



Wheatbelt

Regional Planning and Infrastructure Framework

Part A: Regional Strategic Planning

December 2015



Department of
Planning



Western
Australian
Planning
Commission



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Minister's and Chairperson's Foreword

Western Australia's Wheatbelt region is the State's agricultural heartland. Through innovation and response to new opportunities the Region's economic base is diversifying, supporting communities that are active and engaged.

The Wheatbelt's proximity to the metropolitan area, easy access to key transport routes and availability of land suitable for industrial purposes make it an ideal location for the establishment of new industries, including freight and logistics and value adding to traditional agricultural produce.

The liveability of the region is increasingly being recognised with growth of communities in coastal areas and other Wheatbelt shires that adjoin the metropolitan area. This reflects the ability to easily access higher order social and community services in Perth while living in supportive communities surrounded by striking natural and agricultural landscapes.

The dispersed population and settlement pattern in the Wheatbelt and service delivery challenges it presents are recognised. There is a focus on responding to the changing demographics, seeking to attract and retain population and to build on the linkages between towns and settlements.

While the Wheatbelt's natural environment is known to support its thriving agricultural sector it is also the basis for a growing tourist market. National parks such as Avon Valley, Lesueur, Nambung (Pinnacles) and the Jurien Bay Marine Park are already drawcards for visitors. A rich Aboriginal heritage, pioneer history and internationally recognised biodiversity are key assets that are providing new opportunities to attract visitors to Wheatbelt towns.

The main social, economic and environmental planning issues facing the region are considered in the Wheatbelt Regional Planning and Infrastructure Framework. The Framework provides a basis for ongoing planning and development that will deliver a diverse and innovative Wheatbelt region that continues to contribute strongly to the State's prosperity.

I congratulate the Western Australian Planning Commission and the Department of Planning on their collaborative work on this important policy framework that seeks to highlight the strength of and opportunities available in the Wheatbelt region.



A handwritten signature in black ink, reading "John Day".

John Day MLA
Minister for Planning

A handwritten signature in black ink, reading "Eric Lumsden".

Eric Lumsden PSM
Chairperson
Western Australian Planning Commission



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1 Introduction

The Wheatbelt region as defined by the *Planning and Development Act 2005* and shown in Map 1, surrounds Perth to the north and east and covers approximately 155,256 square kilometres. At the 2011 Census the region's population count was 74,081 people. The main urban centres in the region are Northam, Merredin, Narrogin, York, Moora and Jurien Bay. The larger shire populations are in Dandaragan (3,288), Gingin (5,447), Toodyay (4,641) and Chittering (5,218).

The Wheatbelt, built on its pioneering history and rural communities, is the agricultural heartland of Western Australia, producing much of the State's grain supply. The region is comprised of 43 local governments, with more than 100 settlements. As such, the Wheatbelt has a dispersed population and settlement pattern and therefore requires diverse service delivery.

The social and economic future of the Wheatbelt has great potential for innovation and value adding, driven by:

- growth in the region's resources sector and supporting the sector in the neighbouring regions;
- attraction of new industries due to the region's proximity to Perth, and access to industrial land and transport;
- potential for additional State strategic alternative energy generation;
- retail and service sector growth, related to population growth and change;
- residential growth both close to the metropolitan area and across the region;
- tourism opportunities based on the region's natural assets;
- the National Broadband Network (NBN) enabling technology based businesses;
- potential for expansion of aviation industries due to minimal air traffic, favourable climatic and geographic conditions; and
- potential for invigoration and reinvention of Government assets and infrastructure.

The Wheatbelt environment has experienced significant change since colonial settlement colonisation. While extensive clearing has supported the agricultural sector, it has led to the unintended consequences of salinity and biodiversity loss. The combination of exceptional species' diversity and the loss of these assets has resulted in part of the region being an internationally recognised biodiversity hotspot. This recognition provides an opportunity for the region to be a global leader in natural resource management, scientific endeavours.

The key driver of the region is its people. The Wheatbelt has significant social capital with supportive, engaged and active communities. This will uphold the region into the future and provide the impetus for innovation, diversification and ability to meet future challenges.

1.1 Purpose of this Framework

The Wheatbelt Regional Planning and Infrastructure Framework is a regional strategic planning document that provides an overview of regional planning issues and a basis for ongoing planning and development.

1.2 Framework structure

The Framework comprises:

- a vision for the Wheatbelt;
- objectives and planning approach for the three chapters of – Liveable Communities, Vibrant Economy and Valued Natural Amenity;
- a list of initiatives, being tasks that agencies would typically progress (Appendix 1A and 1B);
- a list of committed regional infrastructure projects (Appendix 2); and
- a Framework map (Map 5).







1.3 Framework preparation

The Framework has been prepared with input from a Wheatbelt Regional Planning Advisory Committee (Advisory Committee). The Committee comprised representatives from the Department of Planning, Wheatbelt Development Commission, Regional Development Australia – Wheatbelt and local government. The Framework has been adopted by the Western Australian Planning Commission (WAPC).

The Advisory Committee met several times during 2012 to explore issues affecting the Wheatbelt and identify regional infrastructure and land use planning priorities. State agencies and local governments provided information to assist the Committee in capturing a range of views regarding the future of the Wheatbelt.

A draft Framework was advertised for public comment from May to June 2014 and thirty four submissions were received. The Department of Planning also met with a number of stakeholders including local governments and industry groups. The main issues raised in submissions were:

- the relationship of the Wheatbelt Framework with the Wheatbelt Development Commission's Regional Investment Blueprint;
- connections and consistency between surrounding Frameworks, particularly for the Great Southern and South West regions;
- protection of mineral resources;
- the availability of land and infrastructure necessary for achieving growth;
- the provision of aged care accommodation; and
- the closure of Tier 3 rail lines and the implications for Wheatbelt settlements.

A range of amendments were subsequently made to the Framework in response to these issues, and a number of planning initiatives will be undertaken by the WAPC and the Department of Planning.

1.4 Planning context

The State Planning Strategy is the highest order planning document in Western Australia. As shown in Figure 1, the Strategy sets out the principles relating to community, environment, economy, infrastructure, regional development and governance. These are intended to guide how future land use planning and infrastructure decisions are made. The State Planning Strategy provides a context for more detailed policies and plans for the State's ten planning regions. The initiatives outlined in this Framework respond to the Strategic Directions of the State Planning Strategy.

As shown in Table 1, this Framework, is classified as a B2 document (regional strategy) under *State Planning Policy 1: State Planning Framework Policy*. A diagram depicting the State planning framework and where the Wheatbelt Regional Planning and Infrastructure Framework is positioned is provided in Figure 2.



Other planning instruments such as local planning strategies and schemes, and subdivision control are defined and established via legislation, principally the *Planning and Development Act 2005*.

Regional Planning and Infrastructure Frameworks have been prepared for all regions of the State. The Wheatbelt has a strong relationship and interconnectivity with the Great Southern, and South West regions. This is illustrated in Map 2.

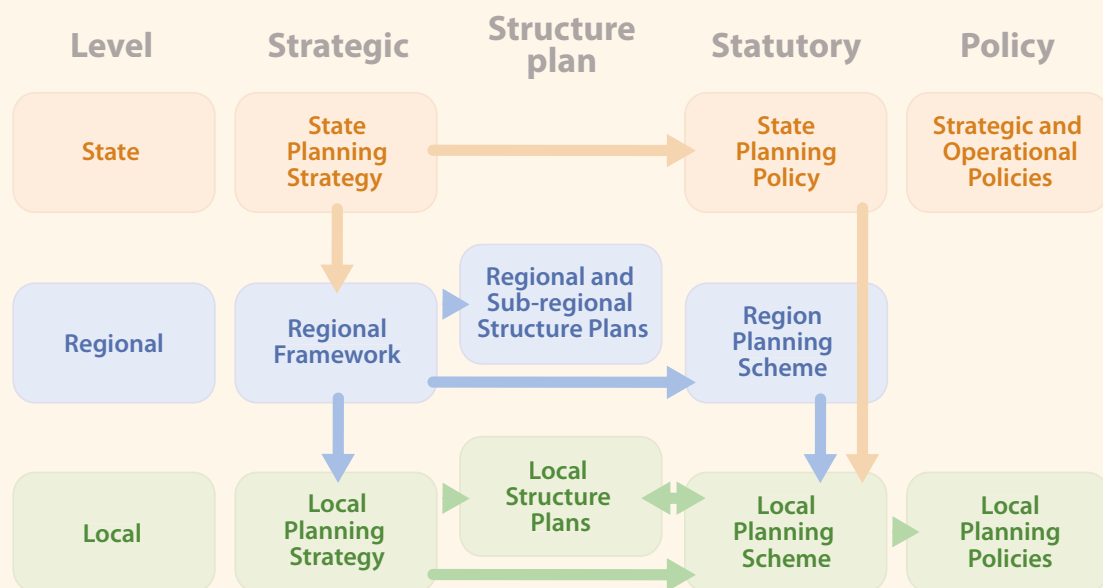


Figure 1: State Planning Strategy 2050 structure

Table 1: Categorisation of policy under State Planning Policy 1

Policy classification (from SPP1)	Elements of the State Planning Framework	Example
B1	State Planning Policies	<i>State Planning Policy 2.5 - Land Use Planning in Rural Areas</i>
B2	Regional Strategies	<i>Wheatbelt Regional Planning and Infrastructure Framework</i>
B3	Regional and Sub-Regional Structure Plans	<i>Northam Surrounds Structure Plan</i>
B4	Strategic Policies	<i>Liveable Neighbourhoods</i>
B5	Operational Policies	<i>Development Control Policy 3.4 - Subdivision of Rural Land</i>

Figure 2: Interpretation of State Planning Framework



(source: State Planning Policy No 1 – State Planning Framework Policy)



Map 2: Wheatbelt, Great Southern and South West planning regions



1.5 Other government initiatives

This Framework has been informed by, or prepared concurrently with, other initiatives such as:

- the *State Planning Strategy 2050* (2014);
- *Wheatbelt Strategic Framework* (2012) prepared by Wheatbelt Development Commission and Regional Development Australia – Wheatbelt;
- the Regional Centres Development Plan (SuperTowns initiative) which facilitates growth of selected regional towns in the southern half of the State. Northam and Jurien Bay have been selected in the Wheatbelt;
- Regional Investment Blueprints including the Wheatbelt Regional Investment Blueprint – prepared by Regional Development Commissions;
- *Western Australian Regional Freight Transport Network Plan* to guide the future development of the freight transport network and respond to population growth and economic development;
- Agrifood 2025 and Future Horticulture initiatives of the Department of Agriculture and Food that builds on *A Priority Plan for Agriculture and Food* (WA, 2011); and
- The planning and infrastructure frameworks prepared for the other planning regions of Western Australia: Pilbara; Kimberley; Mid-West; Gascoyne; Great Southern; South West and Goldfields-Esperance.

1.6 Implementation

Implementation of the Wheatbelt Framework will occur in several ways:

- planning elements will be led by the Department of Planning and progressively implemented into WAPC decision-making, and reflected in local government strategies and schemes;
- economic and social elements will be led by the Wheatbelt Development Commission in collaboration with local governments and other organisations; and
- infrastructure elements will be implemented by servicing authorities through normal budgetary processes, in collaboration with the WAPC.

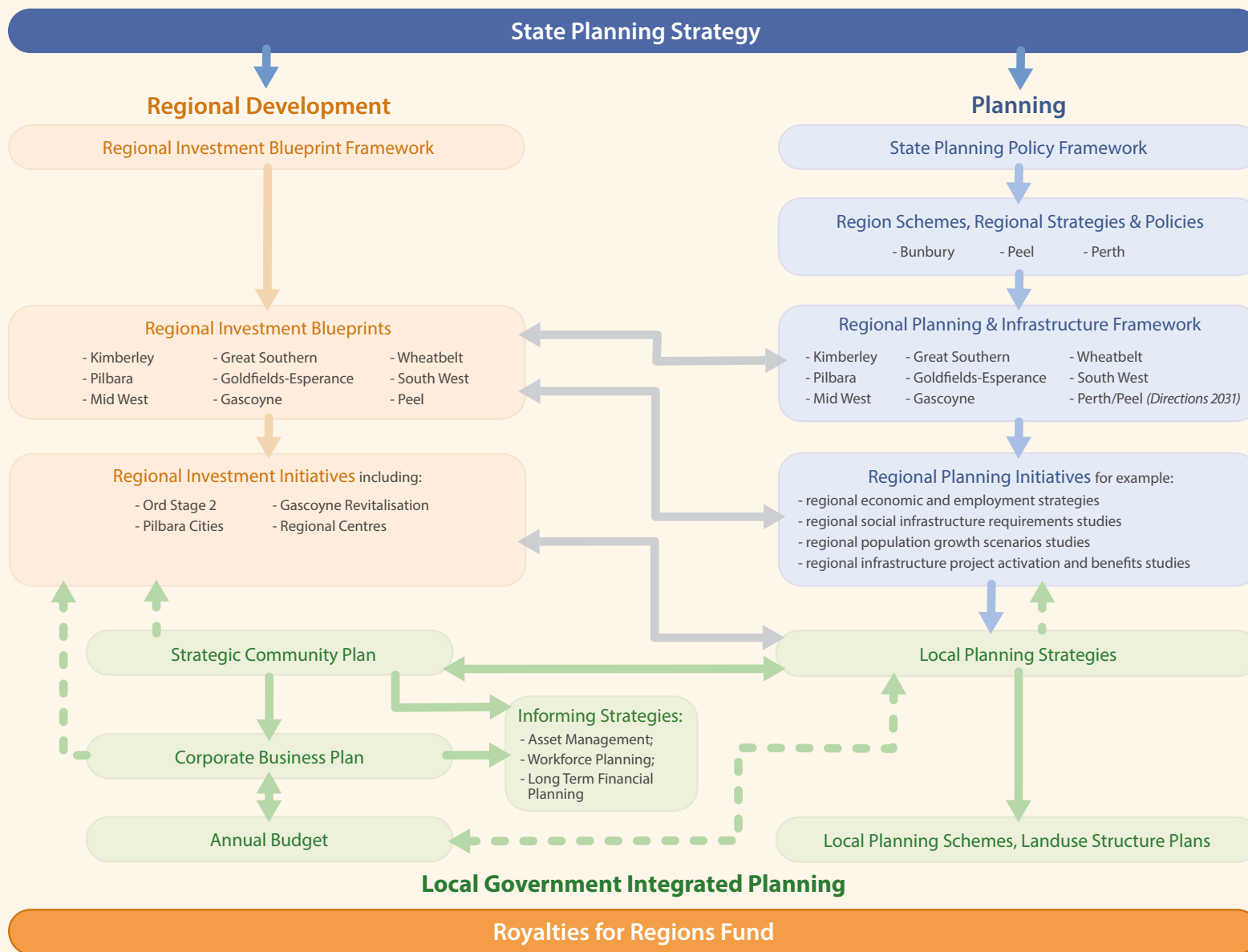
The preparation and implementation of economic strategies and initiatives for the Wheatbelt is the responsibility of the Wheatbelt Development Commission (WDC). The Wheatbelt Strategic Framework (RDAW and WDC, 2012) established the following strategic directions for the Wheatbelt:

- innovative decision-making and resourcing;
- recognition of the region's comparative advantages;
- development that results in social, environmental and economic benefit;
- strong collaboration that adds value to the Wheatbelt's diversified development; and
- targeted strategies to meet unique sub regional context.

