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draft Gascoyne Coast Sub-Regional Strategy

PART A: Strategic planning





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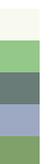


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1 Introduction

The draft Gascoyne Coast Sub-regional Strategy (the Strategy) has been prepared for the sub-region, which includes the Shire of Exmouth and coastal portions of the shires of Carnarvon and Shark Bay (Figure 1).

The Gascoyne Coast is unquestionably remote and sparsely populated, with most of its population concentrated in the main service centres of Carnarvon, Exmouth and Denham. The significance of the area's unique environmental attributes is widely-recognised, with two World Heritage properties – Shark Bay and the Ningaloo Coast – situated in the sub-region. Combined with its enviable climate, this attracts significant volumes of visitors. Along with tourism, horticulture, pastoralism and mining are other important activities that underpin local economies.

The Strategy itself comprises two parts:

- **Part A: Strategic planning** (this document); which articulates a strategic direction for land-use planning within the study area; and
- **Part B: Sub-regional profile**; which contains an overview of the study area's economy, infrastructure and environment to provide a general context for Part A.

1.1 Consultation

The draft Gascoyne Coast Sub-regional Strategy is now being advertised for public comment. Public comments will be considered and a final Gascoyne Coast Sub-regional Strategy will be prepared for endorsement by the Western Australian Planning Commission (WAPC). It is intended that the final Gascoyne Coast Sub-regional Strategy will be used to guide sub-regional and local planning within the study area. A public submission form is included at the end of this document.

1.2 Study area

The Gascoyne Coast sub-region contains the Shire of Exmouth in its entirety, and the coastal portions of the shires of Carnarvon and Shark Bay. For the purpose of this strategy, this generally includes the areas to the west of North West Coastal Highway, and areas adjacent to the Carnarvon settlement including the horticultural precinct and Brown Range locality. The study area, which also extends over the Ningaloo Coast and Shark Bay World Heritage areas, is shown in Figure 1.



Figure 1: Study Area

1.3 Purpose

The purpose of this strategy is to:

- provide the sub-regional context for land-use planning in the Gascoyne Coast;
- consider a range of population growth scenarios, and within this context analyse the capacities of settlements to accommodate growth;
- identify strategic directions to guide local planning processes; and
- provide guidance for the preparation of and amendments to local planning strategies and schemes.

1.4 Sub-regional planning approach and context

The Strategy, once finalised, will become a third tier strategic planning document (Figure 2), being preceded by the Western Australian *State Planning Strategy* (WAPC, 2014) and the *Gascoyne Regional Planning and Infrastructure Framework* (WAPC, 2015). It will be recognised as a sub-regional strategy under the State Planning Framework (*State Planning Policy No. 1*).

The Strategy does not replace other policies which guide the WAPC’s decision making across the State. The Strategy will be taken into account by the Planning Commission when preparing and reviewing strategies and policies that apply to the Gascoyne Coast sub-region. The Strategy will also guide local governments in the development or review of local planning strategies and schemes.

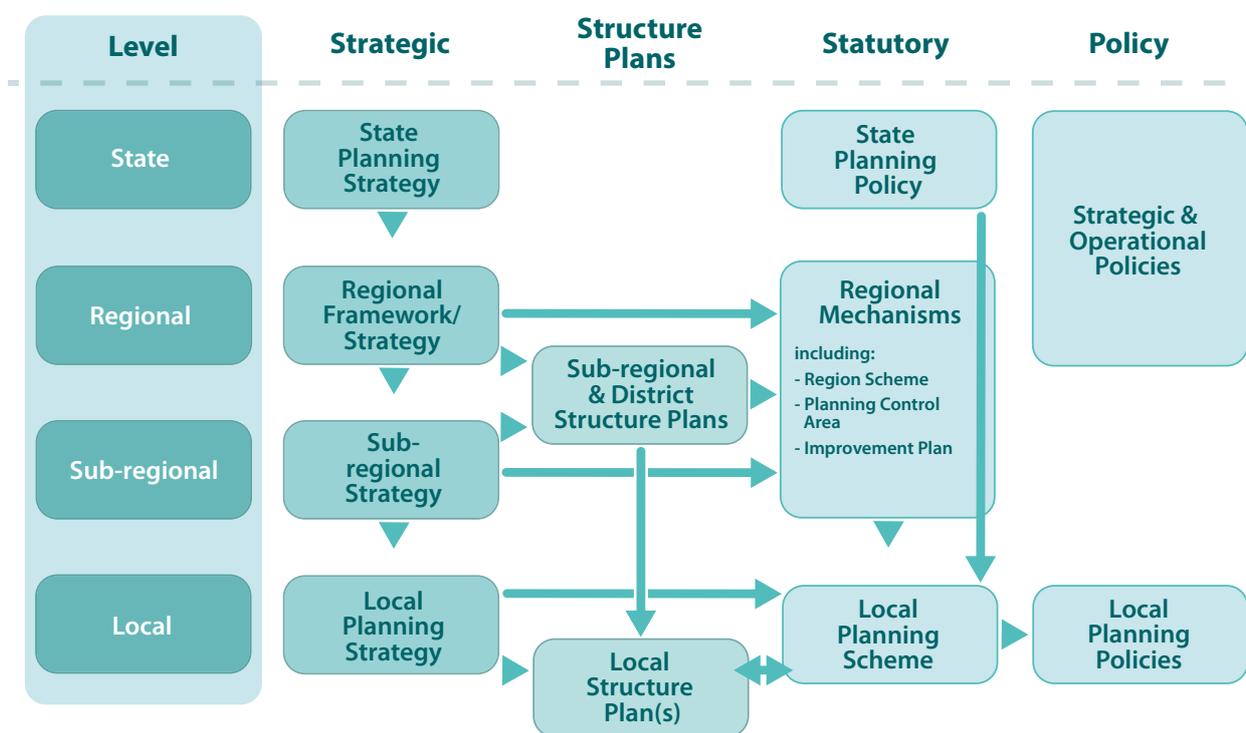


Figure 2: Western Australian planning framework

1.4.1 Relevant strategies and studies

A number of overarching strategic documents exist to guide sub-regional planning for the Gascoyne Coast and were considered in the preparation of the Strategy, including those listed below.

State Planning Strategy 2050 (WAPC, 2014)

The State Planning Strategy 2050 provides the strategic context for planning and development decisions throughout the State. It outlines a vision, principles, strategic goals and strategic directions in providing a basis for long-term State and regional land-use planning.

Gascoyne Regional Planning and Infrastructure Framework (WAPC, 2015)

The Framework provides the regional context for land-use planning in the Gascoyne through an overview of the major regional economic, social, cultural and environmental issues and their associated opportunities. It identifies the priority actions required to enable comprehensive regional planning and the priority regional infrastructure projects to facilitate economic and population growth.

Ningaloo Coast Regional Strategy Carnarvon to Exmouth (WAPC, 2004)

The Ningaloo Coast Regional Strategy was prepared as a 30 year strategic land-use plan that sets the framework of planning for sustainable tourism and land use on the Ningaloo coast. It includes a regional land-use plan; coastal tourism framework; planning and environmental guidelines for sustainable tourism on the Ningaloo coast; and structure plans for key settlements.

Shark Bay Regional Strategy (WAPC, 1997)

The Shark Bay Regional Strategy states that its primary purpose is to provide a link between State and local planning for land and water use and development which is based on a balance of economic, social and environmental considerations. It was prepared as a review of the 1988 Shark Bay Region Plan; and provides guidance for land, water and resource use and management in the World Heritage property, and continued planning and management to protect and enhance World Heritage values.

Central Regions Land Capacity Analysis (Department of Planning, 2016)

The Central Regions Land Capacity Analysis provides a broad overview of land capacity in settlements of the Mid West, Gascoyne and Goldfields–Esperance regions based on the content of applicable local planning instruments. In particular, it provides a basis for the land capacity analysis in this Strategy.

Gascoyne Regional Investment Blueprint (Gascoyne Development Commission, 2015)

The Gascoyne Regional Investment Blueprint is an aspirational plan designed to map the way forward for the region, identifying opportunities, barriers and strategies to guide investment and development. In particular, it outlines six key transformational pillars to facilitate the realisation of a vision for a resilient region with a population of 23,000 at 2050.



1.4.2 Local planning context

Local planning strategies and schemes as they relate to Gascoyne Coast local governments are presented in Table 1. As these are reviewed, opportunities to incorporate key regional and sub-regional planning initiatives into these and other relevant local planning mechanisms will occur.

Additionally, a number of local and district structure plans have been developed by the local governments in recent years, providing further land-use planning guidance for specific areas. Of particular note is the Coral Bay Settlement Structure Plan 2014, which supersedes the Coral Bay Settlement Plan that formed section 2.3 of the *Ningaloo Coast Regional Strategy*.

Table 1: Local planning context

Local government	Local planning strategy	Local planning scheme
Shire of Carnarvon	Draft 2016	TPS No. 10 (Carnarvon Townsite & Environs) (1988) TPS No.11 (District Zoning Scheme) (1995) New scheme in preparation
Shire of Exmouth	Draft 2016	TPS No. 3 (1999) Draft LPS No. 4 (2016)
Shire of Shark Bay	2013	TPS No. 3 (2008) Draft LPS No.4 (2016)



1.4.3 Management planning

The State conservation estate and other Crown land including pastoral leases comprise much of the total land area of the Gascoyne Coast sub-region. The planning and management of such areas are subject to various legislative processes, including some that fall outside the jurisdiction of planning. These processes are integral to the future planning of the sub-region, and it is therefore pertinent that they are considered in the context of this Strategy.

Conservation

The management of the conservation estate is administered under the *Conservation and Land Management Act 1984*, through management plans prepared by the Department of Parks and Wildlife for the Conservation and Parks Commission. Current management plans as they relate to the conservation estate in the Gascoyne Coast sub-region are listed in Table 2.

The Department of Parks and Wildlife (DPAW) is also the lead agency for the day-to-day management of the sub-region's World Heritage areas and reports to the Australian Government on the protection, conservation, presentation, rehabilitation and transmission to future generations of the World Heritage values. World Heritage advisory committees for the Shark Bay and Ningaloo Coast also play a significant role in planning for and managing their respective World Heritage property. The *Shark Bay World Heritage Property Strategic*

Plan 2008-2020 provides management planning for the Shark Bay World Heritage area in addition to the other plans listed above.

State lands

Crown land is generally managed through the *Land Administration Act 1997*. The Department of Lands plays an important role in the management of Crown land. For example, in the sub-region this includes administering pastoral leases and associated tourism leases along the Ningaloo coast, and the ongoing management of vacant Crown land to deal with issues such as coastal shacks.

State Agreement areas

The Gascoyne Coast sub-region includes two State Agreement areas:

- Shark Bay (Useless Loop) – salt and gypsum operations held pursuant to the *Shark Bay Solar Salt Industry Agreement 1983*; and
- Lake MacLeod – salt operations held pursuant to the *Evaporites (Lake MacLeod) Agreement Act 1967*.

These are administered by the Department of State Development on behalf of the State Government. Significantly, State Agreement Acts can include provisions that amend the power of local governments in relation to subject areas.

Table 2: Gascoyne Coast conservation estate management plans

Park or reserve	Management plan
Cape Range National Park	Cape Range National Park Management Plan No. 65 (2010)
Edel Land National Park (proposed)	Shark Bay Terrestrial Reserves and Proposed Reserve Additions Management Plan No. 75 (2012)
Francois Peron National Park	Shark Bay Terrestrial Reserves and Proposed Reserve Additions Management Plan No. 75 (2012)
Dirk Hartog Island National Park	Shark Bay Terrestrial Reserves and Proposed Reserve Additions Management Plan No. 75 (2012)
Ningaloo Marine Park	Management Plan for the Ningaloo Marine Park and Muiron Islands Marine Management Area 2005-2015
Shark Bay Marine Park	Shark Bay Marine Reserves Management Plan 1996-2006 No. 34
Other State-managed conservation parks and reserves	Miscellaneous

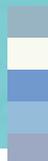


Sub-regional considerations

Outside the main settlements of Carnarvon, Exmouth and Denham, nearly all of the Gascoyne Coast sub-region is Crown land and/or comprises part of the State conservation estate. Accordingly, the relevant planning and management processes are integral to the future planning of the sub-region; and this Strategy supports the development and maintenance of contemporary management planning for applicable areas by the relevant management authority.

One of the outcomes from the State Government's 2015 pastoral lease renewal process was the excision of a coastal strip from several pastoral leases along the Ningaloo coast. The ultimate tenure configuration of the excised strip includes a future 'A' class reserve to be managed by the Department of Parks and Wildlife. A management plan for this area is currently being prepared.





2 Activity centres

The *Gascoyne Regional Planning and Infrastructure Framework* describes an activity centres framework and settlement hierarchy that identifies the role and function of activity centres based on current focal points for people, services, employment and leisure. This is applicable in the context of this Strategy as it outlines the focus areas for growth in the Gascoyne Coast sub-region.

Accordingly, the activity centres framework and settlement hierarchy as it relates to the Gascoyne Coast sub-region is outlined in Table 3. Figure 3 summarises the activity centres framework and settlement hierarchy as it relates to the Gascoyne Coast sub-region.

2.1 Settlement hierarchy

Table 3 describes each of the tiers of the settlement hierarchy in more detail.

The Regional centres of Carnarvon and Exmouth, the Sub-regional Centre of Denham and the Tourism centres of Coral Bay and Monkey Mia are considered in further detail in section 4.2 of this Strategy.

Table 3: Settlement hierarchy tiers

Tier			Description
1	Regional City	<i>none in sub-region nearest examples include Geraldton and Karratha</i>	<p>From a regional perspective, Regional cities are typically dominant centres for population, economic activity and employment and are considered to offer the most extensive and diverse range of high-order services and functions. They play a significant role in developing much of a region's industry and employment and in this regard contain substantial hard infrastructure of regional significance.</p> <p>Regional cities often service a catchment that includes the majority of the regional population as well as industrial, retail, commerce, administration, government and social services. Importantly, they contain substantial regional health, education and recreation infrastructure. Typically, they contain a wide range of comparative retail, regional and branch offices of several government departments, and often provide a regional cultural and entertainment hub.</p>
2	Regional Centre	Carnarvon Exmouth	<p>Regional centres typically offer a diverse range of high-order services and functions, but to a lesser degree than a Regional City. They are also distinguished from regional cities as they generally service a smaller population.</p> <p>Regional centres are significant centres of economic activity, employment and population and form important hubs for regional industry, commerce and civic administration functions, including government offices and services. They generally provide comparative retail as well as higher-order education, recreation and health services.</p>

Cont.





Table 3: Settlement hierarchy tiers (cont.)

Tier		Description
3	Sub-regional Centre	Denham Sub-regional centres support the population and economic activities within their surrounding hinterlands through the provision of goods and services. The catchment areas of Sub-regional centres usually extend beyond the immediate centre to include surrounding centres and districts and as such their services are utilised by a broader population. Retail services offered in Sub-regional centres largely focus on the day-to-day needs of their service population, however some comparative retail may also occur, particularly in larger centres. Other commercial and light industrial activities, which generally exist to service the local economies, are important functions of sub-regional centres. Sub-regional centres often provide local government administrative functions and a range of social infrastructure and services, including local recreation, health services and secondary education.
	Tourism Centre ¹	Coral Bay Monkey Mia Tourism centres have a small population base and their local economies are focused on tourism. These centres experience significant fluctuations in population due to the seasonal influxes of tourists; and as such are generally service and experience oriented with some associated retail functions. Despite sitting on the same level in the settlement hierarchy as Sub-regional centres, Tourism centres generally contain minimal civic and social infrastructure as they predominantly service an itinerant population base.
4	Local Centre	<i>none in sub-region nearest example is Gascoyne Junction</i> Local centres offer a level of service that generally deals with the daily needs of their service population, but generally with a lower level of choice than Regional or Sub-regional centres.
	Tourism Node ¹	Blowholes Gnaraloo Station (incl Three Mile and Gnaraloo Homestead) Nanga Bay Resort Quobba Vlamingh Head Yardie Caravan Park Tourism nodes contain a negligible population base and as such the functions they provide cater exclusively for the needs of tourists; and like tourism centres they experience significant seasonal population fluctuations. Tourism nodes primarily accommodate overnight visitors and generally contain the necessary infrastructure to facilitate this function. They can also offer some basic retail facilities that are secondary to the core function of accommodation. Tourism nodes in the Gascoyne Coast sub-region currently include caravan parks remote from other activity centres.
5	Service Centre	Minilya Overlander Wooramel Billabong Service centres are generally located on major State arterial roads and offer basic 'roadhouse' facilities, including minor vehicle repair and servicing. Service centres may play an important role in inter and intra-regional travel, particularly in more remote areas of the State.
	Tourism Node ¹	Giralia Hamelin Pool Red Bluff Warroora Dirk Hartog Island Homestead (proposed) Sunday Island Bay (proposed) Minor Tourism nodes accommodate overnight visitors, but have a lesser capacity in comparison to Tourism nodes. They generally have limited infrastructure related to this function, meaning that they are generally more constrained than tourism nodes. This category typically includes popular camping sites.

¹ Lower capacity camping sites and other potential nodes for tourism are individually identified in previous regional strategies, however they currently contain minimal or no facilities. The *Gascoyne Regional Planning and Infrastructure Framework* (WAPC, 2015) has recommended that future accommodation requirements are provided for in larger tourism nodes and existing sites; and at this point in time, if other potential nodes for tourism were to be developed, it is preferred that they become day use sites. If additional nodes to cater for tourism, particularly accommodation, are considered necessary, further investigation will be required to determine suitable locations.



2.2 Other activity centres

In addition to the settlement hierarchy, specialised centres, conservation areas and local-day use sites are recognised within the overall activity centres framework due to their respective importance to the greater regional economy.

Specialised centres are essentially centres of employment that concentrate on a specific type of activity. They can be, but are not necessarily, located within relatively close proximity to other activity centres that contain a permanent population and typical urban functions. The individual roles of the Gascoyne Coast sub-region's specialised centres include:

- a naval communications base at North West Cape;
- a Royal Australian Air Force Base and a regional airport providing passenger aviation services at Learmonth;
- the private port facilities associated with salt mining at Useless Loop (Shark Bay Salt) and Cape Cuvier (which services the Rio Tinto operations at Lake MacLeod); and
- operating mine sites in the sub-region.

Future specialised centres are also identified at:

- Bejaling Port – the possible site for a deepwater port;
- Overseas Telecommunications Centre site, Brown Range; and
- mine sites in the sub-region that are either proposed or under development.

Conservation areas encompass World Heritage areas and State managed conservation parks and reserves (including the conservation and recreation reserves and marine reserve system as outlined on the sub-regional land-use plan – refer section 4.1). They primarily provide a conservation and/or recreation function and are considered to be influential to activity within the sub-region and are therefore considered within the overall activity centres framework. A single conservation area can often contain several individual sites that are considered to provide amenity akin to other activity centre categories, particularly tourism nodes and day-use sites. Planning for conservation areas is administered through other processes, including through management plans for prepared by the Department of Parks and Wildlife for State managed conservation parks and reserves.

Local day-use sites offer various visitor amenities and facilities, but generally contain extremely limited or no formal provision for overnight accommodation. They are numerous in the Gascoyne Coast sub-region and occur within and outside of other activity centres. Individually, the planning and management of day-use sites constitute a local-level issue and are not within the scope of this Strategy, however collectively they are acknowledged broadly as being important nodes for tourism at a sub-regional level. The responsibility for the management of day-use sites varies and can often depend on the tenure of the subject land. Where relevant, the responsibility for the management of the sites can include the:

- Department of Parks and Wildlife, particularly for those sites within World Heritage Areas and State-managed conservation parks and reserves, including national parks. The management for these sites is usually administered through management plans;
- local government; or
- pastoral leaseholder.

