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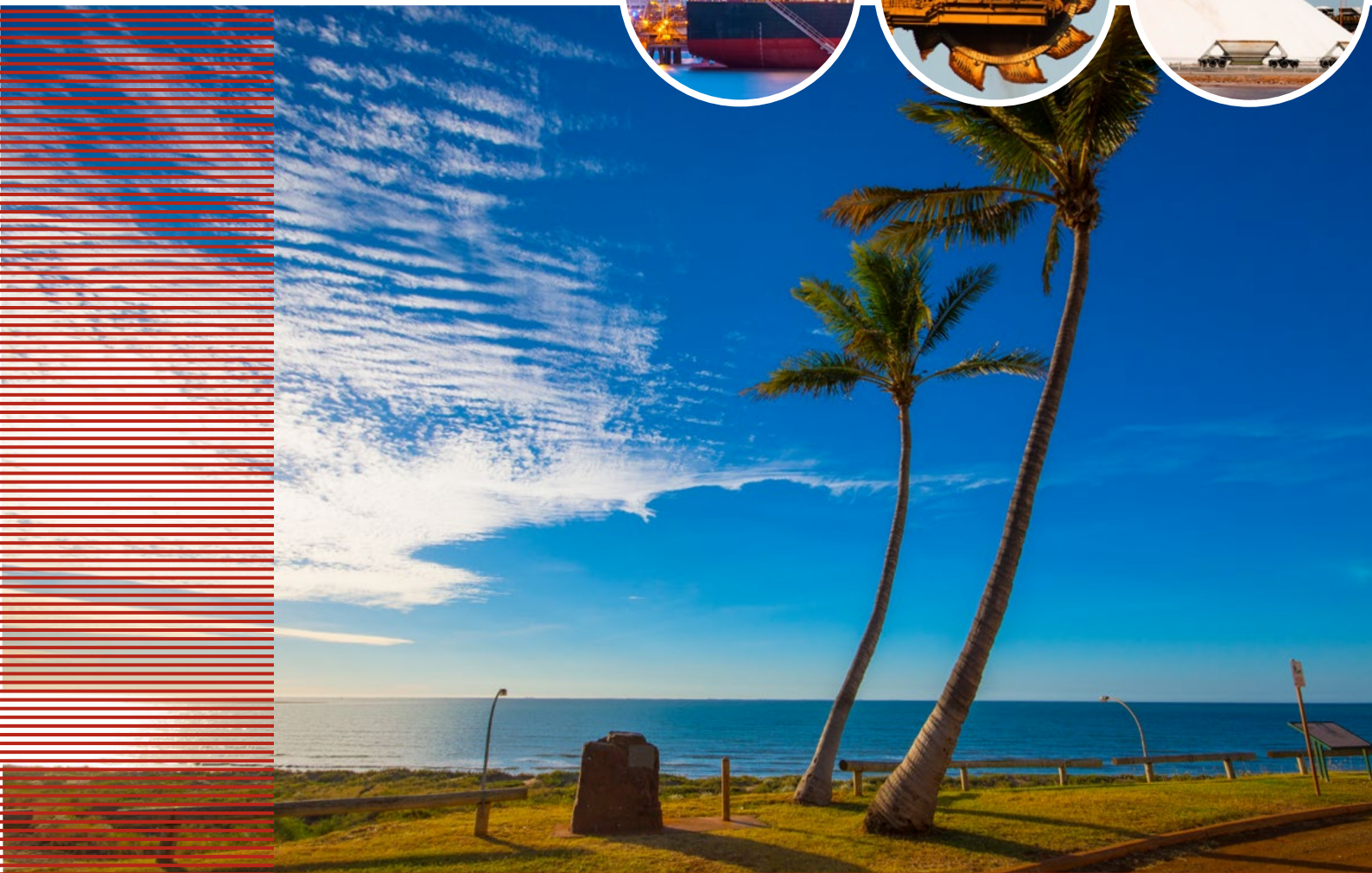
Western
Australian
Planning
Commission

Pilbara

Port Hedland

Regional Land Supply Assessment

April 2022



Port Hedland

Regional Land Supply Assessment



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1 Introduction

1.1 Regional Land Supply Assessments and the Urban Development Program

The Regional Land Supply Assessments series set out to assess land for future residential, industrial and commercial uses, providing context for the land use planning and infrastructure provision required to meet demand across selected regional centres in Western Australia. Regional Land Supply Assessments are prepared by the Department of Planning, Lands and Heritage (the department) on behalf of the Western Australian Planning Commission (WAPC) to fulfil the requirements for tracking and monitoring land supply, as outlined in Section 14 of the *Planning and Development Act 2005*. The role of WAPC includes developing models to better understand land supply and development, as well as to promote this understanding as part of the land use planning process and better align the provision of infrastructure.

The Regional Land Supply Assessments series is one of a suite of products produced as part of the Urban Development Program (UDP). The UDP monitors land supply and promotes the timely delivery of residential, industrial and commercial land, targeted regional centres and areas of activity. The information presented in Regional Land Supply Assessments assists State infrastructure agencies, public utilities, local governments and the private sector in decision making and forward planning.

The reports include key information on:

- demand drivers specific to each regional centre, including the major economic factors that influence employment and population growth, and therefore, the demand for land and housing
- zoned land supply for residential, industrial and commercial uses
- development constraints
- recent and future land development activity and
- existing and required physical infrastructure.

Regional Land Supply Assessments are the result of consultation with several stakeholders, including state government agencies, local governments and servicing authorities. Recent editions of Regional Land Supply Assessments publications can be accessed [online](#).

1.2 Purpose

This Port Hedland Regional Land Supply Assessment report (the report) provides an analysis of residential, industrial and commercial land supply across the Port Hedland and South Hedland townsites. The data has been prepared to reflect a snapshot of residential, industrial and commercial land supply at April 2022.

This report has been prepared to examine the significant investment wave occurring in the Pilbara and the implications this is likely to have on land supply with reference to the Town of Port Hedland's (the Town) Local Planning Strategy (Planning Strategy) and Local Planning Scheme (LPS7), both of which were endorsed by the WAPC in 2021.

This report also complements the Department's Regional North Land Capacity Analysis report for the Town. Regional North Land Capacity Analysis reports have been prepared by the Department for selected local government areas (LGAs) within the Kimberley and Pilbara regions. They provide a broad overview of the existing and future land capacity of settlements in the Town, with respect to forecast population growth. They also provide a basis for more detailed land supply analysis, which is contained in this report.

2 Key Takeaways

2.1. Pilbara investment outlook

- The Pilbara is on the verge of another significant investment wave, with \$159 billion to \$170 billion worth of project capital forecast to be invested in the region over the next decade.

2.2. Population

- The townsites of Port Hedland and South Hedland (townsites) had an estimated resident population of 14,804 people in June 2020.
- Over the decade to 30 June 2020, the townsites recorded an average annual growth in population of approximately 0.6 per cent (average annual increase of 43 residents). This growth was lower than the state (1.5 per cent) and marginally lower than the Pilbara region (0.7 per cent).
- Since 2019, the average annual growth rate for the townsites has been higher than the State average and the Pilbara and is trending upwards.
- WAPC WA Tomorrow (Band D) population forecasts projects the townsites to reach a population of 16,465 by 2031. Achieving this population from a 2016 baseline would require an annual increase of 141 persons or an average annual growth rate of 0.94 per cent.
- At the 2016 Census, the median age for the townsites was 31 years, which is considerably younger than the median age for Western Australia (36 years) and the nation (38 years).

2.3. Vacant lots

- Data shows there is a substantial stock of vacant lots for residential development in the Town. As at August 2021, 402 vacant lots were identified on land zoned for residential/rural living purposes.

2.4. Residential land

- There is sufficient stock of residential land in the townsites to accommodate population growth to address the current investment cycle and into the long term.

In total, land capacity modelling has determined a potential supply of approximately 6,000 dwellings – 1,100 in the short term (within 0-5 years), 2,100 in the medium term (6-10 years) and 2,800 in the longer term (10+ years).

- The supply of land identified for residential development in keeping with the Planning Strategy has the capacity to support a population of approximately 26,000 people in the townsites – which represents approximately 11,000 additional people.
- The identified dwelling supply has the capacity to not only support projected demand for dwellings to 2036, but also provide a surplus stock of 4,800 additional dwellings.
- A hypothetical residential temporal land supply of up to 85 years has been identified consisting of existing and planned development areas.
- Approximately 60 hectares and 366 hectares of urban expansion land has been identified in Port Hedland and South Hedland respectively. Future growth in Port Hedland is planned to occur in the East End Urban Village and Spinifex Hill precincts. In South Hedland, the opportunities for expansion are within the established locations of Walnut Grove, Lawson, Shellborough, Cassia and Koombana as well as on the periphery of the townsite.
- At the end of the September 2021 quarter, there were 342 residential lots with conditional approval. Continuity of the lot supply pipeline is evident to address short to medium term demand for residential development.

2.5 Dwelling approvals

- Over the past six financial years to June 2021, approvals were issued for the construction of only 39 houses and 29 dwelling units/other residential buildings, which equates to an average of 11 dwelling approvals per year.

2.6 Industrial land

- There is sufficient stock of industrial land in the townsites to cater for anticipated industrial expansion. 390 hectares of industrial expansion land is available in Wedgefield Industrial Estate which includes 36 vacant lots. Further significant land is also available in the Boodarie Strategic Industrial Area comprising of approximately 4,000 hectares for heavy and noxious industrial uses.
- Areas zoned Industry within the Wedgefield and West End industrial estates currently accommodate a range of noxious, heavy, general and light industry uses. It is expected that noxious, heavy and general industry uses will be relocated to Boodarie SIA once it is developed.
- Key industrial projects in the Pilbara that have the potential to influence the Town are BHP's South Flank Iron Ore Mine, FMG's Iron Bridge Magnetite Mine and Eliwana Iron Ore Mine and Rio Tinto's Gudai-Darri (Koodaideri) Iron Ore Mine.

2.7 Commercial land

- There is sufficient stock of commercial land in the townsites to cater for anticipated commercial expansion.
- Land zoned Centre, Commercial, Mixed Use, Service Commercial and Tourism covers approximately 100 hectares. These are predominantly clustered into two precincts in the west end of Port Hedland and the South Hedland town centre. Eleven per cent of this land is undeveloped.
- There are 24 vacant commercial lots in the South Hedland town centre.

- There is significant commercial/light industrial land that has been earmarked for future commercial/light industry expansion on the Port Hedland International Airport site. The future use of this land is subject to further investigation.

2.8 Rural living

- There are four rural living estates, located at Boodarie, Pippingarra and Redbank totalling approximately 360 hectares of zoned land. Of these estates, 47 per cent are undeveloped.
- Limited rural living development has been undertaken within the Town. Since the creation of the Town's rural living estates (not including Quartz Estate), rural living subdivision and development activity has slowed considerably, particularly over the past decade.

2.9 Real estate market

- As at December 2021, the median price for homes in Port Hedland was \$600,000 and for South Hedland it was \$384,000.
- Median prices for home and units have risen sharply since 2017, most notably in South Hedland with increases of 9 per cent and 119 per cent up to the December 2021 quarter. For the same period in Port Hedland, homes and unit median prices have increased by 46 and 42 per cent respectively.
- The median price of land since 2017 has seen a 50 per cent drop in South Hedland and a substantial 317 per cent growth in Port Hedland.
- Rental listings in the townsites are at a historical low, which is an indicator of rental shortages.

2.10 Native Title and Aboriginal heritage

- There is one Native Title determination that has been made over a significant part of the Town including all the development outlook areas by the Kariyarra People.

- One Indigenous Land Use Agreement (ILUA) is in place known as the Kariyarra and State Indigenous ILUA. This will deliver significant land and monetary benefits to the Kariyarra people, whilst enabling existing and future expansion of the Port Hedland Port and development of residential land in South Hedland.
- The proposal to locate a range of large scale noxious, heavy strategic and downstream processing industries on the Boodarie SIA will be subject to the negotiation of a new ILUA with the Kariyarra Aboriginal Corporation.
- There is a total of 30 known Aboriginal heritage places within the townsites of which, 15 are registered Aboriginal sites and eight relate to lodged heritage places. There are a further seven stored data recordings that are acknowledged.
- Much of the land in the townsites has not been the subject of adequate Aboriginal heritage surveys and it is likely that numerous unrecorded and unregistered Aboriginal heritage sites exist in the area.

2.11 Infrastructure

- There is sufficient infrastructure (existing or planned) in the townsites to accommodate projected population growth to 2031. Expansion to existing infrastructure is limited to additional water storage, additional waste-water treatment infrastructure, upgrades to the existing road network and to the South Hedland Power Station.
- As the Town's population increases, there may be a need for improved connectivity between residential areas and areas of activity and employment by way of increasing public transport services and expanding the current network.

3 Research Context

3.1 Population and distribution

- Data from the 2016 census indicates the localities of Pretty Pool, Shellborough, Cassia, Walnut Grove and Koombana are the most densely populated within the Town.
- Over the past two decades to 30 June 2020, the townsites grew by 19.3 per cent which is lower than the growth experienced by Pilbara (59 per cent) and Western Australia (40 per cent).

3.2 Housing type, tenure and occupancy

- Approximately 79 per cent of all dwellings in the townsites are rented, which is significantly higher than the State average of 28.3 per cent. This indicates long term tenants living in company housing and a transient population base.
- In the Port Hedland SA2 area, separate houses accounted for just 58 per cent of occupied private dwellings. This compares to 77 per cent for South Hedland, 82 per cent for Rest of WA (GCCSA¹) and 77 per cent for Western Australia.

3.3 Economic demand drivers

- The State's economy grew by 4.3 per cent in 2020-21 which was the strongest growth of all the States and the highest growth in eight years since the peak of the mining boom in 2012.
- WA's economy has recovered from the initial impact of COVID-19 with strong support from the mining industry and high commodity prices, although it is still being affected by restrictions to prevent the virus from spreading into the community.
- Western Australia's economy is likely to feel the impact of any prolonged economic weakness in China as iron ore accounts for 80 per cent of the State's exports.

Notwithstanding, from 2022-2023, export volumes for iron ore are expected to increase and LNG producers will operate close to capacity.

- China's demand for other minerals (e.g. lithium, copper, nickel etc) and energy is expected to rise in line with the global transition towards decarbonisation.
- Major mining companies such as BHP, Rio Tinto and FMG have significant projects that will ramp up over the coming years.
- The current investment cycle in the Pilbara is being driven by the iron ore and LNG sectors as well as new investment in renewable energy projects.
- The iron ore industry has \$11.8 billion worth of new projects under construction and an additional \$4.8 billion under consideration. The longer-term viability of these projects is contingent on investment decisions that are yet to be announced.
- Key projects in the Town are the Spoilbank Marina Development (\$187.5 million) and Lumsden Point Logistics Hub and associated wharves.

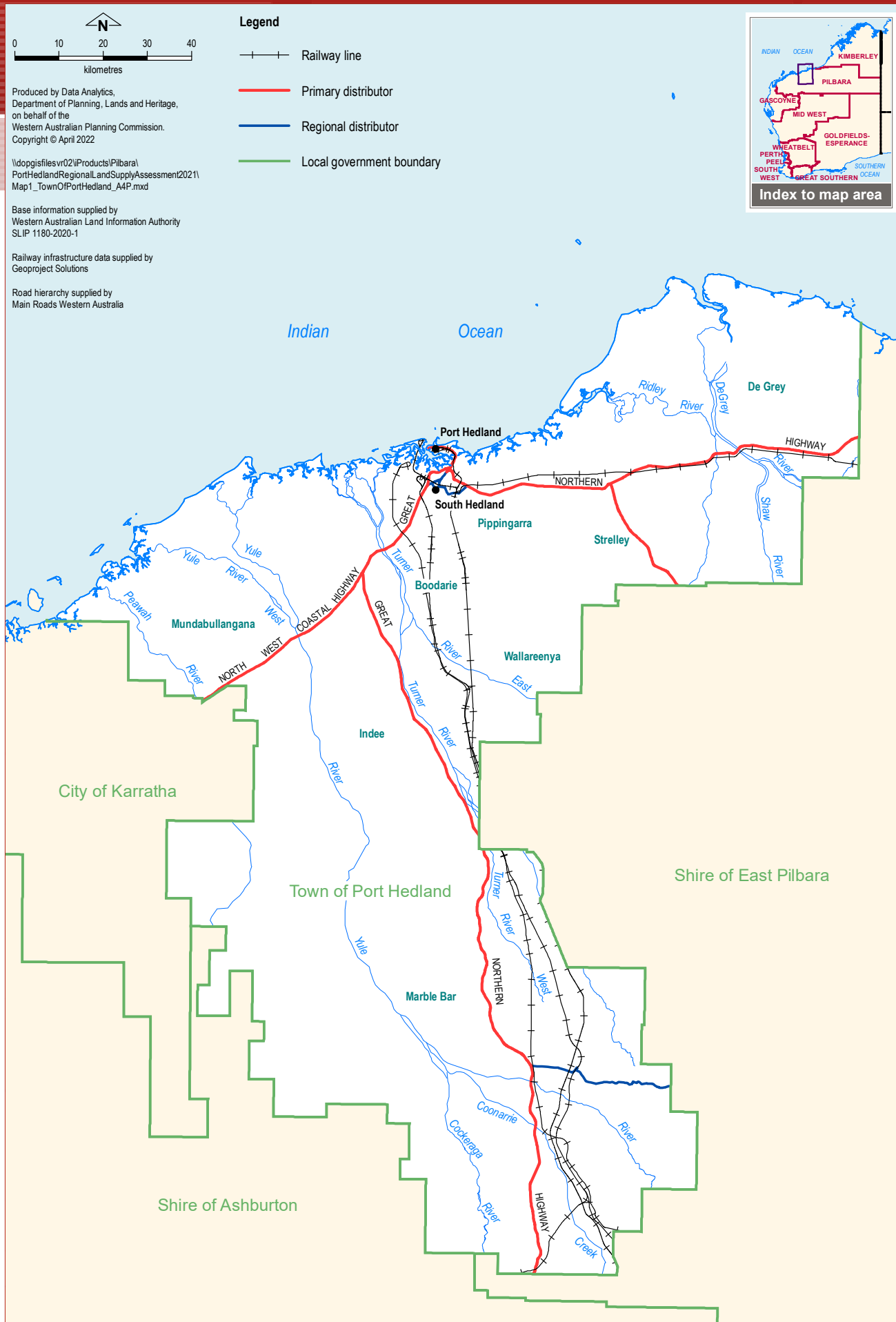
3.4 Future growth

- The *Planning Strategy* sets out a plan to concentrate most of the future population within key locations. In the Port Hedland townsite, expansion is proposed within the confines of the precincts of Spinifex Hill and the East End Urban Village. In South Hedland, opportunities for expansion have been generally prioritised to the locations of Walnut Grove, Lawson, Shellborough, Cassia and Koombana. Medium to longer-term development has been identified on the western and eastern edges of the South Hedland townsite.
- The *Planning Strategy* identifies a significant amount of development investigation land which relates to the Port Hedland Airport Light Industry/Commercial Park. Future development options for this site will be explored in keeping with the Port Hedland International

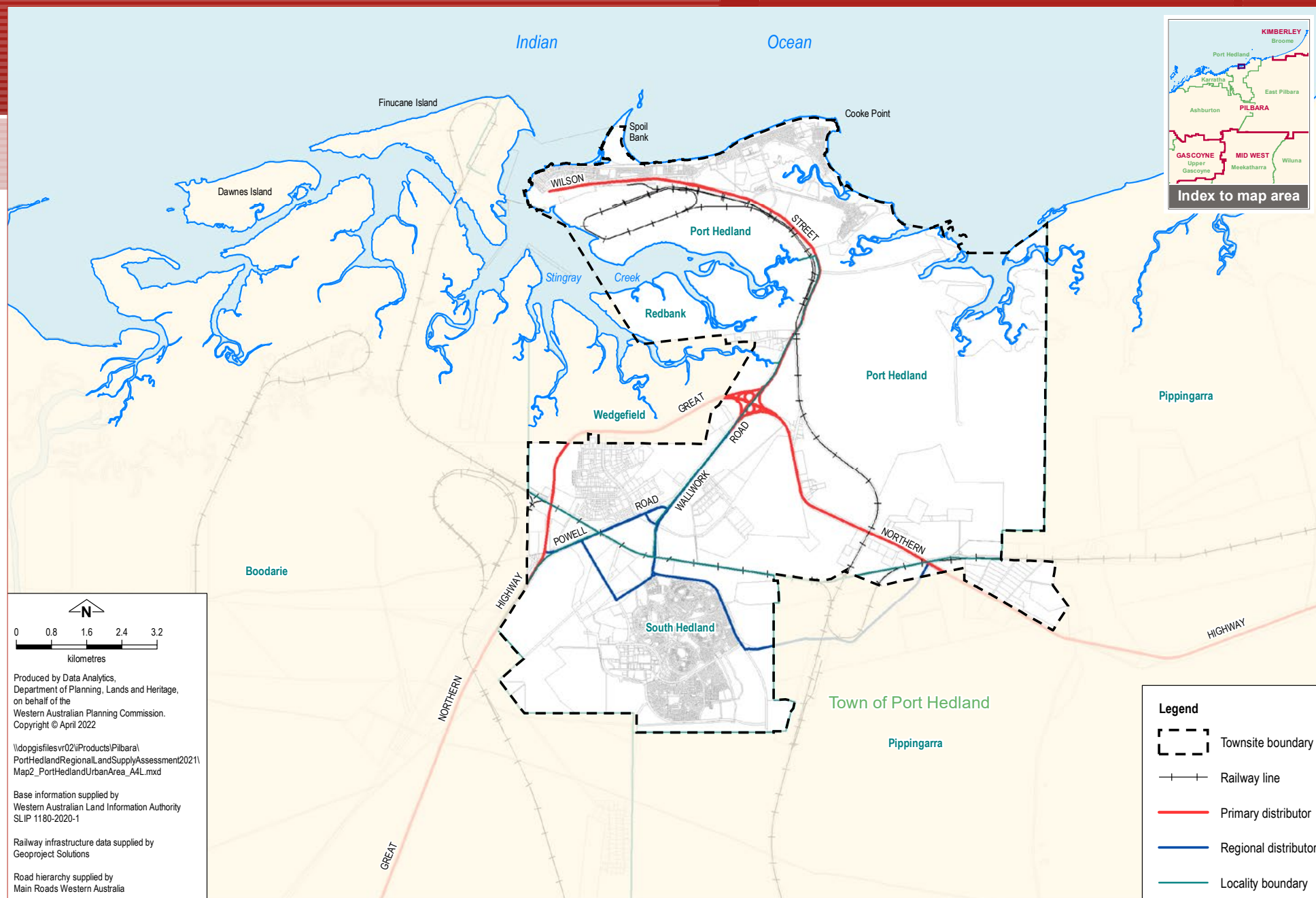
¹ Greater Capital City Statistical Area – as detailed in Appendix A

Airport Master Plan. The McGregor Street Sporting Precinct has also been identified as a development investigation area and will require further evaluation to determine land use and dwelling yields.

- The *Planning Strategy* allocates industrial expansion land within the Wedgefield Industrial Area and the Boodarie Strategic Industrial Area.



Map 1: Town of Port Hedland



Map 2: Port Hedland urban area

4 Geography and Population

4.1 Geographical extent

The Town is one of four local government areas within the Pilbara region and covers an area of 18,417 square kilometres. Port Hedland is located approximately 1,800 kilometres north east of Perth. It is the Town's primary settlement, commercial and administrative centre.

4.2 Australian Statistical Geography Standard (ASGS)

The ASGS provides a framework of statistical areas used by the ABS and other organisations to enable publication of statistics that are comparable and spatially integrated. The ASGS provides users with an integrated set of standard areas that can be used for analysing, visualising and integrating statistics produced by the ABS and other organisations.

The ASGS is split into two parts: ABS structures; and non-ABS structures. The ABS structures are hierarchy of regions defined and maintained by the ABS, whilst the non-ABS structures are not defined or maintained by the ABS – yet are used by the ABS

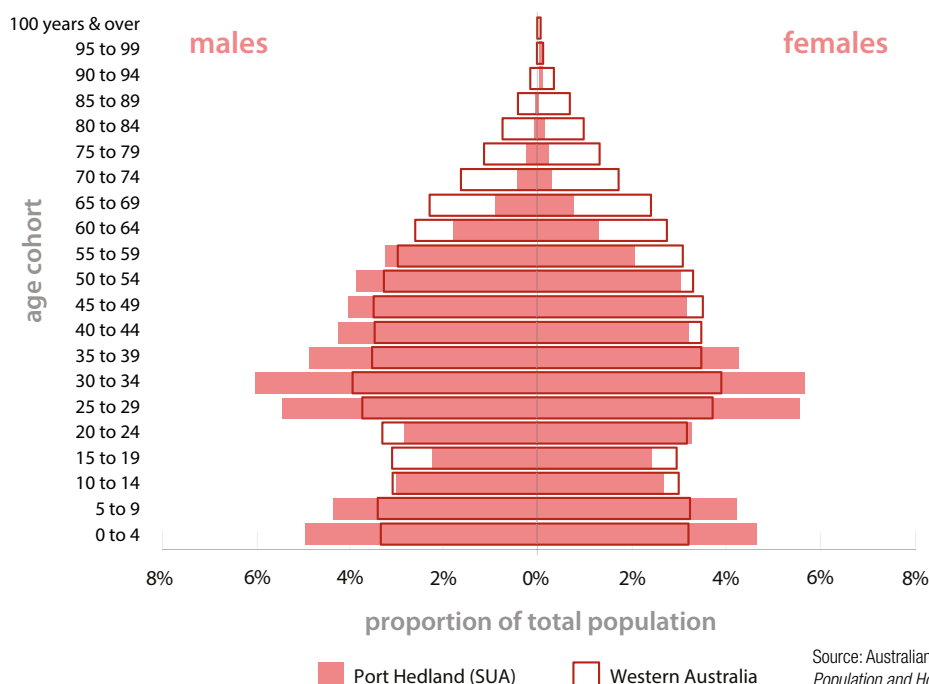
for statistical purposes. The component statistical areas that are relevant to Port Hedland are shown in Appendices A and B. The most common of these used throughout this report is the “SA2” ABS structure. The South Hedland and Port Hedland townsites are SA2 structural units and ABS statistics for these units are commonly referred to in this report.

Reference to the Port Hedland and South Hedland townsites as one entity (as opposed to the wider extent of the Town) throughout this report is referred to as the “townsites”.

4.3 Population profile

At the 2016 Census, the median age for the townsites was 31 years, which is considerably younger than the median age for Western Australia (36 years) and the nation (38 years). A total of 15 per cent of residents are identified as being of Aboriginal and/or Torres Strait Islander origin, which is higher than the State average of 3.1 per cent. There is a greater representation of persons aged 25 to 34 years in Port Hedland (23 per cent) compared to Western Australia (15 per cent) (Figure 1).

Figure 1: Census 2016 age by sex population profile – Townsites and Western Australia



Source: Australian Bureau of Statistics (2021) *Census of Population and Housing, 2016*

This is characteristic of the Pilbara region and can be attributed for the most part to the resources sector, which is the region's largest employer. In addition, there is an underrepresentation of persons aged 10 to 19 years in Port Hedland (10 per cent) compared to Western Australia (12 per cent). This is characteristic of many regional areas in Western Australia and can be attributed to persons within this age range moving to larger population centres for education and/or employment.

Map 3 shows population density by Mesh Block at the 2016 Census. The map shows that the localities of Pretty Pool (within Port Hedland SA2) and Shellborough, Cassia, Walnut Grove and Koombana (within South Hedland SA2) are the most densely populated within the Town.

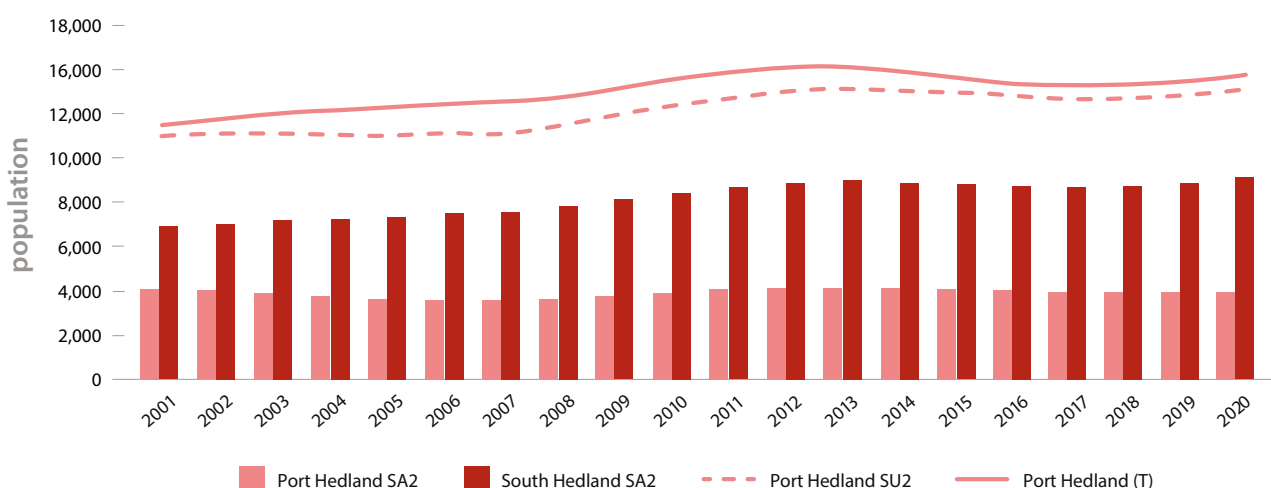
4.4 Population growth

The population data discussed in this section refers to the Australian Bureau of Statistics (ABS) "estimated resident population". This is the official measure of the population of Australia, based on place of usual residence. Estimates of the resident population are calculated as at 30 June of each year for selected ASGS geographies, including SA2s and local government areas².

4.4.1 Growth over two decades

Figure 2 shows the estimated resident population for the Town compared to the SA2s of Port Hedland and South Hedland as individual entities as well as the townsites collectively. This shows that the Town, townsites and the South Hedland SA2 area had steady population growth from 2001 to 2013 followed by a period of decline to 2018 and population recovery to 2020. By way of contrast, the population of the Port Hedland SA2 has remained reasonably stable over the same period. As at June 2020, townsites had an estimated resident population of 14,804 people.

Figure 2: Estimated resident population growth (20 Year Overview) - Port Hedland (T), Townsites, South Hedland SA2 and Port Hedland SA2



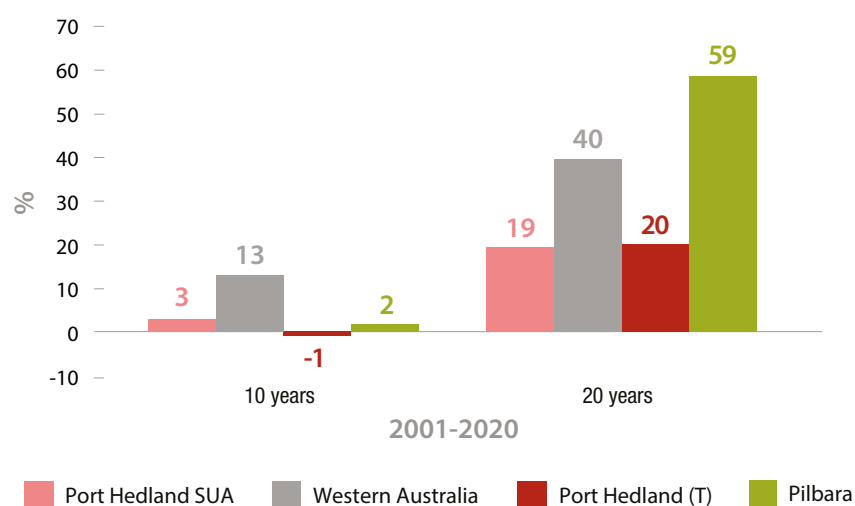
Source: Australian Bureau of Statistics (2020) *Regional Population Growth, Australia*, Catalogue No. 3218.0

² Estimates of the resident population for Census years (i.e. 2011 and 2016) are based on Census counts of usual residence (excluding short-term visitors in Australia), with an allowance for Census net undercount and Australian residents temporarily overseas at the time of the Census

In the two decades to June 2020, the townships's population was estimated to have increased by 19.3 per cent. This was lower than the growth experienced by Pilbara's (59 per cent) and the State's (40 per cent) growth (Figure 3 and Table 1). This longer-term assessment highlights that growth in the townships has been steady.

