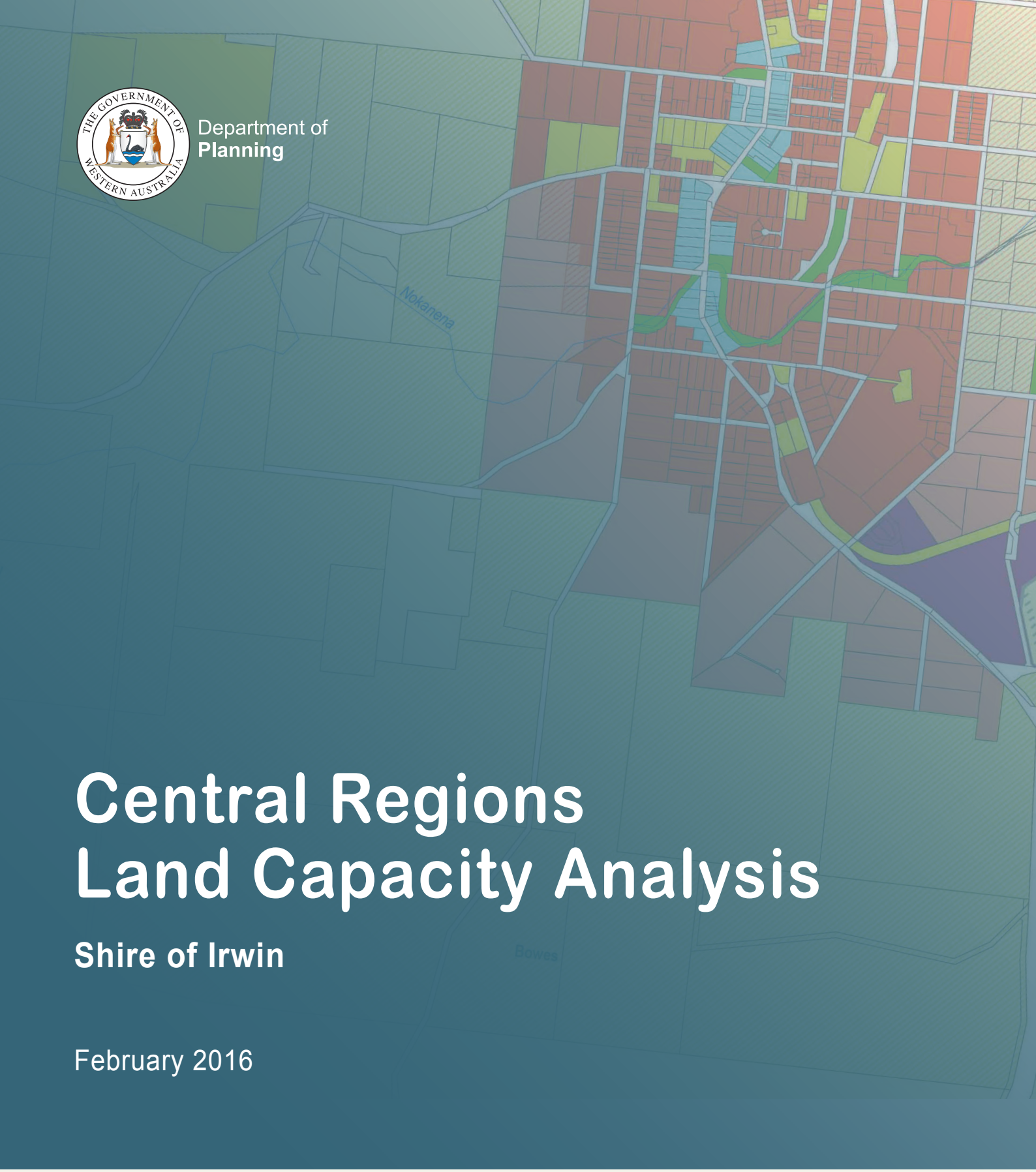


Department of
Planning

Central Regions Land Capacity Analysis

Shire of Irwin

February 2016

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1. Introduction

The Central Regions Land Capacity Analysis provides a broad overview of the existing and future land capacity of settlements in the Mid West, Gascoyne and Goldfields-Esperance regions with respect to forecast population growth. In particular, it examines land identified for residential, commercial and industrial development.

