



Department of Planning,
Lands and Heritage

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An aerial map of the Shire of East Pilbara, 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

Shire of East Pilbara

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 Shire of East Pilbara. 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:

- Shire of East Pilbara Local Planning Scheme No.4
- Draft Shire of East Pilbara Local Planning Strategy 2016.

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 Shire of East Pilbara.

Contents

1. Introduction	2
2. Settlement land use mapping	2
2.1 Current and future land use	2
2.2 Development status	4
3. Capacity analysis	8
3.1 Potential capacity of residential lands	8
3.2 Comparison of potential capacity estimates with the <i>Western Australia Tomorrow 2031</i> population forecasts	12
Table 1: Shire of East Pilbara – development status of land in relevant settlements	4
Table 2: Newman – development status of land	5
Table 3: Marble Bar – development status of land	5
Table 4: Shire of East Pilbara – development status of land	9
Table 5: Newman – estimated capacity of residential land deemed capable of substantial further development	10
Table 6: Marble Bar – estimated capacity of residential land deemed capable of substantial further development	11
Table 7: Shire of East Pilbara – estimated potential population capacity	12
Table 8: Shire of East Pilbara – <i>Western Australia Tomorrow 2031</i> <i>population forecasts</i> (WAPC, 2018)	12
Table 9: Shire of East Pilbara – estimated additional residential land requirements to accommodate population forecasts	13
Map 1- Newman Land Use Map	6
Map 2- Marble Bar Land Use Map	7

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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1. Introduction

The Regional North Land Capacity Analysis provides a broad overview of the existing and future land capacity of the settlements in the Shire of East Pilbara with respect to forecast population growth. In particular, it examines land identified for residential, rural residential, commercial and industrial use that is capable of substantial further development.

This document has been prepared for discussion purposes and presents the mapping and associated analysis as it relates to the applicable settlements in the Shire of East Pilbara 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 2031* population forecasts for the Shire of East Pilbara.

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

- assisting regional 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, such as 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 settlements. Within the Shire of East Pilbara, this includes:

- Newman (**Map 1**)
- Marble Bar (**Map 2**).

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 of the local planning scheme, along with the 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 general consideration of:

- current zonings and reservations within applicable local planning schemes
- 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 reflects 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 East Pilbara include the:

- Shire of East Pilbara Local Planning Scheme No.4
- Draft Shire of East Pilbara Local Planning Strategy 2016.

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

Residential	Areas that are predominantly 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 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
Commercial	Areas that are predominantly 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
Industrial	Areas that are predominantly 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 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
Public purposes and utilities	Areas that are predominantly reserved in relevant local planning schemes for public purposes and/or utilities
Future public purposes and utilities	Areas that have been identified predominantly for future public purposes and/or utilities through relevant strategic planning processes
Recreation	Areas that are predominantly 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 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
Railway	Areas that are reserved in the relevant local planning schemes for the purpose of railway.
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 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 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.

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

Developed: land is broadly considered as being 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 **tables 2 and 3**, which summarise the development status of each applicable land-use category for the individual settlements.

Table 1: Shire of East Pilbara – development status of land in relevant settlements