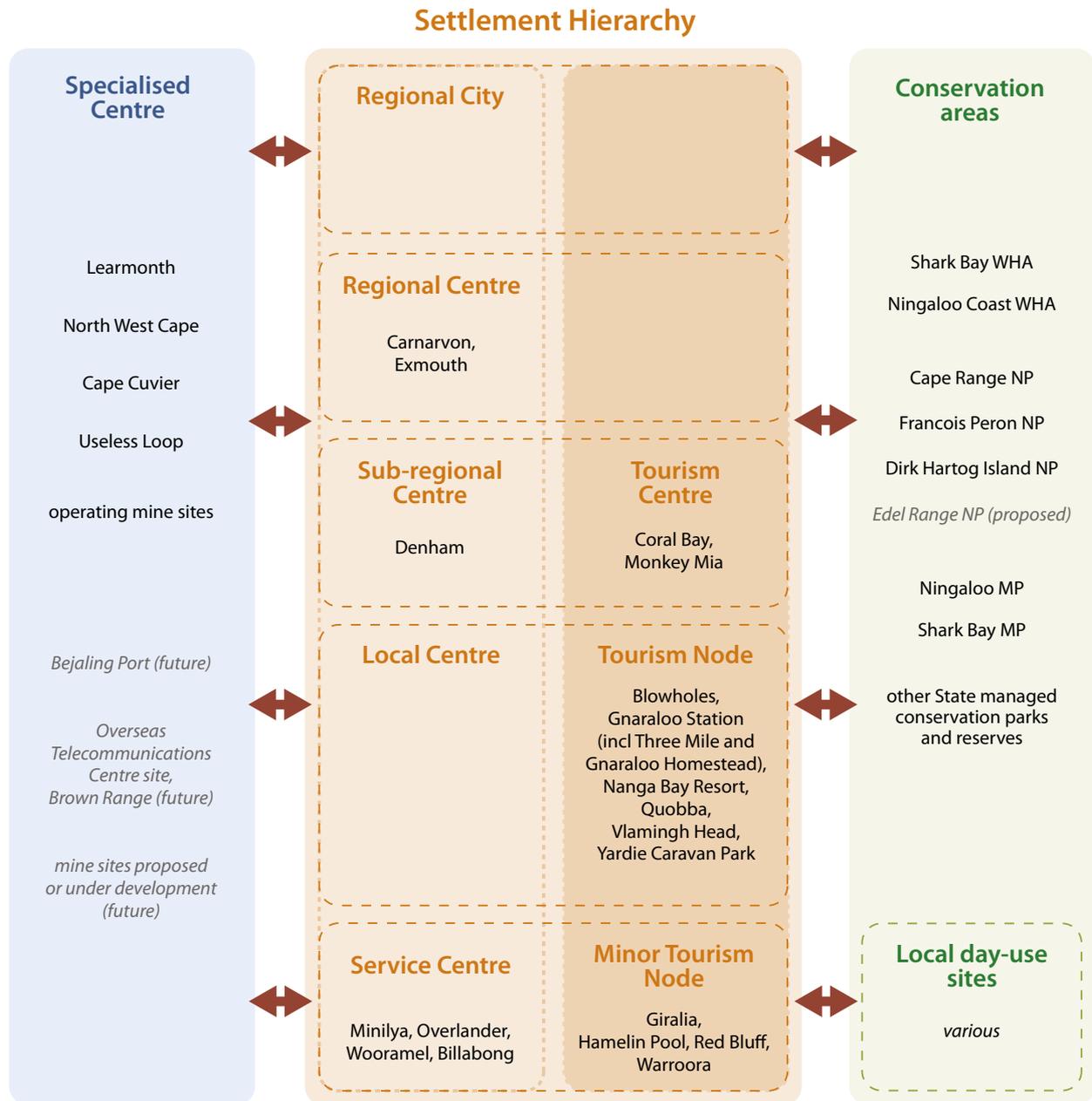


Figure 3: Gascoyne Coast sub-region Activity Centres Framework



3 Population planning

The current population of the Gascoyne Coast sub-region is estimated to be 9,640 (Table 4), which represents over 97 per cent of the total population of the Gascoyne region (2015 Preliminary Estimated Residential Population, Australian Bureau of Statistics). The Shire of Carnarvon has the greatest share of the sub-region's population, with most of this being located in the Carnarvon settlement. Over one quarter of the sub-region's population reside in the Shire of Exmouth.

Australian Bureau of Statistics population trends from 2010 to 2015 indicate a marginal increase in population, with an average annual population growth of 0.8 per cent over this period. This compares with the State average of 2.3 per cent. Population growth rates generally vary depending on overall economic prosperity, particularly given the sub-region's remote location and relatively small population base; noting that in the five years prior to 2010 the Carnarvon and Shark Bay shires experienced a decline in their respective populations. Over the longer term however, trends suggest a relatively stable population.

When considering future population forecasts and scenarios, including those in sections 3.2.1 and 3.2.2, it is important to remain cognisant that rates of population growth are invariably influenced by other external factors including birth and immigration rates. Additionally, exploration and innovation may present currently unforeseen opportunities for future investment in the Gascoyne Coast sub-region, which may further affect rates of population growth. As factors such as these are impossible to predict, it is acknowledged that any population forecasting or scenarios-based approach will have its limitations.

Table 4: Population of Gascoyne Coast local governments

Local government area ¹	2015 estimated population ²	Proportion of Gascoyne Coast population (%)	AAGR 2010–15 (%) ³
Carnarvon	6,098	63%	0.3%
Exmouth	2,591	27%	1.9%
Shark Bay	951	10%	1.5%
Total	9,640	100%	0.8%

¹ Given the configuration of available statistical datasets, population figures relate to entire local government areas and not those portions confined to the study area. For the purpose of this Strategy, this is a reasonable assumption when it is considered that those areas in the shires of Carnarvon and Shark Bay not within the study area are largely reserves or pastoral properties containing limited population.

² 2015 Preliminary Estimated Residential Population (Australian Bureau of Statistics, 3218.0 – Regional Population Growth 2014–15).

³ The average annual growth rate between 2010 and 2015 based on Australian Bureau of Statistics Estimated Residential Populations (Australian Bureau of Statistics, 3218.0 – Regional Population Growth 2014–15).



3.1 Western Australia Tomorrow

Western Australia Tomorrow (WAPC, 2015) contains trend-based population forecasts produced by the State Demographer and are considered to be the State's official population forecasts.

Table 5 presents the WA Tomorrow 2026 population forecasts for the local government areas in the Gascoyne Coast sub-region. For further information on these forecasts, please refer to <http://www.planning.wa.gov.au/publications/6194.asp>. The figures in the 'additional population' column are the difference between the 2026 forecast population and the Australian Bureau of Statistics 2015 Preliminary Estimated Residential Population for the applicable local government area.

Table 5: WA Tomorrow 2026 population forecasts for Gascoyne Coast local governments

Local government area ¹	WA Tomorrow ²		Additional population ³	AAGR 2015–26 (%) ⁴
	Band	2026 forecast population		
Carnarvon	A	5,820	-278	-0.4%
	B	6,210	112	0.2%
	C	6,550	452	0.7%
	D	6,850	752	1.1%
	E	7,330	1,232	1.7%
Exmouth	A	2,450	-141	-0.5%
	B	2,690	99	0.3%
	C	2,880	289	1.0%
	D	3,050	459	1.5%
	E	3,330	739	2.3%
Shark Bay	A	860	-91	-0.9%
	B	940	-11	-0.1%
	C	1,010	59	0.5%
	D	1,060	109	1.0%
	E	1,160	209	1.8%
Total ⁵	A	9,130	-510	-0.5%
	B	9,840	200	0.2%
	C	10,440	800	0.7%
	D	10,960	1,320	1.2%
	E	11,820	2,180	1.9%

¹ Given the configuration of available statistical datasets, population figures relate to entire local government areas and not those portions confined to the study area. For the purpose of this Strategy, this is a reasonable assumption when it is considered that those areas in the shires of Carnarvon and Shark Bay not within the study area are largely reserves or pastoral properties containing limited population.

² Source: *Western Australia Tomorrow* (WAPC, 2015).

³ These figures reflect the difference between the 2026 forecast population and the Australian Bureau of Statistics 2015 Preliminary Estimated Residential Population (being the current estimated population) as applicable.

⁴ The average annual growth rate required to realise the WA Tomorrow population forecasts at 2026.

⁵ The 2026 forecast population and additional population figures comprise the sum of the applicable figures for the shires of Carnarvon, Exmouth and Shark Bay.



3.2 Population growth scenarios

For the purpose of this Strategy, a range of population scenarios have been developed to consider potential future populations for the Gascoyne Coast sub-region at 2026 and 2051. This includes scenarios based on the WA Tomorrow population forecasts, and more aspirational population targets. The scenarios are presented in Table 6 as they relate to the sub-region as a whole, and each is described more specifically below.

Note that given the configuration of available statistical datasets, the population scenario figures relate to the entire local government areas of the shires of Carnarvon, Exmouth and Shark Bay; and not just those portions confined to the study area. For the purpose of this Strategy, this is a reasonable assumption when it is considered that those areas in the shires of Carnarvon and Shark Bay not within the study area are largely reserves or pastoral properties containing limited population.

3.2.1 Scenarios based on WA Tomorrow (scenarios 1 and 2)

Scenario 1 is based on the Band C (median forecast band) WA Tomorrow population forecasts for the Gascoyne Coast local government areas (refer section 3.1). **Scenario 2** is based on the high-growth forecast band, Band E.

Forecasts have been made until 2026 because it is reasonable to assume that underlying trends will continue to that point. For this scenario, the 2026 forecast population has been extrapolated to 2051 assuming that the average annual growth rate between 2015 and 2026 will also apply to 2051.

3.2.2 Aspirational population scenarios (scenarios 3 and 4)

Regional aspirational population scenarios for the Gascoyne region have been developed through a consultation process that engaged the Gascoyne Development Commission (GDC) and the four Gascoyne local governments. These regional targets were proposed following consideration of all feedback received from local governments regarding their future population aspirations at local and regional levels, in addition to further advice from GDC. These targets are considered by GDC to be in general alignment with their vision for the region.

Scenario 3 – the Strategy’s ‘A’ aspirational population scenario – reflects a ‘more conservative’ aspirational population figure proposed by the Development Commission in their *Gascoyne Regional Investment Blueprint* (GDC, 2015).

Scenario 4 – the Strategy’s ‘B’ aspirational population scenario – reflects the original regional aspirational population targets resulting from the process described above.

Table 6: Population scenarios for the Gascoyne Coast sub-region

Scenario	2026	AAGR 2015–26 (%) ¹	2051	AAGR 2026–51 (%) ²
1. WA Tomorrow – Band C	10,440	0.7%	12,526	0.7%
2. WA Tomorrow – Band E	11,820	1.9%	18,848	1.9%
3. Aspirational population scenario A	15,500	4.4%	23,000	1.6%
4. Aspirational population scenario B	20,000	6.9%	40,000	2.8%
5. Estimated peak population	34,000	n/a	54,000	n/a

¹ The average annual growth rate required from 2015–26 to realise the 2026 population of that scenario, using the Australian Bureau of Statistics 2015 Preliminary Estimated Residential Population as the current (2015) population figure.

² The average annual growth rate required from 2026–51 to realise the 2051 population of that scenario, assuming that the 2026 target is reached.





Please note that these targets were originally conceived for the entire Gascoyne region, which includes the Shire of Upper Gascoyne in addition to the three local government areas in the Gascoyne Coast sub-region. Given that a very high proportion of the Gascoyne region's population resides within the Gascoyne Coast sub-region, and recent trends indicate that virtually all of the population growth occurs in the sub-region, it is considered appropriate that the regional targets be applied as scenarios for the sub-region in this Strategy.

3.2.3 Estimated peak population (scenario 5)

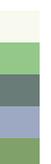
From a planning perspective, it is important that the magnitude of itinerant and transient populations occurring in addition to an area's permanently-based resident population is considered, as this invariably creates additional pressure on local and regional infrastructure.

Regional annual peak population (**scenario 5**) has been estimated based on the following:

- scenario 4 (the Strategy's 'B' aspirational population scenario) comprises the permanent population base; and

- the additional population (i.e. the difference between the estimated peak population figure and the assumed permanent population base) has been estimated based on an interpretation of economic data considering the impacts of itinerant and transient populations, such as fly-in fly-out workers, seasonal workers and tourists. Due to limitations in the availability of comprehensive data, these figures should be interpreted as being indicative only. Further investigations are required to ascertain the accuracy of these estimates.

These estimates were developed through the same consultation process with local governments and GDC as the aspirational population scenarios. Please refer to the relevant comments above regarding this process.



3.2.4 Population growth scenarios for individual local governments

The Strategy's population scenarios from Table 6 have been further broken down and are presented for each of Gascoyne Coast local government areas – Carnarvon (Table 7); Exmouth (Table 8); and Shark Bay (Table 9).

Recent and forecast trends suggest that population growth occurs unevenly across the Gascoyne Coast sub-region, with the Shire of Exmouth having a

considerably higher growth rate than the other two local governments. Scenarios 1 and 2 are based on WA Tomorrow forecasts, which is a trend-based forecast prepared at a local government level, and as such in these scenarios this trend is accounted for. To break down the sub-regional aspirational scenarios 3 and 4 and account for this trend, future population figures have been allocated to local governments using the same proportions (i.e. the ratio of the local government population to the sub-regional total at 2026 and 2051) that result under scenario 2.

Table 7: Population scenarios for the Shire of Carnarvon

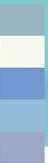
Scenario	2026	AAGR 2015–26 (%)	2051	AAGR 2026–51 (%)
1. WA Tomorrow – Band C	6,550	0.7%	7,706	0.7%
2. WA Tomorrow – Band E	7,330	1.7%	11,136	1.7%
3. Aspirational population scenario A	9,612	4.2%	13,589	1.4%
4. Aspirational population scenario B	12,403	6.7%	23,633	2.6%
5. Estimated peak population	15,903	n/a	27,133	n/a

Table 8: Population scenarios for the Shire of Exmouth

Scenario	2026	AAGR 2015–26 (%)	2051	AAGR 2026–51 (%)
1. WA Tomorrow – Band C	2,880	1.0%	3,662	1.0%
2. WA Tomorrow – Band E	3,330	2.3%	5,890	2.3%
3. Aspirational population scenario A	4,367	4.9%	7,188	2.0%
4. Aspirational population scenario B	5,635	7.3%	12,500	3.2%
5. Estimated peak population	13,135	n/a	20,000	n/a

Table 9: Population scenarios for the Shire of Shark Bay

Scenario	2026	AAGR 2015–26 (%)	2051	AAGR 2026–51 (%)
1. WA Tomorrow – Band C	1,010	0.5%	1,158	0.5%
2. WA Tomorrow – Band E	1,160	1.8%	1,822	1.8%
3. Aspirational population scenario A	1,521	4.4%	2,223	1.5%
4. Aspirational population scenario B	1,963	6.8%	3,867	2.7%
5. Estimated peak population	4,963	n/a	6,867	n/a



4 Land-use planning strategy

The land-use planning strategy component of the Gascoyne Coast Sub-regional Strategy is essentially a spatial representation of the opportunities, constraints and planning issues considered in the preparation of the Strategy.

It has been prepared at two different scales, being the:

- sub-regional scale (section 4.1), which considers broad-level land uses from a sub-regional perspective; and
- settlement scale (section 4.2), to allow a more focused consideration of current and future land uses for Carnarvon, Exmouth, and Denham.

4.1 Gascoyne Coast sub-regional land-use plan

The purpose of the sub-regional land-use plan (Figure 4) is to identify the spatial context for preferred land uses within the study area.

The Strategy recognises that land uses will in reality be more complex than these categories suggest. However, the intention of this plan is to provide a sub-regional perspective to guide future regional, sub-regional and local planning processes.

An overview of the land uses and other features of the land-use plan is provided below.

Conservation and recreation reserve

This land use includes reserves in the terrestrial conservation system. This includes the:

- Cape Range, Francois Peron and Dirk Hartog Island national parks;
- Jurabi and Bundegi coastal parks;
- Zuytdorp, Bernier and Dorre Islands and Muiron Islands nature reserves; and
- other conservation and recreation reserves in the Gascoyne Coast sub-region.

Conservation and recreation reserves can contain numerous attractions and provide basic visitor facilities, which can include visitor information centres, campsites, picnic areas, walk trails, interpretation of natural and cultural values and boat launching facilities.

These areas, including the process for planning individual sites for recreation and tourism use, should be administered through management plans prepared by the Department of Parks and Wildlife (refer section 1.4.3 and Table 2). It is anticipated that development will be limited, with environmental protection being the key criterion in relation to all development decisions.

Strategic directions

- Protect and manage the sub-region's significant natural assets.
- Encourage appropriate economic development in areas that have tourism, recreation or environmental attractions.
- Conservation and recreation areas to be administered through relevant management planning.

Proposed conservation and recreation area

This category includes areas that have been identified to be added to the conservation reserve system. These areas are considered to have either high conservation and/or recreation value or are required to manage adjacent areas with such value. This includes the:

- proposed Edel Land National Park;
- proposed Giralia, South Peron and Petit Point conservation parks;
- proposed Nanga Nature Reserve;
- proposed extensions to the Cape Range National Park and the Zuytdorp Nature Reserve;
- proposed 5(1)(h) CALM Act reserve that forms a coastal strip adjacent to the Ningaloo Marine Park; and
- other former leasehold properties managed by the Department of Parks and Wildlife.

Proposed conservation and recreation areas shown on the sub-regional land-use plan are on Crown land. These areas should be planned and administered through a management plan by the relevant management authority. Where a relevant management plan does not exist for any of these areas, one should be developed accordingly.

In particular, the extent of the proposed conservation and recreation area along the Ningaloo coast between Red Bluff and Cape Range National Park includes areas excised from pastoral leases through the 2015



pastoral lease renewal process undertaken by the State Government. Notably, the subject area contains a number of current and proposed tourism and recreation sites that have been identified in previous regional planning strategies. A management plan for this area is currently being prepared by the Department of Parks and Wildlife.

Notwithstanding their environmental significance, some proposed conservation and recreation areas contain significant deposits of geological or mineral resources, and/or are subject to existing mining tenements. Any resource extraction will require the necessary approvals of relevant authorities.

Strategic directions

- Protect and manage the sub-region's significant natural assets.
- Encourage appropriate economic development in areas that have tourism, recreation or environmental attractions.
- Proposed conservation and recreation areas to be administered through relevant management planning.

Marine reserve system and proposed additions

Within the study area, the marine reserve system and proposed additions includes the:

- Ningaloo and Shark Bay marine parks;
- Ningaloo Commonwealth Marine Reserve;
- Muiron Islands Marine Management Area; and
- Hamelin Pool Marine Nature Reserve; and
- proposed additions to the Shark Bay Marine Park, including the 5(g) reserve for the Preservation of Sedimentary Deposits.

These areas should be managed in accordance with the relevant marine management plan, so as to protect and conserve their environmental values and to maintain World Heritage values as applicable.

In addition, numerous other Commonwealth marine reserves are adjacent to the study area, including the Gascoyne, Shark Bay and Abrolhos Commonwealth marine reserves.

Strategic directions

- Protect and manage the sub-region's significant natural assets.
- Encourage appropriate economic development in areas that have tourism, recreation or environmental attractions.
- Marine reserve system and proposed additions to be administered through relevant management planning.

World Heritage areas

The sub-regional plan includes the extents of the Shark Bay and Ningaloo Coast World Heritage areas, which encompass marine and terrestrial areas. The management of declared World Heritage properties, including the protection of World Heritage values is provided for in the Australian Government's *Environmental Protection and Biodiversity Act 1999*. Further detail on the significance of the World Heritage areas to the sub-region is contained in Part B of the Strategy.

Crown land comprises the predominant tenure of land within the World Heritage areas, with much of this falling in the current conservation reserve system. There is, however, a small number of isolated freehold lots within the Shark Bay World Heritage Area.

Planning for these World Heritage areas is largely subject to processes such as the strategic planning and management processes of the Department of Parks and Wildlife and relevant World Heritage advisory committees; however this Strategy envisages that limited development will occur within World Heritage areas, particularly due to their internationally recognised environmental significance.

Strategic directions

- World Heritage areas are to be managed in accordance with relevant World Heritage values.
- Embrace the sub-region's World Heritage attributes to promote the region and facilitate economic development through tourism opportunities.
- World Heritage areas to be administered through relevant management planning.