The purpose of this document is to present the land-use mapping and associated analysis as it relates to the applicable settlements in the Shire of Irwin local government area.

Notably, the analysis suggests there is sufficient land capable of substantial further development (based on the current extents of zoned residential land and land identified for future residential purposes) to cater for the population growth anticipated in the *Western Australia Tomorrow* 2026 population forecasts for the Shire of Irwin.

The information presented in this document may provide a basis for a range of regional and local strategic planning including:

- to assist regional planning and provide direction for strategic infrastructure coordination;
- to inform the preparation and/or review of local planning strategies, schemes and structure plans; and
- for more detailed land supply analysis, including further investigation into the infrastructure requirements to service potential development of the future land supply.

Given the dynamic nature of planning and development, it is intended that this paper will be amended periodically to reflect future updates to local planning instruments as relevant.

Notwithstanding this, the information contained in this document has been prepared for guidance purposes only.

2. Settlement land-use mapping

The Department of Planning (DoP) has prepared mapping that captures the spatial extents of current and future land use in applicable settlements. Within the Shire of Irwin, this includes:

- Dongara-Denison (**Map 1**); and
- Dongara-Denison surrounds (**Map 2**).

Further context on how this mapping has been developed is provided below.

2.1 Current and future land use

For the purpose of this study, the mapping categorises current and future land uses into broad land-use types. It effectively rationalises and consolidates existing zones and reserves in local planning schemes with intended future land uses identified in a number of strategic documents, including local planning strategies and structure plans.

The areas identified on the maps are based on the general consideration of:

- current zonings and reservations within applicable local planning schemes; and
- other strategic planning documents including local planning strategies, structure plans, layout plans and/or growth plans where relevant.

With respect to this, the extent of current land uses generally reflect that of applicable existing zones and reserves in current local planning schemes; and future land uses generally reflect where land has been identified in other documents for a different (typically more intensive) land use than that identified in the current scheme.

Planning instruments that have informed the preparation of the settlement land-use mapping within the Shire of Irwin include the:

- Shire of Irwin Local Planning Scheme No. 5;
- Shire of Irwin Local Planning Strategy 2007; and
- Dongara–Port Denison District Structure Plan 2014.

As a general guide, a broad description of what each land-use category considers is provided below:

Residential	Areas that are predominantly currently zoned in relevant local planning schemes for residential land uses
Future residential	Areas that have been identified predominantly for future residential land uses through relevant strategic planning processes
Rural residential	Areas that are predominantly currently zoned in relevant local planning schemes for rural residential land uses
Future rural residential	Areas that have been identified predominantly for future rural residential land uses through relevant strategic planning processes
Rural smallholdings	Areas that are predominantly currently zoned in relevant local planning schemes for rural smallholdings land uses
Future rural smallholdings	Areas that have been identified predominantly for future rural smallholdings land uses through relevant strategic planning processes
Commercial	Areas that are predominantly currently zoned in relevant local planning schemes for commercial land uses
Future commercial	Areas that have been identified predominantly for future commercial land uses through relevant strategic planning processes

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Industrial	Areas that are predominantly currently zoned in relevant local planning schemes for industrial land uses
Future industrial	Areas that have been identified predominantly for future industrial land uses through relevant strategic planning processes
Rural	Areas that are predominantly currently zoned in relevant local planning schemes for rural land uses
Future rural	Areas that have been identified predominantly for future rural land uses through relevant strategic planning processes
Infrastructure and public purposes	Areas that are predominantly currently reserved in relevant local planning schemes for infrastructure and/or public purposes
Future infrastructure and public purposes	Areas that have been identified predominantly for future infrastructure and/or public purposes through relevant strategic planning processes
Recreation	Areas that are predominantly currently reserved in relevant local planning schemes for recreation purposes
Future recreation	Areas that have been identified predominantly for future recreation purposes through relevant strategic planning processes
Conservation	Areas that are predominantly currently reserved in relevant local planning schemes for conservation purposes
Future conservation	Areas that have been identified predominantly for future conservation purposes through relevant strategic planning processes
Special land use	Areas that are currently zoned in relevant local planning schemes for specific purposes that do not align with other broad land-use categories as described, or where their inclusion may unduly distort the results of the associated analysis
Investigation area	Areas that have been identified through relevant strategic planning processes where alternative future land uses may be considered subject to further investigation. This may include areas from plans in preparation or in draft form

