7 Rural living

7.1 Overview

Within the Geraldton urban area, land zoned for rural living purposes covers approximately 3,800 hectares. All rural living land within the Geraldton urban area is located within the Geraldton-East and Geraldton-North SA2s. In the Geraldton-East SA2, rural living areas are located across the suburbs of Woorree, Deepdale, Namgulu and Rudds Gully. For the Geraldton-North SA2, the stocks of rural living land are located across Waggrakine, Moresby and White Peak.

7.2 Land zoned for rural living purposes

Using the IRIS land supply model, areas of land zoned for rural living purposes are assessed to provide a snapshot of rural living land stocks within the Geraldton urban area as at December 2015. Land zoned ‘Rural Residential’ and ‘Rural Smallholding’ are included in this analysis. A more detailed description of the IRIS modelling methodology is included in Appendix 2 of this document.

IRIS modelling showed that at December 2015, there were 1,756 lots zoned for rural living purposes within the Geraldton urban area, covering a total land area of approximately 3,800 hectares. The majority of this stock is located in the suburbs of Waggrakine, Moresby, White Peak and Buller; most of these lots are considered to be developed. The Greater Geraldton Structure Plan and Moresby Rural Residential Local Structure Plan indicate that rural living in Waggrakine and Moresby may be subject to further intensification. These areas have been included in this report’s development outlook analysis (sites GN76 and GN150).
7.3 Development activity

Figure 27 depicts data for rural living subdivision activity in the City of Greater Geraldton for the 2005-2015 period. Generally speaking, Figure 27 shows a reduction in subdivision activity since 2006/07, with 30 lots granted final approval in 2015, compared to 83 lots in 2007.

In Western Australia’s regional centres, it is common for approval to be speculatively sought to subdivide land for rural living purposes; however, for various reasons, development is not progressed and the conditional approval lapses (usually after four years) without the creation of any lots. In the City of Greater Geraldton, approximately 68 per cent of rural living lots granted conditional approval during the 2005-2015 period have progressed to final approval.

7.4 Summary

Rural living land within the Geraldton urban area is clustered into three main areas:

- Waggrakine, Moresby and White Peak
- Woorree, Deepdale, Nanggulu
- Rudds Gully

Approximately 2,500 hectares (66 per cent) of the total stock of rural living land is considered developed. Undeveloped and unrated land are scattered fairly evenly across the three main rural living clusters within the Geraldton urban area.

Figure 27: Rural living subdivision activity – City of Greater Geraldton (2005-2015)

![Figure 27: Rural living subdivision activity – City of Greater Geraldton (2005-2015)](image)

8  Industrial

8.1 Overview

Land zoned for industrial purposes in the Geraldton urban area covers approximately 4,450 hectares. This includes the site of the proposed Oakajee industrial estate, which covers approximately 2,332 hectares and a further 4,071 hectares of buffer area. Other areas containing significant stocks of land zoned for industrial purposes include Webberton, West End, Meru, Narngulu and Utakarra.

Geraldton Port

The Geraldton Port is located west of the Geraldton city centre, within the suburb of West End. Land in the Geraldton Port area is zoned ‘Strategic Infrastructure’, ‘Special Use (SU4)’ and ‘Light Industry’. The majority of land in this area is considered to be developed, with industrial land uses directly associated with port operations being the predominant forms of activity. There is a small supply of undeveloped land at the Geraldton Port area; however, the City of Greater Geraldton Local Planning Strategy recognises the importance of ensuring that this land is used for purposes directly associated with the operation of the port, and not for uses which can be accommodated in other industrial areas.

Webberton/Wonthella

Significant stocks of industrial land are located across the suburbs of Webberton and Wonthella. This area contains a mix of general, light and service industrial development. The majority of industrial land in this area is considered to be developed, with undeveloped/unrated land located at the southern end of the precinct, in Wonthella. The City of Greater Geraldton Local Planning Strategy states that Webberton is likely to transition into a light and service industry precinct over time, due to its proximity to residential areas.

Narngulu

The Narngulu industrial area is located at the south eastern periphery of the Geraldton urban area. There are significant stocks of undeveloped and unrated industrial land within the area, providing significant opportunities for further development for a range of light and general industry. The City of Greater Geraldton Local Planning Strategy proposes for the continued development of general industry at the core of the industrial area. Under the strategy, light industry uses are to be located on the periphery of the industrial precinct to provide an improved interface with adjacent rural and residential areas.

