avoid land use conflict .	Os	SCV, SoN, MWPA, Landcorp
F8	Further consider the possibility of providing an Authorised Officer/ ranger to patrol and police coastal areas, particularly the area stretching from Drummond Cove to Coronation Beach. The capital and recurring costs of a ranger presence along the coast be negotiated and shared between the relevant land managers (SoCV, MWPA, LC) and potentially neighbouring local governments (CGG, SoN) if coastal ranger role is expanded to regional presence. Investigate sources of funding and MOU for an authorised officer/ ranger.	S	Responsible land managers
F9	Ensure that identified significant land use conflicts are addressed through any review of the Shire's Local Planning Strategy.	M	SCV, SoN

2.8 HERITAGE

ISSUES

ABORIGINAL INTERESTS AND HERITAGE

A number of Registered Heritage Sites and Other Heritage Sites are located along the coast, many of which are associated with the coastal dunes and river systems. Several heritage surveys have also been undertaken in the area. Records from the Department of Aboriginal Affairs (DAA) online search and surveys completed in the area indicate that the following areas were used for camping and fishing by Aboriginal people up to the 1950s:

- Drummond Cove and its environs
- Buller River and the adjacent beach
- Coronation Beach.

Burial grounds were indicated in the vicinity of Buller River, and records at the DAA indicate a number of ethno-archaeological sites in the dunes between the Buller and Oakajee Rivers.

There are currently three active Native Title claims over the study area. The claim groups will have to be approached for any land developments potentially affecting Aboriginal heritage sites, including for heritage matters.

Land use or development that may have impact on a heritage site is required to obtain the consent of the Minister under section 18 of the Aboriginal Heritage Act 1972. The Section 18 process involves giving notice to the Aboriginal Cultural Material Committee (ACMC) accompanied by the information as to the intended use of the land and Sites on the land. Further information on Aboriginal Heritage Sites is in Chapter 8.4.

EUROPEAN HERITAGE

The only place within the study area listed in the State Heritage database is Oakabella Creek (place number 17839) which is listed in the Shire of Northampton Municipal Inventory of heritage sites. A few sites are located further inland from the coast including Howatharra Lime Kilns and Stone Ruin (place number 23650) located along the Oakajee River and Oakabella Homestead & Tea Rooms (place number 03271) located along Oakabella Creek. The Oakabella Homestead is a State Registered Place and has highly significant state heritage value (category 1A).

GOALS

To further recognise and promote areas of Aboriginal and European significance and aim to educate the public of the value and importance of certain sites.

STRATEGIES

The purpose of the strategies presented below is to establish an over-arching management framework that can be applied to the entire study area. The strategies related to Heritage are presented in Table 2.9 below. They relate to the following objectives:

- Objective 3 – Ensure management and protection of the coast is undertaken in a sustainable manner
- Objective 7 – To retain, protect and enhance areas of historic value within the study area
- Objective 8 – To increase community awareness and participation in coastal management and maintain successful relationships between stakeholders and coastal landowners.

Table 2.9 – Heritage Strategies

Strategy	Description	Priority	Responsibility
H1	Continue to liaise with local Aboriginal representatives to ensure a culturally sensitive approach to recreational activities and the provision of visitor amenities within the study area.	0	SCV, SoN, MWPA, Landcorp, YMAC, Native Title claim groups
H2	Encourage involvement of Aboriginal persons in coastal management through engagement and consultation and employment where possible.	0	SCV, SoN, MWPA, Landcorp, YMAC, Native Title claim groups
H3	Consult with relevant Native Title claim groups and the Yamatji Marpla Aboriginal Corporation to ensure appropriate recognition and protection is given to relevant heritage sites.	0	SCV, SoN, MWPA, Landcorp, YMAC, Native Title claim groups

Strategy	Description	Priority	Responsibility
H4	Establish interpretative signage at culturally/ historically significant sites. Consult with Native Title claim groups and the Yamatji Marpla Aboriginal Corporation in preparing signs		SCV, SoN, MWPA, Landcorp, YMAC, Native Title claim groups
H5	Undertake Aboriginal heritage surveys and assessments as required under the Aboriginal Heritage Act 1972, including but not limited to Section 18 assessment where required.	0	Responsible land managers

2.9 COMMUNITY INVOLVEMENT

ISSUES

COASTAL EDUCATION AND AWARENESS

Community involvement in coastal issues and management is beneficial as it creates a sense of ownership and helps to achieve better management outcomes. The Shire should work with other coastal land managers (including NACC) to encourage involvement of community groups (including user groups such as the Geraldton Windsurfing Club, Geraldton Longboard Club, Geraldton 4WD Club etc.) to help address coastal issues where possible. This can also help to increase community knowledge of the coastal environment, and achieve community level behavioural change, which can result in increased care for the environment and a reduction in harmful activities.

While a majority of the study area is relatively remote, it is regularly used by nearby communities and tourists, even residents as far as Geraldton which is only approximately 30 kilometres away. The City of Greater Geraldton has banned the use of off-road driving on sections of their beaches which has meant that this user group has had to look outside the City of Greater Geraldton for areas to drive. The study area adjoins the northern boundary of the City of Greater Geraldton which means that this user group will use this area more and more. Other community groups located in Geraldton (such as the windsurfing club, longboard club, motocross club and angling club) use coastal sites in the study area.

Options that may assist in raising public awareness of coastal issues include:

- Driver/Coastal Education Program – including visitor safety, sustainable coastal use and off-road safety. Include information on vehicle use within coastal areas (refer to the South Coast NRM code of conduct manual and any other user group codes i.e. Trail Bike Riders) and educate vehicle drivers on the Control of Vehicles (Off-Road Areas) Act 1978 and how it is applicable to the coastal areas of the Shire. Ensure that associated resources (such as tourist brochures and maps with warnings about coastal hazards) are available and accessible to the public (available at popular tourist locations, shops, information centres, accommodation and businesses)

- Coastal Community Support Program – encourage and support voluntary groups to undertake coastal education programs such as a Chapman Valley Coastcare Group
- Coastal Training Programs – run short courses on coastal management through training organisations to educate a number of interested people on coastal issues and management.

COASTAL RESEARCH

Increasing the information base on the coastal environment will be beneficial in determining the scale of impact and what should be done to manage the coast. The information which can be gathered includes visitor numbers, activities undertaken and nights staying/camping along the coast. More information can be gathered over time as more studies are conducted and monitoring and research is undertaken.

The demographics of people visiting coastal reserves is important in order to determine the scale of use and how much management is required to reduce impacts. The Shire can monitor visitor numbers at Coronation Beach through the registrations and camp fees. It will be beneficial to survey these users to determine their expectations and experiences. This will also help the Shire and other land managers to plan for expected visitor numbers, to provide the appropriate facilities and make appropriate decisions regarding management of coastal sites. This information would also be useful at Buller River mouth to determine the demand, particularly during peak periods, and the facilities which will be necessary to cater for users and to help reduce environmental degradation. This will need to be considered with the appropriate land owners and land managers such as Landcorp and MWPA.

It would also be useful to monitor beach users at peak periods such as the longboard competitions and the number of visitors during peak windsurfing and kitesurfing seasons. This would also help determine demand for parking and facilities.

GOALS

To provide opportunities for local residents and visitors to learn about and be involved in the protection and management of the coast.

STRATEGIES

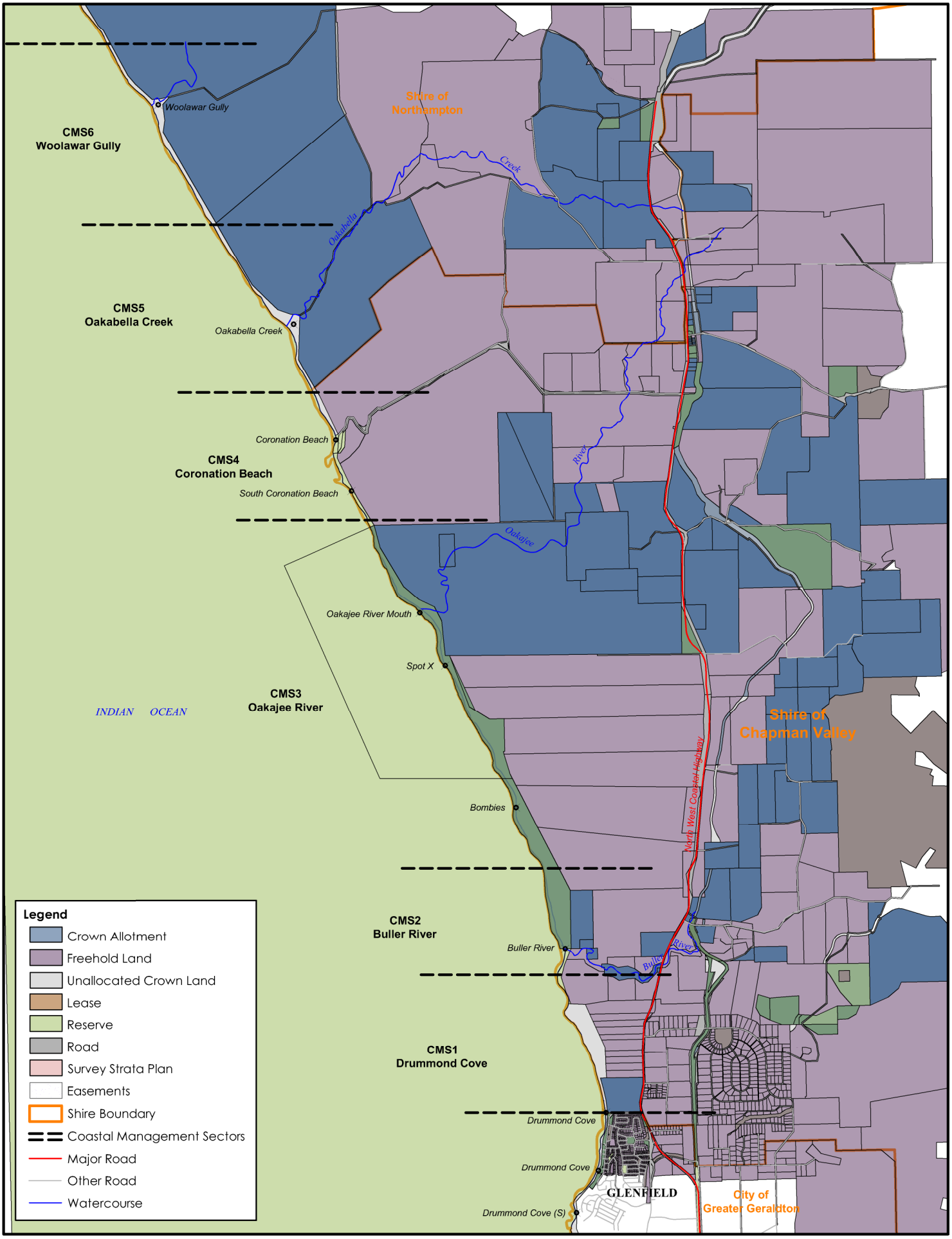
The purpose of the strategies presented below is to establish an over-arching management framework that can be applied to the entire study area. The strategies related to Community Involvement are presented in Table 2.10 below. They relate to the following objectives:

- Objective 3 – Ensure management and protection of the coast is undertaken in a sustainable manner
- Objective 8 – To increase community awareness and participation in coastal management and maintain successful relationships between stakeholders and coastal landowners.

Table 2.10– Community Involvement Strategies

Strategy	Description	Priority	Responsibility
CI1	Support programs that actively engage the local community in managing coastal reserves e.g. school education programs, beach clean-up days.	O	SCV, SoN, MWPA, Landcorp, NACC
CI2	Provide opportunities for the community to be involved in rehabilitation, monitoring, facility and access management etc	O	SCV, SoN, MWPA, Landcorp, NACC
CI3	Assist and encourage the community with forming "Friends of Coastal Reserves" groups.	S	SCV, SoN

Strategy	Description	Priority	Responsibility
CI4	Support a Driver/Coastal Education Program which includesvisitor safety, sustainable coastal use and off-road safety. Include information on vehicle use within coastal areas (refer to the South Coast NRM code of conduct manual and any other user group codes i.e. Trail Bike Riders) and educate vehicle drivers on the Control of Vehicles (Off-Road Areas) Act 1978 and how it is applicable to the coastal areas of the Shire. Ensure that associated resources (such as tourist brochures and maps with warnings about coastal hazards) are available and accessible to the public (available at popular tourist locations, shops, information centres, accommodation and businesses)	O	SCV, SoN, MWPA, Landcorp
CI5	Investigate a joint approach to visitor and community education with adjoining local governments.	O	SCV, SoN, CGG, Landcorp, MWPA
CI6	Liaise with land managers in the study area, (including MWPA and Landcorp who are the majority land managers in the study area) and private landholders to discuss and determine a level of commitment towards community involvement and education.	O	SCV, SoN



landinsights
PLANNING DESIGN ENVIRONMENT

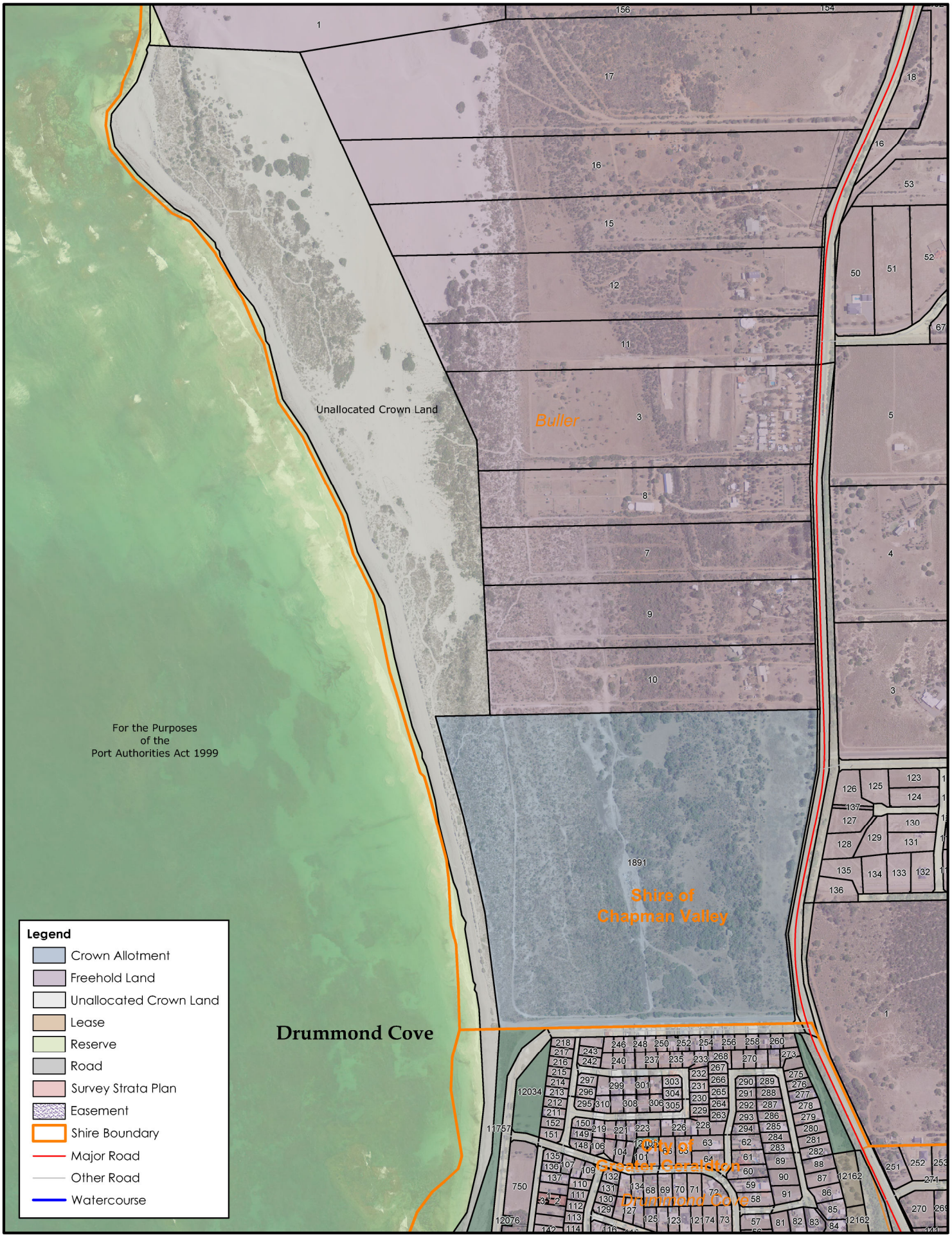
Note: All boundaries subject to survey.

NORTH

Shire of Chapman Valley
COASTAL MANAGEMENT STRATEGY
Figure 2.1a
Tenure - Study Area

POSTAL ADDRESS : PO BOX 289 MT LAWLEY, W.A. 6929
phone : (08) 9271 8506 email : admin@landinsights.com.au

SCALE: 1:90,000 (A4) Plan No: 965-02 Date: May 2016



landinsights
PLANNING DESIGN ENVIRONMENT

Note: All boundaries subject to survey.

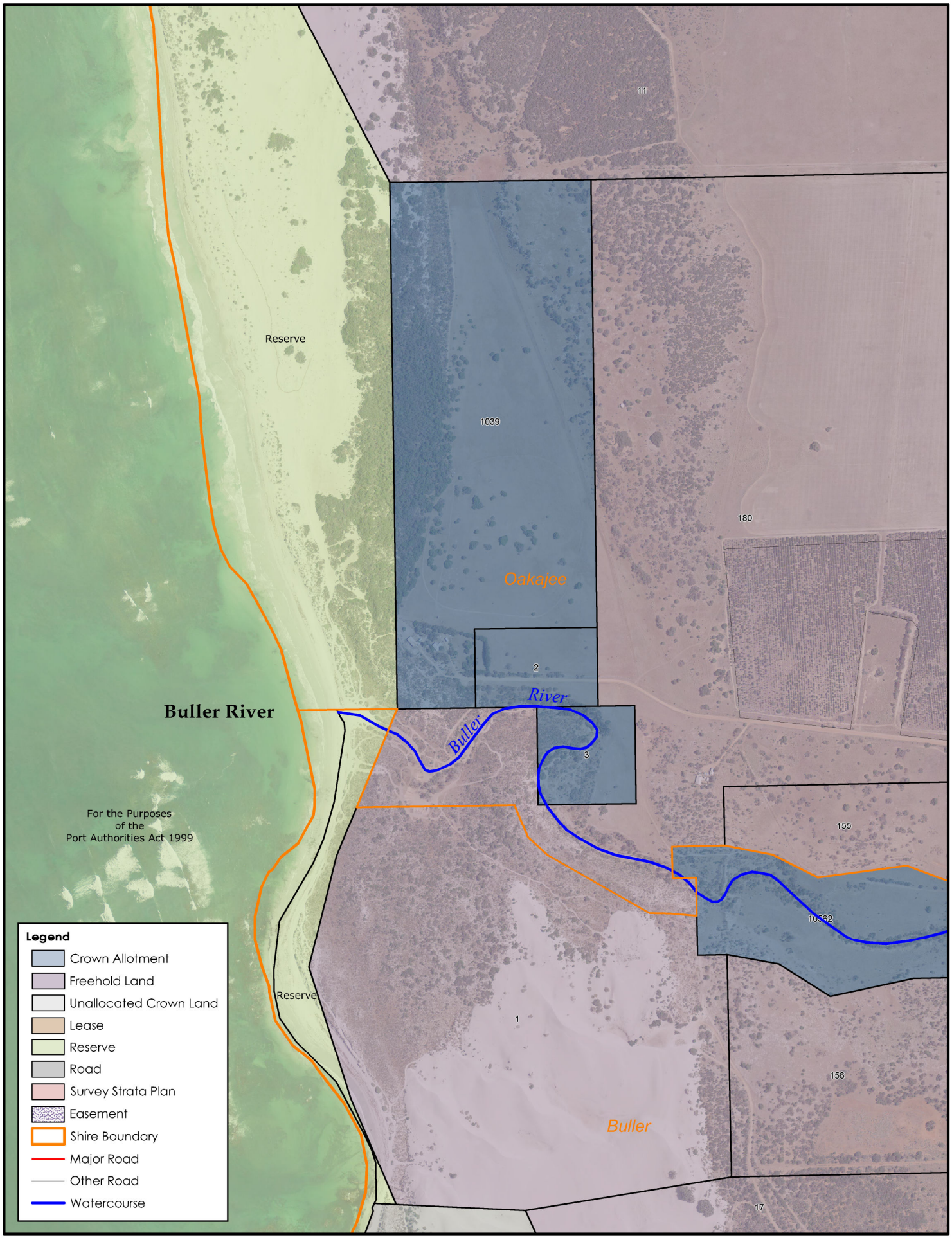
NORTH

Shire of Chapman Valley
COASTAL MANAGEMENT STRATEGY

Figure 2.1b
Tenure - Drummond Cove

POSTAL ADDRESS : PO BOX 289 MT LAWLEY, W.A. 6929
phone : (08) 9271 8506 email : admin@landinsights.com.au

SCALE: 1:10,000 (A4) Plan No: 965-10 Date: May 2016



landinsights
PLANNING DESIGN ENVIRONMENT

Note: All boundaries subject to survey.

NORTH

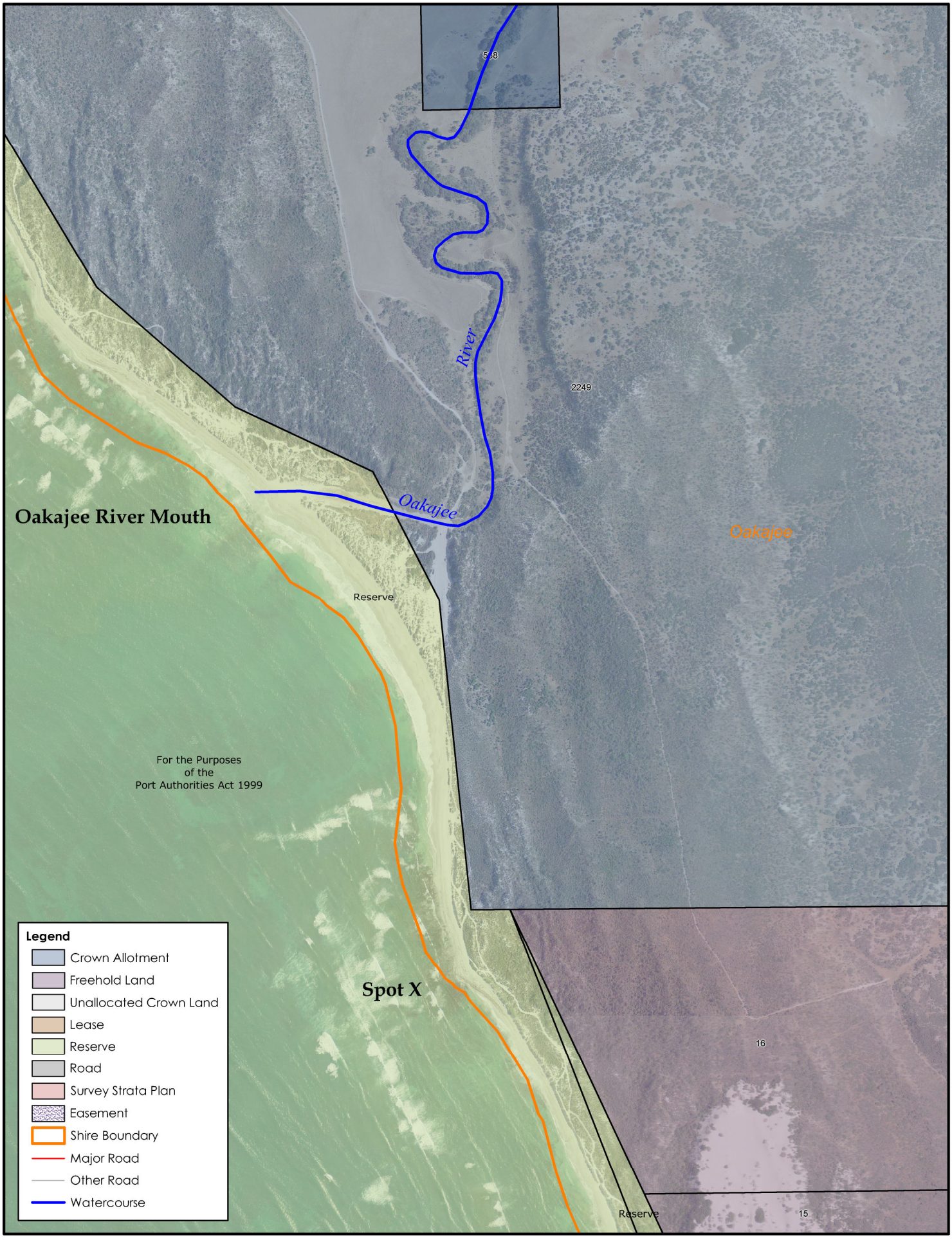
Shire of Chapman Valley
COASTAL MANAGEMENT STRATEGY

Figure 2.1c

Tenure - Buller River

POSTAL ADDRESS : PO BOX 289 MT LAWLEY, W.A. 6929
phone : (08) 9271 8506 email : admin@landinsights.com.au

SCALE: 1:10,000 (A4) Plan No: 965-11 Date: May 2016



landinsights
PLANNING DESIGN ENVIRONMENT

Note: All boundaries subject to survey.

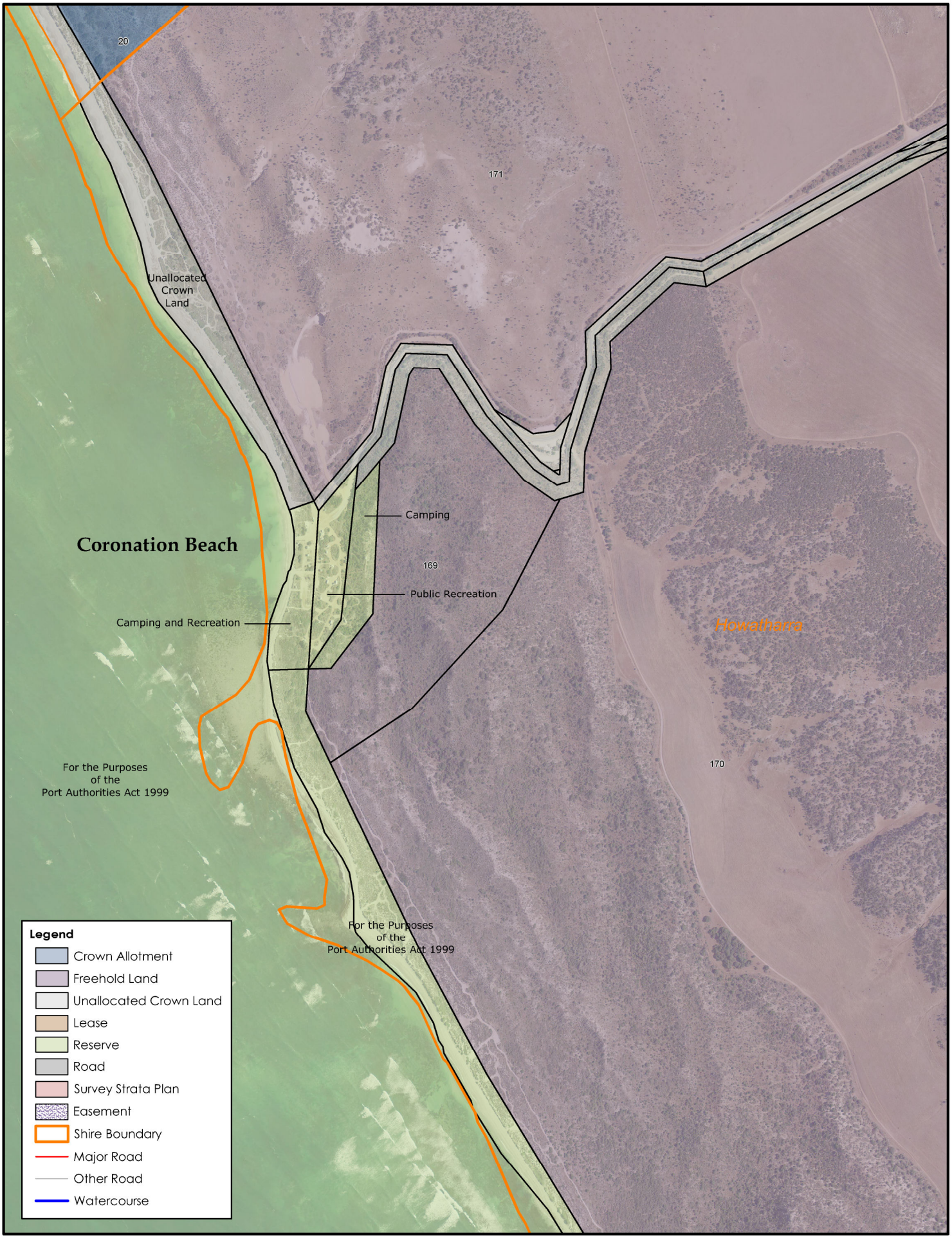
NORTH

Shire of Chapman Valley
COASTAL MANAGEMENT STRATEGY

Figure 2.1d
Tenure - Oakajee River and Spot X

POSTAL ADDRESS : PO BOX 289 MT LAWLEY, W.A. 6929
phone : (08) 9271 8506 email : admin@landinsights.com.au

SCALE: 1:10,000 (A4) Plan No: 965-12 Date: May 2016



landinsights
PLANNING DESIGN ENVIRONMENT

Note: All boundaries subject to survey.

