



Department of Planning,
Lands and Heritage



North-West Sub-regional Planning Framework

March 2018



The Department of Planning, Lands and Heritage acknowledges the traditional owners and custodians of this land. We pay our respect to Elders past and present, their descendants who are with us today, and those who will follow in their footsteps.

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North-West Sub-regional Planning Framework

March 2018



Perth and
Peel@3.5million

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FOREWORD

by the Minister for Transport;
Planning; Lands

iv

MESSAGE

from the Western Australian
Planning Commission Chairman

v

1 INTRODUCTION

1.1 Framework for a city of
3.5 million people

vi

1

1.2 North-West Sub-regional
Planning Framework

2

2 PLANNING CONTEXT

2.1 Western Australian
Planning Framework

5

2.2 *State Planning
Strategy 2050*

6

2.3 *Directions 2031
and Beyond*

6

2.4 Metropolitan
Region Scheme

6

2.5 Preceding sub-regional
structure plans
and strategies

8

2.6 Aboriginal heritage
and native title

8

2.7 The spatial plan for
Perth and Peel@3.5million

10

2.8 Other regional initiatives

11

**3 SUB-REGIONAL
PLANNING FRAMEWORK**

12

Introduction

13

3.1 Key planning
framework principles

14

3.2 Consolidated
urban form

16

3.3 Economy
and employment

24

3.4 Community and social
infrastructure

32

3.5 Movement and access

35

3.6 Service infrastructure

42

3.7 Environment
and landscape

45

3.8 Natural resources

48

4 IMPLEMENTATION

50

Introduction

51

4.1 Implementation
mechanisms and actions

51

4.2 Staging and sequencing

57

4.3 Infrastructure coordination

63

4.4 Monitoring and review

63



5 GLOSSARY, REFERENCES AND APPENDICES 64

Appendix 1 – Consolidated urban form	73
Appendix 2 – Economy and employment	75
Appendix 3 – Environment and landscape	78

LIST OF TABLES, FIGURES AND PLANS

Table 1: Planning framework timeframes	13
Table 2: Urban Investigation areas – key considerations	18
Table 3: Planning Investigation areas – key considerations	20
Table 4: Urban infill dwelling targets by local government	21
Table 5: 10 Principles for urban consolidation	22

Table 6: Industrial Investigation areas – key considerations	30
Table 7: Implementation actions	52
Table 8: Anticipated staging and average urban land demand	57
Table 9: Infrastructure staging	61
Figure 1: North-West sub-region	3
Figure 2: Western Australian Planning Framework	5
Figure 3: Metropolitan Region Scheme	7
Figure 4: <i>Perth and Peel@3.5million</i> – a spatial plan	9
Figure 5: Employment and economic network 2050	25

Plan 1: The planning framework	15
Plan 2: Consolidated urban form	19
Plan 3: Employment opportunities	27
Plan 4: Community and social infrastructure	33
Plan 5: Public transport	37
Plan 6: Regional roads	39
Plan 7: Freight and aviation	41
Plan 8: Service Infrastructure	43
Plan 9: Environment and natural resources	47
Plan 10: Urban staging	58
Plan 11: Infrastructure staging	60



Foreword by the Minister



Hon Rita Saffioti, MLA
Minister for Transport;
Planning; Lands

I am pleased to release the final *Perth and Peel@3.5million* suite of land use planning and infrastructure frameworks. The Central, North-West, North-East and South Metropolitan Peel frameworks guide the future growth of the Perth and Peel regions as a compact, consolidated and connected city that can accommodate a population of 3.5 million by 2050.

These documents seek to enable the creation of liveable and vibrant communities – suburbs, spaces and places where people want to live, work and socialise.

Where you can go to work close to where you live.

Where you can send your children to a school close to home.

Where you can visit a national park and enjoy our native fauna and flora.

Where you can buy groceries at the local shops, kick a footy at an oval or play in the park, a short walk, drive or bus ride from home.

The frameworks propose an urban footprint to ensure the Perth and Peel regions grow into the communities of tomorrow. They aim to strike a balance between the factors that make a community, from identifying enough land for residential, commercial and industrial development to how to best use proposed and existing social, community and physical infrastructure. This has all been achieved while protecting the regions' significant environmental attributes.

While a substantial volume of work underpins these documents, there is a need for further development of transport networks, including METRONET, and an increased focus on infrastructure-led planning. In this respect, these are not static documents; they will grow and evolve, as the State will, to ensure they continue to be relevant and respond to our changing landscape. They will be continually monitored with an initial review to be undertaken after three years.

Some 800,000 new homes are required to accommodate the projected population growth of 3.5 million by 2050 and this will be delivered through a mix of infill and greenfield development with targets of 47 per cent and 53 per cent respectively.

Good design and amenity is of the utmost importance to creating liveable communities. The State Government is taking a leading role through the development of a new suite of policies that will make sure design is at the forefront of all planning decisions.

Over the next four years, my key priority will be the delivery of METRONET, an integrated and coordinated land use and public transport plan that will connect our suburbs, reduce our chronic road congestion and give Perth the rail system it needs for the future. It will ensure land use outcomes are at the forefront of the design of new infrastructure and lay the groundwork for vibrant new communities.

METRONET will also guide the structural evolution of our city, linking diverse urban centres together for the first time and providing opportunities for greater density and infill development through multiple key suburban centres. It provides tangible form to the sub-regional land use planning and infrastructure frameworks as we prepare for the future.

I would like to thank the Western Australian Planning Commission and the Department of Planning, Lands and Heritage for the hard work involved in developing these documents, as well as everyone who contributed. Your participation will ensure that Perth and Peel will offer dynamic, vibrant and liveable communities that we can be proud of.



Message from the Chairman



Eric Lumsden, PSM
Chairman, Western Australian
Planning Commission

Today we live in a city that was largely planned more than 60 years ago.

The once-in-a-generation *Plan for the Metropolitan region Perth and Fremantle* (1955) - the Stephenson-Hepburn Plan - set out to accommodate 1.4 million people by 2005. This landmark plan provided the basis for the city's current spatial form and introduced many of the elements that define living in Perth and Peel including establishing regional national parks and securing river foreshores and coastal zones for the benefit of all Western Australians. It also initiated a 'corridor' approach for strategic land use planning from the 1970s to the turn of the century.

However, an increasing population has required different land use planning responses, reflected in

strategies such as *Metroplan* in 1990 and *Directions 2031 and Beyond* in 2010. Importantly, assumptions that urban development corridors, fragmentation of rural land and impacts on the natural environment could continue in a 'business-as-usual' approach have been challenged. These elements cannot be considered as economically, socially or environmentally responsible.

The Perth and Peel regions are now going through another critical period of transition. This rapid evolution is clearly evident through significant urban renewal across our capital city and development within the Peel region, home to some of Western Australia's fastest-growing communities.

Now a new strategy will provide guidance for future homes and jobs for an estimated 3.5 million people by 2050; the *Perth and Peel@3.5million* sub-regional land use planning and infrastructure frameworks are the next step in the process towards securing future sustainable, compact and connected development of the Perth and Peel regions.

The frameworks offer an integrated land use and movement network; they provide certainty over land provision and classification; they guide the timing and location of the physical and social infrastructure needed to support new communities; they seek to avoid and protect important

environmental assets; and they reaffirm the need to redress the balance between residential infill and greenfield development.

The frameworks are a comprehensive whole-of-government response to accommodate this unprecedented population increase within a consolidated urban form, informed by extensive collaboration with all relevant State Government agencies, local governments and other key stakeholders. In particular, they align with other key initiatives such as the critical METRONET initiative.

The frameworks are a first step in the ongoing process of refining and detailing planning proposals for Perth and Peel. They will be reviewed after three years and ongoing refinement will continue through local planning schemes and strategies, structure planning, subdivision and development.

The challenge now is to implement the frameworks effectively.

While Government, in conjunction with local government, will take the lead, effective implementation can only be achieved through a whole-of-community commitment. This is critical, as plans are only as good as the will to implement their vision on behalf of communities, now and into the future.



INTRODUCTION

The North-West Sub-regional Planning Framework aims to establish a long-term, integrated planning framework for land use and infrastructure to guide future growth across the sub-region



1.1. Framework for a city of 3.5 million people

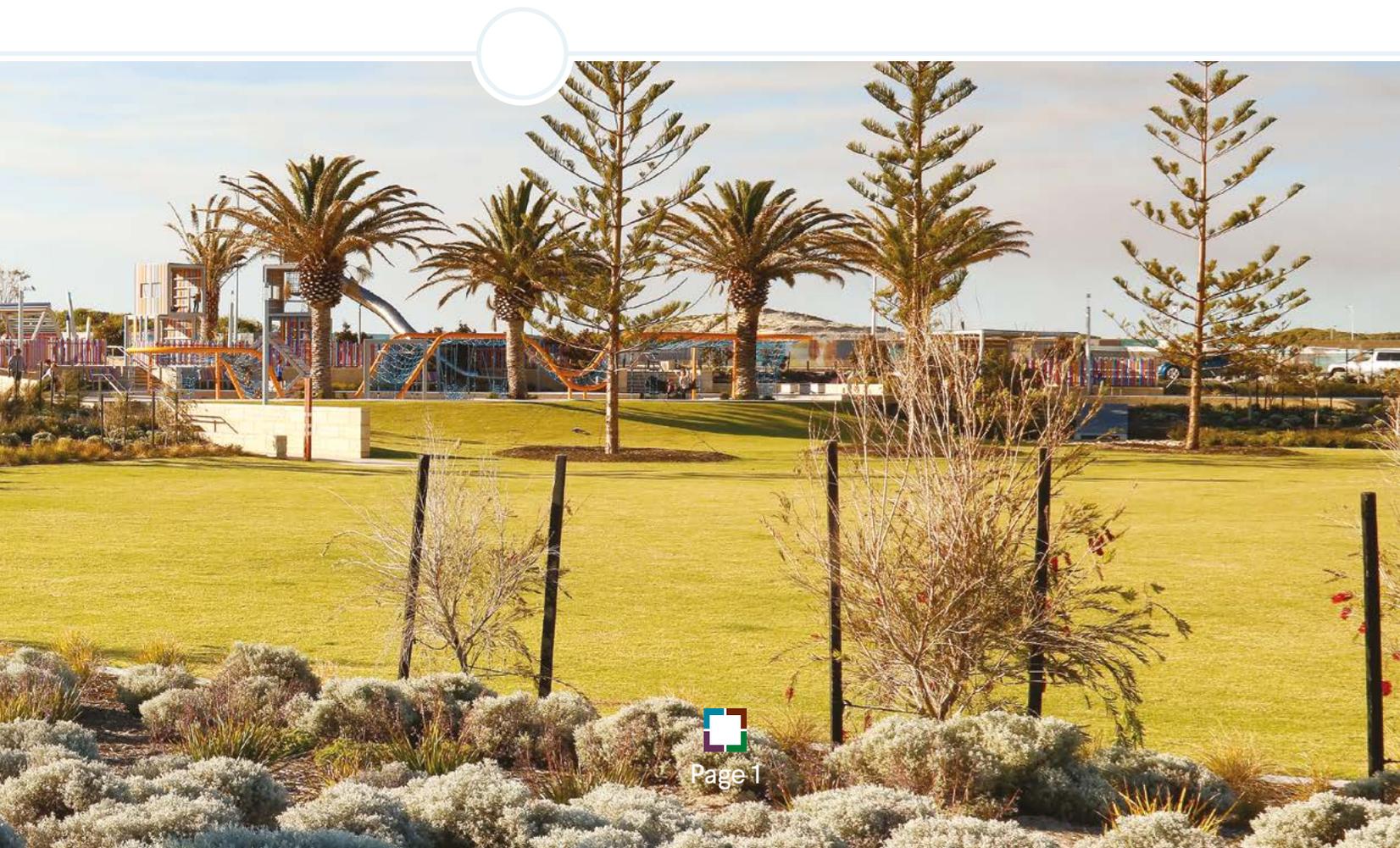
Western Australia's Perth and Peel regions boast an abundance of physical attributes and offer numerous economic and social opportunities which have combined to provide an enviable lifestyle and quality of life that is recognised internationally. Central to this success has been careful planning that has provided housing, employment opportunities and the protection of environmental attributes. Perth and Peel are expected to experience considerable population growth, with a population of 2.9 million expected by 2031 and 3.5 million expected by 2050.

To accommodate the projected population growth and to protect lifestyle values into the future, new approaches to planning and development will be required, focussed on creating a connected city, which is liveable, prosperous and collaborative, linking metropolitan hubs with priority transport proposals.

The *North-West Sub-regional Planning Framework* (the framework) is one of three frameworks prepared for the outer sub-regions of Perth and Peel – North-West, North-East and South Metropolitan Peel (incorporating the Metropolitan South-West,

Metropolitan South-East and Peel sectors). Combined with the *Central Sub-regional Planning Framework*, these establish a long-term and integrated planning framework for land use and infrastructure provision.

The frameworks build upon the principles of *Directions 2031 and Beyond: Metropolitan Planning Beyond the Horizon* and are key instruments for achieving a more consolidated urban form that will reduce dependence upon new urban greenfield developments to accommodate the anticipated population growth by increasing residential density and urban



infill development targets. The frameworks take account of economic modelling, and subsequent refinements following community consultation, based on the overall urban growth scenario for a city of 3.5 million.

The frameworks provide guidance for:

- the preparation of amendments to the Perth metropolitan and Peel region schemes, local planning strategies/schemes, district and local structure plans, and activity centre plans; and
- the staging and sequencing of urban development to inform public investment in regional community, social and service infrastructure.

1.2 North-West Sub-regional Planning Framework

The North-West sub-region (Figure 1) comprises the cities of Joondalup and Wanneroo and covers an area of approximately 785 square kilometres.

The framework sets out proposals to:

- achieve a more consolidated urban form and development within the sub-region;
- meet long-term housing requirements;
- strengthen key activity centres and employment nodes to meet the future needs of industry, commerce and the community;
- identify requirements for key community and social infrastructure such as those required for health and tertiary education;
- provide transport linkages that connect people with key centres of activity and employment, and access to areas beyond the Perth and Peel regions;
- facilitate and support a future regional transportation network and facilitate the provision of service infrastructure;
- identify sites to meet the growing requirements for regional sport and recreation facilities;
- protect areas with regional conservation, environmental or landscape value;
- establish the elements and functions of the green network in supporting an active and healthy community;
- encourage and guide increased connectivity between areas of conservation, open space and urban forest to support ecological systems;
- protect areas with basic raw materials for timely extraction;
- provide ongoing consideration of water supply and protection of public drinking water source areas;
- retain land for rural and agricultural purposes; and
- guide the staging and sequencing of future urban development.



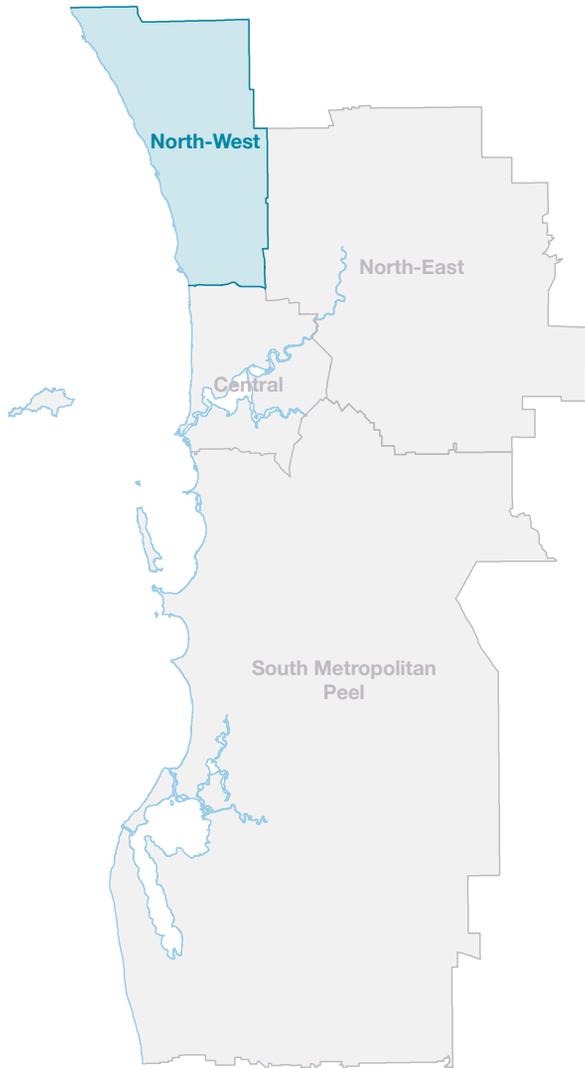


FIGURE 1: North-West Sub-region



PLANNING CONTEXT

The framework provides strategic guidance to government agencies and local governments on all aspects of land use and infrastructure provision in the North-West sub-region



2.1 Western Australian Planning Framework

The sub-regional planning frameworks will be recognised within *State Planning Policy 1: State Planning Framework* and will be taken into account when strategies, policies and plans within the sub-region are prepared or reviewed (Figure 2).

The framework provides strategic guidance to government agencies and local governments on land use, land supply, land development, environmental protection, infrastructure investment and the delivery of physical and community/social infrastructure for each sub-region.

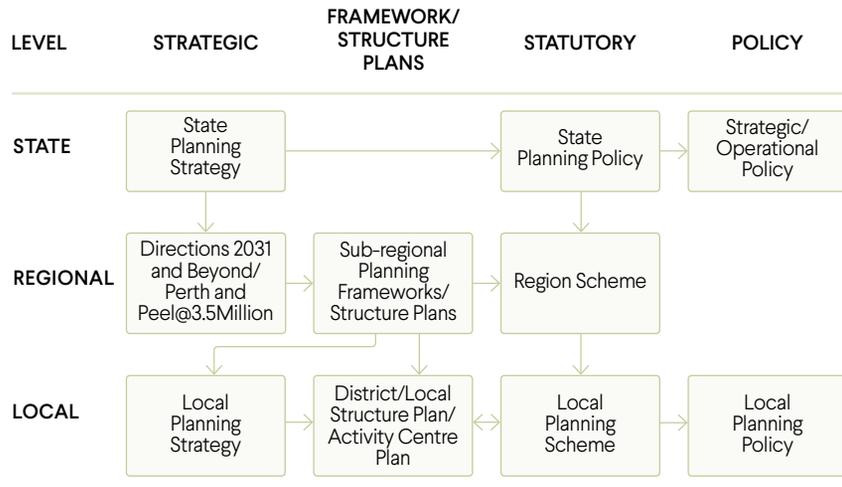
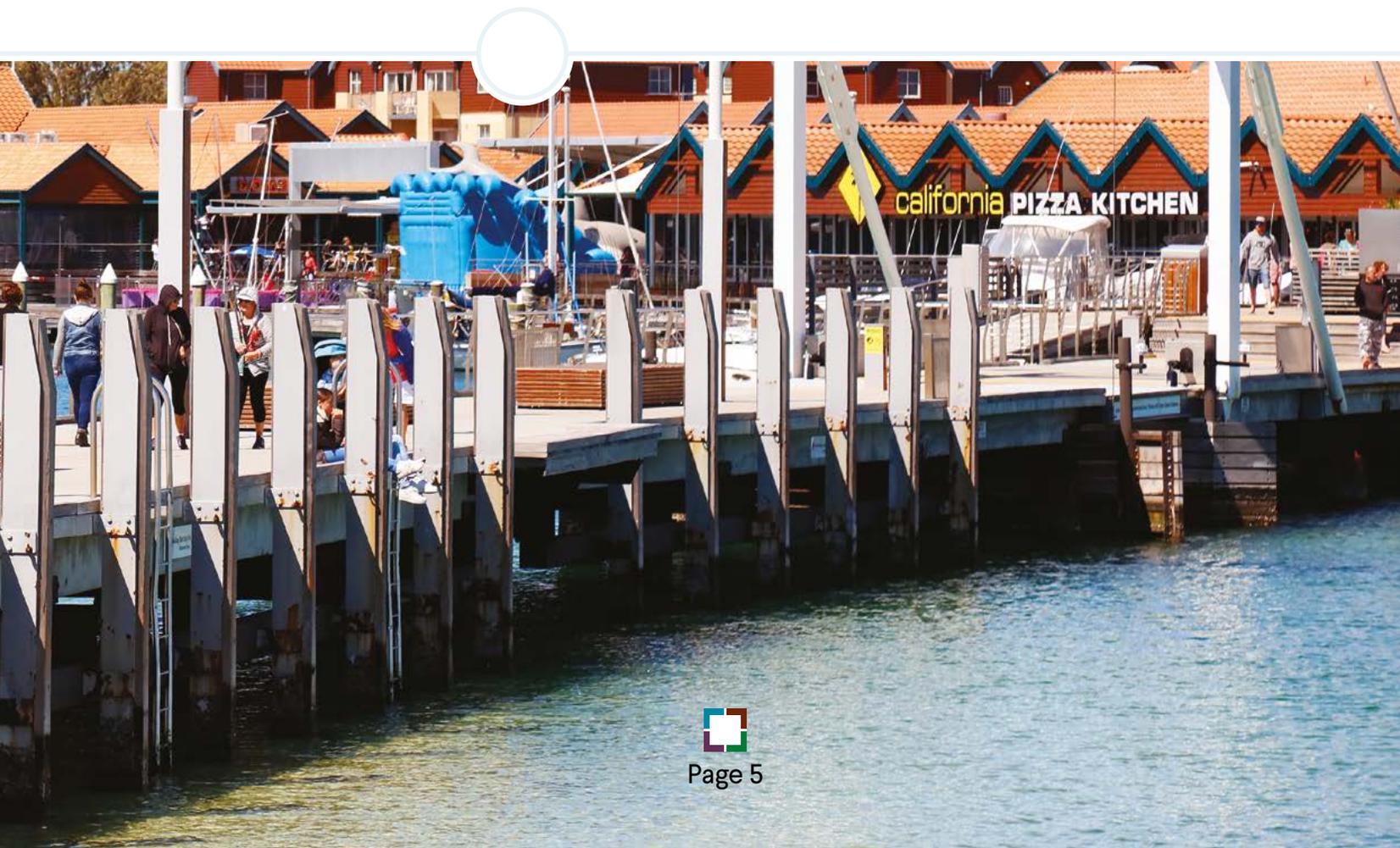


FIGURE 2: Western Australian Planning Framework



2.2 State Planning Strategy 2050

The *State Planning Strategy 2050* is the lead strategic integrated land use planning document for Western Australia, providing the strategic context and basis for the coordination and integration of land use planning and development across State, regional and local jurisdictions. It contemplates a future in which high standards of living, improved public health and an excellent quality of life are enjoyed by present and future generations of Western Australians. The strategy proposes that diversity, liveability, connectedness and collaboration must be central to achieving the vision of sustained growth and prosperity, and establishes principles, strategic goals and directions to ensure the development of the State progresses towards this vision. Population projections in the document indicate that Western Australia's current population could double to 5.4 million by 2056 and the Perth metropolitan region could be home to around 4 million people based on a high-growth scenario.