Oakajee

The proposed Oakajee deep water port and industrial estate are located at the northern extent of the Geraldton urban area. It contains the largest stock of industrial zoned land within the Geraldton urban area, with almost all land considered unrated under IRIS modelling. The Mid West Ports Authority’s Oakajee Port Master Plan and LandCorp’s Oakajee Industrial Estate Structure Plan have been prepared to guide the future development of the Oakajee port and industrial estate respectively. Development at the site has the potential to generate substantial investment and drive population growth; however, the project faces numerous constraints, including servicing and lack of connection to the Geraldton Port, the Narngulu Industrial Estate and the regional rail network that require State Government acquisition of the Oakajee Narngulu Infrastructure Corridor, without which development is unable to occur.
8.2 Land zoned for industrial purposes

Using the IRIS land supply model, major industrial land use zones under the local planning scheme are grouped together to provide a snapshot of industrial land stocks in the Geraldton urban area as at December 2015. A more detailed description of the IRIS modelling methodology is included in Appendix 2 of this document.

The following industrial land use zones have been included in this analysis:

- General Industry
- Special Use
- Strategic Infrastructure
- Oakajee Industrial
- Light Industry.

IRIS modelling identified 835 lots on land zoned for industrial purposes in the Geraldton urban area, covering a total land area of 4,450 hectares. Approximately 1,110 hectares (25 per cent) of this stock is considered to be developed; 480 hectares (11 per cent) and 2,860 hectares (64 per cent) are deemed undeveloped and unrated respectively (Figure 28). A visual audit of unrated industrial land within the Geraldton urban area indicated that the majority of unrated land is essentially undeveloped; the large majority of this stock is located within the site of the proposed Oakajee industrial estate.
8.3 Development activity

Figure 29 shows subdivision activity in the City of Greater Geraldton from 2005 to 2015. In 2010, conditional subdivision approval was granted to create 78 lots in Meru (Deepdale at the time), 29 of which were granted final approval in 2013. The scale of investment in industrial projects is also a key indicator for industrial development activity. The ABS publishes data for the value of industrial construction approvals in the City of Greater Geraldton on a quarterly basis. Figure 30 shows the quarterly value of industrial buildings approved in the City of Greater Geraldton for the three years to June 2015. The largest investment in industrial construction during this period was approved in the September quarter 2013, most of which was for the construction of factories and other secondary production buildings.

8.4 Summary

There are substantial stocks of land zoned for industrial purposes within the Geraldton urban area, covering a total land area of 4,450 hectares. Approximately 3,340 hectares of this stock is considered to be undeveloped or unrated. The majority of industrial zoned land deemed unrated forms the site of the proposed Oakajee industrial estate.

Over the past decade, industrial development activity peaked in 2013 with a total of 32 lots being granted final approval. Investment in industrial projects was also at its highest in 2013, with construction approvals for industrial buildings valued at $18.1 million.

Aside from the proposed Oakajee industrial estate, the bulk of future industrial development within the Geraldton urban area will be accommodated by the Narngulu industrial area, with limited opportunities for development in Webberton/Wonthella.
Figure 29: Industrial subdivision activity – City of Greater Geraldton (2005-2015)


Figure 30: Value of industrial construction approvals – City of Greater Geraldton (2012/13-2014/15)

9 Commercial

9.1 Overview

The City of Greater Geraldton Commercial Activity Centres Strategy provides a strategic framework for managing future growth in commercial activity in the City of Greater Geraldton. It identifies the Geraldton CBD as a regional centre. Four large neighbourhood centres are also identified, which are Sunset Beach, Bluff Point, Wonthella and Rangeway. The Commercial Activity Centres Strategy identifies eight neighbourhood centres and six local centres, as well as two proposed district centres to be located at Glenfield Beach and Southgates (indicative).

Regional centre

The Geraldton CBD services the City of Greater Geraldton area and the wider Mid West region. It is the largest multi-functional centre of activity, providing the most intensely concentrated development in the region. It has the greatest range of high order services and jobs, and the largest commercial component of any activity centre within the Mid West.

District centres (proposed)

The Commercial Activity Centres Strategy identifies two proposed district centres to be located at Glenfield Beach (within the Geraldton-North SA2) and Southgates (Geraldton-South SA2). District centres are multipurpose centres that provide a diversity of uses; however, they will serve smaller catchments than a regional centre. They offer a range of essential services, facilities and employment opportunities to support their sub-regional catchments.

Neighbourhood centres

The Commercial Activity Centres Strategy identifies eight existing neighbourhood centres, as well as four proposed neighbourhood centres to be located at Cape Burney, Moresby, Strathalbyn and Waggrakine. Neighbourhood centres have a greater focus on servicing the daily needs of residents and providing community facilities and a small range of other convenience services.

Local centres

Local centres provide for primarily daily household shopping needs and small range of other convenience services. The Commercial Activity Centres Strategy identifies four existing local centres (Beachlands, Drummond Cove, Mahometts Flats and Wandina) and proposes for an additional two local centres at Spalding and Woorree.
9.2 Land zoned for commercial purposes

Using the IRIS land supply model, major commercial land use zones under the local planning scheme are grouped together to provide a snapshot of commercial land stocks in the Geraldton urban area as at December 2015. A more detailed version of the IRIS modelling methodology is included in Appendix 2 of this document.