Over the decade to June 2020, the townships's population increased at a more modest 3 per cent. This growth was higher than that experienced by the Pilbara's (1.7 per cent) and lower than the State's (13 per cent) growth (Figure 3 and Table 1).

Figure 3: Population growth/decline – Townsites, Port Hedland (T), Western Australia and the Pilbara Region



Source: Australian Bureau of Statistics (2020) *Regional Population Growth, Australia*, Catalogue No. 3218.0

Table 1: Annual growth/decline (persons)

	Port Hedland (T)	Port Hedland (SA2)	South Hedland (SA2)	Port Hedland (SUA)	Pilbara	Western Australia
	No.	No.	No.	No.	No.	No.
2001-2020 (20 Years)	130	-4	124	120	1,161	37,864
2011-2020 (10 Years)	-19	-8	52	43	106	31,015
	%	%	%	%	%	%
2001-2020 (20 Years)	20.1%	-1.92%	31.77%	19.30%	58.6%	39.73%
2011-2020 (10 Years)	-1.2%	-1.8%	5.3%	3.0%	1.7%	13.2%

Source: ABS (2020) 3218.0 – Regional Population Growth, Australia

4.4.2 Growth compared

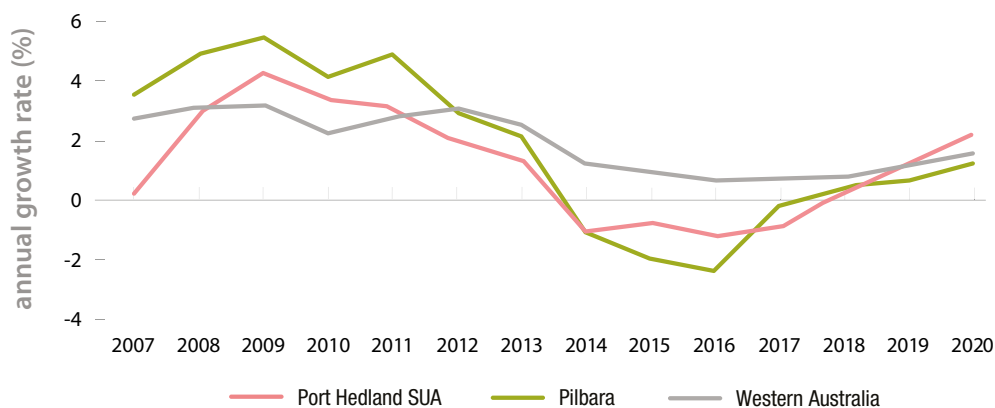
Figure 4 shows the average estimated resident population average annual growth rate for the townships, the Pilbara region and Western Australia. It shows that from 2007 to 2012, the townships and the Pilbara recorded considerably high rates of population growth; commensurate with the significant opportunities for employment generated by the resources boom. After 2013, however, rates of population growth for the townships dropped significantly to negative levels, as major resource projects moved from construction phases to operational phases. From 2017 there has been a recovery in the population growth rate for the townships and in 2020, this has surpassed the growth experienced in the Pilbara and Western Australia and is trending upwards.

Over the decade to 30 June 2020, the townships recorded an average annual growth in population of approximately 0.6 per cent (average annual increase of 43 residents). This growth was lower than the state (1.5 per cent) and lower than the Pilbara region (0.7 per cent).

4.4.3 Components of growth

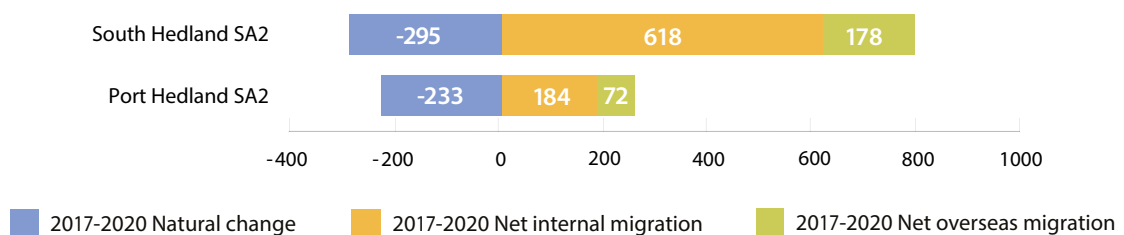
In the three years to 30 June 2020, the townships's population increased by 488 persons to 14,804 people. Natural change was the major contributor to population change during this period (increase of 802 people), followed by net internal migration (decrease of 528 people) and net overseas migration (increase of 250 persons). Figure 5 shows the components of population change for Port Hedland and South Hedland SA2s.

Figure 4: Estimated resident population growth annual growth rate - Townsites, Western Australia and the Pilbara Region



Source: Australian Bureau of Statistics (2020) *Regional Population Growth, Australia*, Catalogue No. 3218.0

Figure 5: Components of population change, 1 July 2017 to 30 June 2020



Source: ABS (2020) 3218.0 – Regional Population Growth, Australia

4.5 Population projections

WA Tomorrow is a series of trend-based population forecast, by age and sex, for WA and its sub-areas from 2016 to 2031. These forecasts represent a best estimate of future population size and age-sex structure if trends in fertility, mortality and migration continue.

WA Tomorrow forecasts are produced in collaboration with the WA Department of Treasury. They are produced every five years using the latest results from the five-yearly ABS Census and other data. *WA Tomorrow* forecasts are the official State Government forecasts to 2031³ and are presented as bands ranging from low (Band A) to high (Band E). The median band is C.

Tables 2 and 3 provide a summary of the five forecast bands for the Port Hedland and South Hedland SA2s. The population of Port Hedland SA2 is forecast to decline to 2031 under Bands A to C. Relatively modest growth is projected for South Hedland

Table 2: WA Tomorrow forecast - Port Hedland SA2

	Port Hedland SA2				
	Band A	Band B	Band C	Band D	Band E
2016	4,485	4,485	4,485	4,485	4,485
2021	3,730	4,080	4,295	4,595	4,940
2026	3,585	4,050	4,375	4,795	5,295
2031	3,395	4,015	4,355	4,860	5,490
Average annual change 2016-2031 (persons)	-73	-31	-9	25	67
Average annual change 2016-2031 (%)	-1.73%	-0.71%	-0.19%	0.54%	1.40%

Source: WAPC (2018) WA Tomorrow Population Report No. 11

Table 3: WA Tomorrow forecast - South Hedland SA2

	South Hedland SA2				
	Band A	Band B	Band C	Band D	Band E
2016	9,870	9,870	9,870	9,870	9,870
2021	9,135	9,660	9,980	10,330	10,890
2026	9,300	10,040	10,590	11,055	11,790
2031	9,350	10,340	10,965	11,605	12,505
Average annual change 2016-2031 (persons)	-35	31	73	116	176
Average annual change 2016-2031 (%)	-0.34%	0.32%	0.72%	1.11%	1.64%

Source: WAPC (2018) WA Tomorrow Population Report No. 11

³ *WA Tomorrow* forecasts are produced in collaboration with the WA Department of Treasury. They are produced every five years using the latest results from the five-yearly ABS Census and other data. *WA Tomorrow* forecasts are the official State Government forecasts to 2031

SA2, with Band C of WA Tomorrow forecasting an average annual growth of 0.7 per cent between 2016 and 2031. This equates to an average annual increase of 73 persons).

Figure 6 shows the *WA Tomorrow* forecasts for the townsites for Bands A to E. The forecast estimates Port Hedland's SUA population to reach 15,320 persons by 2031 (Band C). Achieving this population from a 2016 baseline will require an average annual increase of 64 persons, or an average annual growth of 0.44 per cent.

Table 4 provides a comparison of average annual growth for 2016-2031 between various geographies. It shows that South Hedland's SA2 rate of population growth is forecast to exceed the GCCSA, but not the State average.

WAPC WA Tomorrow (Band D) population forecasts projects the townsites to reach a population of 16,465 by 2031. Achieving this population from a 2016 baseline would require an annual increase of 141 persons or an average annual growth rate of 0.94 per cent.

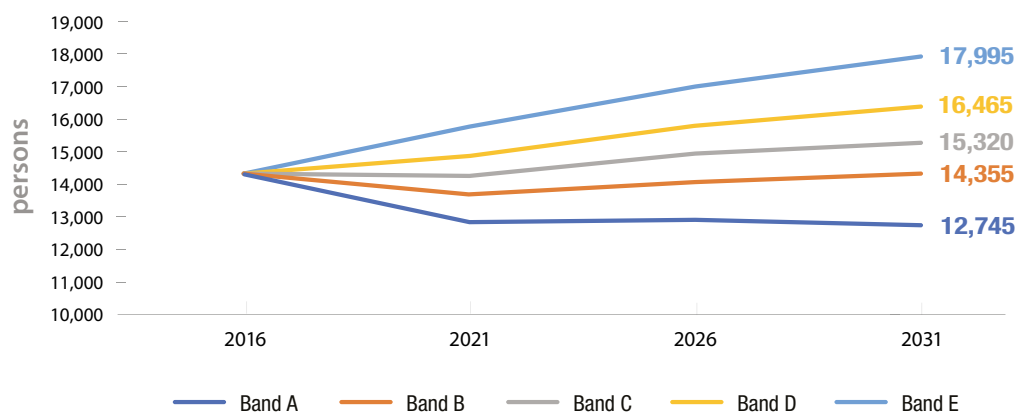
The demographic profile the townsites is anticipated to change significantly by 2031. Figures 7 and 8 shows the age by sex population profiles of the Port Hedland and South Hedland SA2s at the 2016 Census and the WA Tomorrow median (Band D⁴) forecast for Port Hedland's population at 2031. The age cohorts that show the greatest proportional change relate to the 25 to 29 years and 30 to 34 years age groups.

Table 4: Average annual change 2016-2031 comparison

	Average annual change 2016-2031 (%)				
	Band A	Band B	Band C	Band D	Band E
Port Hedland SA2	-1.73%	-0.71%	-0.19%	0.54%	1.40%
South Hedland SA2	-0.34%	0.32%	0.72%	1.11%	1.64%
Townsites	-0.75%	0.01%	0.44%	0.94%	1.57%
Rest of WA (GCCSA)	-0.31%	0.29%	0.66%	1.05%	1.57%
Western Australia	0.88%	1.32%	1.61%	1.90%	2.30%

Source: WAPC (2018) WA Tomorrow Population Report No. 11

Figure 6: Forecast population growth - Port Hedland (SUA)



Source: Western Australian Planning Commission (2018)
Western Australia Tomorrow Population Report No. 11

⁴ The WA Tomorrow Band D forecast is adopted for this report as noted below

Figure 7: Port Hedland SA2 population profile 2016 and 2031 forecast (Band D)

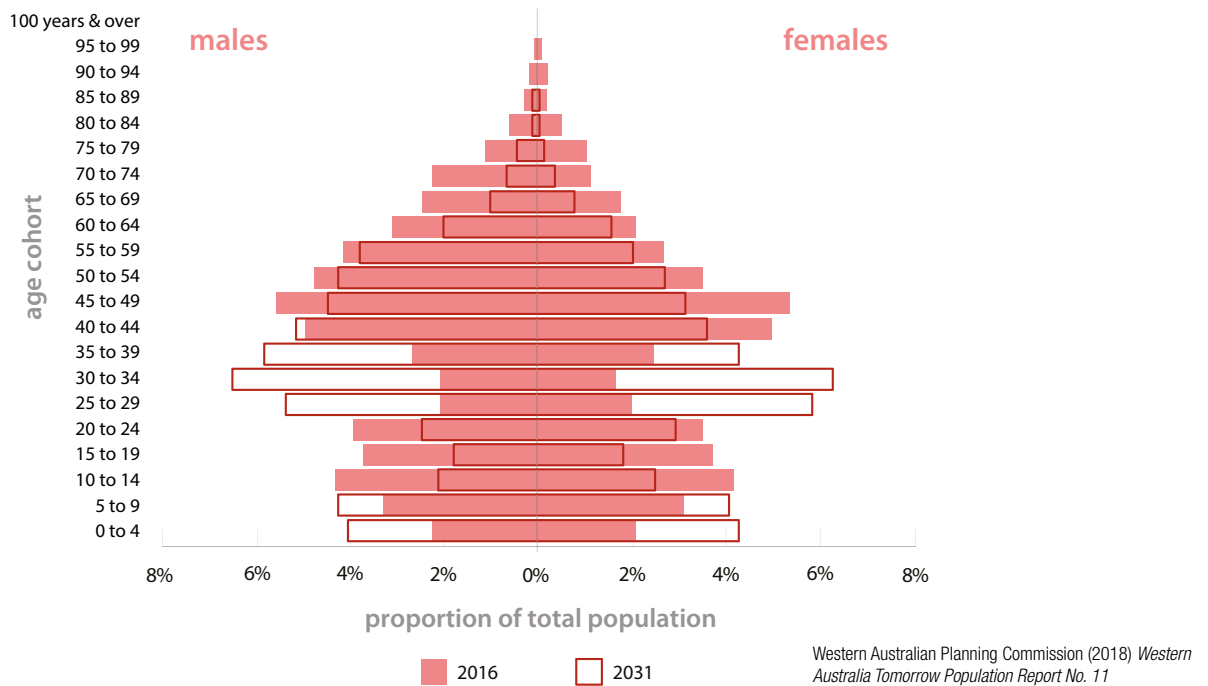
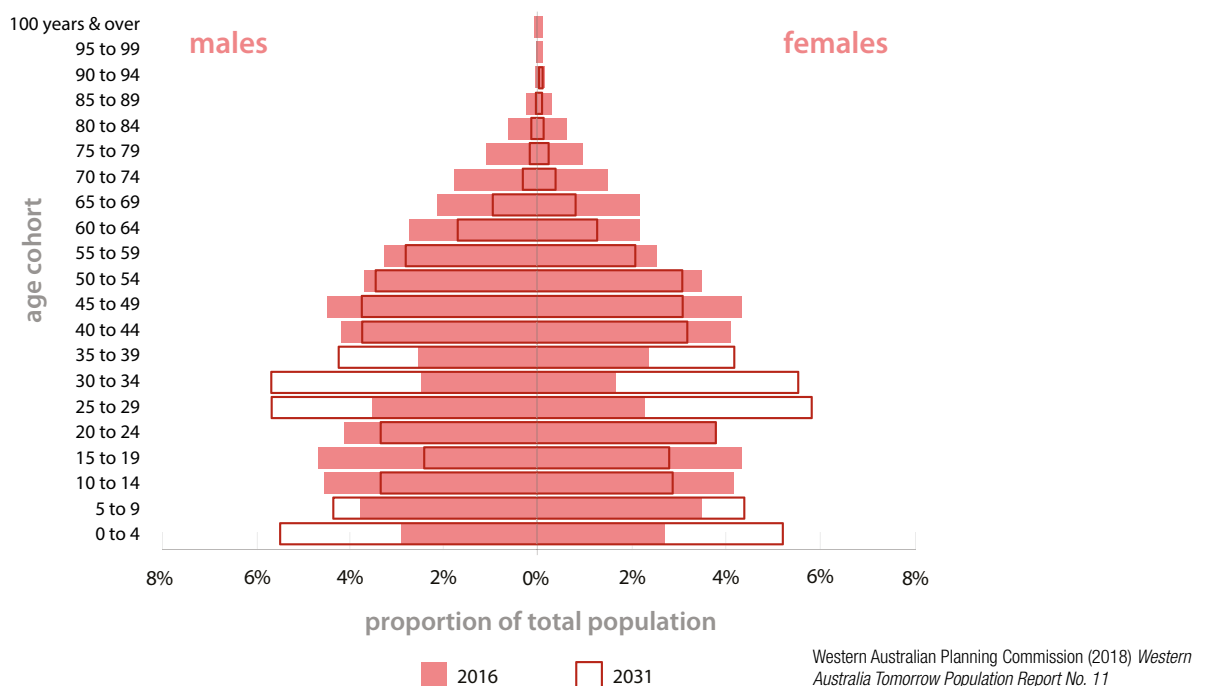


Figure 8: South Hedland SA2 population profile 2016 and 2031 forecast (Band D)



It is possible for higher rates of growth (higher than those forecasted by WA Tomorrow) to eventuate if strategic interventions are undertaken. In the case of Port Hedland, these may include further investment in amenity and urban space, economic diversification and changes to current fly in-fly out (FIFO) work practices regarding workforce accommodation. These initiatives could potentially grow Port Hedland's resident population base in the medium to long term and mitigate the projected changes to Port Hedland's population profile based on the WA Tomorrow forecasts.

As of April 2022, given the continued strong economic growth anticipated in the Pilbara as outlined in Chapter 5, this report assumes that the resulting projected population for the townsites is more aligned to the higher Band D forecast of 16,465 persons by 2031. Achieving this population from a 2016 baseline will require an average annual increase of 141 persons, or an average annual growth of 0.94 per cent.

The Planning Strategy identifies conservative and aspirational population forecasts ranging from 18,500 to 27,085 people respectively by 2041 based on an average annual growth of 0.9% and having regard to the non-linear 'boom and bust' nature of growth and decline in Port Hedland. The Town's conservative population forecast generally aligns with Band D of WA Tomorrow. If this average annual growth is held constant, this would result in a notional Band D population of 17,258 which is higher than that envisaged by WA Tomorrow.

The Town's aspirational forecast of 27,095 people would represent an average annual growth of approximately 2.4 per cent from 2021 to 2041. Achieving this population outcome is described in the Planning Strategy. This is contingent on the success of proposed local and regional economic development initiatives, maximising job creation, promoting a local workforce over FIFO workforces, broadening the economic base of the Pilbara region as well as identifying infrastructure services to promote economic and social development.

5 Economic Demand Drivers

Economic conditions and employment opportunities are fundamental drivers of population growth and demand for land and housing.

5.1 Western Australian economy

Despite the challenges presented by the COVID-19 pandemic, the WA economy is in a relatively strong position, particularly when compared to other countries and Australian jurisdictions. Data released in September 2021 showed⁵ that the State's domestic economy grew by 4.3 per cent in 2020-21 which was the strongest growth of all the States and the highest growth in eight years since the peak of the mining boom in 2012.

WA's economy has recovered from the initial impact of COVID-19 with strong support from the mining industry and high commodity prices.

In terms of State's reliance on exports, Western Australia's economy is likely to feel the impacts of prolonged slowing of economic activity in China as more than half of WA's exports go to China, of which iron ore makes up more than 80 per cent.

Notwithstanding, the current feedback the State has received from the mining industry⁶ is that:

- export volumes for iron ore will increase in 2022-23
- iron ore and LNG producers will operate close to capacity from 2022-23
- BHP, Rio Tinto and Fortescue Metals Group all have existing projects which are yet to ramp up to full production over the coming years
- China's demand for other minerals (e.g. lithium, copper, nickel etc) and energy is expected to rise in line with the global transition towards decarbonisation.

5.2 Pilbara economy

Economic activity in the Pilbara is dominated by iron ore and LNG and the associated construction work of these industries. Together, the resource and construction sectors account for more than 90 per cent of the region's economic output and more than half of employment in the region. These sectors have shaped the development of communities and infrastructure across the region.

The Pilbara's reliance on iron ore means that recent drops in iron ore price will have an impact on the region⁷. At this stage, this is mostly being felt by junior miners on marginal projects, with the major miners able to still make significant profits. As a result, the major miners continue to export record volumes of ore and are maintaining ever growing workforces to sustain this capital.

The strong recovery of the oil price, from the lows of July 2020, has returned much needed confidence to the sector and investments by the major oil and gas producers are likely imminent. Increasing exploration⁸ activity and investment in the Gold sector is pushing these activities into greater prominence within the region's economy.

5.3 Investment cycles

Economic conditions and employment opportunities are fundamental drivers of population growth and demand for land and housing in the Town. One of the key determinants of such growth and demand relates to the global economy and associated investment cycles in the Pilbara region.

The Pilbara experienced an unprecedented wave of investment into iron ore and LNG projects between 2005 and 2014, which resulted in significant job creation, export growth and the stimulus for growth in the development of land and housing. During this period, a small number of resource companies invested more than \$200 billion to develop production and export capacity to take advantage of growing demand in Asia.

⁵ State Government of Western Australia Media Statement (2021)

⁶ The Chamber of Minerals and Energy of Western Australia (2021)

⁷ Pilbara Development Commission (2021)

⁸ Currently, only one significant project has recently started operating – first pour at Capricorn Metal's Karlawinda project. All other investments are exploratory at this stage (De Grey Mining, Novo and Sayona).

On the back of these investments the value of the Pilbara economy grew by an estimated 18 per cent between 2011 (when measurement started) and 2018 to \$37 billion. Since this time, the Pilbara economy has continued to grow and reached an estimated \$57.3 billion in 2019-20⁹.

5.3.1 Adaptive capacity

While the Pilbara ranks well for economic fundamentals due to iron ore and LNG activity, it is also the least diversified region in the country¹⁰. The focus on iron ore and LNG while of strategic importance does limit the range of employment opportunities in the Pilbara and leaves the region exposed to the volatility of commodity cycles. The feature of this dynamic can in part be explained by the sheer size of resource industry and the cost pressures that make it difficult for other industries in the Pilbara to flourish when the resource industry is booming.

A key feature of the Pilbara is that is characterised by having high human capital relating to education, employment and participation and trade skill which are all associated with high adaptive capacity. Part of this relates to improved social and community infrastructure, which is encouraging people to stay in the Pilbara, educate their children locally and plan a future in the region.

Although mining regions are exposed to commodity cycles, some have proven to be sustainable in the longer term where there are secure resources that can be mined economically coupled with commodity and economic diversification.

The Pilbara has a comparative advantage in markets for minerals and commodities due to its scale of resources and proximity to Asia and has benefited from significant private sector investments in new projects and expansions during the previous investment cycle. This, accompanied with new projects underway or being considered in the present investment cycle will likely provide an economic and employment base for decades to come despite commodity market cycles¹¹ and fluctuations in local economies.

5.3.2 The current wave of investment in the Pilbara

The Pilbara is on the verge of another significant investment wave, with \$159 billion to \$170 billion worth of project capital forecast to be invested in the region over the next decade¹².

Like the investment cycle of the late 2000s, the current wave of investment in the Pilbara is driven by the iron ore, LNG and lithium sectors, which are investing heavily to maintain throughput capacity.

The iron ore industry has \$11.8 billion worth of new projects under construction and an additional \$4.8 billion under consideration. The longer-term viability of these projects is not projected to be critically affected by the pandemic, however, they are contingent on investment decisions that are yet to be announced.

The LNG industry by way of contrast is constructing \$15.1 billion worth of projects and \$56.9 billion of planned or possible projects, some of which may be delayed as result of the pandemic and associated longer term uncertainty in global oil prices. The medium-term goal for the LNG industry is to develop new LNG trains as well as offshore developments to maintain capacity. There are also several projects under construction or consideration in emerging industries, such as mineral processing, petrochemicals, renewables and hydrogen.

Together, projects already under construction in the Pilbara are expected to create 10,000 construction jobs and directly employ 3,000 workers during their operations. If all projects under consideration were to proceed, the total number of jobs created would reach more than 4,000 in construction, and 10,000 in operational phases. A revision of these ultimate job figures is likely due to availability of finance, skills shortages or technology development.

These new projects are expected to require significantly more FIFO workers, albeit less than during the previous investment cycle, because the construction phase will be less labour intensive, and a larger share of the workforce can be based locally.

⁹ JTSI (2022)

¹⁰ Regional Australian Institute (2018)

¹¹ Australian Government Productivity Commission (2017)

¹² Pilbara Development Commission (2021)

5.3.3 Comparison with the previous investment cycle

The current investment cycle is not expected to match the scale of the last cycle. Prior to the pandemic, the peak construction workforce from projects under construction was estimated to be equivalent to around a quarter of workforce requirements at the peak of the previous investment cycle.

Previous estimates also indicated that if all projects currently under consideration were to proceed, the construction workforce peak would reach three quarters of the previous peak. These projections are now expected to result in a more modest workforce emerging in the current investment cycle because of the pandemic.

Based on resource company announcements about operational workforces that will require housing within Pilbara cities and towns, the resource projects under construction have the potential to increase the Pilbara's population to almost 67,000 by 2026. This is just above the Pilbara's last population peak of over 65,000 in 2013¹³.

5.4 Key Pilbara economic projects

There are a range of projects within the Town and in the neighbouring Shires of East Pilbara and Ashburton that are driving economic growth in the current investment cycle. Key economic projects in the City of Karratha have been previously outlined in the Karratha Regional Land Supply Assessment publication.

5.4.1 Spoilbank Marina Development

The Town, Department of Transport, Pilbara Development Commission and the Pilbara Ports Authority are progressing with the \$187.5 million Spoilbank Marina project to transform Port Hedland's waterfront into an attractive and popular destination for locals and visitors and create 200 jobs.

The development will feature a four-lane boat ramp, 21 boat pens (with ultimate capacity of 80 pens), trailer parking for up to 200 vehicles and associated public recreation and amenity infrastructure. Construction commenced in October 2020 and the project is expected to be completed now in 2022-23¹⁴. Current works in the site include bulk earthworks and the construction of rock walls. Development of marine structures are expected to start in mid to late 2022.

5.4.2 Lumsden Point, Port Hedland

To date, \$143 million has been invested in dredging and land development at Lumsden Point, which is strategically located near the Great Northern Highway and Port Hedland International Airport. In October 2021, Lumsden Point officially started operating when the first cargo vessel arrived.

Further development is now being planned at Lumsden Point as shown on maps 8 and 12 and listed in Table 7. A general cargo facility is in the advanced stages of planning to facilitate increases in mineral concentrate exports and the import of project and equipment necessary to build and develop the renewable energy and hydrogen industries. Work on the facility has already commenced, with a module offloading facility being constructed in 2021 to facilitate the import of project cargoes. Roadworks are planned in 2022 / 2023 to unlock up to eight hectares of land for industry. The proposed ultimate development will consist of two general cargo wharves, lay down areas and a logistics hub.

5.4.3 South Flank Iron Ore Mine

Approximately 156km north west of Newman in the Shire of East Pilbara (300km south of Port Hedland), a new USD \$3.6 billion mine¹⁵ has been developed by BHP in conjunction with the Banjima people to replace the de-commissioned Yandi mine. The South Flank project provides for 80 million tonnes per annum crushing and screening plant, an overland conveyor system, stockyard and train loading facilities, procurement of a new mining fleet and substantial mine development work. The project is expected to provide more than 600 ongoing operational jobs through its life.

¹³ These projections are contingent on the economic effects of the current global economic situation being minimised

¹⁴ State Government of Western Australia Media Statement (2021)

¹⁵ BHP (2021)

5.4.4 Iron Bridge Magnetite Mine

Approximately 145km south of Port Hedland in the Shire of East Pilbara, FMG are developing the USD \$3.3 billion Iron Bridge Magnetite project, which includes the installation of a 135km concentrate slurry pipe line to Port Hedland. First production is scheduled by December 2022. The construction of a module offload facility at Lumsden Point commenced in 2021 to address logistical constraints relating to the delivery of large modules fabricated offshore.

5.4.5 Asian Renewable Energy Hub

The State provided environmental approval in 2020¹⁶ for the first stage of the Asian Renewable Energy Hub (AREH) 250km north-east of Port Hedland in the Shire of East Pilbara. The first stage of the project is set to produce 15GW of wind and solar power and provide 3GW of low-cost green energy to local people and industry and potentially create thousands of jobs in the Pilbara. It will be one of the world's largest renewable hydrogen projects. Federal environmental approval for the project has not been granted as at April 2022.

5.4.6 Eliwana Iron Ore Mine

The Fortescue Metals Group (FMG) opened its Eliwana mine located 90 kilometres west of Tom Price in December 2020 in the Shire of Ashburton (300km south-west of Port Hedland). The operation¹⁷ includes a new dry ore processing facility with capacity of 30 million tonnes per annum and a new 143-kilometre rail line, which is in the final stages of construction. The project is expected to provide more than 500 ongoing operational jobs through its life.

5.4.7 Gudai-Darri (Koodaideri) Iron Ore Mine

Rio Tinto is investing \$2.6 billion to develop the Gudai-Darri (Koodaideri) iron ore mine located 120 kilometres from Newman in the Shire of East Pilbara (250 kilometres south of Port Hedland). When fully operational, it will produce up to

43 million tonnes of iron ore a year and become a production hub and processing plant with a 166-kilometre rail line connecting the mine to Rio Tinto's existing network. The project is expected to provide more than 600 ongoing operational jobs through its life and 2,000 jobs during the construction phase.

5.5 Gross Regional Product

The mining sector is the largest contributor to the Town's gross regional product (GRP), with an estimated GRP of approximately \$15.1 billion¹⁸. Port Hedland represents 32 per cent of the Pilbara Region's GRP of \$47 billion. The mining sector also employs the largest proportion of the Town's working population.

5.6 Workforce

Figure 9 shows that at the end of the September 2021 quarter, the Town had a labour force of 9,537 persons. A key feature of the workforce in the Pilbara is that almost half of the people are FIFO workers. For Port Hedland, this equated to approximately 4,000 workers at the peak of the previous investment cycle.

One of the continuing challenges for the Town is the attraction and retention of skilled workers/service workers. This can be attributed in part to rental availability and adequate housing options, including affordable housing, particularly during periods of high demand.

Failure to attract workers to the region or to develop skills locally can translate into skill shortages. These skills shortages are likely to be more acute for emerging industries in the non-mining sectors, which struggle to compete for workers with LNG and iron ore companies hindering diversification opportunities.

A unique feature of Port Hedland is that it has a higher proportion of couple families where the first partner is full-time, but the second partner is not working (20.9 per cent) when compared to the state (16.4 per cent or national average (15 per cent)¹⁹.

¹⁶ State Government of Western Australia Media Statement (2021)

¹⁷ State Government of Western Australia Media Statement (2021)

¹⁸ Town of Port Hedland (2021)

¹⁹ Chamber of Mineral and Energy of Western Australia (2021)

5.7. Unemployment

Figure 9 shows the unemployment rates for the Town, the Pilbara region and Western Australia over a 10-year period. As at the September 2021 quarter, the Town had an unemployment rate of 3.3 per cent, lower than Western Australia (4.10 per cent) and marginally higher than the Pilbara region (1.94 per cent).

The data also shows that the Town and the Pilbara region's unemployment rates have been consistently lower than the State average.

The Town and the Pilbara region's unemployment rates rose in 2012 and peaked in 2014 as the mining sector transitioned from a construction to an operational phase. Following this period up to 2017, there was a marked reduction in unemployment rates for the Town in response to a contraction of the labour force brought about by a scaling back of mining and associated activities. From 2018 there has been an increase in the unemployment rate in the Town and this peaked in June 2019 at 5.6 per cent. This was followed by a downward trend of the unemployment rate over nine quarters to a low of 3.3 per cent as at September 2021.