The Wheatbelt Development Commission has subsequently prepared an Economic Blueprint for the region. This Framework is consistent with the Blueprint and the two documents are complementary in nature. This inter-relationship is illustrated in Figure 3.

The WAPC proposes a tri-annual audit of the Wheatbelt Framework to monitor progress and potentially reprioritise implementation items.





(source: Western Australian Planning Commission, 2014)

Figure 3: State planning and development framework



1.6.1 The Wheatbelt's comparative advantage

In the context of this Wheatbelt Framework, comparative advantage is taken to mean the broad advantages and positive characteristics of the region, especially compared to other parts of the State. These are highlighted in the Wheatbelt Strategic Framework as being its:

- culture of resourcefulness and innovation;
- proximity to the capital city, Perth;
- safe communities with considerable social capital;
- clean air and skies and open space;
- land availability;
- community infrastructure; and
- leadership in agricultural production and exports.



Image provided by Wheatbelt Development Commission





2 Wheatbelt Regional Planning and Infrastructure Framework

The Wheatbelt Framework is underpinned by a vision and supported by objectives developed around the three principles of the Wheatbelt Strategic Framework. The objectives also address the Strategic Goals of the State Planning Strategy for global competitiveness, strong and resilient regions, sustainable communities, infrastructure planning and conservation.

2.1 Wheatbelt vision

The **Wheatbelt** will have a diverse social and economic base, be a **leader in innovation** and create new opportunities that confirm it as a **key contributor** to the State's prosperity.

2.2 Wheatbelt objectives

Liveable Communities objectives

Effective infrastructure and service delivery that:

- responds to local knowledge and values;
- accommodates the Wheatbelt's linkages to other regions;
- builds on the interconnectedness of settlements;
- assists and promote sustainable growth and cater for the needs of communities;
- recognises the current and changing demographics of the region; and
- seek to attract and retain a diverse population.

Vibrant Economy objectives

A diversified and adaptive economy that:

- increases its contribution to the Western Australian economy;
- benefits from innovation in the primary production sector; and
- enables diversification through the establishment and growth of new and innovative industries.

Valued Natural Amenity objective

Environmental and landscape values that support the social, cultural and economic development of the region, and are managed for current and future generations.





2.3 Planning approaches and initiatives

Based on the vision and each of the three principles, the next three chapters focus on the strategic directions required to realise the vision, as well as initiatives that may be undertaken by agencies in the future. Initiatives relating to each principle are included in Appendix 1A and 1B.

The initiatives in Appendix 1B are studies that would typically be undertaken by agencies responsible for planning, education, health and agriculture.

2.4 Regional infrastructure priorities

A list of committed infrastructure priorities is outlined in Appendix 2. These mainly relate to capital works, or studies that would lead to capital works.

In developing this Framework, a range of infrastructure projects have been identified that could achieve the region's vision. However, there is competing funding needs across the State, and the identification of projects in this Framework should not be taken as a commitment for Government funding. Individual projects will still be subject to normal budgetary and Treasury processes. The anticipated directions for regional infrastructure are listed in Appendix 3.



Image provided by Wheatbelt Development Commission





3 Liveable Communities

3.1 Objectives

Liveable Communities objectives

Effective infrastructure and service delivery that:

- responds to local knowledge and values;
- accommodates the Wheatbelt's linkages to other regions;
- builds on the interconnectedness of settlements;
- assists and promote sustainable growth and cater for the needs of communities;
- recognises the current and changing demographics of the region; and
- seek to attract and retain a diverse population.

3.2 Overview of Liveable Communities

The Wheatbelt is a very liveable region. It enjoys a moderate climate, is experiencing growth, has friendly and connected communities, and is closer to higher order services in the Perth metropolitan region than other country areas. However, with more than 100 settlements, as well as farming communities, the region has a dispersed population, which presents challenges for service delivery.

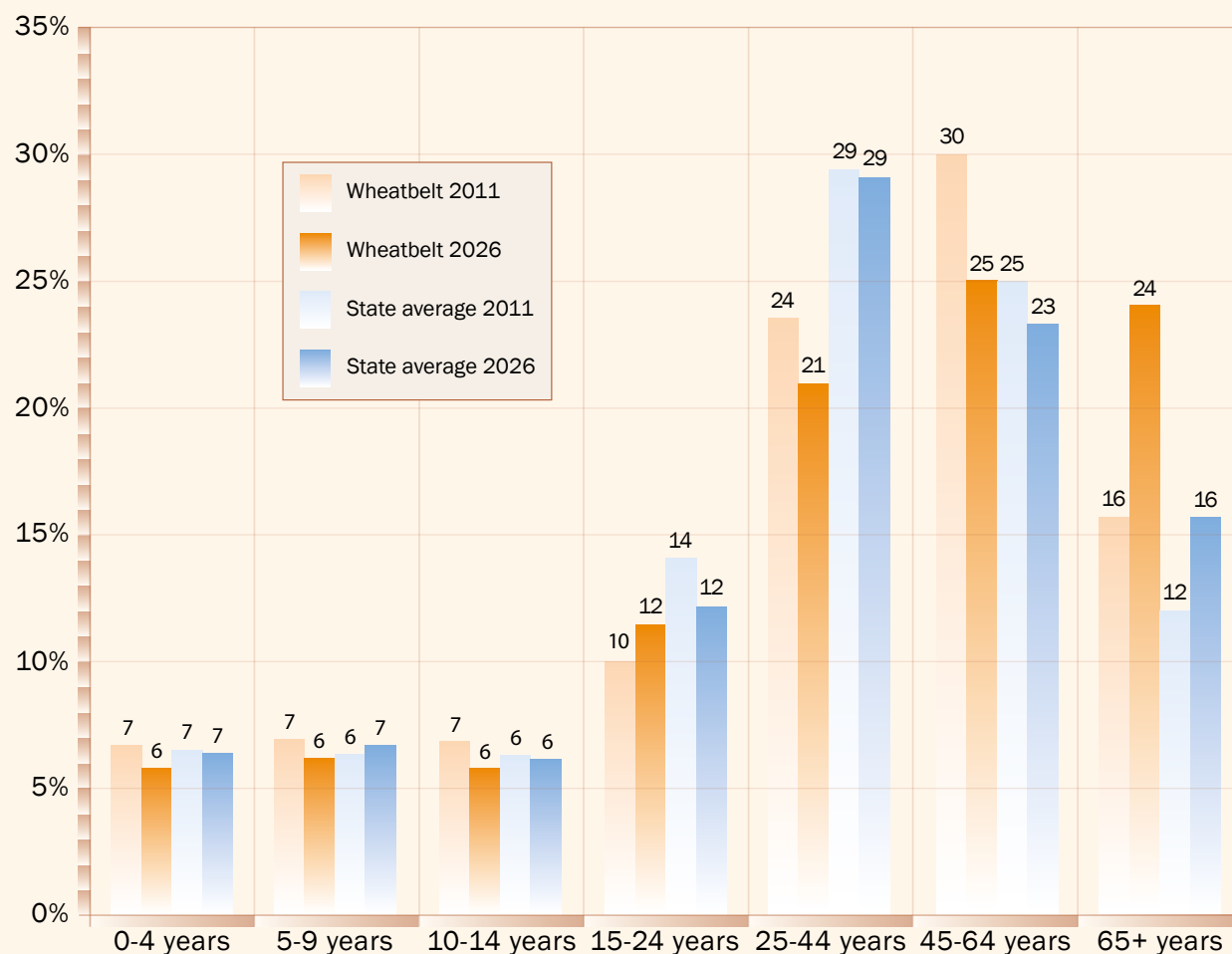
In the Wheatbelt, there is a strong desire for the planning and coordination of infrastructure to be integrated with service delivery. The creation of regionally-specific models for the Wheatbelt is a matter of significance to the region. Unlike other regions of Western Australia, service delivery to the Wheatbelt occurs through a wide range of geographic operational boundaries. This means that social services to the Wheatbelt are not delivered through a regional city (such as Geraldton to the Mid West and Albany to the Great Southern), and instead are delivered via multiple sub-regional centres and/or Perth.

3.3 Population characteristics

At the 2011 Census, the population of the Wheatbelt was 74,081. Population projections to 2026 indicate that the most probable scenario for the growth of the region is to reach 77,590 people by 2026 (*WA Tomorrow, 2015*). The most optimistic projection is for a population of 83,030 people by 2026.

Compared to State averages, the Wheatbelt population is characterised by a lower percentage of people in the 15-44 age bracket, and a statistically significant representation of people in the 45-65 age group (one in three people Wheatbelt, one in four people statewide), and also in the over 65 age group. This is shown in Figure 4.





(source: ABS 2011 Census, WA Tomorrow, 2015)

Figure 4: Population characteristics of the Wheatbelt 2011-2026 (projected)

Projected to 2026, the aging characteristics of the Wheatbelt population will become more pronounced with nearly one in four people over the age of 65 years (*WA Tomorrow, 2015*). Combined with this, the 'working' population (45-64 years) will also decrease, meaning a relative reduction in workforce numbers. With a projected lower than average representation in the 25-44 years age group, attracting and securing a workforce will become a more prominent issue.

Another significant characteristic of the Wheatbelt population is its relatively high proportion of Aboriginal residents (five per cent Wheatbelt, compared to State average of two per cent). Statistically, Aboriginal

populations are more likely to be disadvantaged against a range of social indicators including education, life expectancy, incarceration and socio-economic status. This means that the provision of services specifically targeted at addressing and improving quality of life indicators for Aboriginal people should be a focus for service delivery.

The combined issues of aging and vulnerable populations will increase demand for social services, and for associated services such as passenger transport, leisure and recreation, housing and accommodation and early intervention programs. This may also present economic opportunities for service-based businesses.



3.4 Population distribution and settlement

As mentioned, the population of the Wheatbelt is spread across 43 local governments and more than 100 settlements and rural hinterland. The main urban centres in the region are Northam (6,584), Merredin (2,579), Narrogin (4,228), Moora (1,650) and Jurien Bay (1,502).

Compared to more remote regions, the Wheatbelt has a dispersed settlement pattern, with many communities having reasonable access to Perth for high-order services. As a result the Wheatbelt lacks an easily definable 'capital' like neighbouring regions such as the Mid-West (Greater Geraldton, 39,000 people) and the Great Southern (Albany, 35,000 people). This creates a particular challenge for service delivery in the region and a high level of dependency of the resident population on sub-regional centres.

As a result of the settlement pattern, the planning approach is to identify a network of sub-regional centres to provide a focus for services and facilities. As shown in Map 2, the Wheatbelt's settlement hierarchy is dominated by several sub-regional centres. Unlike other regions that have a 'Regional City', no single settlement in the region could fulfil this role, and Perth is the 'Regional City' that services the Wheatbelt. The sub-regional centres are currently the towns of Narrogin, Northam, Jurien Bay, Moora and Merredin. Planning is in place for Guilderton South and Lancelin South to cater for significant increased populations of 4,800 and 10,000 people respectively. In recognition of their potential size and the associated need for infrastructure and services, Lancelin and Guilderton are identified as proposed sub-regional centres.

Based on WA Tomorrow projections (*WA Tomorrow, 2015*) to 2026, approximately half of the region's local governments will experience population growth or stabilisation (zero to -0.5% average annual growth rate). In some areas of the Wheatbelt, population decline has been occurring since the 1950s, and planning for consolidation is an important social issue for the region. An emerging trend is for local government populations to 'stabilise', but for townsites populations to increase. Anecdotally, this may be linked to primary producers retiring to townsites, and increased corporatisation of the farming sector.

Population forecasts are that the Avon Arc shires (Northam, York, Toodyay, Chittering Beverley, and Brookton) and coastal shires (Gingin and Dandaragan) will accommodate 70 per cent of the Wheatbelt's growth in the next 20 years. Approximately 10 per cent of the region's growth is anticipated in Cunderdin, Dowerin, Goomalling, Moora, Victoria Plains and Wongan Ballidu. Another 10 per cent is predicted in the areas around Narrogin, Beverley, Brookton, Wandering, Pingelly and Williams. The remainder of the region's growth is expected in the eastern Wheatbelt, particularly around the Merredin and Kellerberrin areas.

As the projected high growth areas of the Wheatbelt have historically experienced limited settlement, they do not have the benefit of existing public utility and social infrastructure to build upon. This is especially prevalent where extensive lifestyle development is occurring as townsites services may not have kept pace with out-of-town population growth.

3.5 Land supply

Generally, there is an ample supply of land to cater for growth in the Wheatbelt. However, localised availability of land may be constrained due to factors such as cost of services and land assembly and suitability. Anticipating a high-growth scenario for population, it's possible the region could require land and housing for an additional 14,000 people by 2026. Averaged out, this means the region needs to cater for 1,000 new residents each year, which equates to 400 dwellings per year. In order to respond to these needs an initiative is included in Appendix 1A to develop and implement Land Release Plans for growth areas identifying land requirements, servicing constraints and associated human service needs.

