



**CITY OF VINCENT**

**ITEM 9.1.10**

ORDINARY MEETING OF COUNCIL

12 March 2013

**TABLED ITEM**



State  
Planning  
Strategy

planning for sustained prosperity

draft for public comment



Government of Western Australia  
Department of Planning



## SPS Partners



Department of Agriculture and Food  
Department of the Attorney General  
Department of Commerce  
Department of Communities  
Department of Corrective Services  
Department of Culture and the Arts  
Department of Education  
Department of Environment and Conservation  
Department of Finance [Public Utilities Office]  
Department of Fisheries  
Department of Health  
Department of Housing  
Department of Indigenous Affairs  
Department of Local Government  
Department of Mines and Petroleum  
Department of Planning  
Department of Regional Development and Lands  
Department of Sport and Recreation  
Department of State Development  
Department of the Premier and Cabinet  
Department of Training and Workforce Development  
Department of Transport  
Department of Treasury  
Department of Water  
Disability Services Commission  
Environmental Protection Authority  
LandCorp  
Landgate  
Regional Development Commissions  
Tourism Western Australia  
Water Corporation

**‘The decisions we make today,  
shape our tomorrow’**

This document represents an opportunity to build strategic planning capacity and capability across government, the community and the private sector, enabling the state to better pre-empt and adapt to change with a view to achieving sustained prosperity through to 2050.

# Western Australia 1850 – 2050



Government of Western Australia  
Department of Planning



1850

1860

1870

1880

1890

1900

1910

1920

1930

1940

1950

1960

1970

WHERE WE  
HAVE BEEN.

WHAT WILL  
BE OUR LEGACY?

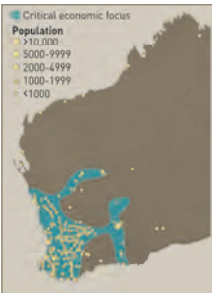
2050

## Maps



1850-1899

Characterised by the development of the Swan River Colony, along with essential infrastructure including water supply, telegraph, harbours, rail and roads. It was marked by the establishment of responsible government, preparation to join the Australian Commonwealth and a focus on building infrastructure between Perth and the Goldfields due to the gold rush of the 1890s.



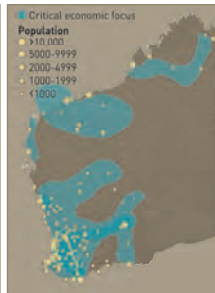
1900-1949

Due largely to the gold rush, a period of rapid economic and population growth. It was also a period impacted by two world wars, and a Great Depression, leading to significant difficulties. Clearing and settlement of the Wheatbelt was a major focus, as was the development of rail, road and sea export facilities to move commodities.



1950-1999

Characterised by the post war baby boom and the development of the Pilbara's rich mineral, oil and gas reserves. Gas was delivered to the south west of the State via a pipeline from the north, and there was significant investment in major industrial facilities and social infrastructure. It also heralded the home computer, the internet, the digital revolution and low cost air travel.



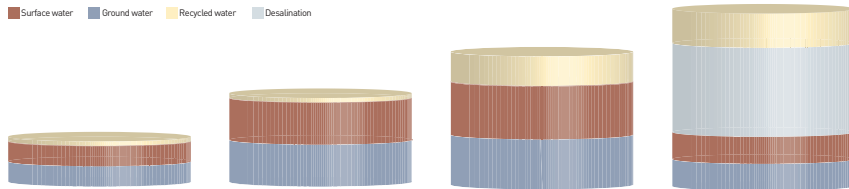
2000-2050

Began with a strong demand for raw materials, which is likely to continue well into the future. The earlier part of the period was characterised by the global economic crisis and growing concern about climate change. This period is likely to be characterised by growing diversity, the development of renewable energy technologies, an ageing population, globalisation and an orientation towards sustainable, ecologically sound living.

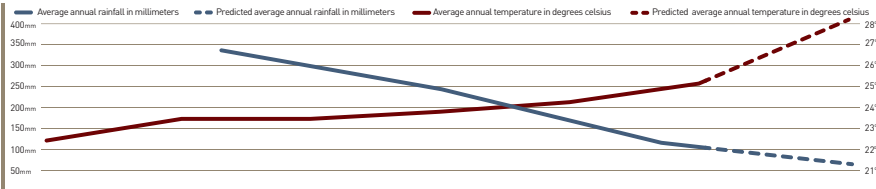
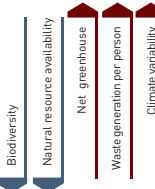
## Water sources



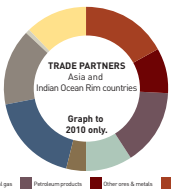
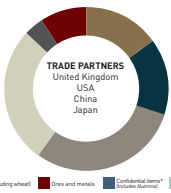
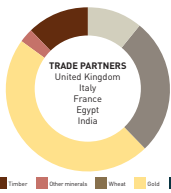
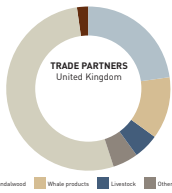
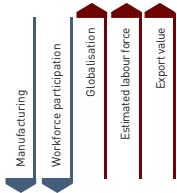
Surface water Ground water Recycled water Desalination



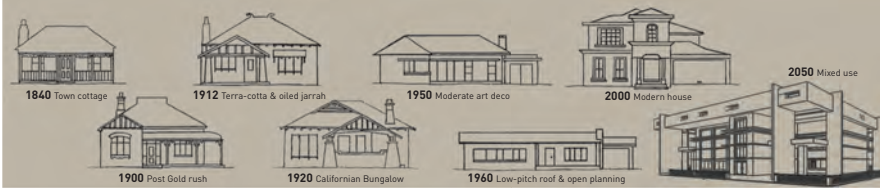
## Climate and environment



## Major commodities



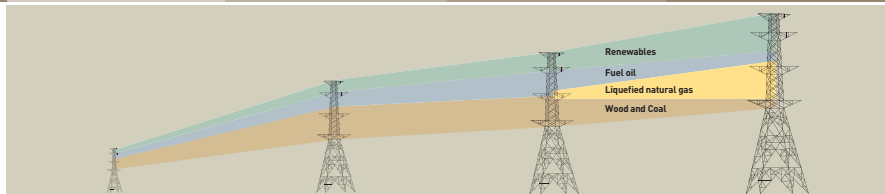
## Housing



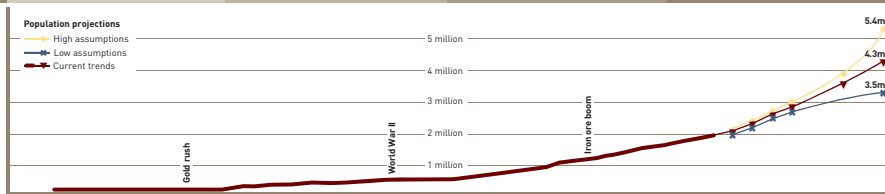
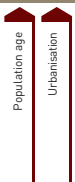
## Urban Form



## Energy



## Population







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## About the photographer

### 4 **Richard Woldendorp**

Richard was born in Utrecht, The Netherlands, in 1927 and moved to Australia in 1951. On a return trip to Holland in 1955 he bought a camera and his long association with photography was born. In 1961, his photographs won numerous awards in national photographic competitions. It was then that Richard decided to become a professional photographer and he focused his lens on his great passion: the Australian landscape. Aerial depictions became his speciality, as he believes this best captures the vastness and uniqueness of the outback.

Richard's iconic photographs are housed in national and state Australian galleries, as well as many private collections here and overseas, and he has been recognised for his contribution to photography and the arts with a vast array of awards.

Many of Richard's awe-inspiring visions of the Western Australian landscape are included in this publication.

Cover image: Mudflats, Derby, Western Australia.



## Premier's foreword

Western Australia is in a period of sustained growth with a high level of public and private investment being channelled into infrastructure and development; a period of great promise and opportunity for all Western Australians.

Much of the world's economic growth during this century will come from Western Australia's trading partners in the Asia – Pacific region. Growing demand for the State's raw materials, renewable energies, knowledge and technological skill base will create future opportunities.

In the past decade, Western Australia has been shaped by population and economic growth. In international trade Western Australia produces more than one third of Australia's exports with just one tenth of the nation's population.

Reflecting this changing and increasingly complex global and domestic environment, the need for State strategic planning has never been greater.

The State Planning Strategy is the Government's strategic planning response to the challenges the State is likely to face into the future.

It takes a broad integrated view of planning and development in this State, reaching beyond land use planning to place priority on managing population and economic growth.

I believe the State Planning Strategy is an important strategic planning framework that will help Western Australia sustain its growth and continue to build prosperity for future generations.

**Hon. Colin Barnett MLA**  
Premier of Western Australia



## Minister's preface

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

The first State Planning Strategy was published in 1977. The primary focus of that document was landuse planning.

Since then Western Australia has been shaped by population growth, the global economy, urbanisation, technology, climate change, increased water and energy requirements.

Prepared by the Department of Planning under the guidance of the Western Australian Planning Commission this State Planning Strategy takes into account what is known about the future and sets a vision to 2050 based on a framework of planning principles, strategic goals and State strategic directions.

The State Planning Strategy envisages a doubling of Western Australia's current population to 5.4 million by 2056 and outlines the emergence of the State's North West and Mid West sectors as hotspots for capital investment and their increasing contribution to Australia's GDP.

In response this document seeks to better anticipate, adapt to and manage the drivers of change most likely to influence the future development of Western Australia.

It outlines the Government's intention to undertake a collaborative approach in planning for the State's infrastructure, environment, food security, land availability, economic development, education, training and knowledge transfer.

The State Planning Strategy will be used by the Government as a basis to plan for and coordinate regional and urban infrastructure across the State; improve efficiency of infrastructure investment; and to facilitate the consideration of project approvals, delivery of services and urban land supply.

Public comment is the final phase in the content development of the State Planning Strategy. To appreciate the possibilities of this document, it

should be viewed in its entirety and not as a series of individual parts.

The State Government looks forward to working with local government, the private sector and all interested Western Australians in the ongoing development and application of the State Planning Strategy.

**Hon. John Day MLA**  
Minister for Planning



# The State Planning Strategy (SPS)



## 6 Planning for sustained prosperity

The purpose and function of this document is to provide a sound basis for the integration and coordination of strategic planning across state, regional and local jurisdictions.

A function of the Western Australian Planning Commission is "to prepare and keep under review: (i) a planning strategy for the State as a basis for coordinating and promoting land use planning, transport planning and land development in a sustainable manner, and for the guidance of public

authorities and local governments on those matters."

Section 14(b), Planning and Development Act, 2005

This document takes into account what is known about the future and the expectations of Western Australians, to provide direction for the future. It is structured into four parts [Figure 1].

This Strategy offers a view of the interconnections and interrelationships that are likely to influence Western Australia's sustained prosperity. It

highlights principles, strategic goals and strategic directions that are important to the planning and development of Western Australia.

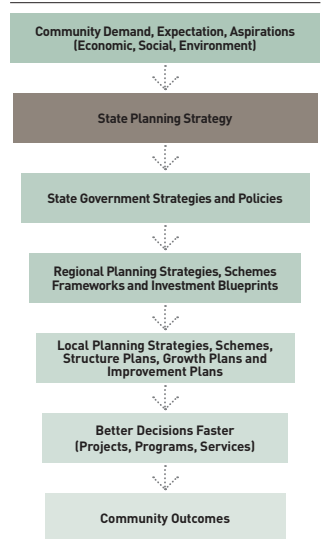
The State Planning Strategy is the lead strategic planning document within Government [Figure 2].

Development of this State Planning Strategy involved considerable research and consultation across State Government and its ongoing application will require continued collaboration to ensure that it stays on course to realise its vision of sustained prosperity.

Figure - 1. The State Planning Strategy structure



Figure - 2. The State Planning Strategy positioning



## Supporting documents

### The State Planning Strategy in context

The State Planning Strategy (SPS) is an overarching strategic document that informs all other State, regional and local planning strategies, policies and approvals.

Specifically it links to and builds upon other strategic planning positions put in place by the Western Australian Planning Commission (WAPC).

These include:

- Directions 2031 and Beyond: A high level spatial framework and strategic plan for the future growth of the metropolitan Perth and Peel regions (WAPC, 2010).
- Pilbara Planning and Infrastructure Framework: A regional framework from which land for major industries and sites and corridors for major infrastructure can be set aside (WAPC, 2011).
- Liveable Neighbourhoods: An award winning policy that outlines objectives and criteria for the siting, design and assessment of structure plans and the built form (WAPC, 2009).
- Urban Development Program (including Regional Hotspot reports; Urban Growth Monitor; Perth and Peel Development Outlook): This program tracks land demand and supply as well as proposed development and infrastructure in Western Australia's major urban centres.
- WA Tomorrow: Population forecast of Western Australia's planning regions 2006 to 2026, Report No. 7 (Department of Planning and WAPC, 2012).

This SPS is supported by a suite of planning documents, schemes, frameworks, implementation plans, codes and regulations administered through the Department of Planning, local government and the WAPC.

Initiatives recently produced across Government that also contribute to the outcomes of the SPS include but are not limited to:

- The Public Utilities Office: Strategic Energy Initiative, Energy 2031 (2012) addresses the State's future energy needs to ensure continued energy supply, provision, efficiency and access.

- The Water Corporation: Water Forever, Towards Climate Resilience (2009), Whatever the Weather, Drought-proofing Perth (2011) and Water Forever, A 10-year Plan for Western Australia (2012) together outline plans for the State's water supply resources.
- The Department of Housing: Housing 2010-2020: Opening Doors to Affordable Housing (2010) is a strategy which outlines ways to reform Western Australia's long term low to moderate income accommodation needs.
- Department of Regional Development and Lands: A Regional Development Policy Framework: An Action Agenda for Regional Development (2011), which prioritises investment decisions that are likely to achieve more effective regional development outcomes.
- Department of Regional Development and Lands: Regional Centres Development Plan (SuperTowns) Framework (2011) outlines funding structures and planning support for selected regional communities in Western Australia's south-west.
- Department of Regional Development and Lands: Pilbara Cities (2012) provides a vision for the development of Port Hedland and Karratha as vibrant cities to major economic developments planned for the region.
- Department of Local Government: Integrated Planning and Reporting Framework and Guidelines (2010) is a framework that enables local governments to set priorities based on their resourcing capabilities and capacity.
- Landgate: Realising the Power of Location: A Location Information Strategy for Western Australia (2010) is a framework for the delivery of integrated consolidated and interactive information across government.
- Disability Services Commission: Disability Future Directions - Count Me In (2011) is a framework of principles, directions and commitments to support the changing needs of people with disabilities, including their families and carers.
- Department of the Premier and Cabinet: Lead Agency Framework (2009). Through this framework, major projects are assigned to a Lead

Agency that works with project proponents to manage all Government interactions and statutory approvals, while fully considering the public interest.

- Department of Training and Workforce Development: Skilling WA: A Workforce Development Plan for Western Australia (2011) guides workforce development in the State. This strategy helps to increase the capacity of the Western Australian workforce to meet the high skill needs of the State's industries.
- Department of Treasury: Strategic Asset Management Framework (2012) provides policies and guidelines to improve asset investment planning and management across the State public sector.
- Swan River Trust: River Protection Strategy for the Swan Canning Riverpark (2012) is a designed to improve the ecological health and community benefit of the Riverpark.
- Office of Road Safety: Towards Zero Road Safety Strategy (2009) outlines strategies for safe road use, roads and speeds across the State.
- Department of Education: Excellence and Equity, Strategic Plan for WA Public Schools (2012) builds on the ongoing commitment for classrooms to be at the centre of improving student performance.
- Waste Authority: Western Australian Waste Strategy, Creating the Right Environment (2012) sets the long-term strategic directions and priorities for waste management in the State.
- Department of Culture and the Arts: Cultural Infrastructure Directions 2012-2014 (2012); Creating Value – An Arts and Cultural Sector Policy Framework (2010), define cultural infrastructure and outline key principles for arts and cultural investment in the State.



## The context

### 8 Drivers of change

From a small sparsely populated State with an agricultural-based economy, Western Australia has grown into the powerhouse of the Australian economy, contributing disproportionately to the nation's gross domestic product (GDP).

All indicators suggest that Western Australia is on the cusp of sustained growth; it is a period of great promise and opportunity for all Western Australians.

A range of factors provide a context for, and directly influence, Western Australia's future development. These drivers of change include:

- Population
- Workforce
- Global economy
- Diversification
- Urbanisation and regional expansion
- Technology
- Climate change

The SPS through its principles, strategic goals and strategic directions offers an integrated approach to managing and adapting to these drivers of change.

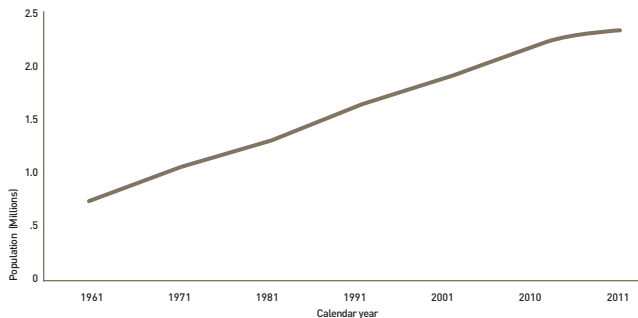
#### Population

Western Australia's population make up is undergoing change that is set to continue into the future.

This growth and emergent diversity will have a direct impact on the demand for resources, the productive capacity of the State, and the need for collaborative evidenced-based planning.

The population of Western Australia has grown at a steady rate since 1961 (Figure 3).

Figure - 3. Western Australia's population growth



Population growth provides challenges for the planning and provision of the State's infrastructure, including core needs such as housing, social services, energy and water.

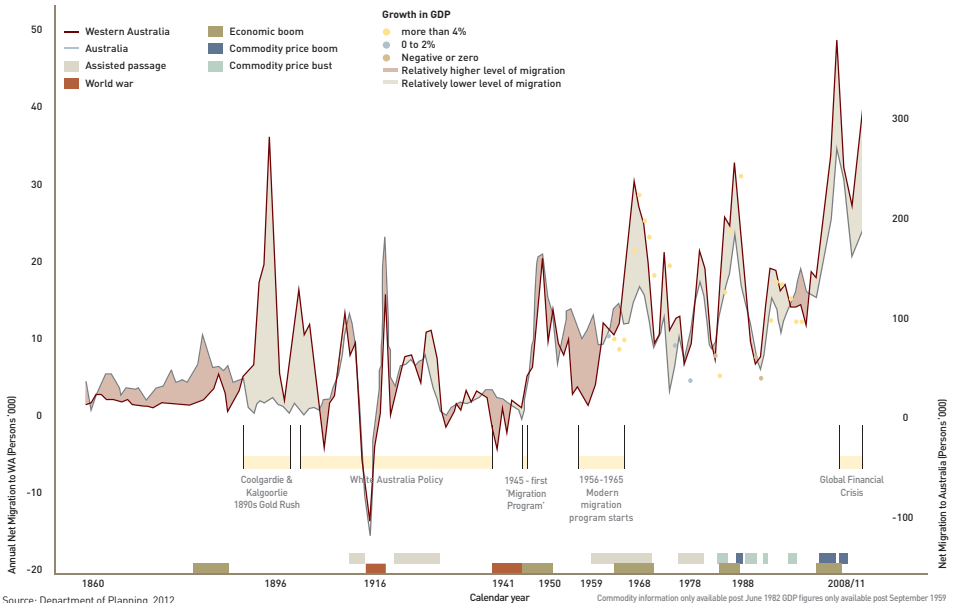
Migration has been the principle source of population growth in Western Australia. Economic conditions directly influence Net Overseas Migration

which is higher during good economic conditions (Figure 4). For example, the Global Financial Crisis (GFC) of 2008-09 caused a sharp drop in migrants during that period.

Western Australia's experience with high migration goes back to the gold rush of 1890's in the Goldfields and the mining boom of recent years.

Overseas students and temporary skilled workers have recently comprised a significant proportion of overseas migrants to Western Australia, which proportionally attracts more migration than its share of the national population.

Figure - 4. Net migration compared with policy and economic influences



Source: Department of Planning, 2012

Commodity information only available post June 1982 GDP figures only available post September 1959

10 The Australian Bureau of Statistics proposes three scenarios for future population growth:

Series A – based on high growth assumptions

Series B – based on current trends

Series C – based on low growth assumptions

These projections (Figure 5) demonstrate that the population of Western Australia could increase from 2.4 million currently to at least 3.5 million and possibly 5.4 million by 2056.

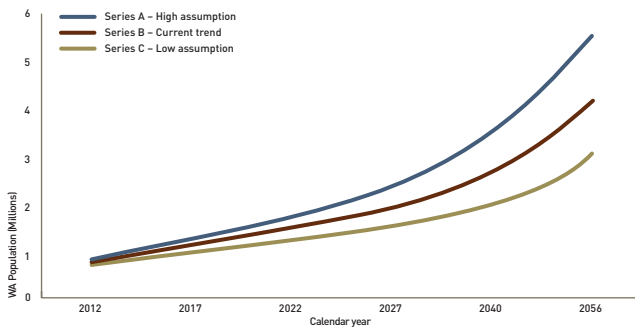
This population growth will place pressure on resources and will lead to the need for increased infrastructure and services.

Concurrently, the State's economic growth will enable the means to provide for increased infrastructure and improved services necessary to support its future population.

The Western Australia population is ageing (Figure 6). Over the next 40 years the proportion of the population of age 65 or over, is likely to increase from 13% to 22%.

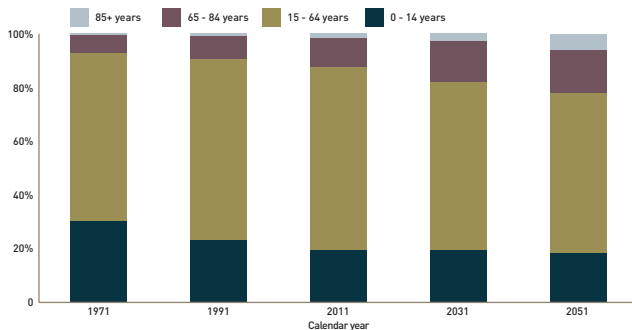
The proportion of people of age 15 or under is likely to decrease from 19% to 18%. This will impact on most aspects of the economy and in particular the composition of the labour force, healthcare requirements and dwelling types.