2.3 Directions 2031 and Beyond

Released in 2010, *Directions 2031 and Beyond* is a high-level strategic plan for the Perth and Peel regions that establishes a vision for future growth — creating a world-class city that is green, vibrant, more compact and accessible and with a unique sense of place.

Directions 2031 and Beyond highlights the benefits of a more consolidated city that accommodates future population growth while aiming to protect the environment and achieve a more sustainable pattern of urban development and effective transportation networks. It also:

- sets a target for a 50 per cent increase from the then current average residential density of 10 dwellings per gross urban zoned hectare in new residential areas, to 15 dwellings per gross urban zoned hectare; and
- sets a target for a 50 per cent increase from the then current 30–35 per cent level of urban infill development, to 47 per cent, within the Perth and Peel regions.

Additionally, the plan seeks to address the relationship between where people live and where they work with the aim of reducing commuting time and cost through the delivery of improved

employment self-sufficiency across the outer sub-regions.

The key principles of *Directions 2031 and Beyond* formed the basis for the development of the *Perth and Peel@3.5million* spatial plan (the spatial plan).

In the event of any inconsistency between *Directions 2031 and Beyond* and the frameworks, the frameworks prevail.

2.4 Metropolitan Region Scheme

The *Metropolitan Region Scheme* (MRS) is the region planning scheme for the Perth metropolitan area and is the principal statutory mechanism for the implementation of future strategic land use and infrastructure proposals (Figure 3). The MRS provides for the acquisition of land (and waterways) where reserved for public purposes including regional open space, public uses and infrastructure.

Local government planning schemes are required to be consistent with the broad land uses assigned under the MRS.



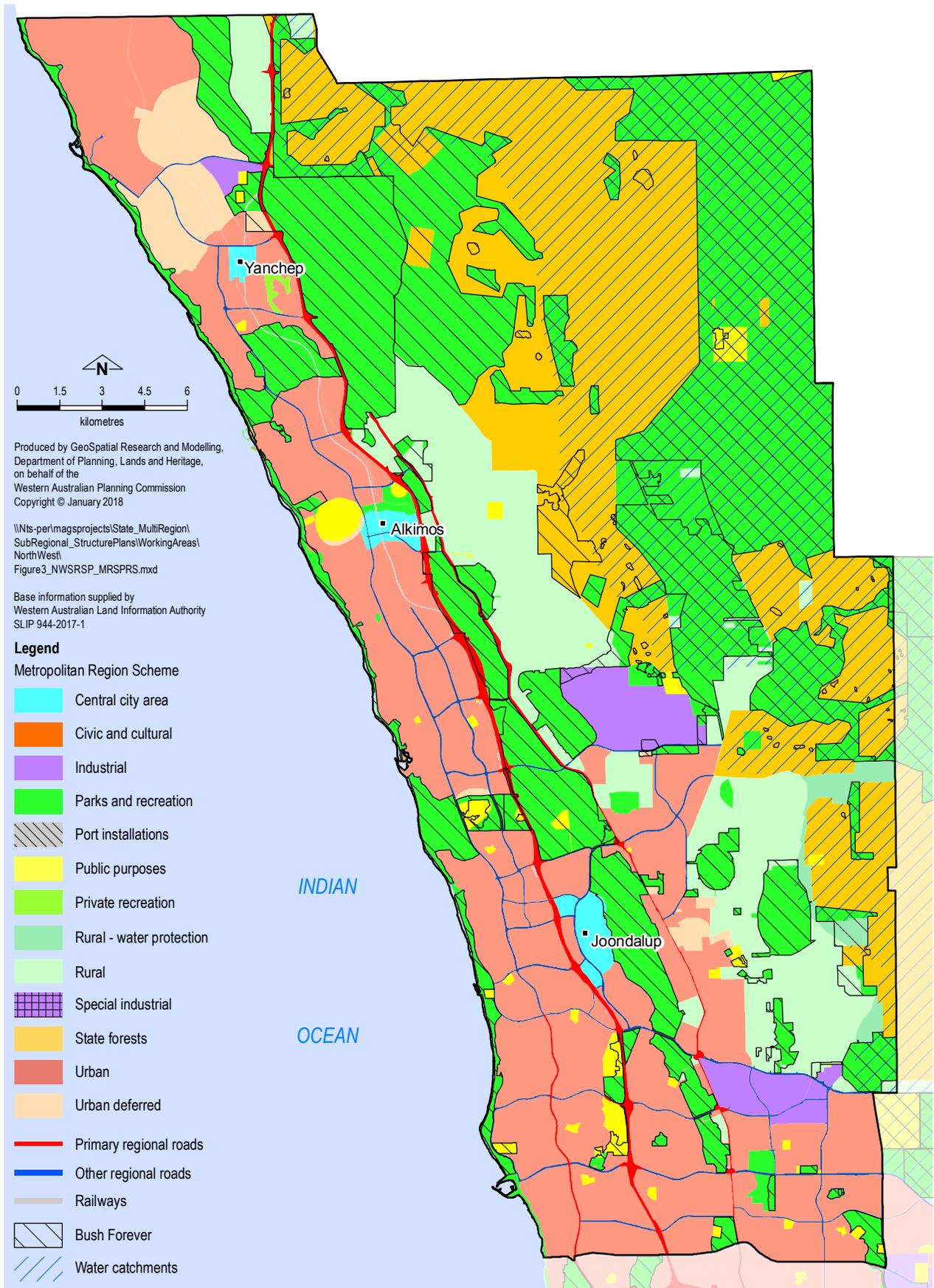


Figure 3: Metropolitan Region Scheme

2.5 Preceding sub-regional structure plans and strategies

High-level strategic documents that previously guided the planning of the sub-region include the *North-West Corridor Structure Plan* (1992), draft *Outer Metropolitan Perth and Peel Sub-regional Strategy* (2010), *East Wanneroo Structure Plan* (2011) and *Economic and Employment Lands Strategy: non-heavy Industrial* (2012). Land use and infrastructure proposals and planning principles within these documents have been refined and, where necessary to account for the current planning context, reviewed within the framework, which will now guide land use planning strategies and policy development in the sub-region.

2.6 Aboriginal heritage and native title

The frameworks acknowledge the traditional owners of the land, past and present. The recognised traditional owners for the Perth and Peel regions are the Whadjuk and Gnaala Karla Booja people – see the Noongar (Koorah, Nitja, Boordahwan) (Past, Present, Future) *Recognition Act 2016*. Broadly, the Whadjuk regions includes the coastal areas from Two Rocks south to Garden Island including Perth, Fremantle and Rottnest Island and extending inland including the area of Jarrahdale, Mundaring and Toodyay. The Gnaala Karla Booja region includes the coastal areas from Kwinana to Capel, including Mandurah and Bunbury and also includes inland areas extending beyond the Perth and Peel regions to just north of Kojonup and just south of Corrigin.

The State Government and South West Aboriginal Land and Sea Council have negotiated the South West Native Title Settlement.

Under the Settlement, native title is proposed to 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.

The South West Native Title Settlement is not yet finalised. Until the Settlement is finalised, the *Native Title Act 1993* (Commonwealth) continues to apply in the Settlement Area. Within the Settlement Area, the *Aboriginal Heritage Act 1972* (WA) applies at all times and will continue to do so after the commencement of the Settlement.

Land users must always consider Aboriginal heritage in their planning processes. The Department of Planning, Lands and Heritage is able to provide advice in relation to the application of the Aboriginal Heritage Act in the sub-regions.



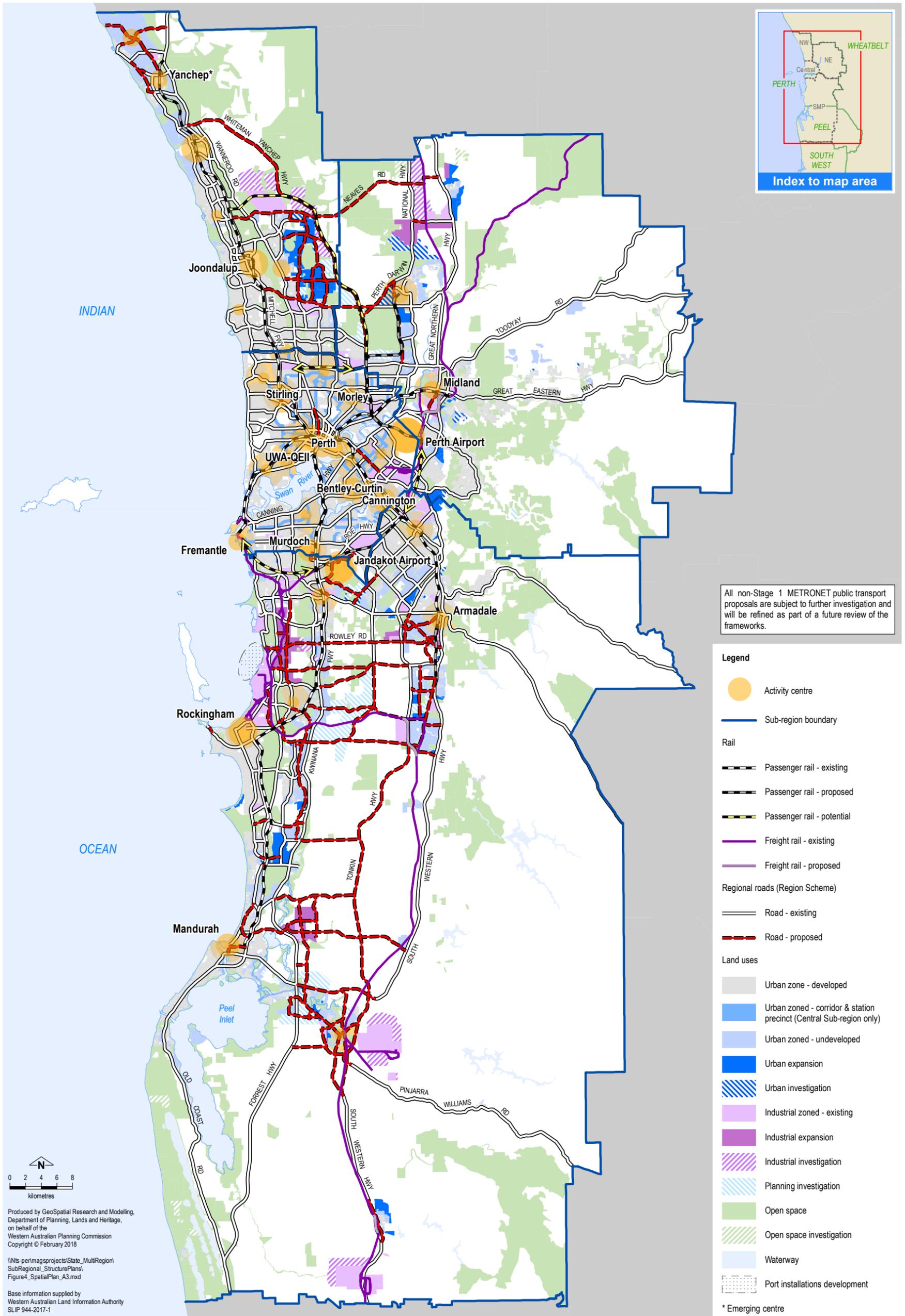


FIGURE 4: Perth and Peel@3.5million – spatial plan

2.7 The spatial plan for *Perth and Peel@3.5million*

The spatial plan for the Perth and Peel regions has been developed with the aim of delivering a more consolidated urban form and achieving a more efficient and cost-effective urban structure that minimises environmental impacts (Figure 4).

This plan has been prepared in collaboration with the Strategic Assessment of the Perth and Peel Regions (SAPPR), which is a holistic response to environmental approval requirements under Commonwealth and State legislation.

The spatial plan has been prepared through an all-of-government approach, taking account of social, economic and environmental considerations including:

- the relationships between future urban land and existing development and infrastructure;
- existing planning commitments such as previously-approved sub-regional and district structure plans;
- fundamental geographic and related considerations that confine most urban development to the coastal plain;
- bushfire risk;
- the expectation that servicing agencies will work collaboratively to maximise future shared infrastructure corridors and sites;
- containment of urban development to minimise further sprawl;
- an assessment of the capacity of existing urban land to meet future requirements for housing and population growth and the amount of additional urban land required;
- a systematic analysis of urban values by rating the potential of all land in the Perth and Peel regions to contribute to, and capitalise on, an efficient urban form;
- a detailed examination of significant environmental values, as set out under State and Commonwealth environmental legislation and policies;
- a review of land requirements for economic and employment opportunities;
- an examination of the capacity of regional infrastructure to add value to existing infrastructure while minimising future costs to service future growth;
- investigations of cost considerations in relation to urban form; and
- investigations into the demand and supply of basic raw materials.

The spatial plan identifies the need to:

- recognise existing regional open space areas and identify those that will be required in the future;
- avoid development within regionally-significant vegetation areas, wetlands and other high-value environmental areas;
- protect regionally-significant landscape values;
- safeguard high-priority groundwater resources;
- ensure the appropriate use of scarce basic raw materials;
- retain options for long-term infrastructure corridors and installations;
- avoid land use conflicts by taking into account buffer requirements such as those required for industry, airports and wastewater treatment plants; and
- exclude development from floodways and other low-lying areas.



2.8 Other regional initiatives

At the time the spatial plan was prepared, more than 16,000 hectares of remnant native vegetation was identified and excluded from future urban, industrial and rural residential development sites, and sites for the extraction of basic raw materials. This involved the exclusion of some sites previously identified as having development potential in preceding sub-regional plans, structure plans and/or local planning strategies.

Sites identified for development within the spatial plan may still contain environmental attributes that need to be identified, avoided and protected at subsequent stages of planning through a variety of mechanisms.

The implementation of the frameworks in accordance with the requisite environmental approvals will enable the Perth and Peel regions to accommodate a population of 3.5 million while meeting the requirements of relevant environmental legislation.

The framework has been developed in collaboration with other State Government agencies and takes into consideration and reflects, where appropriate, a number of important ongoing initiatives such as:

- long-term transport planning for Perth and Peel to provide a network of strategic road and public transport linkages (including METRONET) to support a city of 3.5 million and beyond;
- the *Future State Administered Roads Project* (Main Roads Western Australia), which is a review of future State road classifications;
- *Future Perth Airports Technical Study* (Department of Planning, Lands and Heritage, in conjunction with Department of Transport), which investigates potential sites for a new aviation facility to serve the Perth and Peel regions;
- review of *State Planning Policy 2.2 Gnangara Groundwater Protection* (Department of Planning, Lands and Heritage and Department of Water and Environmental Regulation);
- the identification of high quality, priority agricultural land and primary production precincts across Perth and Peel by the Department of Primary Industries and Regional Development;
- review of *State Planning Policy 2.4 Basic Raw Materials* (Department of Planning, Lands and Heritage), which includes a review of basic raw material mapping; and
- *Perth and Peel regions Water Supply Strategy* (Department of Water and Environmental Regulation) which will identify demand gaps, viable alternative supply options and provide direction for future sub-regional planning.



SUB-REGIONAL PLANNING FRAMEWORK

The framework aims to ensure that a comprehensive approach is taken to planning for residential development, local employment, infrastructure provision and protecting natural resources and environmental attributes



Introduction

This framework provides high-level strategic guidance for the future development of the North-West sub-region to accommodate part of the long-term growth of the Perth and Peel regions to approximately 3.5 million people by 2050.

The framework aims to ensure that a comprehensive approach to planning is undertaken by:

- providing opportunities for residential development and local employment;
- facilitating good accessibility for all modes of transport;
- ensuring the conservation of regionally-significant environmental attributes; and
- protecting natural resources.

The framework has been developed to provide general guidance and inform future amendments to the MRS and to provide a framework for further investigations and detailed planning. The framework is divided into the following three sections:

- objectives;
- strategic direction and priorities; and
- appendices that provide further technical detail supporting the framework.

The framework provides guidance in relation to anticipated timeframes and sequencing for the delivery of urban development sites as well as the identification of industrial sites and key infrastructure, while recognising that the delivery of these sites will depend on a number of factors including demand for land, progress of detailed planning and provision of infrastructure.

The timeframes referenced in the framework are outlined in Table 1.

TABLE 1: Planning framework timeframes

Timing	Timeframe
Short-term	up to 2021
Medium-term	2022 to 2031
Long-term	post 2031



3.1 Key planning framework principles

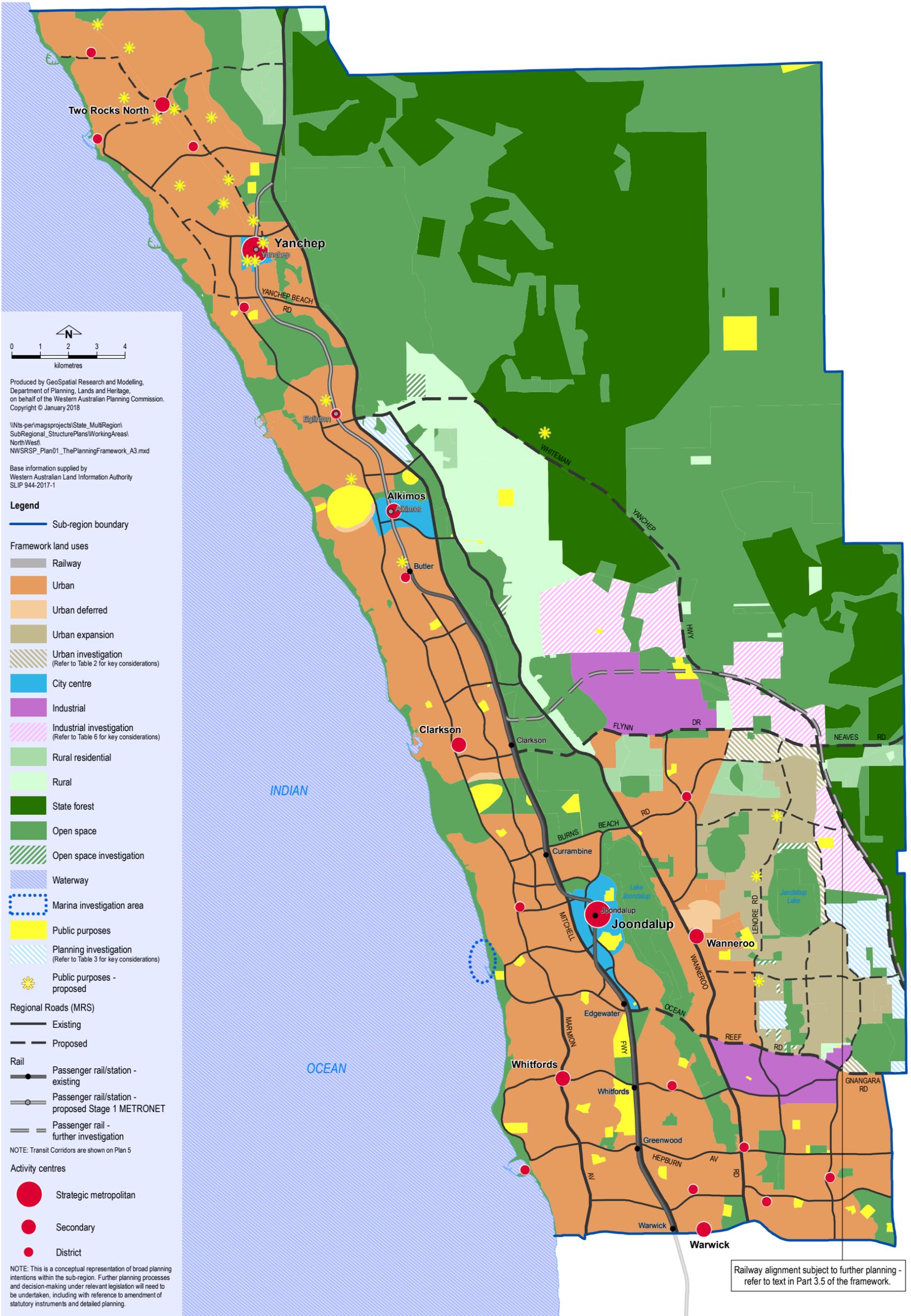
There is a wealth of valued environmental attributes within the sub-region including the coastline, several national and regional parks that encompass banksia woodlands, habitat that supports flora and fauna and a complex system of wetlands. The protection of these attributes from the potential impacts of population growth will require careful consideration and planning at each stage of the planning process.

The following key principles have been fundamental to the development of the framework, culminating in a multi-faceted planning response to avoid, protect and mitigate the sub-region's environmental attributes that are protected under Commonwealth and State environmental legislation.

- Develop a consolidated urban form that limits the identification of new greenfield areas to where they provide a logical extension to the urban form, and that places a greater emphasis on urban infill and increased residential density.
- Avoid areas that are at a high risk of bushfire to manage the potential impact on people, property and infrastructure.
- Limited support for new rural residential development, with the emphasis on areas currently zoned for the purpose.
- Facilitate increasing the number of people living close to where they work with the identification of suitable sites for employment within the sub-region, with a focus on attracting strategic economic and employment land use to the sub-region.
- Protect employment land from other competing land uses that could limit its ability to be used for employment purposes.
- Integrate land use and public transport to contribute to maintaining air quality.
- Maximise the use of and add value to existing infrastructure including transport, community/social and service where there is a concentration of urban and employment opportunities.
- Promote shared infrastructure corridors and sites for transport, community/social and service infrastructure (where appropriate).
- Provide effective and sustainable management of water resources including public drinking water source areas, drainage, nutrient management and water allocation to minimise environmental impacts, particularly in a drying climate.
- Avoid, protect and mitigate impacts on environmental attributes (with an emphasis on avoiding and protecting) when allocating proposed land uses, or address impacts through an improved conservation estate where those impacts cannot be avoided or mitigated, especially the Peel-Harvey Catchment area.
- Identify ultimate land uses for industrial and public purposes sites, while promoting access to finite basic raw materials, through the staging and sequencing of development.
- Retain land for agriculture and food production.

The key land use proposals for the sub-region are shown in Plan 1.





PLAN 1: The planning framework

3.2 Consolidated urban form

Objective

To create sustainable communities that are attractive places to live and work. The consolidation of urban areas will provide for the more efficient use of urban land and infrastructure with improved access to public transport, sport and recreation, community and commercial facilities, while minimising impacts on significant environmental attributes.

Strategic direction and priorities

The sub-region's coastal lifestyle and relative affordability have resulted in it becoming one of the fastest growing areas in the Perth and Peel regions, and nationally, for the past five to 10 years. As a result, the North-West is one of the most populous sub-regions and it is anticipated that this will continue to be the case through to 2050 as the sub-region has a significant supply (over 7,300 hectares) of undeveloped Urban and Urban Deferred zoned land available, predominately within the coastal urban growth corridor.