Recommended marine protection area

In *A Representative Marine Reserve System for Western Australia* (Marine Parks and Reserves Selection Working Group, 1994), there are three marine areas recommended for protection within the study area that are not currently within the marine reserve system. This includes:

- an area along the coast from Red Bluff to Point Quobba;
- the southern and eastern mangal areas and adjacent coastal waters of Exmouth Gulf; and
- proposed extensions to the Shark Bay Marine Park that encompass the shores of Bernier and Dorre Islands and the western shores of Dirk Hartog Island.

Their suitability for incorporation into the marine reserve system requires further investigation. Development in these areas should be in accordance with the recommendations of the Marine Parks and Reserves Selection Working Group and consistent with any management plans.

Strategic directions

- Further investigate the suitability of recommended marine protection areas for incorporation into the marine reserves system.

Areas of environmental management priority

Areas of environmental management priority are areas of high conservation value, not currently proposed to be added to the conservation estate, which should be managed to protect the area's values. This strategy identifies four such areas in recognition of their high conservation value, including the:

- South Giralia Plateau area;
- Bundera Coastal Protection Area;
- coastal strip between Red Bluff and Carnarvon; and
- remaining pastoral leases situated within the Shark Bay World Heritage area.

South Giralia Plateau is the area between the coast and the western shore of Lake MacLeod from Cape Farquhar to Warroora Homestead and is currently used for pastoralism. The presence of incised river channels within this predominantly limestone area is unique along this section of the coast. These channels form a direct link with the coast and hence this area should be given a high status of protection. The existence

of subterranean channels linking the ocean and the northern permanent water section of Lake MacLeod is also significant to the provision of habitat for birds, especially over 20 migratory species and the mangroves along the lake edge. Any development in this region, including road construction, has the potential to damage the channels that link the permanent water section of Lake MacLeod to the ocean. In addition, the plateau is the sole recorded area of an endemic mallee. Immediately to the south of this significant area is an area of relic linear dune plateau with good remaining biodiversity levels and restricted access.

The Bundera Coastal Protection Area, which is situated within the Ningaloo Coast World Heritage property, contains one of the two threatened ecological communities found on the Cape Range peninsula associated with the karst system – the Cape Range Remipede Community of Bundera Sinkhole. The Bundera Sinkhole is within the Department of Defence Learmonth Air Weapons Range (buffer area component), and comprises a rich stygobitic fauna assemblage composed primarily of crustaceans and includes a blind fish. Bundera Sinkhole is one of a series of access points to subterranean karst wetlands that range from one to five kilometres wide and 70 kilometres in length along a narrow coastal plain between Cape Range and the Indian Ocean. The sinkhole and associated karst system is considered as having potential for Ramsar listing.

The coastal strip south of Red Bluff on Quobba Station extending to the southern boundary of Boolathana Station is considered to be environmentally sensitive due to its relationship with the marine environment of the southern reaches of the Ningaloo coast. The extent forms part of those respective pastoral leases, and is adjacent to a recommended marine protection area. Activity is concentrated at various nodes dispersed along the coast, including tourism and day-use sites, and the port operations at Cape Cuvier. These, along with the pastoral activities of the stations, should be managed appropriately as to not compromise the area's environmental significance.

Three pastoral leases remain within the Shark Bay World Heritage property – Carrarang, Tamala and Faure Island. These comprise some 21 per cent of the land area of the World Heritage property; and considering this, pastoralists are important resource managers within the property. Currently, pastoralism occurs on Carrarang and Tamala stations. The Faure Island lease has been purchased by the Australian Wildlife Conservancy and is managed as a wildlife sanctuary. Activities on these leases, including pastoral operations, should

not adversely impact the overall integrity of the World Heritage property and be managed in accordance with World Heritage values.

Strategic directions

- Economic activity in areas of environmental management priority to occur in accordance with required environmental management practices.

Fish habitat protection area

Fish habitat protection areas are areas of State waters set aside under the *Fish Resource Management Act 1994* which may provide for some or all of the following purposes:

- the conservation and protection of fish, fish breeding areas, fish fossils or the aquatic ecosystem;
- the culture and propagation of fish and experimental purposes related to the culture and propagation; and/or
- the management of fish and activities relating to the appreciation or observation of fish.

Fish habitat protection areas essentially provide a framework to enable better management of human activities and minimising their impacts, and to encourage community stewardship in their conservation. Within the study area there are two fish habitat protection areas:

- Miaboolya Beach, which is adjacent to the coast immediately to the north of the mouth of the Gascoyne River at Carnarvon; and
- Point Quobba, which is adjacent to the Blowholes Tourism Node.

Fisheries Management Paper No. 161: Plan of Management for the Miaboolya Beach Fish Habitat Protection Area (Department of Fisheries, 2003) and *Fisheries Management Paper No. 185: Plan of Management for the Point Quobba Fish Habitat Protection Area* (Department of Fisheries, 2004) provide strategic and management planning for the respective areas.

Strategic directions

- Fish habitat protection areas to be administered through relevant management planning.

Department of Defence land

The Department of Defence has a number of operations in the Shire of Exmouth. The most important of these include the Harold E. Holt Naval Communications Station, the Learmonth Air Base and other miscellaneous areas for communications infrastructure (Learmonth Air Weapons Base is classified as a Conservation and multi-use area). These properties are considered likely to remain under Defence ownership in the long term.

For the purpose of this strategy, some Department of Defence properties are identified within other land-use categories. This includes the Bundera Coastal Protection Area and the Learmonth Air Weapons Range, which are aligned to the *conservation and multi-use areas* and *areas of environmental management priority categories* respectively.

Strategic directions

- Investigate future Defence Force land requirements in the sub-region.

Conservation and multi-use area

This category includes:

- the majority of the Learmonth Air Weapons Range;
- Lake MacLeod;
- the land and marine-based components of the Shark Bay Salt operations at Useless Loop;
- the proposed 5(1)(h) reserve for Conservation and Limestone Resource Management adjacent to Cape Range National Park; and
- the northern end of North West Cape, to the west of the Exmouth settlement.

The Learmonth Air Weapons Range, which is situated within the Ningaloo Coast World Heritage property, is currently managed by the Department of Defence in accordance with its obligations under the *Environment Protection and Biodiversity Act 1999* for areas of high conservation value. The Department of Defence has previously advised that this area is necessary for operational requirements however should this need cease, the area should be included into Cape Range National Park, as has been the recommendation of numerous studies.

Areas of Lake MacLeod are currently used or proposed to be used for salt and gypsum production by Rio Tinto. Development in this area will be subject to relevant State Agreement Acts (such as the *Evaporites (Lake MacLeod) Agreement Act 1967*), the *Mining Act 1978* and any environmental requirements. The lake is listed in the *Directory of Important Wetlands in Australia*, and its northern portion is proposed as a Ramsar site.

Shark Bay Salt Pty Ltd's salt production operations including the associated port infrastructure and settlement at Useless Loop are identified as a conservation and multi-use area. Development in this area will be subject to relevant State Agreement Acts (such as the *Shark Bay Solar Salt Industry Agreement Act 1983*), the *Mining Act 1978* and any environmental requirements. Shark Bay Salt has restored seagrass within their operation area, and is currently investigating terrestrial restoration to rehabilitate the area at the end of the project. This is particularly pertinent given the site is surrounded by the Shark Bay World Heritage property.

The area identified for the 5(1)(h) reserve was agreed to by previous Ministers for Mines and the Environment to ensure future access to high quality limestone resources of strategic significance to the State, whilst recognising that the areas further north and of higher relief should be protected from future mining to preserve the visual amenity.

The conservation and multi-use area at the northern end of North West Cape is largely comprised of unallocated Crown land and other Crown reserves. It also contains part of the Exmouth Water Reserve. Previous Government decisions have proposed much of this area be included in the State conservation estate, including as a potential northern extension to Cape Range National Park. Much of the area is subject to existing mining tenements, within which are significant sand resources. Notwithstanding this, there are known conservation values within the extent, and the area encompasses the northern end of the Cape Range and associated terrace features, which should be considered for future inclusion in the national park (Conservation Commission of Western Australia, 2010). It is recommended that any future changes to land tenure in the area are resolved by the relevant agencies, including through applicable management planning processes.

Strategic directions

- Economic activity in conservation and multi-use areas to occur in accordance with required environmental management practices.

Rangelands

The rangelands are essentially rural areas, which in this Strategy are considered to have potential to be multi-use areas. In land-use terms, this may include the continuation of the pastoral industry along with the associated uses, promotion of low-key, small-scale tourism development, and facilities for industries such as horticulture and inland aquaculture. Land uses such as these should be encouraged at appropriate locations, subject to the proponent gaining the relevant planning and environmental approvals and receiving the necessary diversification approvals. Environmental management of the biodiversity of the rangelands is also supported and encouraged.

Strategic directions

- Recognise the economic and social importance of the Gascoyne Coast's pastoral and horticultural industry to ensure it can continue as a major land use in the sub-region.
- Protect rangelands that support and provide important primary and agricultural produce including agriculture, intensive horticulture, extractive industries, mining, energy generation, fishing and aquaculture; to maintain their long-term sustainable use.
- Retain high visual quality of rural landscapes, including preservation of view corridors/vantage points.
- Facilitate continued growth and development of the rangelands and related opportunities through a flexible planning approach.

Public drinking water source area

Groundwater areas identified by the Department of Water as public drinking water source areas are shown on the sub-regional land-use plan. This includes those classified as Priority 1 (P1), Priority 2 (P2) and Priority 3 (P3) source protection areas.

Appropriate land uses depend on an area's level of protection; however land uses that are detrimental to the quality and quantity of water supplies will generally not be permitted unless it can be demonstrated that such impacts can be managed. *State Planning Policy 2.7: Public Drinking Water Source Policy* and relevant Department of Water documents, including applicable water source protection plans, provide further guidance in relation to acceptable land uses within these areas.

Strategic directions

- Public drinking water source areas should be identified in local planning strategies based on advice from the Department of Water.
- Land uses and developments in priority source protection areas that have the potential to detrimentally impact the quality and quantity of public drinking water supplies should not be permitted unless it can be demonstrated that such impacts can be satisfactorily managed.

Activity centres

The *Gascoyne Regional Planning and Infrastructure Framework* describes an activity centres framework and settlement hierarchy that identifies the role and function of activity centres based on current focal points for people, services, employment and leisure. This is applicable in the context of this Strategy as it outlines the focus areas for growth in the Gascoyne Coast sub-region, and is reflected accordingly on the sub-regional land-use plan.

The Gascoyne Coast activity centres framework and settlement hierarchy forms an important component of this growth management strategy, and is described in more detail in section 2.

Strategic directions

- Accommodate future population growth in general accordance with the Activity Centres Framework and Settlement Hierarchy for the Gascoyne Coast sub-region.
- Develop the sub-region's settlements to be sustainable and liveable communities.

Movement network

The plan identifies the 'primary distributor' and 'regional distributor' roads comprising the sub-regional road network. The future classification of roads within this hierarchy is subject to further consideration by Main Roads Western Australia, local governments and other relevant agencies. Further information relating to these classifications is contained in Part B.

Part B also provides further information regarding other key regional transport infrastructure, including aviation and maritime facilities.

Strategic directions

- Develop and maintain appropriate regional transport infrastructure to stimulate economic investment and service the needs of Gascoyne Coast communities.
- Identify opportunities for the co-location of joint infrastructure services sites and corridors.

Tourism

As an economic activity, tourism impacts on a number of different geographic areas that encompass a range of land uses, including marine reserves, rangelands, activity centres and the movement network. As such there is no spatial definition of where tourism occurs on this sub-regional plan; however it is considered that, in accordance with the Strategy's Activity Centres Framework, more intensive, higher-impact tourism development should be concentrated in the existing regional and sub-regional centres of Carnarvon, Exmouth and Denham; and to a lesser degree in the tourism centres of Coral Bay and Monkey Mia.

Nonetheless, tourism in particular is acknowledged here as it is the most valuable sector to the Gascoyne Coast sub-region's economy, and is likely to be fundamental in driving future growth in the sub-region. For the purpose of supporting land-use planning, further investigation into tourism requirements – including accommodation requirements – is proposed by this Strategy.

Strategic directions

- Encourage the expansion and diversification of the tourism sector.
- Supporting the development of strategic and sustainable tourism and recreation infrastructure and services to cater for an anticipated increase in demand.
- More intensive, higher-impact tourism development should be concentrated in the existing regional and sub-regional centres of Carnarvon, Exmouth and Denham; and to a lesser degree in the tourism centres of Coral Bay and Monkey Mia.

Square Kilometre Array radio quiet zone

The Murchison Radio-astronomy Observatory, which includes the primary Australian host site for the Square Kilometre Array, is located in the Shire of Murchison in the Mid West region. There are a number of radio



quiet zones associated with the Square Kilometre Array site, with the outer-most 150—260 kilometre zone impacting part of the Gascoyne Coast sub-region. For the full range of radio quiet zones within this area please refer to www.acma.gov.au. As radio quiet zones may have implications for certain types of land uses and activities occurring within prescribed areas, they may be a relevant consideration for affected local governments when reviewing their local planning frameworks including local planning strategies.

Strategic directions

- Identify radio quiet zones in local planning processes where relevant.

4.2 Settlement planning

Land-use plans for the Gascoyne Coast sub-region's key settlements form part of this Strategy. The purpose of these plans is to:

- allow a more focused consideration of current and future land uses for Carnarvon, Exmouth, and Denham; and
- provide a basis for the Strategy's broad land capacity analysis.

In relation to the first point, section 4.2.1 provides a summary of the land uses these plans describe, including a general consideration of pertinent issues and constraints.

At a general level, issues considered most relevant to the settlements of the Gascoyne Coast sub-region are outlined below. The WAPC also has a number of policy positions that relate to many of these issues, which have been listed below where relevant.

Applicable land uses and other planning issues (including those outlined above where relevant) are considered more specifically in relation to each townsite in sections 4.2.3 to 4.2.7. A broad-level analysis with regard to areas designated for residential purposes in relation to potential population growth is also presented for Carnarvon, Exmouth and Denham. Section 4.2.2 provides an overview of the analysis methodology.



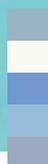
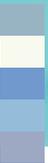


Table 10: Gascoyne Coast sub-region broad settlement planning issues

Issue	Potential considerations/implications	Relevant policy*
Infrastructure and servicing	Consideration should be given to the future requirements for hard and soft infrastructure provision to allow for sufficient and suitably located land to be reserved and establishment of buffers where required.	SPP 3, SPP 3.6, Liveable Neighbourhoods, Draft Government Sewerage Policy 2016
Rural and agricultural land	The relative value of agricultural land in terms of its production capability should be considered in relevant planning processes in instances where it has been proposed for alternative uses. Rural living land uses should generally be discouraged in areas where they are likely to constrain future urban growth.	SPP 2.5
Biodiversity and landscape protection	Areas of significant landscape and/or biodiversity value should be identified through relevant planning processes and addressed as appropriate. Parks and reserves managed by the Department of Parks and Wildlife play an important role in addressing this issue for areas of State significance.	SPP 2, SPP 6.3
Resource extraction	Basic raw materials provide an essential resource for enabling development. Generally, future urban expansion should avoid significant sources of basic raw materials.	SPP 2.4
Coastal processes and hazards	Coastal processes and hazards may compromise the suitability of proximate areas for development. Coastal foreshore reserves are generally required. Given that the Gascoyne Coast sub-region is prone to cyclonic activity, development may be subject to particular construction requirements as per the Building Code of Australia.	SPP 2.6, SPP 3.4, SPP 3.7, SPP 6.3
Drying climate	With relatively low and variable rainfall, the Gascoyne Coast sub-region is a semi-arid environment. Long-term forecasts suggest low and variable rainfall patterns will become more marked, and there may be potential impacts on surface and groundwater sources. Within this context in particular and considering that water is an invaluable resource critical to supporting settlement and economic activity, the sub-region's water sources will require careful management.	SPP 2, SPP 2.7, SPP 2.9
Transport	While being important from an economic perspective, long-term regional transport requirements and routes may compromise urban expansion in particular areas. This may include regional roads, airports, maritime infrastructure and associated buffers.	SPP 3, SPP 5.4

* Please note that relevant policies should be read within the context of the WAPC's *State Planning Policy No. 1*.





4.2.1 Settlement land-use plans

The Strategy contains settlement land-use plans for Carnarvon (Figure 5), Exmouth (Figure 7) and Denham (Figure 9).

For the purpose of this Strategy, the mapping categorises current and future land uses into broad land-use types. Very broadly, with regard to the extents of these areas of land use:

- current land uses are generally consistent with applicable existing zones and reserves in current local planning schemes; and
- future land uses generally reflect where land has been identified, including from within applicable local planning strategies and structure plans, for a different and typically more intensive land use than that identified in the current scheme.

The preparation of the settlement land-use plans is based on current information including draft local planning strategies and schemes. The finalisation of draft strategies and schemes will require the settlement land-use plans to be reviewed, particularly to reflect any statutory classifications as stipulated in Gazetted schemes.

A general description of each land use from the plans, including consideration of pertinent issues and constraints, is provided below. Planning issues that relate specifically to each townsite are considered in sections 4.2.3 to 4.2.7.

Residential and future residential

The 'residential' land-use category is generally intended for residential land uses in the urban setting, and is concentrated in Carnarvon, Exmouth and Denham. All 'residential' areas in the Strategy are currently zoned in their respective local planning schemes to accommodate a broad range of residential uses including residential development, special residential and tourist accommodation. It is expected that areas designated as 'residential' will predominantly cater for any rise in housing demand in the immediate-term.

An area of approximately 1,200 hectares of 'residential' land is identified across the sub-region. Approximately two-thirds of this total area is considered to be capable of substantial further development, with potentially developable land being distributed across the Carnarvon, Exmouth and Denham settlements.

'Future residential' areas identified in the Strategy are intended to guide the direction of the long-term expansion of the Carnarvon, Exmouth and Denham settlements. These are generally also identified in current local planning documents such as local planning strategies and structure plans.

Issues

The development of currently undeveloped 'residential' and 'future residential' areas are subject to localised structure planning and the provision of infrastructure and services. Environmental considerations, indigenous and cultural heritage issues may require resolution during structure planning. Also, the effects on the visual landscape may require due consideration in areas of significant regional landscape value.

There is opportunity to increase residential density through infill development in some existing areas that have a sufficiently high residential density coding under the relevant local planning scheme to support infill development. Despite this, insufficient infrastructure and/or utility capacity may constrain some infill development.

The long-term development of 'residential' and 'future residential' areas may be constrained by the capacity of key utilities and service infrastructure including power, water and wastewater. The capacity of key utilities and service infrastructure may also constrain opportunities for infill development in some areas.

In addition, the development of 'future residential' areas is also subject to amendments to local planning schemes. Such amendments require the approval of the Minister for Planning on recommendation by the WAPC. Scheme amendments may be subject to environmental studies and plans where applicable.

The orderly and proper planning of 'future residential' areas can be compromised if they are further fragmented. In this regard, ad hoc subdivision should not be supported.

Strategic directions

- Preference for development to be located where land has already been zoned or committed for residential purposes and has ready access to existing infrastructure and services.
- Encourage a greater variety of housing densities so that compact, affordable housing is available as an option.



- Sequencing of land release should factor land adjacent to existing developed areas.
- Support intensification of residential development within around town centres, while respecting heritage and town character.
- Encourage development in a manner that respects the distinctive character-defining attributes of each settlement and the sub-region.

Commercial and future commercial

The 'commercial' land-use category includes land that is zoned predominantly for commercial purposes. This broadly encompasses land uses including commercial, retail, office, service commercial, mixed use, town centre and various special use zones. A significant proportion of the sub-region's 'commercial' land is located in the town centres of Carnarvon, Exmouth and Denham.

Areas identified in this Strategy as 'future commercial' reflect those where commercial land uses are proposed in relevant local strategic planning documents, and are currently not specifically zoned as such. These are predominantly located in Carnarvon and relate to the East Carnarvon and Kingsford Structure Plan, which proposes two mixed-use nodes at either end of Marmion Street in East Carnarvon. It also identifies a service commercial strip along Robinson Street, with this in effect being a rezoning of a largely developed service area from 'industrial' to better reflect its long-term, strategic land use.