2.2 Development status

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

This assessment has been undertaken for those settlements where the applicable land uses occur within the map extents.

Applicable areas within the map extents have been assessed and considered as being 'developed' or 'capable of substantial further development' as described below.

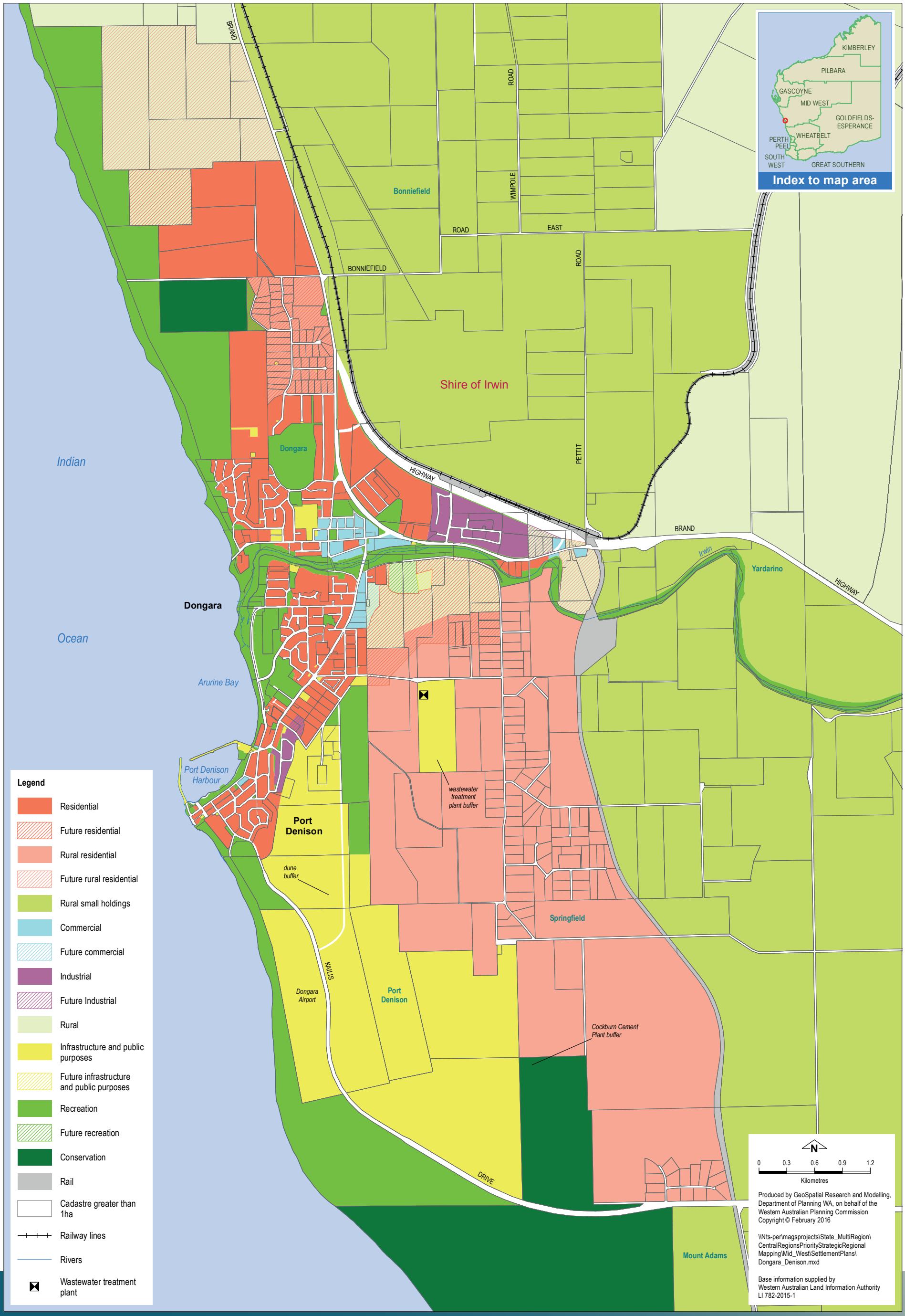
> ***Developed:*** 'developed' land is broadly considered as land where development exists or where the necessary infrastructure and services to accommodate development exist. Subdivision is generally consistent with its zoning, however existing urban areas that could potentially accommodate increases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

