



A Look at the Regions

A complementary resource to:

A Stronger Tomorrow,
State Infrastructure Strategy
Discussion Paper

June 2020

Contents

Introduction	3
Kimberley	4
Pilbara	8
Gascoyne	12
Mid West	16
Wheatbelt	20
Peel	24
South West	28
Great Southern	32
Goldfields-Esperance	36
Perth	40

Trouble reading this document?

If you have trouble reading this document and would like us to share the information with you in another way, please call Infrastructure WA on 08 6552 5229.

Acknowledgment of Country

Infrastructure WA acknowledges the traditional custodians throughout Western Australia and their continuing connection to the land, waters and community. We pay our respects to all members of the Aboriginal communities and their cultures – and to Elders both past and present.

Within Western Australia, the term Aboriginal is used in preference to Aboriginal and Torres Strait Islander, in recognition that Aboriginal people are the original inhabitants of Western Australia. Aboriginal and Torres Strait Islander may be referred to in the national context.

Introduction

In developing Western Australia's first 20-year State Infrastructure Strategy (Strategy), the role and needs of the regions are critically important. To assist in understanding each region, the following profiles have been developed, which should be read in conjunction with *A Stronger Tomorrow, State Infrastructure Strategy Discussion Paper*.

These profiles provide high level summary information and are not intended to be a comprehensive overview of each region. Key challenges and opportunities have been identified, based on Infrastructure WA's initial consideration and feedback from engagement with many regional stakeholders. As outlined in Section 4: The role of the regions of *A Stronger Tomorrow*, there are many other significant issues that are faced by one or more regions.

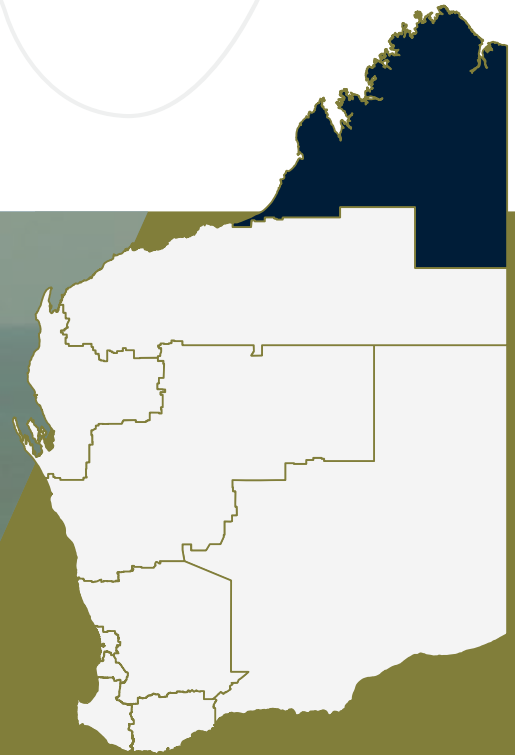
Our spatial approach to the nine regions has been to adopt the boundaries defined by the *Regional Development Commission Act 1993* and includes the Perth metropolitan area as the tenth region.

One of the significant issues we are seeking feedback on is the impact of the COVID-19 pandemic on your region, and any opportunities or challenges that may emerge as a result (in relation to infrastructure). When preparing your submission on the Discussion Paper we encourage you to identify implications of the pandemic on infrastructure, particularly over the medium and long-term (five to 20 years). This will assist with developing the Strategy and ensuring that Western Australia emerges from the pandemic stronger, smarter and more resilient than before.



Kimberley





Did you know the Kimberley:

has the **youngest regional population**, with a **median age of 32¹**



is home to **Western Australia's largest marine park** and **World Heritage-listed Purnululu²**



is where you will find Lake Argyle, the **largest man-made freshwater reservoir** on mainland Australia³



The Kimberley is a vast and remote region in the north of Western Australia known for its rugged natural-beauty, unique biodiversity and rich Aboriginal culture. With a geographic area of over 420,000 square kilometres, the Kimberley consists of four local government areas and has key regional centres in Broome and Kununurra.

From 2012-13 to 2018-19, government investment and commitments for critical infrastructure totalled over \$600 million. Major projects included: improvements and upgrades to roads; delivery of justice, health, community and telecommunication services; and support for tourism, agriculture and water resources.⁴

With a nominal Gross Regional Product (GRP) of \$3 billion in 2018-19, the Kimberley contributed 1.1 per cent towards Gross State Product (GSP).⁵ Mining, agriculture, construction, tourism and retail trade are the Kimberley's key industries. On the global stage, its pearls and pink diamonds are world-renowned, and *The New York Times* listed the Kimberley as one of the top five places in the world to visit in 2020. Due to

its close proximity to South East Asia, there are opportunities for the Kimberley to contribute to an increasing demand for high-quality products.

While the population of the Kimberley reached an estimated residential population high of 38,802 in 2013, the current estimated resident population of 35,901 is predicted to reach 39,575 by 2031.⁶ The population swells with tourists during the dry season (May to September), which places significant strain on infrastructure and support services.

Aboriginal and/or Torres Strait Islander peoples represent 49.9 per cent of the population.⁷ However, they face higher rates of unemployment, considerably higher rates of incarceration, and significant health and social issues.



In addition, remote communities often experience issues with the quality and consistent supply of drinking water, power, communications, transport access, and human services. Infrastructure that will leverage and support their potential is important.

Rainfall in the Kimberley is highly variable, however over the last half century there has been an overall increase in wet weather patterns across the region and an increased intensity in extreme rainfall events is predicted.⁸ The abundant water resources have opened up opportunities in the East Kimberley, in particular in agriculture through the Ord River Irrigation Scheme. Annual floods, cyclones and bushfires regularly cut-off access to infrastructure, including important transport links. Managing infrastructure to support the best use of natural resources, including world-renowned attractions that draw tourists, while preserving biodiversity, requires careful consideration.

Key challenges and opportunities

- Delivering resilient essential infrastructure to a relatively small and dispersed population, particularly remote communities.
- Improving Aboriginal engagement and reducing disadvantage including decreasing unemployment rates.
- Attracting and retaining people and industry in the region.
- Building on tourism opportunities and successes.
- Maximising primary industry, mining and resources, and tourism opportunities through provision of enabling infrastructure.
- Improving infrastructure network resilience to withstand and recover from the impacts of extreme weather events.



On the global stage, its **pearls and pink diamonds are world-renowned**, and *The New York Times* listed the Kimberley as **one of the top five places in the world to visit** in 2020.

Pilbara





Did you know

the Pilbara:

covers **20 per cent of Western Australia's land mass**, equating to an area twice the size of Victoria

accounts for a massive **36 per cent** of Australia's merchandise exports⁹

has transport infrastructure which supports the **world's largest and most sophisticated bulk exports program**



is where **technological innovation** has seen remote mining operations pioneered from which productivity and export opportunities have prospered





The Pilbara region is known for its ancient landscapes, rich natural mineral deposits and one of the world's largest collections of Aboriginal engraved rock art. With a geographic area of over 500,000 square kilometres, the Pilbara consists of four local government areas, and has key regional centres in Port Hedland and Karratha.