Commercial land use zones incorporated in this analysis include:

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

IRIS analysis identified 893 lots on land zoned for commercial purposes in the Geraldton urban area, covering a total land area of 220 hectares. Approximately 160 hectares is considered to be developed, with a further 60 hectares of land deemed undeveloped or unrated. The majority of commercial zoned land is located in, or within close proximity of the Geraldton CBD. The stock of undeveloped/unrated commercial land are scattered fairly evenly throughout the Geraldton CBD area. Outside of the Geraldton CBD, relatively small clusters of undeveloped/unrated commercial zoned land are located in Cape Burney, Wandina, Mount Tarcoola, Utakarra and Wonthella.

Figure 31 shows the stock of land zoned for commercial purposes in the Geraldton urban area by development status.

In addition to undeveloped and unrated land zoned for commercial purposes, future commercial development may also occur on land zoned Urban Development or Development under the local planning scheme.
9.3 Development activity

Figure 32 shows data for commercial subdivision activity in the City of Greater Geraldton over the decade to December 2015. During this ten year period, a total of 37 lots were granted conditional approval, with 24 lots progressed to final approval.

A subdivision application was lodged in 2016 for the creation of three lots on a parcel of unrated commercial land in Wonthella. Proposed developments on the site include a supermarket, three showroom units, eight warehouse units, a liquor store, a fuel station, a convenience store and two fast food outlets. As at August 2016, the subdivision application has been deferred.

Approval was granted in 2014/15 to develop commercial buildings with a total value of $14.0 million; a slight increase from $13.2 million in 2013/14 and $11.5 million in 2012/13 (Figure 33).

9.4 Summary

The majority of commercial activity in the Geraldton urban area is located in or within close proximity to the Geraldton CBD, where the bulk of commercial zoned land is considered to be developed. Twenty-seven per cent of the total commercial zoned land within the Geraldton urban area is categorised as undeveloped or unrated. The bulk of undeveloped/unrated land is located within or near the Geraldton CBD, with small parcels located in Cape Burney, Wandina, Mount Tarcoola, Utakarra and Wonthella. There is capacity for an intensification of development in the CBD to support growth into the long term. Smaller activity centres will also be developed to meet demand, as set out in the City of Greater Geraldton Commercial Activity Centres Strategy.

The annual value of commercial building approvals (by financial year) for the City of Greater Geraldton has experienced a steady increase over the past three years. The City of Greater Geraldton Commercial Activity Centres Strategy envisages for Geraldton to have the capacity to sustain a population of 80,000 to 100,000 people; with this growth target, the Strategy sets out to ensure the continued development of a strong, resilient network of activity centres.
Figure 32: Commercial subdivision activity – City of Greater Geraldton (2005-2015)


Figure 33: Value of commercial construction approvals – City of Greater Geraldton (2012/13-2014/15)

10 Service infrastructure

The following section outlines the broad service infrastructure capacity for the Geraldton urban area and identifies upgrades that may be required to facilitate future residential, commercial and industrial growth in the Geraldton urban area.

10.1 Water

In Geraldton, groundwater is the source for drinking water supply. The Geraldton Regional Water Supply (GRWS) Scheme supplies drinking water to Geraldton, Dongara, Port Denison, Mullewa, Northampton, Eradu and the Narngulu industrial area. It is the largest scheme in the Mid West region, covering a total area of approximately 1,000 km². Water is drawn from the Allanooka and Mt Hill borefields, with the latter being used during periods of high demand. An expansion of the Allanooka and Mt Hill borefields took place during the late 1990s and early 2000s, and it now comprises of 19 production bores.

Water from the Allanooka borefield is disinfected and aerated to remove iron before being discharged into the Allanooka summit tank. The water gravitates to the Walkaway treatment plant, where water is disinfected and fluoride is added before entering the Geraldton distribution scheme. A booster pump station located at the Walkaway treatment plant is used during periods of peak demand.

According to the Mid West Regional Water Supply Strategy, an expansion of the Allanooka and Mt Hill borefields, combined with water management, will secure water supplies for the next 30 years. The City of Greater Geraldton is also implementing pilot projects examining the potential to harvest and redirect stormwater from urban catchments. Stormwater is currently harvested from grain storage sheds at the Geraldton Port, infiltrated into the superficial aquifer and used for irrigating public open space.21

The Water Corporation’s long term regional water supply planning recognised the possible development of the Oakajee deep water port and industrial estate, and includes concepts for water transfer to future water storage at Oakajee.

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21 City of Greater Geraldton (2014) Towards a Water Sensitive City: Greater Geraldton Water Planning and Management Strategy (prepared by ENV Australia Pty Ltd and Essential Economic Services)
The most recent Water Corporation forecast projects an average growth in the permanent resident population supplied by the scheme of two per cent per annum over the next 20 years, as shown in Figure 34.