Table 1 summarises the development status of each applicable land-use category for all relevant settlements, representing a set of total figures for the entire local government area. It consolidates all data from **Tables 2 and 3**, which summarise the development status of each applicable land-use category as it relates to the individual settlements.

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Map 1: Dongara-Denison land use map



Map 2: Dongara-Denison surrounds land use map

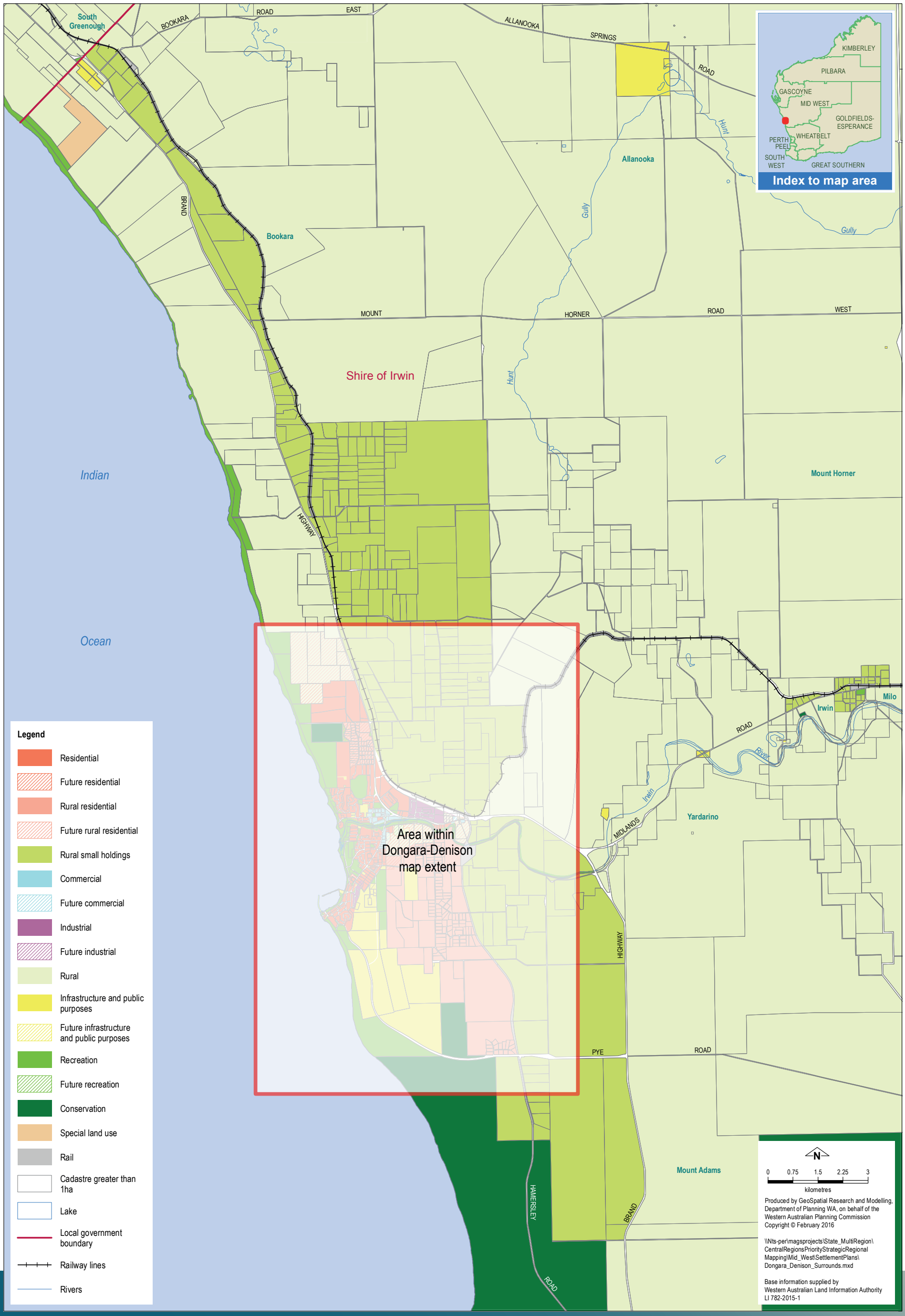


Table 1: Shire of Irwin - development status of land in relevant settlements

	Total	Developed (ha)	Capable of substantial further development (ha)
Residential	545	206	339
Future residential	256	0	256
Residential and future residential	**801**	**206**	**595**
Rural residential	1,364	382	982
Future rural residential	274	0	274
Rural residential and future rural residential	**1,638**	**382**	**1,256**
Rural smallholdings	10,663	3,718	6,945
Future rural smallholdings	0	0	0
Rural smallholdings and future rural smallholdings	**10,663**	**3,718**	**6,945**
Commercial	32	20	12
Future commercial	5	0	5
Commercial and future commercial	**37**	**20**	**17**
Industrial	54	28	26
Future industrial	8	0	8
Industrial and future industrial	**62**	**28**	**34**

Table 2: Dongara-Denison - development status of land

	Total	Developed (ha)	Capable of substantial further development (ha)
Residential	545	206	339
Future residential	256	0	256
Residential and future residential	**801**	**206**	**595**
Rural residential	1,364	382	982
Future rural residential	274	0	274
Rural residential and future rural residential	**1,638**	**382**	**1,256**
