



Department of Planning,
Lands and Heritage

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A stylized, semi-transparent map of the Kimberley region in Western Australia serves as the background for the upper half of the cover. The map shows a network of roads and land parcels in various shades of green and blue.

Kimberley Region Land Capacity Analysis

Shire of Derby-West Kimberley

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 Derby-West Kimberley. 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 Derby-West Kimberley Local Planning Scheme No.5 (2001) and Local Planning Scheme No.7 (1998)
- Shire of Derby-West Kimberley Local Planning Strategy 2013
- Fitzroy Futures Town Plan (2009)

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 Derby-West Kimberley.

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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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1. Introduction

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

This document presents the land-use mapping and associated analysis as it relates to the applicable settlements in the Shire of Derby-West Kimberley 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 Derby-West Kimberley.

The information presented in this document may provide a basis for a range of regional and local 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 Shire of Derby-West Kimberley, this includes:

- Derby (**Maps 1 and 2**)
- Fitzroy (**Map 3**)
- Camballin (**Map 4**)

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 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 Derby-West Kimberley include the:

- Shire of Derby-West Kimberley Local Planning Scheme No.5
- Shire of Derby-West Kimberley Local Planning Scheme No.7
- Shire of Derby-West Kimberley Strategy 2013
- Fitzroy Futures Town Plan (2009)

As a general guide, a broad description of what each landuse category considers 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
Rural smallholdings	Areas that are predominantly zoned in relevant local planning schemes for rural smallholdings land uses
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
Tourist	Areas that are predominantly zoned in relevant local planning schemes for tourist
Future Tourist	Areas that have been identified predominantly for future tourism land uses through relevant strategic planning processes
Rural	Areas that are predominantly zoned in relevant local planning schemes for rural land uses
Public purposes and utilities	Areas that are predominantly reserved in relevant local planning schemes for public purposes and/or utilities
Recreation and open space	Areas that are predominantly reserved in relevant local planning schemes for recreation purposes
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 land uses through relevant strategic planning processes
Port	Areas that are predominantly zoned or reserved in relevant local planning schemes for port operations
Aboriginal settlement	Areas that are predominantly identified as a recommended settlement zone in relevant layout plans, and/or are zoned in relevant local planning schemes for the purposes of Aboriginal settlement

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, tourism, commercial, industrial, rural residential** and **rural small holdings** 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 Derby, Fitzroy and Camballin maps extent have been assessed and considered as being 'developed' or 'capable of substantial further development' as described below.

Developed: 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, 3** and **4**, which summarise the development status of each applicable land- use category for the individual settlements.

Table 1: Shire of Derby-West Kimberley – development status of land

	Total (ha)	Developed (ha)	Capable of substantial further development (ha)
Residential	147	117	30
Future Residential	106	0	106
Residential and Future Residential	253	117	136
Rural Residential	745	481	264
Future Rural Residential	0	0	0
Rural Residential and Future Rural Residential	745	481	264
Rural Smallholdings	22	22	0
Future Rural Smallholdings	0	0	0
Rural Smallholdings and Future Rural Smallholdings	22	22	0
Commercial	42	39	3
Future Commercial	3	0	3
Commercial and Future Commercial	45	39	6
Tourism	79	44	34
Future Tourism	0	0	0
Tourist and Future Tourist	79	44	34
Industrial	104	66	38
Future Industrial	0	0	0
Industrial and Future Industrial	104	66	38