There are approximately 3,000 conditionally approved residential or lifestyle lots in the Wheatbelt region, which means that projected demand can easily be met. In addition to these subdivision approvals, there are about 3,000 vacant residential lots in the major townsites of the region, which confirms an adequate land supply. The majority of created lots are in the centres of Jurien Bay and Northam, with large developments also anticipated in Lancelin and south of the Moore River near Guilderton.



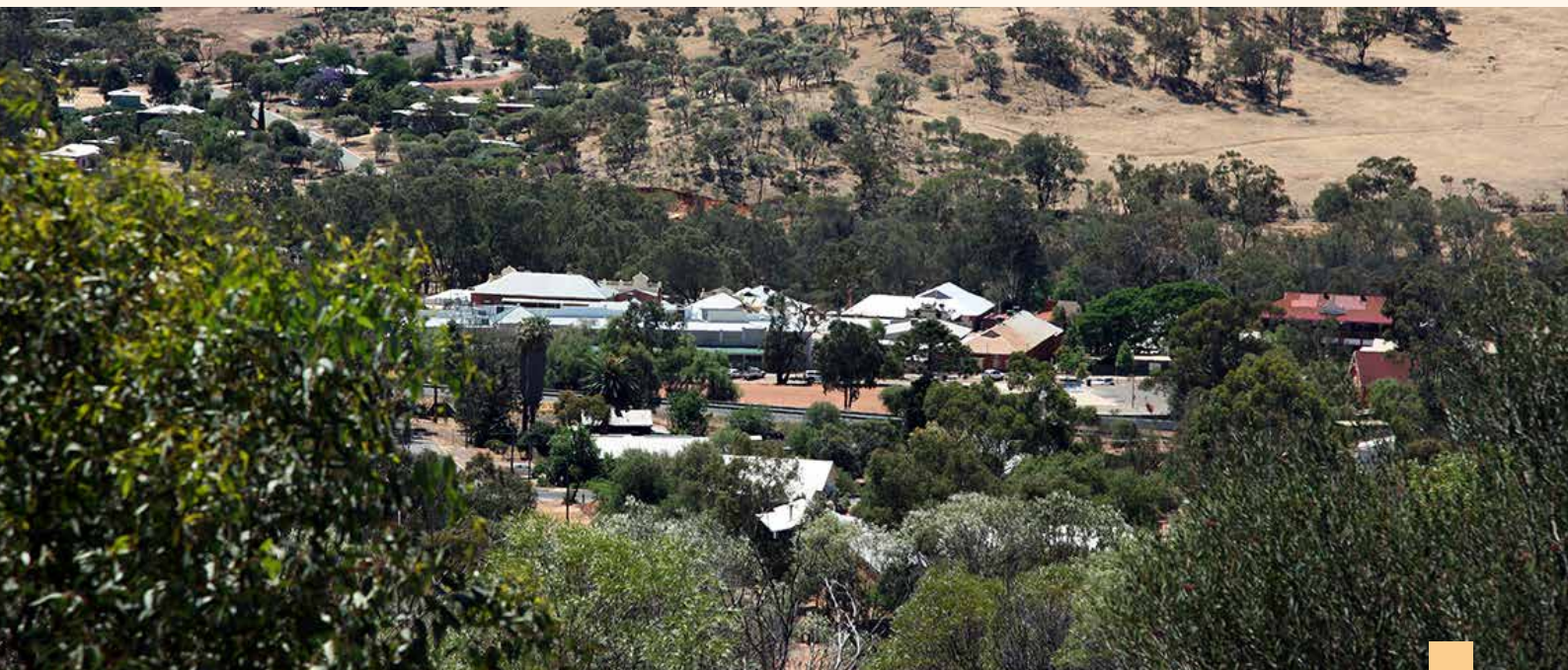


In recent years there has been significant lifestyle development in areas close to Perth, such as Bindoon, Lower Chittering, Gabbadah, Toodyay, Bakers Hill, and Wundowie. It is likely they will be subject to continued development activity in coming years. These areas are of strategic importance and management of expectation, biodiversity, bushfire risk, servicing and water availability are prominent considerations. Additional areas under development pressure include the coastal region between Guilderton and Lancelin, and Cervantes through to Jurien Bay. An initiative is included in Appendix 1A to facilitate long-term strategic planning for the lower Gingin – Indian Ocean Drive corridor focusing on possible economic and employment opportunities, service provision and the preservation of environmental assets.

There are continuing opportunities for peri-urban areas to establish niche businesses that capitalise on the landscape and proximity to populations, as a potential destination for day trips and weekend retreats. In these areas there is a need to retain landscape values, as this is a key attractor for these types of businesses.

Industrial land supply has been steady in the Wheatbelt over the last five years and currently there is conditional approval for approximately 165 lots. The majority of new lots have been created in the Avon Industrial Park (Northam), and in the Dalwallinu and Merredin townsites. There is a demand for 'composite' industrial lots that can service light industries as well as incorporate a housing component, and this is seen as an innovative way to attract residents and businesses to the region. It is likely that these types of lots will be developed in Gingin and York, and some other towns.

The Wheatbelt has approximately 12 million hectares of rural zoned land. Principally used for primary production, this land also has potential for rural industries and small-scale tourism. Rural zones are generally highly flexible and can support a range of land uses, which should be explored and encouraged at a local level. Rural landowners frequently have a need to rationalise their land holdings in response to land management and environmental issues. This process requires subdivision approval from the WAPC. In order to improve land owners' understanding of this requirement an initiative is included in Appendix 1A to prepare an information sheet which explains the subdivision process relating to the realignment of property boundaries in rural areas.





Due to the Wheatbelt's settlement history and investment in infrastructure, there is potential for under-utilised or surplus Government land or assets to be redeveloped, re-used or reinvigorated. Such land or assets could provide development prospects for a range of land uses in townsites. It will be important to develop flexible planning options for such sites to cater for a range of possibilities.

3.6 Native title

The *Native Title Act 1993* provides for the recognition and protection of Aboriginal and Torres Strait Islander people's native title rights and interests. Certain government actions, such as grants of freehold or other exclusive tenures to other parties, have been found to extinguish native title. Claims for native title cannot be made over areas where native title has been extinguished; for example, land held in freehold or exclusive tenure in developed areas.

Native title is a relevant consideration when planning for urban growth and development in the Wheatbelt, as land in and around towns that may be identified as appropriate for certain development options may be subject to native title claim. Broadly, however, native title has been extinguished on the majority of land in the Wheatbelt by the granting of freehold titles over large areas.

Since 2009 the WA Government and South West Aboriginal Land and Sea Council have been negotiating on the South West Native Title Settlement, a negotiated settlement for six separate native title claims by the Noongar people of the south west of Western Australia. These negotiations were completed in late 2014, with the WA Government's offer being accepted by all Noongar claim groups. The full details of the Settlement are recorded in six Indigenous Land Use Agreements (ILUAs), which were executed in June 2015. It is anticipated that the Settlement will commence in full around July 2016 after registration of the ILUAs with the National Native Title Tribunal.

Under the Settlement, native title will be exchanged for a negotiated package of benefits, including formal recognition of the Noongar people as traditional owners, land, investments and the establishment of Noongar Regional Corporations. A major component of the Settlement is the establishment of the Noongar Land Estate through the transfer of a maximum of 320,000 hectares of Crown Land for cultural and economic development, comprising 300,000ha as reserve land and 20,000ha as freehold title. This will result in the Noongar people being major landowners in the Wheatbelt, and it is therefore likely that there will be an increase in interaction of Noongar people with the land-use planning system. An initiative has therefore been included in Appendix 1A to assist Noongar people to utilise the planning system.

Other native title claims outside of the South West Settlement area have been lodged in the eastern and northern Wheatbelt.

3.7 Housing

Housing is usually supplied by private landowners. Generally speaking, the Wheatbelt's housing stock consists of single residential houses, with occasional duplex or unit housing. With the changing age structure of the Wheatbelt, and a general societal trend toward one and two person households, the housing variety of the Wheatbelt needs to diversify.

Similar to other regional areas, there are construction and mobilisation costs affecting housing in the Wheatbelt. For example, the cost of building to meet construction standards for earthquake-prone areas (as is the case in the area from Chidlow to Meckering) is high relative to the cost of land. This means that the region needs to pursue affordable housing options.

The Department of Housing provides social housing in the Wheatbelt, including aged accommodation, Aboriginal and regional housing. The provision and style of social housing governed by eligibility requirements and criteria determined by the Department.





Currently, there is a minimal shortfall of social housing (defined as 0-499 lots) in the Wheatbelt region as a whole, and there is a surplus in a couple of the eastern Wheatbelt local governments. The Department of Housing considers the supply of social housing to be modest in the Wheatbelt, except for Northam, and it is monitoring demand in Merredin and Narrogin.

With projections of one in five residents being aged 65 years and over, a key opportunity for the Wheatbelt is to provide housing for its aged population, and potentially housing able to cater for the changing circumstances of aging populations. The Shire of Dumbleyung for example has an identified need for aged care accommodation with waiting lists for both social and aged accommodation. Regional groupings of councils such as Roe Regional Organisation of Councils (RoeRoc) and North Eastern Wheatbelt Regional Organisation of Councils (NewRoc) provide aged care accommodation and a number of councils in the Wheatbelt support the 'Creating Age-friendly Communities in small towns Project' initiative.

The Central East Aged Care Alliance, comprising NewRoc and Wheatbelt East Regional Organisation of Councils and State and Federal government agency representatives, has completed a plan that sets a direction for the development and implementation of infrastructure and service level solutions to address the need for accommodation, service and facilities for older persons living in the Central Eastern Wheatbelt. The Wheatbelt Integrated Aged Care Solutions (a Wheatbelt-wide plan) was completed in October 2014.

To assist local governments in this area, an initiative is included in Appendix 1A to develop model scheme provisions that can be used in Wheatbelt planning schemes to provide a flexible approach for the planning and development of aged care sites.

The Wheatbelt also has a need for accommodation for seasonal or project-related workforces. This presents opportunities for short-term accommodation in townsites.

3.8 Human services

3.8.1 Health

The Wheatbelt is serviced by 29 hospitals, 19 community and public health services, four nursing posts, four aged care service facilities, three health services centres and two mental health centres. The major hospitals are located in Narrogin, Merredin, Northam and Moora. The other hospitals and affiliated outreach services such as those in the Shire of Corrigin, have an important function in the provision of health services in the Wheatbelt.

Health service delivery occurs through all levels of the health sector including public, private, not for profit, organisations such as RoeRoc and NewRoc and community groups. Many of the health issues facing the Wheatbelt will be addressed through the improved services funded by the Southern Inland Health Initiative (SIHI), which includes the Wheatbelt, and also part of the Great Southern and Mid West regions. Approximately \$565 million has been allocated to reform and improve access to health care across six key investment streams:

1. District Medical Workforce Investment Program – to significantly improve medical resources and 24 hour emergency response across the districts.
2. District Hospital and Health Services Investment Program to provide major upgrades at district hospitals. In the Wheatbelt this involves Northam, Narrogin and Merredin hospitals. Recurrent funding will also be provided under this program to boost primary health care services across each district.
3. Primary Health Care Demonstration Program will provide communities with the opportunity to assess how health services are delivered in their districts.
4. Telehealth Investment will introduce innovative 'e-technology' and increased use of telehealth technology across the region, including equipment upgrades.
5. Residential Aged Care and Dementia Investment Program will provide incentive for private providers to expand options for residential aged care and dementia care across the Southern Inland area.



6. Small Hospital and Nursing Post Refurbishment Program will provide a capital works program for small hospitals and nursing posts to be refurbished or, if required, rebuilt to enable delivery of health care services that will match the needs of their communities.

While SIHI will offer improved services to a large part of the Wheatbelt, existing and projected growth in the shires of Chittering, Gingin and Dandaragan is expected to create demands for health infrastructure which is not within current SIHI funding. Servicing of these areas must be considered through sub-regional planning.

In any given year it is estimated that one in five people aged 18-65 years will experience a mental health illness. Mental health is an important social issue, and one that can have dramatic impacts on rural communities, especially men. The Regional Men's Health Initiative was established to address the particular issues affecting men in the Wheatbelt, and also services the region. Established under Royalties for Regions the initiative is aimed at improving the health and wellbeing of men in rural Western Australia. Both these services are based in Northam, and have a network of staff across the Wheatbelt that provide support and assistance. Mental health services provide psychiatry services for paediatric, adolescent, adult and elderly patients, and should be expanded to meet increasing demand.

With nearly one in four people in the Wheatbelt projected to be aged over 65 years by 2026 (WA *Tomorrow*, 2015), the provision of aged care – both in terms of health and low to high care accommodation, will be a very significant issue for the region. The impacts of an aging population is a major issue for Australia as a whole.

In some ways, the historical level of servicing in the Wheatbelt gives the region an advantage in terms of serviced and potentially under-utilised public buildings that could be used to support the needs of an aging population.

While these services are currently predominantly provided by the public sector, there are opportunities for greater private and non-government sector involvement in for example, geriatric health care, specialised housing and home based services, hospitality and leisure and wellness programs.

3.8.2 Education and training

The Wheatbelt has 75 government schools that service 10,000 students across the region. There are 44 primary schools, 24 district high schools, four senior high schools, one kindergarten to Year 12 college, two WA College of Agriculture campuses (Narrogin and Cunderdin), one Education Support Centre and nine school networks. The Wheatbelt also has four private primary schools, one high school and one senior high school with an agricultural focus. At a tertiary level, the region is home to the University of Western Australia's farm and the University of Notre Dame's rural clinical school of medicine.

The provision of new primary school sites is generally determined by dwellings and population, with a primary school usually provided for every 1,800 dwellings. Following that, one high school is usually required to service four to five primary schools.

For children aged 0-5 years, statistics show 16.6 per cent of children living in the Wheatbelt are developmentally vulnerable compared to the national average of 13.7 per cent. To improve this, more targeted educational opportunities for vulnerable communities are required, particularly in early childhood. Similar to other areas of the State, families with children will often relocate from the region when their children require secondary schooling. For the remaining children of school age, educational achievement and participation is below State average.