Figure - 5. Projected population growth



Source: ABS cat. no. 3222.0 Population Projections, Australia, 2008.

Figure - 6. Age distribution



Source: ABS 3105.0, Australian Historical Population Statistics 2008, (for year 1971 and 1991); ABS 3222.0, Population Projections, Australia 2006 to 2101 (Series A: for years 2011, 2031 and 2051); Department of Planning.

## Workforce

By 2051, Western Australia's workforce will be 1.5 - 2.2 million, up from 1.2 million in 2011 (Figure 7) inferring an additional 700,000 skilled workers may be required to maintain the State's anticipated level of economic development.

For a workforce of this size to be fully employed, 10,000 - 26,000 jobs per year will need to be created over this period.

The changing face of the global economy will also intensify the competition for people. Recruitment and retention of skilled workforce is emerging as a new critical issue.

## Global Economy

Much of the world's economic growth during this century will come from Western Australia's trading partners in the Asia Pacific region (Figure 8).

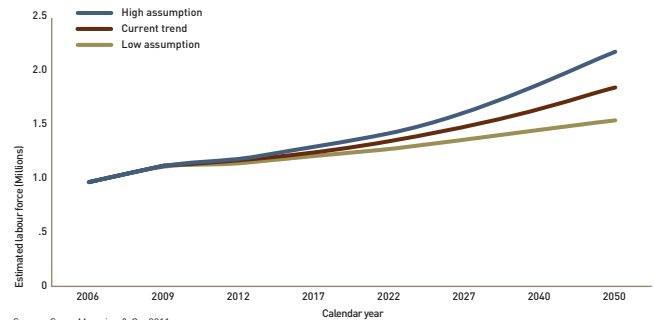
Growing global demand for the State's raw materials, renewable energy sources and technological skill base will create significant opportunities.

Economic development is critical to sustained prosperity. The key drivers of the Western Australian economy to 2050 are likely to emanate from India, China and the Asia-Pacific (Figures 8 and 10).

The changing world economy will have direct and profound consequences for Western Australia.

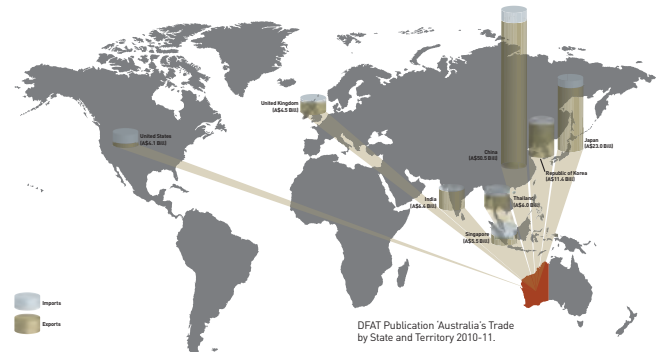
That most of the State's major trading partners are in the same time zone as Western Australia (Figure 9) exemplifies the potential opportunities for close co-operation and business development.

Figure - 7. Projected labour force



Source: Syme Marmion & Co, 2011

Figure - 8. Western Australian's key trading partners 2010-11





## Diversification

Western Australia's economy will be underpinned by the energy and mining sectors but the State must also diversify its economy to facilitate a broader mix of industries and occupations that can make for a sustainable, resilient and ultimately successful society.

Western Australia has the potential to be a global resources hub due not just to the resources themselves but also to the expertise and technology that has made this State a leader in extractive industries.

Western Australia is well placed, in terms of natural resources and quality of life, to compete globally for skills.

To continue to compete successfully, Western Australia must build on its assets and link economic development opportunities to a high quality of life.

This will include planning and delivering world-class urban environments, transport, education, social systems and environmental management.

## Urbanisation and regional expansion

In line with international trends, Perth is projected to become home to 75% of the State's population by 2050, in an increasingly urbanised society.

The Perth, Peel and Greater Bunbury regions are in the midst of becoming a 'conurbation'.

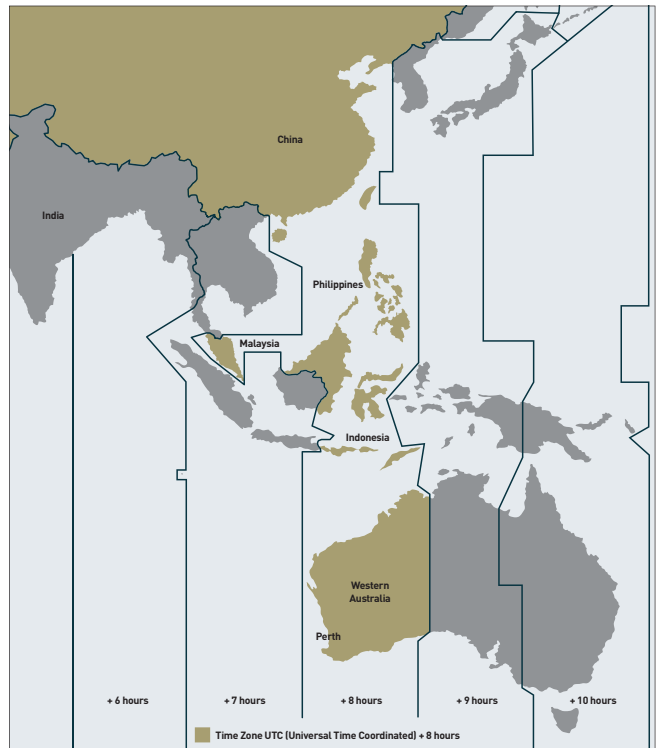
Continued urbanisation is being driven by relatively easy access to:

- Employment
- Education
- Health and services
- Entertainment and community activities

This will influence the need for well-planned, integrated and compact regional centres and towns generating local and regional economic activity, and will necessitate greater innovation and specialisation.

Regional expansion through programs such as the State Government's Pilbara Cities and SuperTowns initiatives will relieve population pressure on the Perth metropolitan region.

Figure - 9. International time zones



## Technology

Planning must prepare for technological change and ensure that the whole community benefits from the results of such change.

An important consideration in technology and innovation is that industries at the cutting edge often enjoy the benefits of enhanced profitability.

Australia's geographic and regional neighbours are committing significant resources to their quests to lift standards of living to levels comparable with the developed world. They are therefore looking to developed nations for innovative solutions that can deliver these outcomes efficiently.

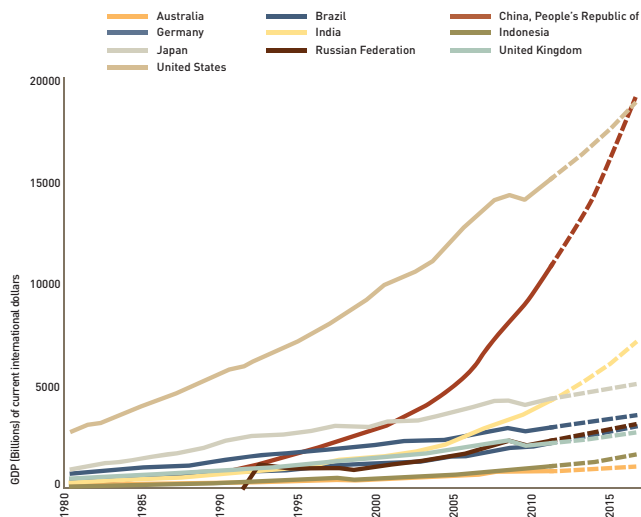
Western Australia is in an ideal geographic, temporal and technological position to take advantage of this quest.

Over the next 40 years, China and India may commit up to 30%-40% of GDP to innovative technologies compared to the UK and Germany which are expected to invest 17%-18% of GDP.

Further, as the GDP of countries including China and India grow and surpass those of other leading nations, major opportunities for diversity in the Western Australian economy, based on exporting existing technologies and newly developed frontier technologies will be substantial.

Australia's expected growth in GDP (based on PPP), compared to those of other key developed and developing countries, is illustrated in Figure 10.

Figure - 10. Gross Domestic Product (based on PPP – purchasing power parity)



## Climate Change

Climate projections for Western Australia from 2030 through to 2070 indicate an increase in temperatures across the State accompanied by a decline in winter rainfall in the South West and an increase in the North.

The Intergovernmental Panel on Climate Change projections related to Western Australia take into account a number of climate models and greenhouse gas emission scenarios.

These projections (Figure 11) use low, mid-range and high emission scenarios. The scenarios include various assumptions about demographic, economic and technological factors likely to influence future emissions.

Changing temperatures and rainfall patterns, along with rising sea levels and more frequent and intense natural disasters such as flooding and bushfires, will contribute to:

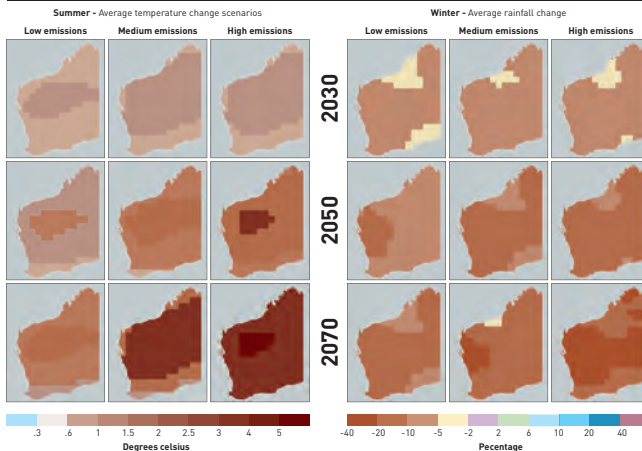
- Change in the location and productivity of arable land
- Changes in water availability
- Risks to coastal communities and marine infrastructure
- Economic models that underpin emerging water and energy policy settlements
- Changes in infrastructure needs
- Changing agriculture patterns and practices.

Adapting to the impacts of climate change will be critical, as will reducing carbon emissions and the development of eco-technologies that promote the efficient use of natural resources.

Western Australia has abundant renewable energy sources that make it well placed to mitigate and adapt to the effects of climate change.

There are also significant opportunities to develop new technologies that can aid Western Australia and be exported to the world.

**Figure - 11. Climate change scenarios : temperature and rainfall projections 2030 - 70**





## The principles

Six inter-related principles underpin and inform the SPS, which apply across all regions, local government areas and communities.

### **Community: Enable diverse, affordable, accessible and safe communities**

Planning for community betterment can balance aspirations for creating wealth, caring for the environment and building communities of which people feel proud.

As the size and growth rate of the population continues to change, so too will people's needs, demands and aspirations.

Sustained prosperity can be supported by offering choice and excellence in housing, health and educational opportunities; sustainable communities become desirable environments in which to live.

### **Economy: Facilitate trade, investment, innovation, employment and community betterment**

Western Australia is one of the largest exporters of commodities in the fastest growing region of the world, the Asia-Pacific region. The State's enterprises contribute significantly to Australia's GDP.

Harnessing existing and emerging competitive and collaborative advantages can present opportunities to stimulate job creation, wealth and wellbeing.

Western Australia is well placed to build on its strong economic and stable political base by enabling value adding industries, including emerging knowledge and low carbon economies.

An important aspect of this is the contribution of culture and the arts, including creativity, to economic development and diversification.

Planning for continued growth and emerging technologies will ensure that the release or redevelopment of land will be at optimal levels.

### **Environment: Conserve the State's natural assets through sustainable development**

Clean air, water, light and open spaces in a range of temperate to tropical climates has provided Western

Australia with a high standard of living and wide range of lifestyle choices.

Western Australia occupies one third of the land mass of Australia and has vast mineral and natural resources.

Spectacular landscapes traverse ten climate zones from the wet tropical north, through inland deserts, to the temperate south west.

A careful and managed balance of conservation and development will ensure the State can sustain prosperity in the long term.

It is imperative therefore that short term gains do not compromise future opportunities.

### **Infrastructure: Ensure infrastructure supports development**

Demand for Western Australia's resources will continue to rise in the foreseeable future, which will increase the pressure on the State's infrastructure.

Western Australia's vast distances and sparse population present complex challenges for productivity and sustained prosperity.

Community infrastructure is by nature highly complex and multidimensional. All levels of government have a role to play in the coordinated delivery of the 'hard' elements of community infrastructure, including schools, hospitals, civic centres and public open spaces, as well as the 'soft' elements of community infrastructure, including social services and programs.

### **Regional development: Build the competitive and collaborative advantages of the regions**

In order to achieve sustained prosperity as a state, each region must capitalise on its unique characteristics, assets and resources, both independently and by collaboration with all the other regions.

It is also imperative that the devolution of planning and development powers are effective and appropriate to achieving 'on the ground' and timely decisions.

### **Governance: Build community confidence in development processes and practices**

The State's development is substantially affected by investment decisions which often need to be made many years ahead of the commencement of a project.

Governance manages, coordinates and improves the interconnections between policy, development decisions and on-the-ground outcomes in the public interest.

It involves the application of many government regulations, statutory approvals, agreements, judgements, transactions and investment commitments.

In this way the SPS provides a contemporary strategic context for planning and development decisions in Western Australia.



## The vision

### 16 **A diverse State: offering the diversity of ecosystems, landscapes, enterprises, people and cultures.**

In 2050, the diversity of Western Australia's natural resources and unique landscapes, ecosystems, peoples, enterprises and cultural landscapes will be celebrated, protected and recognised as an important contributor to sustained prosperity.

Communities will access diverse housing and services that complement their values and lifestyle choice.

#### **A liveable State: the place of choice for the brightest and best.**

By 2050, Western Australia will be recognised internationally for its cities and towns, each with a unique identity, culture and landscape.

Perth City will retain and enhance its high liveability rating in global terms.

Regional Western Australia will be interconnected and have timely, cost-effective and superlative access to education, health, social welfare and cultural pursuits.

People will have access to well-designed places and spaces and services that enhance confidence and wellbeing.

#### **A connected State: as connected to the rest of the world as any other place.**

In 2050, distance will not be a barrier to connecting people, places and enterprises to resources and information.

Affordable high speed communication and transport options will connect communities and enable regions to collaborate to build diversity, international competitiveness and employment.

#### **A collaborative State: enabling alignments that progress the State's sustained prosperity.**

Collaboration brings together the knowledge, experience and skills of people, organisations and sectors, to collectively achieve outcomes that cannot be achieved individually.

A collaborative state will be built on partnerships, alliances and networks that encourage new ways of doing business in order to achieve sustained prosperity on a statewide basis.

Encouraging cross-regional collaboration by embracing and aggregating the distinct identity and competitive advantages of each region will offer greater choice for global and domestic capital investment.

#### **Planning for sustained prosperity**

By 2050, Western Australia will have a diverse range of interconnected and vibrant local communities and regional centres. They will be resilient, active, multicultural and respectful of difference to encourage participation.



## The Legacy

### **Prosperity for future generations**

Western Australia will be shaped by globalisation, population growth, technology and access to water and energy.

These factors all present the State with both challenges and opportunities.

The release of this document is the first action in building a collaborative strategic planning capacity and capability across government, the community and the private sector.

This capacity will enable the State to better predict and adapt to change to achieve sustained prosperity through to 2050 and beyond.

Reaching beyond traditional land use planning, this document offers an integrated view of strategic planning in Western Australia.

This integrated approach to the planning and development of the State enables this document to be used by:

- The statewide community to help shape and understand a long term vision for Western Australia.
- The private sector to guide decisions on capital investments into areas and sectors of the State most likely to generate a return in the public interest.
- Local government to inform strategic community plans and guide integrated planning and reporting frameworks.
- Government trading enterprises to guide decisions on major projects, structure planning and investment proposals.
- State government agencies to:
  - Collaborate to better predict and adapt to domestic and global influences.
  - Provide lead agencies with a macro-planning context for project approvals and strategic asset management.
  - Coordinate and prioritise physical and social infrastructure and to explore various financing models.

- Align regional development programs and services to the strategic objectives of the State.
- Federal government to inform project approvals, infrastructure financing arrangements and service delivery programs.

## Strategic goals

### 18 **There are many pathways to achieve sustained prosperity**

Western Australia's development between 1850 and 2011 illustrates the dynamics of the economy and population.

The emergence of the Pilbara region as a hotspot for global investment and the engine room of the national economy between 1950 and 2000 indicates the diverse opportunities that lie ahead.

In 2050, a doubling of the State's population, a warming climate, drying in the southwest, urbanisation and rapid shifts in the global economy will all present challenges for the sustained prosperity of the State.

Five interrelated strategic goals have been identified with the view to realising a vision of sustained prosperity for Western Australia:

- Global competitiveness will be enhanced through economic diversification
- Economic expansion and inter-regional collaboration will build strong and resilient regions
- Investment in infrastructure and social capital will build sustainable communities
- Infrastructure planning and coordination will achieve efficiencies and promote economic growth
- Sustainable development and efficient use of resources will enhance environmental conservation

#### **Strategic Goal - Global Competitiveness:**

The priorities of this strategic goal are:

**Diversity** – a diversified economic base

**Liveability** – attraction and retention of human and monetary capital

**Connectedness** – global trade and high speed movements

**Collaboration** – generating innovative ideas and enterprises

Global competitiveness reflects the degree to which a country can produce goods and services that are in demand, in international markets.

The attraction and retention of skilled workers is a critical issue. Culture and the arts, which contribute to the identity, sense of belonging and desirability of communities, is also important to people.

There is a significant opportunity to enhance competitiveness by leveraging the State's natural environment, stable government, great lifestyle choices, abundant natural resources and economic strengths.

Diversifying the economy by building a high level knowledge and skill base can be augmented by attracting the world's most skilled workers.

Western Australia's significant advantages will enable it to further develop the capacity to compete successfully in the global market across many sectors, most notably, mining, oil and gas, agriculture and education.

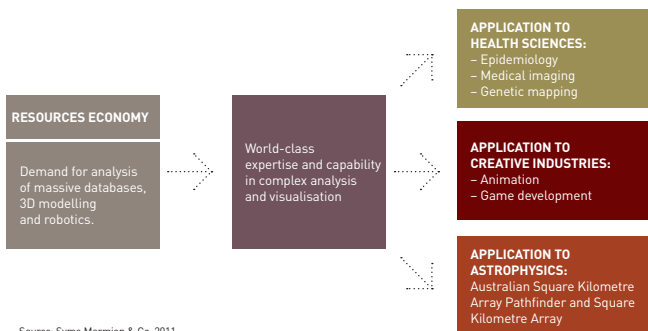
The State's knowledge economy includes a range of activities around the energy and resources sector (including mining and construction engineering, mapping and remote sensing), as well as defence and marine related engineering.

The knowledge and expertise developed for our resources sector has application for many other sectors (Figure 12).

For example, there are opportunities for the application of robotics, three dimensional modeling and database management in biotechnology, education and health services, and a range of related design, research and technical services.

Enterprises and technology developments that capitalise on renewable energy resources, the State's unique arts, places, technologies and cultures will be well placed in the global economy.

**Figure - 12. Towards an advanced economy: building on the economic strengths**



### **Strategic Goal – Strong and Resilient Regions:**

The priorities of this strategic goal are:

**Diversity** – embracing diverse economic and social opportunities

**Liveability** – creating places where people want to live and work

**Connectedness** – building strong relationships across and within regions

**Collaboration** – enabling collaborative advantages across and within regions

Strong and resilient regions are able to deploy their resources and capabilities to respond to change and adapt to pressures and challenges as they arise.

Resources that support resilience include economic development and capital, physical infrastructure, social capital, information and communication systems. Core capabilities include skills, motivation, community strength and leadership.

All of the regions of Western Australia have a unique character and competitive advantage which can be built upon to generate a diverse range of economic opportunities.

Some regions are growing exponentially and competing globally for large scale investments, while other regions are not.

The key to strong and resilient regions is an understanding of each region in terms of its composition, strengths, opportunities, and vulnerabilities.

Inter-regional collaborations through partnerships, networks and alliances harness the competitive advantage of each region.

This offers greater choice for global and domestic capital investment and equips individual regions to better manage change.

### **Strategic Goal – Sustainable communities:**

The priorities of this strategic goal are:

**Diversity** – community specific development, responsive to diverse needs, places and contexts

**Liveability** – communities with attractive, liveable environments

**Connectedness** – providing natural and built connections within and between communities

**Collaboration** – collaborative and inclusive planning

Sustainable communities are those that manage community expectations, financial capacity, service delivery, infrastructure and asset quality through collective capabilities and resources.

External influences that are harder to manage are driven by urbanisation, climate change, population growth, legislative requirements and government policy.

Urbanisation, decreasing affordability, ageing populations and socio-economic differences across the State all require an increased focus when planning for sustainable communities.

A significant part of the State's settlement patterns are largely in place now. There is a need to continually integrate 'hard' and 'soft' infrastructures so that these communities account for the different and changing needs of an ageing population, migrant communities, indigenous communities, people with disability and a range of other groups within the community.

Integrated settlement structures and mixed built form create liveable places and spaces. They should also provide active transport options, functional green spaces and networks with connections to natural landscapes.

### **Strategic Goal – Infrastructure planning and coordination:**

The priorities of this strategic goal are:

**Diversity** – supporting economic diversity, innovation and resilience

**Liveability** – providing contemporary, effective, resource-efficient services

**Connectedness** – linking regional economic opportunities to the movement of people, goods and services across the State

**Collaboration** – sharing new ideas and creating new business and lifestyle opportunities.

Infrastructure planning and coordination encompasses diverse forms of physical and social infrastructure elements and the linkages between them.

It is complex because it involves arranging often highly technical infrastructure elements in an order of importance within an overall infrastructure framework.

The Infrastructure Coordination Committee (ICC) of the WAPC has legislative responsibility to plan for and coordinate physical and community infrastructure across the State.

This coordination reaches beyond traditional hard infrastructure such as road, rail, air and ports to include social infrastructure such as education and health facilities and services, green networks, cycling and pedestrian links, cultural, science and arts programs.

The design, location and operation of infrastructure networks will need to balance building capacity for present and emerging enterprises, with the infrastructure needs of a growing and ageing population.

This will also need to be done cognisant of a natural environment susceptible to the effects of climate change.



### Strategic Goal – Conservation:

The priorities of this strategic goal are:

**Diversity** – maintaining and conserving biodiversity, landscapes and environments

**Liveability** – enhances and secures natural environments and resources

**Connectedness** – connecting ecosystems, people and resources

**Collaboration** – realising opportunities through collaboration for environmental conservation and sustainable resource use.