Table 2: Derby – development status of land

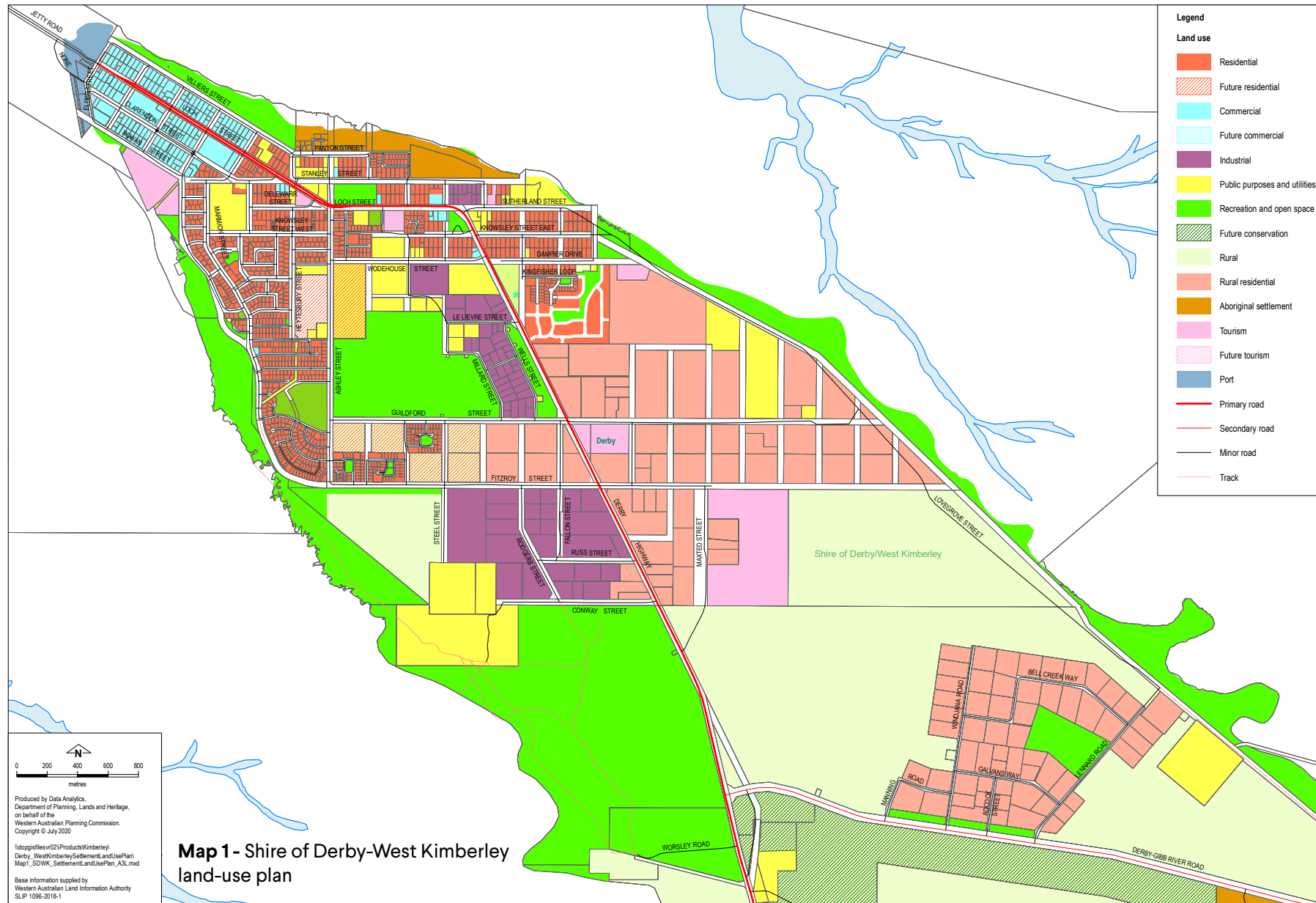
	Total (ha)	Developed (ha)	Capable of substantial further development (ha)
Residential	130	102	28
Future Residential	47	0	47
Residential and Future Residential	177	102	75
Rural Residential	739	475	264
Future Rural Residential	0	0	0
Rural Residential and Future Rural Residential	739	475	264
Rural Smallholdings	0	0	0
Future Rural Smallholdings	0	0	0
Rural Smallholdings and Future Rural Smallholdings	0	0	0
Commercial	38	35	3
Future Commercial	3	0	3
Commercial and Future Commercial	41	35	6
Tourism	55	20	34
Future Tourism	0	0	0
Tourist and Future Tourist	55	20	34
Industrial	93	56	36
Future Industrial	0	0	0
Industrial and Future Industrial	93	56	36

