

ENVISION²⁰₂₉

SHIRE OF DANDARAGAN

LOCAL PLANNING STRATEGY





Endorsed by the Western Australian Planning Commission

14th September 2020

Disclaimer

This is a copy of the Local Planning Strategy at the date of endorsement produced from an electronic version of the Strategy held by the Department of Planning, Lands and Heritage. Whilst all care has been taken to accurately portray the current Strategy provisions, no responsibility shall be taken for any omissions or errors in this documentation.

Consultation with the respective Local Government Authority should be made to view a current legal version of the Strategy.

Please advise the Department of Planning, Lands and Heritage of any errors or omissions in this document.

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PART 1 - THE STRATEGY



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EXECUTIVE SUMMARY

The purpose of this Local Planning Strategy is to outline a 10 to 15 year planning direction for the whole of the Shire of Dandaragan in the context of the State of Western Australia's land use planning framework.

This Local Planning Strategy provides the rationale for zoning and planning provisions for amendments to, or a comprehensive review of, Local Planning Scheme No. 7 in accordance with the provisions of the Planning and Development Act 2005 and the Planning and Development (Local Planning Schemes) Regulations 2015.

The Shire adopted the Rural Land Use and Rural Settlement Local Planning Strategy in 2012 which addressed the growth of the inland areas of the Shire of Dandaragan (including the rural towns of Dandaragan, Badgingarra and the smaller settlements) and rural living demand and settlement particularly in proximity to Jurien Bay and Cervantes. The Strategy did not cover the coastal precinct from North Head to Cervantes and the Jurien Bay townsite.

The Shire also adopted the following interrelated documents in 2012:

- Jurien Bay Growth Plan;
- Jurien Bay City Centre Strategy Plan;
- Cervantes Town Centre Future Land Use Plan; and
- Local Tourism Planning Strategy.

This Local Planning Strategy draws together the planning framework for the whole Shire by considering the coastal settlement area and incorporating the substance of the Rural Land Use and Rural Settlement Strategy into a single document. As such, the Local Planning Strategy - Rural Land Use and Rural Settlement (2012) will be revoked when this Local Planning Strategy is adopted.

The Jurien Bay City Centre Strategy Plan (2012) will be retained as a separate document to guide ongoing development of the City Centre area. The planning elements of the Jurien Bay Growth Plan (2012) have been incorporated into this Local Planning Strategy, noting that the purpose of the Growth Plan was to provide an integrated approach to facilitate the development of Jurien Bay as a regional centre with a population of 20,000+.

Given the time that has elapsed since the preparation and publication of the documents listed above, it is also timely to identify how new and emerging trends may be impacting on land use requirements across the Shire and determine contemporary strategies and actions to respond to any future challenges. This Local Planning Strategy comprises strategies and related actions for the whole of the Shire of Dandaragan including the Jurien Bay, Cervantes, Dandaragan, and Badgingarra townsites.

This Local Planning Strategy is to be applied for planning decision making by Council and the Western Australian Planning Commission. This Local Planning Strategy will be utilised in guiding amendments to Local Planning Scheme No.7 or preparation of a new local planning scheme and in the assessment of structure plans, subdivision applications and development proposals.

1. INTRODUCTION

1.1 Requirement for a local planning strategy

Regulation 11 of the Planning and Development (Local Planning Schemes) Regulations 2015 (Regulations) requires a local government to prepare a local planning strategy for land within its administrative area. The purpose of a local planning strategy is to:

- (a) set out the long-term planning directions for the local government;
- (b) apply State and regional planning policies; and
- (c) provide the rationale for the zones and other provisions of the local planning scheme.

This Local Planning Strategy (Strategy) outlines the Shire of Dandaragan's (Shire) development vision for its whole municipal area (see Figure 1). A local planning strategy for the inland areas of the Shire, Local Planning Strategy - Rural Land Use and Rural Settlement (Inland Strategy), was approved by the Shire and endorsed by the Western Australian Planning Commission (WAPC) in 2012. When the Inland Strategy was approved, the WAPC reaffirmed the need to prepare a single consolidated local planning strategy for the whole Shire.

This Strategy has been prepared in response to the WAPC's requirement for a consolidated local planning strategy covering the whole Shire municipal area and to guide land use planning in the Shire over the next ten to fifteen years for the benefit of current and future generations. The vision and strategies reflected in the Inland Strategy are incorporated into this Strategy, as relevant. The Inland Strategy will be revoked once this Strategy is endorsed by the WAPC.

1.2 Role and purpose of a local planning strategy

Statutory planning in the Shire is controlled by Local Planning Scheme No.7 (Scheme), which was gazetted on 24th October 2006. The Scheme is the primary means by which the Shire can ensure that new development contributes towards fulfilling the aims of this Strategy, therefore, this Strategy provides the rationale for land use and development controls in Local Planning Scheme No.7.

Given that the Scheme is more than a decade old, this Strategy will provide direction for amendments to the Scheme or for the review and preparation of a new local planning scheme to ensure that Scheme provisions are contemporary and reflect changes to policy and social and economic circumstances.

This Strategy is:

- a public document which provides the opportunity for the community and government agencies to have input into the Shire's strategic planning;
- a plan that provides strategies for the future zoning of land for various land uses and guidance for the future subdivision and development of land; and
- a dynamic document that can be amended in response to changes in policy and factors influencing the Shire's growth and development.

This Strategy comprises two parts:

Part One - Strategy: Part 1 sets the vision and objectives for the Shire, and provides longer term strategic directions and actions for the Shire's settlements, economy, land use and development, environment and natural resources, Native Title, and cultural and historic heritage.

Part Two - Background Information and Analysis: Part 2 includes a comprehensive profile of the Shire, analysis of data and examination related to the key planning issues outlined in Part 1. Background research and analysis undertaken as part of preparing Part 2 highlighted the following key land use planning issues for investigation:

1. settlement planning.
2. population and demographic trends.
3. economic environment: employment, markets and industry relating to agriculture, tourism, renewable energy, and mining/basic raw materials.
4. land use for development (residential, aged care, commercial/retail, industrial, tourism); townsite consolidation; rural living and rural land.
5. provision of social and physical infrastructure including recreational and community facilities, utility infrastructure and transport infrastructure, including expansion of the airport.
6. physical environment including natural resources, protection and use of groundwater and surface water, coastal processes, biodiversity, landscape protection and bushfire risk.
7. Native title and cultural/historic heritage.

The Local Planning Strategy Maps are a spatial representation of the Shire's strategic directions and actions (as presented in Part 1 of this document). Figure 1 is the Context Plan highlighting key information relating to the Shire's environment, land use, and settlement pattern. Figure 2 is the Strategy Plan which sets out the strategic direction for the whole Shire and shows current and future land use, with more detail for specific settlements on the following figures:

- Figure 3 - Coastal Settlement and Hinterland Strategy Plan.
- Figure 4 - Dandaragan Townsite and surrounds Strategy Plan.
- Figure 5 - Badgingarra Townsite and surrounds Strategy Plan.

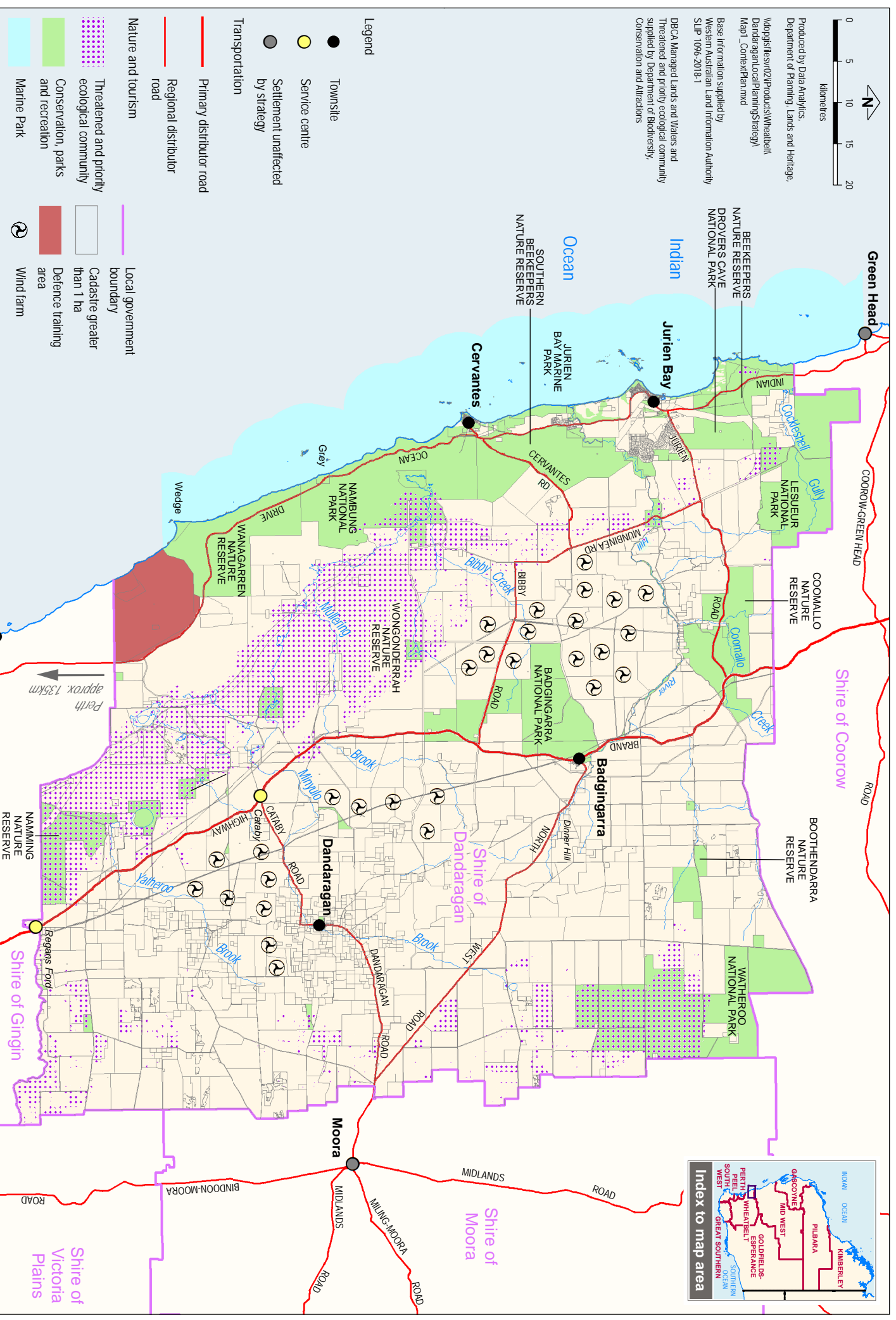
1.3 Planning context

Local Planning Strategies are required to be prepared within the framework set by State and regional policies. They interpret State and regional policies in terms appropriate to the local government area and explain how decision making at the local level will interact with established planning frameworks and objectives.

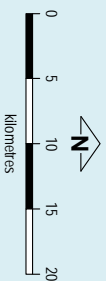
There are a number of State and regional planning policies that are relevant to the Shire. Details of these policies including an explanation of the implications of these policies for future planning and development within the Shire are provided in Part Two of this document.



Shire of Dandaragan Local Planning Strategy



Shire of Dandaragan Context Plan



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DandaraganLocalPlanningStrategy\Map2_StrategyPlan.mxd

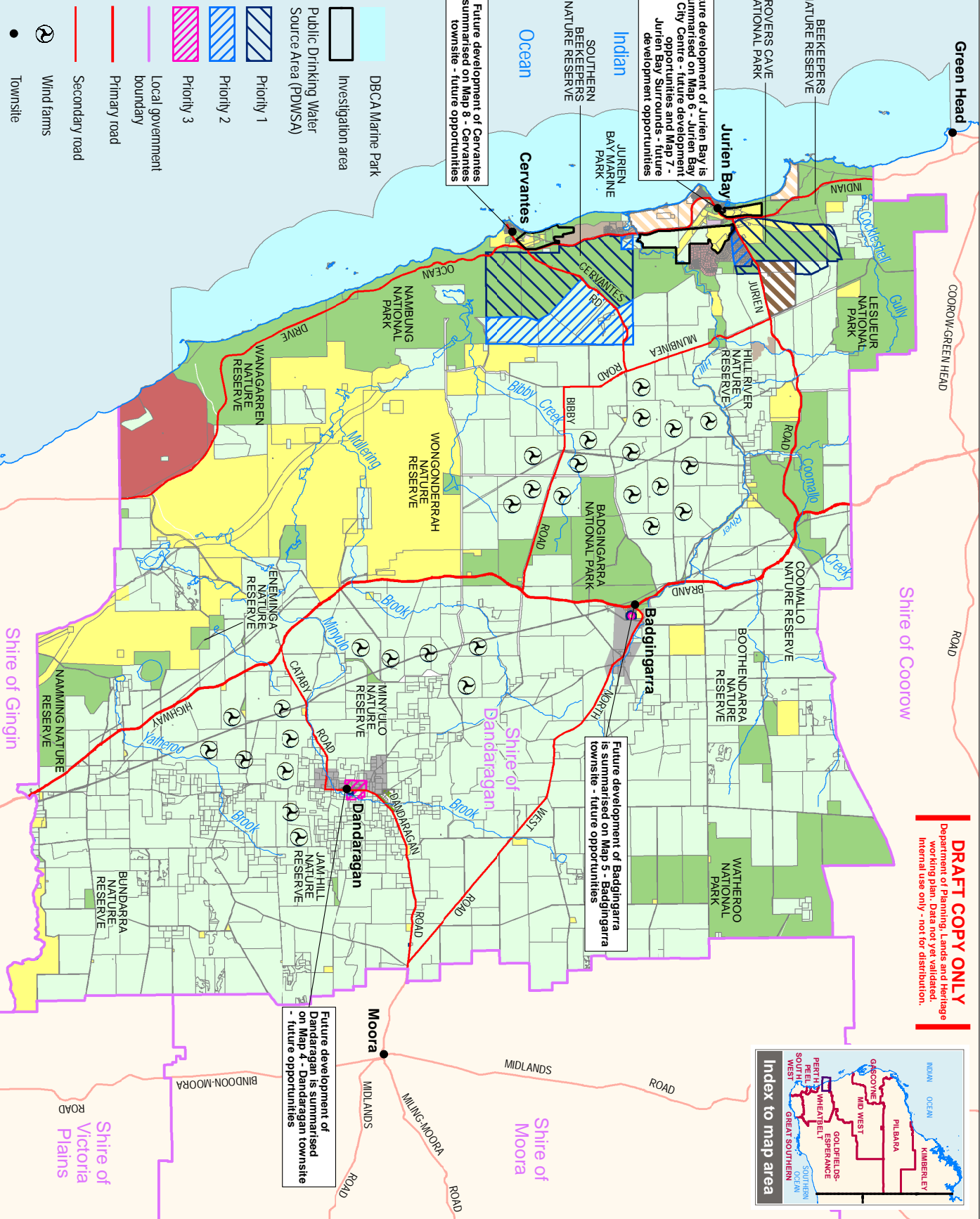
Base information supplied by
Western Australian Land Information Authority
SLIP 1096-2018-1

Marine Park data supplied by Department of
Biodiversity, Conservation and Attractions
Public Drinking Water Source Area (PDWSA)
data supplied by Department of Water

Legend

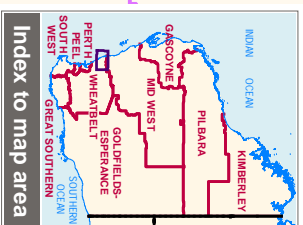
- Conservation park and recreation
- Defence training area
- Residential
- Future rezoning and subdivision area
- Special development
- Industrial
- Rural
- Rural residential
- Future rural residential
- Future rural living
- Commercial
- Public purposes
- Regional centre
- Harbour/marine services
- Special use
- Tourist

- DBCA Marine Park
- Investigation area
- Public Drinking Water Source Area (PDWSA)
- Priority 1
- Priority 2
- Priority 3
- Local government boundary
- Primary road
- Secondary road
- Wind farms
- Townsite



Shire of Coorow

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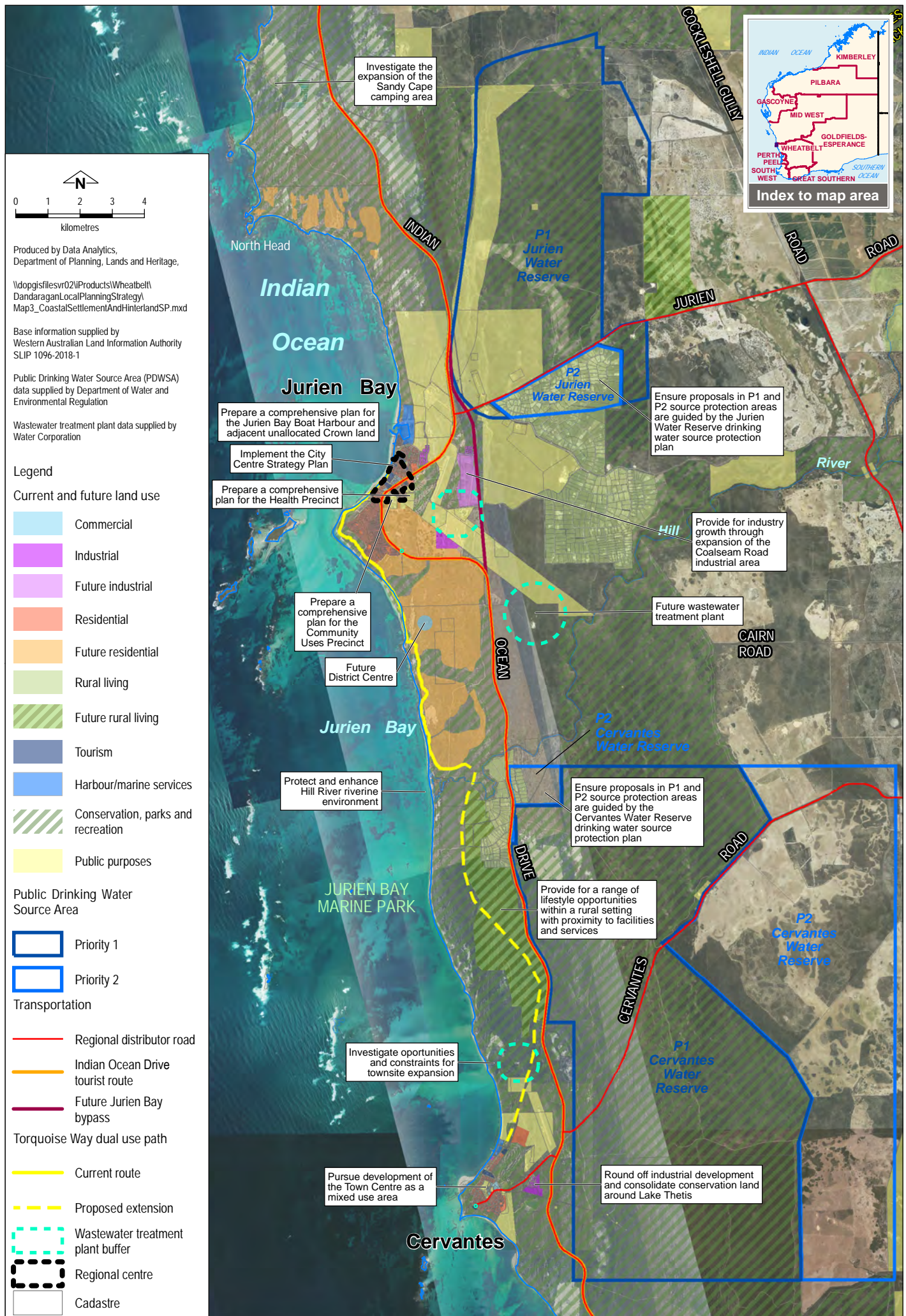


Future development of Dandaragan is summarised on Map 4 - Dandaragan townsite - future opportunities

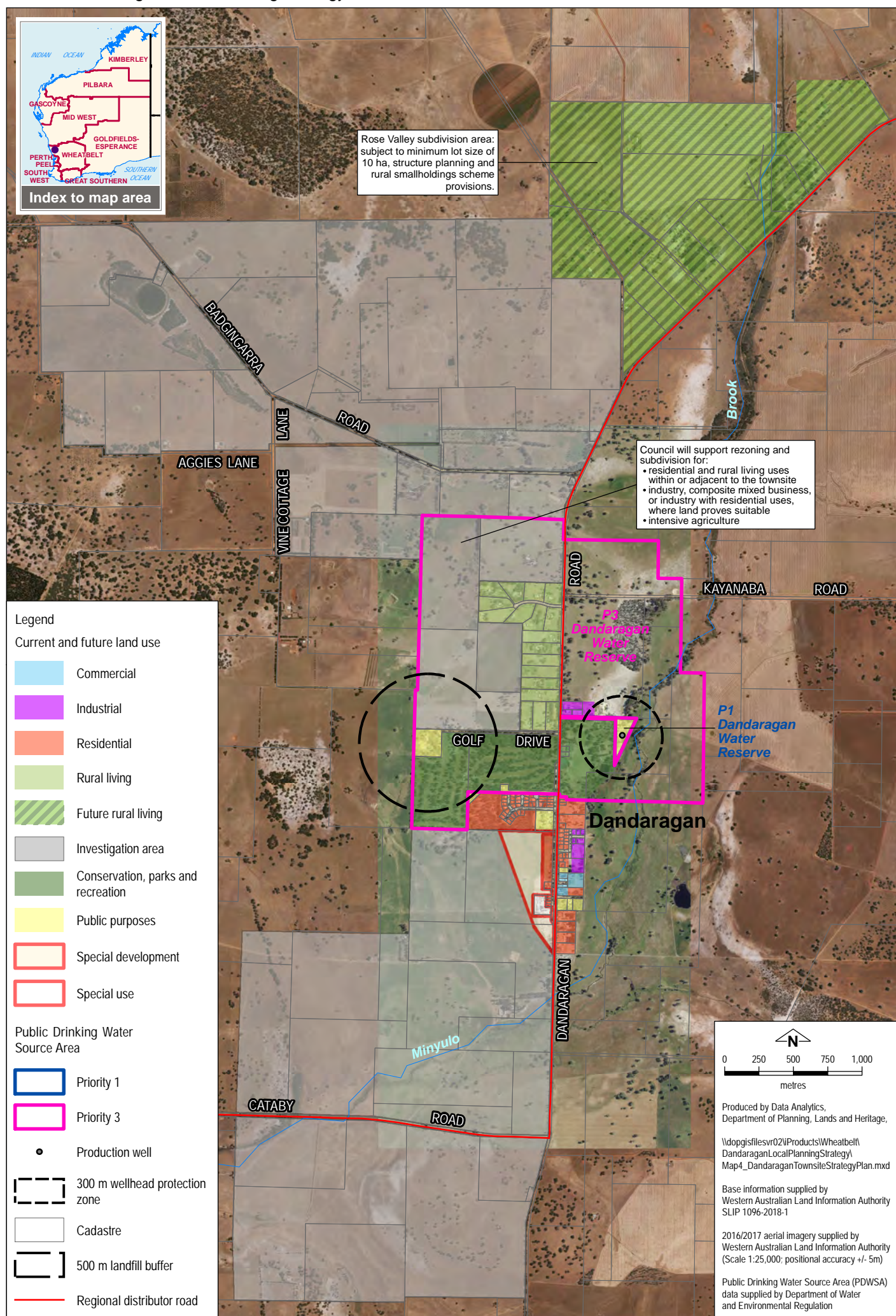
Future development of Badgingarra is summarised on Map 5 - Badgingarra townsite - future opportunities

Future development of Cervantes is summarised on Map 8 - Cervantes townsite - future opportunities

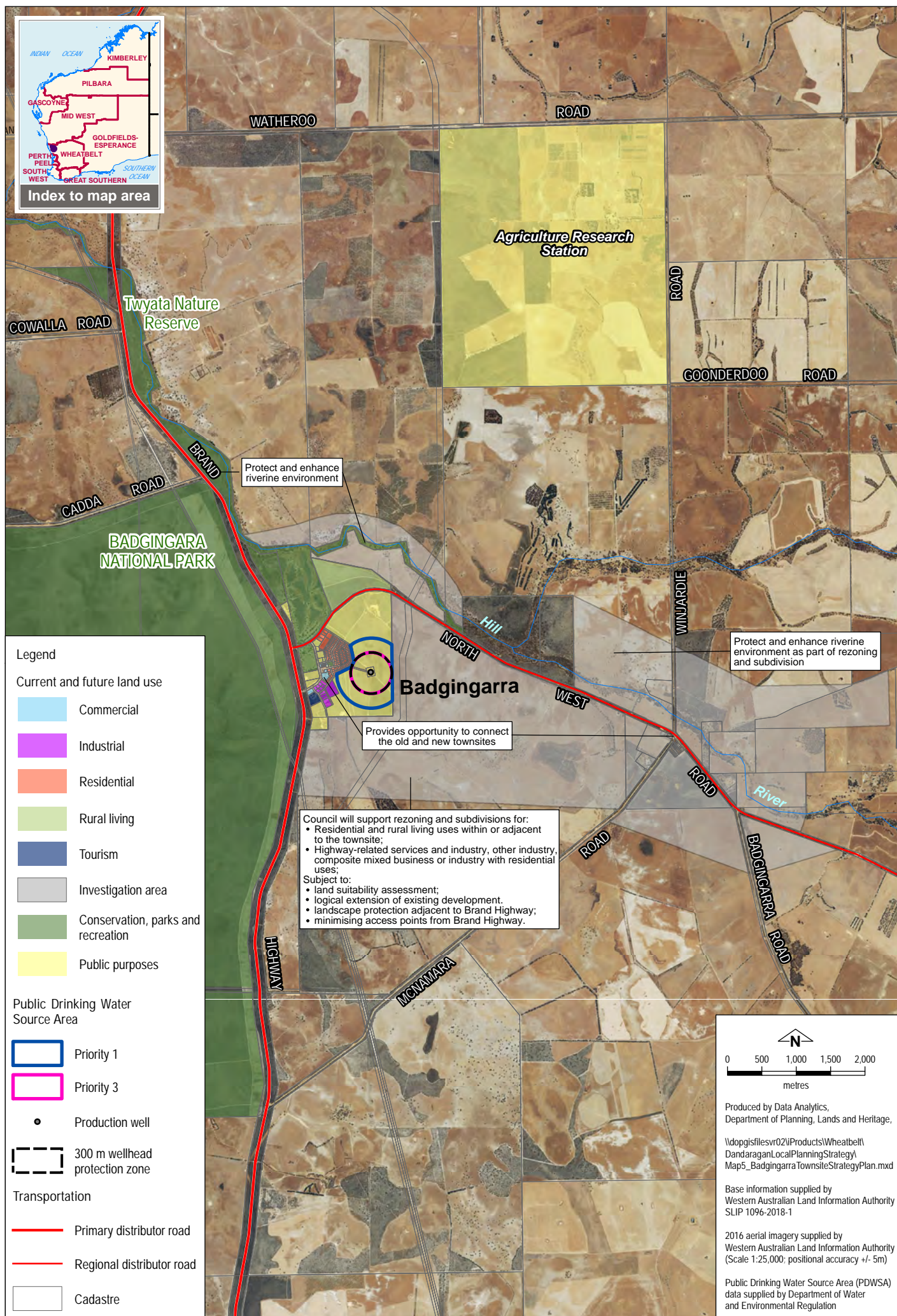
Future development of Jurien Bay is summarised on Map 6 - Jurien Bay City Centre - future development opportunities and Map 7 - Jurien Bay Surrounds - future development opportunities



Coastal Settlement and Hinterland Strategy Plan



Dandaragan Strategy Plan



Badgingarra Strategy Plan

2. VISION AND GOALS

The Shire's Strategic Community Plan 2019 - 2029 (SCP) is the fundamental community development document for the Shire, detailing a vision for the future that encapsulates community input. The SCP articulates the following vision for the Shire:

A dynamic, diverse and desirable region delivering sustainable growth and socially connected communities.

To support the vision, the SCP identifies the following aspirations:

1. Infrastructure

The Shire will sustain a dynamic infrastructure network responsive to usage demand that attracts and retains residents and businesses.

2. Prosperity

The Shire will experience broad economic and population growth with decreasing economic barriers, diversified agriculture and fisheries output and a vibrant visitor economy.

3. Environment

The Shire will be a responsible custodian of the environment, working with community groups and other entities to increase renewable energy initiatives, vegetation cover and rehabilitate degraded public land throughout the local region.

4. Community

The Shire's resident population will grow more than the WA regional average supported by increased community recreation and cultural opportunities and access to key livability factors such as health and wellbeing services and educational opportunities.

The vision, goals and strategies published in the SCP reflect detailed engagement with a wide range of stakeholders including the community.

The vision and goals of this Strategy are drawn from the SCP and align with the directions of the SCP.



3. KEY ISSUES

The key land use and planning issues provide the background and context for the formulation of strategies that will guide land use change and development in the Shire over the next ten to fifteen years. Some of the key issues are highlighted below and a more comprehensive assessment of the key issues can be found in Part Two of this document.

Issue 1: Settlement pattern

At present, Jurien Bay supports a significant amount (55%) of the Shire's population and the economic activities that occur within the townsite and surrounding hinterlands through the provision of goods and services. The town provides local government administrative functions and a range of social infrastructure and services, including local recreation, health services, and secondary education. The Shire aspires that the town's functions will be more reflective of a regional centre supporting a population of 20,000+ people, with this likely to be achieved in the longer term.

There is a desire to retain the distinct, village feel of Cervantes, while recognising its physical and service links with Jurien Bay. Cervantes, Dandaragan and Badgingarra offer a level of service that generally meets the daily needs of their service populations. The towns of Badgingarra and Dandaragan will continue to support the agricultural sectors in the inland areas with limited growth anticipated. Rural living development will be located adjacent to the existing towns with access to their services, facilities and amenities.

Regans Ford and Cataby function as highway service centres that support the needs of traffic using the major arterial roads (e.g. Brand Highway) that traverse the Shire and surrounding rural based communities.

Issue 2: Population trends

In 2018, the Shire's Estimated Resident Population was 3,259 residents. Approximately 55% of the resident population lives in Jurien Bay. Inland settlements are less populated by comparison.

According to WAPC forecasts, population in 2031 is expected to range from 2,890 (least optimistic scenario) to 4,560 residents (most optimistic scenario). An aspirational population target of 20,000+ for Jurien Bay was previously identified but this is expected to occur in the longer term. The population of coastal settlements, particularly Jurien Bay and Cervantes, increase significantly during holiday periods and this influx places greater demands on local businesses and existing infrastructure capacity.

Compared to the State's average, the Shire has a lower proportion of persons aged 15-24 and a higher proportion of persons aged 55 and older. This trend will have implications for future demand/supply of housing and services in the Shire's settlements.

According to ABS data, 92% of the Shire's dwelling stock is classified as a separate house. This may need to be addressed to cater for the older population who typically demand smaller dwellings. According to the 2016 Census, 48% of dwellings within in the Shire's major settlements were vacant on Census night in 2016 reflecting the trend of lock-and-leave dwellings during non- peak times.

Most of the Shire's labour force is employed in agriculture, forestry and fishing (27%) followed by government services (17.7%), construction (8.7%) and accommodation and food services

(7.9%). Generally, the pattern of employment is seasonal resulting in peaks of, and troughs in, respect to employment opportunities. This is typical of the agricultural and tourism sectors where businesses do not employ the same number of workers year-round. The Shire's unemployment rate of 3% is lower than the unemployment rate for Western Australia (6.2%) and the Wheatbelt region (3.5%).

Issue 3: Economy

It is anticipated that the Shire's economy will continue to be closely linked to primary production particularly broad-scale agriculture. As approaches to farming change, however, there is potential for more intense forms of agriculture (such as horticulture or agroforestry). Land use planning will play a key role in facilitating these opportunities.

According to Tourism Research Australia, the Shire's tourism industry was worth approximately

\$85m in 2017. Tourism opportunities occur in the marine environment, along coastal areas and in the hinterland (i.e. national parks, reserves, and landscape areas). At present, most visitors stay in camping grounds or caravan parks but capitalising on opportunities for higher quality/branded short-stay accommodation in Jurien Bay and Cervantes require further investigation.

Mineral sands are a key resource in the region and there are operating mines extracting and exporting this commodity. Further exploration to identify higher grade deposits of various commodities will be required if this sector is to grow in terms of output and employment opportunities. Access to basic raw materials, which are a key component of building and construction, needs to be protected from incompatible land uses.

Renewable energy production in the Central Coast Sub-region (including the Shire of Dandaragan) continues to be an industry with considerable potential based on conducive environmental characteristics (such as consistent sunlight and coastal winds). The proximity of the Shire to the Perth Metropolitan Region means there may be a captive market for additional energy capacity produced in the Shire.

Issue 4: Land use

The Jurien Bay Growth Plan analysed the impacts of potential growth drivers for the Shire's settlements, including the potential for Jurien Bay's population to exceed 20,000+ residents. Scenarios developed as part of the Jurien Bay Growth Plan considered:

- future land requirements for a range of land uses (including: residential, rural, rural living, tourism, commercial/retail, and industrial).
- constraints (such as: environment, bushfire, and Aboriginal and historic heritage).
- strategic land use planning (such as: strategic land use plans, district/local structure plans).
- land use planning (such as: zoning, density, design).
- servicing capacity (current and future) for utility, community and movement infrastructure.

The WAPC's Dandaragan Regional Land Supply Assessment reviewed and updated data presented in the Jurien Bay Growth Plan to assess future land and infrastructure requirements for a wide range of land uses, including residential, rural living, rural, tourism, industrial and commercial activities.