Western Australia's unique natural environment encompasses pristine and diverse natural areas, with world renowned biodiversity, landscapes, coastal areas and cultural significance. The clean and beautiful natural environment is a major contributor to the State's liveability and attractiveness.

South West Australia (Figure 13) is a global biodiversity hotspot that includes the Mediterranean forests, woodlands and scrub ecoregions of WA.

The region has highly diverse landscapes and species, and has a wet-winter, dry-summer Mediterranean climate. It is one of five such regions in the world.

Western Australia is a significant global competitor in the provision of natural resources and emerging to become a strong competitor in the development of eco-technologies that reduce environmental impact. Ongoing innovation in these technologies will ensure sustainable use and consumption of our natural resources.

Conservation of the natural environment is supported by limiting development in sensitive areas.

Consumption of natural resources in the development of cities and regional centres needs to be managed in a way that will secure these assets for future generations.

Streamlined project approval decisions will be achieved through collaborations, alliances and partnerships on environmental issues.

Figure - 13. South West Australian global biodiversity hotspot





Figure - 14. Planning for spatial dimensions



## The spatial dimensions

Western Australia is considered in the context of three sectors each consisting of two or more designated planning regions:

- North West sector
- Central sector
- South West sector

Figure 14 envisages a statewide network of regional centres, infrastructure bands and natural resource provinces resulting from the application of the strategic goals and directions in this document.

Figure 14 also recognises that, while the South West sector is the most intensely developed part of Western Australia, it is the North West sector that is rapidly gaining importance in national and global trade, investment and commerce.

### North West Sector

Harmony must be found between conservation of the region's unique environment and its opportunities for economic development (Figure 15).

This approach will embrace and celebrate Indigenous culture and the positive aspects of life in a remote region including strong sense of place, belonging and community spirit.

The North West sector significantly contributes to Australia's GDP and is on the threshold of another period of significant expansion driven by increasing resource demand.

Mining, oil and gas enterprises will support local supply chains. To ensure the continued strength and resilience of the North West sector it is important that regional centres have a local construction industry and higher education facilities that lead to enhanced employment opportunities.

The challenge for the State is to secure a prosperous future through attracting and retaining people and businesses not necessarily involved in the mining, oil and gas industries in the North West sector.

The State Government's Royalties for Regions program, including the Pilbara Cities initiative, has been funded as a targeted program to expand the North West

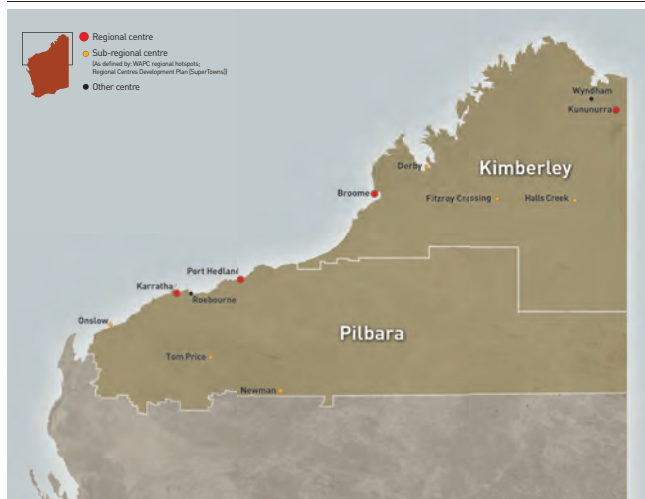
sector's resident population and enhance economic development opportunities.

The Pilbara Cities initiative will develop Port Hedland and Karratha into cities where people choose to settle on a permanent basis, a place to raise families with access to high standards of education, health and diverse employment and career opportunities.

Water resources will play an increasingly important role in enhancing the State's food security, especially in the Ord River irrigation area.

In the Rangelands, diversification of land uses will generate further economic opportunities for communities in the region.

**Figure - 15. North West sector**



Under the Ord-East Kimberley Expansion Project, Kununurra will become a vibrant, major regional centre. The project will also increase the size of the Ord irrigation area to about 22,000 ha of agricultural land.

This will provide major opportunities for growth and sustainability for the region's economic and social development, in conjunction with the improvement of social, community and common-use infrastructure.

Global political dynamics, regional energy security and increasing investment in nationally significant assets have resulted in the need for a greater defence presence.

This includes the need for infrastructure that can support regional defence operations and allow greater logistics access for humanitarian or military purposes.

## Central sector

The Central sector (Figure 16) is poised to be a significant contributor to the nation's mining, scientific, technological, research and innovation industries by 2050.

This sector encompasses some of the most iconic landscapes and diverse climatic conditions in Western Australia.

With a diverse economy underpinned by mining, agriculture, fisheries and tourism, the Central sector contributes significantly to the Western Australian economy.

The mining and resources industry is a major contributor to the Central sector's economy and the State's gross product.

The Central sector produces a diverse range of mineral resources including gold, iron ore, minerals and many other base and precious metals.

Iron ore mining is set to become a major driver of the sector's economy with significant investment in a large number of projects at different stages of development, from exploration through to production and export.

The Oakajee Port and industry precinct has the potential to become one of Australia's most significant industrial and resource downstream processing centres with the effective success of this zone dependant on the provision of key utilities such as power, water, gas and rail.

The Gascoyne Revitalisation Plan will see an investment by the State's Royalties for Regions program into major infrastructure, headworks and community priority projects over the five years commencing 2010-11.

Figure - 16. Central sector



## South West sector

A prosperous region with a diverse economic base, the South West sector (Figure 17) provides a unique environment and lifestyle making it an attractive place to live, work and invest.

Projections indicate that the South West sector will be the population centre of the State, housing at least three-quarters of the State's inhabitants.

This means that the highest level and greatest range of health and education services, cultural activities and employment opportunities will continue to be available in the sector.

Perth, the State's capital, will remain a main international gateway to Western Australia and will function as its financial, administrative and social centre, while Bunbury is positioning to become the State's second CBD.

Through the Regional Centres Development Plan (SuperTowns), regional communities in the South West sector are being encouraged to plan and take advantage of opportunities created by Western Australia's projected population growth.

The aim of the SuperTowns initiative is to prepare these communities not only for their own natural population expansion but also to build the capacity, vibrancy, and commercial and industry base that will provide an attractive choice for people wanting to live in regional towns, especially as metropolitan density rises.

There are several regional strategies and region schemes that outline detailed directions and development controls for each planning region within the South West sector. These include:

- Perth Metropolitan Region Scheme
- Peel Region Scheme
- Greater Bunbury Region Scheme
- Directions 2031 and Beyond
- Draft Greater Bunbury Strategy
- South West Planning Framework
- Wheatbelt Land Use Planning Strategy
- Urban Development Program

Figure - 17. South West sector







## The strategic directions

### Shaping WA to 2050 and beyond

There are many challenges ahead in the social, environmental and economic implications of development that require a different way of thinking and working together to sustain the State's growth.

Based on research and collaboration across state government agencies, the strategic directions of key importance to Western Australia's sustained growth have been identified as:

1. Economic development
2. Education, training and knowledge transfer
3. Tourism
4. Environment
5. Agriculture and food
6. Physical infrastructure
  - 6.1. Movement of people, resources and information
  - 6.2. Water
  - 6.3. Energy
  - 6.4. Waste
  - 6.5. Telecommunications
7. Social infrastructure
  - 7.1. Spaces and places
  - 7.2. Affordable living
  - 7.3. Health and wellbeing
8. Land availability

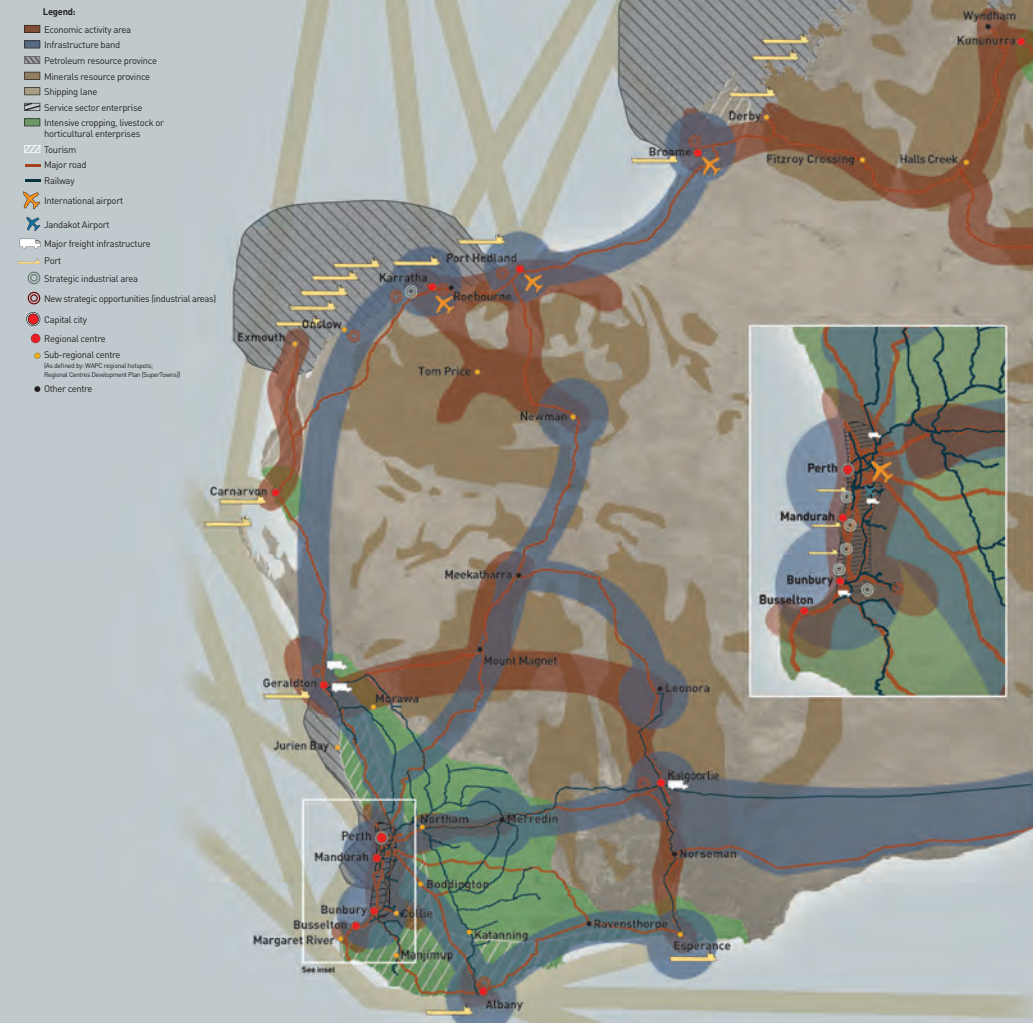
9. Remote settlements
10. Security.

Each strategic direction will require people and organisations involved in the planning and development of Western Australia to work collaboratively in the public interest to share information, ideas and resources in the pursuit of a common strategic objective.

Table - 1. Structure of strategic directions

STRATEGIC DIRECTION	PURPOSE/FUNCTION
<b>The objective</b>	The desired outcome of a strategic direction
<b>Overview</b>	Summary of a strategic direction as it relates to the State's sustained prosperity
<b>Key facts</b>	The latest available data and information about a strategic direction
<b>The approach</b>	Key elements of a strategic direction that will contribute to the objective
<b>State challenges</b>	Issues that must be considered when undertaking the approach

Figure - 18. Planning for economic development







## 1. Economic development

### 28 Objective

To facilitate coordinated and sustainable economic development.

To achieve sustained prosperity, Western Australia will maintain its productivity; high rates of employment; and its AAA credit rating. To enhance its global competitiveness Western Australia will diversify its economy through innovation, research and development.

Innovation will drive productivity growth by enabling inputs such as capital and labour to be combined in new ways to produce higher value added goods, services and increased efficiencies.

Investment in infrastructure will enhance productivity; will attract global investment and the physical and human resources needed to drive the State's economy.

### Overview

Growth rates in Western Australia have been significantly higher than most other states and this growth dominance is expected to continue for many decades. This is part of an overall structural transition in the Australian economy that will result in Western Australia increasingly being home to some of Australia's most important business activity.

While most jurisdictions in Australia and globally struggle to recover from the global economic downturn, WA has prospered with strong population growth from inwards migration, major new resource project investment and an influx of new workers across engineering, financial and other professional services.

Western Australia's mining and energy sectors are built around long-term investments which satisfy growing global resource demand from countries like China and Japan. This can act as the platform for long term economic development.

Western Australia has a significant base from which to compete for global technical, scientific and

entrepreneurial skills. Competition for skills and labour will intensify as former low cost countries like China and India commit to transforming their economies to ones based on education and technology.

Western Australia's abundance of renewable energy resources and natural assets will be increasingly valuable as global technologies enhance the sustainable use of these resources. Broader development of these assets will build diversification into and thereby enhance the State's economic strength and resilience over time.

### Key Facts

- Western Australia is Australia's premier growth state, with a quarterly state final demand value that has not decreased in trend terms for over 10 years, a record unmatched by any other state or territory.
- Western Australia is part of a global economy. Its annual goods and services exports grew by 32.7% in 2010-11 and 16.2% per annum on average during the five years to 2010-11.
- The State's economy is oriented towards Asia. China, Japan, the Republic of Korea and India are the State's top export destinations and collectively accounted for 76% of the State's total export value in 2010-11.
- In 2010-11 and excluding coal, 80% of Australia's mineral exports (by value) came from Western Australia.
- In 2010-11, Western Australia accounted for 78% of national LNG exports, 100% of Australia's crude oil exports and 98% of its iron ore exports.
- The State's building and construction industry contributes 11.7% towards GSP and employs 12.2% of the full-time workforce. Together with the mining industry, 25% of the full-time workforce is employed within these industries.
- The Western Australian marine industry leads in high speed ferries, car/passenger ferries, patrol boats and para-military vessels and luxury super yachts. In 2009 this industry's output was AUD

\$1.5 billion and its direct employment exceeded 5000 people.

- The services sector, which includes financial, education, communications, tourism, legal, business and medical services, accounted for almost 40% of Western Australia's GSP in 2010-11.

### State Challenges

Collaboration and concerted effort will be required to achieve true economic diversity. New strategies will be required to develop supportive environments for human and capital investment into emerging economies.

The State Government has implemented significant reform of the project approvals process through a 'Lead Agency Framework', a key policy platform to provide a more efficient and coordinated process for development decisions.

Recent economic growth in Western Australia and projected labour market shortages highlight the global competition for skilled workers as a critical element in future economic development. Global competitiveness in the future will be largely defined in terms of the competition for talent.

Attracting and retaining skilled people will be critical yet also increasingly difficult, as these people will have greater choice about where they live, work and develop businesses.

Future economic success will be dependent upon how well Western Australia can capitalise on economic development opportunities. Attracting and retaining the right people will require delivery of world class urban environments, transport, education, social systems and quality environmental management.

A key challenge will be creating the level of liveability in the regions that can attract a varied workforce in order to stimulate and maintain diverse economic activity. Promoting the ongoing development of existing industries (such as mining, petroleum, tourism, pastoralism and horticulture) alongside new initiatives will sustain prosperity throughout the State's Rangelands.

## Approach

Table - 2. A strategic approach to economic development

ELEMENT	2050 OUTCOMES	MEASUREMENT	ASPIRATIONS
<b>Land availability</b>	Land is available to meet the needs of enterprise	Availability and affordability of land for enterprise	<ul style="list-style-type: none"> <li>Suitable and affordable supply of land for the long-term needs of people, enterprise and industries across the state</li> <li>Suitable land is reserved for business and industry such as project ready industrial lands and related buffers and infrastructure</li> </ul>
<b>Infrastructure</b>	WA invests in smart infrastructure that stimulates productivity and economic growth	Total infrastructure capacity and investment across all industrial and business sectors	<ul style="list-style-type: none"> <li>Infrastructure is well connected and coordinated and enhances business efficiency and liveability</li> <li>WA operates on the technological frontier integrating the most modern infrastructure and communications technology into economic development</li> <li>WA responds to infrastructure challenges with flexible financing and delivery approaches</li> <li>The provision of strategic industrial, research and digital infrastructure to support priority sectors</li> </ul>
<b>Global competitiveness</b>	WA out-competes other areas for global investment in a range of new enterprises	Attracted global capital	<ul style="list-style-type: none"> <li>The regions consistently attract and retain skills and workforce</li> <li>WA is enabling emerging enterprise to develop and raise productivity</li> </ul>
<b>Economic diversity</b>	The state's economic diversity enables resilience to changing economic conditions	Economic resilience and diversity of the WA economy and regional areas	<ul style="list-style-type: none"> <li>The regions have become more economically diverse</li> <li>WA has developed globally-recognised resources, medicine, agriculture, environmental technologies, value-added manufacturing and tourism industries</li> <li>WA provides international standard research infrastructure for priority sectors to enable it to become a regional and global hub</li> </ul>
<b>Industrial ecology and economic clusters</b>	The state's industrial areas are eco-efficient and encourage co-location of similar enterprises	Levels of efficiency and innovation in industrial estates and synergies	<ul style="list-style-type: none"> <li>Industrial areas produce optimal output and limited or minimal waste</li> <li>The clusters of industry drive productivity and stimulate new ancillary businesses in the sector</li> </ul>
<b>Innovation, knowledge, research and development</b>	WA is a world leader in technological, organisational and service innovation	Level of innovation and creativity in WA for all areas of enterprise	<ul style="list-style-type: none"> <li>WA is a globally-recognised world leader in mining and energy sectors, as well as in the supply of environmental and resource technologies and services</li> <li>WA has built on research in the bio and life sciences to develop world class food processing centred on supply chain integrity, health and wellness, and the targeted marketing of high value-added products</li> <li>WA continues to be a leading international education provider and a leading supplier of research services in science and technology</li> </ul>



## 2. Education, training and knowledge transfer

### 30 Objective

Western Australia becomes globally competitive as a creative, innovative and knowledge-based economy

Stimulating knowledge and innovation within the State's economy allows Western Australia to maintain its economic competitiveness and fully develop and diversify the workforce.

Schooled young people who become lifelong learners will help meet the changing needs of the State.

Through the development of regional education centres, creative knowledge clusters and virtual classrooms, Western Australia will be better able to compete in the emerging knowledge-based economy and maximise employment opportunities.

### Overview

Enabling creativity and knowledge is both vital to the social wellbeing of the State's communities and critical to advancing the Western Australian economy.

A focus on literacy and numeracy are critical to the success of youth education. Confident learners are more able to adapt to the changing needs of education and the workforce.

The changing nature of work and the increased knowledge and skill requirements across occupations will necessitate the development of more innovative, flexible and accessible training opportunities. This will provide greater opportunity for the State's workforce to better participate in the global knowledge economy.

Embracing the knowledge-based economy will change the make-up of the workforce and require higher levels of education, training and skills development.

The education sector has a major role in ensuring young people are prepared for relevant post school options to enter and participate more fully in the

workforce, higher education or vocational training, including for apprenticeships.

Some emerging economies such as China and India are making major investments in knowledge capital as part of their transformation away from their traditional role as low cost labour countries. This presents Western Australia with opportunities in the transfer of education, training and knowledge.

Innovation refers to the creation of both new economic opportunities by the application of new knowledge and technology and economic growth by using resources more efficiently. Western Australia will need to embed a culture of innovation across the economy if it is to improve productivity and competitiveness.

Planning for education, training and knowledge transfer presents an approach to secure innovation and a skilled workforce vital to drive enterprise. One such initiative is the Construction Training Fund, which provides support for apprentices and trainees, as well as for industry workers to upgrade their skills.

The State's existing technology and research base, rapid growth, strong economy and mobility of populations provide significant opportunities for strengthening innovative and creative industries.

Creative industries include: music and the performing arts; film, television and radio; advertising and marketing; software development; writing and the print media; and design and visual arts. These industries are both growing in importance and are a major new source of employment.

### Key Facts

- Western Australian education exports were valued at AUD \$1.2 billion in 2010-11.
- Research predicts that Western Australia's need for tertiary and professional skills will outweigh vocation and trades-based skills.
- Projections for Western Australia are for strong employment growth of 170,000 jobs out to 2015;

however, labour supply trends suggest that Western Australia may need an additional 76,000 workers to fulfil this need.

- Perth's Creative Industry segments employed almost 40,000 people and contributed AUD \$4.6 billion to the metropolitan economy in 2006. The flow-on value was an additional AUD \$6 billion, bringing their total contribution to more than AUD \$10 billion. In April 2006 there were 11,000 businesses registered for GST in Perth's Creative Economy, representing 6.6% of firms across all industries.
- The demand for higher level qualifications is expected to increase, with the vast majority of forecasted jobs growth requiring Certificate III level vocational qualification or higher.
- The 'Australian Innovation Report 2011' suggests innovation will account for 62% of Australia's productivity growth in the long term.
- Western Australia's research and development expenditure was AUD \$4.6 billion in 2008-09, out of a total AUD \$27.7 billion for Australia.
- Western Australia's higher education research and development (HERD) as a proportion of GSP is equivalent to the OECD average.
- Western Australian government's expenditure on research and development (GOVERD) as a proportion of GSP is just below the Australian average; however, this ratio is impacted by the size of the Western Australian economy. On a per capita basis, the Western Australian government is one of the leading investors in research.
- In 2009-10, Western Australia had the highest levels of business expenditure on research and development (BERD) as a proportion of GSP (1.59%). Western Australia's BERD as a proportion of GSP has been well above the Australian average since 2004-05.

## Approach

Table - 3. A strategic approach to planning for education, training and knowledge transfer

ELEMENT	2050 OUTCOMES	MEASUREMENT	ASPIRATIONS
<b>Knowledge and learning</b>	The State provides world class educational opportunities	Knowledge and education levels of citizens plus supporting facilities and programs	<ul style="list-style-type: none"> <li>• Leader in educational and research activity associated with the mining and energy sectors, health, agriculture and environmental management</li> <li>• Regional knowledge based industries that stimulates economic activity</li> <li>• Increased funding for research and development</li> <li>• More regional educational infrastructure</li> <li>• Major university hubs that compete globally for students, researchers and investment</li> <li>• Perth is globally recognised as a "knowledge city"</li> </ul>
<b>Creativity and innovation</b>	Increase in innovative enterprise and net gain in creative capital	Attraction and retention of creative capital and innovative enterprise	<ul style="list-style-type: none"> <li>• Increase in creative industries locating within WA</li> <li>• Innovative enterprise locating in regional areas</li> <li>• Increased attraction and retention of creative human capital</li> <li>• Successful creative, knowledge and industry clusters throughout the State</li> </ul>
<b>Workforce and skill development</b>	The State attracts, develops and retains skilled workers	Skill levels and diversity of the workforce, rates of workforce attraction and retention	<ul style="list-style-type: none"> <li>• Liveable and diverse communities</li> <li>• Exceptional educational infrastructure for skill development</li> <li>• Timely systems and processes for skilled migration</li> </ul>

## State Challenges

Workforce and skills development are critical to capturing and creating knowledge. Current projections indicate Western Australia will not have enough skilled workers to meet the future demands of industry. Coupled with this, the State consistently loses creative capital and innovative enterprise nationally and internationally to jurisdictions that better foster and support these sectors.