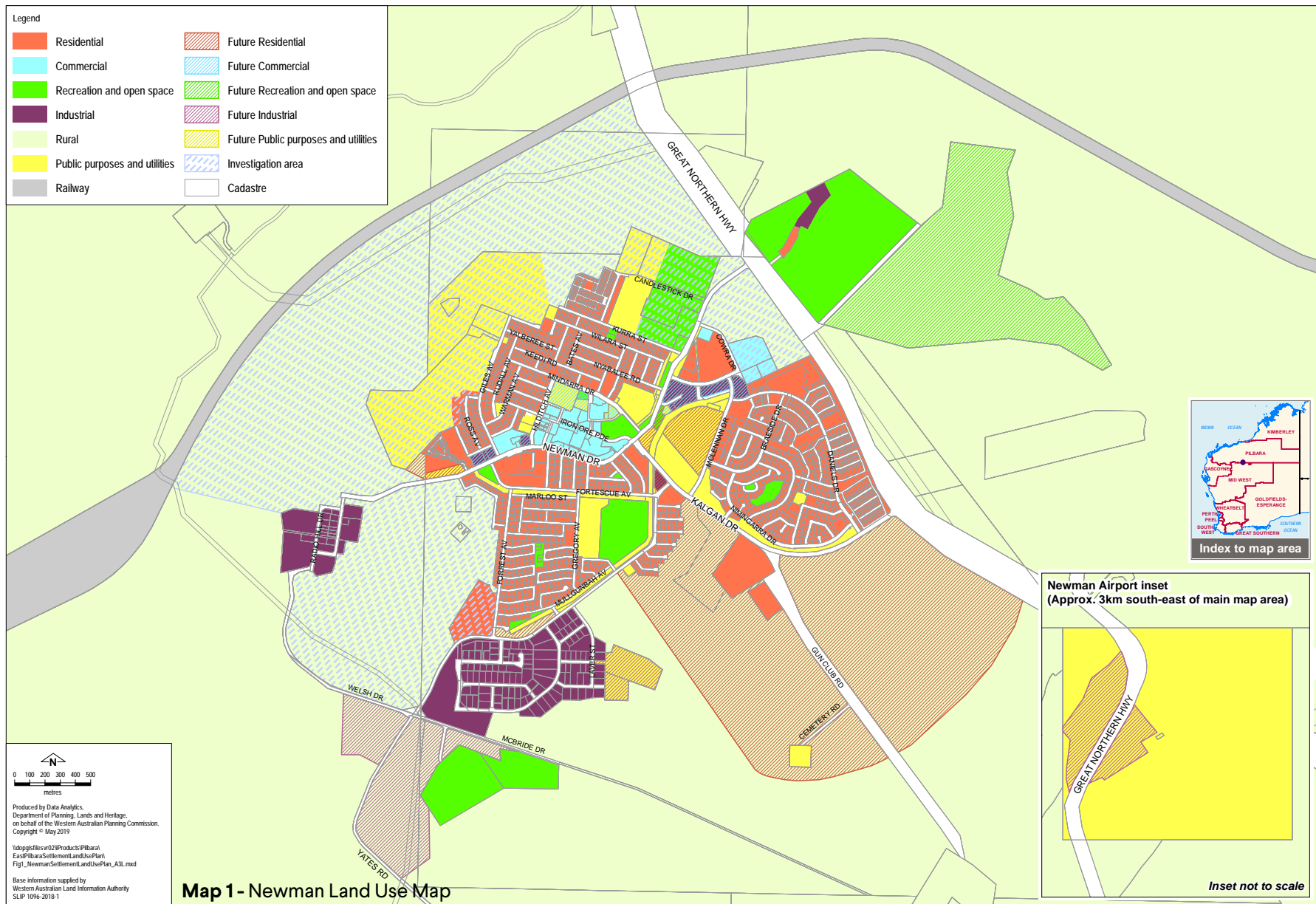
	Total (ha)	Developed (ha)	Capable of substantial further development (ha)
Residential	236	178	59
Future Residential	277	0	277
Residential and Future Residential	513	178	336
Rural Residential	12	10	1
Future Rural Residential	0	0	0
Rural Residential and Future Rural Residential	12	10	1
Commercial	25	17	8
Future Commercial	11	0	11
Commercial and Future Commercial	35	17	19
Industrial	78	59	19
Future Industrial	182	0	182
Industrial and Future Industrial	260	59	201