Rural smallholdings	4,165	2,002	2,163
Future rural smallholdings	0	0	0
Rural smallholdings and future rural smallholdings	**4,165**	**2,002**	**2,163**
Commercial	32	20	12
Future commercial	5	0	5
Commercial and future commercial	**37**	**20**	**17**
Industrial	54	28	26
Future industrial	8	0	8
Industrial and future industrial	**62**	**28**	**34**

Table 3: Dongara-Denison surrounds - development status of land

	Total	Developed (ha)	Capable of substantial further development (ha)
Residential	0	0	0
Future residential	0	0	0
Residential and future residential	**0**	**0**	**0**
Rural residential	0	0	0
Future rural residential	0	0	0
Rural residential and future rural residential	**0**	**0**	**0**
Rural smallholdings	6,498	1,716	4,782
Future rural smallholdings	0	0	0
Rural smallholdings and future rural smallholdings	**6,498**	**1,716**	**4,782**
Commercial	0	0	0
Future commercial	0	0	0
Commercial and future commercial	**0**	**0**	**0**
Industrial	0	0	0
Future industrial	0	0	0
Industrial and future industrial	**0**	**0**	**0**

3. Capacity analysis

The assessment of the development status of current and future land uses enables a broad-level capacity analysis of the residential development potential of land within the Shire of Irwin. The Department of Planning has prepared such an analysis that:

- estimates the potential additional population yield of current and future residential, rural residential and rural smallholdings lands for each relevant settlement; and
- considers possible implications with regard to the local government area's residential land situation in the context of the *Western Australia Tomorrow* 2026 population forecasts.