Residential

According to the WAPC's 2019 Dandaragan Regional Land Supply Assessment, there was approximately 250 hectares of land zoned Residential and 2,670 hectares of land zoned Special Development to facilitate various forms of development within and adjacent to the Shire's settlements of Jurien Bay, Cervantes, Dandaragan and Badgingarra. As of December 2017, approximately 680 lots zoned Residential were identified as vacant – this accounts for 27% of the total stock of existing residential lots in the Shire. When this is assessed against anticipated population scenarios in WA Tomorrow (WAPC, 2019) there is a significant amount of land zoned for residential purposes to meet future population growth at current (and considerably higher) rates.

Historically, the Shire's settlements have attracted persons of retirement age who are making a sea change by relocating from traditional farming areas to the coastal settlements of Jurien Bay and Cervantes. More recently, however, older persons from a diverse range of destinations within WA (including the Perth Metropolitan Region and other regional areas) are also relocating to the Shire. This trend will have implications for future development and servicing within the Shire's settlements. Maximising these opportunities will need to focus on providing age-appropriate housing as well as a suitable range of health and community services.

Rural living

There is vacant or undeveloped land zoned rural residential that is subdivided, particularly in the Jurien Bay locality. Consideration of any new proposals should be guided by the extent of existing land supply, take-up and population projections. Given that rural living is residential in nature, new areas should be located: adjacent to an existing townsite; have appropriate access to services, facilities and amenities; be outside extreme bushfire areas; and protect environmental and natural landscape values.

New rural living precincts should not compromise high quality agricultural land or conflict with nearby rural land uses. Modest additional demand for rural residential land near the coast is expected and can be accommodated within existing areas. Limited rural residential or rural smallholding development may be needed in areas surrounding the inland towns, to meet demand from local farmers who wish to remain in the district once retired and others seeking a rural lifestyle.

Townsite consolidation

Large areas of land, including Crown land, that lie adjacent to Jurien Bay and Cervantes provide opportunities for consolidation or expansion of the townsites.

Commercial (retail) and industrial activities

Commercial (retail) activities within each of the Shire's settlements reflect specific functions and are linked to population size and economic activities. As outlined in the Jurien Bay Growth Plan, future expansion of commercial functions within settlements may be required to provide a wider range of services.

Industrial activities within each of the Shire's settlements generally support surrounding land uses. There are areas identified for industrial development in each of the Shire's settlements. Expansion of these areas is likely to be driven by economic opportunities in a range of sectors that require access to this type of land. Areas to accommodate future industrial activities have been identified in Jurien Bay, Cervantes, Dandaragan, and Badgingarra. Planning for these areas must also ensure suitable interface areas are defined so that encroachment and possible health impacts and amenity concerns are minimised.

Tourism

Tourism is a significant contributor to the economy therefore it will be necessary to ensure a sufficient supply of land and infrastructure to support growth in this sector. Protection of existing caravan and camping sites is important alongside identification of new sites to ensure this popular form of tourism accommodation remains a viable voice for consumers. At present, the Scheme provides only a small number of tourism land uses, minimal guidance on assessing tourism proposals, does not adequately protect tourism sites through zoning, and does not provide direction regarding site requirements that place limitations on length of occupancy or restrictions on the residential component within tourism developments.

Wedge and Grey

Wedge and Grey are coastal locations used for recreation purposes. The shacks have been developed since the late 1950s using a variety of materials and styles and without approval. Originating as holiday shacks for inland farming communities, there are now over 300 squatter shacks at Wedge and over 100 squatter shacks at Grey.

The shack sites are located on Crown Reserves 43283 (Wedge) and 43284 (Grey) and are approximately 213 hectares and 172 hectares respectively. Wedge and Grey are managed by the Department of Biodiversity, Conservation and Attractions and who are working with shack associations and other key stakeholders to focus on practical solutions essential to achieving positive human health, safety and environmental outcomes at Wedge and Grey.

Rural

Agricultural activity remains the principal economic activity in the Shire. There is a desire to introduce greater flexibility into the Rural zone so that a wide range of land uses associated with primary production and intensified rural uses, such as food production and/or manufacturing, can be accommodated. The availability of groundwater in conjunction with high quality agricultural land may provide opportunities to support food production and manufacturing in localities with existing services and good transport connections to the Perth Metropolitan Area. In addition, issues relating to boundary realignments to promote better farming efficiencies and the creation of homestead lots to accommodate retiring farmers need to be addressed.

Issue 5: Social and physical infrastructure

Water supply

The Water Corporation provides potable water from the Jurien Wellfield to the licensed area of the Jurien Bay townsite, referred to as the Jurien Bay Town Water Supply Scheme (JBTWSS). Capacity of the JBTWSS has been increased incrementally to cater for demand. Meeting the demand caused by significant population growth in line with the Jurien Bay Growth Plan will require significant capacity upgrades.

The town water supply scheme for Cervantes consists of production bores approximately 4km east of the town. Water Corporation has identified plans for progressive augmentation and expansion of the Cervantes water supply.

The town water supply for Dandaragan is obtained from a Water Corporation wellfield located to the east of the town. The town water supply for Badgingarra is obtained from a Water Corporation

production bore located to the south east of the town. In both Dandaragan and Badgingarra water supply is considered adequate for the foreseeable future.

Water supply to the existing rural living estates will continue to be guided by State Planning Policy 2.5.

Wastewater

The provision of reticulated sewerage in the towns is limited. Currently, approximately 50% of Jurien Bay and 30% of Cervantes is deep-sewered. There is no reticulated sewerage in the other settlements. This is likely to be a significant constraint to achieving development scenarios such as those published in the Jurien Bay Growth Plan. There are Public Drinking Water Source Protection sewerage sensitive areas in the Shire's settlements that will influence supply strategies.

Approximately 50% of lots in Jurien Bay and 70% of lots in Cervantes are not currently connected to reticulated sewerage. This is likely to have an impact on future growth so a staged plan to provide sewerage services is required for both towns.

Power

Western Power's South West Interconnected System (SWIS) is the primary electricity grid supplying the Shire with the Shire falling within the coastal district area of the Country North Region. Energy production within the SWIS derives predominantly from black coal, natural gas and oil. Significant population growth, such as any scenario where population of Jurien Bay exceeds 20,000 residents, will have implications for the current 33kV distribution network which would need to be updated to 132kV. Opportunities for the renewable energy sector to provide electricity to intensified agricultural activities may also have some capacity for servicing the Shire's settlements.

Waste management

Waste management operations will need to evolve in line with settlement growth. A Waste Management Program should be developed that identifies how the Shire is going to dispose of increased waste, including: measures to minimise waste production; recycling and (where possible) reuse of waste.

Telecommunications

Upgrades to the telecommunications networks are needed to improve mobile telephone and emergency services and to address service black spot areas. The National Broadband Network rollout is underway in Jurien Bay and Cervantes.

Community infrastructure/services

Most of the Shire's community infrastructure is located within Jurien Bay but other settlements also provide services in accordance with specific functions. Community infrastructure requirements will be shaped by population change, particularly emerging changes in age profile (more persons aged over 65) which are likely to require specific responses. As with utility services, large fluctuations in (service) population at certain times of the year can place pressure on community services. Providing the right services will require ongoing monitoring by service providers (including the Shire). An area for a community services/health precinct was identified in the Jurien Bay Growth Plan, but this precinct was driven by expectations of significantly greater growth than has occurred to date.

Transport infrastructure

The capacity, safety and efficiency of key transportation routes, such as Brand Highway and Indian Ocean Drive, will be monitored to determine when upgrades are required. Main Roads WA has identified possible future strategies to maintain and improve the safety and efficiency of the State road network in the Shire. The Shire will continue to address capacity issues on its local road network. There is currently insufficient demand for a public bus network in the Shire.

In April 2020, the Shire's released an Airport Masterplan. The plan concludes that the capacity of the existing Jurien Bay Airport can be augmented by implementing various working, such as providing an additional runway, to ensure the facility can be operational in to the medium term. Investigations to identify, plan for and reserve a suitable alternative site for a future airport facility may be progressed by the Shire and other stakeholders.

The Shire's coastal path network facilitates recreation/leisure for resident and visitors. There plans to extend these paths to provide greater connections between settlements.

The Jurien Bay Boat Harbour is currently underutilised, but the facility has the potential to support future growth and diversification of the fishing and tourism industries.

Issue 6: Physical environment

Biodiversity

The Shire is located within the Mount Lesueur-Eneabba region and the Lesueur area has been identified as a biodiversity hotspot, reflecting the diversity and uniqueness of the flora, as well as the threats to its continued existence. The challenge for the future will be to manage important biodiversity assets when changes to current land use and development are proposed so that risks to rare and priority species are minimised and locally significant species are protected.

Landscape protection

The landscape in the western portion of the Shire is significant at a State level for a combination of reasons, including: its open character, with its low dunes carpeted in low-growing heath, providing extensive views across pristine-appearing landscapes; the occasional elevated flat-topped hills; the great diversity of plant species which provides an exceptionally colourful display in spring, bringing visitors from around the world; the large, white, mobile dunes near the coast; and ocean vistas that include surf breaking over reefs. The general lack of development visible from major travel routes is unusual, given the Shire's proximity to the Perth Metropolitan area. The key issue in relation to landscapes is to maintain its valued characteristics as the Shire continues to develop.

Coastal processes

Offshore reefs, which run parallel to much of the Shire's coastline, create a diverse marine environment while also providing shelter for the primarily sandy coast. However, several sections of the shoreline are already vulnerable to climate and sea level change. Some parts of the coastline that are earmarked for future development are highly susceptible to longer term change. Mitigation through implementation of appropriate coastal setbacks and engineering solutions will be required to protect infrastructure and/or residential/tourism development. The Shire has undertaken comprehensive Coastal Hazard Risk Management and Adaptation Planning (CHRMAP) to identify management and adaption strategies to address these issues.

Protection of ground and surface water

There are two proclaimed groundwater areas within the Shire - the Jurien Groundwater Area and the Gingin Groundwater Area. The protection and sustainable use of these groundwater areas is critical for supporting the growth of Jurien Bay as a regional centre and for attracting new agricultural industries that require significant water allocations but have been displaced from locations closer to the Perth Metropolitan area. Given the limited and declining rainfall throughout the Shire, use of groundwater needs to be balanced across a range of land uses. The protection of the Hill River resource and associated riverine environment is particularly important so land use impacts must be managed in this area.

Bushfire risk

Vegetated areas of the Shire are vulnerable to bushfires. There are also risks associated with the drying climate and settlement expansion. Understanding and managing bushfire risk will be a crucial aspect of future land use planning. There is, however, a need to find a balance between managing bush risk and those aspects of the natural environment that are drawcards to visitors, economic drivers and settlement.

Issue 7: Native title and cultural/historic heritage

A key objective of this Strategy is to recognise and encourage the protection of places of cultural and historical value. It is important to ensure the Scheme is responsive to cultural heritage matters and is flexible to encourage utilisation and revitalisation of historic heritage places.

Aboriginal heritage

The Aboriginal Heritage Act 1972 provides for the identification and protection of Aboriginal sites throughout Western Australia. There are approximately 15 registered sites in the Shire. Land use planning has a role in ensuring these sites are protected.

Historic heritage

The Shire's municipal inventory identifies 61 sites and there are a further 10 sites identified by the National Trust within the Shire. Historical heritage reflects the Shire's ties to the agriculture sector, and the role of its coastal settlements in the development of the Wheatbelt region. Land use planning has a role in ensuring these sites are protected.

Native title

The South West Native Title Settlement is the most comprehensive Native Title agreement negotiated in Australian history. Work is currently underway to identify Crown land for possible inclusion into the Noongar Land Estate for a range of purposes, including development. Following finalisation of the South West Native Title Settlement, it will be imperative to include the Yued Noongar people as the custodians of the land in future planning in the Shire.

4. PLANNING DIRECTION AND ACTIONS

The long-term strategic directions and actions, which have been defined to achieve the vision and goals of this Strategy, are based on the investigations and analyses that form Part Two of this Strategy. Some strategies provide direction for land use change, while others indicate future modification to the Scheme, changes that may be required to the Shire's policy position or that further information or assessment of an issue is required.

A reference to the relevant section in the Part Two is provided for each action. Some strategies/actions may relate to more than one issue or locality and may, therefore, be reflected more than once in this section.

4.1 Settlement Planning

The settlement hierarchy is illustrated in Figure 2.

STRATEGIC DIRECTIONS	
General	
1.	Promote and support urban growth and infill in a manner that concentrates settlement and growth in and around the four existing townsites, the rural hinterland and rural areas.
2.	Maximise utilisation of existing community facilities and utility infrastructure through urban consolidation.
3.	Minimise conflict between urban growth and rural land use through the establishment of sufficient buffers.
4.	Encourage urban consolidation within the Shire's settlements where appropriate to provide greater choice of lot size and maximisation of infrastructure.
5.	Plan for aged care and a range of suitable accommodation in response to demographic trends and recognise the role it plays in employment growth.
Jurien Bay	
6.	Recognise Jurien Bay as the regional centre providing services and facilities to serve the wider regional community.
7.	Plan for an aspirational population of 20,000+.
8.	Acknowledge that there are sufficient vacant lots and land zoned for residential land use to satisfy demand beyond 15 years.
9.	Provide a diversity of housing in response to demographic trends.
10.	Consolidate urban areas and support mixed use sites.
11.	Increase employment opportunities based on the competitive opportunities identified for the Shire, particularly in the tourism sector.
Cervantes	
12.	Recognise the role of Cervantes as a small coastal town with a distinct character and a focus on tourism.
13.	Recognise the complementary relationship between Cervantes and the regional centre of Jurien Bay.

14.	Concentrate development, and intensification of development, on existing zoned land.
15.	Prevent ad-hoc or fragmented development of land to provide for long term consolidation of Cervantes.
Dandaragan and Badgingarra	
16.	Retain Dandaragan and Badgingarra as rural communities providing for the needs of the rural hinterland.
17.	Provide greater land use flexibility to meet the needs of the small and diverse settlements.
18.	Recognise Badgingarra's role as a tourism and highway service centre for Brand Highway.
Highway Service Centres	
19.	Recognise Cataby and Regans Ford as highway service centres for the Brand Highway and surrounding rural based communities, with limited opportunities for residential or rural living uses.

Table 1: Actions - Settlement Planning

ACTIONS		Reference to Part 2
Jurien Bay		
1.	In response to population growth, demographic change and economic opportunity facilitate staged development of the townsite consistent with the Jurien Bay Growth Plan and the Jurien Bay City Centre Strategy Plan.	6.1.1
2.	Support staged development of identified residential expansion areas in accordance with the Turquoise Coast and North Head structure plans, subject to availability of utility infrastructure.	6.1.1
3.	Stage rezoning of land for residential purposes in accordance with market demand and an assessment of the exiting supply of zoned land and infrastructure capacity.	6.1.1
4.	Encourage the development of lots within reasonable periods of time by supporting developers offering time-based incentives.	6.1.1
5.	Increase residential densities in areas that are conducive to redevelopment in accordance with the Jurien Bay City Centre Strategy Plan and subject to infrastructure availability.	6.1.1
6.	Rezone the land adjacent to Bashford Street between Hasting Street, Seaward Drive and Aquilla Street, for mixed use or more intensive residential development, subject to infrastructure availability.	6.1.1
Cervantes		
7.	In response to population growth, demographic change and economic opportunity facilitate staged development of the townsite consistent with the Cervantes Town Centre Future Land Use Plan.	6.1.2
8.	Support proposals that are consistent with the Cervantes Town Centre Future Land Use Plan.	6.1.2
9.	Encourage the development of lots within reasonable periods of time by supporting developers offering time-based incentives.	6.1.2
10.	Pursue the finalisation of land exchanges between the Shire and the Department of Biodiversity, Conservation and Attractions around Cervantes and Hill River (including Reserve 19206), to support potential expansion of Cervantes to the north.	6.1.2

11.	Increase residential densities in areas conducive to redevelopment to provide opportunities for greater housing choice, subject to infrastructure availability.	6.1.2
Dandaragan and Badgingarra		
12.	Provide flexible land use opportunities consistent with the Strategy Plans for the Dandaragan townsite (and surrounds) (Figure 4) and Badgingarra townsite (and surrounds) (Figure 5) to meet the needs of the small diverse settlements and surrounding rural hinterland.	6.1.3 6.1.4
13.	Support opportunities for residential development within the Dandaragan and Badgingarra townsites by encouraging a more compact settlement form utilising existing infrastructure, subject to land suitability assessment; structure planning, logical extension of existing development; landscape protection adjacent to Brand Highway; and minimising access points from Brand Highway.	6.1.3 6.1.4
14.	Support the development of land in Dandaragan and Badgingarra in partnership with the State Government and land developers.	6.1.3 6.1.4
15.	Support rezoning and subdivision for residential with a commercial or industrial component within the townsite, subject to infrastructure availability.	6.8.6
Retirement and Lifestyle		
16.	Investigate opportunities for, and where appropriate, provide variations to development standards to facilitate opportunities for aged or dependent living (such as allowing dwellings to be constructed at higher densities) in the Shire's settlements.	6.2
17.	Insert identified variations relating to aged care accommodation into the Scheme for identified locations.	6.2
Highway Service Centres		
18.	Retain Regans Ford and Cataby as highway service centres for the Brand Highway and surrounding rural based communities, acknowledging that there are limited opportunities for additional residential and rural living development.	6.1.5

4.2 Rural Living

STRATEGIC DIRECTIONS		
1.	Provide for rural living opportunities in areas adjacent to existing settlements in accordance with the Strategy and that can be appropriately serviced, are compatible with near-by land use activity and which protect important biodiversity and landscape values.	
2.	Cater for limited rural living expansion at Dandaragan and Badgingarra, subject to further investigation and demonstrated demand.	
3.	Rural living lots are to be connected to a reticulated potable water supply (or a sustainable alternative) in accordance with State policy.	
4.	Commercial and manufacturing activities will not be supported on land zoned for Rural Living purposes unless specifically permitted in the Scheme.	
5.	Prevent the use of sheds in rural residential areas for unauthorised residential purposes.	

Table 2: Actions - Rural Living

ACTIONS		Reference to Part 2
1.	Assess the supply of land that is zoned and subdivided for rural living purposes in the context of uptake trends to assist with release and staging of rural living developments.	6.6
2.	Assess proposals to rezone land for either Rural Residential or Rural Smallholding in accordance with State Planning Policy 2.5 and the Rural Planning Guidelines.	6.6.1 6.6.2
3.	When assessing subdivision or development proposals for rural living activities that are in Priority 2 Public Drinking Water Source Areas, impose conditions that protect water resources in accordance with the Scheme, State Planning Policy 2.5, Development Control Policy 3.4 and the Rural Planning Guidelines.	10.5.3
4.	Minimise land use conflicts between rural living activities and rural land by providing adequate separation distances in accordance with State Planning Policy 2.5 and the Rural Planning Guidelines.	6.6.1 6.6.2
5.	Include provisions within the Scheme outlining the requirements for structure planning and matters to be considered when assessing proposals for rural living consistent with State Planning Policy 2.5 and the Rural Planning Guidelines.	6.6.3
6.	Prepare a local planning policy that provides guidance on the assessment of applications for the temporary use of sheds or onsite caravans during construction of dwellings.	6.6.5
Dandaragan and Badgingarra		
7.	Support rural living opportunities surrounding the Dandaragan and Badgingarra townsites by encouraging a more compact settlement form utilising existing infrastructure, subject to land suitability assessment; structure planning, logical extension of existing development; landscape protection adjacent to Brand Highway; and minimising access points from Brand Highway.	6.7 6.8.6
8.	Provide a variety of different lot sizes (ranging from 1-40 ha) in areas identified for rural living to permit progressive development away from the Badgingarra and Dandaragan townsites in accordance with State Planning Policy 2.5, Development Control Policy 3.4 and the Rural Planning Guidelines.	6.8.6

4.3 Commerce/Retail and Industry

STRATEGIC DIRECTIONS	
1.	Support growth of commercial activity in the Shire's settlements based on current functions and future requirements.
2.	Support staged development of land for industrial purposes in the Shire's settlements based on the current functions and future requirements.
3.	Manage potential conflicts between industrial development and surrounding sensitive land uses.

Table 3: Actions - Commercial/retail and industry

ACTIONS		Reference to Part 2
Jurien Bay		
1.	Support retail development in Jurien Bay based on the City Centre having no retail floor space limit; the Booka Valley being a district centre developed at a population threshold of approximately 10,000 residents; and all other centres being smaller scale local centres.	6.4
2.	In conjunction with the Department of Transport develop a strategic plan for the Jurien Bay Boat Harbour Precinct to capitalise on increased opportunities for tourism in the region.	6.5
3.	Provide for industry growth through the expansion of the Coalseam Road Industrial Area and ensure separation from sensitive land uses in accordance with draft State Planning Policy 4.1.	6.5
Cervantes		
4.	Support retail development as identified in the Cervantes Town Centre Future Land Use Plan.	6.4
5.	Consolidate industrial land uses within the existing Cervantes industrial area and ensure separation from sensitive land uses in accordance with (draft) State Planning Policy 4.1.	6.5
Dandaragan and Badgingarra		
6.	Within Dandaragan provide opportunities for small-scale commercial operations, mixed business, composite industry (where a residential component is included) within or adjacent to the townsite, subject to adequate servicing and maintenance of the amenity of the surrounding area.	6.7
7.	Within Badgingarra permit mixed use development adjacent to Brand Highway by combining residential and small scale commercial enterprises, particularly those associated with servicing travellers, and transport operations, subject to adequate servicing and suitable access to Brand Highway being established.	6.7
8.	Insert the land use home business into the Zoning Table in the Scheme as a discretionary use in the Residential and Rural Residential zones.	6.4
Highway Service Centres		
9.	Support expansion of the service centres at Regans Ford and Cataby, should there be an identified need.	6.4

4.4 Tourism

STRATEGIC DIRECTIONS	
1.	Plan for a range of tourism accommodation options to meet the needs of short-stay visitors.
2.	Support the retention and development of caravan parks as affordable holiday accommodation.

Table 4: Actions - Tourism

ACTIONS		Reference to Part 2
General		
1.	In consultation with State agencies and the tourism industry, monitor trends and plan for a range of accommodation forms/types in response to requirements of the tourism sector.	6.3
2.	Prepare a long-term caravan park and camping site strategy, identifying key existing and new sites, to address increasing demand in Jurien Bay, Cervantes and for nature-based locations such as Sandy Cape.	6.3
3.	Investigate the specific need for nature-based camping, including identification of specific areas with a focus on the possible expansion of the Sandy Cape Camping area and potential establishment of new areas elsewhere.	6.3
4.	Include provisions in the Scheme, in accordance with State policy and the recommendations of the Local Tourism Planning Strategy, to provide occupancy and residential unit restrictions within the Tourism zone and apply height restriction for the Tourism, Regional Centre and Commercial zones.	6.3
5.	Prepare a local planning policy for holiday homes to address issues related to management and maintaining residential amenity in residential areas within Jurien Bay and Cervantes.	6.3
6.	Work with the Department of Biodiversity, Conservation and Attractions, shack associations and other key stakeholders to focus on practical solutions essential to achieving positive human health, safety and environmental outcomes at Wedge and Grey.	6.1.6
Cervantes		
7.	Rezone Lot 861 Seville Street from Tourism zone to Special Use zone and insert additional site and development requirements into the Scheme. The predominant use should however remain for tourism land uses.	6.3
8.	Rezone the lots bounded by Madrid, Catalonia and Biscay Streets from Industrial zone and Residential R12.5 to Special Use zone or Tourism zone to recognise the tourism value of this area, based on existing uses and the ocean-front location.	6.3

4.5 Rural

STRATEGIC DIRECTIONS	
1.	Retain rural land for agricultural production and the protection of biodiversity.
2.	Support subdivision only where it provides for improved agricultural outcomes and land management, such as boundary realignments, homestead lots, environmental and landscape enhancement.
3.	Facilitate more intensive and diverse use of rural land for higher value agricultural products which are compatible with land capability attributes and surrounding farming practices, subject to availability of adequate water supply.

4.	Support non-rural uses that are compatible with, and complement, the primary use of the land.
5.	Commercial and manufacturing activities will not be supported on Rural zoned land unless specifically permitted in the Scheme.
6.	The existence of more than one dwelling on a rural property cannot be used as justification for subdivision.

Table 5: Actions - Rural

ACTIONS		Reference to Part 2
General		
1.	Work with the Department of Primary Industry and Regional Development to identify high quality agricultural land based on soil suitability, climate, water availability and access to services.	6.8
2.	Investigate the insertion of a Priority Agriculture Zone into the Scheme, consistent with the Planning and Development (Local Planning Schemes) Regulations 2015, State Planning Policy 2.5 and the Rural Planning Guidelines, to protect high quality agricultural land from competing land uses (subject to the Department of Primary Industry and Regional Development providing mapping data).	6.8
3.	Facilitate the establishment of horticulture sites on the Dandaragan Plateau and areas west of the Brand Highway, where water is available, and soils are suitable.	6.8
4.	Develop explanatory information relating to opportunities for tree farms and outline requirements for development applications and approval processes.	6.8.8
5.	Assess proposals for agriculture - intensive, animal husbandry - intensive, tree farms and aquaculture activities on Rural zoned land in accordance with State Planning Policy 2.5 and the Rural Planning Guidelines.	6.8
6.	Assess applications for the subdivision of rural land in accordance with State Planning Policy 2.5 and Development Control Policy 3.4 and where the minimum lot size would be 300 hectares or greater.	6.8.5
7.	Assess applications to realign and relocate boundaries for land parcels in accordance with State Planning Policy 2.5 and Development Control Policy 3.4.	6.8.2
8.	Assess applications for dwellings in the Rural zone on individual merit and in accordance with State Planning Policy 2.5 and Development Control Policy 3.4.	6.8.3
9.	Assess applications for workers' accommodation associated with agriculture and mining projects in the Rural zone based on individual merit and in accordance with State Planning Policy 2.5 and the Rural Planning Guidelines.	6.8.7 6.9.1
10.	Investigate the insertion of an Environmental Conservation Zone into the Scheme to assist with protecting biodiversity values consistent with the Planning and Development (Local Planning Schemes) Regulations 2015 and State Planning Policy 2.5.	6.12

11.	Develop a local planning policy that sets out the objectives for high quality agricultural land, the land uses that may be considered, minimum lot sizes and other relevant provisions.	6.8
12.	Develop a local planning policy that sets out the access and servicing requirements for rural land holdings that comprise multiple titles and have a number of single dwellings.	6.8.9
13.	Introduce appropriate clauses into the Scheme to more effectively manage intensification of land use on rural land in regard to impact on and requirement for water resources.	6.8.5
14.	Identify and manage potential land use conflicts between rural activities and basic raw materials.	6.10

4.6 Rural Enterprise

STRATEGIC DIRECTIONS		
1.	Investigate and provide opportunities to foster greater land use flexibility in rural communities particularly opportunities in areas adjacent to existing settlements that can be appropriately serviced, are compatible with near-by land use activity and which protect important biodiversity and landscape values.	

Table 6: Actions - Rural Enterprise

ACTIONS		Reference to Part 2
1.	Identify precincts for the Rural Enterprise Zone within or close to Dandaragan and Badgingarra that do not conflict with surrounding land uses or impact on remnant vegetation, landscape attributes and/or other environmental factors (as relevant).	6.7
2.	Investigate the insertion of a Rural Enterprise Zone into the Scheme, consistent with the model zone in the Planning and Development (Local Planning Schemes) Regulations 2015, State Planning Policy 2.5 and the Rural Planning Guidelines, to allow for small scale industrial uses with residential development.	6.7

4.7 Economy

STRATEGIC DIRECTIONS		
1.	Acknowledge the Shire's key economic drivers: agriculture, mining, fishing and tourism.	
2.	Investigate opportunities to establish more intensive forms of agriculture.	
3.	Support growth of the tourism sector by assisting operators to provide a range of products to cater for differing consumer experiences and expectations.	
4.	Recognise the contribution that the mining sector makes to the local economy and support ongoing exploration.	
5.	Ensure regionally and locally important basic raw materials are protected from conflicts with incompatible land uses.	
6.	Ensure industrial activities do not adversely impact on surrounding uses.	
7.	Work with industry to investigate and identify opportunities for renewable energy projects based on the Shire's competitive advantages (i.e.: coastal winds and flat terrain).	

Table 7: Actions - Economy

ACTIONS		Reference to Part 2
Agriculture		
1.	Consistent with investigations by the Department of Primary Industries and Regional Development, protect areas identified for high-priority agriculture and reduce barriers to establishing these projects.	6.8
2.	Work with stakeholders to prepare information for proponents about establishing intensive agriculture projects and facilitate these projects in consultation with State agencies and industry.	5.1 5.2
3.	Investigate potential options for a food processing cluster in the Shire if studies demonstrate there is market demand.	5.2
Tourism		
4.	Work with all levels of government and the tourism industry sector to ensure continuous improvement of tourism products and experiences within the Shire by focussing on access, accommodation, attractions, activities and amenities.	5.7
5.	Prepare a long-term caravan park and camping site strategy to address increasing demand in Jurien Bay and Cervantes.	6.3
6.	Investigate options for branded tourism developments in Jurien Bay and Cervantes.	6.3
Basic Raw Materials		
7.	Acknowledge the importance of the Shire's basic raw materials to key economic sectors, such as agriculture and construction.	5.6
8.	Prepare a local planning policy to guide assessment of proposals to extract basic raw materials.	6.10
Mining		
9.	Work with industry and State government agencies to identify and facilitate opportunities for growth of the mining sector.	5.5
10.	Where relevant, assist proponents with input into current approval processes for mining activities, including rehabilitation and mine closure plans under the Mining Act 1978 administered by the Department of Mines, Industry Regulation and Safety.	6.9
Renewable Energy		
11.	Promote opportunities for renewable energy across the Shire, based on the Shire's favourable climactic and environmental attributes and investigate how agricultural projects may benefit.	5.4

4.8 Utility Infrastructure

STRATEGIC DIRECTIONS	
1.	Provide sufficient potable water and utility infrastructure to facilitate growth in proposed development areas in and around Jurien Bay and Cervantes.
2.	Provide sufficient potable water or support the use of acceptable alternative measures in the development of rural living areas.
3.	Provide reticulated sewer or suitable alternative technologies to facilitate the growth of the settlements in the Shire.
4.	Encourage alternative energy generation to support the growth of energy intensive agricultural activities where compatible with other rural uses and character.
5.	Enhance the capacity of telecommunication networks and services to support the identified future role of the Shire's settlements.
6.	Utilise stormwater systems that are technologically sound and environmentally sustainable.
7.	Support and encourage fit for purpose technology to deliver innovative waste management and other local services.

Table 8: Actions - Utility Infrastructure

ACTIONS		Reference to Part 2
Water		
1.	Based on growth scenarios and strategic land use planning investigations, pursue provision of appropriate water capacity to facilitate growth in the Shire's settlements in consultation with stakeholders.	7.1
2.	Ensure there is adequate water capacity to service proposed subdivisions in rural living areas either by reticulated networks or fit-for-purpose options consistent with State Planning Policy 2.5 and Development Control Policy 3.4.	7.1.5
Wastewater		
3.	Based on growth scenarios and strategic land use planning investigations, pursue provision of appropriate wastewater capacity to facilitate growth in the Shire's settlements, in consultation with utility providers.	7.2.1 7.2.2
4.	Facilitate the provision of infill sewerage to the Jurien Bay City Centre and unsewered parts of Cervantes, in consultation with utility providers.	7.2.1 7.2.2
5.	In accordance with the Government Sewerage Policy, investigate and assess innovative and sustainable alternatives to reticulated sewerage in parts of Jurien Bay, Cervantes, Dandaragan and Badgingarra that are not connected to the existing sewer network.	7.2.1 7.2.2
6.	Create a Special Control Area in the Scheme for the proposed site of a new waste water treatment plant south of the Jurien Bay townsite (once confirmed through structure planning).	7.2

Energy		
7.	Based on growth scenarios and strategic land use planning investigations, pursue provision of appropriate electricity capacity to facilitate growth in the Shire's settlements in consultation with service providers.	7.3.1 7.3.2
8.	When assessing proposals for wind farms and other alternative energy infrastructure, the Shire will consider visual landscape issues and other relevant matters set out in the Western Australian Planning Commission's Position Statement on Renewable Energy Facilities.	7.3.3
Stormwater / Drainage		
9.	When assessing development proposals, the Shire will support the use of vegetated swale drains and other environmentally sensitive stormwater management systems.	7.4
Waste Management		
10.	Identify a site for a new landfill near Jurien Bay, that has sufficient capacity to handle solid waste from Cervantes in the longer-term and has the potential to accept regional waste.	7.5
Telecommunications		
11.	In consultation with network providers, seek improvement to the quality of telecommunications and technology infrastructure throughout the Shire.	7.6

4.9 Transport Infrastructure

STRATEGIC DIRECTIONS	
1.	Continue to reinforce and recognise the strategic importance of Indian Ocean Drive and Brand Highway to the Shire's economy.
2.	Manage heavy vehicle transport to minimise adverse impact on the Shire's settlements.
3.	Encourage walking and cycling by providing safe and accessible infrastructure within the Shire's settlements.
4.	Facilitate appropriate growth of the existing airport and identify new site for the Jurien Bay Regional Airport.
5.	Support the maintenance and development of aviation infrastructure across the Shire.
6.	Maximise opportunities associated with expansion of existing boating facilities or construction of new facilities.