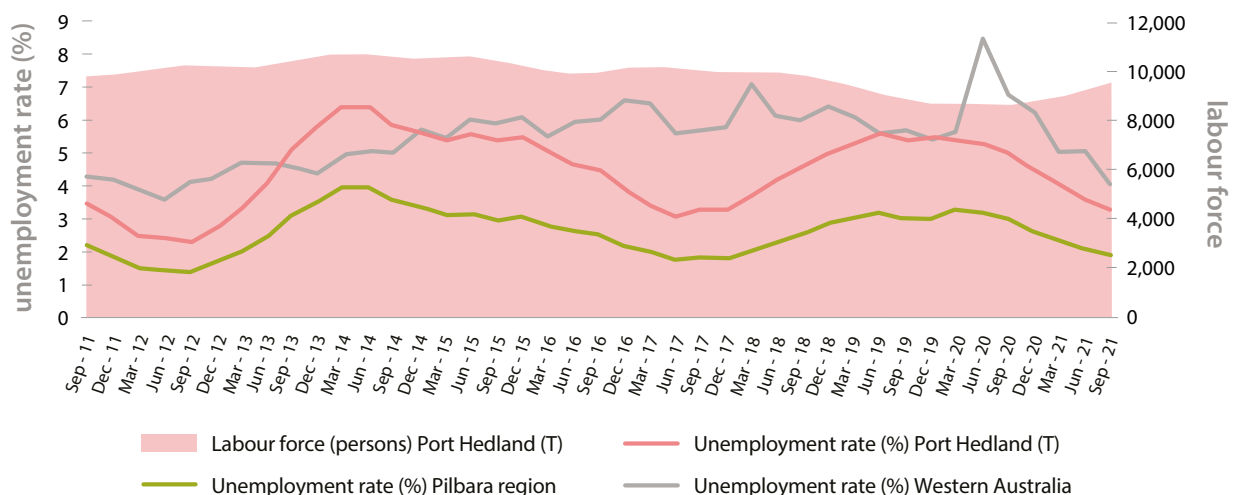
The Town's historical pattern of unemployment rates mirrors those of the Pilbara region, indicating that the Town and the Pilbara region are subject to the same driving factors of employment (i.e. cyclical unemployment associated with the mining and resources sector).

5.8 Diversification

The Pilbara has been identified as the least economically diversified region in Australia²⁰ which has limited the range of employment opportunities. As a result, the Pilbara Development Commission (PDC) is working to build diversified local and regional economies in the Pilbara, primarily to ensure continued economic growth despite fluctuations in the mining sector.

In August 2021, the State Government announced a \$100 million Investment Attraction and New Industries Fund signalling to industry a more proactive approach to investment attraction. The Investment Attraction Fund, an initiative under the Investment Attraction and New Industries Fund, seeks to attract new investment that will create local jobs and contribute to a more diversified WA economy.

Figure 9: Unemployment rates



Source: Australian Government Department of Jobs and Small Business (2021) *Small Area Labour Markets – September Quarter 2021*

²⁰ Regional Australia Institute, 2018

The fund will support industry assistance, attraction and grants across a range of emerging industries, including battery manufacturing, green steel and cyber security. These aims are mirrored in the *Planning Strategy* which identifies opportunities for economic growth through the expansion and development of several key industries as noted below to provide for greater diversification.

5.8.1 Mining support services

Mining support services such are a key import into the Town. This presents an opportunity for import replacement to support local industry supply chains. Growth in this sector is anticipated to be in line in mining industry investment, which is again expected to increase significantly with the number of new mining projects.

5.8.2 Construction

Port Hedland currently has low labour specialisations coupled with high growth expectations for non-residential building other construction works. This provides opportunities for industry diversification and town development/enhancement. Construction services are a prominent import into Port Hedland, which provides opportunities for import replacement.

5.8.3 Manufacturing

Manufacturing is a prominent import into Port Hedland which provides opportunities for import replacement. In addition, Port Hedland has the potential to support greater advanced manufacturing in terms of metal products, machinery and equipment, which would enhance the mining and construction supply chains locally. Opportunities brought about by the availability of large amounts of cheap energy from large-scale renewable energy projects have the potential to be transformational for this sector.

An independent pre-feasibility study²¹ commissioned by the State in 2021 has identified initiatives for the manufacture, refurbishment and maintenance of iron ore railcar wagons for Pilbara mining operations. The aim of this initiative is to support local manufacturing and jobs to diversification of the economy.

²¹ State Government media statement 2021

5.8.4 Health care and social assistance

As Port Hedland's population continues to grow, health care and social assistance will continue to become more prominent. Opportunities exist in residential care services, aged care facilities, medical and other health care services, all of which are vital to service community needs.

5.8.5 Tourism

There are opportunities to develop strategies and actions to leverage off competitive advantages, through local tourism opportunities such as indigenous cultural and heritage value experiences, the cruise ship industry and pastoral station tourism to capitalise on the unique environmental attributes of the Pilbara region.

6 Residential land and housing

6.1 History

The Kariyarra, Ngarla and Nyamal people are the original inhabitants of the Town lands, having inhabited the area for 40,000 years. The Kariyarra people call the townsite of Port Hedland Marapikurrinya for the hand-shaped formation of the tidal creeks coming off the natural harbour.

Port Hedland has a rich history having been identified by Swedish-born mariner, Peter Hedland, as being a suitable location for a port after his arrival in 1863. By 1896, Peter Hedland was settled on Kariyarra country, at Condon (gazetted as Shellborough), located on the coastline on land that now forms part of De Grey station. Shellborough was the first port to be settled in the Pilbara. Since then, the district has a long-standing identity as a port town.

Development of the iron ore deposits resulted in major changes taking place in Port Hedland. In 1965, Port Hedland's development program started, and the small town of some 1,200 people rapidly expanded. During this time the satellite community of South Hedland was established and now caters for more than half of the Port Hedland population.

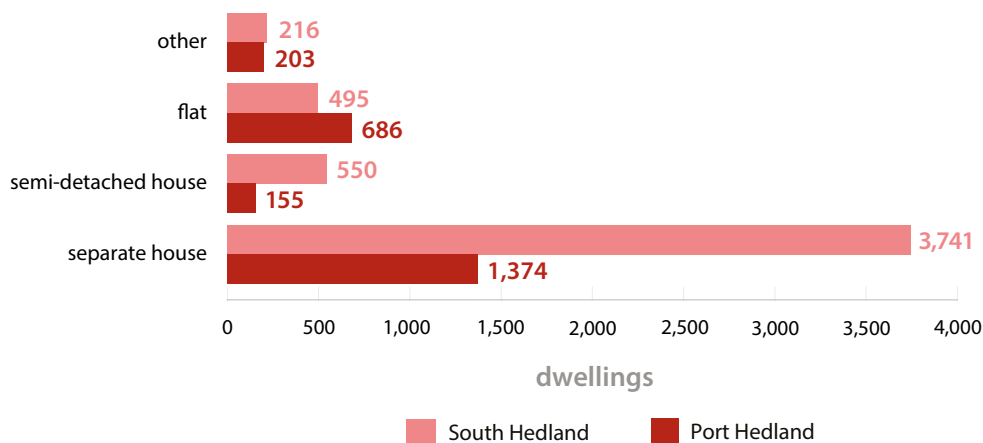
South Hedland was planned utilising Radburn design planning principles which were first adopted in Australia in 1963²². This planning approach attempts to separate vehicular and pedestrian traffic with feature loop roads accessed from minimal ring-roads and through roads with a focus of providing a more socially connected population. Evidence of the Radburn design in South Hedland is evident in the suburbs of Lawson, Walnut Grove, Shellborough and Cassia which are arranged as four key cells²³.

6.2 Overview

ABS estimated resident population data indicates that at 30 June 2020, 70 per cent of townsites's population lived in South Hedland SA2. The *Planning Strategy* seeks to:

- facilitate consolidated urban form that maximises efficient use of existing and planned infrastructure
- plan for development areas that can effectively respond to fluctuations in the economy and population change, while being resilient to climate change and natural systems.

Figure 10: Dwelling Structure



Source: ABS (2021) Census of Population and Housing, 2016, TableBuilder

²² Designing "Community" The significance of place and urban design in public housing renewal, 2015

²³ "Port Hedland Historical Society" South Hedland, 2014

The *Planning Strategy* identifies land for future housing in the Port Hedland and South SA2s. A staged approach for the development of land for future housing is proposed, with short-term urban land comprising of unconstrained and serviced land in proximity to services and amenities.

At the 2016 Census, a stock of 2,418 and 5,002 private dwellings were recorded in Port Hedland SA2 and South Hedland SA2 respectively as shown in Figure 10. In Port Hedland SA2, 69.3 per cent of private dwellings were occupied, while in South Hedland SA2, 64.5 per cent of private dwellings were occupied. These dwelling occupancy rates are considerably lower than the State average of 86.7 per cent. The proportion of rented dwellings in Port Hedland and South Hedland townsites (approximately 79 per cent) is significantly higher than the State average of 28.3 per cent. This indicates long-term tenants living in company housing and a transient population base.

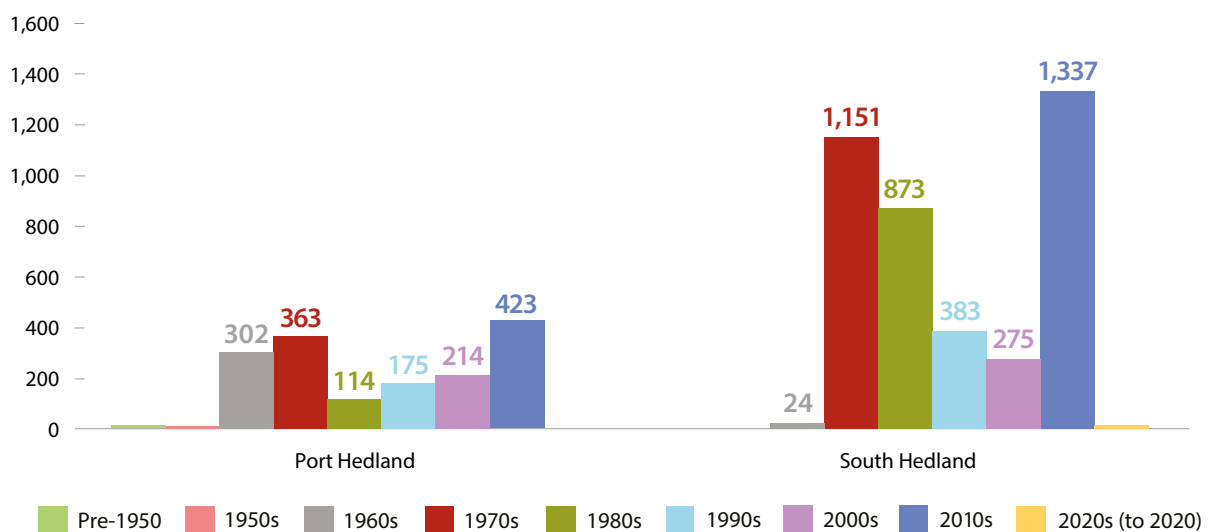
In Port Hedland SA2, separate houses accounted for just 58 per cent of occupied private dwellings. This compares to 77 per cent for South Hedland SA2, 82 per cent for Rest of WA (GCCSA) and 77 per cent for WA.

6.3 Age of dwellings

Figure 11 shows the age of residential dwellings in the suburbs of Port Hedland and South Hedland that are identified as rated by Landgate. Figure 11 shows that 50 per cent of all residential dwellings were built in the two decades from 1960 to 1980, with South Hedland taking up 36 per cent of the total and Port Hedland taking up 14 per cent of dwellings during this period. A further wave of activity occurred during the past 20 years with 31 per cent of all dwellings being constructed, with the bulk of this total occurring in South Hedland, with the 2010 decade being a notable spike in construction with 1,337 dwellings being produced.

Maps 4 and 5 show the distribution of residential dwellings by year of construction. In Port Hedland (SSC), older dwellings can generally be found in the Spinifex Hill precinct and the northern part of the East End Urban Village precinct, while newer dwellings can be found in the southern part of the East End Urban Village precinct. In South Hedland (SSC), older dwellings can generally be found in the four original neighbourhoods of South Hedland, which were built based on the Radburn design principles.

Figure 11: Age of residential dwellings – Port Hedland and South Hedland (suburbs)



Source: Department of Planning, Lands and Heritage (2021) *Integrated Regional Information System*

6.4 Department of Communities

The Department of Communities (Communities) manages 2,749 properties across the Pilbara region. Within the Town, Communities' South Hedland office manages a total of 668 public housing properties and 407 Government Regional Officer Housing (GROH) properties which are dispersed in South Hedland and Port Hedland.

In September 2021, the State announced \$875 million in funding for more social housing properties throughout Western Australia. This includes the establishment of a \$750 million Social Housing Investment Fund, with \$228 million set aside for short-term projects to increase social housing and \$522 million to deliver new social homes from 2022-23.

Currently Communities has 13 public housing properties, 4 GROH properties and 14 parcels of vacant land within the Port Hedland West End Improvement Scheme No.1 area. The removal of this housing/land stock in this area as outlined in section 7.1 will require reallocation of resources to manage wait lists and revised approaches to support agencies requiring GROH accommodation²⁴.

6.5 Housing suitability

The Australian Bureau of Statistics (ABS) captures data on housing suitability as part of the five-yearly Census of Population and Housing. Housing suitability is a measure of housing utilisation, based on a comparison of the number of bedrooms in

a dwelling with a series of household demographics, such as the number of usual residents, their relationship to each other, age and sex. It can be used to identify if a dwelling is either under or over utilised.

Data for Port Hedland and South Hedland SA2s indicates that most dwellings are underutilised. Fifty-three per cent and 56 per cent of occupied private dwellings in Port Hedland SA2 and South Hedland SA2 respectively were recorded as having one or more bedrooms spare as shown in Table 5.

6.6 Local property market - Sales

Figures 12 and 13 show house, unit and land sales volume and median prices for the suburbs of Port Hedland and South Hedland. Data sourced from the Real Estate Institute of Western Australia (REIWA) indicates that since 2017, South Hedland has recorded higher volumes of house, unit and land sales. Since 2017, 1060 house sales have been recorded compared to 331 house sales for Port Hedland. The same applies for unit and land sales; South Hedland recorded 208 unit sales and 42 land sales, while Port Hedland recorded 205 unit sales and eight land sales. Median house, unit and land prices have generally been higher in Port Hedland than in South Hedland. As at December 2021, the median price for homes in Port Hedland was \$600,000 and for South Hedland it was \$384,000.

Median prices for home and units have risen sharply since 2017, most notably in South Hedland with increases of 97 per cent and 119 per cent up to the December 2021 quarter.

Table 5: Housing suitability

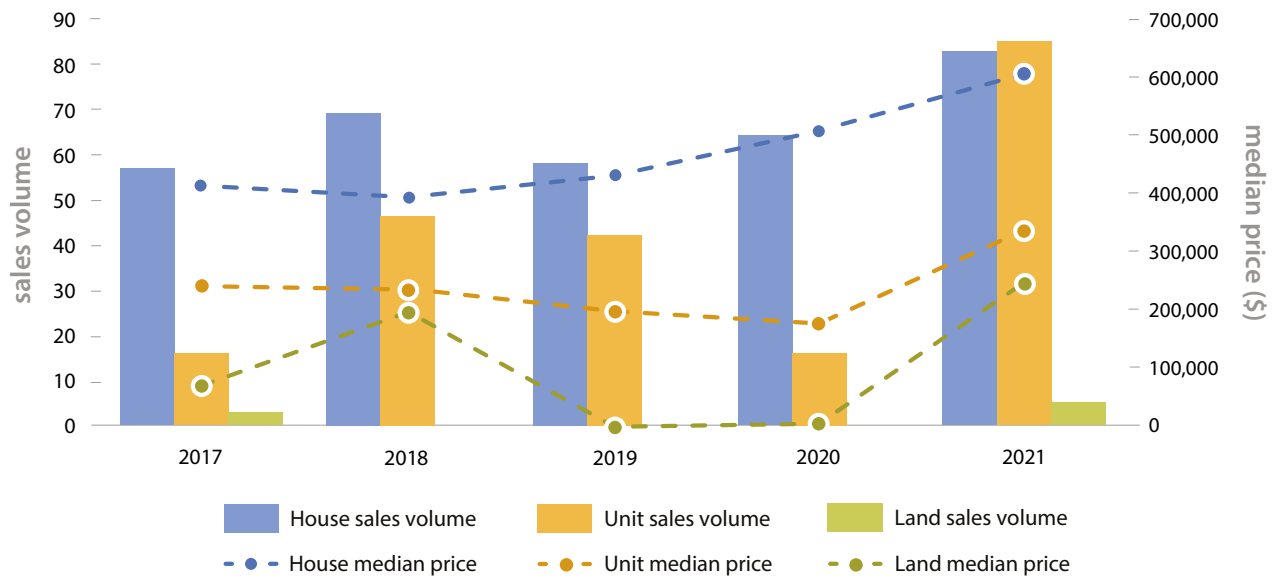
	Extra bedroom(s) needed	No bedrooms needed or spare	Bedroom(s) spare	Unable to determine	Not stated	Not applicable	Total
Port Hedland SA2	35	246	981	33	49	498	1,842
South Hedland SA2	115	246	1,948	109	103	696	3,473

Source: Australian Bureau of Statistics (2016) *Census of Population and Housing, 2016, TableBuilder*

Note: The 'not applicable' category comprises of unoccupied private dwellings, non-private dwellings, dwellings in migratory, offshore and shipping SA1s, visitor only dwellings and non-classifiable households

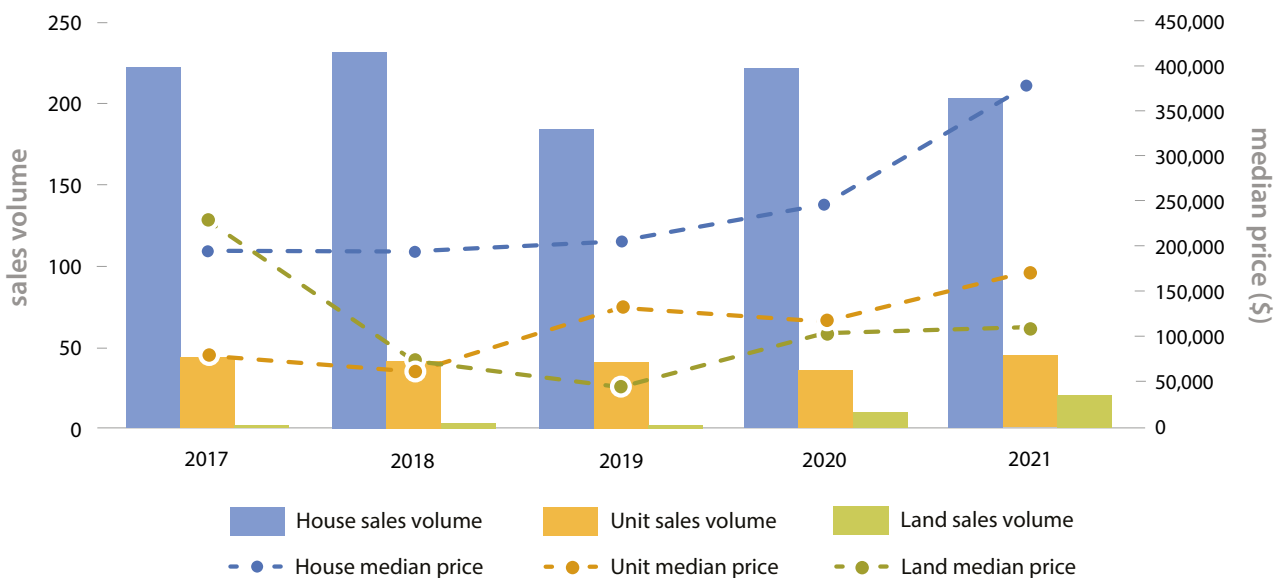
²⁴ Department of Communities (2021)

Figure 12: House, unit and land sales volume and median prices - Port Hedland (suburb)



Source: REIWA (2022)

Figure 13: House, unit and land sales volume and median prices - South Hedland (suburb)



Source: REIWA (2022)

For the same period, homes and unit median prices in Port Hedland have increased by 46 per cent and 42 per cent respectively. The median price of land since 2017 by way of contrast has seen a 50 per cent drop in South Hedland and a substantial 317 per cent growth in Port Hedland. This can be attributed, in part, to a constrained supply in Port Hedland compared to South Hedland.

Since 2020, there has been strong growth in the median price of homes and units in South Hedland and Port Hedland as shown in Figure 14. Of note, there was a 94 per cent increase in the median price for units in Port Hedland and a 54 per cent increase in the median price for homes in South Hedland. Median land prices for the same period marginally increased with land in Port Hedland increasing by 28 per cent and in South Hedland by approximately 8 per cent.

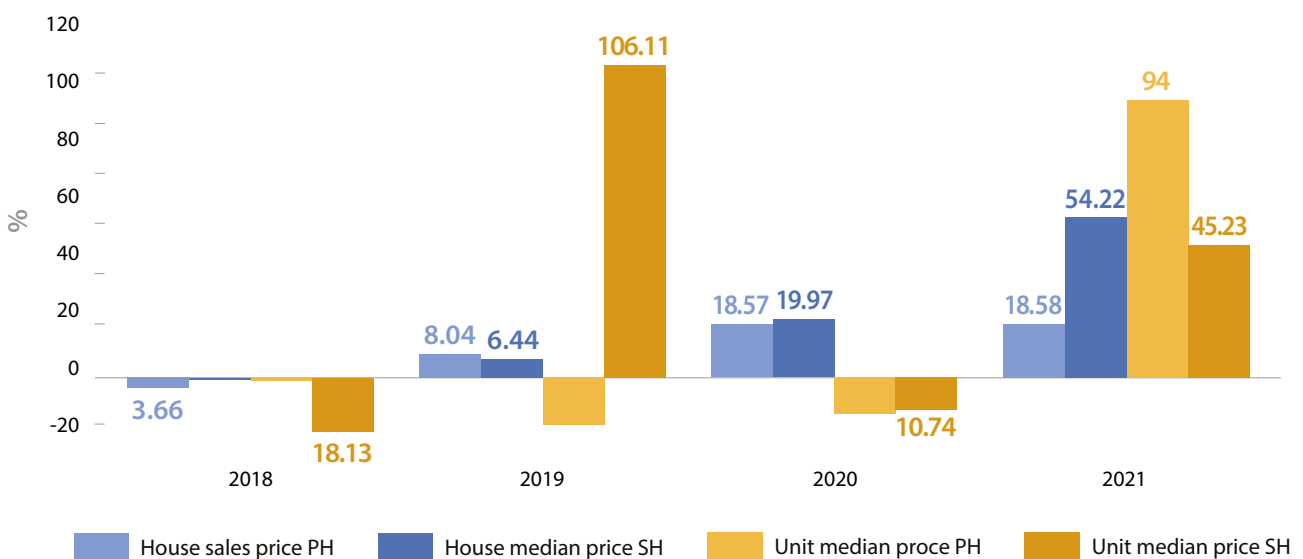
6.7 Local Property Market - Rentals

A key feature of the Town housing market is that 78 per cent of occupied private dwellings tenure is comprised of rental properties according to the 2016 ABS Census. The supply and demand of rental properties on the market therefore is an important consideration.

Rental listings in the Town are at their lowest since the peak of the previous investment cycle as shown in Figure 15. The second quarter of 2021 showed that approximately 60 properties were listed as available in the rental market which may not be enough to meet expected demand.

Anecdotal evidence suggests it is likely that this drop in available rental accommodation has been caused by several factors. Firstly, the COVID-19 pandemic has resulted in FIFO being more difficult for some workers and as a result, some of the FIFO workforce has transitioned to a residential workforce and absorbed available rental stock.

Figure 14: Annual Median Price Growth Port Hedland and South Hedland – Houses and Units



Source: REIWA (2022)

Secondly, given the substantial increase in property prices in the townsites, some of the rental stock has been sold by home owners, thereby depleting the available pool of homes for rent.

Thirdly, the low levels of residential subdivision activity, as well as a steady decline in building approvals in recent years, has caused a shortfall of new residential dwellings required to meet the increasing demand for housing in the townsites, including the rental market.

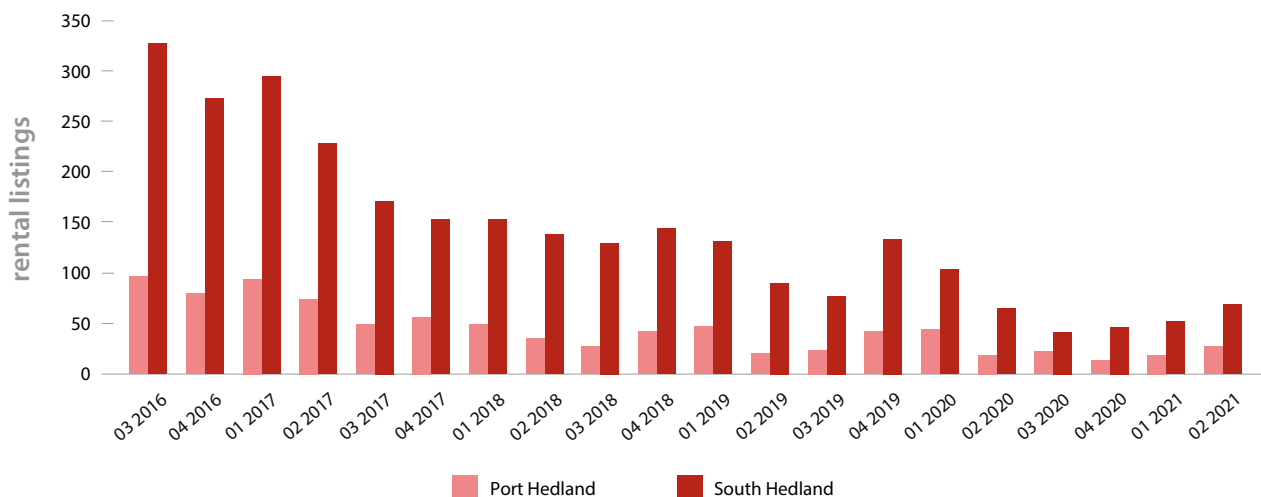
Finally, purpose built short stay accommodation such as Osprey Village in South Hedland is reaching its capacity, and this has resulted in service workers entering the main stream rental market.

Another dynamic that will influence the availability of rental accommodation in the future is the transition of the housing stock in the west end of Port Hedland for commercial and

services uses over time as required by IS1. As of 31 January 2022, the Hedland Maritime Initiative has acquired 113 residential homes as part of the Port Hedland Voluntary Buy-Back scheme area. Most of these dwellings are currently leased, but will be removed from overall rental stock once these leases expire²⁵.

The Town has been monitoring the tight rental market in the townsites. A Housing Solutions Summit was convened in December 2021 to discuss a range of housing related issues for the Town with peak industries bodies to address and alleviate blockages in the supply of new homes to the market and deal with the lack of suitable homes for rental.

Figure 15: Rental Listings by suburb – Town of Port Hedland



Source: Pilbara Development Commission (2021) *Pilbara Half Yearly Housing and Land Snapshot – June 2021*

²⁵ Town of Port Hedland (2022)

Core Logic data as at October 2021 shows there are a total of 119 dwellings in Port Hedland and South Hedland dwellings on the market. As shown in Figure 16, the average rental cost for an established home in is approximately \$1,100 per week and \$680 per week in Port and South Hedland respectively. The affordability of properties for rental in the townsites has become problematic for workers not directly employed by mining companies, especially, service workers.

6.8 Land zoned for residential purposes

The following local planning scheme zones within LPS 7 provide for residential development:

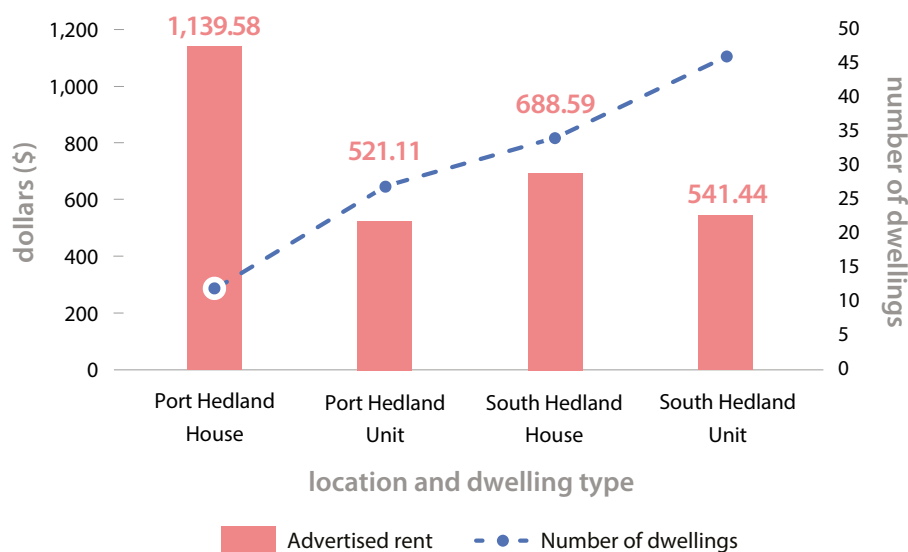
- Residential
- Urban Development.

In addition, there is scope for limited residential development to occur on land zoned Town Centre, Commercial, Mixed Use, Rural and Rural Residential. Several residential use classes, including 'Aged or Dependent Persons Dwelling', 'Grouped Dwelling', 'Multiple Dwelling' and 'Single House' are listed as 'discretionary' uses under the aforementioned local planning scheme zones.

The Integrated Regional Information System (IRIS) land supply model (outlined in Appendix D) showed that, as at August 2021, approximately 875 hectares of land (Figure 17) and 5,266 lots in the townsites zoned for residential purposes. This considers the reclassification of land previously zoned Residential from the West End of the Port Hedland townsite as outlined in section 7.1.

Approximately 380 hectares (44 per cent) of this stock was developed. A further 223 hectares (25 per cent) and 270 hectares (31 per cent) were deemed undeveloped and unrated respectively. Lots identified as unrated are those that are zoned for development for the specified primary land use category for which no vacant land or premises valuation information has been captured in Landgate's property valuation database.

Figure 16: Rental prices by dwelling type



Source: Source: Department of Planning, Lands and Heritage (2021); Core Logic 2021

In addition to land zoned for residential purposes, this report examines land that has been earmarked for urban expansion and development investigation in section 7.1. These two additional potential sources of residential land supply have the capacity overtime to increase the quantum of land zoned Residential under LPS7 to cater for the Town's future population growth.

6.9 Lot supply pipeline

Over the decade to September 2021, applications were lodged to create a total of 1,745 residential lots (average of 44 lots per quarter) as shown in Figure 18. Residential subdivision activity peaked in 2011/12, with 1,186 lots lodged for subdivision approval during this period. The high number of lots lodged for subdivision approval in 2011/12 resulted in a decade-high record of 1,230 lots with conditional approval at the end of the December 2012 quarter. At the end of the September 2021 quarter, there were 342 lots with conditional approval.

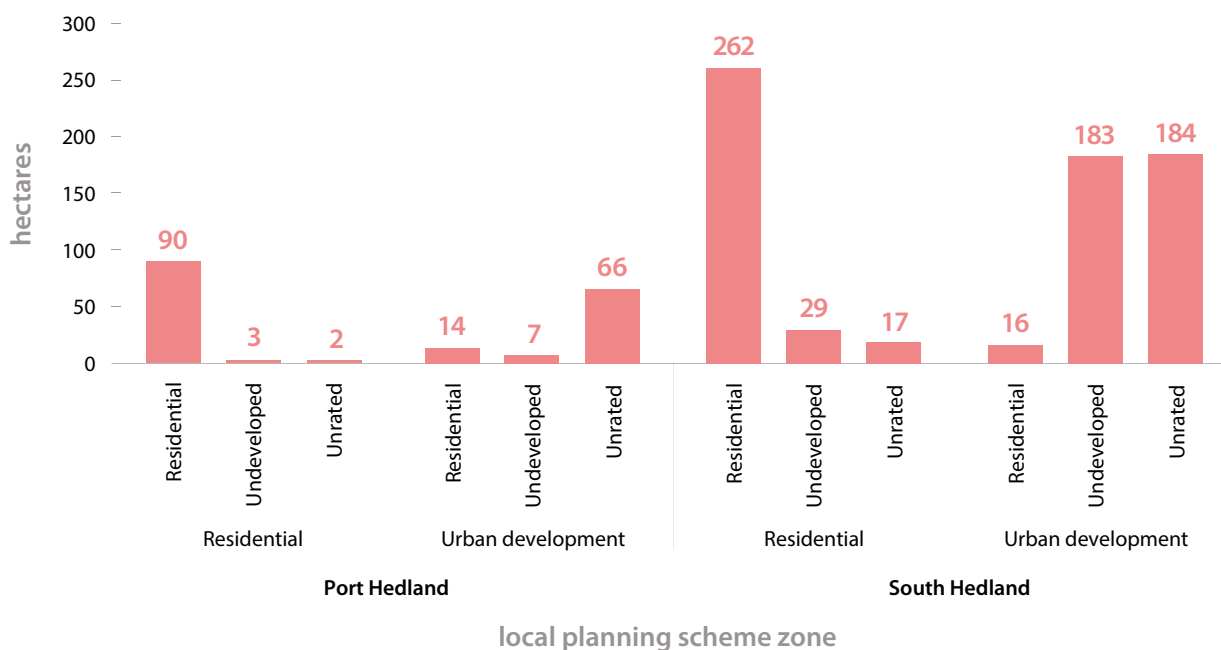
More than 1,375 residential lots were granted conditional approval over the decade to September 2021; however, just 57 per cent were progressed to final approval, with 779 lots created during this period.