The population of the sub-region is predicted to increase from 322,490 people in 2011 to over 740,000 by 2050. The population is relatively evenly distributed between the cities of Joondalup and Wanneroo at present, however it is anticipated that post-2021, the rate of growth will be considerably stronger in the City of Wanneroo due to its supply of undeveloped Urban zoned land and continuing demand for coastal living. By 2050, the City of Wanneroo is projected to accommodate nearly three-quarters of the sub-region's total population.

The consolidated urban form identified in the framework has been developed within the context of the overall spatial plan for the Perth and Peel regions. The spatial plan is designed to accommodate a population of 3.5 million people in a more consolidated urban form that focuses on the use of existing infrastructure and minimises environmental impacts.

The framework builds upon key principles and structural elements of *Directions 2031 and Beyond*, specifically, increased urban infill development, higher densities in undeveloped areas already zoned for urban use and limited additional greenfield development, the aim of which is to accommodate sustainable future growth.

To provide the capacity to accommodate projected population growth, vacant and under-utilised urban land that can be serviced with the required infrastructure and that is located in proximity to activity centres, transit corridors and/or areas of high amenity should be identified as a priority for increased density. Planning instruments guiding the development of new areas are to use a minimum average residential density target of 15 dwellings per gross hectare of Urban zoned land.



Planning for the projected population growth is focused on making the most efficient use of transport networks, service infrastructure, employment land and key community/social infrastructure facilities. A foundation of the proposed consolidated urban form is to concentrate the majority of the population within reasonable proximity of a wide range of services and activities, with high-quality built form, public spaces and extensive local green networks. There is a significant

amount of undeveloped zoned land currently available and these areas have been complemented by a limited number of new urban areas to accommodate consolidated population growth. These areas are well located and will deliver sustainable communities that are well integrated with the existing urban form.

Strategic metropolitan centres provide regional-level services and facilities, serving population catchments of up to 300,000

people and are the key element of the network of activity centres. Focusing on opportunities to capitalise on existing and proposed infrastructure within these centres will create a catalyst to deliver a greater mix of land uses, employment opportunities and housing choice and diversity. Access to the sub-region's strategic metropolitan centres in Joondalup and Yanchep will become increasingly important into the future.

The framework seeks to optimise the use of land in close proximity to existing transport infrastructure and key centres of activity and community amenity. To achieve this, a focus for both infill and new urban areas will be the development and evolution of new and existing activity centres into vibrant, mixed-use community hubs that are integrated with high-quality public transport connections.

The proposed consolidated urban form largely avoids and minimises impacts on significant environmental values. Even so, some land classified as Urban/Urban Deferred or Urban Expansion/ Investigation may contain significant environmental attributes and these classifications should not be construed as support for the development of such land. More detailed planning for these sites will



need to prioritise avoidance and/or protection of these attributes. Expanding the tree canopy in developed areas and improving outcomes in new greenfield areas will also contribute to reducing the urban heat island effect and improving urban amenity.

Based on existing development trends, there is sufficient capacity in the proposed consolidated urban form to meet the anticipated demand for additional dwellings beyond 2050. The proposed consolidated urban form for the sub-region is shown in Plan 2.

Urban Expansion/ Investigation

Urban Expansion and Investigation areas have been identified in East Wanneroo (including South Gngara and West Jandabup) and South Pinjar. These areas are in close proximity to existing development and infrastructure within the Wanneroo locality and form a logical consolidation of existing urban areas. However, further detailed planning will need to be undertaken before future urban development can occur in these areas including, but not limited to,

investigations into avoiding and protecting environmental attributes, servicing, community and social infrastructure, movement networks and employment.

In relation to the East Wanneroo Urban Expansion area, further detailed planning should investigate the potential for the locality of Gngara to serve as a transition area between existing industrial development to the south and the remainder of the Urban Expansion area, potentially comprising lower urban densities and the retention of existing vegetation and landscape where possible. Minor refinement of expansion or investigation area boundaries may be required to accommodate more detailed future planning.

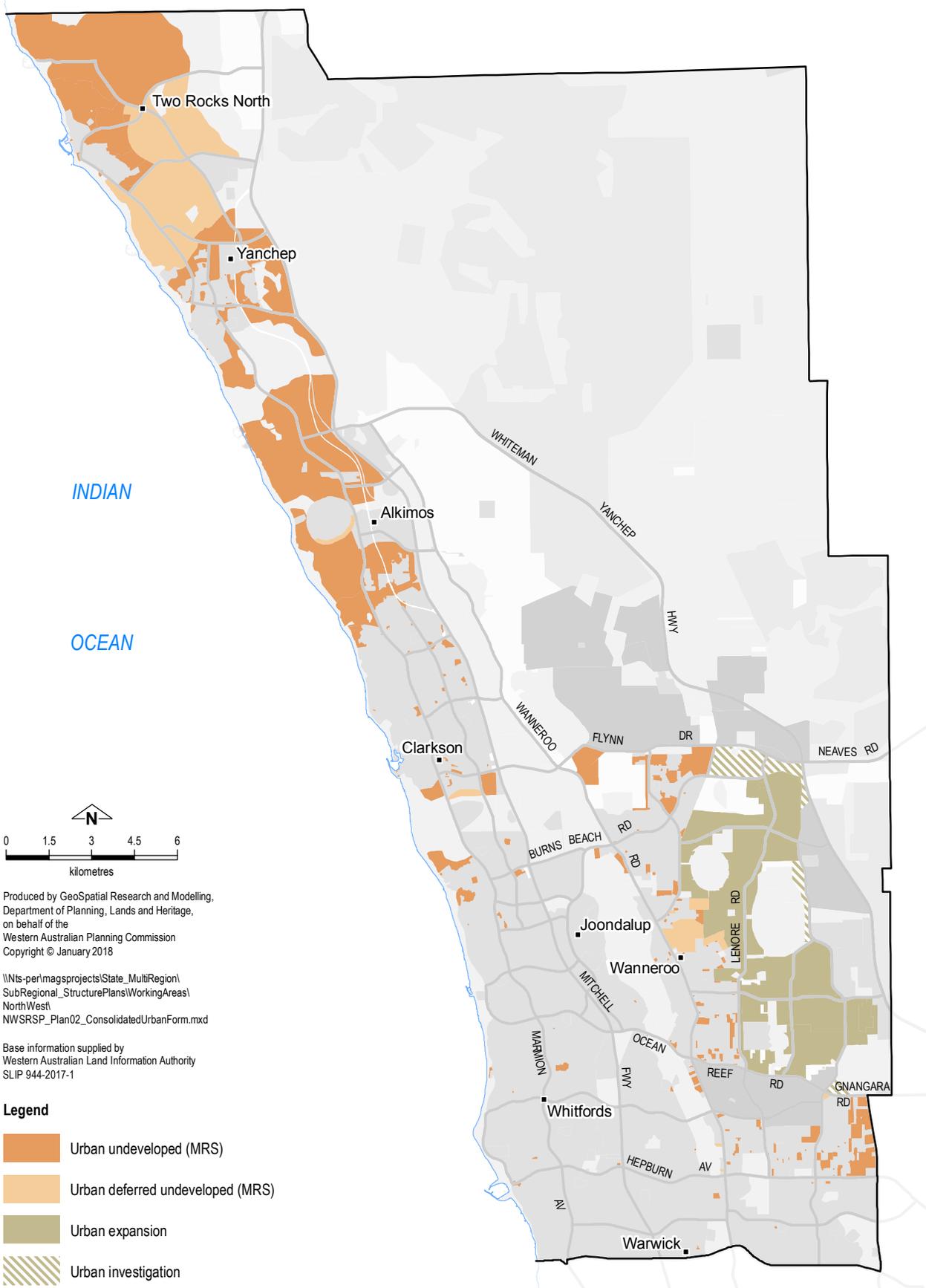
Urban Investigation areas will require further detailed planning to be undertaken prior to consideration of any rezoning under the MRS. The classification of these areas is not to be construed as a commitment by the Western Australian Planning Commission (WAPC) to support any rezoning, as this will depend upon the outcome of further detailed planning investigations. The specific matters that need to be addressed within these areas include, but are not limited to, those in Table 2.

TABLE 2: Urban Investigation areas – key considerations

Site	Key considerations
South Pinjar	<p>Impacts, risks and management of groundwater resources (existing Priority 1 Source Protection Area)</p> <p>Protection of Bush Forever areas and Conservation Category Wetlands</p> <p>Basic raw materials – sequential land use allowing for extraction of sand resources</p> <p>Bushfire risk</p>
South Gngara (Leach Way precinct)	<p>Land use transition/interface with Parks and Recreation reserve (Lake Gngara) and Bush Forever areas</p> <p>Impacts, risks and management associated with groundwater resources (existing Priority 1 Source Protection Area)</p> <p>Bushfire risk</p>
West Jandabup	<p>Impacts, risks and management of groundwater resources (existing Priority 2 Source Protection Area)</p> <p>Land use transition/interface with Parks and Recreation reserve (Jandabup Lake) and Bush Forever areas</p> <p>Bushfire risk</p>

Note: Detailed planning considerations may include additional matters and/or matters not identified at this time.





PLAN 2: Consolidated urban form

Planning Investigation

The framework classifies some limited areas of land in Carabooda, Wanneroo, Jandabup and Gnangara that require further planning investigation as part of the strategic reconsideration of land use in the sub-region. These investigations will determine whether it is possible and/or appropriate to rezone the land. The investigations are required to be undertaken prior to any related MRS amendment processes.

The Planning Investigation classification of these sites should not, however, be construed as WAPC support for a change from the existing zoning, as this will depend on the outcome of further investigations. The specific matters that are intended to be investigated for these sites include, but are not limited to, those listed in Table 3.

TABLE 3: Planning Investigation areas – key considerations

Site	Key considerations
Eglinton East	<p>Employment - identification/confirmation of land for employment generating activities</p> <p>Land use transition/interface with Parks and Recreation reserve and Bush Forever areas</p> <p>Proposed Whiteman-Yanchep Highway</p> <p>Access to regional road network</p> <p>Bushfire risk</p>
Wanneroo (Bebich Drive precinct)	<p>Land use transition/interface with Parks and Recreation Reserve (Bagerup Lake) and Bush Forever areas</p> <p>Protection of significant environmental values including high value Carnaby's Black Cockatoo and Redtail Cockatoo feeding habitats, vegetation with between 10%-30% remaining in Perth and Peel regions and threatened ecological communities</p> <p>Bushfire risk</p>
Jandabup/East Gnangara	<p>Land use transition/interface with Parks and Recreation reserve, Bush Forever areas and Conservation Category Wetland</p> <p>Impacts, risks and management associated with groundwater resources (existing Priority 1 and 2 Source Protection Area)</p> <p>Protection of significant environmental values including high value Carnaby's Black Cockatoo and Redtail Cockatoo feeding habitats, vegetation with 10-30% remaining in Perth and Peel regions, resource enhancement wetlands and threatened ecological communities</p> <p>Potential East Wanneroo Rail Link (to be investigated as part of METRONET Stage 2)</p> <p>Proposed Whiteman-Yanchep Highway</p> <p>Bushfire risk</p>
East Gnangara (Gnangara Road)	<p>Land use transition/interface with Parks and Recreation reserve and Bush Forever areas</p> <p>Impacts, risks and management associated with groundwater resources (existing Priority 1 Source Protection Area)</p> <p>Protection of significant environmental values including high value Carnaby's Black Cockatoo and Redtail Cockatoo feeding habitats, vegetation with 10-30% remaining in Perth and Peel regions, resource enhancement wetlands and threatened ecological communities</p> <p>Potential East Wanneroo Rail Link (to be investigated as part of METRONET Stage 2)</p> <p>Proposed Whiteman-Yanchep Highway</p>

Note: Detailed planning considerations may include additional matters and/or matters not identified at this time.



Urban infill

Infill development within established urban areas has the potential to contribute to housing diversity and respond to ongoing changing demographics and community aspirations. It is expected that infill will also contribute to maximising the use of existing infrastructure and economies of scale for provision of transport and service infrastructure. This will assist in delivering innovative housing typologies and provide opportunities for more affordable living within vibrant and revitalised neighbourhoods characterised by mixed land uses, reduced car dependency, more efficient public transport and increased opportunities for social interaction.

Table 4 sets out minimum infill dwelling targets to 2050 that have been established to guide local governments in the preparation of more detailed planning, including local planning strategies, schemes and structure plans.

Local governments shall have regard to the principles for urban consolidation outlined in Table 5 when identifying locations for future infill development. These principles include a focus on infill within areas with proximity to transit corridors and stations, within activity centres, urban corridors and areas with high-quality open space. This will often align with planning for METRONET and the delivery of METRONET precincts that match

TABLE 4: Urban infill dwelling targets by local government

Local government	Dwelling target	Estimated population
Joondalup	20,670	45,470
Wanneroo	27,920	61,430
Total	48,590	106,900

quality infill with amenity by creating a mix of open space, housing, workplaces and entertainment venues.

The aim is for these locations to accommodate the majority of the infill dwellings required for the sub-region by 2050, while the remaining infill dwellings may be delivered within suburban areas outside of the locations.

The *Central Sub-regional Planning Framework* identifies the specific location of future urban corridors. However, these are yet to be extended into, or identified for, the outer sub-regions. Local governments in the outer sub-regions will need to consider the logical continuation of these urban corridors when preparing local planning strategies and schemes.



TABLE 5: 10 principles for urban consolidation

Principle	Description
1. Housing	Provide well-designed higher-density housing that considers local context, siting, form, amenity and the natural environment, with diverse dwelling types to meet the needs of the changing demographics.
2. Character and heritage	Ensure the attractive character and heritage values within suburbs are retained and minimise changes to the existing urban fabric, where appropriate.
3. Activity centres	Support urban and economic development of the activity centres network as places that attract people to live and work by optimising land use and transport linkages between centres; protecting identified employment land from residential encroachment, where appropriate, and avoiding contiguous linear or ribbon development of commercial activities beyond activity centres.
4. Urban corridors	The focus for higher-density residential development. Where appropriate, located along transit corridors and promoted as attractive places to live by optimising their proximity to public transport while ensuring minimal impact on the surrounding urban fabric and the operational efficiency of the regional transport network.
5. Station precincts	Where appropriate, focus development in and around station precincts (train stations or major bus interchanges as set out under the METRONET initiative) and promote these precincts as attractive places to live and work by optimising their proximity to public transport while ensuring minimal impact on the operational efficiency of the regional transport network.
6. Industrial centres	Promote the current and proposed supply and/or development of industrial centres as key employment nodes and prevent incompatible residential encroachment on these areas.
7. Public transport	Ensure that most transit corridors are supported by quality higher-density residential land uses and identify where new or improved public transport services will be needed to meet long-term growth, especially current and future train station precincts.
8. Infrastructure	Ensure more efficient use of and add value to existing and planned infrastructure to achieve a more sustainable urban environment. Protect existing and proposed infrastructure from incompatible urban encroachment to promote a system where land use developments and infrastructure are mutually compatible.
9. Green network	Preserve, enhance and consolidate the green network of parks, rivers, sport/recreation areas, facilities for active open space, conservation and biodiversity areas, and areas with a high level of tree canopy coverage, considered important for the health and wellbeing of the community.
10. Protection	Avoid, protect and mitigate environmental attributes and promote development that contributes to maintaining air quality and minimises risks of inundation from sea-level rise, flooding or storm surge events and bushfire damage.

Heritage

The sub-region contains some heritage buildings, places and landscapes that need to be preserved for future generations. These contribute to providing a sense of place. Opportunities may exist within urban consolidation areas to add new development in under-utilised areas that can benefit from heritage value and character.

The framework acknowledges there are benefits and opportunities that come with the adaptive re-use of heritage places, including sustainability benefits through retention of existing buildings and reduced demolition waste. A number of design incentives and bonuses are also available to encourage the revitalisation of heritage places. Adaptive re-use, where it can be achieved while respecting the heritage values of a place, is actively supported by the Heritage Council of Western Australia.

Rural residential

Rural residential areas provide alternative lifestyle and housing opportunities and may also provide a transition between urban and rural areas. However, rural residential development is a relatively inefficient form of development, places additional demand on community and service infrastructure that is difficult to meet and can prejudice other future planning options.

State Planning Policy 2.5: Rural Planning states that within the Perth and Peel regions opportunities for rural living, including rural residential development will become more limited, with rural living proposals being considered by exception. On this basis, the creation of new rural residential lots/areas beyond those classified within the framework is unlikely to be supported by the WAPC.

Rural residential areas within the sub-region include portions of Carabooda, Mariginiup and Two Rocks. Opportunities for further rural residential development within the sub-region are limited as no new sites have been classified. Notwithstanding, there remain significant areas of rural residential land available (in excess of 10,000 hectares) for subdivision and/or development within the broader Perth and Peel regions that will provide for a range of rural residential lifestyle opportunities.

Bushfire management

In Western Australia, bushfire is a natural part of the ecosystem, however, with a drying climate the intensity of bushfires and associated risk to life and property has increased, particularly for urban and rural residential development.

The need to appropriately plan land use and development within areas adjacent to bushfire risks has become increasingly prominent over recent years. The effects upon individuals and the community of bushfires can be devastating and close attention must be paid to the application of measures that prevent or mitigate bushfire risks. Accordingly, further development or intensification of land uses where there is a lack of sufficient certainty that bushfire risks can be satisfactorily mitigated will not be supported.

Any proposal for urban development will need to ensure that it has considered, and where applicable applied, *State Planning Policy 3.7: Planning in Bushfire Prone Areas*. This policy includes reference to designated bushfire-prone areas to assist in reducing the risk to people, property and infrastructure by encouraging a risk-based approach to strategic planning, subdivision, development and other planning decisions proposed in bushfire-prone areas. Further investigations are currently being undertaken to review the bushfire planning framework.



3.3 Economy and employment

Objective

To promote employment opportunities and increase the number of people who live and work within the sub-region with a focus on attracting strategic economic and employment land uses within strategic metropolitan centres and key industrial centres, while maximising use of existing and proposed infrastructure.

Strategic direction and priorities

Living within the Perth and Peel regions has generally afforded the population the ability to live in one sub-region and commute to another for employment. However, strong population growth and the need to commute to other areas, particularly the Perth CBD, for employment are placing increasing pressure on the transport network. It is recognised that while not everyone will choose or be able to live in close proximity to their place of work, people commuting long distances will face extended travel times due to periods of congestion on the movement network.

Over the past couple of decades there has been a strategic focus on the promotion of employment opportunities in proximity to

where people live – with varying degrees of success. The North-West sub-region has experienced considerable growth in both population and labour force. However, the combination of an increased labour force coupled with limited employment opportunities within the sub-region has resulted in it having an employment self-sufficiency of 49 per cent (2011) – one of the lowest across the Perth and Peel regions.

Improving the current and future employment self-sufficiency of the sub-region will require the creation of employment opportunities that match the skill sets of its labour force. These include employment sectors such as trades and skill-based employment, healthcare and social assistance, professional, scientific and technical services. There is also potential to grow the sub-region's education and training sectors to expand on existing knowledge-based industries. While the creation of employment opportunities that align with labour force demand is not without challenges, it would assist in improving the functionality of the regional movement network if achieved.

Better integration of land use and movement networks, particularly public and active transport links to employment nodes, will also

assist in addressing the impacts of population growth on the movement network. Considerable progress has been made in relation to the integration of land use and infrastructure, particularly around emerging activity centres.

Industry is attracted to sub-regions with good accessibility and major transport infrastructure such as ports, airports, freight routes and existing or proposed intermodal terminals. The sub-region does not have major transport facilities and is therefore not as competitive as other sub-regions in attracting industrial development. A focus for the sub-region's economy will therefore be strengthening accessibility to the North-East sub-region, which has existing and proposed freight transport infrastructure, in order to support the agglomeration of employment-generating land uses that will be established in Bullsbrook/North Ellenbrook as an economic trade cluster.

An overview of the economy of the Perth and Peel regions, showing key existing and proposed employment centres and economic infrastructure, is shown in Figure 5.

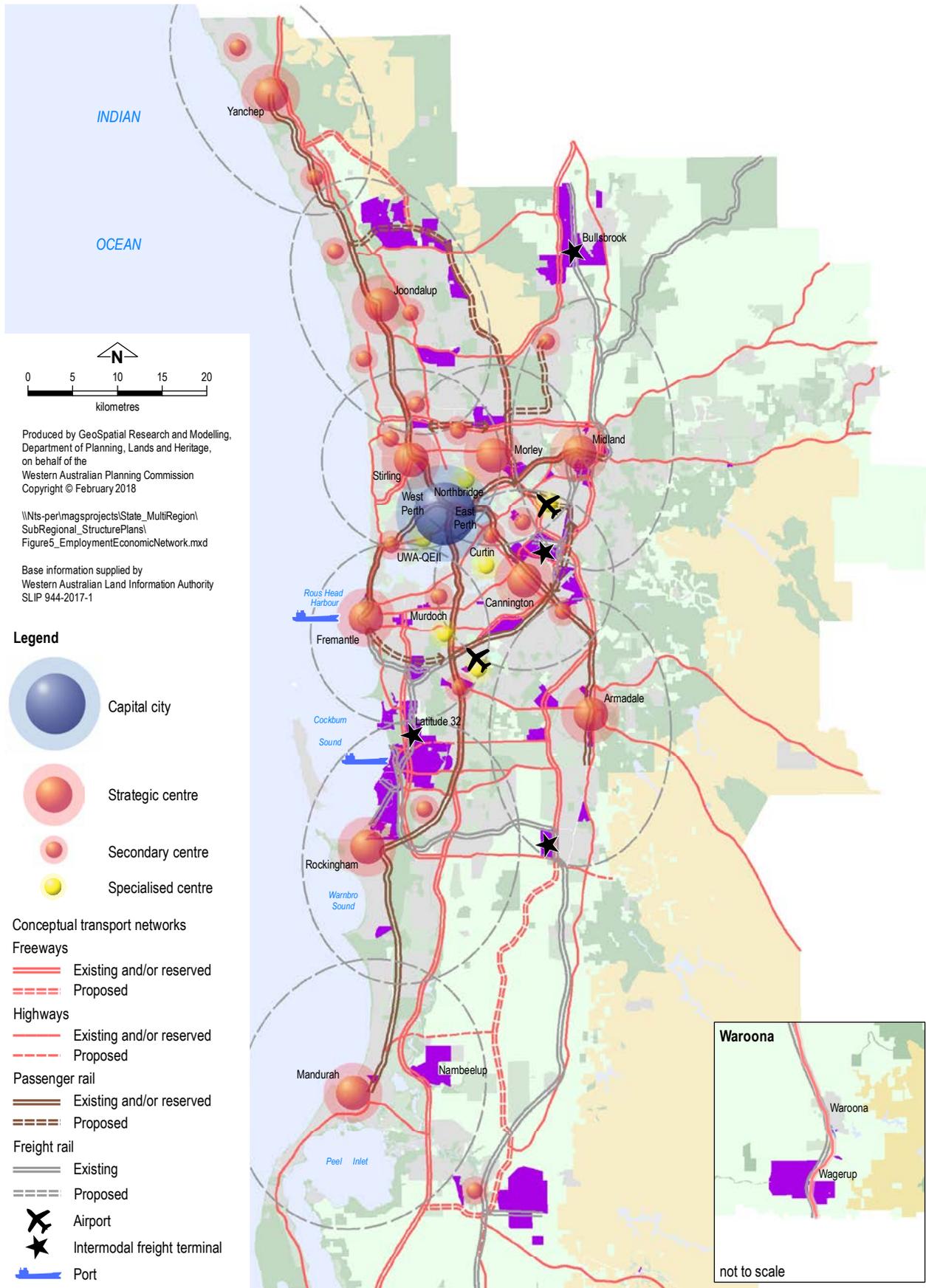


Figure 5: Employment and economic network 2050

The absence of strategic employment land uses in the sub-region means that its economy is primarily population-driven at present, with a significant amount of employment based within the retail and services sectors. It is predicted that future employment demand within the sub-region will largely centre on health care and social assistance, retail trade, education and training, as well as service industries. The planning of activity and industrial centres in the sub-region should be cognisant of the need to accommodate these and other emerging industries into the future to maximise local employment opportunities, particularly within the higher-order activity centres of Joondalup and Yanchep.