Western Australia must be able to compete not only for project investment but also for the human capital to support this investment. Competing in a global economy means Western Australia will need to improve the attraction and retention of highly skilled populations.

A challenge will be to further improve educational facilities, broad-based cultural learning, accessibility to educational opportunities and

greater investment in research and development. Addressing this challenge will enhance the economic diversity and attractiveness of the State.

Equally as important as attracting global talent to Western Australia is the nurturing of talented people in order to stimulate new ideas and research entrepreneurship. This will require a commitment to the institutions and businesses that develop talent, such as universities, vocational institutes, creative industries and the school system.

Improving housing affordability, investment in infrastructure, creating attractive places and the delivery of key services will create a level of liveability in the regions that can retain rural families, as well as attract a varied regional workforce, in order to both stimulate and maintain education, training and knowledge transfer there.

Improved teacher training and accessibility to training opportunities will enable a student-centred, demand-driven training entitlement model to develop that responds to the specific skills needs of the State.

Applying this model will give direction to workforce training while enhancing the scope of data collected for performance information, enabling students and the industry to make informed choices about their training needs and improving the quality of training delivery.

The use of this model and the independent validation of training provider assessment practices are therefore fundamental toward developing a skilled workforce that can respond to future needs, supporting the sustained growth of Western Australia.

Figure – 19. Planning for tourism

- Legend:**
- WA regions (Tourism WA)**
- North West
  - Coral Coast
  - Perth
  - Golden Outback
  - South West
  - Marine conservation area
  - World heritage area
  - Major road
  - Major railway
  - Proposed road
  - Bibbulmun track
  - Capital city
  - Regional centre
  - Sub-regional centre
- (As defined by WISC regional hotspots, Regional Centres Development Plan (SuperTowns))
- Other centre





### 3. Tourism

#### Objective

To access and enhance a range of experiences unique to the State

Tourism that is supported by the strong investment and development of cultural activities and features helps build both the State's identity and a sense of place.

The range of experiences Western Australia has to offer is as diverse as the celebration of Aboriginal culture, festival events and a great number of iconic tourism destinations.

The infrastructure that supports these activities is an important contributor to local and regional economies.

#### Overview

The diverse natural and cultural landscapes of the State offer an array of unique experiences to visitors and communities.

These experiences include iconic landscapes, spectacular environments, marine activities, fine wines and dining, surfing, outback adventures, rural landscapes and local produce. These experiences all provide unique opportunities to support cultural identity.

Tourism contributes to the Western Australian economy through the attraction of people, business investment and new enterprises that create a more diverse and stable economic base.

Where potential exists, it enables a region to capitalise on its competitive advantage in terms of the unique experience it affords.

Western Australia's unique environment and landscape character makes ecotourism one of the State's key tourism markets. Conservation of natural areas will continue to provide unique high quality experiences.

The diverse cultures, ways of life and traditions are reflected in the built environment, leisure, sport and recreation, and the arts as cultural experiences. Planning for cultural activity and experience

provides enhanced social cohesion and helps create a sense of place.

#### Key facts

- Western Australia offers a range of experiences for all visitors to the State. For the year ending March 2012, 6.8 million overnight visitors came to or travelled within the State, as well as an additional 14.1 million day-trippers. These visitors spent a total of AUD \$7.1 billion in Western Australia.
- The number of visitors from China and India increased 43% and 17.5% respectively in 2011/12, with the increase from China due primarily to direct flights to Perth on China Southern Airlines commencing in November 2011.
- The most recent statistics indicate that the Western Australian tourism industry generates more than 83,000 jobs (directly and indirectly) and contributes over AUD \$6.3 billion in GSP.
- Research shows that 78% of overseas visitors to Western Australia are seeking an Aboriginal cultural experience, and that 35% actually experience one.
- Purnululu National Park, Shark Bay and the Ningaloo Coast are natural wonders that have been given World Heritage listing. Fremantle Prison also has World Heritage status as part of the Australian Convict Sites listing.

## Approach

Table - 4. A strategic approach to the planning for tourism

ELEMENT	2050 OUTCOMES	MEASUREMENT	ASPIRATIONS
<b>Infrastructure</b>	The State's experiences are highly accessible	Utilisation and accessibility of tourism accommodation and facilities by communities and visitors	<ul style="list-style-type: none"> <li>Increased accessibility to a range of diverse experiences</li> <li>Regionally based workforce training and accommodation supplied and demand is met</li> <li>Public open spaces are used for cultural activities, events and festivals</li> </ul>
<b>Tourism planning</b>	Tourism is a dominant component of the experiences the State offers	Proportion, extent and accessibility of tourism experiences	<ul style="list-style-type: none"> <li>Highly valued tourism sites are secured</li> <li>Tourism is managed as a key contributor to the economy</li> <li>Tourism planning is delivered in a holistic and collaborative manner</li> </ul>
<b>Conservation</b>	Ecotourism enhances the quality of the State's experiences	Level of conservation through tourism	<ul style="list-style-type: none"> <li>Ecotourism is conserving the natural environment through sustainable built form and best practice</li> <li>The tourism industry is prospering through a balanced relationship between ecotourism and conservation</li> <li>A risk management approach to climate change is applied to ensure unique experiences are resilient</li> </ul>
<b>Investment</b>	The State's economy is diversified by attracting investment into experience sectors	Level of economic investment in tourism and cultural promotion	<ul style="list-style-type: none"> <li>Global markets for tourism and culture for foreign and domestic investment are secured</li> <li>Communities' unique identity, history and sense of place is promoted and supported</li> <li>Investment enables range of affordable and accessible tourism and cultural experiences</li> </ul>
<b>Cultural planning</b>	Western Australia celebrates and embraces the State's culture	Extent of cultural experiences	<ul style="list-style-type: none"> <li>The State has multiple world class cultural destinations and experiences</li> <li>Celebration of Aboriginal culture and heritage is secured</li> <li>Cultural participation is available to all communities regardless of location or demographics</li> </ul>

### State challenges

The conservation of significant and iconic landscapes and ecotourism assets will be essential to sustaining and enhancing tourism.

Western Australia provides unique opportunities to further develop tourism. However, this will require targeted investment and strategies particularly in regional areas which have traditionally relied on the mining and agricultural industry sectors.

Increasing competition for land poses a threat to some of Western Australia's experiences. Recognition of the experience sector is paramount to protecting high value tourism sites from other competing land uses.

There is limited research and assessment of cultural landscapes, experiences and places within Western Australia to assist with informed decision-making. Planning for climate change adaptation is important to the sustainability of many of Western Australia's key experience assets and sites.

Enhanced recognition and investment into cultural tourism (the arts, sports, cultural history and heritage) is required. Community and visitor accessibility to diverse cultural experiences are essential for a successful tourism economy.

To enable communities and visitors to experience Western Australia's rich Aboriginal culture, care is needed to provide opportunities for young Aboriginals in the promotion of their history and heritage.







Figure - 20. Planning for environment

- Legend:**
- National biodiversity hotspot
  - Wetlands and waterways
  - Ramsar site
  - Marine conservation area
  - Natural heritage
  - World heritage
  - Biosphere reserves
  - South West global biodiversity hotspot
  - Area susceptible to coastal inundation
  - Capital city
  - Regional centre
  - Sub-regional centre
  - (As defined by 1992 regional hotspots, Regional Centres Development Plan (SuperTown))
  - Other centre



## 4. Environment

### Objective

To conserve biodiversity and manage the state's natural resources in a sustainable manner

Natural resources are naturally occurring elements used regularly by society, such as water, solar, wind and wave energy, wood, coal and other minerals and fertile land.

Biological resources are living organisms and ecosystems used regularly by society such as fisheries, forestry and wildlife.

The strategic direction for the environment involves the enhanced conservation of the State's natural and biological resources and the creation of ecological linkages to protect the landscape.

This document seeks to support current development assessment practices so that environmental issues are considered in a timely, integrated and holistic way.

### Overview

Western Australia's spectacular landscapes cover one-third of Australia's land mass and comprise ten climate zones from the wet tropical North, inland deserts, a temperate South West and global biodiversity hotspots.

Western Australians enjoy a high quality of life. At times this can be at the expense of the State's biodiversity and environmental assets due to our high rates of consumption.

Western Australia has a high ecological footprint and high levels of waste generation, which suggests we need to improve the efficient use of the State's natural resources through improved waste management practices.

The State's natural environment is shaped by a global climate system, which is changing. The southern hemisphere's atmospheric circulations

and ocean currents directly influence the climate in Western Australia.

Future climate change is likely to cause major impacts and costs on both the natural environment and human systems including land uses, settlements and infrastructure.

The impacts are likely to include: increasing temperatures, reduced rainfall in much of the State, increased frequency and length of droughts, increased fire risk, sea level rise, biodiversity loss, increased frequency of extreme storm events including storm surges, flooding and erosion.

The State will need to modify and adapt the way it plans and manages land uses in order to be responsive and resilient, and to support a transition into a clean energy future.

Sustained prosperity is dependent upon a healthy natural environment. Some key growth areas of the State are located within sensitive environments. Carefully planned development can conserve the natural environment and minimise impact on sensitive areas.

The State's growing population and economy can be supported by its abundant natural resources only when consumption is planned and managed in a prudent way.

Western Australia needs to become more globally competitive in the development of and adoption of innovative technologies that will reduce the environmental impacts of its resource consumption.

Significant legacies from extensive clearing of native vegetation, the introduction of invasive species and intense development pressures in some areas of the State means we will have to be increasingly mindful of cumulative impacts to the environment.

### Key facts

- Biodiversity in Western Australia is rich and unique, containing 8 of the 15 national biodiversity hotspots.
- The South West is one of 34 global biodiversity hotspots where large numbers of species are threatened by changes to the environment.
- Western Australia has 48 wild rivers in largely undisturbed natural systems with the majority existing in the Pilbara and Kimberley.
- Biodiversity and freshwater systems will remain under threat well into the future given escalating trends in species extinction, human population, climate change, water use and development pressures.
- The ecological footprint of Western Australians is one of the highest in the world (measure of consumption per capita).
- Western Australia's natural resources are being threatened by climate change, population growth and urbanisation, overconsumption, forest dieback, exotic species (including weeds and feral animals), salinity, altered fire regimes, excessive land clearing and degradation.
- The impact of natural hazards such as tropical cyclones, flooding and bushfires has been increasing and is projected to continue to do so.

## Approach

**Table - 5. A strategic approach to environmental planning**

ELEMENT	2050 OUTCOMES	MEASUREMENT	ASPIRATIONS
<b>Biodiversity</b>	Biodiversity is secured through ecological linkages and landscape protection	Level of biodiversity and landscape conservation achieved through strategic planning and development approvals	<ul style="list-style-type: none"> <li>• Statutory marine and terrestrial conservation reserve system meets the criteria of representativeness, adequacy and comprehensiveness</li> <li>• The biodiversity values within the formal conservation and off-reserve system and associated threats are effectively managed</li> </ul>
<b>Climate change</b>	The transition to a clean energy future has been facilitated and the state is responsive and resilient to climate change through adaptation	Climate change mitigation and adaptation measures, impacts and outcomes	<ul style="list-style-type: none"> <li>• Special controls in place for areas most affected by climate change</li> <li>• Climate change adaptation and mitigation strategies are implemented</li> <li>• Vulnerable areas are secured and managed</li> </ul>
<b>Atmosphere</b>	Atmospheric pollutants are controlled to not adversely impact on the community and environment, and to meet recognised criteria	Level of atmospheric pollutants, sources and control	<ul style="list-style-type: none"> <li>• Air quality management plans are in place to avoid cumulative effects in airsheds where there are intensive emissions</li> </ul>
<b>Strategic assessment</b>	Decisions balance environmental, social and economic elements	Effectiveness and efficiency of environmental and planning approvals and outcomes	<ul style="list-style-type: none"> <li>• Strategic planning, including early consideration of environmental issues, is implemented to deliver balanced outcomes that take into account cumulative impacts</li> <li>• Coordinated, rigorous and timely Commonwealth, State and local approval processes are in place to manage sustainable growth</li> </ul>
<b>Natural resource conservation</b>	Natural resources are conserved, utilised and managed for present and future generations	Level of natural resource conservation and management	<ul style="list-style-type: none"> <li>• Natural resources such as water, agricultural land and basic raw material deposits are conserved for future use and development</li> <li>• Pastoral rangelands activities are diversified and natural resources are managed sustainably</li> </ul>
<b>Resource consumption</b>	Western Australians continually decrease their ecological footprint through reduced consumption and eco-efficient technologies	Resource demand, consumption and efficiency	<ul style="list-style-type: none"> <li>• WA is a major contributor to a clean energy future</li> <li>• Efficient programs that measure and reduce consumption are implemented</li> <li>• Efficient programs that reuse and recycle resources are implemented</li> <li>• True costs of natural resource consumption is determined</li> </ul>

## State challenges

All decisions about sustained prosperity must give equal importance to environmental issues, economic growth and community wellbeing.

Environmental integrity needs to be maintained by reducing biodiversity loss, atmospheric pollution, land and water degradation and climate change.

Gaining accurate data to understand the climate change impacts on the environment, biodiversity, coastal processes, settlements and infrastructure will be ongoing, as will its application to adaptation measures.

Vulnerability mapping for the coastline is needed to identify the areas of highest risk, so that adaptation strategies can be implemented to anticipate sea level rise and extreme weather events.

Continued economic growth and population increase has led to excessive pressure on the environment and natural resources.

Minimising Western Australia's ecological footprint will assist in reducing pressures such as patterns of consumption, loss of biodiversity, air pollution, and impacts upon water and generation of waste.

No market price has been determined for increasing the use of natural resources and consequent environmental, social and economic costs.

Decision-making needs to account for the economic, social and environmental value of natural resources and assets in planning and development.

Consideration of the cumulative impacts upon the environment and natural resources needs to be assessed at all scales of planning and across all tiers of government.



Tidal creeks north of Wyndham.





## 5. Agriculture and food

### Objective

To enable the state's food supply chains to meet the projected demands of its domestic and global food and fisheries market

The importance of food security is growing throughout the world, as demand begins to outstrip supply and opportunities emerge to supply domestic and Asian markets.

In Western Australia, food production capacity is important, not just for the local market, but also for a range of export markets, with the State exporting 80% of its agricultural production.

There is also the need to remain globally competitive when it comes to food production. With this in mind, agricultural production systems need to diversify and become more sustainable.

Western Australia needs to adopt the best agricultural practices and supply chain efficiencies which need to be supported by effective infrastructure.

### Overview

Western Australia has a diverse food supply system, with several climatic zones allowing for extended seasonal supply.

At the same time Western Australia's food system is vulnerable to:

- seasonal variability and climate change
- availability of prime agricultural land
- labour shortages and costs
- the cost and supply of agricultural inputs
- product integrity and biosecurity protocols
- disruptions to supply logistics

The State has a small food processing sector.

Western Australia transport logistics are reliant on a small number of entry and exit points.

The Nullarbor freight lines are used for interstate imports and exports while international imports and

exports are by sea through Fremantle port and by air through Perth airport.

The demand for food will grow with the population, making the protection of existing and potential food production areas essential, especially those supplying more perishable food products.

Worldwide food demand and food prices are also increasing, driven by global population growth. Western Australia continues to gain an increasingly positive reputation for safe, high quality food.

Western Australia has a range of climatic zones for agricultural, horticultural and pastoral industries and land available to extend the horticultural food processing industries.

Western Australia has a freight advantage as it is very close to the Asian markets (Figure 22).

The elements most important for monitoring are:

- Availability when and where needed: Western Australia is an important producer and exporter of high-quality grains, wool, meat, live animals and fish; it also imports a substantial quantity of food: 80% of its processed foods and 100% of its sugar, yeast, preservatives and packaging.

Western Australia is heavily reliant on a very small number of entry points and its relative isolation means it has the largest distribution centres in the nation, taking three days to restock from interstate and two days to restock intrastate.

- Western Australia's distribution centres carry only 18 hours' worth of fresh and dairy goods, and four days' worth of frozen and dry goods (twice as long as eastern states).

Food supply in Western Australia is therefore vulnerable not only to the amount of local production, but also to disruption in the supply chains for a wide variety of foodstuffs.

- The affordability of nutritious food: Currently, on average 12% of household budget is spent on food. For some groups it is much higher; food accounts for approximately 21% of expenditure for households whose primary source of income is the aged or disability pension.

The State's economy has long been supported by businesses that produce, process, distribute and market food products such as grain, wool, meat and seafood.

Western Australia exports 80% of the State's agricultural production and has a reputation for safe, high quality goods in overseas markets (Figure 22).

Regional economies rely heavily on agriculture, fishing and forestry with significant flow on benefits to food manufacturing and processing, industry, tourism and hospitality.

There is an increasing expansion of the agricultural sector in the Kimberley, Pilbara and Gascoyne.

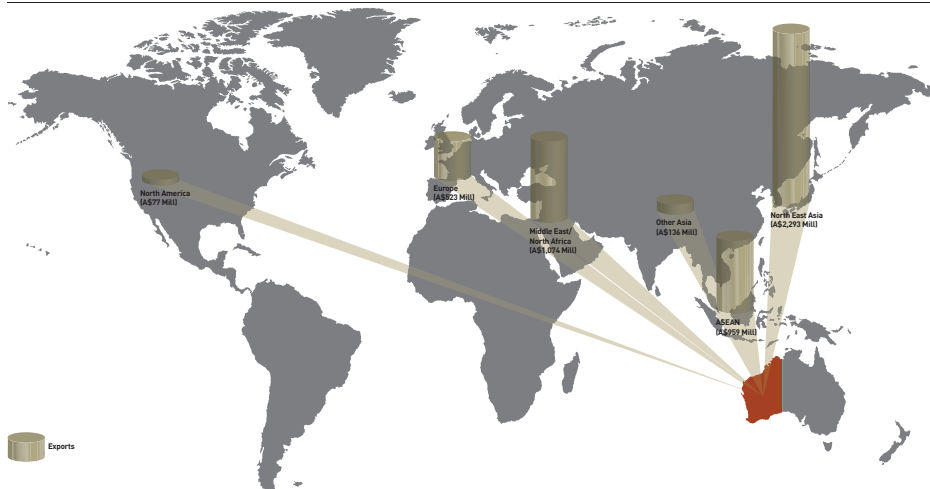
Future local access to fresh food, derived from a well-managed environment is important to sustaining healthy and liveable communities. A competitive and diversified food sector is a vital component of future economic development.

Continued investment in research and development will ensure on-going innovation and help Western Australia remain globally competitive in targeted food production and supply.

### Key Facts

- Western Australia is an important producer and supplier of high quality grains, wool, meat, live animals and fish for international markets.
- To meet the food demands of a growing world population, global agricultural production will need to double by 2050.
- Over 60% of Western Australia is held under pastoral leases.
- Two thirds of Western Australia's food manufacturing facilities are clustered around the Perth, Peel and southern regions.
- 75% of Australia's live sheep exports come from Western Australia.
- The combined value of sheep meat and live sheep exports increased from AUD \$367 million in 2004-5 to AUD \$550 million in 2010-11.
- The poultry industry has 8.5 million birds supplying mainly the domestic market with both eggs and meat.
- Fish farming is anticipated to dominate the world seafood market as demand for fish increases by 37 million tonnes between 2009 and 2030.
- The State's grain production is the fourth largest export industry after petroleum, iron ore and gold. Grains exports have increased from AUD \$2.696 billion in 2004-05 to AUD \$2.831 billion in 2010-2011.
- Horticultural production in the State represents about 20% of the Australian total, with an estimated value of AUD \$1.970 billion in 2010-11.
- The total value of forest product exports from Western Australia was AUD \$328 million in 2009-10.

Figure - 22. Western Australia's key food export markets



## Approach

Table - 6. A strategic approach to agriculture and food

ELEMENT	2050 OUTCOMES	MEASUREMENT	ASPIRATIONS
<b>Security</b>	Sufficient and nutritious food for active living	Resilience and adaptability of food supply chain	<ul style="list-style-type: none"> <li>Increased export and inward investment in the agrifood sector</li> <li>Commercial agrifood production in peri-urban and near metropolitan areas</li> <li>Well-planned emergency response to disruption of the food supply chain</li> </ul>
<b>Prime agricultural land</b>	Existing and future land suitable for food production is protected from encroachment and further fragmentation	Economic value is assigned to the quality and quantity of agricultural land	<ul style="list-style-type: none"> <li>Strategic food production areas are well serviced by key infrastructure to enable their sustained activity</li> <li>Fragmentation of agricultural land is limited and consolidation is encouraged</li> <li>Improved management of WA's Rangelands, including regeneration and conservation of fragile ecosystems</li> </ul>
<b>Global competitiveness</b>	Diverse food products and sustainable production systems	Monitoring and using best practice on a national and global scale	<ul style="list-style-type: none"> <li>Added value and efficiency improvements in food production and processing throughout the state</li> <li>Integration of agriculture, carbon farming and biofuel production</li> </ul>
<b>Infrastructure</b>	The demands and needs of both agrifood trade and commerce industry sectors are well serviced	Improved supply chain efficiencies and the provision of serviced land for Agrifood precincts and distribution centres	<ul style="list-style-type: none"> <li>Regional and state transport hubs and intermodal terminals</li> <li>Shared infrastructure corridors for transport telecommunication, gas, water and electricity</li> <li>Strategic sites and buffers for downstream food processing and distribution</li> </ul>

## State challenges

In the face of climate variability and increased global competition, the State's food sector faces a challenging future. Of particular concern will be:

- Water, energy and telecommunications infrastructure
- Freight logistics and transport systems
- Storage and processing facilities
- Attracting and retaining skilled labour in the agricultural regions
- Fragmentation of rural land holdings

Australian agricultural production and exports will be adversely affected by highly variable seasonal conditions and climate change. Appropriate adaptation

and mitigation strategies enable businesses to better and more rapidly respond to seasonal variability and climate trends through policy, regulatory and economic changes.