From 2012-13 to 2018-19, government investment and commitments for critical infrastructure totalled over \$1.6 billion. Major projects included: improvements and upgrades to roads; power station and other network upgrades; a new health campus; and port optimisation.¹⁰

With a nominal GRP of \$46.6 billion in 2018-19, the Pilbara contributed 16.3 per cent towards GSP.¹¹ Economic activity in the Pilbara is dominated by iron ore and liquefied natural gas and the associated construction work of these industries. Together, the resource and construction sectors account for almost 90 per cent of economic output, and more than half of employment in the region. Private investment in the Pilbara is significant, with billions of dollars in new projects under construction, and a number of proponents considering projects in

emerging industries such as chemicals, mineral processing, renewable energy, salt and potash.

In June 2019, the estimated resident population of the Pilbara was 62,093 – an increase from 40,429 in 1999-2000 – and is predicted to reach 63,870 by 2031.¹² Aboriginal and/or Torres Strait Islander peoples represent 19 per cent of the population.¹³ The North West Aboriginal Housing Fund aims to deliver a range of affordable housing, first time employment opportunities, education and employment-related accommodation in the Pilbara. This includes apprentice and employee transition accommodation in Roebourne, and transitional housing, child care facilities and age-appropriate accommodation in Tom Price.



There are indications that government investment to support improved liveability and housing affordability is contributing to an increasing number of people wanting to live in the region. The City of Karratha reported that the proportion of residents with no plans to leave the City increased from 14 per cent in 2011 to 42 per cent in 2019.¹⁴ Issues which detract from the region's liveability, including a shortage of child care places and pressure on key services such as education and health, need to be overcome.

The climate in the Pilbara is arid and tropical. Cyclones are common during the summer months and contribute to the average annual rainfall of between 200 to 400 millimetres.¹⁵ From 2000 to 2020, Marble Bar recorded a mean maximum temperature over 37.8 degrees Celsius (100 degrees Fahrenheit) for six months of the year.¹⁶ Providing enabling infrastructure that is resilient during extreme weather conditions is important for regional growth.

Key challenges and opportunities

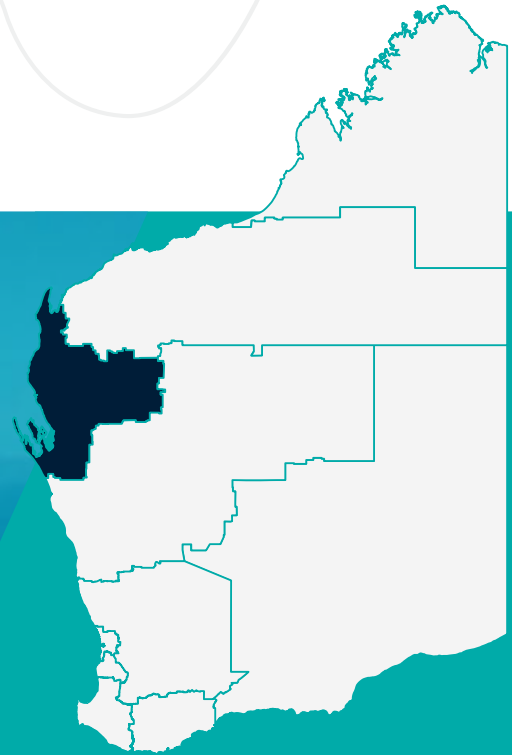
- Providing access to quality social services, including health, education and child care to improve liveability.
- Maximising the benefits of investment through attracting and retaining skilled workers.
- Relieving housing market pressures related to the investment cycles of the resources industry.
- Improving Aboriginal economic development, including opportunities through State Government projects and procurement policy.
- Providing additional port infrastructure to facilitate new markets and direct importation from Asian supply chains.
- Improving infrastructure network resilience to withstand and recover from the impacts of extreme weather events.
- Improving access to water supplies, particularly for industry.



Economic activity in the Pilbara is **dominated by iron ore and liquefied natural gas** and the associated construction work of these industries.

Gascoyne





Did you know

the Gascoyne:



is **Western Australia's least populated region**, home to **World Heritage-listed** Ningaloo Coast and Shark Bay World Heritage Area

.....



has **pastoral leases** covering **84 per cent** of its land mass¹⁷

.....

enjoys around **320 days of sunshine per year** – the highest average daily solar exposure in Western Australia¹⁸



The Gascoyne is the western-most point of Australia, with over 600 kilometres of coastline and Australia's largest and most accessible fringing reef, which was recently named a global Hope Spot (a place scientifically identified as critical to the health of the world's oceans). With a geographic area of over 135,000 square kilometres, the Gascoyne consists of four local government areas and has a key regional centre in Carnarvon.

From 2012-13 to 2018-19, government investment and commitments for critical infrastructure totalled over \$325 million. Major projects included power station upgrades; upgrades and improvements to roads; health campus redevelopment; and the Carnarvon Police and Justice complex.¹⁹

With a nominal GRP of \$1.5 billion in 2018-19, the Gascoyne contributed 0.5 per cent towards GSP.²⁰ Tourism, primary industries, retail and mining are the Gascoyne's major contributors to GRP. The region also accounts for a large share of Western Australia's salt production. Although substantial oil and gas production takes place in the Exmouth sub-basin, offshore from North West Cape, it is carried out in Commonwealth waters and the production value is not considered to be a part of the Gascoyne economy.

In June 2019, the estimated resident population of the Gascoyne was 9,277 and is predicted to reach 10,485 by 2031.²¹

Aboriginal and/or Torres Strait Islander peoples represent 18 per cent of the population.²² Tourism is the largest contributor to the local economy – the annual average visitation to the Gascoyne between 2016 and 2018 was 337,400, and during 2017-18 visitors spent \$359 million.²³ Tourists are drawn to the region's World Heritage-listed areas – Ningaloo Coast and Shark Bay – which are each also recognised as one of 16 regions on Australia's National Landscapes Program, a program that promotes and supports the conservation of Australian landscapes that offer uniquely Australian tourism experiences.²⁴ Leveraging tourism opportunities in the Gascoyne will need to be considered in conjunction with wider tourism opportunities across Western Australia.

The Gascoyne is known as a key food bowl. The Carnarvon Horticulture District is considered the best-managed irrigation district in Australia, and contributes



99.5 per cent of the total production value of Western Australian bananas.²⁵ Vast seagrass paddocks in Shark Bay and Exmouth Gulf provide most of the State's prawns and scallops.²⁶ Resilient infrastructure and supply chains are needed to mitigate the impact of cyclones and floods on the production and distribution of fresh produce.