Collaboration across government and with the private sector is required to facilitate economic development and improved employment self-sufficiency within the sub-region, particularly

to attract strategic economic and employment land uses and maximise the use of existing infrastructure. *Perth and Peel@3.5million* has identified an overarching vision and key objectives for the future growth of the Perth and Peel regions, including its economic development. Local government has an important role in facilitating economic development through the preparation of local economic development strategies that:

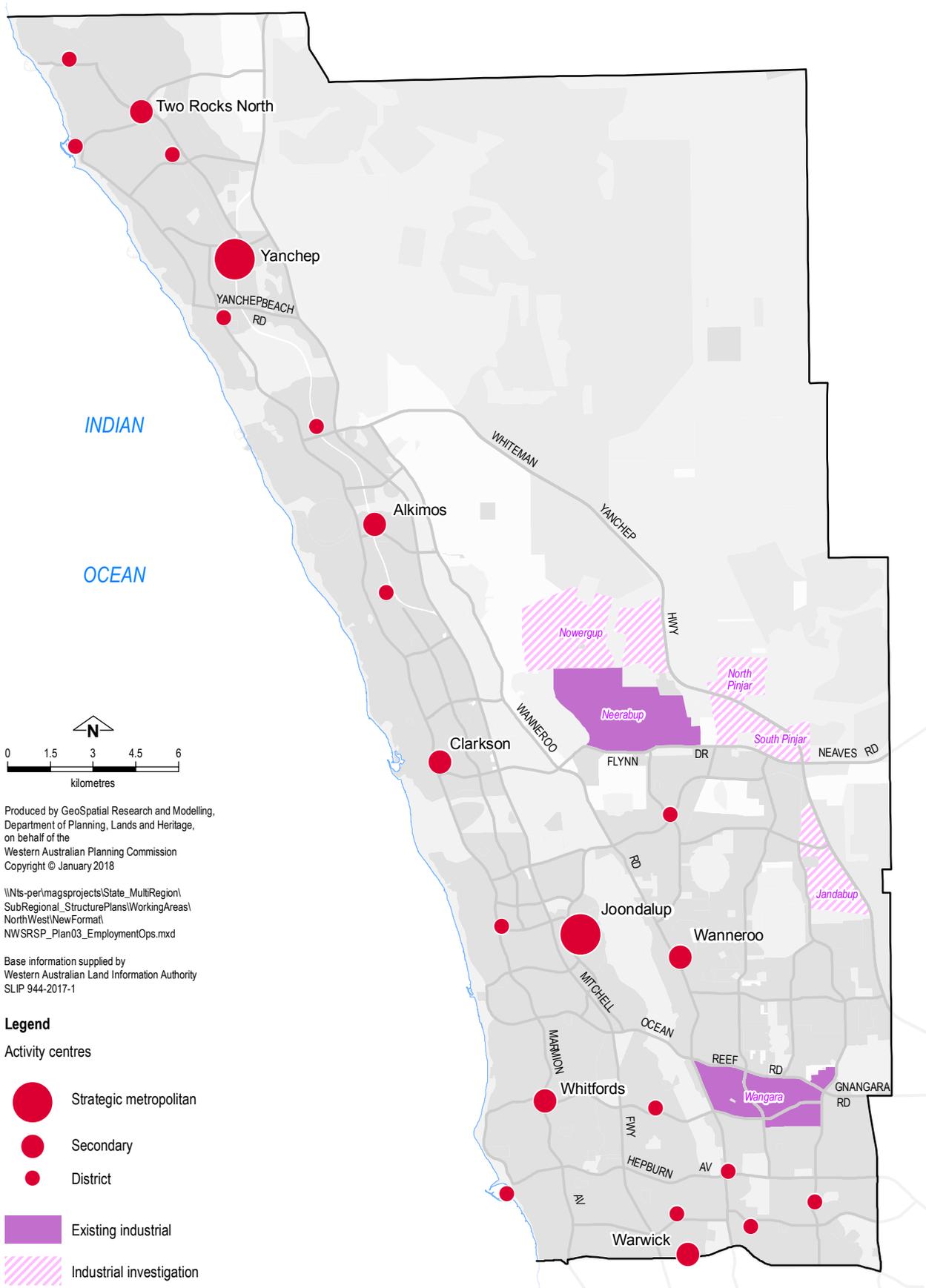
- encourage and facilitate growth of activity and industrial centres for the purpose of delivering employment opportunities to contribute to the broader Perth and Peel trade economy;
- protect employment-generating land from the encroachment of competing land uses;
- create employment opportunities which utilise local labour force skills to increase employment self-sufficiency;

- maximise and encourage further growth of the area's key economic sectors and clusters;
- cultivate and strengthen relationships with key stakeholders; and
- provide targeted services and support to businesses to facilitate economic growth.

The framework provides job growth projections for the sub-region to 2050. However, local governments are encouraged to maximise job growth opportunities for employment nodes in the preparation of local economic development strategies that may result in job growth that exceeds these projections.

The existing and proposed employment centres within the sub-region are shown in Plan 3.





PLAN 3: Employment opportunities

Activity centres

A network of activity centres will be a key focal point for commercial and social activity and the delivery of services to residents living nearby and will be a major driver of new jobs located within communities. These aim to allow more people to live closer to where they work with the aim of reducing overall commuting distances. Some will build on existing infrastructure such as universities and hospitals to leverage community assets into innovative job-creating activity centres.

Strategic metropolitan centres

Joondalup City Centre

The Joondalup strategic metropolitan centre has been planned and developed as a satellite centre to the Perth CBD. The centre has excellent accessibility to the regional road network and train stations at Edgewater and Joondalup. As a strategic metropolitan centre, Joondalup contains a number of regional-level services and facilities including Joondalup Hospital (supported by a health campus), Edith Cowan University, a major sporting and events arena, a basketball stadium and a District Court. Joondalup also contains a diverse range of land uses including commercial, business, mixed use and high density residential.

The extension of the centre to the south to incorporate Edgewater will provide opportunities for improved utilisation of the Edgewater train station and surrounding land through the introduction of more intensive land uses over time.

Opportunities to further leverage off and synergise with the significant regional infrastructure and development already established in Joondalup should be further investigated and facilitated through an activity centre structure plan that will allow its development potential to be realised. Particular attention should be given to the creation of strategic economic and employment opportunities, intensification of land use, capitalising on existing rail infrastructure and accommodating industries that can complement and support existing regional-level facilities. While the majority of the centre is already developed, there are several large undeveloped and under-developed sites that are capable of delivering high density housing and providing additional employment opportunities as the centre matures. There may also be opportunities to increase densities and encourage the regeneration of suburbs immediately surrounding the centre.

Yanchep City Centre

Yanchep City Centre is an emerging strategic metropolitan centre that will provide regional facilities and services to the northern half of the sub-region. The development of this centre will also attract a

contraflow of traffic north towards Yanchep, away from the inner Perth metropolitan area.

The centre falls within the area covered by the Yanchep–Two Rocks District Structure Plan. This structure plan sets out the statutory requirements for the district, including a target of 75 per cent employment self-sufficiency and a retail floor-space of 71,800 square metres net lettable area for the strategic metropolitan centre. The delivery of a high-density urban environment characterised by lower car dependency and strategic employment opportunities will be dependent on the timely provision of essential supporting infrastructure, such as the extension of the Joondalup railway line.

It is crucial that the centre be planned to facilitate its ultimate development potential, with a focus on urban structure, intensification of land use, land tenure and the progressive intensification of land use and development over time. The development of the centre will need to be monitored to ensure that the employment densities being delivered are progressing towards those ultimately necessary to achieve the high level of employment self-sufficiency that is required.

High-quality urban design within the centre will be important to attract development. This should include creating multi-functional urban spaces that improve amenity and provide local identity.



Secondary centre

Alkimos secondary centre

Alkimos Town Centre is an emerging secondary centre located between Joondalup and Yanchep. As a secondary centre, Alkimos will support the strategic metropolitan centres with a mix of land uses, including retail, office, high-density residential development, entertainment and community services.

Alkimos will also be served by an extension of the Joondalup railway line. The centre will require detailed planning to maximise transit-oriented development and sustainable employment opportunities.

Industrial centres

Existing industrial areas in the sub-region are located in Wangara, Neerabup and Landsdale. The Wangara and Landsdale industrial areas have a relatively small amount of undeveloped land remaining, while Neerabup is in the early stages of development with a significant quantity of undeveloped zoned land available.

The framework identifies new industrial areas for investigation in Nowergup, Pinjar and Jandabup. These sites are well positioned in relation to the future freight road network and will provide job opportunities in close proximity to future population catchments. These sites do, however, contain various environmental attributes including the existing Priority 1 Public

Drinking Water Source Areas; Bush Forever areas; and the presence of basic raw materials which are expected to have a lifespan that will extend post-2031.

Approximately 1,770 hectares of additional industrial land is expected to be required in the sub-region through to 2050. The framework identifies almost twice this amount of land in existing undeveloped and new industrial investigation areas, as portions of the sites classified for potential industrial development will be subject to basic raw material extraction and may not be able to be developed in the short to medium term. Appropriate staging and sequencing of industrial land will be required in order to ensure that the extraction of basic raw materials and development of land



occurs in a coordinated manner. Undeveloped land in Wangara and Neerabup can meet demand for industrial land in the short to medium term.

There is also a need to recognise and maximise the economic advantage offered by the sub-region's proximity to the North-East sub-region and the potential intermodal terminal at Bullsbrook. Strengthening transportation linkages to the North-East sub-region will involve the upgrading of Flynn Drive–Neaves Road and Ocean Reef Road–Gnangara Road.

Land classified as Industrial or Industrial Investigation may contain significant environmental attributes and these classifications should not be construed as support for the development of land with these attributes. More detailed planning for these sites will need to prioritise avoidance and/or protection of these attributes. Minor refinement of investigation area boundaries may be required to accommodate more detailed future planning.

Industrial investigation areas will require further detailed planning to be undertaken prior to consideration for rezoning under the MRS. The identification of these areas is not to be construed as a commitment by the WAPC to support any rezoning as this will depend upon the outcome of further detailed planning investigations. The specific matters that need to be addressed for these areas include, but are not limited to, those in Table 6.

TABLE 6: Industrial Investigation areas – key considerations

Site	Key considerations
Jandabup	Impacts, risks and management of groundwater resources (existing Priority 1 Source Protection Area) Basic raw materials – sequential land use allowing for extraction of sand resources Protection of Conservation Category Wetlands Bushfire risk
North Pinjar	Impacts, risks and management of groundwater resources (existing Priority 1 Source Protection Area) Protection of Bush Forever areas and Conservation Category Wetlands Bushfire risk
Nowergup	Impacts, risks and management of groundwater resources (existing Priority 1 Source Protection Area) Basic raw materials – sequential land use allowing for extraction of sand and limestone resources Protection of Bush Forever areas; threatened flora populations and occurrences of threatened ecological communities; and high-value Carnaby's Black Cockatoo habitat Bushfire risk
South Pinjar	Impacts, risks and management of groundwater resources (existing Priority 1 Source Protection Area) Basic raw materials – sequential land use allowing for extraction of sand resources Protection of Bush Forever areas and Conservation Category Wetlands Bushfire risk

Note: Detailed planning considerations may include additional matters and/or matters not identified at this time.



Other employment opportunities

Tourism is also an important component of the Western Australian economy. It creates employment opportunities and supports additional recreation options for residents. Amenities and facilities including accommodation, dining/entertainment facilities as well as recreation infrastructure are vital to supporting the visitor economy. High-amenity locations have the capability to be suitable locations for short-stay accommodation and entertainment for visitors. Opportunities to continue to integrate the tourism economy into the sub-region should be encouraged.

Existing and emerging district, neighbourhood and local centres will assist in meeting the employment self-sufficiency target for the sub-region by providing local employment opportunities. The delivery of infill dwellings in strategic locations, as proposed through the consolidated urban form, will encourage the regeneration of existing centres and capitalise on employment opportunities.

Urban Expansion and Investigation areas will need to be supported by new activity centres to service their catchment. In the case of East Wanneroo, a district centre is likely to be required in addition to lower order supporting centres. The location and quantity of activity centres required will be subject to further investigation through district and local structure planning.

Other employment opportunities will be provided through the various service industrial/bulky goods areas identified within endorsed district structure plans for Butler–Jindalee, Alkimos–Eglinton and Yanchep–Two Rocks. Jobs associated with tourism will also be provided at regional attractors such as Hillarys Boat Harbour and Yanchep National Park; agri-tourism businesses in Carabooda and Nowergup; and several marina developments that are proposed for the sub-region, including the Ocean Reef Marina which has been identified as a Marina Investigation Area in the framework.

Current pressure in the sub-region to develop employment land for residential purposes without an employment-generating component is likely to continue, prior to the demand threshold for population-driven employment being reached in developing areas. The cumulative impact of reducing the supply of employment land will make it more difficult to achieve the employment self-sufficiency target for the sub-region listed in Directions 2031 and require higher employment densities within a smaller employment land footprint, which may not be feasible. Employment land should be developed in a way that allows the ultimate planned outcome for a site to be realised and does not compromise the ability to deliver future employment opportunities.



3.4 Community and social infrastructure

Objective

To provide a wide range of community and social infrastructure to enhance the health and wellbeing of the community and meet the community's needs including health, education, sport and recreation, while promoting infrastructure co-location and optimising the use of existing facilities and infrastructure.

Strategic direction and priorities

Community and social infrastructure required for the provision of health, education, sport and recreation services in the sub-region will need to accommodate a growing and ageing population. The focus for the sub-region will be the co-location of key community and social infrastructure to promote better use of existing infrastructure and facilities, reduce traffic movements and establish a sense of social cohesion by creating a key focal point for activity and the delivery of services to nearby residents.

Key community and social infrastructure proposals for the sub-region are shown in Plan 4. The provision of this infrastructure will be coordinated with the development of urban land and resultant population growth.

Further identification and/or refinement of key social and community infrastructure requirements are possible as part of the review of the Planning Investigation areas.

Education

Existing tertiary education facilities are located at Joondalup and Clarkson. With an existing university and training centre, Joondalup will continue to be the major focus for tertiary education. Additional sites within the sub-region will be identified by the respective tertiary institutions. These sites should be located within strategic metropolitan centres or activity centres with proximity to amenities, quality public transport and supporting land uses that allow for synergies with industry, business hubs and other educational facilities.

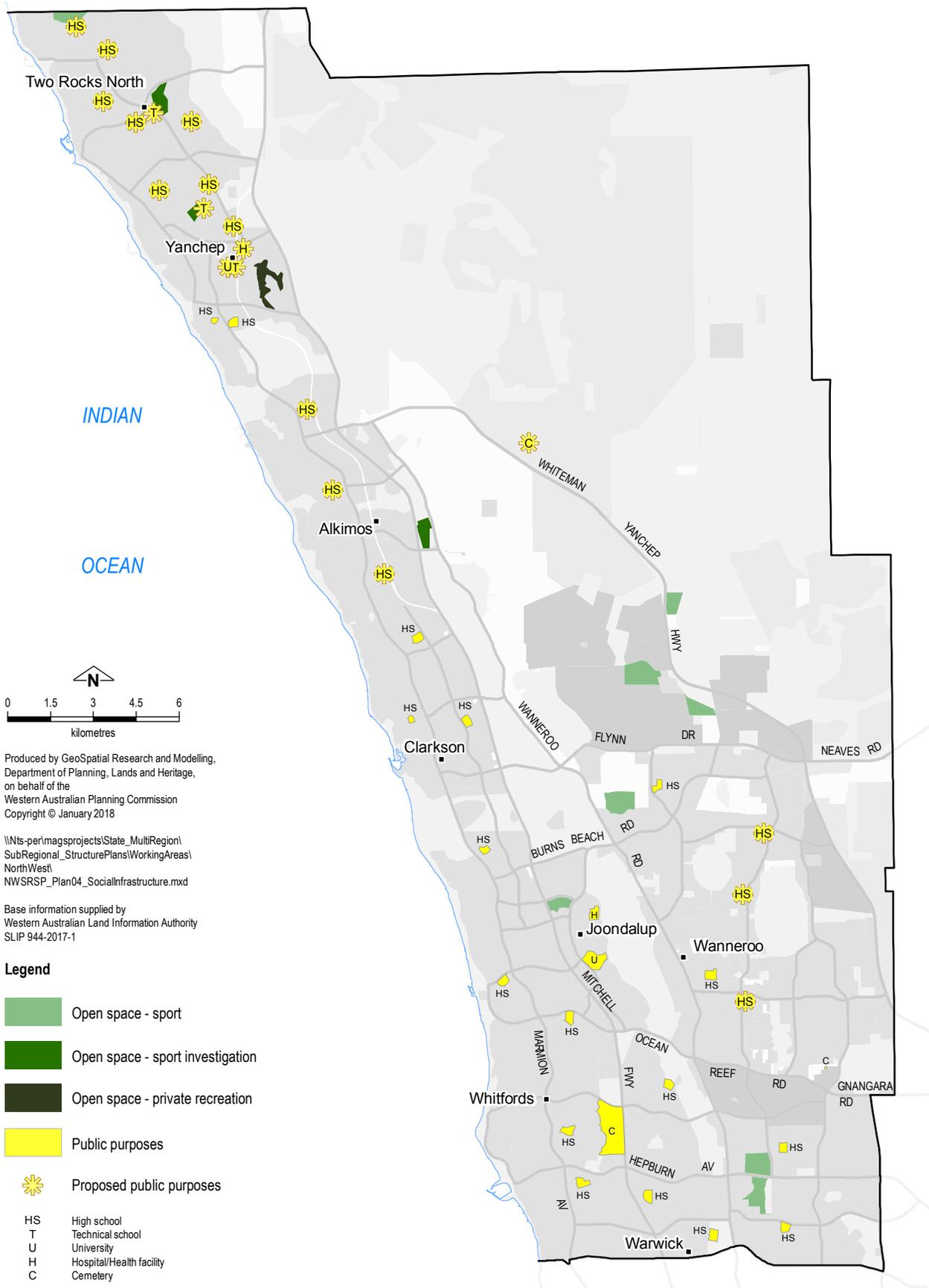
Future public high school sites have been identified in the localities of Alkimos–Eglinton, Yanchep–Two Rocks and East Wanneroo based on endorsed structure plans prepared over these areas. It is anticipated that an additional three high school sites will need to be identified through subsequent planning in the South Pinjar and Gngangara areas.

Infill development is likely to place further demand on existing school sites within established urban areas and strategic planning for education facilities will need to be cognisant of this to ensure that the increased demand can be accommodated.

Regional health facilities

The predicted population growth in metropolitan Perth is only one factor in the changing demand for health services. The public health system responds to any change in demand by providing the most suitable health care model, which takes into consideration alternative delivery modes such as community-based care and the use of Telehealth services, as well as providing care from public health facilities.

The Joondalup Health Campus is a key health facility within the sub-region and a main influencer in healthcare planning for both public and private healthcare needs. Any requirements for a new health facility in the sub-region will need to consider sustainable health care services designed to meet community needs including alternative delivery, utilising existing health care facilities, information and communication technology enhancements, public transport and the ability to synergise with nearby land uses.



PLAN 4: Community and social infrastructure

Sport and recreation

Regional and district-level sport and recreation facilities within the sub-region include Arena Joondalup (a regional facility near the Joondalup City Centre), Barbagallo Raceway (a motorsport circuit in Neerabup) and Kingsway Regional Sports and Recreation Centre in Madeley.

Population growth will create a demand for additional regional and district-level sporting facilities within the sub-region in the future. Some sites previously identified for active open space have subsequently been found to have higher environmental values and therefore alternative sites need to be investigated in order to meet the projected demand.

Preliminary sites identified include both regional and district facilities, which may require further investigation, including non-potable water supply options guided by relevant water management strategies.

Proposed regional facilities include:

- a site immediately south of Wilbinga, within the Yanchep–Two Rocks area, of approximately 30 hectares;
- a site east of the Two Rocks secondary centre of approximately 40 hectares;
- a site north of the Yanchep City Centre of approximately 30 hectares; and

- a site to the east of the Alkimos Town Centre, between the Mitchell Freeway and Wanneroo Road, of approximately 50 hectares.

In addition, approximately 50 hectares will need to be identified within the East Wanneroo locality to accommodate a regional facility.

Regional facilities will be complemented by district facilities in Alkimos-Eglington; East Wanneroo; and Tamala Park, once existing waste disposal operations have ceased.

Regional and district sport and recreation facilities should be co-located with other uses including libraries, education facilities and activity centres and will need to be planned collaboratively at subsequent planning stages.



Cemeteries

The sub-region has two existing cemeteries - Pinnaroo Valley Memorial Park and the Gngara Aboriginal Cemetery, and it is expected that a new regional cemetery site will be needed in the long term. The Metropolitan Cemeteries Board has identified a preferred site for this new cemetery in Yanchep, which will be subject to further investigation.

3.5 Movement and access

Objective

To provide an efficient and effective regional movement network for people and freight that is integrated with land uses, links key economic and employment opportunities and connects the sub-region to the greater Perth, Peel and Wheatbelt regions.