Reduced rainfall in southern Western Australia will limit the future expansion of irrigation in this region and require investment in new and alternative water supplies, as well as increased water use efficiency. Opportunities for expanding irrigation are being investigated in the north.

Producers are experiencing changing community expectations about safe, eco-efficient and ethical food production systems. Addressing these concerns may impact on cost of production.

Prime agricultural land, land required for infrastructure corridors (rail, road and services) and

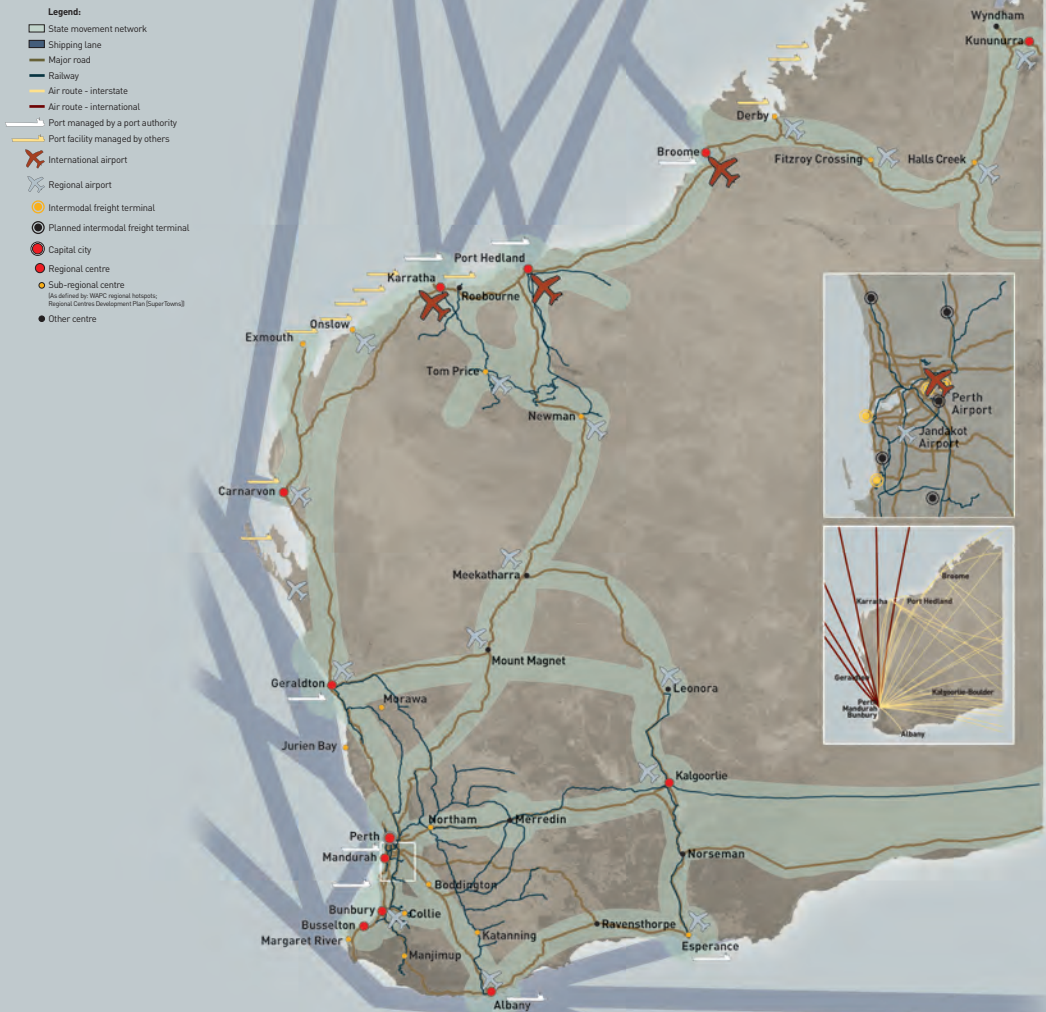
food distribution facilities are under constant threat from urban expansion and the fragmentation of rural land into smaller lifestyle holdings.

The continued loss of agricultural land close to the cities and towns requires that measures are put in place to secure land for future agricultural and food industry production. This includes the need for the strategic identification of future land areas and precincts, definition of buffers, infrastructure corridors and innovation to improve the general status of food security.

Continued fragmentation of rural land holdings presents another challenge to market competitiveness. Tighter controls and incentives need to be explored to ensure that the arability and productive capacity of agricultural land is protected and preserved.



Figure - 23. Planning for movement





## 6. Physical infrastructure

### Objective

To coordinate physical infrastructure with development for community betterment

Physical infrastructure has a direct impact on planning and coordination of movement, water, energy, waste and telecommunications.

Physical infrastructure with appropriate capacity is essential for the development of the State and the achievement of sustained prosperity. It will drive efficiency, synergies, raise productivity and enhance global competitiveness.

### Overview

This SPS addresses physical infrastructure in terms of its capacity to enhance economic opportunities and to consider issues such as productivity and movement in a systems approach.

This will lead to opportunities to plan, coordinate and finance physical infrastructure in innovative and creative ways.

Western Australia's large geographical area, its low population density and commodity export focus provides a challenging environment in which to plan for and deliver physical infrastructure.

The timely provision of new infrastructure and the maintenance of existing assets in a cost effective manner are critical to the State's sustained prosperity.

The cost of providing new infrastructure in many parts of Western Australia is higher than elsewhere in Australia and impacts on the supply of housing, water, energy, waste management and community services to support high growth regional areas.

The major elements of infrastructure required to sustain prosperity include access to roads, water and sanitation, electricity, telecommunication, housing, air and sea ports, education, training and research, and timely provision of land supply.

For the purposes of this Strategy, physical infrastructure is considered to:

- Contribute to economic growth
- Contribute to raising the quality of life by creating amenities, providing consumption goods (transport and communication services) and contributing to macroeconomic stability
- Require a macroeconomic climate conducive to efficient resource allocation
- Generate enduring benefits when it provides reliable and quality services that users need

Whilst transport and travel costs are not the only aspect of improving productivity and reducing bottlenecks in terms of economic growth, Western Australia's distance from global and domestic markets probably means that the efficient operation of the transport and electricity networks is more important than in other regions internationally and that maintaining reliability is essential.

### Key facts

- There has been a shift in policy toward competitive markets in the provision and operation of infrastructure.
- Government and the private sector will continue to strive for innovative and environmentally sustainable ways of delivering services and infrastructure at a lower cost.
- Infrastructure that assists economic growth while decoupling the State from high emissions will be best placed to meet the challenges and realise the opportunities of the 21st century.
- 11% of entrepreneurs in 14 OECD countries [2003] noted that 'inadequate infrastructure' was a major impediment to entrepreneurial activity in those countries.
- Public investment in research and development, transport, communication and infrastructure was likewise highlighted as enhancing private sector innovation and productivity, if of high quality and generating high economic and social returns.

- The report *Generating Growth: Infrastructure* (Infometrics, 2003) identifies the most common constraints to export driven economic development as:
  - Availability/cost/timeliness of transport.
  - Accessibility and cost of skills/labour.
  - Demand of output or sales.
  - Compliance costs/regulations.
  - Exchange rate volatility.
  - Energy (cost and supply).

### State Challenges

It will be a challenge to quantify the overall total new investment actually required over the next 20 years in the areas of power generation and transmission, potable and industrial water supply, waste management, public transport, major highways, regional roads and ports to support the state's sustained prosperity.

Funding infrastructure planning, coordination, implementation and operation remains one of the greatest challenges facing the State.

There is also the need to develop an agreed mechanism and funding source to aid strategic land acquisition for future physical infrastructure.

The identification, securing and management of key infrastructure sites and multi-user corridors are of particular importance.

There is an urgent need for policy to review the parameters for physical infrastructure planning and investment.

## 6.1 Movement of people, resources and information

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### Objective

#### To manage the movement of people, goods and services through an integrated network connected nationally and globally

A statewide movement network (Figure 23) will connect people to activities within Australia and around the world.

This SPS promotes integrated movement networks and corridors across the State that connect communities while improving efficiency, reducing travel distances and encouraging a modal shift towards lower impact transport options.

Road pricing reform and the development of intermodal hubs and ports for freight will enhance cost effective and efficient freight movement.

### Overview

Economic growth is dependent upon the availability of high quality movement infrastructure in order to enable the efficient and cost-effective movement of people, goods and services over long distances.

Efficient movement can enhance the State's productivity, while congestion impacts on economic competitiveness and quality of life.

In a statewide infrastructure network regional centres will be developed as internationally competitive gateways.

Integrating land use and transport:

- reduces the need for travel and travel times
- provides safer and easier access to jobs, schools and services
- supports efficient land and infrastructure use
- reduces greenhouse gas emissions and reliance on finite and imported fossil fuels

People and businesses require alternatives to reduce their reliance and dependence on motor vehicles.

Encouraging more people to walk, cycle and use public transport is necessary for a modal shift to occur.

### Key facts

- There are more than 179,000km of public roads in WA (17,500km are main roads, the rest local roads).
- Over 12.6 million passengers travelled through Perth Airport in 2011-12, an increase of 8.7% on the previous year. International passenger growth stood at 6.9% per year, while domestic passenger growth stood at 11.7%.
- Perth Airport handled 55,000 tonnes of international freight in 2010.
- Freight transport is often associated with large trucks and semi-trailers, yet in reality close to 70% of freight is distributed throughout the city by light commercial vehicles.
- 80% of land freight from the eastern states comes by rail.
- The common user rail network in WA is approximately 5,100km of standard, narrow and dual gauge lines.
- Western Australia's major waterfront infrastructure is managed by eight separate port authorities: Albany, Broome, Bunbury, Dampier, Esperance, Fremantle, Geraldton and Port Hedland.
- Western Australia is the premier state for seaborne trade, handling more than 56% of the nation's export trade volume (in tonnes). The eight port authorities provided 80% by volume and 92% by value of the State's international seaborne trade in 2009-10.

## Approaches

Table - 7. A strategic approach to movement

ELEMENT	2050 OUTCOMES	MEASUREMENT	ASPIRATIONS
<b>Movement networks</b>	The movement of people, goods and services through a system of integrated movement networks	Volume of people, goods and services as well as efficiency in movement networks	<ul style="list-style-type: none"> <li>Majority of people, goods and services are contained within integrated movement networks</li> <li>Infrastructure corridors are contained within economic activity areas</li> </ul>
<b>Connecting communities</b>	Communities are able to access jobs and services easily, safely and efficiently	Connectivity and accessibility of communities through movement networks	<ul style="list-style-type: none"> <li>Communities are connected with jobs and services</li> <li>Reduced travel distance and travel costs</li> <li>Movement networks have capacity to absorb increased travel demand.</li> </ul>
<b>Road pricing form</b>	Replacement of existing road charges with charges that reflect the full social and environmental costs associated with road travel	Use-based charging, including congestion pricing in urban areas, reflecting the social and environmental costs of travel	<ul style="list-style-type: none"> <li>Prices for use of state roads reflect the social and environmental costs associated with road use</li> <li>Behaviour changes arising from road pricing reform</li> </ul>
<b>Modal shift</b>	Personal travel modal shift towards lower impact transport options	The degree to which public transport, walking and cycling are used as alternative transport options	<ul style="list-style-type: none"> <li>Balanced and lower impact transport usage</li> <li>Seamless transition between modes</li> </ul>
<b>Freight logistics</b>	Freight moves seamlessly between infrastructure corridors, intermodal hubs and ports	Seamless movement of freight on and between all transport modes	<ul style="list-style-type: none"> <li>Coordinated and efficient freight logistics system incorporating road, rail, air and sea transport</li> </ul>

## State Challenges

The key to future prosperity involves removing the bottlenecks and gaps that are impeding growth and identify opportunities for new capital investment.

The large size of the State coupled with the small and unevenly distributed distribution of the population poses significant movement challenges.

The provision of effective movement systems at an acceptable cost is a major challenge for the public and private sectors.

In this regard considering alternative approaches such as road pricing reform can provide incentives to better manage movement across the State in terms of travel demand and behaviour.

Ensuring the protection of integrated movement networks and infrastructure corridors between major generators of heavy traffic (ports, intermodal terminals, heavy haulage road and rail routes and strategic industry and mining sites) is critical.

It will also be important to recognise environmental and amenity issues.

Figure - 24. Planning for water



(As defined by WAPC regional hotspots, Regional Centres Development Plan (SuperTown))

## 6.2 Water

### Objective

To support Western Australia's growth and development by sustainably managing the availability and quality of water while maintaining a healthy, diverse and well-managed water environment.

### Overview

Climate projections for Western Australia from 2030 through to 2070 indicate an increase in temperature across the State accompanied by a decline in winter rainfall in the South West and greater variability in the North West.

Access to water of the appropriate quality is fundamental to Western Australia's quality of life. Water is also essential to the ecological and cultural landscape of the State.

Effective planning is underpinned by water availability, water quality, wastewater, and the management of drainage and floodplain issues, which are all essential to the State's water security.

Dams have been a major part of Western Australia's water supplies for more than a century, but are becoming less reliable in the State's South West due to a drying climate.

Groundwater is still the dominant source of water, with desalinated water and recycling water becoming increasingly important water sources.

There is increasing competition for water resources between sectors, including agriculture, mining, and residential development. Of increasing importance is the protection of public drinking water supplies from contamination.

Water users access a range of water sources. Urban and regional settlements use groundwater, surface water and, desalinated water.

Mining users are generally self-supply from groundwater resources, recycled water and desalination.

Irrigation co-operatives predominantly access surface water. Other agricultural water users predominantly access groundwater and farm dams.

Encouraging water efficiency will continue to maximise the productivity of water resources. This can range from promoting the use of water efficient appliances and equipment, integrating water sensitive urban design, detecting and repairing leaks and changing users' behaviour.

Where demand for water is greater than the sustainable extraction from surface and groundwater sources, alternative solutions will become more important.

This includes the continued use of desalination and wastewater recycling for industrial processing, public open space irrigation and groundwater recharge and other options like stormwater reuse.

### Key facts

- Particularly in the South West of the State, climate-dependent surface and groundwater sources are becoming less reliable as a result of reduced average rainfall and increased temperatures.
- Approximately 2000 GL of water is extracted and produced annually for all purpose in Western Australia. Demand is estimated to double by 2040.
- Water use is increasing by approximately 2.4% per year. The additional demand for water is primarily due to increased commercial, industrial and agricultural development driven by the State's growing population and economy.
- Western Australia has significant groundwater sources. Substantial investment continues to be made in groundwater investigations to identify new water resources to meet demand and ensure existing supplies are reliable and secure.
- Currently, the Department of Water manages water from over 770 different groundwater resources and nearly 180 different surface water resources and 134 public drinking water source areas across the State.

- There are over 100 wastewater treatment facilities providing reticulated wastewater services to most communities in the State. Connected to these facilities are 80 recycling schemes, including a major industrial water reclamation plant for users in Kwinana.
- By 2060, Perth, along with the Wheatbelt and Goldfields towns which are supplied through the Perth metropolitan Integrated Water Supply Scheme, will require between 200-300GL of additional water to meet the predicted demand. The expected water deficit has been reduced due to expectations of continued improvements in water efficiency.
- In 2011, about 70% of allocated water from groundwater and surface water supplies was used for mining, industrial and agricultural uses. By 2061, total water demand will increase by over 150%, predominantly due to the expansion of these industries.

## Approach

Table - 8. A strategic approach to water planning

ELEMENT	2050 OUTCOMES	MEASUREMENT	ASPIRATIONS
<b>Water security</b>	Availability of the appropriate quality water for its intended use, to support economic and population growth	Long-range water resource and supply plan for the state, underpinned by medium-term investment plans	<ul style="list-style-type: none"> <li>• Water supply security and resilience</li> <li>• Integration of water planning with community, land use and economic planning</li> <li>• Clearly defined security of water entitlement for all water users</li> <li>• Public drinking water protected</li> <li>• Affordable water supplies</li> </ul>
<b>Efficiency and conservation</b>	Value of water is reflected in planning, management and use	Alignment with agreed demand management targets for its intended use	<ul style="list-style-type: none"> <li>• Appropriate use of fit for purpose water</li> <li>• Reduction of per capita household consumption</li> <li>• All new urban development is water sensitive as a development standard</li> <li>• Industry, agricultural and mining sectors implementing best management practice</li> </ul>
<b>Wastewater</b>	Wastewater is viewed as a valuable resource	Percentage of wastewater re-used and recycled	<ul style="list-style-type: none"> <li>• State's water security enhanced through stormwater harvesting and wastewater recycling</li> </ul>
<b>Sustainability</b>	Long range planning for resource development and use, and protection of water dependent ecosystems	Water resources used within sustainable limits	<ul style="list-style-type: none"> <li>• Availability of the appropriate quality water to support economic and population growth</li> <li>• No water resources are over-allocated</li> <li>• Healthy water dependent ecosystems</li> <li>• Catchment protection and restoration programs</li> <li>• Optimal competition in water service and infrastructure provision</li> <li>• Floodplain risk mapping</li> </ul>

## State challenges

Two key factors impacting water planning are the consequences of climate change and the anticipated population and economic growth of Western Australia.

In the South West, all global climate models point to less winter rainfall into the future, with magnified reductions in available water.

Conversely, in the north there is the potential for longer gaps between cyclonic and high rainfall events, meaning some existing sources could run dry between rainfall events.

There are clear signs that securing water will become more challenging for some water users in terms of supply and cost.

While both absolute supply and quality are basic measures, efficiency of use must also be addressed and improved. Water use is forecast to increase by approximately 2.4 per cent per year to 2040, with the highest growth occurring in irrigated agriculture and mining.

The development of urban and regional centres, mining, industrial and agricultural precincts are often in areas where the availability of surface and groundwater supplies are constrained or in

decline due to climate. It is essential to ensure water efficiency is promoted and alternative water supplies are integrated.

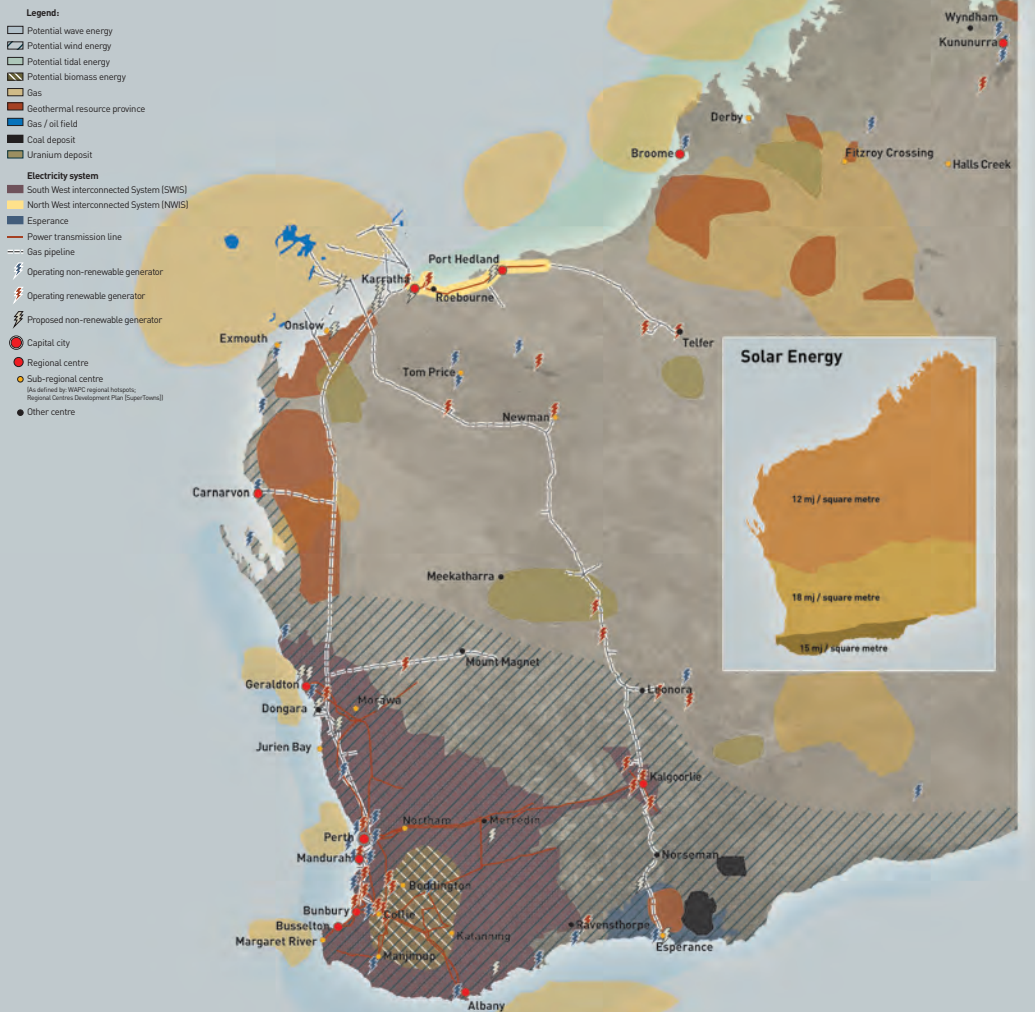
The integration of systems and diverse water sources, supplementing traditional water resources with alternative supplies, as well as further improving water use efficiency in agriculture and industry will provide ongoing challenges for the planning and development of Western Australia.







Figure - 25. Planning for energy



## 6.3 Energy

### Objective

To enable secure, reliable, affordable and clean energy that meets the State's growing demand

Enhanced infrastructure planning and coordination will lead the State into an era of increased energy security.

More energy will be sourced from a diverse mix of affordable, low carbon sources. Our buildings, businesses and industries will be more energy efficient.

### Overview

Energy is important to economic growth. Traditionally the State's energy supply has been dominated by fossil fuels.

Increasing population and economic growth is resulting in a greater demand on energy, as well as the need to upgrade and provide new infrastructure. Since 2006/07 Western Australian energy consumption has grown at an average of 8% per annum.

Demand for energy is expected to continue to grow based on ongoing industrial development, especially in the mining and mineral processing sectors.