Table 9: Actions - Transport Infrastructure

ACTIONS		Reference to Part 2
Roads		
1.	Support the intent and alignment of the Wheatbelt Limesand Route Strategy (as it impacts the Shire).	9.1
2.	Plan and maintain the Shire's local road network considering access requirements for new development and continue to work with Main Roads WA to plan and manage roads under their care and control.	9.1

Walking / Cycling		
3.	Provide infrastructure in Jurien Bay and Cervantes to encourage walking and cycling and ensure that structure planning incorporates an integrated and safe network of paths.	9.3
Aviation		
4.	Progress investigations to establish a regional airport facility to service Jurien Bay, surrounding settlements and the hinterland.	9.4
5.	Establish interface areas in the Scheme between a future regional airport and sensitive land uses in Jurien Bay based on the Australian Noise Exposure Forecast and appropriately zone affected land.	9.4
Marine Facilities		
6.	In conjunction with the Department of Transport develop a strategic plan for the Jurien Bay Boat Harbour Precinct to capitalise on increased opportunities for tourism in the region.	6.5 9.5

4.10 Community Facilities and Services

STRATEGIC DIRECTIONS		
1.	Ensure community infrastructure meets the needs of the Shire's population in coastal settlements, inland towns, and rural living precincts.	
2.	Ensure that planning for community services takes into considers emerging demographic trends, such as the Shire's older population, as this may impact upon decision making.	

Table 10: Actions - Community Facilities and Services

ACTIONS		Reference to Part 2
1.	Pursue the provision of appropriate community infrastructure to facilitate staged growth as set out in the Jurien Bay Growth Plan.	8.2
2.	Prepare a comprehensive plan to guide the future development of the Health Precinct to include a wide range of complementary uses in Jurien Bay.	8.2

4.11 Environment and Natural Resources

STRATEGIC DIRECTIONS	
1.	Protect the Shire's high land and marine biodiversity values, as assets for their own sake and for their role in underpinning a range of economic-based activities, including tourism.
2.	Protect the coast and adjoining marine areas as assets for biodiversity, recreation, tourism, residential and commercial uses.
3.	Protect the valued landscape characteristics of the Shire's natural and rural landscapes, as assets to be appreciated by residents and tourists.
4.	Maintain the quantity and quality of surface water and groundwater resources as key assets for biodiversity, economic activities and drinking water.
5.	Protect public drinking water source areas from contamination.
6.	When assessing a proposal for the approval of land use change, subdivision or development within sewerage sensitive areas consider the Government Sewerage Policy (2019)
7.	Preclude placing people and property in areas of extreme bushfire risk.
8.	Achieve balance between bushfire risk mitigation and biodiversity conservation objectives.

Table 11: Actions - Environment and Natural Resources

ACTIONS		Reference to Part 2
Biodiversity		
1.	Strengthen clauses in the Scheme to ensure that adequate information on vegetation, flora and fauna is provided to support proposals for rezoning, subdivision and development of land that have the potential to impact on biodiversity.	10.2.1
Coastal Risk		
2.	Ensure planning proposals in the coastal erosion and inundation hazard risk area, as identified in the local planning scheme, mitigate or manage risks in accordance with the Shire of Dandaragan Coastal Hazard Risk Management and Adaptation Plan and State policy.	10.3
Landscape		
3.	Create further opportunities for the public to experience landscape values by providing additional lookouts, trails, roadside pullover locations and other means.	10.4.3
4.	Ensure the location, siting and design of land use or development proposals along Indian Ocean Drive is consistent with the Indian Ocean Drive Planning Guideline (2014).	10.4.3
5.	Insert provisions into the Scheme to require approval for development, that would normally be permitted under clause 61 of the deemed provisions, within the Indian Ocean Drive Planning Guideline's area of application.	10.4.3

6.	Request assistance from the relevant agency to identify significant natural and rural landscape characteristics and views, and measures to protect these, focussing on areas that are prominently visible or accessible from main travel routes including Indian Ocean Drive, Brand Highway and other major roads connecting to coastal settlements.	10.4.3
7.	Prepare a local planning policy for Indian Ocean Drive consistent with similar policies for the four other local governments that have frontages to this road.	10.4.3
Water		
8.	Support use of groundwater (other than in the Rural zone) for commercial purposes when proposals include a groundwater use allocation and licensing strategy acceptable to the State agencies responsible for water and the environment.	10.5
9.	When assessing structure plans, subdivision proposals, development applications and building permits consider ways to minimise use of potable water.	10.5
10.	Where private unlicensed bores are proposed in new rural living estates, determine cumulative impacts on groundwater resources and, if appropriate, require on-going monitoring.	10.5
11.	Within areas proclaimed under the Rights in Water and Irrigation Act 1914, define matters to be considered when assessing a proposal for approval of land use change, subdivision and/or development consistent with relevant policies and guidelines.	10.5.3 10.6
12.	When assessing proposals for land use change, subdivision or development within sewage sensitive areas ensure compliance with the Government Sewerage Policy, 2019.	10.6
Bushfire Risk		
13.	Assess applications for rezoning, subdivision or development in bushfire prone areas in accordance with the provisions of State Planning Policy 3.7 and associated guidelines.	10.7

4.12 Native Title and Historic/Cultural Heritage

STRATEGIC DIRECTIONS		
1.	Establish a list of places and areas of cultural heritage significance in which development will be subject to assessment in terms of its impact on heritage values of the place or area.	
2.	Recognise and take into account sites of historical heritage significance in the consideration of rezoning, subdivision and development in both the urban and rural sectors.	
3.	Acknowledge the Yued Noongar people as the designated Native title holders following the determination of the South West Native Title Agreement.	

Table 12: Actions - Native Title and Historic/Cultural Heritage

ACTIONS		Reference to Part 2
1.	Review the existing Heritage List as per clause 8 of the deemed provisions of the Regulations and incorporate into the Scheme.	10.8.2
2.	Introduce provisions into the Scheme to facilitate protection of places and areas identified on the Shire's Heritage List.	10.8.2
3.	Ensure sites of cultural heritage are reflected in the Scheme and provide guidance concerning land use planning requirements for these sites.	10.8.1
4.	Acknowledge and work with the Yued Noongar people as designated Native Title holders to understand their requirements in regard to land use planning.	10.8.3

5. IMPLEMENTATION AND REVIEW

This Strategy is to be used as a guide to assist Council and the Western Australian Planning Commission in land use planning decision making by:

- acknowledging and ensuring consistency with the State's land use planning framework;
- setting out the Shire's direction for land use planning over the next 10-15 years;
- outlining assessment considerations/requirements for land use planning proposals (including: rezoning proposals, structure plans, subdivision applications and development applications); and
- providing mechanisms to address land use conflict.

This Strategy identifies various methods through which to address the key issues, strategic directions and actions presented.

5.1 Inserting new zones

This Strategy identifies the following new zones be inserted into the Scheme, subject to further investigation:

- Rural Enterprise zone.
- Environmental Conservation zone.
- Priority Agriculture zone (based on Department of Primary Industries and Regional Development mapping).

5.2 Insertion of new, or amendment of, Scheme provisions

This Strategy identifies the following provisions to be inserted into the Scheme to guide the assessment of the various types of planning proposals, as required:

Issue	Action
Proposals for agriculture - intensive activities	Insert provisions to guide preparation and assessment of agriculture - intensive and tree farm proposals.
Rezoning, subdivision or development proposals on land zoned Rural Residential or Rural Smallholdings	Insert provisions to guide consideration and assessment of rezoning, subdivision or development proposals in the Rural Residential or Rural Smallholdings zone.
Rezoning, subdivision or development proposals in Priority 2 Public Drinking Water Source Areas	Insert provisions to guide consideration and assessment of rezoning, subdivision or development proposals for rural living purposes within Priority 2 Public Drinking Water Source Areas.
Home business proposals	Insert the land use home business in the Zoning Table as a discretionary use in the Residential and Rural Residential zones.
Occupancy restrictions/building heights	To ensure consistency with the Local Tourism Planning Strategy insert provisions into the Scheme relating to: occupancy restrictions on residential units in the Tourism zone; and building heights in the Tourism, Regional Centre and Commercial zones.

Development approval requirements within the Indian Ocean Drive Planning Guideline Area	Insert provisions into the Scheme requiring development approval for proposals in areas that are subject to the Indian Ocean Drive Planning Guideline (WAPC, 2016).
Information relating to biodiversity	Insert provisions into the Scheme to ensure that adequate information on vegetation, flora and fauna is provided to support proposals for rezoning, subdivision and development of land that have the potential to impact on biodiversity.
Water supply to Rural Residential areas	Insert provisions into the Scheme ensuring that Rural Residential proposals are connected to a reticulated potable water supply or a sustainable alternative.
Assessment of proposals to extract basic raw materials	Insert provisions into the Scheme to guide assessment of proposals to extract basic raw materials.
Applications for workers' accommodation on Rural zoned land	Insert provisions to guide assessment of applications for workers' accommodation on Rural zoned land.
Dwellings in the Rural zone	Insert provisions to guide assessment of applications for two or more dwellings in the Rural zone.

5.3 Changes to residential density

Issue	Action
Residential densities in Jurien Bay	Subject to further investigations, increase residential densities in the area bounded by Bashford Street, Hasting Street, Seaward Drive and Aquilla Street to provide opportunities for greater housing choice.
Residential densities in Cervantes	Subject to further investigations, provide opportunities to increase residential densities based on market demand, stock of undeveloped land, and availability of infrastructure to provide opportunities for greater housing choice.
Aged persons accommodation	Subject to further investigations, provide opportunities to vary development standards to allow for aged or dependent living based on market demand and availability of infrastructure in Jurien Bay.

5.4 Creation of Special Control Areas

Issue	Action
Future Waste Water Treatment Plant	Create a Special Control Area for the new waste water treatment plant south of the Jurien Bay townsite (once confirmed through detailed planning).
Definition of noise buffers	Subject to investigations to identify a suitable site for a new regional airport, define land separation areas to manage potential noise impacts on surrounding land uses.

5.5 Local planning policies

Issue	Action
Protection of priority agricultural land	Prepare a local planning policy to facilitate protection of land identified by the Department of Primary Industries and Regional Development as high quality or priority agricultural land.
Access for rural properties comprised of many contiguous titles	Prepare a local planning policy to provide guidance on locational and access requirements for rural properties comprised of many contiguous titles (with individual dwellings on each title).
Temporary use of sheds	Prepare a local planning policy to guide assessment of applications for the temporary use of sheds or onsite caravans for a 12-month period during construction of dwellings.
Holiday Homes	Prepare a local planning policy for holiday homes located in residential areas of Jurien Bay and Cervantes to address issues related to management and maintenance of residential amenity.
Indian Ocean Drive Planning Guidelines	Prepare a local planning policy about planning for development along Indian Ocean Drive in accordance with policies that have already been developed by other local governments on this matter.

5.6 Rezoning opportunities

This Strategy identifies the following rezoning proposals, subject to further investigation:

- Rezone land adjacent to Bashford Street between Hasting Street, Seaward Drive and Aquilla Street for Mixed Use purposes or more intensive residential development, subject to availability of infrastructure.
- Rezone lots bounded by Madrid, Catalonia and Biscay streets, Cervantes, from Industrial zone and Residential R12.5 to Special Use or Tourism zone, to recognise the tourism value of this area which is based on existing use and the ocean-front location.
- Rezone Lot 861 Seville Street from Tourism zone to Special Use zone and identify additional site and development requirements, including the specification that the site is be retained for predominantly tourism use.

5.7 Monitoring and Review

This Strategy is designed to provide a vision for anticipated land use and development in the Shire over the next 10 to 15 years. However, it is important that this Strategy is a dynamic document which is responsive to change and could be amended or reviewed as needed.

The Planning and Development (Local Planning Schemes) Regulations 2015 requires that a comprehensive review of this Strategy and the Shire's local planning scheme should be undertaken at least every five years. This will include updating information in response to the availability of information or changes which may not have been foreseen at the time of formulating the Strategy.

This Strategy will be monitored and reviewed in accordance with statutory requirements.

PART 2 - BACKGROUND INFORMATION & ANALYSIS



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1. INTRODUCTION

This Local Planning Strategy (Strategy) comprises two parts. Part One summarises the key planning and development issues that are relevant to the Shire of Dandaragan and sets out a vision and strategic direction for the Shire, as well as land use planning actions required to achieve this vision over the next ten to fifteen years.

Part Two of the Strategy (this document) includes background information, analysis and the detail required to support the high-level strategies and actions in Part One. In Part One, section references are provided to the relevant background information, analysis and detail in Part Two to assist with interpretation and implementation

2. STATE AND REGIONAL PLANNING CONTEXT

This Strategy has been prepared within the context of State and regional planning provisions and is required to have regard to those provisions which are appropriate to the local government area. The provisions range from broad principles contained within the State Planning Strategy to specific policies guiding land use and development and other non-statutory strategies and plans. The relevance of these documents to this Strategy are set out in Table 13.

Table 13: State and Regional Considerations

RELEVANCE TO THIS STRATEGY	
State Planning Context	
State Planning Strategy (2014)	The State Planning Strategy plans for a doubling of the State's population by 2056 and provides the basis for the integration and coordination of strategic planning across the Perth Metropolitan area and in the regions. Strong and resilient regions are a key strategic goal of the State Planning Strategy with the priorities being a diverse economy, creating places where people want to live and work and inter- regional collaborations to harness the competitive advantage of each region. This Strategy reflects these high-level directions through identification of objectives and actions for the Shire over the next 10 years.

Wheatbelt Regional Planning and Infrastructure Framework (2015)	<p>The Framework addresses the Wheatbelt Region's planning, economic, social and infrastructure needs. This Strategy builds on the opportunities identified in the Framework as being particularly relevant to the Shire, such as:</p> <ul style="list-style-type: none"> • a focus on employment growth and regional services and facilities, such as for health and education, in the established activity centre of Jurien Bay; • potential opportunities to establish additional horticulture sites on the Dandaragan Plateau and areas west of the Brand Highway, given its soil and water resources and location relative to the Perth metropolitan area; • the establishment of 'footloose' knowledge-based and home-based businesses in the coastal towns, given the proximity to Perth and the expected availability of good telecommunications infrastructure and services in the future; • investigating ways to provide sufficient groundwater resources in the coastal towns to accommodate population growth; • the impact of residential and rural residential development on the supply of basic raw materials and agricultural lime resources; and • development of the tourism market based on the Shire's landscape and biodiversity values.
Wheatbelt Regional Investment Blueprint (2015)	<p>The Blueprint focused on five distinct sub-regions that are home to 75,000 people, receive nearly 700,000 visitors annually and drive a local economy with an annual economic value of \$7.4 billion. To maximise growth across the Wheatbelt region, the Blueprint outlines a roadmap consisting of the following six pillars for growth:</p> <ul style="list-style-type: none"> • vibrant economy; • clever people; • liveable communities; • valued natural amenity; • marketing Wheatbelt opportunities; and • effective partnerships. <p>Realising the vision published in the Blueprint has implications not only at the regional and sub-regional level but also at the local level. For the Shire, an aspirational population of 20,000+ persons in Jurien Bay requires sufficient land and infrastructure capacity to meet the needs of the population. This is also the case to support economic development. Many of the objectives and actions identified in this document are consistent with the Blueprint and aim to facilitate growth and development across the Shire over next 10 years.</p>

The Sub-Regional Strategy is an overarching planning strategy to guide future land use planning and development of coastal lands within the Shire(s) of Gingin, Dandaragan, Coorow, Carnamah, Irwin and Northampton and the City of Greater Geraldton. The Sub-Regional Strategy seeks to address a range of issues that are experienced throughout the coastal area from Guilderton to Kalbarri, including:

- the perceived potential for Perth's outer suburbs to sprawl up the coast, increasing the need to protect large tracts of pristine remnant vegetation and increasing infrastructure servicing demands on the State;
- balancing urban growth with the protection of areas with high biodiversity significance, other recognised natural assets and known economic resources, and addressing the heightened risk of bushfire hazard;
- the need to address impacts on the coastal and marine environment from coastal processes and climate change including rising sea levels and from increased competition and demand for coastal access for recreation, industry and tourism;
- Indian Ocean Drive is an important tourist route that could be compromised if used for major freight; and
- the need to reflect the sub-region's distinct sense of place, culture and lifestyle.

To address these issues, the Sub-Regional Strategy identifies a range of strategic directions and actions to ensure that growth and development is well planned. The following actions are relevant to this Strategy:

- Identify future recreational opportunities for Wedge and Grey based on further investigations, including heritage assessment.
- Adopt a general presumption against new development within areas identified to be affected by coastal hazards.
- Adopt a general presumption against planning proposals that may impact on matters of national or international environmental significance that require referral under the Environmental Protection and Biodiversity Conservation Act 1999.
- Support identification of regional ecological corridors for biodiversity and wildlife in planning instruments, to connect environmental assets.
- Balance bushfire risk, biodiversity preservation and economic growth.
- Protect landscapes that are of high value and are viewed from the coastline, coastal bays, tourist routes and tourism activity sites.
- Designate and retain Indian Ocean Drive's road classification as a coastal tourist route, and restrict its use for freight tasks.
- Promote and encourage urban growth in and adjacent to established settlements.
- Generally, support the retention and development of caravan parks as affordable holiday accommodation.

Government Sewerage Policy (2019)	The Policy establishes the Western Australian Government's position on the provision of sewerage services in the State. The Policy promotes the sustainable use and development of land by requiring connection to reticulated sewerage. In instances where reticulated sewerage cannot be provided, the Policy recommends a best practice approach to the provision of on-site sewage treatment and disposal, which is relevant to the towns of Dandaragan and Badgingarra which have little prospect of being provided with reticulated sewerage schemes. Areas in Jurien Bay, particularly along the coastal embayment, public drinking water source protections areas, the Scott Coastal Plain and several wetlands, have been designated as sewerage sensitive areas where on-site sewage treatment is restricted.
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Statements of Planning Policy

SPP 2 Environment and natural resources policy	The Shires' unique and valued natural environment, much of which is protected by national parks and nature reserves, has an important role in the tourism industry.
SPP 2.4 Basic raw materials (draft)	Although there is limited extraction of basic raw materials in the Shire, other than mineral sands, future demand and extraction issues need to be considered in land use planning.
SPP 2.5 Rural planning	The Shire's valuable agricultural land is important to its economy and that of the State. Careful consideration is required in the protection of rural land and in relation to planning for rural living areas.
SPP 2.6 State coastal planning policy	Much of the Shire's extensive coastline is contained in a marine park which requires careful planning in relation to settlement, tourism and recreation. The potential impacts of coastal hazards from coastal processes must also be understood and incorporated into land use planning to avoid impacts.
SPP 2.7 Public drinking water source policy	The water source protection areas for the Shire's four existing settlements are protected in the Scheme via Special Control Areas to manage the water supply and quality.
SPP 2.9 Water resources	The Shire's water resources play a vital role in supporting the natural environment, agriculture and other industries, and in accommodating the needs of settlement. Sustainable management of the water resources is required.
SPP 3 Urban growth and settlement	The Shire's four towns and two small communities can largely accommodate the Shire's future growth, in accordance with this policy.
SPP 3.4 Natural hazards and disasters	The Shire's vulnerability to natural disasters, particularly bushfires, needs to be considered in land use planning and design.
SPP 3.5 Historic heritage conservation	The agricultural settlement and maritime activities that provide much of the historic context for the Shire are to be recognised and their historic heritage significance protected through this Strategy.
SPP 3.7 Planning in bushfire prone areas	Extensive areas of remnant vegetation in the Shire contribute to a moderate to high bushfire risk in certain areas. Mitigation of bushfire risk, particularly in areas where additional development is proposed such as between Jurien Bay and Cervantes, is a priority for the Shire.

SPP 4.1 Industrial interface (draft)	Existing and future industrial areas need to be adequately buffered, particularly from valued natural features and adjacent residential land use.
SPP 5.2 Telecommunications infrastructure	Consideration of the location and design of telecommunication infrastructure in the Shire is important, particularly where visual amenity is a priority, such as adjacent to the coast and tourist routes.
SPP 5.4 Road and rail noise	Significant transportation routes such as Indian Ocean Drive and Brand Highway pass by some of the Shire's settlements. The impact of road noise on noise- sensitive land-use and/ or development within the specified trigger distance of these strategic freight and major traffic routes is to be considered in accordance with this policy when assessing proposals.
SPP 7 Design of the Built Environment	SPP 7 recognises the importance of design quality across the whole built environment and includes 10 principles for good design that will be applied by the Shire when considering development proposals.
SPP 7.3 Residential Design Codes	SPP 7.3 sets out the principles, considerations and standards that will be applied by the Shire to control residential development.
WAPC Development Control Policies and Position Statements	
DC Policy 2.2 Residential subdivision	New residential lots are to be regular in shape and provide for size ranges that reflect the statutory provisions of the Scheme including the R-Codes, the availability of reticulated sewerage, electricity and water and the need for frontage to public streets for access.
DC Policy 2.3 Public open space in residential areas	The provision of public open space is to accommodate the recreational and amenity needs of local residents and, where relevant, protect and conserve water systems.
DC Policy 3.4 Subdivision of rural land	Rural land requires protection from incompatible rural uses, in order to optimise economic opportunities, promote sustainable settlement and protect natural assets. The identification of land for rural living in the Shire should meet these criteria.
DC Policy 4.1 Industrial subdivision	Industrial areas serving the full range of general and special industrial land uses need to be well developed to provide safe and efficient movement of traffic to and from each site and protect the amenity of adjacent land uses from the effects of industrial development.
Renewable Energy Facilities Position Statement	Key issues for development of renewable energy projects include land use and planning controls, visual impact on landscapes and other amenity issues, together with a number of environmental considerations including noise. The Shire's rural hinterland provides opportunities for additional wind and solar farm developments which will be subject to this position statement.
WAPC Planning Bulletins, Manuals, Guidance Documents and Factsheets	
Better Urban Water Management	Protection of water resources is identified as a key issue in this Strategy as part of facilitating economic growth and settlement expansion.

Rural Planning Guidelines	The Guidelines provide explanatory detail to assist the implementation of State Planning Policy 2.5 and Development Control Policy 3.4. The Guidelines have been used in the preparation of this Strategy in relation to the subdivision of rural zoned land, for development proposals on rural zoned land and for rural land uses on land zoned for other purposes.
Planning Bulletin 83 Planning for Tourism	This bulletin provided the guidance for the Shire's local tourism planning strategy.
Planning Bulletin 99 Holiday Homes Guidelines	Jurien Bay and Cervantes are both popular holiday destinations with significant numbers of holiday homes, which need to be guided by appropriate scheme or policy provisions.
Indian Ocean Drive Planning Guideline	The Guideline is to be used to guide the location, siting and design of various land uses and development in the Shire in the locality of Indian Ocean Drive.
Visual Landscape Planning in Western Australia Manual	The Shire has significant areas of valued landscape character adjacent to the coast and within its rural hinterland. The protection of valued landscape character and views needs to influence land use planning and development. The manual provides guidance on reducing the visual landscape impacts of a number of land uses that occur in the Shire, such as rural living, and on maintaining the character of valued landscapes such as the coast.
Poultry Farms and Piggeries Fact Sheets	Intensive and alternative agriculture business ventures are growing within the Shire. Both these fact sheets outline a range of land use planning considerations relevant to the establishment, expansion or modification of such proposals.

Other Documents

The following documents provided background guidance for the review of this Strategy:

- The Coast of the Shires of Gingin and Dandaragan, Western Australia: Geomorphology and Vulnerability (2011) Damara and Geological Survey WA.
- Central Coast Strategic Tourism Planning Study (2007).
- Central Coast Regional Profile (1994) and Central Coast Regional Strategy (1996).
- Central Coast Basic Raw Materials Strategy (1997).

3. LOCAL PLANNING CONTEXT

The land use planning elements and relevant content from the Jurien Bay Growth Plan, the Jurien Bay City Centre Strategy Plan, Cervantes Town Centre Future Land Use Plan, Local Tourism Planning Strategy have been incorporated into this Strategy. These documents are summarised in Table 14 and are available on the Shire's website.

Table 14: Local planning considerations

Document	Relevance to this Strategy
Local Planning Strategy - Rural Land Use and Rural Settlement (2012)	The Inland Strategy provided for the expansion of the rural towns of Dandaragan and Badgingarra and opportunities for rural housing and accommodation, responding to the diversification and intensification of agriculture and other activities in the rural area. The Inland Strategy included strategic land use plans for Dandaragan (see Figure 9) and Badgingarra (see Figure 10), which set the direction for the growth of the towns in this Strategy. The Inland Strategy also identified the potential for additional land for rural residential development near Jurien Bay and Cervantes, subject to further investigation. This Strategy has reviewed the investigations for Jurien Bay and Cervantes and based on the existing residential land supply the areas identified for Jurien Bay and Cervantes have not been included as areas for future growth over the life of this Strategy. Where still relevant, the vision, strategies and actions presented in the Inland Strategy have been incorporated into this Strategy.
Jurien Bay Growth Plan (2012)	The Growth Plan analysed the growth potential of Jurien Bay and the regional hinterland by examining constraints and identifying strategies for growth. The Growth Plan is based on a vision of Jurien Bay as a regional city with a population of 20,000+ residents. The Growth Plan includes two spatial plans which outline the range and scale of land uses, a movement network, and infrastructure requirements for ongoing growth: the Jurien Bay Growth Plan - City Centre Plan (Figure 6) and the Jurien Bay Growth Plan - Jurien Bay and surrounds (Figure 7). This Strategy identifies future development that is consistent with the Growth plan.

<p>Jurien Bay City Centre Strategy Plan (2012)</p>	<p>The City Centre Strategy Plan contemplates long term population growth as presented in the Jurien Bay Growth Plan. The City Centre Strategy Plan divides the Jurien Bay City Centre area into six precincts, which form the basis for describing the role, land use, character and key development standards of height, bulk and the relationship of buildings and parking to the street for most land uses (see Figure 6). Key elements of this plan include:</p> <ul style="list-style-type: none"> • retention of land for commercial and tourism uses; • the introduction of commercial/residential, office/residential and tourism/residential uses; • increased residential development by upcoding Residential zoned land to a maximum density of R25; and • identification of two community purpose areas: • a Health Precinct which presents a significant opportunity for development of an integrated mix of uses related to health, aged care and community wellness; and • a Community Uses Precinct which comprises Crown land and reserves with the potential to accommodate a range of community uses. <p>The City Centre Strategy Plan identifies areas for future development that have been included in this Strategy.</p>
<p>Cervantes Town Centre Future Land Use Plan (2012)</p>	<p>The Land Use Plan provides future direction for land use planning in the Cervantes town centre, an area bound by Seville, Weston, Iberia and Aragon Streets and that is largely undeveloped with a mix of commercial and public purpose zonings (see Figure 8). The Land Use Plan aims to provide guidance for the utilisation of existing commercial and undeveloped land to develop an integrated mix of uses serving the needs of local residents and visitors. The Land Use Plan identifies opportunities for mixed short stay accommodation integrated with higher density residential uses, aged care and associated community facilities, and an amended road layout to facilitate access to parking. The key element is to provide a road network in the town centre superblock to form a traditional shopping street on Cadiz Street that clearly connects to surrounding areas and facilitates pedestrian and vehicle access. The Land Use Plan identifies areas for future development that have been included in this Strategy.</p>

<p>Local Tourism Planning Strategy (2012)</p>	<p>The Local Tourism Strategy focussed on assessing land use planning issues associated with the Shire's local tourism industry. The Local Tourism Strategy identified that:</p> <ul style="list-style-type: none"> • Jurien Bay and Cervantes were adequately supplied with affordable accommodation, however, there was a lack of high quality and branded short stay accommodation; • vacant sites that are suitable to be zoned Tourist were not protected from redevelopment; • the completion of Indian Ocean Drive expected to increase visitation to the Shire, however, accommodation and attractions were not developed to meet this demand; and • there was a need to retain Tourist zoned lots and achieve quality tourism outcomes. <p>The Local Tourism Strategy identified a number of vacant Tourist zoned sites in Jurien Bay and Cervantes to cater for medium/long term demand and included recommendations to introduce provisions into the Scheme to facilitate protection of tourism sites, and requirements to regulate commercial holiday homes through related policy.</p> <p>This Strategy identifies areas for future development that are included within the Local Tourism Strategy.</p>
<p>Dandaragan Regional Land Supply Assessment (2019)</p>	<p>The Land Supply Assessment was prepared by the Western Australian Planning Commission to assess land requirements for future residential, industrial and commercial uses, and provide context for the land use planning and infrastructure provision required to meet demand in the Shire. The Land Supply Assessment provides key information on:</p> <ul style="list-style-type: none"> • demand drivers specific for Jurien Bay, including the major economic factors that influence employment and population growth, and therefore, the demand for land and housing; • zoned land supply for residential, industrial and commercial uses; • development constraints; • recent and future land development activity; and existing and required physical infrastructure. <p>In summary, the Land Supply Assessment concluded that:</p> <ul style="list-style-type: none"> • there are sufficient stocks of land identified for residential development to accommodate anticipated population growth well into the long-term; • the majority of residential growth is expected to occur in Jurien Bay with large-scale urban developments planned, including the Turquoise Coast and North Head areas; • opportunities exist for additional rural living development in established estates; • opportunities exist for commercial expansion in the Cervantes commercial area; • there are several sites in Jurien Bay and Cervantes that have been identified as having potential be developed for tourism and related purposes.

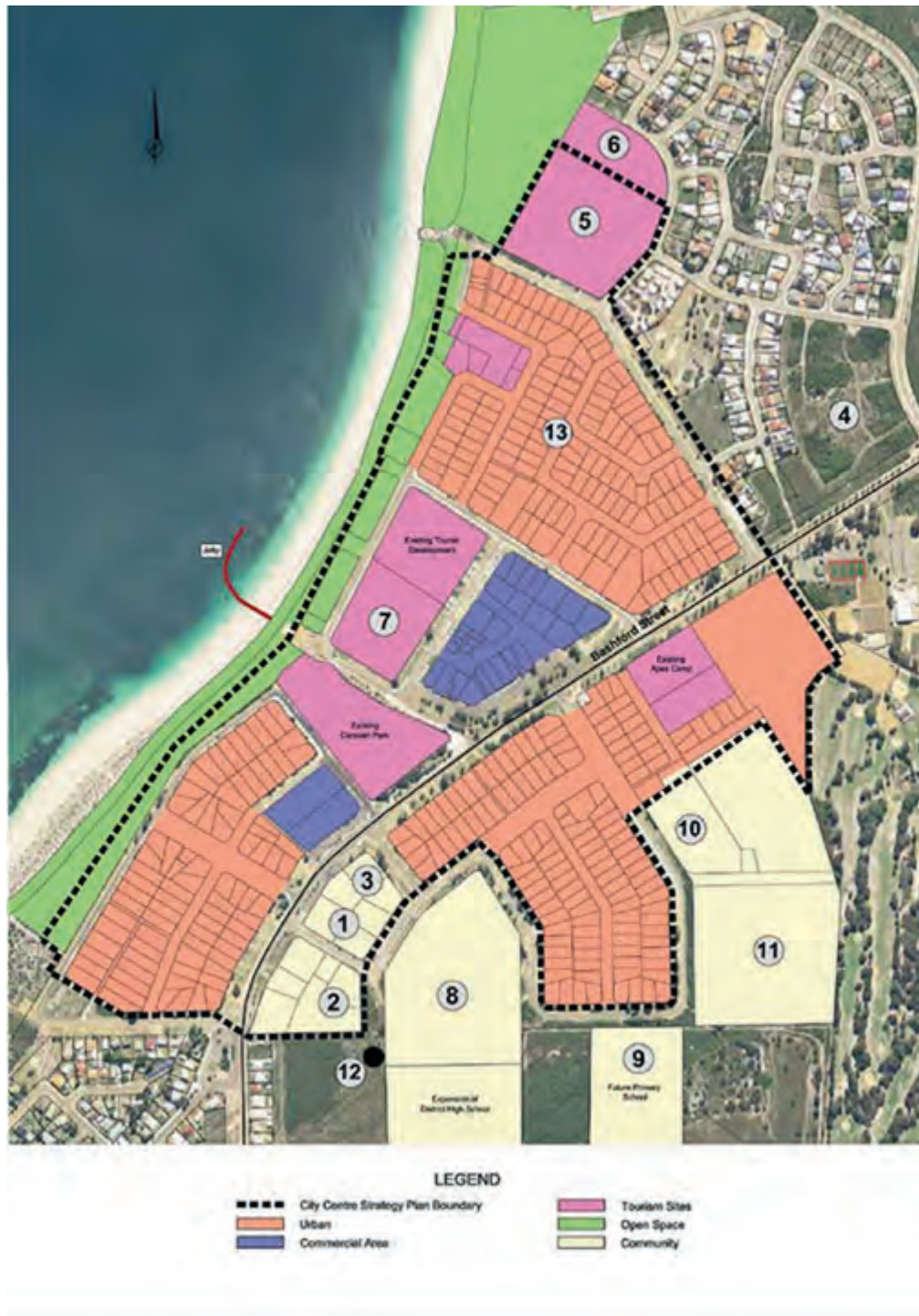
- The Land Supply Assessment identifies areas for future development that have been included in this Strategy.