The need to provide education and training opportunities locally in order to increase participation and retention rates has been partially addressed by the expansion of courses at CY O'Connor Institute and the sharing of new trade training facilities at the Merredin Senior High School campus. Student accommodation is available to assist rural students who wish to continue their education or training in the region, with facilities in Merredin, Narrogin, Moora, Northam, Cunderdin and Bindoon. The demand for residential student accommodation has been established and opportunities to expand this model could be explored. From 2015, Year 7 education will be provided at high schools; whilst this is likely to increase the demand for residential student accommodation it will also increase education costs to parents and could lead to more people relocating from the region. It is important therefore to maintain local education options.



Further expansion of training is being considered with funding applications progressing for a new CY O'Connor Institute campus at Narrogin and a specialised renewable energies and mining industries skills centre at Merredin. Some of these vocational training institutions have links to similar facilities outside the region, including Perth and Geraldton. Similarly, some institutions outside the Wheatbelt, provide training to communities within the region.

Based on population projections, the Wheatbelt's coastal settlements will require education facilities in future. There is no senior high school in the coastal area, with the settlements of Gingin and Jurien Bay offering high school to Year 10 only. There is a primary school in Lancelin, but no education services to cater for Gabbadah and Guilderton. As the coastal Wheatbelt grows, there may be a need for primary schools at Guilderton (south of the Moore River), Gabbadah (to service the rural residential estates), an additional primary school at Lancelin, and possibly a senior high school at Jurien Bay or Lancelin.

Connection to a national broadband network creates greater potential for e-learning in the region's education facilities. This could change the way education is delivered in the Wheatbelt, and may in turn influence settlement decisions when secondary schooling is required.

3.8.3 Childcare

Similar to other country areas, the provision of childcare services allows parents to participate in the workforce. This is a specific issue in the Wheatbelt, where there is a documented labour shortage, and projected demographic changes predicting ongoing issues in attracting and retaining a suitably qualified workforce.

In terms of service delivery, the Wheatbelt's dispersed settlement pattern means that provision of economically viable services is challenging. Opportunities may exist for collective solutions to deliver services based on local community needs. This may involve collaboration between small businesses who are the region's major employers, and local government.

3.8.4 Sport and recreation

Sport and recreation activities play a critical role in the lifestyles of people living in regional Western Australia. The coordinated delivery of sport and recreation Infrastructure is important in ensuring that opportunities for these activities meet the needs of local and regional communities. Beyond formal sports facilities, there is a need to encourage active living more generally, linked to townscape design and layout.

Provision of sport and recreation infrastructure across the Wheatbelt is driven by local government. Construction of this infrastructure is supported through State and Commonwealth grants. Since 2010/11, more than \$13.5 million of State funds have been allocated across 51 separate recreation facilities.

Recent funding opportunities have led to the construction of many new recreation centres, however funding is restricted to capital works and does not provide ongoing lifecycle costs associated with the infrastructure. This is likely to be an ongoing issue for local governments with low rate bases.

3.8.5 Culture and the arts

Wheatbelt communities are supported by a network of culture and arts based community groups. The region reflects its history and culture through a diverse range of museums, festivals and other activities. More than 25 museums and galleries present a range of historical and cultural topics including visual arts and sculpture, wildflowers, toy soldiers, war and pioneering heritage.

Some of the groups operating in the region include Country Arts WA, Country Arts Network of WA which supports indigenous and non-indigenous cultural activities, Country Women's Association, and numerous localised groups.

A range of purpose built and multi-purpose infrastructure is established throughout the Wheatbelt to support cultural activities. This infrastructure is generally owned and operated by local government. Examples include The Moora Performing Arts Centre, the Cummins Theatre in Merredin, the Link Theatre in Northam, the Platform Theatre in Beverley and the York Sport and Recreation Centre. In addition, current initiatives include the restoration of the Narrogin Town Hall and the establishment of the Jurien Bay Visitor and Civic Precinct.



Acknowledging the key role of culture and the arts in supporting vibrant and liveable communities, a consolidated understanding of culture and the arts services across the Wheatbelt is required. This will support planning and investment in these activities, services and facilities.

3.9 Culture and heritage

3.9.1 Aboriginal heritage and culture

Aboriginal people have lived in the region for more than 45,000 years. It is recognised that the Noongar people are the traditional owners of the south-west of Western Australia, which covers most of the Wheatbelt region. Noongar law and culture is intrinsically linked to land. Distinct Noongar tribal groups have continuing connection to different lands in the region. Indigenous heritage and culture is an important element for the Wheatbelt's regional identity.

The *Aboriginal Heritage Act 1972* provides for the identification and protection of Aboriginal sites throughout Western Australia. There are approximately 800 registered sites in the Wheatbelt region, particularly in areas that have been disturbed through urban or agricultural activity. It is estimated that there is a similar number of sites in more remote or less travelled areas.

3.9.2 Built heritage

In the Wheatbelt, there are approximately 160 places listed on the State heritage register, reflective to the Wheatbelt's role in Australia's pioneering history. The towns of Toodyay and York are recognised by the National Trust as 'historic towns' and statutory provisions are in place to protect their heritage values. These towns and the settlement at New Norcia are important day-trip visitor destinations.

There is potential to build on the tourist potential of the region's rich pioneering heritage through townsite revitalisation projects and development of specialist tours.





3.10 Planning approach for Liveable Communities

In its decision-making, the Western Australian Planning Commission will aim to:

- 1) Focus growth in and around established centres that provide a high level of amenity and employment opportunities by:
 - facilitating growth in the sub-regional centres of Northam, Narrogin, Merredin, Moora, Jurien Bay and the proposed sub-regional centres of Lancelin and Guilderton;
 - supporting facilities and services in other communities that provide linkages to enable growth and connections to sub-regional centres and towns that serve a broader catchment;
 - supporting provision of health and education services to support the needs of the population;
 - making specific provision for aged and vulnerable people;
 - providing access to transport, including road, rail, bus and aviation;
 - supporting the role of cycling and walking in providing for the movement of people;
 - ensuring that rural living precincts are planned and appropriately serviced; and
 - encouraging the location of major recreational and cultural facilities, employment and community services in well-planned and accessible settlements;
- 2) Enhance amenity by protecting, managing and sharing valued natural assets;
- 3) Plan, adapt and respond to potential natural hazards such as bushfire, floods and sea level rise;
- 4) In areas where essential services aren't available, pursue fit-for-purpose delivery of these services;
- 5) Remove impediments to residential, commercial and industrial land supply where they exist;
- 6) Plan future options and aspirations with communities that are experiencing long-term population decline;
- 7) Progress opportunities to recycle or re-use under-utilised facilities and infrastructure; and
- 8) Enhance the region's sense of place by protecting, managing and sharing its heritage and culture; and
- 9) Plan in recognition of the strong social capital and sense of community.





4 Vibrant Economy

4.1 Objectives

Vibrant Economy objectives

A diversified and adaptive economy that:

- increases its contribution to the Western Australian economy;
- benefits from innovation in the primary production sector; and
- enables diversification through the establishment and growth of new and innovative industries.

4.2 Overview of the Wheatbelt economy

The Wheatbelt region is the major contributor to the State's agricultural economy. Agriculture includes grain and livestock production, and horticulture. The Wheatbelt contributes a third of the State's agricultural production value. In terms of the value of product, mining contributes a third of the Wheatbelt's production value, through iron ore in the east and mineral sands in the west. Other economic drivers in the region include construction, retail, manufacturing, tourism and fishing.

The Wheatbelt economy has benefited from its close proximity to Perth and in some cases, to regional areas where the mining sector is growing. There are further opportunities to attract investment and employment to support activities in adjoining regions, thereby further diversifying the Wheatbelt's economic base.

Opportunities include the expansion of irrigated horticulture and value adding of horticultural product for sale in the metropolitan market and for export; attracting industry to the Wheatbelt where relatively inexpensive industrial land is available in locations with good transport linkages; offering tourist accommodation and attractions in close proximity to Perth; and providing residential and rural living land to support population growth and boost the retail, building and construction and service sectors.

As part of its responsibility to prepare Regional Investment Blueprints, the Wheatbelt Development Commission is preparing sub-regional economic strategies. Four of the proposed five sub-regional strategies are now complete (Avon, Central Coast, Central Midlands and Wheatbelt South) with Central East likely to be completed by the middle of 2015. These strategies identify a range of actions to expand and support economic activity relevant to each sub-region.



Image provided by Wheatbelt Development Commission





4.3 Agriculture

Agriculture is the predominant economic activity in the Wheatbelt region in terms of land use and employment. The Wheatbelt also contributes a third of the State's agricultural value. Wheat, barley and canola are the main crops produced. The sale of livestock (particularly sheep and lambs) and wool also make a notable contribution to the sector. There is also a significant presence of intensive livestock industries including piggeries, and poultry farms and associated infrastructure including saleyards and abattoirs. Map 3 shows some of the key agricultural assets in the region.

Agriculture will remain a significant part of the Wheatbelt's economy and employment profile. There is potential to grow and strengthen the agricultural sector through continuing diversification into new crops and products. These could satisfy increasing demand, particularly in export markets, for high quality food products. It is therefore important that high quality agricultural land is protected from competing uses such as urban and rural residential development. This is reflected in the WAPC's *State Planning Policy 2.5: Land Use Planning in Rural Areas*. It is also important that infrastructure is available to support the establishment of these industries including for the provision of power, water and telecommunications.

In those parts of the Wheatbelt which are more susceptible to the impacts of climate variability and change, alternative crops may present new opportunities. These may include drought-resistant varieties of traditional crops and activities that can benefit from the Commonwealth Government's Carbon Farming Initiative. With a trend towards a drying climate and increasing rainfall variability, there is potential for this to impact on land use patterns.

4.3.1 Horticulture

There are many horticultural operations in the Wheatbelt which produce more than half of the State's olives, oranges, limes and lettuce.

Areas with additional potential for horticulture have been identified in the shires of Gingin, Chittering, Dandaragan and Moora. These areas have suitable climates including relatively high rainfall, available ground water (although quality and quantity varies)

and proximity to markets. They may also be suitable for establishing new industries focused on the downstream processing of agricultural products.

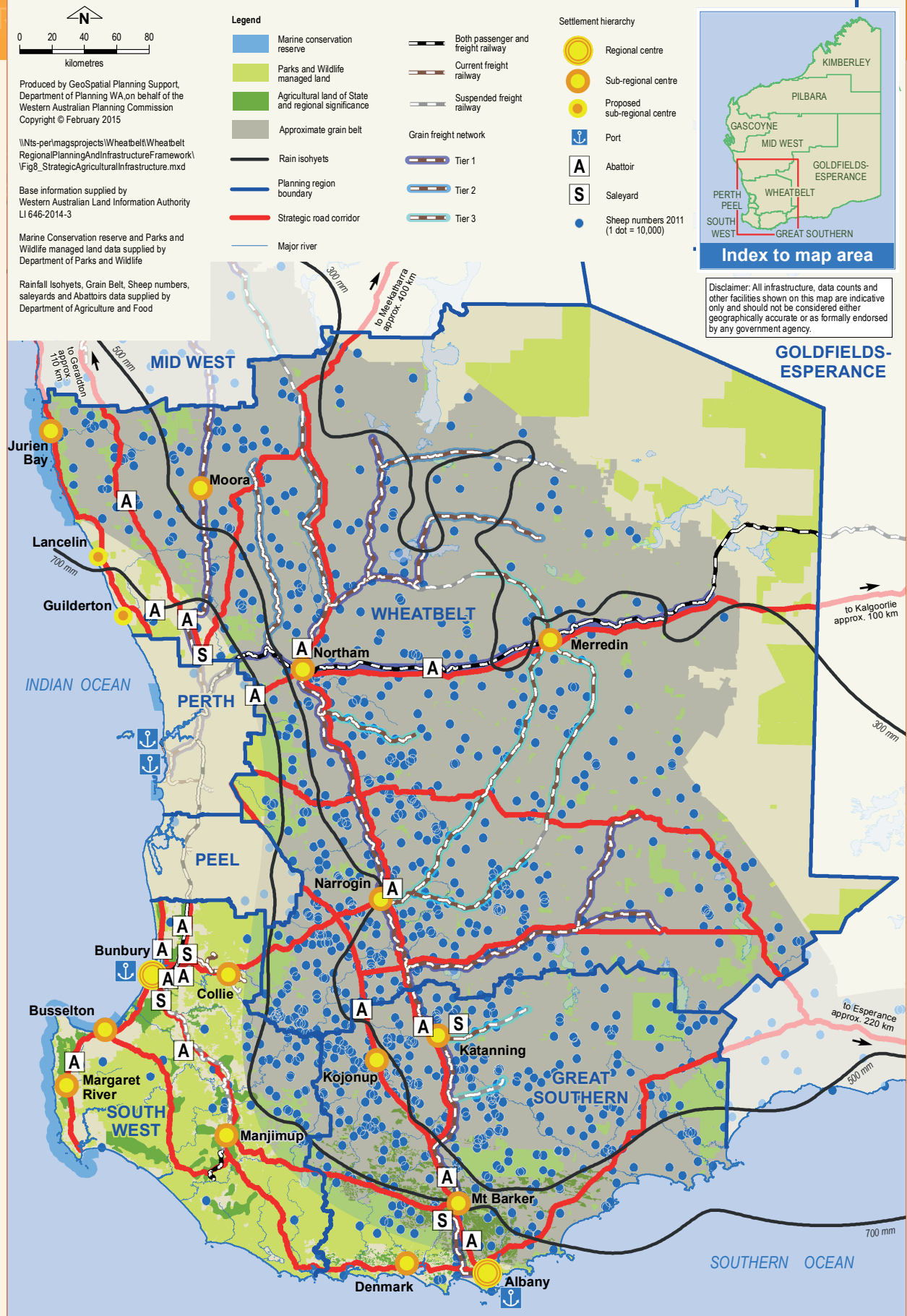
Similar opportunities may be available elsewhere in the Wheatbelt, particularly in the south sub-region, but the availability of water resources requires further investigation.