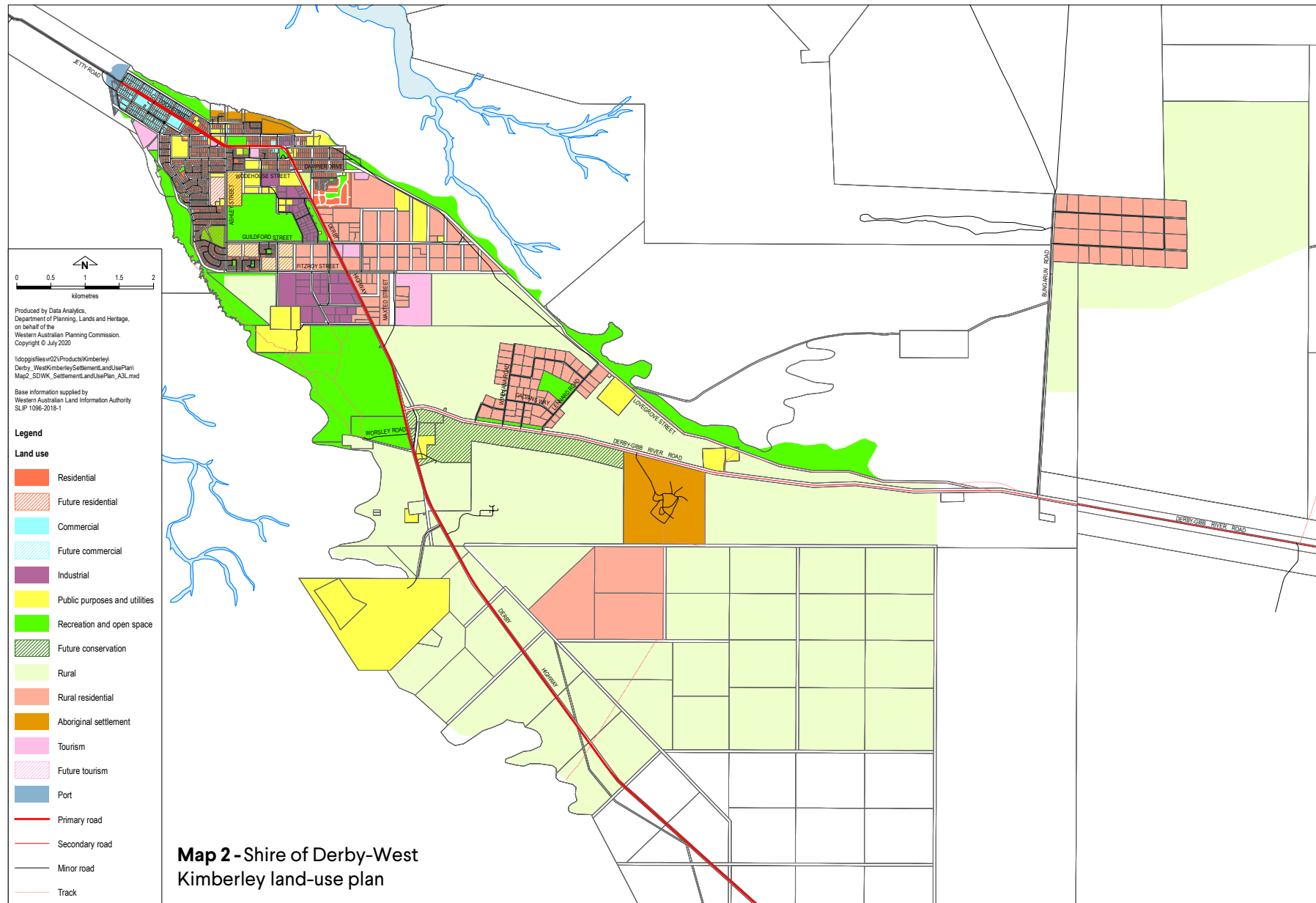
Table 3: Fitzroy Crossing – development status of land