Household and small business energy demand, largely for electricity, is expected to continue its upward trend of the past 15 years.

Effective and flexible planning, policy and regulatory frameworks will provide an enabling environment for investment and the uptake of new technologies.

The availability, reliability and price of energy supply are key factors in foreign and domestic investment decision making.

The State has clarified the arrangements for application of the Domestic Gas Reservation Policy, as outlined in the Strategic Energy Initiative: Energy 2031. This policy is intended to secure a reliable source of gas supplies for the Western Australian market.

New power generation and infrastructure technologies are rapidly evolving, enabling greater control over energy generation, transmission and use. Enhancements to electricity network infrastructure are also of assistance in managing the impacts of increased use of renewable energy technologies (figure 26)

### Key facts

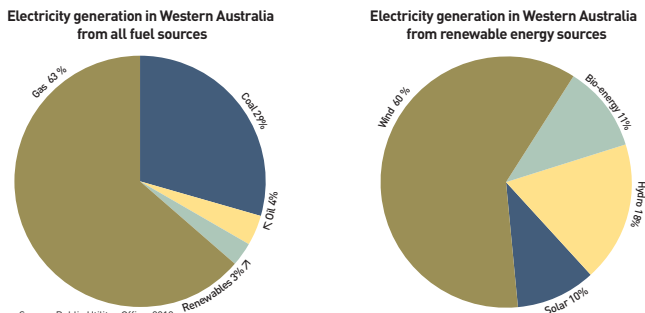
- Western Australia is the largest producer of gas in Australia, accounting for two-thirds of national production.
- 63% of electricity generated in this State is derived from gas, 29% from burning coal, 3% from renewable technologies and 4% from oil.
- Most renewable energy is derived from wind (60%), followed by bio-energy (11%), hydro (18%) and solar (10%).
- Western Australia accounts for approximately 12% of the nation's electricity use and 3% of the nation's renewable energy generation.
- The Australian Government has committed to emission reduction targets for 2020 and 2050.

A legislated carbon pricing mechanism has been in place since 1 July 2012.

- The Commonwealth Large Scale Renewable Energy Target remains the primary driver of renewable energy growth in Western Australia over the short to medium term.
- Fossil fuels are likely to remain dominant in the medium term as renewable energy sources increase.
- Energy demand will continue to increase globally and locally, as a result of continuing industrialisation, population and consumption.

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Figure - 26. Electricity generation in Western Australia (all sources/renewable)



## Approach

Table - 9. A strategic approach to energy planning

ELEMENT	2050 OUTCOMES	MEASUREMENT	ASPIRATIONS
<b>Integrated planning</b>	Smart energy planning and use	Progress on integrating land-use and energy planning	<ul style="list-style-type: none"> <li>Adaptive, innovative long-term energy planning and coordination</li> </ul>
<b>Investment and pricing</b>	Stable market-based regulatory environment to deliver competition	Level of competition	<ul style="list-style-type: none"> <li>A competitive, transparent and coordinated energy approvals process</li> </ul>
<b>Infrastructure coordination</b>	Diverse energy supply delivered with minimal disruption	Regional energy reliability	<ul style="list-style-type: none"> <li>Energy source and transmission sites secured</li> <li>Reliable distribution with capacity to grow</li> </ul>
<b>Clean energy</b>	Energy production and consumption that minimises carbon emissions	Alignment with agreed carbon reduction targets	<ul style="list-style-type: none"> <li>The use of low emission and embedded technologies in development</li> <li>Substantial energy efficiency improvements</li> </ul>
<b>Security</b>	Secure energy supply sources and infrastructure to meet the future needs of the community and economy	Energy source and generation diversification	<ul style="list-style-type: none"> <li>Adaptable resilient energy infrastructure that accommodates alternative energy sources</li> <li>Source diversification and network supply security</li> </ul>
<b>Built form</b>	Built form that is energy efficient and maximises renewable technologies	Greenhouse gas emissions	<ul style="list-style-type: none"> <li>Climate responsive and energy efficient building design standards and construction materials</li> <li>Climate responsive precinct and subdivision design</li> </ul>

### State challenges

Forward planning to enable access to land and infrastructure for generation, transmission and distribution will assist in creating a competitive market environment and attract new energy providers.

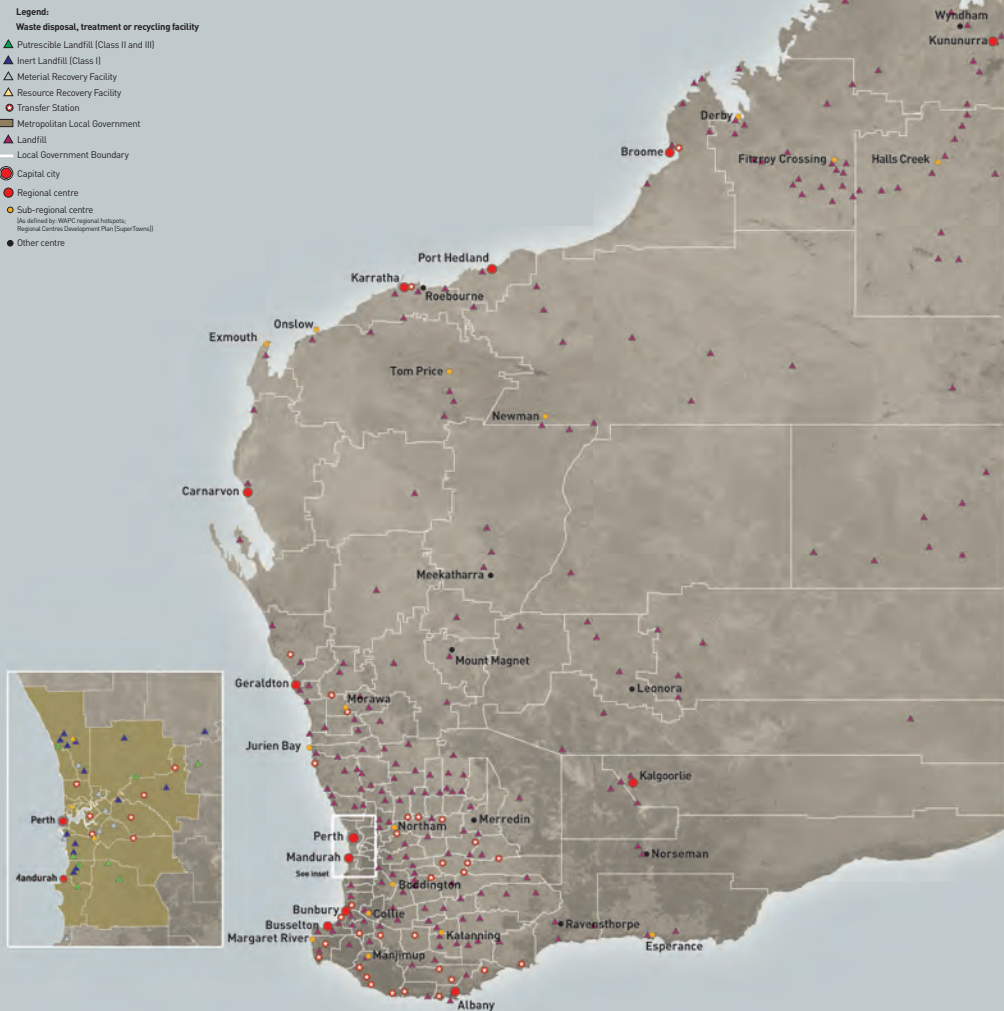
Improving the efficiency of energy use and the penetration of embedded or localised energy generation will require increased investment and upgrades to distribution networks.

This will assist small business investment in clean technologies and help reduce the State's greenhouse gas emissions.

Increasing the energy efficiency of the built form and focusing on development that supports public transport access are also important aspects of creating a resilient energy future.



Figure - 27. Planning for waste





## 6.4 Waste

### Objective

To ensure Western Australia's waste streams are managed as a resource

The quantity of waste generated in Western Australia is steadily growing, a trend that is expected to continue.

Waste can be managed and recycling increased through improved strategic planning, regulatory measures, economic incentives, and community education and engagement.

A network of strategically located waste management facilities and infrastructure will assist recycling and stimulate innovation in reprocessing.

### Overview

Solid waste is often divided into three categories or streams based on its source. These source streams are:

- Municipal solid waste (MSW): solid waste generated from domestic (household) premises and Local Government activities;
- Commercial and industrial waste (C&I): solid waste generated by the business sector, State and Federal Government entities, schools and tertiary institutions; and
- Construction and demolition waste (C&D): solid waste from residential, civil and commercial construction and demolition activities.

The types of waste found in each stream may be similar; however, the waste may be processed and disposed of differently according to its source.

There are also other kinds of waste that do not fall within the definitions of these three waste streams, including liquid waste, sewage, clinical waste, hazardous waste, radioactive waste and other specific types of waste, all of which may require specialised treatment and disposal.

In 2009, the Australian Government finalised the National Waste Policy – Less Waste, More Resources, which sets Australia's waste management and resource recovery direction to

2020. This policy aims to improve the efficiency with which resources are used, reduce the impact on the environment of waste disposal, and improve the management of hazardous wastes.

In March 2012 the Waste Authority released the Western Australian Waste Strategy: Creating the Right Environment, which includes strategies and targets aimed at increasing the proportion of waste diverted from landfill through recycling.

Objective 1 of the Waste Strategy is directly related to the need to identify sites for landfills and waste treatment facilities with sufficient buffers in order to ensure sites are available and avoid land-use conflict.

To achieve this objective, waste management facilities must be sited, designed and operated to meet environmental criteria and prevent pollution.

There is now a presumption against siting putrescible landfills on the coastal plain or other environmentally sensitive areas.

Land identified for waste management should be developed and used in such a way that the activities of users do not impose an unacceptable risk to other persons, property or the environment.

Risk assessment of development will be dealt with by the WAPC (on the advice of the Environmental Protection Authority and the Department of Environment and Conservation) as a matter for consideration in planning and development decisions.

### Key facts

- While recycling is increasing in Western Australia, in 2010-11 around 31% of solid waste generated in the State was recycled, with 69% sent to landfill.
- Virtually all human activities result in some form of waste, whether it is liquid or solid, harmless or toxic
- The waste industry will be challenged by future carbon constraints as a result of the Commonwealth government's legislated carbon pricing mechanism.
- The Western Australian Waste Strategy aims to increase the proportion of waste diverted from

landfill, through strategic planning, regulatory measures, economic incentives and community education and engagement

- Current efforts are focussed on increasing the extent of recycling, with the target being to reduce the amount of waste going to landfill. Progress is being made in the recycling of green waste into mulch and compost, as well as the recycling of construction and demolition waste for reuse in the construction industry.

## Approach

Table - 10. A strategic approach to planning for waste

ELEMENT	2050 OUTCOMES	MEASUREMENT	ASPIRATIONS
<b>Waste reduction</b>	Western Australia is a low waste society	Rate of waste generation per capita	<ul style="list-style-type: none"> <li>Behaviour change in community and organisations, and improvements in technology and product design, resulting in a reduction in waster generation</li> </ul>
<b>Strategic sites</b>	A network of strategically located waste management, disposal and recovery facilities	Extent of strategically located sites for waste management	<ul style="list-style-type: none"> <li>Secured strategic sites, buffers and corridors for waste management facilities</li> </ul>
<b>Increases in recycling</b>	Leading practice in treating waste streams as a resource in terms of innovative recycling and reprocessing infrastructure and technologies	Rate of re-use and recycling	<ul style="list-style-type: none"> <li>Products are considered in terms of their full lifecycle</li> <li>A leading user of clean and resource efficient technologies</li> <li>Increasing proportion of waste reused and /or recycled</li> </ul>
<b>Integrate waste management</b>	Resource recovery is facilitated by co-locating waste management facilities and employing the principles of industrial ecology	Extent of integration of waste producers and reprocessors/ recyclers supporting resource recovery	<ul style="list-style-type: none"> <li>Industry activity that is supportive of an integrated waste management approach</li> <li>Industrial precincts zoned, structured and operated to facilitate industrial ecology and ensure the integration between waste producers and reprocessors / recyclers</li> </ul>

### State challenges

Economic and population growth are drivers behind the increasing quantity of waste that must be processed over the next 40 years. There is a wide diversity of waste treatment facilities and capabilities across the State.

The type of waste generated, and the way it is managed, will change in line with changes in technology.

For example, the increasing volume of waste from electronic equipment requires new ways of managing and treating waste that contains metals, plastic, batteries and glass.

The siting, design, operation, and ongoing funding and management of waste management facilities is often complex. Planning for waste facilities will need to secure strategic sites and major corridors from the source to the waste facility.

Sites will need to be suitable in terms of buffers, transport access, relationship to existing waste facilities and producers, and the degree of risk of air, soil, groundwater, and surface water pollution.

Buffer areas surrounding some existing waste disposal facilities are also becoming inadequate as volumes of waste increase and sensitive land uses encroach on previously isolated facilities.



Lake Macleod with clouds reflected, north of Carnarvon, Western Australia.







## 6.5 Telecommunications

### Objective

To ensure those responsible for telecommunications take into account Western Australia's planning and development priorities and requirements.

Telecommunications is important for a connected State. It is essential that planning for telecommunications in Western Australia is carried out in accordance with the State government's development objectives, priorities and planning policies.

The development of State infrastructure, services and regional centres that employ new telecommunication technologies will enable business growth and efficiency. It will also enable people, resources and information to be linked in ways that reduce the barriers of location and time.

### Overview

High speed telecommunications are essential for business and modern living. Australia faces the challenge of finding new ways to participate in global production systems and global markets from geographically remote locations.

This is influencing digital economy policy and investment across the State and by association improving telecommunications infrastructure.

Telecommunications legislation is administered by the Commonwealth government through the Department of Broadband, Communications and the Digital Economy.

The development of Western Australia will continue to be influenced by the way in which telecommunications across the State are improved in terms of:

- Fairness and equity;
- Access, affordability and capability;
- Environmental impact; and
- Education, training and knowledge.

Telecommunications services in Western Australia are provided through a mixture of fixed, wireless and satellite based networks operated by a number of licensed commercial carriers.

Technology improvements mean that telecommunications infrastructure is in a constant state of upgrade, expansion or replenishment.

Ensuring that the Commonwealth and commercial carriers take into account State development priorities should lead to future telecommunication investment that maximises geographical coverage and offers the broadest range of services to the places where they are needed the most.

Planning for and protecting strategic infrastructure sites and corridors requires a coordinated approach for improved digital infrastructure (including mobile, fixed, wireless, satellite, television and radio transmission networks), as well as high speed broadband such as the NBN, from all levels of government and the telecommunications providers.

There are development approval requirements for high impact facilities such as telecommunication towers. This includes consideration in strategic planning, regional plans/strategies, structure plans and local planning schemes.

### Key facts

- About 98% of people have mobile telecoms coverage; 400,000 people in Australia rely on landlines or satellite phones for connection.
- 9% of Australian internet traffic is attributable to Western Australia. Approximately 1% of that total is regional, with the rest occurring in the Perth metro area.
- Historically, Western Australia has split its international traffic evenly between direct international connections out of the State and international connections via the East Coast.

## Approach

**Table - 11. A strategic approach to telecommunications infrastructure**

ELEMENT	2050 OUTCOMES	MEASUREMENT	ASPIRATIONS
<b>Accessibility</b>	Telecommunications services are accessible across the state	Level of access to telecommunications services	<ul style="list-style-type: none"> <li>Telecommunications improves every day life and assists business growth</li> </ul>
<b>Infrastructure network</b>	Internationally competitive fixed and mobile communications networks	% coverage of the state and best practice operational capability	<ul style="list-style-type: none"> <li>Extensive access to high-speed and reliable digital infrastructure</li> <li>A network of strategically located telecommunications infrastructure corridors and site are secured</li> </ul>
<b>Strategic sites</b>	Strategic sites and corridors are secured	Extent and protection of telecommunication infrastructure sites and corridors	<ul style="list-style-type: none"> <li>Appropriate community consultation undertaken for high impact facilities</li> <li>Telecommunications are a matter of consideration in planning frameworks, planning schemes and development decisions</li> <li>The environmental impact of telecommunications are assessed during the preparation of structure plans</li> </ul>

### State challenges

Western Australia's vast distances and sparse population presents challenges for improved telecommunications and as such it requires a collaborative approach.

The Commonwealth government has the statutory powers to manage the direction and implementation of future telecommunications.

However, the State will seek to influence the Commonwealth on the demand for such infrastructure in terms of Western Australia's population and economic growth directions.

The connectivity of the State will rely on the way in which telecommunications are integrated with other utilities and infrastructure development.

Accordingly, the planning of infrastructure corridors and strategic sites for telecommunications will need to be aligned with the provision of other infrastructure.

The structure planning of rural and urban settlements will need to locate and design

telecommunication infrastructure and services taking into account the needs of an ageing population, people with limited education or computer skills and people in remote communities.

Investment by third party stakeholders, such as local government, industry and communication providers, will need to consider evidence of a deficiency, investment viability and cost benefit.



Tractor ploughing wheatfield, Northam, Western Australia.



## 7. Social Infrastructure

### 64 Objective

#### To enable liveable, inclusive and diverse communities

Social infrastructure improves liveability, encourages social inclusion and diversifies the economy by building social capital and is an essential ingredient for creating sustainable communities.

Social infrastructure is the interdependent mix of facilities, places, spaces, programs, projects, services and networks that maintain and improve the standard of living and quality of life in a community.

The key to liveable, inclusive and diverse communities is the collaboration between people and organisations involved in the strategic planning of social infrastructure and those participating in the delivery of social services.

#### Overview

Positive social outcomes are often beyond the capacity of one organisation because social issues are complex.

A collaborative governance framework is needed to coordinate all tiers of government in creating community specific and outcome focused social infrastructure.

Western Australia faces a range of social issues such as increased obesity, diabetes and social exclusion through socio-economic or geographical gaps.

Although causes are multiple, prevention through the collaborative planning and coordinated delivery of social infrastructure is the best way to manage these issues.

Social infrastructure has both 'hard' and 'soft' elements. 'Hard' elements include health facilities and centres, education facilities, recreation buildings, police stations, fire and emergency service buildings, art and cultural facilities and other community facilities.

'Soft' elements may include programs, resources and services, as well as public art and cultural events, that complement these 'hard' elements and contribute to the formation of a community. 'Hard' elements do not work successfully unless the 'soft' elements accompany them.

Key outcomes of social infrastructure planning (Figure 29) include health and wellbeing, spaces and places, knowledge, affordable living and coordination.

Public and private investment in social infrastructure is essential. In some regions, major resource development and the need for a greatly expanded skilled workforce is creating stress on and shortages of social infrastructure. In order to attract and retain families and individuals, a range of quality services and facilities are vital.

Social infrastructure can help build the social capital and fabric of a community by enabling active living, learning opportunities, social interactions and supporting programs that help people innovate, express themselves and adapt to major life events. It is social capital that goes into making a community liveable, inclusive, competitive and diverse.

#### Key facts

- If an additional 40% of Australian population engaged in regular, moderate and effective exercise, an estimated net benefit of AUD \$6.5 million per day would result from the reduced costs associated with heart disease, back pain, increased workplace productivity and reduced absenteeism.
- People who use public open spaces are three times more likely to achieve recommended levels of physical activity than those who do not use the spaces.
- Every dollar invested by the State Government in the Community Sporting and Recreation Facilities Fund (CSRFF) generates AUD \$3.60 in direct economic activity and AUD \$7.20 in total economic activity.

- For children and adolescents, living within 800m of parks or sports centres increases the likelihood that they will use these facilities, and walk or cycle to/from them.
- The value of volunteers to community sport is valued at just under AUD \$4 billion per year.
- Research shows that people who live in neighbourhoods designed to make walking attractive, walk an hour a week more than those who live in less walkable places.
- Walking an extra hour a week represents 40% of the average person's physical activity target and it halves their risk of being overweight.
- The newer suburbs of Perth can be considered 'active open space poor' suburbs. This means residents will have to travel long distances to play organised sport.
- The Perth-based RESIDE study found that adults living in high walkable neighbourhoods were more than twice as likely to walk 60 minutes/week for transport. This study provides support for the notion that a more walkable neighbourhood is also a place where residents feel safer, endorsing a shift away from low density suburban development towards more walkable communities with access to shops, parks and public transit.gap between revenue created from social infrastructure and expenditures on providing and maintaining that infrastructure. In some instances a business case could be presented to cease a service.



## State Challenges

Western Australia is competing with other states in attracting and retaining young and skilled professionals from around Australia and the world.

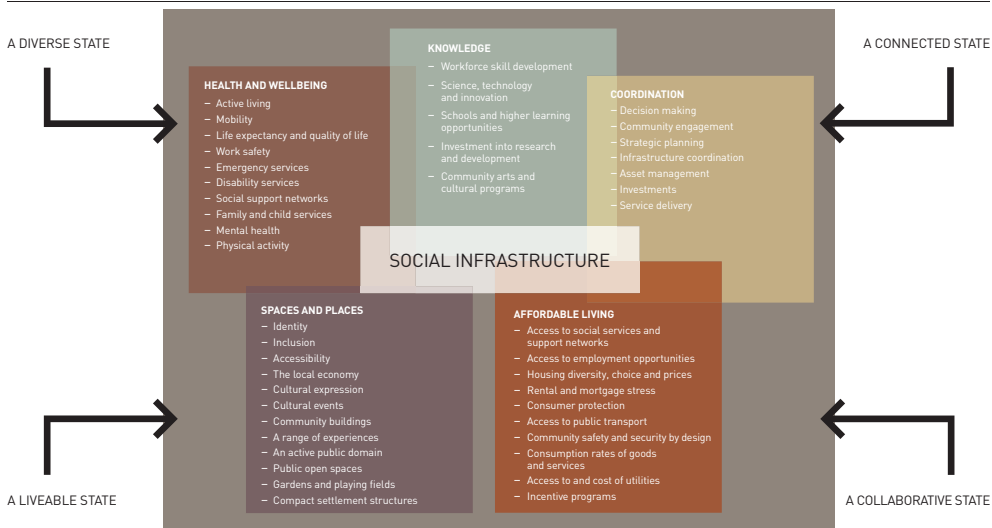
A major consideration for social infrastructure planning is the substantial variation of population and economic growth projections between and within regional areas of the State. A high standard of social infrastructure is often expected regardless of cost.