The Gascoyne River ground and surface water resources are vital for Carnarvon town supply, and the irrigated horticultural industry. Groundwater from the Lower Gascoyne alluvial aquifer is the main water source. Salinity is a critical issue for groundwater management in the water allocation plan area. Licensees and the Carnarvon community are actively involved in managing the extraction of water in the Lower Gascoyne to minimise the impacts of salinity on the resource. Surface water in the Lower Gascoyne plan area is only available during, or immediately after, the Gascoyne River flows and licensees can apply to access this unrestricted water when it is abundant.²⁷ Ensuring sustainable access to potable water over the long-term, while balancing reliance on groundwater sources, is important.

Key challenges and opportunities

- Capitalising on global tourism trends by pursuing tourism ventures.
- Exploring potential for further investment in fisheries and aquaculture.
- Improving infrastructure network resilience to withstand and recover from the impacts of extreme weather events, and to protect the region's food bowl status.
- Addressing widespread skill shortages.
- Ensuring sustainable access to potable water over the long-term, while balancing reliance on groundwater sources.
- Improving access to quality secondary education.



.....

The Carnarvon Horticulture District is considered the best-managed irrigation district in Australia, and contributes **99.5 per cent of the total production value of Western Australian bananas.**

Mid West





Did you know

the Mid West:

contains the **largest inland grain facility** in the southern hemisphere²⁸



averages **260 sunny days** annually²⁹



is one of only five areas in the world with both **marine and terrestrial biodiversity hotspots** of national or international significance³⁰



The Mid West region offers long stretches of coastline with limestone cliffs, sand plains, wildflowers and the world's oldest rock formations. With a geographic area of over 472,000 square kilometres – one fifth of the land area of Western Australia – the Mid West consists of 17 local government areas and has a key regional centre in Geraldton.

From 2012-13 to 2018-19, government investment and commitments for critical infrastructure totalled over \$678 million. Major projects included: health campus redevelopment and new facilities; education projects; energy projects; and visitor operations and infrastructure at the Houtman Abrolhos Islands National Park and Kalbarri National Park (Kalbarri Skywalk).³¹

With a nominal GRP of \$8.2 billion in 2018-19, the Mid West contributed 2.9 per cent towards GSP.³² Mining, agriculture, fishing, tourism, retail and manufacturing are the Mid West's key industries. As the most economically-diverse of the regions, freight routes and supply chains are important for the Mid West – further work is required to capitalise on current infrastructure and to develop infrastructure that facilitates ongoing economic growth.

In June 2019, the estimated resident population of the Mid West was 53,655 and is predicted to remain largely stable at 52,830 by 2031.³³ The urban area of Geraldton represents over 70 per cent of the Mid West's total population.³⁴ The City of Greater Geraldton and the Shire of Chapman Valley are the only two local government areas where the population is predicted to increase. Aboriginal and/or Torres Strait Islander peoples represent 12.9 per cent of the population.³⁵

Due to exceptionally low radio interference and excellent astronomical observation conditions, the Mid West is home to the Murchison Radio-astronomy Observatory, which hosts two world-leading radio astronomy telescopes. Radio quiet is protected by the Australian Radio Quiet Zone Western Australia. In 2012, the Mid West was selected to host one of two primary



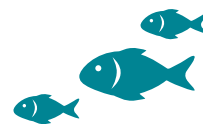
radio-telescope locations for the Square Kilometre Array (SKA), a global science project to build the world's largest and most capable radio telescope.³⁶

The Mid West has a diverse range of minerals and has a significant magnetite supply, which differentiates the region from mineral resource areas with a focus on hematite. It is also highly prospective for wind, wave, geothermal and biomass energy production. The Mid West may have a role as a future energy hub including renewable hydrogen.

Due to an ideal climate and offshore structures, the Mid West region is host to the State's largest fishing sector with a dominant rock lobster industry, and an emerging aquaculture sector, including finfish and oysters. The region produces approximately one-third of Western Australia's fishery (by export value).³⁷ Opportunities to grow the fishing sector in the Mid West will need to be balanced with the need to mitigate and manage climate change impacts.

Key challenges and opportunities

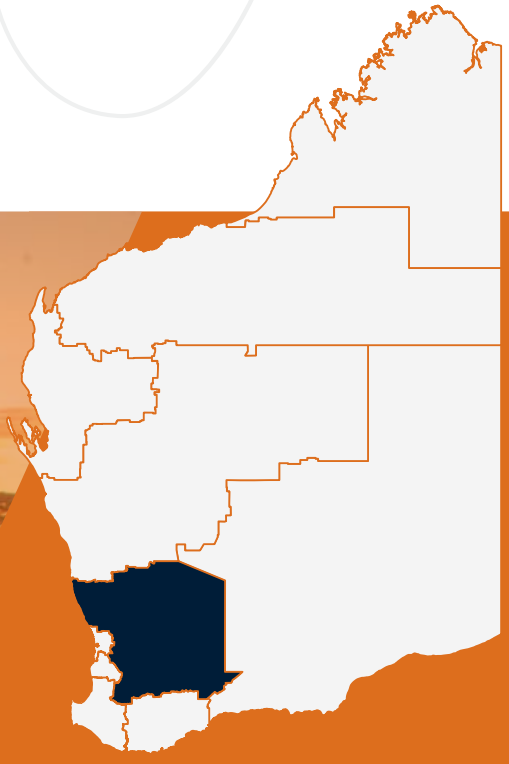
- Unlocking new industry development opportunities, particularly resource projects.
- Improving amenity, such as health and education, to attract and retain a resident population.
- Promoting the strategic and sustainable development of new tourism opportunities.
- Maximising economic opportunities through efficient supply chains and enterprise grade digital connectivity.
- Identifying opportunities to grow agriculture and fisheries, whilst mitigating and managing climate change impacts.
- Capitalising on the SKA to deliver broader regional space economy benefits.
- Identifying energy and water infrastructure solutions to address supply constraints and support industry growth.



The Mid West region is host to **the State's largest fishing sector** with a dominant rock lobster industry, and an emerging aquaculture sector.

Wheatbelt





Did you know
the Wheatbelt:

is Western Australia's
largest agricultural
producer by value³⁸



is home to the **Pinnacles**
and **Wave Rock**

produces **over 50 per cent**
of the State's renewable
energy from wind farms³⁹





The Wheatbelt is primarily an agricultural region, with an environment ideal for renewable energy generation, and is attractive to visitors for nature-based, adventure and aviation tourism. Key national transport routes traverse the region, providing strategic supply chain links to the Perth metropolitan area. With a geographic area of over 150,000 square kilometres, the Wheatbelt consists of 42 local governments. While the Shire of Northam has the largest resident base, there is no single dominant regional centre.

From 2012-13 to 2018-19 government investment and commitments for critical infrastructure totalled over \$257 million. Major projects included: national, state and secondary freight road upgrades; establishment of national parks; health redevelopments and upgrades; improvements to the performance of the farmlands water supply system; and the refurbishment of wastewater infrastructure.⁴⁰

With a nominal GRP of \$7.1 billion in 2018-19, the Wheatbelt contributed 2.5 per cent towards GSP.⁴¹ Agriculture, forestry, fishing and mining are the greatest economic contributors. As the largest agricultural producing region in Western Australia, the Wheatbelt is a world-leading producer of export commodities, in particular cereal grains. Established in 1926, the Muresk Institute in Northam is a skills hub for modern agricultural practices and delivers industry driven training

opportunities. Continuing to plan for and provide infrastructure that supports the region's strong agricultural production and opportunities for diversification is important.