4.4 Fisheries and aquaculture

Nationally, WA's rock lobster fishery represents 20 per cent of the value of the nation's fisheries. In the Wheatbelt the rock lobster industry dominates the region's fishing (99 per cent of the value) and accounts for 21 per cent of Western Australia's total lobster catch. The region's total value of the live weight catch in 2008-09 was estimated at \$58 million, with prices ranging between \$30-40 a kilogram. In 2014, prices were reported in the order of \$50-60 a kilogram, indicating a resurgence in the fishery. (Department of Fisheries, 2014)

The Wheatbelt aquaculture industry primarily consists of finfish and yabbies. While aquaculture currently represents only a small contribution to the regional economy, potential also exists for its expansion; for example, cultivation of abalone and farming of beta-carotene.





Map 3: Strategic agricultural infrastructure for the Wheatbelt, Great Southern and South West planning regions



4.5 The resources sector

4.5.1 Mining, petroleum and geothermal energy

Mining is an increasingly important industry in the Wheatbelt. Mining contributes approximately 24 per cent to the Gross Value of Wheatbelt production although the sector employs 4.4 per cent of the region's workforce (Regional Development and Lands, 2011). The major commodity produced is iron ore (in the Shire of Yilgarn) with gypsum, heavy mineral sands, silica sand, nickel, copper, salt, gold and silver also mined in the region. The value of minerals and natural gas in the region in 2013 was worth more than \$2.6 billion (Department of Mines and Petroleum, 2013). This does not include the extraction of basic raw materials, such as sand, limestone, gravel, rock aggregate on private land. Map 4 shows the significant mineral and geological resources for the Wheatbelt, Great Southern and South West regions.

The mineral prospectivity of the Wheatbelt could provide growth of the mining sector in the longer-term. This could include mining of bauxite–alumina resources in the western part of the Wheatbelt and kaolin resources in the Meckering and Narrogin areas and potash and phosphate resources in the Shire of Dandaragan. Mineral processing in the region includes synthetic rutile from ilmenite at the Chandala Processing Plant.

Parts of the Wheatbelt within the Perth Basin are also thought to have a high prospectivity for conventional gas and tight gas production. As the gases are found at great depth with significant vertical separation from non-saline shallow aquifers, environmental and health impacts generally associated with their extraction are considered manageable.

Recent gas finds at Gingin West 1 and Red Gully 1 gas wells are expected to generate further interest in that area of the Perth Basin. The Red Gully Gas and Processing facility near Gingin was commissioned in 2013. The commissioning of this plant has the potential to increase the viability of other gas finds in the region. Some exploration for tight gas has occurred in the Wheatbelt (Warro well near Badgingarra, Shire of Dandaragan) and further opportunities for tight gas exploration and production are being evaluated.

To understand the relationship mining has with planning, it is important to understand how the *Mining Act 1978* operates. Mining applications are processed under the Mining Act and therefore planning approvals for mining are not required from the WAPC or local government. Section 120 of the Mining Act requires that any mining proposals shall take into account the provisions of any planning scheme in force under the *Planning and Development Act 2005*, but a scheme cannot act to prohibit or affect the granting of a mining tenement. Should a mining tenement be in conflict with an operational Scheme, both the Ministers for Planning and Mines are to be advised.

Notwithstanding the significant contribution mining makes to the Wheatbelt's economy, it is important to provide an avenue for local governments' concerns to be assessed and addressed when proposals are being considered by the Department of Mines and Petroleum through the s120 process. It is also important to ensure that any mining operations once approved are managed to minimise impacts on the environment, significant landscapes and local amenity.

The WAPC position on the extraction of mineral resources is to:

- Support mining in the Wheatbelt, acknowledging its significant and important contribution to the region's economy and the energy security of the State;
- ensure that where the mining occurs its impacts are carefully managed and the land is restored appropriately;
- restrict incompatible land uses or consider sequential uses in identified mineral resource areas so as not to jeopardise future mining proposals; and
- acknowledge and support the local government's opportunity to form a position on the planning implications of mining in their local area through the local planning strategy and scheme. Matters to consider may include those related to environmental, impacts on amenity, land use conflict, loss of productive agricultural land, landscape protection and heritage and cultural significance.



Wheatbelt

Regional Planning and Infrastructure Framework



Map 4: Mineral resources and significant basic raw materials for the Wheatbelt, Great Southern and South West planning regions



4.5.2 Geoheritage

There are ten Geoheritage sites within the Wheatbelt region. These sites contain geological features considered to have significant scientific and educational value. Geoheritage sites are managed by the Department of Mines and Petroleum and it is expected that they will be protected from other activities by State and local governments.

4.6 Forestry

There has been an increase in farm forestry in the Wheatbelt. The forestry industry in the Wheatbelt region has made significant investments in the farm forestry sector, particularly in oil mallee and sandalwood, carbon farming initiatives, carbon sequestration and renewable energy, all of which are important economic, social and environmental priorities for the State.

The forestry sector is expected to experience a period of consolidation following the rapid growth associated with managed investment schemes. There has been a drop in the establishment of new plantations and only a limited number of new plantings in areas of lower rainfall for carbon sequestration are anticipated. The outlook for the sector will amongst other things, be influenced by climate variability, affecting where products can be profitably produced.

4.7 Commerce and industry

The Wheatbelt region has the advantage of available industrial land close to the metropolitan area and with good transport links to markets and ports. Serviced industrial land is available within the Avon Industrial Park near Northam and the establishment of a large Employment Node at Muchea in the Shire of Chittering is being progressed. The availability of serviced industrial land is an important regional asset that can provide opportunities in the short and long-term for the establishment of new industries in, and relocation of existing industries, to the Wheatbelt.

There are opportunities to establish industries and services that support the growing resources sector in the Wheatbelt as well as in other regions such as the Mid-West and Goldfields Esperance. Areas with good access to major east-west/north-south multi-modal transport routes have the ability to capture supply chain benefits of the growing Western Australian mining sector. These opportunities would be assisted through upgrading of transport infrastructure, particularly the road network, to ensure that it is capable of servicing the growing transportation demands.

The coastal shires of Dandaragan and Gingin and shires close to the metropolitan area such as Chittering, Toodyay, Northam and York are experiencing population growth. Relocation to these areas is generally for lifestyle or financial reasons. Given the proximity to Perth and availability of telecommunications infrastructure and services the establishment of 'footloose', knowledge-based and home-based businesses by those still in the workforce is expected to support the Wheatbelt's economic growth.





4.8 Tourism

The tourism sector is currently a small but important and growing part of the Wheatbelt economy. The sector contributes approximately 3.3 per cent of the Gross Value of Regional Production (Regional Development and Lands, 2011). While this figure is lower than the state average of 4.2 per cent, it has a high employment multiplier.

The Wheatbelt is the second most visited region in Western Australia for day-trips. Two of the most visited day-trip destinations, the Pinnacles and Wave Rock, are located in the shires of Dandaragan and Kondinin respectively. Other visitor attractions include the Avon Valley and Chittering Valley Wine Region and the Spanish monastery settlement of New Norcia. The construction of Indian Ocean Drive in 2011 has reduced travelling times to the Pinnacles and to coastal settlements, beaches and nature reserves.

One of the main tourism events in the Wheatbelt is the Avon Descent, an annual international, two-day, white water event involving both paddle craft (kayaks, surf skis) and small motor boats. It runs from Northam to Perth, along the Avon and Swan Rivers, and is held

in August of every year. Other popular events include the Lancelin Ocean Classic, Wagin Woolarama, Dowerin and Newdegate Field Days, the Kulin Bush Races, and the Brookton Old Time Motorshow.

Given the region's proximity to the Perth market, there are opportunities for growth of the international and inter-State day trip market (from Perth). Food and wine, history, adventure, nature and event-based activities and a diverse range of natural tourism attractions such as the Jurien Bay Marine Park and Lesueur National Park will provide a platform for the further development of this market.

Increased visitation based on these attractions and events is expected to continue. As a result recreational and marine infrastructure, such as the community use boat jetty at Lancelin and the Jurien Bay Marina, will be more heavily utilised. Coastal areas are under pressure from recreational users, particularly from weekend, holiday or day-trippers from the metropolitan area and provision of infrastructure to support additional recreational pursuits will be required.



Image provided by Wheatbelt Development Commission





To boost tourism's contribution to the Wheatbelt economy, the development of an overnight tourism (rather than a day-trip) market is essential. This requires focused investment in accommodation, attractions and product development to respond to the unique characteristics of the numerous sub-regions within the Wheatbelt. There are opportunities to develop iconic walks and cycle trails scope to promote special sector operations such as aquaculture and agri-tourism, and Aboriginal tourism experiences.

The establishment of new tourist accommodation, attractions and recreational opportunities and better marketing of existing facilities will make a contribution to ensuring the sustainability of some Wheatbelt communities and diversifying the economic base of the region.

Some tourist and recreational activities take place near Wedge and Grey Islands, located between Lancelin and Cervantes. Historically pastoralists and their families holidaying at the coast established a limited number of shacks. These informal nodes have grown with approximately 450 shacks at Wedge and Grey and improved access from Indian Ocean Drive providing for increased day-use.

In 2011, the Legislative Council's Standing Committee on Environment and Public Affairs produced Report 21 - Shack Sites in Western Australia. Recommendation 6 of this report recommended removal of squatter shacks and the area's development to provide the public with low-impact, nature-based, affordable visitor facilities and accommodation, including camping and caravanning facilities.

In considering the report, Government accepted the recommendation with the qualification that *"The State Government will examine options for Wedge and Grey that meet the requirements for public recreation and tourism use in conjunction with a level of shack retention that contributes to the opportunities for public use. This consideration would be in consultation with current shack leaseholders. Any future development of the sites will be subject to State planning requirements and will address equity of access and use, building safety, health and amenity, coastal processes and provide for environmentally sustainable public outcomes."* The Department of Parks and Wildlife is examining options

for Wedge and Grey in consultation with other agencies, and in keeping with this decision, both sites are shown on Map 5 as proposed tourism and recreation nodes.

4.9 Service industries

While the agricultural sector remains the largest employer in the Wheatbelt, employment by the service sector is increasing. Approximately 20 per cent of the Wheatbelt workforce is employed in this sector, with eight per cent in education and training, seven per cent in health care and social assistance and six per cent in public administration and safety (ABS, 2011) The relatively high percentage of employment by the State and Commonwealth Government's in the Wheatbelt (11.5 per cent) is also a reflection of the importance of the service sector.

As mentioned, there are significant opportunities to expand the service sector in the Wheatbelt, based on the need to provide services to a growing aged population and potential for innovative delivery of education and training programs.



Image provided by Wheatbelt Development Commission



Wheatbelt

Regional Planning and Infrastructure Framework





4.10 Transport network

4.10.1 Road and rail

The Wheatbelt has a high level of access to the National and State transport networks and therefore to ports, strategic industrial areas and mining regions throughout Western Australia. National and State roads and highways that pass through the region include the Great Northern Highway, Great Eastern Highway, Great Southern Highway, Brand Highway, Indian Ocean Drive and Albany Highway.

Rail freight is a significant feature of the Wheatbelt region. A standard gauge line links the Eastern States to Fremantle Port's Kwinana Bulk Terminal and the Grain Freight Network of Tier 1, 2 and 3 narrow gauge lines that provide access for many of the grain growing areas in the Wheatbelt to ports in Kwinana, Albany and Geraldton. The Co-operative Bulk Handling Group (CBH) owns and manages the grain storage network and infrastructure, and Brookfield Rail leases and operates the rail network from the Government. Rolling stock is owned by a number of users, including Aurizon (formerly Queensland Rail) and CBH (delivered by Watco Rail).

The safe and efficient transportation of grains by road and rail to port is essential for maximising the contribution of the agricultural sector to the Wheatbelt economy. This network is currently undergoing rationalisation as a result of the findings of an economic review of grain transport from bin to port prepared for the Strategic Grain Network Committee in 2009. The rationalisation process includes investment in the road infrastructure necessary to transport grain to Tier 1 and Tier 2 rail lines and to close Tier 3 rail lines. The Tier 3 lines were closed on 30 June 2014.

The Local Government Grants Commission allocated \$25 million in 2013/14 for road projects in the Wheatbelt. A number of local governments have expressed concern that the closure of the Tier 3 lines will result in increased haulage of grain by road which will substantially increase their contribution to road maintenance costs. There are also likely to be

implications arising from the closure, particularly on the amenity of townsites that may need to accommodate the movement of heavy vehicles due to Tier 3 closures. The planning implications of this new freight task on Wheatbelt roads needs to be investigated further and an initiative is included in Appendix 1A to identify the planning responses that may be needed.

The diversification of the Wheatbelt economy will continue to benefit from existing inter-State and intra-State road and rail linkages. These linkages provide opportunities for the establishment of new business within identified industrial estates focused on servicing the resource sector.

Along the region's main freight routes, there is strong demand for land and services associated with freight, logistics and mining support. This is particularly the case along the Great Northern Highway close to Perth, as road trains look to disassemble at Wubin, which is the first point at which triple road trains can be used further north. The Avon Industrial Park on the Great Eastern Highway is also hosting industries that provide support to the mining industry.

Unlike the metropolitan areas, there is currently no guidance to assist with determining appropriate locations and design of service centres along major travel routes in the region. Appendix 1A therefore identifies an initiative to address this issue.





4.10.2 Aviation

The Wheatbelt region is serviced by more than 54 airports and airstrips. They are used for a variety of tasks, including firefighting Royal Flying Doctor services, aviation training and recreational aviation such as leisure flights, skydiving, gliding, and ballooning. Major aviation facilities are shown on Map 5.

East of the Darling Scarp, the Wheatbelt is characterised by favourable climatic conditions and geography that is suited to the development of the aviation sector, in particular aviation training. Aviation training already occurs at facilities in the Cunderdin, Wyalkatchem, Northam, Narrogin, Gingin and Merredin shires.