Issues

Virtually all 'commercial' land in the town centres of Carnarvon, Exmouth and Denham (which represents a significant proportion of all of the sub-region's commercial land) is considered to have been developed. Despite this, there is potential for infill development and redevelopment. In particular, there may be an opportunity to consider allowing mixed-use development within and/or adjacent to town centres in reviewing local planning strategies and schemes. This could potentially provide for a diversity of dwelling types in the sub-region, and facilitate more attractive, vibrant and viable business districts. Notwithstanding, the capacity of key utilities and service infrastructure including power, water and wastewater may constrain medium and higher density mixed-use development in town centres. The fragmented nature of land ownership in some areas may result in piecemeal redevelopment.

The development of currently undeveloped 'commercial' and 'future commercial' areas is subject to localised structure planning and the provision of infrastructure and services. The capacity of key utilities and service infrastructure including power, water and wastewater may constrain the long-term development of 'commercial' and 'future commercial' areas. Environmental considerations, indigenous and cultural heritage issues may require resolution during structure planning.

Permitted land uses over land shown as 'commercial' are detailed in local planning schemes.

The development of 'future commercial' areas is subject to amendments to local planning schemes, which require the approval of the Minister for Planning on recommendation by the WAPC. Land identified for 'future commercial' should not be further fragmented. In this regard, ad hoc subdivision should not be supported.

Strategic directions

- Plan for sufficient commercial land to allow settlements to play an appropriate retail role commensurate with forecast increases in employment and population; and to help ensure that land supply does not constrain economic development.
- Retail and commercial uses to be consolidated in town centres with longer-term consideration of other nodes where appropriate.
- Consolidate town centre services and retail, to help take advantage of tourism opportunities in particular.
- Encourage mixed-use development, including incorporating residential uses, within town centres and other important nodes of activity where infrastructure is available.

Industrial and future industrial

The 'industrial' land-use category includes land zoned for industrial purposes. This broadly encompasses light, general and strategic industry. For the purpose of this strategy this also includes the marine-based light industry precinct adjoining the Exmouth Boat Harbour, which is zoned 'marina' in the Shire of Exmouth's Town Planning Scheme No. 3.

Nearly two-thirds of the sub-region's 287 hectares of industrial land is located in Carnarvon. Some 100 hectares of this is considered to be capable of substantial further development, representing much of the total vacant industrial land in the Gascoyne Coast.

In Carnarvon, Exmouth and Denham there are small areas proposed for rezoning for industrial purposes within current strategic local planning documents, including in local planning strategies and structure plans. These are identified as 'future industrial' on settlement land-use plans in this Strategy.

Issues

The development of currently undeveloped 'industrial' and 'future industrial' areas is subject to localised structure planning and the provision of infrastructure and services. The capacity of key utilities and service infrastructure including power, water and wastewater may constrain the long-term development of 'industrial' and 'future industrial' areas. Environmental considerations, indigenous and cultural heritage issues may require resolution during structure planning.

Permitted land uses over land shown as 'industrial' are detailed in local planning schemes.

The development of 'future industrial' areas is subject to amendments to local planning schemes, which require the approval of the Minister for Planning on recommendation by the WAPC. Land identified for 'future industrial' should not be further fragmented. In this regard, ad hoc subdivision should not be supported.

Strategic directions

- Plan for sufficient industrial land supply to meet the future demand and support the economic base of the sub-region; and to help ensure that land supply does not constrain economic development.
- Ideally locate industrial land in areas with good access to regional transport routes.
- Consider potential conflicts with adjoining sensitive land uses when locating industrial land and plan land-use buffers where appropriate.

Current and future rural residential and rural smallholdings

Rural living land uses – being the 'rural residential' and 'rural smallholdings' land-use categories – essentially form a zone of transition between urban and rural areas. Rural living primarily offers an alternative lifestyle from conventional residential subdivision.

The 'rural residential' category encompasses rural residential and special rural land, where subdivision is generally between one and four hectares. In the Gascoyne Coast sub-region this includes 56 hectares of special rural land in the Kingsford area of Carnarvon; and 215 hectares at Exmouth that comprises the special rural and wilderness estate areas, both of which are south of the main settlement. It is noted that the entire rural residential area at Carnarvon has been proposed for either special residential or intensive horticulture land uses in the East Carnarvon and Kingsford Structure Plan, with this being reflected on the Carnarvon plan in this Strategy.

A further 68 hectares of 'future rural residential' is included at Exmouth, consistent with the area identified in the draft Shire of Exmouth Local Planning Strategy.

In the Gascoyne Coast sub-region, there is no 'rural smallholdings' land – where subdivision is typically in the order of four to 40 hectares; nor are there any 'future rural smallholdings' areas identified. It is noted that applicable lot sizes are similar to those in the Carnarvon horticultural precinct, however as this land is principally intended for primary production purposes (as opposed to lifestyle residential), horticulture is recognised in the Strategy as a distinct land use.

Issues

The location of rural living land should not be a constraint to future urban expansion. 'Rural residential' and 'rural smallholdings' are considered a less efficient land use type compared to denser urban forms due to the low residential population that it yields and the fact that once developed, there is generally little opportunity for further intensification. The provision and maintenance of services to these areas is also disproportionately costly.

Additionally, the location of rural living land should avoid rural land with a high capability for agriculture (such as the Carnarvon horticultural precinct), areas containing basic raw material deposits, potential infrastructure and service corridors, regionally significant landscapes and other environmentally sensitive areas.

The development of currently undeveloped 'rural residential' and 'future rural residential' areas are subject to localised structure planning and the provision of infrastructure and services. The expense of servicing these areas may constrain their timely development. The capacity of key utilities and service infrastructure may also constrain long-term development. The absence of a reticulated water supply is a major issue for some rural living areas. The relatively low rainfall leads to a reliance on groundwater, of which the long-term sustainability is uncertain.

Environmental considerations, indigenous and cultural heritage issues may require resolution during structure planning. The effects on the visual landscape requires due consideration in areas of significant regional landscape value.

In addition to the necessary structure planning and provision of infrastructure and services, the development of 'future rural residential' areas are also subject to amendments to local planning schemes. Such amendments require the approval of the Minister for Planning on recommendation by the WAPC. Scheme amendments may be subject to environmental studies and plans.

Land that is identified for 'future rural residential' should not be further fragmented. In this regard, ad hoc subdivision should not be supported.

Strategic directions

- Rural living land should not be located in areas that will constrain future urban expansion.
- The location of rural living land should not compromise resources such as high quality agricultural land, basic raw material deposits, and strategic infrastructure corridors.
- Rural living land should generally avoid highly sensitive environmental areas.

Rural and future rural

The extent of the 'rural' areas shown generally accord with those zoned for rural purposes in relevant local planning schemes. Rural land is essentially non-urban, non-industrial, unreserved land; and is akin to the 'rangelands' land use category described for the sub-regional land-use plan of this Strategy. As the focus of the Strategy's settlement land-use plans is on the sub-region's urban areas, the plans only capture rural areas where they are immediately adjacent to each townsite and within the extent of the plan.

The rural areas surrounding the Carnarvon and Denham townsites comprise a range of tenures and purposes. This typically includes pastoral leases, Crown reserves and unallocated Crown land. The only identified rural area at Exmouth is a site current zoned for aquaculture uses; with other areas surrounding the settlement being predominantly reserved for recreation purposes.

An area on the Exmouth settlement plan has been identified as 'future rural' as it is identified for 'restricted rural' uses in the draft Shire of Exmouth Local Planning Strategy, primarily as it is highly constrained land due to drainage issues. This area is currently zoned for residential development, but is undeveloped.

Issues

'Rural' areas in the Gascoyne Coast sub-region are largely comprised of Crown land. The planning and development of such areas are subject to the applicable processes of relevant decision-making authorities, such as management plans.

It is acknowledged that some areas of rural land may provide, subject to further investigation, a logical or strategic option for the long-term expansion of settlements. Further fragmentation of rural land may compromise the effectiveness of future changes in land use. In this regard, ad hoc subdivision should not be supported, particularly where rural land may undergo a future change in land use.

Strategic directions

- Avoid fragmentation of rural land.
- Encourage protection of rural landscapes that support economic development including tourism.
- Minimise land uses conflicts between rural and adjoining zones.

Horticulture and future horticulture

The 'horticulture' land use reflects the extent of the intensive horticulture zone in the Shire of Carnarvon Town Planning Scheme No. 10. This area forms the Carnarvon horticultural precinct and is elongated along both sides of the Gascoyne River to the east of the main Carnarvon settlement.

This Strategy distinguishes the horticultural land use from other rural areas on account of their predominantly freehold land tenure, industry's

significant and strategic value to the regional economy, and that the intensive nature of this land use poses a particular constraint to townsite expansion.

The extent of the 'future horticulture' land use predominantly reflects those areas that have been identified for the proposed expansion of the Carnarvon horticultural area in the Gascoyne Food Bowl District Structure Plan, which has been prepared by the Department of Agriculture and Food through the Gascoyne Food Bowl Initiative. The extent of 'future horticulture' also includes an area in the East Carnarvon and Kingsford Structure Plan identified for horticulture where this is not currently zoned as such in the local planning scheme.

Issues

Areas identified as 'future horticulture' are subject to a separate structure planning process being progressed as part of the Gascoyne Food Bowl Initiative. The development of 'future horticulture' will also be dependent on the delivery of requisite infrastructure and servicing, and should not undermine the viability of the established horticultural area.

Strategic directions

- Recognise the economic and social importance of the sub-region's horticultural industry to ensure it can continue as a major land use.
- Protect horticultural land and activities to maintain their long-term sustainable use.
- Recognise on-going horticultural activities in the sub-region, including realising opportunities for growth.
- Facilitate continued growth and development of the horticultural industry and related opportunities, including all relevant aspects of agribusiness, through a flexible planning approach.

Tourism

Tourism-related uses such as 'tourist accommodation' and 'caravan park' that are present in local planning schemes have generally been included within the 'residential' land-use category. For the purpose of this Strategy, such land uses are considered to be most aligned with the broad 'residential' category, given the similarity in the nature of infrastructure and servicing requirements compared with other residential land in particular.

In this regard, applicable tourism and future tourism areas in Carnarvon and Denham are generally reflected in the extent of the 'residential' land-use category for those settlements.

Notwithstanding, in particular instances it is considered that including significant areas of land in the 'residential' land-use category would disproportionately impact the ensuing yield calculations and analysis. Where this is the case, 'tourism' is identified as a separate land-use category.

This occurs in Exmouth, where there exists a considerable amount of land designated for current and future tourism uses identified in applicable local planning instruments. This is reflective of Exmouth's role as a significant tourism centre, and reinforces the importance of this sector to the local economy. The extent of 'tourism' areas is reflective of land designated for tourism-related purposes in the Shire of Exmouth TPS No. 3; and the extent of 'future tourism' reflects such areas identified in the draft Shire of Exmouth Local Planning Strategy.

In Carnarvon, the Babbage and Whitlock Islands Structure Plan 2014 identifies various sites primarily for tourism purposes, including an area of considerable size on Whitlock Island. These sites are remote from other residential areas of Carnarvon; and have also been identified as 'tourism' for the purpose of this Strategy.

Issues

The development of currently undeveloped 'tourism' and 'future tourism' areas are subject to localised structure planning and the provision of infrastructure and services. Environmental considerations, indigenous and cultural heritage issues may require resolution during structure planning. Also, the effects on the visual landscape may require due consideration in areas of significant regional landscape value.

The long-term development of 'tourism' and 'future tourism' areas may be constrained by the capacity of key utilities and service infrastructure including power, water and wastewater.

In addition, the development of 'future tourism' areas is also subject to amendments to local planning schemes. Such amendments require the approval of the Minister for Planning on recommendation by the WAPC. Scheme amendments may be subject to environmental studies and plans where applicable.

The orderly and proper planning of 'future tourism' areas can be compromised if they are further fragmented. In this regard, ad hoc subdivision should not be supported.

Strategic directions

- Encourage economic development in the sub-region through the provision of appropriate tourism sites in settlements.
- Protect existing and future tourism sites from the encroachment of incompatible use or development to ensure their tourism potential is not compromised.

Boat harbour

Given its importance and strategic nature in supporting the Gascoyne Coast economy, 'boat harbour' is recognised in this Strategy as a separate land-use category. The 'boat harbour' land use is identified in Carnarvon, Exmouth and Denham.

Areas identified as 'boat harbour' contain significant maritime infrastructure, in addition to other ancillary public purpose uses and infrastructure. These areas can also contain various industrial and commercial uses, which are generally associated with the maritime facility. Applicable areas are typically reserved for maritime purposes in relevant local planning schemes.

Significant investment in the Gascoyne Coast's maritime infrastructure has been made in recent years, particularly in Exmouth where its boat harbour has been expanded to support the area's tourism, fishing and oil and gas industries.

Issues

The Department of Transport generally oversees the planning and provision of maritime facilities and infrastructure.

Some areas identified in this Strategy as 'boat harbour' may be subject to other local planning processes, such as outline development plans and other master-plans.

The draft Shire of Carnarvon Local Planning Strategy has identified the Carnarvon Boat Harbour precinct as having potential for future mixed use and tourism development. This proposal is subject to further investigation.

Strategic directions

- Support the planning and delivery of maritime infrastructure to facilitate development; and support population growth, tourism activities and industries.
- Where permitted, associated commercial and industrial uses should be complementary to the operations of the boat harbour.

Current and future recreation and conservation

The 'recreation' and 'conservation' land-use categories generally comprise those areas that are reserved for such purposes in local planning schemes. 'Future recreation' and 'future conservation' areas indicate those areas that have been identified in other local planning documents that do not currently have the relevant status in the applicable local planning scheme.

Issues

It is recommended that in reviewing local planning strategies and scheme, areas identified in this Strategy as 'future recreation' and 'future conservation' are considered.

Strategic directions

- Facilitate liveable and active communities through the provision of public open space and recreational amenities, including parks and sporting facilities.
- Preserve and protect the natural environment and enhance, and rehabilitate degraded areas within the environment.

Public purposes and utilities

Areas identified as 'public purposes and utilities' are predominantly reserved for such purposes in local planning schemes. However, this category is broad and does include various other land uses designated in local planning schemes or other local planning documents where these are considered to relate broadly to this category, for example private clubs and institutions.

Uses are varied and can include – for example – sites for schools, medical facilities, wastewater treatment plants, airports, refuse/landfill, power generation, cemeteries, and telecommunications. All public purpose and utility areas are identifiable in local planning scheme maps and other local planning documents.

Buffers for utilities sites are identified where relevant.

'Future public purposes and utilities' areas include those areas that have been identified in other local planning documents and do not currently have the relevant status in the applicable local planning scheme.

Issues

It is important that land required for future public purposes and utilities is secured as early as possible in the planning process.

Some of the buffers identified on settlement land-use plans are not currently reflected in local planning schemes. Additionally, buffers may also be currently under review or be subject to future review. If changes to these buffers are proposed consultation would need to occur with affected stakeholders including landowners and the relevant local governments as a separate process.

Proposals exist to relocate the existing wastewater treatment plants in Carnarvon and Exmouth. The location of a future relocated wastewater treatment site and buffer is shown; however these are indicative only and the final locations will be subject to further detailed investigations.

Strategic directions

- Support the planning and delivery of necessary services and infrastructure to facilitate development; and support population growth, tourism activities and industries.
- Identify opportunities for the co-location of joint infrastructure services sites and corridors.
- Incorporate buffers in local planning schemes where applicable.

Movement network

The settlement land-use plans identify the 'primary distributor' (red) and 'regional distributor' (blue) roads that comprise the sub-regional road network. The future classification of roads within this hierarchy is subject to further consideration by Main Roads Western Australia, local governments and other relevant agencies. Further information relating to these classifications is contained in Part B. Other existing road reserves are visible on settlement land-use plans.

The plans also locate other important transport infrastructure, including aviation and maritime facilities. Part B also provides further information regarding these facilities.

Strategic directions

- Develop and maintain appropriate regional transport infrastructure to stimulate economic investment and service the needs of Gascoyne Coast communities.
- Identify opportunities for the co-location of joint infrastructure services sites and corridors.

Investigation areas

'Investigation areas' relate to areas that may be considered for alternative and/or more intensive land uses than those presently identified. They have usually been identified through relevant strategic planning processes as being where alternative future land uses may be considered subject to further investigation. The exact nature and extent of any alternative future land use within each individual area is subject to further investigation. The final nature and extent of future land uses should be resolved through the review of local planning strategies and schemes.

A number of investigation areas are identified in Carnarvon, Exmouth and Denham, and each should be considered on an individual basis. Each of these is described in sections 4.2.3, 4.2.4 and 4.2.5 as applicable to each settlement.

4.2.2 Settlement analysis methodology

The methodology and other considerations described in this section relate to the residential, industrial and commercial land analysis presented for Carnarvon, Exmouth and Denham in sections 4.2.3, 4.2.4 and 4.2.5, and the subsequent discussion contained in these sections.

Development status

To gain a general understanding of the potential capacity of currently zoned and potential future-zoned land within Carnarvon, Exmouth and Denham, a broad assessment has been undertaken of the development status of applicable land identified for residential, commercial, industrial and rural residential purposes. Generally, this has involved a visual interpretation of aerial photography and cadastral information.

Applicable areas within the extents of the settlement land-use plans have been assessed and considered as being 'developed' or 'capable of substantial further development' as described below.

Developed: 'developed' land is broadly considered as land where development exists or where the necessary infrastructure and services to accommodate development exist. Subdivision is generally consistent with its zoning, however existing urban areas that could potentially accommodate increases in density through urban infill are considered to be 'developed.'

Capable of substantial further development:

Land 'capable of substantial further development' consists of undeveloped or underdeveloped land on greenfield sites, where subdivision reflective of its zoning is yet to exist. In some instances however, land may have conditional subdivision approval or be part of a broader structure planning process that still needs to be finalised. It is important to note that the development of areas that are currently considered to be capable of substantial further development may be subject to a number of constraints; including scheme amendments, structure planning, infrastructure provision, environmental and heritage issues.

Under this assessment all 'future' land uses are considered to be capable of substantial further development, except where they represent the rezoning of land to better reflect an existing land use.

The development status of land as determined through this assessment is presented for each land-use category as applicable for Carnarvon (Figure 6), Exmouth (Figure 8) and Denham (Figure 10). Areas are also quantified in a series of tables.

Residential capacity analysis

The assessment of the development status of current and future land uses described above enables a broad-level capacity analysis of the residential development potential of land within Carnarvon, Exmouth and Denham. Within sections 4.2.3, 4.2.4 and 4.2.5 this Strategy presents such an analysis that:

- estimates the potential additional population yield of current and future residential land; and
- considers possible implications with regard to land supply for Carnarvon, Exmouth and Denham in the context of the population growth scenarios as set out in section 3.2. Significantly, the scenarios present a point of comparison for interpreting the potential capacities of residential land as determined through this analysis.

In interpreting the outputs of the analysis presented, it is important to note that additional capacity is assumed to be accommodated exclusively on current and future residential land that is considered to be capable of substantial further development. In order to keep the calculations relatively straightforward, the estimates generally do not account for possible land capacity increases due to infill and/or redevelopment of existing developed areas; nor do they consider additional population yielded from other land-use categories including rural residential or rural smallholdings lands. With regard to this, it is anticipated that such potential yields would be negligible, particularly given the relatively small amount of rural residential land that exists in the Gascoyne Coast sub-region. From this perspective the analysis is broad in nature and likely to underestimate potential overall population capacities.

Unless otherwise noted, the figures used relating to current and future populations from the growth scenarios are those for the entire local government area, rather than the individual settlement. In effect, relevant estimates presented assume that the applicable settlement's population is that of its entire local government area. This has been done primarily to allow for comparison with the population growth scenarios described in this Strategy, and is considered a reasonable assumption given the general population patterns that exist in the sub-region.

The outcomes of the residential capacity analysis are contained in a series of tables. For each settlement this includes a separate table presenting the:

1. Estimated capacity of residential land deemed capable of substantial further development

The potential capacity for current and future residential land identified in the settlement land-use plans considers three scenarios that are based on land being fully developed at different average residential densities (R10, R20 and R30). Under these density scenarios, potential additional lot and population yields have been calculated. From this, an overall potential population capacity has been estimated for each of the three density scenarios.

As outlined above, these estimates assume that all potential additional population is accommodated exclusively on residential and future residential land that has been identified as being capable of

substantial further development. They therefore likely underestimate each settlement's potential population capacities.