In June 2019, the estimated resident population of the Wheatbelt was 73,437. The Western Australian Planning Commission forecast a population of 70,740 by 2031, however there are divergent views on whether the population may moderately increase or fall over time.⁴² Aboriginal and/or Torres Strait Islander people represent 5.9 per cent of the population.⁴³ The population is highly dispersed with over 200 towns and settlements. Continued work will be required to reform service delivery to use modern methods and technology to achieve best outcomes for such a dispersed population.

The Wheatbelt is reliant upon electricity from Western Power's South West Interconnected System (SWIS). Limitations in electricity transmission leads to insufficient



capacity and results in higher costs for large industrial customers to connect. The region has climatic and geographic conditions conducive to wind, solar and biomass renewable energy generation, and generates over 50 per cent of Western Australia's renewable energy from wind farms.⁴⁴ Connection costs and capacity constraints in the distribution and transmission network are inhibiting the development of energy generation in the region, limiting the ability to increase its contribution to the renewable energy market. Notwithstanding these constraints, there is likely to be future opportunities for new renewable generators to support industry development in the region.

The Wheatbelt is serviced through three main water supplies. Outside of the water supply schemes, settlements rely on a range of independent water sources, primarily from strategic community water supply facilities including surface water capture, non-strategic Agricultural Area Dams, rainwater collection and groundwater. To address water deficiencies in the Wheatbelt, resilient water infrastructure and improved water management is essential to the sustainability of agricultural production and other industries.

Key challenges and opportunities

- Harnessing alternative energy generation such as solar, wind and biomass for Western Australia supply and to support industry development within the Wheatbelt.
- Improving the quality of supply chains to ensure industries can efficiently access markets, and increasing GPS capability and reliability.
- Supporting an innovation culture for the testing and creation of agri-tech that can be adopted worldwide.
- Supporting growth in secondary industry that is expanding from its base of servicing the region's primary industries of agriculture and mining.
- Supporting growth in small to medium enterprises for which the Wheatbelt's transport infrastructure is a comparative advantage.
- Developing strategies and solutions to maximise water supply to support businesses and communities.



As the **largest agricultural producing region in Western Australia**, the Wheatbelt is a world-leading producer of export commodities, in particular cereal grains.

Peel





Did you know

that Peel is:

geographically **Western Australia's smallest region**

.....



home to **Mandurah** (the region's major business hub); **Pinjarra** (one of the oldest towns in Western Australia); and the **Serpentine National Park**

.....

where you will find the **world's largest bauxite mine** and **Australia's largest producing gold mine**





Peel is a highly attractive region in which to live, characterised by coastal, farming and native forest areas, estuaries, dams and escarpments. In close proximity to Perth and with a geographic area of over 6,000 square kilometres, Peel consists of five local government areas and has a major regional centre in Mandurah.

From 2012-13 to 2018-19, government investment and commitments for critical infrastructure totalled over \$210 million. Major projects included: public transport infrastructure; road upgrades and development; and investment in tourism, arts, culture, health and education.⁴⁵

With a nominal GRP of \$9.2 billion in 2018-19, Peel contributed 3.2 per cent towards GSP.⁴⁶ Mining, construction, manufacturing, agriculture and tourism (including environmental tourism) are the key industries supporting economic outcomes. Mineral processing dominates the regional economy due to an abundance of mineral resources, including the world's largest bauxite mine, mineral sands and Australia's largest producing gold mine.

The region supports over 37,600 jobs, with retail a large employer, and future opportunities opening up as a result of the Transform Peel food zone, business park and water initiative.⁴⁷ The Perth to Mandurah passenger rail line provides Peel residents with the option to commute to Perth and beyond for employment.

In June 2019, the estimated resident population of Peel was 142,960 and is predicted to reach 212,540 by 2031.⁴⁸ Aboriginal and/or Torres Strait Islander peoples represent 2.8 per cent of the population.⁴⁹ With an ageing population, and many residents working outside the region, Peel faces various challenges in providing innovative infrastructure that supports the needs of diverse groups.



Health, education and communications infrastructure is well established, providing a number of local options, and the foundation upon which to support further growth. Day-trippers from Perth are attracted to the amenities and natural attractions of the Peel region.

Peel has an extensive wetland system of national and international significance. A growing population, together with increasing recreational and economic activity, is putting pressure on these wetlands and the unique flora and fauna they support. With a drying climate, groundwater resources in the region are of increasing importance. Reservoirs along the Darling Scarp store surface water that supplies Perth, southern irrigation districts and Peel industries. Continuing to sustainably manage water supplies and supporting infrastructure, while ensuring the protection of natural assets, is critical.

Key challenges and opportunities

- Ongoing implementation of Transform Peel initiatives to provide a diversified industry base.
- Exploring innovation in production methods and renewable energy to increase competitiveness of the agri-business sector.
- Establishing new, non-climate dependent sources of water supply.
- Protecting the region's diverse natural assets for future generations.
- Maximising regional employment self-sufficiency through local job creation.
- Ensuring economic and social infrastructure services are provided in a coordinated, cost-effective and timely manner.



The region supports over **37,600 jobs**, with retail a large employer, and future opportunities opening up as a result of the Transform Peel food zone, business and water initiative.

South West





Did you know

the South West is:



the **most populated** and
most visited region of Western
Australia outside of Perth

.....



a **biodiversity hotspot**,
with **world-class walking**
tracks and cycling trails

.....

one of the **highest rated regions to live in**
Western Australia for its lifestyle, sense of
community and happiness⁵⁰



The South West is known for its ideal climate, pristine coastline, wineries, tall forests, rolling farmland and relaxed lifestyle. With a geographic area of over 23,000 square kilometres, the South West consists of 12 local government areas and has a major regional centre in Bunbury and a key regional centre in Busselton.

From 2012-13 to 2018-19, government investment and commitments for critical infrastructure totalled over \$1 billion. Major projects included: critical gateway infrastructure - upgrades to the regional airport, major roads, Bunbury port upgrade and waterfront transformation; Collie transition; delivery of education, health, justice and telecommunication initiatives; new desalination plant; and support towards agriculture, tourism and general industry development.⁵¹

With a nominal GRP of \$14.2 billion in 2018-19, the South West contributed five per cent towards GSP.⁵² Agriculture, mining, manufacturing, retail trade and tourism are the South West's key industries. The region's close proximity to Perth, and well-established high-quality infrastructure networks, along with ample industrial land, support opportunities for economic growth. New Australind rail cars for Perth to Bunbury services are expected in 2022-23.

Over the past few decades, the South West has diversified its traditional agriculture and timber industries, which has opened up new demand in tourism, viticulture and resources. The South West is home to the world's largest operating lithium mine at Greenbushes, with the associated development of downstream processing facilities at Kemerton.