Strategic direction and priorities

Projected population growth will place additional pressures on all levels of the existing road and rail transport network within the sub-region for the movement of people and freight. Accordingly, the framework has been developed in close collaboration with the Transport portfolio.

To accommodate population growth and ensure efficiency of the movement system is not compromised, the framework recognises the need to integrate urban and employment nodes with transport infrastructure and services. The framework also proposes upgrading and adding new transport infrastructure to the network.

A challenge for the sub-region is to change the population's travel patterns, which will require a focus on improvements to regional roads, public transport, active transport routes and increased employment self-sufficiency. The sub-region's movement network has historically focused on accessibility to the Perth CBD, evidenced by the concentration of north-south transport links to the Central sub-region. Key linkages include the Mitchell Freeway, Wanneroo Road, Marmion Avenue, Connolly Drive and the Joondalup railway line. While the sub-region has a well-defined movement network and mode of transport choice, strong population growth and relatively low employment self-sufficiency has resulted in congestion and increased demand for public transport.

It is recognised that there are practical limitations on the extent to which demand on movement networks can be met as market forces continue to concentrate employment close to the Perth CBD. Improving land use integration and the movement network to facilitate access to local employment nodes will be critical to addressing the sub-region's movement network challenges. Areas of focus include the following.

- The provision of rail infrastructure, in a way that ensures rail networks are integrated with land use planning. Well-located rail stations can assist in delivering increased densities, which can, in turn, deliver positive multiplier effects such as increased investment in business, the creation of agglomeration economies and employment generation, thereby reducing car dependency and increasing the efficiency of road and rail infrastructure.
- Capitalising on the sub-region's proximity to employment opportunities in the North-East sub-region by improving the east-west movement network.
- Providing a greater range of transport mode options to higher-order activity centres.

The integration of key centres with high-quality public transport networks is a key principle of the framework. Public transport infrastructure has been prioritised through METRONET to support activity centres and deliver sensitive, sustainable and vibrant communities. This strategic infrastructure investment will provide additional opportunities for infill.



The provision of transport infrastructure will be coordinated with the development of urban and industrial land and activity centres, based on the anticipated timing shown in Plan 11 and Table 9.

Further refinement of networks may be required as part of the review of Planning Investigation areas.

Public transport

An effective and adaptable public transport network will be a key mechanism for achieving greater sustainability. Improved public transport will be required to meet the transportation needs arising from population growth, and to meet the need to connect people to key employment nodes. Additionally, good public transport will be necessary to reduce congestion in the shorter term.

The proposed public transport network for the sub-region includes an integrated network of passenger rail lines and transit corridors. All non-Stage 1 METRONET public transport proposals are subject to further investigation and will be refined as part of a future review of the frameworks.

Passenger rail infrastructure will meet the need for higher-speed longer-distance travel to the Perth CBD and inner areas and to support strategic centres in the outer sub-regions. Passenger rail infrastructure proposed for the sub-region includes the METRONET Stage 1 proposal to extend the Joondalup rail line to Yanchep, with stations at Alkimos, Eglinton and Yanchep.

Further investigation is required for the potential East Wanneroo Rail Link (or East-West Rail Link), to connect the Joondalup and Ellenbrook Rail Lines in the long term. A final alignment for this rail line will be determined following further assessment of alignment options.

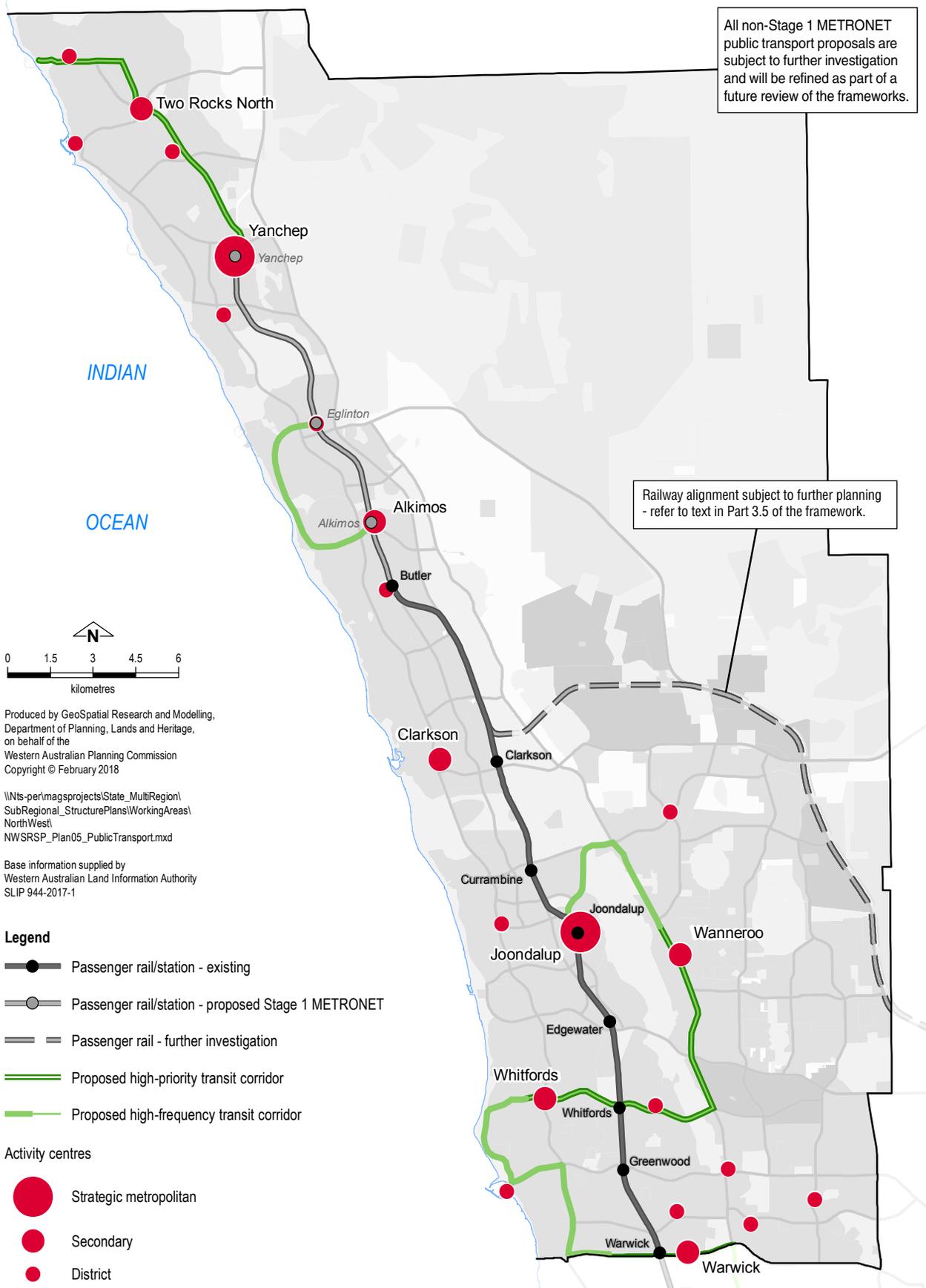
Patronage for the Joondalup rail line is fed by interconnecting feeder bus services and park and ride facilities. The provision of park and ride facilities at rail stations may be considered an acceptable land use to encourage public transport patronage in the short term. However, in light of the capital investment required to provide rail stations, it will be necessary to maximise land use opportunities in areas adjacent to this infrastructure. This may include providing car parking options that deliver improved land use integration.

The sub-region's passenger rail network will be supported by a network of High-Priority Transit Corridors (HPTC) and High Frequency Transit Corridors (HFTC) that will provide public transport connections between activity centres, population catchments, rail stations and local bus services. Both corridor types feature a high frequency of services, with HPTCs featuring infrastructure that will facilitate priority over other traffic. Future planning investigations and/or transport modelling may identify the need for new or upgraded transit corridors.

Bus services are also an important part of a comprehensive and integrated public transport network. Improving connectivity between bus and rail networks will increase accessibility to the CBD and key centres and reduce commuting times.

These key public transport initiatives are shown in Plan 5.





PLAN 5: Public transport

Regional roads

The future regional road network for the sub-region is centred on the extension, construction and upgrading of the existing network, particularly the Mitchell Freeway, Marmion Avenue and Wanneroo Road. The alignments of new roads have been developed to function as shared corridors with other service infrastructure where possible, in order to minimise impacts on environmental attributes. These alignments are, in some cases, conceptual and their exact alignment will be subject to further investigation and refinement. Regional road proposals are detailed in Plan 6 and outlined below. The road classifications are currently under review by Main Roads Western Australia, which may result in future changes.

Whiteman–Yanchep Highway

The Whiteman–Yanchep Highway is a new north–south primary distributor road that will connect the North–West sub–region to the North–East and Central sub–regions and broader regional road network.

Neaves Road–Flynn Drive

This road will form part of the freight network and be upgraded to a primary distributor in order to improve its capacity and efficiency for freight and general traffic. It will provide an important east–west link to the North–East sub–region, particularly the potential Bullsbrook intermodal terminal.

Gnangara Road–Ocean Reef Road

It is proposed that this road be upgraded to a primary distributor in order to provide an important east–west link for general and freight traffic movements between the North–West and North–East sub–regions.

East Wanneroo regional road network

As part of the identification of East Wanneroo as an urban expansion area, a regional road network analysis was undertaken by the Department of Planning, Lands and Heritage that identified the need for new integrator arterial roads to support development. The network is based on the East Wanneroo Structure Plan, which has been augmented with minor extensions to better serve the industrial and urban land uses proposed in South Pinjar. New regional roads include Lenore Road, Badgerup Road, Sydney Road, Elliot Road and Ranch Road.

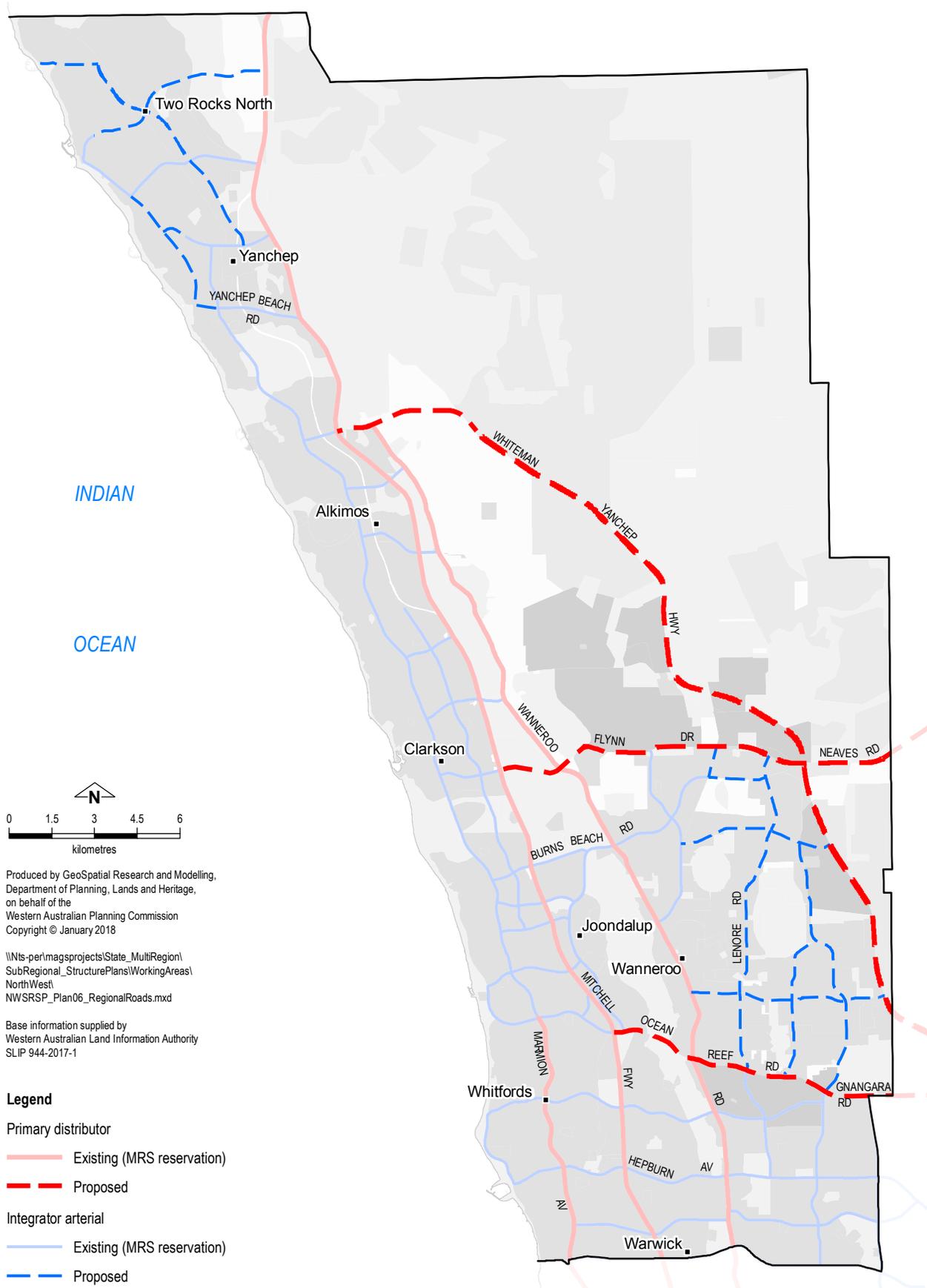
Yanchep–Two Rocks regional road network

A number of new and realigned regional roads are proposed to provide access to the Yanchep strategic metropolitan centre and Mitchell Freeway, based on district and local structure planning that has been undertaken in the area. New regional roads include Breakwater Drive, Two Rocks Road and Shearwater Avenue.

Neerabup regional road network

Wattle Avenue and a new north–south road are proposed to serve as integrator arterial roads that will connect the Neerabup and Nowergup industrial areas to the broader regional and freight road network.





PLAN 6: Regional roads

Freight

The sub-region's economy is directly influenced by the efficiency of freight movements. The sub-region's freight network is reliant on the regional road network to connect activity and industrial centres within and outside of the sub-region. These roads include the Mitchell Freeway, Neaves Road–Flynn Drive, Gnangara Road–Ocean Reef Road and a portion of the proposed Whiteman–Yanchep Highway, as shown in Plan 7.

The freight network is critically important to the Western Australian economy. Where practicable, freight corridors should be protected from the encroachment of sensitive and incompatible land uses. This is an important consideration when identifying locations for infill housing development. Similarly, the design, construction, upgrading and operation of freight corridors should seek to minimise impacts on surrounding land uses.

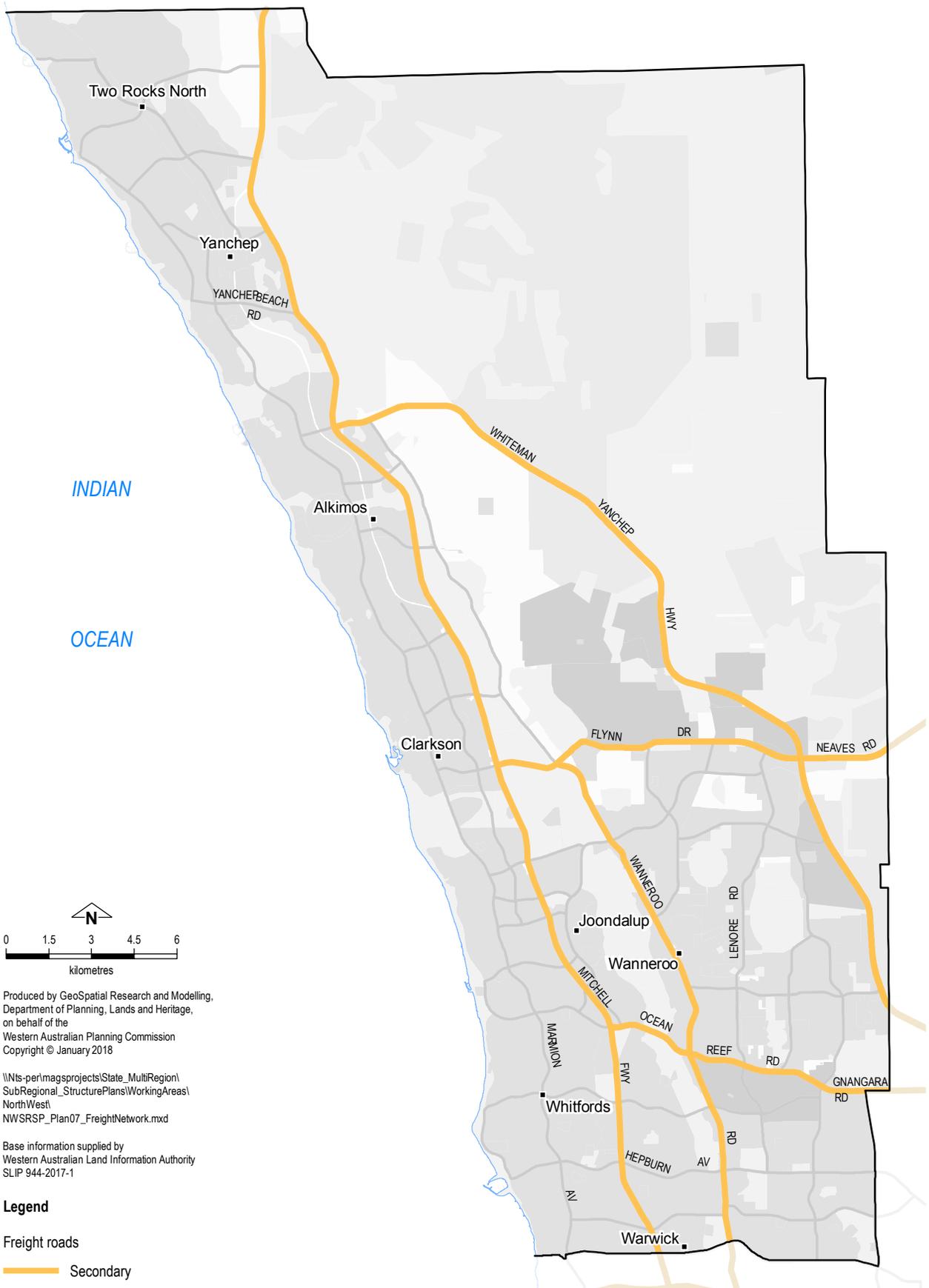
Aviation

In the event that existing general and civil aviation airports may not be adequate to meet the needs of the Perth and Peel regions by the time the population reaches 3.5 million people or more, additional aviation infrastructure will be required. Planning studies to identify suitable locations for future aviation infrastructure, should these be needed, are currently being undertaken.

Active transport

The provision of a network of on-road and off-road paths for cyclists and pedestrians offers commuters with an alternative to private car trips as well as providing recreational opportunities and health benefits. At the regional level, it is intended that principal shared paths be provided along major transportation reserves. More detailed arrangements for integrating a comprehensive pedestrian and cycling network throughout urban areas, including connections to rail stations, will be determined through district and local structure plans and in consultation with local government.





PLAN 7: Freight and aviation

3.6 Service infrastructure

Objective

To ensure the timely, efficient and cost-effective delivery of electricity, water, wastewater and other service infrastructure that is aligned with the staging of development and encourage the shared use of infrastructure corridors by the various service providers.

Strategic direction and priorities

The development of new urban and industrial areas in the sub-region, in addition to the intensification of established urban areas, may require significant upgrades and additions to the network of essential service infrastructure. It is important that new and infill development avoids and minimises (where necessary) encroachment upon this infrastructure, to ensure the safe and reliable provision of essential services.

The framework seeks to maximise the use of and add value to existing infrastructure, in order to minimise ongoing maintenance and operational costs. Alignment between the development industry and servicing authorities will be necessary to ensure that the release of land for housing and employment

purposes is commensurate with anticipated population growth. In this regard, servicing of growth areas will be expected to occur through the progressive extension of development fronts. The delivery of infrastructure will be staged and coordinated with the supply of urban and industrial land to improve coordinated service delivery and ensure the timely and cost-effective supply of serviced land.

The future provision of transport and other service infrastructure within the sub-region has, where possible, been planned within shared corridors contributing to the efficient use of land. The shared corridors have avoided and, where necessary, minimised the impact upon environmental attributes, landscapes and conflicting land uses.

Improved technology may provide servicing efficiencies which may impact on demand for, and the need to supply, future infrastructure. It will also be necessary to identify and/or protect sites for regional service infrastructure provision.

Existing and proposed service infrastructure is shown in Plan 8. Further refinement of service infrastructure may occur, if required as part of the review of Planning Investigation areas.

Electricity supply

Electricity is distributed to the sub-region through a network of 132 kV and 330 kV bulk transmission power lines that connect to the local power distribution networks via transmission terminals and sub-stations.

The future supply of electricity will require upgrades to the existing electricity network including extensions to transmission lines, construction of new sub-stations and the expansion of the Pinjar terminal.

Traditional electricity infrastructure may be complemented by more innovative electricity supply models such as microgrids, embedded renewable energy generation and energy storage systems.