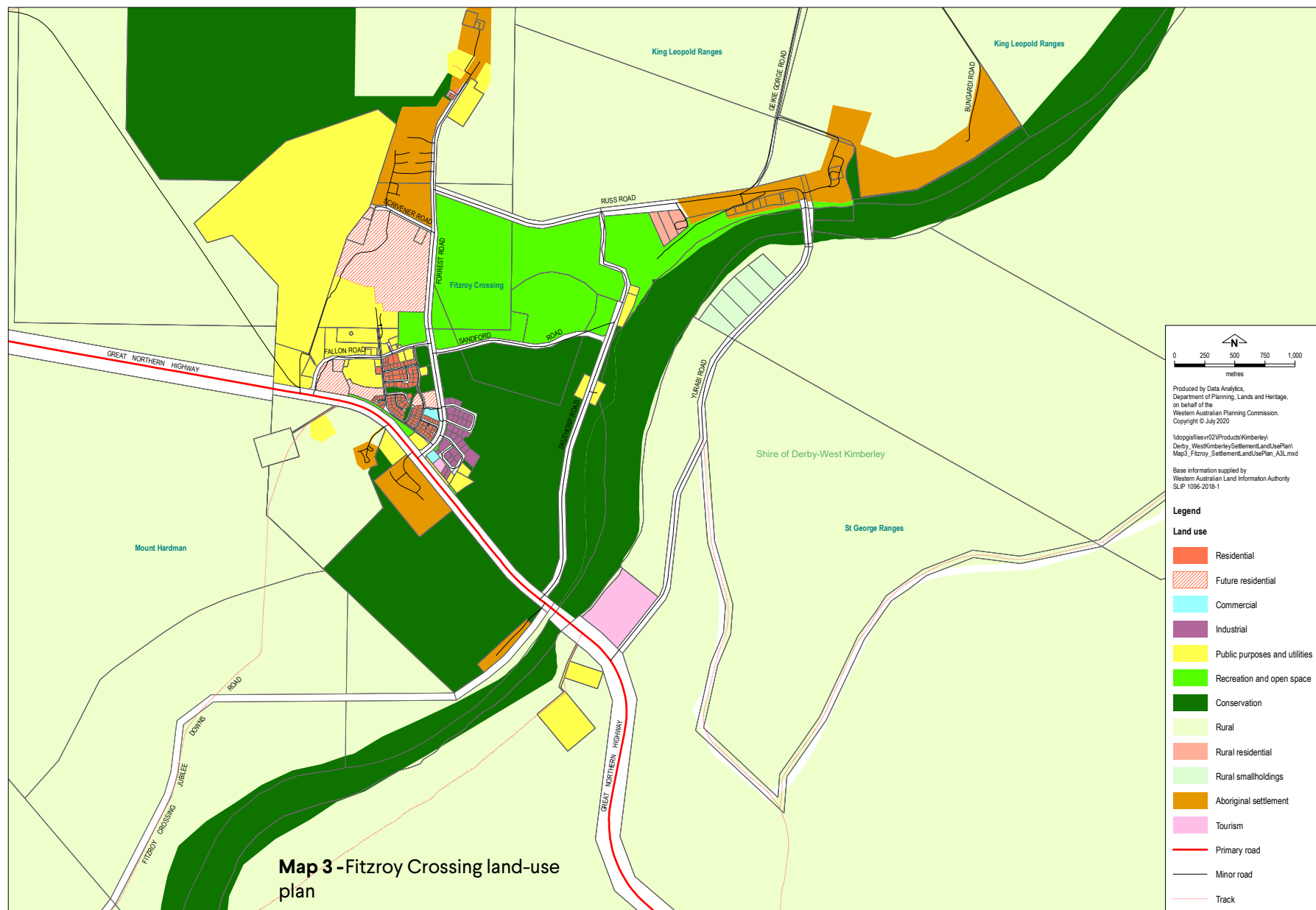
	Total (ha)	Developed (ha)	Capable of substantial further development (ha)
Residential	12	12	0
Future Residential	59	0	59
Residential and Future Residential	71	12	59
Rural Residential	6	6	0
Future Rural Residential	0	0	0
Rural Residential and Future Rural Residential	6	6	0
Rural Smallholdings	22	22	0
Future Rural Smallholdings	0	0	0
Rural Smallholdings and Future Rural Smallholdings	22	22	0
Commercial	2	2	0
Future Commercial	0	0	0
Commercial and Future Commercial	2	2	0
Tourism	21	21	0
Future Tourism	0	0	0
Tourist and Future Tourist	21	21	0
Industrial	9	9	0
Future Industrial	0	0	0
Industrial and Future Industrial	9	9	0