NORTH

Shire of Chapman Valley
COASTAL MANAGEMENT STRATEGY

Figure 2.1e

Tenure - Coronation Beach

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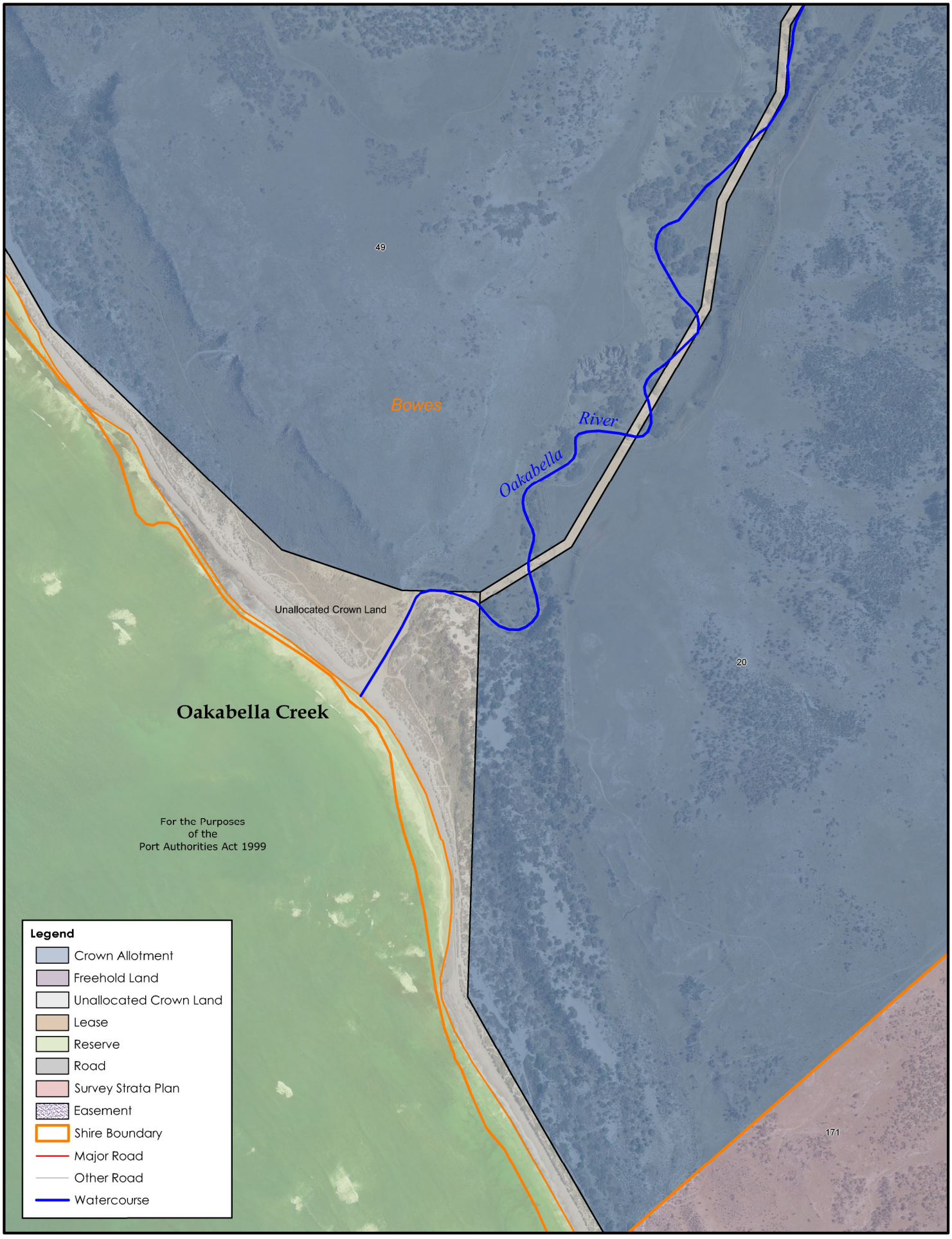

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NORTH

Shire of Chapman Valley
COASTAL MANAGEMENT STRATEGY

Figure 2.1f
Tenure - Oakabella Creek

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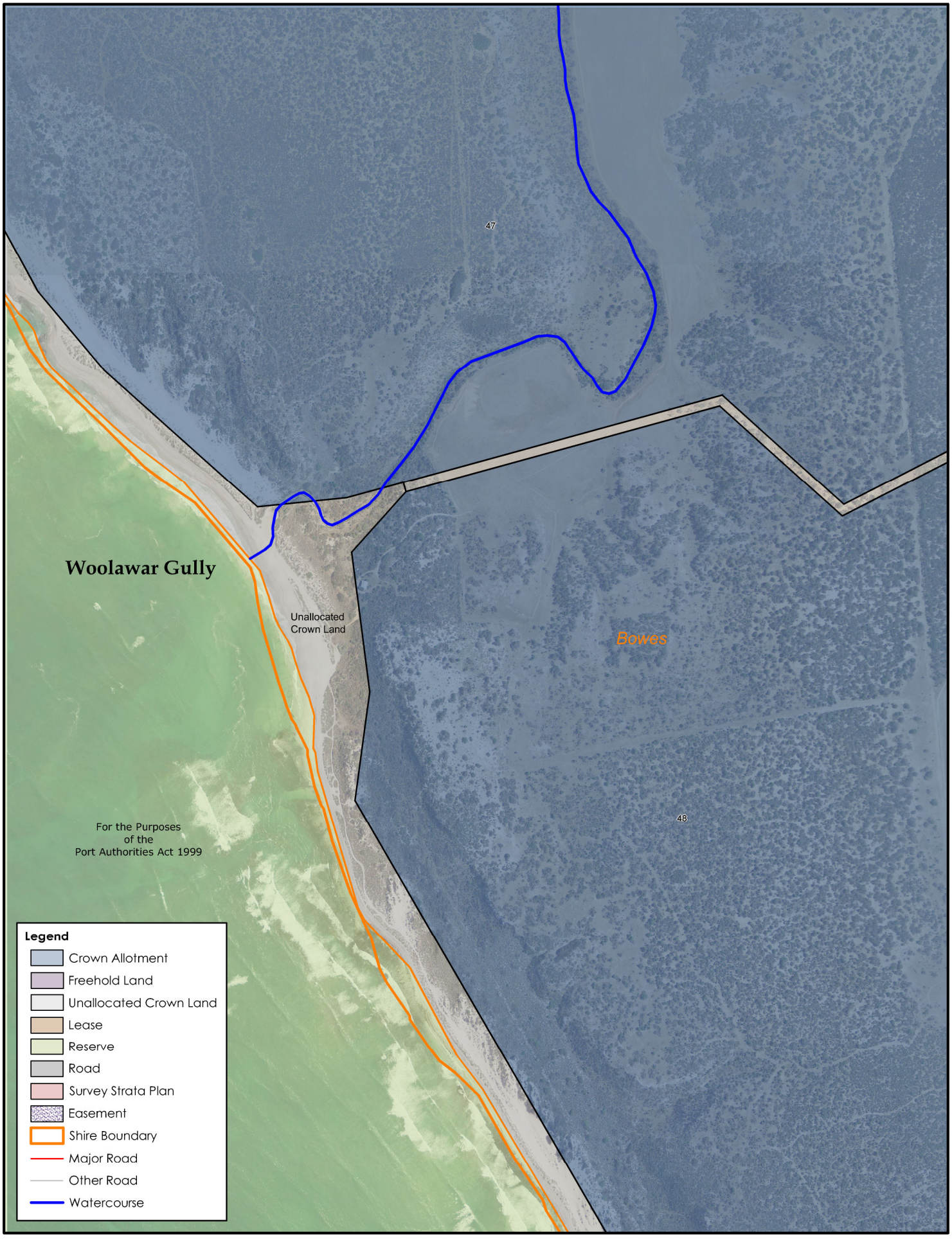

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NORTH

Shire of Chapman Valley
COASTAL MANAGEMENT STRATEGY
Figure 2.1g
Tenure - Woolawar Gully

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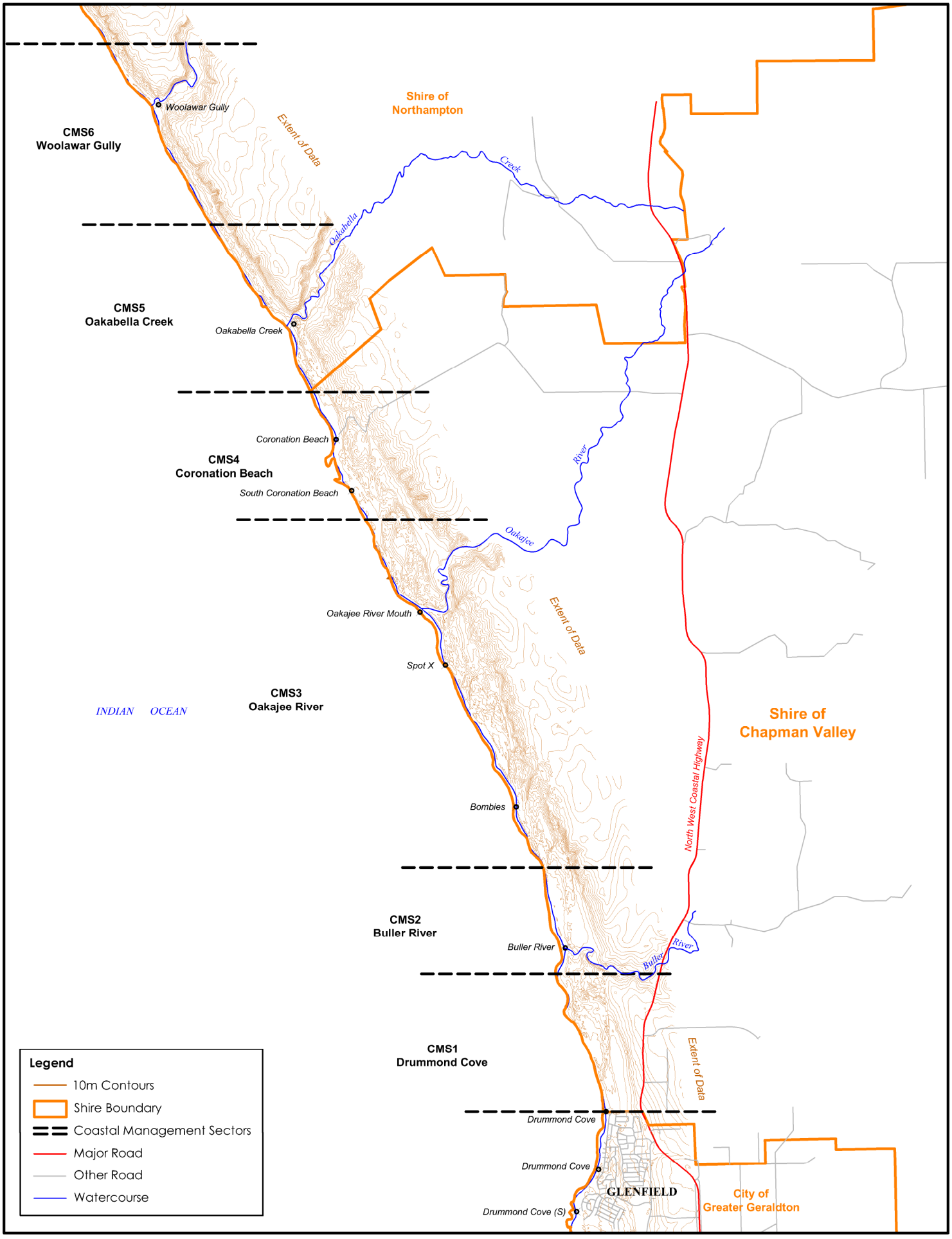

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Shire of Chapman Valley
COASTAL MANAGEMENT STRATEGY
Figure 2.2 - Contours

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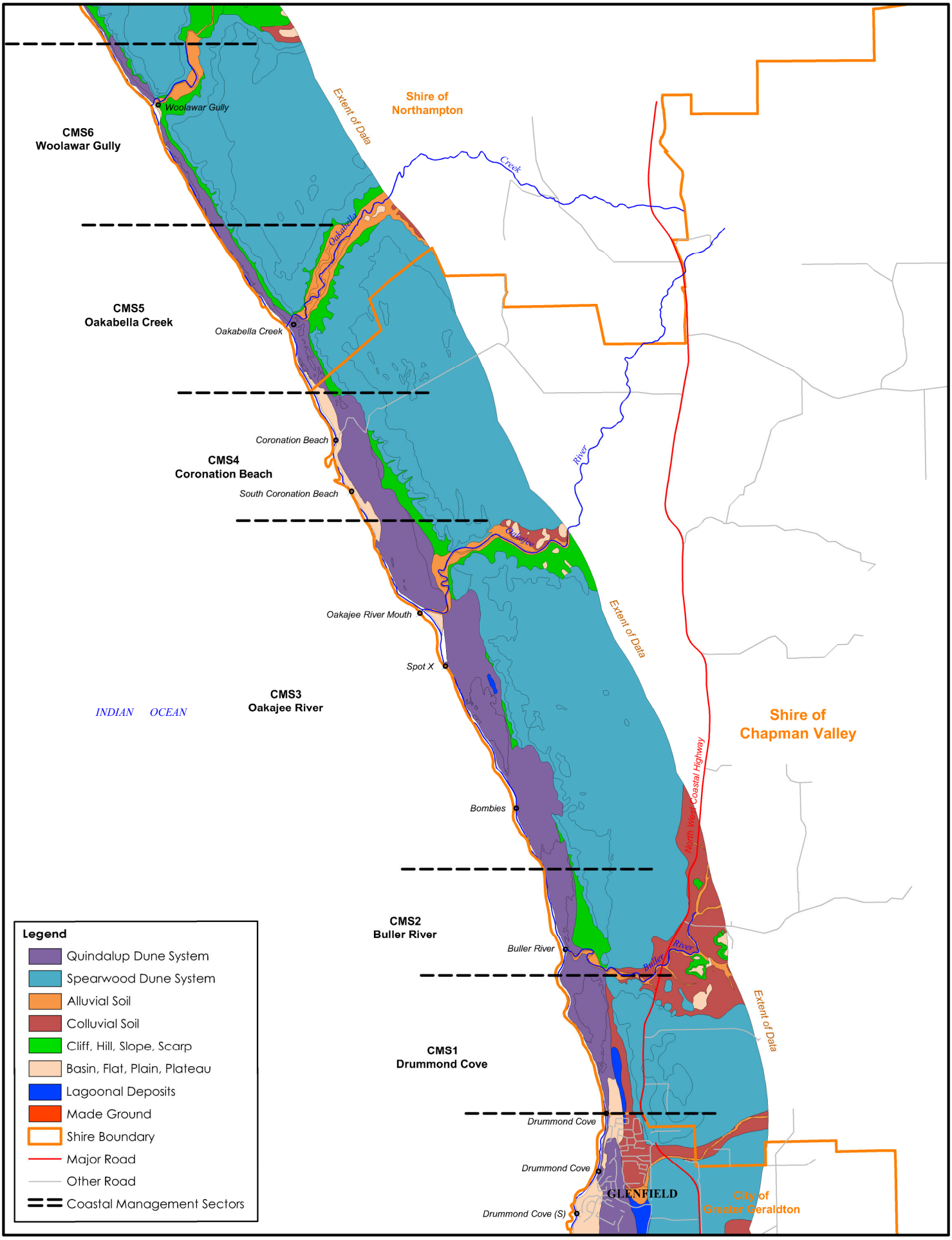

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Note: All boundaries subject to survey.

NORTH

Shire of Chapman Valley
COASTAL MANAGEMENT STRATEGY
Figure 2.3 - Coastal Geomorphology

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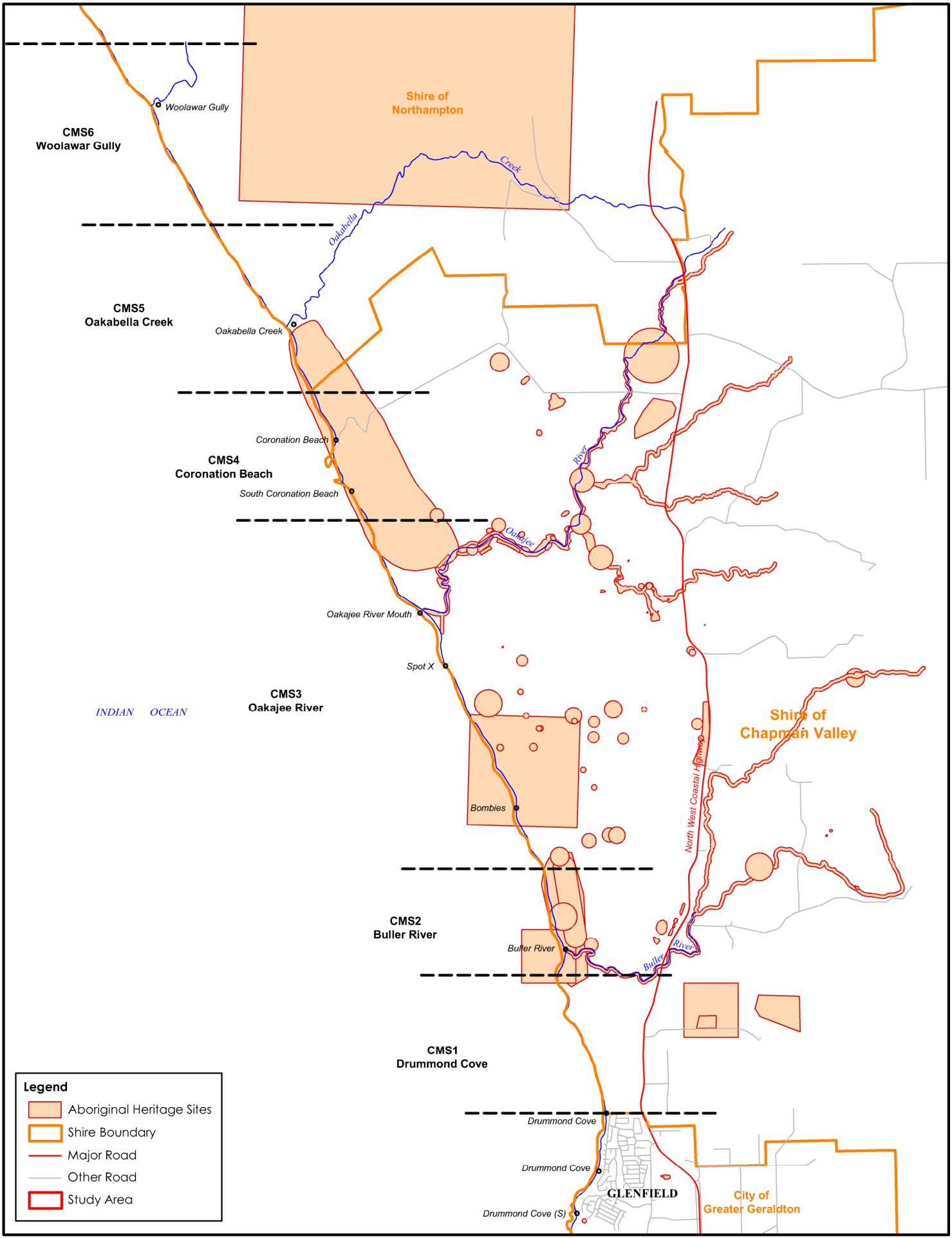

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Shire of Chapman Valley
COASTAL MANAGEMENT STRATEGY
Figure 2.4 - Heritage

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3.0 COASTAL SECTOR ACTION PLANS

Coastal sector action plans

3.1 INTRODUCTION

The study area has been divided into coastal management sectors and a list of recommendations is provided for each sector, accompanied by a plan. The coastal sectors are based on the sectors identified in the 2007 Strategy. The coastline was divided into these sectors based on land use, environment and ownership and are arranged from the south to north.

A separate Action Plan has been provided for each coastal management sector and contains specific recommendations for management of these areas. A plan is provided for each site showing the aerial photo and features. The actions are labelled on the plan to show diagrammatically where management is required. Each action is provided with a number (for easy reference and identification on the plan) as well as an indication of responsibility and priority. Further information on implementation, including a discussion on responsibilities, priorities and funding, is provided in Chapter 4. The actions were determined through a review of the recommendations in the 2007 Coastal Management Strategy, consideration of comments from the Steering Group, stakeholders and community, from site visits and through a review of relevant literature.

The coastal management sectors are as follows (Figure 1.1):

- CMS 1: Drummond Cove
- CMS 2: Buller River
- CMS 3: Oakajee River/Spot X
- CMS 4: Coronation Beach and South Coronation Beach
- CMS 5: Oakabella Creek
- CMS 6: Woolawar Gully.

The following sections describe each coastal management sector in the context of:

- Issues & Opportunities
- Description
- Objective
- Management Actions.

3.2 CMS 1 – DRUMMOND COVE

Coastal Management Sector CMS 1 – Drummond Cove extends from the southern boundary of the Shire of Chapman Valley (Drummond Cove) to north of the dune blow out (as shown in Figure 3.1).

ISSUES & OPPORTUNITIES

Table 3.1 – Issues and opportunities – Drummond Cove

Issues	Opportunities
Increased ORV and RRV use due to increased population, closure of off-road driving along Geraldton's beaches and the accessibility.	Investigation of possible Permitted ORV Areas.
Potential for safety issues between beach users, especially along the beach.	Encourage the use of the tracks behind the foredune rather than driving along the beach. This is more likely to occur as the width of the beach has been decreasing over time.
Environmental and dune degradation from increased ORV and RRV use within the dunes.	Maintain tracks, use of signs to direct vehicles to tracks and policing of the area.
Management responsibilities for the UCL which makes up a large proportion of this sector. The Department of Lands is the responsible authority of UCL but rarely take on an active role in management. Local government seeking of management orders for UCL will be dependent on the outcome of prior native title outcomes. Management of the foreshore reserves created as a result of the Buller Local Structure Plan will also need to be determined.	The Shire of Chapman Valley could become the vesting authority for the UCL and new foreshore reserves, however this would depend on their resources and discussions with Native Title claim groups.
Impact of sea level rise and coastal hazards such as erosion and inundation.	Further studies would be required to determine the coastal hazards and risks. Considering the low-key use of the area and the absence of hard structures the urgency is relatively low in comparison to areas with high coastal risks, high land use and permanent structures.

DESCRIPTION

Tenure along the beach and dunes in this sector varies from UCL to land vested with the MWPA and private landholdings. A majority of the coastal area from Drummond Cove north to the large dune blowout is UCL. The beach areas and the coastal strip south of Buller River is vested with MWPA. The UCL is subject to a number of native title claims. The land east of the UCL is privately owned and subject to the Buller Local Structure Plan and is proposed for urban development. The land immediate south of Buller River is owned by Landcorp (as shown in Figures 2.1b and 3.1).

The southern third of this sector is characterised by broad sandy beaches backed by a low foredune behind which lies a relatively flat area of coastal heath. The foredune is lightly vegetated and displays considerable damage from uncontrolled movement between the beach and 4WD access track. The foreshore area within CMS1 varies significantly from being typically approximately 50m wide in the southern and northern portions to 200m to 250m wide in the central section.

Driving off-road is popular along the southern part of this sector, north of the Drummond Cove car park. A 4WD track extends through the primary dune system and runs parallel to the beach. The 4WD track provides access to Buller River to the north. Access to this section of the coast and Buller River has traditionally been available by driving along the beach, however in recent years the beach has been narrowing and this has reduced the sandy area available for driving and has made it hazardous. Therefore, the 4WD track behind the beach is likely to become more important as the main access track to Buller River and other coastal locations from Drummond Cove.

A gravel car park is located at the western end of Drummonds Cove Road. The car park is located at the northern extent of the Drummond Cove residential area and at the southern boundary of the Shire. This portion of the CMS1 is popular for swimming and fishing and particularly popular with families as it provides protected open beaches and is easily accessible. The area is also popular for beach camping and horse riding.

Track leading behind the dunes towards Buller River, and signage

The foreshore of the central and northern thirds alter significantly to narrow beaches with a higher backing foredune typically approximately 2m high. These areas often experience erosion from tidal and storm activity. A 4WD track parallels the beach immediately behind the foredune. The foredune is lightly to moderately vegetated further north to Buller River and displays areas of damage from uncontrolled movement between the beach and 4WD access track. The central portion is backed by a large dune blow-out which is extensively used for dune and quad bike riding. The area is not a gazetted Permitted ORV Area under the Control of Vehicles (Off Road Areas) Act 1978. Bike riders accessing this area from the Drummond carpark create a risk to beach users in the southern portion as a consequence of speeds travelled both along the track and beach. The track is relatively narrow. Other than dune bike riding, these portions are not extensively used other than for some camping in the bay approximately 500m south of the Buller River mouth. No camping facilities are provided within either section.

While the opportunities are very limited, there is a pressing need for dedicated ORV areas in the Mid West and Geraldton region. NACC recently completed the Off-Road Vehicle Areas on the Northern Agricultural Region of Western Australia Feasibility Study (Feb 2015) which considered the area stretching from Shire of Gingin to Shire of Northampton. As is identified in the study, further discussion is necessary between the different parties before a gazetted Permitted ORV area could be seriously entertained or established. Should an ORV area be created this will serve the regional population rather than just a local population and further consideration should be given to this. The investigation of Permitted ORV Areas will need to have regard to issues such as Aboriginal Heritage sites (and possible Section 18 approval), appropriate access from gazetted roads, costs associated with their creation and ongoing maintenance and management of these areas. Various agencies will need to collaborate to resolve these issues.

Drummond Cove is a residential development located just south of the study area within the City of Greater Geraldton. The Buller Local Structure Plan (GHD, 2015) informs the zoning and land uses within this area. CMS 1 includes 13 private lots located north of the Drummond Cove Estate which, though currently developed predominantly for rural residential purposes, have been identified as potential future urban as a logical expansion of the existing urban coastal corridor.

The Buller Local Structure Plan contains further detail on the environmental impact of the proposal and how it will affect the coastal area in this section. It includes due consideration for SPP 2.6 and identifies the ceding of an appropriate foreshore reserve for public recreation and to create an appropriate setback to allow for coastal processes. Possible beach access points are identified in the plan, as well as a new recreation node located in the southern third of CMS1. The Structure Plan states that the foreshore reserve will function as a local, family-friendly beach, therefore will not require significant infrastructure, such as large parking areas, within the reserve. Future infrastructure requirements will include coastal paths, and small scale recreational areas. Formal access and car parking areas can be provided within the coastal road that forms the boundary of the foreshore reserve.