A measure of the number of lots which are likely to be developed in the short term can be gauged by the stock of 'lots on non-cleared agreements' reported by the Water Corporation. At the end of the September 2021 quarter, agreements were in place to service two residential lots in the Town.

6.10 Dwelling approvals and construction

Dwelling approvals are a key demand indicator, representing either owner-occupier demand or investor confidence. As most dwelling approvals proceed to construction and eventually completion, they also provide a leading indicator of dwelling supply.

Figure 17: Stock of land zoned for residential development - Port Hedland (Town)



Source: Department of Planning, Lands and Heritage (2021) *Integrated Regional Information System*

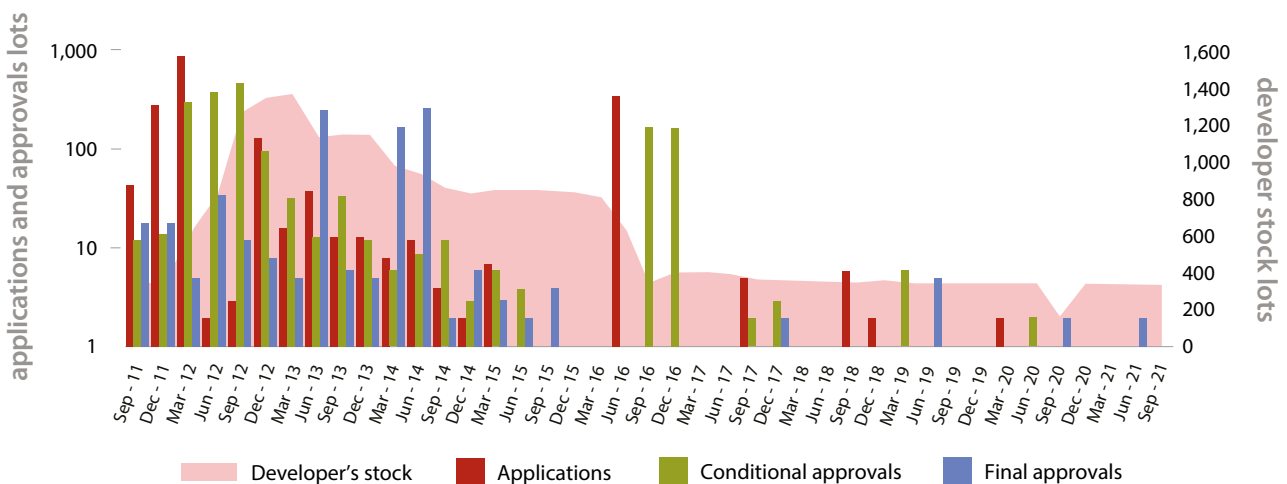
During the previous investment cycle, the Pilbara experienced significant growth between 2008 and 2014. This resulted in over 2,000 dwelling approvals being issued in the Town.

By way of contrast, over the past six financial years to June 2021, ABS data shows that approvals were issued for the construction of only 39 houses and 29 dwelling units/other residential buildings²⁶ - which equates to a total of 68 dwellings of which, 57 per cent were single houses as shown in Figure 19. This equates to an average 11 dwelling approvals over the past six financial years.

Over the six calendar years between 2015 to 2020, Landgate data shows that approximately 200 dwellings were constructed in the Town (as shown in Figure 20), with peak construction occurring in 2015 and 2016 following the previous investment cycle.

There are many factors that relate to limited dwelling approvals and the construction of dwellings in the Town such as access to financing and insurance²⁷ costs. The most significant factor however, relates to the Pilbara building industry broadly, which is currently experiencing labour and material shortages. This raises construction and maintenance costs and limit the pace of development even further. Builders and trades people are in short supply, as many were attracted to the region during the previous investment cycle and have since left following the sharp decline in activity.

Figure 18: Residential subdivision activity and lot supply pipeline - Port Hedland (Town)

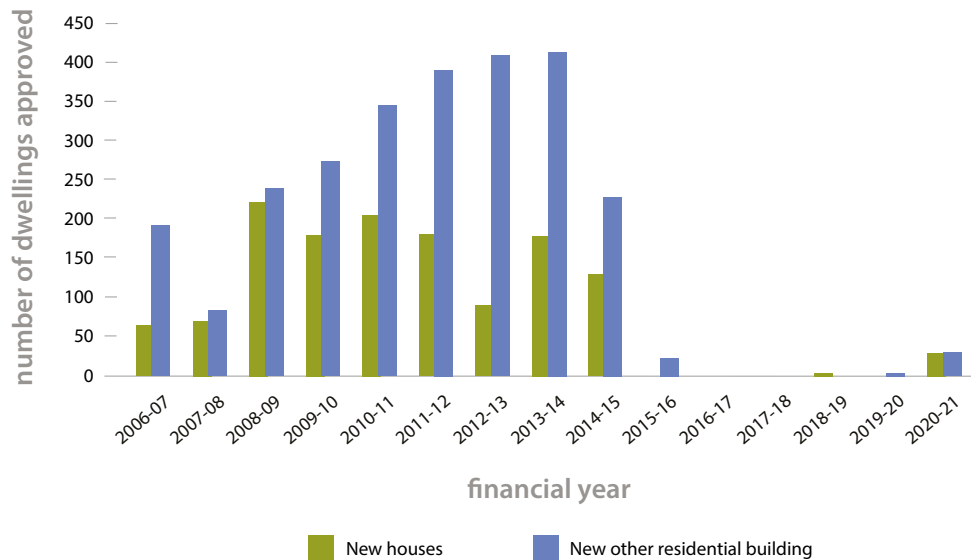


Source: Western Australian Planning Commission (2022)

²⁶ 'Other residential building' includes buildings other than houses which are primarily used for long-term residential purposes. Other residential buildings include semi-detached, row or terrace houses or townhouses, and flats, units or apartments.

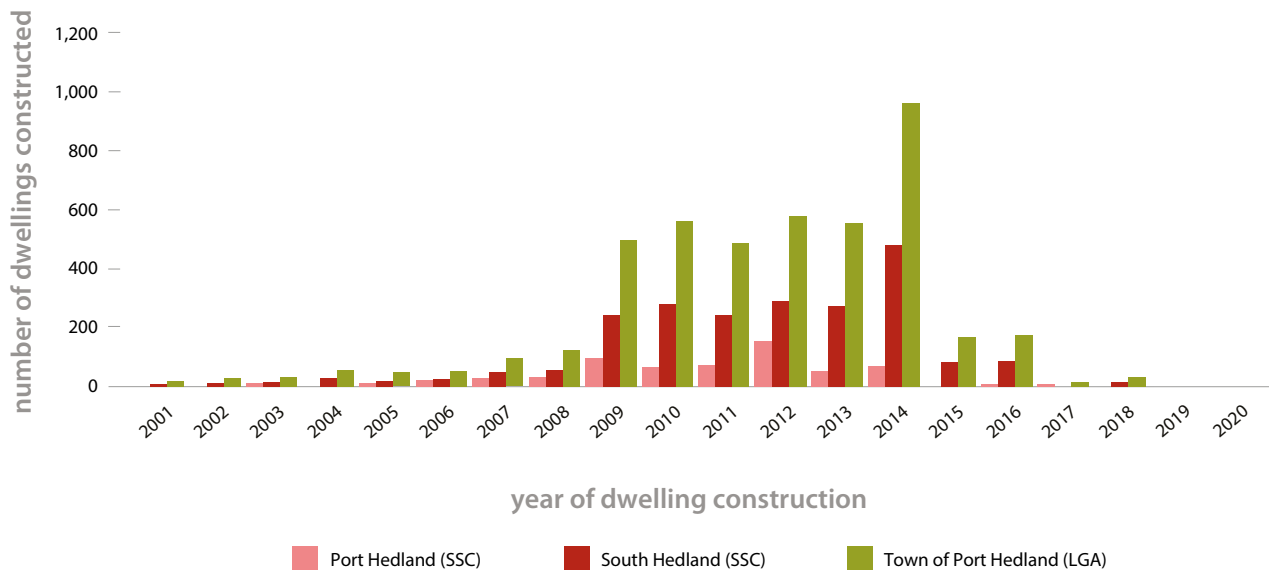
²⁷ Insurance premiums are significantly higher in the Pilbara than any other regional town in Australia. Before COVID associated shortages, remoteness and higher technical building standards for cyclones materially increased the cost of building and repairing homes.

Figure 19: Dwelling approvals - Port Hedland (Town)



Source: Australian Bureau of Statistics (2021) Building Approvals, Australia

Figure 20: Dwelling constructions - Port Hedland (Town)



Source: Department of Planning, Lands and Heritage (2021) based on the Landgate property valuation database

7 Development outlook

Maps 6 to 8 and Table 7 show possible development projects in the Town. These mirror the intent and aspirations of the Planning Strategy relevant for the population and economic growth of Port Hedland. Projects are included where intent has been demonstrated (by government or the development industry) to develop the site at some point in the future and have been through a variety of preliminary planning steps such as:

- local planning scheme zonings and amendments
- developer intentions
- consultation with local stakeholders
- subdivision applications/approvals
- local government development applications/approvals
- structure planning
- strategic planning.

7.1 Residential development

The strategic framework for residential development has been identified in the Planning Strategy. This sets out a preferred pattern of growth to accommodate a baseline population of 18,500 people by 2041 which marginally exceeds the WA Tomorrow population growth forecast outlined in section 3.5.

Previous guidance to development was the Town's Pilbara's Port City Growth Plan which aspired to a population of 50,000 by 2035 when mining and construction projects were at their peak in 2012. This plan identified a significant amount of land in the Town to accommodate growth that had significant environmental constraints, tenure and servicing limitations.

The Planning Strategy identifies a conservative as well as an aspirational approach to residential development with a forecast of 18,500 people and 27,085 people by 2041 respectively. The former considers land that can respond more effectively to fluctuations in economic growth in the Town. The latter assumes that a concerted effort across government will be required to modify existing policy settings such as the promotion of a local workforce over FIFO workforces and for collaboration and partnerships with industry to support diversification of the local economy.

One key change to the strategic framework in the Town of Port Hedland has been the introduction of the Port Hedland West End Improvement Scheme No.1 (IS1) by the WAPC for the west end of Port Hedland in 2021 (as shown in Map 6) which is now categorised as a portside precinct to facilitate a diverse range of commercial and service uses best suited within the historic Port Hedland town centre. The implication of IS1 is that the 600 dwellings located in the precinct will not be supplemented by additional residential development into the future and over time, the use of this precinct will transform. Urban expansion planning for the Port Hedland townscape has now shifted to the East End as shown in the Planning Strategy.

7.2 Port Hedland urban form

An estimated yield of approximately 850 dwellings and 60 hectares of urban expansion land has been identified for the suburb of Port Hedland over the next 20 years as shown on Map 6. The East End Urban Village and Spinifex Hill Precincts in Port Hedland are estimated to yield 555 and 387 dwellings respectively. There has been significant planning undertaken to date in these locations.

Given the introduction of the IS1, development is now focused in the eastern part of Port Hedland in precincts of Spinifex Hill and the East End Urban Village to accommodate urban growth. Within these locations, priority has been directed to land free from environmental constraints, being typically higher-lying land, not prone to coastal inundation and located away from mangrove habitats. Examples include the former recreation centre and detention centre site (PH142) as well as the Pretty Pool sites PH08C and PH08B.

Other potential longer-term sites zoned Urban Development as per LPS7 have been identified that will require further site investigation to determine development viability. These all require coastal inundation mitigation planning to guide future development yields, including the provision of substantial fill to cater for low lying land. Two of these sites are subject to structure plans endorsed by the WAPC (site PH133 – Athol Street Structure Plan Area and site PH136 – Stables Structure Plan Area).

Other long-term term sites (PH135 and PH140) relating to the Telstra site and the former waste water treatment plant respectively require structure planning in addition to the investigations to deal with coastal inundation considerations.

The dwelling yields and timeframe of release for sites in the east end of Port Hedland are subject to coastal hazard risk management and adaptation planning, which has been undertaken by the Town. This is discussed further in Section 7.7.4

7.3 South Hedland urban form

The *Planning Strategy* identifies 3,599 dwellings and 366 hectares of vacant land for urban expansion in South Hedland. In terms of staging, preference is generally given to land in proximity to existing infrastructure and amenity (i.e. the City Centre) and established urban areas over land located on the edge of the established urban area of South Hedland.

Residential development in the South Hedland townsite is split into key areas. Within the established urban locations of Walnut Grove, Lawson, Shellborough, Cassia and Koombana, a total of 607 dwellings have been identified for future growth as outlined in Table 7. Of these, most sites are zoned 'Residential' as per LPS7 and coded between R20-R50. Sites SH59 and SH92 are zoned 'Urban Development' as per LPS7 and will require structure plans to be prepared.

The western edge of the South Hedland townsite has four sites which collectively are expected to yield 1,500 dwellings. Sites SH131A and SH131B are subject to the Western Edge Structure Plan, which will need to be revised to better represent

Development WA's future development aspirations.

Sites SH146 and SH148 are currently being used for transient workers accommodation (Gateway Village and Club Hamilton) and are expected to transition over time for residential development.

The northern, eastern and southern edges of the South Hedland townsite contain sites with significant yields (approximately 3,000 dwellings) over the next 20 years and beyond. The key sites within this grouping are SH130, SH65A and SH65B relate to the Hamilton Structure Plan Area and Osprey Rural Structure Plan Area respectively. These sites are subject to approved structure plans and are being leased by the Housing Authority from the State, however, at the time of writing, these leases are being surrendered.

Development outlook analysis indicates that South Hedland accounts for 86 per cent of the entire stock of proposed dwellings in identified future development areas (Table 6). Large-scale proposed developments on the outskirts of South Hedland contribute significantly to the stock of proposed dwellings.

7.4 Industrial development

The *Planning Strategy* identifies approximately 5,026 hectares of industrial land for development in the Town which is shown on Maps 7, 8 and 12 and Table 7. The largest of these areas is the Boodarie Strategic Industrial Area (IND160) which zoned Strategic Industry as per LPS7 and covers approximately 4,000 hectares. The purpose of the site is to accommodate heavy and noxious industrial uses associated with the Port Hedland Port.

Table 6: Estimated dwelling yield - Townsites

Suburb	Short-term (0-5 years)	Medium-term (6-10 years)	Long-term (10+ years)	Total
Port Hedland	82	-	860	942
South Hedland	1,027	2,085	1,978	5,090
Total	1,109	2,085	2,838	6,032

Source: Department of Planning, Lands and Heritage (2022)

The primary industrial area in the Town is Wedgefield, which is substantially developed. As at August 21, there were 36 vacant lots in Wedgefield. Maps 7 and 8 and Table 7 identifies a total of 390 hectares of industrial expansion in Wedgefield zoned “Industrial Development”, “Light Industry” or “Strategic Development” as per LPS7. The *Planning Strategy* identifies most of these expansion sites as falling into three categories. Site IND149 is identified as a southerly extension to the “Old Wedgefield Industrial Estate”; sites IND81A and IND81B relate to the new Hedland Junction Precinct which has been identified for small to medium businesses servicing the mining, construction and transport industries. The adjacent site to the north - IND82 has been earmarked to cater for future industrial expansion, subject to further investigation.

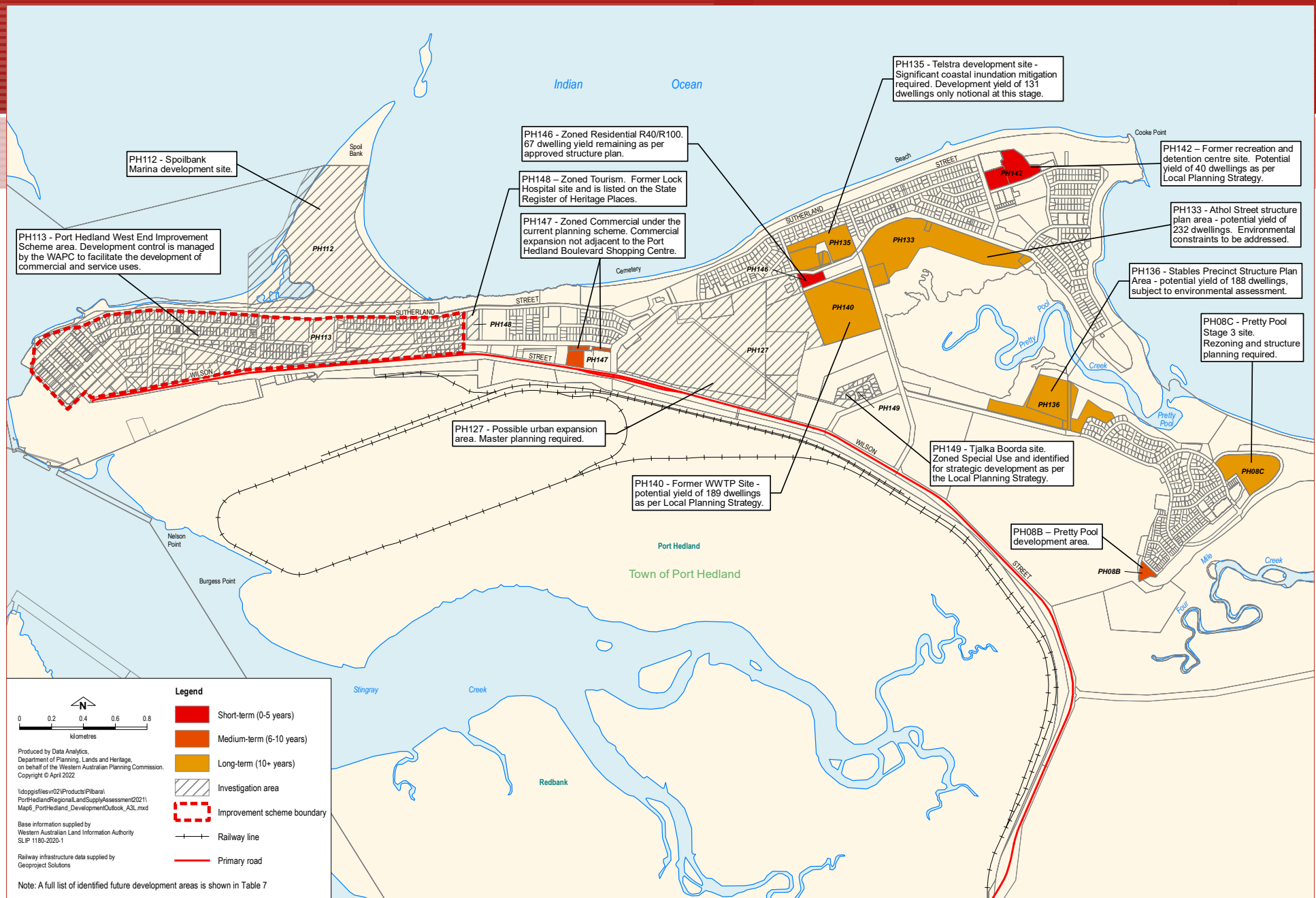
Site IND152 relates to the Lumsden Point logistics hub which is strategically located near the Great Northern Highway and the Port Hedland International Airport managed by the Pilbara Ports Authority.

7.5 Commercial development

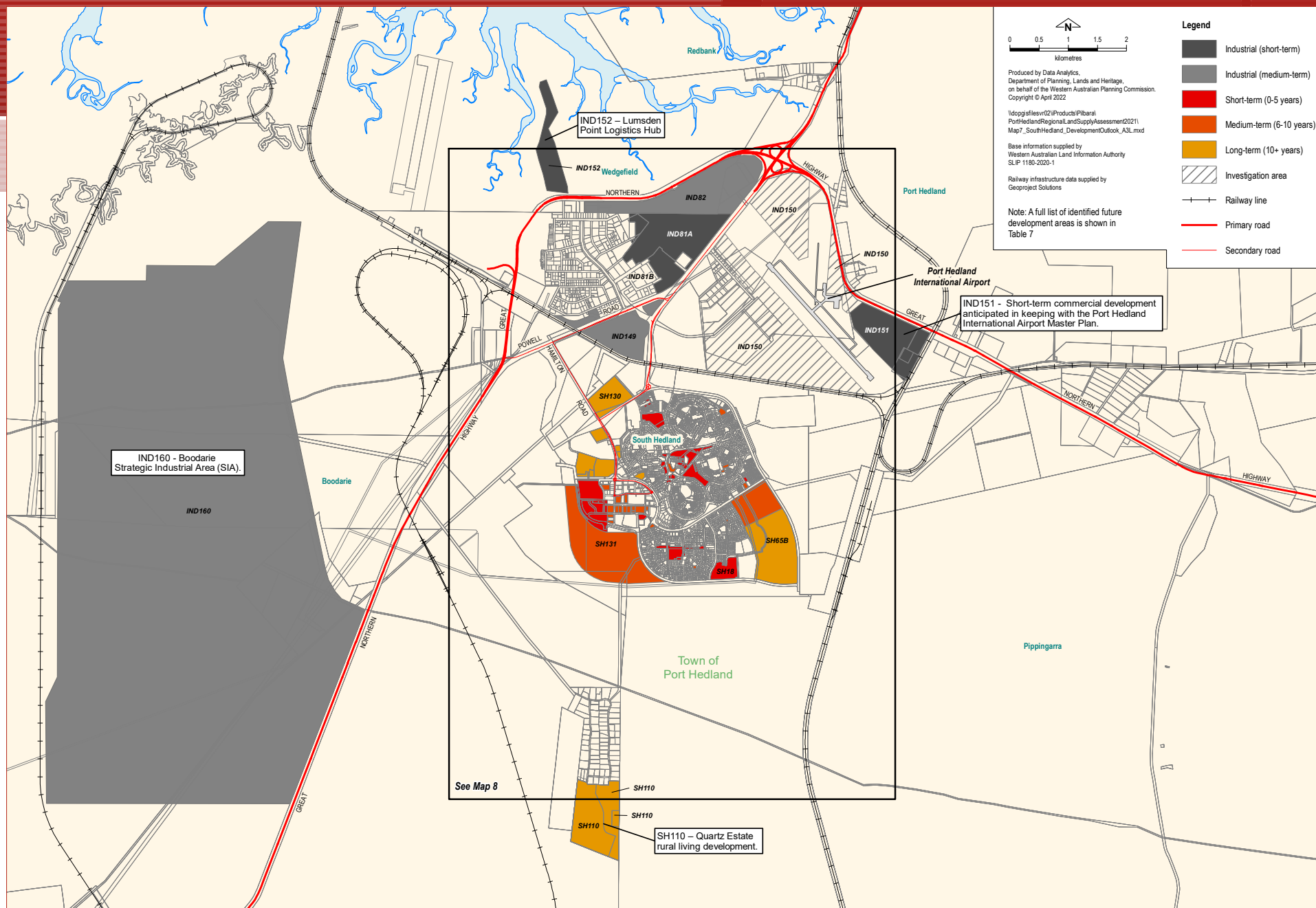
Apart from commercial development contained in the Port Hedland West Improvement Scheme No. 1 precinct, the *Planning Strategy* identifies approximately 16 hectares of commercial/mixed-use land for development in the townsites. These are shown on Map 8 and Table 7 as development outlook sites. The bulk of these sites are located within the South Hedland town centre are guided by the South Hedland Town Centre Development Plan.

7.6 Development investigation areas

To cater for long-term growth, the *Planning Strategy* identifies approximately 670 hectares of land for development investigation in the Port Hedland townsites. The largest of the sites is IND150 which relates to the Port Hedland Airport Light Industry/Commercial Park which is zoned Special use as per LPS7. Future development options for this site will be explored in keeping with the Port Hedland International Airport Master Plan and the provisions of LPS7. Site PH127 relating to the McGregor Street Sporting Precinct development investigation area will require further evaluation to determine land use and dwelling yields (if relevant) and therefore projections on this site has been excluded from Table 7.



Map 6: Development outlook (staging) – Port Hedland



Map 7: Development outlook (staging) – South Hedland (1 of 2)

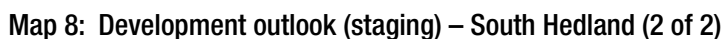


Table 7: Development outlook – project summaries

Identifier	Timing	Location	Locality/suburb	Estate Name	Map number in this document	Existing tenure ¹	Purpose	Current local planning scheme zone/reserve	Amendment required	Other planning under way	Area (ha)	Yield (lots)	Yield (units)	Approvals pending	Current approvals	Short-term (0-5 years)	Medium-term (6-10 years)	Long-term (10+ years)	Concern but resolution anticipated	Critical but resolution anticipated	Critical and resolution not definite	Comments
PH08B	Short	Lot 724 Dowding Way	Port Hedland	Pretty Pool Estate	Map 6	Housing Authority	Residential		No	n/a	0.7	1	15	n/a	n/a	15	-	-	Pw, S	BP, E	-	Site zoned Residential (R40) as per the Town of Port Hedland Local Planning Scheme No 7 (LPS7). The Local Planning Strategy (Local PS) identifies the site within the East End Urban Village Precinct. Development of the site is anticipated at a R50 density for GROH/Social Housing by the Department of Communities. Bushfire constraints may reduce available yield.
PH08C	Long	Lot 5007 Counihan Cr	Port Hedland	n/a	Map 6	State of WA	Residential	Rural	Yes	n/a	6.5	50	50	n/a	n/a	-	-	50	MC, Pw, S,	BP	TG, Z	Site zoned Rural under LPS7 and DIA-3 (Pretty Pool Stage 3a Development Investigation Area) as per Local PS. Projected yield of 50 dwellings. Subject to rezoning and structure planning.
PH112	Invest	Lots 5751 5178 & 5550 Sutherland Street	Port Hedland	n/a	Map 6	State of WA	Marina	Special Purpose Reserve, Environmental Conservation Reserve	No	n/a	60.0	n/a	n/a	n/a	n/a	n/a	n/a	n/a	MC, Pw, S, T, L, W,	BP, H, E	-	Site of the proposed Spoilbank Marina. Adjacent to the Port Hedland West End Improvement Scheme No.1 (IS1). Development of this site is being led by an inter-agency taskforce comprised of the Pilbara Development Commission, Department of Transport, Pilbara Ports Authority, Town of Port Hedland and the Department of Treasury. Development on the site is required to have regard to long term coastal processes. Contains Indigenous heritage values.
PH113	Invest	Various lots bounded by Port Hedland Road, Taplin St, Sutherland St and The Esplanade	Port Hedland	n/a	Map 6	Various landowners	Commercial and Service Uses	n/a	n/a	Hedland Maritime Initiative	96.1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	MC, L	BP, H	TG	Site mirrors the Port Hedland West End Improvement Scheme No 1 (IS1) precinct boundary which contains the Portside, Business Park, Maritime and Landscape precincts. Development approval within the IS1 is managed by the WAPC. The intent of the IS1 precincts is to facilitate a diverse range of commercial and service uses best suited within the Port Hedland town centre. Concept master planning is currently being progressed by the Hedland Maritime Initiative (HMI) to guide land acquisition initiatives. Contains Indigenous heritage values.
PH127	Invest	Various lots north of Port Hedland Road and south of McGregor Street	Port Hedland	n/a	Map 6	State of WA with management orders to the Town of Port Hedland	Residential	Parks and recreation	Yes		70.6	TBD	TBD	n/a	n/a	TBD	TBD	TBD	Pw, S, L	BP, H	-	Site zoned Parks and Recreation under LPS7 and partly located within DIA-4 (McGregor Street Sporting Precinct development investigation area). The Planning Strategy identifies a portion of the site for residential development. Master Planning is currently underway to facilitate the McGregor Street Integrated Sports Precinct. The majority of the site is affected by coastal inundation as per the CHRMAP. Contains Indigenous heritage values.
PH133	Long	Lots 340, 511, 512, 555 & 556, Lots 1444 & 1732 Athol Street	Port Hedland	n/a	Map 6	State of WA	Residential	Urban Development	No	Athol Street Structure Plan	19.8	232	302	n/a	n/a	-	-	302	MC, Pw, S, L, TG, W	BP, E, H, TG	-	The site is zoned 'Urban Development' as per LPS 7 and is identified by the Local PS as falling within DIA-1 (Athol Street Investigation Area). The Athol Street Structure Plan endorsed by the WAPC in Jan 2021 proposes that the site can accommodate 232 single/grouped dwellings and 70 multiple dwellings. The majority of the site is affected by coastal inundation as per the CHRMAP. Contains Indigenous heritage values. Site requires significant amount of fill to develop.
PH135	Long	Lot 102 McGregor St	Port Hedland	n/a	Map 6	Telstra Corporation Ltd	Residential	Urban Development	No	Lot 2 McGregor Street & Lot 5474 Thompson Street Development Plan	7.4	131	131	n/a	n/a	-	-	131	MC, Pw, S, L	BP, E, TG	-	The site is zoned 'Urban Development' under the Town's LPS7 and is partially occupied by a Telstra Exchange. The planning strategy identifies the site for short term development with a yield of 131 dwellings. Significant fill required to develop site. Approximately half of the site (southern portion) is affected by coastal inundation as per the CHRMAP. Further investigation required to establish development viability.
PH136	Long	Lots 300, 340 & 556, Lot 5966 Athol Street, Lot 5770 Johnson Lane, Lot 5755 Styles Road	Port Hedland	n/a	Map 6	State of WA	Residential	Urban Development	No	Stables Precinct Structure Plan	12.4	TBD	188	n/a	n/a	-	-	188	MC, L, W	BP, E	-	The site is zoned Urban Development as per LPS7 and is identified as DIA-2 (The Stables Investigation Area) in the Local PS to accommodate long term residential development with an estimated yield of 188 dwellings - which aligns with the Stables Precinct Structure Plan endorsed by the WAPC in December 2020. The eastern portion of the site is affected by coastal inundation as per the CHRMAP.