2. Estimated additional residential land requirements to accommodate population scenarios

This presents estimates for the amount of residential land that would be required to accommodate the additional population resulting from the population scenarios in section 3.2 at 2026. Estimates are presented according to three different average densities of residential development, being R10, R20 and R30. These estimates are compared to the total of all current residential and future residential land identified as being capable of substantial further development in Carnarvon, Exmouth or Denham as applicable.

The figures under the 'surplus' column indicate the magnitude of the potential surplus of residential land from the extents currently identified once the additional population has been allowed for. A negative figure in this column indicates a shortfall in the identified areas of residential lands with respect to that required to accommodate the additional population from the relevant scenario.

The estimates assume that:

- all population growth occurs on residential and future residential land that has been identified as being capable of substantial further development in this analysis. They therefore likely overestimate residential land requirements;
- a 35 per cent allowance from gross land areas for various requirements to support development (e.g. public open space, streets, other infrastructure); and
- the number of people per dwelling remains constant.

Commercial and industrial land capacity

A capacity analysis for commercial and industrial lands necessarily requires assumptions to be made on employment density. There are currently limitations in the available data required in order to make reasonable assumptions in this regard. In particular, relatively small statistical sample sizes – something that is prevalent in regional areas – compromise the reliability of using the available data for such an application. It is considered that further investigation is required to

ascertain representative rates of employment density for commercial and industrial lands in regional areas, and accordingly a capacity analysis of commercial and industrial lands has not been undertaken at this stage.

More generally, forecasting demand for industrial land is inherently complex as it derives from local, national and international demand for goods and services. In a broad sense, demand is therefore influenced by many variables; including population and settlement growth, economic growth and supply cycles, location criteria and market preferences. Such considerations, some of which are beyond the scope of this Strategy, would be required in order to produce a meaningful analysis of industrial land supply. Nonetheless, it is still relevant when considering the likely future uptake of currently zoned industrial land, and demand for additional land.

Servicing

All development is dependent on the provision of requisite infrastructure and services; and this should be a key consideration when interpreting the land capacity analysis.

The capacity of key utilities and service infrastructure, particularly power, water and wastewater, may constrain development in the long-term. It is important that anticipated regional and local infrastructure requirements are recognised by individual stakeholders and planned for to enable their timely delivery to ensure that constraints posed to future development are minimised.

4.2.3 Carnarvon

Carnarvon is recognised in this Strategy as a Regional Centre. Being the most substantial urban area between Geraldton and Karratha, it is generally recognised as being the main administrative centre for the Gascoyne region.

Situated at the mouth of the Gascoyne River, the town is adjacent to one of Western Australia's most significant horticultural districts. Carnarvon is also an important service centre for the pastoral operations of the surrounding hinterland. Much of the town's growth historically has been associated with the prosperity and development of the agricultural sector; however other industries including fisheries and tourism are important to the local economy. With its relatively mild climate, proximity to two World Heritage areas and horticultural precinct, and recently redeveloped waterfront and town centre, there is potential for further development of Carnarvon's tourism sector in particular.

Main drivers for future growth in Carnarvon are expected to include a major expansion of the horticulture precinct as part of the State Government’s Gascoyne Foodbowl Initiative, and the continued provision of regional services. The sustained growth of tourism along the Gascoyne Coast and the diversification of economic activities on pastoral leases in the surrounding hinterland may also be important factors for future growth.

In addition, the Gascoyne Development Commission has also identified that potential could exist for the development of service and logistics hub for resource sector industries in Carnarvon, given its strategic location between Perth and the Pilbara region (GDC, 2015).

A new local planning strategy is currently being developed by the Shire of Carnarvon to provide a strategic land use planning direction to guide Carnarvon’s future growth. The new strategy was released as a draft for advertising in 2016.

A new local planning scheme is also being developed concurrently with the new strategy. At present, town planning operates under the Shire of Carnarvon’s Town Planning Scheme No. 10 (1988). Additionally, a number of local structure plans have been developed, which further inform the local planning framework; including for East Carnarvon and Kingsford, Babbage and Whitlock Islands, and the Carnarvon Airport precincts.

Figure 5 comprises this Strategy’s settlement land-use plan for Carnarvon (refer section 4.2.1). Further to this, Figure 6 shows the spatial extents of areas within Carnarvon that have been considered capable of substantial further development (refer to development status assessment overview in section 4.2.2).

Areas are quantified according to their development status for residential and rural residential, commercial and industrial land uses in Table 11. In particular, this relates to the following analysis of residential, commercial and industrial lands.

Table 11: Development status of land in Carnarvon settlement land-use plan

	Total (ha)	Developed (ha)	Capable of substantial further development (ha)
Residential	728	249	479
Future Residential	33	0	33
Residential and Future Residential	761	249	512
Rural Residential	56	52	4
Future Rural Residential	0	0	0
Rural Residential and Future Rural Residential	56	52	4
Commercial	23	20	3
Future Commercial	33	12	21
Commercial and Future Commercial	56	32	24
Industrial	179	77	102
Future Industrial	7	0	7
Industrial and Future Industrial	186	77	109



Residential land, housing and population analysis

This Strategy identifies 728 hectares of zoned residential land in Carnarvon, of which 479 hectares (about 66 per cent) is considered to be capable of substantial further development.

Residential land around the town centre is mostly developed. However, there are considerable undeveloped centrally-located parcels fronting the fascine at Brockman, and between the existing residential area of South Carnarvon and the boat harbour.

Eastern areas of the settlement, particularly East Carnarvon, Kingsford and Brown Range, are where most of Carnarvon's undeveloped and under-developed residential-zoned land is situated. Despite their status in the local planning scheme, more intensive development in some of these areas will require provision of essential service infrastructure and further structure planning.

There is a further 56 hectares of rural residential-zoned land; nearly all of which is developed. This is all located in the Kingsford area. There is no rural smallholdings land in Carnarvon.

There is an additional 33 hectares of future residential land identified, nearly all of which has been proposed for special residential purposes in the East Carnarvon and Kingsford District Structure Plan 2014. This includes the potential intensification of some existing rural-residential areas.

An analysis has been prepared that considers the potential population capacities of current and future residential land in Carnarvon. In particular, this is compared with population growth scenarios. The approach for this process is further explained in section 4.2.2.

The estimated capacity of residential and future residential land identified on the Carnarvon settlement land-use plan is considered in Table 12. It considers three scenarios that are based on land being fully developed at different average residential densities

Table 12: Estimated capacity of residential land in Carnarvon settlement land-use plan

Estimated capacity of residential land deemed capable of substantial further development in Carnarvon settlement land-use plan				Estimated population capacity		
Relevant land-use category/ies	Area (ha)	Average density	Potential lot yield ¹	Current population ²	Potential population yield from additional lots ³	Estimated total population ⁴
Residential	479	R10	3,114	6,098	7,474	13,572
		R20	6,227	6,098	14,945	21,043
		R30	9,341	6,098	22,418	28,516
Residential and Future Residential	512	R10	3,329	6,098	7,990	14,088
		R20	6,656	6,098	15,975	22,073
		R30	9,985	6,098	23,964	30,062

¹ The 35 per cent of land necessary to support land requirements for public open space and streets (Liveable Neighbourhoods, 2007) has been factored into these figures.

² Shire of Carnarvon 2015 Preliminary Estimated Residential Population (Australian Bureau of Statistics, 3218.0 – Regional Population Growth 2014-15).

³ The population yield per dwelling is calculated at 2.4 people per dwelling unit (average people per household for the Gascoyne SA3 – Australian Bureau of Statistics, 2011 Census).

⁴ The 'estimated total population' is the sum of the 'current population' and the 'potential population yield from additional lots' columns.



(R10, R20 and R30). Under these density scenarios, potential lot yields and additional population yields have been calculated. From this, an overall potential population capacity has been estimated for each of the three density scenarios.

Table 13 presents estimates for the amount of residential land in Carnarvon required to accommodate the additional population under each of the population scenarios described in this Strategy in section 3.2 at 2026. Estimates are presented according to three different average densities of residential development,

being R10, R20 and R30, and these are compared with the quantity of current and future residential lands considered to be capable of substantial further development.

Based on the current extents of zoned residential land and land identified for future residential purposes, this analysis suggests that there is a sufficient amount of land in Carnarvon capable of substantial further development to cater for the population growth anticipated to 2026 under this Strategy's population scenarios 1, 2, 3 and 4.

Table 13: Estimated additional residential land requirements for Carnarvon to accommodate population scenarios at 2026¹

Population scenario ²	Additional population at 2026	Area of developable land (ha) ³	R10 average density		R20 average density		R30 average density	
			Est. land req'd to accom. additional pop'n (ha) ⁴	Surplus (ha) ⁵	Est. land req'd to accom. additional pop'n (ha) ⁴	Surplus (ha) ⁵	Est. land req'd to accom. additional pop'n (ha) ⁴	Surplus (ha) ⁵
Scenario 1: WAT – Band C	452	512	29	483	14	498	10	502
Scenario 2: WAT – Band E	1,232	512	79	433	39	473	26	486
Scenario 3: Aspirational A	3,514	512	225	287	113	399	75	437
Scenario 4: Aspirational B	6,305	512	404	108	202	310	135	377

¹ These estimates assume that all population growth occurs on residential and future residential land that has been identified as being capable of substantial further development in this analysis. To keep the calculations relatively straightforward, they do not consider additional population being accommodated on rural residential land, nor do they take into account potential increases in population occurring due to infill development. The estimates are therefore likely to overestimate residential land requirements.

² Each population scenario is described in section 3.2. Scenario 5: Estimated peak population is not relevant to this analysis as itinerant populations tend to not to have such a marked impact on residential land requirements, but rather infrastructure and service provision.

³ The area of developable land is considered to be the total area of current and future residential land identified as being capable of substantial further development as per relevant figures from Table 11.

⁴ A 35 per cent allowance from gross land to support land requirements for public open space and streets (Liveable Neighbourhoods, 2007) and a population yield of 2.4 people per dwelling unit (average people per household for the Gascoyne SA3 – ABS 2011 Census) have been factored into the estimated areas of residential land required to accommodate each scenario's additional populations.

⁵ A positive figure in this column indicates that the additional population under that scenario should be able to be accommodated within the areas of residential and future residential land currently identified, without additional residential land being required. A negative figure represents the shortfall in the identified areas of residential lands with respect to that required to accommodate the additional population.

Commercial and industrial land

This Strategy identifies 23 hectares of zoned commercial land in Carnarvon, of which only three hectares is considered to be capable of substantial further development.

Current commercial land identified in Carnarvon include those areas zoned in the Shire of Carnarvon TPS No. 10 as 'commercial' and special use zones 3, 4 and 5, which allow for a range of commercial uses. Most of the commercial zoned land is situated along Robinson Street and/or in the central business district. There are additional commercial nodes at East Carnarvon, and at roadhouse sites on North West Coastal Highway. While most commercial land in Carnarvon is considered to be developed, there may be opportunities for consolidation, particularly within the town centre, to make more effective use of commercial land.

This Strategy identifies 33 hectares of future commercial land at East Carnarvon. This includes the consolidation of the existing service commercial strip along Robinson Street, a precinct that comprises some areas currently zoned for light industry. Other future commercial sites identified include mixed use nodes at either end of Marmion Street as proposed in the East Carnarvon and Kingsford District Structure Plan 2014.

Carnarvon's main industrial-zoned areas are located on the eastern side of the airport, and the light/service industrial area along Robinson Street in East Carnarvon. Other industrial zoned land exists at the Carnarvon Boat Harbour, with this precinct being entirely developed with many being enterprises associated with the operations of the boat harbour.

Of the 179 hectares of industrial zoned land in Carnarvon, some 102 hectares is considered to be capable of substantial further development. Virtually all of this is located immediately to the south of the established industrial area, on the eastern periphery of the airport site. It is also noted that numerous other large sites are proposed for potential industrial areas, subject to further investigation.

The future growth of industries in Carnarvon, particularly the expansion of the horticulture area, may require additional suitably located and serviced industrial and commercial land to accommodate associated service providers. Further research on this issue will be required in conjunction with any proposal.

Tourism land

In general, tourism-related land uses in Carnarvon are reflected in the extent of the 'residential' land-use category.

However, the Babbage and Whitlock Islands Structure Plan 2014 identifies various sites primarily for tourism purposes, including an area of considerable size on Whitlock Island. For the purpose of this Strategy these sites are identified as 'tourism', as distinct from 'residential', considering that they are remote from other residential areas in Carnarvon; and their inclusion in the 'residential' land-use category would disproportionately impact the ensuing yield calculations and analysis.

These sites are currently undeveloped.

Future infrastructure and servicing considerations

Being adjacent to the Gascoyne River, the current location of the Carnarvon wastewater treatment plant impacts on a unique natural environment and many residential properties, and is constrained for future expansion at that site. The Water Corporation have identified an alternative site well away from existing development. Potential implications regarding future buffer requirements should be integrated into local planning processes. Importantly, planning for a new wastewater treatment plant provides an opportunity for Carnarvon's future servicing requirements to be considered.

The lack of provision of services constrains some land for development in Carnarvon. In particular, there is an absence of a reticulated sewerage system in large areas of the settlement, including South Carnarvon, East Carnarvon and Kingsford. Provision of appropriate service infrastructure may provide opportunities for urban infill and densification to be considered in affected areas.

New infrastructure and capacity upgrades will assist in servicing an increased population in the future. Recent years have seen a number of investments made to hard and social infrastructure at Carnarvon, including:

- a new police and justice complex;
- completion of flood mitigation works;
- consolidation of education infrastructure as part of developing the Carnarvon Community College;
- a new library and art gallery;

- redevelopment of the Carnarvon Health Campus; and
- the development of the Mungullah power station site at Brown Range.

Upgrades to water infrastructure, including irrigation pipelines, have also been undertaken to support the local horticulture precinct and its proposed expansion.

In addition to expected future permanent populations, planning for future requirements for service infrastructure should take into consideration demand created by itinerant population (total peak populations), given that this could potentially have a significant impact on service demand.

Other planning issues/considerations

Ultimately, the long-term urban expansion of the Carnarvon settlement is physically constrained by the fascine and Indian Ocean to the west, the Gascoyne River and horticultural precinct to the north, the elevated topography of Brown Range to the east and various reserves to the south. However, there is a considerable amount of developable land identified for urban and industrial land uses and this is expected to be sufficient to cater for demand in the long-term. The existing Carnarvon Airport site constrains expansion of the town centre; however the proposed relocation of airport infrastructure and redevelopment of the current site (as proposed in the Carnarvon Airport Precinct Structure Plan 2014) allows an opportunity for a substantial expansion of the townsite in a central and highly accessible location.

Inundation of areas in the existing townsite and immediate surrounds has historically posed a major constraint to development, especially in eastern parts of Carnarvon. However, the recent completion of major flood-mitigation infrastructure works in recent years should make a significant improvement in this regard.

The draft Shire of Carnarvon Local Planning Strategy identifies an opportunity for more mixed use development and increased density around the area around the Carnarvon town centre. Intensification around the town centre is supported where sites are adequately serviced by requisite infrastructure.

An expansion of the Carnarvon horticultural precinct is proposed as part of the Gascoyne Food Bowl project and a structure plan is currently in preparation. Significant investment is being made in upgrading water infrastructure to support this expansion. There is also additional land, mostly adjacent to the Gascoyne

River, for future horticulture purposes identified in the East Carnarvon and Kingsford Structure Plan 2015. Building on the area's locational and competitive advantages and growing its economic diversity will invariably be important in supporting Carnarvon's future growth.

The Babbage and Whitlock Islands Structure Plan 2014 identifies a sizable site for tourism development and/or independent living accommodation on Whitlock Island. The site is remote from infrastructure and servicing at present, which will require appropriate resolution as part of planning for its development.

The Mungullah Aboriginal community is currently situated on a 'special use – welfare housing' zone under the Shire of Carnarvon TPS No. 10, however this area is proposed to be rezoned 'residential' in the Shire's draft local planning strategy. Its current residential land use is reflected on the settlement land-use plan of this Strategy.

There are specific considerations at various sites, the resolution of which may significantly impact the future land supply situation in Carnarvon. For example, this includes the proposed rationalisation of land at Carnarvon Airport and the residential development zone at Brown Range. These sites and others are specifically identified in this Strategy as 'investigation areas' and are subject to further planning processes. Further details are provided in the section below.

Investigation areas

Investigation area 1 – Carnarvon Airport

The Carnarvon Airport Precinct Structure Plan 2014 proposes a number of future land use changes within the existing Carnarvon airport site. The investigation area identified in the settlement land-use plan aligns with the structure plan boundary. Most of the area is currently designated as an airport reserve or general industry zone in the Shire of Carnarvon TPS No. 10; and identified as 'public purposes and utilities' and 'industrial' land uses on the settlement land-use plan.

Under the Structure Plan, the proposed land use changes would include residential and industrial land uses, and public open space. Also proposed is the relocation of airport infrastructure within the precinct, including runways and terminals, to the east of the existing facility. Many of the proposed land use changes would be dependent on this relocation, which is something that would require significant capital investment. In this regard, realising the vision of the

Structure Plan is considered to be most likely to begin in the longer-term, and as such the precinct is identified as an 'investigation area'.

An amendment to the local planning scheme will be necessary for any eventual change in zoning, which may require an environmental assessment to be undertaken by the Environmental Protection Authority. It is also noted that the perimeter of the precinct is affected by a watercourse floodplain as identified in the draft Shire of Carnarvon Local Planning Strategy, and that buffers associated with airport operations affect the area.

Investigation area 2 – Kingsford floodplain

This investigation area comprises of two parts, which includes flood-affected land in the Kingsford area that has been identified for non-rural land-uses in various strategic planning documents. In particular, the East Carnarvon and Kingsford District Structure Plan proposes land uses in the subject area including special residential, industrial and service/commercial purposes. The extents are considered as 'investigation area' as they are identified in the draft Shire of Carnarvon Local Planning Strategy as being within a watercourse floodplain, and are therefore constrained.

The extents include areas currently zoned 'special rural', 'special residential', 'general industry', and reserved for 'public purposes' in the Shire of Carnarvon TPS No. 10; which are respectively identified in the settlement land-use plan as 'rural residential', 'residential', 'industrial' and 'public purposes and utilities'. To the south of Boor Street, the subject area is virtually all undeveloped Crown land; whereas to north it generally contains development commensurate with its current zoning.

Given the above constraints, it is considered that the final extent and nature of future land use and development within this investigation area will require further resolution. In particular, given the areas' location within a floodplain, hydraulic modelling and/or assessment may be required by the Department of Water.

Investigation area 3 – Greys Plain

This investigation area is predominantly identified in the settlement land-use plan as 'public purposes and utilities' and is currently a public purposes reserve under the Shire of Carnarvon TPS No. 10. A small portion located in the extreme north-western corner of the investigation area is zoned 'general industry'. The area, which is entirely Crown land, is currently undeveloped.

The draft Shire of Carnarvon Local Planning Strategy identifies this area as being a long-term investigation area and as a potential industrial expansion area. In particular, the considerable size of unconstrained land in this area and its location within close proximity to key transport networks may be advantageous for light industrial and commercial uses.

Further investigation is required to determine the nature and extent of any future change in land use, including through structure planning as appropriate. Future planning will also need to consider current and potential buffers and constraints affecting the investigation area. This includes buffers associated with the Mungullah power station affecting eastern parts of the investigation area and potential buffer requirements for the proposed relocated wastewater treatment plant, which may affect southern parts of the site. The western portion of the investigation area is affected by a watercourse floodplain, a consequence of which may be that future development is likely to be dependent on additional flood mitigation works.

An amendment to the local planning scheme will be necessary for any eventual change in zoning, which may require an environmental assessment to be undertaken by the Environmental Protection Authority.

Investigation area 4 – Brown Range

This investigation area is predominantly zoned 'residential development' in the Shire of Carnarvon TPS No. 10, but given its large area it includes a number of other designations, including 'residential', 'commercial' and 'tourist accommodation' zones, and 'public purposes' reserves. Within it, the area contains a number of public purpose uses and utilities, including a waste disposal site, power station, telecommunications and water infrastructure, and the Overseas Telecommunications Site (OTC). Nearly all of the extent identified as 'residential' is undeveloped, with most of this area occurring on unallocated Crown land.