A State Aviation Strategy is currently in preparation and recognises that there is significant unmet demand for pilot and pilot instructor training particularly from countries within the Asia Pacific region. Training in the Perth metropolitan area and in the north of the State is constrained due to commercial and military activity. The Wheatbelt is ideally suited to establish and expand aviation training facilities including the establishment of an instrument landing system (ILS) as well as the establishment of niche businesses such as agri-spraying and aircraft maintenance.

At a regional level, the Shire of Dandaragan is considering potential options for providing a regional Airport in the Jurien Bay area.

4.10.3 Passenger transport

Three passenger rail services operate in the Wheatbelt: the AvonLink between Northam and Midland (14 trips per week); the MerredinLink between Merredin and East Perth (a weekly return trip); and the Prospector between Kalgoorlie and East Perth (every day). In addition TransWA and Greyhound operate regular bus services to smaller towns in the Wheatbelt.

Given the high proportion of older people living in the Wheatbelt, improvements in the reach and frequency of passenger transport services would be of benefit. In particular, access to passenger transport between smaller centres and those towns where health and aged-care services are offered would facilitate aging-in-place outcomes.



Image provided by Wheatbelt Development Commission





4.11 Physical infrastructure

Ensuring sufficient water, power, wastewater and telecommunication services to support forecast population growth throughout the Wheatbelt and to attract new economic activity is essential for the development of the region. With over 100 settlements, the Wheatbelt is characterised by dispersed service provision which gives rise to unique challenges of maintenance and upgrading. In order to provide essential services to the region, use of 'fit-for-purpose' and 'stand alone' services will be required. An initiative is included in Appendix 1A to consider the circumstances where these types of facilities may be suitable.

4.11.1 Water supply

The availability and provision of water to support population growth and economic development is a key planning consideration for the Wheatbelt region.

The majority of reticulated water in the Wheatbelt is supplied by the Water Corporation through the Goldfields and Agricultural Water Supply Scheme and the Great Southern Towns Water Supply Scheme. Some areas, including the communities of Dandaragan, Jurien Bay, Moora, and Gingin have separate water supply schemes, also delivered by the Water Corporation.

Approximately 60 per cent of water delivered by Water Corporation to the Wheatbelt is consumed in towns and 38 per cent is used on-farm. Water is predominantly used for residential purposes, with local government, industry and commercial users utilising the balance. Dams are commonplace throughout the region and are primarily used for the watering of stock and gardens. During periods of drought there is significant reliance on scheme water by the livestock industry.

Water demand is expected to increase as a result of peri-urban residential and rural living growth, industrial expansion and horticultural and agri-industry development. The rise in residential water demand is expected to be greatest in the Avon Arc and coastal shires reflective of population growth. Some of the additional demand can be met through

water efficiency measures, water recycling, the use of rainwater tanks and utilisation of storm water but upgrades to water supply infrastructure may be required in some areas.

Water required to service increased residential demand east of the Darling Scarp will generally be sourced through the integrated Goldfields and Agricultural Water Supply Scheme and Great Southern Towns Water Supply Scheme. Groundwater sources can accommodate both townsite and horticulture growth in the shires of Gingin and Dandaragan and these sources also remain part of the source portfolio to supply the Integrated Water Supply Scheme for the Perth region. These areas are proclaimed under legislation as Public Drinking Water Source Protection Areas to ensure that the limited supplies of fresh water for drinking supply are protected for current use and future growth.

The potential to tap into saline water supplies in the Wheatbelt for agricultural and non-potable use has been the subject of research and pilot projects for a considerable period of time. The relative cost of desalination and the management of waste products is currently a significant barrier to its use, however with advances in technology this could become a viable supply in the future.

Farmers and small townsites not on scheme water use surface dams and granite rock catchments for watering stock and for local drinking water supplies. The Government's Farm Water and Rural Community grant scheme targets dryland agricultural regions of the State which receives less than 600 millimetres of annual average rainfall and are without access to a reticulated water service. As shown on Map 3, based on the rainfall patterns of the region, most of the Wheatbelt would qualify as a 'dryland agricultural region'. The objective of the program is to increase self-sufficiency and optimise the efficient use of all available non-potable water supplies. This is achieved through improved water resource planning and the provision of rebates and grants to develop both on and off farm water supplies.





4.11.2 Wastewater

The Water Corporation is responsible for the treatment and disposal of wastewater in most Wheatbelt towns. A small number of local governments operate wastewater systems including the Shires of Brookton, Dalwallinu, Dowerin, Dumbleyung, Goomalling, Koorda, Lake Grace, Moora, Victoria Plains, Wickiepin and Yilgarn. However, the management of these systems imposes cost implications and management responsibilities that are outside the core business of local government.

In towns that are experiencing population growth, such as Northam, the waste water treatment plants are facing capacity constraints and the need for new investment in wastewater. The Water Corporation has programs in place to cater for this growth.

Some local governments have expressed concern that limiting the intensity of development based on the availability of reticulated sewerage is an obstacle to growth. The Department of Health's draft Country Sewerage Policy, limits density in areas that cannot be serviced by reticulated sewerage networks. The cost of extending a sewer and connecting to existing sewerage treatment works is often cost prohibitive given the relatively low cost of residential land in much of the Wheatbelt.

Many towns in the Wheatbelt operate on septic systems. Sometimes topography and shallow soils do not allow effective operation of leach drains, which creates localised public health risks. A Septic Tank Effluent Disposal system is being developed in Hyden to address these types of issues. It is being funded by the Government's Infill Sewerage Program, but is still a very costly model that is unlikely to be available to other small settlements.

Maximising the use of existing sewer infrastructure by encouraging higher density development in sewered locations could assist in overcoming some of the constraints. However, with changing technology, it is likely that the use of 'fit-for-purpose' infrastructure will be employed to provide solutions for small settlements where soil conditions are favourable.

There may also be opportunities for expanded local government and private sector involvement in sewerage treatment systems, including the possibility of smaller systems to service individual developments.

4.11.3 Electricity

The Wheatbelt is supplied with energy by Western Power's South West Interconnected System and serviced by the North and East Country load areas. The East Country load area covers the eastern Wheatbelt region. Growth in power demand was slow prior to 2007 and then experienced a significant increase due to mining and resource development in the area.

The North Country load area services the northern area of the Wheatbelt, covering the coastal areas to 150 kilometres inland. The North Country network was designed to supply small distributed loads and as such, infrastructure limitations have resulted in insufficient capacity for large industrial customers to connect. To address the capacity limitations, Western Power has planned the Mid-West Energy Project. The project will create greater network capacity and support industry and mining growth along the line. For the Wheatbelt, this project may facilitate new power generation projects such as wind farms planned for the coastal area.

The geographic reach of the South West Interconnected System is vast, and supply can be variable in the extremes of the network. The large number of aged wooden power poles also creates ongoing management issues for suppliers, and replacement and maintenance programs are unable to deal with all of them.

The Wheatbelt offers an abundant source of renewable energy. The climatic and geographic conditions of the Wheatbelt are conducive to alternative energy generation such as wind, solar, geothermal and biomass generation. Renewable energy offers the capacity to reduce reliance on centrally distributed energy. A number of wind farms already exist, for example the Collgar Wind Farm near Merredin (the largest single stage wind-farm in the southern hemisphere) and Emu Downs near Cervantes, and there is potential to establish other alternative energy initiatives particularly in the coastal areas where energy demand is increasing.

While the Wheatbelt offers an abundant source of renewable energy, the South West Interconnected System has limited capacity to receive renewable energy. As such, renewable energy projects are likely



to be most required in 'end of grid' or for areas outside of the System. With opportunities to feed into the the System now limited, there remains an opportunity for localised energy generation.

4.11.4 Gas

The Dampier to Bunbury Natural Gas Pipeline traverses the western part of the Wheatbelt but there is no access to the pipeline within the Wheatbelt. To achieve regional access, sufficient demand would need to be demonstrated by a large foundation customer.

Use of gas for energy generation has previously been explored at the Avon Industrial Park. The proposal was not viable at the time given difficulties in distributing the proposed intake of power westwards and lack of agreement on a unit purchasing price.

Possible options for delivery of gas may include town reticulation from large 'bullets', delivered by road or rail and the potential for an extension of supply from Perth.

4.11.5 Waste management

The State Planning Strategy identifies waste disposal, treatment and recycling facilities as an essential infrastructure item related to Western Australia's growth. The Strategy identifies that a network of strategically located waste management facilities and infrastructure sites are required to cater for this growth.

Similarly, the Western Australian Waste Strategy's (Waste Authority, 2012) vision is to reduce the proportion of waste disposed to landfill and a key strategic objective is to initiate and maintain long term planning for waste and recycling processing and to ensure access to suitably located land with buffers sufficient to cater for the State's waste management needs. The Waste Authority is supporting regional groups of local governments in the implementation of their strategic waste management plans through the Regional Funding Program.

Local governments in the Wheatbelt are working together (e.g. RoeRoc) to develop and implement best practice approaches to meet localised waste management needs. The focus is on avoidance, re-use, recycling, recovery and disposal.

In addition to servicing their own community needs, there is potential for Wheatbelt local governments to establish facilities that accept and manage waste from the Metropolitan area or to develop specialist waste treatment operations that service a much wider geographic area. The Class II landfill and gas collection plant planned for in the Shire of Gingin is an example of such an enterprise. There are also current proposals for landfill facilities in the shires of York and Toodyay.

The planning arrangements for regional waste management varies between local governments. Generally, the WAPC favours the identification and zoning of sites through a scheme amendment process, as this requires a local government to agree to initiate a scheme amendment in the first instance, early referral to the Environmental Protection Authority, opportunities for public submissions and the ability to establish special conditions for the sites prior to development. Subject to environmental and land use suitability, sites adjacent to the major transport routes of the Great Eastern Highway, Great Northern Highway and Brand Highway are considered most suitable for regional landfill.

4.11.6 Telecommunications

Telecommunications infrastructure is essential to underpin the region's economic opportunities and optimise service delivery, particularly access to broadband internet services.

The National Broadband Network can enable improved access to information and services for some Wheatbelt residents. It may also provide opportunities for the establishment of new businesses such as software development, e-business, e-health and e-education and call centres.

In the nationwide switch to digital television, the VAST (Viewer Access Satellite Television) direct-to-home service will provide access to free-to-air satellite television services across the Wheatbelt. The costs associated with shires installing VAST rebroadcasting systems or individual households or businesses purchasing additional equipment to attain coverage may be prohibitive, as existing Commonwealth Government support is scheduled to cease, which may discourage living and doing business in the Wheatbelt.



The National Broadband Network and digital television present increased opportunities for the Wheatbelt. However, future planning and investment to soften the effects of ongoing service and maintenance costs of infrastructure is required.

The delivery of telecommunications and internet services in the Wheatbelt has been supported by the now completed Regional Mobile Communications Project that improved highway and town-to-town coverage through the delivery of terrestrial mobile, voice and high speed wireless data. Sixteen projects in the Wheatbelt have been implemented including Arthur River North, Ballidu, Bencubbin, Breton Bay (Gingin), Clackline, Flint (Beverley), Kondinin, Koorda, Miling, Mukinbudin, Narembreen, North Gingin, Wickiepin East, Wongonderrah (Dandaragan), Woodridge (Gingin), and Woottatting (Northam). The State Government's Regional Telecommunications Project represents the next step in improving mobile telecommunication coverage in regional areas. Addressing improvements in the service provision of telecommunication sites continues to be a critical issue for the Wheatbelt.

The region has the capacity to capitalise on opportunities offered by improved telecommunication services to the region. New technology will allow higher rates of mobility, greater usage of the internet for business and personal use including for social networking and a narrowing of the current rural/city technology divide.

The priority is to maximise access to the new telecommunication technologies across the Wheatbelt.

4.11.7 Other regional facilities and/or infrastructure

Given the Wheatbelt's proximity to metropolitan Perth, it is likely the region will be considered for large infrastructure facilities, if suitable sites cannot be found in Perth. There may be future requirements for facilities such as power generation, windfarms, prisons, cemeteries, landfills and airports.

The use of standard definitions, permissibility and guiding information in local planning instruments would achieve a consistent and co-ordinated approach to this issue.

4.12 Planning approach for Vibrant Economy

In its decision-making, the Western Australian Planning Commission will aim to:

- 1) Facilitate project-ready commercial and industrial land supply to support growth across the region and respond to State demand;
- 2) Promote rural-zoned land as highly flexible areas that can accommodate a wide variety of enterprises;
- 3) Protect State strategic agricultural land and ensure strategic water allocations;
- 4) Support development of the energy sector to meet regional and State energy needs;
- 5) Advocate for investment to consolidate and maintain existing transport infrastructure;
- 6) Plan for State strategic road and rail links that link the region to markets;
- 7) Promote and support the movement of major freight tasks sustainably and efficiently on rail to alleviate road congestion and user conflict;
- 8) Advocate for provision of broadband telecommunications infrastructure throughout the region;
- 9) Support development of the aviation sector; and
- 10) Support the growth of population driven service industries.
- 11) Support early planning of water supplies for new urban and rural living, agriculture and horticulture and industry.





5 Valued Natural Amenity

5.1 Objective

Valued Natural Amenity objective

Environmental and landscape values that support the social, cultural and economic development of the region, and are managed for current and future generations.



5.2 Overview of Wheatbelt environment

The Wheatbelt's natural environment provides the basis for its thriving agricultural industry and developing tourism sector. It is also a key attractor for people seeking a rural lifestyle.

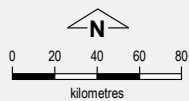
The majority of the Wheatbelt's natural environment has been extensively altered through clearing of native vegetation for broad-acre agriculture. Consequently, the region is experiencing serious land and water management issues, including rising groundwater levels, (and in some cases declining groundwater levels), salinity, eutrophication of waterways, and loss of biodiversity.

Key challenges for the region include improving the management of significant natural areas and water resources, creating corridors/linkages between isolated vegetation remnants, re-establishing native vegetation, controlling water flow to combat salinity, and strategic planning of new residential areas to minimise bushfire risk.