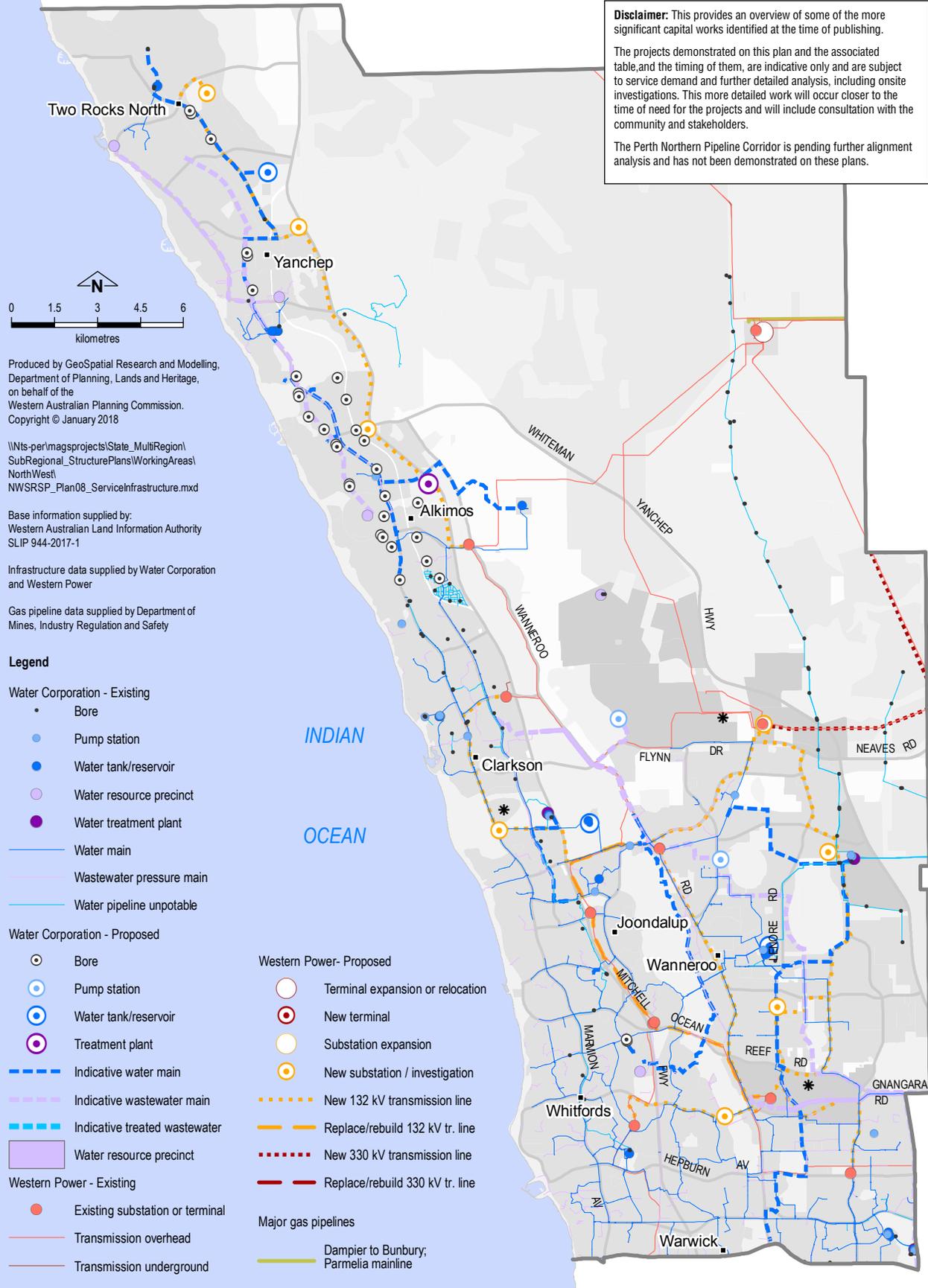
The need for, timing and delivery of these services will require further investigation through more detailed planning.



Disclaimer: This provides an overview of some of the more significant capital works identified at the time of publishing.

The projects demonstrated on this plan and the associated table, and the timing of them, are indicative only and are subject to service demand and further detailed analysis, including onsite investigations. This more detailed work will occur closer to the time of need for the projects and will include consultation with the community and stakeholders.

The Perth Northern Pipeline Corridor is pending further alignment analysis and has not been demonstrated on these plans.



Produced by GeoSpatial Research and Modelling,
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Base information supplied by:
 Western Australian Land Information Authority
 SLIP 944-2017-1

Infrastructure data supplied by Water Corporation
 and Western Power

Gas pipeline data supplied by Department of
 Mines, Industry Regulation and Safety

Legend

- Water Corporation - Existing**
- Bore
 - Pump station
 - Water tank/reservoir
 - Water resource precinct
 - Water treatment plant
 - Water main
 - Wastewater pressure main
 - Water pipeline unpotable

- Water Corporation - Proposed**
- Bore
 - Pump station
 - Water tank/reservoir
 - Treatment plant
 - Indicative water main
 - Indicative wastewater main
 - Indicative treated wastewater
 - Water resource precinct

- Western Power - Existing**
- Existing substation or terminal
 - Transmission overhead
 - Transmission underground

- Western Power- Proposed**
- Terminal expansion or relocation
 - New terminal
 - Substation expansion
 - New substation / investigation
 - New 132 kV transmission line
 - Replace/rebuild 132 kV tr. line
 - New 330 kV transmission line
 - Replace/rebuild 330 kV tr. line

- Major gas pipelines**
- Dampier to Bunbury; Parmelia mainline

PLAN 8: Service infrastructure

Water supply and wastewater

The existing water supply for the sub-region is sourced from several key water sources including surface water and groundwater. Water is transferred from sources to treatment and storage facilities by trunk mains.

Conceptual water supply planning includes the provision of sites for a future groundwater treatment plant to the immediate west of the Mitchell Freeway reserve in Alkimos, water storage for gravity supply in Nowergup and two sites for water treatment and storage to the east of Two Rocks.

Yanchep and Two Rocks are currently served by small, closed water supply systems that source and treat groundwater from local aquifers, which the Water Corporation plans to consolidate and upgrade in the long term.

The majority of the sub-region's wastewater requirements are met by Water Resource Precincts located in Alkimos, Craigie (Beenyup) and Nowergup (Biosolids). Small package treatment plants currently serve localised catchments around Yanchep and Two Rocks on an interim basis. These sites will be graded out by pump stations that direct wastewater southwards to the Alkimos Wastewater Treatment Plant via a gravity main sewer in the future.

The Water Corporation has planned water and wastewater services for all land currently zoned Urban and Urban Deferred in the sub-region. Urban Expansion and Investigation areas are capable of being serviced within the timeframe of the framework, subject to the staged provision of new and/or upgraded infrastructure. However, these will require detailed investigation prior to zoning to ensure the orderly and financially sustainable provision of water and wastewater services.

Drainage

Areas classified for future urban and industrial development will be required to address the management of drainage systems to ensure that the biodiversity and ecological functions and water quality of wetlands and river systems are maintained; people and property are protected from flooding and inundation; and the amenity of public open space is enhanced. This will require the incorporation of water-sensitive design and could include the integration of drainage management systems within road reserves and public open space; and the use of vegetated systems and at-source management of small rainfall events. Subsequent levels of planning for drainage in the sub-region will be guided by the regional water management strategy that has been prepared in support of the framework, consistent with the WAPC's *Better Urban Water Management* document.

Other services

Gas and telecommunications infrastructure will be progressively supplied to the growth areas of the sub-region as development proceeds. Planning decisions regarding telecommunications infrastructure will continue to be guided by *State Planning Policy 5.2 Telecommunications Infrastructure*.

The key waste management sites within the sub-region are the Tamala Park Waste Management Facility, the Neerabup Resource Recovery Facility and the Wangara Materials Recovery Facility. The recovery facilities were established to reduce the amount of waste sent to the landfill at Tamala Park, which is expected to reach capacity by 2025. The Western Australian Waste Strategy: "Creating the Right Environment" identifies long-term waste and recycling infrastructure planning as a key strategic response to the challenges facing waste management in the State. A range of investigations are currently being undertaken to identify strategic waste infrastructure sites required in the long term.



3.7 Environment and landscape

Objective

To preserve and enhance the environmental and landscape values of the sub-region for future generations to enjoy.

Strategic direction and priorities

The sub-region has an abundance of environmental attributes. Approximately 43,000 hectares, or 55 per cent, of the sub-region is reserved as Parks and Recreation or State forest under the MRS and many of these areas incorporate Bush forever sites. Reserved land containing key environmental and landscape features within the sub-region is shown in Plan 9.

Protected environmental features within the sub-region include:

- a coastline that extends approximately 48 kilometres;
- several national and regional parks that encompass wetlands and banksia woodlands; and
- a complex system of wetlands.

The sub-region features valued landscapes with both natural and rural character, centred on market gardens, wetlands and an adjoining limestone ridge containing tuart trees. Environmental and landscape

values have been considered in the identification of land for potential urban and industrial purposes. The development of new urban and industrial areas will, by necessity, result in changes to the existing landscape character of the affected localities, particularly East Wanneroo, Pinjar, Neerabup, Nowergup and within the coastal urban growth corridor. The challenge will be to create a 'sense of place' by maintaining key individual landscape characteristics and vistas where possible in areas that may be subject to significant land use change.

Urbanisation of the sub-region has led to fragmentation of some natural areas, resulting in small patches of remnant vegetation, reduced habitats and isolated populations of native fauna. To strengthen and increase the capacity of these natural areas, the framework identifies ecological linkages (the connection of these fragmented sites to one another) to assist in the retention of habitat for significant fauna dispersal and migration.

Ecological linkages will be supported by a green network (green spaces, vegetated drainage management systems and green



streets contained within public and private realms) to deliver multiple environmental, economic and social benefits. These linkages will support both the general health of flora and fauna in the sub-region and meet the requirements of Commonwealth and State environmental legislation that protects significant biodiversity values. Linkages will need to be considered and implemented through more detailed planning.

The sub-region's natural areas provide opportunities for recreation and greater involvement and interest in natural areas. Opportunities to further integrate conservation and recreation land uses should be investigated in order to meet the requirements of the sub-region's future population.

Large portions of the sub-region are covered by State forest reservations, which contain a variety of uses such as forestry, mining, recreation and heritage. There needs to be a continued focus on balancing these uses with broader environmental outcomes within State forest areas.

One of the key environmental attributes attracting population growth in the sub-region is the coastline, the character of which ranges from natural areas to developed recreational and commercial areas incorporating marinas at Hillarys, Mindarie and Two Rocks. The coastal environment is likely to experience additional pressure to meet residential, recreation, entertainment and tourism

demands as the population of the sub-region continues to grow. Planning and development of the coastline will therefore need to give careful consideration to local and regional issues, as well as cumulative environmental impacts. Anticipated rising sea levels need to be accommodated by ensuring that development setbacks are appropriate and that foreshore reserves are held in public ownership and are of sufficient size to meet recreational requirements in the long term.

Expanding the green network

The development of land to provide housing, jobs and infrastructure will place increased pressure on environmental values. The framework proposes two new Open Space sites - one to the north-east of the Yancheep strategic metropolitan centre that incorporates Bush Forever Area 288; and another to the east of the Alkimos secondary centre, which is expected to primarily serve a sporting function but could potentially accommodate revegetated areas to link Bush Forever areas 130 and 383. Several Open Space Investigation areas have also been identified.

Some proposed Open Space/ Open Space Investigation areas are classified in conjunction with the classification of land for more intensive development.

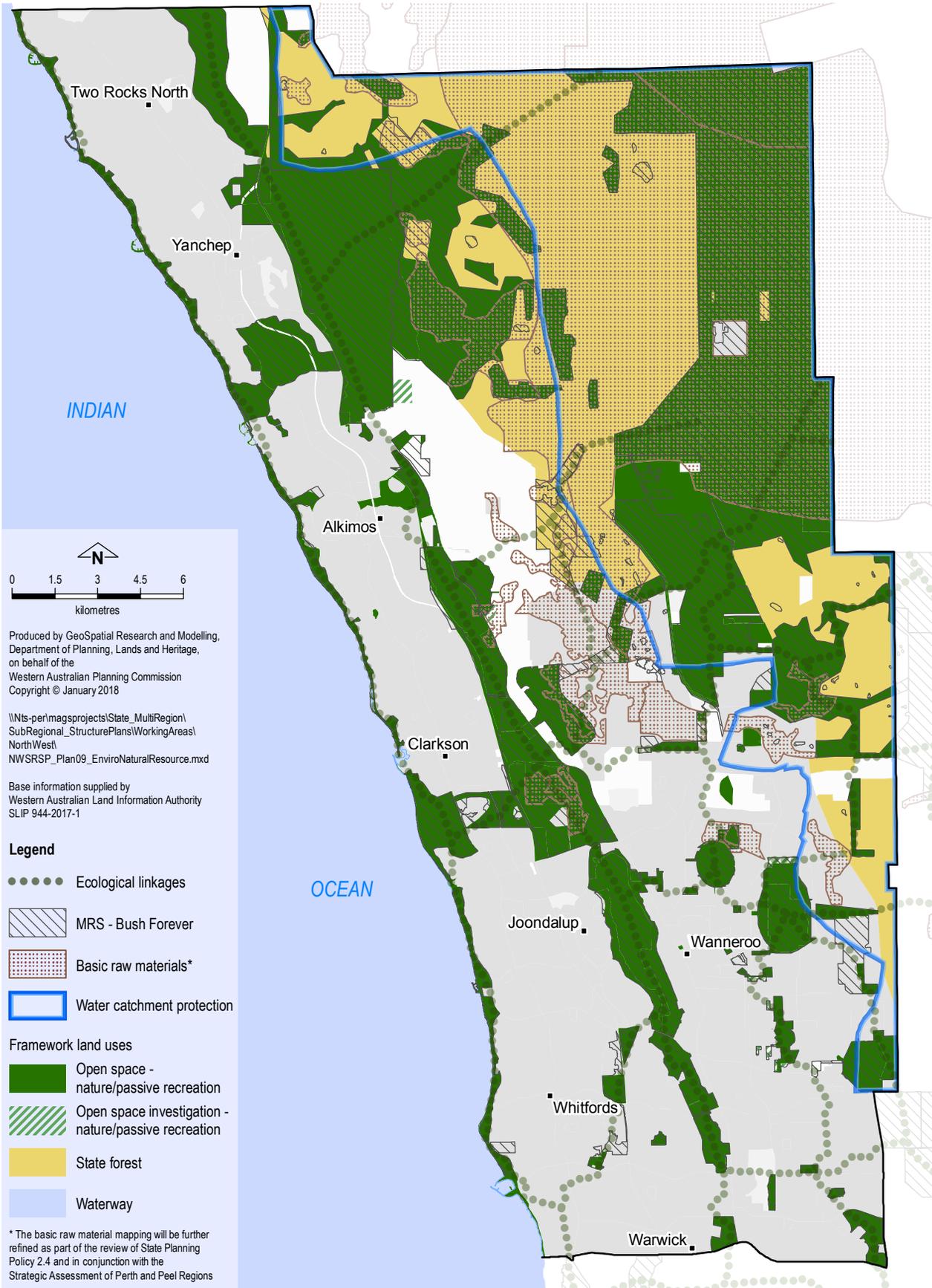
Where appropriate, this land will be required to be ceded as part of subdivision. The Open Space classifications in the framework do not necessarily require that the land be reserved for future acquisition.

Other open space areas that do not form part of proposals for more intensive development will require further investigation of environmental attributes, their strategic importance as part of the green network and/or contribution towards the orderly and proper planning of a locality.

Open Space Investigation areas have been subject to preliminary assessment, but require further investigation to be undertaken prior to consideration for future protection and/or reservation under the Metropolitan Region Scheme. The classification of these areas should not be construed as WAPC support for future protection and/or reservation, as this will depend upon the outcome of further investigations.

Some additional open space areas may be identified as part of the further review of Planning Investigation areas.





PLAN 9: Environment and natural resources

3.8 Natural resources

Objective

To manage the availability and use of natural resources to ensure existing and potential land uses can be balanced against broader environmental outcomes.

Water resources

Water sources serve a critical function for supplying private self-supply, public scheme water supply and water for environment, including wetlands and ecosystems. Urban landscaping, wetlands and lakes all contribute to the outdoor lifestyle enjoyed by the community and visitors and are important to the sub-region's economic, environmental and social well-being. Water availability is also critical to the significant agricultural industries that exist within the sub-region.

The Gngangara groundwater mound, located in the eastern portion of the sub-region, is the largest source of quality fresh water in the Perth region. To effectively manage this significant source, there needs to be careful consideration of land uses that impact on the quality and quantity of water that enters the underground aquifer and management of water abstraction

is required. *State Planning Policy 2.2: Gngangara Groundwater Protection* guides land use change and development on the Gngangara mound to ensure it is compatible with the long-term use of the groundwater for public consumption.

As a drying climate further limits the sustainable supply from groundwater resources, the focus is turning to more effective ways of using available water and alternative supply options. A regional water management strategy, highlighting key water considerations, has been developed for the sub-region. This strategy identifies a number of issues including water scarcity, irrigation for public open space, protection of public drinking water source areas, development adjacent to wetlands and coastal vulnerability and sea level rise. The regional water management strategy will inform subsequent stages of water planning in the sub-region at the district and local levels, which will be undertaken in accordance with the WAPC's *Better Urban Water Management* framework.

Basic raw materials

Basic raw materials are a finite resource and approximately 72 per cent of the Perth and Peel regions' remaining limestone supply is located in the sub-region, primarily in the Wanneroo and Wadling Hill limestone nodes, while Gngangara contains the regions' largest long-term sand resource.

Plan 9 includes geological information for basic raw materials. It does not infer support for extraction in any location. The basic raw material mapping is subject to ongoing refinement as part of the review of *State Planning Policy 2.4 Basic Raw Materials*, the Planning Frameworks and in conjunction with the Strategic Assessment of Perth and Peel Regions.

Ongoing access to basic raw materials with cost-effective proximity to future growth areas is important to housing affordability and moderating the cost of future infrastructure projects.

Future development areas that contain basic raw materials will need to implement sequential land use planning principles, staging of development and land use buffers (where appropriate) to ensure that the regional value of these resources can be realised and that the materials are available as demand dictates, before any development occurs in these areas.



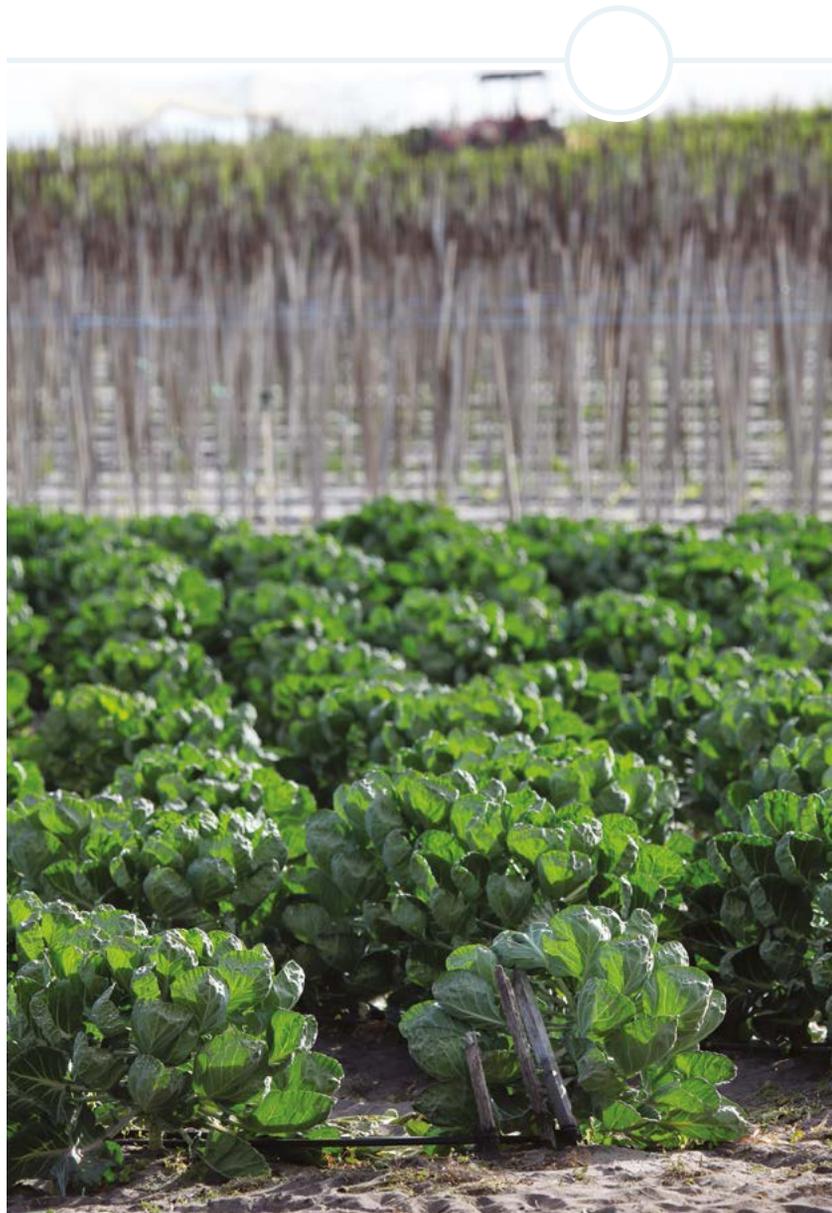
Agricultural land

Throughout Perth and Peel there is a wide range of agricultural land uses contributing to food supply and the economy.

Wanneroo has traditionally been recognised as having high-quality soils and available water, favourable climatic conditions for horticultural production, close proximity to infrastructure, markets and a workforce. The region provides labour-intensive crops such as lettuce, broccoli, tomatoes, celery, beans and strawberries. The area is characterised by a large number of small rural lots. However, a drying climate and concerns about the long-term availability for horticulture are acknowledged as challenges for future food production in this area.

With increased pressure to identify urban land to accommodate a rapidly growing population there is an urgent need to secure food production in proximity to urbanised areas. To achieve these objectives in the longer term, it is necessary for priority agricultural land to be identified and protected, having regard to a range of issues including: soil quality, water availability, accessibility, agribusiness opportunities and environmental impacts.

In the interim, there is a presumption against the development and/or subdivision of rural land which is inconsistent with *State Planning Policy 2.5 Rural Planning*.



IMPLEMENTATION

The framework is the first step in the ongoing process of refining and detailing planning proposals for the North-West sub-region



Introduction

The framework will be incorporated into *State Planning Policy 1 State Planning Framework Policy* and will provide a long-term strategic plan for the sub-region. The framework identifies sufficient land for housing and employment to accommodate anticipated population growth, incorporating land use and infrastructure proposals to 2050 and broad principles to guide the future development of the sub-region. It will remain responsive to evolving community expectations, while balancing compliance with the principles of urban consolidation and protection of the substantial environmental attributes within the sub-region.

4.1 Implementation mechanisms and actions

The framework is a strategic planning document and therefore does not change existing zonings or reservations that have effect under statutory region and local planning schemes. Changes to zoning can only occur through formal amendment processes to the relevant statutory region and local planning schemes. The framework is the first step in the ongoing process of refining and detailing planning proposals for an area. This refinement will continue through the MRS, local planning schemes and strategies, structure planning, subdivision and development.

The framework's foundation is a consolidated urban form with an integrated land use and movement network that maximises the use of existing infrastructure and avoids and protects regionally-significant environmental attributes where appropriate. It provides a high-level strategic context to guide future development and address key challenges for the sub-region.

The implementation of the framework will require close collaboration across State government agencies, local government and the private sector. Specific implementation actions



and the responsible authority for each are outlined in Table 7. In addition, detailed work programs will need to be established by relevant authorities to ensure the preparation or review of supporting planning instruments are aligned with the principles and objectives of the framework.