Previous structure planning has proposed low-density residential development over much of the area at Brown Range; however this requires reconsideration in the context of land and buffer requirements for existing uses including the waste disposal site and Mungullah power station, and likely future demand for residential land in Carnarvon. This process would also provide an opportunity to integrate the vision for the future use and development of the OTC site.

Investigation area 5 – Carnarvon Boat Harbour

This investigation area is identified in the settlement land-use plan as 'industrial' and 'boat harbour', with respective extents under the Shire of Carnarvon TPS No.3 currently zoned 'general industry' and reserved 'public purposes'. The subject area accommodates a variety of activities including the Carnarvon Boat Harbour, Carnarvon Yacht Club; and a range of commercial enterprises mostly associated with the boat harbour. The zoned industrial area is currently developed in its entirety.

The draft Shire of Carnarvon Local Planning Strategy identifies the area, and at the yacht club and commercial boat harbour in particular, as having potential for future mixed use and tourism development.

It is considered that further investigation is required to determine the exact nature and extent of any land use changes, including through structure planning as appropriate. Any process should have regard to existing uses and development.

An amendment to the local planning scheme will be necessary for any eventual change in zoning, which may require an environmental assessment to be undertaken by the Environmental Protection Authority.

Investigation area 6 – Massey Bay

This investigation area is identified in the settlement land-use plan as 'recreation' and 'public purposes and utilities', with respective extents currently reserved under the Shire of Carnarvon TPS No. 3 as 'parks and recreation' and 'public purposes'. The subject area currently contains a golf course and vacant Crown land.

The draft Shire of Carnarvon Local Planning Strategy identifies this site as a long-term investigation area, and notes the potential to redevelop the existing golf course. The area may be impacted by potential buffer requirements associated with the relocated wastewater treatment plan, which is proposed to be located on an adjacent site.

Further investigation is required to determine the nature and extent of any future change in land use, including through structure planning as appropriate. An amendment to the local planning scheme will be necessary for any eventual change in zoning, which may require an environmental assessment to be undertaken by the Environmental Protection Authority.

Investigation area 7 – Broadcast Australia site

This investigation area is identified in the settlement land-use plan as 'public purposes and utilities' and is currently a public purposes reserve in the Shire of Carnarvon TPS No. 10. The subject area, which is situated between the North West Coastal Highway and Brown Range contains some telecommunications infrastructure, but is otherwise undeveloped.

The draft Shire of Carnarvon Local Planning Strategy identifies this site as a long-term investigation area, potentially for low density development. The area may be impacted by potential buffer requirements associated with existing telecommunications infrastructure.

Further investigation is required to determine the nature and extent of any future change in land use. An amendment to the local planning scheme will be necessary for any eventual change in zoning, which may require an environmental assessment to be undertaken by the Environmental Protection Authority.

4.2.4 Exmouth

Nestled between the northern reaches of Cape Range and the waters of Exmouth Gulf, Exmouth services a relatively diverse economy broadly based on tourism, fishing, aquaculture and the offshore oil and gas industry. The town was originally established as a base for a number of defence operations in the area. Over time its proximity to Cape Range National Park and the Ningaloo Reef has gradually seen it emerge as a significant centre for regional tourism, with its hinterland accommodating substantial numbers of visitors. In light of this, Exmouth experiences substantial variation in its population, peaking in seasonal periods.

This Strategy recognises Exmouth as a Regional Centre in the context of its growing significance as a major population centre in the Gascoyne and as an important contributor to its economy. This is a trend that is expected to continue, primarily due to continued expansion in the tourism sector.

The area's reasonably diverse economy provides various opportunities for further growth in Exmouth. Drivers for future growth are likely to include economic activities associated with the boat harbour – which is proposed for expansion – including tourism, fishing, and the oil and gas sector. Additionally, Exmouth has potential to serve as a personnel base for resource projects in

the north of the State; and with the development of the Ningaloo Centre, has the potential to become a significant research hub for marine-based studies.

A new local planning strategy is currently being developed by the Shire of Exmouth to provide a strategic land use planning direction to guide Exmouth's future growth. The new strategy was released as a draft for advertising in 2016.

At present, town planning operates under the Shire of Exmouth's Town Planning Scheme No. 3 (1999). A new local planning scheme, Local Planning Scheme No. 4, was released as a draft for advertising in 2016. Additionally, a townsite structure plan has previously been developed to guide future land-use planning within the town, with a separate structure plan applying to the area immediately to the south of the town.

Figure 5 comprises this Strategy's settlement land-use plan for Exmouth (refer section 4.2.1). Further to this, Figure 6 shows the spatial extents of areas within Exmouth that have been considered capable of substantial further development (refer to development status assessment overview in section 4.2.2).

Areas are quantified according to their development status for residential, rural residential, commercial and industrial land uses in Table 14. In particular, this relates to the following analysis of residential, commercial and industrial lands.

Table 11: Development status of land in Exmouth settlement land-use plan

	Total (ha)	Developed (ha)	Capable of substantial further development (ha)
Residential	373	112	186 ¹
Future Residential	55	0	55
Residential and Future Residential	428	112	241¹
Rural Residential	215	177	12 ²
Future Rural Residential	68	0	68
Rural Residential and Future Rural Residential	283	177	80²
Commercial	27	27	0
Future Commercial	22	17	5
Commercial and Future Commercial	49	44	5
Industrial	81	63	18
Future Industrial	145	0	145
Industrial and Future Industrial	226	63	163

¹ This figure excludes 75 hectares of existing residential land subject to review in the draft Shire of Exmouth Local Planning Scheme No. 4 (extent shown hatched on Figure 8).

² This figure excludes 26 hectares of existing rural residential land subject to review in the draft Shire of Exmouth Local Planning Scheme No. 4 (extent shown hatched on Figure 8).

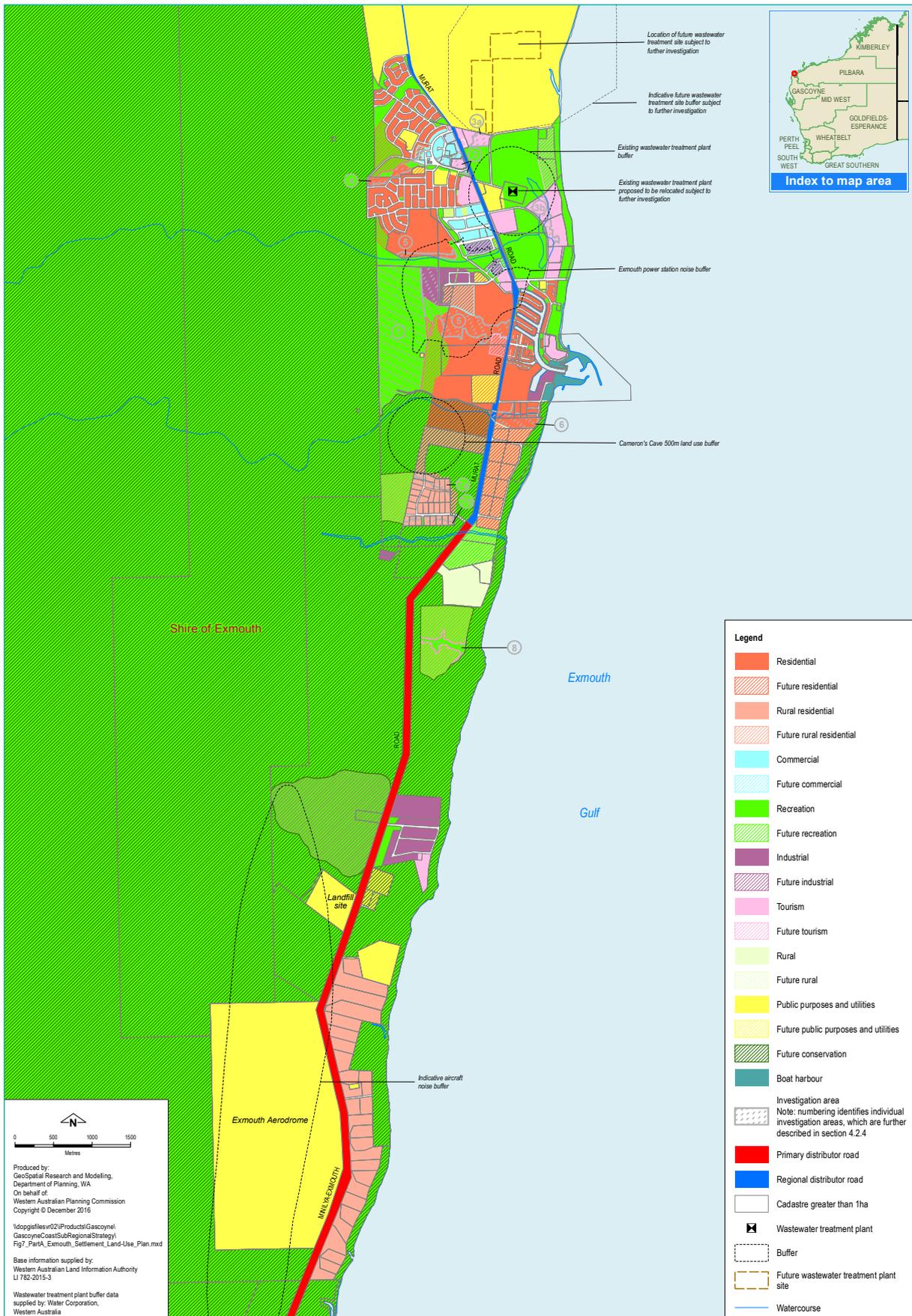


Figure 7: Exmouth settlement land-use plan

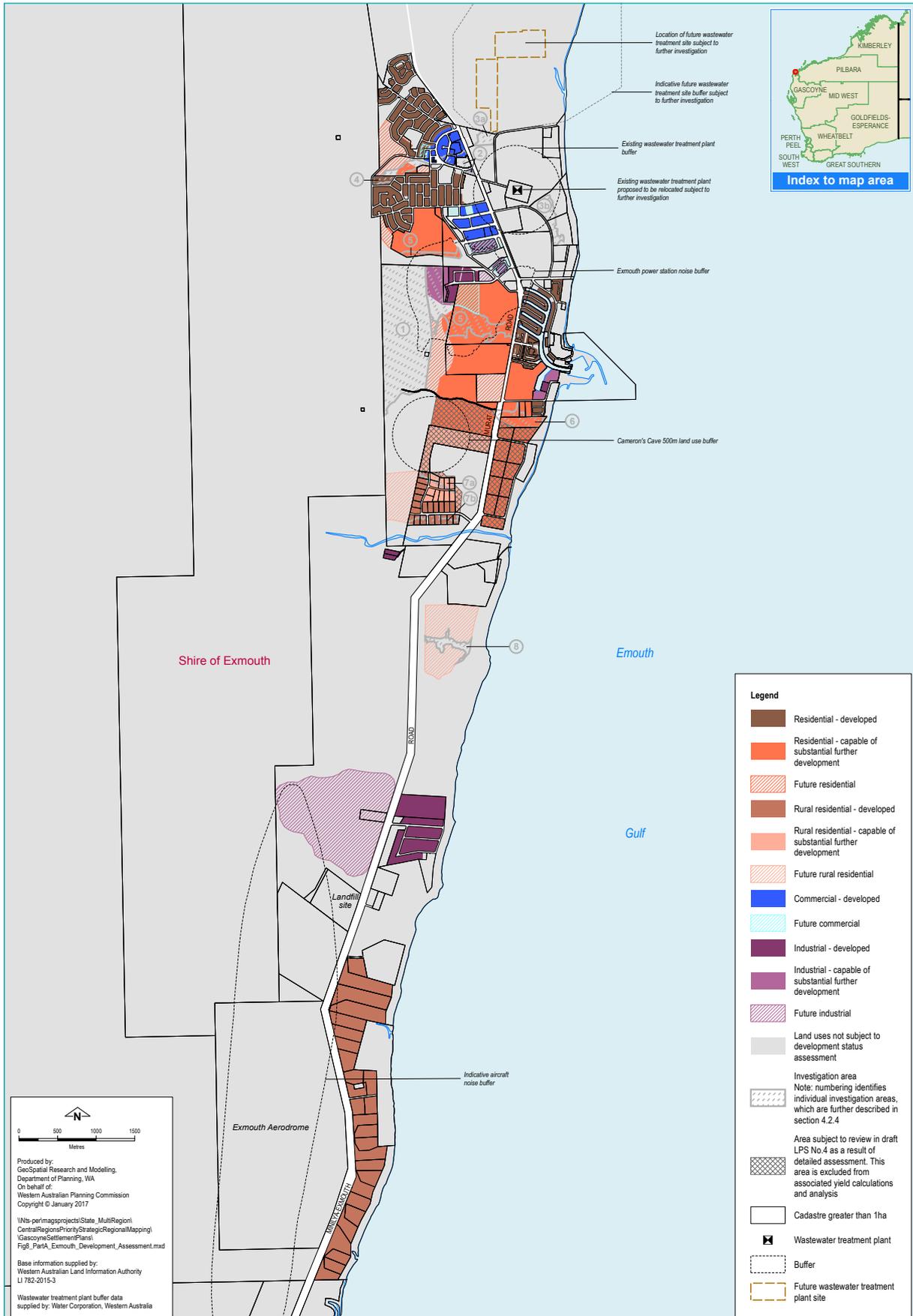


Figure 8: Exmouth development status assessment



Residential land, housing and population analysis

This Strategy identifies 373 hectares of zoned residential land in Exmouth, of which 186 hectares (about 50 per cent) is considered to be capable of substantial further development.

Most of the residential land around the town centre is developed, along with about two-thirds of the residential component of the marina precinct. Significant areas of undeveloped, zoned residential land include the residential area south of Nimitz Street; the remaining undeveloped cell at the marina precinct; and the significantly-sized residential development zone south of the power station.

Some residential-zoned areas are highly constrained, particularly due to being located on a floodplain, which compromises their development potential. For example, due to it being highly constrained, a sizable residential development zone to the south of the marina precinct is proposed to be rezoned for restricted rural uses in the draft Shire of Exmouth Local

Planning Strategy and draft Shire of Exmouth Local Planning Scheme No. 4. This particular area (which has been identified on Figure 8) has been excluded from the yield calculations and associated analysis in this Strategy. Other zoned areas may also require further investigation regarding their suitability for development.

An area of 55 hectares is identified as future residential. It is also noted that another substantial site has been proposed as a long-term residential expansion area, subject to further investigation.

There is a further 215 hectares of identified rural residential-zoned land, of which 177 hectares is considered to be developed. Much of the undeveloped area is proposed to be reclassified and incorporated into a conservation reserve due to it being highly constrained. Future rural residential land is proposed to the west of the existing Preston Street rural residential area; and in the establishment of a new area slightly further to the south.

Table 15: Estimated capacity of residential land in Exmouth settlement land-use plan

Estimated capacity of residential land deemed capable of substantial further development in Exmouth settlement land-use plan				Estimated population capacity		
Relevant land-use category/ies	Area (ha)	Average density	Potential lot yield ¹	Current population ²	Potential population yield from additional lots ³	Estimated total population ⁴
Residential	186	R10	1,209	2,591	2,902	5,493
		R20	2,418	2,591	5,803	8,394
		R30	3,627	2,591	8,705	11,296
Residential and Future Residential	241	R10	1,567	2,591	3,761	6,352
		R20	3,133	2,591	7,519	10,110
		R30	4,700	2,591	11,280	13,871

¹ The 35 per cent of land necessary to support land requirements for public open space and streets (Liveable Neighbourhoods, 2007) has been factored into these figures.

² Shire of Exmouth 2015 Preliminary Estimated Residential Population (Australian Bureau of Statistics, 3218.0 – Regional Population Growth 2014-15).

³ The population yield per dwelling is calculated at 2.4 people per dwelling unit (average people per household for the Gascoyne SA3 – Australian Bureau of Statistics, 2011 Census).

⁴ The 'estimated total population' is the sum of the 'current population' and the 'potential population yield from additional lots' columns.



An analysis has been prepared that considers the potential population capacities of current and future residential land in Exmouth. In particular, this is compared with population growth scenarios. The approach for this process is further explained in section 4.2.2.

The estimated capacity of residential and future residential land identified on the Exmouth settlement land-use plan is considered in Table 15. It considers three scenarios that are based on land being fully developed at different average residential densities (R10, R20 and R30). Under these density scenarios, potential lot yields and additional population yields have been calculated. From this, an overall potential population capacity has been estimated for each of the three density scenarios.

Table 16 presents estimates for the amount of residential land in Exmouth required to accommodate the additional population under each of the population scenarios described in this Strategy in section 3.2 at 2026. Estimates are presented according to three different average densities of residential development, being R10, R20 and R30, and these are compared with the quantity of current and future residential lands considered to be capable of substantial further development.

Based on the current extents of zoned residential land and land identified for future residential purposes, this analysis suggests that there is a sufficient amount of land in Exmouth capable of substantial further development to cater for the population growth anticipated to 2026 under this Strategy's population scenarios 1, 2, 3 and 4.

Table 16: Estimated additional residential land requirements for Exmouth to accommodate population scenarios at 2026¹

Population scenario ²	Additional population at 2026	Area of developable land (ha) ³	R10 average density		R20 average density		R30 average density	
			Est. land req'd to accom. additional pop'n (ha) ⁴	Surplus (ha) ⁵	Est. land req'd to accom. additional pop'n (ha) ⁴	Surplus (ha) ⁵	Est. land req'd to accom. additional pop'n (ha) ⁴	Surplus (ha) ⁵
Scenario 1: WAT – Band C	289	241	19	222	9	232	6	235
Scenario 2: WAT – Band E	739	241	47	194	24	217	16	225
Scenario 3: Aspirational A	1,776	241	114	127	57	184	38	203
Scenario 4: Aspirational B	3,044	241	195	46	98	143	65	176

¹ These estimates assume that all population growth occurs on residential and future residential land that has been identified as being capable of substantial further development in this analysis. To keep the calculations relatively straightforward, they do not consider additional population being accommodated on rural residential land, nor do they take into account potential increases in population occurring due to infill development. The estimates are therefore likely to overestimate residential land requirements.

² Each population scenario is described in section 3.2. Scenario 5: Estimated peak population is not relevant to this analysis as itinerant populations tend to not to have such a marked impact on residential land requirements, but rather infrastructure and service provision.

³ The area of developable land is considered to be the total area of current and future residential land identified as being capable of substantial further development as per relevant figures from Table 14.

⁴ A 35 per cent allowance from gross land to support land requirements for public open space and streets (Liveable Neighbourhoods, 2007) and a population yield of 2.4 people per dwelling unit (average people per household for the Gascoyne SA3 – ABS 2011 Census) have been factored into the estimated areas of residential land required to accommodate each scenario's additional populations.

⁵ A positive figure in this column indicates that the additional population under that scenario should be able to be accommodated within the areas of residential and future residential land currently identified, without additional residential land being required. A negative figure represents the shortfall in the identified areas of residential lands with respect to that required to accommodate the additional population.

Commercial and industrial land

This Strategy identifies 27 hectares of commercial land in Exmouth, all of which is considered to be developed.

Exmouth's zoned commercial land is concentrated in the town centre and the mixed business/service area immediately to the south of the town centre; and includes those areas zoned 'town centre' and 'mixed use' in the Shire of Exmouth TPS No. 3. While these areas are considered to be largely developed, there may be opportunities for consolidation to make more effective use of commercial land.

Twenty-two hectares of future commercial land has been identified from the draft Shire of Exmouth Local Planning Strategy. This includes a developed area currently zoned 'light industrial' that forms part of Exmouth's mixed business/service area. Essentially, a rezoning would provide a uniform zoning across this precinct. The town centre precinct is also proposed to be expanded along Learmonth Street, with a view for mixed use development in this particular area.

Of the 81 hectares of zoned industrial land in Exmouth identified in this Strategy, about 18 hectares are considered to be capable of substantial further development. Exmouth's industrial areas are located around the power station, which includes the aforementioned light industrial zone within the Exmouth mixed business/service area; adjacent to the boat harbour; and the strategic industrial area about eight kilometres south of the main settlement.

Most of the vacant zoned industrial land is located immediately to the west of the power station, however much of this is constrained due to its situation within a floodplain. Additionally, there are currently a couple of vacant sites in the boat harbour precinct. Expansion of boat harbour may provide more industrial and commercial opportunities in the vicinity.