With an estimated population of 179,791 in June 2019, consistent annual growth of 1.7 per cent is forecast to continue and see the population reach 226,380 by 2031.⁵³ Aboriginal and/or Torres Strait Islander peoples represent three per cent of the population, and their increasing engagement provides a stable foundation on which the region can grow.⁵⁴ Creative industries will continue to develop thanks to professionals such as filmmakers, animators and musicians that are attracted to live in the South West. There are also opportunities to increase the number of students accessing



higher education through strategies for both vocational and tertiary education in the region. Continuing to provide access to health, education, arts, culture, housing and justice infrastructure and services will be an important part of supporting social development.

State forest, national parks and regional parks cover more than 60 per cent of the South West and contain remarkable natural attractions – a major drawcard to the region. Other attractions include major events, food and wine, and unique activities, such as the Blues at Bridgetown, Southern Forest truffles, Margaret River wineries, Dolphin Discovery Centre and Busselton Jetty. The South West entices more tourists than any other region outside Perth, and offers opportunities for infrastructure that supports getting-out-into-nature. Over the past 100 years, the minimum and maximum temperatures on a decade-by-decade average at Cape Leeuwin, have steadily risen.⁵⁵ This trend is predicted to continue, along with rising sea levels and reduced rainfall. Preserving the region's rich environmental landscape while maximising its economic and social potential will be important.

Key challenges and opportunities

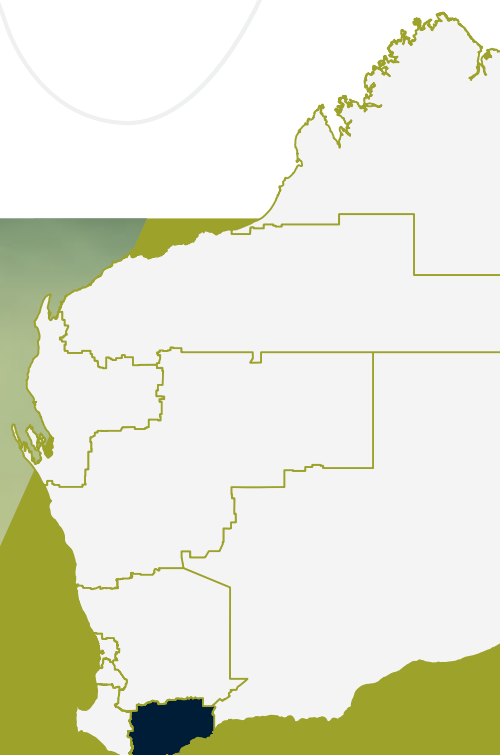
- Continuing to support the economic diversification and transition of Collie and other centres.
- Addressing the increasing demand on existing infrastructure stemming from the region's warming climate, which is resulting in an influx of sea-changers, tree-changers and retirees.
- Supporting the development of agri-innovation hubs that can link domestic and export opportunities.
- Providing increased specialised secondary education and tertiary education centres linked to creative, innovation and regional technology hubs.
- Maximising Aboriginal engagement and contribution, including on initiatives such as affordable housing, culture mapping and the development of cultural centres.
- Promoting tourism opportunities to attract visitors to the region, including leveraging from new opportunities such as the upgraded Busselton-Margaret River Airport and regional trails infrastructure.
- Supporting the growth of a globally significant lithium industry and continuing development of downstream processing facilities at Kemerton.
- Leveraging opportunities presented by zoned industrial land, high-quality transport networks and port capability.



State forest, national parks and regional parks cover more than **60 per cent of the South West.**

Great Southern





Did you know

the Great Southern:

is Western Australia's
**second largest agricultural
production** region⁵⁶



has the capacity to provide **80 per cent
of Albany's annual electricity needs**, through
clean, renewable energy from wind farms⁵⁷

possesses a **strong tertiary education offering**

plans to **recycle 100 per cent
of its wastewater** by 2040⁵⁸





The Great Southern region offers a unique combination of rugged coastlines, pristine beaches and ancient forests and is recognised as a major residential and tourist destination. With a geographical area of over 39,000 square kilometres, the Great Southern consists of 11 local government areas and has a key regional centre in Albany.

From 2012-13 to 2018-19 government investment and commitments for critical infrastructure totalled over \$164 million. Major projects included: upgrades and improvements to roads; resource centre redevelopment; hospital and school upgrades; affordable housing and student accommodation provision; and investment in marine renewable energy research.⁵⁹

With a nominal GRP of approximately \$4.1 billion in 2018-19, the Great Southern contributed 1.4 per cent towards GSP.⁶⁰ Primary production is the backbone of the region's economy, through wool, broadacre cropping, livestock, timber and fishing. Tourism and viticulture are long-standing contributors, with the National ANZAC Centre in Albany an award winning attraction. The economy is diversifying into new areas of endeavour, including shellfish aquaculture production and wave energy

research. The Port of Albany exports almost four million tonnes of product per year, the largest export being grain followed by wood products, and a relatively small volume of minerals.

In June 2019, the estimated resident population of the Great Southern was 60,993 and is predicted to reach 66,400 by 2031.⁶¹ Aboriginal and/or Torres Strait Islander peoples represent 4.7 per cent of the population.⁶² A strong arts and entertainment culture sees the Great Southern host popular festivals and world-class exhibitions. Technical and tertiary education providers supply local residents with local options. Tourists are attracted to the many outdoor activities the Great Southern provides, including the trailheads of the Bibbulmun and Munda Biddi tracks. The region's natural features and climate are attracting a



growing number of new residents seeking a sea-change or tree-change lifestyle. Planning for and providing enabling and social infrastructure that supports growth requires ongoing consideration.

A decline in rainfall over the winter months in the south-west regions of Western Australia, including in parts of the Great Southern, over the past 20 years has contributed to a reduced inflow into many surface dams.⁶³ In some towns not connected to the Lower Great Southern Towns Water Supply Scheme, supplies are becoming critically low, with investment proposed to connect Denmark to the scheme. Below-average rainfall has also impacted on-farm storage sources, local government dams and Department of Water and Environmental Regulation strategic community water supplies, which are held for emergency use when low rainfall causes on-farm supplies to fail. To address water deficiencies in the Great Southern, resilient water infrastructure is essential.

Key challenges and opportunities

- Upgrading the quality and efficiency of the road network to enhance the competitiveness of primary producers in global markets.
- Developing strategies and solutions to maximise water supply to support businesses and communities.
- Contributing to the sustainability of northern and eastern (hinterland) rural communities through improved services including health and education, and infrastructure including water and power.
- Supporting tourism growth by continuing to capitalise on the region's natural, cultural, heritage and other tourism assets and activities.
- Tapping into expanding global markets for primary production (including aquaculture).
- Making advancements in marine and renewable energy technology through the Wave Energy Research Centre.
- Growing the region's higher education sector by further developing offerings to attract international students.



.....