Other Documents

The following documents provided background guidance for the review of this Strategy:

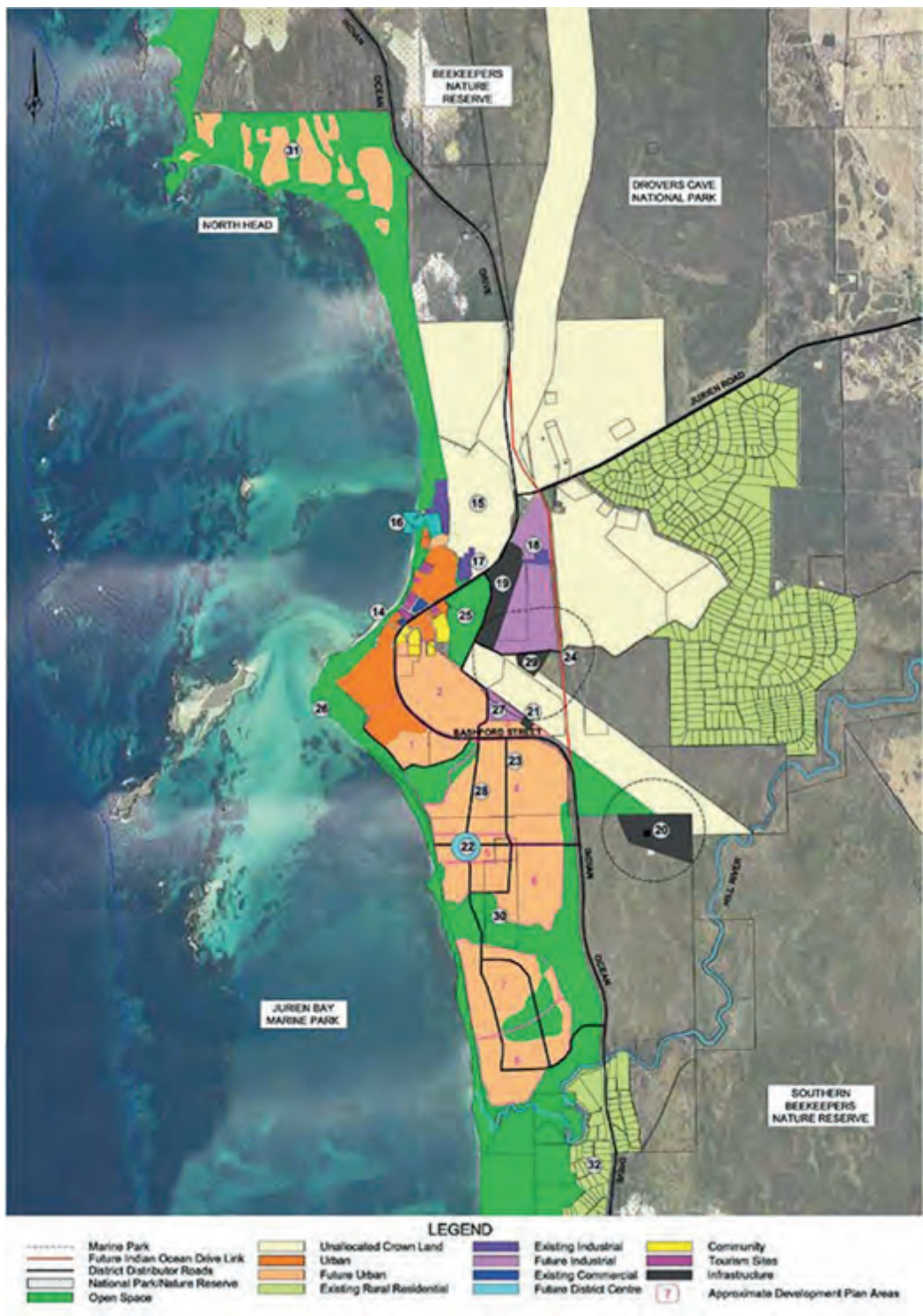
- Shire of Dandaragan Local Planning Strategy (2001)
- Shire of Dandaragan Coastal Plan (1999)
- District Planning Strategy (1998)

Figure 6: Jurien Bay Growth Plan - City Centre Plan



Source: Shire of Dandaragan (2012)

Figure 7: Jurien Bay Growth Plan - Jurien Bay and Surrounds



Source: Shire of Dandaragan (2012)

Table 15: Jurien Bay Growth Plan - Key to Figures 6 and 7

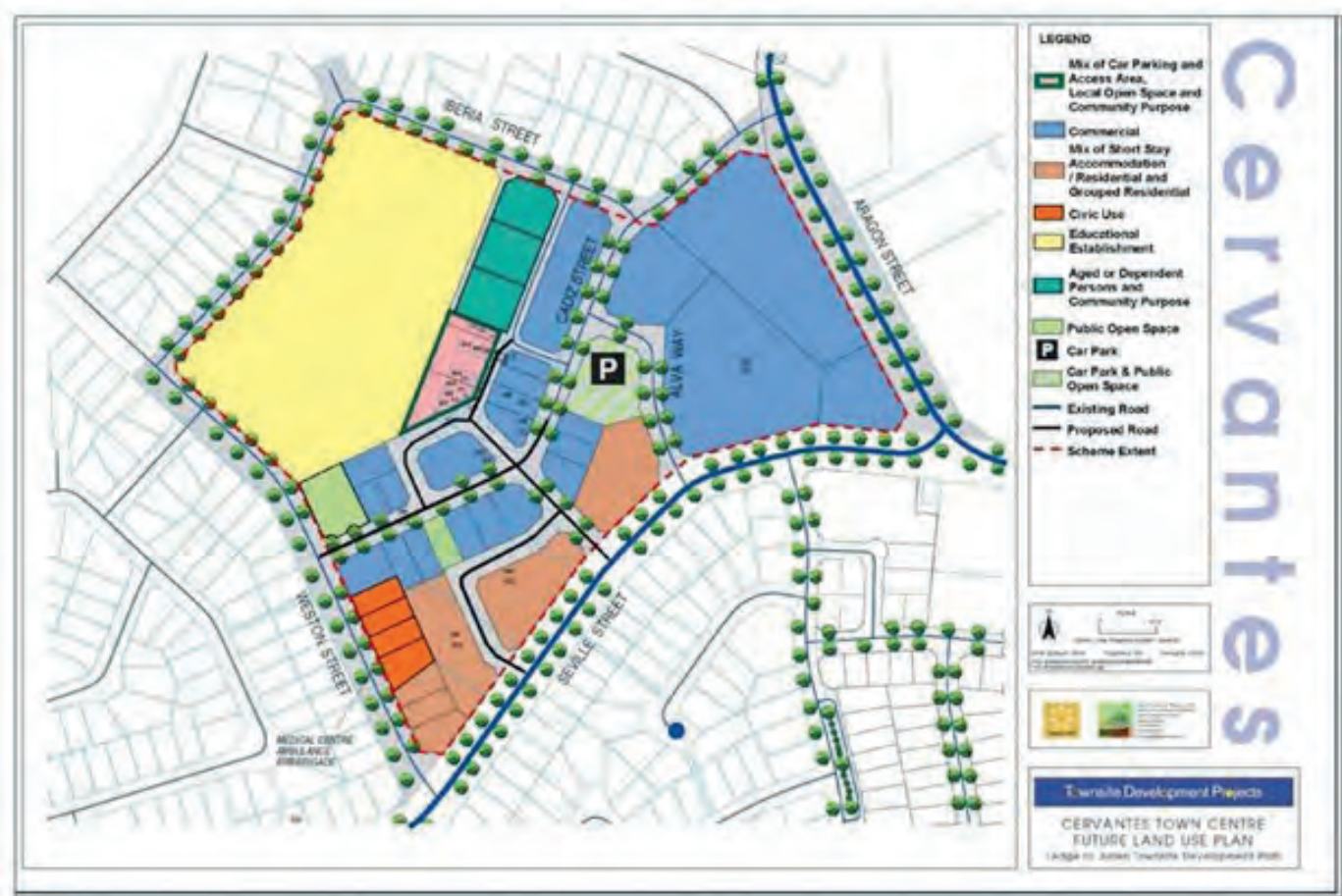
Map ID	Place	Description
1	Civic Precinct (~1.7ha)	The area has capacity for additional accommodation for state and local government services.
2	Community Uses Precinct (~2.2ha)	This area comprises crown reserves and Unallocated Crown land which has the potential to accommodate range of community uses. A concept plan is required to ensure that the value of this land for community uses is maximised.
3	Civic Precinct - Police Station (~5,200m ²)	Planning is required to determine future police services for the region.
4	Unallocated Crown Land - Seaward Drive (~5.8ha)	This area is strategically located near the City Centre and opposite the Community Recreation Centre and should be assessed to determine appropriate land uses.
5	Tourism Site - Casuarina Crescent (~4ha)	This vacant site provides opportunity for a major tourism development adjacent to the foreshore.
6	Tourism Site - Casuarina Crescent (~1.6ha)	This area of unallocated Crown land provides opportunity for a major tourism development adjacent to the foreshore.
7	Tourism Site - Roberts Street (~2.2ha)	This vacant site provides opportunity for a major tourism development adjacent to the foreshore.
8	District High School - Hamersley Street	The expansion of the site is provided for as part of the Turquoise Coast structure plan.
9	Future Primary School - York Street	A new primary school site is provided for as part of the Turquoise Coast structure plan.
10	Health Precinct - Whitfield Road (~1.8ha)	The site has capacity for expansion of the existing Health Centre as part of the Health Precinct.
11	Health Precinct - Whitfield Road (~9.5ha)	This area presents a significant opportunity to develop for an integrated mix of uses related to health, aged care and community wellness. A concept plan is required to ensure that the value of this land for community uses is maximised.
12	Proposed Sewer Pump Station	A site is required generally in this location to service the unsewered areas within the City Centre.
13	City Centre	The City Centre will provide facilities and services to the city and the region building on its existing role. Uses will include: government services, retail, commercial uses, community facilities and services, tourism, recreation, mixed use and residential development.
14	Other Residential Areas	There are two established residential areas outside of the boundaries of the City Centre and the boundaries of the Turquoise Coast and North Head Structure Plans, namely the areas north of Hastings Road and south of Lindsay Road with a total of 688 lots.

15	Unallocated Crown Land north east of Boat Harbour	This land provides the opportunity to consolidate the urban area in the north of the townsite. It should be developed with an appropriate land use mix to support the City Centre and increased use and development of the Boat Harbour. Detailed assessment is required in relation to native title, environmental values and infrastructure issues as part of consideration of land use and development options.
16	Boat Harbour	The Boat Harbour is an underutilised infrastructure asset with significant potential to accommodate a range of uses including recreation, tourism and marine based industry.
17	Carmella Street Light Industrial Area	This area is substantially developed and expansion is not proposed as there are other areas identified for future industry.
18	Coalseam Road Industrial Area	There are 27 lots most of which are developed and 2 stages planned for expansion to provide an additional 45 lots. Assessment regarding native title, environmental assessment and infrastructure is required for future stages.
19	Airport	The airport is used for general aviation, recreation and emergency services. The capacity for additional traffic and potential land use planning constraints requires investigation. Action has been initiated to evaluate alternative sites for an airport to serve the region.
20	Future Waste Water Treatment Plant	This site has been selected for an additional waste water treatment plant to service future urban development.
21	Future Substation Site	This substation site has been identified as part of the infrastructure required to upgrade power supply for future urban development.
22	Future District Centre	The Booka Valley Centre will be developed as a mixed use area including retail and commercial development, tourism accommodation and residential uses.
23	Pedestrian Cycleway Network	The flat terrain and centralised community uses and facilities provide the basis for the network including recreational links through open space with connections to the foreshore.
24	Future Indian Ocean Drive link	An alignment has been established to enable the construction of the link based on the vehicle capacity limits of Bashford Street through the City Centre. It is estimated that this would be required when the population reaches about 10,000 residents.
25	Community Recreation and Sports Area	The area has capacity for expansion to accommodate a range of community and recreational facilities and services.

26	Foreshore	The future management and development of the foreshore reserves needs to ensure that opportunities for tourism and recreational use are optimised.
27	Turquoise Coast Industrial Area	This industrial area provides for industrial uses in addition to composite lots (mixed residential and industrial).
28	Future Public Transport System	The primary and district distributor road network will provide the basis for a future public transport system. This road network would generally provide access within 400metres or a 5-minute walk from most urban areas with the exception of North Head.
29	Wastewater Treatment Plant (WWTP)	The WWTP has some capacity to accommodate further urban development.
30	Turquoise Coast	An approved structure plan guides the development of this area and provides for significant areas to be set aside for conservation and recreation purposes.
31	North Head	An approved structure plan, providing for 2,215 residential lots and 550 tourists rooms, guides the development of this area and demarcates two thirds of the site to the protection of dune ridges and natural vegetation. It is expected that the stages will be developed in three year intervals.
32	Rural Residential	Existing and future rural residential areas support and utilise services and facilities provided in Jurien Bay.

Source: Shire of Dandaragan (2012)

Figure 8: Cervantes Town Centre Future Land Use Plan



Source: Shire of Dandaragan (2012)

4. SHIRE PROFILE

4.1 LOCALITY

The southern boundary of the Shire is approximately 120 km north of the Perth Central Business District, directly north of the Shire of Gingin.

The Shire has an area of 6,934 square kilometres and a population of 3,213 (ABS, 2018). It has four main settlements: Badgingarra, Cervantes, Dandaragan and Jurien Bay; and highway service centres at Regans Ford and Cataby.

The area covered by the Shire of Dandaragan's Scheme includes the entire land area of the Shire.

4.2 SETTLEMENT

4.2.1 Jurien Bay

Jurien Bay was established as a centre for the lobster fishing industry and a holiday/retirement destination particularly for people residing in the Wheatbelt. More recently, it has become the administrative centre for the Shire of Dandaragan. Several State government agencies have established offices in the town to service regional and sub-regional catchments. In 2012, Jurien Bay was identified as a Super Town under the State's Regional Centres Development Plan. Each Super Town plays an important role in supporting regional growth, potentially accommodating an aspirational population of 20,000+ in the longer term.

4.2.2 Cervantes

Cervantes was established as a fishing village primarily servicing the rock lobster industry. The town also attracts a significant number of visitors during holiday periods and is home to an increasing number of retired persons.

4.2.3 Dandaragan

The Dandaragan townsite is located about 100km south east of Jurien Bay and 20km inland from Brand Highway. The town function as a service centre for surrounding communities engaged in broad acre agricultural activities.

4.2.4 Badgingarra

Badgingarra is a small centre servicing the needs of surrounding agricultural and mining activities. It also acts as a service centre providing services to traffic on the Brand Highway.

4.2.5 Highway service centres

Regans Ford is a gazetted townsite located on the Brand Highway at its crossing with the Moore River. There have never been any proposals to encourage or initiate urban development in the town and there is no future plan to develop housing in this location. Currently, there is a roadhouse and caravan park on land zoned Rural in the townsite.

The Cataby Highway Service Centre is located on the Brand Highway, approximately 35km north of Regans Ford. In addition to fuel sales, it also provides basic goods and services to passing traffic

and the surrounding rural and mining communities. Limited short stay accommodation caters for the needs of tourists and visitors to the area.

4.2.6 Key findings

- Jurien Bay is to be planned in the long-term as a Regional Centre with a population exceeding 20,000+. The town is the centre of commerce for the Shire and attracts a significant number of visitors during holiday periods and growing number of retirees.
- Cervantes attracts a significant number of visitors during holiday periods and growing number of retirees.
- The towns of Dandaragan and Badgingarra continue to support the agricultural sector with limited residential growth expected.

4.3 DEMOGRAPHIC TRENDS

According to the 2016 Census of Population and Households (2016 Census), the Shire had a population of 3,213 persons. In the five years between the 2011 Census and the 2016 Census, the Shire’s population grew by approximately 30 persons, which equates to an average annual growth rate of 0.18% per annum. This rate of growth is less than that of the Wheatbelt region (0.53%) and State (1.8%) over the corresponding period (refer to Table 16).

Table 16: Population growth comparisons (2011-2016)

		Population (Census Year)		Change 2011 - 2016	
		2011	2016	Change	% p.a.
LGA	Dandaragan	3,185	3,213	28	0.18
Adjacent LGA	Gingin	4,685	5,217	532	2.17
Region	Wheatbelt	74,081	76,180	199	0.53
State	WA	2,239,170	2,474,410	235,240	1.80

Source: ABS (2006); ABS (2011); ABS (2016)

According to the 2016 Census, the population of the four main settlements was:

- Jurien Bay - 1,425 persons.
- Cervantes - 527 persons.
- Dandaragan - 341 persons.
- Badgingarra - 193 persons.

Population change within each settlement (between the 2011 Census and 2016 Census) experienced positive rates of annual growth higher than the State and regional average. Both Dandaragan and Badgingarra experienced population declines but this should be interpreted with some caution due to comparatively low base populations in 2011 (refer to Table 17).

Table 17: Population growth in Shire of Dandaragan settlements (2011-2016)

	Population (Census Year)		Change 2011 - 2016	
	2011	2016	Change	% p.a.
Jurien Bay	1,507	1,761	254	3.16
Cervantes	461	527	66	2.71
Dandaragan	401	340	- 61	- 3.25
Badgingarra	333	193	- 140	- 10.3
Total	2,702	2,821	1,019	0.87

Source: ABS (2006); ABS (2011); ABS (2016)

*Figure derived from census data from other settlements and the whole Shire.

4.3.1 Population forecasts

The population forecasts published in WA Tomorrow (WAPC, 2018) indicates that the rate of growth for the Shire will remain below Western Australia, but higher than the Wheatbelt. Based on the median (Band C) forecast, the Shire's population is projected to grow at an average annual rate of 0.93 per cent from 2016 to 2031 to reach an eventual population of approximately 3,695. This compares with forecast average annual growth rates of 1.6 per cent for Western Australia and -0.3 per cent for the Wheatbelt. Band E (which represents the highest quintile of projected growth) forecasts an average annual growth rate of 2.36 per cent from 2016 to 2031 to reach an eventual population of approximately 4,560.

Table 18: Shire of Dandaragan population forecasts (2016-2031)

Year	WA Tomorrow (by band)				
	A	B	C	D	E
2016	3,215	3,215	3,215	3,215	3,215
2021	2,780	3,170	3,365	3,525	4,015
2026	2,800	3,305	3,545	3,750	4,310
2031	3,890	3,420	3,695	3,925	4,560

Source: WAPC (2019)

*The forecasts refer to population on 30 June in each stated year.

4.3.2 Age profile

Compared to the State average, the Shire is characterised by a lower than average percentage of persons in the 15-24 age cohort, with 7.3% for the Shire compared to 12.6% for the State, and a higher than average percentage of people in the 55-64 (17.2%) and the 65 and over age cohorts (23%) for the Shire compared to 11.8% (55-64) and 15.8% (65 and over) for the State (refer to Table 19).

Table 19: Age profile: Shire compared to Western Australia (2016)

Age Cohort	Dandaragan		WA %
	No.	%	
0 - 4	181	5.6	6.3
5 - 14	312	9.7	12.4
15 - 24	234	7.3	12.6
25 - 54	1,193	36.6	41.2
55 - 64	552	17.2	11.8
65 +	741	23.0	15.8
Total	3,185	100	100

Source: ABS (2016)

Age by sex projections for 2016 to 2026 published in Western Australia Tomorrow (WAPC, 2018) indicate a more pronounced aging profile for the Shire than the State. The percentage of people in the age bracket above 55 is set to increase from 34% to 38% with persons in the 25-54 age group category falling from 40% to 33% (refer to Table 20).

Table 20: WAPC Shire age profile forecasts (2016-2026)

Age Cohort	2016		2026	
	No.	%	No.	%
0 - 4	204	6.41	260	6.9
5 - 14	410	12.87	510	13.6
15 - 24	218	6.84	240	6.4
25 - 54	1,268	39.81	1,260	33.6
55 - 64	525	16.48	580	15.4
65 +	560	17.58	895	23.9
Total	3,185	100	3,745	100

Source: Western Australia Tomorrow (WAPC, 2019)

4.3.3 Key findings

- 55% of the Shire's population live in Jurien Bay.
- There are significant population influxes in Jurien Bay and Cervantes during holiday periods.
- WAPC forecasts suggest that the average annual growth rate will be 0.93% p.a. over the next ten years. This is less than the anticipated State average of 1.8% p.a.
- The Shire's population has comparatively more persons aged over 55 and less persons under 15. A continuation of this trend will have impacts on housing and service delivery.
- To retain a greater percentage of the 15-24 year age group, targeted education and training facilities and services are required.

4.4 DWELLINGS

There is currently limited diversity in the Shire's housing stock within each settlement with 92% of occupied dwellings being classified as separate houses. In comparison, semi-detached dwellings and flats/apartments contribute less than 3% of all dwellings across the Shire (refer to Table 21).

Table 21: Shire's dwelling type

Dwelling Structure (Occupied)	No.	%
Separate house	1,143	92.8
Semi-detached	28	2.4
Flat, unit or apartment	3	0.2
Other - caravan, cabin, houseboat	56	4.5
Not stated	5	0.4
Total	1,235	100

*Note: 1,486 Unoccupied dwellings Source: ABS (2016)

Dwelling occupancy rates, particularly in Jurien Bay and Cervantes, are characterised by large fluctuations in population associated with holiday periods. For example, the 2016 Census indicated that of all dwellings in Jurien Bay only 48% were occupied. In Cervantes, this figure was lower at 40%. It is probable that this high level of absenteeism amongst land owners is reflective of the tourism function. This is further evidenced by the fact that a significant proportion of dwellings are used as commercial holiday homes and are unoccupied for most of the year.

Strategic planning documents, including the Jurien Bay Growth Plan identified the need for more diversity in the Shire's housing stock to address emerging population trends, including the comparatively older population.

4.4.1 Key findings

- The Shire's stock of dwellings is almost entirely (92%) single houses. More diversity is required to accommodate emerging demographic trends.
- A high proportion of dwellings (48%) were vacant on Census reflecting trend of lock- and-leave' dwellings in non-peak times.

4.5 EMPLOYMENT

The Shire had a labour force of 1,724 in 2018 (ABS, 2018). The 2016 Census provided the most recent breakdown of the labour force by category: Agriculture, Forestry and Fishing (27%) followed by Government Services (17.7%), Construction (8.7%) and Accommodation and Food Services (7.9%) (ABS, 2016) (refer to Table 22).

Table 22: Employment by industry (2016)

Industry category	No.	%
Agriculture, forestry and fishing	393	27.1
Mining	82	5.6
Manufacturing	34	2.3
Electricity, gas, water and waste services	23	1.6
Construction	126	8.7
Wholesale trade	28	1.9
Retail trade	102	7.0
Accommodation and food services	114	7.9
Transport, postal and warehousing	46	3.2
Financial and insurance services	38	2.6
Rental, hiring and real estate services	16	1.1
Professional, scientific and technical services	30	2.0
Administrative and support services	32	2.2
Public administration and safety	74	5.1
Education and training	109	7.5
Health care and social assistance	59	4.1
Arts and recreation services	35	2.4
Other services	44	3.0
Inadequately described / Not stated	61	4.2
Total	1,453	100.0

Source: ABS (2016)

According to the 2016 Census, the occupations of technical and trades workers, labourers and machinery operators and drivers' account for about 42% of total employees reflecting the strength of the primary industries and construction sectors in the Shire (refer to Table 23).

Table 23: Employment by Occupation (2016)

Occupation	No.	%
Managers	363	25.0
Professionals	126	8.7
Technicians and trades workers	211	14.5
Community and personal services workers	96	6.6
Clerical and administrative workers	155	10.7
Sales workers	75	5.2
Machinery operators and drivers	135	9.3
Labourers	269	18.5
Inadequately described/ Not stated	23	1.6
Total	1,453	100.0

Source: ABS (2016)

The Shire's unemployment rate of 3 per cent is lower than the unemployment rate for the State (6.2. per cent) and the Wheatbelt region (3.5 per cent). Generally, the pattern of unemployment shows evidence of seasonal employment typical of the agricultural and tourism sectors where businesses do not employ the same number of workers year-round. Rather, they increase their workforce during certain periods of the year as required, i.e. during harvest or peak tourism season.

4.5.1 Key findings

- The employment profile reflects the Shire's predominant agricultural, fishing and forestry sector.
- The unemployment rate of 3% is substantially lower than the region and across WA and likely to be reflective of seasonal employment.

5. ECONOMIC ACTIVITY

The current key economic drivers for the Shire include agriculture, horticulture and fishing together with mining and tourism. The Shire has opportunities in respect to these key industries and some scope to expand and value add to these industries.

Jurien Bay has a regional role within the Shire, as a service hub for surrounding communities and industries, including health services and local government administration. There is also a strong focus on the provision of education and training services to surrounding communities.

The role of land use planning in facilitating economic activity is discussed in greater detail in Section 6 of this Strategy.

5.1 AGRICULTURE

5.1.1 Broad-acre agriculture

The continued use of the rural land for agricultural purposes is of importance to the economic future of the area. Traditionally, broad acre agricultural activities have included grazing (sheep and cattle) and cropping. These activities are based on production of coarse grains and wool on a broad acre basis. Wheat is the predominant cereal grown in the area, though oats is grown for grain, hay and feed. Canola and white lupins have excellent potential. Sheep and cattle are considered equally important in terms of production.

The outlook for agriculture will continue to be dynamic, with the use of land and products being produced adapting to changing circumstances such as fuel prices, overseas competition, economic subsidiaries to overseas producers, markets, climatic forecasts, environmental management responsibilities, and consumer tastes and demand. The use of land for agricultural purposes is vital to the Shire's economic future of the area.

5.1.2 Agriculture (Intensive)

According to the ABS (2019), the Gingin - Dandaragan area accounts for a significant proportion of production in the Central Coast sub-region. A large percentage of the following production occurs in the Shire of Dandaragan:

- \$11.5 million in orange production with two of WA's biggest citrus orchards located in the Shire. The Gingin-Dandaragan area produces 83 per cent of WA's oranges, 80 per cent of lemons and 49 per cent of mandarins.
- \$3 million in mango production with 41 per cent of WA's mangoes produced in the Shire.

- \$15 million in carrot production with the biggest carrot farm in the eastern hemisphere located mostly in the Shire.
- \$4.2 million in potato production with two very large potato growers located in the Shire.

Intensive livestock is also significant within the Shire with \$36 million worth of egg production from the AAA egg facility near Jurien Bay and \$41 million of pork production, with further growth planned for both ventures.

Harvest Road Group Pty Ltd are developing an intensive cattle feeding facility at Koojan Downs, which straddles the Shire and the adjoining Shire's of Moora and Victoria Plains. The feeding facility will be operated by Harvey Beef, Western Australia's largest beef processor, and will have the capacity to accommodate up to 40,000 head of cattle on a 100-day grain finishing program. The facility will be developed in a staged manner, with Stage 1 accommodating 20,000 head of cattle and a future Stage 2 increasing this capacity to 40,000 head of cattle (Farm Weekly, February 13, 2020).

The Shire is receiving more interest from the agriculture sector to establish more intensive forms of agriculture production across the Shire. To operate effectively, producers may require areas of high agricultural productivity, access to significant amounts of water, suitable soils, favourable climatic conditions and ready access to markets and freight networks.

At a regional level, the Shire is well-placed to accommodate horticultural activities given limited supply of land in the Perth Metropolitan Region. The Shire has a high potential for non-traditional agricultural activities, including: viticulture; aquaculture; floriculture; and traditional horticulture. Wildflowers from the region are a major contributor to the export market, grown on freehold and Crown land. Planting of nuts, fruits, flowers, fodder and oils can further diversify farming practices. Over the last ten years it is estimated that there has been more than 1,000 hectares of horticulture development in the eastern part of the Shire. Estimates of water capacity allocation suggest that there is sufficient supply to support an additional 3,000-4,000 hectares of intensive agricultural development.

Aquaculture has also commenced, viticulture is in its experimental stage, and some horticulture is being undertaken in the south of the Shire. Wildflowers from the region are a major contributor to the export market, grown on freehold and Crown land. Planting of nuts, fruits, flowers, fodder and oils can further diversify farming practices.

The Department of Primary Industries and Regional Development (DPIRD), the Wheatbelt Development Commission (WDC) and the Shire have identified opportunities for major post-farmgate food production precinct. Such a venture would aim leverage significant food production ventures within the Shire and the wider Wheatbelt region for export to various locations.

Creating a precinct requires proximity to major transport infrastructure, reliable 3-phase power and a water supply. The Shire believes these requirements can be satisfied given the location of the Brand Highway, proximity to growing horticulture and intensive agriculture activities, the Mid West Energy Project and opportunities for power generation from wind farms; and significant groundwater supply. As outlined in the Growth Plan, it could be expected that a 300-hectare net lettable productive area could potentially yield \$81.3-122 million of gross value-added output for the region and generate 1,000-1,500 jobs (Shire of Dandaragan, 2012).

5.1.3 Key findings

- High-priority agricultural land should be identified and protected.
- Diversification is occurring with significant opportunity for horticultural development where water resources are available.

5.2 FISHING

Fishing in the Shire is a major contributor to the income of the local and State economies. More than fifty species are fished in the area, including the Western Rock Lobster. Commercial fishing occurs throughout the year, though activity is greater during the rock lobster season.

While changes are occurring in the lobster and fishing industries with smaller operators leaving the industry and more restrictions on the catch, it will continue to be important economic activity for the Shire. Recreational fishing contributes to the local economy through provision of accommodation, charter operations and fishing supplies. The area hosts a large population of recreational fishers during the summer months, peaking at the school holiday breaks of Christmas/New Year and Easter.

5.3 ANIMAL PREMISES

Animal premises are important contributors to the food needs of Western Australia's residents and to the State's economy. The Shire continues to work with proponents investigating options to establish this type of premises in the Shire. Given the Shire's geographic location, it provides ready access to consumers in the Perth Metropolitan Region, key freight routes, and appropriate climatic conditions.

5.4 RENEWABLE ENERGY

Renewable energy production in the Central Coast Sub-region and in the Shire, continues to be an industry with considerable potential based on conducive environmental characteristics (such as consistent sunlight and coastal winds). The proximity of the Shire to the Perth Metropolitan Region means there is a captive market for additional energy capacity produced in the Shire.

Recent investment by industry within the sub-region and in the Shire has demonstrated economic and financial feasibility. This is incentivising a range of new and major investments in facilities such as:

- Emu Downs Wind Farm (constructed).
- Emu Downs Solar Photovoltaic site (constructed).
- Warradarge Wind Farm (constructed).
- Badgingarra Wind Farm (planned).
- Joanna Plains Wind Peaker Project (planned).
- Dandaragan (Yindin) Wind Farm (underway).
- Solar Farm Moora (underway).

5.5 MINING

The mining sector is an important contributor to the Shire's employment and growth. The main minerals of interest are titanium-zircon, mineral sands, coal, phosphate, potash, limes and, diatomite and gypsum (see Figure 9 - Mines, mineral deposits and basic raw materials).

Phosphate and potash are essential for agriculture and occurs in several parts of the Shire, such as at Emu Hill and Summer Hill. However, the known deposits are of low grade and are not currently economical to mine, but this may change in the future.

Other industrial minerals found in the area include gypsum, diatomite, bentonite and glauconite. Gypsum is used for domestic cement plaster, while diatomite can be used as a filler material or a thermal and acoustic insulator. There is a State Agreement that covers heavy mineral sand mining operations in the Cooljarloo area near Cataby, while other tenements for heavy mineral sands are located close to Jurien Bay.

5.5.1 Key finding

- Extraction and transportation of mineral resources is a key economic sector that needs to occur in a manner that protects public amenity, health and the environment.

Figure 9 - Mines, mineral deposits and basic raw materials



5.6 BASIC RAW MATERIALS

Deposits of gravel, limestone, marl, shell and sand are present in the Shire's Crown reserves and on private land (see Figure 9 - Mines, mineral deposits and basic raw materials). These include locally important sites that may not have been exploited to date, mining leases on Crown land or extractive industry sites under the Shire's authority. These materials are extracted by the Shire and other parties, including Main Roads WA for road construction and maintenance. Basic raw materials are also being commercially extracted for example along Jurien East Road and at a quarry close to Indian Ocean Drive near Wedge. Lime sand resources suitable for agricultural use are also present within coastal areas close to Cervantes and Jurien Bay.

5.6.1 Key finding

- Extraction and transportation of basic raw material resources is a key economic sector that needs to occur in a manner that protects public amenity, health and the environment.

5.7 TOURISM

There are two major tourist seasons within the Shire, the wildflower season from July to November and the summer season from November to April. Visitor experiences range from enjoying farm scenery, national parks (native flora and fauna, inland and ocean views), bush walks, wildflowers and aquatic activities such as swimming and snorkeling during the summer months, all year-round fishing, scuba diving and windsurfing and specialized activities such as skydiving.

According to Tourism Research Australia estimates, the Shire received approximately 300,000 visitors per annum between 2013 and 2017 who collectively spent approximately \$85 million annually. Most of this annual spend is contributed by domestic visitors, who contributed \$62 million or 73% of the total. On average, domestic visitors spent three nights in the Shire while international visitors spent two nights. Tourism Research Australia estimates that most of visitors to the Shire stay in camping grounds or caravan parks. Key attractions for tourists include:

- Marine environment: The Shire's marine environment is comprised of a unique combination of offshore reefs, islands and sheltered lagoons that are, to a large degree, protected by the 82,000ha Jurien Bay Marine Park.
- Coastal areas: Coastal settlements have traditionally been a popular holiday and recreation location for Wheatbelt farmers. Similarly, tourist and recreation activities have increased over time, with the area providing opportunities for fishing, windsurfing, boating, surfing, diving, wildflower tours, off-road vehicle use, and ecotours to Nambung National Park, the Pinnacles and Jurien Bay Marine Park.
- Hinterland: The hinterland areas, including: Lesueur National Park, Coomallo Nature Reserve and Nambung National Park, encompass diverse flora, unique geology and cultural heritage which act as recreation and tourism attractors for visitors.