With respect to this, the tables in section 3.1 summarise the estimated additional capacity of each applicable land-use category for relevant settlements within the Shire of Irwin. Further analysis is presented in section 3.2 that relates this information to the *Western Australia Tomorrow* 2026 population forecasts.

In interpreting the outputs of the analysis, it is important to note that additional capacity is assumed to be accommodated exclusively in areas that are currently considered as being capable of substantial further development. This means that the estimates generally do not account for possible land capacity increases due to infill and/or redevelopment of existing developed areas, and from this perspective are considered broad in nature and is likely to underestimate the potential overall 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 is not included in this paper at this stage.

3.1 Potential capacity of residential, rural residential and rural smallholdings lands

For ***residential***, ***rural residential*** and ***rural smallholdings*** land uses, potential capacity has been calculated according to scenarios that assume different average development densities that are applicable to each of those land uses. Potential additional lot and population yields have been estimated for each respective current and future land use category as they relate to each relevant settlement in the Shire of Irwin.

Table 4 presents the total potential additional lot and population yields for all relevant settlements across the local government area.

Tables 5 and 6 present the potential additional lot and population yields for individual settlements relevant to this analysis.

(Note: Table 4 consolidates all data from Tables 5 and 6, and essentially represents a set of total figures for the entire local government area.)

Table 4: Shire of Irwin - estimated capacity of residential, rural residential and rural smallholdings lands deemed capable of substantial further development in relevant settlements

Estimated capacity of residential, rural residential and rural smallholdings lands deemed capable of substantial further development				Estimated potential population yield from additional lots[2]
Relevant land-use category/ies	**Area (ha)**	**Average density / average lot size**	**Potential lot yield[1]**	
Residential	339	R10	2,204	5,510
		R20	4,407	11,018
		R30	6,611	16,528
Future residential	256	R10	1,664	4,160
		R20	3,328	8,320
		R30	4,992	12,480
Residential and future residential	**595**	**R10**	**3,868**	**9,670**
		R20	**7,735**	**19,338**
		R30	**11,603**	**29,008**
Rural residential	982	1 ha	737	1,843
		2 ha	368	920
		4 ha	184	460
Future rural residential	274	1 ha	206	515
		2 ha	103	258
		4 ha	51	128
Rural residential and future rural residential	**1,256**	**1 ha**	**943**	**2,358**
		2 ha	**471**	**1,178**
		4 ha	**235**	**588**
Rural smallholdings	6,945	8 ha	651	1,628
		20 ha	260	650
		40 ha	130	325
Future rural smallholdings	0	8 ha	0	0
		20 ha	0	0
		40 ha	0	0
Rural smallholdings and future rural smallholdings	**6,945**	**8 ha**	**651**	**1,628**
		20 ha	**260**	**650**
		40 ha	**130**	**325**

[1] For residential land, 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. For rural residential and rural smallholdings lands, a 25 per cent allowance from gross land areas has been applied to account for the relevant land requirements to support development for these particular land uses.

[2] The population yield per dwelling is calculated at 2.5 people per dwelling unit (average people per household for the Mid West SA3 – Australian Bureau of Statistics, 2011 Census).

Table 5: Dongara-Denison - estimated capacity of residential, rural residential and rural smallholdings lands deemed capable of substantial further development

Estimated capacity of residential, rural residential and rural smallholdings lands deemed capable of substantial further development				Estimated potential population yield from additional lots[2]
Relevant land-use category/ies	**Area (ha)**	**Average density / average lot size**	**Potential lot yield[1]**	
Residential	339	R10	2,204	5,510
		R20	4,407	11,018
		R30	6,611	16,528
Future residential	256	R10	1,664	4,160
		R20	3,328	8,320
		R30	4,992	12,480
Residential and future residential	**595**	**R10**	**3,868**	**9,670**
		R20	**7,735**	**19,338**
		R30	**11,603**	**29,008**
Rural residential	982	1 ha	737	1,843
		2 ha	368	920
		4 ha	184	460
Future rural residential	274	1 ha	206	515
		2 ha	103	258
		4 ha	51	128
Rural residential and future rural residential	**1,256**	**1 ha**	**943**	**2,358**
		2 ha	**471**	**1,178**
		4 ha	**235**	**588**
Rural smallholdings	2,163	8 ha	203	508
		20 ha	81	203
		40 ha	41	103
Future rural smallholdings	0	8 ha	0	0
		20 ha	0	0
		40 ha	0	0
Rural smallholdings and future rural smallholdings	**2,163**	**8 ha**	**203**	**508**
		20 ha	**81**	**203**
		40 ha	**41**	**103**

[1] For residential land, 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. For rural residential and rural smallholdings lands, a 25 per cent allowance from gross land areas has been applied to account for the relevant land requirements to support development for these particular land uses.

[2] The population yield per dwelling is calculated at 2.5 people per dwelling unit (average people per household for the Mid West SA3 – Australian Bureau of Statistics, 2011 Census).

Table 6: Dongara-Denison surrounds - estimated capacity of residential, rural residential and rural smallholdings lands deemed capable of substantial further development

Estimated capacity of residential, rural residential and rural smallholdings lands deemed capable of substantial further development				Estimated potential population yield from additional lots[2]
Relevant land-use category/ies	**Area (ha)**	**Average density / average lot size**	**Potential lot yield[1]**	
Residential	0	R10	0	0
		R20	0	0
		R30	0	0
Future residential	0	R10	0	0
		R20	0	0
		R30	0	0
Residential and future residential	**0**	**R10**	**0**	**0**
		R20	**0**	**0**
		R30	**0**	**0**
Rural residential	0	1 ha	0	0
		2 ha	0	0
		4 ha	0	0
Future rural residential	0	1 ha	0	0
		2 ha	0	0
		4 ha	0	0
Rural residential and future rural residential	**0**	**1 ha**	**0**	**0**
		2 ha	**0**	**0**
		4 ha	**0**	**0**
Rural smallholdings	4,782	8 ha	448	1,120
		20 ha	179	448
		40 ha	90	225
Future rural smallholdings	0	8 ha	0	0
		20 ha	0	0
		40 ha	0	0
Rural smallholdings and future rural smallholdings	**4,782**	**8 ha**	**448**	**1,120**
		20 ha	**179**	**448**
		40 ha	**90**	**225**

[1] For residential land, 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. For rural residential and rural smallholdings lands, a 25 per cent allowance from gross land areas has been applied to account for the relevant land requirements to support development for these particular land uses.

[2] The population yield per dwelling is calculated at 2.5 people per dwelling unit (average people per household for the Mid West SA3 – Australian Bureau of Statistics, 2011 Census).

Based on the potential population yield calculations in **Table 4**, estimated total population figures for the Shire of Irwin are provided for low, medium and high density development scenarios, which are presented in **Table 7.** Within each scenario, two subsets are considered:

- '**A**' considers the potential additional population yield of all residential, rural residential and rural smallholdings land capable of further development at the average density or lot sizes attributable to that particular scenario; and
- '**B**' considers the potential additional population yield of all residential, future residential, rural residential, future rural residential, rural smallholdings and future rural smallholdings land capable of further development at the average density or lot sizes attributable to that particular scenario.

These figures assume that all additional population in the local government area is accommodated on residential, rural residential and rural smallholdings lands deemed capable of substantial further development within the settlements considered.

Table 7: Shire of Irwin - estimated potential population capacity

Scenario[1] (average density of residential land / average lot size of rural residential land / average lot size of rural smallholdings land)		**Current population**[2]	**Estimated potential population yield from additional lots**[3]	**Estimated total population**[4]
1. Low density scenario (R10 / 4 ha / 40 ha)	**1A**	3,764	6,295	**10,059**
	1B	3,764	10,583	**14,347**
2. Medium density scenario (R20 / 2 ha / 20 ha)	**2A**	3,764	12,588	**16,352**
	2B	3,764	21,166	**24,930**
3. High density scenario (R30 / 1 ha / 8 ha)	**3A**	3,764	19,999	**23,763**
	3B	3,764	32,994	**36,758**

[1] Scenarios consider the estimated potential population capacity of the Shire of Irwin through estimating the potential additional population capacity of land within all relevant settlements with a residential land use that has been deemed capable of substantial further development.

[2] Shire of Irwin 2014 Preliminary Estimated Residential Population (Australian Bureau of Statistics, 3218.0 – Regional Population Growth 2013-14).

[3] As per the relevant assumptions as described for **Table 4**.

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

3.2 Comparison of potential capacity estimates with the *Western Australia Tomorrow* 2026 population forecasts

Western Australia Tomorrow (Western Australian Planning Commission, 2015) contains population forecasts produced by the State Demographer and are considered to be the State's official population forecasts.

Table 8 presents the *Western Australia Tomorrow* 2026 population forecasts for the Shire of Irwin. 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 2014 Preliminary Estimated Residential Population for the Shire of Irwin (3,764).

Significantly, these forecasts provide a point of comparison for interpreting the potential capacities of residential land as determined through this analysis.

Table 8: Shire of Irwin - Western Australia Tomorrow 2026 population forecasts (WAPC, 2015)

WA Tomorrow forecast bands	2026 forecast population	Additional population
Band A	**4,350**	586
Band B	**4,470**	706
Band C	**4,550**	786
Band D	**4,640**	876
Band E	**4,760**	996

3.2.1 Estimated additional residential land requirements to accommodate population forecasts

Table 9 presents estimates for the amount of residential land that would be required to accommodate the additional population for each of the population forecasts. 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 in relevant Shire of Irwin settlements as being capable of substantial further development. The figures under the 'surplus' column indicate the magnitude of the potential surplus of residential land from the extents currently identified once the additional forecast 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 forecast.

The estimates in **Table 9** assume:

- all population growth occurs on residential and future residential land that has been identified as being capable of substantial future development in this analysis. To keep the calculations relatively straightforward, they do not consider additional population being accommodated on rural residential or rural smallholdings lands, nor do they take into account potential increases in population occurring due to infill development. 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.

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 capable of substantial further development to cater for the population growth anticipated in the *Western Australia Tomorrow* 2026 population forecasts for the Shire of Irwin.

Please note that this component of the analysis only considers the local government as a whole as opposed to each individual settlement. This is primarily due to the alignment of available data inputs at this geographic scale.

Table 9: Shire of Irwin - estimated additional residential land requirements to accommodate population forecasts

	Residential[1]							
			R10 average density		R20 average density		R30 average density	
WA Tomorrow forecast bands	Additional population	Current and future land capable of substantial further development (ha)[2]	Est. land required to accom. additional population (ha)[3]	Surplus (ha)[4]	Est. land required to accom. additional population (ha)[3]	Surplus (ha)[4]	Est. land required to accom. additional population (ha)[3]	Surplus (ha)[4]
Band A	586	595	**36**	559	**18**	577	**12**	583
Band B	706	595	**43**	552	**22**	573	**14**	581
Band C	786	595	**48**	547	**24**	571	**16**	579
Band D	876	595	**54**	541	**27**	568	**18**	577
Band E	996	595	**61**	534	**31**	564	**20**	575

[1] These estimates assume that all population growth occurs on residential and future residential land that has been identified as being capable of substantial future development in this analysis. To keep the calculations relatively straightforward, they do not consider additional population being accommodated on rural residential or rural smallholdings lands, 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] Total area of current and future residential lands capable of substantial further development for entire local government area as per relevant figures from **Table 1**.

[3] A 35 per cent allowance from gross land areas to support land requirements for public open space and streets (Liveable Neighbourhoods, 2007) and a population yield per dwelling of 2.5 people per dwelling unit (average people per household for the Mid West SA3 – ABS 2011 Census) have been factored into the estimated areas of residential land required to accommodate forecast additional populations.

[4] A positive figure in this column indicates that the additional population under the relevant population forecast 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.