Beach area within CMS 1 located between Drummond Cove and Buller River

OBJECTIVES

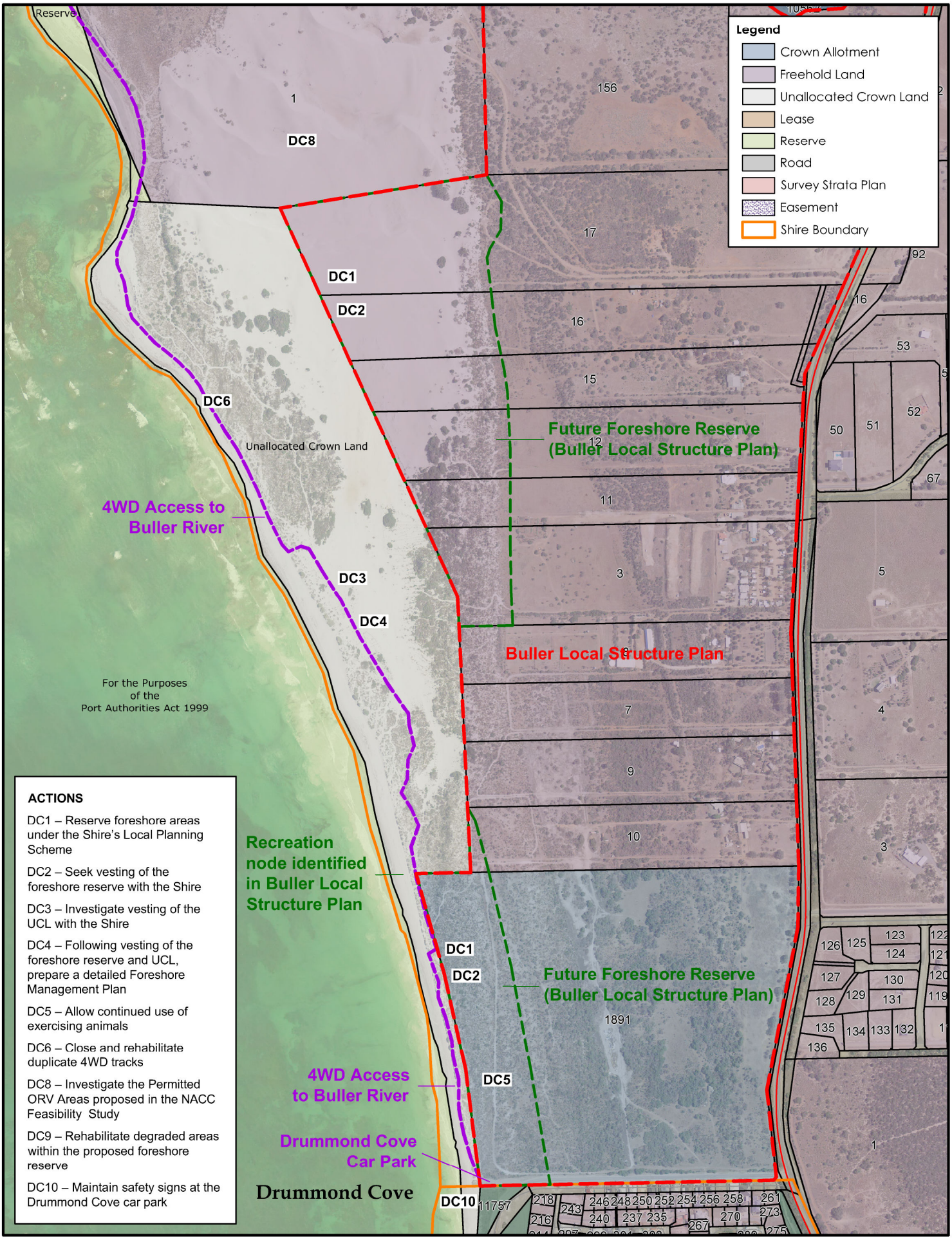
To maintain the low-key recreational nature of this sector to focus on its value as a family friendly beach and manage ORV and RRV use to reduce impacts on the natural environment.

ACTIONS AND RECOMMENDATIONS

Table 3.2 – Drummond Cove Action Plan Recommendations

Action	Description	Priority	Responsibility
DC1	Amend the Shire of Chapman Valley Local Planning Scheme No.2 to include the foreshore reserve identified in the Buller Local Structure Plan as "Public Recreation" (defined in accordance with the State Planning Policy 2.6) following subdivision cadastrally creates the foreshore reserve.	S – O	SCV, DoP
DC2	Seek management orders of the coastal foreshore identified in the Buller Local Structure Plan with the Shire of Chapman Valley for Public Recreation.	M – O	SCV, DoL
DC3	Seek management orders of the UCL for the purpose of Public Recreation (dependent on the outcomes of native title claims).	L – O	SCV, DoL, Native Title claim groups
DC4	Once the management order is with the Shire of Chapman Valley, prepare a Foreshore Management Plan detailing the management actions for the section of coast extending from Drummond Cove to the south of Buller River (or implement one if created as part of a prior subdivision). The Plan should provide information on the following: • Controlled pedestrian access between residential areas and the beach • Controlled vehicle access where appropriate between the proposed road adjoining the foreshore reserve and the beach • Management of the pedestrian and vehicle access points • Environmental protection mechanisms and access management such as fencing access paths and dune areas, rehabilitation and brushing dune areas where appropriate and signage.	L – O	SCV, Private landowners

Action	Description	Priority	Responsibility
DC5	Allow continued use of the southern third of CMS1 for exercising dogs pending development of the Urban land to the east, after which consider/investigate whether horses should be prohibited while continuing to allow dogs in a controlled manner.	O	SCV, DoL
DC6	Rationalise the 4WD tracks leading from Drummond Cove to Buller River and close and rehabilitate duplicate tracks.	S	SCV, DoL
DC7	Seek to engage users of the area and the local 4WD community in the design and implementation of improvements and works.	O	SCV, MWPA, Landcorp, DoL
DC8	Investigate and further consider the proposed off-road vehicle areas proposed in the NACC Feasibility Study (NACC, 2015) as a Permitted Areas under the Control of Vehicles (Off-road Areas) Act 1978. Following declaration of Prohibited Areas declare Authorised Officers under the Control of Vehicles (Off-road Areas) Act 1978 to police Prohibited Areas and monitor vehicle speeds on the beach, erect appropriate signage and markers. Investigations will need to consider a range of issues such as Aboriginal heritage, rehabilitation and environmental impact, responsibilities, costings, tenure and access.	S – M	SCV, NACC, MWPA, Landcorp, DAA
DC9	The developers of the Buller Local Structure Plan be required as conditions of future Residential subdivision to prepare and/or assist in implementing a management plan to undertake or contribute towards active rehabilitation of degraded areas within the Foreshore Reserve.	S	SCV, Developers
DC10	Maintain warning signs located north of the Drummond Cove car park to inform drivers of the risks driving along the beach and through the dunes.	O	MWPA, DoL



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Shire of Chapman Valley
COASTAL MANAGEMENT STRATEGY
Figure 3.1
CMS 1 - Drummond Cove Action Plan

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3.3 CMS 2 – BULLER RIVER

CMS 2 applies to the Buller River mouth recreation site and is located between the Buller Local Structure Plan area and the proposed Oakajee Strategic Industrial Estate (as shown in Figures 3.2a and 3.2b).

This area comprises a large, sheltered bay with broad beaches backed by light to moderately vegetated foredunes rising generally in the range of approximately 2m to 3m. The Buller River is for the most part relatively narrow and incised through the elevated plain. The River meanders and the banks are well vegetated. A small area opens out on the south side approximately 150m inland from the mouth forming a flat area that is within private land.

ISSUES & OPPORTUNITIES

Table 3.3 – Issues and opportunities – Buller River

Issues	Opportunities
Access is limited, particularly for 2WDs.	Investigate the possibility of publically opening the gravel track leading from the highway.
Increased ORV and RRV use, closure of off-road driving along a majority of Geraldton's beaches and the accessibility and popularity of ORV's such as dune buggies, quad bikes and trail bikes.	Investigation of the opportunities identified in the NACC Feasibility Study (NACC, 2015).
Environmental and dune degradation from increased ORV and RRV use.	Investigation of the opportunities identified in the NACC Feasibility Study (NACC, 2015) which can contain a majority of ORV use to identified areas.
Disturbance of Aboriginal Heritage sites and the need for better policing of ORV and RRV access through the dunes.	There is opportunity to provide employment opportunities to local community members as rangers/enforcement and educational officers.
No facilities (such as benches, rubbish bins or BBQs) are currently provided at Buller River. Provision of facilities will advocate use of the site and might increase visitor use which, while increasing surveillance of the area from increased use will also lead to greater management responsibility.	The provision of facilities to Buller River will depend on the outcomes of public access investigations and, should access be opened, facilities should be provided to help manage day-use of the area.
Management roles and responsibilities need clarification. Further discussion is required regarding management responsibilities, funding, provision of facilities and provision of access to Buller River. There is more than one land manager responsible for the area which can make coordination of actions and management challenging at times.	It is recommended that a Master Plan is prepared for the Buller River site which will guide land use, management responsibilities and the provision of facilities and access at Buller River.
The unknown future of the proposed Oakajee Port makes it difficult to anticipate future land use impacts (for example, if coastal sites are lost through development of the port this will place more pressure on Buller River).	As the timeframe for any development of the Port is not certain at this point, a majority of the recommendations are made on the assumption that it will not proceed in the short-medium term. However some recommendations are provided should the Port development commence.
Coastal hazards and risks. There is no reliable, detailed information on the possible impact of sea level rise, coastal erosion and inundation at Buller River.	As this is a popular site for recreational use, it is recommended that further coastal studies are undertaken and a CHRMAP is prepared for the entire study area.

DESCRIPTION

TENURE AND ZONES

The privately owned land south of Buller River has been identified for future urban development. This area is subject to the Buller Local Structure Plan (GHD, 2015). Two residences, currently rented from the landowner (Landcorp) are located to the immediate north of the River within the Oakajee Industrial Estate Buffer, and Structure Plan area.

The Buller River mouth and the beach areas north and south are reserved and vested with the Mid West Ports Authority. The remainder of this area, including the river itself, is owned by Landcorp. The area is subject to a variety of zones and reserves under the Shire of Chapman Valley Local Planning Scheme No. 2. The river mouth and beach to the south is reserved for Parks and Recreation. The southern half of the river, including a majority of the day use area, is zoned Rural and the northern end is zoned Oakajee Industrial. The entire Buller River CMS is included within SCA1 – Oakajee Industrial Zone Buffer.

RECREATIONAL USE

Buller River mouth is popular, particularly with families, for fishing and swimming, while the River itself is a popular camping location with evidence of numerous campsites. The absence of any facilities at Buller River is an emerging problem. Considerable littering is evident and the lack of any ablution facilities cannot be sustained.

Buller River is used for informal camping by the local community and, as a result, the formalisation of camping activity at this location was seriously considered during the preparation of this Strategy. It was agreed that the site should be for day use only instead of camping by the Steering Group considering the challenges it faces with regards to access, management, heritage and provision of facilities and because the site is located within the Oakajee Buffer Area which prevents camping activities.

Any consideration of day use facilities at Buller River will need to have regard for other hazards such as flood levels, coastal storm activity and bushfires. No information on river flood levels is available through conventional sources and it would be desirable, as far as practical, to seek to establish some indication of flood levels through local knowledge, anecdotal evidence or simple flood calculations. A detailed Aboriginal heritage survey will also be required (including a Section 18 assessment) should any significant actions be proposed in the area

Management roles and responsibilities at Buller River need clarification and further discussion. Buller River comprises land reserved with MWPA (the beach and river mouth) and land managed by Landcorp (the area used currently used by the public for camping and recreation, the river as well as the gravel access track). The Shire of Chapman Valley receives some responsibility and pressure to manage the site as it is located within the Shire and is used by the public, however the area is not vested with the Shire. Further discussion is required to clarify management responsibilities, funding, provision of facilities and provision of access to Buller River.

It is recommended that a Master Plan is prepared for the Buller River site which will investigate the issues at this site in more detail and will guide land use, management responsibilities and the provision of facilities and access at Buller River. The Master Plan should consider the following:

- Design of the day-use area
- Provision of day-use facilities
- Protection of heritage sites
- Access arrangements
- The link between Buller River and Parkfalls Estate to the east
- A horse exercise area
- Responsible authorities for implementation and on-ground management and maintenance (such as rubbish collection and clean-ups)
- Policing and surveillance, particularly during peak periods.

Day use area at Buller River

ACCESS AND VEHICLES

Access to Buller River and coastal areas north thereof is now limited to 4WD access from Drummond Cove, part of which currently is through private land. A gravel track leads to Buller River from the North West Coastal Highway, however this is not situated within a road reserve, is currently closed to the public and is on Landcorp land. The remainder of the coast is accessible from informal 4WD tracks through the dunes and along the beach.

The development of day use facilities at Buller River or access to the coast north of Buller, will require provision of permanent, sealed access from North West Coastal Highway. The current alignment of the gravel road may require review and there is a need to review the junction at the Highway to improve sight lines. Further discussion and negotiations will be required between the Shire of Chapman Valley and Landcorp regarding upgrades to the gravel road and future management and maintenance. Consultation and approval will be required from Main Roads WA regarding the highway intersection upgrades needed to achieve a safe standard. A traffic impact study and detailed engineering designs will also be required to help determine the costs of upgrades and future maintenance. It should be noted that that while the ultimate recommendation for the access between the highway and Buller Rivermouth is for sealed access, there may be a possibility that as an interim measure the access could be to a gravel standard. This could be with the exception of the section leading to the highway intersection that will need to be constructed to a sealed standard as part of the review and upgrading (and realignment if necessary) process that must be undertaken to the approval of Main Roads WA.

There is a pressing need for dedicated ORV areas in the region. NACC recently completed the Off-Road Vehicle Areas on the Northern Agricultural Region of Western Australia Feasibility Study (Feb 2015) which considered the area stretching from Shire of Gingin to Shire of Northampton. The study identifies Buller River and Southgates (City of Greater Geraldton) worthy of more detailed investigation. As is identified in the study, further discussion is necessary between the different parties before a dedicated ORV area can be seriously entertained or established. It should also be acknowledged that a Gazetted ORV area will serve the regional population rather than just a local population and this will need further consideration during negotiations.

Gravel track leading to Buller River

OBJECTIVES

To consider opportunities to enhance and improve management of Buller River as a significant recreational node through the provision of low impact day use facilities, better access and improved surveillance/policing.

ACTIONS AND RECOMMENDATIONS

Table 3.4 – Buller River Action Plan Recommendations

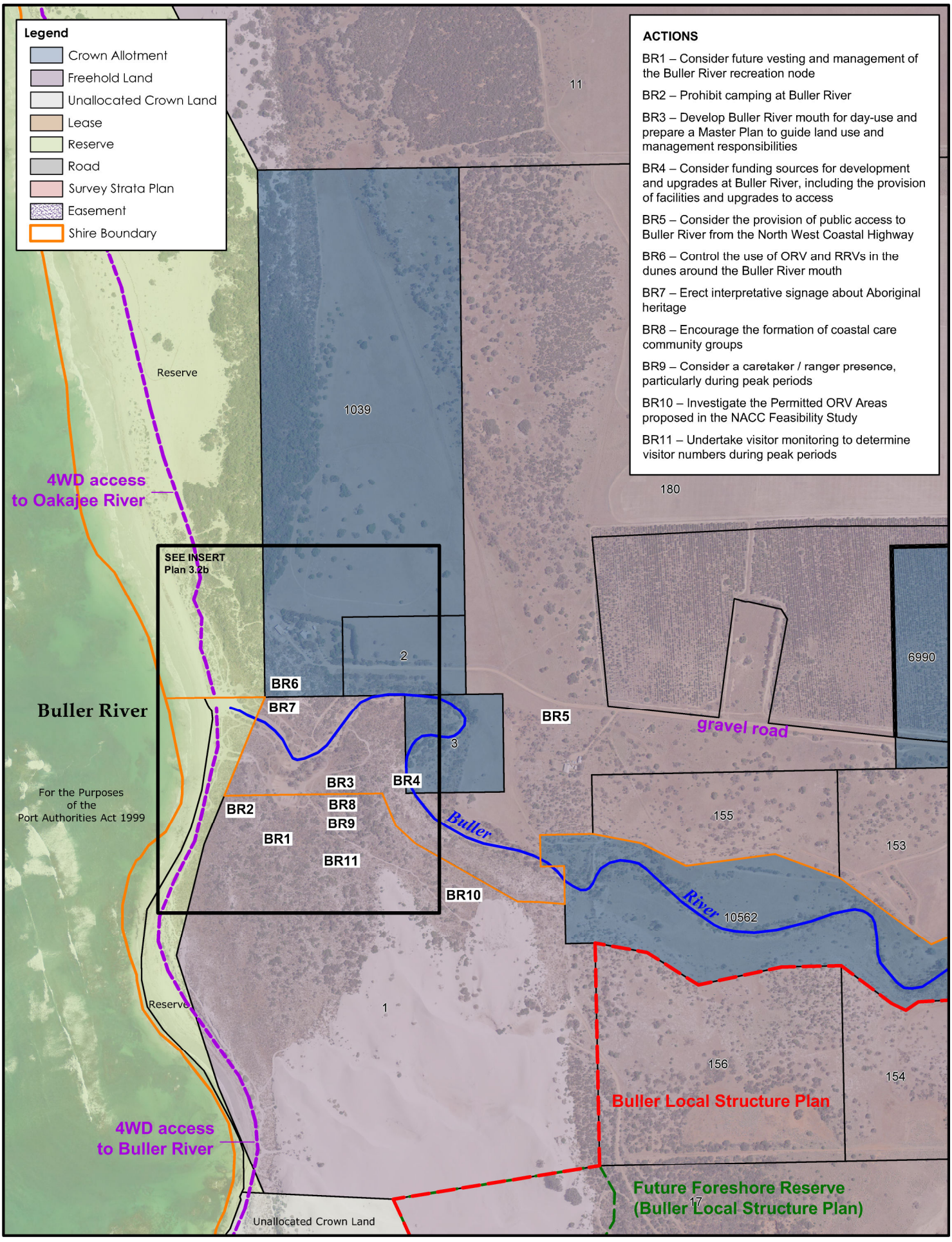
Action	Description	Priority	Responsibility
BR1	Consider who will be responsible for management of the Buller River area taking into account the visitor use, the future of the Oakajee Port and improvements to access. Further negotiations between the Shire of Chapman Valley and Landcorp to take place to determine the most appropriate land manager or the land management models which could be used (such as placing management orders with the Shire or continue the area to be owned by Landcorp and managed by the Shire subject to a fee for this service).	M – L	SCV, Landcorp
BR2	Prohibit camping at Buller River and install appropriate signage.	O	MWPA, Landcorp

Action	Description	Priority	Responsibility
BR3	Develop Buller River Mouth for day-use recreational pursuits. Prepare a Master Plan to provide further details regarding the facilities to be provided at the site. Include consideration of the following: • Design of the day-use area • Provision of day-use facilities • Protection of heritage sites • Access arrangements • The link between Buller River and Parkfalls Estate to the east • A horse exercise area • Responsible authorities for implementation and on-ground management and maintenance (such as rubbish collection and clean-ups) • Policing and surveillance, particularly during peak periods.	S	Responsible land managers

Action	Description	Priority	Responsibility
BR4	Relevant Land Manager(s) consider funding sources (be they internal, external, collaborative of a combination thereof) for development and upgrades within the Buller River environs including development of day use facilities, and the provision of permanent, sealed access to the Buller River mouth.	M – L	Responsible land managers

Action	Description	Priority	Responsibility
BR5	Consideration of public access to Buller River from the North West Coastal Highway including the following tasks: • Enter into negotiations with Landcorp regarding the formalisation of the existing access road from the highway to the Buller River site (note that while the ultimate recommendation for the access between the highway and Buller River is for sealed access, there may be a possibility that as an interim measure that the access could be to a gravel standard with the exception of the section leading to the highway intersection that will need to be constructed to a sealed standard). • Investigate the upgrades required to the intersection of the access road with the North West Coastal Highway (through consultation with Main Roads WA) • Determine capital and maintenance costs and how this will be funded between different parties	S – M	SCV, Landcorp, Main Roads WA
BR5 (cont)	• Determine the future management of the road (i.e. will it be placed in a separate road reserve or remain on land managed by Landcorp).	S – M	SCV, Landcorp, Main Roads WA
BR6	Control the use of RRVs and ORVs in the dunes around the Buller River mouth, particularly north within the Aboriginal Heritage sites, through signage, education and policing (ranger presence or a caretaker). Maintain warning signs to inform drivers of the risks driving along the beach and through the dunes.	O	SCV, MWPA, Landcorp
BR7	Erect interpretative signage at Buller River mouth to provide information on the Aboriginal Heritage sites within the area to increase awareness of their importance and value.	S	MWPA, Landcorp, Native Title claim groups
BR8	Encourage the formation of coastal care community groups to assist with beach clean ups and management of the Buller River area and to create a sense of community ownership and responsibility for the area.	M – L	SCV, MWPA, Landcorp, NACC
BR9	A caretaker / ranger presence is maintained at Buller River, particularly during peak periods and if visitor use increases as a result of improved access and provision of facilities.	M – L	SCV, MWPA, Landcorp

Action	Description	Priority	Responsibility
BR10	Investigate and further consider the proposed off-road vehicle areas proposed in the NACC Feasibility Study (NACC, 2015) as a Permitted Areas under the Control of Vehicles (Off-road Areas) Act 1978. Following declaration of Prohibited Areas declare Authorised Officers under the Control of Vehicles (Off-road Areas) Act 1978 to police Prohibited Areas and monitor vehicle speeds on the beach, erect appropriate signage and markers. Investigations will need to consider a range of issues such as Aboriginal heritage, rehabilitation and environmental impact, responsibilities, costings, tenure and access.	S – M	SCV, Landcorp, NACC, CGG, DAA
BR11	Undertake visitor monitoring at Buller River to help determine visitor numbers during peak periods and appropriate management responses.	S	SCV, Landcorp, MWPA



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NORTH

Shire of Chapman Valley
COASTAL MANAGEMENT STRATEGY
Figure 3.2a
CMS 2 - Buller River Action Plan

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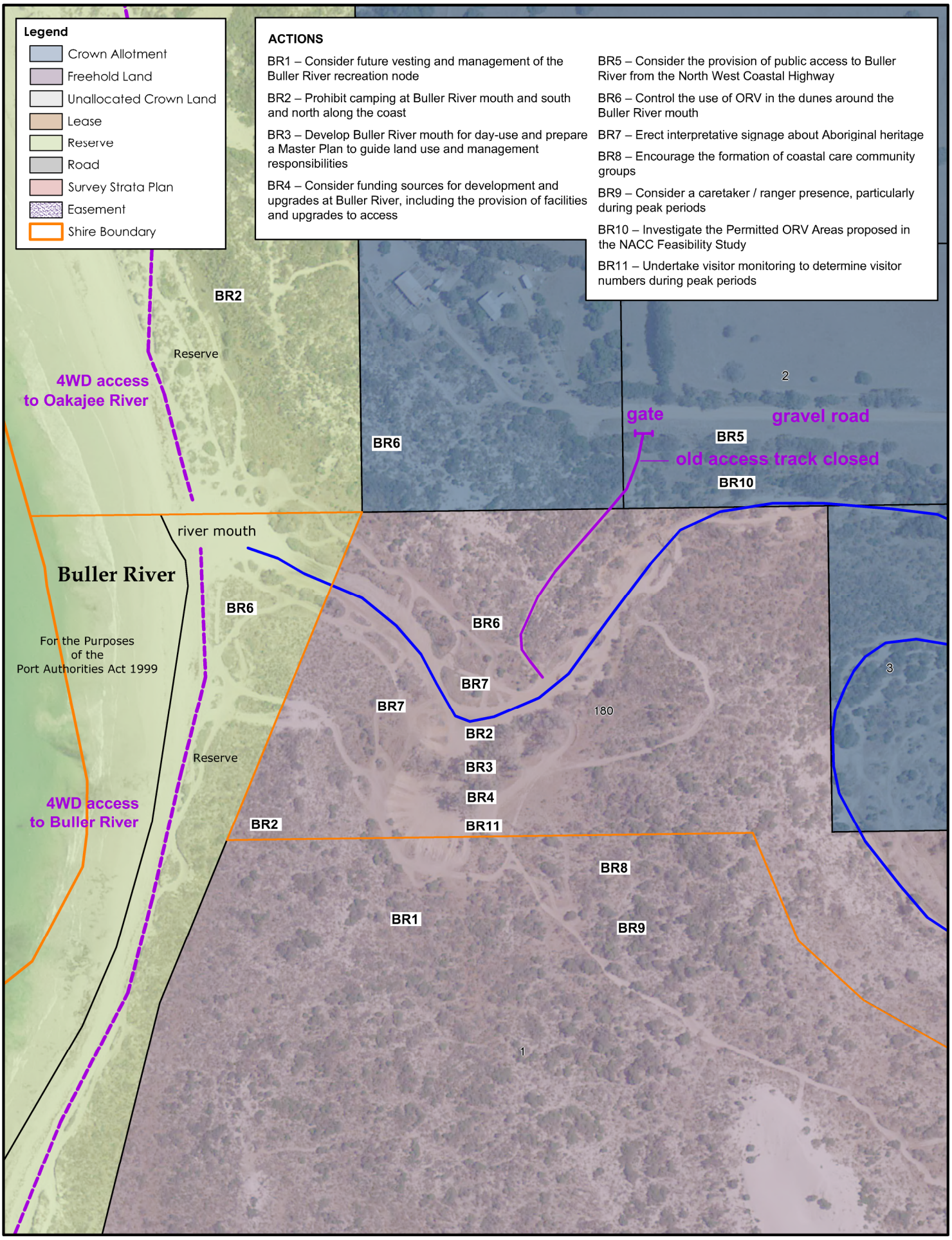

Note: All boundaries subject to survey.

NORTH

Shire of Chapman Valley
COASTAL MANAGEMENT STRATEGY
Figure 3.2b
CMS 2 - Buller River Insert

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3.4 CMS 3 – OAKAJEE RIVER AND SPOT X

Sector CMS3 extends from immediately north of Buller River to but not including Coronation Beach and South Coronation Beach. The Sector includes the Oakajee River, Spot X and Bombies and comprises the foreshore to the Oakajee Strategic Industrial Area (as shown in Figures 3.3a and 3.3b).

ISSUES & OPPORTUNITIES

Table 3.5 – Issues and opportunities – Oakajee River

Issues	Opportunities
Access to this CMS is only available via 4WD tracks leading north from Buller River and south from Coronation Beach. Multiple tracks exist in places which can lead to increased dune disturbance and erosion.	Management of 4WD tracks can be achieved by closing and rehabilitating multiple tracks, closing tracks as they form and more policing of the area. There is an opportunity to maintain suitable access from Buller River northward to the "Bombies" (which seems unlikely to be affected by construction of the Port).
Land ownership is fragmented between MWPA (who is the authority responsible for the reserve along the beach) and Landcorp (who own the area inland). This can lead to disjoined management of coastal issues.	There is an opportunity for various land owners to reach an agreement regarding management and funding.
Policing and surveillance of the coast by a ranger is required in order to effectively carry out the actions in this Strategy relating to ORV and land use management. Employment of a ranger will require funding.	There could be an agreement between Council and the responsible land manager to ensure that co-funded policing / ranger services will be maintained along this section of coast.
Coastal hazards and risks. There is no reliable, detailed information on the possible impact of sea level rise, coastal erosion and inundation along this section of the coast.	As this is a popular site for recreational use, it is recommended that further coastal studies are undertaken and a CHRMAP is prepared for the entire study area.

DESCRIPTION

Foreshore formations vary within CMS3 but typically comprise narrow beach backed by foredunes in the range of 2m to 3m height. Some areas, particularly adjacent to the major blow-outs, broaden out to form a more accessible and usable beach. The foredune for the most part is moderately vegetated and frequently displays erosional effects from tidal and storm effects. Two major blow-outs are located within CMS3 one to the immediate north of Buller River and the second approximately 500m south of Oakajee River. The foreshore area within CMS3 varies considerably in width from 50m (+ or -) in some locations to 250m (+ or -) and greater in some locations. However, the area generally is of a reasonable width.

ACCESS

North of Oakajee River, there is little beach with a steep foredune. The foredune varies from lightly to moderately vegetated and for the most part has been severely eroded from tidal and storm effects. 4WD access to this area is currently either via Oakajee River mouth or Coronation Beach. Should the Port be constructed, access will remain only from the north.