The Water Corporation’s long-term planning for the GRWS Scheme identifies the need for capital investment in major upgrades and expansion of the water scheme including new source, water transfer, treatment and storage infrastructure. These upgrades will be staged according to demand and required system changes into the future, and are indicated on Map 11. The plan does not show the water reticulation upgrades and extensions that may be required to service new developments or rezoned areas located on the outer extents of the existing network, as these are usually funded by the developers.

The proposed long-term urban expansion and investigation areas do not currently form part of the Water Corporation’s planning for source, conveyance and treatment. Substantial reviews of the Water Corporation’s planning will therefore be required once the long-term strategic planning for the expansion of Geraldton is agreed.

Figure 34: Residential population – Geraldton Regional Water Supply Scheme

Map 11: Water infrastructure
10.2 Wastewater

The Greater Geraldton Wastewater Scheme is serviced by four wastewater treatment plants: Geraldton North, Geraldton No. 2, Narngulu and Greenough-on-Sea. There are 43 pump stations within the Greater Geraldton Wastewater Scheme, including numerous private pump stations. The four treatment plants within the Greater Geraldton Wastewater Scheme consist of aerated and non-aerated pond systems. All treated wastewater is infiltrated onsite, with the Geraldton No. 2 Wastewater Treatment Plant recycling its treated wastewater via indirect reuse.

The Geraldton North Wastewater Treatment Plant services most of Waggrakine and is an oxidation pond plant, with disposal of effluent achieved via evaporation and infiltration to groundwater. The Geraldton No. 2 Wastewater Treatment Plant is also an aerated pond plant. The Narngulu Wastewater Treatment Plant was the first high-performance aeration lagoon (HPAL) plant built by the Water Corporation. It is located in the Narngulu industrial estate. The Greenough-on-Sea Wastewater Treatment Plant services development in the Cape Burney area.

An additional site is indicated in the Greater Geraldton Structure Plan for a possible future wastewater treatment plant in the Oakajee industrial area, north of the Buller River. A timeframe for the construction of the new treatment plant is yet to be identified.

The most recent Water Corporation forecast projects an average growth in the permanent resident population serviced by the scheme of 1.9 per cent per annum over the next 20 years, as shown in Figure 35.

The Water Corporation’s long-term planning for the Greater Geraldton Wastewater Scheme identifies the need for capital investment in upgrades and expansion of the wastewater scheme, including new pump stations and conveyance infrastructure. These upgrades will be staged according to demand and required system changes into the future, and are indicated on Map 12.

The proposed long-term urban expansion and investigation areas do not currently form part of the Water Corporation’s planning for source, conveyance and treatment. Substantial reviews of the Water Corporation’s planning will therefore be required once the long-term strategic planning for the expansion of Geraldton is agreed.

Figure 35: Residential population – Greater Geraldton Wastewater Scheme

New wastewater infrastructure required for development of Karloo

Construct new Glendinning Road pump station and pressure main

New wastewater infrastructure required for development of Oakajee

Upgrade Whiteshill Road pump station

Construct new gravity sewer and pressure main

Upgrade Whitworth Drive pump station

Construct new pump station

Construct new pump station

Construct new pump station

New wastewater infrastructure required for development of Woorree New Town

New wastewater infrastructure required for development of Cape Burney

Legend
- Water Corporation future project point
- Water Corporation future project line
- Active wastewater pump station
- Wastewater treatment plant
- Wastewater main
- Active wastewater gravity pipe
- Wastewater facility buffer
- Oakajee industrial precinct
- Oakajee buffer
- Oakajee future port
- Local government boundary

Map 12: Wastewater infrastructure
10.3 Energy

Western Power manages energy supply to the majority of the Mid West region’s Batavia Coast and North Midlands sub-regions. The Geraldton urban area is covered by the North Country load area, which extends from Pinjar and Muchea at the northern edge of the Neerabup terminal load area to Kalbarri at the northern extremity of the Western Power network. Electricity in the Geraldton urban area is supplied via two single circuit 132kV transmission lines that extend from Three Springs to Geraldton.

Western Power has recently completed the Mid West Energy Project (MWEP) Southern Section. The project included a new 330kV terminal at Three Springs, and a double circuit 330kV transmission structure from Pinjar to Three Springs. To facilitate the connection of potential new entrant generation and block loads, Western Power is also proposing to expand the MWEP as the need arises. This staged proposal currently includes building a 330kV terminal at Eneabba, followed by the MWEP Southern Section (Stage 2) and the MWEP Northern Section. The MWEP Northern Section will increase the transfer capacity between Three Springs and Geraldton. This supports potential connection of new entrant generators and load north of Three Springs.

There are currently four substations within the Geraldton urban area: Geraldton, Chapman, Rangeway and Durlacher. Western Power has proposed to decommission the Durlacher substation due to it being in degraded condition. A third transformer is proposed to be installed at the Rangeway substation to accommodate the additional loads and increasing demand.