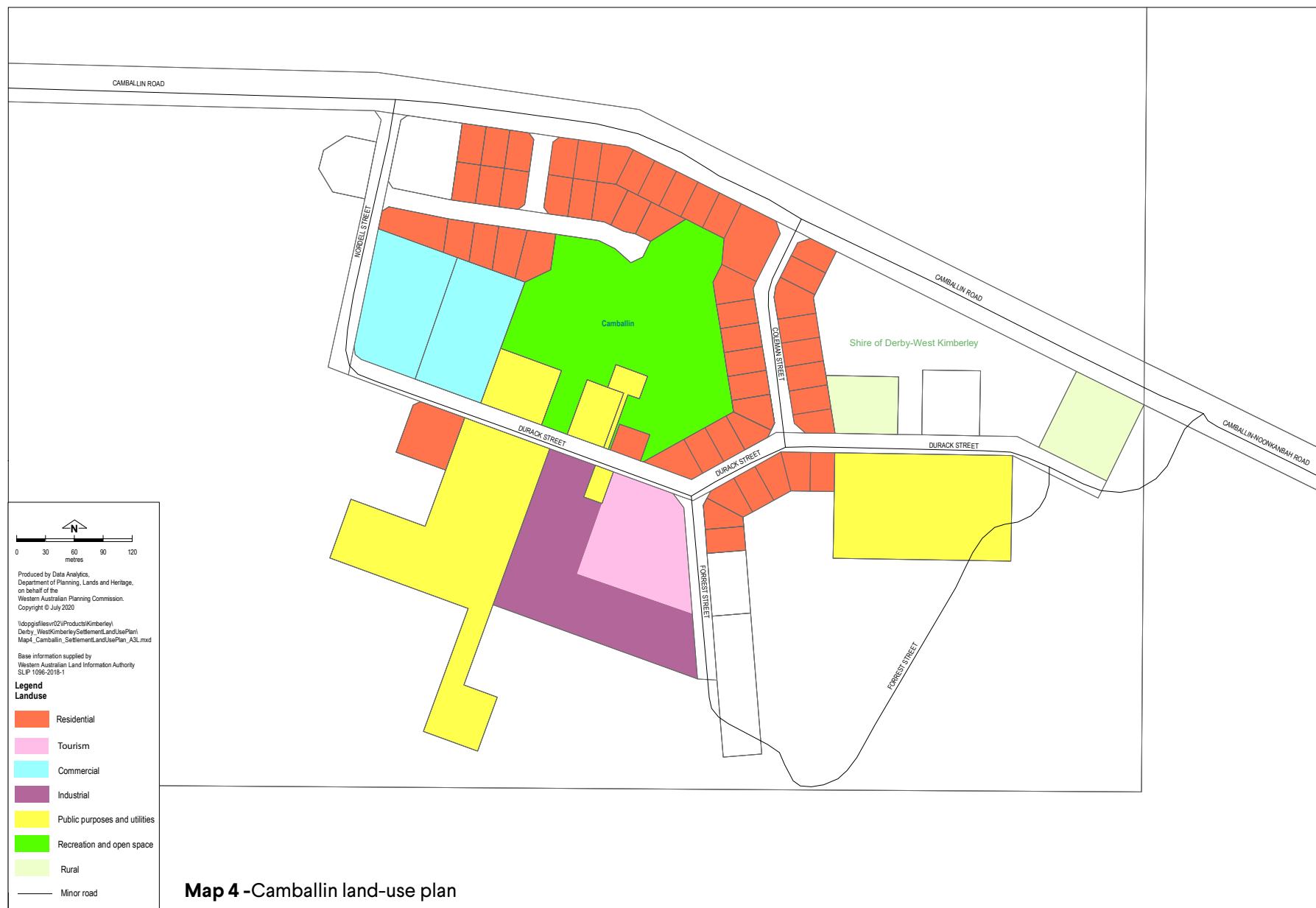
Table 4: Camballin – development status of land