A further 145 hectares of future industrial land has been identified. This includes an area of 143 hectares adjacent to the existing strategic industrial area, on the opposite side of Minilya–Exmouth Road. This is proposed in the draft Shire of Exmouth Local Planning Strategy as an area for general industry to complement the existing adjacent area.

In addition to those industrial areas identified at Exmouth, there is also a zoned industrial site about 25 kilometres south of Exmouth at Learmonth, which is designated as a strategic industrial area under the Shire of Exmouth TPS No. 3. The draft Shire of Exmouth Local Planning Strategy proposes this area be expanded.

Tourism land

Tourism is a critical component of Exmouth's economy and is likely to be a key driver for the future growth of the settlement. As a significant centre for tourism, it is important that there is diversity in the range of available accommodation types.

The settlement contains a significant amount of land identified for tourism purposes; through zoning in the Shire of Exmouth TPS No. 3 and as sites that have been identified for future use through local strategic planning. The nature and scale of tourism development at specific locations will be determined through local planning processes.

In particular, there are a number of large, undeveloped tourism development sites along Exmouth's coastal foreshore. Several of these sites are impacted by the operations of the existing wastewater treatment plant, with some areas also affected by a floodplain. The proposed relocation of the wastewater infrastructure will inevitably make this area more attractive for future development.

Future infrastructure and servicing considerations

There are buffer and odour issues in relation to the current Exmouth wastewater treatment plant. This is exacerbated by its central location in relation to the town centre, with a number of existing and proposed sensitive land uses located within a 500 metre radius of this site. In this regard, scope for expansion of the facility on the existing site to cater for long-term growth in demand is constrained. The Water Corporation has identified an alternative site for a relocated facility; located on Department of Defence land to the north of the townsite. This site is still subject to final negotiations between Water Corporation and the Department of Defence.

Odour modelling, which has been reflected in the indicative buffer shown, suggests there will be negligible impact on existing properties in the Exmouth townsite. Potential implications regarding future buffer requirements should be integrated into local planning processes.

The draft Shire of Exmouth Local Planning Strategy identifies a noise buffer around the Exmouth Power Station. This is reflected on the Exmouth settlement land-use plan in this Strategy. Noise from the power station impacts a number of nearby properties. The

affected area includes areas currently undeveloped, for which there may be implications in relation to their future development.

New infrastructure and capacity upgrades will assist in servicing an increased population in the future. Recent years have seen a number of investments made to hard and social infrastructure at Exmouth, including:

- upgrades and expansion of the Exmouth Boat Harbour;
- redevelopment of the Exmouth Health Campus;
- development of the Ningaloo Centre scientific research and resource centre;
- upgrades to Exmouth District High School;
- revitalisation of town centre and foreshore.

As Exmouth is a significant centre for regional tourism, it experiences considerable seasonal population influxes. In addition to expected future permanent populations, planning for future requirements for service infrastructure should take into consideration demand created by itinerant population (total peak populations), given that this could potentially have a significant impact on service demand.

Other planning issues/considerations

Being located on a narrow coastal strip, the ultimate expansion of the Exmouth townsite is physically constrained. Specific constraints include the rugged topography of the northern reaches of Cape Range to the west, Exmouth Gulf to the east, and flood-prone areas to the south. To the north, expansion is constrained by Department of Defence land and the proposed re-located wastewater treatment site.

The draft Shire of Exmouth Local Planning Strategy identifies several precincts within the Exmouth town centre. This includes specific areas considered suitable for more intensive mixed use development and short stay tourism/residential, which are in addition to its traditional retail core and civic/mixed business areas.

Large areas of the Exmouth townsite are affected by watercourse floodplains. This includes areas that are currently zoned for development in the Shire of Exmouth TPS No. 3, and areas that have been identified for future development in strategic local planning documents including the draft Shire of Exmouth Local Planning Strategy. This Strategy identifies flood-affected areas in Exmouth as 'investigation areas' as they are generally considered to be constrained and there are associated implications in relation to their potential

for development. While not considered in detail in the rudimentary analysis prepared for this Strategy, this may have a considerable impact on the future capacity of Exmouth. Further details are provided in the section below.

Investigation areas

Investigation area 1 – Exmouth long-term expansion area

This investigation area comprises a potential residential area proposed in the draft Shire of Exmouth Local Planning Strategy as an option for the longer-term expansion of the townsite. This area is identified in the settlement land-use plan as 'recreation', and is currently a 'recreation and open space' reserve in the Shire of Exmouth TPS No. 3.

As identified in the draft Local Planning Strategy, this site is affected by a number of constraints that make it less attractive for development in the immediate future, particularly given the amount of residential-zoned land capable of substantial further development in Exmouth.

Identified constraints include a lack of infrastructure and servicing at the present time; the prevailing landform; and potential interface issues with the Exmouth water reserve, which is located on its western boundary. It is also impacted by the Exmouth Power Station noise buffer and a watercourse floodplain. In light of such constraints, it is considered that further planning and environmental investigations will be required to determine the exact nature and extents of future land uses within this area.

Additionally, an amendment to the local planning scheme will be necessary for any eventual change in zoning. This may require an environmental assessment to be undertaken by the Environmental Protection Authority.

Investigation area 2 – Town centre – floodplain

This investigation area is identified in the settlement land-use plan as 'commercial' and 'tourism', and is currently zoned 'town centre' and 'tourist' under the Shire of Exmouth TPS No. 3. The investigation area is fully developed and currently contains a variety of uses including recreation, accommodation and a fuel station.

This extent is considered as an 'investigation area' as it is identified in the draft Shire of Exmouth Local Planning Strategy as being within a watercourse floodplain.

Given this constraint, it is considered that hydraulic modelling and/or assessment for future development proposals may be required by the Department of Water.

Investigation area 3 – Tourism development areas – floodplain

This investigation area comprises two parts, 3a and 3b. Both parts of the investigation area are undeveloped Crown land and identified in the settlement land-use plan as 'tourism'. They are currently zoned 'tourist' under the Shire of Exmouth TPS No. 3.

These extents are considered as 'investigation area' as they are identified in the draft Shire of Exmouth Local Planning Strategy for future tourism development but are located in a watercourse floodplain. Much of area 3b is also impacted by the existing wastewater treatment site buffer; however this facility has been proposed to be relocated in the future.

Given the above constraints, it is considered that the final extent and nature of future land use and development within this investigation area will require further resolution, including through local structure planning. In particular, given the areas' location within a floodplain, hydraulic modelling and/or assessment may be required by the Department of Water. It is anticipated that such matters would be addressed through localised structure planning.

Investigation area 4 – Future residential area – floodplain

This investigation area is identified in the settlement land-use plan as 'residential' and 'recreation', with respective extents currently designated as 'residential' zone and 'recreation and open space' reserve under the Shire of Exmouth TPS No. 3. The subject area – which is located immediately to the south-west of the Exmouth town centre – extends over two Crown lots; including Lot 5000 (an undeveloped, unallocated Crown land) and Lot 812 (a developed State Housing Commission site containing several residential buildings).

The extent is considered as an 'investigation area' as it is identified in the draft Shire of Exmouth Local Planning Strategy as a residential area but is located in a watercourse floodplain.

Given the above constraint, it is considered that the final extent and nature of future land use and development within this investigation area – particularly the currently undeveloped Lot 5000 – will require further resolution, including through local

structure planning. In particular, given its location within a floodplain, hydraulic modelling and/or assessment may be required by the Department of Water.

Investigation area 5 – Floodplain-affected future development areas around Exmouth Power Station

This investigation area is identified in the settlement land-use plan as predominantly 'residential', but also contains 'industrial' and 'recreation' within its extent. Under the Shire of Exmouth TPS No. 3, the respective designations are as 'residential development' and 'industrial' zones, and a 'recreation and open space' reserve. Currently, the investigation area is entirely undeveloped Crown land.

The extent is considered as an 'investigation area' as it is identified in the draft Shire of Exmouth Local Planning Strategy for future development (including for residential, industrial and tourism uses) but is located in a watercourse floodplain. Much of the extent is also impacted by the Exmouth Power Station noise buffer.

Given the above constraints, it is considered that the final extent and nature of future land use and development within this investigation area will require further resolution, including through local structure planning. In particular, given the area's location within a floodplain, hydraulic modelling and/or assessment may be required by the Department of Water.

Investigation area 6 – Residential development area – floodplain

This investigation area is identified in the settlement land-use plan as 'residential' and is currently zoned 'residential development' under the Shire of Exmouth TPS No. 3. The investigation area is located immediately to the south of the Exmouth Marina precinct and includes a Crown reserve and two Crown leasehold properties. These properties currently contain development that is of an intensity comparable to rural residential development.

This extent is considered as an 'investigation area' as it is identified in the draft Shire of Exmouth Local Planning Strategy as being for future residential development but is located in a watercourse floodplain.

Given the above constraint, it is considered that the final extent and nature of future land use and development within this investigation area will require further resolution, including through local structure

planning. In particular, given the area's location within a floodplain, hydraulic modelling and/or assessment may be required by the Department of Water.

Investigation area 7 – Rural residential area – floodplain

This investigation area comprises two parts, 7a and 7b. Both parts of the investigation area are identified in the settlement land-use plan as 'rural residential', and are currently zoned 'special rural 1' under the Shire of Exmouth TPS No. 3. The northern area (7a) is currently mostly undeveloped Crown land, and the southern area (7b) extends over several developed freehold rural residential lots.

These extents are considered as 'investigation area' as they are identified in the draft Shire of Exmouth Local Planning Strategy for future development as a rural residential area but are located in a watercourse floodplain.

Given the above constraint, it is considered that the final extent and nature of future land use and development within area 7a will require further resolution, including through local structure planning. In particular, given its location within a floodplain, hydraulic modelling and/or assessment may be required by the Department of Water. With regard to area 7b, which is already developed as a rural residential area, hydraulic modelling and/or assessment may be required by the Department of Water for future development proposals.

Investigation area 8 – Future rural residential area – floodplain

This investigation area is identified in the settlement land-use plan as 'recreation', and is currently a 'recreation and open space' reserve under the Shire of Exmouth TPS No. 3. It is undeveloped, unallocated Crown land containing natural vegetation.

This extent is considered as an 'investigation area' as it is identified in the draft Shire of Exmouth Local Planning Strategy as being for future rural residential development but is located in a watercourse floodplain. Adjoining areas to the north and the south – that are not constrained by the floodplain – are also identified for future rural residential development.

Given the above constraint, it is considered that the final extent and nature of future land uses within this investigation area will require further resolution, including through local structure planning. In particular, given the area's location within a floodplain, hydraulic modelling and/or assessment may be required by the Department of Water.

An amendment to the local planning scheme will be necessary for any eventual change in zoning. This may require an environmental assessment to be undertaken by the Environmental Protection Authority.



4.2.5 Denham

Denham is the administrative centre for the Shire of Shark Bay. Its local economy is principally focussed on tourism and fishing. Surrounded by the Shark Bay World Heritage Area, it is centrally located relative to various conservation reserves that support tourism activity, including the regionally significant Tourism Centre of Monkey Mia. The surrounding hinterland's natural and cultural attractions generate significant tourist activity and this has considerable economic benefit for Denham.

The provision of services to its local population and to tourism and fisheries highlights Denham's importance; and it is within this context that Denham is identified as a Sub-regional Centre in this Strategy.

The growth of local and regional tourism sectors is likely to be the main driver for future growth in Denham. In particular, it is thought that the provision of upgraded maritime facilities would assist in facilitating the expansion of local economic sectors.

Town planning for Denham currently operates out of the Shire of Shark Bay Town Planning Scheme No. 3 (2008). The Shire of Shark Bay Local Planning Strategy (2013) provides strategic direction to guide future land-use planning within Denham. A new local planning scheme, Local Planning Scheme No.4, was released as a draft for advertising in 2016.

Figure 9 comprises this Strategy's settlement land-use plan for Denham (refer section 4.2.1). Further to this, Figure 10 shows the spatial extents of areas within Denham that have been considered capable of substantial further development (refer to development status assessment overview in section 4.2.2).

Areas are quantified according to their development status for residential, commercial and industrial land uses in Table 17. In particular, this relates to the following analysis of residential, commercial and industrial lands.

Table 17: Development status of land in Denham settlement land-use plan

	Total (ha)	Developed (ha)	Capable of substantial further development (ha)
Residential	113	46	67
Future Residential	8	3	5
Residential and Future Residential	121	49	72
Commercial	17	15	2
Future Commercial	15	0	15
Commercial and Future Commercial	32	15	17
Industrial	18	17	1
Future Industrial	0.5	0	0.5
Industrial and Future Industrial	18.5	17	1.5

Note: There is no rural residential or future rural residential land identified in Denham



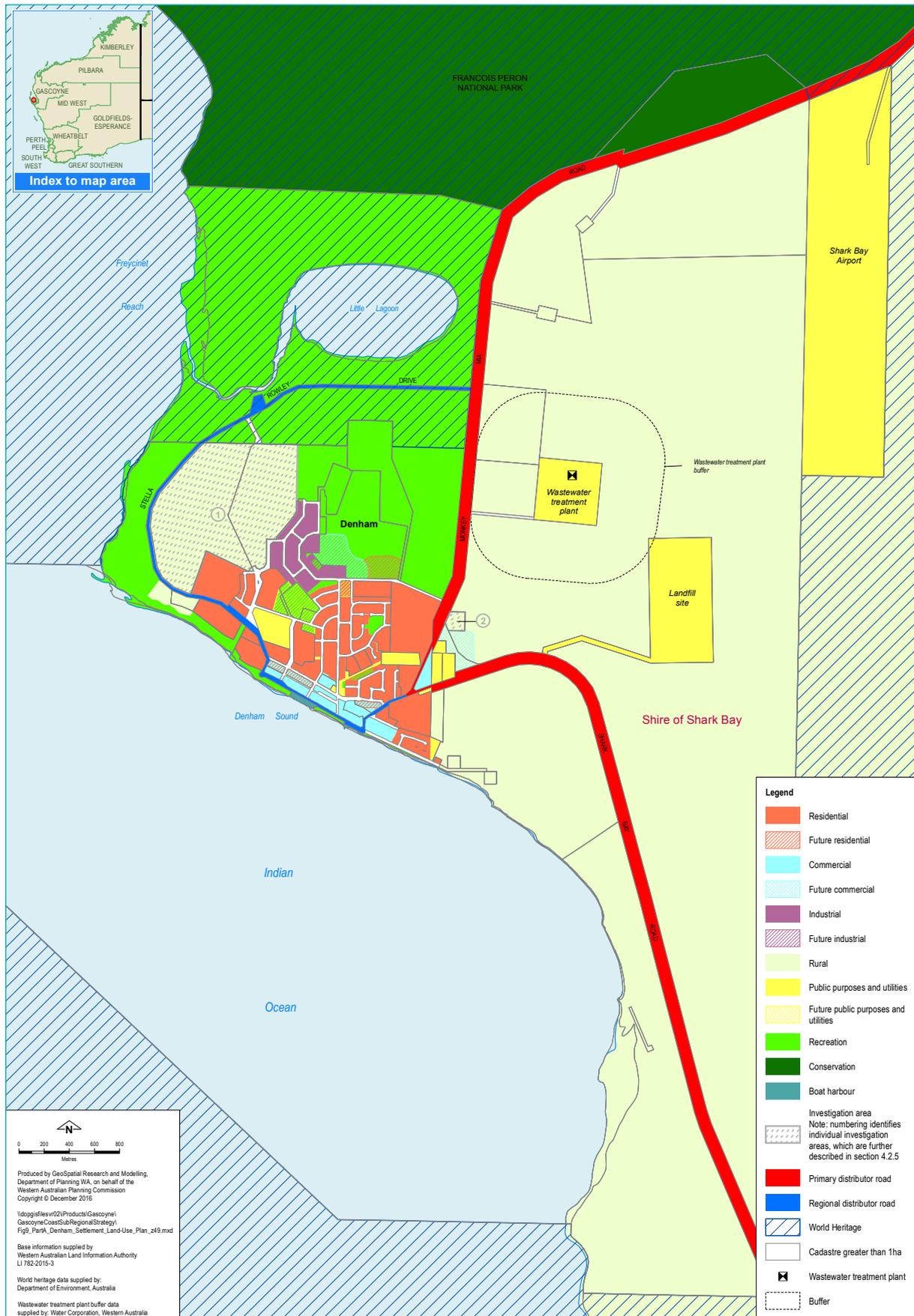


Figure 9: Denham settlement land-use plan

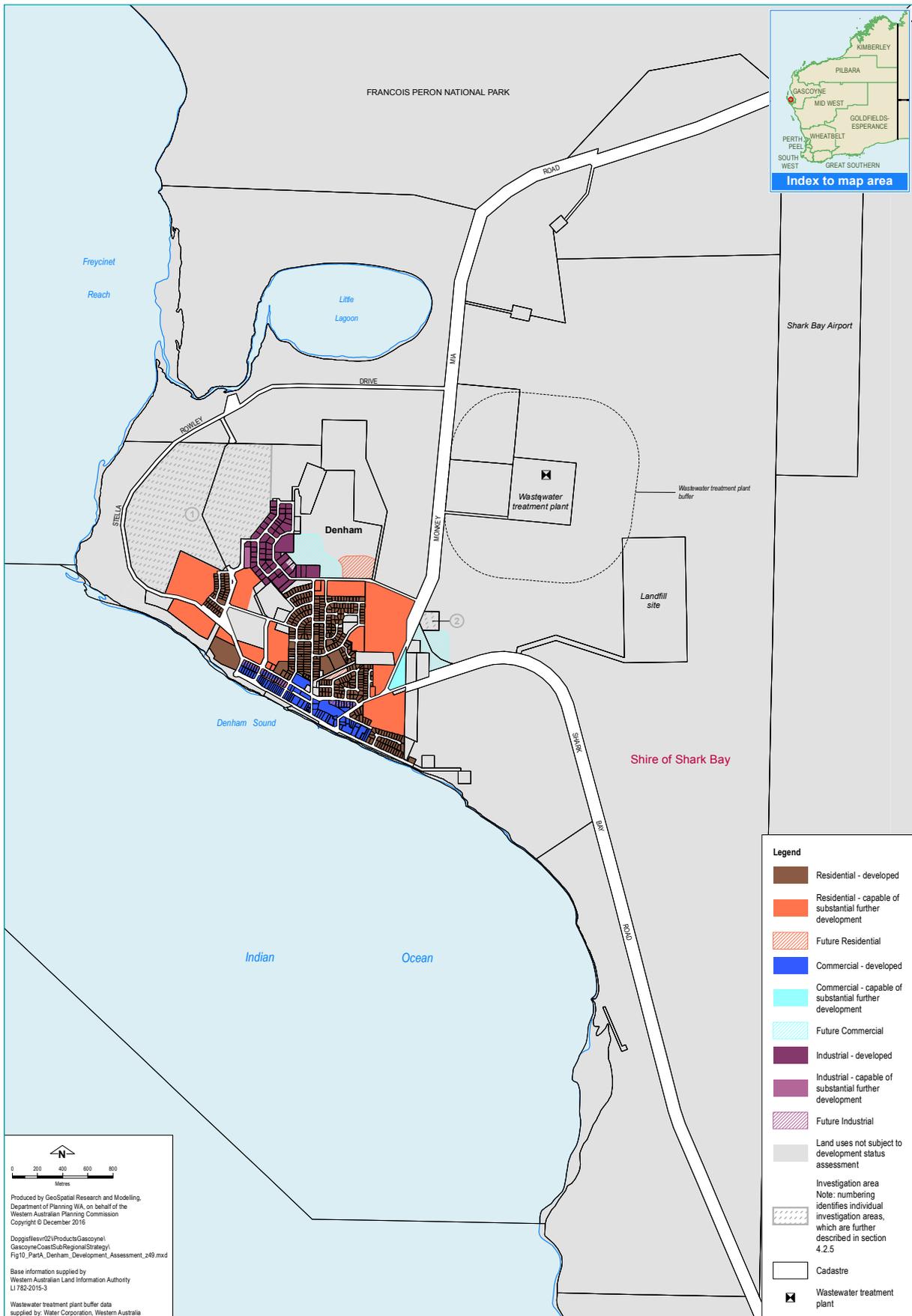


Figure 10: Denham development status assessment



Residential land, housing and population analysis

This Strategy identifies 113 hectares of zoned residential land in Denham, of which 67 hectares (or nearly 60 per cent) is considered to be capable of substantial further development. There is no rural residential or rural smallholdings land in Denham.