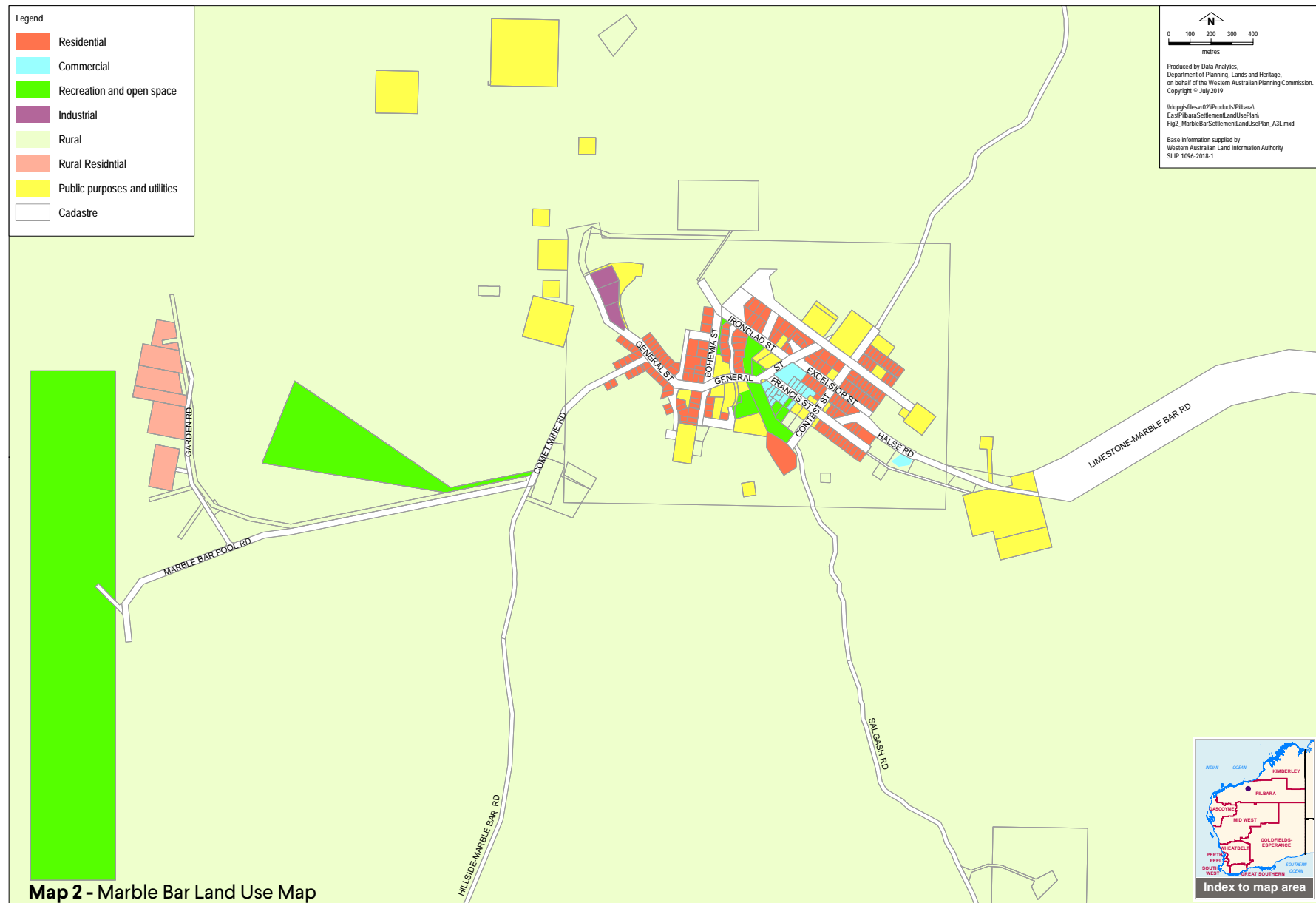
Table 2: Newman – development status of land

	Total (ha)	Developed (ha)	Capable of substantial further development (ha)
Residential	213	165	48
Future Residential	277	0	277
Residential and Future Residential	490	165	325
Commercial	22	15	7
Future Commercial	11	0	11
Commercial and Future Commercial	32	15	18
Industrial	76	58	18
Future Industrial	182	0	182
Industrial and Future Industrial	257	58	199

Table 3: Marble Bar – development status of land

	Total (ha)	Developed (ha)	Capable of substantial further development (ha)
Residential	23	13	11
Future Residential	0	0	0
Residential and Future Residential	23	13	11
Rural Residential	12	10	1
Future Rural Residential	0	0	0
Rural Residential and Future Rural Residential	12	10	1
Commercial	3	2	1
Future Commercial	0	0	0
Commercial and Future Commercial	3	2	1
Industrial	3	1	2
Future Industrial	0	0	0
Industrial and Future Industrial	3	1	2





3. Capacity analysis

The assessment of the development status of current and future land use areas enables a broad-level capacity analysis of residential development potential of land within the Shire of East Pilbara. 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
- considers possible implications for the local government area's land supply situation in the context of the *Western Australia Tomorrow 2031* population forecasts.

Tables in section 3.1 summarise the estimated additional capacity of each applicable land-use category for relevant settlements within the Shire of East Pilbara. 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 identified 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 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 Shire of East Pilbara.

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** to represent a set of total figures for the entire local government area).

Table 4: Shire of East Pilbara – estimated capacity of residential, rural residential and rural small holdings 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	Area (ha)	Average density / average lot size	Potential lot yield ¹	
Residential	59	R10	382	1,070
		R20	763	2,136
		R30	1,145	3,206
Future Residential	277	R10	1,801	5,043
		R20	3,601	10,083
		R30	5,402	15,126
Residential and Future Residential	336	R10	2,183	6,113
		R20	4,364	12,219
		R30	6,547	18,332
Rural Residential	1	1 ha	1	3
		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	1	1 ha	1	3
		2 ha	0	0
		4 ha	0	0

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 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 2.8 people per dwelling unit (Average people per household for the East Pilbara (S) LGA – Australian Bureau of Statistics, 2016 Census).