The Western Power Network Capacity Mapping Tool shows a fairly constrained supply at 2016 for much of the Geraldton urban area at 5-10 MVA. Supply is particularly constrained in Geraldton, Beachlands and West End at less than 5MVA. This is expected to be alleviated by the decommissioning of the Durlacher substation and the addition of a third transformer at the Rangeway substation. Energy supply at 2021 and 2026 is forecasted to be at 25-30 MVA for much of the Geraldton and Geraldton-South SA2s.

Renewable energy facilities such as the Alinta Wind Farm, Mumbida Wind Farm and Greenough River Solar Farm are located in the City of Greater Geraldton. These facilities produce a combined 155MW of green power. Expansions of renewable energy facilities are being considered, with the number of wind turbines in the area potentially increasing to 195 turbines; the Alinta and Mumbida wind farms currently comprise of 54 and 22 turbines respectively. This would create a potential 750MW of green power and increase solar energy production to 40MW. The Local Planning Strategy also states that the area has been identified for potential geothermal energy sources, wave energy and biomass.

In July 2016, the Mid West/Wheatbelt Joint Development Assessment Panel approved an application for the development of a solar farm at Walkaway. The proposed solar farm is co-located with the Walkaway 2 Wind Farm, for which development approval was granted in 2009 by the City of Greater Geraldton. Construction of the Walkaway 2 Wind Farm is yet to commence. The solar farm is proposed to include approximately 170,000 solar panels. Once completed, the solar farm and the Walkaway 2 Wind Farm will be capable of generating up to 300,000MW hours per year.

ATCO Gas Australia manages gas supply to the Geraldton area. Geraldton is covered by the Mid-West and South-West Gas Distribution System (MWSWGS), which also services the Bunbury, Capel, Brunswick, Harvey and Albany areas. The MWSWGS is a covered pipeline and is subject to an Access Arrangement that is approved by the Economic Regulation Authority of Western Australia. The MWSWGS contains more than 12,000 kilometres of gas distribution pipelines in its network and services over 700,000 residential and business customers.

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22 Western Power (2016) Annual Planning Report 2015/16

Durlacher sub-station is proposed to be decommissioned, with all loads to be transferred to the neighbouring Rangeway substation.

Installation of a third 132/11 kV transformer at Rangeway sub-station to accommodate additional loads and increasing demand.
10.4 Transport

Road

The Geraldton urban area and the Mid West region is serviced with a network of major sealed roads, connecting Geraldton to Perth, the north-west of Western Australia as well as the hinterland surrounding Geraldton. Main Roads Western Australia is responsible for the main routes to and from Geraldton including Brand Highway, North West Coastal Highway and Geraldton-Mount Magnet Road. They are also responsible for other primary distributor roads within the urban area including John Willcock Link, Geraldton-Walkaway Road and Moonyoonooka-Yuna Road. These roads provide access for tourism to the Batavia Coast, freight to Geraldton Port and daily commute.

Stage 1 of the Geraldton Southern Transport Corridor project was completed in September 2005. This involved the construction of a single rail line from the Narngulu industrial area to the Geraldton Port.²⁴ Stage 2 was completed in December 2009, with the construction of an east-west road linkage connecting the port and the Geraldton Airport.²⁵ Construction of the Indian Ocean Drive, which was completed in 2011, provided an alternative route between Geraldton and Perth via coastal settlements such as Cervantes, Jurien Bay and Green Head.²⁶

The proposed PortLink Inland Freight Corridor is a State Government initiative and seeks to establish integrated road and rail corridors linking resource-rich areas in the Mid West and Pilbara regions to export ports, such as the Geraldton Port and the proposed Oakajee port.²⁷

The planned Oakajee Narngulu Infrastructure Corridor (ONIC) will provide a road, rail and utility services corridor linking the proposed Oakajee port and adjacent strategic industrial estate with the existing Narngulu industrial area and Geraldton Port. The envisioned corridor will be approximately 34 kilometres long and 250 metres wide and facilitate the coordinated delivery of transport and service infrastructure. The ONIC will also provide a new outer freight bypass road around Geraldton, which will form part of the proposed future long-term State coastal route between Dongara and Northampton.²⁸

The Department of Transport’s Western Australian Regional Freight Transport Network Plan (2013) identifies a number of strategic road priorities throughout the City of Greater Geraldton and the broader Mid West region, which focus on the safe movement of freight and passenger traffic. Within the Geraldton urban area, the Geraldton North-South Highway and the duplication of the North West Coastal Highway from Utakarra Road to Green Street are proposed to alleviate traffic congestion issues, consolidate access points and improve operational efficiency and road safety. Main Roads have to date initiated land acquisition for Stages 1 and 3 of the North West Coastal Highway duplication.

Rail

The rail network in the Mid West region is owned by the WA State Government and is managed and operated on a long-term lease by private company, Brookfield Rail until 2049.

Rail haulage in the Mid West consists of iron ore, grain and mineral sands and is critical to getting products to market and reducing road traffic. With the emergence of the Mid West as a prominent iron ore province, there has been a significant increase in demand for capacity on the rail network to transport product to export markets through Geraldton Port.