Identifier	Timing	Location	Locality/suburb	Estate Name	Map number in this document	Existing tenure ¹	Purpose	Current local planning scheme zone/reserve	Amendment required	Other planning under way	Area (ha)	Yield (lots)	Yield (units)	Approvals pending	Current approvals	Short-term (0-5 years)	Medium-term (6-10 years)	Long-term (10+ years)	Concern but resolution anticipated	Critical but resolution anticipated	Critical and resolution not definite	Comments
PH140	Long	Lots 952 & 2046 Tindale Street	Port Hedland	n/a	Map 6	State of WA	Residential	Urban Development	No	n/a	14.5	TBD	189	n/a	n/a	-	-	189	MC, Pw, S, L	BP, E	-	The site is zoned Urban Development as per LPS7, and previously accommodated the Port Hedland Wastewater Treatment Plant. All buildings and associated infrastructure were decommissioned in 2015 and the site has since undergone remediation. The Local PS identifies a yield of 189 dwellings for the site.
PH142	Short	Lot 2 Dempster St, Lot 1227 Keesing St	Port Hedland	n/a	Map 6	Commonwealth of Australia, Port Hedland Hub Pty Ltd, State of WA	Residential	Urban Development	No	n/a	4.8	TBD	TBD	n/a	n/a	40	-	-	L	BP, E	TG	Site is zoned Urban Development as per LPS7 and relates to the former recreation and detention centre. The local planning strategy identifies the site for short term development with a yield of 40 dwellings. The northern portion of the site is subject to coastal inundation as per CHRMAP.
PH146	Short	Pt Lot 4 Aitchison Way	Port Hedland	n/a	Map 6	Roy Hill Infrastructure Pty Ltd	Residential	Residential R40, R100	No	Lot 4 Clarke Street Development Plan	1.1	TBD	67	n/a	n/a	67	-	-	Pw, S, L	BP, E	-	Site is zoned Residential R40/100 as per LPS7 and is subject to an approved development plan with a residual yield of 67 dwellings. 22 single storey grouped dwellings have been constructed on the site to date.
PH147	Medium	Lots 5828, 5827 Anderson St and Lot 500 Port Hedland Road	Port Hedland	n/a	Map 6	Hedland Christian Church Inc, State of WA	Commercial	Commercial	No	n/a	1.7	TBD	n/a	n/a	n/a	-	-	-	L	H	-	Site is zoned Commercial as per LPS7 and will provide commercial expansion opportunities for land surrounding the Port Hedland Boulevard Shopping Centre which is shown as a Neighbourhood Centre in the Local Planning Strategy. Contains Indigenous heritage values.
PH148	Invest	Lot 841 Sutherland Street	Port Hedland	n/a	Map 6	State of WA	Tourism	Tourism	No	n/a	1.4	TBD	n/a	n/a	n/a	n/a	n/a	n/a	L	BP, E, H, TG	-	Site is zoned Tourism as per LPS7 and is shown as a strategic development site in the Local Planning Strategy. Site is currently vested for community welfare purposes. Site is listed on the State of Heritage Places. Contains Indigenous heritage values. Former Lock Hospital Site and Burial Ground.
PH149	Invest	Lot 5810 Styles Road and other various lots	Port Hedland	n/a	Map 6	State of WA	Residential, Community	Special Use	No	No	3.8	TBD	n/a	n/a	n/a	n/a	n/a	n/a	MC, Pw, S, L	BP	-	Tjalka Boorda Site. Site is zoned Special Use (SU3) as per LPS7 and is shown as a strategic development site in the Local Planning Strategy.
SH06	Medium	Lots 340 & 2590 Baler Close	South Hedland	Shellborough	Map 8	WA Land Authority	Residential	Residential (R30)	No	n/a	0.9	2	19	-	-	-	19	-	-	-	-	Site zoned Residential R30 as per LPS7 and is comprised of two undeveloped lots. Previous development plans proposed the construction of 19 grouped dwellings.
SH09	Short	Lot 503 Cottier Drive, Lots 1 & 3124 Pettit Place	South Hedland	Cassia	Map 8	WA Land Authority, State of WA	Residential	Residential (R20 & R30)	No	n/a	1.1	14	30	-	-	30	-	-	L	-	-	Site zoned Residential as per LPS7 and is comprised of three undeveloped lots, one with a density coding of R20 and two with a density coding of R30. Previous development plans proposed the creation of 13 single house lots and one grouped dwelling lot to accommodate 17 grouped dwelling units.
SH18	Short	Lot 9003 Cottier Drive	South Hedland	Koombana	Map 8	State of WA, Housing Authority	Residential, Community	Urban Development	No	Osprey West Detailed Area Plan	13.3	TBD	175	-	-	175	-	-	MC, Pw, S	BP	-	Site zoned 'Urban Development' as per LPS7 and part of the Osprey West Structure Plan Area with a balance yield of 175 dwellings. Currently subject to lease to the Housing Authority. DPLH is processing lease surrender as requested by Housing Authority. Site is being considered by the Department of Finance for residential development as part of a market-led proposal.
SH29A	Short	Lot 920 Smith Street	South Hedland	Lawson	Map 8	Swamui Pty Ltd	Residential	Residential (R30)	No	n/a	0.4	1	13	-	-	13	-	-	-	-	-	The site is an undeveloped lot zoned 'Residential' with a density coding of R30 as per LPS7. Previous development plans proposed the construction of 13 grouped dwellings. Site is proposed to be developed with a child care facility.
SH29B	Short	Lots 102 & 103 Somerset Crescent	South Hedland	Lawson	Map 8	Housing Authority	Residential	Residential (R30)	No	n/a	1.3	14	42	-	-	42	-	-		BP	-	The site is comprised of two undeveloped lots zoned 'Residential' with a density coding of R30 as per LPS7. Previous development plans proposed the creation of up to 14 lots to accommodate a total of 42 dwellings.

Identifier	Timing	Location	Locality/suburb	Estate Name	Map number in this document	Existing tenure ¹	Purpose	Current local planning scheme zone/reserve	Amendment required	Other planning under way	Area (ha)	Yield (lots)	Yield (units)	Approvals pending	Current approvals	Short-term (0-5 years)	Medium-term (6-10 years)	Long-term (10+ years)	Concern but resolution anticipated	Critical but resolution anticipated	Critical and resolution not definite	Comments
SH54	Short	Lot 21 Collier Drive	South Hedland	South Hedland Town Centre	Map 8	WA Land Authority	High density mixed use residential	Centre	No	South Hedland Town Centre Activity Centre Plan	1.2	TBD	TBD	-	-	-	-	-	L	-	-	The site is a vacant lot zoned 'Centre' as per LPS7 and part of the South Hedland City Centre Precinct in the Local Planning Strategy. The site is identified in the South Hedland Town Centre Development Plan - endorsed by the WAPC in 2014 as part of the Main Street and Community Hub - for High Density Mixed-Use Residential. Plans are underway to develop a multi-storey mixed use development on the site.
SH59	Short	Lots 501, 509, 510, 703 & 6115, Lot 5996 Cottier Drive, Lots 271, 3097 & 3098 Jibson Close, Lots 3111 & 3112 Lovell Way, Lot 2 Mangrove Road	South Hedland	Trumpet Development Area	Map 8	State Housing Commission, State of WA, WA Land Authority	Single houses, grouped dwellings	Urban Development	No	n/a	16.7	TBD	100	-	-	100	-	-	MC, Pw, S, L	-	-	The site is zoned 'Urban Development' as per LPS7 and part of the Trumpet Way Structure Plan Area as per the Local PS with a potential yield of 100 dwellings. Conditional approval expired in August 2020 to create 176 single residential lots.
SH63	Long	Lot 512 Lawson Street	South Hedland	Lawson	Map 8	State of WA	Mixed use	Mixed use	No	n/a	0.3	TBD	TBD	-	-	-	-	-	MC, L	-	-	Site is zoned Mixed Use as per LPS7.
SH65A	Medium	Lots 570, 571, 572, 573, 574 & 9001 Broilga Way	South Hedland	Osprey Rural Estate	Map 8	State of WA	Residential	Urban Development	No	Osprey Rural Structure Plan	37.5	366	1184	-	-	-	366	-	MC, Pw, S, W	BP	-	Site zoned 'Urban Development' as per LPS7 and part of the Osprey Rural Structure Plan Area endorsed by the WAPC in 2019. Expected yield for the entire structure plan area is 1177 dwellings. This site is the northern cell of the structure plan area. Medium term development is anticipated. Currently subject to a Housing Authority lease surrender process managed by DPLH.
SH65B	Long	Lots 570, 571, 572, 573, 574 & 9001 Broilga Way	South Hedland	Osprey Rural Estate	Map 8	State of WA, Housing Authority	Residential	Urban Development	No	Osprey Rural Structure Plan	83.8	817	1184	-	-	-	-	818	MC, Pw, S, W	BP	-	Site zoned 'Urban Development' as per LPS7 and part of the Osprey Rural Structure Plan Area endorsed by the WAPC in 2019. Expected yield for the entire structure plan area is 1177 dwellings. This site is the southern cell of the structure plan area. Long term development is anticipated. Currently subject to a Housing Authority lease surrender process managed by DPLH.
SH66	Long	Lot 902 Somerset Crescent	South Hedland	Lawson	Map 8	WA Land Authority	Residential	Residential (R50)	No	n/a	1.6	1	54	-	-	-	-	54	L	-	-	The site is an undeveloped lot zoned 'Residential' with a density coding of R50 as per LPS7. The site has access issues that need to be resolved before development can be considered.
SH75	Short	Lot 500 McDonald Street	South Hedland	Walnut Grove	Map 8	State of WA	Residential	Residential (R30)	No	n/a	1.1	1	36	-	-	36	-	-	-	-	-	The site is an undeveloped lot zoned 'Residential' with a density coding of R30 as per LPS7. DPLH is in the process of removing expired term lease relating to this site.
SH76	Medium	Lots 1001, 1002, 1004, 1005, 1006 & 1007	South Hedland	South Hedland Town Centre	Map 8	Manday Investments Pty Ltd, Pilbara Photographics Pty Ltd, WA Land Authority, Vo Duong Anh Hoa, Vo Tung Thoi	Mixed use	Centre	No	South Hedland Town Centre Activity Centre Plan	3.7	TBD	TBD	-	-	-	-	-	L	-	-	The site comprises of six vacant lots zoned 'Centre' as per LPS7. The site is within the South Hedland City Centre Precinct in the Local Planning Strategy and identified in the South Hedland Town Centre Development Plan within the Health Services and Residential Precinct. Mixed-use development envisaged. Development timeframe likely to change given recent purchase of some of the lots that make up this site.
SH80	Short	Lot 5948 Spoonbill Crescent	South Hedland	Koombana	Map 8	State of WA	Residential	Residential (R30)	No	n/a	0.2	-	5	-	-	5	-	-	L	BP	-	The site is zoned 'Residential' with a density coding of R30 as per LPS7. Yield dependent on land sequencing by Development WA.
SH90	Long	Lot 5977 Hamilton Road, Lot 2939 Roberts Street	South Hedland	Lawson	Map 8	State of WA, Regional Power Corporation	Mixed use	Mixed use	No	n/a	1.7	TBD	TBD	-	-	-	-	-	L	-	-	The site is zoned 'Mixed Use' as per LPS7. Freehold acquisition of site is being sought by the Town of Port Hedland.

Identifier	Timing	Location	Locality/suburb	Estate Name	Map number in this document	Existing tenure ¹	Purpose	Current local planning scheme zone/reserve	Amendment required	Other planning under way	Area (ha)	Yield (lots)	Yield (units)	Approvals pending	Current approvals	Short-term (0-5 years)	Medium-term (6-10 years)	Long-term (10+ years)	Concern but resolution anticipated	Critical but resolution anticipated	Critical and resolution not definite	Comments
SH92	Short	Lot 2940 Coppin Place, Lot 5954 Kennedy Street	South Hedland	Pundulmurra Village	Map 8	Regional Power Corporation, Australasian Conference Association	Residential	Urban Development	No	n/a	7.0	TBD	120	-	-	120	-	-	MC, Pw, S, L	-	-	Site zoned 'Urban Development' as per LPS7. Identified as the Pundulmurra Structure Plan Area with an estimated yield of 120 dwellings as per the Local Planning Strategy. Structure planning required.
SH93	Short	Lot 192 Captains Way, Lot 191 Chunking Crescent, Lot 3435 Daylesford Road, Lot 3509 Kabbarli Loop, Lots 3505, 3506 & 3508 Koojarra Crescent, Lot 196 Skippers Loop	South Hedland	Koombana	Map 8	Jaxon Koombana Pty Ltd, Karratha City Apartments Pty Ltd, State of WA and other various owners.	Residential	Urban Development	No	Lot 3435 Daylesford Close, Lots 3505, 3506, 3508, 3713 & 3715 Koojarra Loop, Lot 3509 Kabbarli Loop and Lots 3570 & 3625 Captains Way, South Hedland Development Plan	8.1	97	80	-	-	80	-	-	MC, Pw, S, L	BP	-	Site zoned 'Urban Development' and Residential R40 as per LPS7 and part of the 'Koombana' Structure Plan Area as per the Planning Strategy. An approved structure plan for the site. Anticipated yield is 80 dwellings as per advice from the Town of Port Hedland.
SH100	Medium	Lot 1502 Leake Street	South Hedland	South Hedland Town Centre	Map 8	Swamui Pty Ltd	Mixed Use	Centre	No	South Hedland Town Centre Activity Centre Plan	0.3	TBD	TBD	-	-	-	-	-	L	-	-	The site is a vacant lot zoned 'Centre' as per LPS7 and part of the South Hedland City Centre Precinct in the Local Planning Strategy. The site is identified in the South Hedland Town Centre Development Plan as part of a the Main Street and Community Hub.
SH102	Medium	Pt Lot 6102, Pt Lot 500 Hamilton Road, Pt Lot 521 McLarty Boulevard	South Hedland	South Hedland Town Centre	Map 8	State of WA	Mixed use	Centre	No	South Hedland Town Centre Activity Centre Plan	3.4	TBD	TBD	-	-	-	-	-	L	BP	-	Site zoned 'Centre' as per LPS7. The site is within Precinct C - 'Health Services & Residential' under the South Hedland Town Centre Activity Centre Plan. Mixed use development envisaged.
SH107	Medium	Lot 1700 Colebatch Way	South Hedland	South Hedland Town Centre	Map 8	State of WA	Mixed use	Centre	No	South Hedland Town Centre Activity Centre Plan	1.9	TBD	TBD	-	-	-	-	-	MC, L	-	-	Site zoned Centre as per PS7. The site is within Precinct A - 'Main Street & Community Hub' under the South Hedland Town Centre Activity Centre Plan. Site currently reserved for health (community health centre) purposes. Investigation to be undertaken if site is surplus to Department of Health's requirements and if so, it will be reverted to the State as Crown land.
SH108	Medium	Lot 8018 Throssell Road	South Hedland	South Hedland Town Centre	Map 8	State of WA	Mixed use	Centre	No	South Hedland Town Centre Activity Centre Plan	1.2	TBD	TBD	-	-	-	-	-	MC, L	-	-	The site is a vacant lot zoned 'Centre' as per LPS7 and within the Northern Commercial Gateway Precinct under the South Hedland Town Centre Development Plan. Mixed-use development is envisaged.
SH110	Long	Lot 501 Greenfield Street	Boodarie	Quartz Estate	Map 7	Cradock Enterprises Pty Ltd, Famsun Pty Ltd, O'Neill P, Pound B M, Pound J M, Rowbottom A, Summers P J D	Rural Living	Rural Residential	No	n/a	92.5	TBD	TBD	-	-	-	-	-	MC, Pw, S, L, W	BP, H, TG	-	Site zoned Rural Residential as per LPS7 and part of the Bonsa/Quartz Estate Precinct in the LPS. Previous conditional subdivision approval expired in August 2018. Contains Indigenous heritage values. Bushfire classification is likely to impede further subdivision of the site.
SH115	Medium	Lot 253 Rutherford Road	South Hedland	Shellborough	Map 8	WA Land Authority	Residential	Residential (R30)	No	n/a	0.7	1	23	-	-	-	23	-	L	BP	-	The site is an undeveloped lot zoned 'Residential' with a density coding of R30 as per LPS7.
SH116	Medium	Lots 860 and 8008 Minderoo Avenue	South Hedland	Koombana	Map 8	Hedland Quality Homes Pty Ltd, State of WA	Residential	Residential (R30)	No	n/a	0.3	1	9	-	-	-	9	-	L	BP	-	The site is an undeveloped lot zoned 'Residential' with a density coding of R30 as per LPS7.
SH117	Medium	Lot 507 Cottier Drive	South Hedland	Shellborough	Map 8	State of WA	Residential	Residential (R30)	No	n/a	1.3	8	25	-	-	-	25	-		BP	-	The site is an undeveloped lot zoned 'Residential' with a density coding of R30 as per LPS7. It is irregularly shaped.
SH130	Long	Lots 331 and 506 Hamilton Road	South Hedland	n/a	Map 8	State of WA	Residential	Urban Development	No	Lot 331 Hamilton Road Development Plan	28.2	298	440	-	-	-		440	Pw, S	BP, TG	-	Site zoned "Urban Development" as per LPS7. An approved development plan for the site identifies a total yield of 298 lots (235 lots at R20, 35 lots at R25, 26 lots at R80 and two grouped dwelling lots at R160), which will provide for the development of approximately 440 dwellings. The site is identified as part of the Hamilton Road Structure Plan Area in the Planning Strategy. Currently subject to a Housing Authority lease surrender process managed by DPLH.

Identifier	Timing	Location	Locality/suburb	Estate Name	Map number in this document	Existing tenure ¹	Purpose	Current local planning scheme zone/reserve	Amendment required	Other planning under way	Area (ha)	Yield (lots)	Yield (units)	Approvals pending	Current approvals	Short-term (0-5 years)	Medium-term (6-10 years)	Long-term (10+ years)	Concern but resolution anticipated	Critical but resolution anticipated	Critical and resolution not definite	Comments
SH131A	Short	Lots 358, 501, 502, 521, 606, 3259 & 6102	South Hedland	Western Edge	Map 8	State of WA	Residential	Urban Development	No	Western Edge Structure Plan	35.7	100	400	-	-	400	-	-	MC, Pw, S, L, W	BP, TG	-	Site zoned 'Urban Development' as per LPS7 and identified as "South Hedland West" in the Local Planning Strategy. Short term development envisaged. Site subject to the Western Edge Structure Plan. Development WA has advised that the structure plan is no longer reflective of future development aspirations and hence is to be revisited in the near term.
SH131B	Medium	Lots 358, 361, 353, 400, 450	South Hedland	Western Edge	Map 8	State of WA	Residential	Urban Development	No	Western Edge Structure Plan	119.3	800	800	-	-	-	800	-	MC, Pw, S, L, W	BP, TG	-	Site zoned 'Urban Development' as per LPS7 and identified as "South Hedland West" in the Local Planning Strategy. Medium term development envisaged. Site subject to the Western Edge Structure Plan. Development WA has advised that the structure plan is no longer reflective of future development aspirations and hence is to be revisited in the near term.
SH133	Short	Lot 3 Barramine Loop	South Hedland	Shellborough	Map 8	Town of Port Hedland	Residential	Residential (R30)	No	n/a	0.4	-	9	-	-	9	-	-	L	BP	-	The site is an undeveloped lot zoned 'Residential' with a density coding of R30. Nine dwellings are being constructed presently by the Town of Port Hedland.
SH134	Medium	Lot 27 Daylesford Road	South Hedland	Koombana	Map 8	Various landowners	Residential	Residential (R40)	No	n/a	0.5	1	25	-	-	-	25	-	L	-	-	The site is an undeveloped lot zoned 'Residential' with a density coding of R40 as per LPS. A development application for 42 multiple dwellings was approved by the Pilbara JDAP which has now lapsed.
SH143	Medium	Lot 1 Throssell Road	South Hedland	South Hedland Town Centre	Map 8	Radhey Enterprise Pty Ltd	Commercial	Centre	No	South Hedland Town Centre Development Plan	0.9	TBD	TBD	-	-	-	-	-	L	-	-	The site is a vacant lot zoned 'Centre' as per LPS7. It is within Precinct B - 'Boulevard Retail' under the South Hedland Town Centre Development Plan. Concept plans are currently being prepared for commercial tenancies on the site.
SH144	Medium	Lot 504 Scadden Road	South Hedland	South Hedland Town Centre	Map 8	State of WA	Commercial	Centre	No	South Hedland Town Centre Development Plan	1.2	TBD	TBD	-	-	-	-	-	L	BP	-	Site zoned Centre as per LPS7 and identified within the Northern Commercial Gateway Precinct.
SH146	Long	Lots 901, 902 & 903	South Hedland	n/a	Map 8	State of WA	Residential	Urban Development	No	Area A - Lot 503 Forrest Circle Development Plan	11.9	-	200	-	-	-	-	200	L, MC	BP	-	The site is comprised of three lots zoned 'Urban Development' as per LPS7. Development of the site is guided by the Area A - Lot 503 Forrest Circle Structure Plan which aims to provide for transient and key worker accommodation and transition to residential development over the long-term. Lot 901 contains Gateway Village; a temporary 1,200 person transient workforce accommodation village. The Planning Strategy identifies a potential yield of 200 dwellings for the site.
SH147	Short	Lot 219 Threadfin Loop and Lots 221 and 222, Longtom Loop	South Hedland	n/a	Map 8	Town of Port Hedland, Cherabin Properties Pty Ltd and other land owners	Residential	Residential (R40)	No	n/a	0.6	-	16	-	-	16	-	-	-	-	-	The sites are zoned Residential R40 as per LPS7. Lot 222 Longtom is currently being developed with four dwellings.
SH148	Long	Lot 2053 Hamilton Road	South Hedland	Club Hamilton	Map 8	Karribi Developments	Residential	Urban Development	No	Club Hamilton Structure Plan Area	4.7	TBD	100	-	-	-	-	100	Pw, S, L	BP	-	Site zoned Urban Development under LPS7. Potential yield of 100 dwellings as per Local Planning Strategy in the long term as part of the Club Hamilton Structure Plan Area. Currently developed for transient workforce accommodation. Structure planning required.

Identifier	Timing	Location	Locality/suburb	Estate Name	Map number in this document	Existing tenure ¹	Purpose	Current local planning scheme zone/reserve	Amendment required	Other planning under way	Area (ha)	Yield (lots)	Yield (units)	Approvals pending	Current approvals	Short-term (0-5 years)	Medium-term (6-10 years)	Long-term (10+ years)	Concern but resolution anticipated	Critical but resolution anticipated	Critical and resolution not definite	Comments
SH149	Long	Lot 500 Hamilton Road	South Hedland	South Hedland Town Centre	Map 8	State of WA	Community Purposes	Education	No	n/a	10.1	-	-	-	-	-	-	-	-	-	-	Site is reserved for Education purposes under LPS7 and is managed by the Department of Training and Workforce Development. The existing buildings on the site are no longer used and relate to the former South Hedland TAFE campus. The Town is considering acquisition of this site for Recreation, Community, Civic, Arts and Culture purposes subject to negotiation with the State.
IND81A	Short	Lot 9001 and Lot 5859 Schillaman St	Wedgefield	Wedgefield Industrial Estate	Map 8	State of WA	Transport Development	Industrial Development	No	Amended Wedgefield Industrial Estate Development Plan approved by WAPC in 2011	108.5	-	-	2		n/a	n/a	n/a	L, MC, W	BP, H	-	Zoned Industrial Development under LPS7. Transport development component of the Wedgefield industrial estate. Area to accommodate the operation of over-sized equipment and services supporting the transport industry. Contains Indigenous heritage values. Development WA has already commenced development of this site. Amendment to structure plan required to assess major changes to the road and drainage network to the subdivision. This includes traffic impact assessment and urban water management plan.
IND81B	Short	Lot 9004, Schillaman St	Wedgefield	Wedgefield Industrial Estate	Map 8	WA Land Authority	Transport Development	Industrial Development	No	n/a	26.1	12	12	0	12	n/a	n/a	n/a	L, MC, Pw, S, W	BP	-	Zoned Industrial Development under LPS7. Transport development component of the Wedgefield industrial estate. Area to accommodate the operation of over-sized equipment and services supporting the transport industry. Site under construction.
IND82	Medium	Lots 603, 2522 and 1790 Great Northern Highway	Wedgefield	Wedgefield Industrial Estate	Map 8	State of WA and PPA	Transport Development	Industrial Development	No	n/a	139.9	n/a	n/a	n/a	-	n/a	n/a	n/a	L, MC, Pw, S, W	BP, H, TG, T	-	Zoned Industrial Development under LPS7. Expansion of Wedgefield industrial estate to accommodate the operation of over-sized equipment and services supporting the transport industry. Medium term development envisaged. Contains Indigenous heritage values. Development likely to be short to medium term based on advice from DevWA. Access arrangements to Walwork Road and Great Northern Highway to be determined in consultation with MRWA.
IND149	Medium	Lot 502, Lot 9001	Wedgefield	Wedgefield Industrial Estate	Map 8	State of WA	Light Industry	Light Industry, Industry Development	No	Amended Wedgefield Industrial Estate Development Plan approved by WAPC in 2011	68.2	97	97	-	-	n/a	n/a	n/a	L, MC, Pw, S,	BP, T	-	Light industrial component of the Wedgefield industrial estate. Zoned Light Industry as per LPS7. Conditional subdivision approval was granted to create 97 lots in 2012 but was not progressed. Access arrangements to Walwork Road and Powell Road to be determined in consultation with MRWA.
IND150	Invest	Numerous lots bounded by Walwork Rd, Great Northern Hwy and railway reserve	Port Hedland	Airport Industrial Park	Map 8	State of WA, Town of Port Hedland and other land owners	Commercial, Light Industry	Special Use	No	n/a	440.9	n/a	n/a	n/a	-	n/a	n/a	n/a	L, MC, Pw, S, W	BP, H, TG, T	-	Site is within the confines of the Port Hedland International Airport which is zoned Special Use (SU2) as per LPS7 which permits a range of light industrial and commercial uses. In keeping with the Port Hedland International Airport Masterplan, the Planning Strategy identifies the site to be used for light industrial use/commercial use as part of the Kingsford Smith Industrial Park and Airport Industrial Park Precincts. Contamination issues to be addressed prior to development. Contains Indigenous heritage values. Access arrangements to Walwork Road and Great Northern Highway to be determined in consultation with MRWA.

Identifier	Timing	Location	Locality/suburb	Estate Name	Map number in this document	Existing tenure ¹	Purpose	Current local planning scheme zone/reserve	Amendment required	Other planning under way	Area (ha)	Yield (lots)	Yield (units)	Approvals pending	Current approvals	Short-term (0-5 years)	Medium-term (6-10 years)	Long-term (10+ years)	Concern but resolution anticipated	Critical but resolution anticipated	Critical and resolution not definite	Comments
IND151	Short	Numerous lots bounded by Wallwork Rd, Great Northern Hwy and railway reserve	Port Hedland	Airport Industrial Park	Map 8	State of WA, Town of Port Hedland and other land owners	Commercial, Light Industry	Special Use	No	n/a	91.0	n/a	n/a	n/a	-	n/a	n/a	n/a	L, MC, Pw, S, W	BP, H, TG	-	Site is within the confines of the Port Hedland International Airport which is zoned Special Use (SU2) as per LPS7 which permits a range of light industrial and commercial uses. Development approval for civil works was issued by the Town of Port Hedland in 2020 to activate site. Short term development anticipated in keeping with the Port Hedland International Airport Masterplan. Contains Indigenous heritage values.
IND152	Short	Part Lot 500 Great Northern Highway	Wedgefield	Lumsden Point Logistics Hub	Map 8	State of WA	Commercial, Light Industry	Strategic Infrastructure	No	n/a	47.8	4	n/a	n/a	-	n/a	n/a	n/a	Pw, S, W	BP, H, TG	-	Site is zoned Strategic Infrastructure as per LPS7. A general cargo facility is in the advanced stages of planning to facilitate increases in mineral concentrate exports and the import of project and equipment necessary to build and develop the renewable energy and hydrogen industries. Work on the facility has already commenced, with a module offloading facility being constructed in 2021 to facilitate the import of project cargoes. Roadworks are planned in 2022 / 2023 to unlock up to eight hectares of land for industry.
IND160	Medium	Numerous lots traversed by Boodarie Station Access Rd, Whim Creek Rd & Boodarie Dr	Boodarie	Boodarie Strategic Industrial Area	Map 7	State of WA, WA Land Authority	Strategic industry	Strategic Industry	No	Boodarie SIA Structure Plan approved by WAPC in 2017	4103.6	-	-	-	-	n/a	n/a	n/a	L, MC, Pw, S, T	BP, H, TG	-	Boodarie Strategic Industrial Area (SIA). Site is zoned Strategic Industry under LPS7. Structure plan approved by WAPC in 2017. Proponents wishing to locate in the Boodarie SIA will be required to investigate, fund and implement the specific infrastructure and services they require for their developments. Contains Indigenous and State heritage values.

1		Organisation or individual(s).
2		In some cases, the yield for the project is indicative only. Final lot/dwelling yields will be determined by further detailed planning.
3		Refers to the number of lots/units with current subdivision or strata approval, and the number of lots/units for which a subdivision/strata application has been lodged but which is yet to be determined (pending). Does not include local government development approvals.
4		Estimate only. In most cases, the precise timing of lot release is uncertain. This could be for reasons such as market conditions, demand/supply of services or a requirement to resolve issues and constraints.
5		Constraints and issues codes: bushfire prone (BP), drainage (D), environmental (E), heritage (H), land assembly (L), market conditions (MC), native title (NT), planning (P), power (Pw), sewer (S), water (W), topography and geology (TG), mining lease (M), zoning (Z) and transport (T).

7.7 Vacant lots and infill

Data from Landgate's property valuation database show that there is a substantial stock of vacant lots on land zoned for residential and rural living purposes in the Town. As at August 2021, 402 vacant lots were identified on land zoned for residential and rural living purposes, accounting for 7.5 per cent of the total stock of existing residential and rural living lots. This is higher than the percentage of vacant lots recorded for the Perth metropolitan region (5.1 per cent).

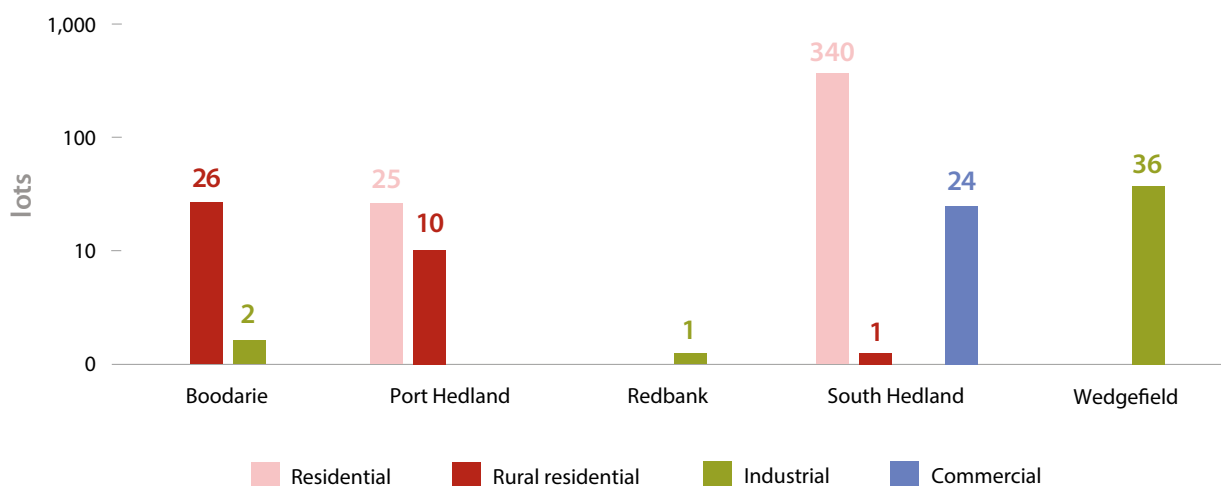
Figure 21 shows the stock of total vacant lots on land zoned for residential and other purposes in the townsites. The distribution of all vacant lots in the Town is shown on Maps 9 and 10.

DPLH's Integrated Land Information Database (ILID) model compares density outcomes with those set out by density codes (R-Codes) under local planning schemes. Appendix C provides a detailed description of the ILID model and the methodology for its use. Using the ILID model, the latent development capacity of residential land stocks can be measured based on existing lot sizes and applicable density codes.

Map 9 also shows the spatial distribution of lots with additional dwelling potential based on the provisions of LPS7 as at August 2021. Based on this, there is additional capacity for residential consolidation through subdivision of approximately 3,000 dwellings as some lots have not been fully developed to densities available as per current R Code designations shown in the LPS7.

It must be noted that data depicted on Maps 9 and 10 are indicative only and should not be used as a guide to development potential on a site-by-site basis. The ILID model does not consider factors such as heritage, environmental and/or infrastructure constraints or other provisions of the local planning scheme, which may mean that the additional potential shown on Maps 6 and 8 cannot be fully realised.