The region's diverse natural environment stretches from the species-rich kwongan heathlands along the coast north of Perth, over the forests and woodlands fringing the Perth to Bunbury area, across the expansive broad-acre agricultural land, and to the Great Western Woodlands bordering the Goldfields-Esperance region. Map 6 shows the broad landscape units of the Wheatbelt – as Coastal, Hills, Wheatbelt and Woodlands. There are also several significant rivers in the region, including the iconic Avon River, as well as the Moore, Hill and Mortlock rivers.

The Wheatbelt climate is characterised by wet winters and dry summers. Annual rainfall ranges from approximately 300 millimetres in the east to 750 millimetres in the west. Intense rainfall events have occasionally caused river flooding most notably in the towns of Moora, York, Northam, Toodyay and Beverley.





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Base information supplied by the
Western Australian Land Information Authority,
LI 646-2014-3

Legend

Landscape units

- Coastal
- Hills
- Wheatbelt
- Woodlands

Natural resource management

- Natural resource management sub-regions

Infrastructure

- Port
- Highway
- Main road

Administration

- Local government boundary
- Planning region boundary

Map 6: Wheatbelt landscape units



The issues associated with climate change and variability in the Wheatbelt include a possible decline in agricultural production, and biodiversity, more frequent extreme weather events resulting in flooding, drought, bushfires and a shortage of potable water particularly where there is a sole reliance on rain water capture and storage.

The agricultural sector has and continues to adapt to variability in climate patterns through changes in production techniques, alternate crop varieties, investment in new crops that generate credits in accordance with the Carbon Farming Initiative and research.

Local governments are also responsive to climate variability. Towns that have the potential to be affected by flood events have processes in place to manage land use change and minimise the impacts of future events particularly on residential land.

5.3 Landscape values

5.3.1 Landscape

Landscape is integral to community perception of the region's identity, and the Wheatbelt has a variety of compelling landscapes – including its pristine coastal areas, the Darling Scarp, fields of canola, the Avon Valley, granite outcrops or sometimes its clear blue skies. One of the more unusual landscape features of the region is the mobile sand dunes found adjacent to Indian Ocean Drive.

Besides their community value, the landscape assets of the Wheatbelt define key tourism opportunities for the region. For example, the Pinnacles and Wave Rock represent identifiable landscape features and the coastal landscape qualities of Lancelin, Cervantes and Jurien Bay contribute to their popularity for tourism and settlement.

There is a need to manage the Wheatbelt's visual landscapes, and the ways in which they are experienced, to protect their valued characteristics. This includes preservation, recognition and promotion of regionally important views through the land use planning system. An initiative to develop and implement a program to identify the region's valued landscapes and the strategic viewpoints and travel routes associated with them is included in Appendix 1A.

5.3.2 Coastal environments

The region's coast provides for environmental processes, tourism, recreation and commercial fishing opportunities. Examples of coastal landforms that are typical of the region include offshore limestone reefs, islands and stacks; tombolos (sand spits that connect islands to the mainland) and other sandy promontories (including salients and cusped forelands); and dune systems.

Considerable population growth in the Wheatbelt is expected to occur within the coastal areas. The region's coastal areas are under pressure, which will increase with population rise. They are also potentially at risk of coastal instability and susceptibility to environmental change such as rising sea level.

A recent study into the geology, geomorphology and vulnerability of the coastal portions of the Wheatbelt (WAPC, 2012) assessed the risk of environmental change along the coast. This study highlighted the need to properly plan for long-term predicted shoreline movement and other impacts of climate variability, such as storm surge.

Significant to the future of the region's coastal areas is Indian Ocean Drive. As well as providing a springboard to a range of destinations, including the Jurien Bay Marine Park, the road also offers magnificent views of the Western Australian coast, and untouched hinterlands, most of which is held in conservation estate.

The shires of Dandaragan and Gingin are carrying out a Coastal Hazard Risk Management and Adaptation Planning Study. An initiative is included in Appendix 1A to identify the planning responses that may be needed in response to the study's findings. The preparation of an information sheet aimed at local governments explaining coastal planning roles and responsibilities is also included.





5.4 Biodiversity

The Wheatbelt region is part of the Southwest Australia Eco-region – an internationally recognised biodiversity ‘hotspot’ with a high level of species diversity under threat from human disturbance. The central and eastern Wheatbelt and the area around Mount Lesueur are also recognised as biodiversity hotspots at a national level. The Wheatbelt also contains many important environmental assets, including nationally significant wetlands, rare flora and threatened fauna, including the Western Swamp Tortoise, Carnaby’s Cockatoo and Graceful Sun Moth.

There has been extensive biodiversity loss in the Wheatbelt from the historical clearing of native vegetation for agriculture. Consequently, the Wheatbelt has a higher proportion of threatened species and communities than other parts of Western Australia. Biodiversity loss has been further impacted by land fragmentation, dry land salinity, altered hydrology, grazing, introduced plants and animals, dieback, inappropriate fire regimes, and climate variability.

Areas of native vegetation, wetlands and waterways provide important connectivity between habitats across the region. Regionally significant natural areas occur in Gingin, Dandaragan and the Great Western Woodlands. The Dryandra Woodlands north of Narrogin are also regionally significant. While substantial parts of these areas are held as Conservation Estate, many other biodiversity assets are located on private property and in road reserves. Linking all these assets regardless of ownership is important for maintaining connectivity between natural areas.

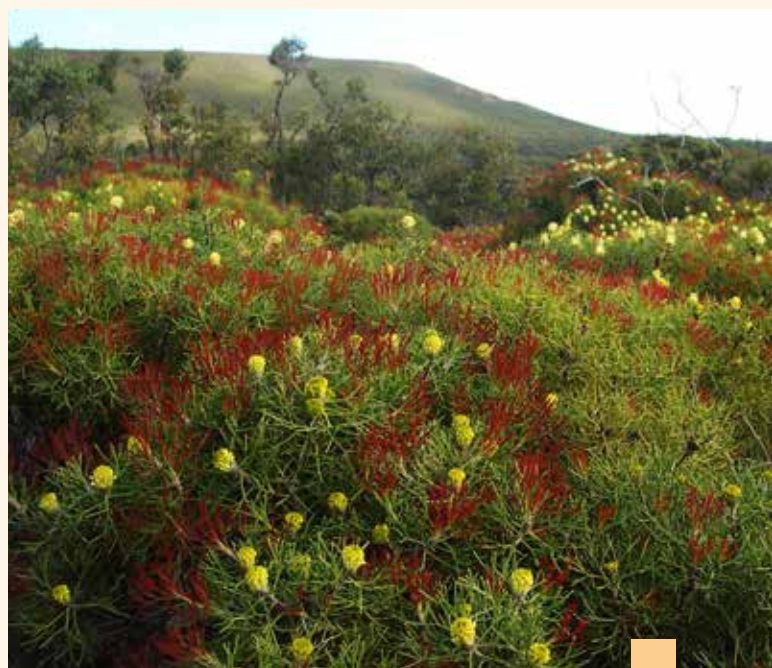
Gondwana Link and the Great Western Woodlands initiatives are significant conservation collaborations operating within the southern and eastern portions of the Wheatbelt region respectively. The Roadside Conservation Committee also administers an important program of support to local governments for the survey and protection of native vegetation within road reserves across the region. These and other future initiatives will contribute to maintaining connectivity and protecting biodiversity in the Wheatbelt.

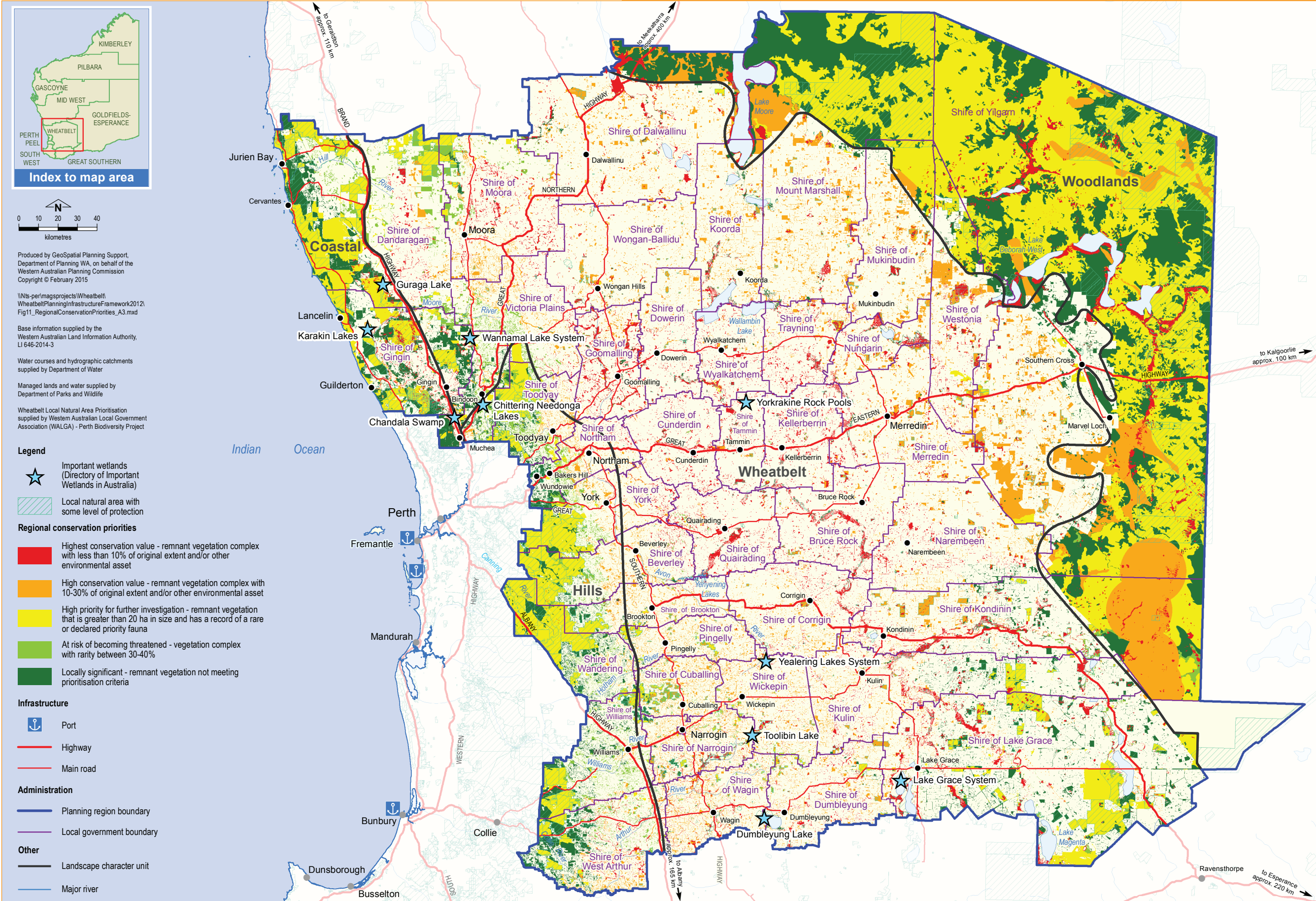
In considering the issue of biodiversity in context of the Wheatbelt’s four landscape units (Coastal, Hills, Wheatbelt and Woodlands), an assessment of regional conservation priorities has been undertaken. The analysis is based on the combination and analysis

of a range of datasets including rare and threatened communities, wetlands mapping, and conservation estate. Priorities have been established based on whether a vegetation complex has less than 10 per cent of its original extent (highest conservation value), between 10-30 per cent (high conservation value) and between 30-40 per cent (At risk of becoming threatened). Remnant vegetation over 20 hectares in size and containing threatened, priority or declared flora or fauna is categorised as requiring further investigation. Other remnant vegetation is categorised as potentially having local significance.

Regional conservation priorities are shown on Map 7. Generally the Coastal, Hills and Woodlands landscape units have a reasonably adequate coverage of conservation estate, and settlement patterns such as to reduce impact on vegetation. As many planning proposals tend to deal with conservation values on a site-specific basis, the purpose of Map 7 is to provide regional context to aid decision-making, particularly in the preparation of local planning strategies and schemes.

Confirmation of the priorities needs to occur at a local level taking into account land required for development, basic raw materials and other purposes.





Map 7: Regional conservation priorities



5.5 Sustainable use of resources

5.5.1 Water resources

There is a great diversity of water resources including fresh and saline wetlands, salt lakes, waterways and groundwater systems in the Wheatbelt. The sustainable management of these resources is important for agriculture, settlements and water-dependent ecosystems, and is fundamental to the future of the region.

5.5.2 Groundwater

The zone of ancient drainage, located east of the Meckering Line has extensive regional aquifers that are generally saline and not suitable for irrigated agriculture or potable use. Fresh water in this area is only found in superficial sediments, granite rock fractures and hillside seeps. Low salinity groundwater resources are thought to be limited to a narrow strip between the Meckering Line and the Darling Scarp

The coastal areas of the Wheatbelt fall within Gingin and Jurien Groundwater areas of the Northern Perth basin. Agricultural and horticultural production, public water supply and mining are the major water uses in these groundwater areas.

Across the Region there are large volumes of groundwater available for development (more than 130 000 ML/year), mostly from the Jurien Groundwater area. The water resources across the Gingin groundwater area are largely allocated. Actual volumes available for site specific abstraction from the Northern Perth basin vary depending on localised hydrogeology and water quality.