A significant proportion of the main line of the rail network was replaced by Brookfield Rail to support the increase demand on the network. The $550 million project, completed in October 2012, replaced approximately 184 kilometres of the rail network and related infrastructure from Perenjori through Mullewa and west to the Geraldton Port. Now a heavy haul railway, the network has the capacity to transport up to 25 million tonnes per annum (mtpa) and with further upgrades, a capacity of beyond 75mtpa.²⁹

The railway line from Geraldton to Perth (Midland Rail Line) continues to operate, facilitating grain haulage.

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²⁴ Main Roads Western Australia (2014) Geraldton Southern Transport Corridor Stage 1
²⁵ Main Roads Western Australia (2014) Geraldton Southern Transport Corridor Stage 2
²⁶ Main Roads Western Australia (2014) Indian Ocean Drive
²⁷ Department of Transport (2015) PortLink
²⁸ Main Roads Western Australia (2016) Dongara to Northampton Coastal Route – Corridor Alignment Selection Study
²⁹ Mid West Development Commission (2015) Mid West Regional Blueprint
The main depot at Narngulu, 13 kilometres from the Geraldton Port, is the junction of the two railway lines that come from the south. Another line branches off at Dongara to service the mineral sand deposits at Eneabba. The planned Oakajee Narngulu Infrastructure Corridor (ONIC) includes provision for rail to link the proposed Oakajee port and industrial estate with the existing Narngulu industrial area and Geraldton Port.

Airport

The Geraldton Airport is owned by the City of Greater Geraldton and is located 9.5 kilometres south east of the Geraldton city centre. It consists of three runways, a car parking facility and passenger terminal, aircraft fuel storage facility and a number of private and local government-owned hangars. The airport is capable of servicing A320 and B737 aircrafts, and is designated as an alternate landing airport for a number of international airlines when they are unable to land at Perth. Commercial airlines such as Qantas, Virgin Australia and Skywest also provide daily scheduled services between Geraldton and Perth.

The Bureau of Infrastructure and Regional Economics (BITRE) report on domestic airline activity for 2014/15 state that the number of passengers carried on the Geraldton-Perth route fell from 131,000 in 2013/14 to 120,800 in 2014/15, representing a decrease of 8.4 per cent.

The Geraldton Airport Master Plan 2012-2030 (2016) envisages the future development of a new runway with sufficient length and capacity to facilitate the operation of Code 4E aircraft types with international standard Runway End Safety Area (RESA) provisions. It is hoped that the runway and associated taxiway and aprons could include design features enabling restricted operation of Code 4F (A380) aircraft types, enabling such aircraft to land at Geraldton when they are unable to land at Perth. The new runway is anticipated to be constructed parallel to the existing main runway 03/21, and the existing runway would revert to use as a parallel taxiway.30

Port

The Geraldton Port is located west of the Geraldton city centre, in the suburb of West End. It is managed by the Mid West Ports Authority, which is also responsible for the management of the proposed port of Oakajee.31 The port has seven land-backed berths, and is one of the most diverse regional ports in Western Australia. A $103 million port enhancement and deepening of the harbour was completed in 2003, in response to the increasing iron ore trade within the region. A $35 million upgrade to Berth 5 was also undertaken with the purpose of establishing a dedicated iron ore berth capable of handling up to 10mtpa. Berth 7 is owned and operated by Karara Mining Pty Ltd, and is used to transport iron ore from the Karara mine.32

Iron ore continues to dominate trade, representing 77 per cent of total trade. In 2014/15, Geraldton Port recorded 16.9 million tonnes trade throughput, which was 8 per cent less than the 18.4 million tonnes recorded the previous year. This lower throughput resulted in some latent berth capacity.33

Imports through the port include petroleum products, phosphate, fertiliser and urea. Other exports include wheat and other grains, mineral sands, talc, stockfeed, livestock, copper and zinc and concentrates. Geraldton Port is currently capable of exporting more than 20mtpa.34 With further infrastructure development, this capacity could be modestly increased.35

The proposed Oakajee deep water port is part of the multi-billion dollar Oakajee Mid West Development Project, which proposes to establish an integrated deep water port, 550 kilometres of heavy haulage rail and industrial estate to support the development of the resources sector in the Mid West. It is anticipated that the Oakajee port will be able to accommodate Capesize vessels (up to 180,000 dead weight tonnage), while the Geraldton Port can currently accommodate Panamax (70,000 dead weight tonnage) vessels. Under current planning, the proposed Oakajee port has an anticipated initial start-up capacity of up to 45mtpa with plans for further expansion as demand grows.36

30 City of Greater Geraldton (2016) Geraldton Airport Master Plan to 2030 (Updated February 2016)
31 Mid West Ports Authority (2016)
32 Mid West Ports Authority (2016) Geraldton Port Facilities – Berth 7
33 Department of Transport (2015)
34 The export capacity for iron ore alone is a minimum of 20 mtpa
35 Mid West Development Commission (2015) Mid West Regional Blueprint
36 Mid West Development Commission (2015) Mid West Regional Blueprint
Map 14: Transport infrastructure