Usually regional populations will not grow without the necessary social infrastructure to support that growth such as schools, health services, community facilities and programs. In addition, there is often a gap between revenue created from social infrastructure and expenditures on providing and maintaining that infrastructure.

New methods will be needed for social infrastructure investment that can enhance the timeliness and equity in providing a social service.

Funding for social infrastructure, in particular the 'soft' elements, will require innovative and creative approaches and partnerships.

Figure - 29. Planning for social infrastructure





## 7.1 Spaces and places

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### Objective

Creating places and spaces that foster culture, liveability, enterprise and identity

Spaces and places can have a profound effect on the quality of people's lives.

Spaces and places are the physical environment where people live, work and socialise that includes neighbourhoods, public buildings, streets, schools, plazas, movement corridors (including roads, footpaths and bicycle ways), workplaces and parks.

The State's urban areas, regional centres and smaller settlements are all structured to create spaces and places that foster cultural expression, social interactions, vibrancy and a sense of place.

The interaction between buildings, movement corridors, public open spaces and civic places will improve the safety, landscape quality, health, social cohesion and business activity of a community.

### Overview

Places and spaces are public areas which reflect a community's need, purpose and identity.

Planning for spaces and places (Figure 30) requires a focus on the local economy, identity, social inclusion, accessibility, liveability and diversity of a community.

The State's Liveable Neighbourhoods policy promotes compact settlement structures that are safe, accessible, responsive to the environment, pleasant to use with the capacity to meet the long-term needs of a community.

Compact settlement structures display spatial efficiency in the way community facilities and movement corridors are designed and interconnected to serve its population and local economy.

Those that apply leading environmental practices are water and energy efficient and waste efficient in the re-use or recycling of building materials.

The interface between the public and private domain can enable interactions between people and the built environment in way that stimulates social activity.

The multiple use and regeneration of the public and private domain into functional, vibrant and attractive places can encourage new enterprises to service social activity.

Community meeting places in the form of community gardens, public open spaces, civic squares and designated recreation areas foster a sense of belonging and identity.

Social infrastructure, which can include public art, cultural events, support networks, lighting and street furniture, improves a community's level of comfort and interaction.

An outcome based approach to spaces and places can reduce crime, use energy efficiently and minimise the longer term costs associated with physical inactivity.

They are often resource efficient, encourage walking and cycling, and provide connections with the natural environment.

This is particularly important in regional areas where small populations often mean the provision of traditional or 'hard' social infrastructure such as a community hall, a recreation centre or a place of worship are limited.

### Key facts

- Perth has one of the highest rates of car use in the world. Eight out of ten people in Perth travel to work by car and most of them drive alone.
- Every day Perth residents make more than 400,000 car trips of less than a kilometre, ranking them among the highest users of cars in the world.
- The 2006 census indicated that 64% of people who live and work within Perth and surrounding suburbs travel to work by car, with 3% cycling.
- There is an increasing trend in the use of cycle paths throughout metropolitan Perth, with an increase of 13% at fixed counters from early 2011 to 2012.

## Approach

Table - 12. A strategic approach to planning for spaces and places

ELEMENT	2050 OUTCOMES	MEASUREMENT	ASPIRATIONS
<b>The local economy</b>	Spaces and places that generate service and retail niches	Number of new local enterprises	<ul style="list-style-type: none"> <li>• Opportunities for small scale entrepreneurship that can supply the marketplace with more quality goods and services</li> <li>• Greater opportunities for local ownership, content and employment</li> <li>• There is less need for state and local government services and funding</li> </ul>
<b>Identity</b>	Creation of spaces and places that attract suitable and diverse activities	The character and amenity of places and spaces	<ul style="list-style-type: none"> <li>• There is community organisation that generates a sense of pride and volunteerism</li> <li>• A high degree of character and amenity that reflects the cultural values and landscape quality of a community</li> <li>• Unique and locally responsive places that enhance social, cultural and economic opportunities for communities</li> </ul>
<b>Accessibility</b>	Spaces and places are accessible to all members of the community	Accessibility of spaces and places	<ul style="list-style-type: none"> <li>• There is strong connectivity between people and their activities through transit orientated developments</li> <li>• Accessible design standards are consistently applied to community spaces and places</li> <li>• Streets are designed for people</li> </ul>
<b>Liveability</b>	Spaces and places are attractive, active and comfortable	Liveability of spaces and places	<ul style="list-style-type: none"> <li>• Compact settlement structures incorporate good urban design to all civic spaces</li> <li>• Substantial investment in soft infrastructure</li> <li>• Vibrant and attractive public places and spaces encourage active living and social interactions</li> </ul>
<b>Social inclusion</b>	Spaces and places encourage social interaction and social activities	Design excellence of community places and spaces	<ul style="list-style-type: none"> <li>• The exchange of information, wisdom, knowledge and values are encouraged within a community</li> <li>• Community interactions are enhanced through a variety of meeting places</li> <li>• A range of youth recreational activities are accommodated by a variety of spaces and places</li> </ul>
<b>Diversity</b>	Diversity is displayed in all settlement structures	The range of land uses within a settlement structure	<ul style="list-style-type: none"> <li>• The demographic make up of a community displays a mix of cultures, age cohorts, skills and qualifications</li> <li>• A range of opportunities for local entrepreneurship, recreational activities and cultural expression</li> <li>• There is variation in the built form and a range of cultural venues are provided within a community</li> </ul>



## State challenges

Good urban design is site responsive and incorporates the unique qualities of the urban and natural environment.

In other words, no two places are the same and therefore there is no single blueprint for quality urban design; it arises from an understanding of context and place.

Often this is best delivered by outcome based policy rather than by traditional town planning models that focus on land use and regulation.

An outcome based approach to planning for spaces and places (Figure 30) requires those designing and assessing structure plans and development proposals to have an understanding of urban design.

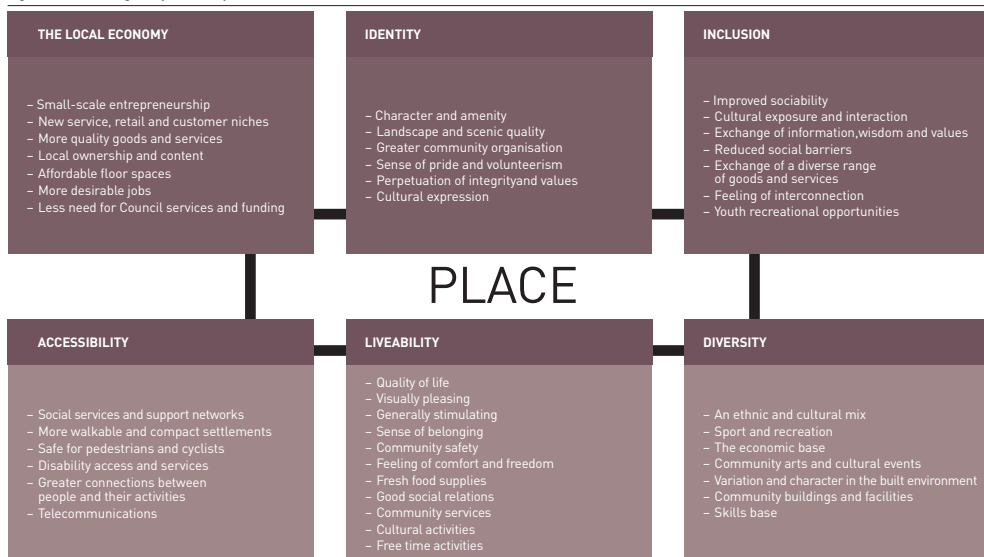
Matters for consideration include the structure of a settlement, its impact on the surrounding environment, its relationship to other centres and

the capacity of services and facilities to service its population and economy.

The challenge will be creating high quality spaces and places within the existing urban structures and remote settlements. This will require carefully considered procurement processes for public infrastructure and buildings.

The State's abundance of natural beauty and resources provides significant opportunities to excel in the creation of vibrant, safe, activated spaces and places.

Figure - 30. Planning for spaces and places





## 7.2 Affordable living

### Objective

#### Affordable living through housing diversity and compact settlements

The State's communities will provide diverse housing opportunities suited to different income levels, lifestyle choices and household types.

Compact settlement structures will be mixed use and transit orientated providing access to employment, services and amenities.

Development will be designed in a way to use natural resources efficiently and sustainably.

### Overview

Affordable living is an important contributor to social wellbeing and economic growth.

It includes not only the cost of housing but also the basic household running costs of utilities such as water and energy as well as the transport costs associated with travelling to work, education, shopping and community facilities.

Affordable living also includes the financial cost of living such as the price of food, transport, shelter and the level of rental and mortgage stress.

Housing quality is measured by the OECD as the number of rooms per person. Western Australia ranks highly on this score, although there is likely to be some variation across the State.

Western Australia's projected population growth means housing stock must increase by around 700,000 dwellings by 2050.

Around 500,000 – 550,000 of this increase is likely to be in the greater Perth metropolitan area, but a substantial amount, 150,000 – 200,000 dwellings, will be in regional areas.

This trend in urbanisation and regional expansion means that planning for affordable living must account for changes in the population and the particular circumstances of regional settlements.

Of particular importance is to focus on:

- the mix, type and location of available and planned housing
- the efficiency of the built form such as consumption rates of utilities including energy and water
- neighbourhood design such as lot layout, orientation, density, transit orientated development options
- proximity to employment opportunities, essential facilities, services and social activities

Affordable living is a component of sustainable and resilient communities.

The State's Pilbara Cities initiative will develop Port Hedland and Karratha into cities where people choose to settle on a permanent basis, because these are places to raise families with access to high standards of education, health and diverse employment and career opportunities.

A factor in the success of this initiative will be to reduce the cost of living so that they are normalised and comparative to other regional centres.

### Key facts

- Over 60% of households are now one or two people. However, in 2011 over 70% of housing stock was developed as a family home.
- In 1976, housing loan repayments consumed a quarter of average full-time income. Recent figures show that housing loan repayments consume about one third of the median household income.
- In 2011 the Regional Prices Index for WA indicated that the cost of housing in the Kimberley is 33.1% and in the Pilbara 99.8% higher than in Perth

## Approach

Table - 13. A strategic approach to planning for affordable living

ELEMENT	2050	MEASUREMENT	ASPIRATIONS
<b>Housing diversity</b>	Communities provide diverse housing opportunities for different income levels, lifestyle choices and household types	Diversity of housing in new and existing communities	<ul style="list-style-type: none"> <li>All development provides a variety of housing styles, types and sizes to accommodate changes in demographics and market demand</li> <li>Incentives and requirements for affordable housing are enabled through the planning system</li> <li>Innovative housing tenures such as housing cooperatives and community titling are introduced into the market</li> </ul>
<b>Compact settlement structures</b>	Compact and diverse settlement structures	Density and diversity of communities	<ul style="list-style-type: none"> <li>Land for multi-purpose infrastructure corridors secured</li> <li>Increased density and diversity of housing through mixed use and transit orientated developments</li> <li>Communities are well connected by cycling infrastructure and public transport</li> <li>Reduced travel time and costs to access social services, employment and amenities</li> <li>Availability of affordable housing in areas well serviced by infrastructure</li> </ul>
<b>Resource efficient design</b>	Development conserves consumption of natural resources	Housing and community design that minimises consumption of natural resources	<ul style="list-style-type: none"> <li>Conservation and adaptive re-use of existing homes in a way that minimises housing running costs</li> <li>Demonstration projects showcasing resource efficient design that minimise housing construction and running costs</li> <li>Sustainable building techniques that minimise natural resource consumption to relieve pressures on housing construction and running costs</li> </ul>

## State challenges

Western Australia's demographics and household structures are changing rapidly yet the diversity of the available housing stock remains relatively static.

High demand coupled with high building and infrastructure costs of housing, particularly in the regions, means affordability is an ongoing challenge that impacts on the ability of some communities to attract and retain a stable population and a skilled workforce base.

Affordable land is usually associated with the outer fringe of a community or regional centre. However the cost of travelling to daily activities such as work,

shops and social interactions, often negates this notion of affordability.

In some regional areas, local affordability issues are creating labour market difficulties and discouraging people from moving to areas where there is demand for labour.

Urban consolidation that provides a higher density and mix of housing styles and types around active public spaces and transport corridors can generate economies of scale for affordable living.

Ensuring housing designs minimise resource consumption will be a critical component to reducing cost of living pressures such as housing construction and utility consumption costs.

The multifaceted nature of affordable living, crossing all tiers of Government, requires innovative incentives and collaborative alliances between the public and private sector.

Development incentives and procurement processes can deliver housing diversity through partnerships and joint ventures.

A strong focus on infrastructure planning and coordination in the way in which utility services such as water, energy and telecommunications are secured, generated, transmitted and supplied to settlements is required.



## 7.3 Health and wellbeing

### Objective

#### To encourage active lifestyles, community interaction and betterment

The health and wellbeing of people are essential to the vitality of a community and an important factor in a strong and resilient economy.

The built environment has a significant impact on physical activity and mental health. Compact settlement structures will encourage healthy active lifestyles, community interaction and betterment.

Opportunities for active and passive recreation and cultural expression are integrated into the existing and new settlement structures.

### Overview

Health and wellbeing [Figure 31] is attained from active living, mobility, provisioning material needs, community services, the local economy, and the built environment.

Active lifestyles are often those that involve travel, learning, walking, cycling, personal relationships, science, sports, arts and culture.

They are known to reduce depression, anxiety and the prevalence of obesity depending upon proximity and range of amenities and services available.

Settlement structures directly influence the location, form, diversity, density, aesthetics, safety and landscape quality of the built environment.

People are often attracted to spaces and places with iconic landscapes, unique histories, exciting activities or which provide an overall calming influence.

These spaces and places offer people inspiration, stress relief, aesthetic values and a sense of spirituality and belonging.

Community participation is encouraged through a range of community services, programs and support networks.

Liveable and inclusive communities promote community interactions through active and passive recreation and cultural activities.

Modern living relies on providing people access to material needs such as food, shelter, freshwater, fuel and emergency services.

Western Australia's ageing population will increase pressure on social and physical infrastructure essential to providing these material needs.

The social and economic costs of not planning for health and wellbeing can be significant and can manifest in higher rates of obesity, poor physical and mental health, social isolation and increased crime.

These costs are often borne by government and require additional spending on medical budgets, law enforcement and social services.

An ageing population exhibits increasing demand for healthy recreation and experiences presenting opportunities for emergent lifestyle services and facilities.

### Key facts

- Australia is one of the most overweight nations in the world. In Western Australia, 66% of adults and 22% of children are classed as overweight or obese.
- In 2008, obesity (excluding overweight) was estimated to cost Australia AUD \$58.2 billion and in Western Australia AUD \$5.85 billion.
- It is estimated that over 16,000 Australians die prematurely each year as a result of physical inactivity, with nearly 2,000 of those in Western Australia.
- Nature and access to natural environments can reduce the impact of life-stress on children and help them deal with adversity. The greater their exposure to nature, the greater the benefits.
- In a 2005 European study of almost 7000 adults in 8 cities in 8 countries, residents of areas with the highest levels of greenery were three times as likely to be physically active and 40% less

likely to be overweight or obese than those living in the least green settings.

- In Perth, adults who have access to large, attractive public open space are 50% more likely to undertake high levels of walking. However, for mental health, the quality of the public open space was more important than its quantity. In this regard, public open space maintenance appears to be important, as the presence of graffiti and disorder in public open space has been shown to decrease the likelihood of walking.

## Approach

Table - 14. A strategic approach to health and wellbeing

ELEMENT	2050	MEASUREMENT	ASPIRATIONS
<b>Active living</b>	Increase in active lifestyles across the state	Population weight averages and level of physical activity	<ul style="list-style-type: none"> <li>Western Australians balance work and life commitments</li> <li>Western Australians display above average levels of mental health and physical activity</li> <li>There is direct and safe access to health facilities, cultural events, social support networks, sport and recreation activities</li> </ul>
<b>Provisioning</b>	People have the material needs for modern living	Wellbeing index	<ul style="list-style-type: none"> <li>There is reliable access to food, shelter, freshwater, fuel and education across the state</li> <li>Integrated and coordinated regulations for the provision of essential and emergency services</li> </ul>
<b>Mobility</b>	People have a high propensity to travel	Travel time, distance and cost	<ul style="list-style-type: none"> <li>Compact settlement structures enable limited journey to work times through transit orientated developments</li> <li>Young and mature age cohorts have a greater propensity and opportunity to travel, experience and embrace healthier lifestyles</li> <li>Programs continue to promote and encourage walking, cycling and disability access</li> </ul>
<b>Community services</b>	Developments do not harm the health of communities or the environment	Community and environmental health levels and development impacts	<ul style="list-style-type: none"> <li>A range of public, private and not-for-profit health care providers, facilities and services across the state</li> <li>A range of services across the State for families, early childhood development, disabilities and emergencies</li> <li>Social support and programs continue to assist people in most need</li> <li>Ongoing investment into community, sport and recreation facilities</li> </ul>
<b>The local economy</b>	Small businesses have the ability to attract investment into new service and retail niches	Local ownership, content and employment	<ul style="list-style-type: none"> <li>Activity centres offer affordable floor space and incentives to enterprise</li> <li>Entrepreneurs are able to attract investment and generate local ownership, content and employment</li> <li>Opportunities for further training and learning</li> </ul>
<b>The built environment</b>	Built environments provide opportunities for social interaction and participation	Rates of social interaction and participation	<ul style="list-style-type: none"> <li>Community surveillance over the public realm</li> <li>Public space encourages participation, social cohesion and a sense of place</li> <li>Access to services and facilities that are designed for all users</li> <li>Compact and interconnected settlement structures that are adaptable to change</li> <li>Developments are not located in areas that would adversely affect the health of the public</li> <li>Development minimises impact on the natural environment</li> </ul>

## State challenges

Population and economic growth will place pressure on community services, facilities, programs and the capacity to provide people with material needs necessary for modern living, health and wellbeing.

A collaborative framework that integrates the work of all governments, communities and the private sector involved in social infrastructure will

help determine provisioning, community services, mobility, the built environment and active living opportunities that most directly influence health and wellbeing.

Community betterment will need to be encouraged through ongoing investment in community programs, services and facilities and the multiple use of public spaces.

Development incentives to integrate the public and private domains within the built environment are essential to creating activated spaces and places that can generate community interaction and participation. The extent and degree of such incentives will be different for each community.

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Figure - 31. Planning for health and wellbeing

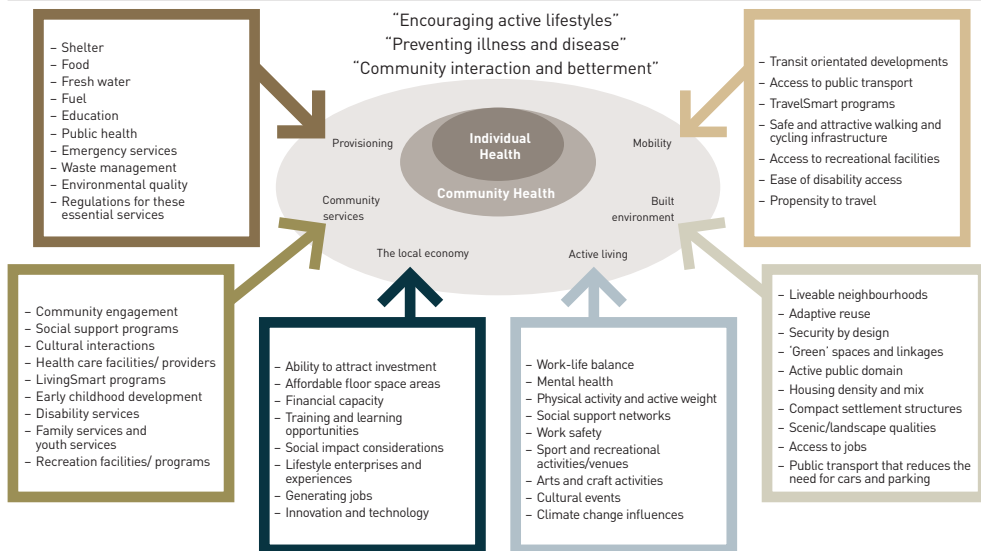


Figure - 32. Planning for land availability



- Legend:
- Future land use pressures
  - Resource driven
  - New agri-food industries
  - Urban growth pressures (housing, industry and infrastructure)
  - Population growth (housing, industry, infrastructure and land availability)
  - Multiple land use (agriculture, conservation, tourism, water resources and extractive industry)
  - Capital city
  - Regional centre
  - Sub-regional centre  
(As defined by WAPC regional hotspots; Regional Centres Development Plan (Super Towns))
  - Other centre



## 8. Land availability

### Objective

To ensure the sustainable supply of land for future development

A variety of land options will be made available, supported by infrastructure service delivery that ensures developable affordable land is available to the market.

Regional hotspots will be a focus for the de-constraining of land and provision of essential infrastructure and services as a precursor to regional development.

### Overview

As the State's population continues to grow, so does the demand for land for residential, industrial, recreational and environmental purposes.

A comprehensive and well planned approach to land use and availability will be fundamental to economic growth.

A range of land use pressures apply across the State. Resource industry pressures primarily influence the demand for land in the Pilbara, while the South West sector of Western Australia is experiencing land use pressures from population increase, agriculture, conservation, tourism and urban development.

The demand for project-ready industrial land in appropriate locations throughout the State has been increasing faster than supply over the last decade.

Efficient and coordinated land assembly to cater for demand will be a critical factor in sustaining prosperity.

### Key facts

- Western Australia covers a land area of 2,527,620km<sup>2</sup> (above high water mark).
- 7% of Western Australia is freehold land and the remaining 93% is Crown land.
- Freehold land is administered under the Planning and Development Act 2005 and

Crown land is administered under the Land Administration Act 1997.

- The supply of new land for development (particularly in the regions) is influenced by constraints including environmental conditions (such as cyclones, flooding and storm surge), native title, mining tenement, pastoral leases and heritage values.

### State Challenges

The land mass area of Western Australia is vast; however, population bases are predominately coastal and generally within the South West sector. The provision and coordination of infrastructure and services presents a significant challenge.

Extant infrastructure and service capacity limits development of existing land parcels to greater capacities, thus increasing pressures on future land supply.

Land capability and its economic output will be significantly decreased if the appropriate measures are not identified and put in place to improve current land utilisation.