The Port of Albany exports almost **four million tonnes** of product **per year**.

Goldfields-Esperance





Did you know
that Goldfields-Esperance:

is home to **Australia's largest
outback city**, Kalgoorlie-Boulder

.....



has the **deepest port in southern
Australia** and is the **largest exporter of nickel
concentrate** in the southern hemisphere⁶⁴

.....

is where **Australia's first wind farm** was
built in 1987 at Salmon Beach, Esperance



The nature of the region is diverse, with the Goldfields area best known for its rich history in gold mining and the Esperance area for its agriculture sector and world-class coastal attractions. With a geographic area of over 770,000 square kilometres – the largest region in Western Australia – Goldfields-Esperance consists of nine local government areas and has major regional centres in Kalgoorlie and Esperance.

From 2012-13 to 2018-19, government investment and commitments for critical infrastructure totalled over \$369 million. Major projects included: upgrades and improvements to roads; provision of student accommodation; high school and TAFE redevelopments; and improvements to mental health facilities.⁶⁵

With an economic output of approximately \$18 billion in 2018-19, the region contributed 6.3 per cent towards GSP.⁶⁶ The mining sector is the greatest economic contributor, worth \$10.6 billion and accounting for about 57 per cent of total regional output. In the Esperance area, agriculture and fishing are the primary economic contributors. Tourism in the region generates approximately \$326 million per year, with key attractions being the pristine coastal assets in the Esperance area and mining and heritage-related tourism offerings in the Goldfields area.⁶⁷ Around 11 million tonnes of trade pass through the Port of Esperance each year, with the major exports being iron ore, nickel and grain, and the

main imports being fuel and fertiliser.⁶⁸ The Kalgoorlie-Esperance freight rail line transports product in and out of the port. Interstate freight and passenger rail services between the eastern states and Perth run through Kalgoorlie.

In June 2019, the estimated resident population of Goldfields-Esperance was 54,363 – approximately 4,300 less than a decade ago – and is predicted to remain relatively stable at 54,265 by 2031.⁶⁹ Aboriginal and/or Torres Strait Islander peoples represent 12.8 per cent of the population.⁷⁰ The total service population of Kalgoorlie-Boulder is considerably larger than the resident population, due largely to the number of additional fly-in-fly-out and drive-in-drive-out workers.

Kalgoorlie-Boulder is reliant upon electricity from Western Power's SWIS. Limitations in electricity transmission leads to capacity constraints and results in new block load customers not being able to connect.



The Australian Renewable Energy Agency has backed energy producer EDL to develop a landmark hybrid renewable microgrid to power the Agnew Gold Mine. The first stage of the project was switched on in late 2019.⁷¹ Esperance is not connected to the SWIS and electricity is currently provided via a gas-fired power station (33 megawatts) constructed at the Port of Esperance. This supply is supplemented by the Nine Mile Beach and Eleven Mile Beach wind farms, which generate enough energy to meet 20 per cent of Esperance's power needs.⁷²

The main water supply to the Goldfields is supplied by the Golden Pipeline – one of the longest freshwater pipelines in the world, running 600 kilometres from Mundaring Weir in Perth to Kalgoorlie-Boulder. The Goldfields and Agricultural Region Water Supply Scheme consists of 9,601 kilometres of water mains and serves more than 100,000 customers, farms, mines and other enterprises.⁷³ Currently around 42 per cent of wastewater is recycled in the Goldfields and agricultural areas.⁷⁴ Esperance sources its drinking water from local groundwater supplies and it also uses recycled wastewater for non-potable uses.

Key challenges and opportunities

- Improving resilience of key east-west transport links.
- Capitalising on potential investment in existing and new resource projects.
- Addressing the high costs of operating in a remote area and the challenge of attracting and retaining skilled workers across industry sectors.
- Combating the challenges associated with road, rail and air infrastructure, including connectivity, cost and rail congestion.
- Improving communications and digital connectivity for the delivery of key health and education services by addressing matters such as slow broadband speeds, access limitations and a lack of local technical support and training.
- Addressing the maintenance, productivity and safety requirements of key supply chains which intersect with road infrastructure used by the local community and tourists.



.....

The total service population of Kalgoorlie-Boulder is **considerably larger than the resident population**, due largely to the number of additional **fly-in-fly-out** and **drive-in-drive-out** workers.

Perth





Did you know that Perth:



hosts more companies on the
Australian Stock Exchange **35 per cent**
of total than any other Australian city⁷⁵

.....

is in the **same time zone** as **60 per cent**
of the world's population, which in turn is
responsible for **40 per cent of world GDP**⁷⁶

.....



is home to one of the world's
largest inner-city parks –
Kings Park and Botanic Garden⁷⁷



Perth, as Western Australia's capital city, is known for its diverse natural and built attractions, sunny climate, consistently high liveability ratings and strong business community. As Australia's fourth largest city and western gateway, Perth is categorised by Infrastructure Australia as a 'fast-growing city', together with Sydney, Melbourne and Brisbane.⁷⁸ With a geographic area of over 6,000 square kilometres, the Perth metropolitan area consists of 30 local government areas and a central business district located by the Swan River.⁷⁹

From 2012-13 to 2018-19 government investment and commitments for critical infrastructure was significant, totalling over \$11 billion. Major projects and programs included: METRONET; Perth Stadium; Gateway WA; NorthLink WA; new health, education, justice, emergency services, police, arts, culture and recreation facilities; and planning to manage growing freight demands.⁸⁰

With a nominal GRP of over \$173.8 billion in 2018-19, the Perth metropolitan area contributed 60.8 per cent towards GSP.⁸¹ The most prominent employment sectors are healthcare and social assistance, retail trade and construction. Perth has evolved from a geographically isolated capital, to become a strong and connected city, increasing in global significance to now rank alongside other Beta+ World Cities such as Vancouver, Copenhagen and Boston.⁸²

Many international resource companies have major corporate offices in Perth. Medical research, defence manufacturing and shipbuilding, cybersecurity and international

education are other local sectors that are globally competitive. Infrastructure can play an important role in retaining international competitiveness.

In June 2019, the estimated resident population of the Perth metropolitan area (excluding Mandurah and the Peel region) was 1.9 million, and is predicted to reach 2.6 million by 2031, while the population of the Perth and Peel regions combined is expected to increase to 3.5 million by 2050.⁸³ Aboriginal and/or Torres Strait Islander peoples represent two per cent of the population.⁸⁴ Historically population growth had predominately been catered for through greenfield developments on the urban fringe. Significant planning efforts, including ongoing urban consolidation and renewal, seek to accommodate a higher portion of future population growth within the existing urban footprint.

Perth hosts major cultural, creative and sporting events, which draw international and national tourists, who require accommodation, transport, food and entertainment. Using Perth as a gateway,



many tourists then travel to other regions. Providing high-quality infrastructure, and further improvements to aviation access, can help boost international visitor demand.