- **Proposed dual carriageway upgrades to North West Coastal Highway from Utakarra Road to Green Street.**
- **Indicative Dongara to Northampton Coastal Route corridor alignment - northern section.**
- **Future North West Coastal Highway alignment - part of the Geraldton North-South Highway project.**
- **Oakajee Narngulu Infrastructure Corridor (ONIC) alignment.**
- **Proposed Geraldton North-South Highway.**
- **Indicative Dongara to Northampton Coastal Route corridor alignment - southern section.**
- **Two new roads and intersections onto North West Coastal Highway to facilitate development of the Buller Local Structure Plan area.**
- **Realignment of North West Coastal Highway between Beattie Road to White Peak Road.**
- **Long-term project to upgrade North West Coastal Highway to dual carriageway from Chapman Valley Road to White Peak Road.**
- **New road and intersection onto North West Coastal Highway to facilitate development of the Glenfield Structure Plan area.**
- **Developer to deliver Verita Road extension to Brand Highway and new intersection as part of a requirement to facilitate development east of Brand Highway.**
- **Developer to deliver upgrades to Brand Highway intersections and dual lanes to facilitate development of the Cape Burney investigation area.**

*Legend*
- **Proposed road**
- **Indicative Road Route Corridor Alignment Study**
- **Primary distributor**
- **District distributor**
- **Local distributor**
- **Access road**
- **Current railway line**
- **Possible urban expansion area**
- **Oakajee industrial precinct**
- **Oakajee buffer**
- **Oakajee future port**
- **Local government boundary**
Building approvals

A **house** is a detached building primarily used for long-term residential purposes. It consists of one dwelling unit. For instance, detached ‘granny flats’ and detached dwelling units (for example, caretaker’s residences) associated with a non-residential building are defined as houses. Also includes ‘cottages’, ‘bungalows’ and rectories.

**Other dwellings** include all dwellings other than houses. They can be created by: the creation of new other residential buildings (for example, flats); additions/alteration work to an existing residential building; either new or alteration/addition work on a non-residential building; conversion of a non-residential building to a residential one, creating more than one dwelling unit.

Population

**Estimated resident population (ERP)** - Available for local government areas and SA2 geographies, this figure represents the number of people counted in an area on 30 June. It is calculated by:
- adding the people who were temporarily absent from the area on census night;
- subtracting the overseas visitors counted in the area on census night;
- augmenting the figure for estimated net undercount in the census;
- adjusting for difference between census night and 30 June; and
- updating each year using administrative data from a variety of sources.

ERPs are the official population figures for Australia. They are widely used as a basis for Government decision-making, including the allocation of seats in federal parliament and distribution of Commonwealth grants.

Geography

The **Mid West region** is one of the nine regions of Western Australia, as defined by the Regional Development Commissions Act 1993. The region is comprised of 17 local government areas, including the City of Greater Geraldton and the Shire of Chapman Valley.

**Significant Urban Areas (SUAs)** represent concentrations of urban development with populations of 10,000 people or more using whole Statistical Areas Level 2 (SA2s). They do not necessarily represent a single Urban Centre, as they can represent a cluster of related Urban Centres with a core urban population over 10,000. They can also include related peri-urban and satellite development and the area into which the urban development is likely to expand.

**Statistical Areas Level 1 (SA1s)** have been designed as the smallest unit for the release of Census data. SA1s generally have a population of 200 to 800 persons, and an average population of about 400 persons. They are built from whole Mesh Blocks and there are approximately 55,000 SA1s covering the whole of Australia.

**Statistical Areas Level 2 (SA2s)** are a general-purpose medium sized area built from whole SA1s. Their aim is to represent a community that interacts together socially and economically. SA2s generally have a population range of 3,000 to 25,000 persons and have an average population of about 10,000 persons. The SA2 is the lowest level of the ASGS structure for which Estimated Resident Population (ERP), Health and Vitals and other non-Census ABS data are generally available. There are 2,196 SA2s covering the whole of Australia.
**Statistical Areas Level 3 (SA3s)** provide a standardised regional breakup of Australia. The aim of SA3s is to create a standard framework for the analysis of ABS data at the regional level through clustering groups of SA2s that have similar regional characteristics. SA3s are built from whole SA2s and in general have populations between 30,000 and 130,000 persons. They are often the functional areas of regional cities and large urban transport and service hubs.

**Mesh Blocks** are the smallest geographic region in the Australian Statistical Geography Standard (ASGS), and the smallest geographical unit for which Census data are available. Most residential Mesh Blocks contain approximately 30 to 60 dwellings. Mesh Blocks have been designed to be small enough to aggregate accurately to a wide range of spatial units and thus enable a ready comparison of statistics between geographical areas, and large enough to protect against accidental disclosure. Due to the small size of Mesh Blocks, data are confidentialised and are only released for Basic Person Counts and Dwelling Counts.