TABLE 7: Implementation actions

Consolidated urban form

Sub-regional planning framework objective	Strategic direction/priority	Actions	By whom
To create sustainable communities that are attractive places to live and work. The consolidation of urban areas will provide for the more efficient use of urban land and infrastructure with improved access to public transport, sport and recreation, community and commercial facilities while minimising impacts on significant environmental attributes.	Urban	Structure planning	WAPC Local government
	Urban deferred	Lifting of urban deferment in the region scheme	WAPC
		Structure planning	WAPC Local government
	Urban Expansion and Investigation areas	District structure plans (where appropriate), generally prior to region scheme zoning	WAPC Local government
		Relevant investigations (for investigation areas)	WAPC Various
		Region scheme amendments	WAPC
		Local planning strategy/scheme amendments	WAPC Local government
	Urban Expansion and Investigation areas to be based on 15 dwelling units per gross hectare of Urban zoned land	Local planning strategy/scheme amendments	WAPC Local government
		Structure planning	
	Planning Investigation areas	Undertake further planning investigations	WAPC, in consultation with relevant agencies Local government
	Establish minimum urban infill dwelling targets and identify sites consistent with the principles of urban consolidation	Local planning strategy/scheme amendments	WAPC Local government
		Structure planning	
Encourage the review of endorsed structure plans to achieve a minimum average density of 15 dwellings per gross urban hectare	Structure planning	Local government	

TABLE 7: Implementation actions (continued)

Economy and employment

Sub-regional planning framework objective	Strategic direction/priority	Actions	By whom
To promote employment opportunities and increase the number of people who live and work within the sub-region, with a focus on attracting strategic economic and employment land uses within strategic metropolitan centres and key industrial centres, while maximising use of existing and proposed infrastructure.	Promote employment nodes, including activity centres, specialised centres, industrial areas, industrial expansion areas and industrial investigation areas	Structure planning	WAPC Local government
		Relevant investigations (for investigation areas)	WAPC Various
		Region scheme amendments	WAPC
		Local Economic Development Strategy	Local government
		Local planning strategy/scheme amendments	WAPC Local government
	Protect employment land from uses inconsistent with the employment objective by planning for ultimate development with limited interim uses	Region scheme amendments	WAPC Local government
		Local planning strategy/scheme amendments	
		Structure planning	
	Improve employment self-sufficiency to reach target	Structure planning	Local government

Community and social infrastructure

Sub-regional planning framework objective	Strategic direction/priority	Actions	By whom
To provide a wide range of community and social infrastructure to enhance the health and wellbeing of the community and meet the community's needs including health, education sport and recreation, while promoting infrastructure co-location and optimising the use of existing facilities and infrastructure.	Provide land within the sub-region for sport and recreation, regional-level health facilities, education and cemeteries	Structure planning	Local government
		Region scheme amendments	WAPC



TABLE 7: Implementation actions (continued)

Movement and access

Sub-regional planning framework objective	Strategic direction/priority	Actions	By whom
To provide an efficient and effective regional movement network for people and freight that is integrated with land uses, links key economic and employment opportunities and connects the sub-region to the greater Perth, Peel and Wheatbelt regions.	Undertake ongoing monitoring of the movement network, refine plans as appropriate and implement transportation upgrades/ construction to road, rail, public transport and active transport infrastructure	Ongoing monitoring and upgrade/construction as required	WAPC Department of Transport Main Roads Western Australia Public Transport Authority Local government
		Region scheme amendments	WAPC
		Local planning strategy/ scheme amendment	WAPC Local government
		Structure planning	WAPC Local government
	Confirm alignment for Whiteman-Yanchep Highway	Region scheme amendment	Main Roads Western Australia WAPC
	Confirm alignment for East Wanneroo Rail Link (or East- West Rail Link) to connect the Joondalup and Ellenbrook Rail Lines	Region scheme amendment	WAPC Department of Transport Public Transport Authority
	Make provision for transit corridors	Ensure planning for roads includes provision for transit corridors	WAPC Department of Transport Main Roads Western Australia Public Transport Authority Local government
Identify suitable locations for future general and civil aviation airports, together with possible measures for new facilities, should they be needed in the future	Complete Future Perth Airports Technical Study	WAPC Department of Transport	



TABLE 7: Implementation actions (continued)

Service infrastructure

Sub-regional planning framework objective	Strategic direction/priority	Actions	By whom
To ensure the timely, efficient and cost-effective delivery of electricity, water, wastewater and other service infrastructure that is aligned with the staging of development and encourage the shared use of infrastructure corridors by the various service providers.	Complete an infrastructure capacity report to accompany urban infill strategies	Structure planning	WAPC Local government
		Local planning strategy/ scheme amendment	Local government
	Optimise use of existing infrastructure, with urban infill and employment opportunities utilising the principles of urban consolidation	Structure planning	WAPC
		Region scheme amendment	Local government
		Local planning strategy/ scheme amendment	
	Facilitate shared infrastructure corridors	Region scheme amendments	WAPC Service providers
		Structure planning	Department of Transport Local government
	Identify and/or protect sites for regional service infrastructure provision	Region scheme amendment	WAPC Service providers
		Structure planning	Department of Transport Local government

Environment and landscape

Sub-regional planning framework objective	Strategic direction/priority	Actions	By whom
To preserve and enhance the environmental and landscape values of the sub-region for future generations to enjoy.	Identify and protect ecological linkages, where appropriate	Structure planning	WAPC Local government Department of Biodiversity, Conservation and Attractions
		Local planning strategy/ scheme amendment	WAPC Local government
	Open Space Investigation areas	Relevant planning and/ or environmental investigations	WAPC Various
	Protect land for additional parks and recreation purposes	Region scheme amendment	WAPC
	Undertake various environmental studies including landscape assessment, karst management plan, coastal hazard risk and management/ adaptation plan, flora and fauna management plan and water management plan to support proposals	Structure planning	WAPC Department of Water and Environmental Regulation
		Local planning strategy/ scheme amendment	Local government



TABLE 7: Implementation actions (continued)

Natural resources

Sub-regional planning framework objective	Strategic direction/priority	Actions	By whom
To manage the availability and use of natural resources to ensure existing and potential land uses can be balanced against broader environmental outcomes.	Identify the impact of proposals within public drinking water source areas or within the <i>State Planning Policy 2.2 Gwangara Groundwater Protection area</i>	Region scheme amendments	WAPC, upon the advice of Department of Water and Environmental Regulation
	Identify and protect priority agricultural land	Local planning strategy/ scheme amendment	WAPC Department of Primary Industries and Regional Development Local government
	Determine the more-detailed staging and sequencing for development sites with basic raw materials, within the framework provided by Plan 10	Structure planning	WAPC Local government
		Local planning strategy/ scheme amendment	
	Prepare and implement water management strategies in accordance with the <i>North-West Regional Water Management Strategy</i> and <i>Better Urban Water Management</i> framework	District, local and urban water management strategies	WAPC Department of Water and Environmental Regulation Local government
Retain, consolidate and rehabilitate vegetation and habitat as required	Rehabilitation/vegetation management plan	Local government Department of Water and Environmental Regulation Department of Mines, Industry Regulation and Safety	

Notes:

1. Strategic directions/priorities are uncommitted projects and a range of issues will require further consideration over time, including further detailed planning, timing and funding. The provision of funding will be a future decision of the State and relevant local governments.
2. Initiatives other than those specified in Table 7 may be required.
3. The type of structure plan (i.e. district or local) or activity centre plan required will depend upon the statutory framework and be subject to further discussion with the Department of Planning, Lands and Heritage and relevant local government.
4. Table 7 refers to State and local government actions only.



4.2 Staging and sequencing

Timing for the delivery of proposals listed in the framework will be guided by a number of factors including demand for urban land, landowner intentions, the capacity of servicing agencies and local government planning within the sub-region.

Based on average consumption rate of urban land within the sub-region, there is sufficient undeveloped Urban and Urban Deferred zoned land available to meet forecast housing requirements for about 32 years. The frameworks also identify sufficient land (10,460 hectares) to accommodate projected population growth to 2050.

The framework provides a broad guide for the staging of urban development based on the timeframes provided in Table 8 and shown on Plan 10. Anticipated timeframes for the delivery of infrastructure required to service urban and industrial development are outlined in Table 9 and Plan 11. Developers and local government will need to liaise with relevant authorities and the WAPC at more detailed planning stages in relation to these infrastructure requirements.

Development within the sub-region will need to be undertaken in a sequential manner as logical extensions to existing development fronts to ensure that an adequate supply of land will be continuously available. The timeframes depicted on the urban staging plan (Plan 10)

set out the anticipated timing for commencement of development, aligned with planned service provision and should not be construed as preventing further detailed planning from occurring in the interim. It is expected that local planning strategies will be consistent with these timeframes.

TABLE 8: Anticipated staging and average urban land demand

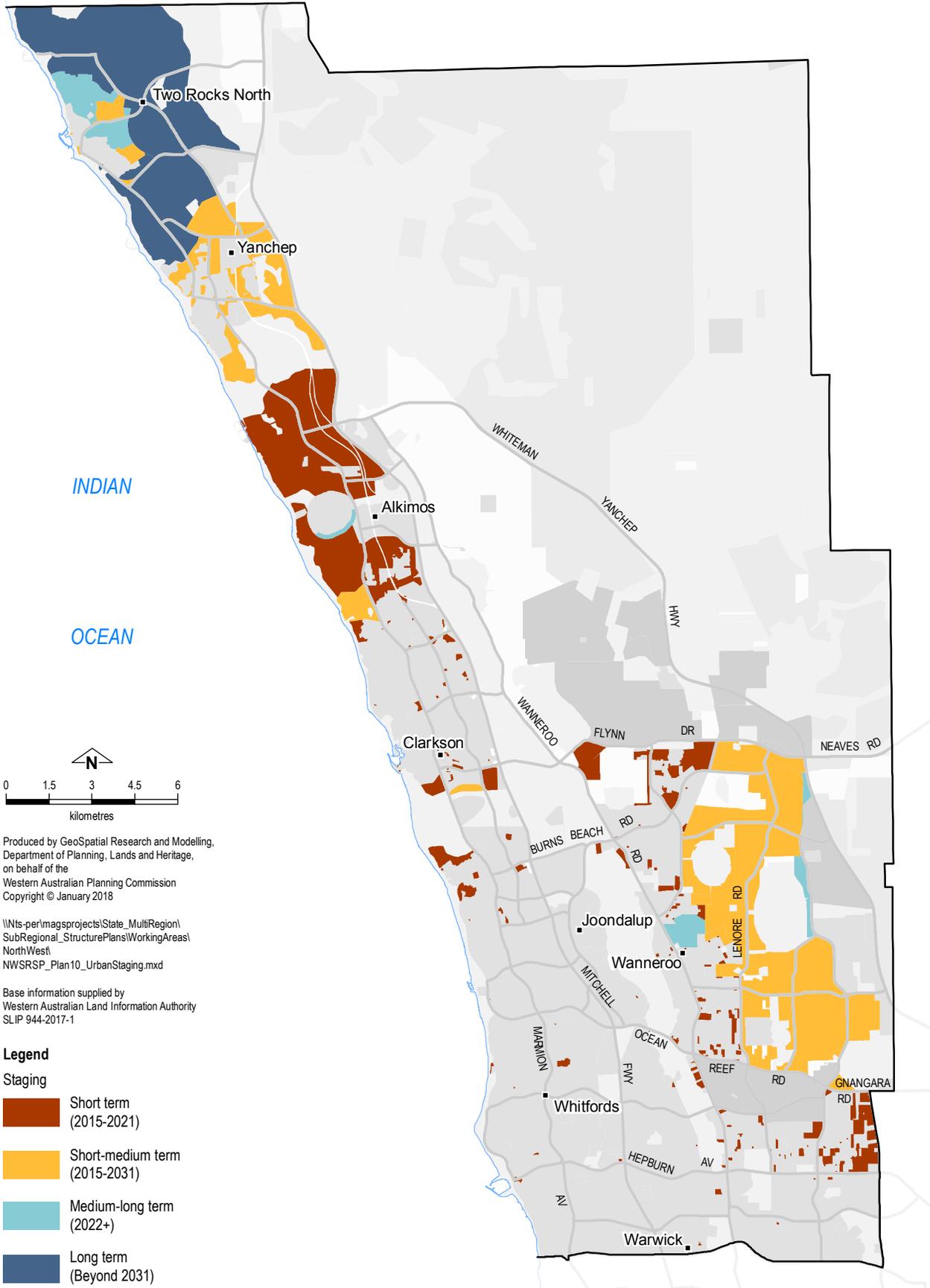
Staging	Timeframe*	Urban land demand**
Short-term	up to 2021	1,610 hectares
Medium-term	2022–31	2,300 hectares
Long-term	2032–50	4,370 hectares
	2015–50	Total: 8,280 hectares

Source: WAPC, 2016

* Urban land demand calculated for the period 2015–50

** Urban land demand based on average consumption of 230ha per year





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Base information supplied by
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Legend

Staging

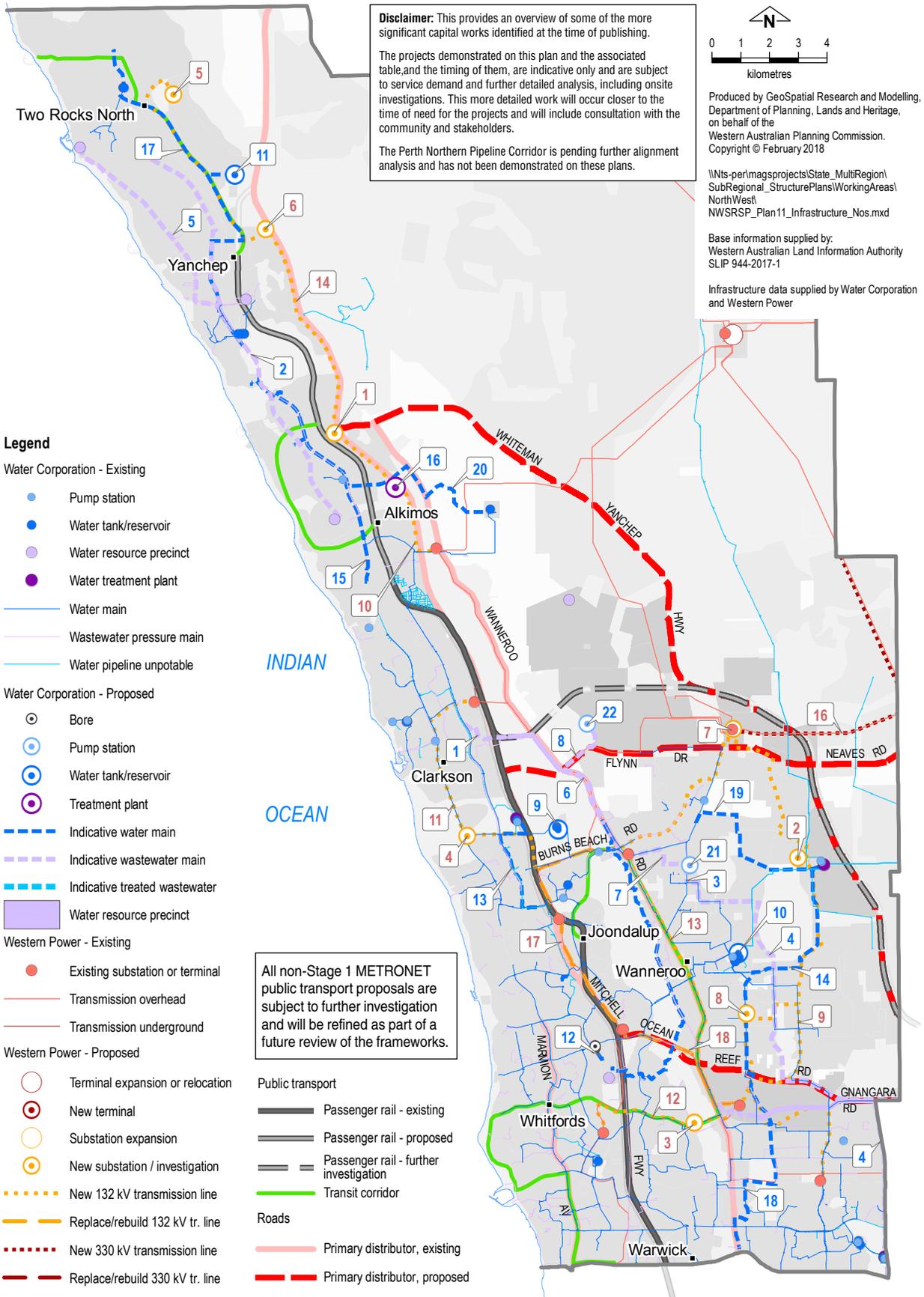
- Short term (2015-2021)
- Short-medium term (2015-2031)
- Medium-long term (2022+)
- Long term (Beyond 2031)

PLAN 10: Urban staging

The following criteria need to be addressed, as they apply to a proposal, in order to obtain support from the WAPC for any proposal that is not sequential and/or is inconsistent with the timeframe depicted in the staging plan.

- The proposal represents a logical expansion and consolidation of the existing developed urban form.
- The proposal is compatible with the economic development of the area and the planned provision of employment opportunities for the projected population within the sub-region.
- The development can be readily accessed without the provision of additional transport infrastructure, unless that infrastructure is already funded.
- The proposal will not detrimentally impact upon the staging timeframes of other urban land, in terms of the ability to service other land.
- Agreed and finalised funding arrangements are in place with essential service providers, acknowledging that funding is the responsibility of the landowner, unless provided for in a current capital works program of the relevant servicing authority.
- Servicing can be economically provided over its lifespan.





PLAN 11: Infrastructure staging

TABLE 9: Infrastructure staging

North-West

Short-term (2015 - 2021)	Water and wastewater	
	1	Quinns Main Sewer
	12	Perth Groundwater Replenishment Scheme
	13	Neerabup Groundwater Expansion
	4	Ellenbrook Wastewater Pressure Main Duplication and Extension (staged)
Public transport		
Joondalup Rail Line – extend from Butler to Yanchep		
Yanchep Rail Station		
Alkimos Rail Station		
Eglinton Rail Station		
Medium-term (2022 - 2031)	Electricity supply	
	1	New 132kV Infrastructure Substation Alkimos
	2	New 132kV Infrastructure Substation Mariginiup (East Wanneroo)
	3	New 132kV Infrastructure Substation Padbury / Wangara
	4	New 132kV Infrastructure Substation Burns Beach
	9	New 132kV Infrastructure Line Route Neerabup to Wangara to Landsdale
	10	New 132kV Infrastructure Line Route Alkimos to Two Rocks
	11	New 132kV Infrastructure Line Route Burns Beach to Clarkson
	12	New 132kV Infrastructure Line Route Padbury to Wangara
	17	Upgrade 132kV Infrastructure Line Route Wanneroo to Joondalup to Mullaloo
	Water and wastewater	
	2	Yanchep Main Sewer
	5	Two Rocks Pressure Main
	6	Wanneroo Road Pressure Main Duplication
	9	Neerabup Reservoir Duplication
	14	Wanneroo South Groundwater Expansion (Stage 1)
	15	Eglinton Groundwater Source Development
	16	Eglinton Two Rocks Groundwater Source Water Treatment Plant
	17	Yanchep Groundwater Expansion (Stage 1)
	21	Jandabup Wastewater Pump Station
	Road network	
	Mitchell Freeway (staged) extension to Alkimos/Eglinton	
	Whiteman - Yanchep Highway (staged) constructed to link Tonkin Highway with Neaves Road	
Upgrade Gnangara Road/Ocean Reef Road		
Upgrade Neaves Road/Flynn Drive		
Public transport		
High Priority Transit Corridor – Joondalup - Whitfords		
High Frequency Transit Corridor - Alkimos - Eglinton		
Cycling network		
Expand off-road network within Perth and Peel regions		



TABLE 9: Infrastructure staging (continued)

Long-term (2031 - 2050)	Electricity supply	
	5	New 132kV Infrastructure Substation Two Rocks
	6	New 132kV Infrastructure Substation Yanchep Town
	7	New 132kV Infrastructure Substation Neerabup
	8	New 132kV Infrastructure Substation Hocking
	13	New 132kV Infrastructure Line Route Neerabup to Wanneroo to Mullaloo to Wangara
	14	New 132kV Infrastructure Line Route Alkimos to Two Rocks
	15	New 330kV Infrastructure Terminal Pinjar
	16	New 330kV Infrastructure Line Route Neerabup to Northern to Muchea
	18	Upgrade 132kV Infrastructure line Mullaloo to Wangara
	Water and wastewater	
	3	Jandabup Gravity Sewer
	7	Jandabup Pressure Main
	8	Neerabup Pressure Main
	10	Wanneroo Reservoir Pond No. 3
	11	Yanchep Water Tank/s staged ground and HL storage tank
	18	Wanneroo South Groundwater Expansion Stage 2
	19	Wanneroo West Groundwater Expansion
	20	Eglinton Carabooda Trunk Main
	22	Neerabup Wastewater Pump Station
	Road network	
		Mitchell Freeway (staged) extend to Indian Ocean Drive
		Whiteman Yanchep Highway (staged) extend to Mitchell Freeway
	Public transport	
		Further Investigation – Circle Line – Joondalup Line to Ellenbrook Line connection
		High Priority Transit Corridor – Yanchep – Two Rocks
Cycling network		
	Expand off-road network within Perth and Peel regions	
	River and Lake Crossings – Lake Joondalup and Lake Goollelal bridges	

Notes:

1. Subject to further review of Planning Investigation areas.
2. The projected timing of transport infrastructure will be subject to population growth rates. The relationship between projected timing and population is as follows:
 - 2031 – 2.9 million people
 - 2050 – 3.5 million people
3. Infrastructure item reference numbers correspond to infrastructure proposals in Plan 11.
4. Table 9 provides an overview of the more significant capital works identified at the time of publishing. The projects and their timing are indicative and subject to service demand and further detailed analysis.
5. All non-Stage 1 METRONET public transport proposals are subject to further investigation and will be refined as part of a future review of the Frameworks.
6. Traditional electricity infrastructure may be complemented by more innovative electricity supply models such as microgrids, embedded renewable energy generation and energy storage systems.
7. Many items listed are yet to be subject to financial analysis and business case development as part of the annual Budget process.



4.3 Infrastructure coordination

Fundamental to the delivery of land for development within the sub-region is the need for the coordinated and planned provision of infrastructure. Improvements to the coordination of infrastructure delivery are reflected by the recently developed Infrastructure Coordination Framework (ICF) administered through the WAPC's Infrastructure Coordinating Committee (ICC).

The ICF has been developed to assist the ICC to bring about greater alignment of strategic land use and infrastructure plans. This mechanism will encourage collaboration among infrastructure agencies and result in greater coordination outcomes including asset colocation opportunities, synergies, and economies of scale.

The ongoing monitoring of land supply and infrastructure provision, including review of the anticipated timing for infrastructure delivery (as specified in Plan 11 and Table 9 of the framework) will ensure that land use and infrastructure data remains current and responsive to urban and employment land consumption.

Identification of infrastructure supply opportunities which provide the basis for improved demand forecasting and network optimisation will facilitate greater responsiveness and adaptability to changing population and demographic and social trends, with a focus on the development and application of new technologies and innovation.

Concurrent with these initiatives, the State Government has committed to establishing Infrastructure WA to focus on strategic infrastructure planning, which will provide advice to Government in the form of a 20 year infrastructure strategy that will set out infrastructure priorities that will guide State Government decision-making.