Table 5: Newman – 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	Area (ha)	Average density / average lot size	Potential lot yield ¹	
Residential	48	R10	311	871
		R20	622	1,742
		R30	932	2,610
Future Residential	277	R10	1,801	5,043
		R20	3,601	10,083
		R30	5,402	15,126
Residential and Future Residential	325	R10	2,112	5,914
		R20	4,223	11,825
		R30	6,334	17,736

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

² The population yield per dwelling is calculated at 2.8 people per dwelling unit (Average people per household for the East Pilbara (S) LGA - Australian Bureau of Statistics, 2016 Census).

Table 6: Marble Bar – 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	Area (ha)	Average density / average lot size	Potential lot yield ¹	
Residential	11	R10	71	199
		R20	142	398
		R30	213	596
Future Residential	0	R10	0	0
		R20	0	0
		R30	0	0
Residential and Future Residential	11	R10	71	199
		R20	142	398
		R30	213	596
Rural Residential	1	1 ha	1	3
		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	1	1 ha	1	3
		2 ha	0	0
		4 ha	0	0

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 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 2.8 people per dwelling unit (Average people per household for the East Pilbara (S) LGA - Australian Bureau of Statistics, 2016 Census).

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

- ‘A’ considers the potential additional population yield of all residential and rural residential land capable of further development at the average density or lot sizes attributable to that particular scenario
- ‘B’ considers the potential additional population yield of all residential, future residential, rural residential and future rural residential 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 East Pilbara – estimated potential population capacity

Scenario ¹ (average density of residential land / average lot size of rural residential land / average lot size for 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	10,970	1,070	12,040
	1B	10,970	6,113	17,083
2. Medium-density scenario (R20 / 2 ha / 20 ha)	2A	10,970	2,136	13,106
	2B	10,970	12,219	23,189
3. High-density scenario (R30 / 1 ha / 8 ha)	3A	10,970	3,209	14,179
	3B	10,970	18,335	29,305

¹ Scenarios consider the estimated potential population capacity of the Shire of East Pilbara 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 East Pilbara Local Government Area, 2018 Preliminary Estimated Residential Population (Australian Bureau of Statistics, 3218.0 – Regional Population Growth 2017-18).

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' 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 8 presents the *Western Australia Tomorrow 2031* population forecasts for the Shire of East Pilbara.

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 Shire of East Pilbara (10,970).

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 visit: www.dplh.wa.gov.au/information-and-services/land-supply-and-demography/western-australia-tomorrow-population-forecasts

Table 8: Shire of East Pilbara – *Western Australia Tomorrow 2031* population forecasts (WAPC, 2018)

WA Tomorrow forecast bands	2031 forecast population	Additional population
WA Tomorrow – Band A	9,365	-1,605
WA Tomorrow – Band B	10,280	-690
WA Tomorrow – Band C	10,690	-280
WA Tomorrow – Band D	11,065	95
WA Tomorrow – Band E	11,995	1,025

¹ 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 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 the relevant Shire of East Pilbara 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 relating to that required to accommodate the additional population from the relevant forecasts.

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 2031* population forecasts for the Shire of East Pilbara.

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

Table 9: Shire of East Pilbara – 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) ²	Residential ¹					
			R10 average density		R20 average density		R30 average density	
			Estimated land required to accommodate additional population (ha) ³	Surplus (ha) ⁴	Estimated land required to accommodate additional population (ha) ³	Surplus (ha) ⁴	Estimated land required to accommodate additional population (ha) ³	Surplus (ha) ⁴
WA Tomorrow – Band A	-1,605	336	0	336	0	336	0	336
WA Tomorrow – Band B	-690	336	0	336	0	336	0	336
WA Tomorrow – Band C	-280	336	0	336	0	336	0	336
WA Tomorrow – Band D	95	336	5	331	3	333	2	334
WA Tomorrow – Band E	1,025	336	56	279	28	308	19	317

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. They therefore likely overestimate residential land requirements.

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

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 2.8 people per dwelling unit (average people per household for the Average people per household for the East Pilbara (S) LGA – Australian Bureau of Statistics, 2016 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.