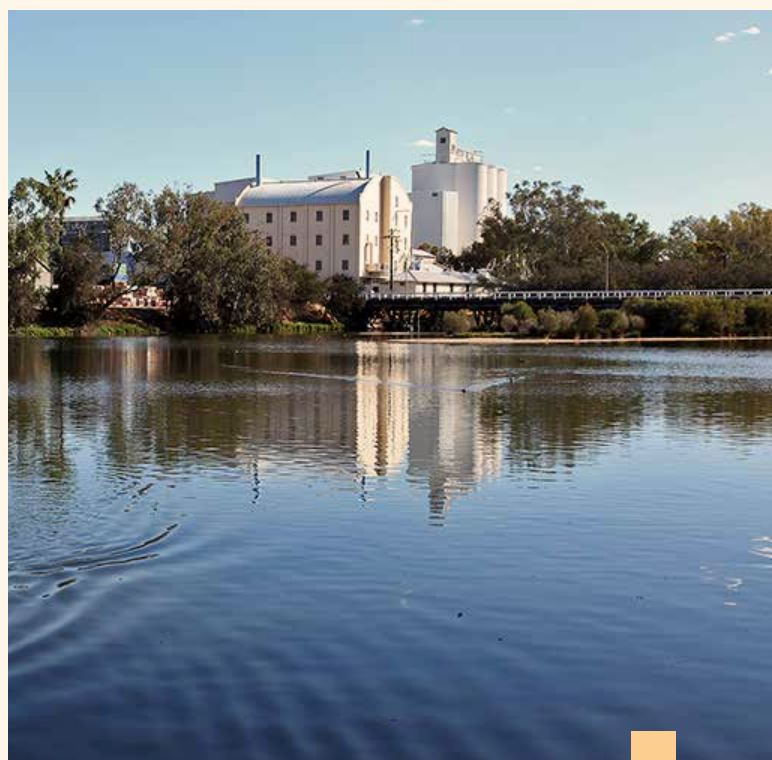
In areas where no further water is available for development, further demand can only be met by increasing water use efficiency; by water entitlement transactions (trading, transfer or leasing); or by developing other sources. For example, water trading is under consideration to service future development including the proposed Muchea Employment Node.

There is increasing competition for access to good quality fresh water in the Gingin groundwater area and Jurien Groundwater area. The Department of Water prepares groundwater allocation plans that

seek to manage risks to wetlands and waterways of increased water abstraction (due to urban and rural living development, agriculture and new horticulture projects and other industry growth), to inform licensing and plan for climate change. A Jurien Groundwater area groundwater allocation plan has been prepared and one for Gingin groundwater area is anticipated for release in December 2014.

Future reviews of the water allocation plans will be informed by other investigations and planning. These include the Commonwealth funded Mid West Groundwater Dependant Ecosystems project (which identified significant groundwater dependent ecosystems in parts of the Wheatbelt and groundwater investigations in the north Gingin area (to assess water availability and its potential use for horticultural expansion and general agricultural use).

Other areas of the Wheatbelt are unlikely to have groundwater allocation plans developed for them as the demand for water is localised and low, and the potential risks to wetlands and waterways is limited. Licence applications will be considered on a case by case basis.





5.5.3 Surface water

Surface water use in the Wheatbelt is very low. Most rivers are saline and all are seasonal. Some surface water is pumped from streams in the Gingin Brook catchment at the western edge of the region, where the water is generally fresh. Water users pump small volumes directly from streams during the summer months for irrigated agriculture and horticulture.

Flows in the Gingin Brook and other small coastal rivers have declined over the last 30 years due to a drying climate, and are now less viable as water sources for irrigation. Many water users are more frequently experiencing years where there is insufficient water for them to take their full licensed entitlement during the irrigation period.

Surface water abstraction in the Wheatbelt region is licensed in the Gingin Brook and tributaries, Moore River and certain tributaries, and Avon River system surface water areas, which are proclaimed under the *Rights in Water and Irrigation Act 1911*. The Gingin surface water allocation plan (Department of Water, 2011) describes how water is allocated and managed.

5.5.4 Catchments, waterways and wetlands

The majority of the Wheatbelt is within the Avon River Basin, which extends east of the Darling Scarp approximately 500 kilometres. The rest falls into the Moore-Hill Basin to the north and the Blackwood Basin, Murray Basin and Collie River Basin to the south.

The Wheatbelt contains a number of wetlands that are recognised internationally and nationally. Ten wetlands in the Wheatbelt region are listed in the Directory of Important Wetlands in Australia, as shown on Map 7. Toolibin Lake, located in the Shire of Wickiepin, is also included on the Ramsar Convention's List of Wetlands of International Importance and is a Natural Diversity Recovery Catchment. Yenyening Lakes in the Shire of Beverley is also of regional importance.

Since European settlement, water quality within the catchment has altered, resulting in once fresh or near fresh waterways becoming saline, with subsequent adverse effects on agricultural land and wildlife habitat. This is an ongoing trend and a significant challenge for the Wheatbelt.

Rural townsite expansion, rural residential development, and agriculture have the potential to impact on water resources. These forms of land use and development can increase stormwater run-off, pollute wetlands and waterways, increase recreational pressures, and increase water use. It is therefore important that the appropriate management of water resources and floodplains be integrated into land use planning. This is particularly a factor along the Avon River, which runs through Beverley, York, Toodyay and Northam – and for the Moore River which impacts the settlements of Moora and Guilderton.

Future water planning, adaptive and integrated management and licensing is being informed by comprehensive databases and information produced, or being prepared, by Wheatbelt NRM Inc. and the Department of Water. These include the location and condition of wetlands and high-value river pools in the Avon catchment; groundwater-dependent ecosystems in areas where there is growing demand for water resources; foreshore assessment for the Avon River's tributaries; and a catchment management plan for the Mortlock River.

5.5.5 Land and soil resources

Dryland salinity is an ongoing threat to productivity of agricultural land in Wheatbelt valley floors. It also impacts on biodiversity and infrastructure in the region. With declining rainfall the spread of salinity has abated in many areas but it remains widespread, with five of the ten WA local governments that experience the most salinity located in the Wheatbelt. Management to contain or adapt to salinity is technically feasible using plant-based and engineering options. Salt-affected land needs to be managed in a way which minimises on and off-site impacts and enables it to be profitably used, such as through the establishment of salt-tolerant pastures. Engineering approaches, such as drains and pumping to discharge saline groundwater, are regulated under the *Soil and Land Conservation Act 1945*. Large-scale drainage proposals should consider the Department of Water's Policy Framework for Inland Drainage (2012).





Wind and water erosion are seasonal hazards in the Wheatbelt. Wind erosion has been managed by reduced livestock numbers since the early 1990s and extensive adoption of minimum tillage in broadacre agriculture. However, climate variability and a drying climate will increase wind erosion hazard without further improved management practices.

Water erosion hazard has been improved in the Wheatbelt over the past few decades due to declining winter rains, increased stubble retention and adoption of reduced tillage practices. The greatest hazard is associated with the steeper slopes in the vicinity of York, Northam and Toodyay. Water erosion events are mainly caused by intense, localised summer storms, which appear to be increasing in frequency in the eastern wheatbelt and south-eastern coastal areas.

Soils that are susceptible to compaction are widespread, requiring further investigation to determine the extent and severity of the hazard. Soil compaction can be managed by modifying farm practices. Water repellence is a widespread problem on particular soils in medium to high rainfall zones. The extent and severity of the issue appears to be increasing with greater cropped areas, early sowing, minimum tillage and reduced rainfall at break of season. Most of the Wheatbelt region was rated as fair or poor on this issue, with coastal areas rated as very poor (Department of Agriculture and Food WA, 2013).

Dryland salinity threatens the ongoing productivity of the agricultural sector in the region. There is a high risk of ongoing salinity in the eastern and northern-eastern Wheatbelt particularly in areas located in and adjacent to valley floors. Five of the ten Western Australian local governments that experience the most salinity are in the Wheatbelt region.

Salinity management is complex and requires an integrated response at the farm and catchment scale. There is ongoing research to determine the impact of different management strategies on groundwater trends at the catchment level as a basis for improving salinity management.

Deep drains are one option that has been increasingly used to address dryland salinity across the Wheatbelt. Given potential negative environmental consequences, the use of deep drainage is regulated and should be considered in the context of catchment water management.

Farm forestry can also play a significant role in addressing soil and water salinity, and rising groundwater levels.

5.5.6 Townsite salinity

The risk of salinity to town sites within the Wheatbelt is often significant as settlements were historically located low in the landscape. The Rural Towns – Liquid Assets program has assisted many communities to develop approaches for managing townsite salinity impacts, water management and limiting damage to buildings and infrastructure.

Options for reducing the risk of rising saline groundwater in town sites includes limiting scheme water use; stormwater harvesting, water recycling, repair of leaks from water pipes, pools, dams and drains; replacing septic systems with sewer systems; revegetation and protection remnant vegetation.





5.5.7 Soil acidification

Parts of the Wheatbelt are affected by soil acidity, and Wodjil soils in the eastern and north-eastern Wheatbelt are naturally acidic. Acidic soils cause losses in crop production and restrict crop choice, with reduced plant growth leading to increases in erosion and nutrient leaching. Soils can also become more acidic with product removal, legume rotations and the use of ammonium-based fertilisers.

More than 14.25 million hectares of Wheatbelt soils are estimated to be acidic or at risk of becoming acidic and restricting production (Department of Agriculture and Food WA, 2009). This is more land than that affected by dryland salinity. Estimates for the Avon River Basin indicate that about 93 per cent of surface soils and 83 per cent of subsurface soils have a moderate to high risk of acidification.

The primary means of addressing soil acidification is by application of agricultural lime. However, research suggests that farmers are using less lime than required to maintain existing acidity levels.

5.5.8 Acid sulphate soils

A different issue is that of acid sulphate soils. Acid sulphate soils may be found in some parts of the Wheatbelt where salinisation has occurred (such as near Brookton and Beverley) and are also likely to be associated with wetlands in the coastal parts of the region. Acid sulphate soils are naturally occurring and are benign in their natural state. However, once exposed to the atmosphere they oxidise, producing sulphuric acid and iron compounds.

Exposure of acid sulphate soils can have a number of adverse impacts, such as corrosion of infrastructure e.g. concrete, steel pipes and bridges, and harm to waterways and wetlands.

5.5.9 Basic raw materials

Basic raw materials (BRM), include sand, clay, hard rock, limesand, limestone dolomitic lime, gypsum and gravel and are in demand both from within the Wheatbelt region and to service the Perth metropolitan area. BRMs are used in construction, road building and agriculture. Significant deposits of basic raw materials are located on private land.

Areas of the Wheatbelt contain State-significant BRM resources, including clay in the Muchea-Chittering area and limestone on the Gingin coastal areas around Lancelin and Ledge Point.

There are known abundant sources of agricultural lime in the Shire of Dandaragan and the Shire of Gingin. Given projected strong population growth in these shires, it is important to consider the impact of residential and rural living development on the supply of agricultural lime and other BRMs when making planning decisions.

Map 4 identifies the BRM in a regional context.

5.5.10 Bushfire protection

Bushfire protection is a land planning and development issue in those parts of the Avon Arc and coastal shires where residential and rural living settlement is occurring in hilly vegetated areas. The WAPC's Planning Guidelines: Planning for Bush Fire Protection edition 2 (2010) address bush fire protection at various stages of the planning process. The WAPC has continued to refine its approach to bushfire management and in December 2013, published Planning Bulletin 111/2013 to clarify matters that have arisen since the Guidelines were released.

In May 2014, *State Planning Policy 3.7: Planning for Bushfire Risk Management* and supporting guidelines were published for public consultation. The draft policy places a strong emphasis on addressing bushfire issues at the earliest available planning stage. To complement the draft policy, the Minister for Planning has also released proposed bushfire regulations for consultation. The Regulations are intended amongst other things to define more clearly what areas are considered to be bushfire-prone area for the purposes of building and planning regulation.

Bushfire protection measures such as the construction of fire breaks in steep terrain and the removal of vegetation from around dwellings can have adverse environmental impacts, such as soil erosion and altered drainage patterns. Conversely, measures designed to address land degradation issues, such as de-stocking and revegetation of understorey species, may increase bushfire hazard over time.





5.6 Planning approach for Valued Natural Amenity

In its decision-making, the Western Australian Planning Commission will aim to:

- 1) Conserve, enhance and manage biodiversity assets to:
 - maintain and improve environmental and cultural connectivity across the region; and
 - limit threats to the health of remnant bushland and conservation areas;
- 2) Identify and manage threats to soil and water quality;
- 3) Protect and manage the coast for environmental and tourism values.
- 4) Be reflective of coastal vulnerability and sea level rise predictions.
- 5) Recognise, protect and promote the valued visual characteristics of the Wheatbelt's urban, rural and natural landscapes.
- 6) Guide the identification, protection and management of local environmental assets, and connections between them.
- 7) Ensure the protection of State strategic Basic Raw Materials from development that could prevent their future use.
- 8) Consider the impact of bushfire, flooding and other hazards.
- 9) Ensure that water supplies are available in considering proposals for urban and rural living, agriculture and horticulture and industry.



Image provided by Wheatbelt Development Commission





List of acronyms and abbreviations

Department of Aboriginal Affairs	DAA
Department of Agriculture and Food WA	DAFWA
Department of Communities	DoComm
Department of Culture and the Arts	DCA
Department of Education	DoE
Department of Environmental Regulation	DER
Department of Health	DoH
Department of Housing	DoHousing
Department of Parks and Wildlife	DPAW
Department of Planning	DoP
Department of Regional Development & Lands (former agency)	RDL
Department of Sport and Recreation	DSR
Department of Training and Workplace Development	DTWD
Department of Transport	DoT
Department of Water	DoW
Community Arts Network WA	CANWA
Economic Development Australia	EDA
Great Western Woodlands	GWW
Gigalitre (a billion litres)	GL
Gingin Groundwater Area	GGA
Goldfields and Agricultural Water Supply Scheme	GSWSS
Great Southern Towns Water Supply Scheme	GSTWSS
Heritage Council WA	HCWA
Infrastructure Coordinating Committee	ICC
Jurien Groundwater Area	JGA
Local Government	LG
Main Roads WA	MRWA
National Broadband Network	NBN
North Eastern Wheatbelt Regional Organisation of Councils	NewROC
Non-Government Organisation	NGO
Public Transport Authority	PTA
Public Utilities Office	PUO
Regional Development Australia –Wheatbelt	RDAAW
Regional Mobile Communications Project	RMCP
Roe Regional Organisation of Councils	RoeROC
South West Aboriginal Land and Sea Council	SWALSC
South West Interconnected System	SWIS
State Planning Strategy	SPS
Tourism WA	TWA





Viewer Access Satellite Television
WA Country Health Service
WA Local Government Association
Wheatbelt Development Commission
Wheatbelt Natural Resource Management
Western Australian Planning Commission

VAST
WACHS
WALGA
WDC
WNRM
WAPC





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