The Shire, in consultation with Tourism Western Australia, prepared a local tourism planning strategy in 2012. This strategy examined impediments to facilitating future development of the tourism sector, with focus on providing greater protection for tourism developments through the Scheme and supporting plan and policies.

The Tourism sector continues to be recognised as a key sector when identifying economic development opportunities at the State, regional and sub-regional levels. Key publications include:

- Australia's Coral Coast Destination Development Strategy 2007-2017 (TWA, 2007)
- Wheatbelt Regional Investment Blueprint (WDC, 2015)
- Wheatbelt Regional Planning and Infrastructure Framework (WAPC, 2015)
- Guilderton-Kalbarri Sub-Regional Planning Strategy (WAPC, 2019)

These documents analysed the Shire's tourism potential by considering specific strengths and unique selling points, evaluated the status of tourism-related projects and identified potential gaps in relation to access, accommodation, attractions, activities and amenities.

5.7.1 Key finding

- Further growth of the tourism sector needs to be supported by continuous improvement of tourism products and experiences. This should include options for branded tourism developments in Jurien Bay and Cervantes.

5.8 LIFESTYLE AND RETIREMENT

The attractive natural environment of its coastal region has been the historic basis for settlement of the coast. The Shire has a high proportion of residents aged 65 and over and the trend of retiring baby boomers to high amenity affordable sea change locations for their retirement in locations such as Jurien Bay is likely to continue. This lifestyle and retirement community will increase the requirement for population-driven jobs.

Opportunities related to retirement, lifestyle and tourism will all leverage off the unique natural features of the Shire, recognised nationally and internationally for their biodiversity and heritage values. The Growth Plan recognises the need for improved health care and education services to respond to the existing and projected demographic profile.

5.8.1 Key finding

- The Shire's attractive natural environment and climate provides retirement, lifestyle and tourism opportunities.

6. LAND USE

6.1 RESIDENTIAL

6.1.1 Jurien Bay

Jurien Bay currently has approximately 1,100 lots zoned for residential purposes. Densities differ across the town site with the north of Hasting Street predominantly R12.5 density with some R30; the City Centre area (Hasting to Lindsay Streets) predominantly R12.5, R12.5/R25 and Regional Centre zone which provides for greater densities subject to planning and the South of Lindsay Street predominantly R12.5.

The Jurien Bay Growth Plan analysed potential growth scenarios for the town (based on a population of 20,000+ persons) and surrounding hinterland by investigating strategies to facilitate future growth through significant greenfield developments. The Jurien Bay Growth Plan also identified the need for greater consolidation of lots within the town centre to provide greater housing choice.

More recently, the Dandaragan Regional Land Supply Assessment (WAPC, 2019) reviewed previously analyses as part of the WAPC's Urban Development Program. The Land Supply Assessment reviewed five specific spatial areas that are at various stages of the planning process. This Strategy includes these areas and has identified relevant planning considerations for their development (see Table 24).

Table 24: Identified opportunities for residential development in Jurien Bay

Location	Zoning	Lot yield (potential)	Strategy considerations
<p>Lots 290, 792, 1556, 7377, 9016 & 9517 Indian Ocean Drive and Bashford Street</p> <p>Referred to as the Turquoise Coast</p>	<p>Residential (R12.5)</p> <p>Special Development</p>	8,000 (Residential)	<p>The site is predominantly zoned Special Development with a small portion of the site (4.9 hectares) zoned Residential (R12.5). The Turquoise Coast Structure Plan identifies a yield of over 8,000 residential lots, to be delivered over eight stages of development with Local structure plans prepared for Stage 1 through to Stage 3. Development of Stage 1 (marketed as Beachridge Estate) is partially complete with over 600 lots already created. Other proposed land uses identified in the area include special residential, residential/industrial composite lots, light industrial, industrial and commercial/tourist uses. It is anticipated that development will be progressed in stages dictated by market demand and infrastructure capacity.</p>
Lot 1252 Aquilla Street	Residential (R12.5)	~40 (Residential)	<p>The site is unallocated Crown land zoned Residential with a density coding of R12.5 under the Scheme. The site provides an opportunity for the consolidation of urban form, given its strategic location and it is anticipated that development will be progressed in stages dictated by market demand and infrastructure capacity.</p>
<p>Lot 8836</p> <p>Referred to as North Head</p>	Special Development	<p>2,215 (Residential)</p> <p>550 (Tourism)</p>	<p>The site is comprised of land zoned Special Development under the Scheme. The North Head District Structure Plan identifies a total yield of 2,215 single residential lots and 550 tourist rooms. It is anticipated that development will be progressed in stages dictated by market demand and infrastructure capacity.</p>
Numerous lots bounded by Hasting Street, Doust Street and Bashford Street	<p>Residential (R12.5)</p> <p>Residential (R12.5/25)</p>	To be determined	<p>The majority of lots in this area are in private ownership. This area is identified as having potential for accommodating a more consolidated urban form. The introduction of dual density coding of R12.5/R25 will support development of this area. It is anticipated that development will be progressed in stages dictated by market demand and infrastructure capacity.</p>
Lot 480 Hasting Street	Residential (R40)	5-10 Residential	<p>The area is Crown land. This Strategy identifies the site as an opportunity for further development and consolidation/expansion of the Jurien Bay townsite given the site has an R40 code. It is anticipated that development will be progressed in stages dictated by market demand and infrastructure capacity.</p>

Source: WAPC (2019)

6.1.2 Cervantes

The Cervantes Town Centre Future Land Use Plan investigated opportunities for future utilisation of existing commercial and undeveloped land to provide for an integrated mix of uses serving the needs of local residents and visitors. The Cervantes Town Centre Future Land Use Plan also identifies opportunities for mixed short stay accommodation integrated with higher density residential uses, aged care and associated community facilities, and an amended road layout to facilitate access to parking.

More recently, the Dandaragan Regional Land Supply Assessment (WAPC, 2019) reviewed previous analyses as part of the WAPC's Urban Development Program. The Land Supply Assessment reviewed four specific spatial areas that are at various stages of the planning process. This Strategy includes these areas and has identified relevant planning considerations for their development (see Table 25).

Table 25: Potential residential development opportunities in Cervantes

Location	Zoning	Lot yield (potential)	Strategy considerations
Lot 93 Pamplona Cr, Lot 94 Valencia Rd, Lot 9501	Residential (R15) Residential (R50)	73	The site is comprised of three lots zoned Residential under the Scheme. Conditional subdivision approval has been granted to create 41 single residential lots and one grouped dwelling lot on Lot 9501. Future development is subject to market demand and infrastructure capacity.
Numerous lots bounded by Seville St, Weston St, Iberia St & Aragon Street	Residential (R35)	12	The site comprises numerous lots at the centre of the Cervantes townsite. Future development is subject to market demand and infrastructure capacity.
Pt Lot 501 Cervantes Road	Residential (R12.5)	To be determined	The site comprises of an area of Crown land identified as a potential site for further development and consolidation/expansion of the Cervantes townsite. Development is subject to resolution of environmental and native title requirements, market demand and infrastructure capacity.
Lot 644 Green Street	Residential (R12.5)	6	The site comprises a vacant lot zoned Residential with a density coding of R12.5 under the Scheme. Future development is subject to market demand and infrastructure capacity.

Source: WAPC (2019)

6.1.3 Dandaragan

The Dandaragan townsite is substantially developed on the existing available land and comprises the following:

- 54 lots zoned Residential (R12.5) (all have dwellings);
- Large un-subdivided lots zoned Residential (R12.5) (50% already cleared with dwellings);
- 4 lots zoned Residential (R0.5) (all have dwellings);
- 18 lots zoned Rural Residential in the Koorinal development directly north of the town (15 are developed).

The Shire's Inland Strategy analysed potential for growth in residential development opportunities in the Dandaragan townsite and the surrounding hinterland by identifying potential development areas; investigating staging; and examining constraints to growth. A more compact settlement form utilising existing infrastructure is desirable, and flexibility is a key consideration when identifying land use opportunities to meet the needs of the small diverse settlements and surrounding rural hinterland.

More recently, the Dandaragan Regional Land Supply Assessment (WAPC, 2019) reviewed previous analyses as part of the WAPC's Urban Development Program. The Land Supply Assessment reviewed three specific spatial areas that are at various stages of the planning process, including the two investigation areas identified in the Inland Strategy. This Strategy includes these areas and has identified relevant planning considerations for their development as (see Table 26).

Table 26: Potential residential development opportunities in Dandaragan

Location	Zoning	Lot yield (potential)	Strategy considerations
Lot 93 Pamplona Cr, Lot 94 Valencia Rd, Lot 9501	Residential (R15) Residential (R50)	73	The site is comprised of three lots zoned Residential under the Scheme. Conditional subdivision approval has been granted to create 41 single residential lots and one grouped dwelling lot on Lot 9501. Future development is subject to market demand and infrastructure capacity.
Numerous lots bounded by Seville St, Weston St, Iberia St & Aragon Street	Residential (R35)	12	The site comprises numerous lots at the centre of the Cervantes townsite. Future development is subject to market demand and infrastructure capacity.
Pt Lot 501 Cervantes Road	Residential (R12.5)	To be determined	The site comprises of an area of Crown land identified as a potential site for further development and consolidation/expansion of the Cervantes townsite. Development is subject to resolution of environmental and native title requirements, market demand and infrastructure capacity.
Lot 644 Green Street	Residential (R12.5)	6	The site comprises a vacant lot zoned Residential with a density coding of R12.5 under the Scheme. Future development is subject to market demand and infrastructure capacity.

Source: WAPC (2019)

6.1.4 Badgingarra

The town is substantially developed on the existing available land and comprises the following:

- 28 lots zoned Residential (R12.5) (all with dwellings).
- 6 lots zoned Residential (R2.5) (all with dwellings).

The Shire's Inland Strategy (2012) analysed potential residential development opportunities in the Badgingarra townsite and surrounding hinterland by identifying potential development areas; investigating staging and examining constraints to growth. A more compact settlement form utilising existing infrastructure is desirable, and flexibility is a key consideration when identifying land use opportunities to meet the needs of the small diverse settlements and surrounding rural hinterland.

More recently, the Dandaragan Regional Land Supply Assessment (WAPC, 2019) reviewed previous analyses as part of the WAPC's Urban Development Program. The Land Supply Assessment reviewed one specific spatial area that was identified as an investigation in the Inland Strategy. This Strategy includes this area and has identified relevant planning considerations for its development (refer to Section 6.8).

6.1.5 Highway Service Centres

Regans Ford is a gazetted townsite located on the Brand Highway at its crossing with the Moore River. Regans Ford is zoned Rural and is surrounded by Rural zoned farmland. There have never been any proposals to support or initiate development in the town.

The location is strategically situated to serve the travelling public and local needs. It is north of Orange Springs Road which provides an alternative route to Perth, Lancelin and the coast.

Moore River provides a very attractive rest spot on the riverbanks adjacent to Regans Ford and is very popular, particularly with campers. Windmill Roadhouse provides fuel, food, papers and other similar goods. A separate caravan park adjacent to the roadhouse provides camping facilities.

The Shire will support the sustainable development of the townsite to service and provide short stay accommodation for the needs of the travelling public, tourists and residents where it does not compromise rural land uses or public safety on the Brand Highway. Any proposals to upgrade or expand the roadhouse and the caravan park will be considered on merit. Residential or rural living uses will not be supported in the townsite.

The Cataby Highway Service Centre is located on the Brand Highway approximately 35km north of Regans Ford. In addition to fuel sales, it also provides basic goods and services to passing traffic and the surrounding rural and mining communities. Limited short stay accommodation caters for the needs of tourists and visitors to the area.

Any proposals to upgrade or expand the service centre will be considered on merit, and in the context of the needs of the surrounding mining and agricultural land uses, while giving regard to environmental constraints and service infrastructure capacities.

6.1.6 Wedge and Grey

The shacks at Wedge and Grey have been developed since the late 1950s using a variety of materials and styles and without approvals. Originating as holiday shacks for inland farming communities, there are now over 300 squatter shacks at Wedge and over 100 shacks at Grey. Both Wedge and Grey are managed by the Department of Biodiversity, Conservation and Attractions (DBCA).

In May 2010, the Legislative Council Standing Committee on Environment and Public Affairs initiated an inquiry into shack sites in Western Australia. The Committee in its report (Report 21) made a recommendation specific to Wedge and Grey. In August 2011, the Government at that time responded to the Committee's report and accepted this recommendation with qualification:

Report 21 Recommendation 6: That Committee recommends that the responsible Minister and managing authority instruct leaseholders and shack owners to remove the shacks at Wedge and Grey and, as a priority, develop the area to provide the public with low impact, nature-based, affordable visitor facilities and accommodation, including camping and caravanning facilities.

Government subsequently responded to the Committee's report and accepted the Wedge and Grey recommendation with qualification outlining that it would:

"... examine options for Wedge and Grey that meet the requirements for public recreation and tourism use in conjunction with a level of shack retention that contributes to the opportunities for public use. This consideration would be in consultation with the current shack leaseholders. Any future development of the sites will be subject to State planning requirements and will address equity of access and use, building safety, health and amenity, coastal processes and provide for environmentally sustainable public outcomes".

Future planning for Wedge and Grey will account for the heritage values of the sites. The DBCA continues to work with shack associations and other key stakeholders to focus on practical solutions essential to achieving positive human health, safety and environmental outcomes.

6.1.7 Adequacy of residential land supply

As at September 2018, there were 250 hectares of land zoned Residential and 2,670 hectares zoned Special Development within, and adjacent to, the Shire's four town sites. As at December 2017, approximately 680 vacant lots were identified on land zoned for residential development. This accounts for 27 per cent of the total stock of existing residential lots.

The Dandaragan Land Supply Assessment (WAPC, 2020) analysed future dwelling/land requirements based on trends against known information timing of land releases. This showed that there is sufficient stock of residential land and dwellings to meet future population growth into the long term, even if the rate of population growth is higher (see Table 27).

Table 27: Adequacy of land supply in the Shire

Timeframe	Estimated dwelling requirement			Already Identified lots/ dwellings
	Band A	Band C	Band E	
2016-2021	381	525	668	41
2021-2026	192	239	278	1,953
2026-2031	181	245	376	4,587
Total	754	1,009	1,322	6,581
Stock of vacant lots: 899				

Source: WAPC (2019)

Given that a significant amount of privately-owned land is already identified for residential development, there has been no requirement to identify opportunities to utilise unallocated Crown land within or surrounding the Jurien Bay townsite.

6.1.8 Key findings

- The Growth Plan sets the longer-term direction for development of Jurien Bay.
- Significant development proposals at Turquoise Coast and North Head were identified for a range of urban land uses in response to the economic and population drivers contained in the Growth Plan.
- Jurien Bay has a high number of vacant residential lots with future consumption of these lots based on market demand and infrastructure capacity.
- Crown Reserves and the Cervantes Drinking Water Source Protection Area limit expansion of the Cervantes townsite to its south and east, although, Crown land provides the opportunity for further development, subject to resolution of environmental and native title requirements and other issues.
- The rationalisation of landholdings between Cervantes and Hill River may provide an opportunity for the expansion of Cervantes to the north subject to detailed investigation of environmental and other issues.
- The towns of Dandaragan and Badgingarra will continue to support the agricultural sector with limited residential growth expected and development flexibility offered in both towns to cater for demand if needed and subject to further investigation.
- Highway service centres at Regans Ford and Cataby will continue to provide services to road traffic using Brand Highway.
- The Wedge and Grey locations are to be utilised for public recreation and tourism use, no permanent residential development at these locations is supported.

6.2 RETIREMENT AND LIFESTYLE

As previously highlighted in Section 3, both Jurien Bay and Cervantes presently have a higher proportion of residents aged 55 (and over) compared to the State average. This trend is expected to continue which will have implications for land supply, housing stock, infrastructure (particularly community facilities), and cohort-specific recreation/leisure requirements.

This Strategy identifies the need to investigate opportunities to provide variations to development standards to facilitate opportunities for aged or dependent living (such as allowing dwellings to be constructed at higher densities) in the Shire's settlements.

6.3 TOURISM

Historically, most visitors to the Shire have stayed in caravan and camping accommodation but the number of visitors staying in hotel, resort and motel accommodation has increased in recent years. The high percentage of visitors staying in caravan and camping accommodation may be attributed to the preference for affordable family accommodation and the lack of alternative accommodation available within Jurien Bay and Cervantes.

In 2012, investigations regarding future land requirements to meet the future needs of the tourism industry were undertaken as part of the Local Tourism Planning Strategy, Jurien Bay Growth Plan and Cervantes Town Centre Future Growth Plan.

More recently, the Dandaragan Regional Land Supply Assessment (WAPC, 2019) reviewed previous analyses as part of the WAPC's Urban Development Program. The Land Supply Assessment reviewed five specific tourism areas that are at various stages of the planning process. This Strategy includes these areas and has identified relevant planning considerations for their development (see Table 28 and Table 29).

Table 28: Potential tourism development opportunities in Jurien Bay

Location	Zone	Strategy considerations
Lot 1136 Casuarina Crescent	Tourist	The land is vacant and has been identified as sewage sensitive as it is within two kilometres of the Jurien Bay coastal embayment. This Strategy identifies the land as an opportunity for a major tourism development adjacent to the foreshore. The land is located within Special Control Area 3 - Coastal Hazard Risk Area as it has been identified as vulnerable to coastal erosion.
Lot 1137 Casuarina Crescent	Tourist	The land is currently undeveloped and has been identified as sewage sensitive as it is within two kilometres of the Jurien Bay coastal embayment. This Strategy identifies the land as an opportunity for a tourism development adjacent to the foreshore. The land is located within Special Control Area 3 - Coastal Hazard Risk Area as it has been identified as vulnerable to coastal erosion.
Lot 62 Roberts Street and portions of the Heaton Street and Roberts Street road reserves	Special Use	The land is predominantly vacant, with limited existing vegetation, and is zoned Special Use 4 under the Scheme. A proposal for a mixed-use tourist development consisting a hotel, motel, retail and other commercial activities, short stay units and permanent residential units is being progressed by the landowner.
Lot 58 Oceanic Way	Tourist	The land is vacant and is located within Special Control Area 3 - Coastal Hazard Risk Area as it has been identified as vulnerable to coastal erosion.
Lot 1225 Breakwater Drive/Harbour Drive (Reserve 39419) & Lot 1248 Seaward Drive (Reserve 39419)	Tourist	This land is part of the Jurien Bay Boat Harbour Precinct. The Harbour area is identified in this Strategy as a strategic infrastructure asset that is underutilised and has significant potential to create a vibrant commercial, tourist and recreation precinct. This Strategy recommends the Shire work with the Department of Transport (DoT) to prepare a strategic plan for the Jurien Bay Boat Harbour Precinct to capitalise on increased opportunities for tourism in the region.

Source: WAPC (2019)

Table 29: Potential tourism development opportunities in Cervantes

Location	Zone	Strategy considerations
Lot 861 Seville Street	Tourist	The land is owned by the State of Western Australia and is located within Special Control Area 3 - Coastal Hazard Risk Area as it has been identified as vulnerable to coastal erosion. This Strategy contemplates rezoning of the land from Tourist to Special Use, including additional site and development requirements, to facilitate development. Any proposed development on the land should be predominantly for tourist purposes.
Lots 617 & 618 Beach Road Lots 897, 898 & 899 Catalonia Street	Marine Services	The land was previously the subject of the Cervantes Keys proposal, which proposed significant development for tourism and recreation uses. The proposal did not proceed, however, this Strategy acknowledges the land's potential for tourism and recreation uses. The land is located within Special Control Area 3 - Coastal Hazard Risk Area as it has been identified as vulnerable to coastal erosion.
Lot 645 and Lot 890 Catalonia Street	Tourist	The land is comprised of two vacant, undeveloped lots zoned Tourist under the Scheme.

Source: WAPC (2019)

It is estimated that approximately 100-150 residential dwellings are rented as commercial holiday homes within Jurien Bay and Cervantes, although exact numbers are difficult to determine. Local Planning Policy 9.12: Holiday Homes is in place to safeguard residential amenity by guiding the approval of this land use in the Residential zone.

The Scheme provides limited land use definitions, minimal guidance for assessing key aspects of tourism proposals (such as building height, design and car parking). To rectify this issue, this Strategy recommends greater guidance be provided in the Scheme on key issues like protecting tourism sites through appropriate zoning and site requirements which limit the length of occupancy and the proportion of the residential component of tourism developments.

Caravan parks in Jurien Bay and Cervantes will continue to play an important role in accommodating visitors to the Shire. The Shire considers that a review of these activities from a land use perspective is timely given increasing demand for caravan/camping facilities and longer- term needs, including potential competition from other land uses.

Outside of the Shire's town sites, there is a need to investigate the specific need for nature-based camping, including identification of specific areas and a focus on the possible expansion of the Sandy Cape Camping area.

6.3.1 Key findings

- Lots for Tourism purposes are identified in the North Head and Turquoise Coast development areas and in the townsites of Jurien Bay and Cervantes.
- Future tourism developments proposed along the coast are subject to coastal hazards and require detailed planning to ensure appropriate risk management.

- Tourism activities are comprised of a diverse range of land uses that have specific requirements that need to be reinforced through the local planning framework.

6.4 COMMERCIAL/RETAIL

Jurien Bay accommodates most of the Shire's existing commercial development/activities. As at December 2018, there were approximately 130 lots on land zoned for commercial purposes covering an area of 45 hectares.

The Jurien Bay Growth Plan identified future commercial land requirements based on future population growth scenarios (see Table 30).

Table 30: Potential commercial/retail development opportunities in Jurien Bay

	Commercial land requirements (m ²) based population thresholds				
	1,173	2,500	5,000	10,000	20,000
Convenience Retail	833	1,782	3,580	7,192	14,448
Comparison Retail	1,370	2,932	5,889	11,830	23,766
Population-Driven Office	565	1,210	2,431	4,883	9,810

Source: Shire of Dandaragan (2012)

Jurien Bay is identified as a Regional Centre and if population exceeds 12,500 residents a new district centre would be required. The Turquoise Coast Structure Plan contains provisions for such a centre at Booka Valley.

Beyond the regional and district centre scale, the Turquoise Coast development, North Head and Boat Harbour Precincts will include retail and commercial uses within local centres.

Cervantes accommodates shops and businesses serving the day to day needs of the town and visitors. Some land is earmarked for further expansion of commercial activities, but no timing for development of this land has been identified.

Dandaragan will continue to play the role of a service centre for the rural hinterland, with capacity for growth related to its function. Badgingarra will continue to service the day to day needs of the town and visitors. Its role also includes provision of services to users of the Brand Highway.

Areas in Dandargan and Badgingarra are identified for further investigation. Future land uses may identify opportunities for commercial activity subject to detailed investigations (refer to Section 6.8.6).

Highway Service Centres at Cataby and Regans Ford will continue to provide services for users of Brand Highway.

6.4.1 Key findings

- Jurien Bay's commercial area is well established and offers a range of opportunities commensurate with its function servicing the townsite and wider area.
- The Turquoise Coast and North Head developments each contain a commercial component to service future residential population as it increases.
- There is capacity to expand the Cervantes commercial area should this be required because of future economic and population growth.
- Dandaragan and Badgingarra will continue to provide for the needs of the local and travelling population.
- Highway service centres at Cataby and Regans Ford will continue to provide services for users of Brand Highway.

6.5 INDUSTRIAL

There are two industrial areas servicing Jurien Bay: the Carmella Street Light Industrial area comprising 40 lots (38 developed/2 vacant lots) and the Coalseam Road Industrial comprising 29 lots (23 developed/6 vacant lots).

In terms of future industrial land opportunities, two stages have been planned that will provide an additional 90ha (or approximately 45 lots) to the south of the existing Coalseam Road Industrial Area. This area could be expanded from 20ha to an ultimate area of 110ha. The expansion is subject to the resolution of native title issues, environmental assessment and infrastructure provision.

The proposed Turquoise Coast development provides for the creation of 25 industrial lots and 18 light industrial lots. Land within the Jurien Bay Boat Harbour Precinct has been identified to provide opportunities for marine based industry as part of a land use mix to increase the use and development of the boat harbour area. Unallocated Crown land to the north east of this facility could also be developed in future for industry purposes.

There are two industrial areas servicing Cervantes: the Seville Street Light Industrial area which comprises 21 lots that are all developed and zoned for light industry and in the Marine Services adjacent to the foreshore (north of Madrid and Biscay Streets).

In terms of future industrial land opportunities, expansion of the Seville Street Light Industrial area is constrained by the high conservation value of the land adjacent to Lake Thetis. Given limited recent change in residential development it is considered unlikely that additional industrial land will be required in the short- to medium-term in Cervantes. In the longer-term, investigation of the land north of Cervantes could consider a range of appropriate land uses which may include additional light industrial lots.

All twelve lots zoned Industry in Dandaragan have been developed. Expansion of the existing area may be considered, as could development of new areas where the intention is to provide more flexible opportunities such as composite industry, mixed business, and industry with associated residential development, subject to market demand and the provision of appropriate service infrastructure.

Land immediately adjoining the Badgingarra townsite to its south, along Brand Highway, and between the Brand Highway portion of the old and new town, is suitably located between Cataby and Eneabba to provide services for all vehicles and road users on Brand Highway, and other rural enterprises. Uses such as truck and car repairs, tyre change, and similar light to general industrial activities will be assessed on their merits.

Industrial areas and the activities they accommodate can generate dust, noise and odour, in addition to other emissions and safety risks, and have the potential to affect the surrounding environment, people's amenity and health. The potential for harm may be as a result of a single industrial activity or the cumulative impact of emissions and safety risks from a number of activities.

When planning for industrial activities consideration must be given to ensuring there is adequate separation between sensitive land uses. State Planning Policy 4.1 provides guidance to ensure planning decisions consider the locational constraints of land uses, the significant investments represented, and the current and future benefits and costs to communities when assessing proposals where land use conflict may exist or result.

6.5.1 Key findings

- Approximately 140 hectares of land is zoned Industrial across the Shire's towns, with the largest being the Coalseam Road industrial area in Jurien Bay.
- There is 90 hectares of undeveloped Industrial zoned land at the Coalseam Road industrial area. Development beyond the current stage, however, is subject to environmental, infrastructure and native title assessments.
- The Turquoise Coast development contains an industrial component. Structure planning has identified an indicative yield of 43 industry and light industry lots on land zoned Special Development.
- Identified investigation areas in Badgingarra and Dandaragan may incorporate some industrial land should demand be identified.

6.6 RURAL LIVING

According to the Dandaragan Land Supply Assessment (2019) there are approximately 536 lots zoned Rural Living purposes, covering 3,126 hectares. Of these lots, 220 (or 40%) are vacant (see Table 31). The most recent subdivision activity for this land use occurred between 2012-14 with the release of the Marine Fields estate.

Table 31: Potential Rural Living development opportunities in the Shire

Locality	Estate name	Zone	Area (ha)	Total lots	Vacant lots
Badgingarra	N/A	Rural Residential	43	1	N/A
Dandaragan	Koorungal Vale	Rural Residential	39	18	3
Hill River	Catabilling Springs Farm	Rural Residential	387	1	N/A
Jurien Bay	Alta Mare	Rural Residential	800	208	57
	Hill River Heights	Rural Residential	57	20	19
	Jurien Bay Heights	Special Use	790	226	111
	Marine Fields	Rural Residential	1,011	62	30
	Lot 1 Jurien Road	Rural Smallholdings	1,429	48	48
Total			4,555	536	220

Source: WAPC (2019)

Based on the data presented in Table 31, proposals to create new areas to accommodate rural living surrounding Jurien Bay may not be supported by the Shire. The investigation areas identified in this Strategy for Dandaragan and Badgingarra may include a rural living component subject to a range of considerations, including demand assessment.

6.6.1 Zoning for rural living purposes

Rural living is considered as a residential land use that occurs on land zoned either Rural Residential (1-4 hectare lots) or Rural Smallholdings (4-40 hectare lots).

SPP 2.5 and the associated Rural Planning Guidelines (WAPC, 2016) set out the following factors when considering proposals to zone land either Rural Residential or Rural Smallholdings:

- (i) the land is to be adjacent to, adjoining or close to existing urban areas with access to services, facilities and amenities;
- (ii) the proposal will not conflict with the primary production of nearby land, or reduce its potential;
- (iii) areas required for priority agricultural land are avoided;
- (iv) the extent of proposed settlement is guided by existing land supply and take-up, dwelling commencements and population projections;
- (v) areas required for urban uses are avoided;
- (vi) water will be supplied from a reticulated source or a fit-for-purpose alternative. If an acceptable supply of potable water cannot be demonstrated, the development cannot proceed;
- (vii) electricity will be supplied from an existing network or an alternative renewable source where a network supply is not available;
- (viii) the precinct has reasonable access to community facilities, particularly education, health and recreation;
- (ix) the land is predominantly cleared of remnant vegetation, or the loss of remnant vegetation through clearing for building envelopes, bushfire protection or fencing is minimal and environmental values are not compromised;
- (x) improved environmental and landscape outcomes can be achieved;
- (xi) the land is capable of supporting the development of dwellings and associated infrastructure and is not located in a floodway or an area prone to seasonal inundation;
- (xii) the land is not subject to a separation distance or buffer from an adjoining land use, or if it is, that no sensitive land uses be permitted in the area of impact;
- (xiii) the proposed lots can be serviced by a constructed road, including access and egress for emergency purposes; and
- (xiv) bushfire risk and natural hazards can be minimised and managed in accordance with State policy. Proposals in areas of extreme bushfire risk will not be supported.

6.6.2 Scheme provisions for rural living

Within the Rural Residential and Rural Smallholdings zones, the Scheme should:

- specify lot sizes within an estate through a coded zoning;
- set out provisions concerning development standards, either in Part 4 or a schedule;
- provide guidance as to whether rural living estate require structure planning to be prepared to ensure coordination of future subdivision and development;
- identify investigations or studies that may be required prior to a scheme amendment being initiated, or at the first stage of subdivision; and
- consider amenity impacts of outbuildings, water tanks and ancillary uses.

6.6.3 Structure planning

When planning for rural living areas it can be beneficial to have scheme provisions to require structure planning. As many estates have developed in an ad-hoc way, local governments can find there is inadequate road planning, emergency access and egress, public open space or community facilities, resulting in rural living estates with limited amenity and access to services. As such, preparation of structure plans may be required.

Structure plans for rural living areas would set out the information required by the but would also need to consider:

- the type and scale of agricultural land uses or rural pursuits that should be permitted;
- minimum development standards (e.g. for repurposed and second-hand dwellings or the use of sea containers);
- regulations and guidelines on the keeping of animals;
- clearing, land management and environmental controls including nutrient export risk management;
- the identification of either a building envelope, or building exclusion area on each lot to avoid areas with bushfire risk, biodiversity value, risk of pesticide spray drift, or subject to inundation;
- the restriction of development to only one dwelling per lot;
- any scenic landscape and/or conservation attributes;
- bushfire risk, including a separate water supply for firefighting; and
- whether the land is seasonally inundated or within a floodplain (floodway or flood fringe).

6.6.4 Demand assessment

The Shire will ensure there is genuine demand for potential rural living activities before land is allocated in the Strategy or the site supported through a scheme amendment. Rural residential land should be guided by existing land supply and take-up, dwelling commencements, and population projections to help prevent development that is ad-hoc, isolated from amenities and difficult to service. To foster development that is achievable and desirable, the level of demand for desired land uses in the area needs to be investigated. Matters to consider in relation to demand include:

- Is the projected demand based on evidence of actual use and development of the land?
- Is the timeframe realistic based on lot creation and take-up in the area?
- Is the evidence based on a sufficient time period to allow for fluctuations in demand?
- Have previous similar developments achieved a sufficient level of occupancy?

6.6.5 Use of sheds for residential purposes

A number of the sheds on lots within the Alta Mare and Jurien Bay Heights rural residential estates are being used for permanent or part-time/weekend occupation, which is not currently permitted under the Scheme. The Shire allows temporary occupation of sheds in rural living areas while a residence is being constructed but do not allow ongoing occupation as these sheds may not satisfy the minimum requirements for a dwelling under the Building Code of Australia. It could also lead to unsightly development detracting from the amenity of the area and result in the devaluation of surrounding properties.

The Shire does not support the use of sheds for temporary accommodation purposes, but considers the use of an onsite caravan or conversion of a portion of a shed to a habitable room(s) with appropriate ablution facilities for the period of up to 12 months during construction of a dwelling appropriate, subject to a formal development application being submitted and approved. To give effect to the Shire's position, Local Planning Policy 8.4: Outbuildings and Temporary Accommodation in Rural Residential and Special Use - Rural Development Zones includes provisions for the use of an onsite caravan or conversion of a portion of shed to a habitable room(s) with appropriate ablution facilities for the period of up to 12 months during construction of a Shire approved dwelling.

6.6.6 Relocated dwellings

The Shire is receiving a growing number of applications to allow dwellings to be relocated from other locations and taken to rural living estates such as Alta Mare and Jurien Bay Heights. The demand for the relocation of dwellings relates to the high cost and difficulty in getting houses built, the rising price of land, the potential to relocate existing dwellings from Cervantes, Jurien Bay and other coastal towns where large new houses are being constructed and the benefits of recycling housing stock.

Two main concerns are the standard and appearance of the dwellings, and whether asbestos forms part of the construction material; concerns which are addressed in the Shire's Local Planning Policy 8.1: Relocated Dwellings. Local Planning Policy 8.1 sets out the requirements for applications to relocate dwellings and criteria for the evaluation of design and aesthetic values of the dwellings. It also provides for the relocation of dwellings with asbestos from townsites to a rural area subject to conditions to manage the relocation process. The relocation of conventional houses based on the specific merit of an application may also be considered. The policy needs to be reviewed to ensure that no unsuitable relocated and second-hand dwellings will be permitted in the Shire.