Figure 21: Stock of vacant lots - Port Hedland (Town)

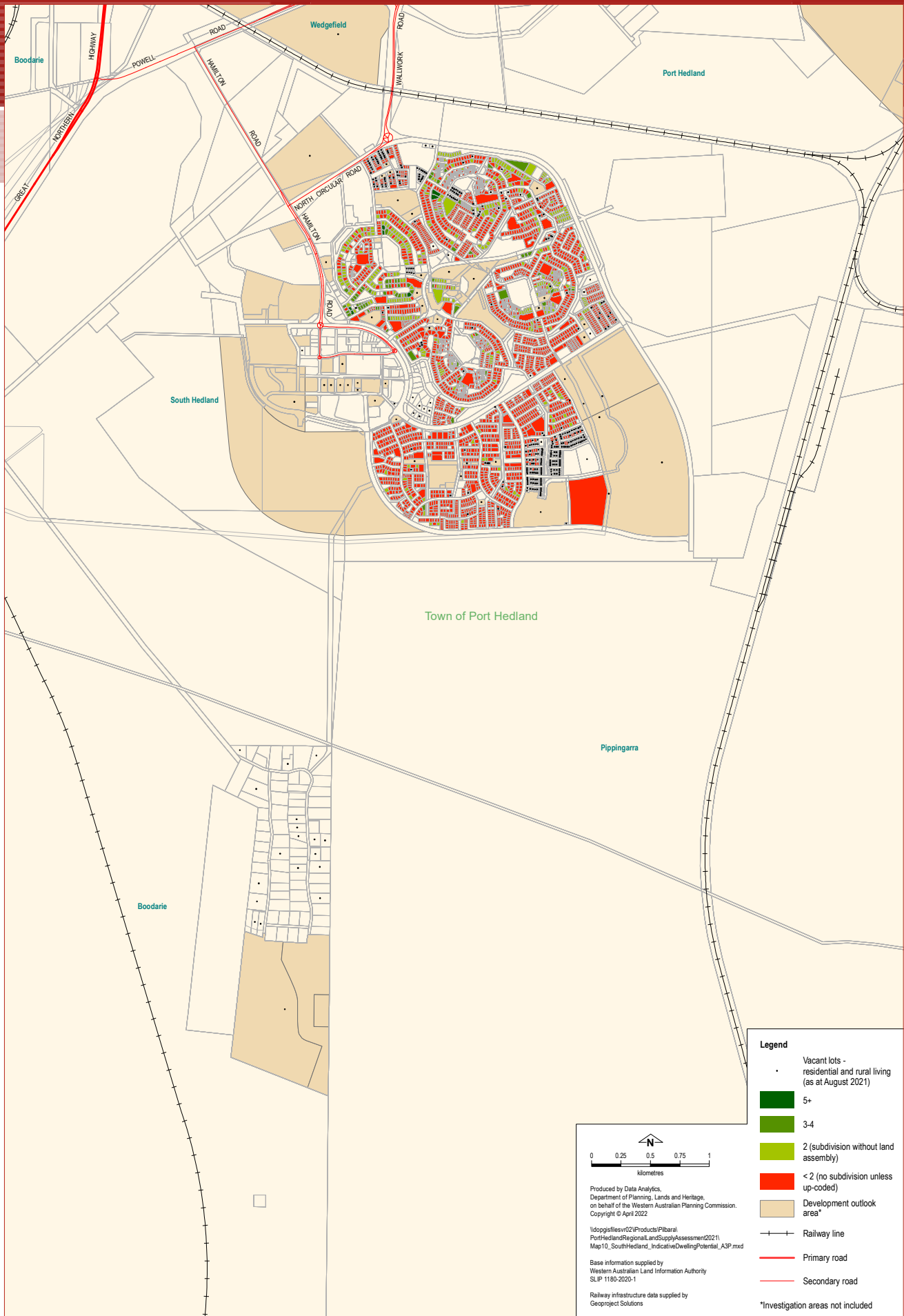


Source: Department of Planning, Lands and Heritage (2021) and Landgate (2021)

Note: Data shown in Figure 21 has been filtered to exclude lots already included as part of development outlook projects.



Map 9: Vacant lots and indicative dwelling potential – Port Hedland



Map 10: Vacant lots and indicative dwelling potential – South Hedland

7.8 Adequacy of supply

Analysis on the adequacy of residential land supply for a given area considers the most likely scenario of projected population growth, the average household size and the rate of dwelling occupancy for that area. At the 2016 Census, the average household size for the townsites was 2.7 persons per dwelling. This is comparable to the average household size for Western Australia (2.6 persons per dwelling).

The rate of dwelling occupancy for the townsites at the 2016 Census was 66 per cent. This is down from the townsites's rate of dwelling occupancy at the 2011 Census (81.4 per cent) and is significantly lower than the rate of dwelling occupancy for Western Australia (86.7 per cent at the 2016 Census). The significant decline in the townsites's dwelling occupancy rate between 2011 and 2016 can be attributed to the out-migration of people during this period, because of a reduced demand for labour within the resources sector.

7.8.1 Band C Assessment

Band C of the latest *WA Tomorrow* population forecast (published in 2018) for the townsites projects an average annual growth rate of 0.44 per cent between 2016 and 2031 (average annual increase of 64 residents). Assuming an average household size of 2.7 persons per dwelling and dwelling occupancy rate of 66.9 per cent, an average of 37 additional dwellings per annum would be required to accommodate projected growth. Under a Band C scenario, a hypothetical temporal land supply of over 165 years (176 years if the stock of vacant lots is included in the supply capacity) has been identified. This supply of land identified for residential development has the capacity to support a population of approximately 26,000 people.

7.8.2 Band D assessment

To give due regard to the potential for stronger population growth as outlined in Chapter 4, this report assumes population growth in Port Hedland to 2031 is likely to be more aligned to Band D estimates of *WA Tomorrow* for the townsites which project an average annual growth rate of 0.94 per cent between 2016 and 2031 (average annual increase of 141 residents).

Assuming an average household size of 2.7 persons per dwelling and a dwelling occupancy rate of 66.9 per cent, an average of 75 additional dwellings per annum would be required to accommodate projected growth. Under this growth scenario, a hypothetical temporal land supply of 80 years (85 years if the stock of vacant lots is included in the supply capacity) has been identified.

This supply of land identified for residential development has the capacity to support a population of approximately 26,000 people. Considering the existing population of the townsites, there is sufficient identified land supply to accommodate approximately 11,000 additional people. Under this scenario, the temporal land supply is reduced to 85 years as noted.

7.8.3 Sensitivity assessment – Bands C to E

It must be noted that historical rates of population change for Port Hedland and the Pilbara region typically reflect economic conditions, with growth recorded during periods of economic boom and losses recorded during periods of recession. Therefore, it is important to consider what the temporal land supply may be if the rate of population growth were to increase.

Table 8 shows the estimated dwelling requirement for the short, medium and long term under the Bands C, D and E growth scenarios. It shows that the identified dwelling yield exceeds the number of dwellings required under the bands shown; thus, there is a sufficient stock of residential land identified to meet population growth into the long term, even if the rate of population growth increases to a higher rate. The estimated dwelling requirement for Bands A and B are not shown as Bands A and B forecast net population loss/no net population change between 2016 and 2031.

Table 8: Adequacy of supply – Townsites

Timeframe	Estimated Dwelling requirement (DEMAND)			Identified dwelling yield (SUPPLY)	SURPLUS – BAND D
	Band A	Band D	Band E		
2016-2021	0	316	817	1,109	793
2021-2026	382	512	695	2,085	1,573
2026-2031	197	340	504	1,419	1,078
2031-2036	197	340	504	1,419	1,078
Total	775	1,509	2,519	6,032	4,523
Stock of vacant lots	314				
	Total surplus accounting for vacant lots				4,837

Source: Department of Planning, Lands and Heritage (2022)

Note: Estimated dwelling requirement for Bands C, D and E have been predicated upon an average household size of 2.7 persons per dwelling and a dwelling occupancy rate of 66.9 per cent.

7.8.4 Factors that may affect adequacy of supply

7.8.4.1 Coastal erosion and flooding

The Port Hedland townsite is exposed to erosion hazards, with low-lying areas subject to tidal influences and storm surge. The Port Hedland townsite's location (on a narrow headland) and urban form renders it vulnerable to risks of coastal hazards.

The Town has prepared a Coastal Hazard Risk Management and Adaptation Plan (CHRMAP) (2018), which identifies and considers coastal hazards and risks for the Port Hedland townsite. The CHRMAP identifies areas that are particularly vulnerable to coastal erosion and flooding over the next 100 years.

Large areas of the east end of the Port Hedland townsite are subject to inundation hazards. This presents a risk to future urban development of this area, particularly if hazards are not addressed through planning and design. The draft CHRMAP highlights the importance of consolidating commercial and residential land in the east end, given that the west end is further constrained by dust.

The CHRMAP suggests that planning for future urban development in the east end should include feasibility investigations that compare protection through raised land levels with accommodation, with an appropriate decision made at the time of development.

7.8.4.2 Financial Barriers

A significant constraint to development in the Town is that currently, land and development costs far exceed the market valuations which underpin mortgages. Financial institutions therefore are more prudent and will not lend at a cost recovery price point, resulting in minimal private sector interest in land development. This result of this is that only development that is reinforced by government operating subsidies/cost contributions can proceed.

8 Heritage

8.1 Historic Heritage

The identification of historical heritage values in the Town was undertaken in 2017 as part of the Town's 2017 Heritage Inventory. This inventory identifies Grade A and Grade B listed properties.

There are three grade A properties in the Port Hedland townsite. These are deemed to be of exceptional cultural heritage significance and as such, are also recorded on the State Heritage Register and afforded protection under the *Heritage Act 2018*. These listings relate to St Matthew's Anglican Church, District Medical Officers' Quarters and Dalgety House which fall within site PH113 on Map 6 in the Port Hedland West End Improvement Scheme No.1 area.

The Town's 2017 Heritage Inventory also identifies 20 Grade B properties which are places with considerable cultural heritage and worthy of recognition and protection through the provisions of LPS 7 (where applicable). Most of these places are also located in site PH113, with one listing in site PH148 relating to the former Lock Hospital and Burial Ground and a further listing in site IND160 relating to the De Grey-Mullewa Stock Route. The identified historic heritage values do not conflict with urban expansion proposed in this report as shown in Maps 7 and 8 and Table 7.

8.2 Aboriginal heritage and Native Title

The future development outlook areas as proposed in this report and as shown on Maps 6 to 8 need to be examined and have due regard to Native Title rights and interests and any Indigenous Land Use Agreement (ILUA) over specified areas of Port Hedland. Development viability and timeframes are subject to Native Title and case-specific processes and considerations.

8.2.1 Native Title

There is one Native Title determination (WAD6169/1998) that has been made over a significant part of the Town – as well as all the development outlook areas by the Kariyarra People. This determination was made in accordance with the *Native Title*

Act 1993 and recognise the rights and interests of the Kariyarra people in relation to rights to use the land for traditional laws and customs.

8.2.2 Indigenous Land Use Agreement (ILUA)

There is one ILUA in place known as the Kariyarra and State Indigenous Land Use Agreement. This will deliver significant land and monetary benefits to the Kariyarra people, whilst enabling existing and future expansion of the Port Hedland Port and development of residential land in South Hedland. The Department of Planning, Lands and Heritage is working collaboratively with the Kariyarra Aboriginal Corporation and the Kariyarra Land Aboriginal Corporation on the continued handover of land-related commitments. Other State Government agencies have obligations under the ILUA, including DevelopmentWA and Department of Communities. The full package of negotiated benefits includes the following:

- reserved use and direct management of various Crown land parcels of significance to the Kariyarra people
- the recognition and protection of heritage sites of interest to the Kariyarra people
- monetary benefits in the form of a five per cent payment on residential, commercial and industrial lots developed on Crown land within an agreed area of South Hedland, irrespective of who develops them
- financial assistance supporting effective implementation of the agreement.

8.2.3 Aboriginal Heritage Places

The development outlook areas identified in Maps 6 to 8 will be subject to due diligence processes to determine the potential impacts to Aboriginal heritage sites as protected under the *Aboriginal Heritage Act 1972 (AHA)*

The AHA protects all Aboriginal sites that meet the requirements of section 5 of the AHA whether or not they have been previously recorded or assessed. Consent is required from the Minister for Aboriginal Affairs for any activity which will negatively impact Aboriginal heritage sites.

In December 2021, the *Aboriginal Cultural Heritage Act 2021 (ACH Act)* was passed by WA Parliament. The ACH Act provides a more modern and strengthened framework for the recognition, protection, conservation and preservation of Aboriginal cultural heritage while recognising the fundamental importance of Aboriginal cultural heritage to Aboriginal people.

Before the ACH Act comes into operation there will be a transitional period of at least 12 months during which the regulations, statutory guidelines and operational policies will be developed to ensure the ACH Act will have its intended effects. The transitional period will allow for the new Aboriginal cultural heritage management system to be fully established and to enable parties to prepare for the new system.

It is worthy to note that much of the land in the townsites has not been the subject of adequate Aboriginal heritage surveys and it is likely that numerous unrecorded and unregistered Aboriginal heritage sites exist in the area. Of the Aboriginal heritage places that are currently known, 30 are within the townsites of which, 15 are Registered Aboriginal sites and eight relate to lodged heritage places. There are a further seven stored data places that have been assessed as not meeting the criteria of section 5 of the AHA. Specific sites that are currently impacted are noted in the development outlook summaries (Table 7).

Most of the known Aboriginal sites are artefact/scatters and middens representing past camping, habitation and activity focus areas. Many of the midden sites contain deposits that may have buried evidence of past activities that have archaeological potential. Other places identified include engravings on the limestone ridge within Pt Hedland and historical burials at Lock Hospital.

It is expected that further heritage surveys will result in additional Aboriginal heritage places being identified to those noted above and these will also be subject to the protections afforded by the AHA and may impact on the viability of development outlook sites noted in Table 7.

While administrative processes such as changes in tenure will not impact on Aboriginal sites, ground disturbance works will need to determine the location of Aboriginal sites to ensure these are not impacted in keeping with the Department of Planning

Lands and Heritage guidelines detailed [here](#). This may require consultation with knowledge holders through the Kariyarra Aboriginal Corporation.

The adherence to these guidelines allows Traditional Owners to be engaged at the earliest opportunity when planning land use proposals are being considered, to mitigate impact to Aboriginal cultural heritage and to seek input into how existing Aboriginal cultural heritage may be incorporated into the land use proposals.

9 Rural Living

State Planning Policy 2.5 – Rural Planning (SPP 2.5) defines rural living as an umbrella term used to describe a range of local planning scheme zones that provide for low-density residential uses in an estate or precinct, generally characterised by a grouping of lots in the order of one to 40 hectares. Rural living zones include, but are not limited to, Rural Living, Rural Retreat, Rural Residential, Special Rural, Rural Smallholdings, Rural Conservation and Landscape Protection.

Land zoned for rural living development is divided into four rural living estates, located at Boodarie, Pippingarra and Redbank. As at August 2021, there was approximately 360 hectares of land zoned for rural living development. LPS 7 provides for rural living development through the Rural Residential zone.

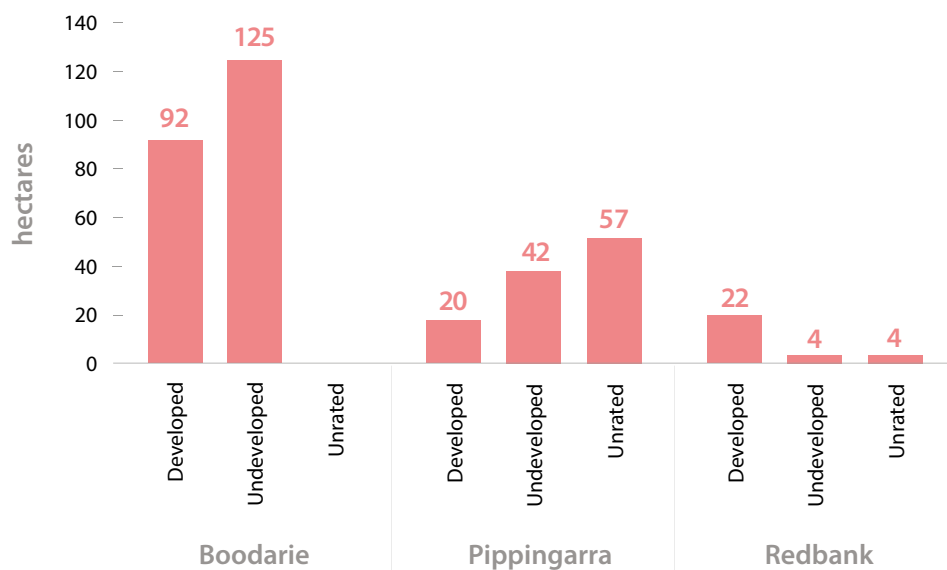
The IRIS land supply model identified a total of 143 lots on land zoned for rural living development. Approximately 134 hectares (37 per cent) is developed; 170 hectares (47 per cent) is undeveloped; and 60 hectares (17 per cent) is unrated (Figure 22).

Over the decade to September 2021, applications were lodged to create a total of 139 lots for rural living purposes. A total of 145 lots were granted conditional approval during this period; however, only 16 lots were progressed to final approval (Figure 23).

There are three rural living estates within the locality of Boodarie, these being Turner River, Bosna Estate and the Quartz Estate (refer to Map 11). Turner River is located approximately 20 kilometres south-west of the Port Hedland townsite. Turner River was established as a rural living estate in 1997 and is comprised of 18 lots; all of which are approximately 1 hectare in area. Almost all lots within the estate have been developed.

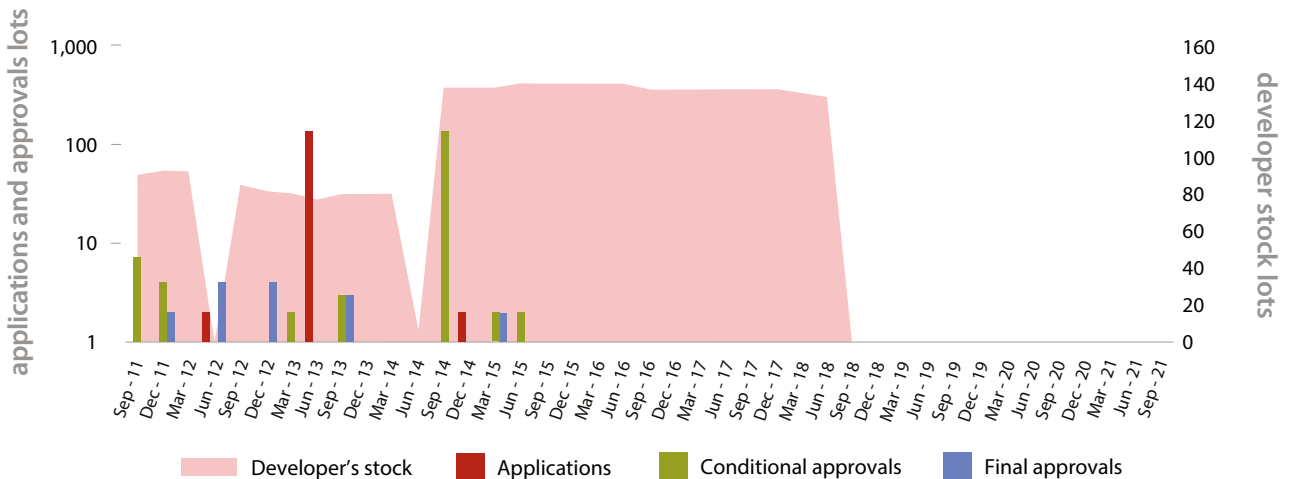
Bosna Estate is located approximately two kilometres south of Port Hedland and was established as a rural living estate in 1999. The estate is comprised of approximately 80 lots in the order of one to four hectares. There are several vacant lots within the estate.

Figure 22: Stock of land zoned for rural living development - Port Hedland (Town)



Source: Department of Planning, Lands and Heritage (2021) *Integrated Regional Information System*

Figure 23: Rural living subdivision activity and lot supply pipeline – Port Hedland (Town)



Source: Western Australian Planning Commission (2021) *State Lot Activity*

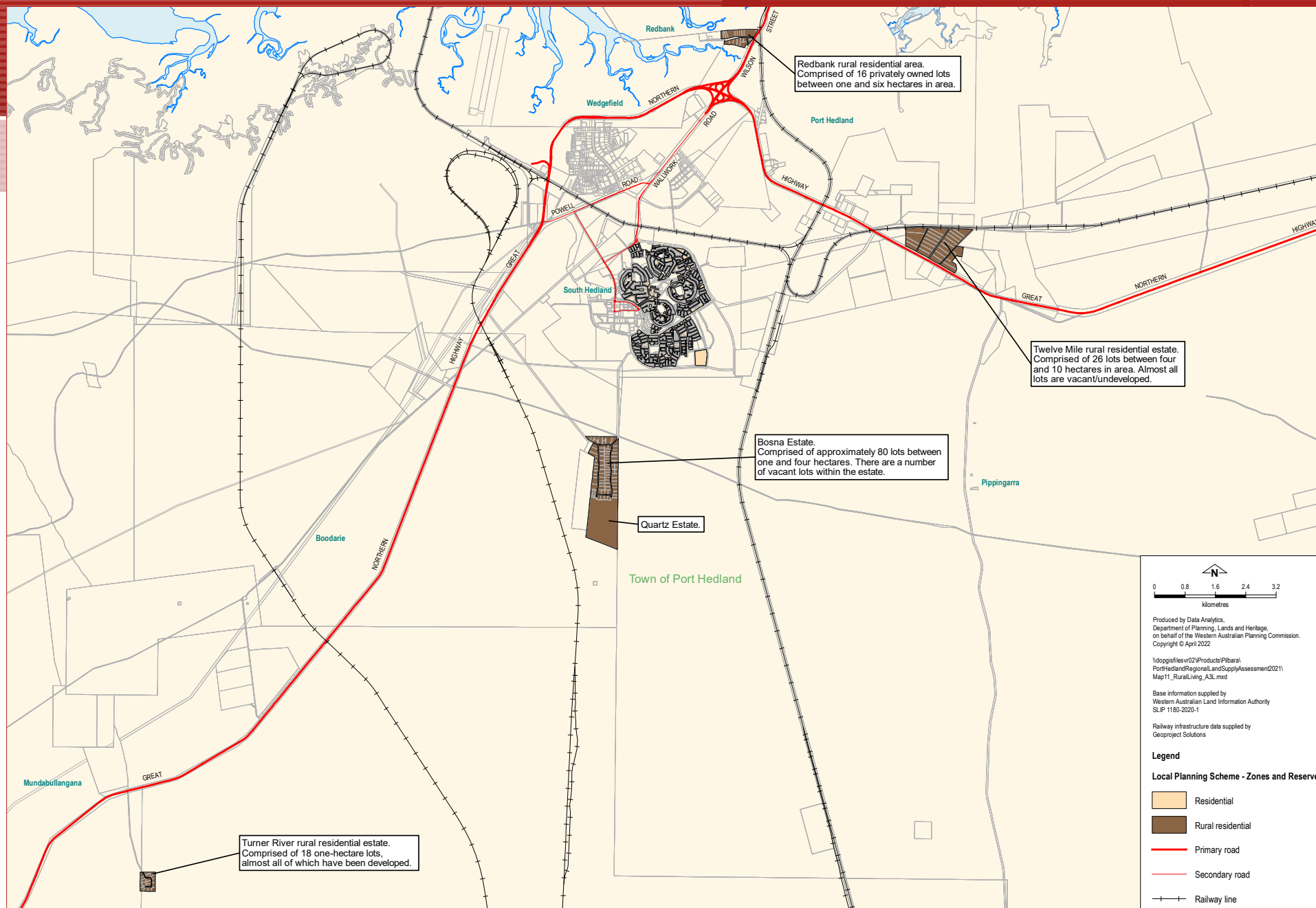
Quartz Estate (SH110) is located to the south of Bosna Estate. The estate comprises of 92 hectares of vacant and un-subdivided land zoned Rural Residential. The provisions of LPS7 will guide future development of the site – in the range of one to four hectares on land like the Bosna Estate.

low demand for rural living zones within Port Hedland. It is anticipated that the Bosna Estate will be sufficient to meet short-term demand for rural living lands, whilst the sub-division plans for Quartz Estate are sufficient to meet long-term demand.

The Twelve Mile rural residential estate is located approximately eight kilometres east of South Hedland, within the locality of Pippingarra. The estate covers approximately 120 hectares, and comprises of 26 lots in the order of four to 10 hectares. All lots are owned by the State of Western Australia, with the majority being vacant and undeveloped.

The rural residential estate within the locality of Redbank is located approximately halfway between Port Hedland and South Hedland, off Wilson Street. The estate covers approximately 30 hectares and is comprised of 16 privately owned lots between one and six hectares in size. Almost all lots within the estate have been developed.

Since the creation of the Town's rural living estates (not including Quartz Estate), rural living subdivision and development activity has slowed considerably, particularly over the past decade. The *Planning Strategy* reports that existing rural living estates have experienced low take-up rates in recent years, reflecting



Map 11: Rural living

10 Industrial

Land zoned for industrial development is divided into several estates (existing and future) at Boodarie, Finucane, Port Hedland, Redbank and Wedgefield (refer to Map 12). LPS 7 provides for industrial development through the following zones:

- Industrial Development
- Industry
- Light Industry
- Strategic Industry and
- Transport Development.

The IRIS land supply model identified a total of 457 lots on land zoned for industrial development as at August 2021 covering approximately 8,041 hectares.

Just 252 hectares (3 per cent) is developed; 318 hectares (4 per cent) is undeveloped; and 7,333 hectares (93 per cent) is unrated (Figure 24). Of the stocks of land identified as unrated, almost all of it is comprised of Crown land zoned Strategic Industry under LPS 7.

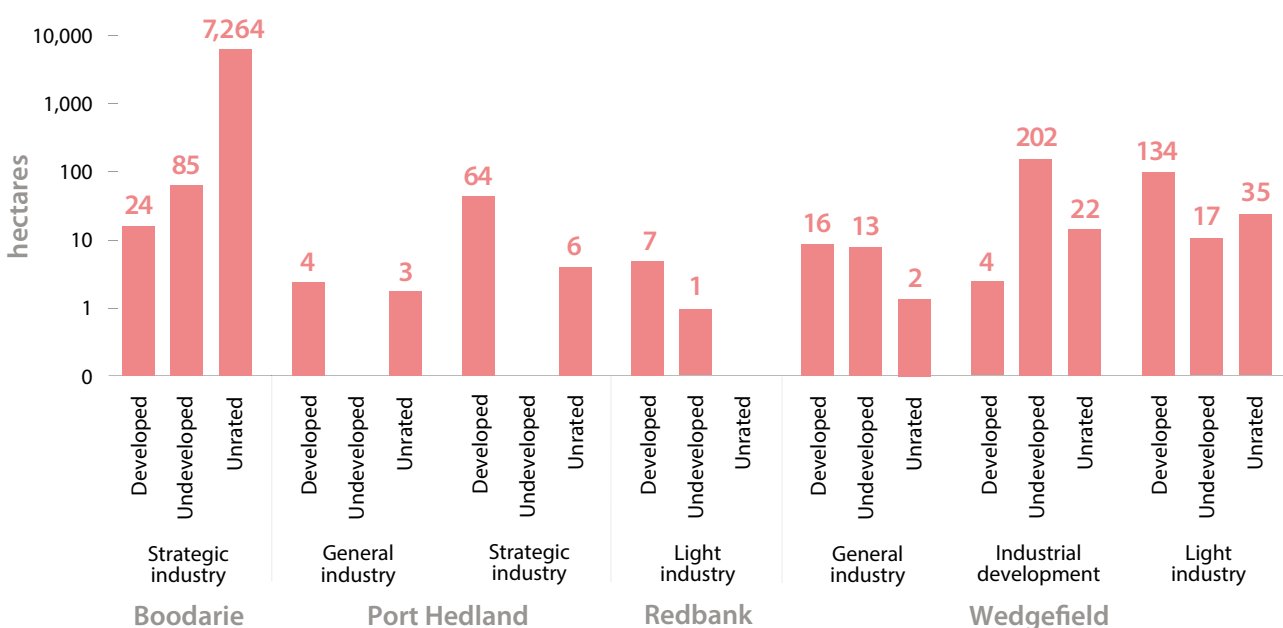
Over the decade to September 2021, applications were lodged to create a total of 267 lots for industrial purposes (Figure 25). A total of 239 lots were granted conditional approval during this period; however, only 41 lots were progressed to final approval.

The Wedgefield industrial estate is the largest of the Town's existing industrial estates. A smaller industrial estate is in the west end of Port Hedland. The Wedgefield industrial estate is comprised of land zoned General Industry, Light Industry and Industrial Development under LPS7.

The western part of the Wedgefield industrial estate is nearly at capacity, with almost all lots considered to be developed. This part of the estate currently accommodates a range of heavy, general and light industry uses. There are approximately 70 hectares of land zoned Light Industry at the southern part of the Wedgefield industrial estate.

Additionally, there are approximately 190 hectares of land zoned Transport Development, located on the eastern part of the Wedgefield industrial estate (IND81A and IND81B). This area has been identified in the Planning Strategy as the new Hedland

Figure 24: Stock of land zoned for industrial development – Port Hedland (Town)



Source: Department of Planning, Lands and Heritage (2021) *Integrated Regional Information System*

Junction Estate to leverage off its proximity to the Port Hedland International Airport and to address the land use conflicts current present in the light industry part of Wedgefield.

The Junction Estate falls within the Industrial Development zone aims to accommodate and prioritise the operation of over-sized equipment and services supporting the transport industry. Conditional subdivision approval was granted in the Junction Estate in April 2019 and September 2021 to create 28 lots in this location for lots ranging in size from 4814m² to 2.72 hectares and two balance lots of 24 hectares and 89 hectares. The need for lots ranging from 5 hectares to 10 hectares in the Junction Estate or the Port Hedland International Airport has been suggested by Main Roads WA. Their discussions with haulage operators has revealed that lots currently for sale or lease are not sufficiently large to accommodate road trains. This issue is discussed further in section 12.4.1.

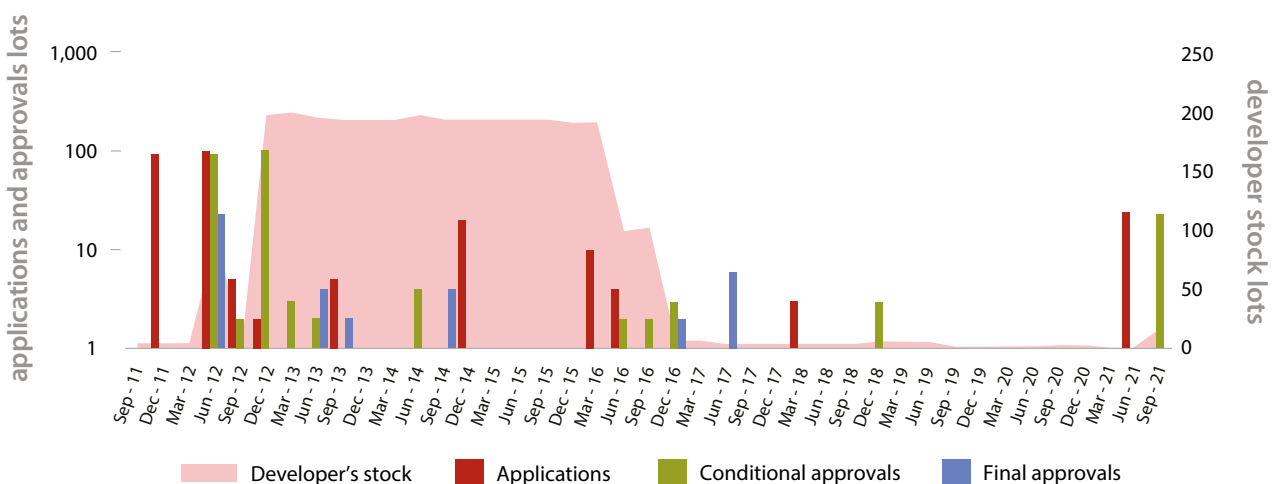
233 hectares of industrial land remains undeveloped within Wedgefield. The *Planning Strategy* has identified that is sufficient to meet demand for light and general industry through to 2041.

The Boodarie SIA has been planned to support the growth of downstream resource processing and will facilitate the relocation of noxious, heavy and general industry uses from the Wedgefield and West End industrial estates.