4.4 Monitoring and review

The framework will be reviewed after three years to ensure that it remains responsive to changes, challenges and community expectations as the sub-region develops.

The delivery of additional infill housing opportunities associated with METRONET services that are currently being developed may lead to the need to revise infill targets and/or the staging of greenfield development through the review process.

Monitoring and reporting on progress towards delivering the framework will inform government, industry and the wider community about the progress of delivering the framework. It will be integral to the practice of evidence-based policy interventions that can respond to the challenges of a rapidly changing and growing city.



GLOSSARY, REFERENCES AND APPENDICES



Glossary

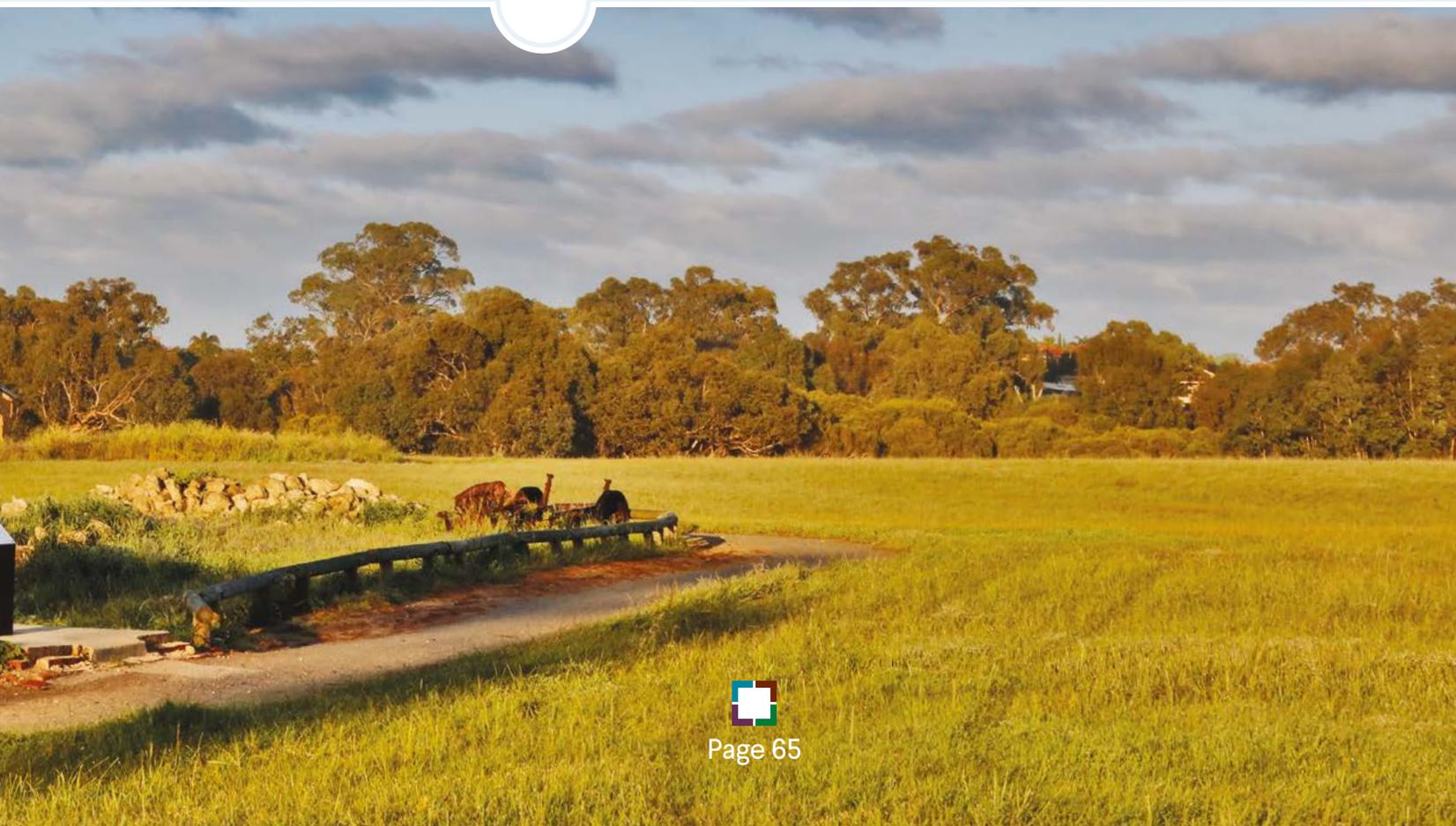
Activity centres: are community focal hubs. They comprise uses such as commercial, retail, higher-density housing, entertainment, tourism, civic/community, higher education and medical services. Activity centres vary in size and diversity and are designed to be well-served by public transport.

Affordable housing: refers to dwellings that households on low-to-moderate incomes can afford, while meeting other essential living costs. Affordable housing includes public housing, not-for-profit housing and other subsidised

housing under the National Rental Affordability Scheme, together with private rental and home ownership options for those immediately outside the subsidised social housing system.

Affordable living: recognises that direct rental or mortgage payments are not the only costs that households incur. Other expenses include the consumption of water, gas and electricity, property fees and taxes, the cost of transport (to work, education and shopping) and the price of food.

Agglomeration: is the phenomenon whereby businesses become more productive through proximity to other businesses. This occurs in a number of ways, for example when a small number of shops or restaurants cluster in a neighbourhood, or when businesses in similar industries cluster together such as with the information technology industry in Silicon Valley. Agglomeration economies come from the local density and diversity of businesses, workers and residents and exist whenever people become more productive through proximity to others.



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

Bush Forever: is the State Government's strategic plan to protect sites of regionally-significant bushland within the Swan Coastal Plain portion of the Perth metropolitan region.

Coastal Urban Growth Corridor: area of urban development extending along the coastline in the North-West sub-region, which extends from Butler-Jindalee north to Yanchep-Two Rocks, being the northern extent of the Perth metropolitan region.

Dwelling: is a self-contained suite of rooms, including cooking and bathing facilities, intended for long-term residential use. Units (whether self-contained or not) within buildings offering institutional care (such as hospitals) or temporary accommodation (such as motels, hostels and holiday apartments) are not defined as dwellings.

Emerging activity centres: are centres as identified within *State Planning Policy 4.2 Activity Centres for Perth and Peel*, which includes centres which have been identified and/or approved, but have not yet become established.

Employment density: is the total employment of a selected geography divided by the total size of the selected geography (gross land area in hectares).

Employment self-sufficiency: is the ratio (expressed as a percentage) of the total labour force (local residents who are employed or seeking employment) of a defined area relative to the total number of jobs available in that area. A percentage above 100 indicates a region has more jobs locally than resident workers.

Green network: consists of public and private open spaces. The green network includes Bush Forever sites, national and regional parks, district and local parks, sports fields, school grounds, community facilities, golf courses, foreshores and beachfront areas connected by streetscapes, trails, cycle paths and pedestrian footpaths.

High Frequency Transit Corridor: where public transport services are available at a frequency of five minutes in peak times and 15 minutes out of peak times.

High Priority Transit Corridor: where high frequency public transport is facilitated through the use of traffic signalling priority, queue jumps at traffic lights or dedicated lanes.

Infrastructure Coordination Framework: a dynamic spatial and reporting tool assisting the Infrastructure Coordinating Committee to facilitate greater alignment of strategic land use and infrastructure plans through a revised Infrastructure Planning Cycle for Government.

Industrial: is land identified for industrial use, to provide for manufacturing industry, the storage and distribution of goods and associated uses.

Industrial Expansion: is land identified for future industrial development.

Industrial Investigation: is land that may be suitable for industrial development, but requires further investigation to determine its suitability and/or refinement of the area available for industrial use.

Infill or urban infill: is the redevelopment of existing urban areas at a higher density than currently exists.

Knowledge-based economy: is any economy based on creating, evaluating and trading knowledge. It describes a trend in advanced economies towards a greater dependence on knowledge, information and high skill levels.



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

Labour force: is the total number of local residents who are participating in the labour force (i.e. those employed plus those seeking work).

Liveability: encompasses the many characteristics that make a place desirable for people to live.

Local planning strategy: is a local-level planning framework that provides strategic direction for land use and development in a local government area and is used to guide or inform the content of statutory local planning schemes.

Local planning schemes: are statutory planning schemes developed by local governments to regulate land use planning at a local scale. Land uses within a local planning scheme are required to be consistent with broad land uses assigned under the relevant region scheme.

Natural resources: are naturally-occurring elements such as water, solar, wind and wave energy, wood, coal and other minerals and fertile land.

New activity centres: are proposed centres, not identified within *State Planning Policy 4.2 Activity Centres for Perth and Peel*, necessary to ensure that new urban areas have access to services in close proximity to where people live.

New urban areas (greenfield areas): undeveloped land that has been identified for future urban use as an Urban Expansion or Urban Investigation area.

Open Space Investigation: is land that may be suitable for open space (nature/passive recreation) purposes but requires further investigation to determine its suitability and/or refine its area.

Population-driven employment: is employment associated with a growing residential population.

Planning Investigation: is land that will be subject to further planning investigation/s to consider its suitability, and the area of land to be identified, for a possible change of use.

Priority agricultural land: land of State, regional or local significance for food production purposes, due to its collaborative advantage in terms of soils, climate, water (rain or irrigation) and access to services.

Private self-supply (water): water use for private non-potable purposes such as public open space, industry and agriculture. Historically sourced from groundwater.

Public drinking water source area: the area from which water is captured to supply drinking water. It includes all underground water pollution control areas, catchment areas and water reserves constituted under the *Metropolitan Water Supply Sewerage and Drainage Act 1909* or the *Country Areas Water Supply Act 1947*.

Quality of life: is used to describe the general wellbeing of individuals and societies.

Recreation spaces: provide a setting for informal play and physical activity, relaxation and social interaction.

Region Planning Schemes: are the statutory regional planning schemes for the Perth and Peel regions (*Metropolitan Region Scheme and Peel Region Scheme*) and are the principal statutory mechanisms for the implementation of strategic land use and infrastructure proposals. These schemes provide for the acquisition of land (and waterways) where reserved for public purposes including regional open space, public uses and infrastructure.



Residential density targets: were established in *Directions 2031 and Beyond* and require new areas and structure plans under review to adhere to a target of 15 dwelling units per gross hectare of Urban zoned land, therefore excluding land comprised within all other zones and reserves under the applicable region scheme. Also refer to residential site density.

Residential site density: a residential density target needs to be translated into residential site density of 26 dwellings per residential site hectare. This is defined as the number of dwellings on land that is zoned residential under local planning schemes or structure plans, and excludes all non-urban regional reservations in the region schemes and non-residential zones in local planning schemes such as local road reserves, local reserves for sport and recreation, primary schools, commercial/ activity centres and offices. Also refer to residential density targets.

Rural living: an umbrella term used to describe a range of zones that provide for low density residential uses in an estate or precinct, generally characterised by a grouping of lots in the order of one to 40 hectares. Rural living zones include those named rural living, rural retreat, rural residential, special rural, rural smallholdings,

rural conservation and landscape protection. Although primary production land uses may occur within some rural living zones, they must be incidental to and compatible with the primary rural living intent and purpose of the zone.

Rural Residential: a sub-set of rural living and a land use zone with land parcels from one to four hectares in size.

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

Spatial plan: land use and infrastructure plan for Perth and Peel (Figure 4).

Sports spaces: provide a setting for formal structured sporting activities.

State forest: is a predominantly woodland area located on Crown land that may provide for conservation, recreation, water protection, timber production or extraction of basic raw materials.

Strategic economy and employment: is associated with the production and transfer of goods, services and knowledge predominantly to serve markets beyond the immediate location or catchment. Also known as 'traded clusters', as distinct from 'local clusters', which comprise industries that serve local population and business driven demand.

Structure plan: a plan for the coordination of future subdivision and zoning of an area of land.

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

Total dwellings: occupied and unoccupied dwellings.

Transit-oriented development: is an urban development around public transport stations that increases use of public transport. The aim is to locate moderate-to-high intensity commercial, mixed-use, community and residential development close to train stations and/or transit corridors to encourage public transport use over private vehicles.



Urban: land identified for urban use (Urban or Urban Deferred zoned land in the *Metropolitan Region Scheme*), such as residential and associated activity and bulky goods/light industry employment centres, recreation and open space.

Urban consolidation: includes infill and greenfield development through increased densities and/or the logical extension or 'rounding off' of existing urban and industrial areas to more-effectively utilise existing social, service and transport infrastructure.

Urban corridors: the focus for higher-density residential development. Where appropriate, located along transit corridors and promoted as attractive places to live by optimising their proximity to public transport while ensuring minimal impact on the surrounding urban fabric and the operational efficiency of the regional transport network.

Urban Expansion: is land that has been identified for future urban development.

Urban Investigation: is land that may be suitable for urban development, but requires further investigation to determine its suitability and/or refine the area available for urban use.

Water resource precinct: is an infrastructure site identified by the Water Corporation for the provision of water and wastewater related services.



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Metropolitan Region Scheme, and associated amendments.

Planning and Development Act 2005 (WA)

State planning policies

State Planning Policy 1 State Planning Framework (Variation No 2) (February 2006)

State Planning Policy 2.2 Gnamagara Groundwater Protection (August 2005)

State Planning Policy 2.4 Basic Raw Materials (July 2000)

State Planning Policy 2.5 Rural Planning (December 2016)

State Planning Policy 2.6 State Coastal Planning (July 2013)

State Planning Policy 2.7 Public Drinking Water Source Policy (June 2003)

State Planning Policy 3.7 Planning in Bushfire Prone Areas (December 2015)

State Planning Policy 4.2 Activity Centres for Perth and Peel (August 2010)

State Planning Policy 5.2 Telecommunications Infrastructure (September 2015)

State Planning Policy 5.4 Road and Rail Transport Noise and Freight Considerations in Land Use Planning (September 2009)

Structure plans

City of Joondalup

*Joondalup City Centre
Development Manual (1995)*

*Joondalup City Centre Structure
Plan (draft December 2012)*

*Whitfords Activity Centre Structure
Plan (draft March 2013)*

City of Wanneroo

*Alkimos Eglinton District Structure
Plan (December 2010)*

*Butler District Centre Activity
Centre Structure Plan No. 87
(June 2014)*

*Butler–Jindalee Agreed District
Structure Plan No. 39
(October 2006)*

*Clarkson Activity Centre Agreed
Structure Plan (May 2012)*

*East Wanneroo Cell 2 (Sinagra)
Agreed Structure Plan No. 4
(June 2004)*

*East Wanneroo Cell 8 (Wangara)
Agreed Structure Plan No. 10 (May
2002)*

*East Wanneroo Cell 9 (East
Landsdale) Structure Plan No. 57
(draft) (2012)*

*Kingsway Activity Centre Structure
Plan (November 2011)*

*Neerabup Industrial Area Structure
Plan No. 17 (January 2005)*

*Tamala Park Local Structure Plan
No. 79 (February 2013)*

*Yanchep–Two Rocks District
Structure Plan (November 2010)*

*Yanchep City Centre Local
Structure Plan No. 68 (August 2012)*



Appendix 1 – Consolidated urban form

TABLE 1.1: Existing and projected dwellings and population 2011–50

Local government	Existing dwellings (2011)	Existing population (2011)	Additional dwellings (2050)	Additional population (2050)	Total dwellings (2050)	Total population (2050)
Joondalup	58,560	162,210	22,630	41,350	81,190	203,560
Wanneroo	56,360	160,280	146,160	376,490	202,520	536,770
Total	114,920	322,490	168,790	417,840	283,710	740,330

The information in Table 1.1 identifies the existing and projected number of dwellings and population for the sub-region in 2011 and 2050, based on the draft framework scenario.

TABLE 1.2: Additional dwelling and population capacity

Category	Gross site area (ha)	Additional dwellings	Additional population
Infill	-	48,590	106,900
Undeveloped Urban and Urban Deferred	7,370	85,580	259,310
Urban Expansion/ Investigation	3,090	36,810	111,520
Total	10,460	170,980	477,730

Table 1.2 identifies the additional dwelling and population capacity for the proposed consolidated urban form, including infill, undeveloped Urban and Urban Deferred zones (MRS), Urban Expansion and Urban Investigation areas. The consolidated urban form has:

- capacity for approximately 28 per cent of the additional dwellings in the sub-region to be provided in established urban areas as infill, with population based on an occupancy rate of 2.2 people per dwelling;
- an urban land supply of approximately 45 years, based on an average consumption of 230 hectares per annum, excluding infill development;
- new urban areas based on achieving the minimum average density targets of 15 dwelling units per gross hectare of Urban zoned land and an occupancy rate of 3.03 people per dwelling;
- made allowance for land required for future region scheme reservations, major drainage requirements and retention of environmental attributes; and
- excluded land classified Planning Investigation.



TABLE 1.3: Urban deferred land – key issues

Site	Issue(s) requiring resolution
Tamala Park	Tamala Park rubbish disposal site buffer
Alkimos Waste Water Treatment Plant	Waste water treatment plant buffer
Lot 1665 Wanneroo Road, Sinagra	Poultry farm buffer

Table 1.3 identifies sites that, given their land use or surrounding land uses, are likely to remain Urban Deferred in the longer term. Other sites currently zoned Urban Deferred that are likely to be suitable for urban development in the shorter term are identified as Urban on Plan 1 – Planning Framework. These sites will still be subject to a request for lifting of urban deferment under the MRS and require further detailed planning.

TABLE 1.4: Urban infill dwelling targets by local government

Local government	2011–16	2016–21	2021–26	2026–31	Total 2031	Post-2031	Total infill (2050)
Joondalup	4,630	2,980	2,840	1,660	12,110	8,560	20,670
Wanneroo	5,560	4,070	3,860	2,870	16,360	11,560	27,920
Total	10,190	7,050	6,700	4,530	28,470	20,120	48,590

The proposed consolidated urban form places a greater emphasis on infill dwellings with the introduction of minimum infill dwelling targets. To assist in the preparation of local planning strategies, Table 1.4 provides a timing projection for the minimum infill dwelling targets for each respective local government in five-year intervals.



Appendix 2 – Economy and employment

TABLE 2.1: Employment self-sufficiency 2011–50

Indicator	2011	2050	Total change	Total % change
Population	322,490	740,330	417,840	129.6%
Labour force	163,640	376,390	212,750	130.0%
Jobs	80,570	224,130	143,560	178.2%
Employment self-sufficiency	49.2%	59.5%	10.3%	-

Employment self-sufficiency measures the quantity of jobs available in a given area as a proportion of that area's resident labour force (expressed as a percentage). A percentage above 100 indicates that a region has more jobs locally than resident workers (and is therefore a net importer of labour). Note the total change presented for employment self-sufficiency in Table 2.1 represents a percentage point change from 2011 to 2050.

Adjustments were made to employment self-sufficiency estimates in the 2001, 2006 and 2011 Census data, published in the *Delivering Directions Annual Report Card 2013*, to account for and redistribute census respondents not indicating where in Western Australia their job is located. This provides a higher estimate of employment and subsequently higher employment self-sufficiency.

The projections in Table 2.1 are based on the draft framework scenario and exclude consideration of Planning Investigation areas.

TABLE 2.2: Activity centre hierarchy

Hierarchy classification	Activity centre		
Strategic metropolitan centre	Joondalup Yanchep*		
Secondary centre	Alkimos* Clarkson Two Rocks North*	Wanneroo Warwick Whitfords	
District centre	Alexander Heights Butler* Currambine Eglington*	Girrawheen Greenwood Madeley Neerabup	Sorrento Woodvale Yanchep Centres C*, E*, F* and K*

Sources: *State Planning Policy 4.2 Activity Centres for Perth and Peel* and *Yanchep–Two Rocks District Structure Plan*

* Denotes emerging centre

Table 2.2 sets out the key activity centres for the sub-region, including existing, emerging and new centres.



TABLE 2.3: Anticipated job numbers for activity centres

Activity centre	2011	2050	Total additional (2011–50)
Strategic metropolitan centres			
Joondalup	14,180	30,180	16,000
Yanchep	0	8,280	8,280
Secondary centres			
Alkimos	30	5,770	5,740
Clarkson	1,530	3,080	1,550
Two Rocks (north)	0	9,820	9,820
Wanneroo	1,620	8,800	7,180
Warwick	1,510	2,330	820
Whitfords	2,870	3,680	810

Table 2.3 reflects the anticipated job numbers for strategic metropolitan centres and secondary centres within the sub-region from 2011 to 2050. The job numbers are a projection only, based on the draft framework scenario and subsequent refinements following public consultation. These numbers may vary due to a number of factors including, but not limited to, the economy and infrastructure provision. It should be noted that the Yanchep Strategic Metropolitan Centre will have significant capacity for job growth post-2050.

TABLE 2.4: Industrial land demand

Timeframe	Gross demand (ha)
To 2021	345
2022 to 2031	490
Post 2031	935
Total	1,770

The projected demand for non-strategic industrial land is based on the draft framework scenario average demand of 49.2 hectares (gross) per annum. The total number of years addressed within the demand is 36 (2015 to 2050 inclusive).



TABLE 2.5: Industrial centres – proposed land supply

Site	Gross Area (ha)*	Sub-regional Planning Framework
Metropolitan Region Scheme undeveloped industrial**	1,040	Industrial
South Pinjar	390	Industrial Investigation
North Pinjar	300	Industrial Investigation
Nowergup	1,080	Industrial Investigation
Jandabup	450	Industrial Investigation
Total	3,260	

* Gross area is site area prior to deductions for environmental and other features such as roads and buffers (as at 2014).

** Excludes future service industrial/bulky goods uses within Urban areas, i.e - Yanchep, Butler and Alkimos.

It is anticipated that industrial job growth will be concentrated within Neerabup, Nowergup, North Pinjar, South Pinjar and Jandabup with a total of approximately 19,000 additional jobs being provided in these centres by 2050. The Wangara industrial centre will also contribute approximately 4,700 additional jobs by 2050. These job numbers are a projection only, based on the draft framework scenario, and may vary due to a number of factors including the economy, extraction of basic raw materials and provision of infrastructure.



APPENDIX 3 – Environment and landscape

TABLE 3.1: Land reserved for parks and recreation/regional open space and State forest - region schemes

Region/sub-region	Parks and Recreation/ Regional Open Space (Ha)	State forests (Ha)	Total reserved (Ha)
Central	5,460	-	5,460
North-West	26,710	16,280	42,990
North-East	47,440	32,530	79,970
Eastern sector	21,580	65,000	86,580
Western sector	10,980	-	10,960
Peel sector	33,320	98,880	132,200
Total Perth and Peel	145,490	212,690	358,180

Table 3.1 identifies the amount of land reserved within the Perth Metropolitan and Peel Region Schemes for parks and recreation and State forests in 2016.