Private and public investment to service land for further development is influenced by availability of local labour, freight and mobilisation costs and seasonal weather conditions.

The challenge will be to move ahead of known trends and to plan and invest strategically for the State's growth and productivity. This will require the development of robust modelling and scenario building tools and their mobilisation across government and the private sector.



## Approach

Table - 15. A strategic approach to the sustainable supply of land for future development

ELEMENT	2050	MEASUREMENT	ASPIRATIONS
<b>Population growth and distribution</b>	Settlement and population growth boundaries	Urban growth boundaries and zoning limits	<ul style="list-style-type: none"> <li>• Sustained population growth that is contained within pre-defined precincts and distribution of population as determined through a robust strategic planning process</li> </ul>
<b>Information</b>	Timely, consolidated information on land-use trends	The tracking of land availability through consumption and development data	<ul style="list-style-type: none"> <li>• Land is used efficiently and appropriately</li> <li>• Land is readily available to cater for present and current demand levels</li> <li>• Social, economic and environmental outcomes are achieved through a balanced decision making process which includes scenario modelling</li> </ul>
<b>Supply</b>	The availability of land is proportionate to demand	Efficiency of use of land	<ul style="list-style-type: none"> <li>• The provision of adequate land for housing, recreation, transport, water, food and energy through the efficient use of land</li> <li>• Policy measures and incentives that encourage the efficient use of land and application of development technology</li> <li>• Land is secured for strategic industry</li> </ul>
<b>Regional hotspots</b>	Regional locations have access to essential infrastructure and services	Pipeline of development ready (serviced) land	<ul style="list-style-type: none"> <li>• Well serviced regional towns that have built-in capacity to cater for forecast growth and future expansion</li> <li>• Effective land supply monitoring and modelling tools guide infrastructure and servicing agencies</li> </ul>
<b>Affordability</b>	A variety of affordable housing and land options	Diversity and affordability	<ul style="list-style-type: none"> <li>• Affordable and well located land that is accessible and well serviced</li> <li>• Government leads by example in the delivery of affordable land</li> </ul>
<b>Infrastructure</b>	Seamless interface between strategic planning and service delivery	Pipeline of development ready (serviced) land	<ul style="list-style-type: none"> <li>• Development ready land is readily available to the market</li> <li>• Project ready industrial land and associated infrastructure is secured</li> </ul>
<b>Fragmentation</b>	Fragmentation of land, particularly productive agricultural land, is limited	Consolidated rural land holdings	<ul style="list-style-type: none"> <li>• Land is used in an efficient and balanced manner</li> <li>• Fragmentation of agricultural land is limited</li> </ul>



Salt lakes surrounded by wheat fields, 50kms north east of Esperance



## 9. Remote Settlements

### Objective

To maintain economic and community development through improved connectivity and cultural support

Remote settlements are critical to the State's economic wellbeing and central to the Western Australian experience.

Remote settlements have essential services, social services and infrastructure. Native title and land tenure is coordinated and prioritised in an integrated way.

### Overview

A 'remote settlement' can include informal towns, remote road houses, Aboriginal communities, workers camps, tourist camps and remote aerodromes. For the purpose of this document, remote regions are defined as those areas north, south-east and east of the Wheatbelt.

Remote settlements are a unique expression of the resilience and commitment of Aboriginal and European culture to Western Australia.

Many remote settlements are essential to the State's land and air transport networks. Remote worker's camps are fundamental to the State's economic wellbeing as they are critical to the ongoing productivity of resource extraction enterprises.

The historical formation of remote settlements varies. Most Aboriginal settlements are either former missions or homelands places. Worker's camps, remote road houses and small or informal towns are remote settlements that have generally been established in response to economic demand.

There are up to 150 Aboriginal settlements in Western Australia. Aboriginal settlements have generally developed without regulated essential, municipal or social services. Supporting Aboriginal settlements provides a cultural and social dividend to the State.

The stand-alone road house is a characteristic feature of the remote regions. They are a unique part of the Western Australian experience and are essential to the State's transport network.

Opportunities exist to develop existing and proposed remote road houses into comprehensive service hubs that focus social service provision and support the local economy.

There are a number of small and informal towns in the remote regions that are recognised as towns, but have characteristics that tend more towards being remote settlements. These include tourist camps, pastoral centres, declined mining towns and small isolated towns. These small and informal towns are unique places which have grown in response to economic and social need.

Places such as Coral Bay and Murchison are characteristic of the Western Australian experience, and have developed in spite of the lack of formal structures such as appropriate land tenure and regulated essential services. Supporting the survival of some of these places provides a cultural and social dividend to the State.

Settlements populated exclusively by a non-resident workforce that exists specifically to service the resource sector are generally referred to as 'worker's camps' and are common in the Pilbara and Goldfields. Worker's camps are generally proximate to resource sites, temporary and unregulated.

### Key facts

- There are up to 150 Aboriginal settlements in the remote regions of Western Australia.
- There are more than 20 remote road houses in the remote regions of Western Australia.
- There are up to 8 small and informal towns in the remote regions of Western Australia.
- The number of worker's camps in Western Australia is not readily determined.
- Most remote settlements are on Crown land.

- Many remote settlements are on land that is subject to native title claim or determination.
- Essential services provision to remote settlements is usually discrete and unregulated.
- The typical annual investment into housing and essential services for Aboriginal settlements is AUD \$200 million
- The typical annual investment into aerodromes on remote settlements is AUD \$100 million

### State Challenges

The land mass area of Western Australia is vast; however, population bases are predominately coastal and generally within the South West sector. The provision and coordination of infrastructure and services presents a significant challenge.

Extant infrastructure and service capacity limits development of existing land parcels to greater capacities, thus increasing pressures on future land supply.

Land capability and its economic output will be significantly decreased if the appropriate measures are not identified and put in place to improve current land utilisation.

Private and public investment to service land for further development is influenced by availability of local labour, freight and mobilisation costs and seasonal weather conditions.

The challenge will be to move ahead of known trends and to plan and invest strategically for the State's growth and productivity. This will require the development of robust modelling and scenario building tools and their mobilisation across government and the private sector.

## Approach

Table - 16. A strategic approach to planning for remote settlements

ELEMENT	2050 OUTCOMES	MEASUREMENT	ASPIRATIONS
<b>Land tenure</b>	Appropriate land tenure for all remote settlements	Number of crown land transactions and/or land tenure reforms undertaken that incorporate remote settlements	All remote settlements across the state are on appropriate land tenure
<b>Native Title</b>	Native title resolution for all remote settlements	Number of Native Title claims determined and Indigenous Land Use Agreements resolved that incorporate remote settlements	Native Title rights, interests and future enterprise opportunities are known for all remote settlements
<b>Essential and local government services</b>	Publicly accessible remote settlements to have access to essential services	Number of remote settlements with drinking water source protection plans Number of publicly accessible remote settlements with regularised essential services	Reliable essential and local government services
<b>Social services</b>	Remote settlements to have access to adequate social services	Number of remote settlements with adequate social services	Adequate social services
<b>Integrated planning</b>	Unified government service provision to remote communities	Number of layout plans endorsed Number of remote settlements recognised in planning schemes	Coordinated delivery of government services to remote settlements
<b>Fly-in / Fly-out (FIFO) Workforce</b>	Remote settlements have the capacity to accommodate and support FIFO workforces	Number and type of services provided in a remote settlement compared to similarly sized settlements Capacity of physical and social infrastructure to accommodate the additional services required	Permanent worker's camps have adequate government support

### State challenges

Like all urban places in Western Australia, remote settlements are reliant on a framework of supporting structures, including appropriate land tenure, native title resolution and adequate essential, social and municipal service provision.

However, remote settlements tend to be deficient in one or more of these basic structural elements. The challenge to the State is to ensure that the economic

and social role that remote settlements play is not lost due to lack of adequate support.

Supporting vibrant futures on remote settlements presents a range of challenges to all levels of government. Commonwealth agencies with specific responsibilities for Aboriginal Australians are critical to the future of Aboriginal settlements.

Local governments will need to become increasingly involved in providing services and infrastructure in remote settlements.

In addition, many towns in the remote regions have worker's camps that are permanent and integrated into the social and economic life of the town.

All worker's camps are based on the premise of a FIFO workforce, which is a workforce that permanently lives elsewhere and lives at a camp for the duration of a working term.

Balancing the needs of regional economic and social aspirations with the operational imperatives of the resources sector is a challenge that represents opportunities, both known and unexplored.





Tidal waterfall, Kimberley coast.

Figure - 34. Planning for security





## 10. Security

### Objective

To secure strategic economic, ecological and social assets

The State's borders will be fully protected from threats and the protection process supported by common user infrastructure in the North West.

Defence and industries servicing border protection will have a regional presence and be supported by housing and social infrastructure. Future defence land use requirements will be identified and protected from encroachment.

### Overview

Security cuts across many issues associated with the sustainable development of the State.

Security efforts in Western Australia have the aim of avoiding vulnerability to risks while building resilience and the capacity to adapt to changing global circumstances.

Planning for security seeks to ensure all people and essential economic assets are protected from threats. Security will be supported by provision of physical and social infrastructure for defence forces and associated industries.

The provision of this support in the North West of the State will augment a case for an increased presence of the Australian Defence Force (ADF) and defence industry growth.

Beyond being equipped to deal with conventional conflict, increasingly the armed forces must contend with disparate border security threats, which include threats to biosecurity.

While the majority of Western Australia's population live in the South West of the State, the economic assets, infrastructure and towns in the North West are essential to the national economy. These assets include operational resource infrastructure and that yet to be developed.

Western Australia's geographic location is strategic in global and regional defence terms.

Australia must maintain and enhance its capacity to collaborate with allies and partners. This includes areas such as logistics support, sea and air lift capabilities provided by Australian bases and ports.

Training areas and ranges (on and offshore), operating and staging bases, logistics facilities, and personnel accommodation are all necessary to ensure critical capabilities are maintained into the future.

### Key facts

- The ADF comprises over 90,000 personnel including permanent, reserve forces and civilian employees, of which approximately 6,000 are based in Western Australia.
- Western Australia is important in defence planning due to its strategic location and economic assets.
- Defence facilities rely upon robust transport, telecommunications and energy infrastructure, while ADF families require civil and social infrastructure.
- The sea / air gap to the north is at the strategic centre of the 'primary operational environment', and defence strategy.
- The Australian Government has planned major capability acquisitions to 2030 which will create greater demand on current facilities.
- Fleet Base West, located on Garden Island, is a major defence base for projecting maritime power into the Indian Ocean.
- The ports of Broome and Dampier support ADF and Australian Customs and Border Protection Service border protection operations.
- Royal Australian Air Force Base Pearce and its surrounding training facilities are the central location of airborne assets and capabilities in Western Australia and enables Australia to maintain long range strike and surveillance capacity.

- Defence facilities rely upon robust transport, telecommunications and energy infrastructure.

### State Challenges

The land mass area of Western Australia is vast; however, population bases are predominately coastal and generally within the South West sector. The provision and coordination of infrastructure and services presents a significant challenge.

Extant infrastructure and service capacity limits development of existing land parcels to greater capacities, thus increasing pressures on future land supply.

Land capability and its economic output will be significantly decreased if the appropriate measures are not identified and put in place to improve current land utilisation.

Private and public investment to service land for further development is influenced by availability of local labour, freight and mobilisation costs and seasonal weather conditions.

The challenge will be to move ahead of known trends and to plan and invest strategically for the State's growth and productivity. This will require the development of robust modelling and scenario building tools and their mobilisation across government and the private sector.



## Approach

**Table - 17. A strategic approach to planning for security**

ELEMENT	2050 OUTCOMES	MEASUREMENT	ASPIRATIONS
<b>Defence land</b>	Future ADF land requirements identified and protected	The presence of the ADF in strategic economic locations	<ul style="list-style-type: none"> <li>• A comprehensive network of ADF facilities providing defence security across the state</li> <li>• All conflicting land-uses and encroachment on ADF facilities are resolved</li> </ul>
<b>Defence infrastructure</b>	Defence industries established in regional WA	Defence infrastructure as a proportion of total infrastructure	<ul style="list-style-type: none"> <li>• Regional industrial activity that supports ADF operations</li> <li>• The shared use of strategic infrastructure across the state</li> </ul>
<b>Auxiliary industries</b>	Provision of housing and social infrastructure for ADF staff and their families in remote locations	Defence industry operations and locations	<ul style="list-style-type: none"> <li>• Regional industrial infrastructure and activities that supports ADF operations</li> <li>• A stable “family friendly” environment for ADF staff in remote locations</li> </ul>
<b>Border and Biosecurity</b>	Vulnerable border regions fully protected from border and biosecurity threats	Level of protection for border regions	<ul style="list-style-type: none"> <li>• Customs and Border Protection facilities and operations fully resourced to address future threats</li> </ul>

### State challenges

As the State further develops and diversifies its regional cities and towns, the need to provide industrial and social infrastructure that supports the ADF and the Customs and Border Protection Service becomes more important.

The challenge will be to attract defence and associated industries to Western Australia. Building these industries will help to diversify the economic base and reinforce the use and viability of infrastructure, such as transport, port facilities and information communication technologies.

Biosecurity threats pose significant risk to the natural environment, human health through the spread of disease, agricultural enterprise and the export of food. Climate change increases the vulnerability to biosecurity threats.

Establishing greater capacity for the ADF and Customs and Border Protection Service in the

North West towns by providing physical and social infrastructure will improve security of important oil, gas and mining assets.

Land availability for housing and industrial support industries along with improved social infrastructure is of particular importance.

Training and service industries are also required to support State and regional ADF capabilities in Western Australia.

Training areas, bases and weapons ranges will be put under increasing strain by the acquisition of new generation weapons and requirements to co-exist with other surrounding land uses in the future.



## Glossary

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For the purposes of this document words are defined as follows:

**AAA** - a credit rating that signifies an extremely strong capacity to meet financial commitments.

**Affordable housing** - housing that is available, meets the needs of people's circumstances and is within the means of low to moderate household incomes.

**Airsheds** - a volume of air confined to a distinct geographical region and within which pollutants are contained.

**Basic raw materials** - is material that consists of sand (including silica sand), clay, hard rock, limestone (including metallurgical limestone) and gravel and other construction and road building materials.

**Biodiversity** - the variability within and among genes, species and ecosystems.

**Biosecurity** - the prevention of infectious diseases, pests, invasive species, and biological weapons that threaten human health, ecosystems or agricultural production.

**Biosphere reserves** - sites recognised under UNESCO's Man and the Biosphere Programme, which seeks to reconcile the conservation of biological and cultural diversity and economic and social development.

**Carbon sequestration** - the general term used for the capture and long-term storage of carbon dioxide. Capture can occur at the point of emission (e.g. from power plants) or through natural processes (such as photosynthesis), which remove carbon dioxide from the earth's atmosphere and which can be enhanced by appropriate management practices.

**Clean energy** - energy generation that has zero or minimal greenhouse gas emissions and is compatible with sound environmental stewardship.

**Collaborative advantage** - a network of organisations and/or individuals that generate advantage by pooling their diverse resources, capabilities and capacity to manage or respond to a common issue or desired outcome.

**Collaborative leadership** - is the process of creating and instigating positive change and outcomes through the sharing of ideas, information and resources with others.

**Competitive advantage** - the strategic advantage an entity (jurisdiction or business) has over its rival entities within a competitive market.

**Community betterment** - community development that enhances a community in its service or facilities.

**Conurbation** - a number of cities, towns and other urban areas that, through population growth and physical expansion, have merged to form one continuous urban and industrially developed area.

**Creative capital** - the intellectual process of conceiving new ideas regardless of the field of endeavour.

**Creative industries** - includes six segments: music and performing arts; film, television and radio; advertising and marketing; software and interactive media; writing, publishing and print media; architecture, design and visual arts.

**Cultural landscape** - places that illustrate how human societies and settlements have evolved within the natural landscape.

**Defence industries** - the industries, supply chains and associated infrastructure that supports a modern defence force.

**Eco-efficiency** - the production of goods or services using fewer natural resources, and reducing the environmental impacts through the life cycle of the development, product or service.

**Ecological footprint** - a measure of the land area required to produce the resources consumed, and absorb the wastes produced, by a population.

**Ecosystem services** - the processes by which the environment produces resources which provide benefits to humans (for example, clean air, water, fertile soil).

**Energy technologies** - the processes used to create energy, that are increasingly focussed on micropower where individual companies can create their own power plants for their own use.

**Enterprise** - industrious, systematic activity, especially when directed toward profit by business groups or corporations. Willingness and initiative to undertake new ventures.

**Global competitiveness** - the degree to which a country can produce goods and services which supply the demand of international markets.

**Human capital** - the skills, knowledge, and experience possessed by an individual or population, viewed in terms of their value or cost to an organisation or country.

**Industrial ecology** - industrial systems that behave like natural ecosystems where the integration of industrial processes allow the by-products generated by a process to be re-used by another industry.

**Information communication technologies** - information technology that stresses the role of unified communications and the integration of telecommunications (telephone lines and wireless signals), intelligent building management systems and audio-visual systems in modern information technology.

**International gateways** - regional centres that enable domestic and global trade through their ports, airports, highways, intermodal terminals, services industries, skilled workforce and/or iconic landscapes.

**Knowledge-based economy** - an economy based on creating, evaluating and trading knowledge. Describing a trend in advanced economies towards a greater dependence on knowledge, information and high skill levels.

**Knowledge-based industries** - those industries that are in the business of the production, distribution and use of knowledge and information.

**Land development** - conversion of raw land into construction ready housing, commercial, or industrial building sites. Land development process involves improvements that have indefinite life, for example draining, dredging, excavating, filling, grading and paving.

**Primary operational environment** - the area extending from the eastern Indian Ocean to the island states of Polynesia, and from the equator to the Southern Ocean. That area contains all Australian sovereign, offshore and economic territories, such as Cocos (Keeling) Islands, Christmas Island, Heard and McDonald Islands, Macquarie Island, Norfolk Island and also waters adjacent to the Australian Antarctic Territory (as defined by ADF 2009).

**Purchasing power parity (PPP)** - a rate of exchange between currencies that gives them equal purchasing powers in their own economies.

**Quality of life** - used to describe the general wellbeing of individuals and societies.

## Acronyms

**Quaternary industry sector** - the knowledge-based sector of the economy that includes information and communication technology and services, scientific research and development, as well as education and consulting and other knowledge-based services.

**Ramsar sites** - sites listed under the 'Convention on Wetlands of International Importance', otherwise known as the Ramsar Convention 1971, an international treaty focusing on the conservation of such wetlands, of which Australia is a signatory.

**Remote regions** - are defined as those areas in Western Australia north and east of its Wheatbelt region.

**Remote settlements** - includes informal towns, remote road houses, Aboriginal communities, workers camps, tourist camps and remote aerodromes.

**Renewable energy** - any naturally occurring, theoretically inexhaustible source of energy, as biomass, solar, wind, tidal, wave, and hydroelectric power, that is not derived from fossil or nuclear fuel.

**Resilience** - is the planned adaptability to resist or limiting damage and recover quickly from disturbance.

**Resource recovery** - the recovery of material or energy resources by converting waste into a valuable resource, such as fuel, packaging material and fertilisers.

**Sense of place** - a component of 'cultural identity', sense of place is a personal response to environmental, social and economic surroundings, that an individual experiences in daily life. It can be the individual's or community's perception and feeling of belonging for a home, local area, region, state or country.

**Smart energy grid** - integrated electricity grids with communication networks that enables the feedback of real-time data and the enhanced uptake of new energy sources and technologies.

**Smart infrastructure** - combining information technology with infrastructure to provide information that improves an assets operation.

**Social capital** - the network of social connections that exist between people, and their shared values and norms of behaviour, which enables mutually advantageous social cooperation. This concept highlights the value of social relations and the role of cooperation and confidence to get collective or economic results.

**Social inclusion** - ensuring the marginalised and those living in poverty have greater participation in decision making which affects their lives.

**Social infrastructure** - has both 'hard' and 'soft' elements. 'Hard' elements include health facilities and centres, education facilities, recreation grounds, police stations, fire and emergency service buildings, art and cultural facilities and other community facilities. 'Soft' elements may include programs, resources and services that complement the 'hard' elements of social infrastructure and contribute to the formation of a community.

**Spatial planning** - spatial planning refers to the methods used to plan the geographic distribution and scale of land development.

**Sustainability** - meeting the needs of current and future generations through the integration of environmental protection, social advancement and economic prosperity.

**Sustainable communities** - communities that are planned, built, or modified to promote sustainable living. Places where people want to live and work, now and in the future; that meet the diverse needs of existing and future residents, are sensitive to their environment, their economy and contribute to a high quality of life.

**Sustainable development** - development that meets the needs of the present population without compromising the ability of future generations to meet their own needs.

**Systems thinking** - is the process of understanding how things influence one another within a whole. In organisations, systems consist of people, structures, and processes that work together to make an organization healthy or unhealthy. Systems thinking focus on the interconnections between decisions points that are cyclical rather than a linear cause and effect.

**Urban design** - the process of giving form, shape and character to the arrangement of buildings, to whole neighbourhoods, or the city.

<b>ABS</b>	Australian Bureau of Statistics
<b>ADF</b>	Australian Defence Force
<b>ASKAP</b>	Australian Square Kilometre Array Pathfinder
<b>AUD</b>	Australian dollar
<b>BERD</b>	Business Expenditure on Research and Development
<b>CBD</b>	Central Business District
<b>DoP</b>	Department of Planning
<b>FIFO</b>	Fly-in, Fly-out
<b>GDP</b>	Gross Domestic Product
<b>GL</b>	Gigalitres (1,000,000,000 litres)
<b>GOVERD</b>	Government Expenditure on Research and Development
<b>GSP</b>	Gross State Product
<b>Ha</b>	Hectares
<b>HERD</b>	Higher Education Expenditure on Research and Development
<b>ICC</b>	Infrastructure Coordinating Committee
<b>ICT</b>	Information Communications Technology
<b>km</b>	Kilometres
<b>NBN</b>	National Broadband Network
<b>OECD</b>	Organisation for Economic Cooperation and Development
<b>PPP</b>	Purchasing power parity
<b>RMCP</b>	Regional mobile communications project
<b>R&amp;D</b>	Research and Development
<b>SKA</b>	Square Kilometre Array
<b>SPS</b>	State Planning Strategy
<b>TIAC</b>	Technology and Industry Advisory Council
<b>WA</b>	Western Australia

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