Population growth will place increased demands on social infrastructure, including education, health, justice, police, emergency services and housing. Catering for this growth will require significant upgrades and additions to existing infrastructure, particularly energy, water and telecommunications. Groundwater supply in Perth is limited and under increasing pressure from both a drying climate and rising demand. Improved water efficiency, water-sensitive urban design and potentially investment in major new water supply sources will be required to support future growth.

Perth experiences high levels of daily solar exposure and residents have capitalised on the opportunities this provides for solar energy, with a large uptake of rooftop solar panels. In the north-eastern Perth suburb of Ellenbrook, eligible residents have the opportunity to take part in a community battery storage project, an extension of Synergy and Western Power's first PowerBank trial. The Energy Transformation Taskforce is overseeing development of the Energy Transformation Strategy, which will provide guidance on how to maintain the security, reliability and affordability of the power system.

Key challenges and opportunities

- Managing the ecological footprint and living within environmental constraints – including a groundwater supply that is under increasing pressure.
- Providing infrastructure to support population growth while delivering a more consolidated urban form.
- Reducing dependency on private vehicle use, including through increasing urban density, housing diversity and supporting high-quality alternative transport modes.
- Ensuring access to essential utilities and social infrastructure.
- Supporting new employment opportunities, including through further diversification into new, high-value-add industries.
- Maximising opportunities to increase international education offerings.
- Capitalising on tourism offerings for visitors travelling through Perth.



.....

Perth has evolved from a geographically isolated capital, to become a **strong and connected city**, increasing in **global significance**.

End notes

- 1 ABS (Jun 2017) 2001.0 Census of Population and Housing: General Community Profile, Australia, 2016
- 2 UNESCO (2003) World Heritage List – Purnululu National Park
- 3 Geoscience Australia (Mar 2020) Largest Waterbodies
- 4 WA and Australian Departments of Treasury (Mar 2020) State and Federal Budgets 2012 to 2018
- 5 WA Department of Primary Industries and Regional Development (Nov 2019) Nominal Gross Regional Product 2019
- 6 ABS (Jul 2017) 3218.0 Regional Population Growth, Australia, 2006 to 2016; ABS (Mar 2020) 3218.0 Regional Population Growth, Australia, 2019; Western Australian Planning Commission (2019) WA Tomorrow Population Report No. 11 – Local Government Area
- 7 ABS (Aug 2018) 3238.0.55.001 Estimates of Aboriginal and Torres Strait Islander Australians, June 2016
- 8 WA Department of Water and Environmental Regulation (Mar 2020) Planning for the future, Water allocation plans, How we manage water resources in a drying climate, Climate trends - Kimberley
- 9 Pilbara Development Commission (Apr 2015) *Pilbara Regional Investment Blueprint, Technical Report*
- 10 WA and Australian Departments of Treasury (Mar 2020) State and Federal Budgets 2012 to 2018
- 11 WA Department of Primary Industries and Regional Development (Nov 2019) Nominal Gross Regional Product 2019
- 12 ABS (Mar 2020) 3218.0 Regional Population Growth, Australia, 2019; Western Australian Planning Commission (2019) WA Tomorrow Population Report No. 11 – Local Government Area; ABS (Feb 2001) 3218.0 Regional Population Growth 1999-2000
- 13 ABS (Aug 2018) 3238.0.55.001 Estimates of Aboriginal and Torres Strait Islander Australians, June 2016
- 14 City of Karratha (Mar 2020) Community Survey, 2019 Results Summary
- 15 WA Department of Water and Environmental Regulation (Mar 2020) Planning for the future, Water allocation plans, How we manage water resources in a drying climate, Climate trends - Pilbara
- 16 Bureau of Meteorology (Mar 2020) Climate, Climate data online, Monthly climate statistics, All years of record, Summary statistics Marble Bar
- 17 WA Department of Primary Industries and Regional Development (Aug 2018) Gascoyne – A Regional Profile
- 18 Ibid
- 19 WA and Australian Departments of Treasury (Mar 2020) State and Federal Budgets 2012 to 2018
- 20 WA Department of Primary Industries and Regional Development (Nov 2019) Nominal Gross Regional Product 2019
- 21 ABS (Mar 2020) 3218.0 Regional Population Growth, Australia, 2019; Western Australian Planning Commission (2019) WA Tomorrow Population Report No. 11 – Local Government Area
- 22 ABS (Aug 2018) 3238.0.55.001 Estimates of Aboriginal and Torres Strait Islander Australians, June 2016
- 23 Gascoyne Development Commission (Mar 2020) Industry profiles and opportunities
- 24 Australian Department of Agriculture, Water and the Environment (Mar 2020) National Landscapes
- 25 Gascoyne Development Commission (Mar 2020) Industry profiles and opportunities
- 26 Ibid
- 27 WA Department of Water and Environmental Regulation (Oct 2011) *Lower Gascoyne water allocation plan*
- 28 WA Department of Primary Industries and Regional Development (Aug 2018) Mid West: A regional profile
- 29 Mid West Development Commission (Mar 2020) Living in the Mid West
- 30 WA Department of Primary Industries and Regional Development (Aug 2018) Mid West: A regional profile
- 31 WA and Australian Departments of Treasury (Mar 2020) State and Federal Budgets 2012 to 2018
- 32 WA Department of Primary Industries and Regional Development (Nov 2019) Nominal Gross Regional Product 2019
- 33 ABS (Mar 2020) 3218.0 Regional Population Growth, Australia, 2019; Western Australian Planning Commission (2019) WA Tomorrow Population Report No. 11 – Local Government Area
- 34 ABS (Mar 2020) 3218.0 Regional Population Growth, Australia, 2019
- 35 ABS (Aug 2018) 3238.0.55.001 Estimates of Aboriginal and Torres Strait Islander Australians, June 2016
- 36 Australian Department of Industry, Science, Energy and Resources (Mar 2020) Co-hosting the Square Kilometre Array