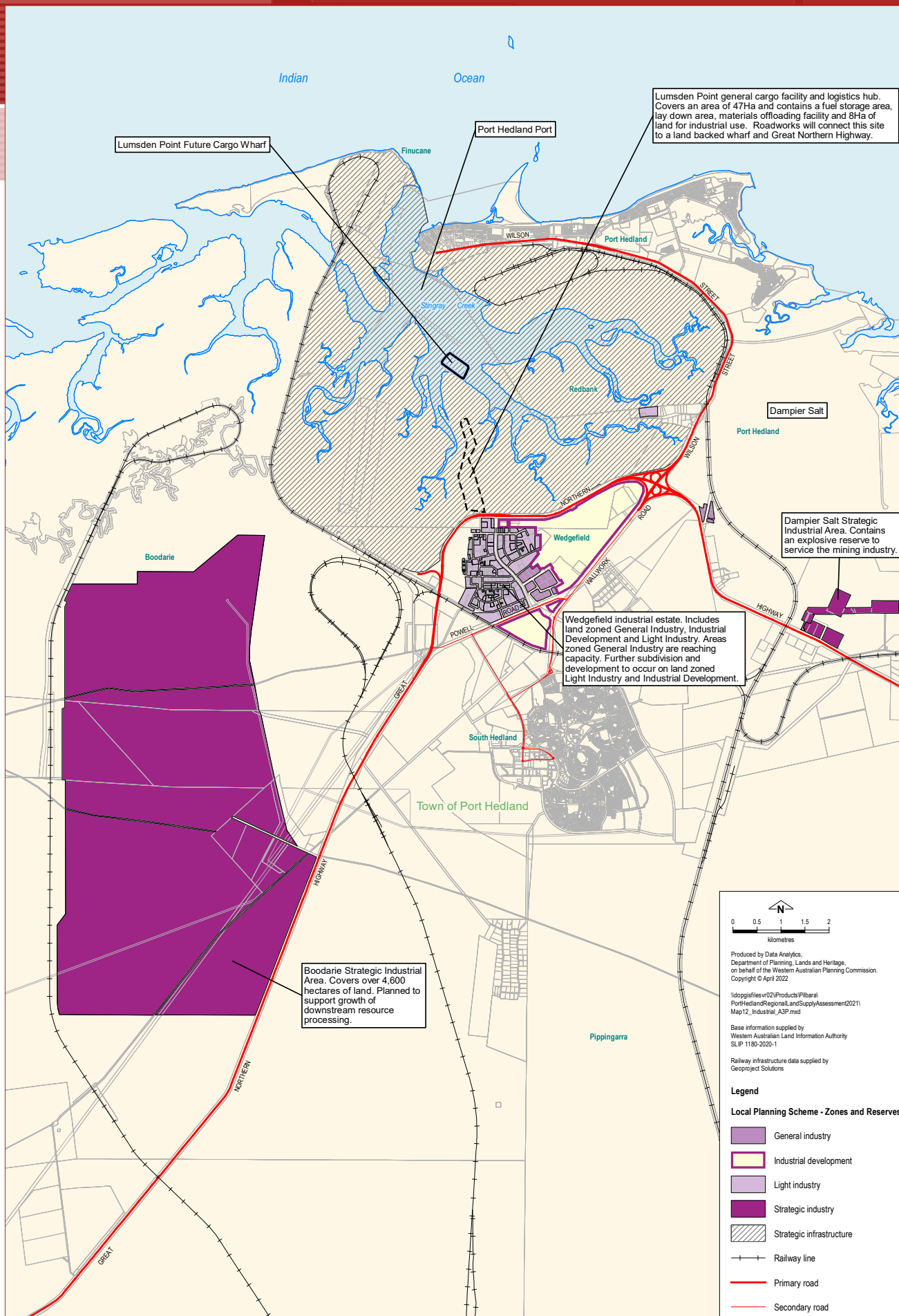
The Boodarie SIA is located 10 kilometres south-west of the Port Hedland townsite and covers over 7,300 hectares of land as well as a further 15,740 hectares of buffer area. It is proposed to accommodate a range of large scale noxious, heavy strategic and downstream processing industries and will be subject to the negotiation of a new ILUA with the Kariyarra Aboriginal Corporation. Significant investment will be required to develop the Boodarie SIA site.

Industrial land will also be available within port boundaries for port related uses, this includes industrial land within the Lumsden Point General Cargo Facility and reclaimed land areas adjacent to Utah Road.

Figure 25: Industrial subdivision activity and lot supply pipeline – Townsites



Source: Department of Planning, Lands and Heritage (2021) *State Lot Activity*



Map 12: Industrial

11 Commercial

Land zoned or categorised for commercial development in the townsites is predominantly clustered into two precincts; the west end of Port Hedland (which is part of the Port Hedland Improvement Scheme No. 1) and land within and adjacent to the South Hedland town centre (refer to Map 13). As at August 2021, there is approximately 100 hectares of land zoned for commercial development in the townsites (which excludes the LPS 7 provides for commercial development through the following zones:

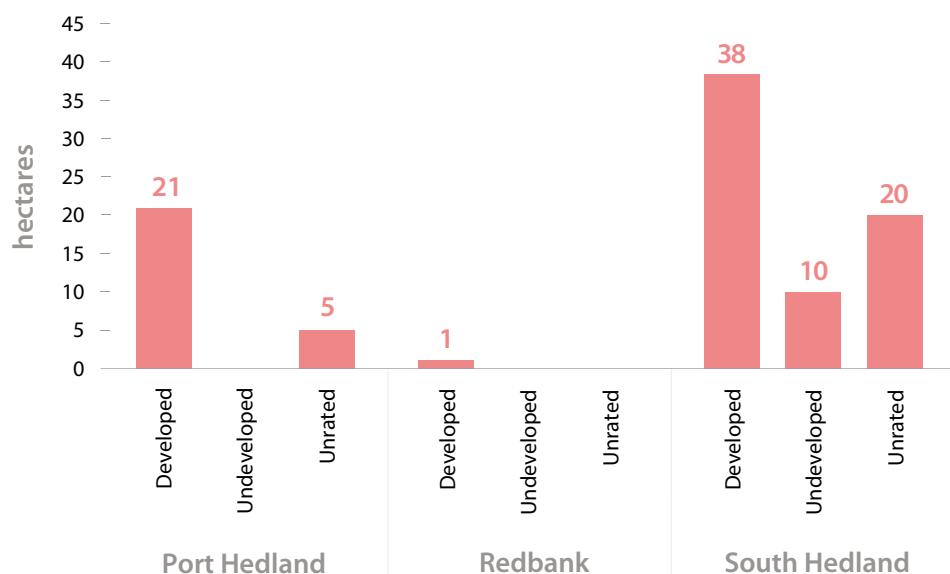
- Centre
- Commercial
- Mixed Use
- Service Commercial
- Tourism.

The IRIS land supply model identified a total of 142 lots on land zoned for commercial development as at August 2021. Sixty hectares (63 per cent) is developed; 10 hectares (11 per cent) is undeveloped; and 26 hectares (27 per cent) is unrated (Figure 26). The model has also identified 24 vacant commercial lots in the South Hedland town centre.

In addition to the zones mentioned above that relate to commercial development, the Port Hedland International Airport has been rezoned to 'Special Use' (SU1) as per LPS7. A range of discretionary land uses are contemplated within SU1 that are consistent with the land use precinct identified in the *Port Hedland International Airport Master Plan*. These uses are intended to complement, but not detract from the operation of the airport and are commercial/light industry in nature. The timing and mix of this additional development is yet to be determined and is subject to further investigation. As such, this report has classified these commercial/light industry precincts as investigation areas.

A visual audit of lots identified as unrated by the IRIS land supply model revealed that there are several large, vacant lots in the South Hedland town centre. In addition, there is a small supply of vacant lots zoned Mixed Business in the west end of the Port Hedland townsite.

Figure 26: Stock of land zoned for commercial development – Port Hedland (Town)

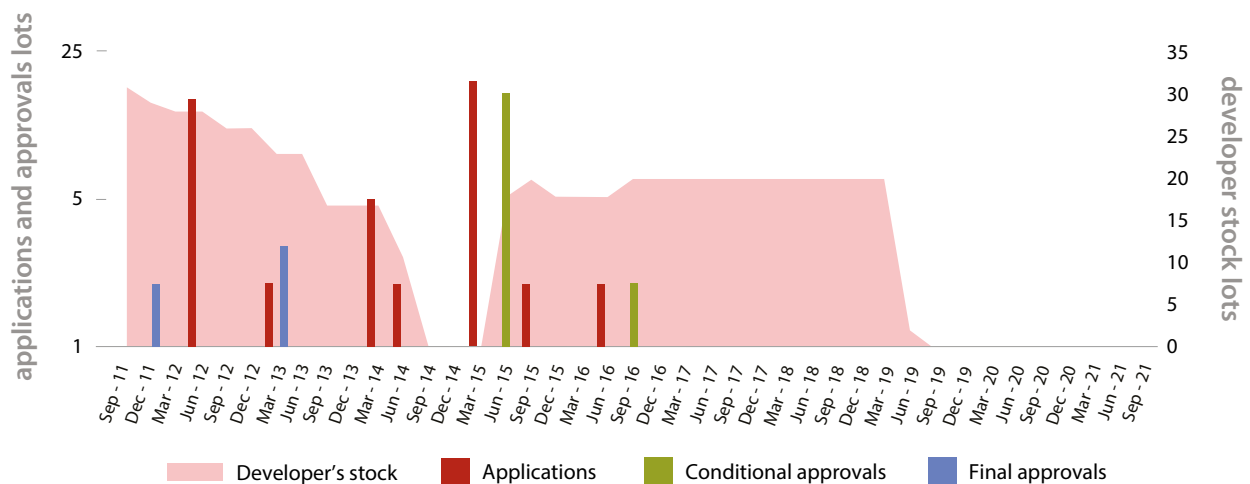


Source: Department of Planning, Lands and Heritage (2021) *Integrated Regional Information System*

Over the decade to September 2021, applications were lodged to create a total of 49 lots for commercial purposes (Figure 27). A total of 22 lots were granted conditional approval during the same period; however, only eight were progressed to final approval.

Subdivision has been undertaken on land to the west of the Port Hedland International Airport to create 39 lots for mixed business showroom, light industrial and transient workforce accommodation purposes. Lots are in the order of 1,800 square metres to 60 hectares. Lots were created at the site in 2015 however, the take-up rate of development has been slow, with just seven lots developed since 2015.

Figure 27: Commercial subdivision activity and lot supply pipeline – Port Hedland (Town)



Source: Department of Planning, Lands and Heritage (2021) *State Lot Activity*

Note: Data has not been included for the subdivision of land for purposes other than those not directly related to commercial.



Map 13: Commercial

12 Service infrastructure

The following section outlines the broad infrastructure capacity for Port Hedland and identifies upgrades that may be required to facilitate future residential, industrial and commercial growth in Port Hedland. This capacity and the future expansion of infrastructure broadly will be guided and informed by the draft State Infrastructure Strategy (draft SIS)²⁸. This key policy initiative from Infrastructure WA addresses future challenges and opportunities through the prism of strategic infrastructure planning and delivery. The main components of the draft SIS relate to:

- managing demand for infrastructure
- improving the quality and consistency of strategic planning and processes
- addressing climate change
- implementing data sharing
- optimising the existing infrastructure asset base and
- identifying major infrastructure project and programs.

The key infrastructure directions noted in the draft SIS for the Pilbara relate to supporting:

- resources value-adding, productivity and innovation
- renewable energy and hydrogen industry and
- advancing Aboriginal enterprise, and improve the liveability of remote Aboriginal communities and town-based reserves.

Some of the key infrastructure challenges outlined in the draft SIS are noted in this section where relevant.

12.1 Water

Port Hedland is supplied with potable water by the Water Corporation (refer to maps 14 and 15). The East Pilbara Water Supply Scheme provides water to Port Hedland and is reliant on groundwater extraction from the Yule and De Grey Water Reserves. The scheme allocation from the two water reserves currently produces 13.5 gigalitres of potable water a year, with a limit of up to 20.5 gigalitres per year.²⁹ The *Pilbara Groundwater*

Allocation Plan (2013) predicts that total water demand will reach around 29 gigalitres by 2031, based on the expectation that population and industry growth rates (at the time of preparation of the Plan) will be maintained.

In 2017, upgrade works to water storage tanks and water mains in Port Hedland and South Hedland localities were undertaken by the Water Corporation to cater for the future growth and development of Port Hedland. Investigation of new water sources such as the West Canning Basin for the East Pilbara have also been undertaken to ensure water supply accommodates for anticipated population growth. The Department of Water and Environmental Regulation has undertaken a groundwater investigation of the West Canning Basin to assess how much fresh water could be supplied on a long-term basis to provide public water supplies for Port Hedland and for other uses. They have also proposed the facilitation of fit-for-purpose options for dust suppression to reduce potable water usage and meet growth in water demand.

The draft SIS identifies the need for water source development planning to address climate related constraints to water supply security for major regional centres, including the West Pilbara.

12.2 Waste Water

The Water Corporation operates a waste water treatment plant (WWTP) in South Hedland (refer to map 16). The WWTP previously servicing the Port Hedland locality was relocated to an upgraded facility in South Hedland in 2014 to release more land for residential development. All residential zoned land in the Town is serviced by reticulated sewerage. Development on the outskirts of the Port Hedland and South Hedland localities may require the construction of additional wastewater conveyance infrastructure, including wastewater pump stations and pressure mains.

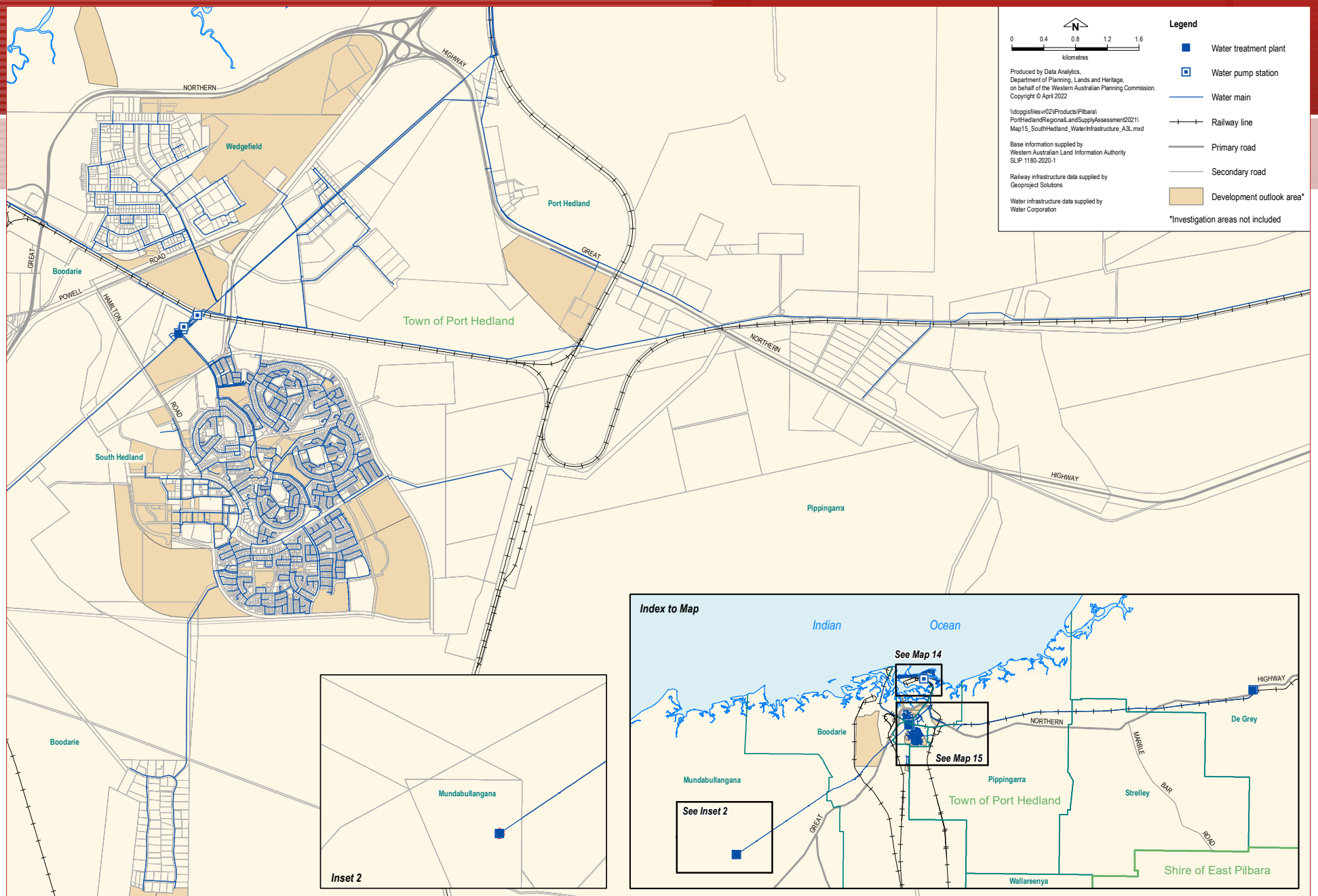
The Wedgefield industrial estate is not serviced with reticulated sewerage. Occupants are required to manage their own wastewater services through onsite effluent disposal. Geotechnical investigations undertaken for the expansion areas of the Wedgefield industrial estate indicated that onsite effluent disposal systems will be suitable, but will typically be oversized and need to be assessed on a case-by-case basis.

²⁸ Infrastructure WA 2021

²⁹ Department of Water and Environmental Regulation (2013) *Pilbara Groundwater Allocation Plan*



Map 14: Water infrastructure – Port Hedland



Map 15: Water infrastructure – South Hedland



Map 16: Wastewater infrastructure

12.3 Energy

Horizon Power manages energy supply to Port Hedland through the North West Interconnected System (NWIS). The NWIS extends across an area measuring approximately 400 kilometres from east to west, and 350 kilometres from north to south. The NWIS services the communities of Dampier, Wickham, Pannawonica, Paraburdoo and Tom Price through the Pilbara Iron (Rio Tinto) network, and the communities of Port Hedland, South Hedland, Karratha, Roebourne and Point Samson through the Horizon Power (refer to maps 17 and 18) network.³⁰

Electricity in the established areas of Port Hedland are supplied via a network of 66 kilovolt (kV) overhead transmission lines that extend from one of seven Horizon Power substations within the Town, located in Port Hedland, South Hedland and Wedgefield.³¹

The South Hedland power station is a 150-megawatt (MW) power station located within the Boodarie SIA and is the process of being upgraded. The upgrade will include the installation of a 60 Megawatts (MW) natural gas fuelled reciprocating engine generating set with an option for a 40 MW battery energy storage system.

The South Hedland power station was constructed, and is owned and operated by TransAlta Energy (Australia) Pty Ltd. Construction of the power station began in February 2015, before being commissioned in July 2017. The power station was constructed with the purpose of meeting the growing demand for electricity in the Pilbara region. It is contracted to supply power to Horizon Power and Fortescue Metals Group.

Horizon Power's Roy Hill Transmission Project was completed in early 2018 to contribute to a more coordinated and efficient NWIS. The aim of the project was to deliver up to 25 MW of electricity to the Roy Hill port facility in Port Hedland, with transmission connection infrastructure covering almost five kilometres and incorporating the 150 MW TransAlta Energy (Australia) Pty Ltd power station in Boodarie.

The draft SIS acknowledges the significant electricity generation capacity required for major industrial projects in the Pilbara region and recommends that a better connected regional network be progressed to address the challenge of providing electricity to rural and remote customers.

12.4 Transport

12.4.1 Roads

Port Hedland is served by a primary and regional distributor road network that includes North West Coastal Highway, Great Northern Highway and Wilson Street (refer to map 19). The North West Coastal Highway links Port Hedland to Geraldton, while also providing access to Karratha, Exmouth and Carnarvon. The Great Northern Highway connects Port Hedland to Broome in the east and Newman and Perth to the south. Access between the localities of Port Hedland and South Hedland is provided via Wilson Street.

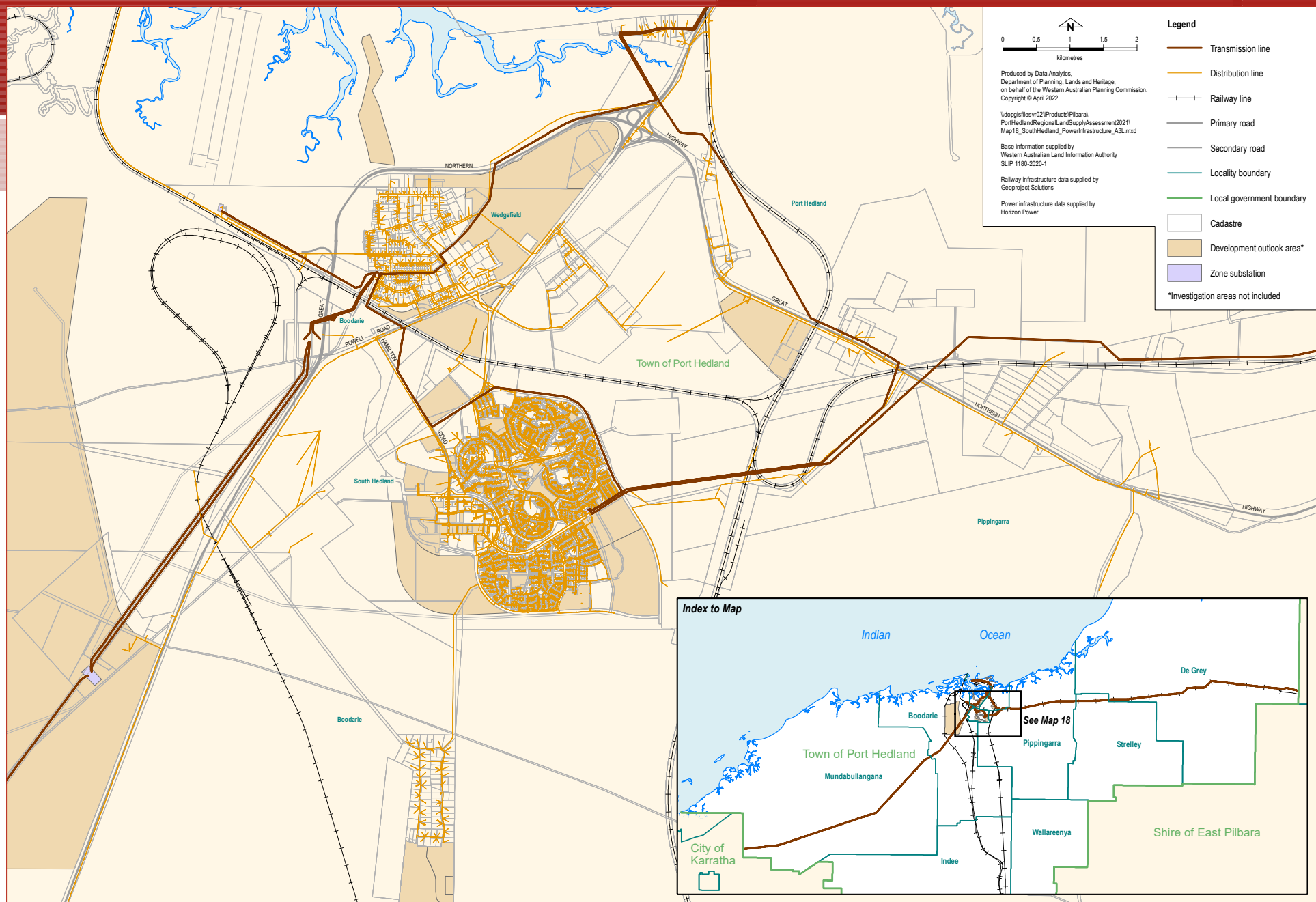
The Great Northern Highway realignment project delivered by Main Roads Western Australia (MRWA) (in collaboration with a private entity) was completed in 2014. The aim of the project was to improve road safety by allowing heavy vehicles to bypass established areas in the town, reducing road train incidents and local traffic, improving access to new port and harbour areas and improving traffic flow between Port Hedland and South Hedland. The project delivered approximately eight kilometres of new road, a major interchange at the Broome turn-off, enabling uninterrupted flow for local traffic over Great Northern Highway, a new intersection with Utah Point Road to provide access to the western port area, a new link to South Hedland and a new road bridge over the BHP rail line.

The further development of the Wedgefield Industrial Estate and new development being planned at Lumsden Point presents additional opportunities for enhancement to the road network. The Pilbara Port Authority has foreshadowed the need to upgrade or modify close intersections with the Great Northern Highway to support improved traffic management and improved safety outcomes.

³⁰ North West Interconnected System (2018) The NWIS

³¹ Town of Port Hedland (2012) *Pilbara's Port City Growth Plan*





Map 18: Power infrastructure – South Hedland

In addition to improving road safety heavy vehicles, MRWA is currently collaborating with haulage operators, some of whom operate over 100 road trains to cart ore around the Pilbara. Some of these operators are presently parking their trucks on road shoulders and MRWA Road Train Assembly areas to service their vehicles and to park them during road closures. It has become apparent that the available lots for sale of lease in the Wedgefield industrial area are not sufficiently large to accommodate road trains.

As shown on Map 20, \$36 million in State funding was secured in September 2021 for the Port Hedland International Airport deviation project. The project will realign a portion of the Great Northern Highway between Buttwell Street and Wilson Street and is expected to be completed mid-2022.

The proposed increase in dwellings in Port Hedland as outlined in Table 7 will increase traffic through the two main intersections onto Wilson St at McGregor St and Cooke Point Rd. MRWA has advised that plans are being prepared for the duplication of Wilson St between Great Northern Highway and McGregor St including the duplication of the Redbank Bridge. This project will increase capacity of the road as well as improve intersections along the route. The project remains unfunded currently.

A \$10.5 million upgrade to the entrance road to the Boodarie Strategic Industrial Area (IND160 shown on Map 7) was completed in January 2022. The upgrade has created a primary access point for the SIA as well as improved safety for turning vehicles at the intersection of Boodarie Access Road by including acceleration and deceleration lanes for existing and future industries.

12.4.2 Rail

There are three privately operated freight railway lines that connect mining operations to port facilities in Port Hedland. Two railway lines are owned and operated by BHP Billiton: the Goldsworthy Line and the Mount Newman line. The Goldsworthy Line connects Finucane Island to Yarrie (200 kilometres east of Port Hedland) and is 208 kilometres long. The Mount Newman line connects Newman to Nelson Point and is 426 kilometres long. Fortescue Metals Group owns and operates a 280-kilometre railway line which connects their mining operations at Cloud Break to their port facilities at Anderson Point.

12.4.3 Ports

The Port of Port Hedland is the world's largest bulk export port, exporting approximately 540 million tonnes in the 2020/2021 financial year³². Iron ore exports comprise almost all trade through the port.

The forecast growth in battery metals and minerals such as lithium concentrate and copper concentrate, the import of wind turbines to support renewable energy and hydrogen projects and the expansion of direct shipping services to the Pilbara will lead to congestion across the Pilbara Ports Authority's three multi-user berths at the Port of Port Hedland in the short-term. New multi-user berths are planned at Lumsden Point to ease congestion at the existing berths and reduce trucking movements in Port Hedland.

The Lumsden Point General Cargo Facility in Port Hedland has been designed to facilitate increases in mineral concentrate exports and the import of project and equipment necessary to build and develop the renewable energy and hydrogen industries. Work on the facility has already commenced, with a module offloading facility being constructed in 2021 to facilitate the import of project cargoes. Roadworks are planned in 2022 / 2023 to unlock up to eight hectares of land for industry. The proposed ultimate development will consist of two general cargo wharves, lay down areas and a logistics hub

The draft SIS acknowledges the global role integrated port and rail systems serving iron ore mines of the Pilbara play in terms of scale and efficiency to support substantial state wide economic activity. The State has a role to play in this respect in terms of investment facilitation and regulation.

12.4.4 Aviation

The Port Hedland International Airport (PHIA) is in the locality of Port Hedland, between the Port Hedland and South Hedland town centres. The Town owns the PHIA, however, in 2016, it entered into an agreement to lease PHIA to a private company for a period of 50 years to commercialise airport operations and fast track development.

³² Pilbara Ports Authority 2022

The airport provides for regular passenger transport and general aviation air services. PHIA consists of two runways, one at 2,500 metres long and the other at 1,000 metres long, and an interconnecting taxiway.

Up to 50 commercial flights are offered per week from PHIA, with direct services to Bali, Brisbane and Perth. In 2017, there were over 4,600 aeroplane movements and 350,000 passenger movements from the airport. PHIA also provides for international freight services, charter and flight training facilities, a dedicated heliport facility and the region's Royal Flying Doctors Service. The main driver of the passenger market for Port Hedland is the mining sector, particularly iron ore and base metals.

The new draft Port Hedland International Airport Master Plan 2018-2038 was released in June 2019. This establishes a vision for the upgrade to airport infrastructure as well as establishing a precinct-based approach to future land use and development of vacant land within the airport rounds which are not required for aviation operational requirements.

In addition, the Town is serviced by three inter town public bus routes, operated by private contractors on behalf of TransRegional. The Perth to Broome route makes stops at Port Hedland and South Hedland, as well as Geraldton, Carnarvon, Exmouth and Karratha. There are also two Perth to Port Hedland routes; one operates via Tom Price, with the other via Meekatharra. These routes operate up to three times weekly in each direction.

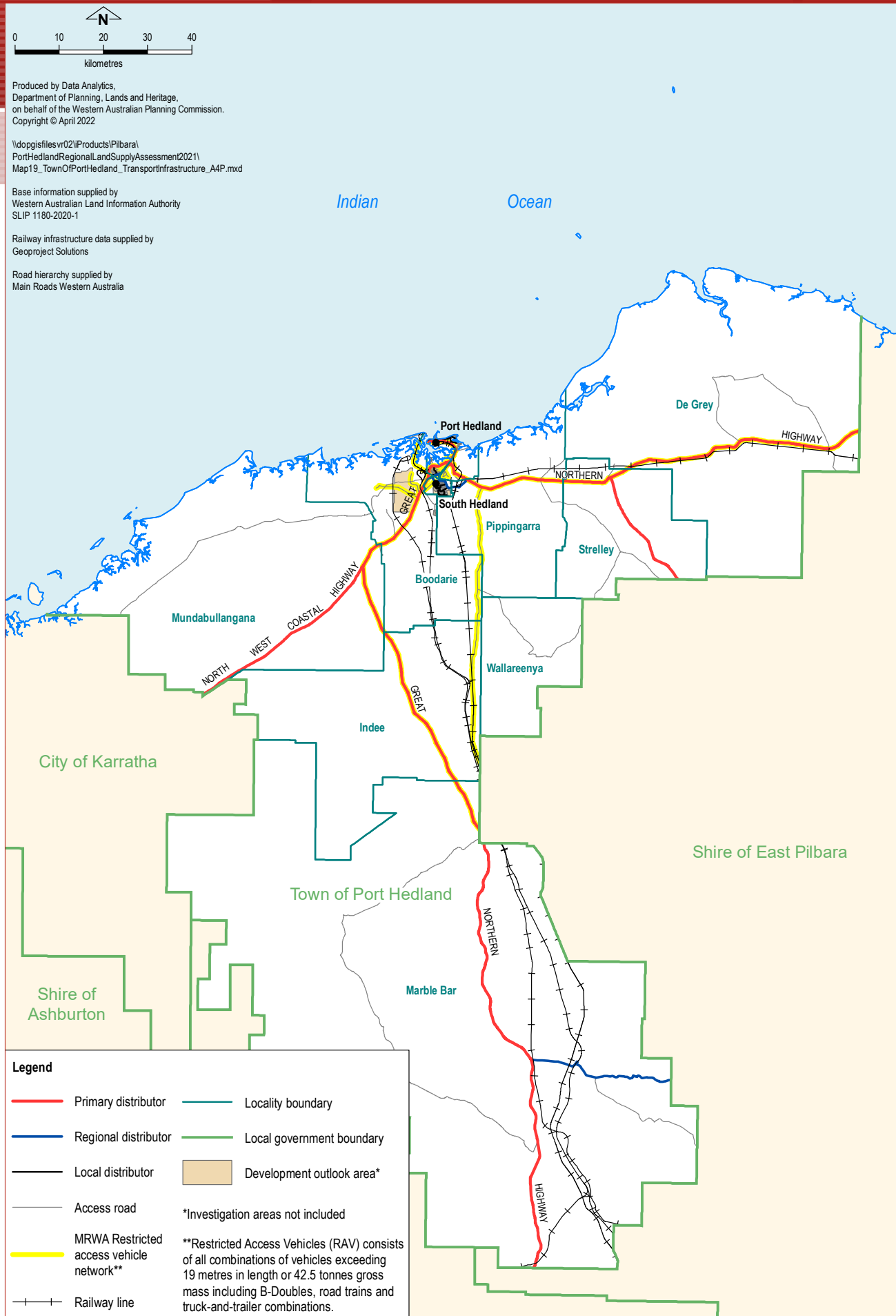
The Planning Strategy identifies opportunities for the expansion and diversification of public/community transport offerings within the Town, particularly regarding meeting the needs of the local Indigenous population. A need to increase service provision and improve connectivity between residential areas and centres of activity and employment, including the Wedgefield industrial estate and Boodarie SIA is also identified in the Planning Strategy.