6.6.7 Key findings

- Rural living estates surrounding Jurien Bay currently have a significant number of vacant or undeveloped lots.
- Based on past uptake trends, demand for rural living lots may not be sufficient to support creation of new estates around Jurien Bay.
- Limited demand for rural living development may be surrounding Dandaragan and Badgingarra.
- Future rezoning and subdivision of land for rural living purposes should be staged in accordance with the current supply of zoned land and undeveloped lots, structure planning, and demand assessment based on take up rates and population projections.

6.7 RURAL ENTERPRISE

The Scheme provides limited opportunities to accommodate a wide range of activities in rural living estates. Anecdotal evidence suggests that current restrictions on the provision of small-scale commercial and (light) industry uses act as a deterrent to prospective land purchasers.

The intent of the Rural Enterprise Zone is to provide opportunities for a combination of a home and a rural business or industrial land use on one lot. There is usually demand for this type of lot in the inland settlements, such as Dandaragan and Badgingarra, as they provide land owners greater flexibility. As an identified action of this Strategy, the Shire intends to further investigate whether this zone should be introduced into the Scheme.

A Rural Enterprise Zone needs to be designed carefully to achieve reasonable separation between the residential and business activities and other land uses to preserve amenity. Residents would need to accept some degree of impact from business operations, therefore, careful consideration of permitted land uses, and the physical layout, of future rural living estates should be undertaken.

Some key matters for consideration include:

- whether certain industrial land uses should be excluded from a proposed rural enterprise estate;
- the hours of operation that will maintain a reasonable level of amenity for the area (this could rule out freight / transport business or those that operate 24 hours a day);
- the type of roads necessary to address amenity for the residential component and sufficient exposure for the businesses onsite;
- the provision of services and roads to cater for heavy vehicles; and
- the proximity of urban areas. The zone contains a residential component and therefore access to town facilities, such as retail, government services or recreational facilities, would be desirable.

When contemplating scheme provisions and policies for a Rural Enterprise Zone, the following matters should be investigated:

- appropriate lot size - lots are generally one to four hectares which is consistent with the range of sizes for the Rural Residential Zone but variations may be contemplated to cater for local circumstances;
- servicing required for development - electricity, water provision and waste water services;
- the requirement for notification on title to alert prospective land owners of existing or future amenity issues;
- provisions to address potential land use conflicts with surrounding areas and to protect amenity (i.e. visual, noise, smell, dust and/or pollution); and
- staging, in terms of the dwelling being ancillary to the industry uses e.g. no house without the industrial use.

6.7.1 Key findings

- There may be demand for lots that provide greater flexibility, particularly for the inland towns of Dandaragan and Badgingarra.
- The inclusion of the Rural Enterprise Zone in the Scheme may achieve this requirement.

6.8 RURAL LAND

The Shire is characterised by extensive areas of rural land surrounding the towns and rural living estates. Rural land includes broad area agriculture as well as more intensive horticulture areas, conservation reserves, national parks, Crown land, several basic raw material and exploration sites and other primary production land.

The Shire comprises a broad range of rural lot sizes spread throughout the productive agricultural areas. While large lots up to 1,500 hectares and overall land holdings of several thousand hectares are common, smaller lots (40 ha to 200 ha) are scattered throughout the rural area, commonly along creeks and rivers, around the townsites, closer to the coast and along transport routes.

Lots may be held individually or as a group comprising a farming operation or property. There are also individual titles which are made up of a number of the original Crown Grants which can be created as separate titles by the Registrar of Titles. These titles may also be land-locked like many existing lots are, however, that is a separate issue regarding access.

People use lots in the rural area for a wide range of agricultural activities. While traditional broad scale cropping and grazing are the main activities, the range of stock and crops is diversifying. New activities are also developing such as olive growing, tree farms, horticulture and orchards.

The traditional model where the farm was passed onto the sons is also changing and new residents are investing in and practising farming. At the same time, larger companies are also investing in and practising agriculture building up large operations comprising many titles or very large lots or alternatively developing diversified intensive agricultural activities.

The outlook for agriculture will continue to be dynamic, with the use of land and products being produced adapting to changing circumstances such as fuel prices, overseas competition, economic subsidiaries to overseas producers, markets, climatic forecasts, environmental management responsibilities, and consumer tastes and demand.

The importance of agriculture to the economy of the Shire is recognised as well as the importance of protecting agricultural land as a valuable resource. To support growth of this sector, priority agricultural land should be identified in consultation with DPIRD and protected from competing land uses. It is proposed that a policy be developed for priority agriculture land that identifies the land and deals with the objectives for these areas, land uses that may be considered, minimum lot sizes and other provisions that may be relevant. It may be required that the Scheme be amended to provide for a Priority Agriculture zone to protect the resource and ensure that it is retained for this purpose. It is also recommended that further policy guidance be provided to guide land use in these areas.

The purpose of the Rural zone is to provide for the sustainable use of rural land which primarily accommodates a range of rural pursuits compatible with the capability of the land and which retains the rural character and amenity of the locality within the Shire for future generations. The Shire's objectives and strategies for managing and guiding land use, subdivision and development within the Rural zone are to:

- encourage the protection of the land resource and rural infrastructure;
- encourage the use of cleared rural land for commercial agricultural production including for grazing, cropping, tree farming and intensive agriculture where appropriate;
- support the Rural zone as a flexible zone to cater for a wide range of rural land uses that support primary production and value adding, small-scale tourism, environmental protection and biodiversity conservation;
- support other land uses on rural land where it can be adequately demonstrated that the proposed land use will not constrain existing or potential rural land uses;
- only support the subdivision of rural land for agricultural purposes where it is consistent with State policy or where substantive evidence is provided that that subdivision will not be detrimental to viable and sustainable agricultural production and land management on the subject land and on adjoining lands;
- only support the subdivision of rural land for rural living purposes where the land is identified in this Strategy for rural living and has been zoned for this purpose; and
- the existence of a second house on a rural lot is insufficient justification for the subdivision of rural land.

6.8.1 Subdivision of Rural land

The ad hoc fragmentation of rural land is generally discouraged, and SPP 2.5 and DC 3.4 establish the circumstances in which rural subdivision may be supported. The fragmentation of rural land undermines its ability to sustain changing agricultural and other rural land uses and inhibits the potential for future growth and development. However, the Shire acknowledges that some agricultural land's productivity is decreasing, and it supports measures to supplement farm income as well as land management best practice to prevent further decline.

The Shire does not encourage subdivision of broad scale agricultural land other than in specific circumstances, such as to:

- property rationalisation to improve land management with no increase in the number of lots and where the resultant lots will not adversely affect rural land uses;
- addressing circumstances where there is an existing physical division of a lot by a significant natural or constructed feature;
- protect and actively conserve places of cultural and natural heritage;
- conserve biodiversity;
- allow for the efficient provision of utilities and infrastructure and/or for access to natural resources;
- allow for the continued occupation of existing farm houses when they are no longer used as part of a farming operation; and
- deal with unusual or unanticipated purposes which, in the opinion of the WAPC, do not conflict with this and other relevant policies and are necessary in the public interest.

6.8.2 Property rationalisation to improve land management

Many rural properties comprise multiple titles and landowners may wish to regularise boundaries in line with DC 3.4 to achieve better land management. In the case of farm restructuring or boundary adjustment, where no additional lots are created, the principal issue of consideration in assessment will be improving the sustainability and viability of the farming operation and observing the primary principle of protecting and enhancing the productive capacity of agricultural land.

Where a farm consists of multiple titles and the proposal is to consolidate the main operation into a single title, consideration will be given to the creation of lots smaller than the outlined criteria, provided that:

- the total number of resulting lots is not greater than the original number of lots;
- the new boundaries achieve improved environmental and land management practices and minimise adverse impacts on rural land use;
- the lots have frontage to a legal road reserve from which practical access can be obtained or, the Shire being satisfied with the proposed method of access to the lots;
- the lots have sufficient size to allow for the construction of a house and other farm infrastructure and buildings with sufficient setback from adjoining properties so as not to restrict potential agricultural productivity on those properties;
- the lots will have minimal adverse impact on the viability and sustainability of the main farming property; and
- in the instance of creating rural living sized lots (1 to 40 hectares), appropriate buffers from adjoining farming uses and water resources are available or created through the proposal and a notification placed on the title advising that the lot is in a rural area and may be impacted by primary production.

6.8.3 Properties comprising multiple contiguous titles/dwellings

Many farms in the Shire are comprised of several separate but contiguous titles. This situation is the result of circumstances where farmers have faced economic hardships, such as drought or high interest rates. To address this situation, farmers have options, including amalgamating their multiple titles, but this is rarely done, as there may be benefits to landowners holding separate titles to retain future options to sell them off if necessary.

Subdivision applications that realign lot boundaries may be considered based on the following criteria:

- there is no increase in the number of lots;
- the new boundaries achieve improved environmental and land management practices and minimise adverse impacts on rural land uses;
- each lot has, or will have, frontage to a legal and constructed road; and
- road(s) conditions are to the Shire's satisfaction.

The concern for the Shire arises when landowners are permitted to reconfigure their titles so that a land-locked title has frontage to an unconstructed road reserve. In such circumstances, the Shire may come under pressure to pay for road construction.

There are several ways for the Shire to determine the standard of road access and the responsibility for the cost of construction for landlocked lots, including:

- At the subdivision stage in accordance with Development Control Policy 1.1: Subdivision of land which requires all new lots to have direct access to a constructed road.
- At the development stage in accordance with the Scheme which sets out options the local government has when considering an application for development on lots abutting unconstructed roads or with no gazetted road access including, refusal, granting of an application conditionally upon a contribution to road construction, or other arrangements to achieve permanent access.
- Placement of easements over an adjoining lot which does have frontage to a road through agreement between neighbours. This can be done independently of the Shire.
- The Shire may, however, give development approval for a dwelling in the Rural zone on a location which does not have frontage to a road reserve as required in the Scheme where the following criteria are satisfied:
 - the location is part of a multi-titled farming operation owned by one family, business entity or trust;
 - it adjoins titles which in turn have frontage to a road reserve the owners of the location placing a notification on title stating that if the lot is sold separately the local government is not responsible for providing legal road access to the property and its improvements; and
 - legal access will generally be considered to include a road reserve, right of way or battle-axe leg and does include a registered easement over a separate property in separate ownership.

6.8.4 Homestead lots

Retired farmers might choose to remain on their farms after they have ceased to be actively involved in farming activities. To facilitate this, homestead lots may be created to allow primary producers to continue to occupy their dwellings and to live in areas where land fragmentation is limited and unlikely to increase. Generally, these lots range from 1-4 hectares or up to 20 hectares to respond to landform and existing structures. Matters to be considered when considering applications for homestead lots include:

- access to an adequate water supply for domestic, land management and fire management purposes;
- availability of a connection to a reticulated electricity supply or an acceptable alternative;
- access to a constructed road;
- sufficient land to define appropriate land separation to adjoining rural land uses;
- have not had a homestead excised from the farm in the past;
- have a balance lot which is suitable for the continuation of the existing rural use;
- the dwelling is habitable.

Homestead lots may be created to enable an approved existing house on a rural lot to continue to be occupied provided that the application is consistent with Development Control Policy 3.4.

6.8.5 Minimum lot size

This Strategy articulates the Shire's position to maintain rural lots in their present size and encourage larger rather than smaller lots in broadacre rural areas. This is consistent with State Planning Policy 2.5.

In some instances, however, there may be an argument for the farming community and economy to benefit from having additional opportunities for subdivision and the Shire may support subdivision of larger rural lots down to a minimum lot size of 300 hectares to improve opportunities for:

- long-time farmers, ageing farmers and farming families to stay on the land;
- diversification of assets such as houses, land and farming infrastructure within family farming units;
- investment by farmers into property improvements through the sale or mortgaging of only portions of the farm;
- people to move to the country for many reasons - lifestyle, change of occupation, early retirement, part-time income etc; and
- separation of intensive activities where investment per hectare is significant relative to the balance of the farm.

The Shire would support this approach, subject to satisfying all other relevant State/Western Australian Planning Commission policies, as the Shire considers that by allowing a 300 hectare minimum lot area it is large enough to:

- not attract rural life stylers who would normally purchase lots for rural living purposes;
- not greatly influence land values so rural land values are maintained;
- not lead to a demand for additional services and infrastructure; and
- accommodate continued use for broad scale agriculture.

Increasingly, more intensive forms of agriculture are developing in the Shire such as horticulture, olives, orchards and feed lots. As the Perth Metropolitan Region continues to spread northwards and traditional horticultural areas are replaced, the Shire will be well placed to accommodate additional horticultural and other non-traditional agricultural activities such as floriculture, viticulture, aquaculture and agroforestry.

Horticultural activities and intensive animal industries such as feedlots and piggeries have the potential for detrimental impacts such as water pollution, noise, dust, odour and possible soil erosion. The location of these uses therefore requires careful consideration to avoid environmental degradation and land use conflict. Separation distances provided for in Environmental Protection Authority guidelines should be considered in assessing applications for intensive agricultural use.

Despite its general presumption against subdivision of land creating lots less than 300 hectares, to protect the productive capacity of agricultural land, the Shire may consider subdivision for intensive agricultural use where it can be clearly demonstrated that subdivision will be beneficial to viable and sustainable agricultural production and land management on the subject land and the subdivision will not be prejudicial to similar production and management of adjoining lands

The Shire may support the creation of smaller lot, where the lot is a minimum of 40 hectares in size, for agricultural purposes where the following criteria are met:

- An agronomist's report or similar demonstrates that each new lot will contain a minimum of 30 hectares of land have a high capacity rating for annual or perennial horticultural production.
- A hydrologist's report or similar demonstrates that each new lot has long term, secure access to a supply of water of a sufficient quantity and quality as applicable to the potential agricultural production of that land. The Department of Water and Environmental Regulation (DWER) is prepared to agree that the capture of the water is within the limits of an endorsed water allocation management plan or is within the sustainable yield for that sub catchment.
- Additional provision is made for the water capture and/or storage area (as necessary) plus an area for farm infrastructure and buildings with sufficient setback from adjoining properties so as not to restrict potential agricultural productivity on those properties, setbacks from watercourse and wetlands, plus the retention of any remnant vegetation that should be protected from clearing.

The Shire may refuse an application for development approval where in its opinion the proposed development will:

- adversely affect the rural landscape;
- adversely impact upon the agricultural use of the land and adjoining/nearby areas; cause detrimental environmental impacts;
- result in unacceptable fire management risk;
- place unacceptable servicing requirements which have not been appropriately addressed by the applicant;
- result in impacts of the proposed use/development unable to be adequately contained on the application site; and/or
- in the opinion of the Shire will result in an undesirable planning outcome and will be contrary to the orderly and proper planning of the locality.

6.8.6 Investigation areas

The Inland Strategy identified investigation areas around the Badgingarra and Dandaragan townsites. The land is currently zoned Rural and a flexible approach to land use planning will be key to delivering outcomes based on detailed investigations.

Table 32 - Investigation areas

Zoning	Lot yield (potential)	Strategy considerations
Rural Dandaragan	To be determined based on land use mix	This investigation area comprises numerous lots located to the north and south of the Dandaragan townsite. The area is identified for a range of land uses, including residential and rural living uses within and adjacent to the townsite. Consideration may also be given to industry, composite mixed business or industry with residential uses, and intensive agriculture. Various technical investigations, market demand assessment, and infrastructure capacity will be required, as well as rezoning of the land.
Rural Badgingarra	To be determined based on land use mix	The investigation area comprises numerous lots located to the east of the Badgingarra townsite, between and surrounding the old and new townsites. The area is identified for a range of land uses, including residential and rural living uses within and adjacent to the townsite. Consideration may also be given to high-way-related services and industry, other industry, composite mixed business or industry with residential use. Any proposed development would be subject to land suitability assessments, logical extension of existing development, landscape protection adjacent to Brand Highway and minimising access points from Brand Highway. Various technical investigations, market demand assessment, and infrastructure capacity will be required as well as potentially rezoning the land.

Source: WAPC (2019)

6.8.7 Accommodation for farm workers

With diversification of agricultural activities there is growing interest in providing on-site accommodation for seasonal workers employed as part of an agricultural operation to reduce operating costs. In principle, the Shire supports the provision of workers' accommodation where it is provided on-site or near to the location of the primary agricultural activity being serviced, subject to assessment of the proposals specific merits, including:

- provision of suitable access;
- availability of services and infrastructure;
- demonstrated ability to manage potential adverse impacts and land use conflicts;
- preference to cluster similar uses on the property; and
- the inclusion of conditions on an approval preventing worker accommodation being used as justification for future subdivision.

6.8.8 Tree farming

Tree farming is an umbrella term used to describe the planting of trees to generate economic return and/or environmental benefits. Usually tree farming has involved the planting of trees for harvest. However, more recently the planting of trees for carbon sequestration has emerged as a new rural land use. The different types of tree farms, i.e. integrated, chip logs or saw logs, require varied planning approaches.

The Shire supports the establishment of tree farms on rural land as a means of diversifying rural economies and providing economic and environmental benefit, subject to the following:

- tree farming should generally not occur on priority agricultural land;
- tree farming should generally be a permitted use on rural land, except where development of a tree farm would create an extreme or unacceptable bushfire risk or when responding to specific local circumstances as identified in a strategy or scheme;
- local governments should manage the location, extent and application requirements for tree farming in their communities through local planning strategies, schemes and/or local planning policies;
- in planning for tree farming, local government considerations should include but are not limited to, potential bushfire risk, environmental and economic factors, water availability and recharge, visual landscape impacts, transport impacts of tree farming (where harvesting is proposed), planting thresholds, appropriate buffers, and location relative to conservation estates and sensitive land uses;
- where tree farm proposals are integrated for natural resource management and occupy no more than 10 per cent of the farm, the proposal should not require local government development approval; and
- the establishment of tree farms does not warrant the creation of new or smaller rural lots.

6.8.9 Conservation of biodiversity

The Shire proposes to insert an Environmental Conservation Zone into the Scheme where it can be demonstrated that such development will be compatible with the protection of, and where appropriate, the rehabilitation of the flora and landscape qualities of the zone. This may include large lots for bush retreat living; to protect natural features, topography, flora and fauna; to provide a transition between rural-residential or similar development and National Parks and conservation reserves; to minimise visual impacts; and to minimise environmental impacts.

Well-vegetated land in private ownership is common throughout the Shire and the use of an Environmental Conservation Zone could be considered to protect remnant vegetation whilst allowing for some development. The objectives would be to: to provide larger lots for bush retreat living opportunities; to protect the environment and minimise visual and environmental impacts; and to create opportunities for a transitional use between residential developments and conservation reserves.

Proposals would be assessed on their merits and would require an amendment to the Scheme. Any proposal to rezone land for this purpose must not result in land use conflict by restricting access to areas with known or high potential for basic raw materials, minerals or petroleum resources. Conservation covenants may potentially impact on exploration and extraction activities, particularly when these explicitly refuse landowners the right to conduct, permit or consent to investigations or explorations for minerals, petroleum and other resources.

6.8.10 Key findings

- High quality agricultural land should be identified and retained for agricultural activities given the importance of the sector to the Shire's economy.
- Industries that propose more intensive use agricultural land, such as horticulture, are emerging given proximity to markets in the Perth Metropolitan Region. Subdivision and development proposals to support these uses may be supported subject to detailed assessment.
- In accordance with State Planning Policy 2.5 and Development Control Policy 3.4 (and other policies as relevant) subdivision of Rural zoned land is generally discouraged.
- When assessing proposals relating to the extraction of basic raw materials, the Shire will, in consultation with State agencies, address potential land use conflict by applying relevant policy.
- The Shire will support proposals to accommodate farm workers where it is provided on-site or near to the location of the primary agricultural activity subject to assessment of specific proposals.
- The Shire supports the establishment of tree farms in rural areas.
- The Environmental Conservation Zone aims to protect biodiversity while allowing some development and further investigation into the inclusion of this zone in the Scheme is required.

6.9 MINING

Mining in Western Australia can occur under one of three different pieces of legislation:

- *The Mining Act 1978* is the principal statute governing the extraction of minerals in Western Australia, which applies to mineral exploration and mining operations. The Department of Mines, Industry Regulation and Safety (DMIRS) administers the granting of mining tenements;
- State Agreement Acts are agreements between the State and resource proponents and are administered by the Department of Jobs, Technology, Science and Innovation (JTSI); and
- *The Planning and Development Act 2005* applies to some minerals on privately owned land that was granted before 1 January 1899.
- As discussed in Chapter 4 of this Strategy mining is expected to remain an important economic activity in the Shire. The Shire acknowledges the Western Australian Planning Commission's position on the extraction of mineral resources conveyed in the Wheatbelt Planning and Infrastructure Framework and will:
- support mining in the Shire, acknowledging its significant and important contribution to the region's economy and the energy security of the State;
- ensure that where the mining occurs its impacts are carefully managed and the land is restored appropriately; and
- prevent incompatible development in mineral resource areas.

When mining operations are proposed there may be concerns expressed by the community about the potential for associated on-site and off-site environmental and social impacts. In the Scheme the Zoning Table categorises mining as a use that is not permitted, except for the Industrial zone and in the Rural zone, where it is permitted subject to advertising and the Shire exercising its discretion.

6.9.1 Accommodation for mining workers (operations/construction)

Mining and construction operators from time to time need to establish accommodation for their workers. Accommodation requirements for workers can be temporary, in the case of the construction of infrastructure workers, or more permanent for instance for mining operators that would require the accommodation for the life of the mine. In most instances, workforce accommodation is constructed within a mining lease area, so the Shire has a limited statutory responsibility.

Outside of these areas, however, a proposal for workforce accommodation may need to be assessed under the Scheme. The Shire encourages operators to locate non-key permanent staff in established townsites. Where this is not possible due to the remoteness of a mining activity, Shire will consider the on-site provision of temporary and permanent workers accommodation based on the merits of specific applications by considering the following:

- suitable access to the property being provided;
- the availability of services and infrastructures;
- the management of potential adverse impacts and land use conflict;
- consideration of fire risks and management;
- adequate landscaping and screening;
- the need for security and lighting and associated impacts; and
- rehabilitation of the site after the cessation of operations.

6.9.2 Key findings

- Mining is an important economic activity;
- There is a need to prepare a local planning policy to provide further guidance when planning for workforce accommodation to service mining projects.

6.10 BASIC RAW MATERIALS

Most of the Shire's basic raw materials are located in areas zoned either Rural, Parks and Recreation and/or Conservation (see Figure 9). There are six Significant Geological Supply areas in the Shire that protect limesand, limestone, sand and gypsum resources. Resources within these areas are not to be developed for other purposes until the basic raw materials are extracted, or unless development is compatible with the future extraction of these materials. A land separation area is also defined around each Significant Geological Supply area to mitigate the potential for land use conflict with surrounding land uses.

In some places across the Shire these resources are in close proximity to sensitive land uses, such as rural living estates. Proximity to sensitive land uses may limit or sterilise extraction of basic raw materials due to ongoing amenity concerns, such as dust and noise. Where basic raw materials are present, consideration should be given to the zoning and land use of the area, and provisions for the protection, access and use of the resources.

When considering proposals for extraction of resources, the following matters should be considered to ensure potential land use conflicts are minimised:

- hours of operation;
- vehicle access points available to the site;
- size and frequency of trucks that will be required;
- location of extraction areas relative to sensitive land uses;
- whether a management plan is required and if so, what it should address;
- management of biosecurity to prevent pests, weeds and diseases from being introduced or transported to other locations; measures to minimise air, water, noise, vibration and visual pollution;
- size and/or storage of excavations, stock piles and over-burden dumps; and
- appropriate rehabilitation of the land.

6.10.1 Key findings

- The Shire's basic raw materials are important resources that need to be protected.
- Potential for land use conflicts where basic raw materials occur in close proximity to sensitive land uses should be addressed as early as possible in the planning process.
- There is a need to prepare a local planning policy to guide assessment of proposals to extract basic raw materials.

7. SERVICE INFRASTRUCTURE

The Jurien Bay Growth Plan outlines the requirements for staged service infrastructure for Jurien Bay as it grows to an ultimate population of 20,000+. Some of the infrastructure planning such as for water have been the subject of detailed studies and have been resolved with agreed plans in place. However, commitments have not been secured for services such as power and infill sewer in Jurien Bay and Cervantes.

7.1 WATER SUPPLY

Water supply for the town sites is sourced from groundwater. Rural areas are serviced from rainwater and surface water. Groundwater sources are protected by five Public Drinking Water Source Areas located across the Shire.

7.1.1 Jurien Bay

The Water Corporation provides potable water from the Jurien Wellfield to the licensed area of the Jurien Bay townsite license referred to as the Jurien Bay Town Water Supply Scheme (JBTWSS). The JBTWSS provides public water supply and is currently licensed to draw 420,000 kL/annum.

The Jurien Wellfield is located approximately 4 km north-east of the town site and consists of shallow production bores that rely on groundwater extraction from an unconfined aquifer in the Tamala Limestone, which is vulnerable to contamination. Water resources are gravity fed via a reticulated pipeline network to the townsite.

Servicing projected population growth for Jurien Bay (15,000+ people) as proposed by the Jurien Bay Growth Plan will require a substantial increase in water supply. The Water Corporation has estimated this at 7ML as the ultimate reserve storage requirement. To cater for this increased demand the DWER has increased the size of the existing Jurien Wellfield (and the existing water reserve) and identified future potential borefield locations - north of existing borefield (northern borefield) and area between Hill River and Cervantes (southern bore field).

7.1.2 Cervantes

The town water supply scheme consists of production bores approximately 4km east of the town. The wellfield operates on a duty/standby basis that permits the aquifer to recover and spreads the draw over the entire wellfield. The production bores transfer water to the Seville Street tank site where it is then distributed. The Water Corporation has programs in place for the progressive augmentation and expansion of the water supply as demand increases.

7.1.3 Dandaragan

The town water supply is obtained from a Water Corporation wellfield located to the east of the town. There is capacity to satisfy increased demand.

7.1.4 Badgingarra

The town water supply is obtained from a Water Corporation production bore located to the south east of the town. Water from the bore is pumped into a storage tank and gravity fed to the town's reticulated network. There is capacity to satisfy increased demand.

7.1.5 Rural living areas

Lots within existing rural living estates are not serviced by reticulated water, but are reliant on rainfall captured in water tanks. In some instances, water supply is supplemented by ground water. Due to the declining rainfall in the Shire, carting of water has occurred in summer and over particularly dry periods.

State Planning Policy 2.5 requires lots in rural residential estates (less than 4 ha) to be connected to a reticulated water supply provided by a licensed provider. Where it has been demonstrated that a reticulated water supply is not available, or if individual lots are greater than 4 ha in size, consideration may be given to an alternative fit-for-purpose domestic supply that meet requirements relating to sustainability, consistency and appropriate quality.

The most common alternative water source proposed is the harvesting of rainwater from roof catchments. The following information illustrates the minimum requirements for the provision of a sustainable water supply via roof catchment and rain water tank.

The average household size in the Shire of Dandaragan is 2.4 people. Using a conservative water consumption target of 100kL per person per annum (the aspirational consumption target from the State Water Plan 2007), plus 10kL for firefighting purposes, 250kL per annum of water is required to provide a sustainable water supply to a household within the Shire where reticulated water is not available.

The State Water Strategy (2003) and the Perth Residential Water Use Study 2008/09 both estimate that the split of water consumed in households is 50% for internal consumption and 50% for external consumption. The average size of a four bedroom, two bathroom dwelling is 200m². Table 33 provides average annual rainfall details for two key locations within the Shire over the past 51 years.

Table 33 illustrates that there has been a decline in the average rainfall over the past 20 years. In Jurien Bay, the total rainfall in 8 of the 20 years from 1994 - 2013 was below the average rainfall of 522 mm. In Badgingarra, total rainfall was under the 1994 - 2013 average of 478 mm in 12 of the 20 years.

Table 33: Average annual rainfall

Town	Average Rainfall (per annum)		
	1962 - 2014	1994 - 2013	2006 - 2013
Jurien Bay	534.9 mm	522.1 mm	489.2 mm
Badgingarra	541.0 mm	478.2 mm	474.1 mm

Based on these average rainfalls, the roof catchments identified in Table 34 would be required to provide a sustainable and adequate water supply (minimum supply of 250 kL, 120 kL tank) for an average household size in the Shire of Dandaragan, based on 100% supply from roof catchment, and the provision of water for inside use only (plus firefighting supply) from roof catchment.

Table 34: Required roof catchment for Jurien Bay and Badgingarra

	Average Rainfall (per annum) mm	Roof Catchment 100% supply m ²	Roof Catchment 50% + firefighting m ²
Jurien Bay	534.9	576	299
	522.1	590	307
	489.2	632	329
Badgingarra	541.0	569	296
	478.2	648	337
	474.1	653	340

Where roof catchment only provides for water for internal use (plus firefighting purposes) an additional water source to provide water for outside the dwelling will need to be demonstrated. The availability of this water source, and its sustainability will need to be demonstrated prior to any proposal (including amendment, structure plan or subdivision) being considered. This secondary source could include groundwater, collection in a dam, greywater recycling or other water collection options.

Given the limited rainfall in the Shire and the average size of a 4 x 2 dwelling, a sustainable and consistent water supply to rural residential lots cannot be provided solely via roof catchment. It is not reasonable or practical to require a landowner to construct buildings with a roof area of more than at least 550m² solely for the purpose of catching sufficient rainwater to be able to provide a sustainable water supply.

In addition, none of these calculations make provision for a drying climate that is predicated for WA's south-west due to climate change. Under a medium change scenario, the Commonwealth Scientific and Industrial Research Organisation predicts that rainfall in the South West of WA will decline between 0 and 15% by 2030. This would indicate that use of tanks as the sole method of water supply for dwellings will become less sustainable over time, even if conservative use estimates are used.

Rural Residential areas throughout the Shire will need to connect to a reticulated supply provided by a licensed water service provider or be able to demonstrate that alternate supplementary supplies are available for outside use to supplement water collected by roof catchments for internal use and firefighting purposes

7.1.6 Key findings

- The Jurien Bay Growth Plan outlines the requirements for staged service infrastructure for Jurien Bay as it grows to an ultimate population of 20,000+.
- Reticulated water supply to the four towns is provided by Water Corporation through the extraction of ground water.
- Major water supply upgrades would be required to accommodate future growth of the towns.
- Proposed rural residential developments must demonstrate that a sustainable and consistent water supply is available consistent with State Planning Policy 2.5.

7.2 WASTEWATER

The provision of reticulated sewerage in Jurien Bay and Cervantes is limited. Reticulated sewerage is not available to the other settlements.

7.2.1 Jurien Bay

The Water Corporation is the licensed service provider for the treatment and disposal of wastewater in Jurien Bay. Wastewater from sewer connections is facilitated by a gravity sewer network connecting wastewater pumping stations across the town which then discharges to the Jurien Wastewater Treatment Plant, located in the eastern part of the town.

At present, only 50% of the Jurien Bay town site is connected to reticulated sewerage. There has been a significant increase in sewer infrastructure provision in recent years principally by the private sector installing deep sewer as part of new residential developments. The reticulated sewerage network is currently fragmented and difficult to manage due to the limited State funding and the limited capacity of any single landowner to offset the costs of installation (Shire of Dandaragan, 2012).

The lack of reticulated sewerage throughout the town is likely to have significant impacts for the development of Jurien Bay as a regional centre so implementing a staged plan for reticulated sewer development is important for growth. Water Corporation has made incremental changes to capacity so that there is additional capacity to accommodate demand for wastewater services.

Currently there is no wastewater recycling scheme in Jurien Bay. In recent years, the Water Corporation has pro-actively pursued opportunities to make better use of treated wastewater and reuse has been a preferred management option. Opportunities to use treated waste are being pursued.

7.2.2 Cervantes

In Cervantes, the major sewer infrastructure consists of a pumping station that discharges into a waste water treatment plant located about 5 km north of the town. Recent residential development has led to increased sewerage capacity within the town, with approximately 30% of lots connected to the Water Corporation's sewer infrastructure. Accommodating future growth will require upgrades to the town's wastewater capacity.

7.2.3 Dandaragan and Badgingarra

The townsites of Dandaragan and Badgingarra do not have reticulated sewerage. Both towns are outside of public drinking water source areas and sewerage sensitive areas so onsite effluent options may be contemplated subject to the provisions of State Policy and the Government Sewerage Policy (2019).

7.2.4 Key findings

- Reticulated sewerage provision is limited to parts of Jurien Bay and Cervantes and this inhibits development.
- Onsite effluent options to be considered in Dandaragan and Badgingarra.

7.3 POWER

Western Power's South West Interconnected System (SWIS) is the primary electricity grid supplying the Shire. Energy production within the SWIS derives predominantly from black coal, natural gas and oil. The Shire falls within the coastal district area of Western Power's Country North Region.

The networks supplying the Country North Region are radial, overhead power lines with the majority of networks supplied at 33kV. A large proportion of users are relatively small and dispersed. The Mid-West Energy Project is a major energy supply project that will provide additional capacity needed to meet demand while strengthening the reliability of the network.

7.3.1 Jurien Bay

Western Power is the operator of the power supply within Jurien Bay. Supply is through a 33kV power distribution line via the Eneabba Zone Substation, located approximately 60kms to the north east of Jurien Bay.

Due to long network distances and the rural location, there is limited alternative power interconnection from another zone substation or 33kV network in the event a power outage. Improvements in 2009 by Western Power provided an increase in capacity for Jurien Bay, representing 2MVA spare capacity on the existing 33kV network. This spare capacity is capable of supplying approximately 400 additional residential properties, but commercial developments will erode this capacity.