- 37 Mid West Development Commission (Mar 2020) Working in the Mid West, Aquaculture in the Mid West
- 38 ABS (Apr 2019) 7503.0 Value of Agricultural Commodities Produced, Australia 2017-18
- 39 Australian Energy Market Operator (Jun 2019) *Wholesale Electricity Market Electricity Statement of Opportunities*
- 40 WA and Australian Departments of Treasury (Mar 2020) State and Federal Budgets 2012 to 2018
- 41 WA Department of Primary Industries and Regional Development (Nov 2019) Nominal Gross Regional Product 2019
- 42 ABS (Mar 2020) 3218.0 Regional Population Growth, Australia, 2019; Western Australian Planning Commission (2019) WA Tomorrow Population Report No. 11 - Local Government Area
- 43 ABS (Sep 2018) 3238.0.55.001 Estimates of Aboriginal and Torres Strait Islander Australians, June 2016
- 44 Australian Energy Market Operator (2019) *Wholesale Electricity Market Electricity Statement of Opportunities*
- 45 WA and Australian Departments of Treasury (Mar 2020) State and Federal Budgets 2012 to 2018
- 46 WA Department of Primary Industries and Regional Development (Nov 2019) Nominal Gross Regional Product 2019
- 47 REMPLAN (Mar 2020) Economy Profile, Peel Region
- 48 ABS (Mar 2020) 3218.0 Regional Population Growth, Australia, 2019; Western Australian Planning Commission (2019) WA Tomorrow Population Report No. 11 - Local Government Area
- 49 ABS (Sep 2018) 3238.0.55.001 Estimates of Aboriginal and Torres Strait Islander Australians, June 2016
- 50 WA Department of Primary Industry and Regional Development (Dec 2013) *Living in the Regions 2013: A survey of attitudes and perceptions about living in regional Western Australia*
- 51 WA and Australian Departments of Treasury (Mar 2020) State and Federal Budgets 2012 to 2018
- 52 WA Department of Primary Industries and Regional Development (Nov 2019) Nominal Gross Regional Product 2019
- 53 ABS (Mar 2020) 3218.0 Regional Population Growth, Australia, 2019; Western Australian Planning Commission (2019) WA Tomorrow Population Report No. 11 - Local Government Area
- 54 ABS (Sep 2018) 3238.0.55.001 Estimates of Aboriginal and Torres Strait Islander Australians, June 2016
- 55 Bureau of Meteorology (Mar 2020) Long-term temperature record, ACORN-SAT station data and network
- 56 WA Department of Regional Development and Primary Industries (Aug 2018) Great Southern: A Regional Profile
- 57 Bright Energy Investments (Mar 2020) Albany Grasmere Wind Farm
- 58 WA Department of Regional Development and Primary Industries (Aug 2018) Great Southern: A Regional Profile
- 59 WA and Australian Departments of Treasury (Mar 2020) State and Federal Budgets 2012 to 2018
- 60 WA Department of Primary Industries and Regional Development (Nov 2019) Nominal Gross Regional Product 2019
- 61 ABS (Mar 2020) 3218.0 Regional Population Growth, Australia, 2019; Western Australian Planning Commission (2019) WA Tomorrow Population Report No. 11 - Local Government Area
- 62 ABS (Sep 2018) 3238.0.55.001 Estimates of Aboriginal and Torres Strait Islander Australians, June 2016
- 63 WA Department of Primary Industries and Regional Development (Nov 2019) Climate trends in Western Australia
- 64 Southern Ports Authority (Mar 2020) About the Port of Esperance
- 65 WA and Australian Departments of Treasury (Mar 2020) State and Federal Budgets 2012 to 2018
- 66 WA Department of Primary Industries and Regional Development (Nov 2019) Nominal Gross Regional Product 2019
- 67 REMPLAN (Mar 2020) Economy Profile, Goldfields-Esperance Region
- 68 Southern Ports Authority (Mar 2020) About the Port of Esperance
- 69 ABS (Mar 2020) 3218.0 Regional Population Growth, Australia, 2019; Western Australian Planning Commission (2019) WA Tomorrow Population Report No. 11 - Local Government Area
- 70 ABS (Sep 2018) 3238.0.55.001 Estimates of Aboriginal and Torres Strait Islander Australians, June 2016
- 71 EDL (Mar 2020) Agnew



- 72 Synergy (Mar 2020) Wind energy, Our wind farms, Esperance Wind-Gas System
- 73 Water Corporation (Mar 2020) Water supply, Our regional water supply, Goldfields and Agricultural
- 74 Ibid
- 75 Western Australian Department of Jobs, Tourism, Science and Innovation (May 2020) Invest in WA, Key facts, Headquarters
- 76 WA Government (2016) *Western Australian Innovation Strategy*
- 77 WA Botanic Gardens & Parks Authority (Mar 2020) Kings Park and Botanic Garden
- 78 Infrastructure Australia (Jun 2019) *An Assessment of Australia's Future Infrastructure Needs, The Australian Infrastructure Audit 2019*
- 79 From a planning perspective, the 30 local government areas include the Shire of Serpentine-Jarrahdale, however under the *Regional Development Commission Act 1993* it falls within the Peel regional boundary.
- 80 WA and Australian Departments of Treasury (Mar 2020) State and Federal Budgets 2012 to 2018
- 81 WA Department of Primary Industries and Regional Development (Nov 2019) Nominal Gross Regional Product 2019
- 82 Loughborough University Globalization and World Cities Research Network (May 2020) The World According to GaWC 2018
- 83 ABS (Mar 2020) 3218.0 Regional Population Growth, Australia, 2019; Western Australian Planning Commission (2019) WA Tomorrow Population Report No. 11 – Local Government Area; ABS (Nov 2018) 3222.0 Population Projections, Australia, 2017 (base) - 2066
- 84 ABS (Sep 2018) 3238.0.55.001 Estimates of Aboriginal and Torres Strait Islander Australians, June 2016



Photo acknowledgements

Infrastructure WA wishes to thank the many State Government agencies, government trading enterprises, local governments and other entities who generously made their photography available for use in this document. *(In order of appearance)*

Tourism Western Australia

- p3 Outback roadside, near Cue
- p6 Gantheaume Point, Broome
- p7 Lake Argyle, near Kununurra
- p15 Gascoyne River
- p16 Red Bluff, Kalbarri National Park
- p19 Near Windajinni Rocks, Wooleen Station
- p20 Kukerin
- p22 Ballooning near Northam
- p23 Views of farmland, North East Wheatbelt
- p30 Busselton Jetty
- p31 Cape to Cape walking trail, Wilyabrup Cliffs
- p34 Tornidirrup National Park
- p39 Heartwalk Street Art, Kalgoorlie
- p42 William and Hay Street intersection, Perth
- p43 Longreach Bay, Rottnest Island
- p46 Crop located in the Ord Irrigation Project, near Kununurra

Kimberley Ports Authority

- p4 Port of Broome

Development WA

- p8 City Precinct, The Quarter, Karratha

Pilbara Ports Authority

- p10 Utah Point Bulk Handling Facility, Port Hedland

Russell Ord Photography and Visit Mandurah

- p24 Mandurah Coastal Trail

Mandurah & Peel Tourism Organisation and Travis Hayto

- p26 Aerial of Mandurah during the APES Games

Mandurah & Peel Tourism Organisation and Russel Ord Photography

- p27 Thrombolite Reef, Lake Clifton

City of Perth

- p40 Supreme Court Gardens and Perth skyline

Additionally stock images were used on the following pages:

- p11 Pilbara road train
- p12 Cape Range National Park and the Ningaloo Marine Park, Exmouth
- p14 Farmer's fields, Carnarvon
- p18 Silos, Geraldton
- p28 Caves Road, Boranup Karri Forest
- p32 Albany Wind Farm
- p35 Porongurup Sky Walk
- p36 Sunset over Kalgoorlie Super Pit
- p38 Port of Esperance



Infrastructure WA
Dumas House
2 Havelock Street
West Perth
Western Australia 6005

Phone: 08 6552 5229
Email: iwaconsultation@infrastructure.wa.gov.au

infrastructure.wa.gov.au

© Government of Western Australia 2020