This section of the coast is difficult to access as no formal roads or 2WD access is available. Tracks through the dunes or behind the dunes are accessible to off-road vehicles only. A 4WDtrack parallels the foreshore behind the foredunes and for the most part is one vehicle wide and torturous in several places. Vehicle access north from the second blow-out is particularly difficult and frequently impassable. A track extends south from Coronation Beach Road and extends to Oakejee Creek. The track is located behind the dunes and runs along the boundary of the existing farmland. The blow-out to the immediate north of Buller River receives light to moderate ORV and RRV use and particularly bikes, while the blow-out closer to Oakajee River receives only light ORV and RRV use.

RECREATION

The area between the two blow-outs is popular for fishing and swimming / snorkelling and comprises the area known as "Bombies" (as shown on Figure 3.3b), a close-shore limestone pinnacle reef formation. Surf based activities pre-dominate north of Bombies, with windsurfing adjacent to the northern blow-out and the northern shore of Oakajee River mouth.

"Spot X", a major windsurfing destination, is located at and to the south of the Oakajee River mouth. North of Oakajee River is also popular for surfing and particularly longboard surfing as a consequence of the particular surf conditions. Access to the surfing and windsurfing locations around Oakajee River mouth is generally via 4WD tracks from the north leading back to Coronation Beach Road.

PORT

The entire sector is backed by the Oakajee Strategic Industrial Estate and for the most part by Sub-Area B – Port Related Activities. It is wholly within the Oakajee buffer area and access through Oakajee to the coast is not achievable. The probable location of the Port will result in the loss of opportunities for surfing and windsurfing activities, notably Spot X.

The tenure along CMS3 includes a reserve vested with the Mid West Ports Authority and freehold land owned by Landcorp. The reserve extends along the beach and a majority of the foreshore and includes the Oakajee River mouth, Spot X, and the two dune blowouts. The reserve extends north to the Coronation Beach camping reserve and includes the South Coronation Beach long boarding area. The freehold land owned by Landcorp extends inland to the highway.

Should the Port be constructed, it is anticipated, informal day use activities could continue but camping and other formalised activity nodes are prohibited along the coast. There may be a need on occasions for temporary beach closures in the vicinity of the proposed Port during certain cargo handling procedures.

There is a current desire therefore to maintain suitable coastal access from Buller River northward to the area of "Bombies" which seems unlikely to be affected by construction of the Port. Similarly there is a need to maintain coastal access from Coronation Beach southward to the Long Board surfing area north of Oakajee River. Additionally, there is a current desire for agreement between Council and the responsible land manager to ensure that co-funded policing / ranger services will be maintained along this section of coast.

Oakajee River

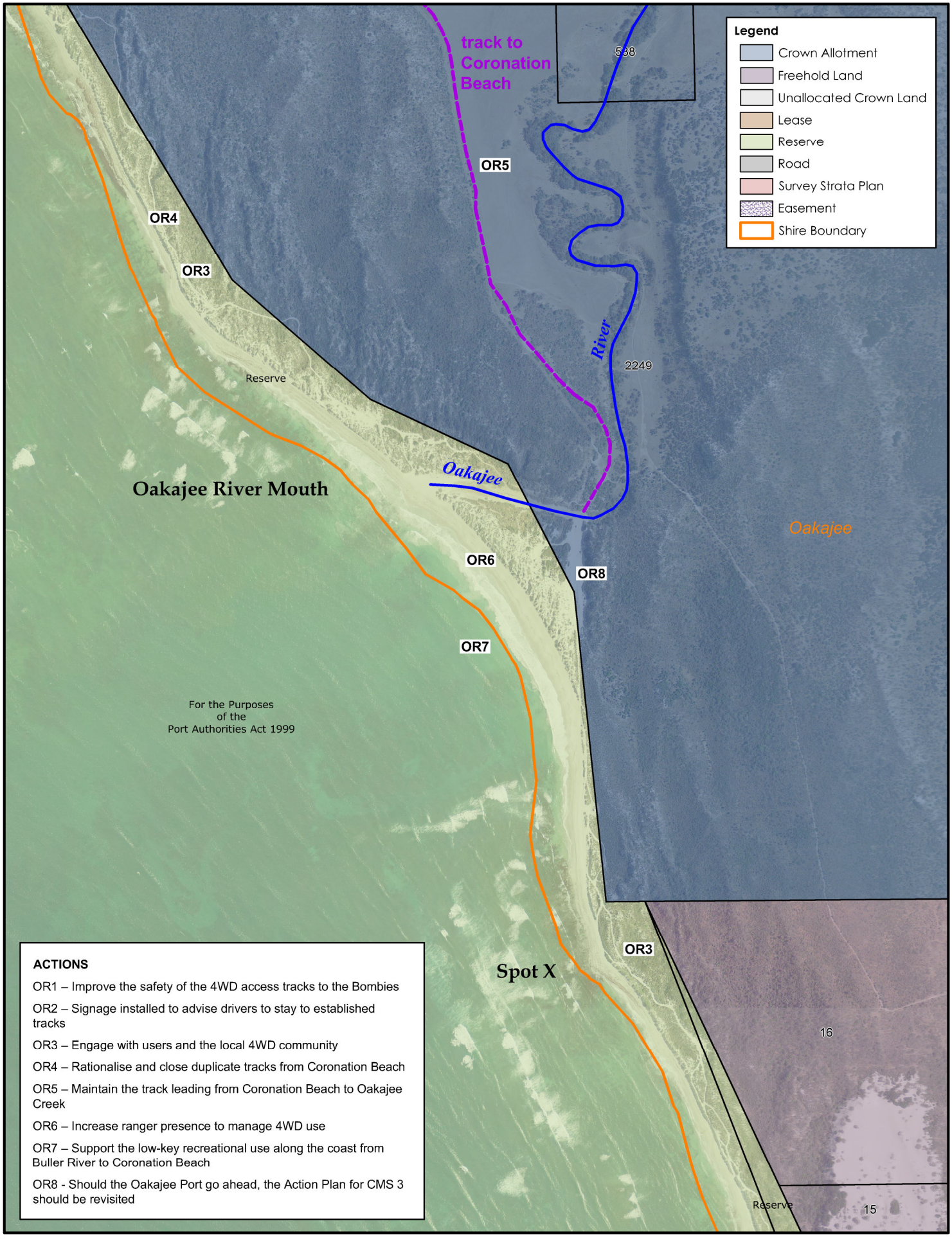
OBJECTIVES

- To protect and enhance the low-key nature of this section of the coast
- Preserve the environmental values and promote sustainable recreational uses.

ACTIONS AND RECOMMENDATIONS

Table 3.6 – Oakajee River and Spot X Action Plan Recommendations

Action	Description	Priority	Responsibility
OR1	Improve the conditions and safety of the existing 4WD access track to Bombies from Buller River. With exception of the main 4WD track from Buller Rivermouth to Bombies, all other tracks between the 2 sites be closed and brushed by the responsible land managers to allow natural regeneration of the dunal vegetation and appropriate signage installed advising users to stay to the established track.	S	Responsible land managers
OR2	Appropriate signage to be installed advising users to stay to the established track.	M	Responsible land managers.
OR3	Seek to engage users of the area and the local 4WD community in the design and implementation of improvements and works to the access tracks. Establish a community group with an interest in coastal management who can assist with on-going care and surveillance of the coastal area.	O	SCV, Landcorp, MWPA
OR4	Rationalise the 4WD tracks leading south from Coronation Beach to Oakajee River and close and rehabilitate duplicate tracks.	S	MWPA, Landcorp
OR5	Maintain the track located behind the dunes leading to Oakajee River from Coronation Beach.	O	Landcorp
OR6	Ranger presence increase along this section of coast, particularly during peak periods, to help manage ORV and RRV use and to monitor track closures and rehabilitation.	O	SCV, Landcorp, MWPA
OR7	Continue to support the low-key recreational use along the coast from Buller River to Coronation Beach (subject to closure upon development of the port).	O	SCV, MWPA, Landcorp
OR8	Should the Oakajee Port go ahead, the recommendations for CMS 3 Oakajee River and Spot X should be revisited and considered in light of the development and operation of the Port and the impact this may have on the recreational values of this CMS.	L	MWPA, Landcorp, SCV



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PLANNING DESIGN ENVIRONMENT

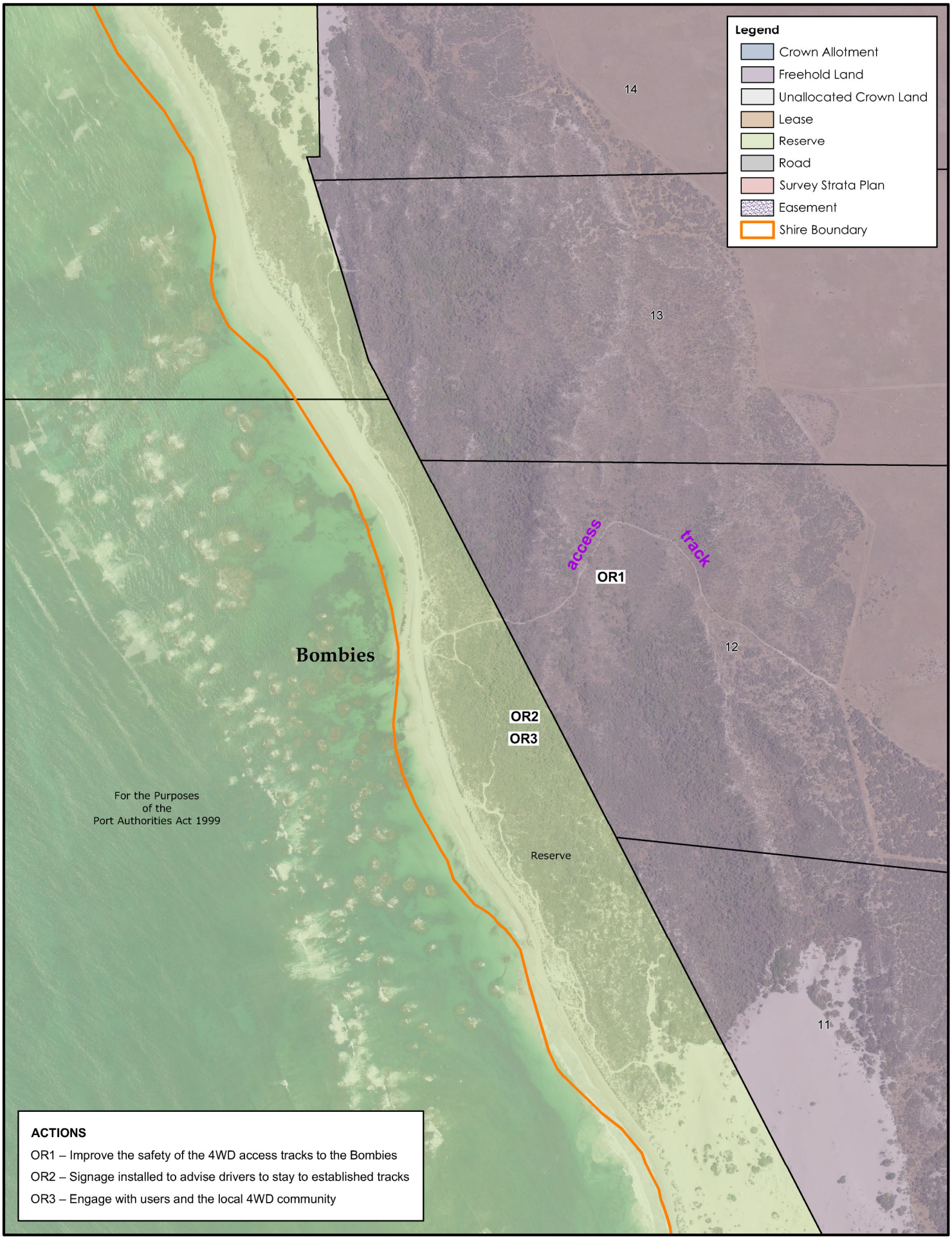
Note: All boundaries subject to survey.

NORTH

Shire of Chapman Valley
COASTAL MANAGEMENT STRATEGY
Figure 3.3a
CMS 3 - Oakajee River and Spot X Action Plan

POSTAL ADDRESS : PO BOX 289 MT LAWLEY, W.A. 6929
phone : (08) 9271 8506 email : admin@landinsights.com.au

SCALE: 1:10,000 (A4) Plan No: 965-23 Date: May 2016



landinsights
PLANNING DESIGN ENVIRONMENT

Note: All boundaries subject to survey.

NORTH

Shire of Chapman Valley
COASTAL MANAGEMENT STRATEGY
Figure 3.3b
CMS 3 - Bombies Action Plan

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SCALE: 1:10,000 (A4) Plan No: 965-24 Date: May 2016

3.5 CMS 4 – CORONATION BEACH AND SOUTH CORONATION BEACH

CMS 4 includes Coronation Beach and South Coronation Beach. It comprises a small, protected bay accessed by the sealed Coronation Beach Road from North West Coastal Highway (as shown in Figure 3.4a and 3.4b)

The beach within the bay is of moderate width and is backed by low, well vegetated foredunes. The primary foreshore reserve is in the order of 50m+ in width and is backed by a secondary reserve of similar width. The secondary dunes behind the reserve rise steeply and contain the usable foreshore area to the two reserves. The foreshore to the immediate north returns to a relatively narrow width in the order of 50m and the beach narrows as a consequence of greater exposure to the prevailing swell. The foredune is moderately to well vegetated and displays some signs of storm effects.

ISSUES & OPPORTUNITIES

Table 3.7 – Issues and opportunities – Coronation Beach

Issues	Opportunities
Separation of the camping area from the day use area.	Slight modifications to the access road leading to South Coronation Beach will help achieve this.
Creation of an informal windsurfing and kitesurfing preparation area at 'windmills'.	Formalisation of windmills as a kitesurfing and windsurfing area.
The previous Strategy identified the possibility of establishing a boat launching facility at Coronation beach, however the Council decision after the feasibility study undertaken by M. P. Rogers and Associates in 2009 was that formalised boat launching facilities are not recommended in the immediate area to Coronation Beach as the offshore markers required to make the facilities compliant with safety requirements will interfere with the locations identified primary purpose of catering for wind and kite surfing.	Boat launching is presently done by informal launching of very small boats across the beach and no formalisation of this should be undertaken at Coronation Beach to preserve its primary status as a windsurfing and kitesurfing destination. Preferred option is for boat launching facility in conjunction with Oakajee Port.
The proposed caravan park on Lot 171 located directly north of the Coronation Beach camping area and potential development plans for other adjacent private landowners could have impacts on the use and management of Coronation Beach (higher visitor numbers, possible provision of services etc.)	Council aims to keep Coronation Beach low-key in nature and to provide for camping and caravans only in order to provide a slightly different service to what may be proposed and developed on one of the private landholdings in the future.
Management issues associated with the UCL along the beach stretching north from Coronation Beach towards Oakabella Creek. Local government seek management orders of UCL will be dependent on the outcome of prior native title outcomes.	The Shire of Chapman Valley could investigate becoming the vesting authority for the UCL and new foreshore reserves, however this would depend on their resources and discussions with Native Title claim groups.
Parking and access to South Coronation Beach.	Formalisation of access and parking areas at South Coronation Beach.
Coastal hazards and risks. There is no reliable, detailed information on the possible impact of sea level rise, coastal erosion and inundation Coronation Beach.	As this is a popular site for recreational use, it is recommended that further coastal studies are undertaken and a CHRMAP is prepared for the entire study area.

DESCRIPTION

CAMPING

The Coronation Beach camping facility was established in 2005 based on a plan prepared in 2002 for the area. The camping area was formalised due to the popularity of the area for camping, fishing and windsurfing. The facility comprises 21 camping / caravan bays of varying size, day parking, set-up areas for kite and windsurfers, shade and BBQ facilities, playground, rubbish bins and male and female basic ablutions comprising drop toilets and enclosed "solar bag" showers. No power or water is available. Small boat launching is achieved across the beach from the main carpark. Pedestrian access management through the dunal system has allowed supplementary planting and regeneration of the dunal vegetation and indigenous vegetation has also been planted as screening between camping sites. Fire fighting service is provided by a 'Fast Attack' vehicle stationed at Howatharra. A small over-night fee is charged by the Shire and there is an on-site caretaker. Overall, the facilities are aesthetically pleasing and appropriate for the location and are becoming increasingly attractive to travellers as a short term rest destination.

As a result of the narrow foreshore to the north, the proposed Oakajee Port buffer and the existence of private foreshore to the south and steeply rising secondary dunes to the east, the opportunities for expansion of the camping area are limited. Moreover, it is debateable whether further expansion is appropriate for the following reasons:

- Sustainability – given the limited "carrying capacity" of the area for any significant increase in windsurfing or beach based activities
- Demand – Is expansion warranted given the proposals for other camping / caravan facilities on the private land to the east and north
- Ambiance and character – the low-key nature of Coronation Beach is highly valued
- Services and infrastructure – Water and power is not available at the camping ground
- Natural hazards – coastal erosion, fluvial and tidal inundation and bushfire and one road in and out

Provision of water will need to be by underground supply as there is no scheme supply nearby. Additionally, the debate on the provision of water is likely to have a "domino effect" in that pressures will increase for drinking water standard supply, leading eventually to requirements for shower facilities, expansion of the campsite etc. This might also lead to changes in character and ambiance. The provision of power to the facility is not warranted either as most campers have their own lighting / cooking equipment or generators. However, the provision of limited lighting adjacent to the ablutions, BBQ areas and fish cleaning area would be desirable and can be achieved utilising solar power.

Coronation Beach camp ground

COASTAL HAZARDS

Information on sea level rise and coastal hazards for Coronation Beach is limited. The Department of Transport and Department of Planning have recently considered coastal hazard at a broad scale (including the Coastal Sediment Cells for the Northampton Coast (2014) and The Coast of the Shires of Coorow to Northampton, Mid West, Western Australia: Geology, Geomorphology and Vulnerability (2012)). In these reports, the Coronation Beach cell is identified as having moderate susceptibility, instability and vulnerability. Although the foreshore area between the camping and day use area is narrow, there are limited structures at the site, and therefore, it is considered risk to property is relatively low. Emergency plans and signage should be maintained at the site in the event of a storm or emergency.

It is recommended that a CHRMAP is prepared for the study area in order to consider possible coastal hazards and risks and appropriate adaptation actions (as is also recommended in the The Coast of the Shires of Coorow to Northampton, Mid West, Western Australia: Geology,

Geomorphology and Vulnerability). It is recommended that land use and development remains low-key at Coronation Beach.

CARAVAN PARK

A Development Application has been approved for the owner of Lot 171 for the development of a caravan park on the property directly north of the Coronation Beach campsite. At this stage it is not known over what timeframe the developer might proceed with the development as the provision of water and other services may be difficult. The owner of the property south of Coronation Beach (Lot 169) has also considered developing chalets on the ridge. However, should either development go ahead it is considered that the facility will complement the Coronation Beach camp site and increase the number and range of short stay accommodation facilities. The Shire is conscious of maintaining a low-key campsite which will not compete with the caravan park.

WINDSURFING, KITESURFING & LONGBOARD SURFING

An informal windsurfing set up area is located at 'windmills' located just north of the Coronation Beach camping area within the UCL. The area is referred to as Windmills due to the location of the windmill on the adjacent private land. An 4WD track extends through the dunes from Coronation Beach to the site and a small parking area has been created in the dunes. It is proposed that this area is formalised by delineating the parking area (to prevent further expansion into the surrounding vegetation) and providing signs to assist visitors to the area.

South of the Coronation Beach camp site is the South Coronation Beach longboard area. This beach is popular as a low-key recreation site, however once a year the area hosts a longboard competition which brings hundreds of people to the area. A 4WD track leads from the camp site to provide access and a number of small parking areas have been established in the foredunes. It is understood that during the competition the numbers of vehicles is so large that they are parked all along the access track and within the dunes. Spectators watch the competition from the dunes. Considering this use, the amount of degradation has not been extreme, however some management will be required to prevent dune degradation in the long term. Currently, the majority of the access and parking areas are located within the reserve vested with MWPA, with some sections of the track located within the privately owned land and Landcorp owned land. It is considered that, should the Shire wish to take over management of this area, that the reserve boundary be amended to include the entire track and parking areas within a Shire reserve. The parking areas may need to be rationalised by closing small areas which only cater for one or two vehicles and expanding other parking areas to provide for additional vehicles. The creation of parking areas on the eastern side of the track should also be considered.

Panorama view of the 'windmills' kitesurfing and windsurfing spot

Parking areas in the foredunes at South Coronation Beach

Parking areas in the foredunes at South Coronation Beach

BOAT FACILITIES

A feasibility study was undertaken by M. P. Rogers and Associates in 2009 to determine the options for providing boat launching facilities at Coronation Beach. A number of options were presented in the feasibility study such as a simple boat ramp, a boat launching service associated with the proposed caravan park, a breakwater, a piled boat ramp and development of boating facilities in conjunction with the Oakajee Port. While the Shire of Chapman Valley Council decided at the September 2009 meeting to adopt the last option, it is considered that this decision may need to be revisited if the Port construction is not in the medium-long term. Formalised boat launching facilities are not recommended in the immediate area to Coronation Beach as the offshore markers required to make the facilities compliant with safety requirements will interfere with the locations identified primary purpose of catering for wind and kite surfing. Boat launching can continue to be undertaken as presently done by informal launching of very small boats across the beach in order to protect the site's primary purpose as a wind and kite surfing destination.

OBJECTIVES

To protect and enhance the ambiance and low impact character of Coronation Beach and to facilitate the continued recreational uses in the area.

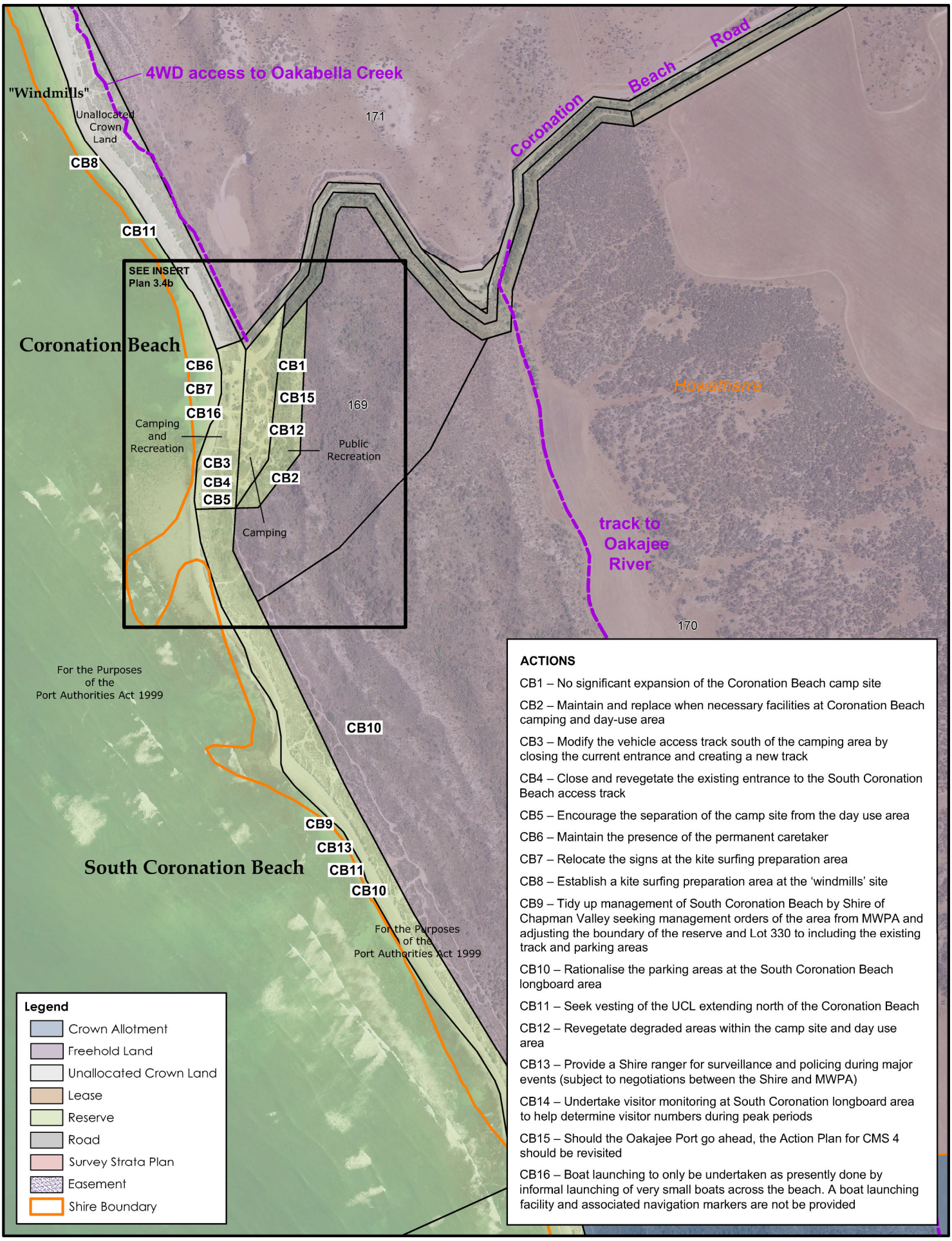
ACTIONS AND RECOMMENDATIONS

Table 3.8 – Coronation Beach Action Plan Recommendations

Action	Description	Priority	Responsibility
CB1	Ensure there is no significant expansion of the Shire-managed Coronation Beach nature based camping area (except for a limited number of bays as indicated which should be delineated with bollards to protect surrounding vegetation). In doing so, the Shire should retain the existing water and power provision arrangements.	L	SCV
CB2	Maintain and replace when necessary the solar powered overhead lights at the ablution facilities, BBQ facilities and fish cleaning area.	L	SCV

Action	Description	Priority	Responsibility
CB3	Modify the vehicle access track south of the camping area towards South Coronation Beach by closing the current entrance and creating a new track which leads from the day use car park through the dunes and links onto the existing track.	S	SCV
CB4	Close and revegetate the existing entrance to the South Coronation Beach access track.	S	SCV
CB5	Encourage the separation of the camp site from the day use area in terms of vehicle access to improve visitor safety and amenity.	O	SCV
CB6	Maintain the presence of the permanent caretaker at Coronation Beach.	O	SCV
CB7	Relocate the signs at the kitesurfing preparation area at the northern end of the beach. Liaise with the windsurfing group to determine the preferred location of the signs.	S	SCV
CB8	Establish a windsurfing and kitesurfing preparation areas at the 'windmills' site north of Coronation Beach where existing tracks and an informal parking areas have been established.	S	SCV, DoL
CB9	Tidy up management of the South Coronation Beach area by undertaking the following: • Shire of Chapman Valley seek management orders of the South Coronation Beach longboard area from the MWPA. This could involve extending a recreation reserve managed by the Shire further south to include the access track and parking areas associated with the longboard site. • Adjust the boundary of the reserve and Lot 330 to include the existing vehicle access track and parking areas at South Coronation Beach in the reserve.	S – M	SCV, MWPA, Landcorp, DoL, DSD, private landowner
CB10	Rationalise the parking areas at the South Coronation Beach longboard area by closing the smaller parking areas which only provide for a vehicle or two and expanding other parking areas to provide for additional vehicles.	S – M	MWPA (if the reserve boundary is not amended), SCV (if the reserve boundary is modified as per rec CB9)
CB11	Seek management orders of the UCL extending north of the Coronation Beach campsite to the Shire boundary for Recreation (dependent on outcomes of native title claims).	S – M	SCV, DoL
CB12	Revegetate degraded areas within the camp site and day use area.	S	SCV

Action	Description	Priority	Responsibility
CB13	Provide a Shire ranger for surveillance and policing during major events. This may require negotiation with the MWPA if the ranger is needed for events at South Coronation Beach and the area is under management of MWPA.	O	SCV, MWPA
CB14	Undertake visitor monitoring at South Coronation longboard area to help determine visitor numbers during peak periods and appropriate management responses.	O	SCV, MWPA
CB15	Should the Oakajee Port go ahead, the recommendations for CMS 4 Coronation Beach should be revisited and considered in light of the development and operation of the Port and the impact this may have on the recreational values of this CMS.	L	MWPA, Landcorp, SCV
CB16	Boat launching to only be undertaken as presently done by informal launching of very small boats across the beach. A boat launching facility and associated navigation markers are not be provided.	O	SCV



ACTIONS

CB1 – No significant expansion of the Coronation Beach camp site

CB2 – Maintain and replace when necessary facilities at Coronation Beach camping and day-use area

CB3 – Modify the vehicle access track south of the camping area by closing the current entrance and creating a new track

CB4 – Close and revegetate the existing entrance to the South Coronation Beach access track

CB5 – Encourage the separation of the camp site from the day use area

CB6 – Maintain the presence of the permanent caretaker

CB7 – Relocate the signs at the kite surfing preparation area

CB8 – Establish a kite surfing preparation area at the 'windmills' site

CB9 – Tidy up management of South Coronation Beach by Shire of Chapman Valley seeking management orders of the area from MWPA and adjusting the boundary of the reserve and Lot 330 to including the existing track and parking areas

CB10 – Rationalise the parking areas at the South Coronation Beach longboard area

CB11 – Seek vesting of the UCL extending north of the Coronation Beach

CB12 – Revegetate degraded areas within the camp site and day use area

CB13 – Provide a Shire ranger for surveillance and policing during major events (subject to negotiations between the Shire and MWPA)

CB14 – Undertake visitor monitoring at South Coronation longboard area to help determine visitor numbers during peak periods

CB15 – Should the Oakajee Port go ahead, the Action Plan for CMS 4 should be revisited

CB16 – Boat launching to only be undertaken as presently done by informal launching of very small boats across the beach. A boat launching facility and associated navigation markers are not be provided

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PLANNING DESIGN ENVIRONMENT

Note: All boundaries subject to survey.