The current 33kV distribution network would need to be upgraded to a 132kV transmission solution to service a population of 20,000+. Land for a future zone substation has already been identified. There are possible opportunities to increase the capacity into Jurien Bay before the demand triggers a transmission solution. One option is to extend a new 33kV power line from the Eneabba Zone Substation and another could be to extend a new 33kV power line from Green Head along Indian Ocean Drive.

7.3.2 Cervantes

Cervantes is supplied from the same 33kV network that supplies Jurien Bay and is located approximately 70km from the Eneabba Zone Substation. As with Jurien Bay, the high voltage power line has limited alternative supply interconnection in an event of a network outage. The only interconnection point is from the Moora Zone Substation on the Dandaragan 33kV high voltage feeder near the Brand Highway, north of Badgingarra.

Western Power has incrementally improved the quality of supply through delivery of an additional capacity of 800kVA or the equivalent of 160 new residential properties, but any commercial developments will erode this capacity.

A 132 kV transmission solution for Jurien Bay would also provide some benefits for Cervantes, however, the power line to Cervantes will still be at the end of a spur line with limited interconnection.

7.3.3 Alternative energy options

There is significant potential for the Jurien Bay region to become an important area for renewable energy production projects. Wind power generation is already proving to be popular within the Jurien Bay hinterland with several projects in operation or planned. The first WA utility scale solar photovoltaic farm is also being developed north of Jurien Bay confirming the potential for solar power in the region.

There is adequate power generation capacity within the region but the key issue for the Shire is the transmission and distribution of power. The investment by energy producers in the Shire may encourage energy intensive agricultural or other industries that use significant amounts of energy to locate in the area.

7.3.4 Key findings

- Substantial upgrading of the power distribution network is required to accommodate the growth of Jurien Bay and improve the service to Cervantes.
- Alternative energy sources, such as wind and solar, should be pursued as options for power generation and to attract new industry.

7.4 STORMWATER/DRAINAGE

Stormwater in Jurien Bay has historically been provided by a combination of pipes, culverts and drainage sumps. The winter climate sometimes results in heavy showers and localised flooding as the drainage infrastructure cannot accommodate these events (Shire of Dandaragan, 2012).

The Turquoise Coast development which forms the southern extension of the town has included principles of stormwater disposal at source, minimisation of piped drainage and reduction of nutrient inputs. These principles have been applied through a curved open drain (swale) located down the centre of the roads which collect the water runoff from both sides of the road, allowing the water to leach directly into the soil. The swales incorporate native and indigenous planting which utilise the water runoff and enhance the streetscape, creating a viable and environmentally sensitive alternative to the more traditional stormwater management systems. These practises should be further investigated and developed in future town expansions.

7.4.1 Key finding

- Alternate stormwater management systems such as swales, already utilised in parts of Jurien Bay, should continue to be investigated as a preferred alternative to piped systems.

7.5 WASTE MANAGEMENT

Waste management in the Shire involves the collection, transfer, recycling, and land filling of wastes generated in its area. Four manned waste management facilities (located in Jurien Bay, Dandaragan, Badgingarra and Cervantes) provide for the collection and transfer of waste. The Jurien Bay and Dandaragan waste facilities are landfill sites with capacity for 10-15 years.

Three recycling depots operate in Dandaragan, Cervantes and Jurien Bay. The Badgingarra Primary School has a recycling depot adjacent to the school with the children looking after the running of the depot as an ongoing school project. Kerbside recycling was introduced in 2009 and is offered to Jurien Bay residents and the properties in Alta Mare, Jurien Bay Heights, Marine Fields and Hill River.

Waste management operations will need to evolve to an operation required for a regional centre due to the increase in waste generation from new developments. A Waste Management Program should be developed to identify how the Shire is going to cope with disposal of this increased waste including measures to further minimise waste production and encourage recycling, reuse and appropriate disposal of waste (Shire Dandaragan, 2012).

7.6 TELECOMMUNICATIONS

Telstra has telecommunication exchange buildings in both Jurien Bay and Cervantes, but both have limited capacity to accommodate a significant increase in fixed line demand (Shire Dandaragan, 2012). Telstra and Optus have several communications towers in the region housing the equipment required for both carriers. Mobile services in both towns can accommodate steady growth in demand, but a significant increase in demand would require additional towers.

The National Broadband Network Scheme is rolling out across the Shire of Dandaragan, with fibre installation already completed for both Jurien Bay and Cervantes. Satellite fixed wireless broadband is scheduled for delivery to Jurien Bay Heights and Alta Mare in the short term.

Mobile services are available in Dandaragan and Badgingarra but network access in some parts of the rural hinterland can be intermittent. The Shire is working with the Wheatbelt Development Commission to ensure information regarding black spot areas is provided as part of the administration of the Regional Mobile Communications Project.

New and existing rural operations may be hindered by the lack of reliable and efficient telecommunications. The Shire will continue to work with key stakeholders to find a solution to this issue and upgrade existing services to cater for new and expanding rural industries and ancillary activities.

7.6.1 Key findings

- Upgrades to the communications networks are needed to improve mobile telephone and emergency services and address the service black spot areas.
- The NBN is rolling out and most of the Shire has access to satellite.

8. COMMUNITY SERVICES

8.1 EDUCATION

Jurien Bay District High School caters for students from Jurien Bay, Leeman, Green Head, Cervantes, Badgingarra and the surrounding farming areas. The school provides pre-primary, primary and secondary schooling with the program offered for Year 11 and 12 being undertaken in collaboration with the Durack Institute of Isolated and Distant Education. Secondary school students can complete Certificate I and II courses in a range of industry areas.

8.2 HEALTH

- Jurien Bay Community Health Service provides the following local health and aged care services within the Jurien Bay townsite:
- Jurien Bay General Practice;
- Jurien Bay Home and Community Care;
- Child Health Clinic;
- Jurien Bay Physiotherapy Clinic;
- Jurien Bay Dental Clinic; and

- Accident and Emergency.
- Higher level services outside of the Jurien Bay townsite include:
- Moora Multi-Purpose Service Health Facility - 121 km (1hr 34 mins);
- Joondalup Health Campus - 199 km (2hrs 18 mins); and
- Geraldton Hospital - 195 km (2hrs 15 mins).

The Jurien Bay Growth Plan identified sites on Whitfield Road (around the existing health centre) to accommodate future needs of the community. A concept plan for the area will need to be progressed with any future development integrating a mix of uses related to health, aged care and community wellness.

8.3 EMERGENCY SERVICES

Jurien Bay has the following law, safety and emergency facilities:

- Jurien Bay District Police Station.
- St. John's Ambulance.
- Volunteer Fire and Rescue Station.
- Volunteer Fire Brigade.
- Volunteer Sea Rescue Group.

8.4 STATE AGENCY OFFICES

There are two State Government agencies providing services from Jurien Bay – DBCA and DPIRD. Other agencies service Jurien Bay on a visiting basis and include agencies such as the WDC and the Small Business Development Commission which are accommodated via office space in the Shire's civic building.

8.5 LOCAL GOVERNMENT ADMINISTRATION

The Shire's administration facilities are located in Jurien Bay. The Shire provides range of administrative functions, including: health, building, planning and ranger services.

8.6 COMMUNITY FACILITIES

The Shire of Dandaragan's civic building in Jurien Bay provides educational and community resources, including: tourist information; art and culture; and technology spaces.

The Jurien Bay Community Resource Centre provides a library, visitor centre and office space for Government departments and other organisations. The Jurien Bay Resource Centre has two offices; a multi-purpose meeting facility; a kitchen that can be hired; and limited facilities for child care and after school care. The Dandaragan Community Resource Centre provides a range of resources to the town, Badgingarra and Regans Ford.

There are community recreation centres in Jurien Bay, Cervantes, Badgingarra and Dandaragan that provide a range of sporting and cultural activities and is adjacent to bowling greens, sporting oval, netball courts golf course and tennis courts.

8.6.1 Key findings

- Servicing for the Shire's settlements reflects specific current functions and population.
- Strategic land use planning documents, such as the Jurien Bay Growth Plan, identifies community services and infrastructure requirements that will be required to service population growth.
- It is anticipated that Jurien Bay and Cervantes will be the focus for additional community infrastructure capacity, with Badgingarra and Dandaragan servicing the needs of the rural communities and surrounding hinterland.
- Specific needs of the retirement age population will need to be factored in to decision making.
- The Shire will continue to work with a range of community service providers at different levels of government to identify and plan for future demand.

9. TRANSPORT

9.1 ROADS

The two major roads within the Shire are under the control of Main Roads WA. Brand Highway is a State Highway forming part of the main route from Perth to Geraldton and is a strategic freight and tourist route accommodating all types of traffic. It also acts as major inter-town link for towns such as Eneabba, Jurien Bay, Green Head and Dongara.

Indian Ocean Drive is a Primary Distributor road fulfilling a regional function in connecting Jurien Bay with Perth and Geraldton and providing links to the coastal towns and tourist destinations near the route. It provides a scenic alternative route to the heavy vehicle traffic that uses Brand Highway.

The section of Indian Ocean Drive from Shire of Gingin boundary to Cervantes is predominantly not part of the Restricted Access Vehicles or Tandem Drive network and therefore prevents the road being used as a through route for these larger vehicle classes. Main Roads WA has undertaken a long-term planning study to identify an ultimate plan for Indian Ocean Drive, which will be used to inform a road upgrade strategy and access considerations.

The section of the Indian Ocean Drive route running through Jurien Bay is Bashford Street, which also provides the primary north south route through the town and localised traffic movements along and across it. Bashford Street has a higher proportion of traffic travelling through the town since the opening of Indian Ocean Drive in 2010, especially during holiday periods. The design of the street needs to be modified to provide for safer crossing points for vehicles, pedestrians and cyclists as well as improved amenity for users. Preliminary concept plans to upgrade Indian Ocean Drive through Jurien Bay are included in the Growth Plan.

The option of a bypass for the Indian Ocean Drive route for Jurien Bay has been acknowledged by Main Roads WA and a route has been identified as part of future plans. The timing for construction of a bypass will depend upon growth in traffic and funding availability. The alignment for the Jurien bypass has also been identified in this Strategy.

The Shire is also served by a network of regional distributor roads, which include Jurien East Road, Cervantes Road, Badgingarra Road and Dandaragan Road. These roads connect the Shire's townsites to one another, as well as the Brand Highway and the towns of Moora and Watheroo.

9.1.1 Agricultural lime routes

Active agricultural lime mines are located in the Shire mostly along the coastal strip with some of these in close vicinity to settlements. Agricultural lime is also used by the agricultural sector for farming purposes.

Dedicated and proposed agricultural lime routes are recognised and managed by Main Roads WA. These routes comprise a number of east-west local roads including Sappers Road (Shire of Gingin), Jurien Road (Shire of Dandaragan), and Coorow-Green Head Road (Shire of Coorow).

Table 35 lists the five designated agricultural lime routes in the Shire and in the adjoining Shires. In recognition of the importance of safe and efficient agricultural lime haulage, the State Government has announced additional funding for the upgrading of these routes.

Table 35: Agricultural lime routes

Agricultural Lime Route	Roads to Brand Highway	Local Government
Route 1 - Lancelin to Northam	Lancelin Road Gingin Brook Road	Gingin
Route 2 - Lancelin to Goomalling	Aglime Route 2 Lancelin to Goomalling	Gingin
Route 3 - Cervantes to Burakin	Cervantes Road Cadda Road	Dandaragan
Route 4 - Jurien to Dalwallinu	Jurien Road	Dandaragan
Route 5 - Coorow to Latham	Coorow-Green Head Road	Coorow
Route 6 – Coolimba to Perenjori	Eneabba-Coolimba Road	Perenjori

9.1.2 Key findings

- Main Roads WA is responsible for planning Brand Highway and Indian Ocean Drive.
- The Shire is responsible for the local road networks in the Shire's settlements.
- A local planning policy for development along Indian Ocean Drive is required.

9.2 PUBLIC TRANSPORT

TransWA operates a bus service that runs six days per week and provides a service to the towns of Dongara, Leeman, Green Head, Jurien Bay, Cervantes and Lancelin (travelling along Indian Ocean Drive). There is also a school bus network service that transports children in the rural areas to the local school. Beyond that there is no funding or planning to develop a public bus network within Jurien Bay, or for the surrounding areas of the Shire and neighbouring local government areas.

The availability of transport services within, and to Jurien Bay and the other settlements within the Shire, should be periodically assessed in line with population growth to cater for demand. Provision of an appropriate public transport system will need to be developed as Jurien Bay grows. The timing of the development of a local service will depend on the amount and rate of growth that occurs within Jurien Bay (Shire of Dandaragan, 2012).

9.3 PEDESTRIAN AND CYCLING ROUTES

There is a mix of older narrow footpaths and newer, wider concrete paths through Jurien Bay and Cervantes. The Turquoise Coast Shared Path extends along the coast from the Jurien Bay Boat Harbour to Hill River. It is a walking and cycling trail forming an important part of the overall pedestrian and cycle network.

The climate and flat nature of the topography provide an attractive environment for walking and cycling which can be enhanced through improved infrastructure and amenity as well as safe routes and road crossing points.

The Shire of Dandaragan, the Jurien Bay Chamber of Commerce and Ardross Estates are partnering to extend the Turquoise Coast Trail from Jurien Bay to Cervantes. The extension adds an additional 3.5km to the existing Turquoise Coast Trail.

9.4 AIRPORT

The Jurien Bay Airport comprises a single, sealed runway of typical dimensional standard to accommodate aircraft operated by the Royal Flying Doctor Service. Emergency services also use the airport for firefighting purposes including water bombing. The facility is also used by commercial enterprises as part of providing various recreational pursuits including skydiving and scenic flights. The Jurien Bay Airport is situated close to the townsite and urban areas so with the inevitable aviation growth over time there is potential for noise issues to arise within the community.

Previous strategic investigations, such as the *Wheatbelt Aviation Strategy Ministerial Taskforce – Final Report* 2010, recognized that improved airport facilities will be required at the Jurien Bay Airport in the longer term. With funding received through the Regional Airport Development Scheme a study was undertaken to identify and rank five potential new sites for a proposed Turquoise Coast Regional Airport to service Jurien Bay and the surrounding regional area.

These five sites were evaluated against weighted technical criteria representing aeronautical and non-aeronautical requirements. One site, Location 10600 at the intersection of Jurien East Road and Munbinea Road, was identified as the preferred site. In 2013, the Shire resolved to prepare a Master Plan over this site and to commence negotiations with the land owner regarding use of Location 10600 as an airport. A key consideration is the need to safeguard the preferred site from future land use conflict by establishing interface areas in the Scheme based on the Australian Noise Exposure Forecast and appropriately zone affected land.

In May 2020, the Shire adopted an Airport Masterplan that focusses on extending the use of the existing facility by recommending: establishment of an airport committee to oversee future development of the facility; addition of an east-west runway; provision of additional land for to accommodate supporting industries; improvements to connections with the townsite; and investigations to amend flight paths to minimise townsite flyovers.

The Airport Masterplan recognises that the existing site should serve the local needs for the foreseeable future (at least the next 20 years) and that the proximity of the airport to the town centre is an advantage for some users. It is anticipated that a transition period would be needed before the existing airport was closed. Investigations to identify a new site for the airport may still progress to ensure such a facility is safeguarded from other development.

9.4.1 Key findings

- The Jurien Bay Airport has sufficient capacity for the next 20 years.
- An alternative location for a regional airport is being investigated and is to be safeguarded.

9.5 MARINE FACILITIES

The Jurien Bay Boat Harbour, located at the northern end of the town, provides a modern marina with service facilities for the central west coast fishing industry, sea search and rescue and recreational fishing boats. The boat harbour is a fully integrated facility with 69 mooring pens, four service jetties and public car parking and toilet facilities, and provides the primary boat maintenance facility between Geraldton and Two Rocks.

The boat harbour is a strategic infrastructure asset that is currently underutilised. There are large areas of undeveloped and underutilised land that may have significant potential to create a vibrant commercial, tourist and recreational precinct to contribute to the development of Jurien Bay as a future regional city. There has been limited activation of the commercial and tourism potential than can be found at similar marinas such as Geraldton Boat Harbour, Mandurah Marina and Hillary's Boat Harbour (Shire Dandaragan, 2012).

Preliminary investigations have been undertaken by the DoT to examine the future potential of the boat harbour and surrounding land. The Jurien Bay Boat Harbour Final Summary Report (2009) concluded that while there was limited local employment and economic generators, there was an opportunity for the Jurien Bay Boat Harbour to play a long-term role in supporting the growth of Jurien Bay. This could include the establishment of alternative industries to support fishing and tourism to ensure commercial viability. Further investigation is required to better understand the economic development opportunities associated with existing boating facilities and assess the need for additional facilities.

9.5.1 Key finding

- Although presently underutilised, the Jurien Bay Boat Harbour has the potential to support the growth and diversification of industries supporting fishing and tourism.

10. ENVIRONMENT AND NATURAL RESOURCES

10.1 CLIMATE

The area has a Mediterranean climate with hot dry summers and cold wet winters. The average rainfall for Jurien Bay is approximately 560mm and this decreases eastwards over the coastal plain. The annual average temperature over Western Australia has increased by about 0.8°C since 1910, while the annual rainfall has declined by around 10% since the mid-1970s. There is arguably a need for the Shire to adapt to changes in the weather patterns to reduce its vulnerability to adverse impacts associated with weather changes, which include more hot days, reduced rainfall and reduced water availability.

10.2 BIODIVERSITY

The Shire is situated in the Mount Lesueur-Eneabba region within one of 34 global biodiversity hotspots in south west Australia and within one of fifteen national biodiversity hotspots. These areas are recognised for their particularly high levels of biodiversity but have historically been under threat as a result of clearing.

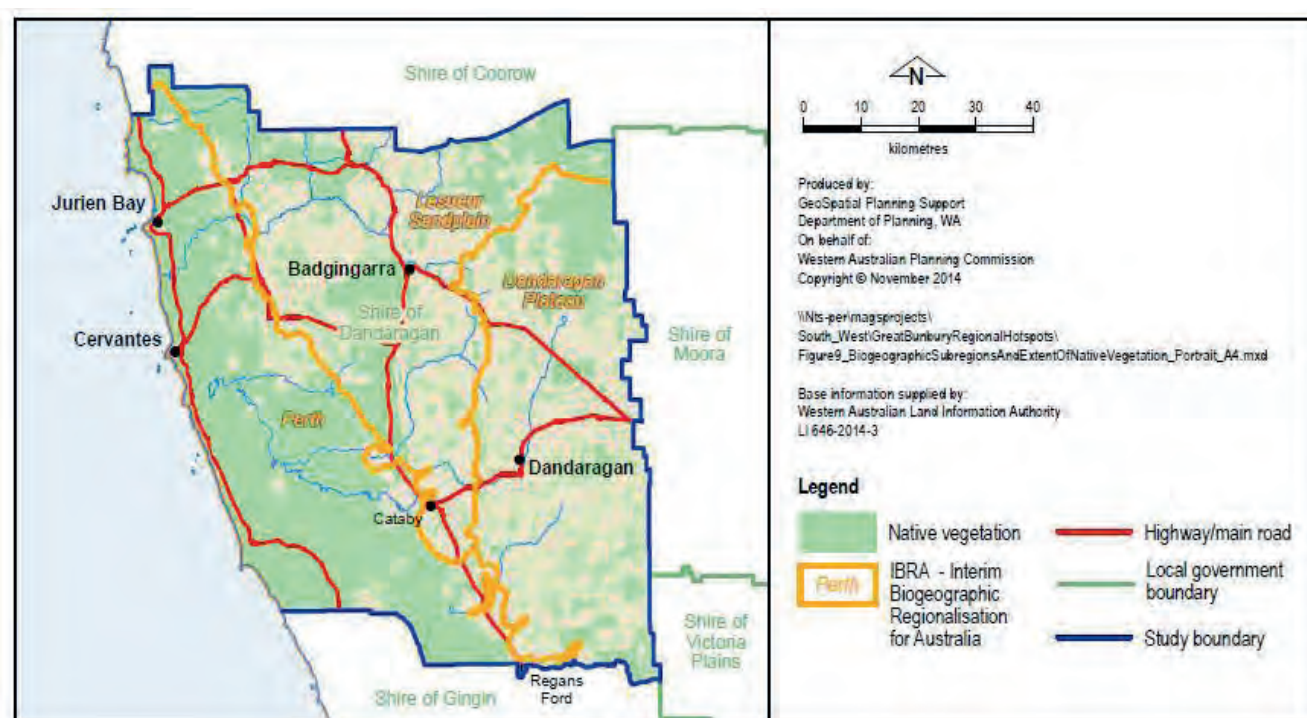
The Shire is at the junction of three biogeographic sub-regions defined by the Interim Biogeographic Regionalisation for Australia. They occupy the northern extent of the Swan Coastal Plain (Perth and Dandaragan Plateau sub-regions) and the southern extent of the Geraldton Sandplains (Lesueur Sandplain sub-region) (see Figure 10). Less than 10% of the native vegetation on the Dandaragan Plateau, located in the eastern portion of the Shire, is reserved for conservation.

The Perth and the Lesueur Sandplain sub-regions support mainly heath, scrub-heath, thicket and low banksia woodland vegetation types. Sandplain heath in WA is commonly known as kwongan. Dominated by woody shrub species, it is floristically rich and is characterised by sandy soils, a very high level of endemism, or species found nowhere else, and spectacular displays of wildflowers in spring.

The Dandaragan Plateau, located in the inland portion of the Shire (including the town of Dandaragan), supports woodland, mainly marri and wandoo, and open to sparse jarrah-marri woodland with low banksia woodlands.

The Shire is located within the Central Coast Region, one of the three main centres of floristic diversity in the State. There is a high species richness, with the Mt Lesueur region of the Gardiner Range exhibiting a particularly high degree of endemism. It has been estimated that approximately 2,000 of 9,000 plant species found throughout Western Australia occur in the Central Coast Region between Guilderton and Dongara, and the majority of the 2,000 species are found in the Shire. Over 800 species are found within the Lesueur National Park, which has one of the highest flora diversities of any location within the State typified by rapid variations across different soil types and micro-habitats.

Figure 10 - Biographic subregions and extent of native vegetation



Source: Perth Biodiversity Project, WALGA (2012)

The Shire's conservation reserves and national parks are important habitats for a number of indigenous mammals such as the Western Grey Kangaroo, Honey Possum, Dunnart, Echidna and Brush Wallaby. The Central Coast Region also provides valuable habitat and breeding areas for many species. There is a high species-richness for birds, with at least 180 species being recorded, including rare species such as the Freckled Duck and Carnaby's Black Cockatoo. Confirmed Carnaby's Cockatoo breeding sites in the eastern portion of the Shire comprise the Cataby and Coomallo areas, which are Important Bird Areas identified by Bird Life International, supporting significant numbers of breeding pairs of the endangered Carnaby's Cockatoo.

Many birds, such as honey-eaters and wrens, live in heath and scrub land retained in reserves and national parks. Other species, such as the Rainbow Bee-eater, are itinerant, returning annually for nesting or feeding. The wetlands of the coastal plain provide large habitats for the numerous wetland species, some of which are seasonal visitors. Rare and threatened species and communities within the shire include the stromatolite threatened ecological community at Lake Thetis, Cervantes, which is one of a few sites in the world with living marine stromatolites. Both Lake Thetis and Lake Guraga (14 km south of Cataby) are listed in the Directory of Important Wetlands in Australia. Hill River is one of the few remaining fresh waterways on the Swan Coastal Plain and is recognised for its significant biodiversity values.

The Shire supports a rich biodiversity, particularly in its western portion where large areas of remnant vegetation are protected within national parks, nature reserves and other Crown reserves. However, biodiversity assets on privately owned land or unallocated Crown land are particularly vulnerable to changes in land use and require appropriate management. The Shire's inland areas are mainly cleared. Approximately 12% of the original vegetation remains in the Shire. Of this, 5% is protected for conservation. Of the 297,285 ha of native vegetation remaining in the Shire, 177,550 hectares (almost 60%) are 'local natural areas' - native vegetation that occurs outside DBCA-managed lands and may be subject to local government decision making. In the 1970s, portions of the Shire were nominated for protection by the Environmental Protection Authority's Conservation Through Reserves Study, which considered the potential for existing

Crown land to be set aside as conservation reserves. Although these areas are now largely protected through being designated as national parks and nature reserves, some areas of endemism remain unprotected. For example, although the species-rich Mt Lesueur is incorporated within the Lesueur National Park, the area of endemism extends south of Jurien Bay Road; land which has been largely cleared.

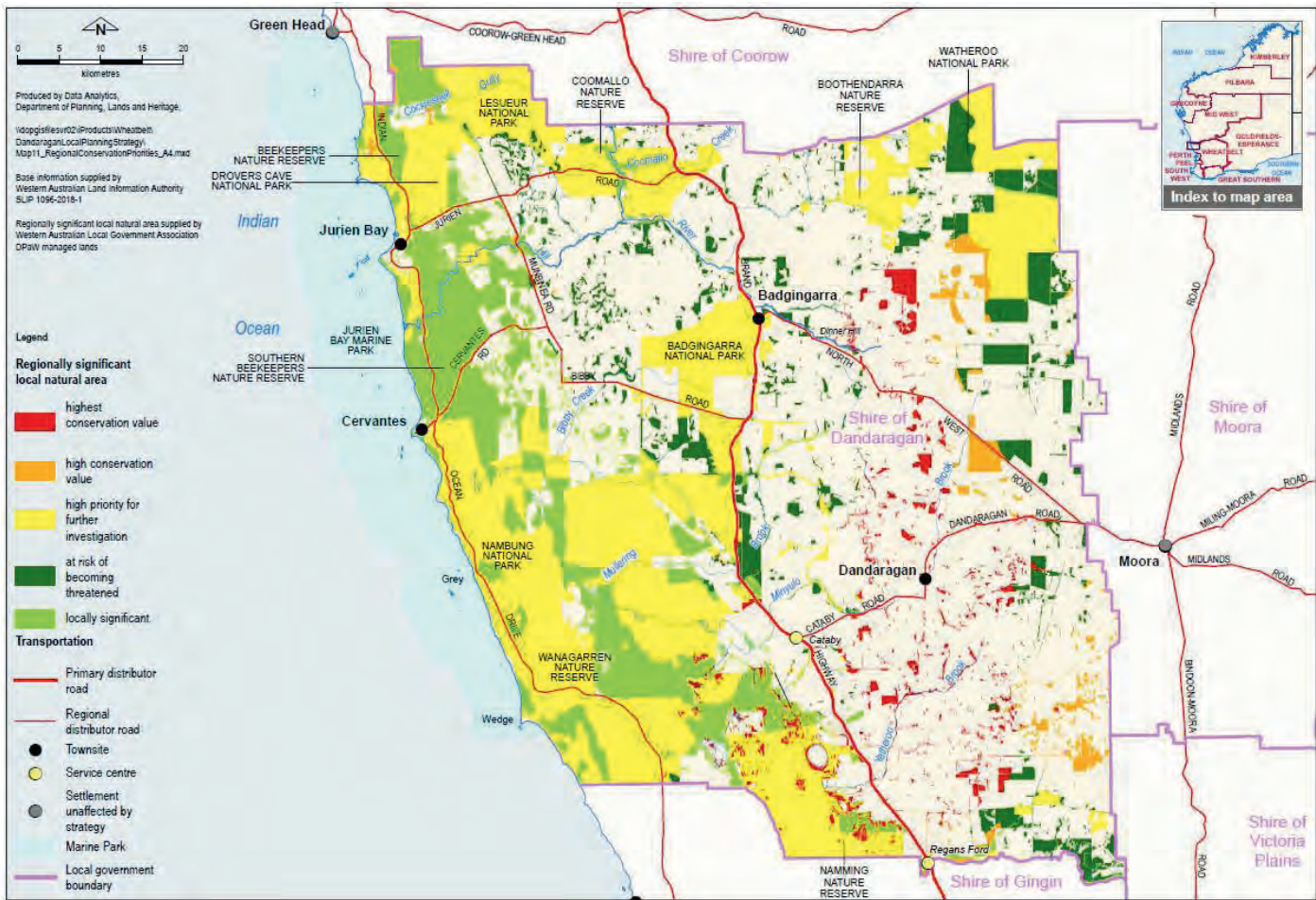
Badgingarra National Park covers a significant area immediately west of Brand Highway, but the area of endemism in the Cataby-Dandaragan area is poorly covered by reserves. Watheroo and Nambung National Parks are large enough to protect species in those areas, presuming appropriate management of fire, beekeeping, introduced weed species and dieback disease.

Remaining native vegetation within the Shire's cleared agricultural areas which principally lies east of Brand Highway, now represents a significant asset for biodiversity, and as such require focussed attention. The biodiversity loss caused by clearing and fragmentation is exacerbated by dryland salinity, altered hydrology, grazing, introduced plants and animals, dieback, inappropriate fire regimes, and climate change.

The Shire is experiencing pressure for land use change and development in its western portion, which still contains extensive areas of native vegetation outside of State reserves. The main land use planning issue for biodiversity in this area is the clearing of native vegetation to establish new residential areas.

In the Shire's eastern portion, where native vegetation has been extensively cleared, land use planning focusses on retaining remaining native vegetation and on strategic revegetation to restore ecological function and reduce the impacts of fragmentation of remnant natural areas.

Figure 11 - Regional conservation priorities for further investigation



10.2.1 Regional Conservation priorities for further investigation

Figure 11 above indicates priorities for further investigation of biodiversity conservation for the Wheatbelt planning region that are applicable to the Shire. These priorities are based on the proportion of original vegetation associations remaining, as well as the presence of rare and threatened species and communities, significant wetlands and relatively large patches of remnant vegetation. The highest conservation values are in the heavily cleared areas east of Brand Highway in the Dandaragan Plateau sub-region, although even the extensive areas of remnant vegetation in the western portion of the Shire are categorised as high priority for further investigation, due to the presence of significant biodiversity assets.

More detailed information on biodiversity is required so natural areas can be more effectively identified for conservation, and priorities can be assigned. This is particularly important in the coastal area, where regional level ecological linkages should be identified to assist conservation planning in the broader Wheatbelt region. Areas of native vegetation, wetlands and waterways provide important connectivity between habitats across the landscape. The biodiversity contained in large State reserves is supported by smaller patches of native vegetation that exist in nearby areas of public and private land.

The preparation and implementation of a local biodiversity strategy is a high priority to guide land use planning in the Shire. Extensive native vegetation outside reserves managed by the State may be influenced by local government decision making, for example, regarding land use and development on private land, and the use and management of local reserves.

A biodiversity strategy would assist in identifying vegetated areas that are under pressure for land use change, subdivision and development, particularly areas which are being considered for future urban or rural living within and adjacent to Jurien Bay and Cervantes. Best practice approaches to native vegetation protection, such as conservation-themed Rural Living zone or Conservation zone could be used in these areas. The biodiversity strategy could explore opportunities to avoid further clearing and improve connectivity between fragmented native vegetation, including consideration of the role of road reserves in highly cleared agricultural zones. Good quality information on vegetation, flora and fauna is required for sound decision making on land use, subdivision and development.

10.2.2 Key findings

- The biodiversity significance of the Shire's remnant vegetation is very high. Small remnants in the Shire's inland area are important for their rarity, while the extensive remaining kwongan vegetation in the Shire's west displays a great diversity of species, and the large scale of good quality vegetation affords a degree of protection.
- The main threat to the Shire's remaining natural areas is the clearing of vegetation for urban expansion, rural residential use and agriculture. The likelihood of clearing for residential use is greatest in the vicinity of Jurien Bay and Cervantes.
- A local biodiversity strategy for the shire would assist in increasing the degree of protection for the Shire's valued natural areas.

10.3 COASTAL VULNERABILITY AND RISK

The Shire's offshore marine environment is dominated by reefs and islands that run sub-parallel to the shore. About 82,000 ha of the coast and marine environment extending from south of Wedge northwards to Green Head and approximately 5.5 km offshore is within the Jurien Bay

Marine Park. The near shore environment are comprised of marine basins or lagoons that support a wide range of sea grass/marine algal communities that are crucial for commercial and recreational fishing.

Other than beaches near Wedge Island, the Shire's beaches are narrow, generally less than 25m wide in late summer, when they are at their widest. During late winter the beaches may be cut back to the base of the foredunes and cliffing of the foredunes is not uncommon. Features include stretches of low limestone cliffs, large depositional features such as cusped forelands, and extensive mobile dunes. Hill River is the only stream that flows into the ocean. Other watercourses drain into the porous sands and limestone of the coastal plain, replenishing the superficial groundwater system.

Portions of the Shire's coastline are under considerable development pressure while simultaneously being at risk of coastal instability and susceptibility to environmental changes, such as rising sea level. Consideration of indicative risk is one element that helps determine areas that are suitable for future development. *The Coast of the Shires of Gingin and Dandaragan, Western Australia: Geology, Geomorphology and Vulnerability*, by Damara Pty Ltd (2012), provides information to assist in coastal planning in the Shire by assessing the risk of environmental change along the coast, including the outcomes of projected changes in climate.

The report treats coastal vulnerability as a combination of future susceptibility to coastal change, and current coastal instability. It divides the coastline into individual sediment cells, each with its own relatively self-contained sand movement system. Each cell is given individual ratings for susceptibility and instability, and a combined indicative risk rating. Susceptibility refers to the potential for changes to: geological features such as reefs; the configuration and orientation of the shoreline; and sand features along the shoreline e.g. whether beaches are located on a hard rock base. If a landform system is susceptible to change it is highly likely that it comprises or supports unstable, mobile landforms. Instability refers to current changes to the land surface. Criteria relate to hardness of rock, beach profile, type of dune ridge, and amount of vegetation cover.