12.4.5 Public Transport

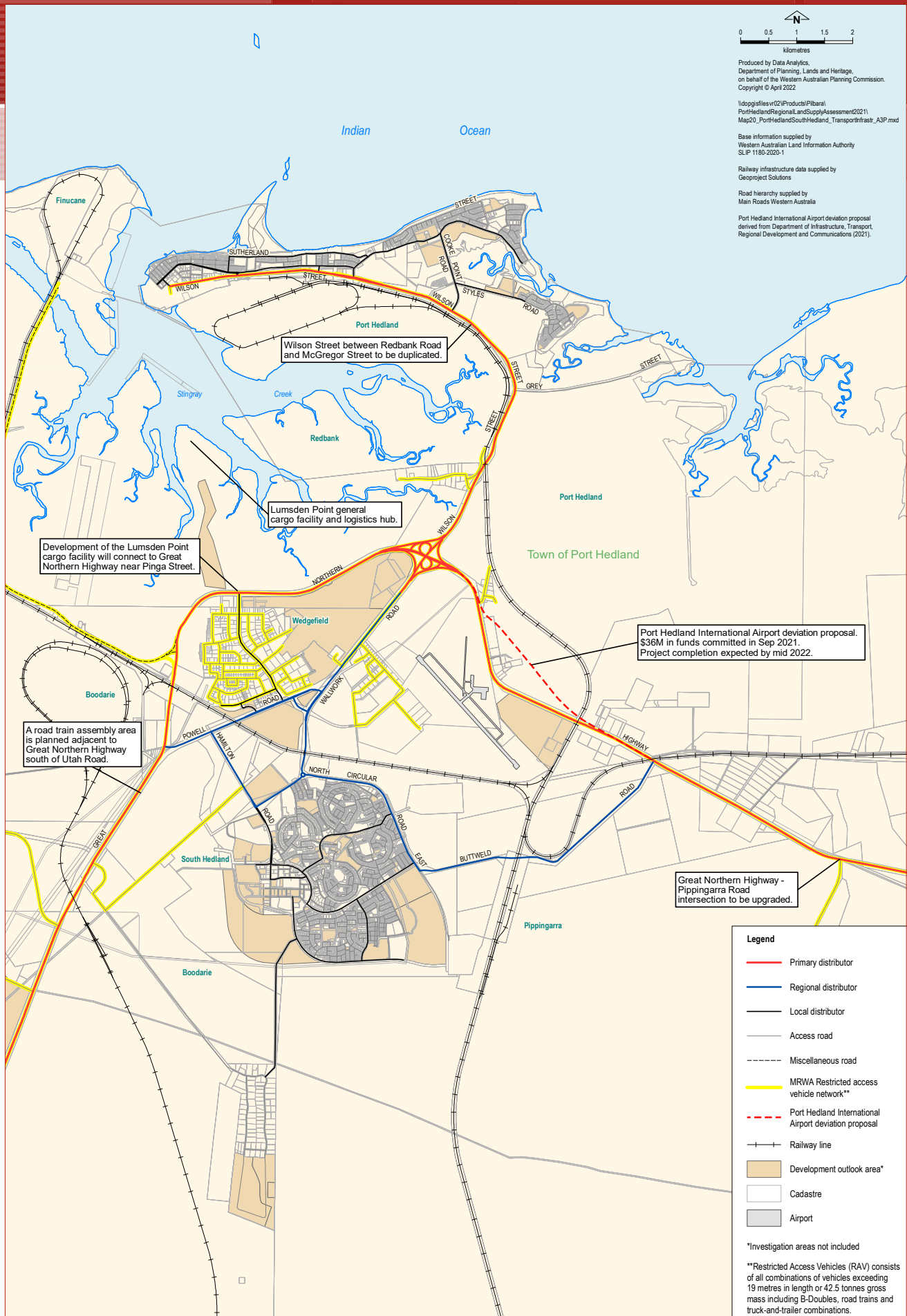
The Public Transport Authority (PTA) manages TransRegional, which provides intra town and inter town public bus services in regional Western Australia. There are currently three bus routes that serve the Port Hedland townsite, operated under the 'TransHedland' brand by a private contractor.

Route 870 operates between the localities of Port Hedland and South Hedland. The route services the west end and east end of Port Hedland, before traveling south along Wilson Street and Great Northern Highway and terminating at the South Hedland town centre. Routes 871 and 872 are circular routes that service South Hedland, operating in a clockwise and anticlockwise direction respectively. During weekdays, services operate at a frequency of every one to two hours. On Saturdays, services operate at a decreased frequency of every four hours. No services are operated on Sundays and public holidays.

Since September 2018, additional services for routes 870 and 871 have been operated as part of a trial conducted by the PTA. The trial also involves a route change for route 870, with selected weekday services deviating through the Wedgefield industrial estate.



Map 19: Transport infrastructure – Port Hedland (T)



Map 20: Transport infrastructure – Port Hedland townsite

Abbreviations and acronyms

ABS	Australian Bureau of Statistics
ACH	Aboriginal Cultural Heritage Act 2021
AHA	Aboriginal Heritage Act 1972
ASGS	Australian Statistical Geography Standard
CCIWA	Chamber of Commerce and Industry WA
CHRMAP	Coastal Hazard Risk Management and Adaptation Plan
Communities	Department of Communities
DPLH	Department of Planning, Lands and Heritage
EPA	Environmental Protection Authority
ERP	Estimated Resident Population
FIFO	Fly in fly out
GCCSA	Rest of WA geography
GROH	Government Regional Officer Housing
ILID	DPLH's Integrated Land Information Database
IRIS	Integrated Regional Information System (IRIS)
IS1	Port Hedland West End Improvement Scheme No. 1
kV	Kilovolt
LPS 7	Town of Port Hedland Local Planning Scheme No. 7
MB	Mesh Block
MW	Megawatt
NWIS	North West Interconnected System
PHIA	Port Hedland International Airport
Planning Strategy	Town of Port Hedland Local Planning Strategy
Port City Growth Plan	Pilbara's Port City Growth Plan
PTA	Public Transport Authority
SA1	Statistical Area Level 1
SA2	Statistical Area Level 2
SA3	Statistical Area Level 3
SIA	Strategic Industrial Area
SUA	Significant Urban Area
The Framework	Pilbara Planning and Infrastructure Framework
The Town	Town of Port Hedland
Townsites	South Hedland and Port Hedland townsites
UCL	Urban Centre and Locality
UDP	Urban Development Program
WA Tomorrow	Western Australia Tomorrow Medium-Term Population Forecasts
WAPC	Western Australian Planning Commission
WWTP	Waste Water Treatment Plant

Glossary

Building approvals

Building	A building is a rigid, fixed and permanent structure which has a roof. Its intended purpose is primarily to house people, plant, machinery, vehicles, goods or livestock. An integral feature of a building's design is the provision for regular access by persons to satisfy its intended use.
Dwelling	A dwelling is a self-contained suite of rooms, including cooking and bathing facilities, intended for long-term residential use. A dwelling may comprise part of a building or the whole of a building. Regardless of whether they are self-contained or not, rooms within buildings offering institutional care (e.g. hospitals) or temporary accommodation (e.g. motels, hostels and holiday apartments) are not defined as dwellings. Such rooms are included in the appropriate category of non-residential building approvals. Dwellings can be created in one of four ways: through new work to create a residential building; through alteration/addition work to an existing residential building; through either new or alteration/addition work on non-residential building; or through conversion of a non-residential building to a residential building.
Dwellings excluding houses	Dwellings in other residential buildings and dwellings created in non-residential buildings.
Flats, units or apartments	Dwellings not having their own private grounds and usually sharing a common entrance, foyer or stairwell.
House	A detached building primarily used for long-term residential purposes consisting of one dwelling unit. Includes detached residences associated with a non-residential building, and kit and transportable homes.
Non-residential building	Buildings primarily intended for purposes other than long-term residence.
Other residential building	Buildings other than houses which are primarily used for long-term residential purposes. Other residential buildings include semi-detached, row or terrace houses or townhouses, flats and units or apartments.
Residential building	Buildings primarily used for long-term residential purposes. Residential buildings are categorised as houses or other residential buildings.
Semi-detached, row or terrace houses, townhouses	Dwellings having their own private grounds with no other dwellings above or below.
Total residential building	Total residential building is comprised of houses and other residential building. It does not include dwellings in non-residential buildings.

Geography

Australian Statistical Geography Standard (ASGS)	The ASGS brings all the regions for which the ABS publishes statistics within the one framework and has been in use for the collection and dissemination of geographically classified statistics since 1 July 2011. It is the current framework for understanding and interpreting the geographical context of statistics published by the ABS.
Mesh Blocks (MB)	Mesh Blocks are the smallest geographical area defined by the ABS and form the building blocks for the larger regions of the ASGS. All other statistical areas or regions are built up from, or approximated by whole Mesh Blocks. They broadly identify land use such as residential, primary production and parks, etc. There are 358,122 Mesh Blocks covering the whole of Australia without gaps or overlaps.
Statistical Area Level 1 (SA1)	SA1s are geographical areas built from whole Mesh Blocks. SA1s have generally been designed as the smallest unit for the release of census data. SA1s have a population of between 200 and 800 people with an average population size of approximately 400 people. There are 57,523 spatial SA1 regions covering the whole of Australia without gaps or overlaps.
Statistical Area Level 2 (SA2)	SA2s are medium-sized general purpose areas built from whole SA1s. Their purpose is to represent a community that interacts together socially and economically. SA2s generally have a population range of 3,000 to 25,000 persons. SA2s have an average population of about 10,000 persons. There are 2,310 SA2 regions covering the whole of Australia without gaps or overlaps.
Statistical Area Level 3 (SA3)	SA3s are geographical areas built from whole SA2s. They have been designed for the output of regional data. SA3s create a standard framework for the analysis of ABS data at the regional level through clustering groups of SA2s that have similar regional characteristics. They generally have a population of between 30,000 and 130,000 people. There are 358 spatial SA3 regions covering the whole of Australia without gaps or overlaps.
Statistical Area Level 4 (SA4)	SA4s are geographical areas built from whole SA3s. SA4 regions are the largest sub-state regions in the main structure of the ASGS and have been designed for the output of a variety of regional data. These areas represent labour markets or groups of labour markets within each State and Territory. There are 107 SA4 regions covering the whole of Australia without gaps or overlaps.
Urban Centre and Locality (UCL)	UCLs represent areas of concentrated urban development with populations of 200 people or more. They are defined using SA1 areas that meet objective 'Urban Character' criteria, including Census population and dwelling density measures.
Significant Urban Area (SUA)	SUAs represent significant towns and cities of 10,000 people or more. They are based on the UCLs but are defined by the larger SA2 areas, which mean they often include some adjacent rural residential settlement.
Region	The Kimberley region is one of nine regions of Western Australia, as defined by the <i>Regional Development Commissions Act 1993</i> . The Kimberley region is comprised of four local government areas, including the Shire of Broome.

Population

Estimated resident population (ERP)

The official measure of the population of Australia based on the concept of usual residence. It refers to all people, regardless of nationality, citizenship or legal status, who usually live in Australia, with the exception of foreign diplomatic personnel and their families. It includes usual residents who are overseas for less than 12 months over a 16-month period. It excludes overseas visitors who are in Australia for less than 12 months over a 16-month period.

Sub-state estimates of the resident population are prepared on an annual basis by adding natural change (births minus deaths), net internal migration and net overseas migration occurring during the period to the population at the beginning of each period. This is known as the component method.

Population growth rate

Population change over a period as a proportion (percentage) of the population at the beginning of the period.

Subdivision

Developer lodged applications

Refers to those applications received by the WAPC for the purpose of subdivision.

Applications under assessment

The number of applications under assessment for conditional approval by the WAPC and includes those which have been deferred.

Conditional approval

Conditional approval is granted by the WAPC for subdivision to begin, subject to certain conditions being met. The approval is preceded by an assessment of the proposed subdivision plan in consultation with servicing agencies. On receipt of conditional approval, the proponent may commence subdivision development in accordance with the conditions of approval. A conditional approval remains valid for three years where five lots or less are approved, and four years where six or more lots are approved.

Current valid conditional approvals

Refers to those conditional approvals that are still valid but have not yet been issued with final approval. In general, these are approvals for which construction/servicing has not yet commenced or is currently underway (see active conditional approvals).

Active conditional approvals

Refers to conditionally approved lots where a servicing agreement (agreement to construct) has been signed between the Water Corporation and the developer. These are termed 'lots on non-cleared agreements'.

Inactive conditional approvals

Where conditional approval has been granted and the approval is still valid, but where a servicing agreement (agreement to construct) has not been signed between the Water Corporation and the developer.

Lapsed conditional approvals

Where conditional approval has expired and the conditions of the approval have not been met.

Final approval

Final approval is the WAPC's endorsement of the proponent's submitted deposited plan or strata/survey strata plan describing the now complete subdivision, constructed in accordance with the conditions set down in the conditional approval. Deposited plans/strata plans that have final approval are registered with Landgate, where certificates of titles for the newly created lots can be issued. The characteristics difference in lot numbers seen between conditional and final approvals arises from proponents choosing not to proceed with the subdivision in the specified three/four-year period in accordance with the conditions of the conditional approval; either at all, only in part, or via another conditional approval incorporating a new plan for the subject land.

Planning

Planning and Development Act 2005

The *Planning and Development Act 2005* is the primary piece of legislation governing development and subdivision in Western Australia. Its stated purposes are to provide for an efficient and effective land use planning system in Western Australia, and to promote the sustainable use and development of land in Western Australia.

Planning and Development (Local Planning Schemes) Regulations 2015

The Planning and Development (Local Planning Schemes) Regulations 2015 prescribe the procedures by which local planning strategies, local planning schemes and amendments to local planning schemes must be prepared and adopted by local government, the WAPC and the Minister for Planning; and establish a Model Scheme Text for local planning schemes; and introduced a set of deemed provisions that form part of all local planning schemes in Western Australia.

State Planning Strategy

The State Planning Strategy is an integral part of the Western Australian planning system and is intended to inform planning and development policies and decisions throughout the State.

State Planning Policies (SPPs)

Provides the highest level of planning policy control and guidance in Western Australia. SPPs establish the key principles for land use planning and development that should apply in Western Australia.

State Planning Policy 3.1 – Residential Design Codes – Volume 1 (the R-Codes)

The R-Codes outlines the Residential Design Codes that apply to all residential development in Western Australia. The R-Codes include standards for lot sizes, required dwelling setbacks from lot boundaries, requirements for private open space and the proportion of built form permitted on each lot (plot ratio), amongst other things. Special provisions are also included for multi-unit development.

Local planning strategies

Local planning strategies establish the planning framework for each local government, and provide the strategic basis for local planning schemes. Local planning strategies set out the local government's objectives for future land use planning and development, and include a broad framework by which to pursue those objectives. Local planning strategies need to address the social, environmental, resource management and economic factors that affect, and are affected by, land use and development.

Local planning schemes	Local planning schemes are the principal statutory tool for achieving a local government's aims and objectives with respect to the development of its local area, subject to compliance with the State Government's statutory and strategic planning framework. Local planning schemes deal mainly with land use, development control and infrastructure coordination, and are formulated based on the strategic framework established in the supporting local planning strategy.
Local planning scheme amendments	A local government may resolve to amend its planning scheme, and may do this at its own initiative, at the request of all or any of the relevant landowners, or if directed to do so by the Minister for Planning. An amendment would generally be initiated to bring the local planning scheme into line with: changes in planning procedures; to reflect changes to a State or regional planning policy; or to allow for a different use of land.
Regional planning and infrastructure frameworks	Regional planning and infrastructure frameworks are regional strategic planning documents that provide an overview of regional planning issues and a basis for ongoing planning and development. They provide an overview of the major regional economic, social, cultural and environmental issues; identify the priority actions required to enable comprehensive sub-regional planning and to guide local planning processes; and identify the regional infrastructure priorities to facilitate economic and population growth in a region.
Sub-regional structure plans	Sub-regional structure plans are strategic spatial plans providing a broad framework for planning at a sub-regional level. They cover planning issues including location of urban growth and consolidation, population trends, employment areas, major commercial centres, transport links, infrastructure and servicing requirements, environmental protection and regional open space. Sub-regional structure plans are prepared by the WAPC, in liaison with local government.
District structure plans	A district structure plan shows in more detail the general pattern of development in a particular part of a sub-region, and provides guidance on future land use, employment, density targets and the coordination and provision of major infrastructure at a district level. This may include the location of high schools, district water management requirements, movement networks, refinement of regional land use boundaries, coordination of regional and district infrastructure provision, location and distribution of regional or district open space, land use buffers, environmental assets and activity centres. District structure plans identify matters that will require further refinement through the more detailed investigations involved in preparation of local structure plans.
Local structure plans	A local structure plan is a statutory spatial plan, prepared by local government, a landowner, or a landowner representative, and approved under the provisions of a local planning scheme. Local structure plans provide more specific detail on the proposed pattern of land use for a certain area, such as a residential neighbourhood or industrial area. They provide a framework for the assessment of detailed scheme amendments, subdivision and development proposals. These plans include details of location and density of housing, road layout, pedestrian and cycle network, public open space, school sites, servicing infrastructure, community purpose sites and activity centre locations.
Temporal land supply	Temporal land supply is an estimate of the number of years it will take to completely consume land that is currently zoned for urban development. Temporal land supply can vary based on different development scenarios, particularly where different rates of density and infill are applied.

Underlying housing demand

Refers to the need for additional dwellings that will satisfy the requirements of a population (and population growth), irrespective of the demand actually expressed by the market.

Vacant lots

Vacant lots refers to those lots that are undeveloped (i.e. have no premises constructed) and that are located on residential or special zones as designated under various local planning schemes in Western Australia. The base information is provided by Landgate's property valuation database.

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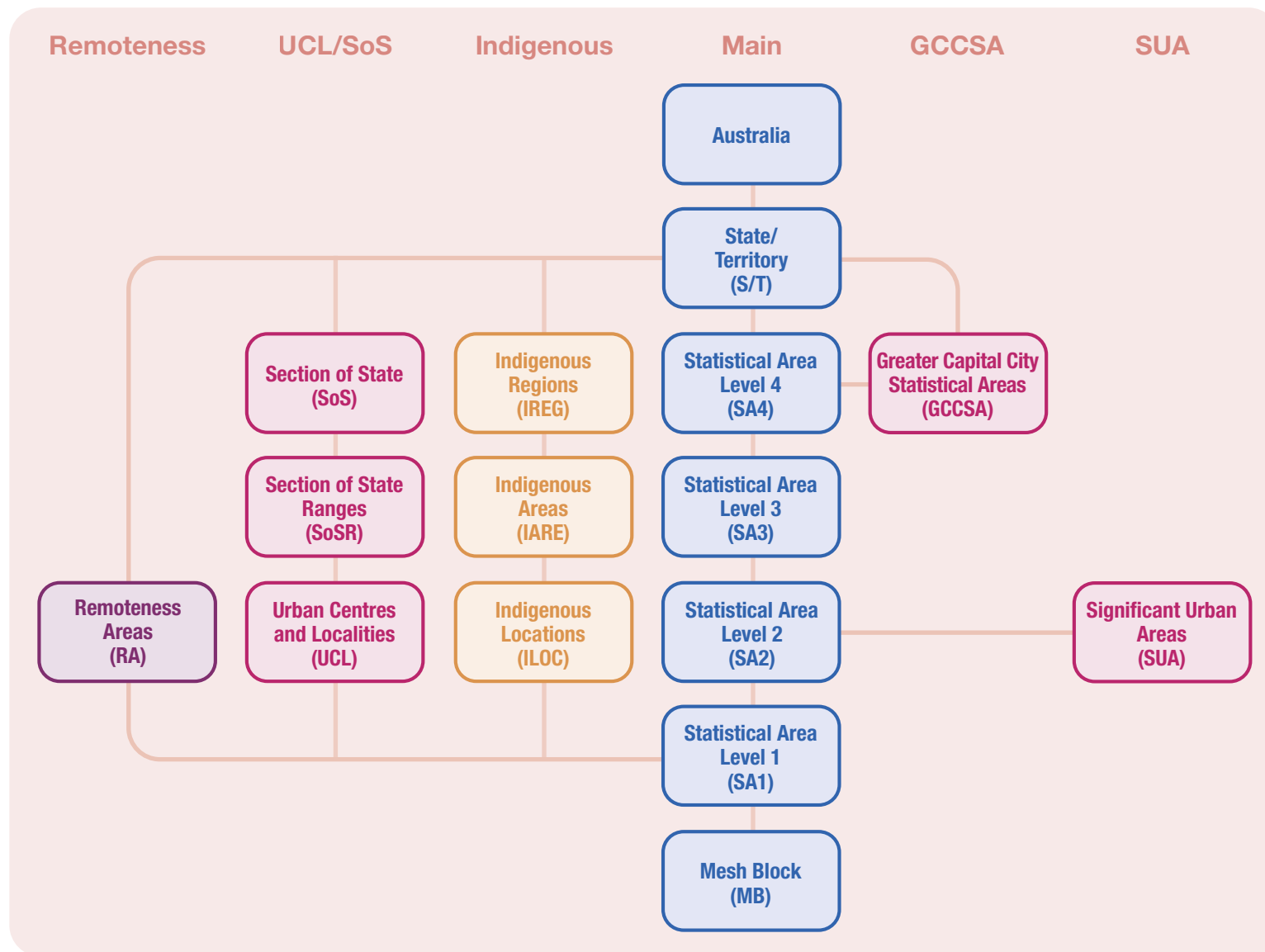
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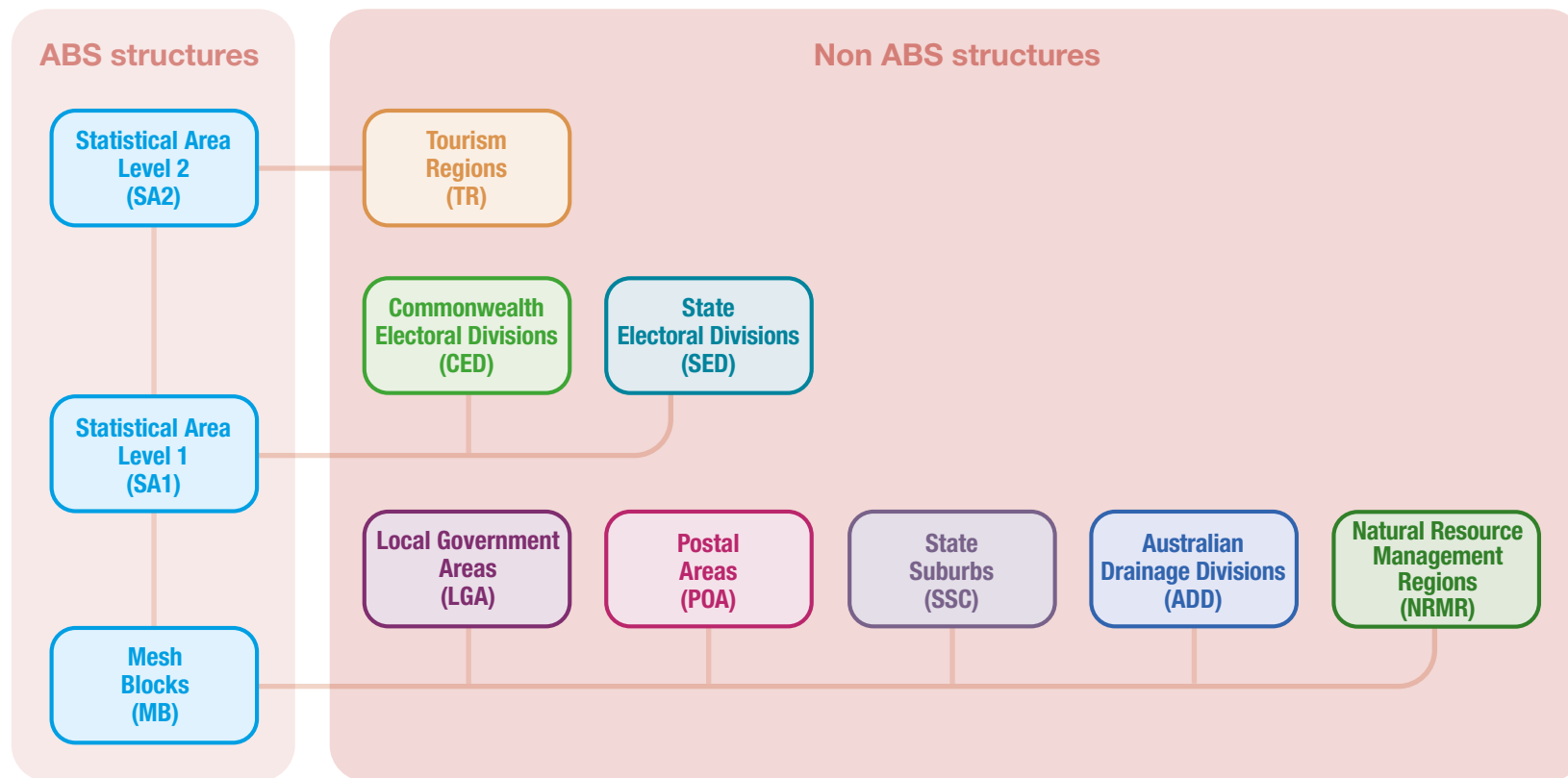
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Appendices

Appendix A: Regional and Local Geographical Extents – ABS and Non-ABS Structures





Appendix B: ASGS Component Statistical Areas – Port Hedland

Geography			Population at 2016 Census	Area (square kilometres)
ABS structures – Main	Australia	Australia	23,401,892	7,688,126
	State/Territory (S/T)	Western Australia	2,474,41	2,526,646
	Statistical Area Level 4 (SA4)	Western Australia – Outback (North)	93,920	926,050
	Statistical Area Level 3 (SA3)	East Pilbara	25,055	390,723
	Statistical Area Level 2 (SA2)	Port Hedland	4,360	94
		South Hedland	9,471	22
	Statistical Area Level 1 (SA1)	The Port Hedland SA2 is aggregated from 16 SA1s. The South Hedland SA2 is aggregated from 26 SA1s.	n/a	n/a
ABS structures – UCL/SOS	Urban Centres and Localities (UCL)	Port Hedland	13,828	109
ABS structures – GCCSA	Greater Capital City Statistical Area (GCCSA)	Rest of WA	538,447	2,520,230
ABS structures – SUA	Significant Urban Areas SUA	Port Hedland	13,828	109
Non-ABS structures	Local Government Areas (LGA)	Port Hedland (T)	14,469	18,417
	State Suburbs (SSC)	Port Hedland	4,180	67
		Redbank	43	7
		South Hedland	9,471	22
		Wedgefield	144	18

Appendix C: Integrated Land Information Database (ILID)

ILID 2016 – Background:

The Integrated Land Information Database (ILID) is a net land use assessment and capability model that is generated at a cadastral level for the whole of Western Australia. The database can be used to identify the current range of land uses within a number of predefined boundaries. It can also model future capability based on what is known about the current (or proposed) planning policies and statutory instruments.

The model is produced within a Geographic Information System by overlaying a variety of layers to compute the coincidence of two or more parameters. For example, if a dataset containing the locations of school sites is overlayed with another dataset that shows the areas that are within two kilometres of the coast, it is possible to generate a single dataset with schools that are within two kilometres of the coast. This process can be repeated with a variety of datasets in endless combinations to help with multi-criteria decision analysis through the process of elimination.

The ILID works by linking the spatial extent of many different input layers with all the unique cadastral identifiers that exists at a particular point in time. The result of this overlay process creates many versions of the cadastre attributed with discrete pieces of information i.e. cadastre version of the local planning scheme zones, region schemes, R-Codes and so on. The 'integrated' component of the database means that once all of the individual inputs have been identified, they can all be joined together using a tabular join through the common PIN number field across all datasets.

For this report, the ILID has been used to identify the lot potential and additional dwelling potential of all residential lots (with an R-Code identified in the *Town of Port Hedland Local Planning Scheme No.7*) in the Town of Port Hedland. Vacant lots were not included in this analysis.

ILID analysis in this report includes three key inputs: lot size, R-Code value and dwelling count/location. Constraints to subdivision such as heritage, infrastructure supply and environment are not variables included in this analysis, and as such, a significant proportion of the development potential may not be realised.

Definitions:

Lot potential is used to determine how many potential lots the R-Code intends to yield as a maximum. For example, a lot that has an R-Code of R20 has a planned density of a single 450 square metre lot. Or a 900-square metre lot has the potential to create two 450 square metre lots. In any case the lot potential can only be calculated if there is an existing R-Code present.

Net dwellings, also known as additional dwelling potential, identifies the extra number of dwellings a single lot can add on (disregarding the location of the current dwelling footprint and has a hundred per cent take-up rate). This is determined by the size of the lot and the current lot potential based on the R-Code planning and any existing dwellings.

Appendix D: Integrated Regional Information System (IRIS)

The sections of this report discussing the development status of land zoned for residential, rural living, industrial and commercial purposes draw heavily on the tiered land supply assessment model. The tiered land supply assessment model is the central output of the Integrated Regional Information System (IRIS). The IRIS land supply model is a geographic information system (GIS) based tool that is used to assess key measures of land use dynamics across Western Australia.

The IRIS land supply model groups local planning scheme zones into primary, secondary and tertiary categories. The grouping of local planning scheme zones forms the zone 'catchment' for each IRIS land supply model category. Tier one of the IRIS land supply model groups local planning scheme zones into primary categories for analysis. The table below shows the groupings of local planning scheme zones under the *Town of Port Hedland Local Planning Scheme No. 7*.

IRIS primary category	Local planning scheme zone
Residential	Residential
	Urban development
	Rural residential
Rural	Rural
Industrial	General Industry
	Light Industry
	Strategic Industry
	Industrial Development
	Special Use
Commercial	Centre
	Commercial
	Tourism
	Mixed Use
	Service Commercial

Tier two of the IRIS land supply model addresses the development status of each lot within the specified primary land use category. Each cadastre (lot) within each primary land use category is attributed one of three values (developed, undeveloped or unrated), based on information from Landgate's property valuation database.

Developed refers to lots that are zoned for development for the purposes of the specified primary land use category for which premises valuation information is captured in Landgate's property valuation database.

Undeveloped refers to lots that are zoned for development for the purposes of the specified primary land use category that are recorded as vacant in Landgate's property valuation database.

Unrated refers to lots that are zoned for development for the purpose of the specified primary land use category for which no vacant land or premises valuation information has been captured in Landgate's property valuation database. This may include State or local government owned lots or premises exempt from rates, Crown allotments, common property within lots on survey, newly created lots on survey, land otherwise exempt from rates and some public roads which are zoned for the primary land use under the local planning scheme.

Tier three of the IRIS land supply model refers to the nature of development by assessing the premises type against the land use as indicated by the local planning scheme. Tier three of the IRIS land supply model has not been included in analysis for this report as sites with identified development potential are described in Table 7 and Maps 6, 7 and 8 of this report.