NORTH

Shire of Chapman Valley
COASTAL MANAGEMENT STRATEGY
Figure 3.4a
CMS 4 - Coronation Beach Action Plan

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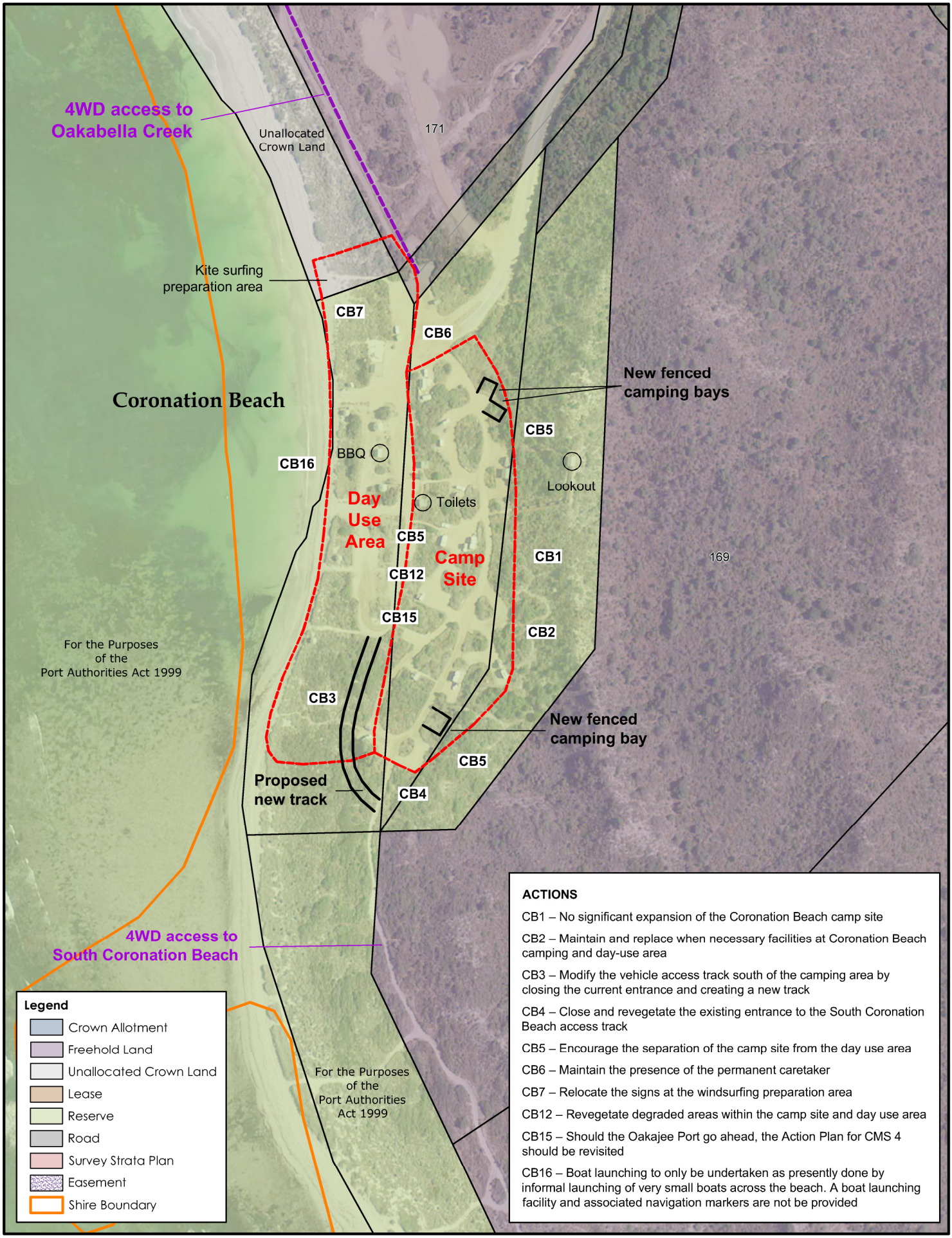
phone : (08) 9271 8506 email : admin@landinsights.com.au

SCALE: 1:10,000 (A4) Plan No: 965-25 Date: May 2016



ACTIONS

CB1 – No significant expansion of the Coronation Beach camp site

CB2 – Maintain and replace when necessary facilities at Coronation Beach camping and day-use area

CB3 – Modify the vehicle access track south of the camping area by closing the current entrance and creating a new track

CB4 – Close and revegetate the existing entrance to the South Coronation Beach access track

CB5 – Encourage the separation of the camp site from the day use area

CB6 – Maintain the presence of the permanent caretaker

CB7 – Relocate the signs at the windsurfing preparation area

CB12 – Revegetate degraded areas within the camp site and day use area

CB15 – Should the Oakajee Port go ahead, the Action Plan for CMS 4 should be revisited

CB16 – Boat launching to only be undertaken as presently done by informal launching of very small boats across the beach. A boat launching facility and associated navigation markers are not be provided

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PLANNING DESIGN ENVIRONMENT

Note: All boundaries subject to survey.

NORTH

Shire of Chapman Valley
COASTAL MANAGEMENT STRATEGY
Figure 3.4b
CMS 4 - Coronation Beach Insert

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SCALE: 1:3,000 (A4) Plan No: 965-26 Date: May 2016

3.6 CMS 5 – OAKABELLA CREEK

CMS 5 lies within the Shire of Northampton and extends from the northern boundary of the Shire of Chapman Valley to and including Oakabella Creek (as shown in Figure 3.5).

ISSUES & OPPORTUNITIES

Table 3.9 – Issues and opportunities – Oakabella Creek

Issues	Opportunities
Access to Oakabella Creek is via 4WD tracks through the foredunes leading north and south of the site.	Track management should be undertaken to close duplicate tracks and to ensure tracks are safe.
The site is relatively remote from the Shire's administration centre which makes policing and management difficult.	Oakabella Creek is valued for its remote nature and wilderness camping. Creating a formal camp site will change the nature of the area.
Increased visitation in the long term could result in management issues.	A formal camp site could be created in the long term future if camping becomes a problem.
Rubbish and environmental damage can occur if the area is not actively managed.	Care by community groups and locals will help create a sense of ownership and responsibility.
UCL and tenure along the beach and private landholdings inland make it difficult for a responsible authority to manage the site. Local government seeking of management orders of UCL will be dependent on the outcome of prior native title outcomes.	The Shire of Northampton could become the vesting authority for the UCL and new foreshore reserves, however this would depend on their resources and discussions with relevant Native Title claim groups.
Coastal hazards and risks. There is no reliable, detailed information on the possible impact of sea level rise, coastal erosion and inundation.	It is recommended that further coastal studies are undertaken and a CHRMAP is prepared for the entire study area.

DESCRIPTION

Foreshore formations within CMS 5 are typified by narrower beaches backed by a higher foredune rising to in the order of 3m (+ or -) and often displaying effects of tidal and storm activity. The foredune is lightly to moderately vegetated. The foredune is backed by a dunal plain of similar formations before rising steeply to a high scarp. A 4WD track parallels the foredune inland and is typically one vehicle wide and torturous in places. The foreshore area through CMS 5 is typically narrow being in the order of 50m (+ or -) and widens out at the Oakabella Creek mouth.

Oakabella Creek is typified by broader beaches within the bay backed by lightly to moderately foredunes rising to in the order of 3m (+ or-). The Creek itself is for the most part relatively narrow being incised through the surrounding elevated plain. Approximately 250m inland, the creek widens to accommodate a broader, slightly elevated "plateau" formed by an ox-bow in the creek alignment.

The sector from Coronation to Oakabella Creek does not have any particular recreational characteristics. Indeed, this section largely serves as a transit corridor to the Oakabella Creek mouth and the surfing and fishing destinations within CMS 6 –Woolawar Gully. However, Oakabella Creek mouth is popular for fishing. The River Mouth environs of the Creek are popular camping locations, with most camping activities occurring within the privately held sections.

No information on river flood levels is available through conventional sources and it would be desirable, as far as practical, to seek to establish some indication of flood levels through local knowledge and anecdotal evidence, or simple flood calculations.

OBJECTIVES

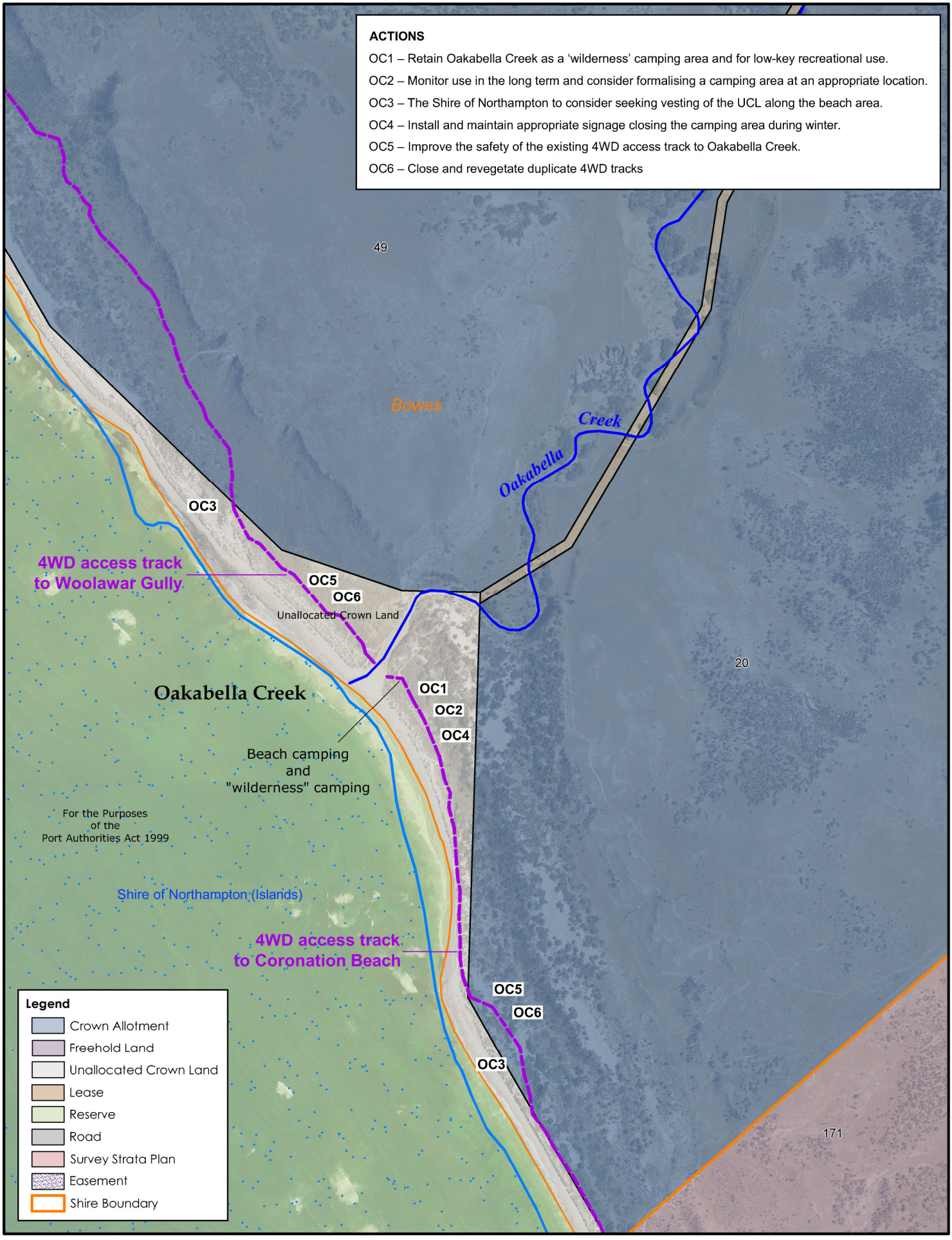
To augment the availability of sustainable camping opportunities along CMS 5 through the management of low key camping facilities.

ACTIONS AND RECOMMENDATIONS

Table 3.10 – Oakabella Creek Action Plan Recommendations

Action	Description	Priority	Responsibility
OC1	Retain Oakabella Creek as a 'wilderness' camping area and for low-key recreational use.	O	DoL, private landowners
OC2	Monitor use in the long term and consider formalising a camping area at an appropriate location at Oakabella Creek to help manage use.	L	DoL, SoN

Action	Description	Priority	Responsibility
OC3	The Shire of Northampton to consider the management order of the UCL along the beach area from the southern boundary of the Shire to Woolawar Gully in the long term (dependent on outcomes of native title claims).	L	SoN, DoL
OC4	Install and maintain appropriate signage closing the camping area during winter and provide flood hazard data	O	SoN
OC5	Improve the safety of the existing 4WD access track to Oakabella Creek from Coronation Beach by increasing the width at blind points and providing passing bays at appropriate distances.	S	SoN, SCV, DoL, private landowners
OC6	Following completion of the improved 4WD track the entries to all other tracks be closed and brushed to allow natural regeneration of the dunal vegetation and appropriate signage installed advising users to stay to the established track.	S	SoN, SCV, private landowners



landinsights
PLANNING DESIGN ENVIRONMENT

Note: All boundaries subject to survey.

NORTH

Shire of Chapman Valley
COASTAL MANAGEMENT STRATEGY
Figure 3.5
CMS 5 - Oakabella Creek Action Plan

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phone : (08) 9271 8506 email : admin@landinsights.com.au

SCALE: 1:10,000 (A4) Plan No: 965-27 Date: May 2016

3.7 CMS 6: WOOLAWAR GULLY

CMS 6 extends from north of Oakabella Creek to and including Woolawar Gully and lies wholly within the Shire of Northampton (as shown in Figure 3.6).

As with Sector CMS 5 Oakabella Creek, foreshore formations within CMS 6 are typified by narrower beaches backed by a higher foredune rising to in the order of 2m (+ or-). Some portions have little or no beach and display the effects of tidal and storm activity. The foredune is generally moderately vegetated and is backed by a dunal plain of similar formations before rising steeply to a high scarp. A 4WD track parallels the foredune inland and is typically one vehicle wide and torturous in places. The foreshore area through CMS 6 is typically narrow being in the order of 50m (+ or -) and widens out at the Woolawar Gully mouth. Woolawar Gully mouth is typified by a broad beach within the bay backed by lightly to moderately foredunes rising to in the order of 2m (+ or-).

ISSUES & OPPORTUNITIES

Table 3.11 – Issues and opportunities – Woolawar Gully

Issues	Opportunities
Access to Woolawar Gully is via 4WD tracks through the foredunes leading north and south of the site.	Track management should be undertaken to close duplicate tracks and to ensure tracks are safe.
The site is relatively remote from the Shire's administration centre which makes policing and management difficult.	Woolawar Gully is valued for its remote nature and wilderness camping. Creating a formal camp site will change the nature of the area.
Increased visitation in the long term could result in management issues.	A formal camp site could be created in the long term future if camping becomes a problem.
Rubbish and environmental damage can occur if the area is not actively managed.	Care by community groups and locals will help create a sense of ownership and responsibility.
UCL and tenure along the beach and private landholdings inland make it difficult for a responsible authority to manage the site. Local government seeking of management orders of UCL will be dependent on the outcome of prior native title outcomes.	The Shire of Northampton could become the vesting authority for the UCL and new foreshore reserves, however this would depend on their resources and the outcome of native title claims.
Coastal hazards and risks. There is no reliable, detailed information on the possible impact of sea level rise, coastal erosion and inundation.	It is recommended that further coastal studies are undertaken and a CHRMAP is prepared for the entire study area.

DESCRIPTION

The section of coast between Oakabella Creek and Woolawar Gully is popular for surfing, which may include associated camping activities. There are remnants of a shack approximately mid-way which require removal as the shack is in a dangerous condition.

Woolawar Gully mouth is typified by a broad beach within the bay backed by lightly to moderately foredunes rising to in the order of 2m (+ or-). The Gully is narrow being incised through the surrounding elevated plain with only a large triangle shaped area based around the mouth being reserved. The Gully mouth area is a popular location for fishing and surfing with associated camping activities being typically confined to the dunal areas in the lee of the bay.

Woolawar Gully provides opportunities for limited, low key camping and its distance and isolation suggest maintenance of a beach wilderness location. The location and the desire to maintain a "wilderness" ambiance suggest the need for a low key approach to forming a camp site. This would primarily define the current "randomly located" campsites and so prevent clearing of indigenous vegetation. There is also a need to improve the longer term sustainability of camping activities within the Sector.

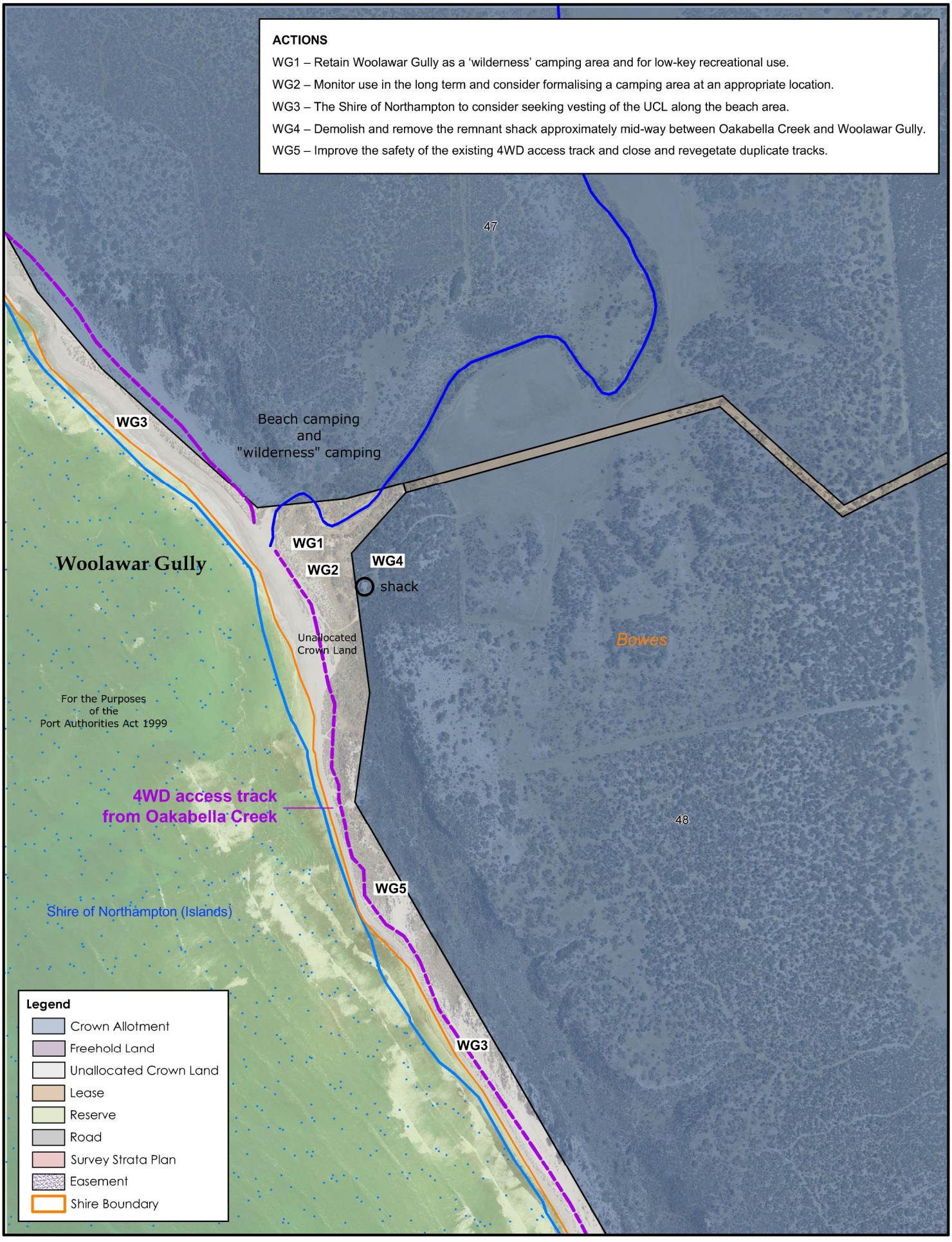
OBJECTIVES

To maintain the "wilderness" experience of the location and enhance the longer term sustainability of camping.

ACTIONS AND RECOMMENDATIONS

Table 3.12 – Woolawar Gully Action Plan Recommendations

Action	Description	Priority	Responsibility
WG1	Retain Woolawar Gully as a 'wilderness' camping area and for low-key recreational use.	O	DoL, private landowners
WG2	Monitor use in the long term and consider formalising a camping area at an appropriate location at Wollawar Gully to help manage use.	L	DoL, SoN
WG3	The Shire of Northampton to consider the management order of the UCL along the beach area from the southern boundary of the Shire to Woolawar Gully in the long term (dependent on outcomes of native title claims).	L	SoN, DoL
WG4	Demolish and remove the remnant shack approximately mid-way between Oakabella Creek and Woolawar Gully.	S	DoL
WG5	Improve the safety of the existing 4WD access track to Woolawar Gully from Oakabella Creek by increasing the width at blind points and providing passing bays at appropriate distances. Provision should also be made for a limited number of informal "parking embayments" at locations determined in consultation with users of the Sector.	S	SoN, DoL, private landowners



landinsights
PLANNING DESIGN ENVIRONMENT

Note: All boundaries subject to survey.

NORTH

Shire of Chapman Valley
COASTAL MANAGEMENT STRATEGY
Figure 3.6
CMS 6 - Woolawar Gully Action Plan

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SCALE: 1:10,000 (A4) Plan No: 965-28 Date: May 2016

4.0 IMPLEMENTATION

implementation

4.2 INTRODUCTION

This section of the CMSAP provides guidance on the implementation of the Action Plans. The Action Plans can be used as a framework to ensure coastal management is adequately catered for in future budgets. The implementation of recommendations from the Action Plan will need to be appropriately costed and programmed for implementation by the responsible land managers.

4.3 PRIORITIES

The priorities assigned to each recommendation are advisory only and reflect a timeframe for implementation for each strategy and action. Priorities can be reviewed as required to take into account availability of resources and granting of funding requests.

Priorities have been classified as follows:

- S: Short term – within the next 2 financial years
- M: Medium term – within the next 5 years
- L: Long term – 5+ years
- O: Ongoing – as required.

It is envisaged that all management actions with Short priority will be works provided for either in the Shire annual budget or through grant funded projects within the next 2 years. All management actions with Medium priority will be implemented by Council within the next 5 years, and all management actions identified as Long-term priorities will be implemented in the next 5 plus years.

Priority was determined through consideration of the comments received from the Steering Group, stakeholders and the community (which indicated issues and concerns which were of high priority for them and which should be addressed in the short to medium term), the costs involved in implementation and the complexity of each action. For example, the provision of access to Buller River is an important yet complicated issue which will realistically take place over a longer time period and has been given a longer timeframe for implementation.

4.4 RESPONSIBILITIES

The responsibilities for implementation vary depending on the coastal landowner, government and community agency or user group. In most instances, due to the mixture of land tenure within the study area, responsibility will be shared amongst parties and sole responsibility will not rest with one party in isolation. The responsibilities were determined largely through consideration of the tenure and land managers responsible for each coastal management sector and/or site and through consultation with the Steering Group. In many cases there are multiple land managers responsible for a site (such as Buller River which is partially located within a reserve with MWPA and partially on land owned by Landcorp) and other stakeholders who could also contribute to implementation of actions and in these situations the responsibility has been noted as all responsible land managers. Individual responsibilities have been listed against the actions where appropriate.

Responsibilities have been identified as follows:

CGG	City of Greater Geraldton
DAA	Department of Aboriginal Affairs
DoL	Department of Lands
DoP	Department of Planning
DSD	Department of State Development
LC	Landcorp
MWPA	Mid West Ports Authority
NACC	Northern Agricultural Catchments Council
SCV	Shire of Chapman Valley
SoN	Shire of Northampton

4.1 MONITORING

Monitoring is an essential component of the rehabilitation or maintenance program. Its purpose is to assess the success of management activities and to determine whether the objectives within this report have been achieved. It can also indicate whether the action plan requires modification to help reach the objectives more efficiently. Monitoring of facilities is important to ensure they are safe and undamaged.

It is considered relevant to monitor the following within the study area:

- Visitor numbers to certain sites, especially during peak periods
- Weed invasion and the success of weed control activities
- The success of rehabilitation
- Use of ORVs and RRVs throughout the dunes, the creation of new tracks and the amount of dune degradation
- Disturbance to heritage sites
- The condition of facilities (such as those at Coronation Beach)
- The condition of signs
- The cleanliness of coastal areas and whether clean-ups are required.

The above have been addressed in the strategies and actions contained in this report.

It is recommended that the coastal area is monitored by the responsible land managers on a regular basis to observe the above-mentioned issues. This should involve inspections of coastal areas areas to determine whether condition are improving, static or worsening. Relevant actions such as weed control, revegetation, closure of tracks, replacement of signs and facilities, provision of a caretaker or ranger etc. should be undertaken if monitoring results indicate no improvement or degradation. Monitoring of can be conducted using visual assessments and safety inspections. These should be carried out regularly, and issues attended to immediately if they arise.

It is recommended that this CMSAP is reviewed after a 10 year period to determine if the strategies and actions are still relevant and to take into consideration changes to the social, economic and environmental context. Should the Oakajee Port go ahead before this time, it is recommended that the Action Plans for the sites most affected by the port are revised.

4.5 FUNDING SOURCES

Responsible land managers may be able to seek funding for certain activities from other sources. Funding opportunities such as these tend to change on a regular basis and as a result a review of options should be undertaken each year. They tend to be given higher priority if the proposed activities have been identified in a Coastal Management Strategy. Applications will generally need to show how the proposed activities will have an environmental and social benefit and will need to provide details as to how the activity will be carried out, timeframes, costings and responsibilities. Funding can currently be applied for through the following:

- Coastwest Grants Program (through the Department of Planning)
- Coastal Management Plan Assistance Program (Department of Planning)
- Coastal Adaptation and Protection (CAP) Grants (Department of Transport)
- State Natural Resource Management (Department of Agriculture and Food).

PART B. BACKGROUND

5.0 BACKGROUND DOCUMENTS

background documents

5.2 INTRODUCTION

This chapter includes a review of the background documents relating to the Coastal Management Strategy, including state and local government policies as well as other planning documents and background information. The purpose of the review is to establish the planning context (to communicate to the reader the guiding principles behind coastal management and the obligations of local and state government and land holders) and to provide information on the variety of reports which have been prepared for the study area which provide justification for some of the recommendations provided in the CMSAP.

Many of the state and local government policies provided overarching guidance during preparation of the strategies and actions. Planning documents such as the Oakajee Industrial Estate Structure Plan, Buller Local Structure Plan and the Shire Local Planning Schemes provided context for the future planning of the area. Other background documents such as the NACC Off-Road Feasibility Study and the Coronation Beach Boat Ramp Feasibility Study provided context and help guide the formulation of strategies and actions. Detailed information is extracted from these documents where relevant in Chapter 7 which provides the environmental context of the study area. They are also referred to in Chapter 8 which provides the social and cultural context.

The documents included in this review include the following:

- Australian Coastal Public Safety Guidelines
- Multiple Land Use Framework
- Mid-West Regional Planning and Infrastructure Framework 2015
- State Planning Planning Policy 2.6 (SPP 2.6) and Guidelines
- Coastal Hazard Risk Management and Adaptation Planning Guidelines
- Status of Coastal Planning in Western Australia 2012
- Coastal Planning and Management Manual 2003
- Coastal Management Specification Manual 2010
- Tourism Planning Guidelines 2014
- A Strategic Approach to Caravan and Camping
- Tourism in Western Australia 2012
- Batavia Coastal Strategy
- Climate Change Adaptation Action Plan
- Shire of Chapman Valley Local Planning Scheme No.2
- Shire of Northampton Local Planning Scheme No. 10
- Shire of Chapman Valley Disability Access and Inclusion Plan
- Coronation Beach Boat Ramp Feasibility Study
- Oakajee Industrial Estate Structure Plan
- Oakajee Port Master Plan
- Shire of Northampton Coastal Strategy 2006.

5.1 FEDERAL

AUSTRALIAN COASTAL PUBLIC SAFETY GUIDELINES

The Australian Coastal Public Safety Guidelines were prepared in 2007 by Surf Lifesaving Australia. The purpose of the guidelines is to provide world-bets practical advice to land managers with a responsibility for public safety on the Australian coast.

It provides guidelines and advice on the following topics:

- Integrated coastal zone management
- Dune and cliff safety
- Safety for coastal activities
- Watercraft safety management
- Coastal safety signage
- Beach safety flags
- Safe beach operations
- Traffic management on beaches
- Aquatic event management
- Surfing and surf school safety
- Beach cleaning and litter control
- Stormwater drainage
- Water quality
- Lifesaving and lifeguards

- Lifesaving equipment and facilities
- Emergency management
- Dangerous marine life
- Occupational health and safety
- Storage and handling of dangerous goods
- Coastal tourism safety.

MULTIPLE LAND USE FRAMEWORK

The Multiple Land Use Framework (MLUF) was prepared by the Standing Council on Energy and Resources in 2013 in recognition of the conflict arising over land access and land use. The aim of the MLUF is to enable government, community and industry to effectively and efficiently meet land access and use challenges, expectations and opportunities. It was developed with the minerals and energy resources sectors in mind, however the underlying concepts can be applied to all sectors. This document provides background research about the issues and opportunities to mining development projects and doesn't specifically relate to coastal recreational land use. It also largely outlines the guiding principles and objectives of the project, rather than specific advice as to how land use conflicts and access can be resolved. It is considered that each situation should be considered on a case-to-case basis and terms negotiated between affected parties.

5.3 STATE

MID-WEST REGIONAL PLANNING AND INFRASTRUCTURE FRAMEWORK 2015

The Mid-West Regional Planning and Infrastructure Framework 2015 was finalised by the WAPC in 2015. The Framework provides a regional context for land use planning in the Mid West, an overview of major regional economic, social, cultural and environmental issues, priority actions for planning and priority infrastructure projects. It categorises the region into three sub-regions: Batavia Coast, North Midlands and Murchison. The Chapman Valley coast is located within the Batavia sub-region.

The Batavia coast includes the Primary Centre of Geraldton and the two Regional Centres of Dongara– Denison and Kalbarri. This sub-region will have the greatest pressure for development and will therefore require careful growth management. The report identifies the following challenges for the Batavia Coast:

- The City of Greater Geraldton has a vision to transform Geraldton into a world class regional city of 100,000 residents over the next two decades
- Major projects proposed for the sub-region, such as the Oakajee Port and Oakajee Industrial Estate, are expected to stimulate economic growth and employment
- As the population of the Batavia Coast has increased over time, the rural land base has become more fragmented, something that is particularly evident in the City of Greater Geraldton and the Shire of Irwin
- Fragmentation of the rural land base and decreased rural lot sizes constrains the rural land base to adapt to a changing climate and reductions in rainfall.

STATE OF PLANNING POLICY 2.6 – STATE COASTAL PLANNING POLICY

This Policy provides guidance for decision-making within the coastal zone including managing development and land use change, establishment of foreshore reserves; and to protect, conserve and enhance coastal values. The Policy is to inform and guide decision-making by the WAPC and its Committees, and in integrating and coordinating the activities of state agencies that influence the use and development of land in the coastal zone. It also provides guidance for private landowners wishing to undertake development in the coastal zone.

STATE PLANNING POLICY 2.6 STATE COASTAL PLANNING POLICY GUIDELINES

The Guidelines provide detailed guidance for the application of the policy measures. It includes details on the following:

- Development and settlement
- Earthworks and soil
- Water resources and management
- Visual landscape
- Coastal hazard risk management and adaption planning process
- Vulnerability assessment
- Assessing risk adaption options

- Ongoing risk management and adaption planning
- Communication and consultation
- Coastal adaption and protection grants scheme
- Infill development
- Coastal protection works
- Public interest
- Public access
- Coastal roads and car parks
- Coastal pedestrian access and dual use paths
- Coastal foreshore reserves
- Ecological values
- Landscape, seascape and visual landscape
- Heritage
- Coastal strategies and management plans.

A large focus of the guidelines is planning and adapting to setbacks and ensuring infrastructure and facilities are appropriate.

COASTAL HAZARD RISK MANAGEMENT AND ADAPTATION PLANNING GUIDELINES

These guidelines were prepared to support the implementation of SPP 2.6 and to assist decision-makers to:

- Consider coastal hazards and evaluate their likelihood
- Identify realistic and effective management and adaptation responses to those risks
- Prioritise the management and adaptation responses.

Risk management and adaptation planning is the practice of systematically identifying and understanding coastal hazard risks and putting in place controls to manage them in association with the affected community and stakeholders.

STATUS OF COASTAL PLANNING IN WESTERN AUSTRALIA 2012

The Coastal Planning Program is one of the tools used to update the WAPC on land use and management of the State's coastal resources. The report identifies that the coastal considerations for this region are:

- Protection of the coast and the cost of protection works.
- Control of off-road vehicles.
- Balancing recreational demands for coastal access and Oakajee Port requirements.
- Preservation of areas with high biodiversity conflicting with land use required for residential or commercial development.
- Planning for climate change.

The report identifies the following existing plans relating to the Shire of Chapman Valley's coastal areas:

- Coronation Beach Planning Study
- Draft Chapman Valley Coastal Management Strategy 2007

It identified the following outstanding plans in the Shire of Chapman Valley:

- Oakajee Port planning
- Buller River mouth public access assessment

The Oakajee Port planning has progressed significantly since the Status of Coastal Planning was prepared in 2012. The Buller River access management plan is being addressed in this Strategy.

The Shire of Northampton has a number of existing coastal plans that address coastal nodes to the north but do not specifically focus on the southern end of the Shire with the general direction provided through the Shire of Northampton Coastal Management Strategy 2006.

COASTAL PLANNING AND MANAGEMENT MANUAL 2003

The Coastal Planning and Management Manual was prepared by the WAPC in 2003 to provide a practical guide to coastal planning and management in WA. It provides information on a broad range of issues which should be considered when managing the coastline such as the following:

- Common coastal management problems
- Techniques for dune stabilisation
- Rehabilitation of coastal landscapes

- Revegetation methods
- Weed management.

A number of principles are described in the manual, the aim of which is to advise readers about an appropriate framework for managing the coast. These principles address the following:

- Sustainable management
- Identifying the limits of acceptable change
- Maintenance of ecosystem integrity
- Consultation
- Respect for and protection of Indigenous rights, interests, culture and heritage
- Identification of management objectives
- Staged management approaches
- Minimal intervention
- Site-specific management approaches.

COASTAL MANAGEMENT SPECIFICATION MANUAL 2010

The Coastal Management Specification Manual was prepared in 2005 by Green Skills for the South Coast Management Group and revised in 2010. It provides a guide for the construction of coastal infrastructure, including specifications and drawings for the design of features such as seating and tables, BBQs, signage, cap parking areas, campsites, timber boardwalks and steps, viewing platforms, birdhides, low water use toilets and fish cleaning stations.

The Specification manual should be referred to when designing and constructing infrastructure at the Shire's coastal reserves.

TOURISM PLANNING GUIDELINES 2014

The Tourism Planning Guidelines (Tourism WA, Department of Planning and Western Australian Planning Commission, 2014) aim to provide assistance to local governments in preparing the tourism component of a local planning strategy. The purpose of this is to encourage an increased focus on land use planning for tourism and to provide local governments with a rationale for determining future land allocation, planning controls and infrastructure needs for tourism.

The report provides guidance with regards to site assessments for future tourist accommodation development, infrastructure and services, tourist attractions, activities and amenities, tourism precincts and sites, zoning for tourism, tourist development in non-tourist zones, redevelopment areas, hotels, holiday homes and caravan parks.

A STRATEGIC APPROACH TO CARAVAN AND CAMPING TOURISM IN WESTERN AUSTRALIA 2012

This report was prepared by Tourism WA, Brighthouse and Starfish Business Solutions in 2012 and provides recommendations to address the provision of caravan and camping infrastructure, particularly in coastal locations. The aim is to make WA the preferred caravan and camping holiday destination. No priority localities were identified within the study area.

Recommendations presented in the report include the following:

- Recommendation 1: Streamline Caravan Park and Campgrounds Regulations to Improve Supply and Meet Market Demand
- Recommendation 2: Increase Support for LandBank to Release Land for more Caravan Park Developments where Viable
- Recommendation 3: Identify Opportunities to Access Western Australia's Conservation Estate
- Recommendation 4: Create Public-Private Partnerships to Improve Delivery and Maintenance of Caravan and Camping Facilities
- Recommendation 5: Partner with Indigenous Australian's to Develop Caravan and Camping Infrastructure on Indigenous Land
- Recommendation 6: Provide Better Guidelines for the Development of Caravan Parks to Local Government
- Recommendation 7: Develop a State-wide Overflow Policy That Works for Visitors and Supports Industry
- Recommendation 8: Raise the Bar on Skills for the Caravan and Camping Sector
- Recommendation 9: Improve Data to Support

- Decision Making
- Recommendation 10: Develop a Marketing Strategy to Improve Perceptions and Online Presence of the Caravan and Camping Sector
- Recommendation 11: Secure Sustainable Regional Tourism Benefits from the Resource Mining Boom.

5.4 LOCAL

BATAVIA COASTAL STRATEGY

The Batavia Coastal Strategy was prepared in 2001 by the Batavia Coast Coastal Planning Group. The Batavia Coast Strategy provides regional and local directions for future coastal planning and management along the Batavia Coast. The study area extends from the northern boundary of the Shire of Northampton to Dongara in the south. It includes the coastal towns of Geraldton, Dongara, Cape Burney, Horrocks, Port Gregory and Kalbarri.

The Strategy states that tourism development in the region, including permanent developments, tour operations, and events of a temporary nature (such as surfing and windsurfing competitions), may be both appropriate and desirable at certain locations along the Batavia Coast. It recommends the encouragement of greater tourism and recreation opportunities at Kalbarri, Port Denison and Dongara.

The Strategy proposes a settlement hierarchy and a hierarchy for recreation sites. Coastal sites included in this Coastal Management Strategy were identified as follows:

Overnight Accommodation Site:

- Coronation Beach

Major day use sites:

- Buller River mouth

Minor day use sites include:

- Oakabella River mouth
- Woolawar Gully and Jacksons Hole

The Batavia Coastal Strategy recognises the need to maintain off-road vehicle access to recreational sites and opportunities but advocates a more controlled approach in co-operation between ORV users and land managers. It also advocates specific restrictions on ORV use where they are being used for solely recreational use only. It also recognises the possibility of additional camping areas being identified in the future as pressures grow.

In relation to the Drummond / Woolawar coast, local issues identified by the Batavia Coastal Strategy are:

- Formal parking and boat launching facilities at Drummond Cove;
- Designation and signposting of formal ORV access tracks to beach areas with parking / viewing areas as appropriate; and
- In key areas, negotiation between landowners and Local Government in the provision of access.

CLIMATE CHANGE ADAPTATION ACTION PLAN

The Climate Change Adaptation Action Plan was prepared by the Batavia Regional Organisation of Councils in 2010 to undertake a climate change risk assessment and to develop an action plan for the councils in response to higher temperatures, reduced rainfall and sea level rise. The study identified a number of high climate change risks including the following relating to coastal areas:

- Increased maintenance, relocation or litigation costs due to inadequate protection from sea level inundation.
- Loss of the region's natural heritage through damage to coastal and other habitats.
- Damage (e.g. erosion, vegetation removal) to natural coastal assets and habitats (e.g. dune and estuarine systems), resulting in increased revegetation/ remediation/maintenance costs to councils.
- Building repair and insurance related costs to councils due to sea level related flooding damaging council buildings.
- Increased cost to councils due to requirement to relocate coastal community facilities (such as playgrounds and events area) to avoid sea level rise inundation.
- Increased beach, marina and boat ramp

- maintenance/repair requirements due to sea level rise and storm surge impacts leading to higher costs to councils.
- Increased foreshore reserve widths due to sea level rise resulting in higher reserve maintenance costs to councils.
- Conflict between councils and developers due to a requirement for larger coastal setbacks to protect against long term sea level rise.

High priority actions relating to coastal areas include the following:

- The protection of local properties from sea level rise and bushfire risks.
- The protection of at risk coastal and other habitats.

With regards to the above risks and high priority actions, it is considered that a majority apply to coastal area with hard infrastructure and more formal facilities such as boat ramps, jetties, groynes, limestone walls and buildings. The only hard structures in the study area are the facilities at Coronation Beach which comprises of toilets, gazebos and shades.

Consideration of coastal setbacks has been given due regard in the Buller Local Structure Plan and a setback area has been shown on the plan to account for erosion and sea level rise in accordance with SPP 2.6. Setbacks should also be considered in any development or planning applications for recreation and tourism development, including the proposals at Coronation Beach.

Future development such as the construction of parking areas and facilities should be setback appropriately from the coastline using State Planning Policy 2.6 as a guide.

SHIRE OF CHAPMAN VALLEY LOCAL PLANNING SCHEME NO.2

The Shire of Chapman Valley Local Planning Scheme No. 2 was gazetted in November 2013 and identifies the zones and reserves for land throughout the Shire of Chapman Valley.

The coastal area from Drummond Cove to Buller River, including the Buller River mouth, is reserved under the Shire of Chapman Valley Local Planning Scheme No. 2 for Parks and Recreation. The Buller Local Structure Plan is zoned for Residential.

The Oakajee Industrial Estate extends from Buller River to Lot 170 (south of Coronation Beach) is zoned Oakajee Industrial. A Special Control Area (SCA) extends around the proposed Oakajee Industrial Estate and includes the Oakajee Industrial zone and the surrounding lots to the south, east and north. The SCA includes the Buller River site and extends to the southern end of Coronation Beach. The purpose of the SCA is for the Oakajee Industrial Zone Buffer. Oakajee River and Spot X are located within the Oakajee Industrial zone.

The Parks and Recreation Reserve extends along the coast from the Oakajee Industrial zone to the northern end of the Shire and includes Coronation Beach. Inland is zoned Rural.

SHIRE OF NORTHAMPTON LOCAL PLANNING SCHEME NO. 10

The Shire of Northampton Local Planning Scheme No. 10 was gazetted in January 2012 and identifies the zones and reserves for land throughout the Shire of Northampton. The coastal area including Oakabella Creek and Woolawar Gully is zoned Rural and contained within a Special Control Area for Coastal Planning and Management.

SHIRE OF CHAPMAN VALLEY DISABILITY ACCESS AND INCLUSION PLAN

The Shire's Disability Access and Inclusion Plan was prepared in accordance with the Disability Services Act 1993 with the aim of ensuring that people with disabilities have equal access to facilities and services. The Shire of Chapman Valley is committed to facilitating the inclusion of people with disabilities through the improvement of access to its facilities and services.

The outcomes provided in the Plan include:

- Outcome 1 – People with disabilities have the same opportunities as other people to access the services of, and any events organised by a public authority.
- Outcome 2 – People with disabilities have the same opportunities as other people to access the buildings and other facilities of a public authority.
- Outcome 3 – People with disabilities receive

- information from a public authority in a format that will enable them to access the information as readily as other people are able to access it.
- Outcome 4 – People with disabilities receive the same level and quality of service from the staff of a public authority as other people receive from the staff of that public authority.
- Outcome 5 – People with disabilities have the same opportunities as other people to make complaints to a public authority.
- Outcome 6 – People with disabilities have the same opportunities as other people to participate in any public consultation by a public authority.

The Coastal Management Strategy will aim, where possible, to provide access for people with disabilities where possible in accordance with the Plan. Strategies applicable to the Coastal Management Strategy include:

- Ensure people with disabilities are provided with an opportunity to comment on access to services.
- Ensure all buildings and facilities are physically accessible to people with disabilities.
- Ensure that all new or redevelopment works provide access to people with disabilities, where practicable.
- Ensure adequate ACROD parking to meet the demand of people with disabilities in terms of quantity, quality, and location.
- Ensure that parks and reserves are accessible.
- Improve access to beaches and the sea for people with disabilities.
- Ensure that public toilets meet the associated accessibility standards.

CORONATION BEACH BOAT RAMP FEASIBILITY STUDY

A feasibility study was undertaken by M. P. Rogers and Associates in 2009 to determine the options for providing boat launching facilities at Coronation Beach. The issues identified with the existing situation include:

- Safety concerns during launching and retrieving of boats. Australian Standards for small craft facilities state that boat launching locations should be sheltered from waves greater than 0.2m. Waves experienced at Coronation Beach during a moderate sea-breeze, swell, or storm are expected to exceed this value.
- Conflicts with other beach users, which can lead to accidents or injuries. Formal boat launching facilities can provide exclusion zones that limit access for other beach users, minimising potential conflict.
- Navigation of the reef. Under moderate to large wave conditions the reef may become hard to navigate without navigation markers, particularly for non-local boat owners.
- Boat launching may not be possible at all if the beach face is too boggy or there is too much seagrass wrack on the shoreline
- A lack of onshore facilities for boat users, including sealed parking and wash down areas.

A number of options were presented in the feasibility study as follows:

- Continue with beach launching – the northern beach access point could be set out as a designated boat launching area, using signs along the beach front. Signs of this nature are currently erected at Coronation Beach, separating board riders and swimmers. Some onshore facilities such as trailer parking could also be provided within the camp grounds near the northern beach access. This area is likely to be more exposed to wave action than launching over the reef platform to the south.
- Simple Boat Ramp – the current informal boat launching facilities could be improved to reduce the impact on the beach face by providing a simple boat ramp which could consist of compacted limestone, block matt or geogrids. This could be placed behind the reef near the northern beach access. However, the area would still be unprotected and possibly dangerous, the ramp may get covered in sand and seagrass, could encourage nonlocals to use the ramp who aren't aware of local conditions and would still only be suitable for small boats.
- Caravan Park Boat Launching Service – The proposed Caravan Park could provide an option for launching larger boats at Coronation Beach. A tractor could

- launch and retrieve boats in front of the proposed caravan park. A simple boat ramp will be provided as well as some offshore moorings which can be used by larger boats. However this options would have greater management costs, the moorings would cause an obstacle for kite and wind surfers and is slightly less protected.
- Breakwater – A breakwater can be constructed to provide a protective structure if the Australian Standards for protection are to be fulfilled. It would provide safer wave conditions and allow a wider variety of boats to be launched. Other facilities, including parking bays, toilets and wash down areas would also be required with a protected boat ramp of this size and nature. However this option will have large capital and maintenance costs and larger environmental impact.
- Piled Boat Ramp – This option is a boat ramp on piles with an offshore armoured structure providing protection to the launch area. It would have much less impact on longshore sediment transport. However this option has increased capital cost and can be more expensive than a breakwater.
- Development in Conjunction with Oakajee Port – The other option is to construct the boat ramp in unison with the Oakajee Port development. The boat ramp should be built into the northern side of the Port. However would require resolution of a number of issues including road access and conflicts between port and recreational users.

While the Shire of Chapman Valley Council decided at the September 2009 meeting to adopt the last option, it is considered that this decision may need to be revisited if the Port construction is not in the medium term.

OAKAJEE INDUSTRIAL ESTATE STRUCTURE PLAN

Oakajee was identified by the State Government in 1992 as a site for the future processing industry and deep water port. It is envisaged that the area will consist of a Strategic Industry Area for heavy industry, General Industry Areas for support industry and a Buffer Area.

The Oakajee Industrial Estate Structure Plan (Department of State Development, Landcorp and RPS, 2012) encompasses a large majority of the Shire of Chapman Valley coastline.

A Strategic Industry area is shown in the centre of the Structure Plan, with some areas of General Industry to the east and south. A coastal node is identified at the southern extent along Buller River to provide for some recreation and camping.

The Structure Plan also shows the location of the multi-product rail, the indicative alignment of the Geraldton Bypass road and the indicative alignment of the North West Coastal Highway realignment.

OAKAJEE PORT MASTER PLAN

The Oakajee Port Master Plan (Geraldton Port Authority and GHD, 2011) was developed by the Geraldton Port Authority (now Mid West Ports Authority) as a working document to guide the development of the Oakajee Port over the next 30 years. It provides context and a vision for how the port will be developed in stages and describes how Oakajee Port is connected to the overall development of the Mid West.

SHIRE OF NORTHAMPTON COASTAL STRATEGY 2006

The Shire of Northampton Coastal Strategy was prepared by the Shire of Northampton and Landvision in 2006. The Coastal Strategy applies to the Shire of Northampton coastline, including the southern extent of the Shire which is also included in the study area for this Coastal Management Strategy (i.e. Oakabella Creek and Woolawa Gully). Both Oakabella Creek and Woolawar Gully are identified as 'minor day use recreation sites' in the Coastal Strategy.

The Strategy identified the following issues relating to Oakabella Creek and Woolawar Gully:

- The need for management of the coastal access track and arbitrary exits to the beach
- The likelihood of increasing pressures on the section of coast and the longer term camping opportunities offered by both locations
- The desirability of entering into landowner agreements for management of public access and provision and management of campsites.

The following recommendations are identified in the Coastal Strategy relating to the sites included in this Coastal Management Strategy:

- Oakabella Creek
  - Consider formalisation of camping in the long term
  - Enter into agreements with the landowners at this location to either enter into a management arrangement or excise portions of their property into a reserve managed by the Shire.
- Woolawar Gully and Jacksons Hole
  - Consider formalisation of camping in the long term
  - Enter into agreements with the landowners at this location to either enter into a management arrangement or excise portions of their property into a reserve managed by the Shire.

6.0 CONSULTATION

consultation

6.2 PAST CONSULTATION

Community consultation was undertaken during the preparation of the 2007 Coastal Management Strategy. A Community Workshop was held on the evening of the 6th April, 2006 at Drummond Cove. The workshop was attended by approximately 45 people. It was evident that the community valued highly the Drummond / Woolawar coast as a recreational resource and specifically:

- Close proximity of the area to the major urban centre of Geraldton, providing an opportunity to get away from suburbia without having to drive long distances;
- Tranquillity and sense of isolation afforded by the section of coast assisted by the fact that it can only be accessed for the most part by 4WD;
- Pristine beaches, relatively protected open waters and marine environment;
- Lack of crowds and major, high impact developments;
- Broad range of recreational opportunities for individuals, groups and families including swimming, fishing, surfing / windsurfing, diving / snorkelling, horse riding and whale watching;
- Spot X and Coronation Beach as major windsurfing destinations for which a number of people have moved to Geraldton to access;
- Opportunities for wilderness camping along the beach and at scenic locations, particularly for family groups;
- Value of the section of coast to local and international tourism in the Region both from the natural landscape and recreational opportunities particularly wind surfing and surfing;
- Opportunities for (responsible) 4WD driving and off-road motor bikes / quad bikes;
- Allowance of dogs and animals (subject to relevant Regulations);
- Low impact facilities provided at Coronation Beach;
- Indigenous heritage of the area; and
- The coastal vegetation.

The community identified a number of issues requiring addressing in the development of a Management Strategy for the coast and specifically:

- Retention of the wilderness, recreational and environmental values that make the area a unique recreational area to residents and visitors;
- Improved / increased vehicular access points while maintaining the sense of isolation;
- Need for management and policing / Ranger of irresponsible 4WD / motor bike use (speeding in populated areas) particularly from Buller to Drummond and of anti-social behaviour / littering at key camping locations, notably Buller River;
- Exclusion of major developments and provision of low impact facilities at strategic locations;
- Maintenance of public access along the coast;
- Retention of access for 4WD use and dune area/s for off-road motor bikes;
- Improved boat launching facilities; and
- Minimise visual impacts of industrial development / infrastructure.

Additionally, members of the wind-surfing community suggested investigations into the development of an alternative wind-surfing location at Oakabella Creek or Buller River mouth. The shoreline formation is similar, though smaller than Oakajee, and surf conditions may be able to be suitably modified utilising artificial reef technologies to improve conditions for windsurfing.

Overwhelmingly, the community were of the view that the Drummond / Woolawar Coast required "sensitive" management to preserve the current values and opportunities which are generally regarded by the community to be fairly well balanced at present.

6.1 STEERING GROUP

Three Steering Group meetings have been held to date. The first was on the 20th February 2015, the purpose of which was to finalise the Project Brief and Stakeholder and Community Engagement Strategy and to discuss the project methodology and timeframe in more detail.

The second meeting was held on the 28th April 2015. The purpose of this meeting was to discuss the outcomes of community, landowner and government consultation, to discuss specific issues in further detail and to decide on the next steps. A visit of the coastal area was undertaken the following day with members of the Steering Group to discuss coastal issues and management solutions in more detail.

A third meeting was held on the 24th August 2015 to review an initial draft of the CMSAP and allow the Steering Group members to provide comment and to discuss the strategies and actions. The Steering Group was provided with an opportunity to provide comment on the initial draft report and these comments have been taken into account.

Members o fthe Steering Group include:

- John Collingwood (Shire of Chapman Valley President)
- Kirrilee Warr (Shire of Chapman Valley Councillor)
- Maurice Battilana (Shire of Chapman Valley)
- Simon Lancaster – (Shire of Chapman Valley)
- Peter Duplex (Mid West Ports Authority)
- Kasey Green (LandCorp)
- Jessica Stingemore and Mic Payne (Northern Agricultural Catchments Council)
- Kate Watson (Geraldton Windsurfing Club)
- Deborah Millener (Department of Planning)
- Ryan Carvell (Department of Planning)
- Vivienne Panizza (Department of Planning)
- Hayley Williams (Shire of Northampton)

6.4 LANDOWNER CONSULTATION

A letter was sent to all coastal landowners in March 2015. The purpose of the letter was to inform landowners of the project, to seek information and to offer the opportunity for further discussions either via email, phone or face-to-face meetings. A link to the online community survey was also provided. The response rate from landowners was low, with only a few responses received from landowners wanting to be kept up to date as the project progresses.

6.3 COMMUNITY CONSULTATION

A community survey was prepared for the study area with a focus on Coronation Beach. It was made available from the 5th March 2015 to 17th April 2015 (6 weeks). The survey was published online and was also available in hardcopy form. Hard copies were distributed by the Coronation Beach caretaker and were available at the Shire office. A total of 53 responses were received – 47 of which were online and 6 which were hardcopies.

The results of the survey are summarised below. The focus of the survey was on Coronation Beach as this is the only formal camp site and day use site in the study area, however it also aimed to gather feedback on issues relating to other coastal areas.

Table 5.1 – Community Questionnaire Results

Question	Response
Where are you from?	Majority local (68%).
How often do you visit Coronation Beach?	Majority yearly (34.6%), followed by weekly (28.8%) and monthly (21.1%).
How long do you generally stay for?	Majority response was day trip (57.7%).
Have you visited any other beaches in the area? If so, which ones? (For example, Drummond Cove, Buller River, Spot X, Oakabella Creek, Woolawar Gully)	Most common are Drummond (29%), Buller River (20%), Spot X (14%) and Oakabella (16%)
What are you your main activities when you visit Coronation Beach?	Most popular activities are swimming (18.6%) and relaxing (18%) followed by walking (15.7%) and camping (15%).
What do you value most about Coronation Beach and the coastal area in general?	Most common is the undeveloped nature (26.6%).
What are the biggest issues at Coronation Beach?	Most prevalent are off-road vehicles (24.4%) and rubbish (23.2%).
What are the biggest issues at beaches north and south of Coronation Beach?	Most common are environmental damage (23%), rubbish (23%) and off-road vehicles (20%).