Much of the established residential land in Denham is centrally located within the settlement; situated between the town centre and the industrial areas. The first stage of the 'Denham Estate' – located to the west of the school and recreation reserve – has been more recently developed.

Vacant, zoned residential lands in Denham generally adjoin established areas, meaning that their eventual development would expand the footprint of the settlement outwards in the future. Much of these areas are zoned either 'residential development' or 'special use' (allowing predominantly for a range of residential and tourist accommodation uses) in the Shire of Shark Bay Town Planning Scheme No. 3.

While there are limited areas identified as 'future residential', the Shire of Shark Bay Local Planning Strategy proposes rezoning of some 'special use' zones (already considered as 'residential' in this Strategy as described above) to more specifically allow for long-term residential growth. Other 'future residential' areas proposed in the Local Planning Strategy include a new composite zone situated adjacent to the main industrial/future service commercial area to allow for the co-location of dwellings and small business; and rezoning existing housing stock in the town centre to reflect their residential land use. The latter accounts for the three hectares of 'future residential' land that is already developed.

An analysis has been prepared that considers the potential population capacities of current and future residential land in Denham. In particular, this is compared with population growth scenarios. The approach for this process is further explained in section 4.2.2.

The estimated capacity of residential and future residential land identified on the Denham settlement land-use plan is considered in Table 18. It considers

Table 18: Estimated capacity of residential land in Denham settlement land-use plan

Estimated capacity of residential land deemed capable of substantial further development in Denham settlement land-use plan				Estimated population capacity		
Relevant land-use category/ies	Area (ha)	Average density	Potential lot yield ¹	Current population ²	Potential population yield from additional lots ³	Estimated total population ⁴
Residential	67	R10	436	951	1,046	1,997
		R20	871	951	2,090	3,041
		R30	1,307	951	3,137	4,088
Residential and Future Residential	72	R10	469	951	1,125	2,076
		R20	936	951	2,246	3,197
		R30	1,405	951	3,372	4,323

¹ The 35 per cent of land necessary to support land requirements for public open space and streets (Liveable Neighbourhoods, 2007) has been factored into these figures.

² Shire of Shark Bay 2015 Preliminary Estimated Residential Population (Australian Bureau of Statistics, 3218.0 – Regional Population Growth 2014–15).

³ The population yield per dwelling is calculated at 2.4 people per dwelling unit (average people per household for the Gascoyne SA3 – Australian Bureau of Statistics, 2011 Census).

⁴ The 'estimated total population' is the sum of the 'current population' and the 'potential population yield from additional lots' columns.



three scenarios that are based on land being fully developed at different average residential densities (R10, R20 and R30). Under these density scenarios, potential lot yields and additional population yields have been calculated. From this, an overall potential population capacity has been estimated for each of the three density scenarios.

Table 19 presents estimates for the amount of residential land in Denham required to accommodate the additional population under each of the population scenarios described in this Strategy in section 3.2 at 2026. Estimates are presented according to three different average densities of residential development, being R10, R20 and R30, and these are compared with the quantity of current and future residential lands considered to be capable of substantial further development.

Based on the current extents of zoned residential land and land identified for future residential purposes, this analysis suggests that there is a sufficient amount of land in Denham capable of substantial further development to cater for the population growth anticipated to 2026 under this Strategy's population scenarios 1, 2, 3 and 4.

Commercial and industrial land

This Strategy identifies 17 hectares of zoned commercial land in Denham, of which two hectares is considered to be capable of substantial further development. Current commercial land identified in Denham include those areas zoned 'town centre' and 'special use 4' in the Shire of Shark Bay Town Planning Scheme No. 3.

Table 19: Estimated additional residential land requirements for Denham to accommodate population scenarios at 2026¹

Population scenario ²	Additional population at 2026	Area of developable land (ha) ³	R10 average density		R20 average density		R30 average density	
			Est. land req'd to accom. additional pop'n (ha) ⁴	Surplus (ha) ⁵	Est. land req'd to accom. additional pop'n (ha) ⁴	Surplus (ha) ⁵	Est. land req'd to accom. additional pop'n (ha) ⁴	Surplus (ha) ⁵
Scenario 1: WAT – Band C	59	72	4	68	2	70	1	71
Scenario 2: WAT – Band E	209	72	13	59	7	65	4	68
Scenario 3: Aspirational A	570	72	37	35	18	54	12	60
Scenario 4: Aspirational B	1,012	72	65	7	32	40	22	50

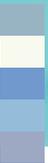
¹ These estimates assume that all population growth occurs on residential and future residential land that has been identified as being capable of substantial further development in this analysis. To keep the calculations relatively straightforward, they do not consider additional population being accommodated on rural residential land, nor do they take into account potential increases in population occurring due to infill development. The estimates are therefore likely to overestimate residential land requirements.

² Each population scenario is described in section 3.2. Scenario 5: Estimated peak population is not relevant to this analysis as itinerant populations tend to not to have such a marked impact on residential land requirements, but rather infrastructure and service provision.

³ The area of developable land is considered to be the total area of current and future residential land identified as being capable of substantial further development as per relevant figures from Table 17.

⁴ A 35 per cent allowance from gross land to support land requirements for public open space and streets (Liveable Neighbourhoods, 2007) and a population yield of 2.4 people per dwelling unit (average people per household for the Gascoyne SA3 – ABS 2011 Census) have been factored into the estimated areas of residential land required to accommodate each scenario's additional populations.

⁵ A positive figure in this column indicates that the additional population under that scenario should be able to be accommodated within the areas of residential and future residential land currently identified, without additional residential land being required. A negative figure represents the shortfall in the identified areas of residential lands with respect to that required to accommodate the additional population.



The 'town centre' zone is an elongated strip fronting the Denham foreshore. In addition to typical retail and commercial functions, the town centre precinct contains a range of other land uses such as tourist accommodation and residential. This area is considered to be largely developed, however there may be opportunities for consolidation within the town centre to make more effective use of commercial land. The Shire of Shark Bay Local Planning Strategy also proposes to rezone areas within the town centre zone where current building stock predominantly consists of residential dwellings to better align with the existing land use; and this is reflected on the Denham settlement land use plan accordingly.

The 'special use 4' zone applies to a single lot at the intersection of Shark Bay and Monkey Mia roads, and its designation allows for a range of land uses that are predominantly commercial in nature. It is currently undeveloped.

Two 'future commercial' areas – totalling 15 hectares – are identified; immediately to the east of the industrial area, and between Shark Bay and Monkey Mia roads. Both are identified in the Shire of Shark Bay Local Planning Strategy as being potential service commercial areas in the medium to long term subject to rezoning.

Of the 18 hectares of zoned industrial land identified in this Strategy, only one hectare is considered to be capable of substantial further development. Denham's existing industrial area is located on the northern fringe of the settlement. Despite the area being largely developed, the Shire of Shark Bay Local Planning Strategy anticipates that the area will likely meet medium term needs. The only future industrial land identified in the Local Planning Strategy is an area where a rezoning is proposed over portions of two lots that are already partially zoned and developed for industrial purposes. Notwithstanding the seemingly limited supply of developable industrial land in Denham identified through this assessment, there may be opportunities to make more effective use of existing industrial land.

Future infrastructure and servicing considerations

Denham's wastewater treatment facility and airport infrastructure are located well away from the developed areas of the settlement. Notwithstanding this consideration, these sites and their operational buffer requirements should be reflected in local planning.

New infrastructure and capacity upgrades will assist in servicing an increased population in the future. Examples of recent investments made to hard and social infrastructure at Denham, include:

- upgrades to Denham's water supply scheme;
- development of the Shark Bay Community Sport and Recreation Centre;
- development of a new, multi-purpose jetty to replace existing facility; and
- revitalisation of main street and foreshore.

In addition to expected future permanent populations, planning for future requirements for service infrastructure should take into consideration demand created by itinerant population (total peak populations), given that this could potentially have a significant impact on service demand.

Other planning issues/considerations

The Shark Bay World Heritage Area surrounds the Denham townsite, the boundary of which represents an ultimate limit for its potential expansion. More immediate physical constraints within this extent include a wastewater treatment plant and a landfill site, which constrain expansion to the east of the existing townsite; and a recreation reserve which constrains townsite expansion to the north.

However, existing residential areas are considered to be more than sufficient to cater for expected demand in the medium to longer term. Beyond this, there are opportunities to expand the townsite considerably, including within the investigation area immediately to the north-west of the settlement.

Investigation areas

Investigation area 1 – Denham future townsite expansion area

This investigation area is situated immediately to the north-west of the Denham settlement; with its western boundary defined by Stella Rowley Drive and its northern boundary being the Shark Bay World Heritage Area. The area is uncleared, unallocated Crown land containing low coastal scrub vegetation, and is identified on the settlement land-use plan as 'rural'.

The Shire of Shark Bay Local Planning Strategy identifies the area for the future long-term expansion of the townsite, once existing residential land is developed.



The boundary of the investigation area itself is indicative only with any final extent being subject to long-term growth need.

Potential interface issues requiring resolution are likely to include a buffer area between the adjoining industrial area and any future residential land uses, and the interface with the World Heritage Area boundary on the area's northern extent.

An amendment to the local planning scheme will be necessary for any eventual change in zoning. This may require an environmental assessment to be undertaken by the Environmental Protection Authority.

Investigation area 2 – Lot 90 Monkey Mia Road

This investigation area is identified on the settlement land-use plan as 'rural' and is zoned 'special use 11' under the Shire of Shark Bay Local Planning Scheme, which allows for a range of specialised land uses that predominantly relate to primary production including pearl farming, aquaculture and plantation tree farming. The lot currently contains some development of an intensity that appears commensurate with its special use.

The Shire of Shark Bay Local Planning Strategy identifies the site for potential service commercial or tourist uses in the longer term.

An amendment to the local planning scheme will be necessary for any eventual change in zoning. This may require an environmental assessment to be undertaken by the Environmental Protection Authority; and specific regard for land capability and servicing.

4.2.6 Coral Bay

Coral Bay is a major Tourism Centre situated within the Shire of Carnarvon. It is located on a remote stretch of the Ningaloo Coast – being approximately 150 kilometres south of Exmouth and some 240 kilometres north of Carnarvon. The settlement's beach frontage onto Bills Bay and boat launching facility provide direct access to the Ningaloo Marine Park.

Coral Bay is an established settlement that caters predominantly for tourists and as such, its population varies significantly on a seasonal basis due to influxes of visitors. In addition to some general retail, Coral Bay offers limited civic and social functions at a scale commensurate with the temporary and itinerant nature of the population that it primarily services.

A Framework Agreement exists between the Baiyungu Aboriginal Corporation (BAC) and the State allowing the BAC to plan and develop a number of significant landholdings in and around Coral Bay for a range of land uses and activities such as a new workers accommodation village recently completed by LandCorp. The BAC represent the Baiyungu people, who are members of Gnulli Native Title-registered claim group.

The Coral Bay airstrip has been upgraded in recent years to provide an acceptable level of service for local and regional aviation needs; however, the location of the airstrip is considered to be constrained. As such, the Department of Transport has undertaken some planning to relocate the facility in the long-term.

Town planning for Coral Bay currently operates from the Shire of Carnarvon Town Planning Scheme (District Zoning Scheme) No. 11 (1995). A new local planning strategy and scheme are currently being developed by the Shire of Carnarvon, which when finalised will inform Coral Bay's local planning framework. Significantly, the Coral Bay Settlement Structure Plan 2014 provides detailed guidance for land-use planning and future development within the settlement.

4.2.7 Monkey Mia

The Tourism Centre of Monkey Mia is located approximately 24 kilometres from Denham, and fronts onto a beach immediately that provides direct access to the Shark Bay Marine Park. It is also within the Shark Bay World Heritage Area.

Monkey Mia predominantly caters for tourists, offering accommodation and other associated functions. Its population is largely itinerant, and as such fluctuates significantly on a seasonal basis due to influxes of visitors.

Given Monkey Mia's close location in relation to Denham, it is considered that their local economies invariably complement one another. Monkey Mia is recognised in this Strategy as a separate activity centre, although as a consequence of its limited specialised economic base and close proximity to Denham, it is noted that it is dependent on Denham for higher-order services.

Town planning for Monkey Mia currently operates out of the Shire of Shark Bay Town Planning Scheme No. 3 (2008). The Shire of Shark Bay Local Planning Strategy (2013) provides strategic direction to guide future land-use planning within Monkey Mia. A new local planning



scheme is currently under preparation by the Shire, which will complement the local planning strategy once complete.

A combination of leasehold properties and reserves comprise the land tenure configuration of Monkey Mia, with land vested in various authorities including the Conservation Commission of Western Australia and the Shire of Shark Bay. Consequently, planning and development in Monkey Mia are subject to the applicable processes of the relevant decision-making authorities, such as management plans.





5 Implementation

The Gascoyne Coast Sub-regional Strategy has been prepared as part of an ongoing process of refining and detailing the planning direction for the Gascoyne Coast sub-region. This refinement will continue to be undertaken, as the guidance provided within this strategy will inform the reviews of local planning schemes and strategies, structure planning, subdivision and/or development. This strategy provides a high-level strategic context to guide future development and address key challenges for the sub-region.

The implementation of the Strategy, will involve the coordination of a number of activities at the State and local level, as well as the preparation of a number of key documents. The proposed implementation mechanisms are outlined in Table 20. These actions are recognised as being important in facilitating a comprehensive and up-to-date system for land-use planning within the sub-region.

The timing for the delivery of the proposed actions within this strategy will be guided by a number of factors including development pressures and demand, priorities of servicing agencies, landowner intentions and local government planning within the sub-region.

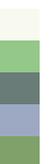


Table 20: Gascoyne Coast Sub-regional Strategy planning actions

	Action	Status
1	Finalise and endorse a sub-regional strategy for the Gascoyne Coast.	Underway
2	Review and update the <i>Gascoyne Regional Planning and Infrastructure Framework</i> to reflect relevant sub-regional planning, including that for the Gascoyne Coast once finalised.	Proposed
3	Examine the Coastal Tourism Framework of the <i>Ningaloo Coast Regional Strategy Carnarvon to Exmouth</i> in the context of subsequent: <ul style="list-style-type: none"> • local planning processes • management planning processes • tenure changes, including the coastal exclusions resulting from the 2015 pastoral lease renewal process. 	Proposed
4	Consider the future direction of the <i>Ningaloo Coast Regional Strategy Carnarvon to Exmouth</i> , which may include investigating the need to review <i>State Planning Policy 6.3 Ningaloo Coast</i> .	Proposed
5	Consider the future direction of the Shark Bay Regional Strategy.	Proposed
6	Maintain currency of the Gascoyne Social Infrastructure Analysis as it relates to the Gascoyne Coast study area.	Ongoing
7	Undertake investigations to identify the number and capacity of tourism facilities and land-use planning implications of accommodating the future needs of tourism on the Gascoyne Coast.	Proposed
8	Department of Planning to provide advice to relevant authorities regarding management planning processes where they relate to land-use planning.	Ongoing
9	Shire of Carnarvon to finalise their local planning strategy.	Underway
10	Shire of Carnarvon to prepare a new local planning scheme.	Underway
11	Finalise the Gascoyne Food Bowl District Structure Plan.	Underway
12	Update the Carnarvon settlement land-use plan and associated land capacity analysis, to accord with subsequent changes to relevant local planning instruments.	Ongoing
13	Investigate potential infrastructure requirements for the Carnarvon settlement with respect to overall townsite capacity.	Proposed
14	Shire of Exmouth to finalise their local planning strategy.	Underway
15	Shire of Exmouth to prepare a new local planning scheme.	Underway
16	Update the Exmouth settlement land-use plan and associated land capacity analysis, to accord with subsequent changes to relevant local planning instruments.	Ongoing
17	Investigate potential infrastructure requirements for the Exmouth settlement with respect to overall townsite capacity.	Proposed
18	Shire of Shark Bay to review their local planning strategy.	Proposed
19	Shire of Shark Bay to prepare a new local planning scheme.	Underway
20	Update the Denham settlement land-use plan and associated land capacity analysis, to accord with subsequent changes to relevant local planning instruments.	Ongoing
21	Investigate potential infrastructure requirements for the Denham settlement with respect to overall townsite capacity.	Proposed
22	Investigate basic raw material needs and resources around the Denham settlement, with a view to complement equivalent data that exists for Carnarvon and Exmouth.	Proposed



References

Legislation

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Mining Act 1978
Shark Bay Solar Salt Industry Agreement Act 1983
Conservation and Land Management Act 1984
Fish Resource Management Act 1994
Land Administration Act 1997
Environmental Protection and Biodiversity Act 1999 (Australian Government)
Planning and Development Act 2005

State Planning Policies

State Planning Policy No. 1 State Planning Framework
State Planning Policy No. 2 Environment and Natural Resources
State Planning Policy No. 2.4 Basic Raw Materials
State Planning Policy No. 2.5 Land Use Planning in Rural Areas
State Planning Policy No. 2.6 State Coastal Planning
State Planning Policy No. 2.7 Public Drinking Water Source
State Planning Policy No. 2.9 Water Resources
State Planning Policy No. 3 Urban Growth and Settlement
State Planning Policy No. 3.4 Natural Hazards and Disasters
State Planning Policy No. 3.6 Development Contributions for Infrastructure
State Planning Policy No. 5.4 Road and Rail Transport Noise and Freight Considerations in Land Use Planning
State Planning Policy No. 6.3 Ningaloo Coast

Local planning schemes

Shire of Carnarvon Town Planning Scheme No. 10 (Carnarvon Townsite & Environs) (1988)
Shire of Carnarvon Town Planning Scheme No. 11 (District Zoning Scheme) (1995)
Shire of Exmouth Town Planning Scheme No. 3 (1999)
Draft Shire of Exmouth Local Planning Scheme No. 4 (2016)
Shire of Shark Bay Town Planning Scheme No. 3 (2008)

Local planning strategies

Shire of Shark Bay Local Planning Strategy (2013)
Draft Shire of Carnarvon Local Planning Strategy (2016)
Draft Shire of Exmouth Local Planning Strategy 2015-2025 (2016)



Structure plans

Carnarvon Structure Plan 2004 (section 2.1 of the Ningaloo Coast Regional Strategy)
Exmouth Structure Plan 2004 (section 2.2 of the Ningaloo Coast Regional Strategy)
Exmouth Townsite Structure Plan 2011
Exmouth South Structure Plan 2013
Babbage and Whitlock Islands Structure Plan 2014
Carnarvon Airport Precinct Structure Plan 2014
Coral Bay Settlement Structure Plan 2014
East Carnarvon and Kingsford District Structure Plan 2015
Draft Gascoyne Food Bowl Structure Plan 2016

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Public submission form

The Western Australian Planning Commission is seeking public comment on the draft Gascoyne Coast Sub-regional Strategy.

All comments received will be considered by the WAPC before the final Strategy is released.

When making a submission, it is very helpful to:

- clearly state your opinion and the reasons for your opinion;
- if possible, outline possible alternatives or solutions to your area of interest;
- if possible, outline the section or page number which relates to your area of interest; and
- provide any additional information to support your comments.

A public submission form is included overleaf for your convenience. If you prefer to make a comment in an alternative format, please remember to include relevant details as outlined on the submission form.

The closing date for submissions is Friday 7 April 2017.

If you would like more information please contact:

Project Manager
Gascoyne Coast Sub-regional Strategy
Department of Planning
08 6551 9000
centralregions@planning.wa.gov.au

Please send your submission via post or email to:

Project Manager
Gascoyne Coast Sub-regional Strategy
Department of Planning
Locked Bag 2506
Perth WA 6001
centralregions@planning.wa.gov.au

We look forward to receiving your submission.



Name:

Organisation (if relevant):

Address:

Interest (e.g. local resident, landowner, business operator, visitor to the area):

I/we would like to make the following comments on the draft Gascoyne Coast Sub-regional Strategy and would like them to be considered in the preparation of the final document.

Comments:

