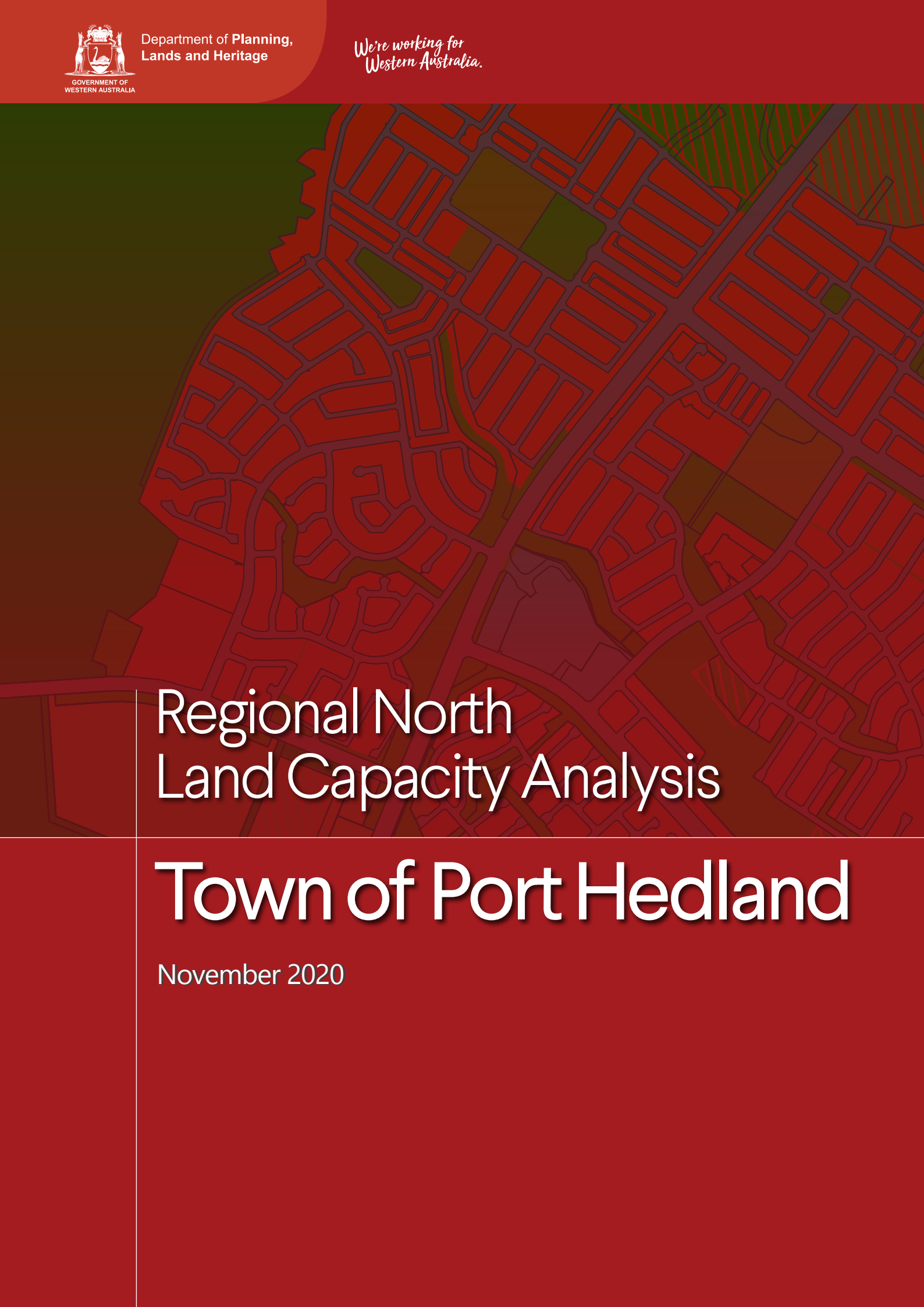




Department of Planning,  
Lands and Heritage

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An aerial map of Port Hedland, Western Australia, showing a dense network of roads and land parcels. The map is overlaid with a semi-transparent red layer. The text 'Regional North Land Capacity Analysis' is written in white over the map.

# Regional North Land Capacity Analysis

# Town of Port Hedland

November 2020

## Executive Summary

The Regional North Land Capacity Analysis provides an overview of existing and future land capacity based on forecast population growth for the settlements in the Town of Port Hedland. In particular, it examines the land identified for residential, rural residential, commercial and industrial use that is capable of substantial further development.

This study categorises current and future land uses according to broad land-use types. The land use types are effectively a rationalisation of existing zones and reserves of the local planning scheme. The 'future' land use types have been identified through consideration of a number of strategic documents, including local planning strategies and structure plans and growth plans where relevant.

For this report the following planning instruments that have informed the settlement land-use mapping:

- Town of Port Hedland Town Planning Scheme No.5; and
- Pilbara's Port City Growth Plan 2012.

When these planning instruments are reviewed, it is anticipated that the land capacity analysis will be used to guide and inform their future preparation.

Ultimately this analysis establishes the potential population yield of current and future residential lands for each relevant settlement, and then considers possible implications for the local government area's land supply situation in the context of the *Western Australia Tomorrow 2031* population forecasts.

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 2031* population forecasts for the Town of Port Hedland.

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The Department of Planning, Lands and Heritage acknowledges the traditional owners and custodians of this land. We pay our respect to Elders past and present, their descendants who are with us today, and those who will follow in their footsteps.

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This document is available in alternative formats on application to the Department of Planning, Lands and Heritage Communications Branch.

# 1. Introduction

The Regional North Land Capacity Analysis provides a broad overview of the existing and future land capacity of the settlements in the Town of Port Hedland with respect to forecast population growth. In particular, it examines land identified for residential, rural residential, commercial and industrial development.

This document, presents the land-use mapping and associated analysis as it relates to the applicable settlements in the Town of Port Hedland local government area.

Notably, the analysis suggests there is sufficient land capable of 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 2037* population forecasts for the Town of Port Hedland.

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

- assisting planning and provide direction for strategic infrastructure coordination;
- informing the preparation and/or review of local planning strategies, schemes and structure plans; and
- 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, Lands and Heritage (DPLH) has prepared mapping that captures the spatial extents of current and future land use in applicable settlement, within the Town of Port Hedland, this includes:

- Port Hedland (**Map 1**);
- Port Hedland Townsite (**Map 2**); and
- South Hedland Townsite (**Map 3**).

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 according to broad land-use types. It effectively rationalises and consolidates existing zones and reserves in the 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.

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 Town of Port Hedland include the:

- Town of Port Hedland Town Planning Scheme No.5; and
- Pilbara's Port City Growth Plan 2012.

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

<b>Residential</b>	Areas that are predominantly zoned in relevant local planning schemes for residential land uses
<b>Future residential</b>	Areas that have been identified predominantly for future residential land uses through relevant strategic planning processes
<b>Rural residential</b>	Areas that are predominantly zoned in relevant local planning schemes for rural residential land uses
<b>Future Rural Residential</b>	Areas that have been identified predominantly for future rural residential land uses through relevant strategic planning processes
<b>Rural Smallholdings</b>	Areas that are predominantly currently zoned in relevant local planning schemes for rural smallholdings land uses
<b>Future Rural Smallholdings</b>	Areas that have been identified predominantly for future rural smallholdings land uses through relevant strategic planning processes
<b>Commercial</b>	Areas that are predominantly zoned in relevant local planning schemes for commercial land uses
<b>Future commercial</b>	Areas that have been identified predominantly for future commercial land uses through relevant strategic planning processes
<b>Industrial</b>	Areas that are predominantly zoned in relevant local planning schemes for industrial land uses
<b>Future industrial</b>	Areas that have been identified predominantly for future industrial land uses through relevant strategic planning processes
<b>Rural</b>	Areas that are predominantly zoned in relevant local planning schemes for rural land uses
<b>Future rural</b>	Areas that have been identified predominantly for future rural land uses through relevant strategic planning processes
<b>Public purposes and utilities</b>	Areas that are predominantly reserved in relevant local planning schemes for public purposes and/or utilities
<b>Future public purposes and utilities</b>	Areas that have been identified predominantly for future public purposes and/or utilities through relevant strategic planning processes
<b>Recreation</b>	Areas that are predominantly reserved in relevant local planning schemes for recreation purposes
<b>Future recreation</b>	Areas that have been identified predominantly for future recreation purposes through relevant strategic planning processes
<b>Conservation</b>	Areas that are predominantly reserved in relevant local planning schemes for conservation purposes
<b>Future conservation</b>	Areas that have been identified predominantly for future conservation purposes through relevant strategic planning processes
<b>Railway</b>	Areas that are reserved in the relevant local planning schemes for the purpose of railway.
<b>Investigation area</b>	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, rural residential, commercial** and **industrial** purposes. Generally, the assessment has involved a visual interpretation of aerial photography and cadastral information.

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

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.'

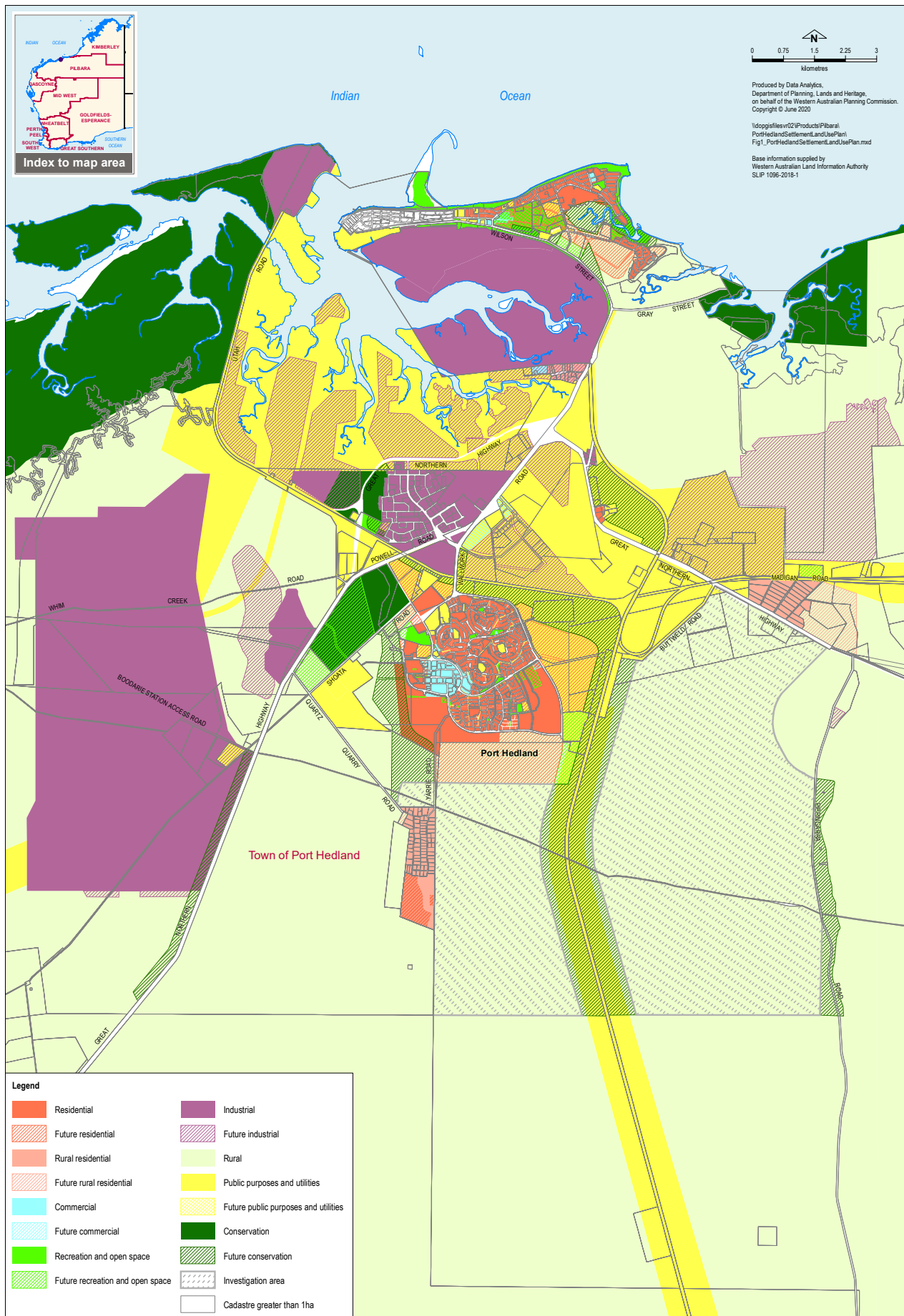
**Capable of substantial further development:** Land 'capable of substantial further development' consists of undeveloped or underdeveloped land on greenfield sites, where subdivision reflective of its zoning is yet to exist. In some instances however, land may have conditional subdivision approval or 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.

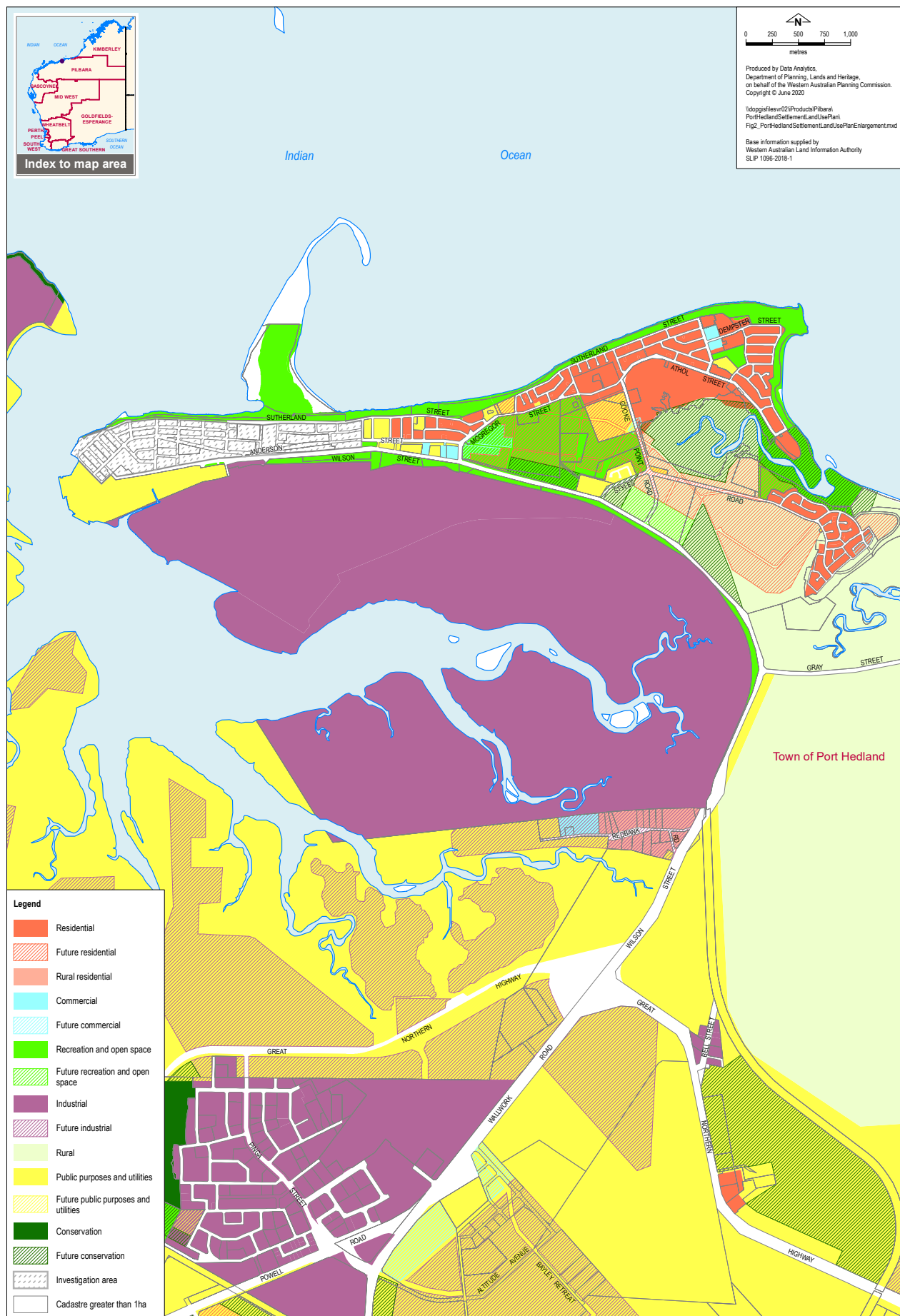
**Table 1:** Town of Port Hedland – development status of land in relevant settlements

	Total (ha)	Developed (ha)	Capable of substantial further development (ha)
Residential	963	402	561
Future Residential	844	0	844
<b>Residential and Future Residential</b>	<b>1,807</b>	<b>402</b>	<b>1,405</b>
Rural Residential	302	152	150
Future Rural Residential	234	0	234
<b>Rural Residential and Future Rural Residential</b>	<b>536</b>	<b>152</b>	<b>384</b>
Commercial	79	54	25
Future Commercial	47	0	47
<b>Commercial and Future Commercial</b>	<b>126</b>	<b>54</b>	<b>72</b>
Industrial	6,296	761	5,535
Future Industrial	3,355	0	3,355
<b>Industrial and Future Industrial</b>	<b>9,651</b>	<b>761</b>	<b>8,890</b>



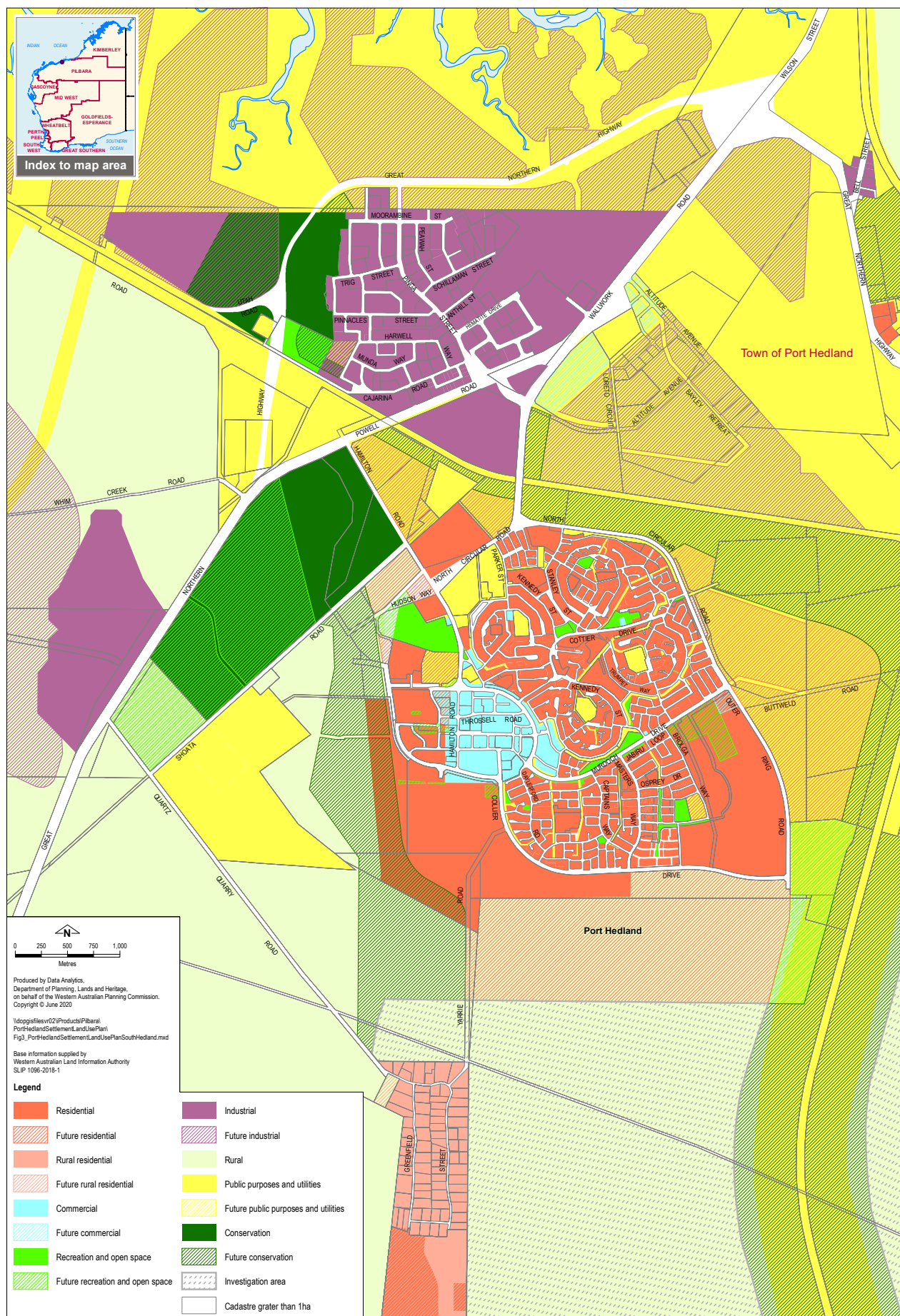


**Map 1: Port Hedland land use map**



Map 2: Port Hedland land use map - enlargement





Map 3: South Hedland land use map - enlargement

### 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 Town of Port Hedland. The Department of Planning, Lands and Heritage 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 for the local government area's residential land situation in the context of the *Western Australia Tomorrow 2031* population forecasts.
- As a part of this analysis the area defined as the West End has been excluded from the calculations as the land is subject to a WAPC Improvement Plan and Scheme.

**Table 2** in section 3.1 summarises the estimated additional capacity of each applicable land-use category for relevant settlements within the Town of Port Hedland. Further analysis is presented in section 3.2 that relates this information to *Western Australia Tomorrow 2031* population forecasts.

When considering 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 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 likely 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 and remote 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 such an analysis is not included in this paper at this stage.

#### 3.1 Potential capacity of residential lands

For **residential** and **rural residential** 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 Town of Port Hedland.

**Table 2** presents the total potential additional lot and population yields for all relevant settlement across the local government area.

**Table 2:** Town of Port Hedland – estimated capacity of residential and rural residential 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 <sup>2</sup>
Relevant land-use category	Area (ha)	Average density / average lot size	Potential lot yield <sup>1</sup>	
Residential	561	R10	3,647	10,212
		R20	7,295	20,426
		R30	10,942	30,638
Future Residential	844	R10	5,486	15,361
		R20	10,972	30,722
		R30	16,458	46,082
Residential and Future Residential	1,405	R10	9,133	25,573
		R20	18,267	51,148
		R30	27,400	76,720
Rural Residential	150	1 ha	113	316
		2 ha	56	157
		4 ha	28	78
Future Rural Residential	234	1 ha	176	493
		2 ha	88	246
		4 ha	44	123
Rural Residential and Future Rural Residential	384	1 ha	289	809
		2 ha	144	403
		4 ha	72	201

<sup>1</sup> 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.

<sup>2</sup> The population yield per dwelling is calculated at 2.8 people per dwelling unit (Average people per household for the Port Hedland (T) LGA – Australian Bureau of Statistics, 2016 Census).

Based on the potential population yield calculations in **Table 2**, estimated total population figures for the Town of Port Hedland are provided for low, medium and high-density development scenarios, which are presented in **Table 3**. 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 3:** Town of Port Hedland – estimated potential population capacity

Scenario <sup>1</sup> (average density of residential land / average lot size of rural residential land / average lot size for rural smallholdings land)		Current population <sup>2</sup>	Estimated potential population yield from additional lots <sup>3</sup>	Estimated total population <sup>4</sup>
1. Low-density scenario (R10 / 4 ha / 40 ha)	1A	14,975	10,290	25,265
	1B	14,975	25,774	40,749
2. Medium-density scenario (R20 / 2 ha / 20 ha)	2A	14,975	20,583	35,558
	2B	14,975	51,551	66,526
3. High-density scenario (R30 / 1 ha / 8 ha)	3A	14,975	30,954	45,929
	3B	14,975	77,529	92,504

<sup>1</sup> Scenarios consider the estimated potential population capacity of the Town of Port Hedland 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.

<sup>2</sup> Town of Port Hedland Local Government Area, 2018 Preliminary Estimated Residential Population (Australian Bureau of Statistics, 3218.0 – Regional Population Growth 2016-18).

<sup>3</sup> As per the relevant assumptions as described for **Table 2**.

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

## 3.2 Comparison of potential capacity estimates with the **Western Australia Tomorrow 2031** population forecasts

*Western Australia Tomorrow 2031* (Western Australian Planning Commission, 2018) contains population forecasts produced by the State Demographer and are considered to be the State's official population forecasts.

**Table 4** presents the *Western Australia Tomorrow 2031* population forecasts for the Town of Port Hedland.

The figures in the 'additional population' column are the difference between the 2031 forecast population and the Australian Bureau of Statistics 2018 Preliminary Estimated Residential Population for the Town of Port Hedland (14,975).

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

For further information on these forecasts, please refer to: [www.dplh.wa.gov.au/information-and-services/land-supply-and-demography/western-australia-tomorrow-population-forecasts](http://www.dplh.wa.gov.au/information-and-services/land-supply-and-demography/western-australia-tomorrow-population-forecasts)

**Table 4:** Town of Port Hedland - *Western Australia Tomorrow 2031* population forecasts (WAPC, 2018)

WA Tomorrow forecast bands	2031 forecast population	Additional population
WA Tomorrow – Band A	14,380	-595
WA Tomorrow – Band B	15,550	575
WA Tomorrow – Band C	16,020	1,045
WA Tomorrow – Band D	16,540	1,565
WA Tomorrow – Band E	17,715	2,740

<sup>1</sup> The additional population figure reflects the difference between the 2031 forecast population and the local government area's current population as per the latest issue of ABS 3218.0 – Regional Population Growth.

### 3.2.1 Estimated additional residential land requirements to accommodate population forecasts

**Table 5** 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 the relevant Town of Port Hedland settlement 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 forecasts.

The estimates in **Table 5** 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 2031* population forecasts for the Town of Port Hedland.

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 5:** Town of Port Hedland – estimated additional residential land requirements to accommodate population forecasts

WA Tomorrow forecast bands	Additional population	Current and future land capable of substantial further development (ha) <sup>2</sup>	Residential <sup>1</sup>					
			R10 average density		R20 average density		R30 average density	
			Estimated land required to accommodate additional population (ha) <sup>3</sup>	Surplus (ha) <sup>4</sup>	Estimated land required to accommodate additional population (ha) <sup>3</sup>	Surplus (ha) <sup>4</sup>	Estimated land required to accommodate additional population (ha) <sup>3</sup>	Surplus (ha) <sup>4</sup>
WA Tomorrow – Band A	-595	1,405	-33	1,438	-16	1,421	-11	1,416
WA Tomorrow – Band B	575	1,405	32	1,374	16	1,389	11	1,395
WA Tomorrow – Band C	1,045	1,405	57	1,348	29	1,376	19	1,386
WA Tomorrow – Band D	1,565	1,405	86	1,319	43	1,362	29	1,376
WA Tomorrow – Band E	2,740	1,405	151	1,255	75	1,330	50	1,355

<sup>1</sup> 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. They therefore likely overestimate residential land requirements.

<sup>2</sup> Total area of current and future residential lands capable of substantial further development for entire local government area.

<sup>3</sup> A 35% 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 2.8 people per dwelling unit (average people per household for the Average people per household for the Port Hedland (T) LGA – Australian Bureau of Statistics, 2016 Census) have been factored into the estimated areas of residential land required to accommodate forecast additional populations.

<sup>4</sup> 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.