The survey also asked respondents what suggestions they had for improvements and any other comments relating to coastal management. The feedback focused on retaining the low-key nature of the beaches and better management

in terms of beach users, heritage, access, ORVs, environment, signage and rubbish. Many of the comments were positive with people satisfied with the nature-based and low-key nature of the sites.

As can be seen from the above results, the biggest issues identified in the community survey are off-road vehicles, rubbish and environmental damage. These are reflected in the actions in the Coastal Management Strategy.

A majority of responses stated that they visited the coast for a day trip, and this is important as it helps inform the types of facilities which should be provided. Camping is one of the more popular activities which also means that overnight stays are also popular. It is important that different coastal sites are identified for these uses and that they are managed appropriately for these uses.

The community also value the undeveloped nature of the coastal area and its natural wilderness and it is therefore important that the Strategy doesn't propose too much development or change, but rather ways to help manage the existing environment and facilities so future generations can also enjoy these sites.

6.5 GOVERNMENT AND STAKEHOLDER

A letter was sent to stakeholders in March 2015. A list of stakeholders is provided below. The purpose of the letter was to inform stakeholders of the project, to seek information and to offer the opportunity for further discussions either via email, phone or face-to-face meetings. A link to the online community survey was also provided.

- Drummond Cove Progress Association
- Geraldton 4 Wheel Drive Club Inc.
- Geraldton Longboard Club
- Geraldton Windsurfing Club
- Geraldton Angling Club
- Geraldton Motocross Club
- Mid West Enduro & Trail Riders Club
- Parkfalls Residents Association
- Yamatji Marpla Aboriginal Corporation

Only a few of the above stakeholders got in touch to set up a meeting or to discuss the project further. A meeting was held with a representative from the Drummond Cove Progress Association and the Yamatiji Land & Sea Council. A representative from the Geraldton Windsurfing Club was invited to join the Steering Group. The Parkfalls Residents Association also provided comments. A presentation was made to the Naaguja Working Group (4th June 2015) and the Hutt River Working Group (24th August 2015) who are two of the claim groups for the area. The presentations were made during one of their scheduled Working Group meetings.

Government stakeholders were also written to in March 2015 to seek preliminary comment before the draft Coastal Management Strategy was prepared. A summary of the government stakeholders and their responses is provided in the table below.

Table 5.2 – Government Consultation Summary

Agency	Comment
Alinta Energy	No response.
Department of Aboriginal Affairs	No response.
Department of Agriculture & Food	No response.
Department of Environment & Regulation	No response.
Department of Fire & Emergency Services	No comment to provide at this point.
Department of Fisheries	No response.
Department of Health	The Department sent a letter which commented on the recommendation in the 2007 Strategy regarding the loss of Spot X with construction of the port and breakwaters. The Department provided advice on what should be considered if further investigations are carried out.
Department of Lands	No response.

Agency	Comment
Department of Mines and Petroleum	Feedback received. The study area is located in the prospective North Perth and Southern Carnarvon basins and likely to be considered for future petroleum acreage release. The adjacent offshore and inland regions are prospective for gas and condensate and Oakajee could be suitable for processing and/ or a logistics hub. A provision for pipeline corridors may arise. Petroleum permits currently exist in the vicinity. Regionally this area is highly prospective for coal and within the study area the Geological Survey of WA has also mapped areas of regionally significant basic raw materials.
Department of Parks & Wildlife	A few plant communities with local and regional significance exist. Would like to see them in conservation areas.
Department of Regional Development	No response.
Department of Sport and Recreation	No response.
Department of State Development	Emailed received. Some advice was provided regarding relevant reports to refer to and the status of the proposed Oakajee Port.
Department of Transport	No response.
Department of Water	No response.
Main Roads WA	No response.
Midwest Development Commission	No response.
State Heritage Office	No comment to provide at this point.
Telstra – Forecasting & Area Planning	No response.
Tourism WA	Tourism WA have written some reports on caravanning and camping which includes the Mid-West. Chapman Valley was not identified as having high demand.
Water Corporation	No response.
Western Power	No response.
Westnet Energy	No response.

Agency	Comment
City of Greater Geraldton	Meeting held with the City. Comment provided regarding the coastal area at Drummond Cove Estate, particularly the coastal erosion and the road.

7.0 ENVIRONMENTAL CHARACTERISTICS

environmental characteristics

7.2 INTRODUCTION

Coastal environments are highly dynamic and valuable ecosystems. They have significant economic value in terms of residential, tourism and recreational land uses. From a social perspective, coastal areas act as a meeting place for families and friends and are places in which a range of recreational activities can take place. It is important that the environmental value of coastal areas is not neglected in order to cater for social and economic values as these are inextricably linked.

This chapter includes a discussion and summary of the environmental features and values within the study area including climate, coastal geomorphology, coastal processes, water resources, vegetation and fauna. The information is sourced from a variety of references including (but not limited to) the Shire of Chapman Valley Coastal Management Strategy (Shire of Chapman Valley and Koltasz Smith, 2007) and the documents listed in Chapter 5 of this report.

7.3 CLIMATE AND CLIMATE CHANGE

Chapman Valley has a Mediterranean climate with mild to hot, dry summers and cool wet winters. Information on climate was obtained from the Bureau of Meteorology from the nearest stations including Geraldton Town and Geraldton Airport. The average annual rainfall is 451.6mm with over 60% of the rainfall falling between May and August. Tropical cyclones occasionally bring heavy rains to the area. The average minimum and maximum temperatures throughout the year range from 13.8^{0}C to 27.2^{o}C. The coldest months are June to September and the warmest months are December to March (Bureau of Meteorology, 2015). Geraldton has an annual evaporation rate of 2464mm, with evaporation exceeding rainfall for every month except June and July (Shire of Chapman Valley and Koltasz Smith, 2007).

The Geraldton area is noted for its windy conditions, with winds predominantly from south south-west to easterly sectors. Summer winds are mainly from the east, south-east and south in the morning, with strong sea breezes from south south-west and south in the afternoon (Bureau of Meteorology, 2015). The winter pattern is more variable and wind speeds are generally lower. Winter winds are mostly from the north-east in the morning and from the west, south-west and south in the afternoon (Bureau of Meteorology, 2015). Wind speeds throughout the year often reach 8 metres per second and may be up to 10 to 12 metres per second. Predominant winds during the summer months are typically of speeds greater than 6 metres per second (Shire of Chapman Valley and Koltasz Smith, 2007).

It is generally well-known that the Mid West region of WA is likely to face a range of climatic changes in the coming decades including increased temperatures and reduced rainfall (BROC, 2010). The impact on climate change has two components; notably long-term variability of annual climatic patterns, and potential impacts of more global phenomena, specifically the greenhouse effect. It is suggested that, in the context of the study area, the potential impacts of natural climatic variability may be equal or more significant to immediate planning objectives than the impacts of the greenhouse effect which may well be superimposed on the broader climatic patterns. Local climatic conditions (rainfall, temperature, wind) may be moving to a period where weather patterns return to average or above average conditions. They have tended to be below average over the past twenty years. Such a change may involve an increase in storm intensity, such that the combined impacts may exceed those of recent memory. In short, coastal districts could be faced with a greater number of major erosional events, at least over the medium term. Climate and sea level change has ramifications for development on low level dunelands such as at Coronation Beach, and for the siting of public facilities. Therefore, it is advisable to maintain a significant reserve between the shoreline and any permanent, substantive development as required by SPP 2.6 (WAPC, 2013).

7.1 COASTAL GEOMORPHOLOGY

The geomorphology of the study area is represented by:

- The Pleistocene Tamala Limestone running sub-parallel to the coast. It outcrops at the escarpment approximately 1000m east from the shoreline and the nearshore reef system. The Tamala Limestone unit is part of the coastal limestone which is found along most of the coast of Western Australia, stretching from North West Cape down to Cape Leeuwin and then across the Great Australian Bight (Shire of Chapman Valley and Koltasz Smith, 2007). The Tamala Limestone unit provides the basic structure of the study area including the escarpment (20-40m), as well as the intertidal and subtidal platforms

- and offshore reefs. The offshore reefs enclose the embayments of the coast and comprise the outer boundary of a series of sheltered inshore lagoons (Shire of Chapman Valley and Koltasz Smith, 2007).
- The Holocene coastal dunes and beach. The major Holocene features include narrow frontal dunes, active parabolic dunes and blow-outs, transgressive dune ridges, deflation basins and swales. In addition parabolic dunes, nested and overlapping dune ridges are aligned generally parallel to the coast (Shire of Chapman Valley and Koltasz Smith, 2007).

7.4 COASTAL PROCESSES

The following section about coastal processes is based on the best available information and it is noted that there could be gaps in information and that updated information may be required to give a better picture of the coastal hazards and risks along the study area. For this reason it is recommended that a CHRMAP is prepared. The information below is largely based on the text in the 2007 Strategy (Shire of Chapman Valley and Koltasz Smith, 2007) as well as relevant information from Geology, Geomorphology and Vulnerability of the coast between the Shires of Coorow and Northampton (Eliot I, Gozzard JR, Eliot M, Stul T and McCormack G. 2012) and Coastal Sediment Cells for the Northampton Region between Glenfield Beach and the Murchison River (Stul T, Gozzard JR, Eliot IG and Eliot MJ, 2014). The last two reports were prepared at a broad scale.

The dominant processes of the area include wave-induced longshore transport of sediment in the inshore zone and aeolian (wind blown) transport of sand. The shoreline is continually adjusting in response to changing wave conditions. As sand is lost or gained (erosion or accretion) the form of the shoreline will fluctuate, advancing or retreating accordingly.

The direction of shoreline change, towards erosion or accretion, is dependent upon a number of factors including sediment supply, configuration of the coastline, wave climate and prevailing winds. Changes in configuration between Drummond Cove and Coronation Beach are a seasonal phenomena, and foredunes may be cut during phases of storm activity. The only evidence of cutting through foredunes is displayed approximately 2km north of Drummond Cove Road (Shire of Chapman Valley and Koltasz Smith, 2007). This comment is based on the most recent information available.

COASTAL VULNERABILITY

Coastal vulnerability at regional and sub-regional levels has been qualitatively assessed using analysis of coastal geology and landforms (Eliot I, Gozzard JR, Eliot M, Stul T and McCormack G. 2012). The approach combined measures of susceptibility (potential for change) and sensitivity (observed coastal dynamics) to determine an overall index of coastal vulnerability. Susceptibility ratings were determined from values assigned to marine topography near the shore; the shape of the shoreline; coastal orientation; and the prevailing landforms present in each cell. Similarly, instability ratings were based on the proportion of rocky versus sandy seabed; beach type and/or beachface shape; whether the frontal dune complex was eroded; and an overall estimate of vegetation cover on the sand barrier.

Determination of susceptibility and sensitivity was undertaken at the scale of individual coastal cells. These were combined through a matrix to determine five grades coastal vulnerability for each coastal cell, as outlined below.

Landform-analysis provides a proxy measure of coastal vulnerability, as local-scale variations in landform characteristics or landform interactions may be more important than the broader landform classifications used to develop the vulnerability assessment. For this reason, the analysis was intended to be indicative rather than prescriptive and have application for strategic planning purposes as a first step to more detailed risk assessment procedures under the AS/NZS ISO 31000 framework.

Two sediment cells for this study are located in the report being Buller River and Coronation Beach. Both cells were identified as having a moderate rating for susceptibility, instability and vulnerability (Eliot I, Gozzard JR, Eliot M, Stul T and McCormack G. 2012). Moderate vulnerability may present a moderate constraint to coastal management.

COASTAL HAZARDS

The below information is from Eliot I, Gozzard JR, Eliot M, Stul T and McCormack G. (2012). The Mid West is located towards the northern end of the temperate region, which means coastal hazards are predominantly associated with mid-latitude storm systems, although very rare tropical

storms have provided severe conditions in the past, notably through southward travelling tropical cyclones. The region is subject to heat-driven winds, including regular strong sea-breezes, northerly thunderstorms and pre-frontal troughs.

The region is microtidal and mainly diurnal, which determines that storm surges and other water level phenomena such as caused by the Leeuwin Current have a strong influence upon inundation. The largest surges measured along the coast have been associated with southward travelling cyclones, capable of producing surge and shelf waves simultaneously, although the most severe conditions are more commonly associated with mid-latitude storms, as their frequency and persistence allows greater opportunity for interaction with high winter tide levels.

The coast is exposed to large Indian Ocean swell waves, although nearshore reef systems commonly present may provide considerable damping before reaching the shore. Wind waves occur frequently along the coast, and generally peak on a daily basis with afternoon sea breezes.

Coastal processes, including erosion and inundation hazards, are strongly influenced by the coastal morphology present along the Mid West coast. Along the whole coastline, rock features have important influences upon the coastal behaviour, whether headlands acting as controls to beach position, reef systems providing wave sheltering or rock platforms providing a foundation for perched dunes. These natural structures typically influence present-day coastal mobility, but increase the susceptibility to erosion associated with changing conditions (including sea level rise) or the transfer of erosive stress when efforts are made to stabilise a small section of coast.

The coastline from north of Geraldton to Horrocks Beach is constrained between low limestone reefs and a higher calcarenite ridge to landward within several hundred metres. The ridge is intermittently overlain by perched dunes, mainly located near to river and creek mouths. Increased coastal mobility typically occurs where the reef levels are lower, which also occurs mainly near river and creek mouths. The high elevation to landward limits inundation hazard to the coastal margin only.

Natural hazards that may directly affect a coastal site include erosion, marine inundation, king waves, rip currents and tsunami. Runoff flooding, bushfires, landslides and earthquakes may affect the site directly, but may also be significant indirectly, by disrupting site access. Site characterization includes a classification for natural hazard risks based on a relative comparison of different types of coastal site and their use. In general, more populated sites are expected to have a lower likelihood of being affected by natural hazards, although this may be offset by more intensive hazard mitigation. Day use sites have no population except visitors and a low value of infrastructure that implies a high tolerance for natural hazard risk. This applies to the coastline within this study area.

The levels of hazard assessment and warning system likely to be appropriate for a day use site and camping node are outlined in Table 7.1 below.

Table 7.1 – Site classification, hazard assessment and warning system

Site Classification	Hazard Assessment	Warning System
Tourism Node	Hazard evaluated, with trigger for site closure identified	Warning system developed, with a responsible agent & ability to close site access
Minor Tourism Node		
Camping Node		
Day Use Site	Hazard indicators assessed as part of site selection	Hazard clearly self-evident or warning signs erected

Source: Eliot I, Gozzard JR, Eliot M, Stul T and McCormack G. (2012)

7.5 ON-SHORE ENVIRONMENT

Virtually the entire shoreline from Geraldton north to the mouth of the Bowes River (south of Horrocks) is composed of intertidal sand. North of the Oakabella Creek there is a low cliff up to 1m high which marks the seaward extent of a lower intertidal limestone platform. There are very few native fauna species inhabiting the beach, which are primarily restricted to ghost crabs and burrowing donacid bivalves (Shire of Chapman Valley and Koltasz Smith, 2007).

The coastline is backed by a strip of sand dunes which were formed by wind action in the relatively recent geological past. These are part of the Quindalup Dune System which extends along much of the southern sector of the west coast of Australia (Shire of Chapman Valley and Koltasz Smith, 2007).

The Quindalup Dunes near the coast comprise a low narrow foredune immediately behind the beach and then a series of large blow-outs (or mobile dunes) and stable parabolic

dunes and chaots (Shire of Chapman Valley and Koltasz Smith, 2007).

7.6 NEARSHORE ENVIRONMENT

The study area is associated with an open, exposed coastline subject to the full force of sea conditions, particularly during storms. While considerable local variation in depth occurs, there is a steady progression of habitats from the intertidal sand beach out to the 20m line, the westernmost extent out to the 20m line (Shire of Chapman Valley and Koltasz Smith, 2007).

A shallow lagoon up to 5m deep occurs near the shore in the vicinity of the study area. The lagoon is more distinct south of the Oakajee River, and there is a channel that allows small boat access during very good weather. North of the Oakajee, the lagoon is less distinct and has numerous "Bombies", many of which nearly reach the sea surface (Shire of Chapman Valley and Koltasz Smith, 2007). An indistinct limestone reef occurs to the west of the lagoon. The reef runs parallel to the shore in a north to south direction through the study area, being absent only in the submerged basin of the Oakajee River.

Seaward of the crest is a low relief platform. While the platform surface is not uniform, it tends to have a gradually increasing depth seaward. In deeper waters, where depths are between 15 and 20m, the platform gives way to a level bottom that is predominantly covered with sand, but there are exposed areas of flat limestone (Shire of Chapman Valley and Koltasz Smith, 2007).

The marine system in the vicinity of the study area is in near pristine condition. The shallow water habitats, those areas in less than 15m of water, such as the high reef, low reef and shallow limestone pavement, are important areas of primary productivity in the study area (Shire of Chapman Valley and Koltasz Smith, 2007).

The shallow habitats also form a refuge for marine fauna by providing crevices or caves in reefs, or shelter within algal and mixed algal seagrass communities. The marine fauna that utilise these areas include a wide range of reef fish and a large number of invertebrates including puerulis, juvenile and adult rock lobsters.

The major marine habitats in the study area are:

- intertidal sand;
- subtidal sand;
- intertidal and shallow subtidal beachrock;
- shallow vertical columns;
- high relief reef; and
- low relief reef.

INTERTIDAL SAND

Virtually the entire shoreline from Geraldton north to the mouth of the Bowes River is composed of intertidal sand. The beaches are important for the presence of beachwrack that decomposes and becomes a nutritional source for plants and small animals (Shire of Chapman Valley and Koltasz Smith, 2007).

SUBTIDAL SAND

Subtidal sand occurs in all parts of the study area, from just below the low tide line out to the 20m line. The sand is coarse, and frequently has surface ripples up to 15cm high, indicating the high energy nature of the environment. The habitat is inhospitable to plants, and sessile animals, both of which face being exposed or submerged as the sands shift. The fauna present would be characterised by a low diversity and density of species able to burrow into the sand if exposed by wave action or out of sand if they were submerged (Shire of Chapman Valley and Koltasz Smith, 2007).

INTERTIDAL AND SHALLOW SUBTIDAL BEDROCK

Beach rock platforms occur along the shoreline throughout the study area but are more common north of the Oakabella River. They range from small platforms of a few square metres to an extensive, 400m long, platform just south of Coronation Beach. The platforms begin at the low tide level and continue into the subtidal region. Large portions may be exposed by winter wave action then re-covered by sand the following summer. The platforms at Oakajee have a greatly reduced biota, possibly due to the dynamic wave action that would physically remove much of the macroalgae and fauna. In addition, sand moved about by the waves would provide a considerable scouring force (Shire of Chapman Valley and Koltasz Smith, 2007).

SHALLOW VERTICAL COLUMNS

Shallow vertical columns, which occur near the shore south of the Oakajee River, are one of the most distinctive features of the marine environment in the study area. The columns, which may have a diameter of 5-10m or more, emerge vertically from sand at a depth of up to 5m near the lower intertidal level. This is an area of breaking waves during even moderate seas. The upper surfaces of the columns are largely devoid of macroalgae, but may be colonised by small patches of Sargassum which are kept to short lengths by the continuous wave action. The Sargassum is longer on the sides of the columns than on the upper surfaces. On the leeward side of the columns is a mixture of low encrusting species of macroalgae, including Caulerpa. The base of the columns is at a depth of approximately 6m and is surrounded by sand mixed with some Amphibolis. There may be small patches of Sargassum inshore. Invertebrate diversity on the tops of the columns is low (Shire of Chapman Valley and Koltasz Smith, 2007).

HIGH RELIEF REEF

An indistinct limestone reef runs north to south through the study area a few hundred metres offshore. Inshore of the reef is a shallow lagoon with a depth of up to 5m. In most areas the reef shoals to a depth of 2m or less, but in some localities it is less distinct. The reef crest is where most of the high relief bottom occurs; there is also some high relief reef in deeper areas to the west, but the deeper high relief reef occurs only in isolated pockets. The high relief reef is structurally diverse, with pinnacles, rocks or low platforms interspersed with depressions which are either bare rock or sand, or a combination of the two.

Plant life on the upper portions of the high relief reef is dominated by macroalgae, particularly Sargassum. The kelp Ecklonia radiata is present in some areas. Amphibolis may be common in lower areas and depressions. These statements are generalisations; at any given site there will actually be a complex assemblage of macroalgae and possibly Amphibolis.

The fauna of the high relief areas is depauperate, and restricted primarily to fish and sessile invertebrates which are able to survive in the high energy environment. Western rock lobster are common in small caves and crevices. Sponges are the dominant invertebrate group, but are restricted to low forms able to tolerate the high energy conditions. Molluscs present (either as living individuals or dead shells) included species such as Thais orbita, Campanile symbolicum, Cronia avellana, Turbo torquatus, T. intercostalis and Rhinoclavis bituberculatum. Isolated colonies of Turbinaria corals were found at some sites. The habitat appeared appropriate for abalone (Haliotis roei), but none were seen. Tunicates were also expected, but were absent.

Fish recorded included sweetlip and baldchin groper (Choerodon rubescens). Tropical coral trout

(Plectropomus sp.) also occur in the area. The fauna is thus essentially a mixture of temperate and Western Australian endemic species, with a few tropical species (Shire of Chapman Valley and Koltasz Smith, 2007).

LOW RELIEF REEF

Low relief limestone reef is the dominant habitat in the study area, gradually increasing in depth from the edge of the high relief reef seaward to a depth of between 15 and 20m. The reef may be channelled with a very small spur and groove formation in some areas, where the undulations are 30cm or less in height. The surfaces of the crest are exposed limestone. The channels are either exposed or are covered by a thin layer of sand. Sand accumulates in the depressions, some of which are large, tens of metres across. In some low energy areas of the bottom, the entire limestone platform is covered by a layer of sand several centimetres deep.

This is a complex habitat dominated by plants. The plant assemblages change rapidly on a scale of metres. While there is considerable variation, Amphiobolus is in general the dominant plant, both on the reef surface and in areas of shallow sand. There are extensive areas where Amphibolus co-occurs with a variety of macroalgae and less frequent regions where macroalgae dominate and Amphibolis is absent.

As with the high relief reef, macrofauna is primarily restricted to low sponges which are able to withstand the high energy environment (Shire of Chapman Valley and Koltasz Smith, 2007).

7.7 WATER RESOURCES

SURFACE WATER FEATURES

The coastal area includes a number of surface water features including creeklines and gullies. The surface water features from south to north include:

- Buller River
- Oakajee River
- Oakabella Creek
- Woolawar Gully

The river mouths of the above creeklines are popular camp sites and recreational sites. They are ephemeral which means they only flow during high rainfall events. They provide an outlet for rainfall events when the inland catchments need to be drained.

Surface water and streambed analysis was undertaken for Buller River and Oakajee River as part of the environmental assessment process. The Environmental Review by Parsons Brinckerhoff (2012) provides a summary of the assessment. The results showed that both river catchments are considered typical of agricultural environments. The surface water quality for the rivers is largely influenced by seasonal water flows during winter and evapo-concentration during summer months, with elevated levels of key water quality parameters occurring in summer when flows are usually low.

The water quality can be generally described as:

- neutral to alkaline
- brackish to saline
- nutrient enriched at certain times of the year.

Rainfall quality data gathered by the then Department of Environment for the Buller River catchment from May 2011 to June 2003 indicates that the rainwater quality is fresh and neutral, with low nutrient levels, although unexpectedly high levels of some metals were recorded and traced back to high dust levels in rain gauging equipment (Parsons Brinckerhoff, 2012).

GROUNDWATER

The Buller Local Structure Plan (GHD, 2015) states that the groundwater level south of Buller River is generally at depth however there are some low-lying areas at the southern end near Drummond Cove.

The Environmental Review Report prepared by Parsons Brinckerhoff (2012) for the Oakajee Industrial Estate provides information on groundwater through the central region of the study area. A hydrogeological investigation was carried out by Rockwater in 1996 and an Environmental Review by Quilty was undertaken in 2000. The Rockwater investigation aimed to provide information to respond to the EPA concerns about possible transport of industrial pollutants to the marine environment via groundwater. It found that groundwater in the area forms a veneer within and above the contact between granulite bedrock and overlying sediments. Beneath the escarpment and the adjacent coastal dunes these groundwater-bearing sediments are variously alluvial sand and silt, Tamala sand and limestone, and the Safety Bay sand of the Quindalup dunes Parsons Brinckerhoff (2012). There was no evidence of rapid flow of groundwater towards the ocean via cavities or solution pipes, and the site was found to have favourable characteristics for retardation of contaminant movement, should contamination occur. The northern end of the Oakajee Industrial Estate was found to have restricted groundwater movement due to a low-permeability granulite bedrock ridge which rises above the watertable, separating the aquifer beneath the proposed industrial area from that beneath the coastal dunes to the west. The southern part of the estate does not have this separation and the groundwater beneath the coastal dunes receives inflow from thin sand and siltstone aquifers beneath the Oakajee plateau to the east and a majority of the groundwater flow is concentrated in this section (Parsons Brinckerhoff, 2012).

Groundwater monitoring bores were established within the Oakajee Industrial Estate. Groundwater depth ranged from 10 to 60 metres below ground level. The salinity levels were found to be brackish to saline (Total Dissolved Salts (TDS) ranging from 500 – 3,000 ppm) and within water quality guidelines for fresh and marine waters in lowland rivers. Elevated nitrate levels were found throughout the site as well as minor exceedance of arsenic in two bores (Parsons Brinckerhoff, 2012).

7.8 VEGETATION AND FLORA

The vegetation and flora within the study area can be described from a variety of sources including the 2007 Coastal Management Strategy (Shire of Chapman Valley and Koltasz Smith, 2007), the Buller Local Structure Plan (GHD, 2015), the Environmental Review Report for the Oakajee Industrial Estate (Parsons Brinckerhoff, 2012), the Geraldton Regional Flora and Vegetation Study (DoP, 2010) and the Northern Batavia Coast Flora and Vegetation Surveys (DPaW, 2011).

VEGETATION DESCRIPTION

Shire of Chapman Valley Coastal Management Strategy 2007

The study area is part of the 'Greenough System' within the Irwin District of the South-Western Botanical Province. This system is associated with the coastal limestone and extends along the coast from Kalbarri to Dongara. The limestone belt varies in width, elevation and topography, and is covered on its seaward side by a mantle of recent, poorly consolidated or mobile dune sands (Shire of Chapman Valley and Koltasz Smith, 2007).

The foredunes are colonised by low vegetation with the principal plant species being Olearia axillaris, Acanthocarpus preissii, Salsola kali, Spinifex longifolius, Rhagodia preissii, Tetragonia decumbens and Threlkeldia diffusa (Shire of Chapman Valley and Koltasz Smith, 2007). The mobile dunes are sparsely vegetated but there are areas of low shrub vegetation where the principal species are Acacia rostellifera and Acacia xanthina, together with Olearia axillaris, Spinifex longifolius, Rhagodia preissii and Clematis pubescens (Shire of Chapman Valley and Koltasz Smith, 2007).

Stable dunes are covered by heath vegetation between 1m and 2m tall, which is dominated by Acacia rostellifera and Olearia axillaris with Acanthocarpus preissii and Spinifex longifolius prominent in the lower stratum. Other plant species which are common in the heath include Acacia xanthina, Alyxia buxifolia, Anthocercis littorea, Templetonia retusa, Rhagodia preissii, Threlkeldia diffusa, Salsola kali, Atriplex sp. and Enchylaena tomentose (Shire of Chapman Valley and Koltasz Smith, 2007).

The limestone ridge community and scarp community is dominated by heath, although Shrubland over 2m tall occurs in some locations where wind-tolerant Eucalypts and Melaleucas have developed (Shire of Chapman Valley and Koltasz Smith, 2007).