**Subdivision approvals**

**Conditional approval** is granted by the Western Australian Planning Commission (WAPC) for subdivision to begin subject to certain conditions being met. The approval is preceded by an assessment of the proposed subdivision plan by statutory referral agencies, including servicing authorities. 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 for four years where six lots or more are approved.

**Current valid conditional approvals** refer 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 under way (see **active conditional approvals**).

**Active conditional approvals** refer 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** are 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** are those where the approval has expired and the conditions have not been met.

**Final approval** is the WAPC endorsement of the proponent's submitted plan/diagram(s) of survey describing the now complete subdivision; constructed in accordance with the conditions set down in the conditional approval. Final approvals are then registered with the Office of Titles where certificates of titles for the newly created lots can be issued.

**Developers lodged application** - subdivision application and its accompanying lots received by the WAPC for subdivision approval.

**Application under assessment** - is the number of applications and accompanying lots awaiting decision for subdivision. Statistics include deferred applications.

**Planning**

**Local planning schemes** are detailed planning schemes developed by local governments to identify the range of permitted land uses within specified locations. Within the Metropolitan Region Scheme and Peel Region Scheme areas, local planning schemes must be consistent with the provisions identified within the relevant region scheme where applicable.
Local planning strategies contain the strategic plan and policy context of a local planning scheme. The strategy sets out the general aims, intentions and desired outcomes for long-term growth and change, having regard to social, economic and environmental factors. An assessment of the capacity of infrastructure such as water, sewerage, electricity and roads is also usually considered in a local planning strategy. Residential densities and commercial centres may also be identified.

A scheme amendment is the process of changing zones or reservations from one use to another. The amendment process requires proposed amendments to be advertised for wider community and government comment. The amendment process is regulated by the Planning and Development Act 2005, allowing for extensive community consultation to review the proposal before a final decision is made.

Structure plan refers to a document including spatial plans that details the proposed layout of a future development area. The preparation of a structure plan is one of the first steps in progressing proposals for the development of new areas. In addition to illustrating details such as road configuration and the location of retail and community facilities such as shops, schools and public open space, a structure plan can also show details such as housing density, land use classifications and buffer zones. Structure plans highlight opportunities and constraints in an area, and can provide the basis for amendments to local planning schemes. Structure plans can generally be categorised as region, district or local structure plans.

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.
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Appendix 1

Integrated Land Information Database (ILID)

ILID 2015 – 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. cadastral 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 document, 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 City of Greater Geraldton Local Planning Scheme No. 1, Shire of Greenough Town Planning Scheme No. 1A or the Shire of Chapman Valley Local Planning Scheme No. 2) in the Geraldton urban area. Vacant lots were not included in this analysis.

ILID analysis in this document 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 450m² lot. Or a 900m² lot has the potential to create two 450m² 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 amount of dwellings a single lot can add on (disregarding the location of the current dwelling footprint and has a hundred percent 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 2

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 central output of the Integrated Regional Information System (IRIS). The model is a geographic information system (GIS)-based tool used to assess key measures of land use dynamics across Western Australia.

The IRIS model groups zones under all local planning schemes into primary, secondary and tertiary categories. This grouping of local planning scheme zones forms the zone ‘catchment’ for each category.

Tier one of the IRIS model groups local planning scheme zones into primary categories for analysis. The table below shows the groupings of the City of Greater Geraldton Local Planning Scheme No. 1, Shire of Greenough Town Planning Scheme No. 1A and the Shire of Chapman Valley Local Planning Scheme No. 2.

<table>
<thead>
<tr>
<th>Primary category (IRIS analysis)</th>
<th>Local planning scheme category</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>• Residential&lt;br&gt;• Development&lt;br&gt;• Residential Development&lt;br&gt;• Urban Development</td>
</tr>
<tr>
<td>Rural living</td>
<td>• Rural Residential&lt;br&gt;• Rural Smallholding</td>
</tr>
<tr>
<td>Industrial</td>
<td>• General Industry&lt;br&gt;• Special Use&lt;br&gt;• Strategic Infrastructure&lt;br&gt;• Oakajee Industrial&lt;br&gt;• Light Industry</td>
</tr>
<tr>
<td>Commercial</td>
<td>• Regional Centre&lt;br&gt;• Commercial&lt;br&gt;• Mixed Use&lt;br&gt;• Service Commercial&lt;br&gt;• Tourism</td>
</tr>
</tbody>
</table>

Tier two of the IRIS 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 the Valuer General’s Office of Western Australia.
Developed refers to lots that are zoned for development for the purposes of the specified primary land use category for which premises information is captured in Landgate's property valuation database.

Undeveloped refers to lots that are zoned for development for the purpose of special residential and rural living 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 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 model has not been included in analysis for this report as sites with identified development potential are described detailed in Table 10 and Maps 7-9 of this document.