	Total (ha)	Developed (ha)	Capable of substantial further development (ha)
Residential	5	3	2
Future Residential	0	0	0
Residential and Future Residential	5	3	2
Rural Residential	0	0	0
Future Rural Residential	0	0	0
Rural Residential and Future Rural Residential	0	0	0
Rural Smallholdings	0	0	0
Future Rural Smallholdings	0	0	0
Rural Smallholdings and Future Rural Smallholdings	0	0	0
Commercial	2	2	0
Future Commercial	0	0	0
Commercial and Future Commercial	2	2	0
Tourism	3	3	0
Future Tourism	0	0	0
Tourist and Future Tourist	3	3	0
Industrial	2	0	2
Future Industrial	0	0	0
Industrial and Future Industrial	2	0	2









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 Derby-West Kimberley. 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 residential land situation in the context of the *Western Australia Tomorrow 2031* population forecasts.

Tables in section 3.1 summarises the estimated additional capacity of each applicable land-use category for relevant settlements within the Shire of Derby-West Kimberley. Further analysis is presented in section 3.2 that relates this information to the *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 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 and is presented in the following tables.

Table 5: Shire of Derby-West Kimberley – 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	30	R10	197	552
		R20	393	1,100
		R30	590	1,652
Future Residential	106	R10	689	1,929
		R20	1,378	3,858
		R30	2,067	5,788
Residential and Future Residential	136	R10	886	2,481
		R20	1,771	4,958
		R30	2,657	7,440
Rural Residential	264	1 ha	198	554
		2 ha	99	277
		4 ha	49	137
Future Rural Residential	0	1 ha	0	0
		2 ha	0	0
		4 ha	0	0
Rural Residential and Future Rural Residential	264	1 ha	198	554
		2 ha	99	277
		4 ha	49	137
Rural Smallholdings	22	8 ha	2	6
		20 ha	1	3
		40 ha	0	0
Future Rural Smallholdings	0	8 ha	0	0
		20 ha	0	0
		40 ha	0	0
Rural Smallholdings and Future Rural Smallholdings	22	8 ha	2	6
		20 ha	1	3
		40 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 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 2.8 people per dwelling unit (Average people per household for the Derby-West Kimberley LGA – Australian Bureau of Statistics, 2016 Census).