The highest risk category in the Shire is moderate to high (see Figure 12: Vulnerability rankings for the coast). This applies to the coastline either side of Wedge Island, where there are extensive tracts of mobile dunes north of the point, and from South Hill River to Island Point at Jurien Bay, encompassing the mouth of the Hill River.

The constraint to coastal development for the 8km stretch of coast straddling the mouth of the Hill River is related to the activity of the Hill River itself, as well as dune mobility and blowouts. For the coast south of Island Point, the issue is the risk of shoreline retreat and general movement and fluctuations of Island Point, as well as dune mobility and blowouts. The report further advises that construction should be avoided in the vicinity of the present-day Hill River alluvial delta and estuarine flats, on the south side of Island Point, and on the foredune, frontal dunes and historic blowouts all along this coastline.

For these sections of coast, with their moderate to high coastal risk, the report advises that a full geotechnical survey and coastal sediment budget should be completed before development proposals are lodged. If the DoT is satisfied with the outcome of these studies, then a full hazard and risk assessment would follow. This process is consistent with scientific and policy frameworks that recognise that coastline in Western Australia, such as that of the Shires of Gingin and Dandaragan, is experiencing changing coastal processes such as winds, currents, waves and sea levels, leading to coastal erosion and inundation in many coastal areas. There is also increased visitor and residential numbers utilising the coast due to improved access from Perth since the completion of the Indian Ocean Drive in 2010.

Figure 12 - Vulnerability rankings for the Shire's coast



10.3.1 Coastal Hazard and Risk Management and Adaptation Planning

As outlined in *State Planning Policy 2.6: State Coastal Planning*, the Shire's coastal hazard risk management and adaptation planning (CHRMAP) addresses coastal hazard risk management and adaptation planning and describes adaptation measures. The preferred measure is to avoid areas identified as affected by coastal hazards, by having adequate setbacks. Consideration is also given to the requirements of other State Planning Policies, particularly State Planning Policy 2 and State Planning Policy 3.

In 2013, the Shire partnered with the Shire of Gingin and the Northern Agricultural Catchments Council to identify the range of data and information required to undertake coastal hazard assessments at priority locations. In accordance with the recommendations made by the abovementioned analysis, a preliminary assessment of coastal hazards at each town site in the study area was undertaken. The preliminary findings of the assessment identified that:

1. adaptation planning for coastal erosion is a priority at Cervantes and the Jurien Bay town site. South Jurien Bay (from Island Point south) was identified as a low priority area, mainly due to the relatively large coastal setback distance between the high- water mark and built assets at this location and, therefore, lack of a short-term threat from coastal erosion; and
2. adaptation planning for coastal inundation is a priority at Cervantes and Jurien Bay. This is mainly due to the low-lying nature of, and proximity of assets to, the shoreline at these locations.

The Shire's CHRMAP was adopted by Council in June 2018 and has the following purposes:

- to ensure that development and the location of coastal facilities takes into account coastal processes, landform stability, coastal hazards, climate change and biophysical criteria;
- to guide the identification of appropriate areas for the sustainable use of the coast for housing, tourism, recreation, ocean access, maritime industry, commercial and other activities;
- to provide for public coastal foreshore reserves and access to them on the coast; and
- to protect, conserve and enhance coastal zone values, particularly in areas of landscape, biodiversity and ecosystem integrity, indigenous and cultural significance.

The CHRMAP provides a plan for the implementation of recommended adaptation options over the next decade, to 2030 with a strategic view on the likely adjustments over the next century, to 2110. One of the recommendations from the CHRMAP was to include land seaward of the forecast 2110 Coastal Hazard Erosion Line within a Special Control Area (SCA) in the Scheme. This has been achieved through the introduction of Special Control Area No.3 - Coastal Hazard Risk Area (SCA 3).

SCA 3 includes approximately 124 privately owned properties and each leased caravan park in Cervantes and Jurien Bay. Many of these properties are zoned Residential under the Scheme, while others are zoned Tourist or Harbour. Special Use Zone 5 is also affected by SCA 3. Many of the reserve areas covered by the CHRMAP are classified as Recreation with one affected reserve classified as Unallocated Crown Land.

SCA 3 requires the Shire to have due regard to the following when considering a development application, in accordance with clause 67 of the deemed provisions:

- any approved State Planning Policy;
- the suitability of the land for the development taking into account the possible risk of flooding, tidal inundation, subsidence, landslip, bush fire, soil erosion, land degradation or any other risk; and
- the suitability of the land for the development considering the possible risk to human health or safety.

SCA 3 ensures future landowners are notified of the coastal risk that may impact their land, sets out provisions associated for proposed development within these land parcels and enables the Shire and affected coastal landowners to meet their obligations under SPP 2.6.

These coastal planning instruments discussed above only consider coastal erosion and do not consider inundation. Inundation planning and management measures shall be undertaken later given the existing coastal townsites within the Shire are located on low-lying sandy coastal landforms.

10.3.2 Key findings

- Almost half of the Shire's coast has been designated as presenting a moderate level of constraint to development, while around a quarter represents a moderate to high degree of constraint.
- The portion of coastline about the Hill River mouth has been identified as presenting the highest level of constraint found within the Shire that is also subject to proposals for intensified use.
- Detailed coastal studies have identified a suite of management strategies to mitigate and adapt to coastal hazard risks related to long term inundation and erosion.

10.4 LANDSCAPE

10.4.1 Description of character units

The Shire occupies three different landscape character areas, which are distinguished on the basis of their landform, vegetation, hydrology and land use. They are: the coastal plain, bounded on its inland side by the Gingin Scarp; the higher central area characterised by low ranges and isolated flat-topped hills, bounded on its inland side by the Dandaragan Scarp; and above this, the flatter, elevated terrain of the Dandaragan Plateau.

The prominent features of the low-lying coastal plain include: the coastline, with its long, gently curved beaches punctuated by sandy promontories or low limestone headlands, and the small, estuarine mouth of the Hill River; elevated dune systems parallel to the coastline; large mobile dunes and sand sheets; scattered wetlands in low-lying areas behind the coastal dunes; and gently sloping ridges swathed in the extraordinarily diverse sandplain heath (kwongan) vegetation. Built components in this landscape comprise the small coastal towns, and rural residential uses overlooking Jurien Bay; beyond these there is little development visible, and much of the landscape remains uncleared. As the landscape is devoid of tall trees or shrubs, views are long. Views over the ocean include lines of surf breaking over the reefs that run parallel to the shore.

The Shire's more elevated, central landscape also supports kwongan vegetation, which is an important tourist attraction in the wildflower season, bringing visitors from around the world. Prominent larger plants include banksia trees and scattered, exceptionally tall-trunked zamia palms. The low, flat-topped, steep-sided ranges and hills, such as Mount Lesueur, comprise remnants of an earlier plateau. They form distinctive features that abruptly rise from this open, otherwise gently rolling landscape. Unlike the coastal plain, there are some small, surface water courses. Some enter the Hill River, while the remainder drain into wetlands or simply enter underground drainage systems. Extensive portions of this landscape remain uncleared; elsewhere it has been cleared for grazing and grain crops, and there is a large mineral sand mine at the base of the Gingin Scarp near Cataby.

East of the Dandaragan Scarp, a subdued, north-south linear rise in the landscape, lies the Dandaragan Plateau, a landscape that has similarities to the wider wheatbelt of the southwest of WA as most of its original vegetation has been replaced with grain crops and pasture. Unlike landscapes to the west of the scarp, which support very few trees, the roads of the Dandaragan Plateau are frequently lined with tall eucalypts, mainly York gum and marri, while water courses also support trees.

10.4.2 Important features and views

The Shire intends to identify and list those natural and rural landscape characteristics and views that are valued by local residents, the wider community and international tourists, and to develop a strategy to protect these, focussing on areas that are prominently visible from main travel routes. The value placed on these landscapes may be the primary impetus for people moving to or visiting the area. This process has already been undertaken for Indian Ocean Drive in the WAPC's *Indian Ocean Drive Planning Guideline* (2014).

Based on international research into peoples' preferences for viewing different types of landscapes, outlined in the WAPC's *Visual Landscape Planning manual* (2007), landscapes and features that are likely to be considered significant include: rocky coastal headlands and associated pocket beaches, rock stacks and islands, such as Wedge Point and North Head; the Hill River and its estuary; stark, white mobile dunes and sand sheets; karst formations, such as the Pinnacles in Nambung National Park; lakes and wetlands; flat-topped peaks and ridges, such as Mt Lesueur; individual or massed plants that stand out from the kwongan or cleared pasture, such as groves of banksias or grass trees; as well as the kwongan vegetation in itself, carpeting the rolling landscape.

The Shire's landscapes are readily viewed, due to the low nature of remnant vegetation. Continuous views experienced from scenic travel routes such as Indian Ocean Drive and Brand Highway, and their associated roadside rest areas and lookout points, are of vital importance. Both the Brand Highway and Indian Ocean Drive are tourist routes of State level significance, being major travel routes immediately outside the Perth city that provide access to key tourism locations. In the wildflower season these roads themselves become the attraction, as an easy way to access some of the shire's natural wildflower displays.

The coastal dune systems and ocean are seen from the Indian Ocean Drive, and the open Kwongan heath landscape with its profusion of wildflowers is also visible from Brand Highway and roads linking through to the coast. Both the Indian Ocean Drive and Brand Highway were designed in such a way that viewing opportunities are maximised; for example, Brand Highway was built in an elevated position in the landscape, to provide extensive views westwards across the coastal plain. Roads that access coastal settlements from the highway also provide elevated views towards the coast. A number of rest areas and lookouts have been constructed along the Indian Ocean Drive, to provide opportunities for motorists to stop and view the landscape. Another example is the Coomallo rest area, located by a creek at the junction of Brand Highway and Jurien East Road. This is an admired site, with its white-trunked eucalypts lining the creek, and surrounded by kwongan-covered, flat-topped ridges.

Ideally the list of valued features and viewing experiences would be reviewed and supplemented by the local community and visitors to the Shire, before being mapped and guidance focused on their protection included in a strategy.

10.4.3 Protecting valued landscape character

There is a need to address land use changes which may adversely impact on landscape character. The WAPC's *Visual Landscape Planning manual* provides generic guidance in relation to a range of land uses that may adversely impact on valued landscape character, such as for wind farms, power lines and rural residential development.

When considering a development application which has the potential to impact on valued landscape character, the Shire will consider:

- the need for roadside development buffers and setbacks;
- roadside revegetation - the extent to which local species are utilised and the potential for vegetation to screen out valued vistas;
- opportunities for landscape features to be located within public open space;
- the sensitive location of building envelopes; and
- the retention of remnant vegetation.

The Shire will consider specific guidance for each of the three landscape character areas described above, or to portions of the Shire considered most sensitive to land use change. The capacity to absorb land use changes without impacting on valued character needs to be taken into account in guidance for each type of landscape. For example, the low-growing nature of kwongan vegetation provides negligible screening of roadside development.

Measures to reduce the prominence of development should focus on careful siting and design of new development, with screen planting another option that is less preferred as it can be unreliable in the long term. The WAPC's landscape manual provides guidance on character and view analysis, and on addressing landscape management issues.

Advice specific to Indian Ocean Drive is provided in the WAPC's *Indian Ocean Drive Planning Guideline* (2014). The Guideline advises on measures to protect valued components of the Shire's coastal landscape, viewed from Indian Ocean Drive. Advice focusses on the location, siting and design of land use or development proposals.

Application of the Guideline will assist in maintaining the value of this important coastal scenic route, for residents and visitors alike. Implementation will occur through the preparation and adoption of an Indian Ocean Drive local planning policy to guide decision making within the area of application. The intent of the local planning policy will be similar to those prepared by other local governments that front onto the road. The Shire also proposes that the Scheme be amended by inserting provisions to require development approval for areas that are within the Guideline's area of application.

10.4.4 Opportunities for interpretation and recreation

The value of landscapes to local residents and tourists can be enhanced by increasing people's knowledge and awareness of landscapes' attributes, and making landscapes more accessible.

Interpretive information on landscapes can be made available through means such as on-site signage, personal hard copy and electronic means. Measures to increase opportunities for the public to experience the landscape along travel routes include reduced speed limits where there are features of interest such as ocean views or views of mobile dunes at close distances, the creation of passing lanes in these locations, and the construction of additional lookouts with picnic facilities, roadside rest areas where there are views and walk trails with interpretive signage linked to these.

The Shire will develop a plan to increase public understanding of the Shire's landscape, including its biodiversity and cultural heritage components. The plan would establish how interpretive information would be made available such as through on-site signage, personal hard copy and electronic means.

10.4.5 Townscape quality

Many residents and visitors to the Shire spend time in the settlements. Improving the quality of public spaces, including beachfronts, parks, shopping centre car parks and road reserves, is likely to enhance people’s enjoyment of the settlements, in turn encouraging them to stay and contribute to the towns’ economies. The individual identity of each settlement can be reflected in such elements as planting, signage and artworks.

The Shire will develop individual plans for Jurien Bay and Cervantes that explore the identity of each town and develops ways in which this identity can be reflected in the style, appearance and quality of public spaces. This could include elements such as plantings, artwork, signage, colour schemes, street and park furniture and landscaping.

10.4.6 Key findings

- The Shire’s landscape character is an attraction for tourists, with its unusual flat- topped peaks, limestone pinnacles, and prolific spring wildflowers.
- The low height of vegetation across the Shire’s extensive natural areas provides for very long viewing distances, resulting in a landscape that is very sensitive to the impacts of land use changes, due to the visibility of changes.
- There are opportunities to increase public access to the landscape through additional lookouts and trails, for example, and to enhance public enjoyment through improved interpretive information.
- In considering new zoning or development proposals, the Shire can maintain the character of its valued natural landscapes by applying guidance contained in both the WAPC’s *Visual Landscape Planning Manual* and the *Indian Ocean Drive Planning Guideline*.

10.5 WATER RESOURCES

10.5.1 Groundwater use and availability

The DWER prepares allocation plans to manage how much water can be sustainably taken from groundwater and surface water systems. The challenge is to meet existing and future demand while maintaining the productive base of the natural resource and its dependent ecosystems, now and into the future. Groundwater areas, sub-areas and aquifers in the Shire are summarised in Table 36 and shown on Figure 13.

Table 36 - Groundwater areas, sub-areas and aquifers

Groundwater area	Groundwater sub-area	Aquifer
Jurien The Jurien Groundwater Area is 5,012km ² and covers approximately half of the Shire and part of the Shire of Moora.	Cervantes	Lesueur Sandstone North - public water supply reserved and no water is available for public open space. Fully allocated.
		Perth Superficial Swan - public water supply reserved. Water available for public open space but with quantity and quality issues.
		General comment: Water quality issues include sea water intrusion along the coast.
	Badgingarra	Yarragadee North - public water supply reserved and water is available for public open space.

		Perth Surficial - water quality ranges from fresh to brackish with availability and quantity localised.
Gingin The Gingin Groundwater Area extends over 6,000km ² and provides water to the Dandaragan townsite and Regan's Ford.	Northern Scarp	Perth-Mirrabooka - no public water supply. Allocation available. Generally fresh but highly variable yields.
	Cataby	Perth Yarragadee - public water supply reserved. Allocation available. Deep aquifer. Generally fresh but quality reduces to east along Darling Fault.
	Victoria Plains	Perth Surficial - no public water supply. Allocation available. Generally fresh but small yields and typically supports groundwater dependent ecosystems such as wetlands and remnant vegetation.
	Cowalla	Leederville Parmelia - public water supply reserved. Semi-confined to the north with generally fresh water and good yields. Allocation available.

The DWER advises that although groundwater is available throughout the Jurien Bay Groundwater Area issues, such as complex hydrogeology, naturally variable water quality, and the distribution of each aquifer, may restrict possibilities for abstraction. The approach to annual water allocation in this area is summarised in Table 37.

Table 37: Groundwater allocation in Jurien Bay Ground Water Area

Water allocation category	Water allocation GL/yr
Water available for take from all groundwater resources	94.6
Groundwater that can be allocated for licensing	91.6
Exempt from licensing (stock/domestic)	3.0
Volume of licensed entitlements (as at April 2010)	18.7
Volume for public water supply (as at April 2010)	1.5
Reserved for future public water supply (until 2040)	7.0
Available for new users	64.4

Source: Jurien Groundwater Allocation Plan (DWER, Report No 27, 2010)

The Gingin Groundwater Allocation Plan was released by the DWER in 2015. This plan covers the area north of Gingin Brook to Wedge Island and Moora. The Gingin Groundwater Allocation Plan updates an earlier allocation plan to respond to a drying climate and the resulting steady reduction in recharge to the aquifers from rainfall, resulting in declines to the water table and less water flowing to the rivers. At the same time, demand for groundwater has been steadily increasing from number of types of use including: agriculture; horticulture; mining; and residential. With less water available in the aquifer allocation the Groundwater Allocation Plan reduces the allocation limits where there is a threat to the security of water entitlements, accounts for environmental water needs, and introduces licensing rules.

Water is still available for licensing in 16 out of the 25 subareas in the Gingin Groundwater Allocation Plan area including in the Wedge Island (~61,500 ML/yr) and Victoria Plains (~4,400 ML/yr) subareas.

The DWER has been supporting the Water for Food Midlands Project which is administered by DPIRD. This is a State government project that is investigating groundwater availability, land capability and crop suitability in the Midlands area between Gingin and Dongara. The Midlands area is one of the most economically promising irrigation zones in Western Australia. The Midlands project has two focus areas:

1. Dinner Hill: the south-western corner of the Dinner Hill groundwater subarea near Dandaragan
2. Irwin: an area south of the Irwin River near Dongara.

As part of their role in the project, DWER has completed hydrogeological modelling of the Leederville - Parmelia aquifer in the Dinner hill subarea, and an assessment of groundwater- dependent environmental values and a review of groundwater abstraction and water availability. As part of this work, the DWER has identified that the water allocation limit in Dinner Hill can be increased above the current 12.6 GL/yr.

10.5.2 Water licensing

As the State government agency responsible for managing water resources, DWER issues licences and permits under the *Rights in Water and Irrigation Act 1914* (RIWI Act). These licences are required in all proclaimed areas and for all groundwater wells throughout the State. In proclaimed areas, it is illegal to take water from a watercourse or groundwater aquifer without a licence and issuance of new licences will only occur when allocation limits have not been reached.

Within proclaimed groundwater areas, landowners and developers are required to obtain a licence prior to constructing a bore or well on any property for groundwater extraction, except for stock or domestic purposes. In a proclaimed area, a water licence issued under section 5C of the RIWI Act will be required for purposes other than domestic usage. The following uses are, however, exempt from licensing requirements:

- domestic use;
- firefighting purposes;
- an area of lawn or garden up to 0.2 ha; and
- watering a limited number of stock (i.e. 10-15 head) in non-intensive conditions.

Constructing bores and subsequently abstracting groundwater, or taking surface water within a proclaimed area for purposes other than those described above, requires a licence. Landholders are encouraged to contact the DWER to clarify their licensing requirements.

The Shire is also involved in protecting and managing ground and surface water through its strategic and statutory land use planning functions. The location of future development, type of development and land use management practices may all impact on water resources. If not properly managed, the intensification of land use in the Rural Zone could increase the contamination risk to ground and surface water through the use of chemicals and fertilisers and greater production of nutrients. The requirement to obtain licences for water usage and development approval for intensive agricultural activities provides the opportunity to protect the water resources.

The Scheme requires an application for development approval for the intensification of land use in the Rural zone but has no other guidelines for assessment of these applications. When a licence is issued by DWER, the Shire should still be able to refuse the development application in exceptional circumstances such as if the licence raises new issues not previously considered by Shire, or to add additional conditions to the application for development approval for other planning reasons. The Shire and DWER need to cooperate in these processes through referral mechanisms.

Intensive agriculture that involves the use of groundwater, chemicals and fertilisers, and/or the extraction of water from rivers and streams and diversion into dams, requires development approval from the Shire, as well as a water licence if it is within a proclaimed groundwater area.

There is lack of clarity about whether development approval or a licence should be sought first. The Shire prefers that development approval be sought first and that an application be approved subject to the receipt of a water licence as there may be substantial investigations required to gain a water licence. Discussion between the Shire and DWER could formalise the process whereby a water licence application would be assessed once development approval has been granted by the Shire.

Figure 13 - Proclaimed groundwater and surface water areas



10.5.3 Public drinking water supply areas

The *Country Areas Water Supply Act 1947* provides for the creation of Public Drinking Water Source Areas (PDWSA) for the management and protection of a water source. Where the water source is groundwater, PDWSA are known as underground water pollution control areas or water reserves. There are five PDWSA located within the Shire as follows:

1. Badgingarra Water Reserve (gazetted 16-11-1999).
2. Cervantes Water Reserve (gazetted 16-11-1999).
3. Dandaragan Water Reserve (gazetted 16-11-1999).
4. Jurien Water Reserve (gazetted 21-08-2012).
5. Moora Water Reserve (gazetted 25-07-2017).

The DWER has developed water source protection plans for each PDWSA to ensure water resources are protected from contamination. Water source protection plans provide a mechanism to define priority areas (from 1 highest to 3 lowest) and protection zones within each PDWSA. Within these areas, certain activities and developments are restricted to protect and manage potable water sources to reduce contamination risks.

Special Control Area 4 (SCA 4) seeks to protect water resources in PDWSA in the Shire. Any proposal to rezone land or any application to subdivide and/or develop within or near of SCA 4 is required to be referred to the agency responsible for PDWSA. Properties located outside a PDWSA are not subject to land use restrictions applied by DWER, but compliance with the LPS is required. The DWER encourages landowners to consider the water requirements of future generations, and to limit those activities which may cause contamination such as excessive fertiliser and pesticide use, rubbish dumping and similar activities.

In considering an application for rezoning, subdivision or development in SCA 4, the Shire will have regard to:

- a minimum lot size of four hectares in Priority 2 areas in areas over limestone resources;
- DWER advice, particularly on bore design and location within Priority 2 areas;
- clearing of vegetation, which is to be prohibited except for defined building envelopes (including rain water tank storage), access ways and fencing;
- the carrying of livestock, which is to be prohibited unless otherwise agreed by the WAPC;
- the potential impact that the proposal may have on the quality of public drinking water, including:
 - (i) potential increased nutrient loading, particularly from point sources for nutrients, such as a poultry farm or piggery;
 - (ii) intensification of the application of fertilisers and pesticides;
 - (iii) storage of chemicals, fuels and other potentially polluting substances;
 - (iv) a substantial increase in runoff;
 - (v) any other impact which the local government considers may have an impact.
- any recommendations in the relevant Drinking Water Source Protection Plan;
- the Water Quality Protection Note 25: Land Use Compatibility Tables for Public Drinking Water Source Areas; and
- the requirements of State Planning Policy 2.7.

10.5.4 Surface water catchments

The Shire seeks to ensure that significant wetlands, rivers, estuaries and other surface water and associated ecological systems are protected.

There are two proclaimed surface water catchment areas in the Shire - the Hill River and tributaries catchment and the Moore River and tributaries catchment (see Figure 13). Major rivers and watercourses within these catchments include:

- Hill River;
- Boothendarra Creek;
- Coomaloo Creek;
- Warradarge Creek;
- Munbinea Creek;
- Caren Caren Brook; and
- Moore River.

The DWER manages the use of surface water resources. It is illegal to take water from a watercourse without a licence, in proclaimed areas under the *RIWI Act*. A licence does not guarantee that water is always available to be taken, for example, there may not be sufficient water during periods of drought. In addition, there are activities which are prohibited under the *RIWI Act* unless a licence has been issued by DWER. These include: interfering with the bed or banks of a watercourse, such

as to construct crossings or alter stream flow for diversion into a dam; or the extracting surface water. In areas that are unproclaimed, water can be taken from watercourses without a licence, so flow is not diminished to the extent that it affects the rights of users further downstream.

10.5.5 Water quality management

Generally, DWER and the Shire will be involved in issues associated with the use of chemical and fertilisers where:

- a water licence is required, has been applied for, or is already 'in-force' for the property; or
- there is intensive agriculture or significant pesticide use in proximity to sensitive water resources.

As part of the licensing process, DWER may require the applicant to develop a nutrient and irrigation management plan or similar to manage the impact of fertilisers, pesticides and other chemicals and may apply monitoring conditions to the licence. More detailed information is contained in *Water Quality Protection Note 33 - Nutrient and Irrigation Management Plans*.

When considering applications for rezoning, subdivision and development the Shire will consider the need to:

- maintain surface and groundwater quality at concentrations at pre-development levels (winter concentrations) and if possible, improve the quality of water leaving the development area, to maintain and restore ecological systems;
- minimise the export of pollutants such as nitrogen and phosphorus to surface or groundwater; and
- protect riparian vegetation and ensure that foreshore reserves are maintained and improved.

10.5.6 Flooding and drainage management

Flooding is not regarded as a major issue within the Shire, other than associated with storm events. The Scheme provides for protection of flood-prone areas from development. The need for investigations in flood-prone areas that are proposed for new development should be recognised in the conditions for the development.

When considering an application for rezoning, subdivision, development or intensification of land use, the Shire will seek to:

- manage the catchment for up to the 1 in 100-year average recurrence interval (ARI) event in developed areas, to pre-development peak flows; and
- ensure that all run-off contained in the drainage infrastructure network receives treatment prior to discharge to a receiving environment, consistent with the Stormwater Management Manual.

10.5.7 Key findings

- The State's drying climate is reducing the recharge of groundwater resources while demand on these resources is rising. This also has implications for the use of roof catchments and rainwater tanks to provide a sustainable water supply in rural living areas.
- There is sufficient water reserved in the Jurien Groundwater Area for public drinking water until approximately 2040.
- Water is available for new users in the Jurien Groundwater Area and the Wedge Island and Victoria Plains subareas of the Gingin Groundwater Area.
- When considering proposals for intensive agriculture, the potential impacts on water resources are to be considered by the Shire in consultation with State agencies.
- Development approval for intensive agriculture is to be sought in advance of the granting of a water licence.

10.6 PROVISION OF SEWERAGE

The Government Sewerage Policy (GSP) establishes the Western Australian Government's position on the provision of sewerage services through the planning and development of land. The GSP promotes the sustainable use and development of land by generally requiring connection of new subdivision and development to reticulated sewerage and adopting the precautionary principle to on-site sewage disposal.

Reticulated sewerage must be provided in accordance with the terms of a license issued by the Economic Regulation Authority, unless the sewerage service provider has an exemption for the reticulated sewerage service which is granted by the Minister for Water under Section 7 of the *Water Services Act 2012*.

In instances where reticulated sewerage cannot be provided, the GSP adopts a best practice approach to the provision of on-site sewage treatment and disposal in accordance with *Australian/New Zealand Standard 1547 On-site domestic wastewater management*. On-site sewage disposal may be considered where the Shire is satisfied that each lot is capable of accommodating on-site sewage disposal without endangering public health or the environment and the minimum site requirements for on-site sewage disposal in the GSP can be met.

Sewerage sensitive areas in the Shire are shown on Figure 13. The GSP outlines planning considerations and management strategies when determining whether onsite sewerage solutions are appropriate in sewerage sensitive areas.

The method of sewage disposal should be determined at the earliest opportunity in the planning process. The GSP provides detailed commentary on information that must be provided in support of a planning proposal to demonstrate that the long term sustainable sewerage servicing needs of development have been taken into consideration. This information includes preparation of site and soil surveys and other technical investigations.

10.7 BUSHFIRE RISK

Bushfire risk is a key planning issue, particularly in vegetated areas with steep slopes. The drying climate, settlement expansion and rural intensification all contribute to an increased risk of bushfires. Reducing vulnerability to bushfire is the collective responsibility of State and local government, landowners, industry and the community. It requires ongoing commitment and diligence to a range of management measures such as the appropriate location and design of development; managing potential fuel loads; implementing bushfire management plans; providing emergency services; increasing awareness of the potential risk through education; and ensuring emergency evacuation plans are in place. Such measures, in conjunction with planning policy and building controls, have the effect of increasing community resilience to bushfire.

Extensive areas of remnant vegetation in the western part of the Shire contribute to the moderate to high bushfire risk in this area. Mitigation of bushfire risk, particularly in areas where additional development is proposed such as between Jurien Bay and Cervantes, is a priority for the Shire.

State Planning Policy 3.7 - Planning and Bushfire Prone Areas and the associated Guidelines for Planning in Bushfire Prone Areas directs how land use should address bushfire risk management in Western Australia. It applies to all land which has been designated as bushfire prone by the Fire and Emergency Services (FES) Commissioner under section 18P of the *Fire and Emergency Services Act 1998*.

Investigating and managing bush fire risk needs to be considered at various stages of the planning process to avoid inappropriately located development and to provide an appropriate level of protection to life and property from bushfires. Ultimately, there needs to be a balance between bushfire risk management measures, management of biodiversity and conservation values; protection of amenity; with consideration of the potential impacts of climate change.

In general, the clearing of remnant vegetation is an unacceptable solution for avoiding or managing bushfire risk. This is particularly important in the Shire given that the vegetation within the coastal areas and the sand plain falls within a national and global biodiversity hotspot, and given the limited extent of remnant vegetation further east, on the Dandaragan Plateau.

Where bushfire protection measures such as the construction of fire breaks and access ways are proposed, the Shire will consider:

- whether the vegetation is important for threatened species such as the Carnaby's Cockatoo;
- the extent of the vegetation complex that remains;
- the cumulative impact of clearing on the surrounding vegetation;
- if the vegetation is part of a vegetation corridor;
- if clearing will impact on landscape and amenity; and
- whether the proposed clearing would be contrary to conservation legislation.

10.7.1 Key findings

- The Shire is to have due regard to State Planning Policy 3.7 and associated guidelines in assessing any planning proposal within a bushfire prone area.
- Clearing of remnant vegetation is generally an unacceptable solution for avoiding or managing bushfire risk.

10.8 CULTURAL/HISTORIC HERITAGE AND NATIVE TITLE

10.8.1 Cultural heritage

The *Aboriginal Heritage Act 1972* provides for the identification, registration and protection of Aboriginal sites throughout Western Australia and aims to protect and preserve Aboriginal heritage. There are thirteen registered Aboriginal sites within the Shire (see Table 38).

Table 38 - Registered Aboriginal heritage sites

Name	Heritage indicators
Wongonderrah Camp	Artefacts / Scatter, Camp, Water Source
Coolijarloo Well	Mythological, Water Source
Muralang Pool Camp	Artefacts / Scatter, Man-Made Structure, Mythological, Camp, Water Source
Kwelena Mambakort - Wedge Island	Artefacts / Scatter, Ceremonial, Grinding Patches / Grooves, Historical, Midden / Scatter, Rockshelter, Arch Deposit, Camp, Hunting Place, Meeting Place, Shell, Water Source
Gingin Brook Waggyt Site	Historical, Mythological, Camp, Hunting Place, Plant Resource, Water Source
Middle Head Middern	Artefacts / Scatter, Midden / Scatter
Padbury Yam Ground	Artefacts / Scatter, Plant Resource
Hasting's Cave	Artefacts / Scatter, Camp, Ochre
JB1 site	Camp
Yallalie Well	Artefacts / Scatter
Minyulo Brook (Bilya)	Artefacts / Scatter, Ceremonial, Modified Tree, Mythological, Arch Deposit, Birth Place, Camp, Hunting Place, Natural Feature, Plant Resource, Water Source
Marri Dale	Artefacts / Scatter, Camp, Water Source
Mullering Brook	Registered Site

Development of vacant land may require section 18 clearance under the *Aboriginal Heritage Act 1972*, as it is an offense under the Act to excavate, destroy, damage, conceal or in any way alter any Aboriginal site. The zoning or allocation of land for a particular use does not indicate heritage clearance, and it is the responsibility of developers to obtain necessary clearances for development. The Aboriginal Heritage Due Diligence Guidelines assist land users in fulfilling obligations set out under the *Aboriginal Heritage Act 1972*.

10.8.2 Historic heritage

The Shire's Municipal Inventory identifies sixty one sites that reflect the Shire's strong historical ties to the agriculture sector, and the role of its coastal settlements in the development of the Wheatbelt region. A further ten sites are recognised by the National Trust as having national significance. Review of the Municipal Inventory is supported.

The Shire has a pivotal role to play in heritage conservation management largely through its land use planning function. The Shire is also the decision-maker for the majority of development proposals and whether these relate to places of local or State significance. The Shire is required to refer development applications to the Heritage Council under the *Heritage Act 2018* to consider impacts on the heritage values of a place.

10.8.3 Native Title

The Shire is subject to the South West Native Title Settlement (the Settlement) within the area covered by the Yued Indigenous Land Use Agreement (ILUA). The ILUA is made in compliance with the *Native Title Act 1993* with the six Noongar Agreement Groups.

The Department of Planning, Lands and Heritage indicates that approximately 500 hectares of land in the Shire has been identified for potential allocation into the Noongar Land Estate, located across Jurien Bay, Cervantes, Badgingarra and Dandaragan. As at March 2020, the assessment process for the potential allocation of these lands into the Noongar Land Estate are ongoing.

10.8.4 Key findings

- There are registered aboriginal heritage sites in the Shire.
- There are sites that are recognised for their historic heritage significant under both Federal and State legislation.
- Aspirations of the Yued people, who are the representative of the Yued Native Title Agreement Group, regarding future land use within the ILUA will need to be considered as part of decision making.



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SHIRE OF

DANDARAGAN