ENVIRONMENTAL REVIEW REPORT FOR THE OAKAJEE INDUSTRIAL ESTATE

The most recent vegetation studies for the Oakajee Industrial Estate include the Oakajee Port and Rail Public Environmental Reviews (Ecologia, 2010) and the Geraldton Regional Flora and Vegetation Study prepared by the Department of Planning (DoP, 2010). The Environmental Review Report by Parsons Brinckerhoff (2012) identifies the plant communities from south of Buller River to Oakabella Creek. The plant communities include:

- Foredune: Atriplex isatidea / Spinifex longifolius (Ati/Spl)
- Coastal: Acacia rostellifera low shrubland (cAr)
- Near Coastal: Acacia rostellifera shrubland (ncAr)
- Sandplain: Banksia prionotes / Acacia rostellifera (Bp/Ar)

Behind the near coastal dune shrubs is limestone ridge vegetation comprising Melaleuca cardiophylla. Inland from the coastal dunes is largely cleared and is used for farming purposes including cereal and lupin cropping and grazing by cattle and sheep.

A flora and vegetation survey encompassing the area between the Oakajee River and Buller River was undertaken by Dames and Moore in mid-April, 1993. In addition, a follow-up survey was conducted by Muir Environmental in August, 1997. The 1993 survey found a total of 165 species including a total of 138 native species and 27 introduced species. The dominant families were the Myrtaceae (Eucalypt family – 14 species), Mimosaceae (Wattle family – 14 species), Papilionaceae (Pea family – 12 species, nine native) and Proteaceae (Grevillea family – 12 species). On completion of the August, 1997 survey the total species recorded within the study area had increased to 217, including 180 native species and 37 weeds. Of the 52 additional species recorded, 27 were ephemeral, indicating the value of the Spring survey. Most significant amongst the additional records of ephemeral species were the

Asteraceae (Daisy) family, which had increased from two to nine species in total.

The Environmental Review Report by Parsons Brinckerhoff (2012) notes that the coastal area to the south of the port will be managed for conservation and recreation purposes and there are opportunities to protect and rehabilitate mobile dunes subject to impacts from uncontrolled access by recreational and 4WD vehicles.

BULLER LOCAL STRUCTURE PLAN

A flora and fauna survey was undertaken in 2007 and 2008 across the Buller Structure Plan area by a qualified botanist and environmental scientist to a level 2 survey requirement. The study found that vegetation condition ranges from Excellent to Degraded. Five vegetation communities were identified:

- Coastal scrub / heath – includes foredune vegetation, and first stabilised dune;
- Acacia rostellifera / Lycium ferocissimum shrubland;
- Frankenia pauciflora on saline flats;
- Melaleuca cardiophylla mixed heath on limestone ridge; and,
- Degraded Riparian Low woodland – associated with the Buller River tributary.

THREATENED FLORA

According to the Geraldton Regional Flora and Vegetation Study (DoP, 2010), the Sandplain Banksia prionotes/Acacia rostellifera plant community is one of the more widespread in the region and its condition ranges from good to poor, with grazing and proliferation of annual weed species being key contributing factors to its degradation. This plant community is also considered to have conservation significance due to being largely degraded or under threat. The coastal and limestone ridge vegetation is considered as having conservation significance due to the threat of clearing and poor representation in the conservation estate along the coastal area in the region (Parsons Brinckerhoff, 2012) .

The Environmental Review Report by Parsons Brinckerhoff (2012) notes that there are no Threatened Flora species within the Oakajee Industrial Estate, however there are three species of Priority listed flora: Melaleuca huttensis (P1), Grevillea triloba (P3) and Lasiopetalum oppositifolium (P3). The vegetation assessment by Ecologia (2010) undertook a database search and found that there were no threatened ecological communities or priority ecological communities occur in the Oakajee Industrial Estate.

No Threatened Flora, Priority Flora, Threatened or Priority Ecological Communities were located in the Buller Local Structure Plan area (GHD, 2015). A search of the DPaW threatened species database may need to be undertaken when undertaking works along the coast to get a current list of species in the area.

7.9 FAUNA AND HABITAT

The fauna and habitat within the study area can be described from a variety of sources including the 2007 Coastal Management Strategy (Shire of Chapman Valley and Koltasz Smith, 2007), the Buller Local Structure Plan (GHD, 2015) and the Environmental Review Report for the Oakajee Industrial Estate (Parsons Brinckerhoff, 2012).

SHIRE OF CHAPMAN VALLEY COASTAL MANAGEMENT STRATEGY 2007

The Shire of Chapman Valley Coastal Management Strategy 2007 refers to a fauna assessment of the proposed Oakajee Industrial Site undertaken by Dames & Moore (1993). The study suggests that the low heath and vegetation is likely to provide relatively few habitats and therefore dunes are expected to support small fauna populations. However, the available distribution data for vertebrate fauna in the Geraldton Region indicate that a diverse suite of bird species may visit the area and that a number of reptiles and native mammals may also be present (Shire of Chapman Valley and Koltasz Smith, 2007).

The Dames and Moore report indicated that there could be up to 230 bird species which might occur within the Oakajee area. However, there are no significant areas of undisturbed woodland, no mallee associations, no lithic complexes, and no freshwater lakes or salt flats with which many bird species might be associated. It listed 18 species of mammals recorded from, or thought to possibly occur near the study area. Of these, seven are feral, domestic or pest species. Muir Environmental (1997) reported that most of these species are fairly common, apart from the Dibbler (Parantechinus apicalis) which has been found only

a few times on the mainland in recent years. The Dibbler is currently known from Whitlock and Boullanger Islands, Jurien Bay, and Fitzgerald River National Park on the south coast.

ENVIRONMENTAL REVIEW REPORT FOR THE OAKAJEE INDUSTRIAL ESTATE

The most recent vegetation studies for the Oakajee Industrial Estate include the Oakajee Port and Rail Public Environmental Reviews (Ecologia, 2010). The Environmental Review Report by Parsons Brinckerhoff (2012) provides a discussion on the outcomes. A total of 22 mammals, 161 birds, 105 reptiles and 15 frog species are expected or known to utilise the wider OIE area. Of these 32 are species with recognised conservation significance including:

- Four EPBC Act listed migratory bird species – Fork-tailed Swift, Eastern Osprey, Whitebellied Sea-eagle and Rainbow Bee-eater;
- Two Priority 4 bird species listed by DPaW – White-browed Babbler and Australian Bustard;
- One Priority 4 species listed by the DPaW – Western Carpet Python, which is also listed as a Schedule 4 species under the Wildlife Conservation Act;
- Northern and southern forms of the Fossorial skink, an undescribed worm lizard currently awaiting taxonomic classification, and several fauna species at or near the northern limit of their range.

It is relevant to note that Carnaby's Black-Cockatoo (Calyptorhynchus latirostris) has been previously sighted in the region, however there is limited suitable feeding habitat and the Oakajee area is unlikely to be a major source of food for local populations, with no nesting or breeding habitat available.

BULLER LOCAL STRUCTURE PLAN

A flora and fauna survey was undertaken in 2007 and 2008 across the Buller Structure Plan area by a qualified botanist and environmental scientist to a level 2 survey requirement. A number of fauna species, predominately birds, were observed. A search of the WA Museum database for fauna records. The results of this search, and from the opportunistic survey conducted at the Site, indicate that potentially 145 species of birds, 27 mammals, 80 reptiles and 11 amphibians could utilise or pass over the structure plan area.

8.0 CULTURAL AND SOCIAL CHARACTERISTICS

cultural and social characteristics

8.2 INTRODUCTION

This chapter provides the social and cultural context of the study area including a review of the land tenure, zoning, land use values and heritage. The information is sourced from a variety of references including (but not limited to) the Shire of Chapman Valley Coastal Management Strategy (Shire of Chapman Valley and Koltasz Smith, 2007) and the documents listed in Chapter 5 of this report.

8.3 LAND STATUS AND ZONING

The coastal area from Drummond Cove to Buller River, including the Buller River mouth, is reserved under the Shire of Chapman Valley Local Planning Scheme No. 2 for Parks and Recreation. The Buller Local Structure Plan is zoned for Development (allowing for primarily residential).

The Oakajee Industrial Estate extends from Buller River to Lot 170 (south of Coronation Beach) is zoned Oakajee Industrial. A Special Control Area (SCA) extends around the proposed Oakajee Industrial Estate and includes the Oakajee Industrial zone and the surrounding lots to the south, east and north. The SCA includes the Buller River site and extends to the southern end of Coronation Beach. The purpose of the SCA is for the Oakajee Industrial Zone Buffer. Oakajee River and Spot X are located within the Oakajee Industrial zone.

The Parks and Recreation Reserve extends along the coast from the Oakajee Industrial zone to the northern end of the Shire and includes Coronation Beach. Inland is zoned Rural.

The Shire of Northampton Local Planning Scheme No. 10 indicates that the coastal area including Oakabella Creek and Woolawar Gully is zoned Rural. The coastal area is also located in a Special Control Area for Coastal Planning and Management.

8.4 LAND MANAGEMENT AND TENURE

Tenure varies along the study area from freehold, reserve and UCL. A large portion of the central portion of the study area stretching from south of Buller River to South Coronation Beach is reserved for the purposes of the Port Authority Act 1999. Management orders for this area are with the Mid West Ports Authority (previously the Geraldton Ports Authority). Inland from the reserve is owned by Landcorp.

A majority of the coastal strip from Drummond Cove towards Buller River is located in UCL. Inland from the UCL area is privately owned and subject to the Buller Local Structure Plan. The coastal area south and north of Buller River, including the river mouth, is reserved for the Mid West Ports Authority. Landcorp own a large proportion of the Buller River area including the camping and day use site, the river and the land north and south.

Oakajee River and Spot X are located on land reserved by the Mid West Ports Authority. Inland from this is owned by Landcorp, including a portion of the creek and the access track from Coronation Beach Road.

The only coastal section with management orders with the Shire are the coastal reserves at Coronation Beach which extend across the existing camping area. Three separate reserves are located at Coronation Beach for the purposes of Camping and Recreation and Public Recreation. The lot to the east of Coronation Beach (Lot 169) and to the north (Lot 171) are privately owned. The beach and foredune area north of Coronation Beach is UCL. South Coronation Beach is located on the Mid West Ports Authority Reserve.

The narrow strip of beach and foredune areas from Coronation Beach north to Woolawar Gully is UCL. The Oakabella Creek camping node is located in UCL. Lot 20 to the south and Lot 49 to the north are privately owned. The Woolawar Gully coastal area is also located in UCL and Lot 48 to the south and Lot 47 to the north are privately owned.

8.1 EXISTING LAND USES

COASTAL UTILISATION

Unlike much of the broader coastal areas to the north and south of Geraldton which are fringed by on-shore reef platforms, the study area comprises mostly open beaches typically protected by a near-shore reef system. Accordingly, and as evidenced by community responses, the coast is a unique recreational resource highly valued by the local community. The absence of restrictions on the use of off-road vehicles along the entire section of coast is a major feature of the experience as it has in effect created an "outback" coastal experience in close proximity of a major urban centre. As a consequence, key locations along the coast are well used on weekends and major holidays for

a range of water based activities frequently also involving overnight camping on the beach.

Utilisation of the coast varies considerably north and south of Oakajee. South of Oakajee, swimming and fishing predominates along with horse riding immediately north of Drummond. The Buller River mouth is a particularly popular location as it presents a good family beach, with a protected bay and good fishing. Further north towards Oakajee, Summer Bay comprises an area of limestone "Bombies" reef which is popular for both diving and fishing.

Better swell at and north of Oakajee results in surfing and windsurfing predominating. Surfing occurs at South Coronation which is particularly good for long-board surfing as a consequence of the local swell conditions. Surfing is also popular north of Oakabella Creek and at Woolawar Gully mouth. Wind and kite surfing occurs principally in the section from Oakajee to Coronation Beach. "Spot X" at Oakajee River mouth is considered a wind-surfing location of international significance as a consequence of the unique wave conditions which provide for a much longer ride. It is regarded as one of the top windsurfing locations in the world for experienced wind-surfers and can have up to 40 surfers on the water with more on the beach waiting for an opportunity to launch. Other locations comparable in standard to "Spot X" are limited mainly to Gnaraloo and Margaret River. Coronation Beach is also a major wind-surfing location with up to 100 surfers on the water and similar numbers on the beach waiting to launch. Wind / kite surfing is a growing sport and seemingly becoming a significant part of the tourist attraction of the Greater Geraldton Coast. The 2005 National Invitational Championships held at Point Moore attracted 50 competitors from all States. Held over a one week period, the Nationals also attracted in excess of 50 support and media personnel and in the order of 70 to 80 spectators per day.

Popular fishing locations along this section are at Coronation Beach and the mouths of Oakabella Creek and Woolawar Gully.

Camping is a popular activity typically in association with other main beach activities such as surfing or fishing, particularly during peak holiday periods. Limited camping occurs at Oakajee, Oakabella and Woolawar with sporadic camping occurring in the dunes at other key surfing or fishing locations. The Buller River and Coronation Beach are the most popular camping locations, the latter being a formal camping area with ablution facilities but no water or power. There are no facilities at Buller River or elsewhere along the Drummond / Woolawar Coast.

Off-road Vehicle (ORV) use, both 4WD and dirt bikes / quad bikes, are popular along the entire length of coast. An access track, typically one vehicle wide, extends for most of the coastline. The section of coastline south of the Oakajee River is difficult to access as a consequence of narrow beach widths for much of the year and difficult dune formations. Dirt bikes are popular in the three dunal blow-outs south of Oakajee with the most popular area being the blow-out north of Drummond and to somewhat of a lesser extent, the blowout north of Buller River. The blow-out towards Oakajee receives only limited use.

ORV and RRV use, particularly along the Drummond / Buller section is becoming an increasing problem. Typically, 4WD vehicles have not been a problem but use of the beach, tracks and blow-outs areas by motor bikes is generating an increasing safety problem. Bike riders are presenting an increasing danger to other beach users as a consequence of the speed at which they travel along the beach and access tracks.

No services or infrastructure are available along the entire section of coast except at Coronation Beach. No telecommunications infrastructure is available but mobile phone signal is achievable along the length of the Drummond / Woolawar Coast. Closest emergency facilities are located either to the south at Geraldton or to the north at the Northampton townsite.

OAKAJEE STRATEGIC INDUSTRIAL AREA

The proposed Oakajee Industrial Core is situated west of the North West Coastal Highway between the Oakajee and Buller Rivers, extending westward to the coastline but excluding the strip of Crown Land comprising the coastal foreshore reserve. The gross area of the Industrial Area inclusive of the buffer area, which extends well east of the Highway, is approximately 6,500ha.

Under the Shire of Chapman Valley Local Planning Scheme No 2, the Oakajee Industrial Core which extends approximately 4.5km north-south and 2.5km east-west, is

zoned Oakajee Industrial and comprises three Sub-Areas:

- Sub-Area A : comprises two pockets to the south and east of the primary Core primarily for service / ancillary industrial purposes to the main Core and will permit low emissions manufacturing, fabrication and processing industries, typical of urban general & service industrial areas.
- Sub-Area B : lies between the primary Core and the coast and is identified primarily for port related activities including rail access and marshalling, materials stockpiles, bulk silo storage and related activities and port access.
- Sub-Area C : comprises the primary Industrial Core of approximately 1,140ha. The Core is intended to provide for a range of heavy industries including hazardous / noxious industries and resource processing industries.

The Special Control / Buffer Area has been determined based on air quality, risk and noise modelling for range of heavy industries within the industrial core, Sub-Area C.

TOURISM

Tourism to the Mid-West has remained popular over the last 10-15 years. An estimated 510,000 overnight visitors were recorded in 2004 – 2005 and 434,900 visitors were averaged per year for the period between 2011 – 2013. Intrastate tourists represent 80% of the tourist market with Interstate and international visitors representing a further 10% each. 18% of domestic visitors and 44% of international visitors stay in caravan parks or commercial camping grounds (Tourism WA, 2013b).

A total number of visitors to Geraldton of 180,500 visitors was averaged per year for the period between 2011 – 2013. 9% of domestic visitors and 44% of international visitors stayed in a caravan park or commercial camping ground (Tourism WA, 2013c).

The Tourism Potential Study undertaken by JLW Advisory in 1994 on behalf of the Department of Resources Development examined the coast from Buller River to Woolawar Gully for long term tourism opportunities. The Study concluded that there were no sites of sufficient natural resource or infrastructure to be regarded as major potential tourist sites but identified three sites with minor tourism potential and specifically:

- Buller River – was identified as having potential to support small scale tourist accommodation as a consequence of its accessibility, sheltered beach, river landscape and well treed camping locations. However the site sits within the Oakajee Industrial Estate buffer area and as a consequence is identified under the Batavia Coast Strategy as a Day Use site only;
- Coronation Beach – was identified and has since been developed by the Shire as a caravan / camping area along with day use facilities; and
- Oakabella Creek – was identified as having potential for low key camping associated with fishing and surfing with characteristics similar to Buller River. However, difficulty of access was recognised as a major limitation.

The 2007 Strategy indicated that discussions with Tourism WA officers reinforced the importance of surfing and windsurfing at "Spot X" and Coronation Beach and that these sites are part of a broader, regional windsurfing trail including destinations south (Jurien) and north (Gnaraloo) of Geraldton.

8.5 HERITAGE

ABORIGINAL HERITAGE

A search was undertaken of the Department of Aboriginal Affairs Aboriginal Heritage Site Search for Registered Heritage Sites, Other Heritage Sites and Heritage Surveys throughout the study area. A number of heritage sites are located along the coast, many of which are associated with the coastal dunes and river systems. A summary is provided below.

Table 8.1 – Registered Heritage Sites

Site	Site ID	Site Type	Location
Woolawar Gully	5467 – Registered Site	Artefacts/Scatter, Skeletal Material/Burial	Woolawar Gully river mouth
Oakajee River	24414 – Registered Site	Mythological	
South Oakajee 2	15016 – Registered Site	Artefacts/Scatter	South of Oakajee River
Buller River North Reburial	4532 – Registered Site	Skeletal Material/Burial	Between Buller River and Oakajee River
Buller River North	4531 – Registered Site	Artefacts/Scatter, Skeletal Material/Burial	Between Buller River and Oakajee River
Buller River	15858 – Registered Site	Skeletal Material/Burial	North of Buller River
Buller River Area	15857 – Registered Site		North, South and including Buller River
Buller River Mouth - North	438 – Registered Site	Artefacts/Scatter, Midden/Scatter	North of Buller River
South Oakajee 1	15015 – Registered Site	Artefacts/Scatter	North of Buller River
Drummonds Cove	5465 – Registered Site	Skeletal Material/Burial	Buller River
Buller River	24415 – Registered Site	Mythological	Buller River
Oakajee Buffer Zone 01	16139 – Registered Site	Artefacts/Scatter	North of Buller River camping area

Table 8.2 – Other Heritage Sites

Site	Site ID	Site Type	Location
Coronation Beach Area	15859	N/A	Coronation Beach
Howatharra Isolated Find	32064	N/A	Coronation Beach
Oakajee River 03	4895	Artefacts/Scatter	Oakajee River
Oakajee River 05	4897	Artefacts/Scatter	Oakajee River
Deep Water Port 02	16141	Artefacts/Scatter	Oakajee River
Deep Water Port 03	16142	Artefacts/Scatter	Oakajee River

Ethnographic and archaeological surveys within the vicinity of the study area were carried out as part of the assessment made for the proposed industrial estate and some years earlier for the Mitchell Plateaux Bauxite Project. Further specific surveys of the coastal dune areas were

made in association with the Oakajee Deepwater Port Public Environmental Review. Between them, these surveys revealed two archaeological sites on Coronation Beach Road, fifteen along the fringes of the Oakajee River, one on the eastern edge of the proposed industrial estate, and an isolated find in the south-western quarter of the estate. The sites along the Oakajee River were dated to approximately 4000 years ago, with Pearce indicating that the absence of larger sites in this area probably reflected a lack of permanent water in the Oakajee River. He further surmised that the lack of water sources in the coastal dunes, near the limestone escarpment and on the Oakajee plateau were probably the main reason for a lack of sites in these areas (Koltasz Smith and Shire of Chapman Valley, 2007).

Records from the DAA online search and surveys completed in the area indicate that Drummond Cove and its environs, the Buller River and the adjacent beach, and Coronation Beach were areas Aboriginal people used for camping and fishing up to the 1950s. Burial grounds were indicated in the vicinity of the Buller River, and records at the Department of Aboriginal Affairs indicate a number of ethno-archaeological sites in the dunes between the Buller and Oakajee Rivers.

It is also noted that the study area is subject to Native Title claims. It will be necessary to consult with relevant Native Title claim groups and their representative body (YMAC) to ensure appropriate consideration is given to the rights and interests of Traditional Owners, including heritage matters.

EUROPEAN HERITAGE

A search of the State Heritage database was undertaken and one site of European Heritage value was identified within the study area. The site is Oakabella Creek (place number 17839) and is listed in the Shire of Northampton Municipal Inventory of heritage sites. A few sites were located further inland from the coast including Howatharra Lime Kilns and Stone Ruin (place number 23650) located along the Oakajee River and Oakabella Homestead & Tea Rooms (place number 03271) located along Oakabella Creek. The Oakabella Homestead is a State Registered Place and has highly significant state heritage value (category 1A).

9.0 BIBLIOGRAPHY

bibliography

AECOM Australia Pty Ltd and Batavia Regional Organisation of Councils, (2010), Climate Change Adaptation Action Plan, Batavia Regional Organisation of Councils, WA.

Brooks, K. and Brown, K., (2002),Bushland Weeds (A Practical Guide to Their Management), Environmental Weeds Action Network (Inc.), Greenwood.

Bureau of Meteorology, (2015), Climate Data Online, From http://www.bom.gov.au/climate/data/

CALM (1994). A Representative Marine Reserve System for Western Australia. Report of the Marine Parks and Reserves Selection Working Group, Department of Conservation and Land Management, June 1994.

Caring for Our Country, Weed Management Guide, Weed of National Significance, African Boxthorn.

Coffey Environments and South Coast Management Group, (2009), Southern Shores 2009-2030. A Strategy to Guide Coastal Zone Planning and Management in the South Coast Region of Western Australia, South Coast Management Group, WA.

Coffey Environments, (2009), Climate Change Adaptation: Whole of Landscape Analysis of the Impacts and Options for the South Coast Region of Western Australia, SouthCoast Natural Resources Management, WA.

Department of Agriculture and Food (DAFWA), (2013), Natural Resource Management – Shared Land Information Platform, From http://spatial.agric.wa.gov.au/slip/

Department of Environmental Protection, (2000), Bush Forever Volume 2 Directory of Bush Forever Sites, Government of Western Australia.

Department of Aboriginal Affairs, (2015), Sites Register, From website www.dia.wa.gov.au.

Department of Transport, (2010), Sea Level Change in Western Australia: Application to Coastal Planning, Department of Transport, WA.

Department of Planning, (2010), Geraldton Regional Flora and Vegetation Study, Western Australian Planning Commission, WA.

Ecological Australia, (2010), Carnaby's Black-Cockatoo Habitat Assessment for Oakajee Terrestrial Port Development, Ecological Australia and Oakajee Port and Rail, WA

Eliot I, Gozzard JR, Eliot M, Stul T and McCormack G. (2012) The Coast of the Shires of Coorow to Northampton, Mid West, Western Australia: Geology, Geomorphology and Vulnerability, WAPC, Perth, WA

.

GHD and Geraldton Port Authority, (2011), Oakajee Port Master Plan, Geraldton Port Authority, WA.

GHD, (2015), Buller Local Structure Plan, GHD, WA.

Greenskills, (2010), Coastal Management Specification Manual, South Coast Management Group and Department of Planning, WA.

Hassell and Strategen, Landcorp and Department of State Development, (2012), Oakajee Industrial Estate Structure Plan Landscape Report, Landcorp and Department of State Development, WA.

Heritage Council of Western Australia, (2015), Sites Register, From http://www.stateheritage.wa.gov.au/

Hussey, B.M.J, Keighery, G.J., Cousens, R.D., Dodd, J. and Lloyd, S.G. (1997). Western Weeds – a Guide to the Weeds of Western Australia, Plant Protection Society of Western Australia, Victoria Park, Western Australia.

Intergovernmental Panel on Climate Change (2005) Bulletin and Climate Note series.

Life Saving Victoria, (2006), National Aquatic and Recreational Signage Style Manual, Life Saving Victoria, VIC.

Mid West Ports, (2014), Shoreline Monitoring Survey – November 2014 Oakajee Area, Mid West Ports, WA.

M. P. Rogers and Associates, (2009), Coronation Beach Boat Ramp Feasibility Study – Stage 1, M. P. Rogers and Associates, WA.

M. P. Rogers and Associates, (2009), Coronation Beach Boat Ramp Feasibility Study – Stakeholders Consultation Summary, M. P. Rogers and Associates, WA.

Oakajee Port and Rail, (2011), Oakajee Deepwater Port Recreation, Fishing and Access Management Plan, Oakajee Port and Rail, WA.

Parsons Brinckerhoff Australia Pty Limited, Landcorp and Department of State Development, (2012), Oakajee Industrial Estate Structure Plan Environmental Review Report, Department of State Development and Landcorp, WA.

Pretzel S, (2015), Off-Road Vehicle Areas in the Northern Agricultural Region of Western Australia Feasibility Study a report by Trail Bike Management Australia to the Northern Agricultural Catchments Council, Northern Agricultural Catchments Council, WA.

RPS, Landcorp and Department of State Development, (2012), Oakajee Industrial Estate Structure Plan, Landcorp and Department of State Development, WA.

Shire of Chapman Valley and Koltasz Smith, (2007), Shire of Chapman Valley Coastal Management Strategy, Shire of Chapman Valley, WA.

Shire of Chapman Valley, (2013), Shire of Chapman Valley Local Planning Scheme No. 2, Shire of Chapman Valley, WA.

Shire of Chapman Valley, (n.d.), Disability Access and Inclusion Plan, Shire of Chapman Valley, WA.

Shire of Northampton, (2006), Shire of Northampton Coastal Strategy, Shire of Northampton, WA.

Shire of Northampton, (2012), Shire of Northampton Local Planning Scheme No. 10, Shire of Northampton, WA.

South Coast Natural Resource Management Group, (2009), Proceedings of the Regional Forum: Vehicles in the Coastal

Zone, South Coast Natural Resource Management Group, WA.

South Coast Natural Resource Management Group, (2010), Managing Phythophthora cinnamoni for Biodiversity Conservation in the South Coast NRM Region of Australia, South Coast Natural Resource Management Group, WA.

South Coast Management Group, (2012) South Coast Vehicle Working Group Discussion Paper, South Coast Management Group, WA.

Standing Council on Energy and Resources, (2013), Multiple Land Use Framework, Standing Council on Energy and Resources.

Stul T, Gozzard JR, Eliot IG and Eliot MJ (2014) Coastal Sediment Cells for the Northampton Region between Glenfield Beach and the Murchison River, Western Australia, Department of Transport, Fremantle.

Surf Life Saving Australia, (2007), Australian Coastal Public Safety Guidelines 1st Edition, Surf Life Saving Australia, WA.

Tourism WA, (2013), Mid West Development Commission Area Overnight Visitor Fact Sheet Years Ending December 2011/12/13, Tourism WA, WA.

Tourism WA, Brighthouse and Starfish Business Solutions, (2012), A Strategic Approach to Caravan and Camping Tourism in Western Australia, Tourism WA, WA.

Tourism WA, (2013a), Western Australia Caravan and Camping Action Plan 2013 – 2018, Tourism WA, WA.

Tourism WA, (2013b), Mid West Development Commission Area Overnight Visitor Fact Sheet Years Ending December 2011/12/13, Tourism WA, WA.

Tourism WA, (2013c), Geraldton Overnight Visitor Fact Sheet Years Ending December 2011/12/13, Tourism WA, WA.

Tourism WA, (2014), Tourism Planning Guidelines, A Guide to Preparing the Tourism Component of a Local Planning Strategy in Western Australia, Tourism WA and Department of Planning, WA.

Western Australian Planning Commission, (2002), Review of the Structural Arrangements for Coastal Planning and Management in Western Australia for Public Comment, Western Australian Planning Commission, Perth.

Western Australian Planning Commission, (2003a), Coastal Planning and Management Manual, Western Australian Planning Commission, Perth.

Western Australian Planning Commission, (2007), Visual Landscape Planning in WA: A Manual for Evaluation, Assessment, Siting and Design, Western Australian Planning Commission, Perth.

Western Australian Planning Commission, (2010), Sea Level Change in Western Australia – Application to Coastal Planning, WAPC, WA.

Western Australian Planning Commission, (2013), State Planning Policy Guidelines, Western Australian Planning Commission, WA.

Western Australian Government, (2013), State Planning Policy No. 2.6 State Coastal Planning Policy, Western Australian Government

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