Table 6: Derby – estimated capacity of residential, 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 ²
Relevant land-use category	Area (ha)	Average density / average lot size	Potential lot yield ¹	
Residential	28	R10	184	515
		R20	367	1,028
		R30	551	1,543
Future Residential	47	R10	306	857
		R20	611	1,711
		R30	917	2,568
Residential and Future Residential	75	R10	490	1,372
		R20	978	2,739
		R30	1,468	4,111
Rural Residential	264	1 ha	198	554
		2 ha	99	277
		4 ha	49	137
Future Rural Residential	0	1 ha	0	0
		2 ha	0	0
		4 ha	0	0
Rural Residential and Future Rural Residential	264	1 ha	198	554
		2 ha	99	277
		4 ha	49	137

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 2.8 people per dwelling unit (Average people per household for the Derby-West Kimberley LGA – Australian Bureau of Statistics, 2016 Census).

Table 7: Fitzroy – estimated capacity of 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 ²
Relevant land-use category	Area (ha)	Average density / average lot size	Potential lot yield ¹	
Residential	0	R10	0	0
		R20	0	0
		R30	0	0
Future Residential	59	R10	384	1,075
		R20	767	2,148
		R30	1,151	3,223
Residential and Future Residential	59	R10	384	1,075
		R20	767	2,148
		R30	1,151	3,223

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 2.8 people per dwelling unit (Average people per household for the Derby-West Kimberley LGA – Australian Bureau of Statistics, 2016 Census).

Table 8: Camballin – estimated capacity of 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 ²
Relevant land-use category	Area (ha)	Average density / average lot size	Potential lot yield ¹	
Residential	2	R10	13	36
		R20	26	73
		R30	39	109
Future Residential	0	R10	0	0
		R20	0	0
		R30	0	0
Residential and Future Residential	2	R10	13	36
		R20	26	73
		R30	39	109

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 2.8 people per dwelling unit (Average people per household for the Derby-West Kimberley LGA – Australian Bureau of Statistics, 2016 Census).

Based on the potential population yield calculations in **Table 5**, estimated total population figures for the Shire of Derby-West Kimberley are provided for low, medium and high density development scenarios, which are presented in **Table 9**.

Two subsets are considered within each scenario:

- **'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
- **'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 in Derby-West Kimberley.

Table 9: Shire of Derby-West Kimberley – 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	8,255	689	8,944
	1B	8,255	2,618	10,873
2. Medium-density scenario (R20 / 2 ha / 20 ha)	2A	8,255	1,380	9,635
	2B	8,255	5,238	13,493
3. High-density scenario (R30 / 1 ha / 8 ha)	3A	8,255	2,212	10,467
	3B	8,255	8,000	16,255

¹ Scenarios consider the estimated potential population capacity of the Shire of Derby-West Kimberley through estimating the potential additional population capacity of land with a residential land use that has been deemed capable of substantial further development.

² Shire of Derby-West Kimberley 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 5**.

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 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 10 presents the *Western Australia Tomorrow 2031* population forecasts for the Shire of Derby-West Kimberley.

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 Derby-West Kimberley (8,255).

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

Table 10: Shire of Derby-West Kimberley – *Western Australia Tomorrow 2031* population forecasts (WAPC, 2018)

WA Tomorrow forecast bands	2031 forecast population	Additional population
WA Tomorrow – Band A	8,000	-255
WA Tomorrow – Band B	8,720	465
WA Tomorrow – Band C	9,180	925
WA Tomorrow – Band D	9,670	1,415
WA Tomorrow – Band E	10,400	2,145

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 11 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 in Derby-West Kimberley identified 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 forecast.

The estimates in **Table 11** 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 Derby-West Kimberley.

Please note, this component of the analysis 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 11: Shire of Derby-West Kimberley – 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	-255	136	-14	150	-7	143	-5	141
WA Tomorrow – Band B	465	136	26	111	13	123	9	128
WA Tomorrow – Band C	925	136	51	85	25	111	17	119
WA Tomorrow – Band D	1,415	136	78	58	39	97	26	110
WA Tomorrow – Band E	2,145	136	118	18	59	77	39	97

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 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 2.8 people per dwelling unit (average people per household for the Derby-West Kimberley (LGA) – ABS 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.